



NetSure™

LMS Data Processing Unit

User Manual (Section 5847), Revision ZA

Specification Number: 586505000 and 586505500

Model Number: LMS1000

Firmware Version 12.3

Also for the LMS Monitoring System factory integrated into Spec. Nos.
582140000, 582140001, and 582126100 NetSure™ Power Systems (NPS)

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Technical Support Site

If you encounter any installation or operational issues with your product, check the pertinent section of this manual to see if the issue can be resolved by following outlined procedures.

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ADMONISHMENTS USED IN THIS DOCUMENT



DANGER! Warns of a hazard the reader *will* be exposed to that will *likely* result in death or serious injury if not avoided. (ANSI, OSHA)



WARNING! Warns of a potential hazard the reader *may* be exposed to that *could* result in death or serious injury if not avoided. This admonition is not used for situations that pose a risk only to equipment, software, data, or service. (ANSI)



CAUTION! Warns of a potential hazard the reader *may* be exposed to that *could* result in minor or moderate injury if not avoided. (ANSI, OSHA) This admonition is not used for situations that pose a risk only to equipment, data, or service, even if such use appears to be permitted in some of the applicable standards. (OSHA)



ALERT! Alerts the reader to an action that *must be avoided* in order to protect equipment, software, data, or service. (ISO)



ALERT! Alerts the reader to an action that *must be performed* in order to prevent equipment damage, software corruption, data loss, or service interruption. (ISO)



FIRE SAFETY! Informs the reader of fire safety information, reminders, precautions, or policies, or of the locations of fire-fighting and fire-safety equipment. (ISO)



SAFETY! Informs the reader of general safety information, reminders, precautions, or policies not related to a particular source of hazard or to fire safety. (ISO, ANSI, OSHA)

STATIC WARNING



This equipment contains static sensitive components. The warnings listed below must be observed to prevent damage to these components. Disregarding any of these warnings may result in personal injury or damage to the equipment.

1. Strictly adhere to the procedures provided in this document.
- 2.
3. Do not touch traces or components on equipment containing static sensitive components. Handle equipment containing static sensitive components only by the edges that do not have connector pads.
4. After removing equipment containing static sensitive components, place the equipment only on conductive or anti-static material such as conductive foam, conductive plastic, or aluminum foil. Do not use ordinary Styrofoam™ or ordinary plastic.
5. Store and ship equipment containing static sensitive components only in static shielding containers.
6. If necessary to repair equipment containing static sensitive components, wear an appropriately grounded wrist strap, work on a conductive surface, use a grounded soldering iron, and use grounded test equipment.

FCC INFORMATION

The MCA Interface Modem Option (if installed) has been granted a registration number by the Federal Communications Commission, under Part 68 rules and regulations for direct connection to the telephone lines. In order to comply with these FCC rules, the following instructions must be carefully read and applicable portions followed completely:

Direct connection to the telephone lines may be made only through the standard plug- ended cord furnished to the utility installed jack. No connection may be made to party or coin phone lines. Prior to connecting the device to the telephone lines, you must:

Call your telephone company and inform them you have an FCC registered device you desire to connect to their telephone lines. Give them the number(s) of the line(s) to be used, the make and model of the device, the FCC registration number and ringer equivalence. This information will be found on the device or enclosed with instructions as well as the jack suitable for your device.

After the telephone company has been advised of the above you may connect your device if the jack is available, or after the telephone company has made the installation.

Repairs may be made only by the manufacturer or his authorized service agency. Unauthorized repairs void registration and warranty. Contact seller or manufacturer for details of permissible user performed routine repairs, and where and how to have other than routine repairs.

If, through abnormal circumstances, harm to the telephone lines is caused, it should be unplugged until it can be determined if your device or the telephone line is the source. If your device is the source, it should not be reconnected until necessary repairs are affected.

Should the telephone company notify you that your device is causing harm, the device should be unplugged. The telephone company will, where practicable, notify you, that temporary discontinuance of service may be required. However, where prior notice is not practicable, the telephone company may temporarily discontinue service, if such action is reasonably necessary, in such cases the telephone company must (A) Promptly notify you of such temporary discontinuance, (B) Afford you the opportunity to correct the condition and (C) Inform you of your rights to bring a complaint to the FCC under their rules.

The telephone company may make changes in its communications facilities, equipment, operations or procedures, where such action is reasonably required in the operation of its business and is not inconsistent with FCC rules. If such changes can be reasonably expected to render any customer's devices incompatible with telephone company facilities, or require modification or alteration, or otherwise materially affect its performance, written notification must be given to the user, to allow uninterrupted service.

The following information is provided here and on a label attached to the outside of the MCA Interface Modem Option (if installed).

JACK	RINGER EQUIVALENCE	FCC REGISTRATION NUMBER
RJ-11	0.2A	B46USA-22429-MM-E

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INTRODUCTION

Preface

This document (Section 5847) provides User Instructions for Monitoring System Model **LMS1000**, Spec. Nos. **586505000** and **586505500**. These instructions also provide procedures for the integrated LMS of Spec. Nos. **582140000**, **582140001**, **582126100** Power Systems.

For Installation Instructions, refer to Section 5879 located in the separate INSTALLATION MANUAL. Installation instructions are also provided on the CD (Electronic Documentation Package) furnished with your system.

Refer to SAG586505000/SAG586505500 (System Application Guide) for additional information. The SAG can be accessed via the CD (Electronic Documentation Package) furnished with your system.



NOTE! The LMS cabinet (Spec. No. 586505000/586505500) can be used in Vortex® Power Systems (VPS) and NetSure™ Power Systems (NPS). The LMS is also factory integrated (w/out using the Spec. No. 586505000/586505500 cabinet) into Spec. Nos. 582140000, 582140001, and 582126100 NetSure™ Power Systems (NPS). In this document, reference to an LMS in a VPS or NPS using the Spec. No. 586505000/586505500 cabinet will be VPS/NPS (LMS commands and responses specific to this interface use 'NETSURE'). Reference to an LMS in a Spec. No. 582140000, 582140001, and 582126100 NPS Power System will be NPS (LMS commands and responses specific to this interface use 'NPS')

What is LMS1000

- LMS1000 is a programmable monitoring, controlling, and data acquisition system designed for use in telecommunications power sites.
- LMS1000 can be equipped to monitor analog, binary, and temperature inputs.
- LMS1000 collects data on the monitored inputs. The data collected is used for alarm processing and reporting, and to provide statistics.
- LMS1000 is capable of reporting alarm conditions to a remote terminal, pager, or Email address. For remote terminal or pager notification, the Main CPU circuit card must be equipped with an optional modem. Two types of alarm reporting mechanisms are provided, System Alarm Reporting and Individual User Alarm Reporting.
- LMS1000 is capable of reporting alarm conditions via SNMP traps over Ethernet or via TL1 (over Ethernet) when the 'TL1 over Ethernet' option is ordered. TL1 is also available via a serial connection in 'direct mode'.
- The Main CPU circuit card provides programmable LEDs to allow local indication of alarm conditions or occurrences. For remote indication, the Main and/or Expansion Cabinets can be equipped with output circuit cards which provide programmable relays. These relays may also be used to control other equipment.
- LMS1000 easily interfaces with the MCA of Vortex® Power Systems (VPS) and NetSure™ Power Systems (NPS). This interface allows an LMS1000 user to remotely monitor, adjust, and control the Power System via LMS1000; plus easily use the features of LMS1000 with the Power System. Separate analog, binary, and relay circuit cards do not have to be supplied for this interface. Analog, binary, relay, and temperature circuit cards (I/O cards) can be provided to monitor equipment external to the Power

System. In a VPS/NPS, one simple cable connection between the Main Cabinet and the VPS/NPS completes the interconnections required. Note that the LMS1000 is factory integrated into Spec. Nos. 582140000, 582140001, and 582126100 NetSure Power Systems.

Note that Spec. Nos. 582140000, 582140001, and 582126100 NetSure Power Systems do not use the LMS1000 Cabinets. The LMS1000 is factory integrated into the Power Systems. Note that LMS1000 I/O circuit card mounting positions are provided inside a 582140000, 582140001, and 582126100 NetSure Power System.

- LMS1000 can be accessed via a local port, a modem port (when optional modem is ordered), an optional TL1 port, and an Ethernet port (for Telnet access, Web access, SNMP access, optional TL1 access, and Email alarm reporting). A local front panel display option is also available.
- Available software options include...

Power Metering
 Energy Management
 Rectifier/PCU Sequencing*
 TL1/X.25
 TL1 (over Ethernet)
 Gateway Port
 LMS Dual MCA Interface



NOTE! The LMS1000 sequencing feature is not for use in the Spec. Nos. 582140000, 582140001, and 582126100 Power Systems.

- Available specialty interfaces include...

Door Access Controller Interface
 External GPS Modem Interface
 AC Analyzer Interface

LMS1000 Consists Of...

- A Main Cabinet which holds up to ten input/output circuit cards, in a cabinet size that occupies two 19" or 23" relay rack spaces. For system expansion and/or to monitor points at other locations, Supplemental (Expansion) Cabinets are available. Each Expansion Cabinet holds up to ten input/output circuit cards, in a cabinet size that occupies two 19" or 23" relay rack spaces. Also available are Expansion Assemblies which provide an input circuit card equipped with a fixed number of analog and binary input points in a sheet-metal housing. These assemblies can be mounted inside customer equipment. The Main Cabinet, Expansion Cabinets, and Expansion Assemblies are interconnected via the LMS1000 network.
- A CPU circuit card, optional modem circuit card, and any combination of optional analog, binary, relay, and temperature input/output (I/O) circuit cards. Analog, binary, and temperature circuit cards monitor a variety of inputs. The relay circuit card provides Form-C relay contacts for connection to external alarms and control circuits. The CPU circuit card also contains programmable LED's for local indication of alarms or occurrences.
- Communications ports: Local Terminal Port, Remote (Modem) Terminal Port, VPS/NPS Ports, optional TL1 port, and Ethernet Port (for Telnet access, Web access, SNMP access, optional TL1 access, and Email alarm reporting). Additional OEM ports are provided. The functions of the OEM ports are

determined by the firmware. This allows the function to be manufacturer programmable for specific applications. A local front panel display option is also available.

- Firmware, which interfaces to the hardware and provides monitoring, alarm processing, alarm reporting, and controlling functions. Alarm processing includes statistics, status, and diagnostic information.
- Remote System Diagnostics.

Memory Test

Verify Integrity of Application Code

Verify Integrity of I/O Subsystem Communications

Check Status of I/O Cards

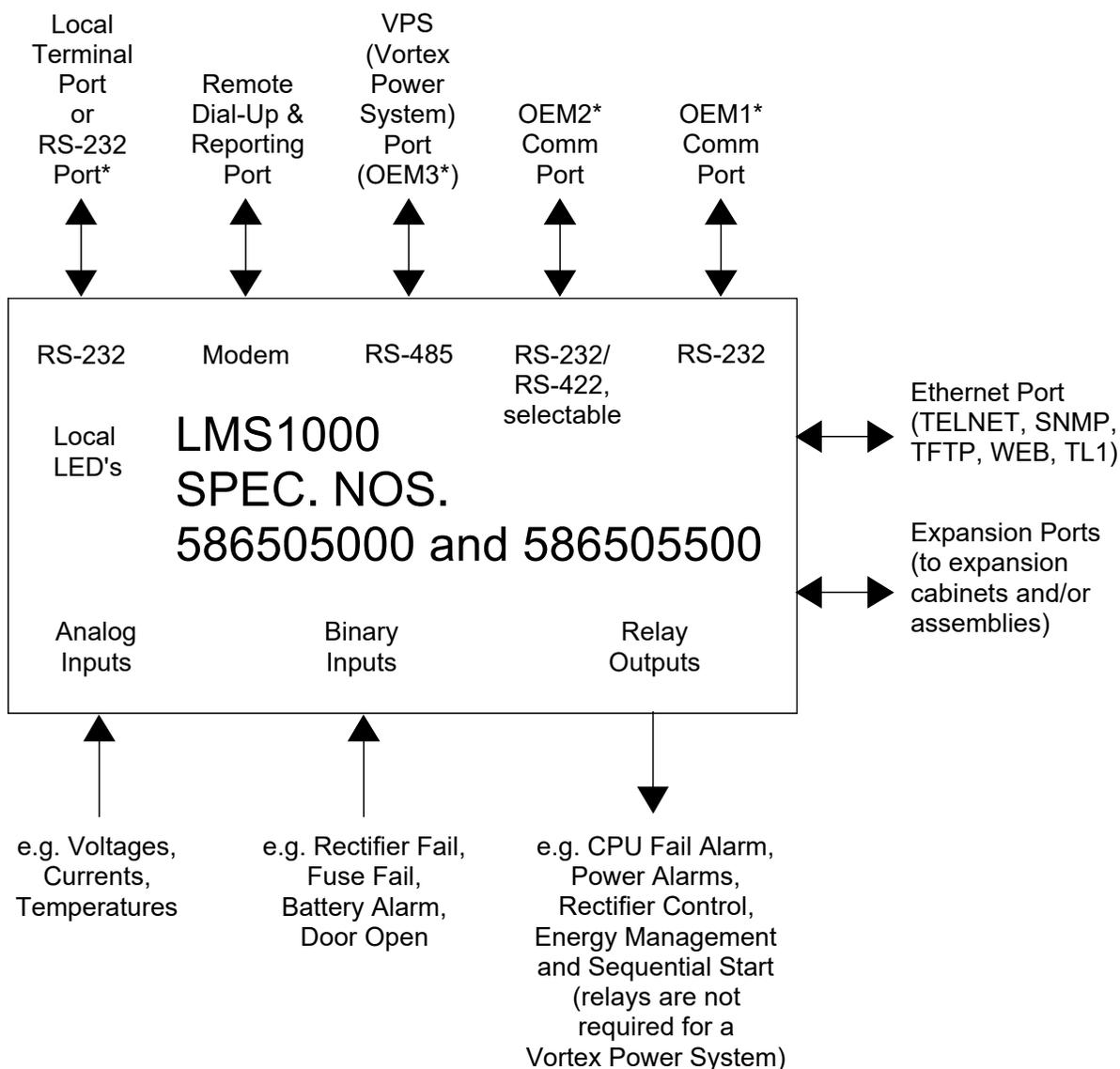
Verify Integrity of Communications and Operations

LMS1000 Provides...

- An extended temperature operating range.
- Lower monitoring costs.
- Smaller packaging size.
- Automatically detected (identified) I/O circuit cards. Circuit cards are automatically identified by system firmware on power-up.
- CPU Firmware can easily be upgraded by a Vertiv Co. service facility via a local or remote terminal interface.
- System configuration can easily be downloaded from LMS1000 to a PC (locally or remotely), and uploaded from a PC to LMS1000 (locally or remotely).
- Simplified installation via integration of distributed monitoring I/O hardware.
- Incremental expandability.
- Extensive self diagnostics.

Figure 1: Block Diagram (586505000/586505500 LMS1000 Cabinet)

(Note that Spec. Nos. 582140000, 582140001, and 582126100 Power Systems do not use the LMS1000 Cabinets. The LMS1000 is factory integrated into the Power Systems.)



* Software Dependent:

See Lists 60, 61, 79, 84, 85, 86, and 88 descriptions in SAG586505000/SAG586505500.

OPERATING LMS1000

LMS1000 Description

This section describes the hardware components, but most importantly, how the channel numbering scheme works inside the LMS1000 -- how discrete I/O points, Expansion Nodes, and MCA information are mapped to LMS1000 channels.

Components of LMS1000

The LMS1000 is a Monitoring System with Power System controlling capabilities. The components of the LMS1000 can easily be networked together to provide a multitude of monitoring and controlling configurations.

The LMS1000 consists of a **Main Cabinet** which houses the primary CPU circuit card, plus provides mounting slots for optional input/output (I/O) circuit cards. The I/O cards can be furnished to provide LMS1000 I/O points for connection outside of a Vertiv Co. "Power System".

An optional LMS1000 **Expansion Cabinet** which houses an expansion CPU circuit card is also available to allow for additional monitoring points, plus the Expansion Cabinet can be placed away from the Power System for extended monitoring applications. The Expansion Cabinet has the same physical footprint as the Main Cabinet, with the same number of slots for I/O cards.

Note that Spec. Nos. 582140000, 582140001, and 582126100 Power Systems do not use the LMS1000 Cabinets. The LMS1000 is factory integrated into the Power Systems.

In a 582140000, 582140001, or 582126100 Power System, the primary LMS1000 CPU circuit card is housed in the Primary Bay. The expansion LMS1000 CPU circuit cards are housed in the Secondary Bays. Both the Primary and Secondary Bays provide mounting slots for the optional LMS1000 I/O circuit cards.

The LMS1000 easily interfaces with the MCA (Meter-Control-Alarm) Assembly of a Vertiv Co. VPS and NPS Power System. There is no need for separate LMS1000 I/O circuit cards for this interface. All LMS1000 monitoring and controlling capabilities for the **MCA Interface** are built into the LMS1000 primary CPU circuit card.

An LMS1000 **Expansion Assembly** has been designed which is factory integrated into designated VPS Power Systems. This integration allows the Expansion Assembly to be built into the VPS Power System, thus eliminating the need for you to 'hard wire' the Power System's distribution shunts and FA/CBA leads to the LMS1000. Simple LMS1000 network connections are all that is required. The Expansion Assembly is also available for integration into customer equipment.

Note that the LMS1000 Monitoring System can consist of multiple Expansion Cabinets and Expansion Assemblies to suit your needs.

LMS1000 Channel Numbering Scheme

Inputs/Outputs (I/O) and Channels

The LMS1000 provides **analog** and **binary** input monitoring points, and extended **relay** contact output points. In addition, local front panel programmable **LEDs** are provided.

Each input and output point is directly associated with a channel. Thus there are LMS1000 **analog, binary, relay,** and **LED** channels.

In the LMS1000, you can combine two or more analog inputs into one **function** channel, and advance software options provide **energy management** channels. This adds **function** channels and **energy management** channels to the list of channel types in the LMS1000.

Nodes

In the LMS1000 system; the 586505000/586505500 Main Cabinet or 582140000/582140001/582126100 Primary Bay, the 586505000/586505500 Expansion Cabinets or 582140000/582140001/582126100 Secondary Bays, the 586505000/586505500 Expansion Assemblies, and the MCA Interface are referred to as nodes. A node is a grouping of I/O's in a common assembly, cabinet, or bay.

Putting it Together, the LMS1000 Channel Numbering Scheme

LMS1000 channels are identified through a type designation (A = analog, B = binary, R = relay, L = LED, F = function, and E = energy management), a Node Number (I/O grouping) prefix, and an input/output number. Remember, a particular channel's type designation and input/output number is identical to that of the input or output associated to it.

- Installed optional LMS1000 I/O circuit cards in the 586505000/586505500 Main Cabinet or 582140000/582140001/582126100 Primary Bay and each 586505000/586505500 Expansion Cabinet or 582140000/582140001/582126100 Secondary Bay are automatically detected by LMS1000 firmware. Inputs and outputs are automatically assigned consecutive numbers (per cabinet or bay) for each type detected, starting with the circuit card of that type installed in the left most position (as viewed from the front). Types are A for analog, B for Binary, and R for relay. Temperature inputs are mapped to analog channels.

The Node Number is a fixed number for the 586505000/586505500 Main Cabinet (Node 00), and includes all I/O's associated to the 586505000/586505500 Main Cabinet. For the 582140000/582140001/582126100, Node 00 is the grouping of LMS1000 I/O cards installed in the Primary Bay. Node 00 also includes the LED, Function, and Energy Management channels. For both 586505000/586505500 and 582140000/582140001/582126100, you assign Node Numbers (21-89) to the groupings of LMS1000 I/O cards installed in 586505000/586505500 Expansion Cabinets and 582140000/582140001/582126100 Secondary Bays during the Initial Start-Up procedure.

- Input numbers for the LMS1000 MCA Interface are pre-assigned (The LMS1000 MCA Interface provides additional analog channels and binary channels. These channels are dedicated to the LMS1000 MCA Interface, and are automatically mapped to monitor predetermined MCA parameters.). The Node Number for the LMS1000 MCA Interface is 90 for all Vortex or NETSURE Power Systems except the Spec. Nos. listed next. The Node Number for the LMS1000 MCA Interface to Spec. Nos. 582140000, 582140001, and 582126100 NETSURE Power Systems is 99.
- Input numbers for the LMS1000 Interface to Spec. Nos. 582140000, 582140001, and 582126100 NETSURE Power System Bays are pre-assigned (The LMS1000 Bay Interface provides additional analog channels and binary channels. These channels are dedicated to the LMS1000 Bay Interface, and are automatically mapped to monitor predetermined parameters.). The Node Number for each Bay is 1 through 20, starting with the Primary Bay.
- The LMS1000 also provides self-diagnostic alarms on binary channels B0081 through B0096.

Example: A0001,
A represents an analog input/channel
00 represents the 586505000/586505500 Main Cabinet Node or
582140000/582140001/582126100 Primary Bay LMS1000 I/O Grouping Node (cannot

be changed)
01 represents input/channel #01

Example: A3001,
A represents an analog input/channel
30 represents the 586505000/586505500 Expansion Cabinet Node or
582140000/582140001/582126100 Secondary Bay LMS1000 I/O Grouping Node set as Node
#30 (set when network initially established)
01 represents input/channel #01

Example: A4001,
A represents an analog input/channel
40 represents the 586505000/586505500 Expansion Assembly Node set as Node #40 (set
when network initially established)
01 represents input/channel #01

Example: A9001,
A represents an analog input/channel
90 represents the VPS/NPS MCA Node (cannot be changed)
01 represents input/channel #01

Example: A9901,
A represents an analog input/channel
99 represents the NPS MCA Node (cannot be changed)
01 represents input/channel #01

Example: A0101,
A represents an analog input/channel
01 represents the 582140000/582140001/582126100 Primary Bay Node (cannot be changed)
01 represents input/channel #01

Example: A0201,
A represents an analog input/channel
02 represents an 582140000/582140001/582126100 Secondary Bay Node (cannot be
changed)
01 represents input/channel #01

Local Controls and Indicators

LMS1000 Display Option

Refer to Section 5942 or Section 5943 for LMS1000 Display option operation procedures. These are provided in the LMS1000 Installation Manual, and on the CD provided with your system documentation.

Location and Identification

Refer to **Figure 2**.

LMS1000 CPU Circuit Cards

The following controls and indicators are located on the LMS1000 CPU circuit cards. In a 586505000/586505500 System, these indicators are visible through the front panel of the Main and Expansion Cabinets. In the 582140000/582140001/582126100 Power System, open the bay's front door to view the indicators on the LMS1000 CPU circuit card.

- a) ON Indicator: This indicator illuminates green to indicate the presence of DC input power to the CPU circuit card, and that the power supply circuits located on the circuit card are functioning properly.

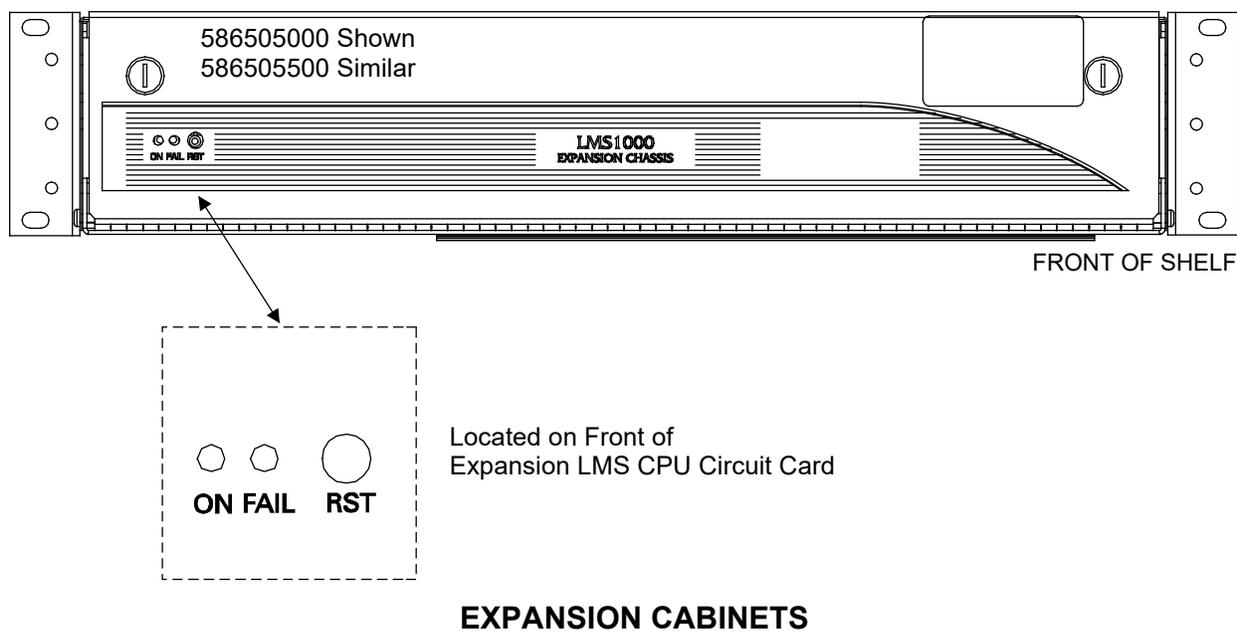
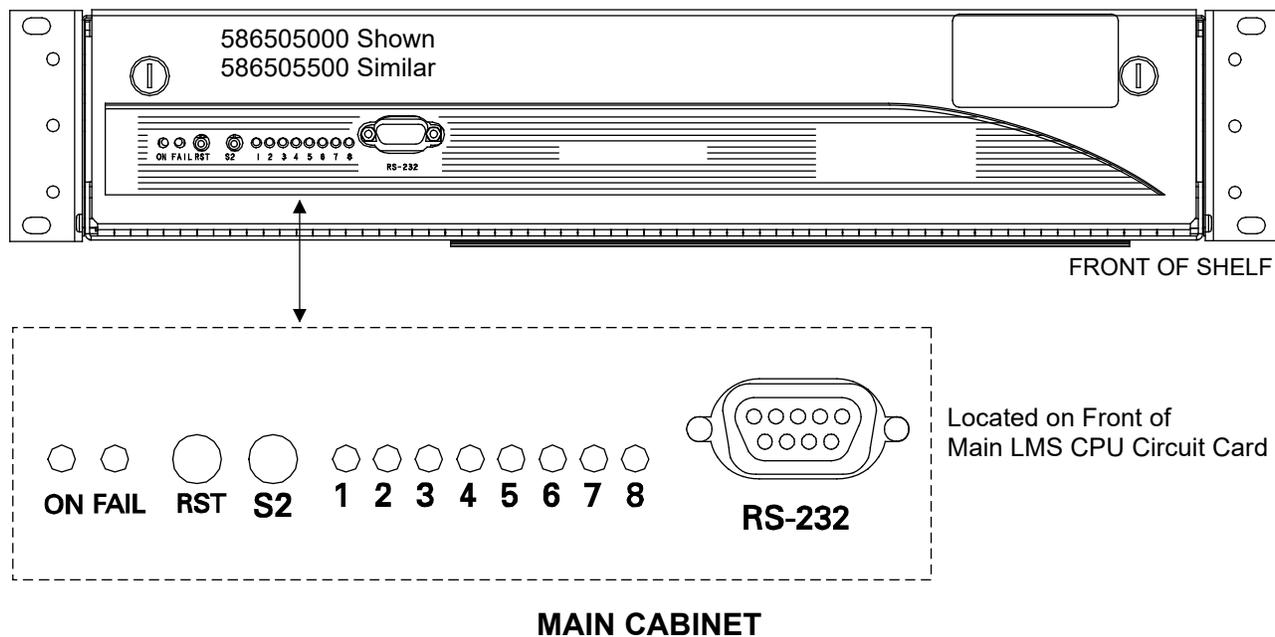
LMS1000 Main CPU Circuit Card Only: This indicator illuminates yellow if the voltage of the internal battery located on the CPU circuit card decreases below 2.5 volts DC. The internal battery maintains clock and memory if input power to the system is lost. When this indicator illuminates yellow, the memory backup battery should be replaced.

- b) FAIL Indicator: This indicator illuminates red if the CPU circuit card fails. If this occurs, the system has shut down.

LMS1000 Main CPU Circuit Card Only: This indicator also illuminates if any of the LMS1000 "Hardware Fail" channels become active. Extended relay contacts are also provided for connection of external alarms.

- c) RST Pushbutton Switch: This pushbutton switch is used in cases where the system will not respond to operator input. Momentarily pushing this switch resets the CPU.
- d) 1 - 8 (Programmable Status LED Indicators) (Main CPU Circuit Card Only): Eight LED indicators are located on the main CPU circuit card. These indicators can be programmed to illuminate at specific user determined events or occurrences. The LED's can also be programmed to illuminate red, yellow, or green.
- e) S2 (Programmable Switch) (Main CPU Circuit Card Only): Can be used in program lines. Refer to "Program Lines" in "Configuring LMS1000" in the separate Installation Instructions (Section 5879).

Figure 2: Controls and Indicators Locations (586505000/586505500 LMS1000 Cabinet)
 (Note that Spec. Nos. 582140000, 582140001, and 582126100 Power Systems do not use the LMS1000 Cabinets. The LMS1000 is factory integrated into the Power Systems.)



Accessing the System through a Local or Remote Terminal



NOTE! For Web Interface, refer to “Accessing the LMS1000 through the Web Interface” on page 32.

Users can access the system through a local terminal and (if a modem circuit card is installed) through a remote terminal.

Passwords and Access Levels

General: Up to eight separate users may be configured to access the system. Each user is assigned a password and an access level.

Passwords: The password assigned to a user is required to be entered for that user to log onto the system.

Access Levels: The access level (1-6) assigned to a user determines which commands that specific user can execute. Each command is associated to a command level. A user configured with an access level of 1 can execute all commands with a command level of 1. A user configured with an access level of 2 can execute all commands with a command level of 2 or less, and so forth. Note that users configured with an access level of 2-6 can execute commands with the corresponding command level, and with a lower command level. As an example, a user programmed with an access level of 4 can execute commands with a command level of 1, 2, 3, or 4.

Commands are divided into the following command levels.

- Level 1: Interrogate/Status Commands
- Level 2: Display Channel Configuration
- Level 3: Set Date & Time
- Level 4: Alarm Acknowledge, Alarm Canceling
- Level 5: Configure Channels
- Level 6: Configure Users, Upload & Download

A list with a short description of each command is provided at the beginning of the "Commands" section.

Terminal Requirements

A local terminal must have a keyboard, a video console or printer, and an RS-232 serial port. This terminal requires an interface cable for connecting the terminal's serial port to the system's local port. Refer to the separate Installation Instructions (Section 5879) for cable connection details.

A remote terminal must have a keyboard, a video console or printer, and a modem connected to a phone line. If the modem is an external type, you also need an interface cable between the modem and the terminal's serial port. Refer to the modem instructions for details.

The terminal must be capable of directing keyboard entry out through the serial port or modem at 300 bits/s, 8 data bits, 1 stop bit and half-duplex. This capability may also be achieved using a personal computer running a special "terminal emulator" program such as the Lorain® SMART Partner.

Local Terminal Access

The word format communications parameters (word length, stop bits, and parity) of the local terminal must match the system's default parameters. The default parameters are 8 data bits, 1 stop bit, and no parity. The data rate of the local port is software selectable from 300 to 19200 bits/s, and can be changed through the SET COM command. The data rate is factory set to 19200 bits/s.

Remote Terminal Access

Remote terminal access can be accomplished using a dial-up modem data connection or a telnet connection via Ethernet.

Modem Connection

A dial-up modem connection requires a modem to be installed in the system. An internal 56K bits/s modem is available. This modem allows monitoring and programming the system from a remote terminal via phone lines, and also allows the system to report alarms to remote terminals. Remote terminal access is accomplished by calling the system.

The communications parameters of the remote terminal must match the system's default parameters. The default parameters are 2400 bits/s (when reporting), 8 data bits, 1 stop bit, and no parity. These defaults cannot be changed.

When answering, the data rate of the internal modem switches to match the incoming call. When reporting, the modem data rate will be set to the speed that is programmed in the user configuration of the user being called. When the modem performs a callback, it will call at the speed it answered at.

Telnet Connection

The telnet connection provides the same command line interface as the modem and local connection ports. The LMS1000 supports only one telnet connection at a time. It is beyond the scope of this manual to describe telnet interface operation. Refer to external documentation for a further understanding of the this interface.

The system's Network Interface Parameters (IP, netmask, and gateway addresses) required for a telnet connection can be configured by the user. This is done using the command line interface (refer to the "Commands" section). The default settings for these parameters are shown below.

```
IP Address: 192.168.1.1
Gateway Address: 192.168.1.1
Netmask Address: 255.255.255.0
```

Using a Terminal

Logon Prompt: When the system is initially accessed, the following logon prompt is displayed.

```
ENTER PASSWORD
```

```
*
```

Entering Passwords: Passwords are case sensitive, which means the system recognizes upper and lower case characters differently. Type your password exactly as it was entered during system configuration. After typing the password, press **ENTER**. As the password is entered, it will not be displayed on the terminal's screen.

Command Prompt: The command prompt indicates that the system is waiting for user input, and is shown below. In this prompt, n denotes the level of access.

```
Command <n>:
```

Entering Commands:

After typing a command, press **ENTER**.

Commands are not case sensitive, which means the system does not recognize upper and lower case characters differently. Type the commands in either upper or lower case, as desired.

In most cases, the entire command does not have to be entered to be executed. All that needs to be entered are enough characters to uniquely identify the command. As an example, instead of typing the command SET TIME, typing SE TI is sufficient. Some commands can be entered with one character. As an example, commands such as ALARMS, SCAN, LOG, and PRCONFIG can be executed by entering the respective single character A, S, L, or P. The minimum characters required to enter each command are indicated in the "Commands" section.

When the backspace or delete key (Control H) is pressed, the last character typed is erased. Successive uses of this key will erase characters back to, but not beyond, the beginning of the line.

Two control characters allow use of all or parts of the previously entered command. When a command is entered, a copy is stored internally in a buffer. Typing CTRL-R copies the previously entered command from the buffer to the current command line. Typing CTRL-Z copies the next character of the previously entered command from the buffer to the current command line.

Aborting and Pausing Commands:

Typing CTRL-C, CTRL-X, or ESCape terminates the execution of a command in process, and returns the user to the command prompt. This allows the user to enter another command.

During system configuration, typing CTRL-V returns the user to the prior setting to be programmed.

Typing CTRL S pauses the response to a command. Typing any key restarts the response.

User Timeout:

A user timeout feature is provided which automatically logs off a user when a period of inactivity has occurred. This feature is designed to prevent a remote user from leaving a terminal unattended, and thus tying up the modem port accidentally.

 **NOTE!** The TL1 port has a session timeout feature which operates independently from the user timeout feature.

A period of inactivity is defined as the amount of time that elapses while the system is waiting for a command, carriage return, or line feed to be entered from the user. A timeout message is issued and the communication link terminated when the elapsed time reaches a preset value. This value is termed the "User Timeout" value, and is programmable through the SET TIMEOUT command.

The timeout feature is active only when the system has specifically requested input from the user, such as after a command prompt. It is NOT active during the processing of a command.

 **NOTE!** Commands such as SCAN Annnn n will run indefinitely until the user aborts the command.

Logging On To the System

This procedure shows the user how to establish contact with the system through a local or remote terminal. To establish a local communication link to the system, press **ENTER**. If communicating through a modem, the user must call the system and wait for it to answer. A remote communication link is automatically established after the modems connect. Once the system establishes contact with the remote terminal, logging onto the system through the following procedure is identical whether a local or remote (modem) terminal is used. **Figure 3** shows a typical screen display of a successful logon.

Figure 3: Typical Logon Screen Display

```

ENTER PASSWORD
*
LMS1000 v1.0.0
Unit Name:  UNIT ONE-Unit #1
Unit Header:

Good Afternoon User 8 - User #8 !
Today is Monday 11/12/96 at 16:14:52.

THERE ARE NO ALARMS PRESENT

Command <6>:

```

Procedure:

1. When the communication link is established, the system prompts the user to...

```
ENTER PASSWORD
```

```
*
```

2. Type the correct password, then press **ENTER**. The password is not displayed on the terminal's screen as it is entered. Additionally, during remote access, the user has three (3) attempts to enter a valid password. If the password is not entered correctly after three (3) attempts, the remote communications session is terminated. The user also has ten (10) seconds to enter a valid password when prompted before the remote communications session is terminated. The EVENT LOG will report a failed logon attempt when someone attempts to logon and fails.
3. When the correct password is entered, the system responds with the unit number, the unit name, unit header, and the current day, date, and time. If alarms are active, a message is displayed.
4. The user is now logged on to the system. The above information is followed by the system command line prompt "Command <n>:". In this prompt, n denotes the command access level of the current user.
5. Commands (that the user has access to) may now be entered. The command BYE should be entered to terminate the communication link when finished.

Callback Feature

If a user is attempting to log onto the system through a remote terminal and the callback feature was selected during system configuration, after entering the correct password, the system will hang-up and then call the user back at the preprogrammed designated phone number.

Header Information

After a user successfully logs onto the system, the system displays a header which details the unit name, unit number, date, time, and a user defined 79 character field. The system also indicates if alarms are active, and provides notification of pending mail.

Logging Off Of The System

This procedure shows the recommended way of terminating a communications session, as opposed to allowing the system to timeout and automatically log the user off. It is not a good practice to let the system timeout.

Procedure:

1. Type **BYE**, then press **ENTER**.

Command <n>: **BYE**

2. The screen displays a user logged off response.



NOTE! The system automatically logs a user off if a loss of carrier is detected, or via the timeout feature described earlier.

Automatic Logoff: If a user is remotely communicating with the system, and the system needs to issue an alarm report to a remote terminal, the system issues a pending report message to the user and then automatically logs the user off. This enables the system to issue the alarm report. The user is logged off after the auto-logoff time period (set with the SET REPORT command) expires.



NOTE! If a user is running a long report or a continuous scan report, a pending report (auto-logoff) message may not be displayed.



NOTE! If the pending report is a user report for the logged on user, the user is prompted to receive the report. If the user does not respond at the prompt, auto-logoff occurs.

Accessing the LMS1000 through the Web Interface

Security Adapter Unit (SAU)

If the LMS is used with a Security Adapter Unit (SAU), refer to the SAU instruction manual (IM559604) for proper (LMS and SAU) network settings, SAU operation, etc.

WEB Interface Overview

- Allows you to access the LMS1000 over the Internet via a Web Browser.
- Displays LMS status, history, and inventory in Web pages.
- User configurable status pages and channel groups can also be displayed in the status Web pages.
- Provides three (3) editable pages for notes.

- Provides LMS configuration Web pages for alarms and PLC, channels, power system settings, LMS settings, and LMS Users.
- Provides provision to upload and download LMS configuration and MCA configuration files.
- Displays status of “Battery Charge” or, if in discharge, “Battery Time to Empty”.

Requirements

The LMS Web pages are a JavaScript application and requires one of the following browsers.

- Google Chrome, version 24.0.1312.57 or later.
- Firefox, version 18.0.2 or later.
- Microsoft Internet Explorer, version 7.0 or later.



NOTE! To enable JavaScript go to: Tools / Internet Options / Security / Custom Level / Active Scripting = Enable.

Requires LMS1000 firmware version 12.2, or later. Firmware v10.x or later can be upgraded via the Ethernet, Modem, or Local Port.



NOTE! If you have an LMS1000 with firmware version 9.x or earlier, you must replace the entire CPU circuit card. They are not software upgradeable in the field, but must be returned to the factory for updates.

Getting Started

General

1. The LMS Web (Javascript) application takes about 20s to load before the entire login page is presented.
2. After successful login, allow a few seconds for the channel data to load for populating the landing page.
3. If LMS Notes exist, a red asterisk appears next to the NOTES menu item until the note is viewed.
4. After submitting changes, status of the operation can be found in the lower right portion of the main view pane. For example, after submitting power plant changes, a few seconds is needed for the controller validation and page refresh.
5. Create up to 16 custom status pages with selected channels (CONFIGURATION->Settings->View->Status Pages).

Screen Updates

1. Channel Status (Analog, Binary, Function, etc.) pages update every 60s.
2. The Plant Status Icon and values in the upper left corner update every 10s.
3. The Power System Overview page and custom Status pages update every 30s.
4. To update a screen before its regular interval, click on another screen and then return to the desired screen.

File Transfers

1. Recall the LMS is capable of downloading two configuration files: one for the LMS, the other for NPS settings.

2. Note that File Transfers are only supported in Internet Explorer version 10 and above.
3. When performing an LMS Configuration File download, allow 20s for the file transfer to your computer.
4. After a Configuration File upload to the LMS is completed, reload the web application by pressing F5.

Vortex Plants

1. LMS v12.x does not directly support Vortex plants through Power sub-menu items (under STATUS and CONFIGURATION).
2. Instead, custom status pages can be used for displaying status similar to Plant Overview, PCU currents, and System Loads.

Setting Up the Web Interface

IP Address

Before connecting the LMS to your network, its factory default IP address of 192.168.1.1 must be changed.

You must login at level 6 to make these changes, which can be done:

- a) Via the local serial port connection and the command line setup. See “Accessing the System through a Local or Remote Terminal” on page 28 and the LMS1000 Command “IP ADDRESS” on page 427.
- b) Via the LMS Web pages using a cross-over cable with your laptop IP address set to 192.168.1.2.

Plant Status Setup

The output voltage and current channel displayed on the Web page system status area default to settings shown below.

NetSure 702/801/802

- Output Voltage Channel - A9901
- Rectifier Current Channel – A9902
- Load Current Channel - A9903

NetSure 701/VPS

- Output Voltage Channel - A9001
- Rectifier Current Channel – A9005
- Load Current Channel - A9002

Stand-Alone LMS

- Output Voltage Channel - F0062
- Rectifier Current Channel – F0064
- Load Current Channel - F0063

Custom Pages

You can configure your own personal LMS1000 Web pages for the following.

- Status Pages
- Channel Group Pages

Login at level 6 and go to the Edit Views Web page: CONFIGURATION->Settings->View.

Access Levels

The Web page edit access consists of two levels: Admin and Engineering. Admin is full edit capability, including items specific to level 6 such as network and node setup, User admin, and default settings. Engineering (level 5) consists of alarm and channel configuration. Levels 1-4 do not have any Web page edit capability.

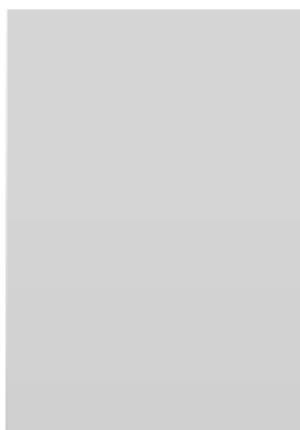
Logging into the LMS1000 via the WEB Interface

1. Open your Web Browser, and enter in the "Address Line" the IP Address assigned to the LMS1000 you want to connect to.
2. A Login page appears. Enter a valid LMS1000 **User Name** and **Password** then click **LOGIN**.
3. After entering a valid **User Name** and **Password** and clicking **LOGIN**, the "Homepage" window opens.

 **NOTE!** By default, USER 1 through USER 6 are programmed with the User Name **User #1** through **User #6**, Password **1** through **6**, and Command Access Level **1** through **6** (respectively). Therefore, the User Name for level 1 commands is **User #1** and the Password is **1**, the User Name for level 2 commands is **User #2** and the Password is **2**, etc.

 **ALERT!** For security, only login with a User and Password which gives you access to level 1 LMS1000 commands (Level 1 User), unless you are changing parameters.

Login Lockout Feature: You have three (3) attempts to enter a valid User Name and password. After three (3) unsuccessful attempts to login, the LMS locks you out for two (2) minutes.



Login

You are requesting access to the Netsure LMS Data Processing Unit located at Central Office

User:

Password:



Site Name	Central Office
System Name	LMS
Software Version	v12.0.0.62
Web App Version	v12.0.0.62
Config Version	

This is the first 20 characters of the Unit Header, which can be set under the General settings page.

Homepage

After Login, the Homepage displayed is dependent on how the LMS is integrated and if there are active alarms.

- If there are alarms present, the Homepage displays the Alarms Status pane.
- If the LMS is integrated into a NetSure power system and if there are no alarms present, the Homepage displays the Power System Status pane.
- If the LMS is used as a stand-alone system (integrated into a customer system) and if there are no alarms present, the Homepage displays the Channels Status pane.

The screenshot shows the NetSure LMS homepage for 'Training Lab Lorain OH'. The interface is divided into three main sections: System Status Area (top left), Menu Navigation Area (left sidebar), and Main View Area (right main content). The System Status Area displays key metrics: Output Voltage (52.83 VDC), Rectifier Current (1.000 A), Load Current (0.000 A), and Battery Charge (1365 min). The Main View Area shows a 'Power System - Overview' table with columns for Channel, Channel Name, Value, Alarms, and Class. The Menu Navigation Area lists various system components and status pages. Callouts identify specific elements: 'System Status Area' points to the top-left metrics; 'Main View Area (View Screens)' points to the right-hand table; 'View Tab' points to the top navigation tabs; 'Fuel Gauge Channel F61' points to a specific row in the table; 'Menu Group' points to a category in the sidebar; 'Menu View' points to a sub-item in the sidebar; and 'Asterisk disappears after notes are read' points to a note icon in the sidebar.

CHANNEL	CHANNEL NAME	VALUE	ALARMS	CLASS
		52.83 VDC		
		1.000 Amps		
		0.000 Amps		
B9909	Minor Monitoring Alarm		CC	
B9910	Major Monitoring Alarm		CC	
	Fcn Major		CC	
	Fcn Minor		CC	
	Fcn AC Fail		CC	
B9950	MCA Relay Fcn Brkr/Fuse		CC	
B9951	MCA Relay Fcn Batt. on Disch.		CC	
	lay Fcn High Voltage #1		CC	
	lay Fcn Very Low Voltage		CC	
	lay Fcn High Voltage #2		CC	
B9955	MCA Relay Fcn Audible		CC	
B9956	MCA Re		CC	
B9957	MCA Re		CC	
B9958	MCA Re		CC	
B9959	MCA Re		CC	
B9960	MCA Re		CC	
	MCA Re		CC	
	MCA Re		CC	

The Homepage window is divided into three areas: System Status, Menu Navigation, and Main View.

System Status Area

System status is displayed in this area (top left section of Homepage window). Output voltage, rectifier current, and load current are the values of the respective LMS channels noted earlier. See “Plant Status Setup” on page 12. Also displayed is the status of “Battery Charge” or, if in discharge, “Battery Time to Empty (BTTE)”. The values in this area update every ten seconds.

Menu Navigation Area

Available menus are displayed in this area (left section of Homepage window). When you click on a Menu Group in this area, the available Menu Views for that Menu Group are displayed. When you click on a Menu View, the View for that menu opens in the right section of the window.

When clicking on a different Menu Group, the current one collapses. When you return to a Menu Group, the group expands and the last view page is displayed.

Main View Area

Displays the View Screens for the selected Menu View.

Menu Navigation

When a Menu View is clicked on in the left side of the window (Menu Navigation Area), the View Screen is updated in the right section of the window.

Alarms

If alarms are present on a channel, the display line for the channel is in red text and the occurred time of the alarm appears in the ALARMS column.

“Status” Menu Group

“Alarms” Status View

Displays active LMS alarms. Click the tabs to view alarms on specific channel types. Note that the alarms are displayed in red text.

This view is equivalent to the LMS ALARMS command.

Sep 5 08:41:05 2014 | LOGOUT
 User #6
NETSURE LMS
 Data Processing Unit

Site: Central Office

Output Voltage : 0.00 VDC	<div style="display: flex; justify-content: space-around; border-bottom: 1px solid #ccc; padding-bottom: 5px;"> Analog Binary Relay Function All </div>
Rectifier Current : 624.0 A	
Load Current : 563.0 A	
Battery Charge : 32 min	

STATUS

Alarms

Channels

Power

Status Pages

Battery Fuel Gage

Bill Swink Page

Group Pages

PCU Load

HISTORY

INVENTORY

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CONFIGURATION

Alarms

CHANNEL	CHANNEL NAME	VALUE	ALARMS	CLASS
B0001	Binary Channel 0001	CO	09/05 08:25:32	
B0081	Self Diagnostics Error	--	09/05 08:08:22	MAJOR
B9910	Major Monitoring Alarm	CC	09/05 08:25:39	
B9922	MCA Audible Alarm	CC	09/05 08:25:39	
B9947	MCA Relay Fcn Major	CC	09/05 08:25:40	
B9955	MCA Relay Fcn Audible	CC	09/05 08:25:40	
L0002	LMS1000 MAJOR ALARM	On, Pg	09/05 08:25:32	MAJOR

Time Alarm Occurred

“Channels” Status View

Lists the present value and alarm status of each channel. Click the tabs to view the different channel types.

This view is equivalent to the LMS SCAN command.

Site: Central Office

Sep 5 08:41:25 2014 | LOGOUT
User #6

NETSURE LMS
Data Processing Unit

Output Voltage : 0.00 VDC
 Rectifier Current : 624.0 A
 Load Current : 563.0 A
 Battery Charge : 33 min

STATUS
 Alarms
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 Power
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 Battery Fuel Gage
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HISTORY

INVENTORY

NOTES

CONFIGURATION

Analog
Binary
LED
Relay
Function
Energy
User

Analog Channels

CHANNEL	CHANNEL NAME			CLASS
A0001	Analog Channel 0001			
A0002	Analog Channel 0002			
A0003	Analog Channel 0003			
A0004	Analog Channel 0004			
A0125	Fuse 01-25 Load	200.0 Amps		
A0151	PCU 01-01 Load	80.00 Amps		
A0154	PCU 01-04 Load	80.00 Amps		
A0157	PCU 01-07 Load	80.00 Amps		
A0160	PCU 01-10 Load	80.00 Amps		
A0191	I/O Board 01-07 Load	-0.050 Amps		
A0201	Breaker 02-01 Load	300.0 Amps		
A0251	PCU 02-01 Load	80.00 Amps		
A0254	PCU 02-04 Load	80.00 Amps		
A0257	PCU 02-07 Load	80.00 Amps		
A9901	System Output Sense	53.59 VDC		
A9902	Total Charger Output	624.0 Amps		
A9903	Total Load Current	563.0 Amps		

This is new in v12.1.
See next section on how to create User channels.

Adding User Channels to the “User” Tab in the “Channels Status View”

1. Log in as the User to be configured with User Channels.
2. Click on the “Channels” Menu View in the “Configuration” Menu Group to display the Channels View.
3. Navigate to the channel to be added as a User Channel.
4. Select the “User #x” check box.
5. Click the “Submit” button.
6. Repeat for additional channels to be added.

The screenshot displays the 'Configure Binary Channel - B0001' interface. On the left, a sidebar lists navigation options: STATUS, HISTORY, INVENTORY, NOTES, and CONFIGURATION (with sub-items: Alarms & PLC, Channels, Power, Settings, Users). The main area is titled 'Configure Binary Channel - B0001' and contains a list of binary channels on the left and configuration fields on the right. The 'BASIC SETTINGS' section includes an 'Active' checkbox (checked), a 'Channel Name' field (Binary Channel 0001), a 'System' checkbox (unchecked), and a 'User #6' checkbox (checked and circled in red). Below this are 'ALARM SETTINGS' for 'Delay On' and 'Delay Off', both set to 0 seconds. The 'Alarm Class' is set to '--NONE--' and the 'Alarm Type' is 'Contact Open (CO)'. A 'Submit' button is circled in red at the bottom right. The top right of the page shows 'Sep 5 08:58:26 2014 | LOGOUT User #6' and the 'NETSURE LMS Data Processing Unit' logo.

“Power” Status View

Lists status/alarms and values of voltage/current points of the power system monitored via the LMS. Click the tabs to view specific power system elements.

The default view is the Overview, which is the status of up to four (4) analog and nineteen (19) binary channels.

The PCU view is a listing of all rectifier currents in the system (channels Ann51-Ann86).

The Distribution tab is a listing of all distribution elements in the system.

The Loads view is a listing of all distribution load currents (channels Ann01- Ann48). Also listed are A and B loads, if present in the power system.

The Aux view is a listing of all auxiliary distribution load currents.

The Settings view is a list of all power system settings and is equivalent to the commands PR NPS SETTING and PR NPS MCA.

Sep 5 08:41:45 2014 | LOGOUT
 User #6
NETSURE LMS
 Data Processing Unit

Site: Central Office

Output Voltage : 0.00 VDC
Rectifier Current : 624.0 A
Load Current : 563.0 A
Battery Charge : 33 min

STATUS
[Alarms](#)
[Channels](#)
Power
[Status Pages](#)
[Battery Fuel Gage](#)
[Bill Swink Page](#)
[Group Pages](#)
[PCU Load](#)

HISTORY
INVENTORY
NOTES
CONFIGURATION

Power System - Overview

CHANNEL	CHANNEL NAME	VALUE	ALARMS	CLASS
A9901	System Output Sense	53.58 VDC		
A9902	Total Charger Output	624.0 Amps		
A9903	Total Load Current	563.0 Amps		
B9909	Minor Monitoring Alarm	CC		
B9910	Major Monitoring Alarm	CC	09/05 08:25:39	
B9947	MCA Relay Fcn Major	CC	09/05 08:25:40	
B9948	MCA Relay Fcn Minor	CC		
B9949	MCA Relay Fcn AC Fail	CC		
B9950	MCA Relay Fcn Brkr/Fuse	CC		
B9951	MCA Relay Fcn Batt. on Disch.	CC		
B9952	MCA Relay Fcn High Voltage #1	CC		
B9953	MCA Relay Fcn Very Low Voltage	CC		
B9954	MCA Relay Fcn High Voltage #2	CC		
B9955	MCA Relay Fcn Audible	CC	09/05 08:25:40	
B9956	MCA Relay Fcn Test/Eq	CC		
B9957	MCA Relay Fcn Rectifier Fail	CC		
B9958	MCA Relay Fcn Rectifier Major	CC		
B9959	MCA Relay Fcn Rectifier Minor	CC		
B9960	MCA Relay Fcn Over Current	CC		
B9961	MCA Relay Fcn AC Major	CC		
B9962	MCA Relay Fcn AC Minor	CC		
B9963	MCA Relay Fcn MCA Fail	CC		

“Status Pages” View

Displays the LMS status page. See next section for programming instructions.

This view is equivalent to the LMS STATUS command.

Sep 5 08:18:23 2014 | LOGOUT
User #6

NETSURE LMS
Data Processing Unit

 **Site: Central Office**

Output Voltage : 0.00 VDC

Rectifier Current : 624.0 A

Load Current : 563.0 A

Battery Charge : 10 min

STATUS

- Alarms
- Channels
- Power
- Status Pages
 - Battery Fuel Gage
 - Bill Swink Page
- Group Pages
 - PCU Load

HISTORY

INVENTORY

NOTES

CONFIGURATION

Battery Fuel Gage

CHANNEL	CHANNEL NAME	VALUE	ALARMS	CLASS
F0060	Predicted Reserve Capacity	480.0 Min		
F0061	Battery Reserve(Charge) Time	33.98 Min		
F0062	Plant Voltage Mirror	52.62 VDC		

Configuring Status Pages

1. Click on the “Settings” Menu View in the “Configuration” Menu Group to display the Settings View.
2. Select the View Tab.
3. Select the Status Page to be configured.
4. Change the name as desired.
5. Enter channel numbers as desired.

Hint: Click on the Active Channels arrow to display a list of channels to choose from.

6. Click the “Submit” button.

Sep 5 09:58:50 2014 | LOGOUT
 User #6
NETSURE LMS
 Data Processing Unit

Site: Central Office

General
Network
SNMP
Node
View
Stats
File

Output Voltage : 0.00 VDC

Rectifier Current : 624.0 A

Load Current : 563.0 A

Battery Charge : 110 min

View Configuration

Group Pages

Group #1 :

Group #2 :

Group #3 :

Group #4 :

Group #5 :

Group #6 :

Group #7 :

Group #8 :

Add channels to groups using the channel editors.
View group channels from STATUS menu.

Group pages update every 60 seconds

SUBMIT

Status Pages

Battery Fuel Gage

Status Page 2

Bill Swink Page

Status Page 4

Status Page 5

Status Page 6

Status Page 7

Status Page 8

Status Page 9

Status Page 10

Status Page 11

Status Page 12

Status Page 13

Index

1

1

2

3

4

5

6

7

8

Status Page Name

Battery Fuel Gage

Line	Channel	Line	Channel
1	F0060	9	<input type="text"/>
2	F0061	10	<input type="text"/>
3	F0062	11	<input type="text"/>
4	<input type="text"/>	12	<input type="text"/>
5	<input type="text"/>	13	<input type="text"/>
6	<input type="text"/>	14	<input type="text"/>
7	<input type="text"/>	15	<input type="text"/>
8	<input type="text"/>	16	<input type="text"/>
		17	<input type="text"/>

▲ Active Channels

Status pages update every 30 seconds

SUBMIT

Vertiv™ | NetSure™ LMS Data Processing Unit User Manual (Section 5847) | Rev. ZA

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“Group Pages” View

Displays the basic statistics for analog and function channels set in groups. See next section for programming instructions.

This view is equivalent to the LMS SCAN Gn command.

Sep 5 08:42:24 2014 | LOGOUT
 User #6
NETSURE™ LMS
 Data Processing Unit

Site: Central Office

Output Voltage : 0.00 VDC

Rectifier Current : 624.0 A

Load Current : 563.0 A

Battery Charge : 34 min

PCU Load

CHANNEL	CHANNEL NAME	VALUE	ALARMS	CLASS
A0151	PCU 01-01 Load	80.00 Amps		
A0154	PCU 01-04 Load	80.00 Amps		
A0157	PCU 01-07 Load	80.00 Amps		
A0160	PCU 01-10 Load	80.00 Amps		

STATUS

- Alarms
- Channels
- Power
- Status Pages
- Battery Fuel Gage
- Bill Swink Page
- Group Pages**
- PCU Load

HISTORY

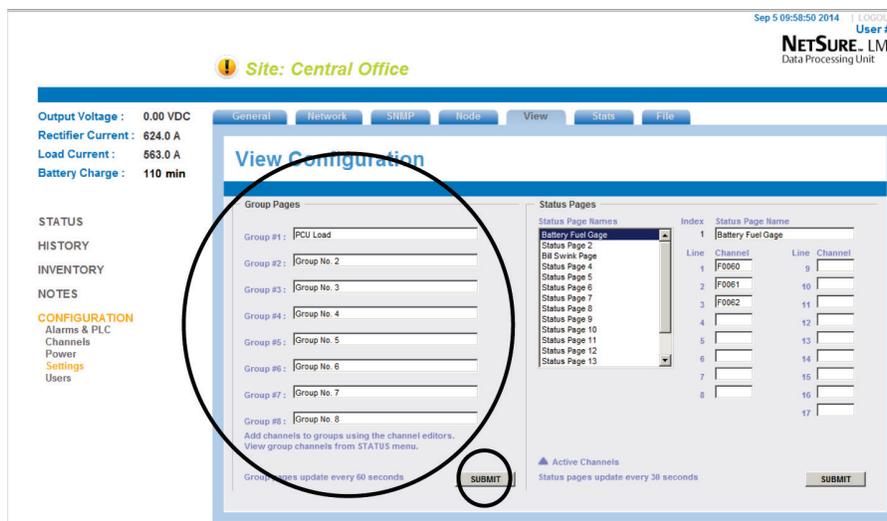
INVENTORY

NOTES

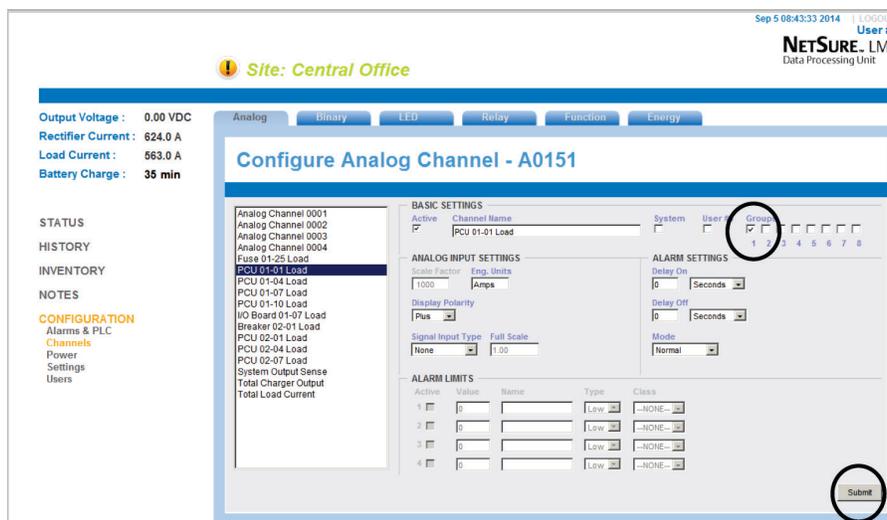
CONFIGURATION

Configuring Group Pages

1. Click on the “Settings” Menu View in the “Configuration” Menu Group to display the Settings View.
2. Select the View Tab.
3. Change the group name as desired.
4. Click the “Submit” button.



5. Click on the “Channels” Menu View in the “Configuration” Menu Group to display the Channels View.
6. Navigate to the channel to be added to a Group.
7. Select the “Group #” check box.
8. Click the “Submit” button.
9. Repeat for additional channels to be added to a Group.



“History” Menu Group

“Alarm Log” View

Displays the LMS alarms log.

NOTE! The “Recent” tab displays the thirty (30) most recent alarm log entries.

This view is equivalent to the LMS LOG command.

Sep 5 10:13:48 2014 | LOGOUT
 User #6

Site: Central Office

Output Voltage : 0.00 VDC
Rectifier Current : 624.0 A
Load Current : 563.0 A
Battery Charge : 125 min

STATUS
HISTORY
 Alarm Log
 Event Log
 Min/Max/Avg
 Distr. Capacity
 Daily/Weekly
 Analog Channel 0001
 Analog Channel 0002
INVENTORY
NOTES
CONFIGURATION

Recent | Analog | Binary | LED | Relay | Function | All

Recent Alarms

NUM	CHANNEL	DESCRIPTION	CLASS	OCCURRED	ACK	CLEARED
1	B9955	MCA Relay Fcn Audible		09/05 08:25:40		00/00 00:00:00
2	B9947	MCA Relay Fcn Major		09/05 08:25:40		00/00 00:00:00
3	B9922	MCA Audible Alarm		09/05 08:25:39		00/00 00:00:00
4	B9910	Major Monitoring Alarm		09/05 08:25:39		00/00 00:00:00
5	L0002.Pg	LMS1000 MAJOR ALARM	MAJOR	09/05 08:25:32		00/00 00:00:00
6	B0001	Binary Channel 0001		09/05 08:25:32		00/00 00:00:00
7	B9955	MCA Relay Fcn Audible		09/05 08:08:23		09/05 08:25:25
8	B9947	MCA Relay Fcn Major		09/05 08:08:23		09/05 08:25:25
9	B9922	MCA Audible Alarm		09/05 08:08:23		09/05 08:25:25
10	B9910	Major Monitoring Alarm		09/05 08:08:23		09/05 08:25:25
11	B0081.07	Self Diagnostics Error	MAJOR	09/05 08:08:22		00/00 00:00:00
12	L0002.Pg	LMS1000 MAJOR ALARM	MAJOR	09/05 08:08:17		09/05 08:25:23
13	B0001	Binary Channel 0001		09/05 08:08:17		00/00 00:00:00
14	B9947	MCA Relay Fcn Major		09/04 21:31:06		00/00 00:00:00
15	B9922	MCA Audible Alarm		09/04 21:31:06		00/00 00:00:00
16	B9910	Major Monitoring Alarm		09/04 21:31:06		00/00 00:00:00
17	L0002.Pg	LMS1000 MAJOR ALARM	MAJOR	09/04 21:31:03		00/00 00:00:00
18	B0001	Binary Channel 0001		09/04 21:31:02		00/00 00:00:00
19	B9955	MCA Relay Fcn Audible		09/04 21:30:21		09/04 21:30:58
20	B9947	MCA Relay Fcn Major		09/04 21:30:21		09/04 21:30:57
21	B9922	MCA Audible Alarm		09/04 21:30:21		09/04 21:30:57
22	B9910	Major Monitoring Alarm		09/04 21:30:20		09/04 21:30:57
23	L0002.Pg	LMS1000 MAJOR ALARM	MAJOR	09/04 21:30:17		09/04 21:30:55

“Event Log” View

Displays the LMS events log.

This view is equivalent to the LMS EVENTS command.

Sep 5 10:14:40 2014 | LOGOUT
User #6
NETSURE™ LMS
 Data Processing Unit

Site: Central Office

Output Voltage : 0.00 VDC

Rectifier Current : 624.0 A

Load Current : 563.0 A

Battery Charge : 126 min

STATUS

HISTORY

- Alarm Log
- Event Log
- Min/Max/Avg
- Distr. Capacity
- Daily/Weekly
- Analog Channel 0001
- Analog Channel 0002

INVENTORY

NOTES

CONFIGURATION

Events Log

NUM	USER	NAME	DESCRIPTION	DATE	TIME
1	0	LMS	WEB Failed Login	10:12:44	09/05/14
2	0	LMS	WEB Failed Login	10:12:42	09/05/14
3	0	LMS	WEB Failed Login	10:12:40	09/05/14
4	8	User #8	VI Parameters set	10:10:57	09/05/14
5	8	User #8	Logged on	10:10:44	09/05/14
6	0	LMS	WEB Failed Login	10:09:54	09/05/14
7	0	LMS	WEB Failed Login	10:09:51	09/05/14
8	0	LMS	WEB Failed Login	10:09:47	09/05/14
9	6	User #6	WEB Login	10:06:31	09/05/14
10	6	User #6	WEB Login	09:49:44	09/05/14
11	0	LMS	WEB Failed Login	09:15:08	09/05/14
12	6	User #6	Logged on	09:12:51	09/05/14
13	6	User #6	WEB Login	09:07:53	09/05/14
14	6	User #6	Logged on	08:56:05	09/05/14
15	6	User #6	WEB Login	08:37:43	09/05/14
16	6	User #6	WEB Login	08:31:40	09/05/14
17	6	User #6	WEB Login	08:26:13	09/05/14
18	0	LMS	Report to user 6 OK	08:25:35	09/05/14
19	6	User #6	Chan B0001 configured	08:25:31	09/05/14
20	6	User #6	Chan B0001 configured	08:25:22	09/05/14
21	6	User #6	WEB Login	08:23:49	09/05/14
22	6	User #6	Report to user 6 OK	08:22:44	09/05/14
23	6	User #6	Logged on	08:22:40	09/05/14

“Min/Max/Avg” View

Displays the basic statistics for analog and function channels.

This view is equivalent to the LMS STATS command.

Sep 5 08:18:03 2014 | [LOGOUT](#)
User #6
NETSURE™ LMS
 Data Processing Unit

Site: Central Office

Output Voltage : 0.00 VDC
Rectifier Current : 624.0 A
Load Current : 563.0 A
Battery Charge : 9 min

STATUS
HISTORY
 Alarm Log
 Event Log
 Min/Max/Avg
 Distr. Capacity
 Daily/Weekly
 Analog Channel 0001
 Analog Channel 0002
INVENTORY
NOTES
CONFIGURATION

Min/Max/Avg Statistics

CHANNEL	CHANNEL NAME	STATISTIC	VALUE	UNITS	DATE & TIME
A0001	Analog Channel 0001	Maximum	0.025	VDC	09/04/14 20:32
		Minimum	0.023	VDC	09/04/14 20:48
		#1 High Hourly Avg	0.024	VDC	09/04/14 18:00
		#2 High Hourly Avg	0.024	VDC	09/05/14 07:00
A0002	Analog Channel 0002	#3 High Hourly Avg	0.024	VDC	09/04/14 13:00
		Maximum	0.005	VDC	09/04/14 09:24
		Minimum	0.005	VDC	09/05/14 05:05
		#1 High Hourly Avg	0.005	VDC	09/04/14 13:00
A0003	Analog Channel 0003	#2 High Hourly Avg	0.005	VDC	09/04/14 09:00
		#3 High Hourly Avg	0.005	VDC	09/04/14 15:00
		Maximum	0.001	VDC	09/04/14 16:12
		Minimum	-0.000	VDC	09/04/14 19:15
A0004	Analog Channel 0004	#1 High Hourly Avg	0.000	VDC	09/04/14 16:00
		#2 High Hourly Avg	0.000	VDC	09/04/14 08:00
		#3 High Hourly Avg	0.000	VDC	09/04/14 18:00
		Maximum	0.006	VDC	09/04/14 17:51
A0125	Fuse 01-25 Load	Minimum	0.002	VDC	09/04/14 16:12
		#1 High Hourly Avg	0.006	VDC	09/04/14 13:00
		#2 High Hourly Avg	0.006	VDC	09/04/14 14:00
		#3 High Hourly Avg	0.006	VDC	09/04/14 10:00
A0125	Fuse 01-25 Load	Maximum	200.0	Amps	09/04/14 09:02
		Minimum	200.0	Amps	09/04/14 08:49
		#1 High Hourly Avg	200.0	Amps	09/04/14 10:00

“Distr. Capacity” View

Displays the power system’s distribution capacity (compares the maximum peak value and the highest hourly average to an alarm limit, and presents the results as percentage values).

For a channel to appear in the report, one of its alarm limit names must contain the text SIZ or CAP.

This view is equivalent to the LMS RATE command.

Sep 5 10:20:39 2014 | LOGOUT
 User #6
NETSURE™ LMS
 Data Processing Unit

Site: Central Office

Output Voltage : 0.00 VDC

Rectifier Current : 624.0 A

Load Current : 563.0 A

Battery Charge : 132 min

STATUS

HISTORY

- Alarm Log
- Event Log
- Min/Max/Avg
- Distr. Capacity
- Daily/Weekly
- Analog Channel 0001
- Analog Channel 0002

INVENTORY

NOTES

CONFIGURATION

Distr. Capacity Statistics

CHANNEL	CHANNEL NAME	LIMIT/NAME	MAX HOURLY AVERAGE	MAX MINUTE AVERAGE
A0125	Fuse 01-25 Load	25.00 CAP	-----	200.0, 800%
A0191	I/O Board 01-07 Load	25.00 SIZ	-----	-0.009, -0%
A0201	Breaker 02-01 Load	2000 SIZ	-----	300.0, 15%

“Daily/Weekly” View

Daily Tab

Displays the Daily Advanced Statistics for analog and function channels set for Advanced Statistics.

This view is equivalent to the STATS DAILY command.

Site: Central Office

Output Voltage : 0.00 VDC
 Rectifier Current : 624.0 A
 Load Current : 563.0 A
 Battery Charge : 133 min

STATUS

HISTORY
 Alarm Log
 Event Log
 Min/Max/Avg
 Distr. Capacity
 Daily/Weekly
 Analog Channel 0001
 Analog Channel 0002

INVENTORY

NOTES

CONFIGURATION

Statistics for Analog Channel 0001 (Daily):

STATISTIC	VALUE	UNITS	DATE & TIME
Maximum	0.024	VDC	09/04/14 08:34
Minimum	0.024	VDC	09/04/14 08:37
High Hourly Average	-25000	VDC	00/00/00 00:00
Maximum	0.024	VDC	09/04/14 08:53
Minimum	0.024	VDC	09/04/14 09:06
High Hourly Average	0.024	VDC	09/04/14 08:00
Maximum	0.024	VDC	09/04/14 09:14
Minimum	0.024	VDC	09/04/14 09:19
High Hourly Average	-25000	VDC	00/00/00 00:00
Maximum	0.024	VDC	09/04/14 13:13
Minimum	0.024	VDC	09/04/14 11:47
High Hourly Average	0.024	VDC	09/04/14 13:00
Maximum	0.024	VDC	09/04/14 15:55
Minimum	0.024	VDC	09/04/14 15:54
High Hourly Average	0.024	VDC	09/04/14 15:00
Maximum	0.024	VDC	09/04/14 16:07
Minimum	0.024	VDC	09/04/14 16:09
High Hourly Average	-25000	VDC	00/00/00 00:00

Weekly Tab

Displays the Weekly Advanced Statistics for analog and function channels set for Advanced Statistics.

This view is equivalent to the STATS WEEKLY command.

Site: Central Office

Output Voltage : 0.00 VDC
 Rectifier Current : 624.0 A
 Load Current : 563.0 A
 Battery Charge : 134 min

STATUS

HISTORY
 Alarm Log
 Event Log
 Min/Max/Avg
 Distr. Capacity
 Daily/Weekly
 Analog Channel 0001
 Analog Channel 0002

INVENTORY

NOTES

CONFIGURATION

Statistics for Analog Channel 0001 (Weekly):

STATISTIC	VALUE	UNITS	DATE & TIME
Maximum	0.025	VDC	09/04/14 20:32
Minimum	0.023	VDC	09/04/14 20:48
High Hourly Average	0.024	VDC	09/04/14 18:00

“Inventory” Menu

Displays the LMS inventory.

This view is equivalent to the LMS BOARDS command.

Sep 5 08:47:01 2014 | LOGOUT
User #6

NETSURE LMS
Data Processing Unit

Site: Central Office

Output Voltage : 0.00 VDC

Rectifier Current : 624.0 A

Load Current : 563.0 A

Battery Charge : 38 min

STATUS

HISTORY

INVENTORY

NOTES

CONFIGURATION

PCU
Boards
Software

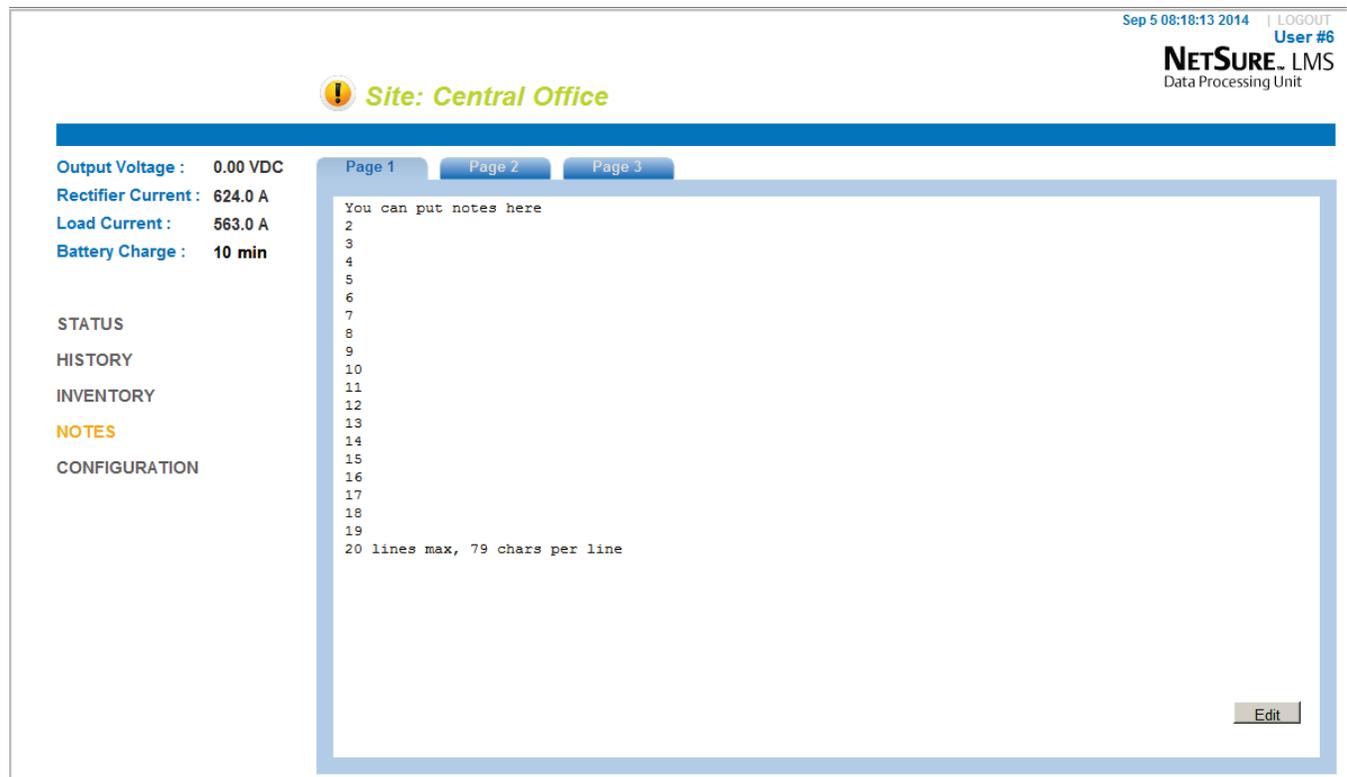
Software Inventory

OPTION NAME	STATUS	PORT AS SIGNED
Local Port	installed,enabled	OEM1 Port
Modem Port	installed,enabled	Internal Port
VSCI Port	not installed	
TL1X.25	not installed	
LISP Port	installed,enabled	OEM2 Port
External Modem	not installed	
AC Analyzer	not installed	
Front Panel Display	not installed	
Gateway Port	not installed	
Dual MCA Port	not installed	
AC & Diesel Sequencers	not installed	
Energy Management	installed,enabled	Not Required
Power Metering	not installed	
SNMP	installed,enabled	Ethernet
Web Interface	installed,enabled	Ethernet
Door Access Controller	not installed	
T11 Over Telnet	not installed	Telnet

“Notes” Menu

Three (3) editable pages for notes are available.

1. Select the tab to edit or enter notes in.
2. Click the “Edit” button to add notes.
3. Click the “Submit” button to save the notes.



The screenshot displays the NetSure LMS interface. At the top right, it shows the date and time 'Sep 5 08:18:13 2014' and the user 'User #6'. Below this, the text 'NETSURE. LMS Data Processing Unit' is visible. A navigation bar indicates the current site is 'Central Office'. On the left side, there is a menu with options: STATUS, HISTORY, INVENTORY, NOTES (highlighted in orange), and CONFIGURATION. The main area shows a text editor with three tabs labeled 'Page 1', 'Page 2', and 'Page 3'. The text inside the editor reads: 'You can put notes here', followed by line numbers 2 through 19, and a note at the bottom: '20 lines max, 79 chars per line'. An 'Edit' button is located at the bottom right of the text area.

“Configuration” Menu Group

“Alarms & PLC” View

Allows you to enter a text description (5 characters maximum) for each of the eight alarm classes.

Allows you to set the eight time period intervals that can be used in the control programs as a variable (P term).

Allows you to set control programs.

This view is equivalent to the SET CLASS, SET PERIODS, SET PROGRAM commands.

NOTE! Press the Help button for a listing of the valid terms and operators, plus example control programs.

Sep 5 08:30:14 2014 | LOGOUT User #6
NETSURE. LMS
 Data Processing Unit

Site: Central Office

Output Voltage :	0.00 VDC
Rectifier Current :	624.0 A
Load Current :	563.0 A
Battery Charge :	22 min

STATUS	
HISTORY	
INVENTORY	
NOTES	
CONFIGURATION	
Alarms & PLC	
Channels	
Power	
Settings	
Users	

Configure Alarms & PLC

Control Programs - Running		Alarm Classes	Time Periods
Chan #	Channel Name	Class Name	From To
R0004	Test Relay	K1 = MINOR	P1 = <input type="text"/> <input type="text"/>
		K2 = MAJOR	P2 = <input type="text"/> <input type="text"/>
		K3 = OBSRV	P3 = <input type="text"/> <input type="text"/>
		K4 = <input type="text"/>	P4 = <input type="text"/> <input type="text"/>
		K5 = <input type="text"/>	P5 = <input type="text"/> <input type="text"/>
		K6 = <input type="text"/>	P6 = <input type="text"/> <input type="text"/>
		K7 = <input type="text"/>	P7 = <input type="text"/> <input type="text"/>
		K8 = <input type="text"/>	P8 = <input type="text"/> <input type="text"/>

<input type="button" value="Submit"/>	<input type="button" value="Help"/>
---------------------------------------	-------------------------------------

“Power” View

Allows you to set parameters of the power system monitored via the LMS.

Also allows you to upload and download MCA configuration files.

Allows you to update inventory.

This view is equivalent to the SET NPS, DOWNLOAD NPS, and UPLOAD NPS commands.

Sep 5 10:56:57 2014 | LOGOUT
 User #6
NETSURE LMS
 Data Processing Unit

Site: Central Office

Output Voltage : 0.00 VDC
Rectifier Current : 624.0 A
Load Current : 563.0 A
Battery Charge : 19 min

Operations | Alarms | File

Operations Page

Voltage

Averaged Remote Sense

System Mode
 Float Voltage
 Test/Equalize Voltage
 High Voltage Shutdown Submit

Current

Current Limit (Amps)
 Alternate Current Limit
 Alternate Current Limit (Percent)
 Rectifier On Delay (0 - 20 secs) * Submit

* Time between each rectifier turning on when AC is restored after an outage

Temperature

Not Reporting Temp Sensor

Temperature Measurement
 Compensation (VDC/Deg C)
 Max Temp Comp Range (VDC)
 Min Temp Comp Range (VDC) Submit

Misc

Manual Test / EQ Test (hours)
 Auto Equalize Time Multiplier
 Audible Silent Time (mins)
 Relay Test Time (secs)
 PowerShare Capacity (%) Submit

STATUS
HISTORY
INVENTORY
NOTES
CONFIGURATION
 Alarms & PLC
 Channels
Power
 Settings
 Users

“Settings” View

General Tab: Set the system unit name, unit number, and unit header. Configure the energy management option, if furnished. Set the User timeout value. The User timeout feature automatically logs off a user when a period of inactivity has occurred. Set the system alarm reporting function. Clear the alarm log, event log, and statistics. Set com port parameters.

Network Tab: Set IP parameters. Set email parameters.

SNMP Tab: Set SNMP parameters.

Node Tab: Set node parameters.

View Tab: Configure Group Pages and Status Pages.

Stats Tab: Set Advanced Statistics for analog and function channels.

File Tab: Upload and download LMS configuration files. Update inventory. Set defaults.

Clock Tab: Set the system date and time. You can manually set the date and time or "sync" to set the clock via a defined Network Time Protocol (NTP) server. You can also select to enable Daylight Savings Time.

This view is equivalent to the SET UNIT, SET EFF, SET TIMEOUT, SET REPORT, SET DATE, SET TIME, CLR LOG, CLR STATS, IP ADDRESS, IP GATEWAY, IP NETMASK, SNMP GET, SNMP OFF, SNMP ON, SNMP SET, TRAPS ADD, TRAPS COMMUNITY, TRAPS DELETE, TRAPS OCCURRED, TRAPS OFF, TRAPS ON, TRAPS PERSISTENT, TRAPS RETIRED, TRAPS VERSION, SET EMAIL, NODE ADD, NODE CONFIG, NODE DELETE, NODE INITIO, NODE REPLACE, SET COM, UPLOAD, DOWNLOAD, and SET DEFAULTS commands.

The screenshot displays the NetSure LMS Data Processing Unit web interface. At the top right, it shows the date and time 'Jan 28 2015 13:15', a 'LOGOUT' link, and the user 'User 6'. The site name 'Site: Emerson Engineering Lab Lorain' is prominently displayed in green. The interface includes a navigation bar with tabs for General, Network, SNMP, Node, View, Stats, File, and Clock. On the left, there are several status indicators: Output Voltage (52.08 VDC), Rectifier Current (0.000 A), Load Current (1.000 A), and Battery Charge (1291 min). Below these are sections for STATUS, HISTORY, INVENTORY, NOTES, and CONFIGURATION (Alarms & PLC, Channels, Power, Settings, Users). The main content area is titled 'General Configuration' and contains three columns of settings:

- Unit:** Unit Name (Emerson Engineering Lab Lorain), Unit No. (1), Unit Header / Config Version (Login) (Wayne's World). Includes a Submit button.
- System:** User Timeout (3000 Secs), System Alarm Report Mode (Off/Single/Continuous), Auto Logoff Time (60 Secs), Retry Time (10 Mins), User Calling Sequence. Includes a Submit button.
- Clear History:** Clear Min/Max/Avg, Clear Alarm Log, Clear Daily Stats, Clear Event Log, Clear Weekly Stats. Includes a Submit button.
- Com Ports:** Local RS-232 (19200), Modem (None). Includes a Submit button.

At the bottom left, there is a 'Submit' button for the Energy Efficiency section.

“Users” View

Allows you to configure Users.

This view is equivalent to the SET USERS command.

Sep 5 08:52:26 2014 | LOGOUT
User #6

NETSURE LMS
Data Processing Unit

Site: Central Office

Output Voltage : 0.00 VDC
Rectifier Current : 624.0 A
Load Current : 563.0 A
Battery Charge : 44 min

STATUS
HISTORY
INVENTORY
NOTES

CONFIGURATION
Alarms & PLC
Channels
Power
Settings
Users

User #1
User #2
User #3
User #4
User #5
User #6
User #7
User #8

Configure User #1

Basic Settings

Active	User #	Name/Login ID	Access	Password	Modem Callback
<input checked="" type="checkbox"/>	1	User #1	1	1	<input type="checkbox"/>

Report Settings

General

Reporting Mode
Modem Off

Retry Time
15

Report Destinations

Primary Phone
Alternate Phone
Primary Email
Alternate Email

Contact Primary Destination

From: Sun 12AM To: Sat 11PM

Report Types

Occurred Alarms
 Retired Alarms
 Persistent Alarms
0 Period (min)
 Daily Report Command
0 : 0 Time

Submit

Accessing LMS1000 via TELNET and TFTP

Users can access the system via Telnet and TFTP through the Ethernet Port. It is beyond the scope of this manual to describe Telnet and TFTP interface operation. Refer to external documentation for a further understanding of these interfaces.

Accessing LMS1000 via SNMP

Users can access the system via SNMP through the Ethernet Port. It is beyond the scope of this manual to describe SNMP interface operation. Refer to external documentation for a further understanding of the SNMP interface.

Management Information Base (MIB) User Interface

The SNMP Interface allows for the control of elements in the system via a user supplied SNMP Manager.

Users must be familiar with their MIB browser and know how to access the information in the LMS1000 SNMP Interface using their browser. They must also be able to obtain a TCP/IP address for the interface and obtain at least one TCP/IP address to which SNMP traps are sent.

The system operates using standard IP SNMPv1 and SNMPv2 protocols.

Using the TL1/X.25 Port (if TL1/X.25 Software Option is installed)

When the TL1/X.25 software option is installed, the system supports the TL1 commands and messages listed in the Commands section. The Access Identifiers and some parameters used in the TL1 commands and messages are user programmable. The parameters are configured as part of the channel configuration. Channels are grouped under an Access Identifier using the SET AID and AID commands. These commands are detailed in the Commands section.

Generation of TL1 Autonomous messages is enabled through configuration of a user (with the SET USER command).

A feature is provided to disable the use of a separator character (AID delimiter) between the system access identifier field and system sub-access identifier field in all command responses and autonomous messages which might contain a TL1 access identifier in the response. This feature does NOT affect the format of TL1 commands sent to the system. When entering TL1 commands in the system, the system sub-access identifier must always be separated from the system access identifier (making up the TL1 access identifier) by a hyphen.

The TL1/X.25 network is connected via a network device to the TL1/X.25 port. The TL1/X.25 port provides an RS 232 connection with asynchronous ASCII text output. A network device is required to convert the output to an X.25 packetized format. The TL1/X.25 feature provides for only the 'direct' mode of operation between the system and a network interface device (commonly a PAD). TL1 operating parameters are set using the SET MODE and MODE commands. These commands are detailed in the Commands section.

The "direct" mode assumes that a link to the X.25 network link is always present. The sending and receiving of messages occurs without initiating a network connection (as with a Permanent Virtual Circuit). A handshake line is available to indicate to the System when a network connection has been lost. The LMS1000 uses the Clear to Send (CTS) handshake line.

If necessary, the output from the TL1/X.25 port can be inhibited using the port's handshake input. The system will not send any messages while the handshake input is inactive. Messages which are pending at the time or after the handshake input becomes inactive will be sent when the handshake input is returned to the active state.

It is beyond the scope of this manual to provide operational instructions for an NMA system and TL1 commands. Refer to the NMA system documentation and the appropriate Bellcore publications for operational instructions.

Using the TL1 Port (if TL1 [over Ethernet] Software Option is installed)

Refer to the previous section titled USING THE TL1/X.25 PORT. Only difference is TL1 support is provided via the LMS1000 Ethernet port.

Using the Gateway Port (if Gateway Software Option is installed)

If the LMS1000 Gateway software option is installed, customer equipment connected to the LMS1000 Gateway Port can be accessed via the LMS1000. This feature allows the customer to connect to the equipment using the same terminal mode interface used to connect to the LMS1000. User input through either a local or remote LMS1000 port is directed to the customer equipment connected to the LMS1000 Gateway port and the equipment responses are directed to the user's terminal interface. The user may connect manually using one of two methods described below.

 **NOTE!** Units with a firmware version earlier than 10.1.0.18 only support manual connection with no profile. The Gateway port feature is not available in units with firmware versions earlier than 6.2.0.8.

In addition, a special mode of operation is provided when a SMART DGU is connected as the Gateway device. The user can issue certain LMS1000 commands and the commands are extended to the DGU and the DGU's responses returned. All without the user logging on to the DGU through the Gateway Port. The LMS1000 commands that operate in this manner are referred to as "Global" commands.

 **NOTE!** Only certain variations of the commands are accepted as "Global" commands. Refer to the end of this section for a list of commands and their variations that are accepted.

Gateway Port Parameters:

The communications parameters of the LMS1000 Gateway port must match those of the customer equipment connected to it. The parity, data bits, and stop bits are fixed at no parity, 1 stop bit, and 8 data bits. The data rate of the Gateway port is set using the LMS1000 command SET GATEWAY. Available data rates are 300, 1200, 2400, 9600, 19200 bps (default is 9600 bps).

The Gateway Port Mode can be set to either NORMAL or GLOBAL. Use of the GLOBAL setting results in the LMS1000 "global" commands being extended to the Gateway device. In the GLOBAL mode of operation the LMS uses Gateway profile number one (DGU) to connect to the Gateway device when sending a global command to the Gateway device.

Operation – Manual Connection With No Profile:

A Gateway port session can be activated by using the LMS1000 command CONNECT without arguments as shown below.

```
Command<6>: CONNECT
```

```
GATEWAY port activated
```

```
Press CTRL-C CTRL-C to exit
```

In this mode the LMS1000 connects the user's terminal device to the Gateway Port device without any processing. The user must then make entries on their terminal interface to initiate whatever action is required of the Gateway device.

To terminate the Gateway session enter an exit sequence of CTRL-C twice within a one second interval. The state of the Gateway device remains as it was when the Gateway session is terminated.

Operation – Manual Connection with a Profile:

The Gateway port session is activated by using the LMS1000 command CONNECT with one or two arguments as shown below. The first argument specifies the Gateway device profile to be used. The second argument is optional and specifies the password to allow the LMS to automatically logon to the Gateway device.

To terminate the Gateway session enter an exit sequence of CTRL-C twice within a one second interval.

 **NOTE!** Operation using the Gateway profiles assumes that entry of the Gateway device logon and commands are terminated by the <ENTER> key.

When only the profile argument is specified the connection is established much the same as if no argument were supplied. The user must enter keystrokes on their terminal to initiate whatever action is required of the Gateway device.

```
Command<6>: CONNECT WB57
```

```
GATEWAY port activated
```

Press **CTRL-C CTRL-C** to exit

However, when a profile is specified and the Gateway session exit sequence is detected the LMS1000 sends the logoff command specified in the profile to the Gateway device prior to terminating the Gateway session. This method of connecting leaves the Gateway device in a state that requires anyone connecting to it to logon again.

When both the profile and password arguments are specified the connection is established and the LMS1000 automatically logs on to the Gateway device using the supplied password argument. The Gateway Device logon greeting is displayed followed by the Gateway Device command prompt as shown below. The user may then enter commands to the Gateway device to initiate the desired actions.

Again, when the Gateway session exit sequence is detected the LMS1000 sends the logoff command specified in the profile to the Gateway device prior to terminating the Gateway session.

```
Command<6>: CONNECT WB57 <password>
```

```
GATEWAY port activated
```

Press **CTRL-C CTRL-C** to exit

```
[Gateway Device logon greeting]
```

```
[Gateway Device command prompt]
```

Operation – Global Command Connection:

When a global command is entered the LMS1000 automatically connects to the Gateway device. It uses the DGU Gateway Device Profile (profile #1) and logs on to the DGU using the password of the user that is presently logged on to the LMS1000.

 **NOTE!** This requires that the DGU connected to the Gateway Port have the same passwords as the users on the LMS1000.

After the LMS1000 successfully logs on to the DGU it issue a UNIT command to identify the DGU to the remote user. It then issues the global command to the DGU and returns the DGU's response to the LMS user.

After the DGU has completed its response the LMS1000 Automatically logs off the DGU and terminates the Gateway connection.

 **NOTE!** An LMS1000 user can still establish a Gateway session manually when the LMS1000 is not processing a global command.

```
Command<6>: ALARMS
There are no LMS alarms.
```

```
UNIT
Lorain SMART DGU V9.1.3
Unit Name: Demo DGU in Central Office - Unit #2
```

```
Command<6>: ALARMS

BINARY CHANNEL ACTIVE ALARMS AS OF 16:23:06 ON 08/20/10.
Chan   Description                Status Alarm Status / Class
B83 VPS Communication Failure      --          active
```

```
Command<6>:

    Disconnecting from DGU...

NetSure LMS v10.1.0.18  CRC: DBEE1921
Unit Name: Flr 10 -48VDC Plant A - Unit #1
```

```
Command<6>:
```

Operation – Gateway Session Termination Message:

```
Aborting GATEWAY session...
Returning control to LMS...

    Disconnecting from WB57...

NetSure LMS v10.1.0.18  CRC: DBEE1921
Unit Name: Flr 10 -48VDC Plant A - Unit #2
```

Restrictions

Only one LMS1000 Gateway port supported.

- Only one Gateway port user at a time supported.
- **Session Abort Control:** A Gateway session must be manually terminated using the Gateway session termination escape sequence. The LMS1000 will not detect an abort of the Gateway session by the device connected to the Gateway port, nor is it capable of terminating the session with the device connected to the Gateway port when the LMS1000 session is aborted abruptly.
- **Loss of Carrier:** The LMS1000 will automatically terminate a Gateway Port session established via modem dial up or TELNET in the event of a loss of carrier or network connection.

- **User Timeout:** A Gateway Port session is automatically terminated and the user is returned to the LMS1000 command prompt when the User Timeout Period is exceeded. If a Gateway session was established using a Gateway Profile the LMS1000 will automatically log off of the Gateway device.
- **Alarm Reporting:** When using a dial-up session to communicate with the Gateway port, dial-out alarm notification via LMS1000 is delayed until the Gateway session is terminated and control is returned to the LMS1000.
- With the exception of session inactivity monitoring, any related communications protocol control (i.e., character echoing) will be performed by the device connected to the Gateway port.
- Third party software utilized to communicate with a Gateway Port device will need to first logon to the LMS1000 and enter the CONNECT command. The only exception to this is when the Gateway Port is set to operate in the “Global” mode and a Global command is issued.
- The LMS1000 will not support any third party proprietary communications protocol required to communicate with customer equipment connected to the Gateway port.

List of LMS Commands Accepted As Gateway Port Global Commands

ALARMS, ALARMS <t>, ALARMS U
(t = Channel type [Analog, Binary, etc.]

SCAN, SCAN <t>, SCAN U
(t = Channel type [Analog, Binary, etc.]

STATS, STATS <t>, STATS U
(t = Channel type [Analog, Function])

STATUS

EVENTS

LOG LOG U

CLR EVENT

CLR LOG

CLR STATS.

SET TIME

SET DATE

Using Programmable Commands

Eight user programmable commands can be entered in the system. A programmable command combines up to eight standard commands into a single command which then can be executed by typing the name given the programmable command. The programmable commands can be created or changed by using the command SET CMD. This command is described below. The name of the programmable command and the necessary access level required to execute the command can also be entered or revised through this command. This command is available to users programmed for access to level 6 commands.

SET CMD Command: This command lists each item that can be changed, showing the current information, and then prompting for new or revised information to be entered. If the current information does not need to be changed, press ENTER to continue.

SET CMD

Command <6>: SET CMD	Type SET CMD, then press ENTER.
Which Command (1 - 8) :	Type the number (1-8) which corresponds to the programmable command configuration which is to be created or revised, then press ENTER.
Command _ Name :	Type the desired name for this programmable command (30 characters maximum), then press ENTER.
Command _ access level:	Type the desired access level (1-6) required to execute this programmable command, then press ENTER.
Command _ line 1: Note: This line is repeated to enter up to seven more commands.	Type the first standard command plus any additional characters to be used with the standard command (20 characters maximum) that will be executed when this programmable command is entered, then press ENTER.

Using the Alarm Cutoff Feature



NOTE! This feature is not the same as the ACO provided on the MCA's Interface Pad of a VPS/NPS Power System.

An Alarm Cut-Off Feature allows users to temporarily cut-off existing alarm conditions from affecting certain relay channels of the system. This feature prevents any analog, function, or binary channel alarm condition from affecting the control programs of the relay channels. This feature is intended for applications where programmable relays are being used as MAJOR and MINOR alarm relays. This feature must be programmed when the relay channels are configured to be operable. It is important to know that if a cut-off alarm clears, such as a low voltage going away, the cut-off feature for that alarm is automatically released, or "uncanceled". That is, if the alarm were to turn in again, the user must initiate another alarm cut-off to prevent that alarm from affecting the relay.

Activating the ACO: If a relay energizes due to an alarm condition active on an analog, function, or binary channel; the user can "cut-off" (de-energize) the alarm by issuing the command SET ACO. The system responds with a listing of alarms that are cancelled and makes an entry in the event log. This command is available to users programmed for access to level 4 commands.

Clearing the ACO:

- a) Manual: The command CLR ACO releases, or "uncancels", the alarm cut-off feature thereby enabling analog, function, and binary channel alarm conditions to again affect the relay channels' control

programs. This command is available to users programmed for access to level 4 commands. An entry is recorded in the event log that tags a user's name to this action.

- b) **Automatic:** Also, any relay channel configured to be "Affected by ACO" can also be configured so that it can only remain cancelled for a selectable amount of time. This is accomplished by setting the "cycle frequency" of the relay channel for the desired time period. An alarm relay cancelled by the SET ACO command is automatically reset by the system at a time determined by the relay's "cycle frequency". Basically, the system uncancels all alarms by performing the equivalent of a CLR ACO command each time that the total number of minutes in a day (that have elapsed since midnight) is evenly divisible by the relay's "cycle frequency". For example, a relay with a "cycle frequency" of 480 minutes cycles off at midnight, 8 AM, and 4 PM. This feature is designed to automatically restore cancelled major or minor alarm relays at selected time intervals.

Forcing On Relays or LED's

Relay's and LED's are normally controlled by control programs. They can also be forced on through the commands SET RLY and SET LED, respectively. If a relay or LED has been manually forced on, it can be turned off through the commands CLR RLY and CLR LED, respectively. You cannot turn off a relay or LED that has been turned on through a control program. If a relay must be turned off in this situation, configure the associated relay channel to be inactive.



NOTE! The relay circuit card contains a jumper which may be set to disable the use of the SET RLY and CLR RLY commands.

Acknowledging System Alarms

If the System Alarm Report Mode parameter (SET REPORT command) is set to CONTINUOUS, the system continues to call or Email the User at the programmed retry interval until the user acknowledges the alarm. Acknowledgement of an alarm is done by logging on with a terminal and entering the command ACK.

Using the ACKnowledge Command: If a user issues an ACKnowledge command, the user's ID number is tagged to all alarm log entries not previously acknowledged. If the ACK command is issued after a user receives a pending system alarm report message, the auto-logout and system alarm report will be aborted.

Analog and Function Channel Statistics

There are two types of statistics stored for analog and function channels, Basic Statistics and Advanced Statistics, as described below.

Basic Statistics

The Basic Statistics available for any analog or function channel include the three highest clock hourly averages and their time and date of occurrence, the time and date of the peak one minute average value, and the time and date of the minimum one minute average value as of the last Basic Statistic reset. The time of the last reset is also shown when the statistics are displayed. These statistics are retained in battery-backed memory.

Basic Statistics are displayed by entering the command STATS. The recording of statistics is reset by entering the command CLR STATS. The statistics for each analog and function channel can be reset independently by using the modifier An or Fn (n=channel number) with the CLR STATS command (ex. CLR STAT A0001 or CLR STAT F0001). Refer also to the descriptions of these commands in the COMMANDS section.

Advanced Statistics

The **Advanced Statistics** feature provides for collection of peak maximum, peak minimum, and hour-average values on a **daily and weekly** basis for up to **ten** User specified analog and function channels.

1. Peak Maximum Value – The highest one minute average value of a channel occurring during the specified time period (daily, weekly).
2. Peak Minimum Value – The lowest one minute average value of a channel occurring during the specified time period (daily, weekly).
3. Highest Hourly Average Value – A highest average of the channel value sampled over a one clock hour period that occurs during the specified time period (daily, weekly).

The 'daily statistics' are collected for each twenty-four hour period starting and ending at midnight of each day. Sixty days of 'daily statistics' are stored, with the oldest day being recorded over by the current day's statistics.

The 'weekly statistics' are collected for each weekly period starting and ending at midnight on Saturday of each week. Fifty-two weeks of 'weekly statistics' are stored, with the oldest week being recorded over by the current week's statistics.

Advanced Statistics are displayed by entering the command STATS DAILY and STATS WEEKLY. The recording of statistics is reset by entering the command CLR STATS DAILY and CLR STATS WEEKLY. Statistics for analog and function channels to be recorded is set by entering the command SET STATS CHANNELS. The channels being recorded can be viewed by entering the command STATS CHANNELS. The Advanced Statistics are displayed by default in a standard format, the User can select to display the statistics in a 'comma separated format' by using the command modifier CSV. Refer also to the descriptions of these commands in the COMMANDS section.

The following channels are set by default for daily and weekly statistics. The default channels are dependent upon the type of power system the LMS1000 is monitoring.

VPS/NPS Defaults: A9001 System Voltage, A9002 System Current, A9003 Subsystem Voltage, A9004 Subsystem Current, and A9005 Total PCU Current.

NPS Defaults: A9901 System Voltage, A9902 Total PCU Current, A9903 Total System Current, A9904 Group A Load Current, A9905 Group B Load Current, and A9907 Temperature Sensor.

Generic Defaults: A0001 Analog Input 1 and A0002 Analog Input 2.

Using the Scan Feature

The user can set the time interval between scan data output lines when scanning an individual channel. The interval can be specified from 1 to 600 seconds. This is done by entering a modifier (1 through 600) at the end of a scan command line. If no modifier is entered, a single line of scan data is displayed. (ex. SCAN A0012 20, would output one line of scan data for analog channel A0012 every 20 seconds.)

Using the Rate Feature (Analog Channel Maximum Load Percentages Report)

This feature determines how plant (battery and rectifier) capacities and other sizing limits (fuses, circuit breakers, and wire sizes) are faring under actual load conditions. This feature allows the customer to easily determine the maximum load percentage (that has occurred) versus an analog channel alarm limit. This feature divides the maximum peak value of an analog input and the highest hourly average into a designated alarm limit and presents the results as percentages. These percentages inform the customer how close a channel's peak and high hourly average values are in relation to its alarm limit(s).

To use this feature, one of two character phrases must appear in the analog channel's alarm limit name. These two phrases are "CAP" (for capacity) and "SIZ" (for size). Also, the "Unit Text" for this analog channel must be "AMPS".

To get a report, enter the command RATE. Any time the RATE command is entered, and either of the two phrases mentioned above appear in an analog channel's alarm limit name and the analog channel's Unit Text is set for AMPS, the system computes the two percentages and displays the resulting information. The RATE command is available to a user programmed for access to level 1 commands. Refer to the "Commands" section for a typical screen display.

Viewing and Clearing the Alarm Log

The alarm log maintains in battery-backed memory a chronological listing of the 500 latest alarms that have occurred in the system (and an MCA, if connected). Entries in the log automatically include analog, function, and binary alarms, however; a relay or LED channel may be programmed to record an entry in the log whenever it energizes or illuminates, respectively.

VPS/NPS MCA Alarms: VPS/NPS MCA alarms that are recorded in the alarm log are as follows. For proper system alarm reporting or individual user alarm reporting of VPS/NPS MCA alarms, refer to Table 1 and ensure that the desired channels automatically mapped to predetermined VPS/NPS MCA alarms are programmed for system alarm reporting and/or added to the appropriate user configuration.

- System High Voltage Alarm #1
- System High Voltage Alarm #2
- Battery On Discharge Alarm
- 50% Battery On Discharge Alarm
- System Overcurrent Alarm
- Subsystem High Voltage Alarm
- Subsystem Low Voltage Alarm
- Subsystem Overcurrent Alarm
- Emergency Stop
- System Fuse Alarm
- Subsystem Major Alarm
- High AC Line Alarm
- Subsystem Minor Alarm
- All AC Off
- MCA Fail Alarm
- LVD Active
- LVDs Inhibited
- System Major Alarm
- System Minor Alarm
- Shunt Fail Alarm
- LVD Fail Alarm
- Subsystem Fuse Alarm
- PCU Fail Alarm
- VPS/NPS Communications Failure

NPS MCA Alarms: NPS MCA alarms that are recorded in the alarm log are as follows. For proper system alarm reporting or individual user alarm reporting of NPS MCA alarms, refer to Table 2 and ensure that the desired channels automatically mapped to predetermined NPS MCA alarms are programmed for system alarm reporting and/or added to the appropriate user configuration.

System High Voltage Alarm #1
System High Voltage Alarm #2
Battery On Discharge Alarm
System Voltage is Very Low Alarm
System Distribution Load A Current Alarm
System Distribution Load B Current Alarm
High Temperature #1 and #2 Alarms
Low Temperature #1 and #2 Alarms
System Breaker or Fuse Alarm
System Major Alarm
System Minor Alarm
NPS Communications Failure
NPS MCA "CAN I/O" Circuit Card Alarms
LVD Active
LVD Fail Alarm
System Total Load Alarm
Distribution Panel Alarms
MCA Hardware Failure Alarm
Emergency Stop
Unidentified NPS Node Alarm
High AC Line Alarm
All AC Off
PCU Fail Alarm
Subsystem Fuse Alarm
Subsystem Major Alarm
Subsystem Minor Alarm
NPS Router Alarms
Relay Board Alarms
LVDs Inhibited

An important aspect of the alarm log is its use for system alarm reporting and individual user alarm reporting. The alarm log supplies the information that the system formats for these reports. A listing of the alarm log will indicate entries which are to be reported. When that entry is acknowledged (ACK command) by a user, the user number appears just after the occurred time shown in the report to indicate the user that acknowledged the alarm. Each entry in the alarm log contains the following items:

1. Channel number of the alarm (A0033, B0012, R0001, etc.).
2. Channel's limit number (if applicable) or channel's "sub-ID". (A channel's "Sub-ID" further identifies the cause of the alarm.)
3. Channel's name.
4. Type of alarm (high, low, force, program), and class of alarm.
5. Occurred date and time. If the alarm has been acknowledged by a user, the user number appears after the occurred time.
6. Cleared date and time.
7. A lowercase character r if the alarm is to be reported as a system alarm.

Commands LOG and CLR LOG: The alarm log can be viewed or cleared by using the commands LOG or CLR LOG, respectively. These commands are available to users programmed for access to level 1 and level 4 commands, respectively.

Viewing and Clearing the Event Log

The event log maintains in battery-backed memory a chronological listing of the 500 latest events that have occurred in the system (and in an MCA, if connected). An event is defined as any change to the system configuration or to critical programming parameters of the system, and are described below.

 **NOTE!** *The event log will not record a report failure if there is no phone number entered in a user's configuration, and the system attempted an alarm report to this user.*

LMS1000 Events:

1. The unit has been reset.
2. The unit's default settings are reset (by user or unit).
3. A user logs on to the unit.
4. A failed logon attempt has occurred.
5. The user setup has been changed.
6. The date or time has been changed.
7. The alarm log has been cleared.
8. The statistics have been cleared.
9. Alarms have been cancelled or un-cancelled (SET/CLR ACO).
10. A particular channel has been configured.
11. A particular LED or relay has been set (forced) or cleared.
12. The event log has been cleared.
13. A time period has been set.
14. A user phone number has been set.
15. The unit name or number has been set.
16. An information page has been set.
17. Relay circuit card failure.
18. Analog circuit card failure.
19. A new alarm report completed or failed.
20. A user report completed or failed.
21. User channels set.
22. System uploaded.
23. Status page set.
24. Programmable command set.
25. User timeout set.
26. Unreported system alarms have been acknowledged (ACK).
27. Pager report attempted.
28. Function, LED, or relay channel program line cleared.
29. Energy management enabled, disabled, or configured.
30. TL1 Report Messages.
31. System Identifier Configured.
32. TL1 Report Messages enabled or disabled.
33. "4 chan Relay bd <#n> fail".
34. "Com link to MCA broken".
35. "Chn <type, node#, channel#> statistics cleared".
36. "Function channel stats cleared".

37. "Analog channel stats cleared".
38. "System reset issued".
39. "4 chan Binary bd <#n> fail".
40. "8 chan Binary bd <#n> fail".
41. "Temperature bd <#n> fail".
42. "Temp bd <#n> sensor <#n> fail".
43. "4 ch A/D <#n> converter <#n> fail".
44. "4 ch A/D <#n> EEPROM fail".
45. Rectifier sequencing is enabled, disabled, or configured.
46. Group <# n> configured.
47. Set limits of analog or function channel.
48. Set control program line of relay, LED, or function channel(s).
49. Number of rings before answer is set.
50. Alarm class <#n> is configured.
51. Local communications port data rate is set.
52. User mail is set.
53. System alarm report parameters are configured.
54. I/O card <#n> added.
55. Search for new nodes ("NODE ADD" command).
56. Node <#n> configured.
57. Node <#n> or unmapped node deleted.
58. Node <#n> replaced.
59. I/O Network initialized.
60. Upload abort before completion (partial upload).
61. Upload of TL1 parameters failed.
62. TL1 operating mode is configured.
63. TL1 AID <#n> is configured.
64. Channel database configured.
65. One or more of the following IP (internet) parameter address was changed: Unit address, Gateway address, Netmask address, Host address added, Host address deleted.
66. SNMP operation was enabled or disabled.
67. SNMP "GET", "SET" or "TRAPS" community string was changed.
68. SNMP traps operation enabled, disabled, or version changed.
69. SNMP traps host added or deleted.
70. SNMP occurred, retired, or persistent traps enabled or disabled.
71. Execution of the following TL1 commands results in an event log entry: ALW-MSG, INH-MSG, OPR-EXT-CONT, RLS-EXT-CONT, INIT-SYS, DEL-USER, EDIT-PID, EDIT-USER, ENT-USER, SET-ATTR.
72. Main chassis channel initialization failed.
73. Power Metering Statistics cleared.
74. Application Vx.x.x.x changed.
75. HTTP create socket failed.
76. HTTP task reset.
77. HTTP bind socket failed.
78. HTML checksum failure.
79. VI parameters set.
80. Battery Discharge Timer set.
81. Key code nn validated.
82. Invalid Key Code entered.
83. System Alarm Report parameters set.
84. Daily/weekly statistics cleared.

85. Daily/weekly statistics channel group set.

VPS/NPS MCA Events: The following actions performed at the VPS/NPS MCA local interface pad or event (#28 below) are recorded in the events log.

1. System float voltage set
2. System test/equalize voltage set
3. System high voltage shutdown set
4. System current limit set
5. System output voltage calibration reading set
6. NAG (audible alarm cutoff reset time period) minutes set
7. Battery charge temperature compensation module's calibration voltage set
8. System high voltage alarm #1 set
9. System high voltage alarm #2 set
10. System 50% battery on discharge alarm set
11. System battery on discharge alarm set
12. System overcurrent alarm set
13. System operating mode (float or test/equalize) changed
14. Subsystem high voltage alarm set
15. Subsystem low voltage alarm set
16. PCU toggled on or off (TR feature)
17. Number of available PCU mounting positions changed
18. Number of PCUs installed changed
19. Number/type of loads installed changed
20. Number of LVD cards installed changed
21. Subsystem overcurrent alarm set
22. Subsystem output voltage calibration reading set
23. LVD "disconnect" set
24. LVD "reconnect" set
25. ACO activated
26. Subsystem Installed
27. Subsystem Removed
28. MCA Powered Down
29. Number of temperature probes changed
30. PCU fan speed set
31. PCU load share alarm set
32. LVD manually reconnected
33. Battery overcurrent set
34. Auto equalize multiplier set
35. Digital temperature compensation slope set
36. Digital temperature compensation maximum voltage set
37. Digital temperature compensation minimum voltage set
38. Battery current limit set
39. Temperature probe high alarm set
40. Temperature probe low alarm set
41. Digital temperature compensation source set
42. Relay test time set
43. Test/Equalize time set
44. VPS/NPS interface enabled
45. VPS/NPS interface disabled

NPS MCA Events: The following actions performed via LMS1000 or detected by LMS1000 (#26 below) are recorded in the events log.

1. System float voltage set
2. System test/equalize voltage set
3. System high voltage shutdown set
4. System current limit set
5. System output voltage calibration reading set
6. NAG (audible alarm cutoff reset time period) minutes set
7. Battery charge temperature compensation module's calibration voltage set
8. System high voltage alarm #1 set
9. System high voltage alarm #2 set
10. System 50% battery on discharge alarm set
11. System battery on discharge alarm set
12. System overcurrent alarm set
13. System operating mode (float or test/equalize) changed
14. Subsystem high voltage alarm set
15. Subsystem low voltage alarm set
16. PCU toggled on or off (TR feature)
17. Number of available PCU mounting positions changed
18. Subsystem overcurrent alarm set
19. Subsystem output voltage calibration reading set
20. LVD "disconnect" set
21. LVD "reconnect" set
22. Inventory reset
23. MCA custom message set
24. PCU custom message set
25. MCA remote access password set
26. LMS1000/MCA communications link broken
27. Previously downloaded configuration uploaded to the NPS. Two events are recorded for this action. "NETSURE system uploaded" and "NPS settings uploaded".
28. Number of temperature probes changed
29. PCU fan speed set
30. PCU load share alarm set
31. LVD manually reconnected
32. Battery overcurrent set
33. Auto equalize multiplier set
34. Digital temperature compensation slope set
35. Digital temperature compensation maximum voltage set
36. Digital temperature compensation minimum voltage set
37. Battery current limit set
38. Temperature probe high alarm set
39. Temperature probe low alarm set
40. Digital temperature compensation source set
41. Relay test time set
42. Test/Equalize time set

NPS MCA Events: The following actions performed via LMS1000 or detected by LMS1000 are recorded in the events log.

where, bb = bay number
cc = equipment number
ss = bay slot number
nnn = PCU capacity
dd = equipment element number
sssssss = PCU Serial #

1. NPS local update inventory
2. NPS remote update inventory
3. NPS bay bb unknown added
4. NPS bay bb unknown deleted
5. NPS bay bb unknown moved
6. NPS bay bb unknown replaced
7. NPS MCA added
8. NPS MCA deleted
9. NPS MCA moved
10. NPS MCA replaced
11. NPS router bb-cc added
12. NPS router bb-cc deleted
13. NPS router bb-cc moved
14. NPS router bb-cc replaced
15. NPS nnnA PCU bb-cc added (582140000) or PCU sssssss added (582140001 or 582126100)
16. NPS nnnA PCU bb-cc deleted (582140000) or PCU sssssss deleted (582140001 or 582126100)
17. NPS nnnA PCU bb-cc moved (582140000) or PCU sssssss moved (582140001 or 582126100)
18. NPS nnnA PCU bb-cc replaced (582140000)
19. NPS dist. bb-cc added
20. NPS dist. bb-cc deleted
21. NPS dist. bb-cc moved
22. NPS dist. bb-cc replaced
23. NPS settings uploaded
24. NPS RCB bb-ss added
25. NPS RCB bb-ss deleted
26. NPS RCB bb-ss moved
27. NPS RCB bb-ss replaced
28. NPS sys volts input changed
29. NPS temp. probe installed
30. NPS temp. probe removed
31. NPS temp. format changed
32. NPS MCA load A/B activated
33. NPS MCA load A/B deactivated
34. NPS dist. bb-cc LD B enabled
35. NPS dist. bb-cc LD A enabled
36. System float voltage set
37. System equalize/test voltage set

38. System high voltage shutdown set
39. System current limit set
40. System high voltage alarm #1 set
41. System high voltage alarm #2 set
42. System battery on discharge alarm set
43. System very low voltage alarm set
44. System total load current alarm set
45. System distribution A load current alarm set
46. System distribution B load current alarm set
47. NAG (audible alarm cutoff reset time period) minutes set
48. System manual equalize/test time set
49. System temperature compensation slope set
50. System maximum temperature compensation voltage set
51. System minimum temperature compensation voltage set
52. System high temperature alarm #1 set
53. System high temperature alarm #2 set
54. System low temperature alarm #1 set
55. System low temperature alarm #2 set
56. System relay test time set
57. System equalize multiplier set
58. Temperature displayed in degrees Celsius
59. Temperature displayed in degrees Fahrenheit
60. Manual equalize/test started
61. Manual equalize/test stopped
62. System relay test started
63. System relay test stopped
64. NPS MCA password set
65. MCA MSG set
66. Router bb MSG set
67. PCU bb-cc MSG set
68. Dist panel bb-cc MSG set
69. Relay bb-ss MSG set
70. PCU bb-cc set ON (582140000) or PCU sssssss set ON (582140001 or 582126100)
71. PCU bb-cc set OFF (582140000) or PCU sssssss set OFF (582140001 or 582126100)
72. Dist bb-cc shunt dd added
73. Dist bb-cc shunt dd removed
74. Dist bb-cc shunt dd changed
75. NPS nnnA PCU bb-cc new capacity
76. Equalize/test mode is active
77. Float mode is active
78. NPS I/O Bd bb-ss added
79. NPS I/O Bd bb-ss deleted
80. NPS I/O Bd bb-ss moved
81. NPS I/O Bd bb-ss replaced
82. I/O Bd bb-ss custom message set
83. I/O Bd bb-ss input scale set
84. I/O Bd bb-ss output scale set
85. I/O Bd bb-ss load type set
86. I/O Bd bb-ss binary input dd alarm orientation changed
87. NPS MCA auxiliary load deactivated

- 88. NPS MCA auxiliary load activate
- 89. NPS Power Share Capacity set
- 90. NPS Power Share Offset set
- 91. NPS Alternate Current Limit set
- 92. PCU Sequence Delay set

Each entry in the Event Log contains the following items:

- 1. Name and number of user responsible for the event.
- 2. Description of the event.
- 3. Date and time of the event.

Command EVENTS and CLR EVENTS: The event log can be viewed or cleared by using the commands EVENTS or CLR EVENTS, respectively. These commands are available to users programmed for access to level 6 commands.

Using Status Pages

Sixteen user programmable status pages (or screens) can be formatted in the system. These status pages can be viewed by any user through the command STATUS. These pages permit the displaying of scan information (channel status such as present value and alarm information) derived from separate channels on a single page format. Each status page can hold up to 18 lines of text. The first line is used for a page title or name, while the remaining 17 lines are programmed to contain either header information or actual channel scan data.

SET STATUS Command: The status pages can be created or changed by using the SET STATUS command. This command is available to users programmed for access to level 6 commands. This command, when entered, displays a header that contains the current status pages configuration information. The command then asks which status page is to be created or changed. Then, individually, the command will list each line, showing the current information, and then prompting for new or revised information to be entered. If the current information does not need to be changed, press **ENTER** to continue.

To program one of the 17 lines for header information, the user enters the channel type (e.g. A, B, R, etc.). This will then produce the particular header information as normally seen during the execution of the standard command SCAN.

To program one of the 17 lines to display actual channel SCAN data, the user enters both the channel type and number (e.g., A001, B003, R0014, etc).

You can generate a blank line in a status page by pressing the **SPACE BAR**, and then **ENTER**. This will also move you to the next line.

A status page can be programmed with the following characters:

Line 1: Type the page name or title (30 characters maximum).

Lines 2 - 18: Type one of the following characters per line to display Header or SCAN Information when the command STATUS is executed.

A=Analog Channel Header

B=Binary Channel Header

E=Energy Management Channel Header

F=Function Channel Header

L=LED Channel Header
R=Relay Channel Header
An=Analog Channel n
Bn=Binary Channel n
En=Energy Management Channel n
Fn=Function Channel n
Ln=LED Channel n
Rn=Relay Channel n
Space Bar=Blank line

Using Information Pages

Three user programmable information pages (or screens) can be entered in the system. These information pages can be viewed by any user through the system command INFO. Each information page can hold up to 20 lines of text, with 79 characters per line. Spaces and punctuation each count as a character. These pages can serve as a note pad or location of instructions for users.

Command SET INFO: The information pages can be created or changed by using the command SET INFO. This command is available to users programmed for access to level 6 commands.

Using the Mail Service

Each of the eight users has the capability of sending mail to all configured users, including themselves. When a user logs onto the system, he is notified if there is any mail sent to him. The user can read his mail by entering the command MAIL. After displaying the contents of the mail from a particular user, the system asks whether to save or delete this information. If the mail is not deleted, the user will be notified that he has mail every time he logs on to the system, or until the sender deletes the mail himself. After the currently displayed mail is either saved or deleted, mail sent from another user, if present, is displayed. The user's ability to send mail to himself allows the user to write a message that he will receive every time he logs on to the system. A user can only send one mail message at a time

Reading Mail: Mail can be read by entering the command MAIL.

Sending Mail: Three lines of information can be created or changed for mailing purposes by using the command SET MAIL as described in the "Commands" section. Each line is 79 characters long. The sender programs which users are to receive his mail by individually entering the desired user(s) number(s) when prompted. The sender can also review the mail he previously sent, and at the same time he will be notified by the system of the users that have acknowledged receiving the mail. This command is available to users programmed for access to level 1 commands. Use CTRL R and CTRL Z to edit mail messages. Typing CTRL R copies the previously entered message. Typing CTRL Z copies the next character of the previously entered message.

Methods of Obtaining Specific Information

Since each user may not necessarily be concerned about the same information, several methods exist whereby a user can limit the information displayed when using a local or remote terminal.

- a) One method involves organizing the channels under a common name known as a group. Eight different groups can be configured. Each group is programmed with a unique name and may contain any or all channels. Either the group name or group number can then be used to extract information from those channels (e.g., SCAN G0001). Refer to the Configuration section in the separate Installation Instructions (Section 5879) for details on configuring the groups.
- b) Another method of limiting information is by programming only the channels of interest to a particular user in his user configuration. This can be done when the user is configured with the commands SET SYSTEM or SET USERS, or with the command SET CHANNELS. When a user has defined channels, he can then extract information on only those channels by typing the letter U (for User) after certain commands. For example, the command SCAN U displays the present status of only the user's channels. Similarly, ALARMS U displays the present alarm status of these same channels.
- c) A third method of limiting information involves typing part of the desired channel or channels name after certain commands, such as SCAN, ALARMS, LOG, and PRCONFIG. For example, the command "SCAN Rect" displays the present status for any channel that contains "Rect" in the channel name. Also, if you use a question mark (?) after the command, it will act as a wildcard and match any character. For example, the command "ALARMS P???" displays alarms for channels that contained an uppercase P in their channel name followed by at least three other characters.
- d) Programmable Commands - Similar to "macros" or "batch processing", these allow multiple standard commands to be executed by typing the name of the programmable command.
- e) Status Pages - Status Pages can be used to create a custom screen containing 17 lines of channel information that includes alarm status and present value.
- f) Information Pages - Three pages, each one consisting of 20 lines by 79 characters, allows storage of such information as spare parts, maintenance data, emergency information, etc.

Downloading and Uploading the Configuration

The system has the capability of downloading the current system configuration to a personal computer. The system also has the capability of uploading a system configuration. The only requirement is that the information transfer is done using the XMODEM protocol with CRC error checking, or TFTP protocol via the Ethernet port.

Once the system has been completely configured for a particular application, it is highly recommended that the system configuration is downloaded to disk. If the CPU has to be changed, or if firmware has to be upgraded, system configuration could be reprogrammed by uploading the configuration file saved on disk back into the system.

Downloading and Uploading Using XMODEM

The XMODEM protocol ensures the integrity of the configuration during an upload and download process. Communications programs for PC's that have the XMODEM protocol are available in the LORAIN® SMART PARTNER and other software packages.

 **NOTE!** A fully configured system downloaded or uploaded over a phone line at 1200 bits/s may require up to 15 minutes.

 **NOTE!** The communications parameters of the remote terminal must match the system's default parameters. The default parameters are 8 data bits, 1 stop bit, and no parity. These defaults cannot be changed.

System configuration files can be saved on disk, or loaded back into a system using the DOWNLOAD and UPLOAD commands, as described below. These commands are also described in the "Commands" section. These commands are available to users programmed for access to level 6 commands.

To Download the Configuration from the LMS1000 to a PC using XMODEM:

1. Log on to the system. The user must have access to level 6 commands.
2. Enter the command **DOWNLOAD**, or **DOWNLOAD NETSURE**, or **DOWNLOAD NPS**, then press **ENTER**. You have up to 1 minute to initiate a file transfer.
3. The system will wait up to 1 minute before aborting the process if no file transfer occurs. The system waits for a 'C' character, which is the synchronization character for starting an XMODEM CRC file transfer.
4. At the PC, initiate a file transfer using XMODEM CRC protocol.

To Upload a Configuration from a PC to the LMS1000 using XMODEM:

1. Log on to the system. The user must have access to level 6 commands.
2. Enter the command **UPLOAD**, or **UPLOAD NETSURE**, or **UPLOAD NPS**, then press **ENTER**. The following will be displayed.

```
UPLOAD using XMODEM Protocol with CRC error checking
```

You have up to 1 minute to initiate a file transfer. Each second during this 1 minute period the system sends a 'C' character, which is the synchronization character for starting an XMODEM CRC file transfer.

3. At the PC, initiate a file transfer using XMODEM CRC protocol.
4. When the transfer is complete, the following is displayed.

```
84 blocks received OK.
```

```
Upload Complete.
```

The number of blocks received may vary.



NOTE! If an error message (as shown below) appears, the file being uploaded must be re-edited to correct the appropriate program line. The CLR PROG command may be used instead of re-editing the upload file. Refer to the CLR PROG command in the COMMANDS section.

```
202 blocks received OK.
```

```
R01=h1
```

```
^
```

```
Program error -- Bad Character
```

```
Upload Complete.
```

Downloading and Uploading Using TFTP

System configuration files can be saved on disk, or loaded back into a system using the DOWNLOAD TFTP and UPLOAD TFTP commands, as described below. These commands are also described in the "Commands" section. These commands are available to users programmed for access to level 6 commands.

To Download the Configuration from the LMS1000 to a PC using TFTP:

1. Start a separate TFTP client session on the host to which the configuration file is transferred.
2. Log on to the system. The user must have access to level 6 commands.
3. Enter the command **DOWNLOAD TFTP**, or **DOWNLOAD TFTP NETSURE**, or **DOWNLOAD TFTP NPS**, then press **ENTER**. The following will be displayed.

```
DOWNLOAD using TFTP
```

4. After seeing the above prompt, start the download process from the client. **DO NOT ATTEMPT THE DOWNLOAD UNTIL THE PROMPT ABOVE IS DISPLAYED.**

To Upload a Configuration from a PC to the LMS1000 using TFTP:

1. Start a separate TFTP client session on the host from which the configuration file is transferred.
2. Log on to the system. The user must have access to level 6 commands.
3. Enter the command **UPLOAD TFTP**, or **UPLOAD TFTP NETSURE**, or **UPLOAD TFTP NPS**, then press **ENTER**. The following will be displayed.

```
UPLOAD using TFTP
```

4. After seeing the above prompt, start the upload process from the client. **DO NOT ATTEMPT THE UPLOAD UNTIL THE PROMPT ABOVE IS DISPLAYED.**

Accessing a VPS/NPS Power System

 **NOTE!** The LMS cabinet (Spec. No. 586505000/586505500) can be used in Vortex® Power Systems (VPS) and NETSURE™ Power Systems (NPS). The LMS is also factory integrated (w/out using the Spec. No. 586505000/586505500 cabinet) into Spec. Nos. 582140000, 582140001, and 582126100 NETSURE™ Power Systems (NPS). In this document, reference to an LMS in a VPS or NPS using the Spec. No. 586505000/586505500 cabinet will be VPS/NPS (LMS commands and responses specific to this interface use 'NETSURE'). Reference to an LMS in a Spec. No. 582140000, 582140001, and 582126100 NPS Power System will be NPS (LMS commands and responses specific to this interface use 'NPS').

If LMS1000 is connected to a VPS/NPS, the VPS/NPS can be accessed by issuing certain LMS1000 commands. Commands available can be viewed by entering the LMS1000 command HELP NETSURE.

 **NOTE!** The VPS/NPS contains an MCA remote lockout feature which disables changing VPS/NPS adjustment/configuration/calibration settings via LMS1000.

 **NOTE!** Only one LMS1000 user is allowed to change VPS/NPS settings at a time. LMS1000 locks out any other user attempting to change VPS/NPS settings.

Password: When LMS1000 is initially powered up or during a reset, LMS1000 automatically issues a password to gain remote access to the VPS/NPS. A newly installed LMS1000 issues the VPS/NPS's default remote access password (VORTEX, in all capital letters). If the VPS/NPS's remote access password has been changed from its default, the password issued by LMS1000 must also be changed. See command SET NETSURE PASSWORD. You must know the existing password set in LMS1000 to change it. If LMS1000 does not successfully connect with the VPS/NPS during power up or reset, a message is displayed when a user attempts VPS/NPS access.

If the password is changed in LMS1000, record the new password in a secure place. There is no way to view the password set in LMS1000.

Also, if the VPS/NPS MCA's remote access password is ever changed, record the new password in a secure place. The current VPS/NPS MCA remote access password cannot be viewed remotely from LMS1000. The password can be viewed locally, from the VPS/NPS MCA's Interface Pad. Refer to the VPS/NPS manual for a procedure.

LMS1000 Event Log: Certain actions performed at the VPS/NPS's MCA local interface pad and via LMS1000 are recorded in the LMS1000 event log. Refer to "Viewing and Clearing the Event Log" in this section for a listing of recorded VPS/NPS events.

LMS1000 Alarm Log: Refer to "Viewing and Clearing the Alarm Log" in this section for a list of VPS/NPS alarms that are recorded in the Alarm Log.

 **NOTE!** Binary Channel B0085 monitors the communications link between the LMS1000 and VPS/NPS. This channel alarms if this communications link is not operational. A failed communications link generates an Alarm Log entry and an Event Log entry.

LMS1000 Commands: The VPS/NPS Interface provides analog channels A9001-A9114 and binary channels B9001-B9115. These channels are dedicated to monitor predetermined VPS/NPS parameters. The function of these channels are preset and cannot be changed. To efficiently use these channels with traditional (non-NETSURE specific) commands, refer to Table 1 which shows the mapping of VPS/NPS parameters to these dedicated channels.

Table 1: VPS/NPS Interface Analog and Binary Channels

CHANNEL NUMBER	CHANNEL NAME
A9001	VPS/NPS System Voltage
A9002	VPS/NPS System Current
A9003	VPS/NPS Subsystem Voltage
A9004	VPS/NPS Subsystem Current
A9005	VPS/NPS Total PCU Current
A9006 through A9021	VPS/NPS Shunt01 Current through VPS/NPS Shunt16 Current
A9022	VPS/NPS Total Battery Current
A902 through A9106	VPS/NPS PCU01 Current through VPS/NPS PCU80 Current
A9107 through A9114	VPS/NPS Temperature Probe #1 through VPS/NPS Temperature Probe #8
B9001	VPS/NPS System High Voltage 1
B9002	VPS/NPS System High Voltage 2
B9003	VPS/NPS System Battery On Discharge

CHANNEL NUMBER	CHANNEL NAME
B9004	VPS/NPS System 50% Battery On Discharge
B9005	VPS/NPS System Overcurrent
B9006	VPS/NPS Subsystem High Voltage
B9007	VPS/NPS Subsystem Low Voltage
B9008	VPS/NPS Subsystem Overcurrent
B9009	VPS/NPS PCU Emergency Stop
B9010	VPS/NPS System Fuse
B9011	VPS/NPS All AC Off
B9012	VPS/NPS MCA Fail
B9013	VPS/NPS LVD Active
B9014	VPS/NPS LVDs Inhibited
B9015	VPS/NPS System Major
B9016	VPS/NPS System Minor
B9017	VPS/NPS Shunt Fail
B9018	VPS/NPS LVD Fail
B9019	Temperature Probe Fail
B9020	VPS/NPS Battery Charge Alarm
B9021	VPS/NPS Subsystem Fuse
B9022	VPS/NPS Subsystem Major
B9023	VPS/NPS Subsystem Minor
B9024	VPS/NPS PCU High AC Line
B9025 through B9105	VPS/NPS PCU01 Fail through VPS/NPS PCU80 Fail
B9106	PCU Major
B9107	PCU Minor
B9108	PCU HVS
B9109	PCU Load Share Alarm
B9110	Remote Equalize Active
B9111	Remote HVS Active
B9112	Remote ESTOP Active
B9113	Recharge Current Limit Inhibited
B9114	Sense Voltage Error
B9115	VPS/NPS Audible Relay

Viewing Active VPS/NPS Alarms: Use the command ALARMS NETSURE. This command is available to a user with access to level 1 commands.

Viewing VPS/NPS Status/Alarms and Monitored Voltage/Current Points: Use the command SCAN NETSURE. This command is available to a user with access to level 1 commands.

Viewing VPS/NPS Settings and Equipment Inventory: Use the command PRCONFIG NETSURE. This command is available to a user with access to level 2 commands.

Setting the VPS/NPS Audible Alarm Cutoff Reset Time Period (NAG): Use the command SET NETSURE SYSTEM NAGTIMER. This command is available to a user with access to level 4 commands.

Setting VPS/NPS Alarm Parameters: Use the commands SET NETSURE SYSTEM HIVLTALM1, SET NETSURE SYSTEM HIVLTALM2, SET NETSURE SYSTEM BATONDISCH, SET NETSURE SYSTEM 50%BATONDISCH, SET NETSURE SYSTEM OVRCURRENT, SET NETSURE SUBSYSTEM HIVALM, SET NETSURE SUBSYSTEM LVALM, SET NETSURE SUBSYSTEM OVRCURRENT, SET NETSURE SYSTEM RLYTESTTIME, SET NETSURE SYSTEM TEMPHIGH, SET NETSURE SYSTEM TEMPLOW, and SET NETSURE SYSTEM AUTOEQMULT. These commands are available to a user with access to level 5 commands.

Changing the Password Issued by LMS1000 to Gain Remote Access to the VPS/NPS: Use the command SET NETSURE PASSWORD. This command is available to a user with access to level 6 commands.

Changing the VPS/NPS Operating Mode (Float or Test/Equalize): Use the command SET NETSURE SYSTEM MODE. This command is available to a user with access to level 6 commands.

Setting VPS/NPS "System Voltage" Calibration: Use the command SET NETSURE SYSTEM CALVOLT. This command is available to a user with access to level 6 commands.

Setting VPS/NPS "Subsystem Voltage" Calibration: Use the command SET NETSURE SUBSYSTEM CALVOLT. This command is available to a user with access to level 6 commands.

Resetting VPS/NPS "System Voltage" Calibration to Factory Defaults: Use the command SET NETSURE SYSTEM FACTORYCAL. This command is available to a user with access to level 6 commands.

Resetting VPS/NPS "Subsystem Voltage" Calibration to Factory Defaults: Use the command SET NETSURE SUBSYSTEM FACTORYCAL. This command is available to a user with access to level 6 commands.

Setting VPS/NPS Analog Battery Charge Temperature Compensation Module's Calibration Voltage: Use the command SET NETSURE SYSTEM TEMPCOMP. This command is available to a user with access to level 6 commands.

Setting VPS/NPS Digital Battery Charge Temperature Compensation: Use the commands SET NETSURE SYSTEM COMPSOURCE, SET NETSURE SYSTEM COMPSLOPE, SET NETSURE SYSTEM COMPMAX, and SET NETSURE SYSTEM COMPMIN. This command is available to a user with access to level 6 commands.

Setting VPS/NPS Available PCU Mounting Positions: Use the commands SET NETSURE SYSTEM 25APLACES, SET NETSURE SYSTEM 50APLACES, SET NETSURE SYSTEM 100APLACES, and SET NETSURE SYSTEM 200APLACES (you can also use the command SET NETSURE PCU TOTALSLOTS). These commands are available to a user with access to level 6 commands.

Resetting VPS/NPS Inventory: Use the command SET NETSURE SYSTEM INVENTORY. This command is available to a user with access to level 6 commands.

Setting VPS/NPS Float Output Voltage: Use the command SET NETSURE SYSTEM FLTVOULT. This command is available to a user with access to level 6 commands.

Setting VPS/NPS Test/Equalize Output Voltage: Use the command SET NETSURE SYSTEM TSTEQVOULT. This command is available to a user with access to level 6 commands.

Setting VPS/NPS High Voltage Shutdown: Use the command SET NETSURE SYSTEM HVS. This command is available to a user with access to level 6 commands.

Setting VPS/NPS Current Limit: Use the command SET NETSURE SYSTEM CURLIMIT. This command is available to a user with access to level 6 commands.

Setting VPS/NPS Low Voltage Disconnect "Disconnects": Use the command SET NETSURE LVD DISCONNECT. This command is available to a user with access to level 6 commands.

Setting VPS/NPS Low Voltage Disconnect "Reconnect": Use the command SET NETSURE LVD RECONNECT. This command is available to a user with access to level 6 commands.

Manually Reconnecting VPS/NPS Low Voltage Disconnect Circuit: Use the command SET NETSURE LVD FORCECONN. This command is available to a user with access to level 6 commands.

Setting VPS/NPS PCU Custom Messages: Use the command SET NETSURE MESSAGE PCU. This command is available to a user with access to level 6 commands.

Setting VPS/NPS MCA Custom Message: Use the command SET NETSURE MESSAGE MCA. This command is available to a user with access to level 6 commands.

Setting PCUs Fan Speed: Use the command SET NETSURE PCU FANSPEED. This command is available to a user with access to level 6 commands.

Setting PCUs Load Share Alarm: Use the command SET NETSURE PCU LOADSHARE. This command is available to a user with access to level 6 commands.

Toggle PCUs On or Off (TR Feature): Use the command SET NETSURE PCU STATE. This command is available to a user with access to level 6 commands.

Setting VPS/NPS Battery Current Limit and Battery Overcurrent Alarm (if battery shunts installed): Use the commands SET NETSURE SYSTEM BATTURLIM and SET NETSURE SYSTEM BATTVOVCUR. This command is available to a user with access to level 6 commands.

Setting VPS/NPS Test/Eq Time Period: Use the command SET NETSURE TSTEQTIME. This command is available to a user with access to level 6 commands.

Setting VPS/NPS Interface On or OFF: Use the command SET NETSURE INTERFACE. This command is available to a user with access to level 6 commands.

Downloading the VPS/NPS Configuration: Use the command DOWNLOAD NETSURE or DOWNLOAD TFTP NETSURE. This command is available to a user with access to level 6 commands.

Uploading the VPS/NPS Configuration: Use the command UPLOAD NETSURE or UPLOAD TFTP NETSURE. This command is available to a user with access to level 6 commands.

Accessing an NPS Power System

 **NOTE!** The LMS cabinet (Spec. No. 586505000/586505500) can be used in Vortex® Power Systems (VPS) and NETSURE™ Power Systems (NPS). The LMS is also factory integrated (w/out using the Spec. No. 586505000/586505500 cabinet) into Spec. Nos. 582140000, 582140001, and 582126100 NETSURE™ Power Systems (NPS). In this document, reference to an LMS in a VPS or NPS using the Spec. No. 586505000/586505500 cabinet will be VPS/NPS (LMS commands and responses specific to this interface use 'NETSURE'). Reference to an LMS in a Spec. No. 582140000, 582140001, and 582126100 NPS Power System will be NPS (LMS commands and responses specific to this interface use 'NPS').

If LMS1000 is furnished in an NPS Power System, the NPS can be accessed by issuing certain LMS1000 commands. Commands available can be viewed by entering the LMS1000 command SET NPS.

 **NOTE!** The NPS contains an MCA remote lockout feature which disables changing NPS adjustment/configuration/calibration settings via LMS1000.

 **NOTE!** Only one LMS1000 user is allowed to change NPS settings at a time. LMS1000 locks out any other user attempting to change NPS settings.

Password: When LMS1000 is initially powered up or during a reset, LMS1000 automatically issues a password to gain remote access to the NPS. A newly installed LMS1000 issues the NPS's default remote access password (MARCONI!, in all capital letters). If the NPS's remote access password has been changed from its default, the password issued by LMS1000 must also be changed. See command SET NPS PASSWORD. You must know the existing password set in LMS1000 to change it. If LMS1000 does not successfully connect with the NPS during power up or reset, a message is displayed when a user attempts NPS access.

If the password is changed in LMS1000, record the new password in a secure place. There is no way to view the password set in LMS1000.

Also, if the NPS MCA's remote access password is ever changed, record the new password in a secure place. The current NPS MCA remote access password cannot be viewed remotely from LMS1000. The password can be viewed locally, from the NPS MCA's Interface Pad. Refer to the NPS manual for a procedure.

LMS1000 Event Log: Certain actions performed at the NPS's MCA local interface pad and via LMS1000 are recorded in the LMS1000 event log. Refer to "Viewing and Clearing the Event Log" in this section for a listing of recorded NPS events.

LMS1000 Alarm Log: Refer to "Viewing and Clearing the Alarm Log" in this section for a list of NPS alarms that are recorded in the Alarm Log.

 **NOTE!** Binary Channel B0085 monitors the communications link between the LMS1000 and NPS Power System. This channel alarms if this communications link is not operational. A failed communications link generates an Alarm Log entry and an Event Log entry.

LMS1000 Commands: The NPS Interface provides analog channels A9901-A9907 and binary channels B9901-B9946. These channels are dedicated to monitor predetermined NPS MCA parameters. The function of these channels are preset and cannot be changed. To efficiently use these channels with traditional (non-NETSURE specific) commands, refer to Table 2 which shows the mapping of NPS parameters to these dedicated channels. The LMS1000 also maps NPS bay parameters to LMS1000 channels as detailed in Table 3.

Table 2: NPS Interface Analog and Binary Channels For NPS MCA Node (99)

CHANNEL NUMBER	CHANNEL NAME
A9901	NPS Plant Voltage
A9902	Total Charger Output
A9903	Total Load Current
A9904	Group A Load Current
A9905	Group B Load Current
A9906	reserved
A9907	Temperature Sensor

CHANNEL NUMBER	CHANNEL NAME
A9908	Total Auxiliary Load (Only present if any NPS MCA "CAN I/O" circuit card's analog input is configured as "auxiliary" load)
B9901	System Voltage is Very Low
B9902	System Battery is on Discharge
B9903	System High Voltage #1 Alarm
B9904	System High Voltage #2 Alarm
B9905	Total Load Current Alarm
B9906	Group A Load Current Alarm
B9907	Group B Load Current Alarm
B9908	reserved
B9909	NPS System Minor Alarm
B9910	NPS System Major Alarm
B9911	AC Power is Off to All PCUs
B9912	System Breaker or Fuse Alarm
B9913	High Temperature #1 Alarm
B9914	High Temperature #2 Alarm
B9915	Low Temperature #1 Alarm
B9916	Low Temperature #2 Alarm
B9917	Dist. Panel Alarm
B9918	Test/Equalize Mode
B9919	Emergency Stop Input
B9920	High Voltage Shutdown Input
B9921	MCA Audible Alarm Cutoff
B9922	MCA Audible Alarm
B9923	MCA Relay Test
B9924	Unidentified Node is Present
B9925	reserved
B9926	reserved
B9927	reserved
B9928	reserved
B9929	MCA Hardware Failure Alarm <u>Alarm Log Sub-ID Entries</u> B9929.09 Display Fail B9929.10 Temperature Sensor No Reply B9929.11 Any NPS Router Fail Alarm Exists B9929.12 Any NPS Relay Board Fail Alarm Exists B9929.13 MCA Memory Failure

CHANNEL NUMBER	CHANNEL NAME
B9930	MCA Hardware Install Error <u>Alarm Log Sub-ID Entries</u> B9930.09 Any NPS Device Firmware Error Exists B9930.10 No Distribution Panel Modules Installed B9930.11 No Routers Installed B9930.12 No MCA Customer Alarm Relay Boards Installed B9930.13 No PCUs Installed
B9931 through B9946	Relay Board nn-01 Alarm through Relay Board nn-07 Alarm nn = bay number <u>Alarm Log Sub-ID Entries</u> B99nn.09 Relay 1 is stuck B99nn.10 Relay 2 is stuck B99nn.11 Relay 3 is stuck B99nn.12 Relay 4 is stuck B99nn.13 Relay 5 is stuck B99nn.14 Relay 6 is stuck B99nn.17 Processor Failure B99nn.18 Communications Failure B99nn.19 Duplicate Node nn = relay channel number, i.e. 31 for Relay 1
B9947 B9948 B9949 B9950 B9951 B9952 B9953 B9954 B9955 B9956 B9957 B9958 B9959 B9960 B9961 B9962 B9963	Relay Definitions 1-17: MCA Relay Fcn Major MCA Relay Fcn Minor MCA Relay Fcn AC Fail MCA Relay Fcn Breaker/Fuse MCA Relay Fcn Batt. On Disch. MCA Relay Fcn High Voltage #1 MCA Relay Fcn Very Low Voltage MCA Relay Fcn High Voltage #2 MCA Relay Fcn Audible MCA Relay Fcn Test/Equalize MCA Relay Fcn Rectifier Fail MCA Relay Fcn Rectifier Major MCA Relay Fcn Rectifier Minor MCA Relay Fcn Over Current MCA Relay Fcn AC Major MCA Relay Fcn AC Minor MCA Relay Fcn MCA Fail

Table 3: NPS Interface Analog and Binary Channels for NPS Bay Nodes (nn = 1-20)

CHANNEL NUMBER	CHANNEL NAME
Ann01 through Ann23 Ann25 through Ann47 (nn is a Power/Distribution Bay)	<u>Distribution Panel #1</u> Fuse [Breaker] [Plug In] nn-01 Load through Fuse [Breaker] [Plug In] nn-23 Load <u>Distribution Panel #2</u> Fuse [Breaker] [Plug In] nn-25 Load through Fuse [Breaker] [Plug In] nn-47 Load Note that there are no even channel numbers for distribution elements. Each element takes up two positions per pole. The channel number for the element is the lowest position number used. For example: For a single pole element in distribution panel #2 in position 25 and 26, channels are A0125 and B0125. For a double pole element in positions 27-30, channels are A0127 and B0127. For a triple pole element in positions 31-36, channels are A0131 and B0131. For a quad pole element in positions 37-44, channels are A0137 and B0137.
Ann01 through Ann12 Ann13 through Ann24 Ann25 through Ann36 Ann37 through Ann48 (nn is a Distribution Only Bay)	<u>Distribution Panel #1</u> Fuse [Breaker] nn-01 Load through Fuse [Breaker] [Plug In] nn-12 Load <u>Distribution Panel #2</u> Fuse [Breaker] nn-13 Load through Fuse [Breaker] nn-24 Load <u>Distribution Panel #3</u> Fuse [Breaker] nn-25 Load through Fuse [Breaker] nn-36 Load <u>Distribution Panel #4</u> Fuse [Breaker] nn-37 Load through Fuse [Breaker] nn-48 Load
Ann49	reserved
Ann50	reserved
582140000 Only Ann51 through Ann60	PCU nn-01 Load through PCU nn-10 Load nn = Bay Number
582140000 Only Ann61 through Ann90	reserved

CHANNEL NUMBER	CHANNEL NAME
582140001 and 582126100 Only Ann51 through Ann74	PCU nn-ssssssssss Load through PCU nn-ssssssssss Load nn = Bay Number ssssssssss = PCU Serial Number
582140001 and 5821296100 Only Ann75 through Ann90	reserved
Ann91	I/O Board bb-ss Load (bb = NPS Bay #, ss = NPS Bay Slot #)
Bnn01 through Bnn23 Bnn25 through Bnn47 (nn is a Power/Distribution Bay)	<u>Distribution Panel #1</u> Fuse [Breaker] [Plug In] nn-01 Alarm through Fuse [Breaker] [Plug In] nn-23 Alarm <u>Distribution Panel #2</u> Fuse [Breaker] [Plug In] nn-25 Alarm through Fuse [Breaker] [Plug In] nn-47 Alarm <u>Alarm Log Sub-ID Entries</u> Bnnnn.09 Fuse / Circuit Breaker Alarm Bnnnn.10 Shunt Overcurrent Alarm Bnnnn.11 Shunt was Removed Bnnnn.12 Unknown Element Alarm Note that there are no even channel numbers for distribution elements. Each element takes up two positions per pole. The channel number for the element is the lowest position number used. For example: For a single pole element in distribution panel #2 in position 25 and 26, channels are A0125 and B0125. For a double pole element in positions 27-30, channels are A0127 and B0127. For a triple pole element in positions 31-36, channels are A0131 and B0131. For a quad pole element in positions 37-44, channels are A0137 and B0137.

CHANNEL NUMBER	CHANNEL NAME
Bnn01 through Bnn12	<u>Distribution Panel #1</u> Fuse [Breaker] nn-01 Alarm through Fuse [Breaker] [Plug In] nn-12 Alarm
Bnn13 through Bnn24	<u>Distribution Panel #2</u> Fuse [Breaker] nn-13 Alarm through Fuse [Breaker] nn-24 Alarm
Bnn25 through Bnn36	<u>Distribution Panel #3</u> Fuse [Breaker] nn-25 Alarm through Fuse [Breaker] nn-36 Alarm
Bnn37 through Bnn48	<u>Distribution Panel #4</u> Fuse [Breaker] nn-37 Alarm through Fuse [Breaker] nn-48 Alarm
(nn is a Distribution Only Bay)	<u>Alarm Log Sub-ID Entries</u> Bnnnn.09 Fuse / Circuit Breaker Alarm Bnnnn.10 Shunt Overcurrent Alarm Bnnnn.11 Shunt was Removed Bnnnn.12 Unknown Element Alarm

CHANNEL NUMBER	CHANNEL NAME
<p>Bnn49 (nn is a Bay)</p>	<p>Bay nn Status Alarm Log Sub-ID Entries Bnn49.02 Distr. Panel #3 Processor Fail Bnn49.03 Distr. Panel #3 Communications Fail Bnn49.04 Distr. Panel #3 A/B Feed Change Bnn49.05 Distr. Panel #3 Unknown Elements Bnn49.06 Distr. Panel #3 Duplicate Node Bnn49.07 Distr. Panel #4 Processor Fail Bnn49.08 Distr. Panel #4 Communications Fail Bnn49.09 Router Processor Fail Bnn49.10 Router Communications Fail Bnn49.11 Router External Voltage Fail Bnn49.12 Router Internal Voltage Fail Bnn49.13 Router Duplicate Node Bnn49.15 Distr. Panel #4 A/B Feed Change Bnn49.16 Distr. Panel #4 Unknown Elements Bnn49.17 Distr. Panel #1 Processor Fail Bnn49.18 Distr. Panel #1 Communications Fail Bnn49.19 Distr. Panel #1 A/B Feed Change Bnn49.20 Distr. Panel #1 Unknown Elements Bnn49.21 Distr. Panel #1 Duplicate Node Bnn49.22 Distr. Panel #4 Duplicate Node Bnn49.25 Distr. Panel #2 Processor Fail Bnn49.26 Distr. Panel #2 Communications Fail Bnn49.27 Distr. Panel #2 A/B Feed Change Bnn49.28 Distr. Panel #2 Unknown Elements Bnn49.29 Distr. Panel #2 Duplicate Node</p>
<p>Bnn50</p>	<p>I/O Board bb-ss Alarm (bb = NPS Bay #, ss = NPS Bay Slot #) Alarm Log Sub-ID Entries Bnn50.09 CAN I/O Processor Fail Bnn50.10 CAN I/O Communications Fail Bnn50.11 CAN I/O Duplicate Node Bnn50.12 Shunt Output Overcurrent Alarm Bnn50.13 Shunt Input Overcurrent Alarm</p>

CHANNEL NUMBER	CHANNEL NAME
<p>582140000 Only Bnn51 through Bnn60</p>	<p>PCU nn-01 Alarm through PCU nn-10 Alarm <u>Alarm Log Sub-ID Entries</u> Bnnnn.07 Firmware Error Bnnnn.09 Sense Loss (MN) Bnnnn.10 Communications Fail (MJ) Bnnnn.11 AC Line Low (MJ) Bnnnn.13 Switched OFF (MJ) Bnnnn.14 Emergency Stop Active (MJ) Bnnnn.15 High Ambient Temperature (MN) Bnnnn.16 Converter Fail (MJ) Bnnnn.17 Breaker OFF (MJ) Bnnnn.18 Output Inhibited (MJ) Bnnnn.19 Fan Fail Major (MJ) Bnnnn.20 Remote HV Shutdown (MJ) Bnnnn.21 Processor Fail (MJ) Bnnnn.22 PF Thermal Shutdown (MJ) Bnnnn.23 AC Line Too High (MJ) Bnnnn.24 Fan Fail Minor (MN) Bnnnn.25 AC Line Phase Lost (MJ) Bnnnn.26 Power Factor Fail (MJ) Bnnnn.27 Thermal Shutdown (MJ) Bnnnn.28 Thermal Current Limit (MJ) Bnnnn.29 PF HV Shutdown (MJ) Bnnnn.30 Converter Unbalanced (MJ) nn = Bay Number</p>
<p>582140000 Only Bnn61 through Bnn90</p>	<p>reserved</p>

CHANNEL NUMBER	CHANNEL NAME
58214001 and 582126100 Only Bnn51 through Bnn74	PCU nn-ssssssss Alarm through PCU nn-ssssssss Alarm <u>Alarm Log Sub-ID Entries</u> Bnnxx.07 Firmware Error Bnnxx.09 Sense Loss (MN) Bnnxx.10 Communications Fail (MJ) Bnnxx.11 AC Line Low (MJ) Bnnxx.13 Switched Off (MJ) Bnnxx.14 Emergency Stop Active (MJ) Bnnxx.15 High Ambient Temperature (MN) Bnnxx.16 Converter Fail (MJ) Bnnxx.17 Breaker Off (MJ) Bnnxx.18 Output Inhibited (MJ) Bnnxx.19 Fan Fail Major (MJ) Bnnxx.21 Processor Fail (MJ) Bnnxx.23 AC Line Too High (MJ) Bnnxx.24 Fan Fail Minor (MN) Bnnxx.25 AC Line Phase Lost (MJ) Bnnxx.26 Power Factor Fail (MJ) Bnnxx.27 Thermal Shutdown (MJ) Bnnxx.28 Thermal Current Limit (MJ) Bnnxx.30 Converter Unbalanced (MJ) nn = Bay Number xx = PCU element channel number
582140001 and 582126100 Only Bnn75 through Bnn90	reserved
Bnn91 through Bnn94	I/O Board bb-ss Binary #n (bb = NPS Bay #, ss = NPS Bay Slot #, n = corresponding Binary Input #)

Viewing NPS Settings and Equipment Inventory: Use the command PRCONFIG NPS. This command is available to a user with access to level 2 commands.

Changing the NPS Operating Mode (Float or Test/Equalize): Use the command SET NPS SYSTEM TSTEQMODE. This command is available to a user with access to level 6 commands.

Toggle PCUs On or Off (TR Feature): Use the command SET NPS PCU. This command is available to a user with access to level 6 commands.

Setting NPS Relay Test Time Period: Use the command SET NPS SYSTEM RLYTSTTIME. This command is available to a user with access to level 5 commands.

Setting NPS Relay Test On: Use the command SET NPS SYSTEM RLYONTEST. This command is available to a user with access to level 6 commands.

Setting NPS Relay Test Off: Use the command SET NPS SYSTEM RLYOFFTEST. This command is available to a user with access to level 6 commands.

Setting NPS Audible Alarm Cutoff Reset Time Period (NAG): Use the command SET NPS SYSTEM NAGTIMER. This command is available to a user with access to level 4 commands.

Setting NPS Custom Text Messages: Use the commands SET NPS MESSAGE PCU, SET NPS MESSAGE MCA, SET NPS MESSAGE ROUTER, SET NPS MESSAGE DISTRIBUTION, SET NPS MESSAGE RELAY, and SET NPS MESSAGE CANIO_BD. These commands are available to a user with access to level 6 commands.

Setting NPS Temperature Readings to Celsius: Use the command SET NPS SYSTEM USECELSIUS. This command is available to a user with access to level 6 commands.

Setting NPS Temperature Readings to Fahrenheit: Use the command SET NPS SYSTEM USEFAHRENHEIT. This command is available to a user with access to level 6 commands.

Changing the Password Issued by LMS1000 to Gain Remote Access to the NPS: Use the command SET NPS PASSWORD. This command is available to a user with access to level 6 commands.

Resetting (Updating) NPS Inventory: Use the command SET NPS SYSTEM UPDATEINV. This command is available to a user with access to level 6 commands.

Setting NPS Float Output Voltage: Use the command SET NPS SYSTEM FLTVOULT. This command is available to a user with access to level 6 commands.

Setting NPS Test/Equalize Output Voltage: Use the command SET NPS SYSTEM TSTEQVOLT. This command is available to a user with access to level 6 commands.

Setting NPS Test/Equalize Time Period: Use the command SET NPS SYSTEM TSTEQTIME. This command is available to a user with access to level 6 commands.

Setting NPS Auto-Equalize Multiplier: Use the command SET NPS SYSTEM EQMULTIPLIER. This command is available to a user with access to level 6 commands.

Setting NPS Temp Slope: Use the command SET NPS SYSTEM TEMPSLOPE. This command is available to a user with access to level 6 commands.

Setting NPS Temp Comp Max: Use the command SET NPS SYSTEM TEMPCompMAX. This command is available to a user with access to level 6 commands.

Setting NPS Temp Comp Min: Use the command SET NPS SYSTEM TEMPCompMIN. This command is available to a user with access to level 6 commands.

Setting NPS High Voltage Shutdown: Use the command SET NPS SYSTEM HVS. This command is available to a user with access to level 6 commands.

Setting NPS Current Limit: Use the command SET NPS SYSTEM CURLIMIT. This command is available to a user with access to level 6 commands.

Setting NPS Alarm Parameters: Use the commands SET NPS SYSTEM HIVLTALM1, SET NPS SYSTEM HIVLTALM2, SET NPS SYSTEM BATONDISCH, SET NPS SYSTEM VERYLOWVOLT, SET NPS SYSTEM LOADCURRENT, SET NPS SYSTEM LOADACURRENT, SET NPS SYSTEM LOADBCURRENT, SET NPS SYSTEM HI1TEMPALM, SET NPS SYSTEM HI2TEMPALM, SET NPS SYSTEM LOW1TEMPALM, and SET NPS SYSTEM LOW2TEMPALM. These commands are available to a user with access to level 5 commands.

Setting NPS MCA "CAN I/O" Circuit Card Parameters: Use the commands SET NPS CANIO and SET NPS MESSAGES CANIO_BD. These commands are available to a user with access to level 6 commands.

Viewing Software Options Installed

Enter the OPTIONS command. A list of all available options is displayed. In the list, options that are currently installed are indicated along with, if appropriate, the port assigned to the option.

Using the Power Metering Software Option

What Is Power Metering?

The LMS1000 Power Metering feature tabulates power consumed by customer loads connected to your power plant; generating daily, weekly, and monthly power consumption data. Power Metering data is based upon the average of all samples taken during one minute. The LMS1000 calculates kilowatt-hours by totaling the minute averages from the current hour and records this total at the top of each hour. Each hour total is added to the daily total and each daily total is added to the weekly and monthly totals.

Power consumption data of up to sixty-four (64) separate loads can be generated.

You may also decide to generate power consumption data per customer, not load.

Entering the command POWER generates and displays the power consumption report. This report may also be generated in a "comma separated value" format which can easily be imported into a spreadsheet for record keeping or presentation purposes. The user can then easily translate power consumption data into dollars billed.

Setting Up Power Metering

First, you need to connect an LMS1000 analog input to your DC power plant's system voltage.

Next, for each customer load to be monitored, you need to connect an analog input(s) to the load shunt(s).

And finally, configure an LMS1000 function channel for each customer. The function channel's program line should be set up to calculate the amount of power consumed. In addition, the phrase "KW" must be entered for the function channel's "Unit Text" parameter. Examples of program lines are detailed next.

The program line must calculate power consumed by a load by multiplying the value of the analog channel monitoring the system voltage (input voltage of all customer loads) with the value of the analog channel monitoring the load's input current, and multiplying this product by 0.001 (because power consumption data is generated in kilo-watts per hour). For example, if analog input A01 is connected to system voltage and analog input A0002 is connected to the load's input shunt, then an appropriate program line would be:

```
F0001=A0001*A0002*0.001
```

If the customer has multiple loads, a single function channel can be used to tabulate the sum of all power consumed by that customer. For example, if analog input A0001 is connected to system voltage, analog input A0002 is connected to customer load "#1", and analog input A0003 is connected to customer load "#2", then an appropriate program line would be:

```
F0001=A0001*(A0002+A0003)*0.001
```

This example also describes a program line for a single load with multiple shunts or fuses monitored by A0002 and A0003.

Using Power Metering

To display a power consumption report, enter the command POWER. The POWER command is available to a user programmed for access to level 1 commands. The command is also described in the "Commands" section.

For the "comma separated value" format, enter the command POWER CSV.

To clear the Power Metering data, enter the command CLR POWER. But be careful, entering this command destroys all previously saved data. The CLR POWER command is available to a user programmed for access to level 4 commands. The command is also described in the "Commands" section.

POWER Command

This command displays power consumption data for function channels configured to calculate power, and is available for all users (command level 1).

Command syntax is POWER, POW, POWER CSV, or POW CSV.

A power consumption report is generated and displayed for all function channels configured with the UNIT TEXT of KW, and the appropriate program line to generate power consumption values. Power consumption data consists of power consumed for current day, current week, and current month. In addition, power consumption data for the previous day, previous week, and previous month is also displayed.

Entering the command modifier CSV displays the power consumption report in the "comma separated value" format. This allows the data to be imported into a spreadsheet.

Typical Screen Display

```
Command<1>: POWER
POWER CONSUMPTION STATISTICS AS OF 13:04:45 ON 04/29/99
F0001 POWER STATS: CUSTOMER BILL LOADA POWER
Daily
04/28/99: 55.07 KWH
04/29/99: 29.80 KWH
Weekly
04/19/99 THROUGH 04/25/99: 384.8 KWH
04/26/99 THROUGH 04/29/99: 194.9 KWH
Monthly
03/14/99 THROUGH 03/31/99: 887.9 KWH
04/01/99 THROUGH 04/29/99: 1505.0 KWH
F0002 POWER STATS: CUSTOMER BILL LOADB POWER
Daily
04/28/99: 109.20 KWH
04/29/99: 59.17 KWH
Weekly
04/19/99 THROUGH 04/25/99: 762.8 KWH
04/26/99 THROUGH 04/29/99: 386.8 KWH
Monthly
03/14/99 THROUGH 03/31/99: 1868.0 KWH
04/01/99 THROUGH 04/29/99: 3098.0 KWH
F0003 POWER STATS: CUST BOB LOADA AND LOADB POWER
Daily
04/28/99: 147.40 KWH
04/29/99: 79.85 KWH
```

Weekly

04/19/99 THROUGH 04/25/99: 1036.0 KWH

04/26/99 THROUGH 04/29/99: 524.0 KWH

Monthly

03/14/99 THROUGH 03/31/99: 2583.0 KWH

04/01/99 THROUGH 04/29/99: 4233.0 KWH

The following is an example using the “comma separated value” format.

Format is:

Title (line 1), name of channel, yesterday, today, last week, this week, last month, this month.

Command<1>: POWER CSV

POWER CONSUMPTION STATISTICS AS OF 13:04:45 ON 04/29/99

CUSTOMER BILL LOADA POWER, 55.07 KWH, 29.80 KWH, 384.8 KWH, 194.9 KWH, 887.9 KWH, 1505.0 KWH

CUSTOMER BILL LOADB POWER, 109.20 KWH, 59.17 KWH, 762.8 KWH, 386.8 KWH, 1868.0 KWH, 3098.0 KWH

CUST BOB LOADA AND LOADB POWER, 147.40 KWH, 79.85 KWH, 1036.0 KWH, 524.0 KWH, 2583.0 KWH, 4233.0 KWH

CLR POWER Command

This command clears the power consumption data for a specified function channel or all function channels configured for Power Metering. A user must be configured for command access level 4 or greater to use this command.

Command syntax is CLR POWER [function_channel_number] or CLR POW [function_channel_number].

Entering a function channel number (1-64) after the command clears data for the specified function channel only.

Previous saved data is destroyed. Future Power Metering reports are based on data collected after this command is entered.

Typical Screen Display

Command<4>: CLR POWER

Power Stats cleared.

Command<4>: CLR POWER 1

Power Stats cleared.

Determining If the Power Metering Option Is Installed

Enter the command OPTIONS. In the displayed information, look for “Power Metering” under the column heading “Option Name”. Look for “installed, enabled” under the “Status” column heading.

If the Power Metering option’s status is listed as “not installed”, contact Vertiv Co. and tell them you would like the Power Metering option installed on your LMS1000.

What Do I Need, How Do I Order?

Foremost you'll need to specify the Power Metering option. Specify 586505000/586505500 List 87. Note that this option must be factory installed, or field installed by Vertiv Co. only. Note this option can be field installed remotely via dial-up phone lines if your LMS1000 is equipped with a modem or via Ethernet if connected to a TCP/IP network.

Second, you need at least one analog circuit card. Specify 586505000/586505500 List 20 (this gives you analog circuit card Part No. 506336). This analog circuit card provides 4 analog inputs. One will be connected to system voltage. This leaves three for measuring customer loads.

Order one additional analog circuit card per four additional customer loads to be monitored. Note that there is also an 8-input analog circuit card (586505000/586505500 List 22) available which monitors up to eight 50 mv shunts.

Also order one (1) in-line fuse kit to protect the analog leads connected to system voltage. Specify 586505000/586505500 List BE (3/8" ring lug) or List BF (5/16" ring lug).

And order a current limit resistor kit for each customer load to be monitored for power consumption. Specify 586505000/586505500 List BA (3/8" ring lug), List BB (splice), or List BC (ring lug for #10 stud).

Using the LMS Dual MCA Interface Software Option (when 586505000/586505500 List 78 installed)

Refer to the LMS documentation for description, configuration, and operation of the LMS Dual MCA Interface feature. Refer to NETSURE Power System (NPS) Spec. Nos. 582140000, 582140001, or 582126100 documentation for system interconnections information.

What Is the LMS Dual MCA Interface Feature?

- The LMS Dual MCA Interface Software Option is available in the factory integrated LMS of NETSURE Power Systems (NPS) Spec. Nos. 582140000, 582140001, or 582126100. This option enables the MCA in the NETSURE Power System to control and monitor both the NETSURE Power System and a Vortex Power System (VPS) connected to the NETSURE Power System. This is accomplished via the LMS communications between the two MCAs.
- The MCA in the NPS main bay serves as the main power system controller. The MCA in the VPS serves as a secondary controller. Parameter readings and status of the VPS is passed to the NPS MCA via the LMS.
- The LMS provides monitoring for both systems.
- At LMS startup the LMS sets the VPS system settings to values that match the settings of the NPS MCA.
- The NPS MCA operates in the "Power Share" mode.
- The VPS operates in its normal 'flat-line' mode.
- Sequencing of VPS and NPS rectifiers operate independently of each other.
- Both VPS and NPS equalize function is disabled.
- Both VPS and NPS temperature compensation is disabled.
- LMS energy management of VPS PCUs will be disabled.

- VPS battery recharge current limit is disabled.
- The LMS will pass the VPS readings and status parameters to the NPS controller. The NPS MCA will integrate the reading and status values listed below into its own associated system reading and status parameters such that a change in the indicated VPS parameter causes a change in the associated NPS system parameter.
 - a) VPS Total Load Current summed in with NPS Total System Current.
 - b) VPS Total PCU Current summed in with NPS Total System PCU Current.
 - c) VPS total number of PCU failures is passed to the NPS MCA to use in determining NPS ‘PCU Minor’ and ‘PCU Major’ alarms.
 - d) VPS System Fuse alarm status is passed to the NPS MCA as an “External Fuse Alarm” status.
 - e) VPS System Fuse alarm status is passed to the NPS MCA as an “External AC Fail Alarm” status.

Setting Up the LMS Dual MCA Interface Feature

Refer to NETSURE Power System (NPS) Spec. Nos. 582140000, 582140001, or 582126100 documentation for system interconnections information.

Using the LMS Dual MCA Interface Feature

Changing Global System Settings (both systems)

System settings (shown below) are set on the NPS MCA using one of two methods. Associated settings of the VPS are updated by the LMS to the specified values that match the settings made on the NPS MCA.

1. The LMS’s command line interface with the ‘Set NPS’ commands.
2. The front panel interface of the NPS main bay. The LMS detects that the setting has changed on the NPS’s front panel and also changes the associated setting of the VPS.

System Parameter	LMS1000 Command
System Float Voltage	SET NPS SYSTEM FLTVOLT
System High Voltage 1	SET NPS SYSTEM HIVLTALM1
System High Voltage 2	SET NPS SYSTEM HIVLTALM2
System 50% Battery On Discharge	SET NPS SYSTEM VERYLOWVOLT
System Battery On Discharge	SET NPS SYSTEM BATONDISCH
System High Voltage Shutdown	SET NPS SYSTEM HVS
System Relay Test Time	SET NPS SYSTEM RLYTSTTIME
System Test/Equalize Voltage	SET NPS SYSTEM TSTEQVOLT
System Test/Equalize Timeout	SET NPS SYSTEM TSTEQTIME
System Auto Equalize Multiplier	SET NPS SYSTEM EQMULTIPLIER
System ACO Timeout	SET NPS SYSTEM NAGTIMER

Changing VPS Specific Settings

Configuration of VPS parameters that affect only the VPS operation can be changed using the existing LMS's command line interface with the 'Set Vortex' commands.

 **NOTE!** These commands are documented in the LMS documentation as 'SET NETSURE' commands. If an LMS is connected to a Vortex/NETSURE Power System without the LMS Dual MCA option (other than Spec. Nos. 582140000, 582140001, or 582126100), the LMS Vortex/NETSURE Power System commands are 'SET NETSURE'. When an LMS in a Spec. No. 582140000, 582140001, or 582126100 Power System is connected to another Vortex/NETSURE Power System using the LMS Dual MCA feature, these commands are changed to 'SET VORTEX'.

VPS Parameter	LMS1000 Command
LVD(s) Disconnect Voltage	SET VORTEX LVD<n<t>> DISCONNECT
LVD(s) Reconnect Voltage	SET VORTEX LVD RECONNECT
MCA Custom Message	SET VORTEX MESSAGE MCA
PCU <n> Custom Message	SET VORTEX MESSAGE PCU<n>
PCU Load Share Alarm	SET VORTEX PCU LOADSHARE
PCU Slots Number and Type(Amperage)	SET VORTEX PCU TOTALSLOTS
Number of System 25A Places	SET VORTEX SYSTEM 25APLACES
Number of System 50A Places	SET VORTEX SYSTEM 50APLACES
Number of System 100A Places	SET VORTEX SYSTEM 100APLACES
Number of System 200A Places	SET VORTEX SYSTEM 200APLACES
Subsystem Calibration Voltage	SET VORTEX SUBSYSTEM CALVOLT
Subsystem 'High Voltage' Alarm	SET VORTEX SUBSYSTEM HIVALM
Subsystem 'Low Voltage' Alarm	SET VORTEX SUBSYSTEM LVALM
Subsystem 'Overcurrent' Alarm	SET VORTEX SUBSYSTEM OVRCURRENT
Enable/Disable Vortex Interface	SET VORTEX INTERFACE
Manually Reconnect LVD(s)	SET VORTEX LVD<n<t>> FORCECON
PCU Fan Speed	SET VORTEX PCU FANSPEED
Subsystem Calibration Voltage to Factory Default	SET VORTEX SUBSYSTEM FACTORYCAL

Operations for downloading and uploading VPS configuration parameters will only change VPS parameters not affecting overall power system operation.

The LMS CLI command “PRCONFIG VORTEX” for showing configuration parameters and settings of the VPS configuration and settings is supported.

VPS System Current

The VPS ‘System Current’ reading (LMS channel A9002) will be passed to the NPS through LMS function channel sixty-three. The function channel configuration will default to provide the reading of the associated LMS channel for the VPS System Current. The NPS controller will include the value of LMS function channel sixty-three when summing the load currents to determine the Total Load Current reading to display (associated LMS channel A9903).

Channel F63 program line is ‘F63 = A9002’ (Vortex System Current).

VPS Total PCU Current

The VPS ‘Total PCU Current’ reading (LMS channel A9005) will be passed to the NPS through LMS function channel sixty-four. The function channel configuration will default to provide the reading of the associated LMS channel for the VPS Total PCU Current. The NPS controller will include the value of LMS function channel sixty-four when summing the PCU currents to determine the Total PCU Current reading to display. (associated LMS channel A9902).

Channel F64 program line is ‘F64 = A9005’ (Vortex Total PCU Current).

System PCU Minor Alarm and PCU Major Alarm

The number of failed VPS PCUs and discrete rectifiers is retrieved by the LMS and summed. The total number of rectifier/PCU failures is passed to the NPS MCA. The total is then used when determining the NPS ‘PCU Minor’ and ‘PCU Major’ alarms. Discrete rectifiers must have an associated Energy Management channel RFA to be included.

- One VPS PCU failure and zero NPS PCU failure creates a System PCU Minor Alarm.
- One VPS PCU failure and one NPS PCU failure creates a System PCU Major Alarm.
- Two VPS PCU failures creates System PCU Major Alarm

The LMS channels assigned to VPS ‘System Major’ (B9015) and ‘System Minor’ (B9016) will have default configuration to belong to the LMS ‘Major’ and ‘Minor’ alarm classifications respectively. The LMS ‘Major’ and ‘Minor’ alarm status is accessible by the NPS controller via the LMS LED channels ‘L1’ and ‘L2’. This allows them to trigger the NPS ‘Major’ and ‘Minor’ alarm status when configured to do so in the NPS controller.

VPS Fuse Alarm and VPS All AC Off Alarm

LMS channel configuration of LED channels ‘L7’ and ‘L8’ will default to configuration associating them to the VPS ‘Fuse Alarm’ (B9010) and ‘AC Fail Alarm’ (B9011) status channels respectively. The LED channels are available to the NPS controller for use in its relay function programs. This allows the VPS statuses to activate relay outputs (e.g., ‘System Major, System Minor’) provided by the NPS system.

Other external fuse alarm inputs can be included by adding them to the program line of LMS LED channel L7 and other external AC Fail alarm inputs can be included by adding them to the program line of LMS LED channel L8. Refer to Program Lines in the ‘Configuring LMS1000’ section of the Installation Instructions (Section 5879).

Other VPS Status

Additional LMS general status (LED) channels are available and can be used to pass other status to the NPS controller. The LED channels are available to the NPS controller for use in its relay function programs.

LMS VPS and LMS NPS Communication Failure

The LMS hardware failure alarm 'Power System Com Link Fail' (channel B0085) will activate when communications with either the VPS or the NPS MCA, or both, fail.

The LMS hardware failure alarms 'Power System Com Link Fail' (channel B0085) are logged with a sub-item number (e.g., B0085.1) to indicate the source of the failure. Sub-item numbers are assigned as shown below.

- B0085.2 VPS Com Link Fail
- B0085.3 NPS Com Link Fail

VPS Status

All VPS statuses will be available to the customer through channels mapped to nodes ninety (90) and ninety-one (91). The mapped channels will conform to the mappings presently used by an LMS installed as part of a VPS/NPS.

VPS parameter readings and status are assigned to LMS nodes ninety and ninety-one.

VPS system parameter readings and status are assigned LMS channels (shown below) and provide redundancy for LMS channels assigned to the NPS. If the redundancy is not desired the LMS channels assigned to these parameters can be deactivated.

- A9001 Vortex System Voltage
- B9001 Vortex System High Voltage 1
- B9002 Vortex System High Voltage 2
- B9003 Vortex System Battery On Discharge
- B9004 Vortex System 50% Battery On Discharge

Control of the VPS relay outputs remain with the VPS controller. Any connections that provide indications of overall system status and alarms should be transferred to relay outputs on the NPS system.

The LMS will record alarms and activities associated with the VPS in its alarm and event logs.

The LMS is capable of reporting any VPS alarms via any of the available reporting methods (e.g., Modem, SNMP, TL1).

The LMS CLI commands "ALARMS VORTEX" and "SCAN VORTEX" for monitoring status on the VPS are supported.

Using the Battery Discharge Timer Feature

Refer also to the Commands section for typical screen displays of the commands described in this section.

What Is the Battery Discharge Timer Feature?

The LMS1000 can record Battery Discharge History. The Battery Discharge Timer feature displays the last 50 recorded discharges in a tabular format. The information displayed includes the duration of the battery discharge, the time and date at which the discharge began, the lowest recorded plant voltage during the discharge, and the average plant load.

Setting Up the Battery Discharge Timer Feature

A Binary, LED, or Relay channel must be identified to monitor the "On Battery" condition. A Binary input may be used with external equipment that detects the system is "On Battery". The program line of a Relay or LED channel can be used for more sophisticated detection of the "On Battery" condition. Refer to the "Program Lines" section of the "Configuration" section in the LMS1000 Installation Instructions (Section 5879) for further details on setting a Program Line. Analog or Function channels must be identified to monitor the Plant Voltage and Plant Load.

Enter the command BATTERY TIMER SET. When prompted, enter the channels monitoring the "On Battery Signal", "Plant Voltage", and "Plant Load".

Configure the "On Battery" channel as required for your installation site.

Using the Battery Discharge Timer Feature

Enter the command BATTERY TIMER STATUS to display the Battery Discharge History. Use the command BATTERY TIMER CSV to display the data in a comma separated format. To clear the Battery Discharge History, use the command BATTERY TIMER CLR.

Using the Door Access Controller Interface (when 586505000/586505500 List 80 installed)

Refer to the documentation furnished with the Door Access Controller.

Note that two events are added to the Event Log ('key code nn validated' and 'invalid key code entered').

Note also that two Programmable Commands may have been configured to manually lock and unlock the Access Door via LMS1000 if the Door Access Controller should fail.

The following LMS1000 binary channels are added.

Channel Number	Channel Name
B7001	DAC Communications Failure
B7002	Strike Failed
B7003	Forced Entry
B7004	DAC PIN List Invalid
B7005	Door Open

Using the External GPS Modem Interface (when 586505000/586505500 List 84 installed)

Refer to the documentation furnished with the GPS Modem.

The LMS1000 operates at 19200, n, 8, 1.

Using the AC Analyzer Interface (when 586505000/586505500 List 85 installed)

Refer to the documentation furnished with the AC Analyzer. LMS1000 AC Analyzer Interface is 9600, n, 8, 1. Set the AC Analyzer to 9600, n, 8, 1 as node #1.

The following LMS1000 analog and binary channels are added.

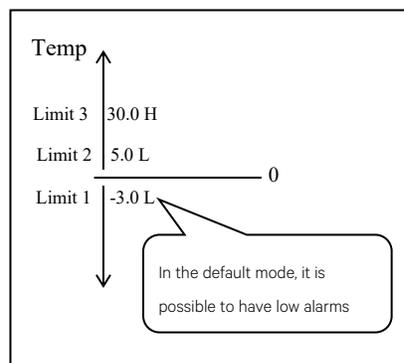
Channel Number	Channel Name
A7101	Phase 1 Voltage (VAC)
A7102	Phase 2 Voltage (VAC)
A7103	Phase 3 Voltage (VAC)
A7104	Phase 1-2 Voltage (VAC)
A7105	Phase 2-3 Voltage (VAC)
A7106	Phase 1-3 Voltage (VAC)
A7107	Phase 1 Current (AMPS)
A7108	Phase 2 Current (AMPS)
A7109	Phase 3 Current (AMPS)
A7110	Phase 1 Power Factor
A7111	Phase 2 Power Factor
A7112	Phase 3 Power Factor
A7113	Phase 1 Apparent Power (VA)
A7114	Phase 2 Apparent Power (VA)
A7115	Phase 3 Apparent Power (VA)
A7116	Phase 1 Real Power (W)
A7117	Phase 2 Real Power (W)
A7118	Phase 3 Real Power (W)
A7119	Phase 1 Reactive Power (VAR)
A7120	Phase 2 Reactive Power (VAR)
A7121	Phase 3 Reactive Power (VAR)
A7122	Average Voltage (VAC)
A7123	Average Current (AMPS)
A7124	Average Power Factor
A7125	Average Apparent Power (VA)
A7126	Average Real Power (W)
A7127	Average Reactive Power (VAR)
A7128	Frequency (HZ)
A7129	Real Energy (WH)
A7130	Reactive Energy (VARH)
A7131	Average Real Pwr., 15m (W)
A7132	Average Reactive Pwr., 15m (VAR)
B7101	AC Analyzer Com. Failure

LMS1000 Input Signal and Alarm Limit Processing

The LMS1000's alarm processing allows for a more intuitive use of alarm limits for analog channels that monitor plant voltage, battery shunts, and other similar signals. This capability is made possible with additional analog channel configuration items, 'Polarity' and 'Alarm Limit Mode', which govern how high and low alarm thresholds operate. The standard method used for alarm processing generates a high alarm when the reading is greater

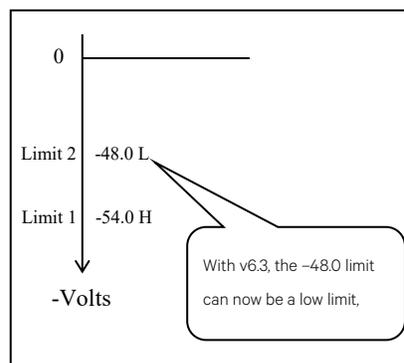
than the high limit and a low alarm when the reading is less than the low limit. Two additional methods of processing alarms are available that are intended for analog inputs that have a negative or bipolar input signal.

- With the standard method of processing input signals and alarms, the sign of the input signal is the sign of the reading. Alarms are processed with the most positive value being a 'High' reading and the most negative value being a 'Low' reading. Also, the channel reading is compared to all alarm limits. So, in the example at right and with a temperature of $-4.0\text{ }^{\circ}\text{C}$, two low alarms would turn in: one for $+5.0$ limit and one for the -3.0 limit. To process an analog channel's alarms using this method the channel's polarity parameter is set to '+' and its alarm limit mode parameter is set to 'N' (for Normal).

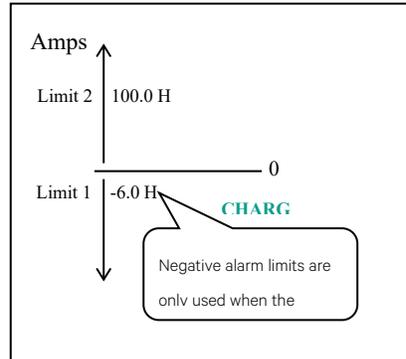


- With the negative method of processing input signals and alarms, the processing is reversed from the standard method. The sign of the input signal is inverted ($* -1$) to get the channel reading. Alarms are processed with the most negative value being a 'High' reading and the most positive value being a 'Low' reading. The channel reading is compared against all alarm limits to determine alarms. This is intended for inputs whose signal is always negative, such as plant voltage.

This makes it possible for -56.0V to be a high limit (given a float voltage of -54.0V), when in previous LMS1000 versions, it must be a low limit. To process an analog channel's alarms using this method the channel's polarity parameter is set to '-' and its alarm limit mode parameter is set to 'N' (for Normal).



- With the bipolar method of processing alarms, a high or low alarm can only occur if the sign of the channel reading is the same as the sign of the alarm limit that has been exceeded. This is useful for detecting both high charge and discharge currents on a battery shunt. For example, assume a shunt is wired for a negative float current reading, and it has a high alarm limit of -6.0 amps to detect a high float current. It can then also have a high limit of $+100.0$ amps to detect a high discharge current. So, in this example there are two high alarms, with opposite signs. To process an analog channel's alarms using this method the channel's polarity parameter is set to '+' and its alarm limit mode parameter is set to 'B' (for Bipolar).



Power System Remote Temperature Compensation Feature

Refer to the LMS Installation Manual (Section 5879) for programming information.

- The LMS can provide a remote temperature compensation signal to a NetSure™ Power System (NPS).
- This feature utilizes temperature measurement reported by the LMS via function channel F58.
- Remote Temperature compensation overrides local power system (temperature sensor) temperature compensation.
- Remote Temperature displayed in MCA measurement menu only when reported by the LMS.
- Remote Temperature compensation is disabled if the LMS stops issuing temperature measurement updates for more than 60 seconds. This includes loss of communication.
- Allow local and remote power system adjustment of Temperature Compensation Slope setpoint and temperature units conversion when receiving remote temperature measurement from LMS.



NOTE! There is a restriction on the temperature measurement reported by the LMS. The temperature must be in Degree C only. This is the default units setting for LMS Function Channel F58.

Predefined Function Channels

- F58: Function Channel F58 is designated for passing a temperature value to an MCA (Remote Temperature Compensation Feature). See “Power System Remote Temperature Compensation Feature” on page 64. The temperature reported in F58 must be in DEGC.
- F59: Function Channel F59 provides a plant's reserve capacity. The units are Amp-Hours. The channel name is "Predicted Ah Reserve Capacity". See the next section.
- F60: Function Channel F60 provides a plant's "Predicted Reserve Capacity" in minutes. See the next section.
- F61: Function Channel F61 provides a plant's "Battery Reserve (Charge) Time" in minutes. See the next section.
- F62: Function Channel F61 provides a plant's "Plant Voltage (for Fuel Gage)" in minutes. See the next section.

LMS Battery Fuel Gage and End-of-Life Warning

LMS release v12.1 introduced a battery fuel gage and a default alarm to warn of battery end-of-life (EOL). Release v12.2 goes one step further and learns the plant Ah reserve capacity. Both features are described below.

Based on US patent #6,211,654 B1 [Method for Predicting Battery Capacity](#), the fuel gage is self-calibrating and predicts remaining reserve time in applications with backup times ranging from 3 to 8 hours. As the patent states, it works for VRLA and wet cell batteries, regardless of their age, state-of-charge or state-of-health (i.e. bad). Upon discharge, the remaining reserve time is derived from the rate of change in voltage reported via Function channel [F62](#). The first prediction occurs after the coup de fouet voltage dip and takes 30-50 minutes depending on the discharge rate. Subsequent predictions occur every 5 minutes thereafter with the value made available through [F61](#).

To determine battery state-of-health, IEEE standard 1188-2005 recommends annual discharge tests to verify *actual reserve capacity*. But off-line tests are costly and not usually practical. While not intended to replace the off-line tests, the fuel gage predictions can be used to provide a similar assessment of reserve capacity. By adding the elapsed discharge time to the predicted reserve time a new parametric is created – *Predicted Reserve Capacity*. This value (in minutes) is made available through [F60](#), and includes a low alarm limit preset to signal battery EOL. In v12.2, [F59](#) uses the load to derive the *Predicted Ah Reserve Capacity* (Amp-Hrs), and saves values accordingly in its limits.

As noted below, four Function channels are used to handle the algorithm inputs and outputs. Default settings are shown and should be edited as required. Note that limit values for F59 are automatically set during a discharge.

Function Channel Settings:

Channel / Name	Unit	# / Type	Alarm Limit Settings		Alarm Processing
			Limit Name	Value	
F62 – Plant Voltage Mirror	VDC	1 / Low	BatOnDisch	51.00	Only in a stand-alone LMS
		4 / Low	End Volts	42.00	Yes (used as battery empty point)
F61 – Battery Reserve (Charge) Time	Min	1 / Low	Rated Cap.	480	No (initial value during discharge)
		4 / Low	ReserveLow	60	Alarm only during a discharge
F60 – Predicted Reserve Capacity	Min	1 / Low	Recharge	1440	No (defines a full recharge period)
		4 / Low	EOL Cap.	360	Alarm only after full recharge period
F59 – Predicted Ah Reserve Capacity	Ah	1 / Low	Learned Ah	auto-set ³	Set to zero to (re)learn value
		4 / Low	EOL Cap.	auto-se	Alarm only after full recharge period

Function Channel Values:

F62 – Plant Voltage Mirror channel is used by fuel gage and is either preset or set manually as noted:

- If the system is NS 702/80x it defaults to F62 = A9901 or if a NS 701, it defaults to F62 = A9001.
- Else for a stand-alone LMS it defaults to NULL and must be set by the customer.
- The fuel gage end voltage point is the value of limit #4, which defaults to 42 volts; edit as required.

F61 – Battery Reserve (Charge) Time is set automatically during a discharge (there is no control program):

- The initial value is estimated and is the Rated Capacity (limit F61.1) minus the elapsed time on discharge.
- A valid prediction by the algorithm takes 40-60 minutes depending on the discharge rate; updates every 5m.

- A value in parenthesis represents the continuous charge time (after a discharge); max display is F60.1 limit.

F60 & F59 – Predicted Reserve Capacity is set automatically (there is no control program):

- “N/A” displays when the battery is charging and before a valid prediction is available by the algorithm.
- When available, F60 is the sum of the elapsed discharge time plus the predicted remaining reserve time (F61).
- When available, F59 is the value of F60 multiplied by the load current, with results in amp-hours.
- End-of-life alarm is limit #4 and defaults to 75% of limit #1; requires full recharge period beforehand to alarm.

¹ BOD is determined by an alarm as follows: B9902 for a NS702/80x; B9003 for NS701; F62.1 (limit 1) for a stand-alone LMS

² IEEE-1188 Recommended Practice for Maintenance, Testing, and Replacement of VRLA Batteries for Stationary Applications

³ F59 limits default to zero and update during the highest prediction occurring within the first 6 months (of initial clock setup)

COMMANDS

Overview of the Command Set

LMS1000 Commands

This section provides an alphabetical list of all LMS1000 commands, with a short description of each command.

LMS1000 Commands	Description
ACK	acknowledge report type alarms
ACO	list alarms that have been cutoff
AID <n>	display configured access identifiers
ALARMS	list active alarms
ANSWER	show number of rings before the system answers
BATTERY	list BATTERY type commands
BATTERY THERMAL	sets the Battery Thermal Alarm Channel and Battery Thermal Runaway Voltage
BATTERY TIMER	list BATTERY TIMER type commands
BATTERY TIMER ?	display Help for BATTERY type commands
BATTERY TIMER CLR	clear Battery Discharge History
BATTERY TIMER CSV	display Battery Discharge History in comma separated value format
BATTERY TIMER SET	set Battery Discharge Timer feature
BATTERY TIMER STATUS	display Battery Discharge History in tabular format
BOARDS	list installed boards
BYE	logoff and hang-up
CHANNELS	list user defined channels
CLASS	list programmable alarm classifications
CLR	list CLR type commands
CLR ACO	disable alarm cutoff
CLR EVENTS	clear event log
CLR LED <n>	turn LED off
CLR LOG	clear alarm log
CLR MAIL	clear your mail from memory
CLR POWER <n>	clear power consumption data (if Power Metering software option installed)
CLR PROGRAM <tn>	clear control programs
CLR RLY <n>	de-energize relay
CLR STATS <tn>	clear channel Basic Statistics
CLR STATS DAILY	clear channel daily Advanced Statistics
CLR STATS WEEKLY	clear channel weekly Advanced Statistics
CMD	list programmable commands
COM	list local comm port settings
CONFIG <tn>	configure specified channel
CONNECT	initiate a communications session with device connected to GATEWAY port

LMS1000 Commands	Description
DAC DEL	deletes a User from the Door Access Controller (DAC)
DAC LIST	displays a list of Users and their Access Codes stored in the Door Access Controller (DAC)
DAC SET	adds / changes a User and/or Access Code stored in the Door Access Controller (DAC)
DAC SET LOCK OFF	unlocks the access with any DAC User Code
DAC SET LOCK ON	locks the access with any DAC User Code
DAC STATUS	displays the actual state of the Access Door
DATE	show date and time
DOWNLOAD	dump system configuration using XMODEM protocol
DOWNLOAD TFTP	dump system configuration using TFTP protocol
EFF	show Energy Management status
EVENTS <n>	list event log entries for specified user
HELP	list of commands with a description of each
INFO <n>	show information pages
LIMITS	list channel alarm limits
LOG	list alarm log entries
MAIL	show any mail
MENU	list of commands
MODE	displays configuration of TL1 port settings
NETWORK	list NETWORK type commands
NETWORK INITIALIZE	clear all known nodes and search for new nodes
NODE	list NODE type commands
NODE ADD	search for and configure new nodes
NODE CONFIG <n>	configure user information for a node
NODE DELETE <n>	remove a node
NODE INITIO <n>	reinitialize a node's I/O hardware configuration
NODE LIST <n>	view user and hardware configuration for nodes
NODE REPLACE <n>	replace a node
OPTIONS	list options installed
PERIODS	list time periods
PHONE	show user phone numbers
POWER <t<n>>	list power consumption data (if Power Metering software option installed)
PRCONFIG	list channel configuration
PROGRAM	list control programs
RATE	list size or capacity percentages
REPORT	show system alarm reporting parameters
SCAN	list active channel status
SEQUENCE	show AC & standby sequencer status
SET	list SET type commands
SET ACO	cutoff present alarms from affecting relays

LMS1000 Commands	Description
SET AID <n>	configures access identifiers
SET ANSWER <n>	set number of rings before the system answers
SET CHANNELS	set user defined channels
SET CLASS <n>	set programmable alarm classifications
SET CMD <n>	set programmable commands
SET COM	set local comm port configuration
SET DATE <mm/dd/yy>	set date where mm = month, dd = date, yy = year
SET DEFAULTS	set system default parameters
SET EFF	set Energy Management parameters
SET EMAIL	set IP DNS server, SMTP Server, and return mail addresses
SET GATEWAY	set GATEWAY port communications data rate
SET INFO <n>	configure information pages
SET LED <n>	turn LED on
SET LIMITS <tn>	set channel alarm limits
SET MAIL	send mail to users
SET MODE	modify configuration of TL1 port settings
SET PERIODS <tn>	set time periods
SET PHONE	set user phone numbers
SET PROGRAM <tn>	configure control programs
SET REPORT	set system alarm reporting parameters
SET RLY <n>	energize relay
SET SEQUENCE	set AC & Standby sequencer parameters
SET STATS CHANNELS	set Advanced Statistic channels
SET STATUS <n>	configure status page
SET SYSTEM	configure all settings
SET TIME <hh:mm:ss>	set time where hh = hours, mm = minutes, ss = seconds
SET TIMEOUT <n>	set user timeout
SET UNIT	set unit name and number
SET USERS <n>	configure a user
SET VI	set Plant Voltage and Load settings
STATS	display channel Basic Statistics
STATS CHANNELS	display Advanced Statistic channels
STATS DAILY	display channel daily Advanced Statistics
STATS WEEKLY	display channel weekly Advanced Statistics
STATUS <n>	show status page
TIME	show date and time
TIMEOUT	show user timeout
UNIT	show unit name and number
UPLOAD	configure the system by uploading a file using XMODEM protocol

LMS1000 Commands	Description
UPLOAD TFTP	configure the system by uploading a file using TFTP protocol
USERS <n>	list user configuration
VI	show Plant Voltage and Load
where: < > anything enclosed in brackets is optional. n is a valid number. t is a type A, B, E, F, G, L, R; for Analog, Binary, Energy Management, Function, Group, LED, or Relay.	

VPS/NPS Power System Interface Commands

 **NOTE!** The LMS cabinet (Spec. No. 586505000/586505500) can be used in Vortex® Power Systems (VPS) and NetSure™ Power Systems (NPS). The LMS is also factory integrated (w/out using the Spec. No. 586505000/586505500 cabinet) into Spec. Nos. 582140000, 582140001, and 582126100 NetSure™ Power Systems (NPS). In this document, reference to an LMS in a VPS or NPS using the Spec. No. 586505000/586505500 cabinet will be VPS/NPS (LMS commands and responses specific to this interface use 'NETSURE'). Reference to an LMS in a Spec. No. 582140000, 582140001, and 582126100 NPS Power System will be NPS (LMS commands and responses specific to this interface use 'NPS').

Additionally, when an LMS in a Spec. No. 582140000, 582140001, or 582126100 Power System is connected to another Vortex/NETSURE Power System using the LMS Dual MCA feature, the LMS commands and responses specific to the Vortex/NetSure Power System are changed from 'NETSURE' to 'VORTEX'.

This section provides an alphabetical list of all VPS/NPS Power System Interface commands, with a short description of each command.

VPS/NPS Power System Interface Commands	Description
ALARMS NETSURE	list active VPS/NPS Power System alarms
ALARMS NETSURE LVD	list active LVD alarms
ALARMS NETSURE MCA	list active MCA alarms
ALARMS NETSURE PCU<n>	list active PCU alarms
ALARMS NETSURE SHUNT	list active SHUNT alarms
ALARMS NETSURE SUBSYSTEM	list active subsystem type alarms
ALARMS NETSURE SYSTEM	list active system type alarms
DOWNLOAD TFTP NETSURE	dump VPS/NPS Power System configuration using TFTP
DOWNLOAD NETSURE	dump VPS/NPS Power System configuration using XMODEM protocol
HELP NETSURE	list of VPS/NPS Interface commands with a description of each
PRCONFIG NETSURE	list VPS/NPS Power System settings and equipment inventory

VPS/NPS Power System Interface Commands	Description
PRCONFIG NETSURE INVENTORY	list VPS/NPS Power System equipment inventory
PRCONFIG NETSURE SETTINGS	list VPS/NPS Power System settings
SCAN NETSURE	list present status of VPS/NPS Power System
SCAN NETSURE LVD	list present status of LVD circuits
SCAN NETSURE MCA	list present status of MCA
SCAN NETSURE PCU<n>	list present status of specified PCU
SCAN NETSURE SUBSYSTEM	list present status of subsystem data
SCAN NETSURE SYSTEM	list present status of system data
SET NETSURE	configure VPS/NPS Power System settings
SET NETSURE INTERFACE	Enable/Disable VPS/NPS interface
SET NETSURE LVD<n<t>> DISCONNECT	set specified LVD disconnect voltage settings
SET NETSURE LVD<n<t>> FORCECONN	Manually reconnect specified LVD
SET NETSURE LVD RECONNECT	set LVD reconnect voltage setting
SET NETSURE MESSAGE MCA	set MCA custom message
SET NETSURE MESSAGE PCU<n>	set specified PCU custom message
SET NETSURE PASSWORD	set MCA logon password
SET NETSURE PCU FANSPEED	configure PCU fan speed
SET NETSURE PCU LOADSHARE	configure PCU Load share alarm
SET NETSURE PCU STATE<n>	turn specified PCU On or Off
SET NETSURE PCU TOTALSLOTS	set number and type (amperage) of PCU mounting positions available in the system
SET NETSURE SUBSYSTEM CALVOLT	set subsystem calibration voltage
SET NETSURE SUBSYSTEM FACTORYCAL	set subsystem cal. voltage to factory default
SET NETSURE SUBSYSTEM HIVALM	set subsystem High Voltage alarm
SET NETSURE SUBSYSTEM LVALM	set subsystem Low Voltage alarm

VPS/NPS Power System Interface Commands	Description
SET NETSURE SUBSYSTEM OVRCURRENT	set subsystem Overcurrent alarm
SET NETSURE SYSTEM 25APLACES	set system number of 25A Places
SET NETSURE SYSTEM 50APLACES	set system number of 50A Places
SET NETSURE SYSTEM 100APLACES	set system number of 100A Places
SET NETSURE SYSTEM 200APLACES	set system number of 200A Places
SET NETSURE SYSTEM 50%BATONDISCH	set system 50% Battery On Discharge alarm
SET NETSURE SYSTEM AUTOEQMULT	set Auto Equalize Multiplier
SET NETSURE SYSTEM BATONDISCH	set system Battery On Discharge alarm
SET NETSURE SYSTEM BATTCURLIM	set Battery Recharge Current Limit
SET NETSURE SYSTEM BATTOVRCUR	set Battery Charge Alarm
SET NETSURE SYSTEM CALVOLT	set system calibration voltage
SET NETSURE SYSTEM COMPMAX	set Digital Temp. Comp. Max voltage
SET NETSURE SYSTEM COMPMIN	set Digital Temp. Comp. Min voltage
SET NETSURE SYSTEM COMPSLOPE	set Digital Temperature Comp. Slope
SET NETSURE SYSTEM COMPSOURCE	configure Digital Temp. Comp. Source
SET NETSURE SYSTEM CURLIMIT	set system current limit
SET NETSURE SYSTEM FACTORYCAL	set system cal. voltage to factory default
SET NETSURE SYSTEM FLTVOULT	set system float voltage
SET NETSURE SYSTEM HIVLTALM1	set system High Voltage 1 Alarm
SET NETSURE SYSTEM HIVLTALM2	set system High Voltage 2 Alarm
SET NETSURE SYSTEM HVS	set system High Voltage Shutdown
SET NETSURE SYSTEM INVENTORY	reset the system equipment inventory

VPS/NPS Power System Interface Commands	Description
SET NETSURE SYSTEM MODE	set Power System mode
SET NETSURE SYSTEM NAGTIMER	set system ACO timer
SET NETSURE SYSTEM OVRCURRENT	set system Overcurrent alarm
SET NETSURE SYSTEM RLYTESTTIME	set Relay Test Time
SET NETSURE SYSTEM TEMPCOMP	set system Temperature compensation voltage
SET NETSURE SYSTEM TEMPHIGH<n>	set Temp. Probe High alarm
SET NETSURE SYSTEM TEMPLOW<n>	set Temp. Probe Low alarm
SET NETSURE SYSTEM TSTEQTIME	set system test/equalize timeout
SET NETSURE SYSTEM TSTEQVOLT	set system test/equalize voltage
UPLOAD TFTP NETSURE	configure VPS/NPS Power System by uploading file using TFTP
UPLOAD NETSURE	configure VPS/NPS Power System by uploading file using XMODEM protocol
where: < > anything enclosed in brackets is optional n is a valid number t is A or B for VPS/NPS LVD settings	

NPS Power System Interface Commands

 **NOTE!** The LMS cabinet (Spec. No. 586505000/586505500) can be used in Vortex® Power Systems (VPS) and NetSure™ Power Systems (NPS). The LMS is also factory integrated (w/out using the Spec. No. 586505000/586505500 cabinet) into Spec. Nos. 582140000, 582140001, and 582126100 NetSure™ Power Systems (NPS). In this document, reference to an LMS in a VPS or NPS using the Spec. No. 586505000/586505500 cabinet will be VPS/NPS (LMS commands and responses specific to this interface use 'NETSURE'). Reference to an LMS in a Spec. No. 582140000, 582140001, and 582126100 NPS Power System will be NPS (LMS commands and responses specific to this interface use 'NPS').

Additionally, when an LMS in a Spec. No. 582140000, 582140001, or 582126100 Power System is connected to another Vortex/NetSure Power System using the LMS Dual MCA feature, the LMS commands and responses specific to the Vortex/NetSure Power System are changed from 'NETSURE' to 'VORTEX'.

This section provides an alphabetical list of all NPS Power System Interface commands, with a short description of each command.

NPS Power System Interface Commands	Description
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NPS Power System Interface Commands	Description
DOWNLOAD TFTP NPS	dump NPS Power System configuration using TFTP
DOWNLOAD NPS	dump NPS Power System configuration using XMODEM protocol
PRCONFIG NPS	list settings and equipment inventory
PRCONFIG NPS DISTRIBUTION	list equipment inventory of Distribution Elements
PRCONFIG NPS INVENTORY	list equipment inventory of all Elements
PRCONFIG NPS N<#>-<#>	list equipment inventory of Bay/MCA Elements
PRCONFIG NPS PCU	list equipment inventory of PCU Elements
PRCONFIG NPS SETTINGS	list settings
SET NPS	configure NPS Power System settings
SET NPS CANIO	set NPS MCA CAN I/O circuit card parameters prompted to select which NPS MCA CAN I/O circuit card, then which parameter to set (configurable parameters are... designate the alarm state for MCA CAN I/O circuit card binary inputs, designate MCA CAN I/O circuit card analog input as "auxiliary" or "distribution", set the scale factor for MCA CAN I/O circuit card analog input and output)
SET NPS MESSAGE CANIO_BD	set MCA CAN I/O circuit card custom messages
SET NPS MESSAGE DISTRIBUTION	set Distribution Elements custom message
SET NPS MESSAGE MCA	set MCA custom message
SET NPS MESSAGE PCU<n>	set specified PCU custom message
SET NPS MESSAGE RELAY	set Relay Elements custom message
SET NPS MESSAGE ROUTER	set Router Elements custom message
SET NPS PASSWORD	set MCA logon password
SET NPS PCU<n>	turn specified PCU On or Off
SET NPS SYSTEM BATONDISCH	set system Battery On Discharge alarm
SET NPS SYSTEM CAPALTCURLIMIT	set system Alternate Current Limit % capacity
SET NPS SYSTEM CURLIMIT	set system current limit
SET NPS SYSTEM EQMULTIPLIER	set system "Auto-Equalize Time Multiplier"
SET NPS SYSTEM FLTVOLT	set system float voltage
SET NPS SYSTEM HI1TEMPALM	set system High Temperature 1 alarm
SET NPS SYSTEM HI2TEMPALM	set system High Temperature 2 alarm
SET NPS SYSTEM HIVLTALM1	set system High Voltage 1 alarm
SET NPS SYSTEM HIVLTALM2	set system High Voltage 2 alarm
SET NPS SYSTEM HVS	set system High Voltage Shutdown

NPS Power System Interface Commands	Description
SET NPS SYSTEM LOADACURRENT	set system Load Group A Current alarm
SET NPS SYSTEM LOADBCURRENT	set system Load Group B Current alarm
SET NPS SYSTEM LOADCURRENT	set system Total Load Current alarm
SET NPS SYSTEM LOW1TEMPALM	set system Low Temperature 1 alarm
SET NPS SYSTEM LOW2TEMPALM	set system Low Temperature 2 alarm
SET NPS SYSTEM NAGTIMER	set system ACO timer
SET NPS SYSTEM PWRSHARECAP	set system Power Share % of capacity
SET NPS SYSTEM RLYOFFTEST	set system "alarm relay test feature" off
SET NPS SYSTEM RLYONTEST	set system "alarm relay test feature" on
SET NPS SYSTEM RLYTSTTIME	set system "alarm relay test feature time period"
SET NPS SYSTEM SEQDELAY	set system PCU sequencing delay
SET NPS SYSTEM TEMPCOMPMAX	set system "battery charge temperature compensation feature's maximum voltage"
SET NPS SYSTEM TEMPCOMPMIN	set system "battery charge temperature compensation feature's minimum voltage"
SET NPS SYSTEM TEMPSLOPE	set system "battery charge temperature compensation feature's compensation slope"
SET NPS SYSTEM TSTEMODE	set system to float or test/equalize mode
SET NPS SYSTEM TSTEQTIME	set system "timed equalize feature's equalize time period"
SET NPS SYSTEM TSTEQVOLT	set system test/equalize voltage
SET NPS SYSTEM UPDATEINV	reset the system equipment inventory
SET NPS SYSTEM USECELSIUS	set system temperature readings to Celsius
SET NPS SYSTEM USEFAHRENHEIT	set system temperature readings to Fahrenheit
SET NPS SYSTEM VERYLOWVOLT	set system Very Low Voltage alarm
UPLOAD TFTP NPS	configure NPS Power System by uploading file using TFTP
UPLOAD NPS	configure NPS Power System by uploading file using XMODEM protocol
where: < > anything enclosed in brackets is optional # is a valid number N is a valid number	

IP Networking Commands

This section provides an alphabetical list of all IP Networking commands available, with a short description of each command.

IP Networking Commands	Description
IP	display the IP Network variables
IP ADDRESS <address>	set the units IP address
IP DELETE <address>	remove a host from the list of authorized hosts
IP GATEWAY <address>	set the units gateway address
IP HOST <address>	add a new host to the list of authorized hosts
IP NETMASK <address>	set the units network netmask

SNMP Commands

This section provides an alphabetical list of all SNMP commands, with a short description of each command.

SNMP Commands	Description
SNMP	display the current value of the SNMP options
SNMP GET <comm name>	set the SNMP GET community name
SNMP OFF	disable SNMP access
SNMP ON	enable SNMP access
SNMP SET <comm name>	set the SNMP SET community name
TRAPS	display the SNMP TRAP information
TRAPS ADD <n>	add a new SNMP Trap recipient to the list of TRAP hosts
TRAPS COMMUNITY <comm name>	set the SNMP TRAPS community name
TRAPS DELETE <n>	remove a host address from the list of TRAP hosts
TRAPS OCCURRED	disable/enable the system's ability to send SNMP Occurred Alarm TRAPS
TRAPS OFF	disable the system's ability to send SNMP TRAPS
TRAPS ON	enable the system to send SNMP TRAPS
TRAPS PERSISTENT	disable/enable the system's ability to send SNMP Persistent Alarm TRAPS or set the Persistent Alarms reporting interval
TRAPS RETIRED	disable/enable the system's ability to send SNMP Retired Alarm TRAPS
TRAPS VERSION <V1/V2>	change the version of SNMP TRAPS sent by the system

TL1 Commands Supported

This section provides an alphabetical list of all TL1 commands supported when the TL1 software option is installed, with a short description of each command.

Refer to the current issue of the following Bellcore publications for further TL1 command language information.

TR-NWT-000199 TR-NWT-000835 TA-NWT-001360
 TR-NWT-000831 TA-NWT-000199
 TR-NWT-000833 TA-NWT-000200

TL1 Commands Supported	Description
ACTIVATE-USER ACT-USER	Sets up a session with the system (i.e., logging into the system).
ALLOW-MESSAGE-ALL ALW-MSG-ALL	Enables the system to resume transmission of automatic messages after being placed in the inhibit message mode.
CANCEL-USER CANC-USER	Terminates a session with the system (i.e., logging off of the system).
DELETE-USER-SECURITY DLT-USER-SECU	Deactivates a user.
EDIT-DATE_AND_TIME ED-DAT	Changes the system's date and/or time.
EDIT-PID ED-PID	Edits the current user's privilege identifier (<pid>) parameter (i.e., the system's user password).
EDIT-USER-SECURITY ED-USER-SECU	Edits the user identifier (<uid>) parameter (i.e., user name), privilege identifier (<pid>) parameter (i.e., the password), calling identifier (<cid>) parameter (i.e., user primary phone number), and user access privilege (<uap>) parameter (i.e., user access level) of the specified user.
ENTER-USER-SECURITY ENT-USER-SECU	Activates a user and enters the specified security parameters for this user. These security parameters consist of the user identifier (<uid>) parameter (i.e., user name), privilege identifier (<pid>) parameter (i.e., user password), calling identifier (<cid>) parameter (i.e., user primary phone number), and user access privilege (<uap>) parameter (i.e., user access level).
INHIBIT-MESSAGE-ALL INH-MSG-ALL	Disables the transmission of automatic messages.
INITIALIZE-LOG INIT-LOG	Instructs the system to initialize (i.e., clear) the specified log (alarm or event).
INITIALIZE-REGISTER INIT-REG- { EQPT ALL }	Instructs the system to initialize to a specific value one or more storage registers or event counters associated with one or more equipment units, facilities, etc. within the system.
INITIALIZE SYSTEM INIT-SYS	Instructs the system to initialize its system processor and/or associated subsystems.
OPERATE-ALARM CUTOFF OPR-ACO- { EQPT ALL }	Cuts off the office audible alarm indications without changing the local alarm indications.
OPERATE-EXTERNAL-CONTROL OPR-EXT-CONT	Instructs the system to activate a specified relay channel to operate an external control.
RELEASE-EXTERNAL-CONTROL RLS-EXT-CONT	Instructs the system to de-activate a specified relay channel to release an external control.

TL1 Commands Supported	Description
RETRIEVE-ALARM RTRV-ALM- { EQPT ALL }	Instructs the system to send the current state of its alarm conditions associated with one or more equipment units, facilities, etc. within the system.
RETRIEVE-ALARM-ENVIRONMENT RTRV-ALM-ENV	Instructs the system to send the current state of its alarm conditions associated with the system's environment.
RETRIEVE-ATTRIBUTE RTRV-ATTR- { EQPT ALL }	Instructs the system to send the current notification code associated with the specified events.
RETRIEVE-ATTRIBUTE-ENVIRONMENT RTRV-ATTR-ENV	Instructs the system to send the current attributes associated with the specified environmental alarm.
RETRIEVE-CONDITION RTRV-COND- { EQPT ALL }	Instructs the system to send the current state and standing condition (alarm or status) associated with one or more equipment units, facilities, etc. within the system.
RETRIEVE-EXTERNAL-CONTROL RTRV-EXT-CONT	Instructs the system to retrieve the state of the specified relay channels controlling external controls.
RETRIEVE-HEADER RTRV-HDR	Requests that the system reply with a "normal" response indicating COMPLD.
RETRIEVE-LOG RTRV-LOG	Instructs the system to retrieve the contents of an existing log.
RETRIEVE-PERFORMANCE MONITORING RTRV-PM- { EQPT ALL }	Instructs the system to send its current set of Performance Monitoring (PM) data associated with one or more equipment units, facilities, etc. within the system.
RETRIEVE-THRESHOLD RTRV-TH- { EQPT ALL }	Instructs the system to send the current threshold level (alarm limits) of one or more monitored parameters for which violation will trigger an automatic message.
RETRIEVE-USER-SECURITY RTRV-USER-SECU	Retrieves a user's security parameters. The calling identifier (<cid>) parameter (i.e., user primary phone number), and user access privilege (<uap>) parameter (i.e., user access level) of the specified user is retrieved.
SET-ATTRIBUTE SET-ATTR- { EQPT }	Instructs the system to set the current notification code associated with the specified events.
SET-ATTRIBUTE-ENVIRONMENT SET-ATTR-ENV	Instructs the system to set the current attributes associated with the specified environmental alarm.
SET-SYSTEM_IDENTIFICATION SET-SID	Instructs the system to change its system identifier (SID) parameter to a given value.
SET-THRESHOLD SET-TH- { EQPT }	Instructs the system to set threshold levels (alarm limits) for a monitored parameter that, when exceeded, will trigger an automatic message.

**LMS1000
COMMANDS,
VPS/NPS POWER SYSTEM
INTERFACE COMMANDS,
AND
NPS POWER SYSTEM
INTERFACE COMMANDS**

LMS1000 Commands, VPS/NPS Power System Interface Commands, and NPS Power System Interface Commands (in alphabetical order)

This section presents a more detailed description of each LMS1000 command, VPS/NPS Power System Interface Command, and NPS Power System Interface Command; again in alphabetical order. Command syntax and examples of typical screen displays are given.

The following page shows a sample command page that explains the format used for the commands listed in this section. Following the sample command page is an explanation of the conventions used, plus other information on using command options.



NOTE! The LMS cabinet (Spec. No. 586505000/586505500) can be used in Vortex® Power Systems (VPS) and NetSure™ Power Systems (NPS). The LMS is also factory integrated (w/out using the Spec. No. 586505000/586505500 cabinet) into Spec. Nos. 582140000, 582140001, and 582126100 NetSure™ Power Systems (NPS). In this document, reference to an LMS in a VPS or NPS using the Spec. No. 586505000/586505500 cabinet will be VPS/NPS (LMS commands and responses specific to this interface use 'NETSURE'). Reference to an LMS in a Spec. No. 582140000, 582140001, and 582126100 NPS Power System will be NPS (LMS commands and responses specific to this interface use 'NPS').

Additionally, when an LMS in a Spec. No. 582140000, 582140001, or 582126100 Power System is connected to another Vortex/NetSure Power System using the LMS Dual MCA feature, the LMS commands and responses specific to the Vortex/NetSure Power System are changed from 'NETSURE' to 'VORTEX'.

Sample Command

Description: This section describes the purpose of the command.

Command Level: This section tells what level of access is required to execute the command.

Syntax: command [options]: where command is the name of the command and options may include a channel type, node number, channel number, group number, search text, or other arguments. Refer to the next page for more information on command options. Listed in this section is the entire command name, plus the least amount of characters that have to be typed for the command to be recognized.

Comments: This section describes the command in more detail and also explains the use of the command's options.

Notes: This section discusses important points related to the use of the command, such as limitations or warnings.

Related Commands: Lists related commands.

Example: Shows one or more examples that illustrate how to use the command plus a typical screen display.

Command Conventions and Options

Command Conventions

The following conventions are used for the command options.

<u>Convention</u>	<u>Usage</u>
italics	Items shown in italics are variables and requires you to supply the text. For example, when text appears in italics, you should type the desired text.
[brackets]	Items in brackets are optional information that may be used with a command. To include optional information, type a space after the command name and then type the information within the brackets. Do not type the brackets themselves.

Command Options

Command options provide a command with extra information that affect the operation of the command. If options are omitted, the command either prompts you to supply them or uses a default value. The valid options for a command may be one or more of the following.



NOTE! Channels are identified by a channel type, node number, and channel number.

Example: Channel A0001,
 A (channel type) represents an analog channel
 00 (node number) represents the Master Node
 01 (channel number) represents channel #01

<u>Option</u>	<u>Description</u>
channel_type	A single alpha character that refers to a channel type. Valid characters include: A for Analog Channels B for Binary Channels E for Energy Management Channels F for Function Channels L for LED Channels R for Relay Channels U for User Channels
node_number	The number assigned to the node.
channel_number	The number assigned to the channel.
channel_designator	channel_type [node_number] channel_number, example A1201.
channel_range	channel_type [node_number] channel_number – [node number] channel number, example A1-201.
node_designator	Nnode_number, example N12.
node_range	Nnode_number – node_number, example N1-3.
group_number	Any number 1 through 8.
group_designator	Ggroup_number.

group_range	Ggroup_number – group_number, example G2-4.
search_text	Some commands use a string of characters to affect the response of the command. When search_text is supplied, only those channels with names containing the text are included in the command's response. A search_text string is a group of characters that can include letters, numbers, and any other character EXCEPT a space. Any characters after a space are ignored.
PCU_number	Designates the power system's PCU. Valid numbers are 1 to 56.
LVD_number 3.	Designates the power system's Low Voltage Disconnect circuit. Valid numbers are 1 to 3.
LVD_side	Designates the side of the power system's Low Voltage Disconnect circuit. Valid letters are A and B.

Commands

ACK

Description: Tags a user to an alarm log entry that is not already acknowledged.

Command Level: 4

Syntax: ACK

Comments: The ACK command displays the same information that would be displayed if you received a system alarm report. But it also tags your user ID number to those log entries. Refer to the SET REPORT command for additional information concerning the operation of the system alarm reporting function.

Notes: This command prevents a system alarm report from occurring (if that feature is being used).

Related Commands: none

Example:

Command<4>: ACK

ACKNOWLEDGED ALARM LOG ENTRIES AS OF 11:24:27 ON 01/01/01.

Chan	Description	Class	Occurred	Ack	Cleared
A0001.2H	Analog Channel 1	MAJOR	01/01 11:24:04	8	01/01 11:24:23
R0001.Pg	Relay Channel 1	MINOR	01/01 11:23:30	8	01/01 00:00:00
A0001.2H	Analog Channel 1	MAJOR	01/01 11:22:54	8	01/01 11:22:59
B0001	Binary Channel 1	MINOR	01/01 11:22:46	8	01/01 00:00:00
A0001.2H	Analog Channel 1	MAJOR	01/01 11:22:43	8	01/01 11:22:52

ACO

Description: Displays active alarms that have their alarm indication canceled.

Command Level: 1

Syntax: ACO
AC

Comments: Only analog, binary, and function alarms can have their alarm indication canceled. When it seems that a relay would be energized (because of its control program) but is not, use this command to see if any alarms have been canceled. Then compare this listing with the control programs to see if any of the canceled alarms may have affected the output.

Notes: none

Related Commands: CLR ACO, SET ACO

Example:

Command<1>: ACO

The following alarms are cutoff:

Chan	Description	Value	Units	Alarm Limit	and	Class
A0001	Analog Channel 1	+20.4	Amps	20.0 H - Hi Limit 2		MAJOR

Chan	Description	Status	Alarm Status	/ Class
B0001	Binary Channel 1	CO	active	MINOR

AID

Description: This command is only available if the TL1 software option is installed in the system. Displays the configuration of the access identifiers.

Command Level: 2

Syntax: AID, displays all AIDs
 AID [n], where n is a number from 1 through 32 and specifies the specific access identifier to be displayed
 AI
 AI [n]

Comments: Each access identifier can be viewed separately by entering the command AID followed by a space and then a number from 1 through 32. The number specifies which access identifier is to be displayed.

Notes: none

Related Commands: SET AID

Example:

```
Command<2>: AID 1
ACCESS IDENTIFIER 1 CONFIGURATION:
  Name: P140B1
  Type: EQPT
CHANNELS:
Chan  Description          Sub-access Identifier
A0001 Analog Channel 1      RECT1
A0002 Analog Channel 2      RECT2
A0003 Analog Channel 3      RECT3
A0004 Analog Channel 4      RECT4
```

```
Command<2>: AID
ACCESS IDENTIFIER 1 CONFIGURATION:
  Name: P140B1
  Type: EQPT
CHANNELS:
Chan  Description          Sub-access Identifier
A0001 Analog Channel 1      RECT1
A0002 Analog Channel 2      RECT2
A0003 Analog Channel 3      RECT3
A0004 Analog Channel 4      RECT4
ACCESS IDENTIFIER 2 CONFIGURATION:
  Name: EMLIGHT
  Type: ENV
CHANNELS: None
```

ALARMS

Description: Lists active analog, binary, function, relay, and LED alarms and their channel number. Also lists self diagnostic alarms.

Command Level: 1

Syntax: ALARMS [*channel_type*] [*channel_designator*] [*channel_range*] [*node_designator*] [*node_range*]
 [*group_designator*] [*search_text*]

A [*channel_type*] [*channel_designator*] [*channel_range*] [*node_designator*] [*node_range*]
 [*group_designator*] [*search_text*]

Comments: Analog and function channel alarm information includes the present value, the unit of measure, and which alarm setpoint has been exceeded. Each type of alarm can be viewed separately by entering the command ALARMS [*node_designator*] [*node_range*] followed by a space and then the character A for analog, B for binary, R for relay, L for LED, F for function, G for group, or U for user.

Notes: Analog and binary channels are automatically mapped to MCA parameters when the VPS/NPS MCA Interface is used. Alarm information for these analog and binary channels can be viewed using the ALARMS command and options. Refer to **Table 1** through **Table 3** for a correlation between channels and mapped VPS/NPS MCA and NPS MCA parameters. To view alarm information of just the VPS/NPS, use the ALARMS NETSURE (ALARMS N) command and options.

Related Commands: ALARMS NETSURE

Example:

Command<1>: ALARMS

SYSTEM HARDWARE ALARMS:

```
I/O Network Failure
Unexpected Response received from node 02
Unable to communicate to node 03
Unrecognized node assembly found
Unexpected reset on node 05
Configuration mismatch on node 06
Assembly mismatch on node 07
Hardware mismatch on node 08
I/O card 01 on node 09 failed
Analog channel 1008 configuration failure
I/O card 02 on Main chassis failed
I/O card 03 on Main chassis does not match recorded the type
I/O card 07 on Main chassis is not a recognized type
```

```
ANALOG CHANNEL ACTIVE ALARMS AS OF 11:24:16 ON 01/01/01.
Chan      Description      Value Units   Alarm Limit and Class
A0001.2L Analog Channel 1      +20.3 Amps  20.0 H - Hi Limit 2  MAJOR
BINARY CHANNEL ACTIVE ALARMS AS OF 11:24:18 ON 01/01/01.
Chan      Description      Status Alarm Status / Class
B0001    Binary Channel 1      CO      active      MINOR
RELAY CHANNEL ACTIVE ALARMS AS OF 11:24:20 ON 01/01/01.
Chan      Description      Status Alarm Status / Class
R0001    Relay Channel 1      On ,Pg   active      MINOR
```

BINARY CHANNEL ACTIVE ALARMS AS OF 13:45:44 ON 05/13/96.

Chan	Description	Status	Alarm Status / Class
B0083	Node Communication Error	CC	active
B0089	Node I/O H/W Failure	CC	active
B0090	Analog H/W Configuration Err	CC	active

ALARMS NETSURE

Description: Lists active VPS/NPS Alarms.

Command Level: 1

Syntax: ALARMS NETSURE, ALARMS NETSURE SYSTEM, ALARMS NETSURE PCU[PCU_number], ALARMS NETSURE LVD, ALARMS NETSURE SHUNT, ALARMS NETSURE MCA, ALARMS NETSURE SUBSYSTEM, A N, A N SYSTEM, A N PCU[PCU_number], A N LVD, A N SHUNT, A N MCA

Comments: Alarms of a specific VPS/NPS entity can be viewed separately by entering the command ALARMS N followed by a space and then the entity specifier (SYSTEM, PCU[PCU_number], LVD, SHUNT, MCA, or SUBSYSTEM).

Notes:

PCU failure status is only displayed for PCUs installed in the system.

The following is displayed if there are no active MCA alarms.

```
NETSURE MCA STATUS AS OF xx:xx:xx ON xx/xx/xx.
  Description                Alarm Status
No active MCA alarms
```

The following is displayed if there are no active SHUNT alarms.

```
SHUNT ACTIVE ALARMS AS OF xx:xx:xx ON xx/xx/xx
  Description                Alarm Status
No active SHUNT alarms
```

The following is displayed if there are no digital LVDs installed in the system.

```
LVD ACTIVE ALARMS AS OF xx:xx:xx ON xx/xx/xx.
  Description                Alarm Status
No digitally controlled LVDs installed
```

Potentiometer controlled LVDs are displayed only when the LVD circuit is active.

The following is displayed if there are no active LVD alarms.

```
LVD ACTIVE ALARMS AS OF xx:xx:xx ON xx/xx/xx.
  Description                Alarm Status
No active LVD alarms
```

The following is displayed if there are no active alarms on a selected PCU.

```
PCU## ACTIVE ALARMS AS OF xx:xx:xx ON xx/xx/xx.
                                     Alarm Status
No active PCU alarms
```

The following is displayed if the selected PCU is not installed in the system.

```
Command<2>: ALARMS N PCU[n]
Which PCU (1-56)?
PCU ## not installed in system
```

The following is displayed if an invalid PCU number is entered.

```
Command<2>: ALARMS N PCU[n]
Which PCU (1-56)?
Invalid PCU number
```

Subsystem alarms are only displayed if a subsystem is installed.

Related Commands: ALARMS

Example:

```
Command<1>: ALARMS V
NETSURE SYSTEM ACTIVE ALARMS AS OF xx:xx:xx ON xx/xx/xx.
Chan  Description                               Alarm Status / Class
B9001 NETSURE System High Voltage 1          active
B9002 NETSURE System High Voltage 2          active
B9003 NETSURE System Batt. on Disch.         active
B9004 NETSURE System 50% Batt. Disch.        active
B9005 NETSURE System Overcurrent             active
B9009 NETSURE PCU Emergency Stop             active
B9010 NETSURE System Fuse                    active
B9011 NETSURE All AC Off                     active
B9012 NETSURE MCA Fail                       active
B9013 NETSURE LVD Active                     active
B9014 NETSURE LVDs Inhibited                 active
B9015 NETSURE System Major                   active
B9016 NETSURE System Minor                   active
B9017 NETSURE Shunt Fail                     active
B9018 NETSURE LVD Fail                       active
B9020 NETSURE Battery Charge Alarm           active
B9024 NETSURE PCU High AC Line               active
B9025 NETSURE PCU01 Fail                     active
...
B9080 NETSURE PCU56 Fail                     active
```

```
NETSURE SUBSYSTEM ACTIVE ALARMS AS OF xx:xx:xx ON xx/xx/xx.
Chan  Description                               Alarm Status / Class
B9006 NETSURE Subsystem High Voltage         active
B9007 NETSURE Subsystem Low Voltage          active
B9008 NETSURE Subsystem Overcurrent          active
B9021 NETSURE Subsystem Fuse                 active
B9022 NETSURE Subsystem Major                active
B9023 NETSURE Subsystem Minor                active
```

The following is displayed when a subsystem is not installed:

```
NETSURE SUBSYSTEM ACTIVE ALARMS AS OF xx:xx:xx ON xx/xx/xx.
Chan  Description                               Alarm Status / Class
No Subsystem Installed
```

MCA ACTIVE ALARMS AS OF xx:xx:xx ON xx/xx/xx.

Description	Alarm Status
Board Fail	active
Shelf fuse	active
A/D No System Voltage Input	active
A/D No Sense Lead Voltage Input	active
A/D No Subsystem Voltage Input	active
Display Fail	active

SHUNT ACTIVE ALARMS AS OF xx:xx:xx ON xx/xx/xx

Description	Alarm Status
Shunt01	[type fail/com fail]
Shunt02	[type fail/com fail]
Shunt03	[type fail/com fail]
...	
Shunt16	[type fail/com fail]

LVD ACTIVE ALARMS AS OF xx:xx:xx ON xx/xx/xx.

Description	Alarm Status
LVD 1A	[inhibited/failed/active]
LVD 1B	[inhibited/failed/active]
LVD 2A	[inhibited/failed/active]
LVD 2B	[inhibited/failed/active]
LVD 3A	[inhibited/failed/active]
LVD 3B	[inhibited/failed/active]

The following is displayed only for active potentiometer controlled LVDs:

[LVD 3A]	[active]
[LVD 3B]	[active]
[LVD 4A]	[active]
[LVD 4B]	[active]

Command<1>: ALARMS N SYSTEM

NETSURE SYSTEM ACTIVE ALARMS AS OF xx:xx:xx ON xx/xx/xx.

Chan	Description	Alarm Status / Class
B9001	NETSURE System High Voltage 1	active
B9002	NETSURE System High Voltage 2	active
B9003	NETSURE System Batt. on Disch.	active
B9004	NETSURE System 50% Batt. Disch.	active
B9005	NETSURE System Overcurrent	active
B9009	NETSURE PCU Emergency Stop	active
B9010	NETSURE System Fuse	active
B9011	NETSURE All AC Off	active
B9012	NETSURE MCA Fail	active
B9013	NETSURE LVD Active	active
B9014	NETSURE LVDs Inhibited	active
B9015	NETSURE System Major	active
B9016	NETSURE System Minor	active

```

B9017 NETSURE Shunt Fail          active
B9018 NETSURE LVD Fail            active
B9020 NETSURE Battery Charge Alarm active
B9024 NETSURE PCU High AC Line    active
B9025 NETSURE PCU01 Fail          active
...
B9080 NETSURE PCU56 Fail          active

```

Command<1>: ALARMS N MCA

MCA ACTIVE ALARMS AS OF xx:xx:xx ON xx/xx/xx.

Description	Alarm Status
Board Fail	active
Shelf fuse	active
A/D No System Voltage Input	active
A/D No Sense Lead Voltage Input	active
A/D No Subsystem Voltage Input	active
Display Fail	active

Command<1>: ALARMS N SHUNT

SHUNT ACTIVE ALARMS AS OF xx:xx:xx ON xx/xx/xx

Description	Alarm Status
Shunt01	[type fail/com fail]
Shunt02	[type fail/com fail]
Shunt03	[type fail/com fail]
Shunt04	[type fail/com fail]
Shunt05	[type fail/com fail]
...	
Shunt16	[type fail/com fail]

Command<1>: ALARMS N LVD

LVD ACTIVE ALARMS AS OF xx:xx:xx ON xx/xx/xx.

Description	Alarm Status
LVD 1A	[inhibited/failed/active]
LVD 1B	[inhibited/failed/active]
LVD 2A	[inhibited/failed/active]
LVD 2B	[inhibited/failed/active]
LVD 3A	[inhibited/failed/active]
LVD 3B	[inhibited/failed/active]

The following is displayed only for active potentiometer controlled LVDs:

[LVD 3A]	[active]
[LVD 3B]	[active]
[LVD 4A]	[active]
[LVD 4B]	[active]

Command<1>: ALARMS N PCU[n]

Which PCU (1-56)?

PCU## ACTIVE ALARMS AS OF xx:xx:xx ON xx/xx/xx.

	Alarm Status
Com Fail	active
Sense Lead Open	active
Lost AC Feed	active
High Voltage Shutdown	active
Input Switch OFF	active
Emergency Stop	active
Thermal Current Limit	active
Conversion Element Fail	active
Circuit Breaker is Open	active
A/D Failed	active
Fan slowed or stopped	active

ANSWER

Description: Displays the number of rings that will occur before the system's modem answers a phone call.

Command Level: 5

Syntax: ANSWER
AN

Comments: The default setting is 1.

Notes: none

Related Commands: SET ANSWER

Example:

```
Command<5>: ANSWER  
Rings before answer: 1
```

BATTERY

Description: Lists all commands that begin with BATTERY, and then prompts the user to enter one of the displayed options.

Command Level: 6

Syntax: BATTERY
BATTERY [*command*] [*command*]

Comments: none

Notes: Only the commands that the user has access to are listed.

Related Commands: BATTERY TIMER, BATTERY THERMAL

Example:

```
Command<6>: BATTERY
```

```
Which BATTERY command?
```

```
TIMER      THERMAL
```

```
?
```

BATTERY THERMAL

Description: Sets the Battery Thermal Alarm Channel and Battery Thermal Runaway Voltage.

Command Level: 6

Syntax: BATTERY THERMAL
BA TH

Comments: none

Notes: Refer to the Configuration section in the LMS1000 Installation Instructions (Section 5879) for further information.

Related Commands: none

Example:

```
Command<6>: BATTERY THERMAL
Battery Thermal Alarm Channel:
Battery Thermal Alarm Channel: B0001

Battery Thermal Runaway Voltage:
Battery Thermal Runaway Voltage: 48.60 VDC
```

BATTERY TIMER

Description: Lists all commands that begin with BATTERY TIMER, and then prompts the user to enter one of the displayed options.

Command Level: 6

Syntax: BATTERY TIMER
BATTERY TIMER [*command*]
BA TI [*command*]

Comments: none

Notes: Only the commands that the user has access to are listed.

Related Commands: BATTERY TIMER CLR, BATTERY TIMER CSV, BATTERY TIMER SET, BATTERY TIMER STATUS

Example:

Command<6>: BATTERY TIMER

Which action?

CSV CLR STATUS SET
?

BATTERY TIMER ?

Description: Displays the BATTERY Commands help text in tabular format.

Command Level: 6

Syntax: see "Example"

Comments: none

Notes: none

Related Commands: BATTERY TIMER CLR, BATTERY TIMER CSV, BATTERY TIMER SET, BATTERY TIMER STATUS

Example:

Command<6>: BATTERY TIMER ?

BATTERY TIMER CSV	Shows Battery Discharge History in comma separated form
BATTERY TIMER CLR	Clears the Battery Discharge History
BATTERY TIMER STATUS	Shows Battery Discharge History and current status
BATTERY TIMER SET	Sets Battery Discharge Timer Configuration

Command<6>: BATTERY TIMER CSV ?

BATTERY TIMER CSV	Shows Battery Discharge History in comma separated form
-------------------	---

Command<6>: BATTERY TIMER CLR ?

BATTERY TIMER CLR	Clears the Battery Discharge History
-------------------	--------------------------------------

Command<6>: BATTERY TIMER STATUS ?

BATTERY TIMER STATUS	Shows Battery Discharge History and current status
----------------------	--

Command<6>: BATTERY TIMER SET ?

BATTERY TIMER SET	Sets Battery Discharge Timer Configuration
-------------------	--

BATTERY TIMER CLR

Description: Permits the user to clear the battery discharge history.

Command Level: 6

Syntax: BATTERY TIMER CLR
BA TI CL

Comments: none

Notes: none

Related Commands: BATTERY TIMER CSV, BATTERY TIMER SET, BATTERY TIMER STATUS

Example:

```
Command<6>: BATTERY TIMER CLR
WARNING!!! This command will delete all battery discharge history.
Do you wish to continue (YES or NO):YES
Battery discharge history cleared
```

BATTERY TIMER CSV

Description: Displays the battery discharge history in a comma separated value format.

Command Level: 6

Syntax: BATTERY TIMER CSV
BA TI CS

Comments: none

Notes: none

Related Commands: BATTERY TIMER CLR, BATTERY TIMER SET, BATTERY TIMER STATUS

Example:

Command<6>: BATTERY TIMER CSV

```
Discharge #,Duration, AC Fail Time, AC Fail Date, Lowest Voltage, Avg. Current  
D01,00:00,09:20,02/26/03, 27.00, 88.00,  
D02,00:07,09:12,02/26/03, 27.00, 88.00,  
...  
D50,00:07,15:12,02/14/03, 27.00, 88.00,
```

BATTERY TIMER SET

Description: Permits the user to select the channels required for battery discharge recording.

Command Level: 6

Syntax: BATTERY TIMER SET
BA TI SE

Comments: none

Notes: The user may select Binary, LED, or Relay channels for the 'On Battery' channels. Analog or Function channels may be selected for the Plant Voltage and Plant Load channels. The Plant Voltage and Plant Load channels are shared between the VI and BATTERY TIMER features.

Related Commands: BATTERY TIMER CLR, BATTERY TIMER CSV, BATTERY TIMER STATUS

Example:

```
Command<6>: BATTERY TIMER SET
On Battery:
On Battery:
```

```
WARNING!!! The Plant Voltage and Load channels are used by both the
            BATTERY TIMER and VI features
```

```
Plant Voltage: F0001
Plant Voltage:
Plant Load: F0002
Plant Load:
```

BATTERY TIMER STATUS

Description: Displays the last 50 recorded discharges in a tabular format. The information displayed includes the duration of the battery discharge, the time and date at which the discharge began, the lowest recorded plant voltage during the discharge, and the average plant load.

Command Level: 6

Syntax: BATTERY TIMER STATUS
BA TI ST

Comments: none

Notes: There may be less than 50 entries if the system is new or the history has been cleared with the BATTERY TIMER CLR command. The discharges are recorded as D01 through D50. D01 is the most recent discharge and D50 is the oldest. The oldest discharge is removed from record when more than 50 discharges are completed.

Related Commands: BATTERY TIMER CLR, BATTERY TIMER CSV, BATTERY TIMER SET

Example:

Command<6>: BATTERY TIMER STATUS

BATTERY DISCHARGE HISTORY

	-Dur-	---	AC FAIL----	--VDC-	-AMPS-		-Dur-	---	AC FAIL----	--VDC-	-AMPS-
D01	00:00	09:20	02/26/03	27.00	88.00	D26	00:07	09:12	02/24/03	27.00	88.00
D02	00:07	09:12	02/26/03	27.00	88.00						
...											
D25	00:07	09:12	02/25/03	27.00	88.00						

WARNING!!! THE SYSTEM IS ON BATTERY

D00 00:00 09:20 02/26/03 27.00 88.00

Command<6>: BATTERY TIMER STATUS

BATTERY DISCHARGE HISTORY

	-Dur-	---	AC FAIL----	--VDC-	-AMPS-		-Dur-	---	AC FAIL----	--VDC-	-AMPS-
D01	00:00	09:20	02/26/03	27.00	88.00	D26	00:07	09:12	02/24/03	27.00	88.00
D02	00:07	09:12	02/26/03	27.00	88.00						
...											
D25	00:07	09:12	02/25/03	27.00	88.00						

The system is NOT on battery

BOARDS

Description: Displays the circuit cards installed in the LMS1000 System Network. The information includes the type and location of the I/O hardware, the version of the I/O hardware, and the present operating status of the I/O hardware.

Command Level: 2

Syntax: BOARDS [[X]node_number]
B [[X]node_number]

Comments: The system determines which circuit cards are in the network at power-up or reset. If no modifier is used when entering the command, all nodes in the network are listed.

Notes: none

Related Commands: none

Example:

Command<2>: boards

Node #0 Unit: Central Office : Unit # 1 - Main Chassis

Card Description	Version	Status
Card 1: 4 Channel Universal Analog	1.0.0	OK

Unit Board Status:

Modem: 56000 bps

Node #1 Name: NPS Bay #1 - BAY

Card Description	Serial Number
Router Module 01	0002801621
Dist. Panel 01	0050331648
Dist. Panel 02	0050397185
Relay Control board 01-01	0067108864
I/O board 01-04	0084082691

Node #2 Name: NPS Bay #2 - BAY

Card Description	Serial Number
Router Module 02	0016843009
Dist. Panel 01	0050462976
I/O board 02-03	0085394178

Node #21 Name: - Expansion Assembly

Card Description	Version	Status
8 Binary/24 Shunt	2.1.0	OK

Node #22 Name: - Expansion Chassis

Card Description	Version	Status
Card 1: 4 Channel Relay	1.0.0	OK
Card 2: 8 Channel Binary	1.0.0	OK
Card 3: 4 Channel Universal Analog	1.0.0	OK
Card 4: 8 Channel Digital Temperature	1.0.1	OK
Card 5: 4 Channel Relay	1.0.0	OK
Card 6: 8 Channel Binary	1.0.0	OK

Node #99 Name: NPS MCA node - MCA

Card Description	Serial Number
MCA Board	0002801621

Command<2>: boards 1

Node #1 Name: NPS Bay #1 - BAY

Card Description	Serial Number
Router Module 01	0002801621
Dist. Panel 01	0050331648
Dist. Panel 02	0050397185
Relay Control board 01-01	0067108864
I/O board 01-04	0084082691

Command<2>: boards 99

Node #99 Name: NPS MCA node - MCA

Card Description	Serial Number
MCA Board	0002801621

Command<2>: boards 0

Node #0 Unit: Central Office : Unit # 1 - Main Chassis

Card Description	Version	Status
Card 1: 4 Channel Universal Analog	1.0.0	OK

Unit Board Status:
Modem: 56000 bps

Command<2>: boards 21

Node #21 Name: - Expansion Assembly

Card Description	Version	Status
8 Binary/24 Shunt	2.1.0	OK

Command<2>: boards 22

Node #22 Name: - Expansion Chassis

Card Description	Version	Status
Card 1: 4 Channel Relay	1.0.0	OK
Card 2: 8 Channel Binary	1.0.0	OK
Card 3: 4 Channel Universal Analog	1.0.0	OK

Card 4:	8 Channel Digital Temperature	1.0.1	OK
Card 5:	4 Channel Relay	1.0.0	OK
Card 6:	8 Channel Binary	1.0.0	OK

BYE

Description: Terminates the communication link.

Command Level: 1

Syntax: BYE

Comments: Using the BYE command is the normal way to terminate a communication session.

Notes: When communicating to the system via the modem, it is recommended to terminate the communication session using the BYE command. Removing carrier without using the BYE command can cause extraneous characters to be transmitted over the phone line. Although it is not likely, these extraneous characters could be interpreted as a system command. Also, it is wise to use the BYE command when using the local RS-232 port, especially if you have a high level of access. If your communication session is not terminated, and you leave your terminal unattended, someone else could perform various actions before the unit times out that will have your name tagged to them in the event log of the system.

If a Telnet connection is terminated at the remote end by not issuing BYE, the system's telnet socket stays active until a user timeout occurs. The system cannot be accessed again via telnet during that period. Also, it is wise to use the BYE command when using Telnet, especially if you have a high level of access. If your communication session is not terminated, and you leave your terminal unattended, someone else could perform various actions before the unit times out that will have your name tagged to them in the event log of the system.

Related Commands: none

Example:

```
Command<1>: BYE
User #1 logged off at 02:42:51
NO CARRIER
```

CHANNELS

Description: Lists all channels which are assigned to the currently logged on user.

Command Level: 1

Syntax: CHANNELS
CH

Comments: Information presented includes the channel number, and the description of the channel.

Notes: To view the current status of these channels use the command SCAN U.

Related Commands: SET CHANNELS

Example:

```
Command<1>: channels
USER NO. 1 CHANNELS:
  A0001 PBD02 LOAD 11 PCFD00 D1 LDA
  B0001 1231H1 HIGH VOLTAGE ALARM
  R0001 TANDEM 5TH FL MAJOR ALARM
END OF USER NO. 1 CHANNELS
```

CLASS

Description: Displays the current alarm class descriptions for the eight alarm class numbers.

Command Level: 2

Syntax: CLASS
CL

Comments: If no description was previously entered, "none" is displayed after the alarm class number.

Notes: none

Related Commands: SET CLASS

Example:

```
Command<2>: CLASS
Programmable Alarm Classifications
K1.MINOR K2.MAJOR K3.none K4.FACIL K5.none K6.none K7.none K8.ENGR
```

CLR

Description: Lists all commands that begin with the command CLR (Clear) and then prompts the user to enter one of the displayed options.

Command Level: NA

Syntax: CLR [*command*]

Comments: Any clear command entered by a user will automatically generate an entry in the event log that includes the users name and the type of clear command used. Only commands available to the current user are listed. The list in the example is for a user that has access to level 6 commands.

Notes: Only the commands that the user has access to are listed.

Related Commands: See Example below.

Example:

```
Command<6>: clr
Clear what:
ACO          EVENTS          LED          LOG          MAIL
POWER       PROGRAM          RLY          STATS
```

CLR ACO

Description: Lists all alarms that are cutoff and then cancels the cutoff. If any alarms remain active, alarm indicators will be actuated.

Command Level: 4

Syntax: CLR ACO

Comments: Any relays that have been turned off because of the SET ACO command will now turn on after the CLR ACO command is entered (provided the same alarm conditions exist). Also, if any new alarm conditions occur that figure into a relay control program, that output will turn on again, thereby releasing the alarm cancel for that output. Any relays that are configured as alarm types and have been turned off because of the SET ACO command will generate a new alarm log entry when they re-energize due to the CLR ACO command.

Notes: Any user entering this command will have his name and this action recorded in the event log.

Related Commands: ACO, SET ACO

Example:

```
Command<4>: CLR ACO  
No alarms are cutoff.
```

CLR EVENTS

Description: Clears the events log which displays the changes which have been made to the configuration of the system.

Command Level: 6

Syntax: CLR EVENTS
CLR EV

Comments: This command permanently erases all past events that have been recorded by the system. There is no way to restore the information. Also, after the log is cleared, a new entry will be made for the user who just cleared it.

Notes: none

Related Commands: EVENTS

Example:

```
Command<6>: CLR EVENTS
Clear Event Log (Y or N)? Y
Log cleared !
```

CLR LED

Description: Clears any LED's which have been forced on using the SET LED command.

Command Level: 5

Syntax: CLR LED [*n*]

Comments: This command turns off an LED if it has been turned on with the SET LED command. However, this command will NOT turn off any LED that has been turned on because of its control program.

Notes: This command could potentially initiate a user report if everything were programmed correctly. First, the LED in question would have to be configured as an alarm type. Second, a user would have to be configured to receive a retired alarm report and he would have to have the LED in question as one of his user channels. Once the LED is cleared, a user phone report or Email message would occur. Any user entering this command will have his name and this action recorded in the event log.

Related Commands: SET LED

Example:

Command<5>: CLR LED

Clear LED:

CLR LOG

Description: Clears the alarm log of previous entries.

Command Level: 4

Syntax: CLR LOG

Comments: Any existing alarms will be immediately entered into the alarm log after the alarm log is cleared.

Notes: This command could potentially eliminate past retired alarms from being reported.

Related Commands: LOG



WARNING! This command permanently erases all alarm log entries and there is no way to restore the information. After the alarm log is cleared, any existing alarm condition will be immediately re-entered in the alarm log. Since the alarm log contains information necessary for alarm reporting (and for some user reports), clearing the alarm log will wipe out that information thus losing potential alarm reports for older alarms. More specifically, each alarm log entry contains information that determines which users are to receive "occurred" and "retired" alarm reports for that particular entry. Also, each entry contains information about whether or not that entry should be reported as a system alarm. Remember, clearing the alarm log will lose reports for cleared (retired) alarms. Existing alarms will be re-entered however, the occurred date and time of those existing alarms will be misleading, since it will be recorded at the instant when the log was actually cleared. Note that this command will also generate an entry in the event log.

Example:

```
Command<4>: CLR LOG
Clear Alarm Log (Y or N): Y
Log cleared.
```

CLR MAIL

Description: Displays any existing mail messages and prompts the user to delete the mail entry.

Command Level: 1

Syntax: CLR MAIL

Comments: Before you clear the mail (you are sending), make sure that everyone has read the mail. That is, there should be no "Send To" numbers that are not also in the "Read By" numbers (the numbers refer to the user number 1-8). When another user reads your mail, his user number will be stored as part of the "Read By" numbers. His user number will still appear in the "Send To" numbers unless he specifically indicates that he is done with your mail. As long as a user's number appears as part of the "Send To" numbers, he will be notified every time he logs onto the system that he has mail.

Notes: none

Related Commands: MAIL, SET MAIL

Example:

```
Command<1>: CLR MAIL
Mail Setup
Line 1: FRED,
Line 2: THE DIESEL IS WORKING GREAT.
Line 3: THANKS FOR YOUR HELP.
Send To: 1
Read By: 3

Clear this mail (Y or N) ? y
Mailed cleared!
```

CLR POWER

Description: Clears the power consumption data for a single or all function channels configured for Power Metering.

Command Level: 4

Syntax: CLR POWER [*function_channel_number*]
CLR PO [*function_channel_number*]

Comments: Entering a function channel number after the command clears data for the specified function channel only.

Notes: Future Power Metering reports are based on data collected after this command is entered.

Available only if the Power Metering software option is installed.

Related Commands: POWER

Example:

```
Command<4>: CLR POWER  
Power Stats cleared.
```

```
Command<4>: CLR POWER 1  
Power Stats cleared.
```

CLR PROGRAM

Description: Clears the specified control program line.

Command Level: 5

Syntax: CLR PROGRAM
CLR PROGRAM F[channel_number]
CLR PROGRAM L[channel_number]
CLR PROGRAM R[node_number_channel_number]
CLR PR
CLR PR F[channel_number]
CLR PR L[channel_number]
CLR PR R[node_number_channel_number]

Comments: This command clears from memory the control program line of the function channel, LED channel, or relay channel specified. This command also recompiles the remaining control program lines. If a specific control program line is not entered, the system prompts for an entry.

Notes: Can be used to erase an invalid control program line that was detected during an upload procedure, and to recompile the remaining valid control program lines.

Related Commands: none

Example:

```
Command<5>: CLR PROG
Which channel? R0001
CONTROL PROGRAM:
R0001=B0001
Clear program line for channel R0001? (Y or N): Y
```

CLR RLY

Description: Clears any relays which have been forced on using the SET RLY command.

Command Level: 6, or level 5 if the relay channel being cleared is configured in the user's channel group.

Syntax: CLR RLY [*node_number_channel_number*]

Comments: This command de-energizes a relay if it has been turned on with the SET RLY command. However, this command will NOT turn off any relay that has been turned on because of its control program.

A jumper is provided on the relay circuit card which can be used to disable the SET RLY and CLR RLY commands.

Notes: This command could potentially initiate a user report if everything were programmed correctly. First, the relay in question would have to be configured as an alarm type. Second, a user would have to be configured to receive a retired alarm report and he would have to have the relay in question as one of his user channels. Once the relay is cleared, a user phone report or Email message would occur. Any user entering this command will have his name and this action recorded in the event log. If a level 5 user attempts to clear a relay channel not configured in the user's channel group, the following message is issued. "Illegal request, not configured to access this channel".

Related Commands: SET RLY

Example:

```
Command<5>: CLR RLY  
Clear Relay: 0003
```

```
Clear Relay: 0004
```

```
Clear Relay: 0064
```

CLR STATS

Description: Resets the Basic Statistics for analog and function channels.

Command Level: 4

Syntax: CLR STATS
CLR STATS A[[*node_number*]*channel_number*]
CLR STATS F[*channel_number*]
CLR ST
CLR ST A[[*node_number*]*channel_number*]
CLR ST F[*channel_number*]

Comments: Any user clearing statistics will have his name and this action recorded in the event log. Entering the channel type and number after the command resets statistics for the specified channel only.

Notes: Future statistics will be based on information collected after this command is entered.

Related Commands: STATS, STATS DAILY, STATS WEEKLY, STATS CHANNELS, SET STATS CHANNELS, CLR STATS DAILY, CLR STATS WEEKLY

Example:

```
Command<4>: clr stats
Reset all channel stats (Y or N): Y
Statistics are cleared.
```

```
Command<6>: clr stats ?
CLR STATS <tn>          clear channel statistics
```

CLR STATS DAILY

Description: Resets the Daily Advanced Statistics for the Analog and Function channels set for Advanced Statistics.

Command Level: 5

Syntax: CLR STATS DAILY

Comments: Any user clearing statistics will have his name and this action recorded in the event log.

Notes: Future statistics will be based on information collected after this command is entered. The “set defaults” command will also cause the statistics to be reinitialized.

Related Commands: STATS, STATS DAILY, STATS WEEKLY, STATS CHANNELS, SET STATS CHANNELS, CLR STATS, CLR STATS WEEKLY

Example:

```
Command<4>: clr stats daily  
Daily Statistics cleared!
```

CLR STATS WEEKLY

Description: Resets the Weekly Advanced Statistics for the Analog and Function channels set for Advanced Statistics.

Command Level: 5

Syntax: CLR STATS WEEKLY

Comments: Any user clearing statistics will have his name and this action recorded in the event log.

Notes: Future statistics will be based on information collected after this command is entered. The “set defaults” command will also cause the statistics to be reinitialized.

Related Commands: STATS, STATS DAILY, STATS WEEKLY, STATS CHANNELS, SET STATS CHANNELS, CLR STATS, CLR STATS DAILY

Example:

```
Command<4>: clr stats weekly  
Weekly Statistics cleared!
```

CMD

Description: Lists each of the eight programmable commands, if they are used.

Command Level: 6

Syntax: CMD

Comments: Using programmable commands is analogous to using macros or batch processing. Their use can simplify the task of extracting data from the system.

Notes: Each command can consist of up to eight standard commands. When the name of a programmable command is entered, all of its commands are automatically performed, without having to manually prompt the system to perform each task.

Related Commands: SET CMD

Example:

```
Command<6>: cmd
Command 1 name: LOADS
Command 1 access level: 1
Command 1 line 1: SCAN RECTIFIER
Command 1 line 2: SCAN LOAD
Command 1 line 3: SCAN CURRENT
```

COM

Description: Displays the local port communications parameters.

Command Level: 5

Syntax: COM

Comments: none

Notes: The data rate, parity, number of data bits, and number of stop bits are displayed in the order listed, separated by commas.

Related Commands: SET COM

Example:

Command<6>: COM

Local Comm Port Setup: 2400,n,8,1

CONFIG

Description: Allows the configuration of analog and binary inputs, control relays, function channels, groups, LED indicators, and energy management channels.

Command Level: 5

Syntax: CONFIG [*channel_type*] [*channel_designator*]
C [*channel_type*] [*channel_designator*]

Comments: A single input is configured by entering the command CONFIG followed by a space and then the character A for analog, B for binary, R for relay, F for function, E for energy management, G for group, or L for LED, followed by the node number and channel number.

To utilize the special rate computations by the system, the Unit Text for the appropriate analog channels should be set to AMPS.

To utilize the Power Metering software option (if installed) computations by the system, the Unit Text for the appropriate function channels should be set to KW.

Eight (8) Input Temperature Circuit Card: To display temperature readings in Fahrenheit, the Unit Text for the appropriate analog channel must be set to DEGF.

Notes: If system alarm reporting is selected for any channels, any alarms associated with that channel will cause a phone call or Email to report the alarm. If set to NO, the alarm will only be recorded in the alarm log. If the CHANNEL ACTIVE attribute on any channel is set to N, that channel will not be displayed in any scans or reports. It is recommended to set the spare (unused) channels to NOT ACTIVE. When the channel is configured to be not active, the user is asked if the channel default values should be set (refer to the SET DEFAULTS command). The user is also asked if the channel should be deleted. Answering yes will result in the channel's configuration being removed from memory. The scale factor is a number that correlates to the number associated with the measured input. For example, a shunt with a 50mv output for 500 amperes has a scale factor of 500 with a 50 mv module, while a 5 ampere shunt has a scale factor of 5. The scale factor is the value displayed when the input is set equal to the maximum input specified on the analog modules. The maximum scale factor possible is 20,000.

The timing involved in the operation of the rectifier sequencing feature will be affected if the alarm delay attributes for the binary channels selected to control the sequencer are configured. Configuring the "On Delay" or "Off Delay" for the AC Fail / Transfer input or Standby On / Proper Operate input will postpone detection (signals may have already been detected by the transfer device) of an AC Failure or Proper Operate signal by the rectifier sequencing software.

Analog Channels A9001-A9081 and Binary Channels B9001-B9080 are only available when the VPS/NPS MCA Interface is used. These channels are automatically mapped to monitor predetermined VPS/NPS parameters. Refer to **Table 1** for a correlation between channels and associated VPS/NPS parameters. Because of the nature of the channels automatically mapped to VPS/NPS parameters, some of the channel attributes do not apply and thus are not configurable.

Analog channels for NPS nodes 1-20 and 99 are automatically mapped to monitor predetermined NPS parameters. Refer to **Table 2** and **Table 3** for the mapping of NPS channels. Note that some NPS channel parameters are not configurable. Except for NPS distribution points, NPS analog channels cannot be configured to alarm because those limits are controlled by the MCA and result in binary alarms in the LMS.

If a limit is changed when an alarm is active which deactivates the alarm condition, the alarm remains active in the alarm log and will not be shown as cleared. Also, no retired alarm notification will be sent.

See *Operating LMS1000* for a description and examples of the Polarity and Alarm Limit Mode attributes.

Analog channel configuration error messages:

```
WARNING, no hardware exists for this channel!
(unmapped node #, no I/O card exists)
Node is failed, channel hardware not configured!
(node failure)
Channel hardware configuration error!
(bad I/O card)
```

Related Commands: none

Example:

```
Command<5>: CONFIG
Which channel? A0001
ANALOG CHANNEL CONFIGURATION AS OF 07:35:50 ON 01/01/01.
Chan      Description          Act Rpt Pol Scale 4-20 Unit Off-Dly-On
A0001 Analog Channel 1      Y  Y  + 100.0  N Volt  0  0
  Sub-access ID      Montype  Monfmt
ANALOG1              DCVOLTS  D
A0001 Analog Channel 0001      -- Limits mode: Normal
LIMITS CONFIGURATION
Limit / Name      Class  Condtype          Ntfc  Svef
70.0 H  HVA2      MAJOR  TOOHIGH          MJ    SA
  Condition Description
THIS VOLTAGE IS TOO HIGH
60.0 H  HVA1      MAJOR  HIGH            MJ    SA
  Condition Description
THIS VOLTAGE IS HIGH
50.0 L  LVA1      MINOR  LOW             MN    NSA
  Condition Description
THIS VOLTAGE IS LOW
40.0 L  LVA2      MINOR  TOLOW          MN    NSA
  Condition Description
THIS VOLTAGE IS TOO LOW
Channel active (Y or N): Y
Name: Analog Channel 1
Name: MAIN SHUNT
Sub-access Identifier: ANALOG1
Sub-access Identifier: RECT1
System Alarm Report mode: Y
System Alarm Report mode (Y or N):
Transducer Type:
Transducer Type (Shunt, Current, Voltage, Temp, or None):
Shunt type: current info
Shunt type (50mv or 100mv):
Scale Factor: 100.0
Scale Factor:
Monitor type: DCVOLTS
```

Monitor type: DCAMPS
Monitor Value Format: Decimal
Set monitor value format to integer(I) or decimal(D): I
Alarm Polarity: +
Alarm Polarity (+, -): -
Alarm Limit Mode: N
Alarm Limit Mode (N or B) ? N
Limit 1 Enabled: Yes
Limit 1 Enabled (Y or N):
Limit 1 Value: 70.0
Limit 1 Value: 4800
Limit 1 Type: H
Limit 1 Type is High or Low (H or L):
Limit 1 Name: HVA2
Limit 1 Name: ABOVE 4800
Limit 1 Notification Code: MJ
Limit 1 Notification Code:
Limit 1 Service Effect Code: SA
Limit 1 Service Effect Code:
Limit 1 Alarm Class Number: 1
Condition Type: TOOHIGH
Condition Type:
Limit 1 Condition Description:
THIS VOLTAGE IS TOO HIGH
Condition Description:
THIS CURRENT IS TOO HIGH
Limit 2 Enabled: Yes
Limit 2 Enabled (Y or N):
Limit 2 Value: 60.0
Limit 2 Value: 4200
Limit 2 Type: H
Limit 2 Type is High or Low (H or L):
Limit 2 Name: HVA1
Limit 2 Name: ABOVE 4200
Limit 2 Notification Code: MJ
Limit 2 Notification Code:
Limit 2 Service Effect Code: SA
Limit 2 Service Effect Code:
Limit 2 Alarm Class Number: 1
Condition Type: HIGH
Condition Type:
Limit 2 Condition Description:
THIS VOLTAGE IS HIGH
Condition Description:
THIS CURRENT IS HIGH
Limit 3 Enabled: Yes
Limit 3 Enabled (Y or N):
Limit 3 Value: 50.0
Limit 3 Value: 500
Limit 3 Type: L

Limit 3 Type is High or Low (H or L):

Limit 3 Name: LVA1

Limit 3 Name: BELOW 500

Limit 3 Notification Code: MN

Limit 3 Notification Code:

Limit 3 Service Effect Code: NSA

Limit 3 Service Effect Code:

Limit 3 Alarm Class Number: 2

Condition Type: LOW

Condition Type:

Limit 3 Condition Description:

THIS VOLTAGE IS LOW

Condition Description:

THIS CURRENT IS LOW

Limit 4 Enabled: Yes

Limit 4 Enabled (Y or N):

Limit 4 Value: 50.0

Limit 4 Value: 100

Limit 4 Type: L

Limit 4 Type is High or Low (H or L):

Limit 4 Name: LVA2

Limit 4 Name: BELOW 100

Limit 4 Notification Code: MN

Limit 4 Notification Code:

Limit 4 Service Effect Code: NSA

Limit 4 Service Effect Code:

Limit 4 Alarm Class Number: 2

Condition Type: LOW

Condition Type:

Limit 4 Condition Description:

THIS VOLTAGE IS TOO LOW

Condition Description:

THIS CURRENT IS TOO LOW

Unit Text: VOLT

Unit Text: AMPS

Off Delay Time: 0s

Off Delay Time:

On Delay Time: 0s

On Delay Time: 15

Save changes (Y or N): Y

Command<5>: CONFIG F0001

FUNCTION CHANNEL CONFIGURATION AS OF 07:35:28 ON 02/09/96.

Chan	Description	Act	Rpt	Pol	Unit	Off-Dly	On
F0001	Function Channel 1	Y	Y	+	Volt	0s	0s

Sub-access ID	Montype	Monfmt
FUNCTION1	DCVOLTS	D

LIMITS CONFIGURATION

Limit /	Name	Class	Condtype	Ntfc	Svef
70.00H	HVA2	MAJOR	TOOHIGH	MJ	SA

```

Condition Description
THIS VOLTAGE IS TOO HIGH
60.00H  HVA1      MAJOR  HIGH           MJ   SA
Condition Description
THIS VOLTAGE IS HIGH
50.00L  LVA1      MINOR  LOW           MN   NSA
Condition Description
THIS VOLTAGE IS LOW
40.00L  LVA2      MINOR  TOLOW        MN   NSA
Condition Description
THIS VOLTAGE IS TOO LOW
Channel active (Y or N): Y
Name: Function Channel 1
Name:
Sub-access Identifier: FUNCTION1
Sub-access Identifier:
System Alarm Report mode: Y
System Alarm Report mode (Y or N):
Monitor type: DCVOLTS
Monitor type: DCAMPS
Monitor Value Format: Decimal
Set monitor value format to integer(I) or decimal(D): I
Limit 1 Enabled: Yes
Limit 1 Enabled (Y or N):
Limit 1 Value: 70.00
Limit 1 Value: 5000
Limit 1 Type: H
Limit 1 Type is High or Low (H or L):
Limit 1 Name: HVA2
Limit 1 Name: ABOVE 5000
Limit 1 Notification Code: MJ
Limit 1 Notification Code:
Limit 1 Service Effect Code: SA
Limit 1 Service Effect Code:
Limit 1 Alarm Class Number: 1
Condition Type: TOOHIGH
Condition Type:
Limit 1 Condition Description:
THIS VOLTAGE IS TOO HIGH
Condition Description:
THIS CURRENT IS TOO HIGH
Limit 2 Enabled: Yes
Limit 2 Enabled (Y or N):
Limit 2 Value: 60.00
Limit 2 Value: 4200
Limit 2 Type: H
Limit 2 Type is High or Low (H or L):
Limit 2 Name: HVA1
Limit 2 Name: ABOVE 4200
Limit 2 Notification Code: MJ

```

Limit 2 Notification Code:
Limit 2 Service Effect Code: SA
Limit 2 Service Effect Code:
Limit 2 Alarm Class Number: 1
Limit 3 Enabled: Yes
Limit 3 Enabled (Y or N):
Limit 3 Value: 50.00
Limit 3 Value: 500
Limit 3 Type: L
Limit 3 Type is High or Low (H or L):
Limit 3 Name: LVA1
Limit 3 Name: BELOW 500
Limit 3 Notification Code: MN
Limit 3 Notification Code:
Limit 3 Service Effect Code: NSA
Limit 3 Service Effect Code:
Limit 3 Alarm Class Number: 2
Condition Type: LOW
Condition Type:
Limit 3 Condition Description:
THIS VOLTAGE IS LOW
Condition Description:
THIS CURRENT IS LOW
Limit 4 Enabled: Yes
Limit 4 Enabled (Y or N):
Limit 4 Value: 40.00
Limit 4 Value: 100
Limit 4 Type: L
Limit 4 Type is High or Low (H or L):
Limit 4 Name: LVA2
Limit 4 Name: BELOW 100
Limit 4 Notification Code: MN
Limit 4 Notification Code:
Limit 4 Service Effect Code: NSA
Limit 4 Service Effect Code:
Limit 4 Alarm Class Number: 2
Condition Type: TOOLOW
Condition Type:
Limit 4 Condition Description:
THIS VOLTAGE IS TOO LOW
Condition Description:
THIS CURRENT IS TOO LOW
Unit Text: VOLT
Unit Text: AMPS
Off Delay Time: 0s
Off Delay Time:
On Delay Time: 0s
On Delay Time: 15
Save changes (Y or N): Y
Enter Program Line:

F0001=A0001+A0002+A0003

Command<5>: CONFIG R0001

RELAY CHANNEL CONFIGURATION AS OF 07:35:40 ON 01/01/01.

Chan	Description	Act	Alm	Rpt	Class	Set	ACO	Cycle	Off-Dly	On
R0001	Relay Channel 1	Y	Y	Y		N	N	0m	0s	0s
	Sub-access ID	Ctrltype		Condtype		Ntfc	Svef			
	RELAY1	HIGH				CR	SA			

Condition Description

THIS IS RELAY CHANNEL R01'S CONDITION DESCRIPTION

CONTROL PROGRAM:

R0001=B0001

Channel active (Y or N): Y

Name: Relay Channel 1

Name:

Sub-access Identifier: RELAY1

Sub-access Identifier:

Alarm Type: Y

Alarm Type (Y or N):

System Alarm Report mode: Y

System Alarm Report mode (Y or N):

Alarm Class Number: 0 2

Condition Type: HIGH

Condition Type:

Condition Description:

THIS IS RELAY CHANNEL R01'S CONDITION DESCRIPTION

Condition Description:

Notification Code: CR

Notification Code:

Service Effect Code: SA

Service Effect Code:

Affected by ACO: N

Affected by ACO (Y or N): Y

Cycle Freq (min): 0

Cycle Freq (min):

Control Type:

Control Type:

Off Delay Time: 0s

Off Delay Tim:

On Delay Time: 0s

On Delay Time:

Save changes (Y or N): Y

Enter Program Line:

R01=B1|B2

Command<5>: CONFIG L0001

LED CHANNEL CONFIGURATION AS OF 07:35:00 ON 01/01/01.

Chan	Description	Act	Alm	Rpt	Class	Off-Dly	On
L0001	LED Channel 1	Y	Y	Y		0s	0s
	Sub-access ID	Ctrltype		Condtype		Ntfc	Svef

LED1 AIRCOND HIGH CR SA

Condition Description
THIS IS LED CHANNEL L01'S CONDITION DESCRIPTION

CONTROL PROGRAM:
L0001=b0001
Channel active (Y or N): Y
Name: LED Channel 1
Name:
Sub-access Identifier: LED1
Sub-access Identifier:
Alarm Type: Y
Alarm Type (Y or N):
System Alarm Report mode: Y
System Alarm Report mode (Y or N):
Alarm Class Number: 0 2
Condition Type: HIGH
Condition Type:
Condition Description:
THIS IS LED CHANNEL L01'S CONDITION DESCRIPTION
Condition Description:
Notification Code: CR
Notification Code:
Service Effect Code: SA
Service Effect Code:
Control Type: AIRCOND
Control Type:
Off Delay Time: 0s
Off Delay Time:
On Delay Time: 0s
On Delay Time:
Save changes (Y or N): Y
Enter Program Line:
L0001=B0001

Command<5>: CONFIG B0003

BINARY CHANNEL CONFIGURATION AS OF 07:35:53 ON 01/01/01.

Chan	Description	Act	Rpt	Cont	Class	Off-Dly	On
B0003	Binary Channel 3	Y	Y	CC		0s	0s
	Sub-access ID			Condtype	Ntfc	Svef	
BINARY3	LOW			CR	SA		

Condition Description
THIS IS RELAY CHANNEL B03'S CONDITION DESCRIPTION

Channel active (Y or N): Y
Name: Binary Channel 3
Name: FIRE ALARM!
Sub-access Identifier: BINARY3
Sub-access Identifier: RECT1
System Alarm Report mode: Y
System Alarm Report mode (Y or N):
Condition Type: LOW

Condition Type: FUSEOPERATE
 Condition Description:
 THIS IS RELAY CHANNEL B03'S CONDITION DESCRIPTION
 Condition Description:
 Notification Code: CR
 Notification Code: MJ
 Service Effect Code: SA
 Service Effect Code: NSA
 Alarm Condition: CC
 Alarm Condition (CC or CO): CO
 Alarm Class Number: 0 1
 Off Delay Time: 0s
 Off Delay Time: 20
 On Delay Time: 0s
 On Delay Time: 45
 Save changes (Y or N): Y

Command<5>: CONFIG E0001
 ENERGY MANAGEMENT CHANNEL CONFIGURATION AS OF 16:33:32 ON 01/01/01.

Chan	Description	Act Capacity	Sht	RFA	TR	Dsl
E0001	Energy Mngmt Rectifier 1	N 200.0	A33	B33	R33	N

Channel active (Y or N): Y
 Name: Energy Mngmt Rectifier 1
 Name:
 Energy Mngmt Rectifier 1 Shunt = A0033
 Energy Mngmt Rectifier 1 Shunt = A
 Energy Mngmt Rectifier 1 Capacity: 200.0
 Energy Mngmt Rectifier 1 Capacity:
 Energy Mngmt Rectifier 1 RFA = B0033
 Energy Mngmt Rectifier 1 RFA = B
 Energy Mngmt Rectifier 1 TR lead = R0033
 Energy Mngmt Rectifier 1 TR lead = R
 Rectifier ON when Standby ON (Y or N):
 Save changes (Y or N): Y

Command<5>: CONFIG E0001
 ENERGY MANAGEMENT CHANNEL CONFIGURATION AS OF 16:33:32 ON 01/01/01.

Chan	Description	Act Capacity	Sht	RFA	TR	Dsl
E0001	Energy Mngmt PCU1	N 100.0	A70	B84	---	N

Channel active (Y or N): Y
 Name: Energy Mngmt PCU1
 Name:
 Energy Mngmt PCU1 Shunt = A0070
 Energy Mngmt PCU1 Shunt =
 Rectifier ON when Standby ON (Y or N):
 Save changes (Y or N): Y

CONNECT

Description: Activates the Gateway port.

Command Level: 4

Syntax:CONNECT

CONNECT [*gateway device type*] [*gateway device password*]

Comments: Allows the LMS1000 to emulate a “dumb” RS-232 asynchronous terminal interface. When activated, user input through either a local or remote LMS1000 port is directed to the customer equipment connected to the LMS1000 Gateway port. To exit and return to the LMS1000 command prompt, press CTRL C twice. The second CTRL C must follow the first within a one second time interval.

Notes: User must be familiar with the command set and operation of the customer equipment connected to the LMS1000 Gateway port.

Possible data loss may occur if the LMS1000 Gateway port data rate does not match that of the local or remote terminal being used to access the customer equipment via LMS1000.

The LMS1000 alarm reports will not be processed while the Gateway feature is active and a remote terminal is being used.

In normal LMS1000 command mode operation, the LMS1000 echoes characters back to the user’s terminal. This is not done in the Gateway mode, and must be a function (echoing) of the customer equipment connected to the LMS1000 Gateway port.

When a device profile and password are specified in the command line the LMS automatically attempts to log on to the gateway device.

When a device profile is specified in the command line the LMS automatically sends the device logoff command to the gateway device when the gateway disconnect sequence is entered.

This program is automatically exited and the User is returned to the LMS1000 command prompt if the user timeout period is exceeded. If a device profile was specified when the gateway connection was initiated the LMS sends the device logoff command to the gateway device before disconnecting. If user timeout occurs during a remote communication session, the communication link is automatically terminated.

Related Commands: SET GATEWAY
SET PROFILE

Example:

If the Gateway port is available for access when the CONNECT command is issued, the User is prompted as follows. Note that the Warning message is only displayed when using the LMS1000 modem port.

```
Command<4>: CONNECT
WARNING!!! ALARM REPORTS CANNOT BE PROCESSED
           WHILE GATEWAY SESSION IS ACTIVE
```

```
GATEWAY port active
```

```
Press <CTRL-C><CTRL-C> to exit
```

```
<cursor>
```

If the Gateway port is in use by another User, the requesting User will be prompted as follows:

GATEWAY Port Busy - Try Again

Command<4>:

If the CONNECT command is issued from an established modem dial up session, and a modem report is pending, the following message is displayed:

Report is pending. Cannot activate GATEWAY port.

DAC DEL

Description: Deletes a User from the Door Access Controller (DAC). Available only if the DAC Interface Option is installed.

Command Level: 6

Syntax: DAC DEL

Comments: none

Notes: The entered PIN # must match the current value.

Related Commands: DAC LIST, DAC SET, DAC SET LOCK OFF, DAC SET LOCK ON, DAC STATUS, LOCK, UNLOCK

Example:

```
Command <6>: DAC DEL
DAC Code #: [Code #]
PIN: [PIN#]
Save Changes (Y or N): [Y|N]
```

```
ERROR: The entered PIN does not match the current value for DAC Code #[Code #].
CODE NOT CHANGED
```

DAC LIST

Description: Displays a list of Users and their Access Codes stored in the Door Access Controller (DAC). Available only if the DAC Interface Option is installed.

Command Level: 6

Syntax: DAC LIST

Comments: none

Notes: none

Related Commands: DAC DEL, DAC SET, DAC SET LOCK OFF, DAC SET LOCK ON, DAC STATUS, LOCK, UNLOCK

Example:

```
Command <6>: DAC LIST
User      Id
DAC001 4312
DAC002 1234
DAC003 1298
```

DAC SET

Description: Adds / changes a User and/or Access Code stored in the Door Access Controller (DAC). Available only if the DAC Interface Option is installed.

Command Level: 6

Syntax: DAC SET

Comments: All Access Codes are limited to five-digit numbers.

Notes: A value of zero indicates that this entry on the Access Code list is not in use.

Related Commands: DAC DEL, DAC LIST, DAC SET LOCK OFF, DAC SET LOCK ON, DAC STATUS, LOCK, UNLOCK

Example:

```
Command <6>: DAC SET
DAC Code #: [Code #]
Access PIN: [PIN#]
Save Changes (Y or N): [Y|N]
DAC Code #[Code #] has been added/changed with PIN [PIN#]
```

```
Command <6>: DAC ADD [User #] [PIN#]
[User] has been added with PIN [PIN#]
```

DAC SET LOCK OFF

Description: Unlocks the access with any DAC User Code. Available only if the DAC Interface Option is installed.

Command Level: 6

Syntax: DAC SET LOCK OFF

Comments: none

Notes: none

Related Commands: DAC DEL, DAC LIST, DAC SET, DAC SET LOCK ON, DAC STATUS, LOCK, UNLOCK

Example:

```
Command <6>: DAC SET LOCK OFF  
DAC Lock is now Off
```

DAC SET LOCK ON

Description: Locks the access with any DAC User Code. Available only if the DAC Interface Option is installed.

Command Level: 6

Syntax: DAC SET LOCK ON

Comments: none

Notes: none

Related Commands: DAC DEL, DAC LIST, DAC SET, DAC SET LOCK OFF, DAC STATUS, LOCK, UNLOCK

Example:

```
Command <6>: DAC SET LOCK ON  
DAC Lock is now On
```

DAC STATUS

Description: Displays the actual state of the Access Door. Available only if the Door Access Controller (DAC) Interface Option is installed.

Command Level: 6

Syntax: DAC STATUS

Comments: none

Notes: none

Related Commands: DAC DEL, DAC LIST, DAC SET, DAC SET LOCK OFF, DAC SET LOCK ON, LOCK, UNLOCK

Example:

```
Command <6>: DAC STATUS  
Actual state is Open
```

```
Command <6>: DAC STATUS  
Actual state is Closed
```

```
Command <6>: DAC STATUS  
Actual state is Locked ?
```

DATE

Description: Displays the current day of the week, month, day, year, and time.

Command Level: 1

Syntax: DATE
D

Comments: none

Notes:

Related Commands: SET DATE

Example:

Command<1>: DATE

Today is Monday 01/01/01 at 08:57:51.

DOWNLOAD

Description: Performs a DUMP operation using XMODEM protocol with CRC error checking.

Command Level: 5, “User Configuration” data is only downloaded if the access level of the User is level ‘6’.

Syntax: DOWNLOAD
 DO

Comments: Use this command to save to disk the configuration of the system. Later, this same file can be used to upload the system in the event of a software upgrade or CPU failure.

Notes: Download information is transmitted in a condensed ASCII format. This condensation speeds the transmission process, which could still require 10 to 15 minutes of time at 300 bits/s. This command requires a communication program which supports XMODEM and CRC checking.

Related Commands: UPLOAD

Example:

```
Command<6>: DOWNLOAD
DUMP using XMODEM Protocol with CRC error checking
Waiting for 'C' - You have 1 minute!
```

DOWNLOAD TFTP

Description: Performs a DUMP operation using TFTP.

Command Level: 5, “User Configuration” data is only downloaded if the access level of the User is level ‘6’.

Syntax: DOWNLOAD TFTP

Comments: Use this command to save to disk the configuration of the system. Later, this same file can be used to upload the system in the event of a software upgrade or CPU failure.

Notes: This command is a derivative of the DOWNLOAD command. The difference is that the TFTP protocol is used to transmit the data rather than XMODEM.

A separate TFTP client session must be started on the host to which the configuration file is transferred.

Related Commands: UPLOAD TFTP

Example:

```
Command<6> : DOWNLOAD TFTP  
DOWNLOAD using TFTP
```

DOWNLOAD TFTP NPS

Description: Allows transfer of NPS configuration information to any personal computer capable of uploading and downloading a file to a disk using TFTP.

Command Level: 5, “User Configuration” data is only downloaded if the access level of the User is level ‘6’.

Syntax: DOWNLOAD TFTP NPS

Comments: Use this command to save to disk the configuration of the NPS. Later, this same file can be used to upload the NPS in the event of a software upgrade or CPU failure.

Notes: This command is a derivative of the DOWNLOAD NPS command. The difference is that the TFTP protocol is used to transmit the data rather than XMODEM.

A separate TFTP client session must be started on the host to which the configuration file is transferred.

Related Commands: UPLOAD TFTP NPS

Example:

```
Command<6> : DOWNLOAD TFTP NPS
Preparing the system for configuration download via TFTP
```

```
Retrieving NPS settings. Please wait.
Begin TFTP File transfer.
Transfer successful.
```

```
Command<6> : DOWNLOAD TFTP NPS
Preparing the system for configuration download via TFTP
```

```
Retrieving NPS settings. Please wait.
Begin TFTP File transfer.
TFTP ERROR -- Timeout
```

DOWNLOAD TFTP NETSURE

Description: Allows transfer of VPS/NPS configuration information to any personal computer capable of uploading and downloading a file to a disk using TFTP.

Command Level: 5, “User Configuration” data is only downloaded if the access level of the User is level ‘6’.

Syntax: DOWNLOAD TFTP NETSURE

Comments: Use this command to save to disk the configuration of the VPS/NPS. Later, this same file can be used to upload the VPS/NPS in the event of a software upgrade or CPU failure.

Notes: This command is a derivative of the DOWNLOAD NETSURE command. The difference is that the TFTP protocol is used to transmit the data rather than XMODEM.

A separate TFTP client session must be started on the host to which the configuration file is transferred.

Related Commands: UPLOAD TFTP NETSURE

Example:

```
Command<6> : DOWNLOAD TFTP NETSURE
Preparing the system for configuration download via TFTP
```

```
Retrieving NETSURE settings. Please wait.
Begin TFTP File transfer.
Transfer successful.
```

```
Command<6> : DOWNLOAD TFTP NETSURE
Preparing the system for configuration download via TFTP
```

```
Retrieving NETSURE settings. Please wait.
Begin TFTP File transfer.
TFTP ERROR -- Timeout
```

DOWNLOAD NPS

Description: Allows transfer of NPS configuration information to any personal computer capable of uploading and downloading a file to a disk using XMODEM protocol with CRC error checking.

Command Level: 5, "User Configuration" data is only downloaded if the access level of the User is level '6'.

Syntax: DOWNLOAD NPS
 DOWN N

Comments: Use this command to save to disk the configuration of the NPS. Later, this same file can be used to upload the NPS in the event of a software upgrade or CPU failure.

Notes: The personal computer must be equipped with a communications software package which allows saving of information and transfer of information to a floppy disk, hard disk, or RAM. The software package must also be capable of uploading information from the personal computer to another device, such as the NPS. Refer to the communications software package instruction manual for specific operating information. This command requires a communication program which supports XMODEM and CRC checking.

Related Commands: UPLOAD NPS

Example:

```
Command<6>: DOWNLOAD NPS
Retrieving NPS settings
DUMP using XMODEM Protocol with CRC error checking
Waiting for 'C' - You have 1 minute!
9 blocks transmitted OK.
```

DOWNLOAD NETSURE

Description: Allows transfer of VPS/NPS configuration information to any personal computer capable of uploading and downloading a file to a disk using XMODEM protocol with CRC error checking.

Command Level: 5, "User Configuration" data is only downloaded if the access level of the User is level '6'.

Syntax: DOWNLOAD NETSURE
 DOWN N

Comments: Use this command to save to disk the configuration of the VPS/NPS. Later, this same file can be used to upload the VPS/NPS in the event of a software upgrade or CPU failure.

Notes: The personal computer must be equipped with a communications software package which allows saving of information and transfer of information to a floppy disk, hard disk, or RAM. The software package must also be capable of uploading information from the personal computer to another device, such as the VPS/NPS. Refer to the communications software package instruction manual for specific operating information. This command requires a communication program which supports XMODEM and CRC checking.

Related Commands: UPLOAD NETSURE

Example:

```
Command<6>: DOWNLOAD NETSURE
Retrieving NETSURE settings
DUMP using XMODEM Protocol with CRC error checking
Waiting for 'C' - You have 1 minute!
9 blocks transmitted OK.
```

EFF

Description: This command lists the status of the energy management option and the numbers of the VPS/NPS rectifiers/PCUs that are turned on by the energy management option, if any.

Command Level: 1

Syntax: EFF

Comments: None

Notes:

Related Commands: none

Example:

```
Command<1>: eff
RECTIFIER EFFICIENCY ROUTINE ACTIVE
FOLLOWING RECTIFIERS TURNED ON
1,2,3,4,5,6
```

EVENTS

Description: Lists the 500 most recent events that have occurred in the system. Information includes the user number, user name, description of the change, and the date and time that the change was made.

VPS/NPS events are also recorded, if a VPS/NPS Power System is connected.

NPS events are also recorded, if an NPS Power System is connected.

Command Level: 5

Syntax: EVENTS
EV

Comments: Optionally, enter a space and user number after typing EVENTS to get events for that user only.

Notes: There may be less than 500 entries in the event log if the system is new or has been cleared with the CLR EVENTS command. The event log will not record a report failure if there is no phone number or Email address entered in a user's configuration, and the system attempted an alarm report to this user.

Refer to "Operating LMS1000" for a discussion on the Event Log.

Related Commands: CLR EVENTS

Example:

Command<6>: EVENTS 6

EVENTS LOG AS OF 02:38:03 ON 01/01/01.

Num	Usr	Name	Description	Date	Time
002	6	User #6	Alarms Cancelled	01/16/09	02:33:01
004	6	User #6	Cleared Statistics	01/16/09	02:32:30
005	6	User #6	Cleared Alarm Log	01/16/09	02:32:13
006	6	User #6	Alarms Cancelled	01/16/09	02:32:03
007	6	User #6	Logged On	01/16/09	02:28:17
008	6	User #6	Logged On	01/16/09	02:25:27
009	6	User #6	Logged On	01/16/09	01:56:47
010	6	User #6	Chan L01 Configured	01/16/09	01:55:40
011	6	User #6	Rectifier Efficiency On	01/16/09	01:55:40
012	6	User #6	Rectifier Efficiency Off	01/16/09	01:55:40
013	6	User #6	Efficiency Configured	01/16/09	01:55:40
014	7	User #7	Power Metering stats cleared	06/03/09	03:03:04
015	7	User #7	F32 Power Meter stat cleared	06/03/09	03:02:51
016	1	LMS	Key code #121 validated	08/15/03	13:56:44
017	1	LMS	Invalid Key Code Entered	08/15/03	13:55:14

Example of VPS/NPS actions recorded when performed at the VPS/NPS's MCA local interface pad.

Command<6>: ev

EVENTS LOG AS OF 17:54:19 ON 01/01/01.

Num	Usr	Name	Description	Date	Time
001	0	SMART	NETSURE Temp Comp Vlt set at MCA	10/10/10	xx:xx:xx
002	0	SMART	NETSURE ACO Timer set at MCA	10/10/10	xx:xx:xx
003	0	SMART	NETSURE Current Limit set at MCA	10/10/10	xx:xx:xx
004	0	SMART	NETSURE Sys HVS set at MCA	10/10/10	xx:xx:xx
005	0	SMART	NETSURE Test/Eq Vlt set at MCA	10/10/10	xx:xx:xx
006	0	SMART	NETSURE Float Vlt set at MCA	10/10/10	xx:xx:xx
007	0	SMART	NETSURE Subsys LoVlt set at MCA	10/10/10	xx:xx:xx
008	0	SMART	NETSURE Subsys HiVlt set at MCA	10/10/10	xx:xx:xx
009	0	SMART	NETSURE Float/Eq mode set at MCA	10/10/10	xx:xx:xx
010	0	SMART	NETSURE Sys Ovrcurr set at MCA	10/10/10	xx:xx:xx
011	0	SMART	NETSURE BatOnDisch set at MCA	10/10/10	xx:xx:xx
012	0	SMART	NETSURE 50%BatOnDisch set at MCA	10/10/10	xx:xx:xx
013	0	SMART	NETSURE Sys HiVltAlm2 set at MCA	10/10/10	xx:xx:xx
014	0	SMART	NETSURE Sys HiVltAlm1 set at MCA	10/10/10	xx:xx:xx
015	0	SMART	NETSURE Subsys CalVlt set at MCA	10/10/10	xx:xx:xx
016	0	SMART	NETSURE Subsys Ovrcur set at MCA	10/10/10	xx:xx:xx
017	0	SMART	NETSURE PCUn forced on at MCA	10/10/10	xx:xx:xx
018	0	SMART	NETSURE PCUn forced off at MCA	10/10/10	xx:xx:xx
019	0	SMART	NETSURE Reconnect Vlt set at MCA	10/10/10	xx:xx:xx
020	0	SMART	NETSURE DiscVlt LVD1A set at MCA	10/10/10	xx:xx:xx
021	0	SMART	NETSURE DiscVlt LVD1B set at MCA	10/10/10	xx:xx:xx
022	0	SMART	NETSURE DiscVlt LVD2A set at MCA	10/10/10	xx:xx:xx
023	0	SMART	NETSURE DiscVlt LVD2B set at MCA	10/10/10	xx:xx:xx
024	0	SMART	NETSURE DiscVlt LVD3A set at MCA	10/10/10	xx:xx:xx
025	0	SMART	NETSURE DiscVlt LVD3B set at MCA	10/10/10	xx:xx:xx
026	0	SMART	NETSURE 25A Places set at MCA	10/10/10	xx:xx:xx
027	0	SMART	NETSURE 50A Places set at MCA	10/10/10	xx:xx:xx
028	0	SMART	NETSURE 100A Places set at MCA	10/10/10	xx:xx:xx
029	0	SMART	NETSURE 200A Places set at MCA	10/10/10	xx:xx:xx
030	0	SMART	NETSURE Sys Cal Vlt set at MCA	10/10/10	xx:xx:xx
031	0	SMART	NETSURE Num LVDs changed	10/10/10	xx:xx:xx
032	0	SMART	NETSURE Num/Typ PODs changed	10/10/10	xx:xx:xx
033	0	SMART	NETSURE Num PCUs changed	10/10/10	xx:xx:xx
034	0	SMART	NETSURE ACO feature activated	10/10/10	xx:xx:xx
035	0	SMART	NETSURE Subsystem installed	10/10/10	xx:xx:xx
036	0	SMART	NETSURE Subsystem removed		

Example of VPS/NPS actions recorded when performed via LMS1000.

Command<6>: ev

EVENTS LOG AS OF 17:54:19 ON 01/01/01.

Num	Usr	Name	Description	Date	Time
001	8	User #8	NETSURE Temp Comp Vlt set	10/10/10	xx:xx:xx
002	8	User #8	NETSURE ACO Timer set	10/10/10	xx:xx:xx
003	8	User #8	NETSURE Current Limit set	10/10/10	xx:xx:xx
004	8	User #8	NETSURE Sys HVS set	10/10/10	xx:xx:xx
005	8	User #8	NETSURE Test/Eq Vlt set	10/10/10	xx:xx:xx
006	8	User #8	NETSURE Float Vlt set	10/10/10	xx:xx:xx
007	8	User #8	NETSURE Subsys LoVlt set	10/10/10	xx:xx:xx
008	8	User #8	NETSURE Subsys HiVlt set	10/10/10	xx:xx:xx
009	8	User #8	NETSURE Float/Eq mode set	10/10/10	xx:xx:xx
010	8	User #8	NETSURE Sys Ovrcurr set	10/10/10	xx:xx:xx
011	8	User #8	NETSURE BatOnDisch set	10/10/10	xx:xx:xx
012	8	User #8	NETSURE 50%BatOnDisch set	10/10/10	xx:xx:xx
013	8	User #8	NETSURE Sys HiVltAlm2 set	10/10/10	xx:xx:xx
014	8	User #8	NETSURE Sys HiVltAlm1 set	10/10/10	xx:xx:xx
015	8	User #8	NETSURE Subsys CalVlt set	10/10/10	xx:xx:xx
016	8	User #8	NETSURE Subsys Ovrcur set	10/10/10	xx:xx:xx
017	8	User #8	NETSURE PCUn forced on	10/10/10	xx:xx:xx
018	8	User #8	NETSURE PCUn forced off	10/10/10	xx:xx:xx
019	8	User #8	NETSURE Reconnect Vlt set	10/10/10	xx:xx:xx
020	8	User #8	NETSURE DiscVlt LVD1A set	10/10/10	xx:xx:xx
021	8	User #8	NETSURE DiscVlt LVD1B set	10/10/10	xx:xx:xx
022	8	User #8	NETSURE DiscVlt LVD2A set	10/10/10	xx:xx:xx
023	8	User #8	NETSURE DiscVlt LVD2B set	10/10/10	xx:xx:xx
024	8	User #8	NETSURE DiscVlt LVD3A set	10/10/10	xx:xx:xx
025	8	User #8	NETSURE DiscVlt LVD3B set	10/10/10	xx:xx:xx
026	8	User #8	NETSURE 25A Places set	10/10/10	xx:xx:xx
027	8	User #8	NETSURE 50A Places set	10/10/10	xx:xx:xx
028	8	User #8	NETSURE 100A Places set	10/10/10	xx:xx:xx
029	8	User #8	NETSURE 200A Places set	10/10/10	xx:xx:xx
030	8	User #8	NETSURE Sys Cal Vlt set	10/10/10	xx:xx:xx
031	8	User #8	NETSURE Equip. inventory reset	10/10/10	xx:xx:xx
032	8	User #8	NETSURE MCA custom message set	10/10/10	xx:xx:xx
033	8	User #8	NETSURE PCUn custom message set	10/10/10	xx:xx:xx
034	8	User #8	NETSURE MCA logon password set	10/10/10	xx:xx:xx
035	8	User #8	NETSURE system uploaded	10/10/10	xx:xx:xx
036	8	User #8	NETSURE settings uploaded		

HELP

Description: Lists all commands that are available at the current level with a brief description (including any programmable commands).

Command Level: NA

Syntax: HELP
H

Comments: Only commands available to the current user are listed. The list in the example is for a user that has access to level 6 commands.

Notes: The commands preface by the words CLEAR and SET can be viewed by entering the respective word followed by a question mark.

Programmable commands are also displayed, along with the command string in the definition column of the help command.

Energy management commands will not be shown if the option is not installed.

To view the help definition for a single command, enter the command followed by a space then a question mark.

Related Commands: HELP NETSURE, MENU

Example:

```
Command<6>: help
ACK                acknowledge report type alarms
ACO                list alarms that have been cutoff
AID <n>            display configured access identifiers
ALARMS            list active alarms
ANSWER            show number of rings before the system answers
BATTERY           BATTERY type commands
BOARDS            list installed boards
BYE               logoff and hang-up
CHANNELS          list user defined channels
CLASS             list programmable alarm classifications
CLR               list CLR type commands
CMD               list programmable commands
COM               list local comm port settings
CONFIG <tn>       configure specified channel
CONNECT           initiate a communications session
                  with device connected to GATEWAY port
DATE              show date and time
DOWNLOAD          dump system configuration using XMODEM protocol
DOWNLOAD TFTP     dump system configuration using TFTP protocol
EFF              show Energy Management status
EVENTS <n>        list event log entries for specified user
INFO <n>          show information pages
IP                display the IP Network variables
LIMITS           list channel alarm limits
LOG              list alarm log entries
```

MAIL	show any mail
MENU	list of commands
MODE	displays configuration of TL1 port settings
NETWORK	list NETWORK type commands
NODE	list NODE type commands
OPTIONS	list options installed
PERIODS	list time periods
PHONE	show user phone numbers
POWER <t<n>>	list power consumption data
PRCONFIG	list channel configuration
PROGRAM	list control programs
RATE	list size or capacity percentages
REPORT	show system alarm reporting parameters
SCAN	list active channel status
SEQUENCE	show AC & Standby sequencer status
SET	list SET type commands
SNMP	display the current value of the SNMP options
STATS	list channel statistics
STATUS <n>	show status page
TIME	show date and time
TIMEOUT	show user timeout
TRAPS	display the SNMP TRAP information
UNIT	show unit name and number
UPLOAD	configure the system by uploading a file using XMODEM
UPLOAD TFTP	configure the system by uploading a file using TFTP
USERS <n>	list user configuration
VI	show Plant Voltage and Load
CLR ACO	disable alarm cutoff
CLR EVENTS	clear event log
CLR LED <n>	turn LED off
CLR LOG	clear alarm log
CLR MAIL	clear your mail from memory
CLR POWER <n>	clear power consumption data
CLR PROGRAM <tn>	clear control programs
CLR RLY <n>	de-energize relay
CLR STATS <tn>	clear channel statistics
IP ADDRESS <address>	set the units IP address
IP DELETE <address>	remove a host from the list of authorized hosts
IP GATEWAY <address>	set the units gateway address
IP HOST <address>	add a new host to the list of authorized hosts
IP NETMASK <address>	set the units network netmask
NETWORK INITIALIZE	clear all known nodes and search for new nodes
NODE ADD	search for and configure new nodes
NODE CONFIG <n>	configure user information for a node
NODE DELETE <n>	remove a node
NODE INITIO <n>	reinitialize a node's I/O hardware configuration

NODE LIST <n> view user and hardware configuration for nodes
 NODE REPLACE <n> replace a node

SET ACO cutoff present alarms from affecting relays
 SET AID <n> configures access identifier
 SET ANSWER <n> set number of rings before the system answers
 SET CHANNELS set user defined channels
 SET CLASS <n> set programmable alarm classifications
 SET CMD <n> set programmable commands
 SET COM set local comm port configuration
 SET DATE <mm/dd/yy> set date where mm = month, dd = date, yy = year
 SET DEFAULTS set system default parameters
 SET EFF set Energy Management parameters
 SET EMAIL set IP DNS server, SMTP Server, and return mail addresses
 SET GATEWAY set GATEWAY port communications data rate
 SET INFO <n> configure information pages
 SET LED <n> turn LED on
 SET LIMITS <tn> set channel alarm limits
 SET MAIL send mail to users
 SET MODE modify configuration of TL1 port settings
 SET PERIODS <tn> set time periods
 SET PHONE set user phone numbers
 SET PROGRAM <tn> configure control programs
 SET REPORT set system alarm reporting parameters
 SET RLY <n> energize relay
 SET STATS CHANNELS configure advanced statistics channel group
 SET SEQUENCE set AC & Standby sequencer parameters
 SET STATUS <n> configure status page
 SET SYSTEM configure all settings
 SET TIME <hh:mm:ss> set time where hh = hours, mm = minutes, ss = seconds
 SET TIMEOUT <n> set user timeout
 SET UNIT set unit name and number
 SET USERS <n> configure a user
 SET VI set Plant Voltage and Load settings
 SET NETSURE configure VPS/NPS Power System settings

SNMP GET <comm name> set the SNMP GET community name
 SNMP OFF disable SNMP access
 SNMP ON enable SNMP access
 SNMP SET <comm name> set the SNMP SET community name

TRAPS ADD <n> add a new SNMP Trap recipient to the list of TRAP hosts
 TRAPS DELETE <n> remove a host address from the list of TRAP hosts
 TRAPS OCCURRED disable/enable the system's ability to send SNMP Occurred Alarm TRAPS
 TRAPS OFF disable the system's ability to send SNMP TRAPS
 TRAPS ON enable the system to send SNMP TRAPS
 TRAPS PERSISTENT disable/Enable the system's ability to send SNMP Persistent Alarm TRAPS or set the Persistent Alarms reporting interval

```

TRAPS RETIRED                disable/enable the system's ability to send SNMP Retired
                             Alarm TRAPS
TRAPS VERSION <V1|V2>       change the version of SNMP TRAPS sent by the system

ALARMS NETSURE              list active VPS/NPS Power System alarms
ALARMS NETSURE LVD          list active LVD alarms
ALARMS NETSURE MCA          list active MCA alarms
ALARMS NETSURE PCU<n>      list active PCU alarms
ALARMS NETSURE SHUNT        list active SHUNT alarms
ALARMS NETSURE SUBSYSTEM    list active subsystem type alarms
ALARMS NETSURE SYSTEM       list active system type alarms

DOWNLOAD NETSURE            dump VPS/NPS Power System configuration
                             using XMODEM protocol

DOWNLOAD TFTP NETSURE       dump VPS/NPS Power System configuration
                             using TFTP

PRCONFIG NETSURE            list VPS/NPS Power System settings
                             and equipment inventory
PRCONFIG NETSURE INVENTORY  list VPS/NPS Power System equipment inventory
PRCONFIG NETSURE SETTINGS   list VPS/NPS Power System settings

SCAN NETSURE                list present status of VPS/NPS Power System
SCAN NETSURE LVD            list present status of LVD circuits
SCAN NETSURE MCA            list present status of MCA
SCAN NETSURE PCU<n>         list present status of specified PCU
SCAN NETSURE SUBSYSTEM      list present status of subsystem data
SCAN NETSURE SYSTEM         list present status of system data

SET NETSURE INTERFACE       Enable/Disable VPS/NPS interface
SET NETSURE LVD<n<t>> DISCONNECT set specified LVD disconnect voltage settings
SET NETSURE LVD<n<t>> FORCECONN   Manually reconnect specified LVD
SET NETSURE LVD RECONNECT   set LVD reconnect voltage setting
SET NETSURE MESSAGE MCA     set MCA custom message
SET NETSURE MESSAGE PCU<n>  set specified PCU custom message
SET NETSURE PASSWORD        set MCA logon password
SET NETSURE PCU FANSPEED     configure PCU fan speed
SET NETSURE PCU LOADSHARE    configure PCU Load share alarm
SET NETSURE PCU STATE<n>    turn specified PCU On or Off

SET NETSURE SYSTEM AUTOEQMULT set Auto Equalize Multiplier
SET NETSURE SYSTEM BATONDISCH set system Battery On Discharge alarm
SET NETSURE SYSTEM 50%BATONDISCH set system 50% Battery On Discharge alarm
SET NETSURE SYSTEM BATTVOVRCUR set Battery Charge Alarm
SET NETSURE SYSTEM BATTCURLIM set Battery Recharge Current Limit
SET NETSURE SYSTEM CALVOLT   set system calibration voltage
SET NETSURE SYSTEM COMPSLOPE set Digital Temperature Comp. Slope
SET NETSURE SYSTEM COMPMAX   set Digital Temp. Comp. Max voltage
SET NETSURE SYSTEM COMPMIN   set Digital Temp. Comp. Min voltage

```

```

SET NETSURE SYSTEM COMPSOURCE      configure Digital Temp. Comp. Source
SET NETSURE SYSTEM CURLIMIT         set system current limit
SET NETSURE SYSTEM FACTORYCAL       set system cal. voltage to factory default
SET NETSURE SYSTEM FLTVOULT         set system float voltage
SET NETSURE SYSTEM HIVLTALM1        set system High Voltage 1 Alarm
SET NETSURE SYSTEM HIVLTALM2        set system High Voltage 2 Alarm
SET NETSURE SYSTEM HVS              set system High Voltage Shutdown
SET NETSURE SYSTEM INVENTORY        reset the system equipment inventory
SET NETSURE SYSTEM MODE             set Power System mode
SET NETSURE SYSTEM NAGTIMER         set system ACO timer
SET NETSURE SYSTEM OVRCURRENT       set system Overcurrent alarm
SET NETSURE SYSTEM RLYTESTTIME      set Relay Test Time
SET NETSURE SYSTEM TEMPComp        set system Temperature compensation voltage
SET NETSURE SYSTEM TEMPHIGH<n>      set Temp. Probe High alarm
SET NETSURE SYSTEM TEMPLow<n>       set Temp. Probe Low alarm
SET NETSURE SYSTEM TSTEQVOLT        set system test/equalize voltage
SET NETSURE SYSTEM TSTEQTIME        set system test/equalize timeout
SET NETSURE SYSTEM 25APLACES        set system number of 25A Places
SET NETSURE SYSTEM 50APLACES        set system number of 50A Places
SET NETSURE SYSTEM 100APLACES       set system number of 100A Places
SET NETSURE SYSTEM 200APLACES       set system number of 200A Places

SET NETSURE SUBSYSTEM CALVOLT        set subsystem calibration voltage
SET NETSURE SUBSYSTEM FACTORYCAL     set subsystem cal. voltage to factory default
SET NETSURE SUBSYSTEM HIVALM         set subsystem High Voltage alarm
SET NETSURE SUBSYSTEM LVALM         set subsystem Low Voltage alarm
SET NETSURE SUBSYSTEM OVRCURRENT     set subsystem Overcurrent alarm

UPLOAD NETSURE                       configure VPS/NPS Power System by uploading
                                     file using XMODEM protocol

UPLOAD TFTP NETSURE                  configure VPS/NPS Power System by uploading
                                     file using TFTP

```

Programmed Command: Command Strings:

```

where: <>  anything enclosed in brackets is optional
        n   is a valid number
        t   is a type A, B, E, F, G, L, R for Analog, Binary,
            Energy Management, Function, Group, LED or Relay
            is A or B for VPS/NPS LVD settings

```

Command<6>: HELP

```

ACK          acknowledge report type alarms
ACO          list alarms that have been cutoff
AID <n>      display configured access identifiers
ALARMS      list active alarms
ANSWER      show number of rings before the system answers
BATTERY     BATTERY type commands
BOARDS      list installed boards
BYE         logoff and hangup

```

CHANNELS	list user defined channels
CLASS	list programmable alarm classifications
CLR	list CLR type commands
CMD	list programmable commands
COM	list local comm port settings
CONFIG <tn>	configure specified channel
CONNECT	initiate a communications session with device connected to GATEWAY port
DATE	show date and time
DOWNLOAD	dump system configuration using XMODEM protocol
DOWNLOAD TFTP	dump system configuration using TFTP protocol
EFF	show Energy Management status
EVENTS <n>	list event log entries for specified user
INFO <n>	show information pages
IP	display the IP Network variables
LIMITS	list channel alarm limits
LOG	list alarm log entries
MAIL	show any mail
MENU	list of commands
MODE	display configuration of TL1 port settings
NETWORK	list NETWORK type commands
NODE	list NODE type commands
OPTIONS	list options installed
PERIODS	list time periods
PHONE	show user phone numbers
POWER <n>	list power consumption data
PRCONFIG	list channel configuration
PROGRAM	list control programs
RATE	list size or capacity percentages
REPORT	show system alarm reporting parameters
SCAN	list active channel status
SEQUENCE	show AC & Standby sequencer status
SET	list SET type commands
SNMP	display the current value of the SNMP options
STATS	list channel statistics
STATUS <n>	show status page
TIME	show date and time
TIMEOUT	show user timeout
TRAPS	display the SNMP TRAP information
UNIT	show unit name and number
UPLOAD	configure system by uploading file using XMODEM
UPLOAD TFTP	configure system by uploading file using TFTP
USERS <n>	list user configuration
VI	show Plant Voltage and Load
CLR ACO	disable alarm cutoff
CLR EVENTS	clear event log
CLR LED <n>	turn LED off
CLR LOG	clear alarm log
CLR MAIL	clear your mail from memory

```

CLR POWER <n>                clear power consumption data
CLR PROGRAM <tn>             clear control programs
CLR RLY <n>                  de-energize relay
CLR STATS <tn>              clear channel statistics

IP ADDRESS <address>        set the units IP address
IP DELETE <address>        remove a host from the list of authorized hosts
IP GATEWAY <address>       set the units gateway address
IP HOST <address>          add a new host to the list of authorized hosts
IP NETMASK <netmask>       set the units network netmask

NETWORK INITIALIZE         clear all known nodes and search for new nodes

NODE ADD                   search for and configure new nodes
NODE CONFIG <n>           configure user information for a node
NODE DELETE <n>          remove a node
NODE INITIO <n>          reinitialize a node's I/O hardware configuration
NODE LIST <n>            view user and hardware configuration for nodes
NODE REPLACE <n>        replace a node

SET ACO                   cutoff present alarms from affecting relays
SET AID <n>              configure access identifier
SET ANSWER <n>          set number of rings before the system answers
SET CHANNELS             set user defined channels
SET CLASS <n>           set programmable alarm classifications
SET CMD <n>             set programmable commands
SET COM                  set local comm port configuration
SET DATE <mm/dd/yy>     set date where mm = month, dd = date, yy = year
SET DEFAULTS            set system default parameters
SET EFF                 set Energy Management parameters
SET EMAIL               set IP DNS server, SMTP Server, and return mail addresses
SET GATEWAY             set GATEWAY port communications data rate
SET INFO <n>           configure information pages
SET LED <n>             turn LED on
SET LIMITS <tn>        set channel alarm limits
SET NPS                 set NPS parameters
SET MAIL                send mail to users
SET MODE                modify configuration of TL1 port settings
SET PERIODS <tn>       set time periods
SET PHONE               set user phone numbers
SET PROGRAM <tn>       configure control programs
SET REPORT              set system alarm reporting parameters
SET RLY <n>            energize relay
SET STATS CHANNELS     configure advanced statistics channel group
SET SEQUENCE            set AC & Standby sequencer parameters
SET STATUS <n>         configure status page
SET SYSTEM              configure all settings
SET TIME <hh:mm:ss>    set time where hh = hours, mm = minutes, ss = seconds
SET TIMEOUT <n>       set user timeout
SET UNIT                set unit name and number

```

```

SET USERS <n>           configure a user
SET VI                 set Plant Voltage and Load Channels

SNMP GET <comm name>   set the SNMP GET community name
SNMP OFF              disable SNMP access
SNMP ON               enable SNMP access
SNMP SET <comm name>  set the SNMP SET community name

TRAPS ADD <n>          add a new SNMP Trap recipient to the list of TRAP hosts
TRAPS DELETE <n>      remove a host address from the list of TRAP hosts
TRAPS OCCURRED        disable/enable the system's ability to send SNMP Occurred
                      Alarm TRAPS
TRAPS OFF             disable the system's ability to send SNMP TRAP's
TRAPS ON              enable the system to send SNMP TRAP's
TRAPS PERSISTENT      disable/Enable the system's ability to send SNMP Persistent
                      Alarm TRAPS or set the Persistent Alarms reporting interval
TRAPS RETIRED         disable/enable the system's ability to send SNMP Retired
                      Alarm TRAPS
TRAPS VERSION <V1|V2> change the version of SNMP TRAP's sent by the system

PRCONFIG NPS          Displays the NPS system adjustment settings
                      alarm setpoints values, and configuration
                      parameters and the NPS hardware equipment
                      inventory for all bays and the MCA node.
PRCONFIG NPS N<#>     Displays only the NPS hardware equipment
                      inventory for the specified bay.
PRCONFIG NPS N<#>-<#> Displays only the NPS hardware equipment inventory
                      for valid NPS bays and the MCA node that fall
                      within the specified range of LMS node numbers.
PRCONFIG NPS SETTINGS Displays only the NPS system adjustment settings
                      alarm setpoints values, and configuration parameters.
PRCONFIG NPS INVENTORY Displays only the NPS hardware equipment
                      inventory for all bays and the MCA node.
PRCONFIG NPS PCU      Displays only the NPS hardware equipment
                      inventory of PCUs
PRCONFIG NPS DISTRIBUTION Displays only the NPS hardware equipment
                      inventory of bay distribution panels.

Programmed Command:   Command Strings:

```

```

where: <>  anything enclosed in brackets is optional
       n    is a valid number
       t    is a type A, B, F, G, L, R for Analog, Binary,
           Function, Group, LED or Relay

```

HELP NETSURE

Description: Lists all VPS/NPS Interface commands that are available at the current level with a brief description.

Command Level: NA

Syntax: HELP NETSURE
HELP N

Comments: Only commands available to the current user are listed. The list in the example is for a user that has access to level 6 commands.

Notes: The commands preface by the words SET NETSURE (SET N) can be viewed by entering the word SET NETSURE (SET N) followed by a question mark.

To view the help definition for a single command, enter the command followed by a space then a question mark.

Related Commands: HELP, MENU

Example:

Command<6>: HELP NETSURE

```
ALARMS NETSURE           list active VPS/NPS Power System alarms
ALARMS NETSURE LVD       list active LVD alarms
ALARMS NETSURE MCA       list active MCA alarms
ALARMS NETSURE PCU<n>    list active PCU alarms
ALARMS NETSURE SHUNT     list active SHUNT alarms
ALARMS NETSURE SUBSYSTEM list active subsystem type alarms
ALARMS NETSURE SYSTEM    list active system type alarms

DOWNLOAD NETSURE         dump VPS/NPS Power System configuration
                          using XMODEM protocol

DOWNLOAD TFTP NETSURE    dump VPS/NPS Power System configuration
                          using TFTP

PRCONFIG NETSURE         list VPS/NPS Power System settings
                          and equipment inventory
PRCONFIG NETSURE INVENTORY list VPS/NPS Power System equipment inventory
PRCONFIG NETSURE SETTINGS list VPS/NPS Power System settings

SCAN NETSURE             list present status of VPS/NPS Power System
SCAN NETSURE LVD         list present status of LVD circuits
SCAN NETSURE MCA         list present status of MCA
SCAN NETSURE PCU<n>      list present status of specified PCU
SCAN NETSURE SUBSYSTEM   list present status of subsystem data
SCAN NETSURE SYSTEM      list present status of system data

SET NETSURE INTERFACE    Enable/Disable VPS/NPS interface
SET NETSURE LVD<n<t>> DISCONNECT set specified LVD disconnect voltage settings
```

SET NETSURE LVD<n<t>> FORCECONN	Manually reconnect specified LVD
SET NETSURE LVD RECONNECT	set LVD reconnect voltage setting
SET NETSURE MESSAGE MCA	set MCA custom message
SET NETSURE MESSAGE PCU<n>	set specified PCU custom message
SET NETSURE PASSWORD	set MCA logon password
SET NETSURE PCU FANSPEED	configure PCU fan speed
SET NETSURE PCU LOADSHARE	configure PCU Load share alarm
SET NETSURE PCU STATE<n>	turn specified PCU On or Off
SET NETSURE SYSTEM AUTOEQMULT	set Auto Equalize Multiplier
SET NETSURE SYSTEM BATONDISCH	set system Battery On Discharge alarm
SET NETSURE SYSTEM 50%BATONDISCH	set system 50% Battery On Discharge alarm
SET NETSURE SYSTEM BATTVOVCUR	set Battery Charge Alarm
SET NETSURE SYSTEM BATTCURLIM	set Battery Recharge Current Limit
SET NETSURE SYSTEM CALVOLT	set system calibration voltage
SET NETSURE SYSTEM COMPSLOPE	set Digital Temperature Comp. Slope
SET NETSURE SYSTEM COMPMAX	set Digital Temp. Comp. Max voltage
SET NETSURE SYSTEM COMPMIN	set Digital Temp. Comp. Min voltage
SET NETSURE SYSTEM COMPSOURCE	configure Digital Temp. Comp. source
SET NETSURE SYSTEM CURLIMIT	set system current limit
SET NETSURE SYSTEM FACTORYCAL	set system cal. voltage to factory default
SET NETSURE SYSTEM FLTVOVLT	set system float voltage
SET NETSURE SYSTEM HIVLTALM1	set system High Voltage 1 Alarm
SET NETSURE SYSTEM HIVLTALM2	set system High Voltage 2 Alarm
SET NETSURE SYSTEM HVS	set system High Voltage Shutdown
SET NETSURE SYSTEM INVENTORY	reset the system equipment inventory
SET NETSURE SYSTEM MODE	set Power System mode
SET NETSURE SYSTEM NAGTIMER	set system ACO timer
SET NETSURE SYSTEM OVRCURRENT	set system Overcurrent alarm
SET NETSURE SYSTEM RLYTESTTIME	set Relay Test Time
SET NETSURE SYSTEM TEMPCOMP	set system Temperature compensation voltage
SET NETSURE SYSTEM TEMPHIGH<n>	set Temp. Probe High alarm
SET NETSURE SYSTEM TEMPLow<n>	set Temp. Probe Low alarm
SET NETSURE SYSTEM TSTEQVOLT	set system test/equalize voltage
SET NETSURE SYSTEM TSTEQTIME	set system test/equalize timeout
SET NETSURE SYSTEM 25APLACES	set system number of 25A Places
SET NETSURE SYSTEM 50APLACES	set system number of 50A Places
SET NETSURE SYSTEM 100APLACES	set system number of 100A Places
SET NETSURE SYSTEM 200APLACES	set system number of 200A Places
SET NETSURE SUBSYSTEM CALVOLT	set subsystem calibration voltage
SET NETSURE SUBSYSTEM FACTORYCAL	set subsystem cal. voltage to factory default
SET NETSURE SUBSYSTEM HIVALM	set subsystem High Voltage alarm
SET NETSURE SUBSYSTEM LVALM	set subsystem Low Voltage alarm
SET NETSURE SUBSYSTEM OVRCURRENT	set subsystem Overcurrent alarm
UPLOAD NETSURE	configure VPS/NPS Power System by uploading file using XMODEM protocol
UPLOAD TFTP NETSURE	configure VPS/NPS Power System by uploading

file using TFTP

where: <> anything enclosed in brackets is optional
n is a valid number
t is A or B for VPS/NPS LVD settings

INFO

Description: Displays information pages which are available for storing user information.

Command Level: 1

Syntax: INFO

Comments: none

Notes: Each page consists of 20 lines, each line 79 characters in length.

Related Commands: SET INFO

Example:

```
Command<1>: info
INFORMATION PAGE #1
RECTIFIERS:
```

```
      RL200D50
      RL400D50 (2)
```

```
      FUSES
      C.B.
```

```
MAINTENANCE
```

```
      BATTERY DISCHARGE ON 01/01/01
```

LIMITS

Description: Displays the alarm limits and alarm limit mode for each analog and function input.

Command Level: 2

Syntax: LIMITS[*node_designator*] [*channel_range*] [*node_range*]
 LIMITS A[[*node_number*] *channel_number*]
 LIMITS F[*channel_number*]
 LIM[*node_designator*] [*channel_range*] [*node_range*]
 LIM A[[*node_number*] *channel_number*]
 LIM F[*channel_number*]

Comments: Typing a command like PRCONFIG A1 will list the entire channel configuration for analog channel 1 including the limits.

Notes: When using *channel_range*, only channel types A or F are valid. Except for NPS distribution points, NPS analog channels cannot be configured to alarm because those limits are controlled by the MCA and result in binary alarms in the LMS.

Related Commands: none

Example:

```
Command<2>: LIMITS A
ANALOG CHANNEL ALARM LIMITS AS OF 07:36:02 ON 01/01/01.
Chan  Description
A0001 Analog Channel 1          -- Limits mode: Normal
  Limit / Name      Class  Condtype      Ntfc  Svef
  70.0 H   HVA2      MAJOR  TOOHIGH      MJ    SA
  Condition Description
THIS VOLTAGE IS TOO HIGH
  60.0 H   HVA1      MAJOR  HIGH          MJ    SA
  Condition Description
THIS VOLTAGE IS HIGH
  50.0 L   LVA1      MINOR  LOW           MN    NSA
  Condition Description
THIS VOLTAGE IS LOW
  40.0 L   LVA2      MINOR  TOLOW        MN    NSA
  Condition Description
THIS VOLTAGE IS TOO LOW
A0002 Analog Channel 2          -- Limits mode: Normal
  Limit / Name      Class  Condtype      Ntfc  Svef
  7000 H   ABOVE 7000 MAJOR  TOOHIGH      MJ    SA
  Condition Description
THIS CURRENT IS ABOVE 7000 AMPS
  6000 H   ABOVE 6000 MAJOR  HIGH          MJ    SA
  Condition Description
THIS CURRENT IS ABOVE 6000 AMPS
  500 L   BELOW 500  MINOR  LOW           MN    NSA
  Condition Description
THIS CURRENT IS BELOW 500 AMPS
```

```

100 L BELOW 100 MINOR TOLOW MN NSA
Condition Description
THIS CURRENT IS BELOW 100 AMPS
Command<6>: LIMITS F
FUNCTION CHANNEL ALARM LIMITS AS OF 07:41:17 ON 02/09/96.
Chan Description
F0001 Function Channel 1
Limit / Name Class Condtype Ntfc Svecf
5000.H ABOVE 5000 TOOHIGH CR SA
Condition Description
CURRENT IS ABOVE 5000 AMPS
500.0L BELOW 500 HIGH CR SA
Condition Description
CURRENT IS BELOW 500 AMPS
None
None
F0002 Function Channel 2
Limit / Name Class Condtype Ntfc Svecf
70.00H HVA2 MAJOR TOOHIGH MJ SA
Condition Description
VOLTAGE IS ABOVE 70 VOLTS
60.00LH HVA1 MAJOR HIGH MJ SA
Condition Description
VOLTAGE IS ABOVE 60 VOLTS
50.00L LVA1 MINOR LOW MJ SA
Condition Description
VOLTAGE IS BELOW 50 VOLTS
40.00L LVA2 MINOR TOLOW MJ SA
Condition Description
VOLTAGE IS BELOW 40 VOLTS

```

LOG

Description: Displays the 500 most recent alarms along with their time and date of occurrence and cancellation, as well as if the alarm has been reported (r), acknowledged (user number displayed), or attempted to be reported but the System Alarm Report Retry Time was set to 0 which disables the retry feature (*).

VPS/NPS and NPS alarms are also recorded, if a VPS/NPS or NPS is connected.

Command Level: 1

Syntax: LOG [*channel_type*] [*channel_designator*] [*group_designator*] [*search_text*]
 LOG -n, where -n lists any entries with occurred/cleared times within the past n hours
 L [*channel_type*] [*channel_designator*] [*group_designator*] [*search_text*]

Comments: For analog, function, LED, and relay channels; the channel number is followed by a period, and then an alarm type designation. The analog and function alarm type informs whether the alarm is a high (H) or low (L) limit and which of the four limits (1-4) is exceeded. The LED and relay alarm type informs whether the output is energized due to a control program (Pg) or if it was forced (Fc) on by the SET command. The alarm class (if configured) is also listed. Relay information includes whether the relay is energized or released due to programming or manually forced to its current state. Analog or binary alarms or relays can be viewed separately, or one single input can be viewed by itself by entering the command LOG followed by a space and then the character A for analog, B for binary or R for relay, then followed by the node and channel numbers, if desired.

Notes: There may be less than 500 entries if the system is new or the log has been cleared with the CLR LOG command.

Refer to "Operating LMS1000" for a discussion on the Alarm Log.

A node number appears in the alarm log to indicate the node causing the failure condition, when one of the LMS1000 self-diagnostic binary channels B0088-B0095 activates. For example, "B0095.10" indicates there is an "Analog H/W Configuration Error" on node number 10.

Related Commands: CLR LOG

Example:

```
Command<1>: log
ENTIRE ALARM LOG ENTRIES AS OF 12:14:56 ON 01/01/01.
  Chan      Description          Class  Occurred   Ack   Cleared
A0001.2H   Analog Channel 1       MAJOR  11/01 12:13:29  r  00/00 00:00:00
A0001.2H   Analog Channel 1       MAJOR  11/01 12:11:51  r  11/01 12:13:27
A0001.2H   Analog Channel 1       MAJOR  11/01 12:10:52  6  11/01 12:11:37
B0001      Binary Channel 1       MINOR  11/01 12:10:40  6  00/00 00:00:00
A0001.2H   Analog Channel 1       MAJOR  11/01 12:10:23  6  11/01 12:10:26
R0001.Pg   Relay Channel 1       MINOR  11/01 12:09:57  6  00/00 00:00:00
A0001.2H   Analog Channel 1       MAJOR  11/01 12:09:24  6  11/01 12:10:21
A0001.2H   Analog Channel 1       MAJOR  11/01 11:09:00  6  11/01 12:09:21
B9015     NETSURE System Major   MAJOR  11/01 12:09:06  6  00/00 00:00:00
B9016     NETSURE System Minor   MINOR  11/01 12:08:06  6  00/00 00:00:00
```

Command<1>: LOG

ENTIRE ALARM LOG ENTRIES AS OF 13:45:49 ON 05/13/96.

Chan	Description	Class	Occurred	Ack	Cleared
B0095.10	Analog H/W Configuration Err		05/13 13:45:23	00/00	00/00/00
B0094.09	Node I/O H/W Failure		05/13 13:44:19	00/00	00/00/00
B0093.08	Node H/W Mismatch		05/13 13:43:21	05/13	13:43:34
B0092.07	Node Assembly Mismatch		05/13 13:42:06	05/13	13:42:42
B0091.06	Node Configuration Mismatch		05/13 13:29:37	05/13	13:30:14
B0090.05	Node Watch Dog Reset Error		05/13 13:27:55	05/13	13:28:32
B0087	Foreign Node Error		05/13 13:26:22	05/13	13:26:58
B0089.03	Node Communication Error		05/13 13:25:20	00/00	00/00/00
B0088.02	Unexpected Response		05/13 13:24:05	05/13	13:24:42
B0086	I/O Network Failure		05/13 13:22:53	05/13	13:23:35
B0085	Power System Com Link Failure		05/13 13:22:53	05/13	13:23:35
B0084	Main Chassis Foreign H/W		05/13 13:22:53	05/13	13:23:35
B0083	Main Chassis H/W Mismatch		05/13 13:22:53	05/13	13:23:35
B0082	Main Chassis H/W Failure		05/13 13:22:53	05/13	13:23:35
B0081	Self Diagnostics Error		05/13 13:22:53	05/13	13:23:35

MAIL

Description: Permits viewing of mail for the user. Information includes the user which sent the mail and the time of posting. The reader is also asked whether he is done with the mail.

Command Level: 1

Syntax: MAIL
MA

Comments: If the user replies yes when asked if he is done with the mail, he will not receive that mail the next time he logs on. If the user is not done with the mail, and he wishes to be notified every time he logs on, he should enter N.

Notes: none

Related Commands: CLR MAIL, SET MAIL

Example:

```
Command<1>: MAIL
Mail from Office Manager posted 01/01/01 08:39:33.
CHECK WATER LEVEL IN BATTERIES TODAY
CALL ME @ 555-4645 IF ANY PROBLEMS
Are you done with this mail? (Y or N) ? Y
```

MENU

Description: Lists all commands available at the current level.

Command Level: NA

Syntax: MENU
M

Comments: For more detailed information on these commands use the HELP command. Only commands available to the current user are listed. The list in the example is for a user that has access to level 6 commands.

Notes: Programmable commands are also displayed. Energy management commands will not be shown if the option is not installed.

Related Commands: HELP, HELP NETSURE

Example:

Command<6>: MENU

Menu:

ACK	ACO	AID	ALARMS	ANSWER
BATTERY	BOARDS	BYE	CHANNELS	CLASS
CLR	CMD	COM	CONFIG	CONNECT
DAC DEL	DAC LIST	DAC SET	DAC SET LOCK OFF	DAC SET LOCK ON
DAC STATUS	DATE	DOWNLOAD	EFF	EVENTS
HELP	INFO	IP	LIMITS	LOG
MAIL	MENU	MODE	NETWORK	NODE
OPTIONS	PERIODS	PHONE	POWER	PRCONFIG
PROGRAM	RATE	REPORT	SCAN	SEQUENCE
SET	SNMP	STATS	STATUS	TIME
TIMEOUT	TRAPS	UNIT	UPLOAD	USERS
VI				

Programmed Commands:

NETSURE Menu:

ALARMS NETSURE
 ALARMS NETSURE LVD
 ALARMS NETSURE MCA
 ALARMS NETSURE PCU
 ALARMS NETSURE SHUNT
 ALARMS NETSURE SUBSYSTEM
 ALARMS NETSURE SYSTEM

DOWNLOAD NETSURE

PRCONFIG NETSURE
 PRCONFIG NETSURE INVENTORY
 PRCONFIG NETSURE SETTINGS

SCAN NETSURE

SCAN NETSURE LVD
SCAN NETSURE MCA
SCAN NETSURE PCU
SCAN NETSURE SUBSYSTEM
SCAN NETSURE SYSTEM

UPLOAD NETSURE

Command<6>: MENU

Menu:

ACK	ACO	AID	ALARMS	ANSWER
BATTERY	BOARDS	BYE	CHANNELS	CLASS
CLR	CMD	COM	CONFIG	CONNECT
DATE	DOWNLOAD	EFF	EVENTS	HELP
INFO	IP	LIMITS	LOG	MAIL
MENU	MODE	NETWORK	NODE	OPTIONS
PERIODS	PHONE	POWER	PRCONFIG	PROGRAM
RATE	REPORT	SCAN	SEQUENCE	SET
SNMP	STATS	STATUS	TIME	TIMEOUT
TRAPS	UNIT	UPLOAD	USERS	VI

Programmed Commands:

MODE

Description: This command is only available if the TL1 software option is installed in the system. Displays the configuration of the TL1 port settings.

Command Level: 6

Syntax: MODE
MOD

Comments: The "Auto logon user:" attribute shows the number of the user who is automatically logged on by the system. The configuration of the entered user determines the access level of the user session, and is used in determining when a report must be sent.

Notes: The "Auto logon user:" attribute is only displayed if the "Auto logon:" attribute is set to "Enabled".

Related Commands: SET MODE

Example:

```
TL1/X.25 Software Option Installed
Command<6>: MODE
TL1 Mode: Direct
TL1/X.25 Comm Port Setting: 9600, n, 8, 1
Session Timeout: 600 min
Auto logon: Enabled
Auto logon user: User #7
AID delimiter: Yes

TL1 (over Ethernet) Software Option Installed
Command<6>: MODE
TL1 Mode: Telnet
TCP Keepalive: Enabled
Port: 2020
Session Timeout: 600 min
Auto logon: Enabled
Auto logon user: User #7
AID delimiter: Yes
```

NETWORK

Description: Lists all commands that begin with NETWORK, and then prompts the user to enter one of the displayed options.

Command Level: 6

Syntax: NETWORK
N

Comments: "IO network is running." is displayed when the network is ready. The follow are displayed if the network is not ready.

"IO network is adding nodes.
IO network commands not ready!"
Indicates a new IO network is being discovered.

"IO network is verifying nodes.
IO network commands not ready!"
Indicates a known network is being verified.

"IO network is failed.
IO network commands not ready!"
Indicates an IO network has failed and no communication to nodes is possible.

"IO network is not initialized.
IO network commands not ready!"
Only displayed for a very short time after a reset.

"IO network state is undefined!
IO network commands not ready!"
Only displayed for a very short time after a reset on a new system.

Notes: Only the commands that the user has access to are listed.

Related Commands: NETWORK INITIALIZE

Example:

```
Command<6>: NETWORK
```

```
IO network is running.
```

```
Which action?
```

```
INITIALIZE
```

```
?
```

NETWORK INITIALIZE

Description: Clears node 0, nodes 21-89, and any X (unmapped) nodes from the database, and then adds all nodes found on the I/O network.

Command Level: 6

Syntax: NETWORK INITIALIZE
N IN

Comments: The system prompts the user to continue. If YES answered, all known nodes are deleted. The system then prompts the user if all associated channels are to be removed. The system then displays all nodes currently found on the network.

Notes: Use of this command generates an entry in the Event Log. This cancels any previous node errors. The Main Cabinet and VPS/NPS Interface (MCA) Nodes do not require discovery. The Main Cabinet and MCA hardware is discovered by other mechanisms.

"IO network is running." is displayed when the network is ready. The follow are displayed if the network is not ready.

"IO network is adding nodes.
IO network commands not ready!"
Indicates a new IO network is being discovered.

"IO network is verifying nodes.
IO network commands not ready!"
Indicates a known network is being verified.

"IO network is failed.
IO network commands not ready!"
Indicates an IO network has failed and no communication to nodes is possible.

"IO network is not initialized.
IO network commands not ready!"
Only displayed for a very short time after a reset.

"IO network state is undefined!
IO network commands not ready!"
Only displayed for a very short time after a reset on a new system.

Related Commands: none

Example:

```
Command<6>: NETWORK INITIALIZE
```

```
IO network is running.
```

```
WARNING: This command will terminate all alarm processing of remote I/O  
Do you wish to continue? (YES or NO): yes
```

```
Do you wish to delete associated channels? (Yes or No): yes
```

Deleting Nodes.....
Deleting Analog channels.....
Deleting Binary channels.....
Deleting Relay channels.....

Searching for new nodes

Node#	Name	Spec. Number	Ser.#	Loc	Echelon Id #
X01	---	58212190001	12346	L	1A2B3C4D5F6A
X02	---	58212190001	12346	R	1A2B3C4D5F6B
X03	---	58212190002	12347	L	1A2B3C4D5F6C
X04	---	58212190002	12347	R	1A2B3C4D5F6D

NODE

Description: Lists all commands that begin with NODE, and then prompts the user to enter one of the displayed options.

Command Level: 2

Syntax: NODE
NO

Comments: none

Notes: Only the commands that the user has access to are listed.

"IO network is running." is displayed when the network is ready. The follow are displayed if the network is not ready.

"IO network is adding nodes.
IO network commands not ready!"
Indicates a new IO network is being discovered.

"IO network is verifying nodes.
IO network commands not ready!"
Indicates a known network is being verified.

"IO network is failed.
IO network commands not ready!"
Indicates an IO network has failed and no communication to nodes is possible.

"IO network is not initialized.
IO network commands not ready!"
Only displayed for a very short time after a reset.

"IO network state is undefined!
IO network commands not ready!"
Only displayed for a very short time after a reset on a new system.

Related Commands: NODE ADD, NODE CONFIG, NODE DELETE, NODE LIST, NODE REPLACE

Example:

```
Command<2>: NODE
```

```
IO network is running.
```

```
Which action?
```

```
ADD CONFIG DELETE LIST REPLACE
```

```
?
```

NODE ADD

Description: Adds to the database all new nodes found on the network, and then allows the nodes to be configured.

Command Level: 6

Syntax: NODE ADD
NO AD

Comments: The system searches for new nodes on the network and then lists all nodes (new and old) by Node#, Name, Spec. Number, Ser.# (serial number), Loc (location), and Echelon Id #. The system prompts the user to select a node to configure. You select the node by entering the Node# from the list. Note that the node numbers for unmapped nodes (nodes that were not previously configured) are temporarily listed as X01 through X99 for reference. Once a node is selected by its number, the user configures the node as explained under the NODE CONFIGURE command.

Notes: Use of this command generates an entry in the Event Log. The Main Cabinet, VPS/NPS MCA Interface, and NPS MCA Interface Nodes are automatically added to the system by other mechanisms, and are not shown in the list.

"IO network is running." is displayed when the network is ready. The follow are displayed if the network is not ready.

"IO network is adding nodes.
IO network commands not ready!"
Indicates a new IO network is being discovered.

"IO network is verifying nodes.
IO network commands not ready!"
Indicates a known network is being verified.

"IO network is failed.
IO network commands not ready!"
Indicates an IO network has failed and no communication to nodes is possible.

"IO network is not initialized.
IO network commands not ready!"
Only displayed for a very short time after a reset.

"IO network state is undefined!
IO network commands not ready!"
Only displayed for a very short time after a reset on a new system.

Related Commands: NODE CONFIG, NODE DELETE, NODE LIST, NODE REPLACE

Example:

```
Command<6>: NODE ADD
```

```
IO network is running.
```

```
Searching for new nodes
```

Node#	Name	Spec. Number	Ser.#	Loc	Echelon Id #
X01	---	58212190001	12346	L	1A2B3C4D5F6A
X02	---	58212190001	12346	R	1A2B3C4D5F6B
X03	---	58212190002	12347	L	1A2B3C4D5F6C
X04	---	58212190002	12347	R	1A2B3C4D5F6D

Which node? : X01

Node Number: ---

Node Number: 01

Node Name: ---

Node Name: Main Distribution Bay 1

Spec Number: 58212190001

Spec Number:

Serial Number: 12346

Serial Number:

Location Number: L

Location Number:

Module 1 List Number: --

Module 1 List Number: AB

Module 2 List Number: --

Module 2 List Number: D

Module 3 List Number: --

Module 3 List Number: T

Module 4 List Number: --

Module 4 List Number: BK

Save changes (Y or N): Y

Storing node configuration

Edit Node Channels (Y or N): Y

Enter channel (e.g. A12 or A1-6) or D to display.

Add Channel: A1

Add Channel: A7-11

Add Channel: B1-4

Add Channel:

Enter channel (e.g. A12 or A1-6) or D to display.

Del Channel: A11

Del Channel:

Configure another node? (Y or N):

NODE CONFIG

Description: Allows configuration information of nodes in the database to be entered or edited.

Command Level: 6

Syntax: NODE CONFIG [[X]node_number]
NO CO [[X]node_number]

Comments: If no modifier is used when entering the command, the system lists all nodes by Node#, Name, Spec. Number, Ser.# (serial number), Loc (location), and Echelon Id #. The system then prompts the user to select a node to configure. You select the node by entering the Node# from the list. Note that the node numbers for unmapped nodes (nodes that were not previously configured) are temporarily listed as X01 through X99 for reference. Once a node is selected by its number, the user is presented with the configuration information that can be entered or edited. The Echelon Identifier is preset and cannot be changed.

Notes: Use of this command generates an entry in the Event Log. For a VPS/NPS Power System, the Main Cabinet and VPS/NPS Interface (MCA) Nodes do not contain user configurable information, and are not shown in the list. Channels are added with a default channel configuration. For an NPS Power System, some attributes are preset or do not apply and are not configurable. Channels are added automatically.

"IO network is running." is displayed when the network is ready. The follow are displayed if the network is not ready.

"IO network is adding nodes.
IO network commands not ready!"
Indicates a new IO network is being discovered.

"IO network is verifying nodes.
IO network commands not ready!"
Indicates a known network is being verified.

"IO network is failed.
IO network commands not ready!"
Indicates an IO network has failed and no communication to nodes is possible.

"IO network is not initialized.
IO network commands not ready!"
Only displayed for a very short time after a reset.

"IO network state is undefined!
IO network commands not ready!"
Only displayed for a very short time after a reset on a new system.

Related Commands: NODE ADD, NODE DELETE, NODE LIST, NODE REPLACE

Example:

Command<6>: NODE CONFIG

IO network is running.

Node#	Name	Spec. Number	Ser.#	Loc	Echelon Id #
01	---	58212190001	12346	L	1A2B3C4D5F6A

02	---	58212190001	12346	R	1A2B3C4D5F6B
03	---	58212190002	12347	L	1A2B3C4D5F6C
04	---	58212190002	12347	R	1A2B3C4D5F6D

Which node? : 02
Node Number: ---
Node Number: 02
Node Name: ---
Node Name: Main Distribution Bay 1
Spec Number: 58212190001
Spec Number:
Serial Number: 12346
Serial Number:
Location Number: R
Location Number:
Module 1 List Number: --
Module 1 List Number: AB
Module 2 List Number: --
Module 2 List Number: D
Module 3 List Number: --
Module 3 List Number: T
Module 4 List Number: --
Module 4 List Number: BK
Save changes (Y or N): Y

Storing node configuration

Edit Node Channels (Y or N): Y
Enter channel (e.g. A12 or A1-6) or D to display.
Add Channel: D
A0201 Analog channel 0201
A0207 Analog channel 0207
A0208 Analog channel 0208
A0209 Analog channel 0209
A0210 Analog channel 0210
B0201 Binary channel 0201
B0202 Binary channel 0202
B0203 Binary channel 0203
B0204 Binary channel 0204
R0201 Relay channel 0201
Add Channel:
Enter channel (e.g. A12 or A1-6) or D to display.
Del Channel: A10
Del Channel:

Configure another node? (Y or N):

NODE DELETE

Description: Deletes nodes from the database.

Command Level: 6

Syntax: NODE DELETE [[X]node_number]
NO DE [[X]node_number]

Comments: If no modifier is used when entering the command, the system lists all nodes by Node#, Name, Spec. Number, Ser.# (serial number), Loc (location), and Echelon Id #. The system then prompts the user to select a node to delete. You select the node by entering the Node# from the list. Note that the node numbers for unmapped nodes (nodes that were not previously configured) are temporarily listed as X01 through X99 for reference. If a node that was previously configured is deleted, the user may also delete the node's channels.

Notes: Use of this command generates an entry in the Event Log. This cancels any previous node errors. The Main Cabinet, VPS/NPS MCA Interface, and NPS MCA Interface Nodes cannot be deleted, and are not shown in the list.

"IO network is running." is displayed when the network is ready. The follow are displayed if the network is not ready.

"IO network is adding nodes.
IO network commands not ready!"
Indicates a new IO network is being discovered.

"IO network is verifying nodes.
IO network commands not ready!"
Indicates a known network is being verified.

"IO network is failed.
IO network commands not ready!"
Indicates an IO network has failed and no communication to nodes is possible.

"IO network is not initialized.
IO network commands not ready!"
Only displayed for a very short time after a reset.

"IO network state is undefined!
IO network commands not ready!"
Only displayed for a very short time after a reset on a new system.

Related Commands: NODE ADD, NODE CONFIG, NODE LIST, NODE REPLACE

Example:

Command<6>: NODE DELETE

IO network is running.

Node#	Name	Spec. Number	Ser.#	Loc	Echelon Id #
01	---	58212190001	12346	L	1A2B3C4D5F6A
02	---	58212190001	12346	R	1A2B3C4D5F6B
03	---	58212190002	12347	L	1A2B3C4D5F6C

04 --- 58212190002 12347 R 1A2B3C4D5F6D

Delete which node ?: 02

WARNING: Alarm processing for node 02 will terminate if the node is deleted

Do you wish to continue? (YES or NO): yes

Do you wish to delete node 02 channels? (Yes or No): yes

Deleting Analog channels.....

Deleting Binary channels.....

Deleting Relay channels.....

NODE INITIO

Description: Permits the user to re-initialize the I/O hardware configuration of either the Main Cabinet or an Expansion Cabinet. This operation causes the I/O hardware configuration stored in nonvolatile memory to be replaced with the configuration of the hardware actually installed.

Command Level: 6

Syntax: NODE INITIO [*node_number*]

Comments: A user may select a node to be re-initialized by its node number from a list of nodes with application node numbers. Nodes that have not been configured with a node number cannot be re-initialized.

Notes: This command does not work with any Main Cabinet, VPS/NPS MCA Interface, or NPS MCA Interface Nodes.

"IO network is running." is displayed when the network is ready. The follow are displayed if the network is not ready.

"IO network is adding nodes.
IO network commands not ready!"
Indicates a new IO network is being discovered.

"IO network is verifying nodes.
IO network commands not ready!"
Indicates a known network is being verified.

"IO network is failed.
IO network commands not ready!"
Indicates an IO network has failed and no communication to nodes is possible.

"IO network is not initialized.
IO network commands not ready!"
Only displayed for a very short time after a reset.

"IO network state is undefined!
IO network commands not ready!"
Only displayed for a very short time after a reset on a new system.

Related Commands: none

Example:

Command<6>: NODE INITIO

IO network is running.
Enter '0' for Main chassis
Or the number of a configured node shown below

Node#	Name	Spec. Number	Ser.#	Loc	Echelon Id #
05	middut	58212190001	12346	L	1A2B3C4D5F6A
X01	---	58212190001	12346	R	1A2B3C4D5F6B
X02	---	58212190002	12347	L	1A2B3C4D5F6C
X03	---	58212190002	12347	R	1A2B3C4D5F6D

Which node? : 5
Reinitializing node ...

Command<6>: NODE INITIO 5

IO network is running.
Reinitializing node ...

NODE LIST

Description: Lists information on all nodes in the database.

Command Level: 2

Syntax: NODE LIST [[X]node_number]
 NODE LIST [LONG]
 NO LI [[X]node_number]
 NO LI L

Comments: If no modifier is used when entering the command, all nodes in the database are listed. The system lists all nodes by Node#, Name, Spec. Number, Ser.# (serial number), Loc (location), and Echelon Id #. When a node number modifier or the "LONG" modifier is used; node card information, distribution module information, and channels are also listed. Note that the node numbers for unmapped nodes (nodes that were not previously configured) are temporarily listed as X01 through X99 for reference.

Notes: This command does not display any Main Cabinet, VPS/NPS MCA Interface, or NPS MCA Interface Nodes.

"IO network is running." is displayed when the network is ready. The follow are displayed if the network is not ready.

"IO network is adding nodes.
IO network commands not ready!"
Indicates a new IO network is being discovered.

"IO network is verifying nodes.
IO network commands not ready!"
Indicates a known network is being verified.

"IO network is failed.
IO network commands not ready!"
Indicates an IO network has failed and no communication to nodes is possible.

"IO network is not initialized.
IO network commands not ready!"
Only displayed for a very short time after a reset.

"IO network state is undefined!
IO network commands not ready!"
Only displayed for a very short time after a reset on a new system.

"NPS interface is running" is displayed when the NPS data is initialized.
Otherwise, "NPS interface is initializing!" is displayed.

Related Commands: NODE ADD, NODE CONFIG, NODE DELETE, NODE REPLACE

Example:

```
Command<2>: node list
```

```
IO network is running.
```

NPS interface is running

Node#	Name	Spec.#	Ser.#
01	NPS Bay #1	1234567890123	3000000001
02	NPS Bay #2	XXXXXXXXXXXXXX	1482184792

Node#	Name	Spec.#	Ser.#	Loc	Echelon Id #
21	---	507606	00001	RR	000581984200
22	---	bottom	65535	a3	00a015799100

Node#	Name	Spec.#	Ser.#
99	NPS MCA node	1234567890123	3000000001

Command<6>: node list

IO network is running.

NPS interface is running

Node#	Name	Spec.#	Ser.#
01	NPS Bay #1	1234567890123	3000000001
02	NPS Bay #2	XXXXXXXXXXXXXX	1482184792

Node#	Name	Spec.#	Ser.#	Loc	Echelon Id #
22	---	bottom	65535	a3	00a015799100

Node#	Name	Spec.#	Ser.#
99	NPS MCA node	1234567890123	3000000001

Node#	Name	Spec.#	Ser.#	Loc	Echelon Id #
X01	---	507606	00001	RR	000581984200

NODE REPLACE

Description: Replaces nodes in the database with a new node found on the network.

Command Level: 6

Syntax: NODE REPLACE [*node_number*]
 NO RE [*node_number*]

Comments: If no modifier is used when entering the command, the system lists all nodes by Node#, Name, Spec. Number, Ser.# (serial number), Loc (location), and Echelon Id #. The system then prompts the user to select a node to be replaced. You select the node by entering the Node# from the list. Note that the node numbers for unmapped nodes (nodes that were not previously configured) are temporarily listed as X01 through X99 for reference. The node selected is deleted. If a node that was previously configured is deleted, the user may also delete the node's channels. The system then searches for new nodes on the network and then lists all nodes (new and old). The user is prompted to enter the name of the node which is to replace the node deleted.

Notes: Use of this command generates an entry in the Event Log. This cancels any previous node errors. Do not use this command to replace a Node with a different type of Node. To replace a Node with a different type of Node first delete the Node using the command NODE DELETE, then add the new Node using the command ADD NODE. The Main Cabinet, VPS/NPS MCA Interface, and NPS MCA Interface Nodes cannot be replaced.

"IO network is running." is displayed when the network is ready. The follow are displayed if the network is not ready.

"IO network is adding nodes.
IO network commands not ready!"
Indicates a new IO network is being discovered.

"IO network is verifying nodes.
IO network commands not ready!"
Indicates a known network is being verified.

"IO network is failed.
IO network commands not ready!"
Indicates an IO network has failed and no communication to nodes is possible.

"IO network is not initialized.
IO network commands not ready!"
Only displayed for a very short time after a reset.

"IO network state is undefined!
IO network commands not ready!"
Only displayed for a very short time after a reset on a new system.

Related Commands: NODE ADD, NODE CONFIG, NODE DELETE, NODE LIST

Example:

```
Command<6>: NODE REPLACE
```

```
IO network is running.
```

Node#	Name	Spec. Number	Ser.#	Loc	Echelon Id #
01	---	58212190001	12346	L	1A2B3C4D5F6A
02	---	58212190001	12346	R	1A2B3C4D5F6B
03	---	58212190002	12347	L	1A2B3C4D5F6C
04	---	58212190002	12347	R	1A2B3C4D5F6D

Replace which node?: 02

WARNING: Alarm processing for node 02 will terminate if the node is deleted
 Do you wish to continue? (YES or NO): yes

Node 02 deleted!
 Searching for new nodes

Node#	Name	Spec. Number	Ser.#	Loc	Echelon Id #
01	---	58212190001	12346	L	1A2B3C4D5F6A
03	---	58212190002	12347	L	1A2B3C4D5F6C
04	---	58212190002	12347	R	1A2B3C4D5F6D
X01	---	58212190001	12346	R	1A2B3C4D5F6E

Select node to replace node 02?: X01

Storing node configuration

Node#	Name	Spec. Number	Ser.#	Loc	Echelon Id #
01	---	58212190001	12346	L	1A2B3C4D5F6A
02	---	58212190001	12346	R	1A2B3C4D5F6B
03	---	58212190002	12347	L	1A2B3C4D5F6C
04	---	58212190002	12347	R	1A2B3C4D5F6D

OPTIONS

Description: Lists all available options, and indicates which options are currently installed in the system. Also shows the port assigned to the option, if applicable.

Command Level: 2

Syntax: OPTION
O

Comments: "Status" parameters include installed/not installed which indicates if the option is or is not installed in your system, enabled/disabled which indicates if all system resources required for the option to operate properly are or are not available (disabled may also be shown to indicate if the option has been deactivated by a user via a command, if available), and hardware failure which indicates a hardware resource required by the option has been diagnosed as failed. The "Port Assigned" parameters include RS 232, OEM1, OEM2, VPS/NPS, and Internal. This parameter gives the designation of the serial communications port assigned to this option during option installation. These designations match the silkscreening on the system cabinet with the exception of the "internal" port, which is inside the cabinet.

Notes: none

Related Commands: none

Example:

Command<2>: options

SYSTEM OPTIONS AS OF 14:15:15 ON 12/10/03.

Option Name	Status	Port Assigned
-----	-----	-----
Local Port	installed,enabled	RS-232 Port
Modem Port	installed,enabled	Internal Port
VSCI Port	not installed	
TL1/X.25	not installed	
TL1 Over Telnet	not installed	
LISP Port	installed,enabled	OEM2 Port
External Modem	not installed	
AC Analyzer	not installed	
Front Panel Display	not installed	
AC & Diesel Sequencers	not installed	
Energy Management	installed,enabled	Not Required
Power Metering	installed,enabled	Not Required
Door Access Controller	not installed	
Gateway Port	installed,enabled	OEM1

PERIODS

Description: Displays the 8 time intervals available for use in control programs.

Command Level: 2

Syntax: PERIODS
PE

Comments: These time periods are denoted in control programs by the character P followed by a number (1-8).

Notes: none

Related Commands: SET PERIODS

Example:

```
Command<2>: periods
TIME PERIOD No. 1 - FROM 08:00:00 TO 08:10:00
TIME PERIOD No. 2 - FROM          TO
TIME PERIOD No. 3 - FROM          TO
TIME PERIOD No. 4 - FROM          TO
TIME PERIOD No. 5 - FROM          TO
TIME PERIOD No. 6 - FROM 23:59:45 TO 00:00:00
TIME PERIOD No. 7 - FROM          TO
TIME PERIOD No. 8 - FROM          TO
```

PHONE

Description: Displays the phone numbers of the logged on user only.

Command Level: 1

Syntax: PHONE

Comments: Additional information includes the valid days of the week and hours of the day that the primary phone number is valid (Sunday =1).

Notes: The alternate phone number is for calls during non-valid days and hours.

Related Commands: SET PHONE

Example:

```
Command<1>: PHONE
```

```
YOUR PHONE NUMBERS:
```

```
Primary Phone: 5557685
```

```
Primary Phone Valid Days: 2-6
```

```
Primary Phone Valid Hours: 08-16
```

```
Alternate Phone: 5552423
```

POWER

Description: Displays power consumption data for function channels configured to calculate power

Command Level: 1

Syntax: POWER
PO
POWER CSV
PO CSV

Comments: Power consumption data is generated and stored for function channels configured with the UNIT TEXT of KW, and the appropriate program line to multiply the value of the analog channel monitoring system voltage times the value of the analog channel monitoring load current, then divide this product by 1000 (or multiply it by 0.001). Power consumption data consists of power consumed for current day, current week, and current month. In addition, power consumption data for the previous day, previous week, and previous month is also stored and displayed.

Entering the command modifier CSV displays the power consumption report in the "comma separated value" format. This allows the data to be imported into a spreadsheet.

Notes: Available only if the Power Metering software option is installed.

Related Commands: CLR POWER

Example:

```
Command<1>: POWER
POWER CONSUMPTION STATISTICS AS OF 13:04:45 ON 01/01/01
F0001 POWER STATS: LOADA POWER
  Daily
  04/28/98: 55.07 KWH
  04/29/98: 29.80 KWH
  Weekly
  04/19/98 THROUGH 04/25/98: 384.8 KWH
  04/26/98 THROUGH 04/29/98: 194.9 KWH
  Monthly
  03/14/98 THROUGH 03/31/98: 887.9 KWH
  04/01/98 THROUGH 04/29/98: 1505.0 KWH
F0002 POWER STATS: BDFB POWER
  Daily
  04/28/98: 109.20 KWH
  04/29/98: 59.17 KWH
  Weekly
  04/19/98 THROUGH 04/25/98: 762.8 KWH
  04/26/98 THROUGH 04/29/98: 386.8 KWH
  Monthly
  03/14/98 THROUGH 03/31/98: 1868.0 KWH
  04/01/98 THROUGH 04/29/98: 3098.0 KWH
F0003 POWER STATS: LOADB POWER
  Daily
  04/28/98: 147.40 KWH
  04/29/98: 79.85 KWH
```

Weekly

04/19/98 THROUGH 04/25/98: 1036.0 KWH

04/26/98 THROUGH 04/29/98: 524.0 KWH

Monthly

03/14/98 THROUGH 03/31/98: 2583.0 KWH

04/01/98 THROUGH 04/29/98: 4233.0 KWH

The following is displayed when the POWER command is entered and the Power Metering software option is not installed.

Command<1>: POWER

Bad command

The following is an example using the "comma separated value" format.

Command<1>: POWER CSV

POWER CONSUMPTION STATISTICS AS OF 13:04:45 ON 04/29/98

LOADA POWER, 55.07 KWH, 29.80 KWH, 384.8 KWH, 194.9 KWH, 887.9 KWH, 1505.0 KWH

BDFB POWER, 109.20 KWH, 59.17 KWH, 762.8 KWH, 386.8 KWH, 1868.0 KWH, 3098.0 KWH

LOADB POWER, 147.40 KWH, 79.85 KWH, 1036.0 KWH, 524.0 KWH, 2583.0 KWH, 4233.0 KWH

PRCONFIG

Description: Displays the current configuration of each analog and binary input, all function channels, all energy management channels, and the relay and LED alarm configuration.

Command Level: 2

Syntax: PRCONFIG [*channel_type*] [*channel_designator*] [*channel_range*] [*node_designator*] [*node_range*]
[*group_designator*]

P [*channel_type*] [*channel_designator*] [*channel_range*] [*node_designator*] [*node_range*]
[*group_designator*]

Comments: To display the limits of the analog channels, use the LIMITS command, or enter the command PRCONFIG An (where n is [*node_number*]channel_number). To display the control program for an LED or a relay, use the PROGRAM command, or enter the command PRCONFIG Rn (where n is [*node_number*]channel_number). The group_designator option displays the channel designators and channel names in the group.

Notes: Analog, binary, energy management, LED, function, or relay channel configurations can be viewed separately, or one single configuration can be viewed by itself by entering the command PRCONFIG followed by a space and then the character A for analog, B for binary, E for energy management, L for LED, F for function, or R for relay, followed by the number, if desired. This command will only display active energy management channels, unless PRCONFIG E was issued.

The condition type, notification code, and service effect fields are not displayed in a relay or LED channel configuration when the alarm type is set to N.

Analog and binary channels are automatically mapped to MCA parameters when the VPS/NPS or NPS MCA Interface is used. Configurations for these analog and binary channels can be displayed using the PRCONFIG command and options. Refer to Table 1 through 2 3 for a correlation between channels and mapped VPS/NPS MCA and NPS MCA parameters. To view settings and equipment inventory of just the VPS/NPS or NPS, use the PRCONFIG NETSURE or PRECONFIG NPS command and options. These commands are explained next.

Related Commands: PRCONFIG NPS, PRCONFIG NETSURE

Example:

```
Command<2>: PRCONFIG
ANALOG CHANNEL CONFIGURATION AS OF 07:38:01 ON 01/01/01.
Chan      Description                Act Rpt Pol Scale 4-20 Unit Off-Dly-On
A0001 Analog Channel 1              Y  Y  + 100.0  N  Amps  0s    0s
  Sub-access ID      Montype  Monfmt
ANALOG1              DCVOLTS      D
A0002 Analog Channel 2              Y  Y  - 100.0  N  Amps  0s    0s
  Sub-access ID      Montype  Monfmt
ANALOG2              DCVOLTS      I
BINARY CHANNEL CONFIGURATION AS OF 07:38:21 ON 02/09/01.
Chan      Description                Act Rpt Cont Class Off-Dly-On
B0001 Binary Channel 1              Y  Y  CC           0s    0s
  Sub-access ID      Condtype      Ntfc  Svef
BINARY1              HIGH           CR    SA
Condition Description
```

BINARY CHANNEL B01'S CONDITION DESCRIPTION

B0002 Binary Channel 2		Y	Y	CO		0s	0s
Sub-access ID	Condtype	Ntfc	Svef				
BINARY2	HIGH	CR	NSA				
Condition Description							

BINARY CHANNEL B02'S CONDITION DESCRIPTION

ENERGY MANAGEMENT CHANNEL CONFIGURATION AS OF 07:16:07 ON 02/09/01.

Chan	Description	Act	Capacity	Sht	RFA	TR	Dsl
E0002	Energy Mngmt Rectifier 2	Y	100.0	A34	B34	R34	Y

FUNCTION CHANNEL CONFIGURATION AS OF 07:38:06 ON 02/09/01.

Chan	Description	Act	Rpt	Pol	Unit	Off-Dly-On
F0001	Function Channel 1	Y	Y	+	Amps	0s 15s
Sub-access ID	Montype	Monfmt				
FUNCTION1	DCVOLTS	I				
F0002	Function Channel 2	Y	Y	+	Amps	0s 0s
Sub-access ID	Montype	Monfmt				
FUNCTION2	DCVOLTS	I				

LED CHANNEL CONFIGURATION AS OF 07:33:21 ON 02/09/01.

Chan	Description	Act	Alm	Rpt	Class	Off-Dly-On
L0001	LED Channel 1	Y	Y	Y		0s 0s
Sub-access ID	Ctrltype	Condtype	Ntfc	Svef		
LED1	AIRCOND	HIGH	CR	SA		
Condition Description						

LED CHANNEL L01'S CONDITION DESCRIPTION

L0002	LED Channel 2	Y	Y	Y		0s 0s
Sub-access ID	Ctrltype	Condtype	Ntfc	Svef		
LED2		LOW	CR	NSA		
Condition Description						

LED CHANNEL L02'S CONDITION DESCRIPTION

RELAY CHANNEL CONFIGURATION AS OF 07:38:12 ON 02/09/01.

Chan	Description	Act	Alm	Rpt	Class	Set	ACO	Cycle	Off-Dly-On
R0001	Relay Channel 1	Y	Y	Y		N	Y	0m	0s 0s
Sub-access ID	Ctrltype	Condtype	Ntfc	Svef					
RELAY1		HIGH	CR	NSA					
Condition Description									

RELAY CHANNEL R01'S CONDITION DESCRIPTION

R0002	Relay Channel 2	Y	Y	Y		N	N	0m	0s 0s
Sub-access ID	Ctrltype	Condtype	Ntfc	Svef					
RELAY2		LOW	CR	NSA					
Condition Description									

RELAY CHANNEL R02'S CONDITION DESCRIPTION

GROUP 1 CONFIGURATION: Group No. 1
 GROUP 2 CONFIGURATION: Group No. 2

Command<2>: P A0001

ANALOG CHANNEL CONFIGURATION AS OF 07:01:03 ON 02/09/01.

Chan	Description	Act	Rpt	Pol	Scale	4-20	Unit	Off-Dly-On
------	-------------	-----	-----	-----	-------	------	------	------------

```

A0001 Analog Channel 1          Y  Y  + 100.0  N Amps   0s   0s
  Sub-access ID      Montype  Monfmt
ANALOG1             DCVOLTS    D
LIMITS CONFIGURATION
  Limit / Name      Class  Condtype          Ntfc  Svef
  70.0 H  HVA2      MAJOR  TOOHIGH          MJ    SA
  Condition Description
VOLTAGE IS TOO HIGH
  60.0 H  HVA1      MAJOR  HIGH              MJ    SA
  Condition Description
VOLTAGE IS HIGH
  50.0 L  LVA1      MINOR  LOW              MN    NSA
  Condition Description
VOLTAGE IS LOW
  40.0 L  LVA2      MINOR  TOLOW           MN    NSA
  Condition Description
VOLTAGE IS TOO LOW

```

Command<2>: PRCONFIG A9065

ANALOG CHANNEL CONFIGURATION AS OF 11:13:06 ON 02/02/01.

```

Chan      Description          Act Rpt Pol Scale 4-20 Unit Off-Dly-On
A9065    NETSURE System Voltage    Y  N  +  ---  --  VDC  ---  ---
  Sub-access ID      Montype  Monfmt
                          I

```

Command<2>: PRCONFIG B65

BINARY CHANNEL CONFIGURATION AS OF 11:16:14 ON 02/02/01.

```

Chan      Description          Act Rpt Cont Class Off-Dly-On
B9065    NETSURE System High Voltage 1    Y  N  --      0s   0s
  Sub-access ID      Condtype          Ntfc  Svef
                          CR    SA
  Condition Description

```

Command<2>: P E1

ENERGY MANAGEMENT CHANNEL CONFIGURATION AS OF 16:33:32 ON 09/11/01.

```

Chan      Description          Act Capacity  Sht RFA TR  Dsl
E0001    Energy Mngmt PCU1        Y    100.0    A70 B84 ---  Y

```

PRCONFIG NPS

Description: Displays the current settings and equipment inventory of the NPS Power System.

Command Level: 2

Syntax: P NPS, P NPS S, P NPS I, P NPS P, P NPS D, P NPS R, P NPS N<#>, P NPS N<#>-<#>

Comments: The settings or equipment inventory of the NPS can be viewed separately by entering the command P NPS followed by a space and then the specifier SETTINGS or INVENTORY.

Command<2>: PRCONFIG NPS ?

PRCONFIG NPS	Displays the NPS system adjustment settings alarm setpoints values, and configuration parameters and the NPS hardware equipment inventory for all bays and the MCA node.
PRCONFIG NPS N<#>	Displays only the NPS hardware equipment inventory for the specified bay.
PRCONFIG NPS N<#>-<#>	Displays only the NPS hardware equipment inventory for valid NPS bays and the MCA node that fall within the specified range of LMS node numbers.
PRCONFIG NPS SETTINGS	Displays only the NPS system adjustment settings alarm setpoints values, and configuration parameters.
PRCONFIG NPS INVENTORY	Displays only the NPS hardware equipment inventory for all bays and the MCA node.
PRCONFIG NPS PCU	Displays only the NPS hardware equipment inventory of PCUs
PRCONFIG NPS DISTRIBUTION	Displays only the NPS hardware equipment inventory of bay distribution panels.

Notes:

Low voltage disconnect settings are only displayed for installed LVDs.

In the event of a PCU failure, the inventory displayed for the failed PCU is as follows.

PCU01-No Reply

PCU02-No Reply

Subsystem shunts are only displayed if a subsystem is installed.

Related Commands: PRCONFIG, PRCONFIG NETSURE

Example:

Command<6>: PR NPS

NPS POWER SYSTEM SETTINGS AS OF 14:21:32 ON 12/10/03.

System Adjustment Setpoints

Description	Value	Units
Float Voltage	52.10	VDC

```

Test/Equalize Voltage          52.10  VDC
High Voltage Shutdown          57.60  VDC
Plant Current Limit            800    Amps

```

System Alarm Setpoints

Description	Value	Units
High Voltage #1 Alarm	55.60	VDC
High Voltage #2 Alarm	56.60	VDC
Battery on Discharge Alarm	51.10	VDC
Very Low Voltage Alarm	47.10	VDC
Total Load Overcurrent Alarm	5100	Amps
A Load Overcurrent Alarm	2600	Amps
B Load Overcurrent Alarm	2100	Amps
High Temperature #1 Alarm	99	DegC
High Temperature #2 Alarm	99	DegC
Low Temperature #1 Alarm	-42	DegC
Low Temperature #2 Alarm	-40	DegC

System Configuration Setpoints

Description	Value	Units
Audible Silent Time	10	Minutes
Manual Test/Equalize Time	2	Hours
Relay Test Time	20	Seconds
Auto Equalize Time Multiplier	1	
Temperature Compensation Slope	0.090	VDC/DegC
Maximum Temp. Compensation Voltage	55.90	VDC
Minimum Temp. Compensation Voltage	50.05	VDC

NPS interface is running

NPS EQUIPMENT INVENTORY AS OF 14:21:34 ON 12/10/03.

Bay 1 - NPS Bay #1

Spec. #: 1234567890123 S/N:-1294967295

Description	Spec. Number	Ser. #	FW Ver.

Bay Router 1-01:			
This is the ROUTER on the MCA BD 509478		2801621	1.0.1.0
Dist. Panel 1-01:			
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	509525	50331648	2.0.3.0
Positions	Element Type	Load	Description
01--02	Fuse	B	Fuse 01-01 Load
03--06	Fuse	B	Fuse 01-03 Load
07--12	Fuse	B	Fuse 01-07 Load
13--20	Fuse	B	Fuse 01-13 Load
21--24	Breaker	B	Breaker 01-21 Load

Dist. Panel 1-02:

Positions	Element Type	Load	Description
25--26	Breaker	B	Breaker 01-25 Load
27--30	Breaker	B	Breaker 01-27 Load
31--36	Breaker	B	Breaker 01-31 Load
37--44	Breaker	B	Breaker 01-37 Load
45--48	---	open	---

PCU: -48 VDC Output

Pos.	Cap.	Description	Spec. Number	Ser. #	FW Ver.
01-01	200A	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	506401	33554432	2.0.2.0
01-02	---	open	---	---	---
01-03	---	open	---	---	---
01-04	---	open	---	---	---
01-05	---	open	---	---	---
01-06	---	open	---	---	---
01-07	---	open	---	---	---
01-08	---	open	---	---	---
01-09	---	open	---	---	---
01-10	---	open	---	---	---

CAN I/O Cards:

Pos.	Description	Spec. Number	Ser. #	FW Ver.
01-01	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	RCB SPEC# 514348	67108864	2.0.4.0
01-02	---	open	---	---
01-03	---	open	---	---
01-04	This CAN I/O board is in loc 1-4	ABE SPEC# 524550	84082691	2.0.5.0
01-05	---	open	---	---
01-06	---	open	---	---
01-07	---	open	---	---

Bay 2 - NPS Bay #2

Spec. #: XXXXXXXXXXXXXXX S/N:1482184792

Description	Spec. Number	Ser. #	FW Ver.
-------------	--------------	--------	---------

Bay Router 2-01:

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	509509	16843009	2.0.1.0
--------------------------------------	--------	----------	---------

Dist. Panel 2-01:

Positions	Element Type	Load	Description
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	509525	50462976	2.0.3.0

```

01--06      Plug In      B      Plug In 02-01 Load
07--08      Fuse         B      Fuse 02-07 Load
09--24      --- open ---

```

Dist. Panel 2-02: Not Installed

PCU: -48 VDC Output

Pos.	Cap.	Description	Spec. Number	Ser. #	FW Ver.
02-01	200A	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	506401	34210048	2.0.2.0
02-02	200A	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	506401	34275585	2.0.2.0
02-03	200A	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	506401	34341122	2.0.2.0
02-04	---	open ---			
02-05	---	open ---			
02-06	---	open ---			
02-07	---	open ---			
02-08	---	open ---			
02-09	---	open ---			
02-10	---	open ---			

CAN I/O Cards:

Pos.	Description	Spec. Number	Ser. #	FW Ver.
02-01	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	RCB SPEC# 514348	67567872	2.0.4.0
02-02	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	RCB SPEC# 514348	67633409	2.0.4.0
02-03	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	RCB SPEC# 514348	67698946	2.0.4.0
02-04	---	open ---		
02-05	---	open ---		
02-06	---	open ---		
02-07	---	open ---		

MCA:

Description	Spec. Number	Ser. #	FW Ver.
this is the MCA	509478	2801621	1.0.0.14

System voltage is Averaged
Temperature sensor reporting
Temperature is measured in degrees : Celsius
System distribution loads A and B are activated

Float mode is active
Power Share is inactive
Alternate Current Limit is active , limiting @ 90% of output capacity

Command<6>: PR NPS SET

NPS POWER SYSTEM SETTINGS AS OF 14:21:50 ON 12/10/03.

System Adjustment Setpoints

Description	Value	Units
Float Voltage	52.10	VDC
Test/Equalize Voltage	52.10	VDC
High Voltage Shutdown	57.60	VDC
Plant Current Limit	800	Amps

System Alarm Setpoints

Description	Value	Units
High Voltage #1 Alarm	55.60	VDC
High Voltage #2 Alarm	56.60	VDC
Battery on Discharge Alarm	51.10	VDC
Very Low Voltage Alarm	47.10	VDC
Total Load Overcurrent Alarm	5100	Amps
A Load Overcurrent Alarm	2600	Amps
B Load Overcurrent Alarm	2100	Amps
High Temperature #1 Alarm	99	DegC
High Temperature #2 Alarm	99	DegC
Low Temperature #1 Alarm	-42	DegC
Low Temperature #2 Alarm	-40	DegC

System Configuration Setpoints

Description	Value	Units
Audible Silent Time	10	Minutes
Manual Test/Equalize Time	2	Hours
Relay Test Time	20	Seconds
Auto Equalize Time Multiplier	1	
Temperature Compensation Slope	0.090	VDC/DegC
Maximum Temp. Compensation Voltage	55.90	VDC
Minimum Temp. Compensation Voltage	50.05	VDC

Command<2>: PR NPS INVENTORY

NPS interface is running

NPS EQUIPMENT INVENTORY AS OF 14:21:58 ON 12/10/03.

Bay 1 - NPS Bay #1

Spec. #: 1234567890123 S/N:-1294967295

Description	Spec. Number	Ser. #	FW Ver.

Bay Router 1-01:			
This is the ROUTER on the MCA BD 509478		2801621	1.0.1.0

Dist. Panel 1-01:

Positions	Element Type	Load	Description
01--02	Fuse	B	Fuse 01-01 Load
03--06	Fuse	B	Fuse 01-03 Load
07--12	Fuse	B	Fuse 01-07 Load
13--20	Fuse	B	Fuse 01-13 Load
21--24	Breaker	B	Breaker 01-21 Load

Dist. Panel 1-02:

Positions	Element Type	Load	Description
25--26	Breaker	B	Breaker 01-25 Load
27--30	Breaker	B	Breaker 01-27 Load
31--36	Breaker	B	Breaker 01-31 Load
37--44	Breaker	B	Breaker 01-37 Load
45--48	---	open	---

PCU: -48 VDC Output

Pos.	Cap.	Description	Spec. Number	Ser. #	FW Ver.
01-01	200A	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	506401	33554432	2.0.2.0
01-02	---	open	---	---	---
01-03	---	open	---	---	---
01-04	---	open	---	---	---
01-05	---	open	---	---	---
01-06	---	open	---	---	---
01-07	---	open	---	---	---
01-08	---	open	---	---	---
01-09	---	open	---	---	---
01-10	---	open	---	---	---

CAN I/O Cards:

Pos.	Description	Spec. Number	Ser. #	FW Ver.
01-01	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	RCB SPEC# 514348	67108864	2.0.4.0
01-02	---	open	---	---
01-03	---	open	---	---
01-04	This CAN I/O board is in loc 1-4	ABE SPEC# 524550	84082691	2.0.5.0
01-05	---	open	---	---
01-06	---	open	---	---
01-07	---	open	---	---

Bay 2 - NPS Bay #2

Spec. #: XXXXXXXXXXXXXXX S/N:1482184792

Description	Spec. Number	Ser. #	FW Ver.

Bay Router 2-01:			
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	509509	16843009	2.0.1.0

Dist. Panel 2-01:			
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	509525	50462976	2.0.3.0

Positions	Element Type	Load	Description
01--06	Plug In	B	Plug In 02-01 Load
07--08	Fuse	B	Fuse 02-07 Load
09--24	--- open ---		

Dist. Panel 2-02: Not Installed

PCU: -48 VDC Output

Pos.	Cap.	Description	Spec. Number	Ser. #	FW Ver.

02-01	200A	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	506401	34210048	2.0.2.0
02-02	200A	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	506401	34275585	2.0.2.0
02-03	200A	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	506401	34341122	2.0.2.0
02-04	---	open ---			
02-05	---	open ---			
02-06	---	open ---			
02-07	---	open ---			
02-08	---	open ---			
02-09	---	open ---			
02-10	---	open ---			

CAN I/O Cards:

Pos.	Description	Spec. Number	Ser. #	FW Ver.

02-01	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX RCB SPEC#	514348	67567872	2.0.4.0
02-02	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX RCB SPEC#	514348	67633409	2.0.4.0
02-03	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX RCB SPEC#	514348	67698946	2.0.4.0
02-04	---	open ---		
02-05	---	open ---		
02-06	---	open ---		
02-07	---	open ---		

MCA:

Description	Spec. Number	Ser. #	FW Ver.

this is the MCA	509478	2801621	1.0.0.14

System voltage is Averaged
Temperature sensor reporting

Temperature is measured in degrees : Celsius
 System distribution loads A and B are activated

Command<2>: PR NPS PCU

NPS interface is running

NPS EQUIPMENT INVENTORY AS OF 14:22:12 ON 12/10/03.

Bay 1 - NPS Bay #1

Spec. #: 1234567890123 S/N:-1294967295

PCU: -48 VDC Output

Pos.	Cap.	Description	Spec. Number	Ser. #	FW Ver.
01-01	200A	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	506401	33554432	2.0.2.0
01-02	---	open	---	---	---
01-03	---	open	---	---	---
01-04	---	open	---	---	---
01-05	---	open	---	---	---
01-06	---	open	---	---	---
01-07	---	open	---	---	---
01-08	---	open	---	---	---
01-09	---	open	---	---	---
01-10	---	open	---	---	---

Bay 2 - NPS Bay #2

Spec. #: XXXXXXXXXXXXXXX S/N:1482184792

PCU: -48 VDC Output

Pos.	Cap.	Description	Spec. Number	Ser. #	FW Ver.
02-01	200A	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	506401	34210048	2.0.2.0
02-02	200A	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	506401	34275585	2.0.2.0
02-03	200A	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	506401	34341122	2.0.2.0
02-04	---	open	---	---	---
02-05	---	open	---	---	---
02-06	---	open	---	---	---
02-07	---	open	---	---	---
02-08	---	open	---	---	---
02-09	---	open	---	---	---
02-10	---	open	---	---	---

Command<2>: PR NPS PCU

NPS interface is running

NPS EQUIPMENT INVENTORY AS OF 14:22:12 ON 12/10/03.

Bay 1 - NPS Bay #1

Spec. #: 1234567890123 S/N:-1294967295

PCU: -48 VDC Output

Pos.	Cap.	Description	Spec. Number	Ser. #	FW Ver.
---	100A		R48-5800	2070300084	1.1.0.0
---	100A		R48-5800	2070500021	1.1.0.0
---	100A		R48-5800	2070600038	1.1.0.0
---	100A		R48-5800	2070600066	1.1.0.0
---	100A		R48-5800	2070600011	1.1.0.0
---	100A		R48-5800	2070600049	1.1.0.0
---	100A		R48-5800	2070600073	1.1.0.0
---	100A		R48-5800	2070600024	1.1.0.0
---	100A		R48-5800	2070600052	1.1.0.0
---	100A		R48-5800	2070600080	1.1.0.0
---	100A		R48-5800	2070600026	1.1.0.0
---	100A		R48-5800	2070600058	1.1.0.0

Command<2>: PR NPS DSM

NPS interface is running

NPS EQUIPMENT INVENTORY AS OF 14:22:21 ON 12/10/03.

Bay 1 - NPS Bay #1

Spec. #: 1234567890123 S/N:-1294967295

Description	Spec. Number	Ser. #	FW Ver.
Dist. Panel 1-01:			
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	509525	50331648	2.0.3.0
Positions	Element Type	Load	Description
01--02	Fuse	B	Fuse 01-01 Load
03--06	Fuse	B	Fuse 01-03 Load
07--12	Fuse	B	Fuse 01-07 Load
13--20	Fuse	B	Fuse 01-13 Load
21--24	Breaker	B	Breaker 01-21 Load

Dist. Panel 1-02:

```

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX 509525          50397185      2.0.3.0
Positions      Element Type  Load      Description
25--26         Breaker      B          Breaker 01-25 Load
27--30         Breaker      B          Breaker 01-27 Load
31--36         Breaker      B          Breaker 01-31 Load
37--44         Breaker      B          Breaker 01-37 Load
45--48         --- open ---
  
```

Bay 2 - NPS Bay #2

Spec. #: XXXXXXXXXXXXXXXX S/N:1482184792

```

Description          Spec. Number      Ser. #      FW Ver.
-----
Dist. Panel 2-01:
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX 509525          50462976      2.0.3.0
Positions      Element Type  Load      Description
01--06         Plug In      B          Plug In 02-01 Load
07--08         Fuse         B          Fuse 02-07 Load
09--24         --- open ---
  
```

Dist. Panel 2-02: Not Installed

Bay 3 - NPS Bay #3

Spec. #: XXXXXXXXXXXXXXXX S/N: XXXXXXXXXXXX

```

Description          Spec. Number      Ser. #      FW Ver.
-----
Dist. Panel 3-01:
This is Distribution Panel 03-01 DSM SPEC# 509525  50331648      2.0.3.0
Positions      Element Type  Load      Description
01--06         Breaker      B          Breaker 03-01 Load
07--12         Breaker      B          Breaker 03-07 Load
  
```

Dist. Panel 3-02:

```

This is Distribution Panel 03-02 DSM SPEC# 509525  50331648      2.0.3.0
Positions      Element Type  Load      Description
13--18         Breaker      B          Breaker 03-13 Load
19--24         Breaker      B          Breaker 03-19 Load
  
```

Dist. Panel 3-03:

```

This is Distribution Panel 03-03 DSM SPEC# 509525  50331648      2.0.3.0
Positions      Element Type  Load      Description
25--30         Breaker      B          Breaker 03-25 Load
31--36         Breaker      B          Breaker 03-31 Load
  
```

Dist. Panel 3-04:

```

This is Distribution Panel 03-04 DSM SPEC# 509525 50331648 2.0.3.0
Positions Element Type Load Description
37--42 Breaker B Breaker 03-37 Load
43--48 Breaker B Breaker 03-43 Load

```

Dist. Panel 4-01:

```

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX DSM SPEC# 509525 50988288 2.0.3.0
Positions Element Type Load Description
01--01 Breaker A Breaker 04-01 Load
02--04 Breaker A Breaker 04-02 Load
05--11 --- open ---
12--12 Misc A Misc 04-50-73 Load

```

Command<2>: PR NPS N1

NPS interface is running

NPS EQUIPMENT INVENTORY AS OF 14:22:40 ON 12/10/03.

Bay 1 - NPS Bay #1

Spec. #: 1234567890123 S/N:-1294967295

```

Description Spec. Number Ser. # FW Ver.
-----
Bay Router 1-01:
This is the ROUTER on the MCA BD 509478 2801621 1.0.1.0

```

Dist. Panel 1-01:

```

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX 509525 50331648 2.0.3.0
Positions Element Type Load Description
01--02 Fuse B Fuse 01-01 Load
03--06 Fuse B Fuse 01-03 Load
07--12 Fuse B Fuse 01-07 Load
13--20 Fuse B Fuse 01-13 Load
21--24 Breaker B Breaker 01-21 Load

```

Dist. Panel 1-02:

```

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX 509525 50397185 2.0.3.0
Positions Element Type Load Description
25--26 Breaker B Breaker 01-25 Load
27--30 Breaker B Breaker 01-27 Load
31--36 Breaker B Breaker 01-31 Load
37--44 Breaker B Breaker 01-37 Load
45--48 --- open ---

```

PCU: -48 VDC Output

Pos.	Cap.	Description	Spec. Number	Ser. #	FW Ver.
01-01	200A	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	506401	33554432	2.0.2.0
01-02	---	open	---	---	---
01-03	---	open	---	---	---
01-04	---	open	---	---	---
01-05	---	open	---	---	---
01-06	---	open	---	---	---
01-07	---	open	---	---	---
01-08	---	open	---	---	---
01-09	---	open	---	---	---
01-10	---	open	---	---	---

CAN I/O Cards:

Pos.	Description	Spec. Number	Ser. #	FW Ver.
01-01	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	RCB SPEC# 514348	67108864	2.0.4.0
01-02	---	open	---	---
01-03	---	open	---	---
01-04	This CAN I/O board is in loc 1-4	ABE SPEC# 524550	84082691	2.0.5.0
01-05	---	open	---	---
01-06	---	open	---	---
01-07	---	open	---	---

Command<2>: PR NPS N1-2

NPS interface is running

NPS EQUIPMENT INVENTORY AS OF 14:22:50 ON 12/10/03.

Bay 1 - NPS Bay #1

Spec. #: 1234567890123 S/N:-1294967295

Description	Spec. Number	Ser. #	FW Ver.

Bay Router 1-01:			
This is the ROUTER on the MCA BD	509478	2801621	1.0.1.0
Dist. Panel 1-01:			
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	509525	50331648	2.0.3.0
Positions	Element Type	Load	Description
01--02	Fuse	B	Fuse 01-01 Load
03--06	Fuse	B	Fuse 01-03 Load
07--12	Fuse	B	Fuse 01-07 Load
13--20	Fuse	B	Fuse 01-13 Load
21--24	Breaker	B	Breaker 01-21 Load

Bay 2 - NPS Bay #2

Spec. #: XXXXXXXXXXXXXXX S/N:1482184792

Description	Spec. Number	Ser. #	FW Ver.

Bay Router 2-01:			
XXXXXXXXXXXXXXXXXXXXXXXXXXXX	509509	16843009	2.0.1.0

Dist. Panel 2-01:			
XXXXXXXXXXXXXXXXXXXXXXXXXXXX	509525	50462976	2.0.3.0

Positions	Element Type	Load	Description
01--06	Plug In	B	Plug In 02-01 Load
07--08	Fuse	B	Fuse 02-07 Load
09--24	---	open	---

Dist. Panel 2-02: Not Installed

PCU: -48 VDC Output

Pos.	Cap.	Description	Spec. Number	Ser. #	FW Ver.

02-01	200A	XXXXXXXXXXXXXXXXXXXXXXXXXXXX	506401	34210048	2.0.2.0
02-02	200A	XXXXXXXXXXXXXXXXXXXXXXXXXXXX	506401	34275585	2.0.2.0
02-03	200A	XXXXXXXXXXXXXXXXXXXXXXXXXXXX	506401	34341122	2.0.2.0
02-04	---	open	---		
02-05	---	open	---		
02-06	---	open	---		
02-07	---	open	---		
02-08	---	open	---		
02-09	---	open	---		
02-10	---	open	---		

CAN I/O Cards:

Pos.	Description	Spec. Number	Ser. #	FW Ver.

02-01	XXXXXXXXXXXXXXXXXXXXXXXXXXXX	RCB SPEC# 514348	67567872	2.0.4.0
02-02	XXXXXXXXXXXXXXXXXXXXXXXXXXXX	RCB SPEC# 514348	67633409	2.0.4.0
02-03	XXXXXXXXXXXXXXXXXXXXXXXXXXXX	RCB SPEC# 514348	67698946	2.0.4.0
02-04	---	open	---	
02-05	---	open	---	
02-06	---	open	---	
02-07	---	open	---	

PRCONFIG NETSURE

Description: Displays the current settings and equipment inventory of the VPS/NPS.

Command Level: 2

Syntax: PRCONFIG NETSURE, PRCONFIG NETSURE SETTINGS, PRCONFIG NETSURE INVENTORY
P N, P N S, P N I

Comments: The settings or equipment inventory of the VPS/NPS can be viewed separately by entering the command PRCONFIG N followed by a space and then the specifier SETTINGS or INVENTORY.

Notes:

Low voltage disconnect settings are only displayed for installed LVDs.

In the event of a PCU failure, the inventory displayed for the failed PCU is as follows.

PCU01-No Reply

PCU02-No Reply

Subsystem shunts are only displayed if a subsystem is installed.

Related Commands: PRCONFIG, PRCONFIG NPS

Example:

```
Command<2>: PRCONFIG NETSURE
NETSURE POWER SYSTEM SETTINGS AS OF 11:13:06 ON 02/02/01.
```

Description	Value	Units
Float Voltage	54.45	VDC
Test/Equalize Voltage	54.48	VDC
System High Voltage 1 Alarm	55.50	VDC
System High Voltage 2 Alarm	56.50	VDC
System Battery on Discharge	48.00	VDC
System 50% Battery on Discharge	46.00	VDC
System High Voltage Shutdown	57.50	VDC
System Overcurrent	2000	Amps
Current limit	175.0	Amps
System Calibrate Voltage	54.49	VDC
NAG(ACO) Timer	15.00	minutes
Temperature Compensation Voltage	49.48	VDC
Subsystem High Voltage Alarm	25.00	VDC
Subsystem Low Voltage Alarm	23.00	VDC
Subsystem Calibrate Voltage	24.63	VDC
Subsystem Overcurrent	2000	Amps
Battery Overcurrent	1980	Amps
Auto Equalize Multiplier	1.000	
Digital Temp. Comp. Slope	0.050	V/DEGC
Digital Temp. Comp. Max voltage	56.45	VDC
Digital Temp. Comp. Min voltage	49.50	VDC
Battery Current Limit	175.0	Amps
Relay Test Time	45.00	seconds
Test/Equalize Timeout	1.000	hours

```

LVD1A Disconnect Voltage      42.00  VDC
LVD1B Disconnect Voltage      42.00  VDC
LVD2A Disconnect Voltage      42.00  VDC
LVD2B Disconnect Voltage      42.00  VDC
LVD Reconnect Voltage         Manual
Probe #1 High Temperature Alarm 60.00  DEGC
Probe #1 Low Temperature Alarm -10.00 DEGC

```

NETSURE POWER SYSTEM EQUIPMENT INVENTORY AS OF 11:13:06 ON 02/02/01.

```

PCUs Installed: 1 2 3 4
System Shunts Installed: 2 4 6
Subsystem Shunts Installed: 1 3 5 7
Battery Shunts Installed:
LVD Boards Installed: 1 2
Temperature Probes Installed: 1 5 8
Vacant 25A Places: 0
Vacant 50A Places: 0
Vacant 100A Places: 0
Vacant 200A Places: 0
System Capacity: 500 Amps
System mode: Float
Temperature Compensation Mode: None

```

Description	Spec. No.	Ser.#	Vers	Vout	Capacity
MCA -	A433800124		00.19.00	---	---
PCU01-	A486526800		01.00.00	-48VDC	25A
PCU02-	A486526800		01.00.00	-48VDC	25A
PCU03-	A486526800		01.00.00	-48VDC	25A
PCU04-	A486526800		01.00.00	-48VDC	25A

Command<2>: PRCONFIG NETSURE SETTINGS

NETSURE POWER SYSTEM SETTINGS AS OF 11:13:06 ON 02/02/01.

```

Description                      Value Units
Float Voltage
Test/Equalize Voltage
System High Voltage 1 Alarm
System High Voltage 2 Alarm
System Battery On Discharge
System 50% Battery On Discharge
System High Voltage Shutdown
System Overcurrent
Current limit
System Calibrate Voltage
NAG(ACO) Timer
Temperature Compensation Voltage
Subsystem High Voltage Alarm
Subsystem Low Voltage Alarm
Subsystem Calibrate Voltage
Subsystem Overcurrent

```

```

Battery Overcurrent          1980   Amps
Auto Equalize Multiplier    1.000
Digital Temp. Comp. Slope   0.050  V/DEGC
Digital Temp. Comp. Max voltage 56.45  VDC
Digital Temp. Comp. Min voltage 49.50  VDC
Battery Current Limit       175.0  Amps
Relay Test Time             45.00  seconds
Test/Equalize Timeout       1.000  hours
LVD1A Disconnect Voltage    42.00  VDC
LVD1B Disconnect Voltage    42.00  VDC
LVD2A Disconnect Voltage    42.00  VDC
LVD2B Disconnect Voltage    42.00  VDC
LVD Reconnect Voltage       Manual
Probe #1 High Temperature Alarm 60.00  DEGC
Probe #1 Low Temperature Alarm -10.00 DEGC

```

Command<2>: PRCONFIG N INVENTORY

NETSURE POWER SYSTEM EQUIPMENT INVENTORY AS OF 11:13:06 ON 02/02/01.

```

PCUs Installed: 1 2 3 4
System Shunts Installed: 2 4 6
Subsystem Shunts Installed: 1 3 5 7
Battery Shunts Installed:
LVD Boards Installed: 1 2
Temperature Probes Installed: 1 5 8
Vacant 25A Places: 0
Vacant 50A Places: 0
Vacant 100A Places: 0
Vacant 200A Places: 0
System Capacity: 500 Amps
System mode: Float
Temperature Compensation Mode: None

```

Description	Spec. No.	Ser.#	Vers	Vout	Capacity
MCA -	A433800124		00.19.00	---	---
PCU01-	A486526800		01.00.00	-48VDC	25A
PCU02-	A486526800		01.00.00	-48VDC	25A
PCU03-	A486526800		01.00.00	-48VDC	25A
PCU04-	A486526800		01.00.00	-48VDC	25A

PROGRAM

Description: Displays the control programs and their status.

Command Level: 2

Syntax: PROGRAM
PRO

Comments: The size occupied by the programs is also displayed.

Notes: none

Related Commands: SET PROGRAM

Example:

```
Command<2>: PROGRAM
Control Programs ARE Running
Control Programs:
R0001=b0001
L0001=a0001
L0002=b0009
Program Space is 1.7% full.
```

RATE

Description: Compares the maximum peak value and the highest hourly average to an alarm limit, and presents the results as percentage values.

Command Level: 1

Syntax: RATE
R

Comments: These percentages indicate the closeness of the highest hourly average and maximum peak values to the designated alarm value, and indirectly, the percentage of the measured value to capacity. To use this feature, one of two character phrases must appear in the analog channel's alarm limit name. These two phrases are "CAP" (for capacity) and "SIZ" (for size). Also, the "Unit Text" for this analog channel must be "AMPS". Any time the RATE command is entered, and either of these two phrases appear in an analog channel's alarm limit name and the analog channel's Unit Text is set for AMPS, the system computes the two percentages and displays the resulting information.

Notes: none

Related Commands: none

Example:

```
Command<1>: rate
RATING PERCENTAGES AS OF 15:34:38 ON 04/29/01.
Chan  Description      Limit/Name      Max Hrly Avg.   Max min Avg.
A0001 PBD02 LOAD 11      300.0 FUSE SIZE 118.9, 40%      119.1, 41%
A0001 PBD02 LOAD 11      200.0 FUSE CAP. 118.9, 59%      119.1, 60%
A0002 PBD02 LOAD 12      300.0 FUSE SIZE 87.4 , 58%      87.5 , 58%
A0002 PBD02 LOAD 12      200.0 FUSE CAP. 87.4 , 87%      87.5 , 87%
A0003 PBD02 LOAD 13      300.0 FUSE SIZE 44.0 , 29%      44.2 , 29%
A0003 PBD02 LOAD 13      200.0 FUSE CAP. 44.0 , 44%      44.2 , 44%
```

REPORT

Description: Displays report information.

Command Level: 5

Syntax: REPORT

Comments: Displays parameters related to the alarm reporting function.

Refer to the command SET REPORT for additional information concerning the operation of the system alarm reporting function.

Notes: Parameters displayed include:

System Alarm Report mode, which enables the reporting and allows the user to choose between single (system alarm reporting is considered successful if the system connects with a modem or sends an Email) or continuous (system alarm reporting is considered successful when the user issues an ACK command).

User Calling Sequence, which allows the programming of users in the order in which the system will call or Email in an attempt to communicate an alarm indication.

Retry Time, which is the time interval between the calling or Emailing of the last person designated in the user calling sequence and the recalling or Emailing of the first user in the sequence.

Auto-logoff Time, which is the interval the system waits with a pending report before issuing a priority message, and logging the user off.

Related Commands: SET REPORT

Example:

```
Command<6>: REPORT
System Alarm Report mode: Single
User Calling Sequence: 6 5 4
Retry Time: 10m
Auto-logoff Time: 60sec
```

SCAN

Description: Lists the present value and alarm status of each channel.

Command Level: 1

Syntax: SCAN [*channel_type*] [*channel_designator*] [*channel_range*] [*node_designator*] [*node_range*]
group_designator] [*search_text*]

S [*channel_type*] [*channel_designator*] [*channel_range*] [*node_designator*] [*node_range*]
 [*group_designator*] [*search_text*]

Comments: Analog and Function Channel information displayed includes the current value of each input, the unit of measure, and any of the alarm limits that are active and the alarm class of these limits.

Binary Channel information includes the contact status, open (CO) or closed (CC), the alarm status, and the alarm class.

Relay Channel information consists of the on or off status, the relay force status, the alarm status, and the alarm class.

Energy Management Channel information consists of a description of the rectifier, capacity, shunt value, and the RFA and TR status.

LED Channel information consists of the on or off status, the LED force status, the alarm status, and the alarm class.

If desired, only certain channel types can be viewed by entering the command SCAN followed by a space and then the character A for analog, B for binary, L for LED, F for function, G for group, R for relay, or E for energy management. A continuous scan of a single input is possible by adding the input number after the A, B, L, F, G, R, or E character. Press the Ctrl-S key to stop scrolling, and use any other key to continue.

The user can set the time interval between scan data output lines when scanning an individual channel. The interval can be specified from 1 to 600 seconds. This is done by entering a modifier (1 through 600) at the end of a scan command line. If no modifier is entered, a single line of scan data is displayed. (ex. SCAN A12 20, would output one line of scan data for analog channel A12 every 20 seconds.)

Notes: Analog and binary channels are automatically mapped to MCA parameters when the VPS/NPS or NPS MCA Interface is used. Status information for these analog and binary channels can be viewed using the SCAN command and options. Refer to **Table 1** through **Table 3** for a correlation between channels and mapped VPS/NPS MCA and NPS MCA parameters. To view status information of just the VPS/NPS, use the SCAN NETSURE command and options. This command is explained next.

Related Commands: SCAN NETSURE

Example:

```
Command<1>: scan
ANALOG CHANNEL STATUS AS OF 15:18:58 ON 11/01/01.
Chan      Description          Value Units   Alarm Limit and Class
A0001 Analog Channel 1      +20.5 Amps  20.0 H - Hi Limit 2 MAJOR
A0002 Analog Channel 2      +20.0 Amps
A0003 Analog Channel 3       +7     Amps  500 L - below 500 MINOR
A0004 Analog Channel 4      +19.9 Amps
BINARY CHANNEL STATUS AS OF 15:19:02 ON 11/01/01.
```

Chan	Description	Status	Alarm Status	Class
B0001	Binary Channel 1	CO	active	MINOR
B0002	Binary Channel 2	CO	none	
B0003	Binary Channel 3	CC	active	MAJOR
B0004	Binary Channel 4	CO	none	

ENERGY MANAGEMENT CHANNEL STATUS AS OF 15:19:05 ON 11/01/01.

Chan	Description	Capacity	Shunt	RFA	TR
E0001	Energy Mngmt Rectifier 1	200.0	+0.0	N	Y

FUNCTION CHANNEL STATUS AS OF 15:19:06 ON 11/01/96.

Chan	Description	Value	Units	Alarm Limit	and	Class
F0001	Function Channel 1	+39.97	Amps	500.0L -		MINOR

RELAY CHANNEL STATUS AS OF 15:19:08 ON 11/01/01.

Chan	Description	Status	Alarm Status	Class
R0001	Relay Channel 1	On ,Pg	active	MINOR
R0002	Relay Channel 2	Off		
R0003	Relay Channel 3	Off		
R0004	Relay Channel 4	Off		

SCAN NETSURE

Description: Lists status/alarms and values of monitored voltage/current points of the VPS/NPS.

Command Level: 1

Syntax: SCAN NETSURE, SCAN NETSURE SYSTEM, SCAN NETSURE SUBSYSTEM, SCAN NETSURE PCU[PCU_number], SCAN NETSURE LVD, SCAN NETSURE MCA

S N, S N SYSTEM, S N SUBSYSTEM, S N PCU[PCU_number], S N LVD, S N MCA

Comments: Status of a specific VPS/NPS entity can be viewed separately by entering the command SCAN N followed by a space and then the entity specifier (SYSTEM, SUBSYSTEM, PCU[PCU_number], LVD, or MCA).

Notes: SCAN NETSURE PCU[PCU_number] gives a continuous scan of that PCU.

Only installed PCUs are displayed.

The following is displayed if there are no PCUs installed.

```
NETSURE PCU STATUS AS OF xx:xx:xx ON xx/xx/xx.
Chan  Description          Value  Units  Alarm Status
No PCUs installed
```

The following is displayed if there are no active MCA alarms.

```
NETSURE MCA STATUS AS OF xx:xx:xx ON xx/xx/xx.
  Description              Alarm Status
No active MCA alarms
```

The following is displayed if there are no digital LVDs installed.

```
LVD STATUS AS OF xx:xx:xx ON xx/xx/xx.
  Description              Alarm Status
No digitally controlled LVDs installed
Potentiometer controlled LVD's are displayed only when the LVD circuit is active.
```

The following is displayed if there are no subsystem installed.

```
NETSURE SUBSYSTEM STATUS AS OF xx:xx:xx ON xx/xx/xx.
Chan  Description          Value  Units  Alarm Status
No Subsystem Installed
```

Related Commands: SCAN

Example:

Command<1>: SCAN N

```
NETSURE SYSTEM STATUS AS OF xx:xx:xx ON xx/xx/xx.
Chan  Description          Value  Units  Alarm Status
A9001 NETSURE System Voltage  +50.3  VDC    [None]
A9002 NETSURE System Current  +800   Amps   [None/Overcurrent]
A9006 NETSURE Shunt01 Current  +200   Amps   [None/Fail]
A9007 NETSURE Shunt02 Current  +200   Amps   [None/Fail]
```

```

A9010 NETSURE Shunt05 Current +200 Amps [None/Fail]
A9011 NETSURE Shunt06 Current +200 Amps [None/Fail]
A9107 NETSURE Temperature Probe 1 -2.000 DEGC [none or failed(if not
communicating), High Temp, Low
Temp]
A9111 NETSURE Temperature Probe 5 10.00 DEGC none
A9114 NETSURE Temperature Probe 8 19.00 DEGC none
B9009 NETSURE PCU Emergency Stop [None/Active]
B9024 NETSURE PCU High AC Line [None/Active]
B9010 NETSURE System Fuse [None/Active]
B9011 NETSURE All AC Off [None/Active]
B9014 NETSURE LVDs Inhibited [None/Active]
B9015 NETSURE System Major [None/Active]
B9016 NETSURE System Minor [None/Active]
B9106 NETSURE PCU Major none
B9107 NETSURE PCU Minor none
B9108 NETSURE PCU HVS none
B9109 NETSURE PCU Load Imbalance none
B9110 NETSURE Remote Equalize none
B9111 NETSURE Remote HVS none
B9112 NETSURE Remote ESTOP none
B9114 NETSURE Sense Voltage Error none
B9019 Temperature Probe Fail none
B9115 NETSURE Audible Relay none

```

NETSURE SUBSYSTEM STATUS AS OF xx:xx:xx ON xx/xx/xx.

Chan	Description	Value	Units	Alarm Status
A9003	NETSURE Subsystem Voltage	+50.9	VDC	[None]
A9004	NETSURE Subsystem Current	+400	Amps	[None/Overcurrent]
A9008	NETSURE Shunt03	+200	Amps	[None/Fail]
A9009	NETSURE Shunt04	+200	Amps	[None/Fail]
B9021	NETSURE Subsystem Fuse			[None/Active]
B9022	NETSURE Subsystem Major			[None/Active]
B9023	NETSURE Subsystem Minor			[None/Active]

NETSURE PCU STATUS AS OF xx:xx:xx ON xx/xx/xx.

Chan	Description	Value	Units	Alarm Status
A9005	Total PCU Current	+1200	Amps	
A9026	PCU01 Current	+100	Amps	[None/Fail]
A9027	PCU02 Current	+100	Amps	[None/Fail]
A9030	PCU05 Current	+100	Amps	[None/Fail]
A9031	PCU06 Current	+100	Amps	[None/Fail]
A9034	PCU09 Current	+100	Amps	[None/Fail]
A9037	PCU12 Current	+100	Amps	[None/Fail]
A9045	PCU20 Current	+100	Amps	[None/Fail]

The following is displayed only if Battery Shunt PODs installed:

NETSURE BATTERY STATUS AS OF 08:25:10 ON 05/04/06.

Chan	Description	Value	Units	Alarm Status
A9022	NETSURE Total Battery Current	30.00	Amps	
A9010	NETSURE Shunt05 Current	20.00	Amps	none
A9011	NETSURE Shunt06 Current	10.00	Amps	none
B9020	Battery Charge Alarm			none
B9113	Recharge Current Limit Inhibit			none

NETSURE MCA STATUS AS OF xx:xx:xx ON xx/xx/xx.

Description	Alarm Status
Board Fail	active
Shelf fuse	active
A/D No System Voltage Input	active
A/D No Sense Lead Voltage Input	active
A/D No Subsystem Voltage Input	active
Display Fail	active

NETSURE LVD STATUS AS OF xx:xx:xx ON xx/xx/xx.

Description	Alarm Status
LVD 1A	[inhibited/failed/active/inactive]
LVD 1B	[inhibited/failed/active/inactive]
LVD 2A	[inhibited/failed/active/inactive]
LVD 2B	[inhibited/failed/active/inactive]
LVD 3A	[inhibited/failed/active/inactive]
LVD 3B	[inhibited/failed/active/inactive]

The following is displayed only for active potentiometer controlled LVDs:

[LVD 3A]	[active]
[LVD 3B]	[active]
[LVD 4A]	[active]
[LVD 4B]	[active]

Command<1>: SCAN N SYSTEM

NETSURE SYSTEM STATUS AS OF xx:xx:xx ON xx/xx/xx.

Chan	Description	Value	Units	Alarm Status
A9001	NETSURE System Voltage	+50.3	VDC	[None]
A9002	NETSURE System Current	+800	Amps	[None/Overcurrent]
A9006	NETSURE Shunt01 Current	+200	Amps	[None/Fail]
A9007	NETSURE Shunt02 Current	+200	Amps	[None/Fail]
A9010	NETSURE Shunt05 Current	+200	Amps	[None/Fail]
A9011	NETSURE Shunt06 Current	+200	Amps	[None/Fail]
A9107	NETSURE Temperature Probe 1	-2.000	DEGC	[none or failed(if not communicating)]
A9111	NETSURE Temperature Probe 5	10.00	DEGC	none
A9114	NETSURE Temperature Probe 8	19.00	DEGC	none
B9009	NETSURE PCU Emergency Stop			[None/Active]
B9024	NETSURE PCU High AC Line			[None/Active]
B9010	NETSURE System Fuse			[None/Active]
B9011	NETSURE All AC Off			[None/Active]
B9014	NETSURE LVDs Inhibited			[None/Active]

B9015	NETSURE System Major	[None/Active]
B9016	NETSURE System Minor	[None/Active]
B9106	NETSURE PCU Major	none
B9107	NETSURE PCU Minor	none
B9108	NETSURE PCU HVS	none
B9109	NETSURE PCU Load Imbalance	none
B9110	NETSURE Remote Equalize	none
B9111	NETSURE Remote HVS	none
B9112	NETSURE Remote ESTOP	none
B9114	NETSURE Sense Voltage Error	none
B9019	Temperature Probe Fail	none
B9115	NETSURE Audible Relay	none

Command<1>: SCAN N SUBSYSTEM

NETSURE SUBSYSTEM STATUS AS OF xx:xx:xx ON xx/xx/xx.

Chan	Description	Value	Units	Alarm Status
A9003	NETSURE Subsystem Voltage	+50.9	VDC	[None]
A9004	NETSURE Subsystem Current	+400	Amps	[None/Overcurrent]
A9008	NETSURE Shunt03	+200	Amps	[None/Fail]
A9009	NETSURE Shunt04	+200	Amps	[None/Fail]
B9021	NETSURE Subsystem Fuse			[None/Active]
B9022	NETSURE Subsystem Major			[None/Active]
B9023	NETSURE Subsystem Minor			[None/Active]

Command<1>: SCAN N MCA

NETSURE MCA STATUS AS OF xx:xx:xx ON xx/xx/xx.

Description	Alarm Status
Board Fail	active
Shelf fuse	active
A/D No System Voltage Input	active
A/D No Sense Lead Voltage Input	active
A/D No Subsystem Voltage Input	active
Display Fail	active

Command<1>: SCAN N LVD

NETSURE LVD STATUS AS OF xx:xx:xx ON xx/xx/xx.

Description	Alarm Status
LVD 1A	[inhibited/failed/active/inactive]
LVD 1B	[inhibited/failed/active/inactive]
LVD 2A	[inhibited/failed/active/inactive]
LVD 2B	[inhibited/failed/active/inactive]
LVD 3A	[inhibited/failed/active/inactive]
LVD 3B	[inhibited/failed/active/inactive]

The following is displayed only for active potentiometer controlled LVDs:

[LVD 3A] [active]
[LVD 3B] [active]
[LVD 4A] [active]
[LVD 4B] [active]

Command<1>: SCAN N PCU

NETSURE PCU STATUS AS OF xx:xx:xx ON xx/xx/xx.

Chan	Description	Value	Units	Alarm Status
A9005	Total PCU Current	+1200	Amps	
A9026	PCU01 Current	+100	Amps	[None/Fail]
A9027	PCU02 Current	+100	Amps	[None/Fail]
A9030	PCU05 Current	+100	Amps	[None/Fail]
A9031	PCU06 Current	+100	Amps	[None/Fail]
A9034	PCU09 Current	+100	Amps	[None/Fail]
A9037	PCU12 Current	+100	Amps	[None/Fail]
A9045	PCU20 Current	+100	Amps	[None/Fail]

SEQUENCE

Description: Lists the sequencer option configuration parameters, and displays sequencer status.

Command Level: 1

Syntax: SEQUENCE
SEQ

Comments: Information displayed includes the status of the standby sequencer, the Standby On/Proper Operate binary input number, and the Standby Start Delay. The AC Sequencer status is also listed, along with the AC Fail/Transfer binary input number, the Input Type, the Sequencer Failsafe Time, and AC Restoration Qualification Time.

Notes: none

Related Commands: SET SEQUENCE

Example:

Command<1>: SEQUENCE

RECTIFIER SEQUENCING ROUTINES Current Setting (DISABLED or ACTIVE)

SEQUENCER OPTIONS:

AC Sequencer: Off

AC Fail/Transfer Input = B0001

Input type: AC Fail

Standby Sequencer: Off

Standby On/Proper Operate Input = B0001

Standby Start Delay: 15sec

Sequencer Failsafe time: 100sec

AC Restoration Qualification time: 100sec

SET

Description: Lists all commands that begin with the command SET, and then prompts the user to enter one of the displayed options.

Command Level: NA

Syntax: SET [*command*]
SE [*command*]

Comments: none

Notes: Only commands available to the current user are listed. The list in the example is for a user that has access to level 6 commands.

Related Commands: SET NETSURE

Example:

```
Command<6>: set
```

```
Set what:
```

ACO	ANSWER	CHANNELS	CLASS	COM
CMD	DATE	DEFAULTS	EMAIL	GATEWAY
INFO	LED	LIMITS	NPS	MAIL
PERIODS	PROFILE	PHONE	PROGRAM	REPORT
RLY	SEQUENCE	STATS	STATUS	SYSTEM
TIME	TIMEOUT	UNIT	USERS	VI

```
?
```

SET ACO

Description: Releases any relays that are energized due to analog or binary alarms, provided the relays are configured for ACO operation.

Command Level: 4

Syntax: SET ACO
SE AC

Comments: none

Notes: Any user setting the alarm cutoff will have his name and this action recorded in the event log. If an analog or binary alarm were to clear and then turn in again, it would then affect relay control programs. Relays configured as alarm types that are affected by a SET ACO will affect the alarm log information. When the output turns off, the associated log entry will have its cleared time stamped with the current time. Because this alarm could affect the alarm log, this command could initiate some phone reports or Email messages. Only relays configured for ACO will be affected by this command.

Related Commands: ACO

Example:

Command<4>: SET ACO

The following alarms are cutoff:

Chan	Description	Value	Units	Alarm Limit	and	Class
A0001	Analog Channel 1	+20.1	Amps	20.0 H - Hi Limit 2		MAJOR
Chan	Description	Status	Alarm Status / Class			
B0001	Binary Channel 1	CO	active	MINOR		

SET AID

Description: This command is only available if the TL1 software option is installed in the system. Configures up to thirty-two access identifiers, and associates sub-access identifiers to the access identifiers.

Command Level: 6

Syntax: SET AID [*n*]
SE AI [*n*]

Comments: To add or delete channels, type D at the prompt to display a complete list of channels previously linked to the current access identifier. The channel number, previously configured channel name, and previously configured channel sub-access identifier are displayed.

Type the number(s) of all channels to be added or removed. Channels can be specified by entering a single channel number (e.g. A0001, B0008), or by entering a range of channel numbers (e.g. A0001-8, L0001-L0012).

Notes: The terms Access Identifier, LMS1000 Access Identifier, and LMS1000 Sub-Access Identifier are described as follows.

Access Identifier: In an NMA system, a unique access identifier (AID) is used to identify each entity contained within the system. LMS1000 must be configured to allow a single access identifier to be used to access and report on an NMA system entity which may consist of a multiple of sub-entities, each monitored by a variety of LMS1000 channels. This is accomplished by configuring LMS1000 access identifiers and LMS1000 sub-access identifiers as described next. A list of access identifiers and sub-access identifiers appears in TA NWT 001360, Table 4 1.

LMS1000 can be set to use an "AID delimiter". When enabled, LMS1000 access identifier field and LMS1000 sub-access identifier field in all responses to TL1 commands and reports containing a TL1 access identifier field is separated by a hyphen. The use of an "AID delimiter" (a hyphen) can be enabled or disabled, as described under LMS1000 Command SET MODE.

LMS1000 Access Identifier: Thirty-two (32) LMS1000 access identifiers are available. LMS1000 access identifier is used to uniquely identify a system entity (such as a power plant).

LMS1000 Sub-Access Identifier: LMS1000 sub-access identifiers are used to uniquely identify each sub-entity of an entity (such as each rectifier, each battery string, etc. contained in the power plant).

The association between all LMS1000 channels monitoring an individual rectifier, an individual battery string, etc. is made by configuring each channel monitoring this individual sub-entity with a unique sub-access identifier name. This is done when the individual LMS1000 channels are configured.

Thus all LMS1000 channels monitoring "rectifier one" may be configured with the sub-access identifier name RECT1. All LMS1000 channels monitoring "rectifier two" may be configured with sub-access identifier RECT2. All LMS1000 channels monitoring "battery string one" may be configured with the sub-access identifier BATSTR1. All LMS1000 channels monitoring "battery string two" may be configured with sub-access identifier name BATSTR2. Etc.

Now, to associate the sub-entities (each rectifier, each battery string, etc.) to the entity (the power plant), you configure the access identifier to include all LMS1000 channels monitoring this entity and any sub-entity contained within.

Related Commands: AID

Example:

Command<6>: SET AID

Which Access Identifier? 3

ACCESS IDENTIFIER 3 CONFIGURATION:

Name: AID03

Type: EQPT

CHANNELS: None

Name:

Type:

Enter channel (eg. A0012 or A0001-6) or D to display.

Add channel:

Enter channel (eg. A0012 or A0001-6) or D to display.

Del channel:

SET ANSWER

Description: Determines the number of rings before the system answers an incoming telephone call.

Command Level: 5

Syntax: SET ANSWER
SE AN

Comments: This command can be useful for locations having only one phone line. The system can be set to answer after five rings, permitting any personnel at the installation an opportunity to answer the phone before the system.

Notes: The number of rings defaults to 1 but can be programmed for up to 99 rings.

Related Commands: ANSWER

Example:

```
Command<5>: SET ANSWER
```

```
Rings before answer: 1
```

```
Enter New #:
```

```
Rings before answer: 1
```

SET CHANNELS

Description: Allows channels to be added to or deleted from the configuration of the currently logged on user.

Command Level: 5

Syntax: SET CHANNELS
SE CH

Comments: Information presented includes the type of channel (analog, binary, function, group, relay, LED, or energy management) and the user description of the channel. If the channel is configured to be inactive, "not active" will also be displayed. After this information is presented, the user can add or delete channels as required. When in the edit mode (either adding or deleting channels) the user can enter the character D to display the present list of channels. To facilitate editing, a sequence of channels can be entered, such as B0001-0064. In this example, binary channels 1 through 64 in the Master Node would be added or deleted, dependent upon the operation being performed.

Notes: none

Related Commands: CHANNELS

Example:

Command<6>: SET CHANNELS

```
USER NO. 6 CHANNELS:
A0001 Analog Channel 1
A0002 Analog Channel 2
A0004 Analog Channel 4
A0033 Analog Channel 33
A0034 Analog Channel 34          not active
A0037 Analog Channel 37          not active
A0038 Analog Channel 38          not active
A0039 Analog Channel 39          not active
A0040 Analog Channel 40
END OF USER NO. 6 CHANNELS
```

Enter channel (eg. A0012 or A0001-0006) or D to display.

```
Add Channel: A0013
Channel does not exist!
Add Channel: A0064
Add Channel:
```

Enter channel (eg. A0012 or A0001-0006) or D to display.

```
Del Channel: A0064
Del Channel:
```

SET CLASS

Description: Allows a user to enter a text description (5 characters maximum) for each of the eight alarm classes.

Command Level: 5

Syntax: SET CLASS [*n*]
SE CL [*n*]

Comments: The text description of an alarm class can be deleted by entering a SPACE before entering any new text.

Notes: none

Related Commands: CLASS

Example:

Command<6>: SET CLASS

Programmable Alarm Classifications

K1.MINOR K2.MAJOR K3.none K4.CLAS4 K5.none K6.none K7.none K8.ENGR

Which alarm class(K1-8) ? 4

Alarm Class Name: CLAS4 FACIL

SET CMD

Description: Permits configuration of one of the eight programmable commands.

Command Level: 6

Syntax: SET CMD [*n*]
SE CM [*n*]

Comments: Each command can consist of up to eight standard commands. When the command SET CMD is entered, the system prompts for the number of the programmable command the user wishes to configure. The system then prompts the user to enter the commands which will comprise the programmable command as well as the name of the programmable command. The name is then used at the system prompt to execute these standard commands that are a part of the programmable command. When the name of the programmable command is entered, all of the commands listed in the group are automatically performed, without having to manually prompt the system to perform each task.

Notes: Any commands entered as part of the programmable command will not be executed if the logged on user does not have a high enough level of access. The use of the programmable command is similar in concept to batch processing or macros.

Related Commands: CMD

Example:

```
Command<6>: SET CMD
```

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.

```
Which command (1 - 8) ? 1
```

```
Command 1 name:
```

```
Command 1 name: ANALOG
```

```
Command 1 access level: 1
```

```
Command 1 access level:
```

```
Command 1 line 1:
```

```
Command 1 line 1: SCAN A
```

```
Command 1 line 2:
```

```
Command 1 line 2: STATS A
```

```
Command 1 line 3:
```

```
Command 1 line 3:
```

```
Command 1 line 4:
```

Command 1 line 4:

Command 1 line 5:

Command 1 line 5:

Command 1 line 6:

Command 1 line 6:

Command 1 line 7:

Command 1 line 7:

Command 1 line 8:

Command 1 line 8:

SET COM

Description: Permits configuration of the local port data rate.

Note: Modem port communications parameters cannot be set. The data rate for the local port is the only communications parameter that can be changed.

Command Level: 5

Syntax: SET COM
SE CO

Comments: The data rate, parity, number of data bits, and number of stop bits appear in the order listed, separated by commas. Any local port changes will take effect immediately after the Y key is pressed to initiate the change. Refer to **Table 4** for a listing of available local port communications formats.

Table 4: Available Local Port Communications Parameters

Data Rate (Bits/s)	Parity	Data Bits	Stop Bits
300, 600, 1200, 2400, 4800, 9600, or <u>19200</u>	<u>n</u> for none	<u>8</u>	<u>1</u>

Default setting shown in underlined type.

Notes: none

Related Commands: COM

Example:

```
Command<6>: SET COM
Local Comm Port Setup:2400,n,8,1
Enter new setup:19200
Re-initialize Port (Y or N):Y
Local Comm Port Setup:19200,n,8,1
```

SET DATE

Description: Permits the setting of the system date.

Command Level: 3

Syntax: SET DATE

Comments: The current date is displayed, and can be changed if desired by using the format mm/dd/yy.

Notes: This command will affect the dates associated with any statistics that may be saved in memory. Also, any alarms that clear after the date is set will have the new date stored as part of their log entry, which could be misleading. Any user changing the date will have his name and this action recorded in the event log.

Related Commands: DATE

Example:

```
Command<3>: SET DATE
Date is 01/16/01.
Use Format MM/DD/YY
```

SET DEFAULTS

Description: Returns the user programmable parameters shown in **Table 5** back to their default (factory) settings.

Table 5: Default Settings for System Parameters

Parameter	Default Setting
Unit Name	Central Office
Unit Number	1
Unit TCP/IP Address	0.0.0.0
GET Community String	public
SET Community String	private
Trap Addresses	(none set)
SNMP Version (for traps sent)	V2
Number of Rings before Answering	1
User Timeout Period	300 seconds
Logon Password	Number of Access Level Required (1-6)
System Alarm Report Mode	Off
User Calling Sequence	(none defined)
Retry Time (System Alarm Report)	10 minutes
Auto-Logoff Time	60 seconds
Sequencer Standby Start Delay	15 seconds
Sequencer Failsafe Timer	60 seconds
AC Restoration Qualification Timer	0 (disabled)
Rectifier Sequencing Routines	Y

Command Level: 6

Syntax: SET DEFAULTS
SE DE

Comments: The user will have to type the complete word "YES" when prompted to set the defaults.

Notes: This command will permanently destroy any information the user has programmed, including alarm log information and user configuration. This command will not destroy the event log, or change any communications parameters.

Related Commands: none

Example:

```
Command<6>: SET DEFAULTS
Execution of this command will DESTROY ALL SYSTEM CONFIGURATIONS
and could result in ALARM CONDITIONS !!
Do you wish to set defaults(YES or No)? N
Defaults NOT set
```

Command<6>: SET DEFAULTS

Execution of this command will DESTROY ALL SYSTEM CONFIGURATIONS
and could result in ALARM CONDITIONS !!

Do you wish to set defaults (YES or No)? yes

Setting system defaults

Initializing Analog I/O card hardware

Defaults set.

SET EFF

Description: Permits configuration of the energy management option, if furnished.

Command Level: 5 and 6. A user with access to level 5 commands is only allowed to enter a Y or N at the RECTIFIER EFFICIENCY ROUTINE (Y or N) prompt. This enables or disables energy management operation. A user with access to level 6 commands is required to enter the additional parameters.

Syntax: SET EFF
SE EF

Comments: Parameters include the status of energy management, active or disabled, and the analog input number of the plant voltage input. Other parameters displayed include Base Rectifier Cycle Period, Percent of system capacity at which to turn off a rectifier, and Percent of system capacity at which to turn on a rectifier. After display of the current parameters, the data may be changed if required.

Notes: Use of this command generates an entry into the Event Log.

Related Commands: EFF

Example:

Command<6>: set eff

```
RECTIFIER EFFICIENCY ROUTINE DISABLED
```

```
Plant Voltage Input = A0001
```

```
Base Rectifier Cycle Period: 1 day
```

```
Percent of system capacity at which to turn off a rectifier: 0.970
```

```
Percent of system capacity at which to turn on a rectifier: 0.970
```

```
Plant Voltage Input = A9001
```

```
Enter Base Rectifier Cycle Period (1-365 days): 30
```

```
Percent of system capacity at which to turn off a rectifier (0.90-0.99): .93*
```

```
* 0.70 - 0.99 for Spec. Nos. 582140000, 582140001, and 582126100 NetSure Power Systems and  
0.90 - 0.99 for all others.
```

```
Percent of system capacity at which to turn on a rectifier (0.97-0.99): .98
```

```
Save changes (Y or N): n
```

```
RECTIFIER EFFICIENCY ROUTINE (Y or N): y
```

Command<5>: set eff

```
RECTIFIER EFFICIENCY ROUTINE DISABLED
```

```
Plant Voltage Input = A0001
```

```
RECTIFIER EFFICIENCY ROUTINE (Y or N): y
```

SET EMAIL

Description: Set Email alarm notification parameters.

Command Level: 6

Syntax: SET EMAIL

Comments: Enter the addresses in the format nnn.nnn.nnn.nnn, where $0 \leq nnn \leq 255$.

Notes: SMTP server must be capable of relaying Emails outside of the domain. The Email return address must be on the same domain.

SMTP server address accepts the server IP address or the server's network name as input.

Also set the "IP Network Address", "IP Gateway Address", and "IP Netmask" using the commands IP ADDRESS, IP GATEWAY, and IP NETMASK.

Related Commands: IP ADDRESS, IP GATEWAY, IP NETMASK

Example:

```
Command<6>: set email
Primary DNS Address : 0.0.0.0
Secondary DNS Address : 0.0.0.0
Local SMTP Server Address : 0.0.0.0
Email Return Address :
```

```
Enter Primary DNS Address :
```

SET GATEWAY

Description: Allows editing of the LMS1000 Gateway port's communications parameters and the gateway port operating mode.

Command Level: 6

Syntax: SET GATEWAY

Comments: When this command is entered, the current communications parameters of the Gateway port are displayed in the following order. Data Rate, Parity, Data Bits, Stop Bits. Enter a new data rate value or press the ENTER key to exit the command. If no new data rate was entered, the existing setting is saved. Available data rates are 300, 1200, 2400, 9600, 19200 bps (default is 9600 bps).

Notes: If a local terminal is being used, the change takes effect immediately. If a remote terminal (modem) is being used, the change takes effect the next time the modem is used.

This command lets the user set the Gateway port data rate only. The other communication parameters are fixed in software, and cannot be changed.

Possible data loss may occur if the LMS1000 Gateway port data rate does not match that of the local or remote terminal being used to access the customer equipment via LMS1000.

The following message is recorded in the event log after successfully changing the Gateway port's data rate and/or mode:

```
Gateway port configured
```

When operating in the 'Global' mode the following commands entered at the LMS1000's command prompt might also be issued through the Gateway Port: ALARMS, SCAN, STATS, STATUS, EVENTS, LOG, SET TIME, SET DATE, CLR EVENT, CLR LOG, CLR STATS.

Related Commands: CONNECT, SET PROFILE

Example:

```
Command<6>: SET GATEWAY
GATEWAY Port Setup: 9600, n, 8, 1
Enter New Port Setup: 19200
GATEWAY mode setting: NORMAL
New mode setting [NORMAL or GLOBAL]: GLOBAL
```

If an invalid data rate is entered for the 'Gateway Port Setup' the following message is displayed and the data rate is not changed.

```
ERROR: Invalid Parameter. Port setting not changed
```

If an invalid entry is made for the 'Gateway Port Mode' the mode is not changed and the user is prompted again to change the mode.

If the Gateway port is in use by another User, the requesting User is prompted as follows:

```
Unable to change settings - port in use by another user.
```

SET INFO

Description: Permits viewing and entry of information on any of the three information pages.

Command Level: 5

Syntax: SET INFO [n]
SE IN [n]

Comments: The system prompts for the page number of the information page the user wishes to view or edit, and then displays the page. Each page consists of 20 lines, with a maximum of 79 character per line. Information pages can be used to store any type of data. When editing an existing line, use Ctrl-R to copy the entire text; or use Ctrl-Z to copy only one character from the existing text.

Notes: none

Related Commands: INFO

Example:

```
Command<6>: SET INFO
Which Page (1 - 3) ? 1
INFORMATION PAGE #1
Line 1: RECTIFIERS:
Line 2: RL200D50
Line 3: RL400D50 (2)
Line 4:
Line 5:
Line 6: FUSES
Line 7: C.B.
Line 8:
Line 9:
Line 10:
Line 11:
Line 12: MAINTENANCE
Line 13: BATTERY DISCHARGE ON 06/19/96
Line 14:
Line 15:
Line 16:
Line 17:
Line 18:
Line 19:
Line 20:
```

SET LED

Description: Allows manual energizing, or forcing, of an LED alarm indication.

Command Level: 5

Syntax: SET LED [*n*]
SE LE [*n*]

Comments: none

Notes: Any user using the SET LED command will have his name and this action recorded in the event log. The SET LED command could generate an alarm log entry if the LED is configured as an alarm type. Additionally, if configured as an alarm type, this alarm could initiate a phone report or Email message. The LED can be cleared using the command CLR LED. In an NPS Power System, the name of the LED channel will scroll across the MCA display when the LED is active.

Related Commands: CLR LED

Example:

```
Command<5>: SET LED  
Set LED (1 - 8): 3  
Set LED (1 - 8):
```

SET LIMITS

Description: Permits setting of the Alarm Limit Mode and the four analog limits for each input.

Command Level: 5

Syntax: SET LIMITS [*channel_type_node_number_channel_number*]
SE LI [*channel_type_node_number_channel_number*]

Comments: To utilize the special rate computations by the system, analog channel alarm limits names should include the text SIZ or CAP.

Notes: Any user setting limits using this command will have his name and this action recorded in the event log. Changing the limits could affect the analog alarm log conditions; which could affect alarm log entries; which could initiate a phone report or Email message.

If a limit is changed when an alarm is active which deactivates the alarm condition, the alarm remains active in the alarm log and will not be shown as cleared. Also, no retired alarm notification will be sent.

Except for the NPS Distribution Channels, limits cannot be set for analog NPS channels. These are set and controlled by the MCA.

Limits can also be programmed when a channel is configured. If the only change required to an existing channel is to change the limits, the SET LIMITS command eliminates the need to proceed through an entire channel configuration sequence.

See Operating LMS1000, LMS1000 INPUT SIGNAL AND ALARM LIMIT PROCESSING for a description and examples of the Alarm Limit Mode attribute.

Related Commands: LIMITS

Example:

```
Command<5>: SET LIMITS A0001
ANALOG CHANNEL 1 ALARM LIMITS AS OF 20:35:17 ON 02/09/01.
Chan   Description
A0001 Analog Channel 1
  Limit / Name      Class  Condtype          Ntfc  Svcf
  70.0 H  HVA2              TOOHIGH          CR    SA
  Condition Description
VOLTAGE IS TOO HIGH
  60.0 H  HVA1              HIGH             MJ    NSA
  Condition Description
VOLTAGE IS HIGH
  50.0 L  LVA1              LOW              MN    SA
  Condition Description
VOLTAGE IS LOW
  40.0 L  LVA2              TOLOW           CR    NSA
  Condition Description
VOLTAGE IS TOO LOW
Alarm Limit Mode: N
Alarm Limit Mode (N or B) ? N
Limit 1 Enabled: Yes
Limit 1 Enabled (Y or N):
```

Limit 1 Value: 70.0
Limit 1 Value:
Limit 1 Type: H
Limit 1 Type is High or Low (H or L):
Limit 1 Name: HVA2
Limit 1 Name:
Limit 1 Notification Code: CR
Limit 1 Notification Code:
Limit 1 Service Effect Code: SA
Limit 1 Service Effect Code:
Limit 1 Alarm Class Number: 0
Condition Type: TOOHIGH
Condition Type:
Limit 1 Condition Description:
VOLTAGE IS TOO HIGH
Condition Description:
Limit 2 Enabled: Yes
Limit 2 Enabled (Y or N):
Limit 2 Value: 60.0
Limit 2 Value:
Limit 2 Type: H
Limit 2 Type is High or Low (H or L):
Limit 2 Name: HVA1
Limit 2 Name:
Limit 2 Notification Code: MJ
Limit 2 Notification Code:
Limit 2 Service Effect Code: NSA
Limit 2 Service Effect Code:
Limit 2 Alarm Class Number: 0
Condition Type: HIGH
Condition Type:
Limit 2 Condition Description:
VOLTAGE IS HIGH
Condition Description:
Limit 3 Enabled: Yes
Limit 3 Enabled (Y or N):
Limit 3 Value: 50.0
Limit 3 Value:
Limit 3 Type: L
Limit 3 Type is High or Low (H or L):
Limit 3 Name: LVA1
Limit 3 Name:
Limit 3 Notification Code: MN
Limit 3 Notification Code:
Limit 3 Service Effect Code: SA
Limit 3 Service Effect Code:
Limit 3 Alarm Class Number: 0
Condition Type: LOW
Condition Type:
Limit 3 Condition Description:

VOLTAGE IS LOW
 Condition Description:
 Limit 4 Enabled: Yes
 Limit 4 Enabled (Y or N):
 Limit 4 Value: 40.0
 Limit 4 Value:
 Limit 4 Type: L
 Limit 4 Type is High or Low (H or L):
 Limit 4 Name: LVA2
 Limit 4 Name:
 Limit 4 Notification Code: CR
 Limit 4 Notification Code:
 Limit 4 Service Effect Code: NSA
 Limit 4 Service Effect Code:
 Limit 4 Alarm Class Number: 0
 Condition Type: TOLOW
 Condition Type:
 Limit 4 Condition Description:
 VOLTAGE IS TOO LOW
 Condition Description:

Command<6>: SET LIMITS F0001
 FUNCTION CHANNEL 1 ALARM LIMITS AS OF 20:35:52 ON 02/09/01.

Chan	Description	Limit / Name	Class	Condtype	Ntfc	Svef
F0001	Function Channel 1					
	Condition Description					
	CURRENT IS TOO HIGH	5000.H ABOVE 5000		TOOHIGH	CR	SA
	Condition Description					
	CURRENT IS HIGH	4000.H ABOVE 4000		HIGH	CR	SA
	Condition Description					
	CURRENT IS HIGH	100.0L BELOW 100		LOW	CR	SA
	Condition Description					
	CURRENT IS LOW	50.00L BELOW 50		TOLOW	CR	SA
	Condition Description					
	CURRENT IS TOO LOW					
	Limit 1 Enabled: Yes					
	Limit 1 Enabled (Y or N):					
	Limit 1 Value: 5000.					
	Limit 1 Value:					
	Limit 1 Type: H					
	Limit 1 Type is High or Low (H or L):					
	Limit 1 Name: ABOVE 5000					
	Limit 1 Name:					
	Limit 1 Notification Code: CR					
	Limit 1 Notification Code:					
	Limit 1 Service Effect Code: SA					

Limit 1 Service Effect Code:
Limit 1 Alarm Class Number: 0
Condition Type: TOOHIGH
Condition Type:
Limit 1 Condition Description:
CURRENT IS TOO HIGH
Condition Description:
Limit 2 Enabled: Yes
Limit 2 Enabled (Y or N):
Limit 2 Value: 4000.
Limit 2 Value:
Limit 2 Type: H
Limit 2 Type is High or Low (H or L):
Limit 2 Name: ABOVE 4000
Limit 2 Name:
Limit 2 Notification Code: CR
Limit 2 Notification Code:
Limit 2 Service Effect Code: SA
Limit 2 Service Effect Code:
Limit 2 Alarm Class Number: 0
Condition Type: HIGH
Condition Type:
Limit 2 Condition Description:
CURRENT IS HIGH
Condition Description:
Limit 3 Enabled: Yes
Limit 3 Enabled (Y or N):
Limit 3 Value: 100.0
Limit 3 Value:
Limit 3 Type: L
Limit 3 Type is High or Low (H or L):
Limit 3 Name: BELOW 100
Limit 3 Name:
Limit 3 Notification Code: CR
Limit 3 Notification Code:
Limit 3 Service Effect Code: SA
Limit 3 Service Effect Code:
Limit 3 Alarm Class Number: 0
Condition Type: LOW
Condition Type:
Limit 3 Condition Description:
CURRENT IS LOW
Condition Description:
Limit 4 Enabled: Yes
Limit 4 Enabled (Y or N):
Limit 4 Value: 50.00
Limit 4 Value:
Limit 4 Type: L
Limit 4 Type is High or Low (H or L):
Limit 4 Name: BELOW 50

Limit 4 Name:
Limit 4 Notification Code: CR
Limit 4 Notification Code:
Limit 4 Service Effect Code: SA
Limit 4 Service Effect Code:
Limit 4 Alarm Class Number: 0
Condition Type: TOOLOW
Condition Type:
Limit 4 Condition Description:
CURRENT IS TOO LOW
Condition Description:

SET MAIL

Description: Allows a user to enter a message which can be mailed to other users.

Command Level: 1

Syntax: SET MAIL
SE MA

Comments: The reply to the prompt "Send To" determines which users will receive the mail. Users will be notified of mail after logon to the system. Up to three lines of information with 79 characters per line can be entered.

Notes: none

Related Commands: CLR MAIL, MAIL

Example:

```
Command<1>: SET MAIL
Mail Setup
Line 1:
Line 2:
Line 3:
Send To:
Read By:
Line 1: CHECK WATER LEVEL IN BATTERIES TODAY
Line 2: CALL ME @ 555-4645 IF ANY PROBLEMS
Line 3:
User 1 - John Martin
User 2 - Dave Erickson
User 3 - Terry Thomas
User 4 - Jerry Collins
User 5 - Jim Smith
User 6 - Joe Jones
User 7 - Bob Smith
User 8 - Maintenance Personnel
To Users: 3 5 6
```

SET MODE

Description: This command is only available if the TL1 software option is installed in the system. Configures TL1 port operation.

Command Level: 6

Syntax: SET MODE
SE MO

Comments: When this command is entered, the current values of the TL1 port are displayed, followed by prompts to enter new values. Type a new value, or press ENTER to keep the current value.

Available TL1 configuration parameters:

Enter new TL1/X.25 port data rate: (TL1/X.25 option parameter only.) Enter the data rate in bits/sec for the TL1/X.25 port (either 110, 300, 1200, 2400, 4800, or 9600). The default is 9600 bits/sec. If the X28 Mode is selected, the data rate is determined automatically. The PAD device must be connected for this to be accomplished.

Enter new TL1 port number: (TL1 [over Ethernet] option parameter only.) Enter **2020** as the Telnet port number.

TCP Keepalive (Y or N): (TL1 [over Ethernet] option parameter only.) Enter "Y" if the system should test TL1 Telnet connection to remote system (recommended), and "N" if not.

Session Timeout (0-1440, 0=disabled): Enter the TL1 port session timeout value in minutes (0-1440, 0=disabled). A value of zero disables the session timeout feature.

Auto logon (Y or N): Enter "Y" if the system is required to automatically establish a user session, and "N" if not.

Auto logon user: This attribute only appears if "Y" is selected for "AUTO LOGON". Enter the number of the user who is automatically logged on by the system. The configuration of the entered user determines the access level of the user session and is used in determining when a report must be sent.

AID Delimiter (Y or N): In LMS1000, the TL1 Access Identifier (AID) parameter consists of an LMS1000 Access Identifier parameter and an LMS1000 Sub-Access Identifier parameter, as explained under LMS1000 Command SET AID. Enter "Y" to enable the use of a hyphen (AID delimiter) between the LMS1000 Access Identifier parameter and LMS1000 Sub-Access Identifier parameter in all responses to TL1 commands and reports containing a TL1 Access Identifier field. Enter "N" to disable the use of the "AID delimiter".

Save changes (Y or N): Enter a "Y" if the above changes are to be saved in the TL1 port configuration, and "N" if not. If "Y" is entered, the following message appears

"Must issue a hardware reset for changes to take effect."

Notes: This command can only be executed through the local port.

The session timeout feature of the TL1 port operates independently from the system's user timeout feature. A session timeout is indicated by transmission of the TL1 CANCEL-SESSION message.

TL1 Autonomous Messaging:

Address/Phone Number: The PRIMARY PHONE NUMBER attribute of the user's configuration provides the network address to the system for TL1 autonomous messages. The DIRECT mode of operation transmits the

string stored in the user PRIMARY PHONE NUMBER attribute prior to transmitting an autonomous message. This assumes that an existing string in the user PRIMARY PHONE NUMBER attribute can be detected from a user's configuration.

Auto-Logoff for Autonomous Messages: Currently, there is no auto-logoff of users who have established a session via the TL1 port. Pending autonomous messages are sent after the current user session is ended.

Related Commands: MODE

Example:

```
TL1/X.25 Software Option Installed
Command<6>: SET MODE
TL1 Mode: Direct
TL1/X.25 Comm Port Setting: 9600, n, 8, 1
Session Timeout: 600 min
Auto logon: Enabled
Auto logon user: User #7
AID delimiter: Yes

Enter new TL1/X.25 port data rate:
Session Timeout (0-1440, 0 = disable):
Auto logon (Y or N):
Auto logon user:
AID Delimiter (Y or N):
Save changes (Y or N):
Must issue a hardware reset for changes to take effect

TL1 (over Ethernet) Software Option Installed
Command<6>: SET MODE
TL1 Mode: Telnet
TCP Keepalive: Enabled
Port: 2020
Session Timeout: 600 min
Auto logon: Enabled
Auto logon user: User #7
AID delimiter: Yes

Enter new TL1 port number:
TCP Keepalive (Y or N): Y
Session Timeout (0-1440, 0 = disable):
Auto logon (Y or N):
Auto logon user:
AID Delimiter (Y or N):
Save changes (Y or N):
Must issue a hardware reset for changes to take effect
```

SET NPS

Description: Lists all NPS MCA Interface commands that begin with the command SET, and then prompts the user to enter one of the displayed options.

Command Level: NA

Syntax: SET NPS [*command*]
SE NP [*command*]

Comments: none

Notes: Only commands available to the current user are listed. The list in the example is for a user that has access to level 6 commands.

Related Commands: SET, SET NETSURE

Example:

```
Command<6>: set NPS
```

```
Set What:
```

```
SYSTEM          PCU          MESSAGE      PASSWORD     CANIO
? sys
```

```
What system parameter:
```

```
FLT VOLT        PWRSHARECAP  TSTEQMODE    HIVLTALM1    HI1TEMPALM
HVS             TSTEQVOLT    HIVLTALM2    LOW2TEMPALM
                CURLIMIT     TSTEQTIME    BATONDISCH   HI2TEMPALM
TEMP SLOPE      ALTCURLIMON  EQMULTIPLIER VERYLOWVOLT  LOW1TEMPALM
TEMPCOMP MAX    ALTCURLIMOFF
TEMPCOMP MIN    CAPALTCURLIMIT RLYSTTIME    LOADCURRENT  USECELSIUS
                RLYONTEST    LOADACURRENT USEFAHRENHEIT
UPDATEINV       SEQDELAY     RLYOFFTEST   LOADBCURRENT
```

```
? flt
```

```
Float Voltage: 52.08 VDC
```

```
Float Voltage: 52.1
```

```
New Float Voltage Accepted.
```

```
Command<6>: set NPS
```

```
Set What:
```

```
SYSTEM          PCU          MESSAGE      PASSWORD     CANIO
? pcu
```

```
Which PCU (bay#-pcu#)? 01-01
```

```
Turn PCU 01-01 ON or OFF? off
```

```
PCU 01-01 set OFF
```

```
Command<6>: set NPS
```

Set What:

SYSTEM PCU MESSAGE PASSWORD CANIO
? message

Which custom message:

PCU MCA ROUTER DISTRIBUTION RELAY_BD
CANIO_BD

? pcu

Which PCU (bay#-pcu#)? 01-02

Custom message: XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

Custom message: this is pcu 2

Custom message CHANGED!

Command<6>: set NPS

Set What:

SYSTEM PCU MESSAGE PASSWORD CANIO
? pass

Enter current MCA password:

Enter new password:

Re-enter new password:

New password accepted

Command<6>: set NPS

Set What:

SYSTEM PCU MESSAGE PASSWORD CANIO

? canio

Which CAN I/O board (bay#-board#)? 01-04

What CAN I/O board parameter:

LOADTYPE SCALE BINARY

?

SET NPS CANIO

Description: Set NPS MCA CAN I/O circuit card parameters.

Command Level: 6

Syntax: SET NPS CANIO [*bb-dd*], bb = NPS Bay #, dd = NPS Bay Slot #
SE NP CA [*bb-dd*], bb = NPS Bay #, dd = NPS Bay Slot #

Comments: Prompted to select which NPS MCA CAN I/O circuit card, then which parameter to set (designate the alarm state for MCA CAN I/O circuit card binary inputs, designate MCA CAN I/O circuit card analog inputs as "auxiliary" or "distribution", or set the scale factor for MCA CAN I/O circuit card analog inputs and outputs).

Notes: None

Related Commands: none

Example:

```
Command<6>: set NPS canio 01-04
```

```
What CAN I/O board parameter:
```

```
LOADTYPE          SCALE          BINARY
```

```
?
```

```
Command<6>: set NPS canio
```

```
Which CAN I/O board (bay#-board#)? 01-04
```

```
What CAN I/O board parameter:
```

```
LOADTYPE          SCALE          BINARY
```

```
? loadtype
```

```
CAN I/O board 01-04 set as DIST type
```

```
Set load type to AUX or DIST? aux
```

```
CAN I/O board 01-04 set as AUX type
```

```
Command<6>: set NPS canio
```

```
Which CAN I/O board (bay#-board#)? 01-04
```

```
What CAN I/O board parameter:
```

```
LOADTYPE          SCALE          BINARY
```

```
? scale
```

```
Set scale for INPUT or OUTPUT? output
```

```
Enter full scale Amps (100 - 20000): 100
```

```
CAN I/O board 01-04 Output scale set
```

```
Command<6>: set NPS canio
```

Which CAN I/O board (bay#-board#)? 01-04

What CAN I/O board parameter:

LOADTYPE SCALE BINARY

? binary

Which binary input (1-4)? 2

Binary Input #2 set to alarm on contact CLOSED

Set alarm on contact OPEN or CLOSED? open

Binary Input #2 set to alarm on contact OPEN

SET NPS MESSAGE CANIO_BD

Description: Sets the Custom Text Message for the selected NPS MCA CAN I/O circuit card. This message appears in the inventory list during execution of the PRCONFIG NPS command. A user can also view the Custom Text Message from the MCA display panel whenever the i (information available) symbol appears in the display. Refer to the NPS System documentation.

Command Level: 6

Syntax: SET NPS MESSAGE CANIO_BD
SE NP ME CA

Comments: The current message is displayed, followed by a prompt to enter a new message.

Notes: The custom message can be 20 characters, maximum.

Related Commands: none

Example:

```
Command<6>: set NPS message canio_bd
```

```
Which CAN I/O board (bay#-board#)? 01-01  
CAN I/O board 01-01 not found!
```

```
Command<6>: set NPS message canio_bd
```

```
Which CAN I/O board (bay#-board#)? 01-04  
Which message?  
Enter 0 for CAN I/O board or 1-6 for individual I/O # 1  
Note: 1 - Binary Input #1, 2 - Binary Input #2, 3 - Binary Input #3,  
4 - Binary Input # 4, 5 - Shunt Input, 6 - Shunt Output  
Custom message: This is the Analog Input!!!!!!!  
Custom message:  
Custom message NOT CHANGED!
```

```
Command<6>: set NPS message canio_bd
```

```
Which CAN I/O board (bay#-board#)? 04-03  
Which message?  
Enter 0 for CAN I/O board or 1-6 for individual I/O # 0  
Custom message: This is CAN I/O board in loc 4-3  
Custom message:  
Custom message NOT CHANGED!
```

SET NPS MESSAGE DISTRIBUTION

Description: Sets the Custom Text Message for the selected NPS Distribution element. This message appears in the inventory list during execution of the PRCONFIG NPS command. A user can also view the Custom Text Message from the MCA display panel whenever the i (information available) symbol appears in the display. Refer to the NPS System documentation.

Command Level: 6

Syntax: SET NPS MESSAGE DISTRIBUTION
SE NP ME DI

Comments: The current message is displayed, followed by a prompt to enter a new message.

Notes: The custom message can be 20 characters, maximum.

Related Commands: none

Example:

```
Command<6>: set NPS mes dis
```

```
Which DIST panel (bay#-panel#)? 02-01
Which message?
Enter 0 for DIST panel or 1-24 for panel element # 1
Custom message: XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
Custom message: this is fuse 1
Custom message CHANGED!
```

```
Command<6>: set NPS mes dis
```

```
Which DIST panel (bay#-panel#)? 02-01
Which message?
Enter 0 for DIST panel or 1-24 for panel element # 0
Custom message: XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
Custom message: this is panel 1 in bay 2
Custom message CHANGED!
```

SET NPS MESSAGE MCA

Description: Sets the Custom Text Message for the NPS MCA element. This message appears in the inventory list during execution of the PRCONFIG NPS command. A user can also view the Custom Text Message from the MCA display panel whenever the i (information available) symbol appears in the display. Refer to the NPS System documentation.

Command Level: 6

Syntax: SET NPS MESSAGE MCA
SE NP ME MC

Comments: The current message is displayed, followed by a prompt to enter a new message.

Notes: The custom message can be 20 characters, maximum.

Related Commands: none

Example:

```
Command<6>: set NPS mes mca
Custom message:
Custom message: this is the MCA
Custom message CHANGED!
```

```
Command<6>: set NPS mes mca
Custom message: this is the MCA
Custom message:
Custom message NOT CHANGED!
```

SET NPS MESSAGE PCU

Description: Sets the Custom Text Message for the selected NPS PCU element. This message appears in the inventory list during execution of the PRCONFIG NPS command. A user can also view the Custom Text Message from the MCA display panel whenever the i (information available) symbol appears in the display. Refer to the NPS System documentation.

Command Level: 6

Syntax: SET NPS MESSAGE PCU[PCU_number]
SE NP ME PC[PCU_number]

Comments: The current message is displayed, followed by a prompt to enter a new message.

Notes: The custom message can be 20 characters, maximum.

A Custom Text Message **CANNOT** be set in a PCU in a Spec. No. 582140001 Power System.

Related Commands: none

Example:

```
Command<6>: set NPS mes
```

```
Which custom message:
```

```
PCU          MCA          ROUTER          DISTRIBUTION    RELAY_BD
```

```
? pcu
```

```
Which Bay? 1
```

```
Which PCU? 1
```

```
Custom message: XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
```

```
Custom message: this is pcu 01-01
```

```
Custom message CHANGED!
```

```
Command<6>: set NPS mes
```

```
Which custom message:
```

```
PCU          MCA          ROUTER          DISTRIBUTION    RELAY_BD
```

```
? pcu
```

```
Which Bay? 1
```

```
Feature not supported by PCU
```

SET NPS MESSAGE RELAY

Description: Sets the Custom Text Message for the selected NPS Relay element. This message appears in the inventory list during execution of the PRCONFIG NPS command. A user can also view the Custom Text Message from the MCA display panel whenever the i (information available) symbol appears in the display. Refer to the NPS System documentation.

Command Level: 6

Syntax: SET NPS MESSAGE RELAY
SE NP ME RE

Comments: The current message is displayed, followed by a prompt to enter a new message.

Notes: The custom message can be 20 characters, maximum.

Related Commands: none

Example:

```
Command<6>: set NPS mes rel
```

```
Which relay board (bay#-board#)? 01-07
Relay board 01-07 not found!
```

```
Command<6>: set NPS mes rel
```

```
Which relay board (bay#-board#)? 01-01
Which message?
Enter 0 for relay board or 1-6 for individual relay # 1
Custom message: XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
Custom message: this is relay 1
Custom message CHANGED!
```

```
Command<6>: set NPS mes rel
```

```
Which relay board (bay#-board#)? 01-02
Which message?
Enter 0 for relay board or 1-6 for individual relay # 0
Custom message: XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
Custom message: this is board 2
Custom message CHANGED!
```

SET NPS MESSAGE ROUTER

Description: Sets the Custom Text Message for the selected NPS ROUTER (Bay) element. This message appears in the inventory list during execution of the PRCONFIG NPS command. A user can also view the Custom Text Message from the MCA display panel whenever the i (information available) symbol appears in the display. Refer to the NPS System documentation.

Command Level: 6

Syntax: SET NPS MESSAGE ROUTER
SE NP ME RO

Comments: The current message is displayed, followed by a prompt to enter a new message.

Notes: The custom message can be 20 characters, maximum.

Related Commands: none

Example:

```
Command<6>: set NPS mes rou
```

```
Which bay #? 02
```

```
Custom message: XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
```

```
Custom message: this is bay 2
```

```
Custom message CHANGED!
```

SET NPS PASSWORD

Description: Sets the password issued by LMS1000 to gain remote access to the NPS. This password must match the NPS's MCA remote access password. By default, the password issued by LMS1000 and set in an NPS is MARCONI!, in all capital letters. LMS1000 issues the password set here (or the default if not previously set) when LMS1000 is initially powered up or during a reset. The NPS does not grant remote access until the correct password is sent by LMS1000.

Command Level: 6

Syntax: SET NPS PASSWORD
SE NP PA

Comments: The NPS's MCA remote access password is case sensitive, and is limited to 6 characters.

Notes: This command does not change the NPS's MCA remote access password, only the password issued by the LMS1000 to gain remote access.

Record the new password in a secure place. There is no way to view the password set in the LMS1000.

Also, if the MCA's remote access password is ever changed, record the new password in a secure place. The current MCA remote access password cannot be viewed remotely from LMS1000. The password can be viewed locally, from the MCA's Interface Pad. Refer to the NPS manual for a procedure.

If LMS1000 does not successfully connect with the NPS during power up or reset, the following message is displayed when a user attempts NPS access via the LMS1000.

```
Invalid password
```

Related Commands: none

Example:

```
Command<6>: set NPS pass
```

```
Enter current MCA password:  
Enter new password:  
Re-enter new password:  
New password not accepted
```

```
Command<6>: set NPS pass
```

```
Enter current MCA password:  
Enter new password:  
Re-enter new password:  
New password accepted
```

SET NPS PCU

Description: Turns the selected NPS PCU on or off (TR feature).

Command Level: 6

Syntax: SET NPS PCU[*PCU_number*]
SE NP PC[*PCU_number*]

Comments: None

Notes: None

Related Commands: none

Example:

```
582140000 Power System
Command<6>: set NPS
```

```
Set What:
SYSTEM      PCU          MESSAGE      PASSWORD
? pcu
```

```
Which Bay? 1
Which PCU 1 2 3 4 ? 1
Turn PCU 01-01 ON or OFF? off
PCU set command NOT ACCEPTED!
```

```
Command<6>: set NPS pcu
```

```
Which Bay? 1
Which PCU 1 2 3 4 ? 1
Turn PCU 01-01 ON or OFF? on
PCU 01-01 set ON
```

```
582140001 Power System
Command<6>: set NPS pcu
```

```
Which bay? 1
Which PCU 2070500016
          2070500001
          ? 2070500016
Turn PCU 01-2070500016 ON or OFF? on
PCU 01-2070500016 set ON
```

SET NPS SYSTEM BATONDISCH

Description: Sets the NPS "battery on discharge alarm" value.

Command Level: 5

Syntax: SET NPS SYSTEM BATONDISCH
SE NP SY BA

Comments: The current value is displayed, followed by a prompt to enter a new value.

Notes: The following message is displayed if the setting was not accepted by the MCA.

Not Changed!

Related Commands: none

Example:

```
Command<5>: set NPS sys bat
Battery on Discharge Alarm: 51.00 VDC
Battery on Discharge Alarm: 51.1
New Battery on Discharge Alarm Accepted.
```

SET NPS SYSTEM CAPALTCURLIMIT

Description: Sets the NPS "Alternate Current Limit Capacity" value.

Command Level: 6

Syntax: SET NPS SYSTEM CAPALTCURLIMIT

SE NP SY CAPALT

Comments: The current value is displayed, followed by a prompt to enter a new value.

Notes: The following message is displayed if the setting was not accepted by the MCA.

Not Changed!

Related Commands: none

Example:

```
Command<6>: SET NPS SYSTEM CAPALTCURLIMIT
Engine Current Limit Capacity: 0 %
Engine Current Limit Capacity: 90
New Engine Current Limit Capacity Accepted.
```

SET NPS SYSTEM CURLIMIT

Description: Sets the NPS "current limit" value.

Command Level: 6

Syntax: SET NPS SYSTEM CURLIMIT

SE NP SY CU

Comments: The current value is displayed, followed by a prompt to enter a new value.

Notes: The following message is displayed if the setting was not accepted by the MCA.

Not Changed!

Related Commands: none

Example:

```
Command<6>: set NPS sys cur
Plant Current Limit: 5600 Amps
Plant Current Limit: 5700
New Plant Current Limit Accepted.
```

SET NPS SYSTEM EQMULTIPLIER

Description: Sets the NPS "auto equalize time multiplier" value.

Command Level: 6

Syntax: SET NPS SYSTEM EQMULTIPLIER
SE NP SY EQ

Comments: The current value is displayed, followed by a prompt to enter a new value.

Notes: The following message is displayed if the setting was not accepted by the MCA.

Not Changed!

Related Commands: none

Example:

```
Command<6>: set NPS sys eq
Auto Equalize Time Multiplier: 0
Auto Equalize Time Multiplier: 1
New Auto Equalize Time Multiplier Accepted.
```

SET NPS SYSTEM FLT VOLT

Description: Sets the NPS "float output voltage" value.

Command Level: 6

Syntax: SET NPS SYSTEM FLT VOLT
SE NP SY FL

Comments: The current value is displayed, followed by a prompt to enter a new value.

Notes: The MCA does not allow an adjustment which could result in a service interruption. Refer to the NPS instruction manual's float voltage adjustment procedure for details.

The following message is displayed if the setting was not accepted by the MCA.

Not Changed!

Related Commands: none

Example:

```
Command<6>: set NPS flt  
Float Voltage: 52.08 VDC  
Float Voltage: 52.1  
New Float Voltage Accepted.
```

SET NPS SYSTEM HI1TEMPALM

Description: Sets the NPS "high temperature 1 alarm" value.

Command Level: 5

Syntax: SET NPS SYSTEM HI1TEMPALM
SE NP SY HI1

Comments: The current value is displayed, followed by a prompt to enter a new value.

Notes: The following message is displayed if the setting was not accepted by the MCA.

Not Changed!

Related Commands: none

Example:

```
Command<5>: set NPS sys hi1
High Temperature #1 Alarm: 100 DegC
High Temperature #1 Alarm: 101
High Temperature #1 Alarm NOT CHANGED!
```

```
Command<5>: set NPS sys hi1
High Temperature #1 Alarm: 100 DegC
High Temperature #1 Alarm: 99
New High Temperature #1 Alarm Accepted.
```

SET NPS SYSTEM HI2TEMPALM

Description: Sets the NPS "high temperature 2 alarm" value.

Command Level: 5

Syntax: SET NPS SYSTEM HI2TEMPALM
SE NP SY HI2

Comments: The current value is displayed, followed by a prompt to enter a new value.

Notes: The following message is displayed if the setting was not accepted by the MCA.

Not Changed!

Related Commands: none

Example:

```
Command<5>: set NPS sys hi2
High Temperature #2 Alarm: 100 DegC
High Temperature #2 Alarm: 101
High Temperature #2 Alarm NOT CHANGED!
```

```
Command<5>: set NPS sys hi2
High Temperature #2 Alarm: 100 DegC
High Temperature #2 Alarm: 99
New High Temperature #2 Alarm Accepted.
```

SET NPS SYSTEM HIVLTALM1

Description: Sets the NPS "high voltage 1 alarm" value.

Command Level: 5

Syntax: SET NPS SYSTEM HIVLTALM1
SE NP SY HIVLTALM1

Comments: The current value is displayed, followed by a prompt to enter a new value.

Notes: The following message is displayed if the setting was not accepted by the MCA.

Not Changed!

Related Commands: none

Example:

```
Command<5>: set NPS sys hivltalm1
High Voltage #1 Alarm: 55.50 VDC
High Voltage #1 Alarm: 55.6
New High Voltage #1 Alarm Accepted.
```

SET NPS SYSTEM HIVLTALM2

Description: Sets the NPS "high voltage 2 alarm" value.

Command Level: 5

Syntax: SET NPS SYSTEM HIVLTALM2
SE NP SY HIVLTALM2

Comments: The current value is displayed, followed by a prompt to enter a new value.

Notes: The following message is displayed if the setting was not accepted by the MCA.

Not Changed!

Related Commands: none

Example:

```
Command<5>: set NPS sys hivltalm2
High Voltage #2 Alarm: 56.50 VDC
High Voltage #2 Alarm: 56.6
New High Voltage #2 Alarm Accepted.
```

SET NPS SYSTEM HVS

Description: Sets the NPS "high voltage shutdown" value.

Command Level: 6

Syntax: SET NPS SYSTEM HVS
SE NP SY HV

Comments: The current value is displayed, followed by a prompt to enter a new value.

Notes: The MCA does not allow an adjustment which could result in a service interruption. Refer to the NPS instruction manual's high voltage shutdown adjustment procedure for details.

The following message is displayed if the setting was not accepted by the MCA.

Not Changed!

Related Commands: none

Example:

```
Command<6>: set NPS sys hvs
High Voltage Shutdown: 57.50 VDC
High Voltage Shutdown: 57.6
New High Voltage Shutdown Accepted.
```

SET NPS SYSTEM LOADACURRENT

Description: Sets the NPS "Load Group A current alarm" value.

Command Level: 5

Syntax: SET NPS SYSTEM LOADACURRENT
SE NP SY LOADA

Comments: The current value is displayed, followed by a prompt to enter a new value.

Notes: The following message is displayed if the setting was not accepted by the MCA.

Not Changed!

Related Commands: none

Example:

```
Command<5>: set NPS sys loada
A Load Overcurrent Alarm: 2500 Amps
A Load Overcurrent Alarm: 2600
New A Load Overcurrent Alarm Accepted.
```

SET NPS SYSTEM LOADBCURRENT

Description: Sets the NPS "Load Group B current alarm" value.

Command Level: 5

Syntax: SET NPS SYSTEM LOADBCURRENT
SE NP SY LOADB

Comments: The current value is displayed, followed by a prompt to enter a new value.

Notes: The following message is displayed if the setting was not accepted by the MCA.

Not Changed!

Related Commands: none

Example:

```
Command<5>: set NPS sys loadb
B Load Overcurrent Alarm: 2000 Amps
B Load Overcurrent Alarm: 2100
New B Load Overcurrent Alarm Accepted.
```

SET NPS SYSTEM LOADCURRENT

Description: Sets the NPS "total load current alarm" value.

Command Level: 5

Syntax: SET NPS SYSTEM LOADCURRENT
SE NP SY LO

Comments: The current value is displayed, followed by a prompt to enter a new value.

Notes: The following message is displayed if the setting was not accepted by the MCA.

Not Changed!

Related Commands: none

Example:

```
Command<5>: set NPS sys loadc
Total Load Overcurrent Alarm: 5000 Amps
Total Load Overcurrent Alarm: 5100
New Total Load Overcurrent Alarm Accepted.
```

SET NPS SYSTEM LOW1TEMPALM

Description: Sets the NPS "low temperature 1 alarm" value.

Command Level: 5

Syntax: SET NPS SYSTEM LOW1TEMPALM
SE NP SY LOW1

Comments: The current value is displayed, followed by a prompt to enter a new value.

Notes: The following message is displayed if the setting was not accepted by the MCA.

Not Changed!

Related Commands: none

Example:

```
Command<5>: set NPS sys low1
Low Temperature #1 Alarm: -50 DegC
Low Temperature #1 Alarm: -49
New Low Temperature #1 Alarm Accepted.
```

SET NPS SYSTEM LOW2TEMPALM

Description: Sets the NPS "low temperature 2 alarm" value.

Command Level: 5

Syntax: SET NPS SYSTEM LOW2TEMPALM
SE NP SYS LOW2

Comments: The current value is displayed, followed by a prompt to enter a new value.

Notes: The following message is displayed if the setting was not accepted by the MCA.

Not Changed!

Related Commands: none

Example:

```
Command<5>: set NPS sys low2
Low Temperature #2 Alarm: -50 DegC
Low Temperature #2 Alarm: -49
New Low Temperature #2 Alarm Accepted.
```

SET NPS SYSTEM NAGTIMER

Description: Sets the NPS "nag minutes (audible alarm cutoff reset time period)" value.

Command Level: 4

Syntax: SET NPS SYSTEM NAGTIMER
SE NP SY NA

Comments: The current value is displayed, followed by a prompt to enter a new value.

Notes: The following message is displayed if the setting was not accepted by the MCA.

Not Changed!

Related Commands: none

Example:

```
Command<4>: set NPS sys nag
Audible Silent Time: 15 min.
Audible Silent Time: 30
Audible Silent Time NOT CHANGED!
```

```
Command<4>: set NPS sys nag
Audible Silent Time: 15 min.
Audible Silent Time: 10
New Audible Silent Time Accepted.
```

```
SET NPS SYSTEM PWRSHARECAP
```

Description: Sets the NPS "Power Share Capacity" value.

Command Level: 6

Syntax: SET NPS SYSTEM PWRSHARECAP
SE NP SY PWR

Comments: The present value is displayed, followed by a prompt to enter a new value.

Notes: The following message is displayed if the setting was not accepted by the MCA.

Not Changed!

Related Commands: none

Example:

```
Command<6>: SET NPS SYS PWRSHARECAP
Power Share Capacity: 80 %
Power Share Capacity: 70
New Power Share Capacity Accepted.
```

SET NPS SYSTEM RLYOFFTEST

Description: Sets the NPS "alarm relay test feature" off.

Command Level: 6

Syntax: SET NPS SYSTEM RLYOFFTEST
SE NP SY RLYOF

Comments: The current state is displayed, followed by a prompt to change the state.

Notes: The following message is displayed if the setting was not accepted by the MCA.

Not Accepted!

Related Commands: SET NPS SYSTEM RLYONTEST

Example:

```
Command<6>: set NPS sys rlyoff  
Relay Function 1 test is active  
Remaining test time: 30
```

```
Stop Relay Function Test? (Y or N): y  
Relay Test Stopped!
```

SET NPS SYSTEM RLYONTEST

Description: Sets the NPS "alarm relay test feature" on.

Command Level: 6

Syntax: SET NPS SYSTEM RLYONTEST
SE NP SY RLYON

Comments: The current state is displayed, followed by a prompt to change the state.

Notes: The following message is displayed if the setting was not accepted by the MCA.

Not Accepted!

Related Commands: SET NPS SYSTEM RLYOFFTEST

Example:

```
Command<6>: set NPS sys rlyon
Relay test is inactive.
Which Relay Function (0-25, 0 == All)?1
Start Relay Function Test? (Y or N): Y
Relay Test Started!
```

```
Command<6>: set NPS sys rlyon
Relay Function 1 test is active
Remaining test time: 43
```

SET NPS SYSTEM RLYTSTTIME

Description: Sets the NPS "alarm relay test time period" value.

Command Level: 5

Syntax: SET NPS SYSTEM RLYTSTTIME
SE NP SY RL

Comments: The current value is displayed, followed by a prompt to enter a new value.

Notes: The following message is displayed if the setting was not accepted by the MCA.

Not Changed!

Related Commands: none

Example:

```
Command<5>: set NPS sys rly
Relay Test Time: 10 sec.
Relay Test Time: 20
New Relay Test Time Accepted.
```

SET NPS SYSTEM SEQDELAY

Description: Sets the NPS "PCU sequencing delay" value.

Command Level: 6

Syntax: SET NPS SYSTEM SEQDELAY
SE NP SY SEQ

Comments: The present value is displayed, followed by a prompt to enter a new value.

Notes: The following message is displayed if the setting was not accepted by the MCA.

Not Changed!

Related Commands: none

Example:

```
Command<6>: SET NPS SYSTEM SEQDELAY  
PCU Sequencing Delay Time: 0 sec.  
PCU Sequencing Delay Time: 3  
New PCU Sequencing Delay Time Accepted.
```

SET NPS SYSTEM TEMPCOMPMAX

Description: Sets the "battery charge temperature compensation feature's maximum voltage" value.

Command Level: 6

Syntax: SET NPS SYSTEM TEMPCOMPMAX
SE NP SY TEMPCOMPMA

Comments: The current value is displayed, followed by a prompt to enter a new value.

Notes: The following message is displayed if the setting was not accepted by the MCA.

Not Changed!

Related Commands: none

Example:

```
Command<6>: set NPS sys tempcompmax  
Maximum Temp. Compensation Voltage: 56.50 VDC  
Maximum Temp. Compensation Voltage: 56.7  
Maximum Temp. Compensation Voltage NOT CHANGED!
```

```
Command<6>: set NPS sys tempcompmax  
Maximum Temp. Compensation Voltage: 56.50 VDC  
Maximum Temp. Compensation Voltage: 55.9  
New Maximum Temp. Compensation Voltage Accepted.
```

SET NPS SYSTEM TEMPCOMPMIN

Description: Sets "battery charge temperature compensation feature's minimum voltage" value.

Command Level: 6

Syntax: SET NPS SYSTEM TEMPCOMPMIN
SE NP SY TEMPCOMPMI

Comments: The current value is displayed, followed by a prompt to enter a new value.

Notes: The following message is displayed if the setting was not accepted by the MCA.

Not Changed!

Related Commands: none

Example:

```
Command<6>: set NPS sys tempcompmin
Minimum Temp. Compensation Voltage: 50.00 VDC
Minimum Temp. Compensation Voltage: 50.05
New Minimum Temp. Compensation Voltage Accepted.
```

SET NPS SYSTEM TEMPSLOPE

Description: Sets the "battery charge temperature compensation feature's compensation slope" value.

Command Level: 6

Syntax: SET NPS SYSTEM TEMPSLOPE
SE NP SY TEMPS

Comments: The current value is displayed, followed by a prompt to enter a new value.

Notes: The following message is displayed if the setting was not accepted by the MCA.

Not Changed!

Related Commands: none

Example:

```
Command<6>: set NPS sys temps
Temperature Compensation Slope: 0.111 V/DegC
Temperature Compensation Slope: 0.200
Temperature Compensation Slope NOT CHANGED!
```

NOTE, THE "0." IS ENTERED FOR THE USE
NOTE, NEED PROBE INSTALLED

```
Command<6>: set NPS sys temps
Temperature Compensation Slope: 0.111 V/DegC
Temperature Compensation Slope: 0.15
New Temperature Compensation Slope Accepted.
```

```
Command<6>: set NPS sys temp
Temperature Compensation Slope: 0.100 V/DegC
Temperature Compensation Slope: 0.0
Temperature compensation DEACTIVATED!
```

```
Command<6>: set NPS sys temps
Temperature Compensation Slope: 0.150 V/DegC
Temperature Compensation Slope: 0..1
Temperature compensation DEACTIVATED!
```

NOTE, ANYTHING THAT EVALUATES TO ZERO DEACTIVATE TC

```
Command<6>: set NPS sys temp
Temperature Compensation Slope: 0.000 V/DegC
Temperature Compensation Slope: 0.1
New Temperature Compensation Slope Accepted.
```

SET NPS SYSTEM TSTEQMODE

Description: Sets the NPS to the float or test/equalize mode.

Command Level: 6

Syntax: SET NPS SYSTEM TSTEQMODE
SE NP SY TSTEQM

Comments: The current operating mode is displayed, followed by a prompt to change the operating mode.

Notes: None

Related Commands: none

Example:

```
Command<6>: set NPS sys tsteqm
System is in float mode.
Turn test equalize mode ON or OFF? on
Test equalize mode is ON
```

```
Command<6>: set NPS sys tsteqm
System is in test equalize mode.
Turn test equalize mode ON or OFF? off
Test equalize mode is OFF
```

```
Command<6>: set NPS sys tsteqm on
System is in float mode.
Turn test equalize mode ON or OFF? on
Test equalize mode is ON
```

SET NPS SYSTEM TSTEQTIME

Description: Sets the "timed equalize feature's equalize time period" value.

Command Level: 6

Syntax: SET NPS SYSTEM TSTEQTIME
SE NP SY TSTEQT

Comments: The current value is displayed, followed by a prompt to enter a new value.

Notes: The following message is displayed if the setting was not accepted by the MCA.

Not Changed!

Related Commands: none

Example:

```
Command<6>: set NPS sys tsteqt  
Manual Test/Equalize Time: 1 hrs.  
Manual Test/Equalize Time: 2  
New Manual Test/Equalize Time Accepted.
```

SET NPS SYSTEM TSTEQVOLT

Description: Sets the NPS "test/equalize output voltage" value.

Command Level: 6

Syntax: SET NPS SYSTEM TSTEQVOLT
SE NP SY TST

Comments: The current value is displayed, followed by a prompt to enter a new value.

Notes: The MCA does not allow an adjustment which could result in a service interruption. Refer to the NPS instruction manual's test/equalize adjustment procedure for details.

The following message is displayed if the setting was not accepted by the MCA.

Not Changed!

Related Commands: none

Example:

```
Command<6>: set NPS sys tst
Test/Equalize Voltage: 52.00 VDC
Test/Equalize Voltage: 52.1
New Test/Equalize Voltage Accepted.
```

SET NPS SYSTEM UPDATEINV

Description: Resets the NPS "inventory" to reflect the current system configuration.

Command Level: 6

Syntax: SET NPS SYSTEM UPDATEINV
SE NP SY UP

Comments: None

Notes: None

Related Commands: none

Example:

```
Command<6>: set NPS sys up
```

```
Execution of this command could REMOVE NPS Bay, PCU, and Distribution Panel  
Configuration and could result in lost ALARM CONDITIONS!!
```

```
Do you wish to update the MCA inventory? (YES or NO): no  
Command NOT ACCEPTED!
```

SET NPS SYSTEM USECELSIUS

Description: Sets the NPS temperature readings to Celsius.

Command Level: 6

Syntax: SET NPS SYSTEM USECELSIUS
SE NP SY USEC

Comments: none

Notes: none

Related Commands: none

Example:

```
Command<6>: set NPS sys usec
```

```
Change MCA to use Celsius? (Y or N): y  
Change ACCEPTED!
```

SET NPS SYSTEM USEFAHRENHEIT

Description: Sets the NPS temperature readings to Fahrenheit.

Command Level: 6

Syntax: SET NPS SYSTEM USEFAHRENHEIT
SE NP SY USEF

Comments: none

Notes: none

Related Commands: none

Example:

```
Command<6>: set NPS sys usef
```

```
Change MCA to use Fahrenheit? (Y or N): y  
Change ACCEPTED!
```

SET NPS SYSTEM VERYLOWVOLT

Description: Sets the NPS "very low voltage alarm" value.

Command Level: 5

Syntax: SET NPS SYSTEM VERYLOWVOLT
SE NP SY VE

Comments: The current value is displayed, followed by a prompt to enter a new value.

Notes: The following message is displayed if the setting was not accepted by the MCA.

Not Changed!

Related Commands: none

Example:

```
Command<5>: set NPS sys very
Very Low Voltage Alarm: 47.00 VDC
Very Low Voltage Alarm: 47.1
New Very Low Voltage Alarm Accepted.
```

SET PERIODS

Description: Allows you to set one of eight time period intervals that can be used in the control programs as a variable (P term).

Command Level: 5

Syntax: SET PERIODS [*n*]
SE PE [*n*]

Comments: The time period is specified using the format FROM: hh:mm:ss TO: hh:mm:ss.

Notes: The "FROM" time does not necessarily have to be less than, or before, the "TO" time. As an example, if time period 1 "FROM" time is set to 08:00:00 and the "TO" time is set to 07:00:00, then the control program term P1 will be true 23 hours a day. It will be false between 7:00 and 8:00 in the morning.

Related Commands: PERIOD

Example:

```
Command<5>: SET PERIODS
Which Time Period (1 - 8) ? 1
Time Period No. 1 - FROM          TO
FROM time (hh:mm:ss) 08:15:00
   TO time (hh:mm:ss) 16:00:00
Time Period No. 01 - FROM 08:15:00 TO 16:00:00
```

SET PHONE

Description: Allows changing of a user's two phone numbers.

Command Level: 3

Syntax: SET PHONE
SE PH

Comments: A phone number can consist of up to 20 characters. The primary phone number is displayed, along with its valid days and valid hours. The alternate phone number is also displayed. The alternate phone number will be used by the system for days and hours that are not valid for the primary phone number. After reviewing this information, the user can enter new information, or press the return or enter key to proceed to the next entry.

Inserting a comma as part of the phone number provides a two second dialing delay when the phone number is dialed.

A phone number can also be entered when a user is configured. If the only change required to an existing channel is to change the phone number, the SET PHONE command eliminates the need to proceed through an entire user configuration sequence.

If you are using pager reporting and the pager company requires a user ID code, that information should be a part of the phone number. The ID code must be separated from the phone number by the character B. For example, if your user ID was 123#, your phone number might look like 1212743 4455 B123#.

Notes: Setting the "From Hour" to 08 and the "Thru Hour" to 16 would cause the primary phone number to be used between 8:00:00 am and 4:59:59 pm.

Related Commands: PHONE

Example:

Command<3>: SET PHONE

YOUR PHONE NUMBERS:

Primary Phone:

Primary Phone Valid Days: 1-7

Primary Phone Valid Hours: 00-23

Alternate Phone:

Primary Phone:

Primary Phone:

Valid Times for Primary Phone

From Day:

From Day:

Thru Day:

Thru Day:

From Hour:

From Hour:

Thru Hour:

Thru Hour:

Alternate Phone:

Alternate Phone:

SET PROFILE

Description: Allows editing of the Gateway Port device profiles.

Command Level: 6

Syntax: SET PROFILE [*device number*]

Comments: The Gateway Port device profiles may be used when establishing a communications link to the device attached to the Gateway Port. Profiles 1 and 2 are dedicated to the DGU and SMU and do not allow editing of the device type (name) and the logon prompt. Profiles 3-6 are custom and allow editing of the device type (name) and the logon prompt in addition to the command line prompt and the logoff command.

Notes:

The following message is recorded in the event log after successfully editing Gateway device profile:

```
Device profile #<n> set      (where 'n' is the profile number)
```

Related Commands: CONNECT

SET GATEWAY

Example:

```
Command<6>: set profile
```

1. DGU
2. SMU
3. WB57
4. Custom2
5. Custom3
6. Custom4

```
Select a profile(1-6): 1
```

```
Device command line prompt: >:
```

```
Enter Device command line prompt:
```

```
Device log off command: BYE
```

```
Enter Device log off command:
```

```
Save changes (Y or N): y
```

```
Command<6>: set profile
```

1. DGU
2. SMU
3. WB57
4. Custom2
5. Custom3
6. Custom4

```
Select a profile(1-6): 4
```

```
Device type: Custom2
```

```
Enter Device type: ENGMON
```

```
Logon prompt:
```

```
Enter Logon prompt: Password:  
Device command line prompt:  
Enter Device command line prompt: <  
Device log off command:  
Enter Device log off command: EXIT  
Save changes (Y or N): y
```

Selecting a profile number that is not valid results in the following error message.

```
Command<6>: SET PROFILE 9  
Invalid device type specified
```

SET PROGRAM

Description: Allows changing of the control programs.

Command Level: 5

Syntax: SET PROGRAM [*channel_designator*]
SE PR [*channel_designator*]

Comments:

Refer to the Configuration section in the separate Installation Manual for a discussion on program lines.

When editing an existing control program use, Ctrl-R to copy the entire control program text, or use Ctrl-Z to copy only one character from the existing text.

A program line can also be entered when a channel is configured. If the only change required to an existing channel is to change the program line, the SET PROGRAM command eliminates the need to proceed through an entire channel configuration sequence.

Notes: This command could affect the alarm log information and therefore could also initiate a phone call or Email message. Any user setting a program line will have his name and this action recorded in the event log. Only one user at a time has access to the system internal program line editor. If the program line editor is in use and another user attempts to edit a program line, the user is notified that the editor is in use. When using *channel_designator*, only channel types L, R, or F are valid.

Related Commands: PROGRAM

Example:

```
Command<5>: SET PROGRAM
Which Channel ? R0003
Control Program: None
Enter Program Line:
R0003=A0005&B0001&P1
```

SET REPORT

Description: Allows changing of the system alarm reporting function.

Command Level: 5

Syntax: SET REPORT
SE RE

Comments: The current status of the system reporting function as it is configured is first displayed, and then the user can change the configuration, if desired. Parameters displayed include System Alarm Report mode, which enables the reporting and allows the user to choose between single (system alarm reporting is considered successful if the system connects with a modem or sends an Email), or continuous (system alarm reporting is considered successful when the user issues an ACK command), or off. The User Calling Sequence allows the programming of users in the order in which the system will call in an attempt to communicate an alarm indication. The Retry Time is the time interval between the calling or Emailing of the last person designated in the user sequence and the recalling or Emailing of the first user in the sequence. The Auto-logoff Time is the interval the system waits with a pending report before issuing a priority message, and logging the user off.

In the typical screen display below, the system will first attempt to report system alarms to user No. 6. If not successful, it will attempt to call user No. 5, followed by user No. 4, then user No. 1. The system will try to call or Email user No. 6 again after 10 minutes and continue the sequence until the system gets through to any of the four users. After it gets through to one of the users, the system will no longer attempt to contact the other three users (single), or until the user issues an ACK command (continuous).

If the ACK (acknowledge) command is entered by any user to acknowledge new system alarms which have not been reported, no system alarm report attempts will be made for that particular alarm.

Notes: A maximum of 20 numbers can be entered in the User Calling Sequence. For Email alarm notification, also use the SET EMAIL command.

Related Commands: REPORT, SET EMAIL

Example:

```
Command<6>: SET REPORT
System Alarm Report mode: Single
User Calling Sequence: 6 5 4 1
Retry Time: 10m
Auto-logoff Time: 60sec
System Alarm Report mode: Continuous
User Calling Sequence: 6 5 4 1
Retry Time: 10m
Auto-logoff Time: 60sec
```

SET RLY

Description: Allows manual energizing of each of the control relays.

Command Level: 6, or level 5 if the relay channel being operated is configured in the user's channel group.

Syntax: SET RLY [[*node_number*]*channel_number*]
SE RL [[*node_number*]*channel_number*]

Comments: The SET RLY command could generate an alarm log entry if the relay is configured as an alarm type. Additionally, if configured as an alarm type, this alarm could initiate a phone report or Email message.

A jumper is provided on the relay circuit card which can be used to disable the SET RLY and CLR RLY commands.

If a level 5 user attempts to set a relay channel not configured in the user's channel group, the following message is issued. "Illegal request, not configured to access this channel" or when using the voice feature "Relay access refused".

Notes: Any user using the SET RLY command will have his name and this action recorded in the event log. The relay can be released using the command CLR RLY.

Related Commands: CLR RLY

Example:

```
Command<6>: SET RLY  
Set Relay: 0005  
Set Relay:
```

SET SEQUENCE

Description: Allows configuration of the sequencer option, if furnished.

Command Level: 5

Syntax: SET SEQUENCE
SE SE

Comments: Configuration information consists of the current status of the standby and AC sequencers. Additional information includes the Standby On/Proper Operate binary input, the Start Delay before standby sequencing begins, Sequencer Failsafe Time, AC Restoration Qualification Time, along with the AC Fail/Transfer binary input number and the Input Type. The standby start delay is in seconds. After the configuration information is displayed, the user can change the data if required.

Notes: Use of this command generates an entry into the Event Log. Sequencing affects all rectifiers configured for energy management. The AC Restoration Qualification Timer feature should be set to a few seconds less than the actual amount of time required for a proper transfer. Refer also to the Configuration section in the separate Installation Manual.

Related Commands: none

Example:

Command<6>: SET SEQUENCE

RECTIFIER SEQUENCING ROUTINES Current Setting (DISABLED or ACTIVE)

SEQUENCER OPTIONS:

AC Sequencer: Off

AC Fail/Transfer Input = B01

Input type: AC Fail

Standby Sequencer: Off

Standby On/Proper Operate Input = B01

Standby Start Delay: 15sec

Sequencer Failsafe time:

AC Restoration Qualification time:

AC Sequencer on (Y or N): y

AC Fail/Transfer Input = B1

Input type(Fail or Transfer): FAIL

Standby Sequencer on (Y or N): y

Standby On/Proper Operate Input = B1

Standby Start Delay: 15

Standby Start Delay:

Sequencer Failsafe time: 60

Sequencer Failsafe time:

AC Restoration Qualification time: 0
AC Restoration Qualification time:
Save changes (Y or N): n
RECTIFIER SEQUENCING ROUTINES (Y or N):

SET STATS CHANNELS

Description: Sets the Advanced Statistics Analog and Function channels.

Command Level: 5

Syntax: SET STATS CHANNELS

Comments: Allows a user to specify the analog and function channels for which daily and weekly statistics are collected (up to ten). Channels added or deleted are affected immediately.

Related Commands: STATS, STATS DAILY, STATS WEEKLY, STATS CHANNELS, CLR STATS, CLR STATS DAILY, CLR STATS WEEKLY

Example:

```
Command<1>: set stats channels
```

```
Daily/Weekly Statistics channel list:
```

```
<tnncc>, <tnncc>, <tnncc>, <tnncc>, <tnncc>, <tnncc>, <tnncc>, <tnncc>, <tnncc>, <tnncc>
```

```
The existing list will be COMPLETELY DELETED!
```

```
Do you wish to replace it with a new channel list (YES or NO)? YES
```

```
You must enter any channels from the previous list that you wish to keep!
```

```
Enter new channel list in order of desired display or "none".
```

```
<tnncc>, <tnncc>, <tnncc>, <tnncc>, <tnncc>, <tnncc>, <tnncc>, <tnncc>, <tnncc>, <tnncc>
```

```
where: <tnncc> is the channel identifier by type ('t'), node number ('nn'), and channel number ('cc').
```

SET STATUS

Description: Permits configuration of related channel scan information into a convenient single page format consisting of 18 lines. Up to sixteen (16) status pages can be configured.

Command Level: 5

Syntax: SET STATUS [n]
SE ST [n]

Comments: The first line is reserved for the page name, with a maximum page name length of 30 characters. The remaining 17 lines can be either programmed to display header information, which is the names of the columns displayed during a scan, or actual scan data information from a particular channel. With this capability, a group of different channels can be scanned and appear together on a status page.

Refer to **Table 6** below for a guide to character entries to display either header information or scan information for particular channels.

Table 6: SET STATUS Character Entries

SCAN HEADER INFORMATION		SCAN CHANNEL DATA	
ENTER	HEADER TYPE	ENTER	CHANNEL TYPE
A	analog	A[node_number_channel_number]	analog
B	binary	B[node_number_channel_number]	binary
E	energy management	E[channel_number]	energy management
F	function	F[channel_number]	function
L	LED	L[channel_number]	LED
R	relay	R[node_number_channel_number]	relay

Notes: none

Related Commands: STATUS

Example:

Command<6>: SET STATUS

STATUS PAGES:

```

Pg 1: PBD02 STATUS
Pg 2: A
Pg 3: A1
Pg 4:
Pg 5: B
Pg 6: B1
Pg 7: B2
Pg 8: B3
Pg 9:
Pg 10:
Pg 11:
Pg 12:
Pg 13:
Pg 14:
Pg 15:
Pg 16:

```

Which page (1-16) ? 2

Pg 2 name:

Pg 2 name: PBD03 STATUS

Pg 2 line 1:

Pg 2 line 1: A

Pg 2 line 2:

Pg 2 line 2:

Pg 2 line 3:

Pg 2 line 3: A5

Pg 2 line 4:

Pg 2 line 4: A6

SET SYSTEM

Description: Programs system and user configuration parameters.

Command Level: 6

Syntax: SET SYSTEM
SE SY

Comments: This command combines the function of several SET commands, allowing system and user information to be entered via a single command. The SET SYSTEM command is explained in detail in the Configuration section of the separate Installation Manual.

Notes: Channel configuration parameters are set using the CONFIG command.

Related Commands: CONFIG

Example:

```
Command<6>: set system
```

```
Date is 08/17/01.  
Use Format mm/dd/yy
```

```
Time is 11:39:28.  
Use Format hh:mm:ss
```

```
LMS1000 V1.0   CRC: 1F1C26EB  
Unit Name: Central Office - Unit #1  
System Identifier(SID):
```

```
Unit Name:
```

```
Unit #
```

```
System Identifier(SID):
```

```
Unit Header:
```

```
Unit Pager Code:
```

```
LMS1000 V1.0   CRC: 1F1C26EB  
Unit Name: Central Office - Unit #1  
System Identifier(SID):
```

```
Rings before answer: 1  
Enter New #:
```

```
Rings before answer: 1
```

```
USER NO. 1 CONFIGURATION
```

```
Name: User #1
```

```
Occurred Alarm Report: No
```


Alternate E-mail:

Alternate E-mail:

Report Device: Modem

Report Device (Modem, Ethernet, or X25):

Report Mode: Off

Report Mode (Off, Modem, Email):

Report Retry Time: 15

Report Retry Time:

Occurred Alarm Report: N

Occurred Alarm Report (Y or N):

Retired Alarm Report: N

Retired Alarm Report (Y or N):

Persistent Alarm Report: N

Persistent Alarm Report (Y or N):

Daily Report: N

Daily Report (Y or N):

Save changes (Y or N):

Y

Edit User Channels (Y or N):

Y

Enter channel (eg. A0012 or A0001-6) or D to display.

Add Channel:

Enter channel (eg. A0012 or 000-6) or D to display.

Del Channel:

...

USER NO. 8 CONFIGURATION

Name: User #8

Password: 8

Access Level: 6

Callback: No

Mechanized Interface: No

Report Mode: Off

Report Device: Modem

Report Retry Time: 15m

Primary Phone:

Primary E-mail:

Primary Phone Valid Days: 1-7

Primary Phone Valid Hours: 00-23

Occurred Alarm Report: No

Retired Alarm Report: No

Persistent Alarm Report: No

Persistent Alarm Report Period: 0m

Daily Report: No

Daily Report Command:

Daily Report Time:

Alternate Phone:
Alternate E-mail:

User active (Y or N):
Y

Name: User #8
Name:

Password: 8
Password:

Access Level: 6
Access Level (1 - 6):

Callback: N
Callback (Y or N):

Primary Phone:
Primary Phone:

Valid Times for Primary Phone

From Day: 1
From Day:

Thru Day: 7
Thru Day:

From Hour: 0
From Hour:

Thru Hour: 23
Thru Hour:

Alternate Phone:
Alternate Phone:

Primary E-mail:
Primary E-mail:

Alternate E-mail:
Alternate E-mail:

Report Device: Modem
Report Device (Modem, Ethernet, or X25):

Report Mode: Off
Report Mode (Off, Modem, E-mail):
Report Retry Time: 15
Report Retry Time:

Occurred Alarm Report: N
Occurred Alarm Report (Y or N):

Retired Alarm Report: N
Retired Alarm Report (Y or N):

Persistent Alarm Report: N
Persistent Alarm Report (Y or N):

Daily Report: N
Daily Report (Y or N):

Save changes (Y or N):
 Y

Edit User Channels (Y or N):

 Y
Enter channel (eg. A12 or A1-6) or D to display.
Add Channel:

Enter channel (eg. A12 or A1-6) or D to display.
Del Channel:

System Alarm Report mode: Off
User Calling Sequence:
Retry Time: 10m
Auto-logout Time: 60sec

System Alarm Report mode:

User Calling Sequence:

Retry Time:

Auto-logout Time:

System Alarm Report mode: Off
User Calling Sequence:
Retry Time: 10m
Auto-logout Time: 60sec

SET TIME

Description: Permits the setting of the system time.

Command Level: 3

Syntax: SET TIME
SE TI

Comments: The current time is displayed, and can be changed if desired by using the format hh:mm:ss.

Notes: This command will affect the times associated with any statistics that may be saved in memory. Also, any alarms that clear after the time is set will have the new time stored as part of their log entry, which could be misleading. Any user changing the time will have his name and this action recorded in the event log.

Related Commands: TIME

Example:

```
Command<3>: SET TIME
Time is 02:29:04.
Use Format HH:MM:SS
```

SET TIMEOUT

Description: Defines the length of time that the system will remain on line without a command, carriage return, or line feed being entered before terminating a communications session.

Command Level: 5

Syntax: SET TIMEOUT
SE TIMEO

Comments: The timeout interval is programmable from 5 to 9999 seconds. The default time is 5 minutes.

Notes: Any user changing the timeout period will have his name and this action recorded in the event log.

The TL1 port has a session timeout feature which operates independently from the user timeout feature.

Related Commands: TIMEOUT

Example:

```
Command<6>: SET TIMEOUT
User timeout: 300 seconds.
Enter new user timeout:
User timeout: 300 seconds.
```

SET UNIT

Description: Allows changing of the system unit name, unit number, system identifier, unit header, unit pager code, and pager delay.

Command Level: 5

Syntax: SET UNIT
SE UN

Comments: The current system unit name, unit number, system identifier, unit header, unit pager code, and pager delay is first displayed, and then a new system unit name (30 characters maximum), unit number (maximum four digits), system identifier (20 characters maximum), unit header (79 characters maximum), unit pager code (allowable characters are *, #, and digits), and pager delay (0-99) can be entered, if desired. If the current system unit number is satisfactory, pressing the return or enter key on the terminal cancels the command.

The system unit name and unit header is displayed when remote access is granted. The unit name, unit number, unit header, and system identifier are always displayed when a user logs on to the system, or when an alarm report is made. The pager delay determines the time delay in seconds between the last digit dialed in a pager phone number and outputting the pager PIN number.

The system identifier parameter applies only to TL1 commands/messages. This is a unique name which identifies the system in an NMA system. This data parameter is used to identify the destination of command messages and the source of response and autonomous messages in an NMA system. This parameter does not appear if the system is not equipped with the TL1 software option.

Notes: The use of this command causes an entry in the events log.

Related Commands: UNIT

Example:

Command<6>: SET UNIT

```
LMS1000 v1.0.0
Unit Name: Central Office - Unit #1
System Identifier:
Unit Header:
THIS IS THE UNIT HEADER
Unit Pager Code:
Pager Delay:
```

```
Unit Name: Lorain Engineering
Unit #1
System Identifier (SID):
Unit Header:
THIS IS THE UNIT HEADER
Unit Pager Code: 216-288-1122#
Pager Delay:
```

SET USERS

Description: Allows tailoring of the alarm reporting features of the system to each of the eight users.

Command Level: 6

Syntax: SET USERS [*n*]
SE US [*n*]

Comments: The configuration of the user selected is first displayed. Information such as the name of the user, the password of the user, the access level of the user, whether or not the user has selected the callback feature, the primary phone number, valid days and hours of the primary phone number, the alternate phone number, Primary Email, and Alternate Email. Additional information includes whether the user is configured for the report device, status of the report mode, the report retry time interval, and whether the user is configured for the occurred alarm report, the retired alarm report, the persistent alarm report, the persistent alarm report period, the daily report, and the daily report command and time.

When callback is selected, additional security is obtained for remote access. After receiving a password from a remote terminal (over the phone line) the system will hang up and call either the primary or alternate phone number to obtain access remotely. The phone number selected will be based on the valid time and day.

If the report mode is set to OFF, none of the reporting functions for this user will be active regardless of their setting.

The report retry time is the number of minutes that the system will wait before attempting to contact the user with a callback or user alarm report if there was no answer or a busy signal during the first try (0-1440 minutes, with 0 representing no retry). (This retry time has no effect on System Alarm Reporting.) The system will continue to try until someone calls the system and logs on as the associated user.

When the occurred alarm report is set to YES, the user will receive a call if any new alarms occur on his channels. If the retired alarm report is set to YES, this user will receive a call when those alarms have cleared.

If the persistent alarm reporting function is selected, the system will continue to report this alarm until it has been cleared. The interval between reports for this function is set by the persistent alarm reporting period.

When the daily report is selected, the user will receive a customized report at a specified time each day.

A user cannot de-activate himself or change his own access level.

Notes: none

Related Commands: USERS, SET PHONE, SET EMAIL, SET CHANNELS, SET SYSTEM

Example:

```
Command<6>: set user
Which user (1 - 8) ?
```

1

USER NO. 1 CONFIGURATION

Name: User #1	Occurred Alarm Report: No
Password: 1	Retired Alarm Report: No
Access Level: 1	Persistent Alarm Report: No
Callback: No	Persistent Alarm Report Period: 0m

Mechanized Interface: No
Report Mode: Off
Report Device: Modem
Report Retry Time: 15m
Primary Phone:
Primary E-mail:
Primary Phone Valid Days: 1-7
Primary Phone Valid Hours: 00-23
Alternate Phone:
Alternate E-mail:

Daily Report: No
Daily Report Command:
Daily Report Time:

User active (Y or N):

Y

Name: User #1

Name:

Password: 1

Password:

Access Level: 1

Access Level (1 - 6):

Callback: N

Callback (Y or N):

Primary Phone:

Primary Phone:

Valid Times for Primary Phone

From Day: 1

From Day:

Thru Day: 7

Thru Day:

From Hour: 0

From Hour:

Thru Hour: 23

Thru Hour:

Alternate Phone:

Alternate Phone:

Primary E-mail:

Primary E-mail:

Alternate E-mail:

Alternate E-mail:

Report Device: Modem
Report Device (Modem, Ethernet, X25, or Telnet):

Report Mode: Off
Report Mode (Off, E-mail, TL1):

Report Retry Time: 15
Report Retry Time:

TL1 Report Condition interval: 0
TL1 Report Condition interval:

Save changes (Y or N):
Y

Edit User Channels (Y or N):
Y

Enter channel (eg. A0012 or A0001-0006) or D to display.
Add Channel:

Enter channel (eg. A0012 or A0001-0006) or D to display.
Del Channel:

SET VI

Description: Sets the channels that the Web Interface uses to display system voltage and system current.

Command Level: 5

Syntax: SET VI

SE VI

Comments: One at a time, the current setting is displayed and then a line to change the setting. Simply press enter to keep the current setting.

Notes: The Plant Voltage and Plant Current channels default to settings shown below.

NetSure 702/801/802: Voltage channel - A9901 ; Current channel - A9903

NetSure 701/VPS: Voltage channel - A9001 ; Current channel - A9002

Stand-alone: Voltage channel - none ; Current channel - none

Related Commands: none

Example:

Command<6>: SET VI

Plant Voltage:

Plant Voltage: A9001

Plant Current:

Plant Current: A9002

SET NETSURE

Description: Lists all VPS/NPS Interface commands that begin with the command SET, and then prompts the user to enter one of the displayed options.

Command Level: NA

Syntax: SET NETSURE [*command*]
SE N [*command*]

Comments: none

Notes: Only commands available to the current user are listed. The list in the example is for a user that has access to level 6 commands.

Related Commands: SET

Example:

```
Command<6>: SET V
SET what?
SYSTEM      SUBSYSTEM    LVD      PCU      MESSAGE
PASSWORD    INTERFACE
?
```

```
Command<6>: SET N SYSTEM
What System parameter:

AUTOEQMULT    BATONDISCH    BATTOVRCUR    BATTCURLIM    CALVOLT
COMPSLOPE     COMPMAX       COMPMIN       COMPSOURCE    CURLIMIT
FACTORYCAL    FLTVOLT       50%BATONDISCH  HIVLTALM1     HIVLTALM2
HVS           INVENTORY     MODE          NAGTIMER      OVRCURRENT
RLYTESTTIME   TEMPCOMP      TEMPHIGH      TEMPLOW       TSTEQVOLT
TSTEQTIME     25APLACES    50APLACES    100APLACES    200APLACES
?
```

```
Command<6>: SET N SUBSYSTEM
What Subsystem parameter:
HIVALM        LVALM         OVRCURRENT    CALVOLT       FACTORYCAL
?
```

```
Command<6>: SET N LVD
What LVD setting:
RECONNECT     DISCONNECT
?DISCONNECT
Which LVD PANEL (1-3)?1
Which LVD circuit (A or B)?A
```

Command<6>: SET N PCU

What PCU setting:

FANSPEED LOADSHARE STATE TOTALSLOTS
?

Command<6>: SET N MESSAGE

Which custom message:

PCU MCA

?PCU

Which PCU(1-56)?

SET NETSURE INTERFACE

Description: Enables or disables the VPS/NPS Interface.

Command Level: 6

Syntax: SET NETSURE INTERFACE

SE N IN

Comments: none

Notes: none

Related Commands: none

Example:

Command<6>: SET N INTERFACE

Netsure Power System interface is ACTIVE

Do you wish to deactivate Netsure Power System interface (Y or N): y

Currently communicating to Netsure MCA, cannot disable interface.

Netsure Power System interface is ACTIVE

Command<6>: SET N INTERFACE

Netsure Power System interface is ACTIVE

Do you wish to deactivate Netsure Power System interface (Y or N): y

Netsure Power System is DISABLED

Command<6>: SET N INTERFACE

Netsure Power System interface is DISABLED

Do you wish to activate Netsure Power System interface (Y or N): y

Netsure Power System interface is ACTIVE

SET NETSURE LVD DISCONNECT

Description: Sets the low voltage disconnect "disconnect" value for the selected VPS/NPS low voltage disconnect circuit.

Command Level: 6

Syntax: SET NETSURE LVD[LVD_number][LVD_side] DISCONNECT
SE N LVD[LVD_number][LVD_side] DISC

Comments: The current value is displayed, followed by a prompt to enter a new value.

Notes: The MCA does not allow an adjustment which could result in a service interruption. Refer to the VPS/NPS instruction manual's low voltage disconnect "disconnect" adjustment procedure for details.

The following message is displayed if the setting was not accepted by the MCA.

Power system did not accept the new value, setting remains unchanged.

Related Commands: none

Example:

```
Command<6>: SET N LVD1 DISCONNECT
Which LVD circuit(A or B)? A
LVD1A Disconnect voltage setting: 42.00 VDC
LVD1A Disconnect voltage setting:
```

```
Command<6>: SET N LVD2 DISCONNECT
Which LVD circuit(A or B)? B
LVD2B Disconnect voltage setting: 42.00 VDC
LVD2B Disconnect voltage setting:
```

```
Command<6>: SET N LVD3 DISCONNECT
Which LVD circuit(A or B)? B
LVD3B Disconnect voltage setting: 42.00 VDC
LVD3B Disconnect voltage setting:
```

```
Command<6>: SET N LVD2B DISCONNECT
No digitally controlled LVDs installed
```

SET NETSURE LVD FORCECONN

Description: Used to reconnect an LVD circuit that is set for manual reconnect after a disconnection has occurred and system voltage has recovered.

Command Level: 6

Syntax: SET NETSURE LVD[LVD_number][LVD_side] FORCECONN
SE N LVD[LVD_number][LVD_side] F

Comments: none

Notes: none

Related Commands: none

Example:

```
Command<6>: SET N LVD FORCECONN
Which LVD board (1-3)? 1
Which circuit (A or B)? A
```

```
LVD1A is not disconnected
or
Invalid LVD board specified
Invalid circuit specified
LVD1A is connected
LVD1 not installed
```

SET NETSURE LVD RECONNECT

Description: Sets the low voltage disconnect "reconnect" value for all installed VPS/NPS low voltage disconnect circuits.

Command Level: 6

Syntax: SET NETSURE LVD RECONNECT
SE N LVD REC

Comments: The current value is displayed, followed by a prompt to enter a new value.

Notes: The MCA does not allow an adjustment which could result in a service interruption. Refer to the VPS/NPS instruction manual's low voltage disconnect "reconnect" adjustment procedure for details.

The following message is displayed if the setting was not accepted by the MCA.

Power system did not accept the new value, setting remains unchanged.

Related Commands: none

Example:

```
Command<6>: SET N LVD RECONNECT  
LVD Reconnect Voltage: 49.00 VDC  
LVD Reconnect Voltage:
```

SET NETSURE MESSAGE MCA

Description: Sets the custom message for the VPS/NPS MCA. This message appears in the inventory list during execution of the PRCONFIG NETSURE command.

Command Level: 6

Syntax: SET NETSURE MESSAGE MCA
SE N ME MCA

Comments: The current message is displayed, followed by a prompt to enter a new message.

Notes: The custom message can be 20 characters, maximum.

Related Commands: none

Example:

```
Command<6>: SET N MESSAGE MCA  
Custom message:  
Custom message:
```

SET NETSURE MESSAGE PCU

Description: Sets the custom message for the selected VPS/NPS PCU. This message appears in the inventory list during execution of the PRCONFIG NETSURE command.

Command Level: 6

Syntax: SET NETSURE MESSAGE PCU[*PCU_number*]
SE N ME PCU[*PCU_number*]

Comments: The current message is displayed, followed by a prompt to enter a new message.

Notes: The custom message can be 20 characters, maximum.

Related Commands: none

Example:

```
Command<6>: SET N MESSAGE PCU1  
Custom message:  
Custom message:
```

SET NETSURE PASSWORD

Description: Sets the password issued by LMS1000 to gain remote access to the VPS/NPS. This password must match the VPS/NPS's MCA remote access password. By default, the password issued by LMS1000 and set in a VPS/NPS is VORTEX, in all capital letters. LMS1000 issues the password set here (or the default if not previously set) when LMS1000 is initially powered up or during a reset. The VPS/NPS does not grant remote access until the correct password is sent by LMS1000.

Command Level: 6

Syntax: SET NETSURE PASSWORD
SE N PA

Comments: The VPS/NPS's MCA remote access password is case sensitive, and is limited to 6 characters.

Notes: This command does not change the VPS/NPS's MCA remote access password, only the password issued by the LMS1000 to gain remote access.

Record the new password in a secure place. There is no way to view the password set in the LMS1000.

Also, if the MCA's remote access password is ever changed, record the new password in a secure place. The current MCA remote access password cannot be viewed remotely from LMS1000. The password can be viewed locally, from the MCA's Interface Pad. Refer to the VPS/NPS manual for a procedure.

If LMS1000 does not successfully connect with the VPS/NPS during power up or reset, the following message is displayed when a user attempts VPS/NPS access via the LMS1000.

```
Netsure SMART/MCA communications error
```

Related Commands: none

Example:

```
Command<6>: SET N PASSWORD  
Enter current MCA password:  
Enter new password:  
Re-enter new password:  
New password accepted
```

SET NETSURE PCU FANSPEED

Description: Toggles the selected VPS/NPS PCU's fan speed (fast or slow).

Command Level: 6

Syntax: SET NETSURE PCU[*PCU_number*] FANSPEED
SE N PC[*PCU_number*] FA

Comments: The current state (fast or slow) of the PCU's fan speed setting is displayed, followed by a prompt to change the state.

Notes: None

Related Commands: none

Example:

```
Command<6>: SET N PCU03 FANSPEED
PCU Fan Speed is Fast
Set PCU Fan Speed Slow (Y or N): N
```

SET NETSURE PCU LOADSHARE

Description: Toggles the selected VPS/NPS PCU's Load Share Alarm on or off.

Command Level: 6

Syntax: SET NETSURE PCU[*PCU_number*] LOADSHARE
SE N PC[*PCU_number*] L

Comments: The current state (on or off) of the PCU Load Share Alarm is displayed, followed by a prompt to change the state.

Notes: None

Related Commands: none

Example:

```
Command<6>: SET N PCU03 LOADSHARE
PCU Load Share Alarm is On
Turn PCU Load Share Alarm Off (Y or N): N
```

SET NETSURE PCU STATE

Description: Toggles the selected VPS/NPS PCU on or off (TR feature).

Command Level: 6

Syntax: SET NETSURE PCU[*PCU_number*] STATE
SE N PC[*PCU_number*] S

Comments: The current state (on or off) of the PCU is displayed, followed by a prompt to change the PCU state.

Notes: None

Related Commands: none

Example:

```
Command<6>: SET N PCU03 STATE
PCU03 is Off
Turn PCU03 On (Y or N):
```

SET NETSURE PCU TOTALSLOTS

Description: Sets the number of 25A, 50A, 100A, and 200A PCU mounting positions available (filled and empty) in the VPS/NPS (you can also use the commands SET NETSURE SYSTEM 25APLACES, SET NETSURE SYSTEM 50APLACES, SET NETSURE SYSTEM 100APLACES, SET NETSURE SYSTEM 200APLACES).

Command Level: 6

Syntax: SET NETSURE PCU[*PCU_number*] TOTALSLOTS
SE N PC[*PCU_number*] T

Comments: The current value is displayed, followed by a prompt to enter a new value.

Notes: The following message is displayed if the setting was not accepted by the MCA:

Power system did not accept the new value, setting remains unchanged.

Related Commands: SET NETSURE SYSTEM 25APLACES, SET NETSURE SYSTEM 50APLACES, SET NETSURE SYSTEM 100APLACES, SET NETSURE SYSTEM 200APLACES

Example:

```
Command<6>: SET N PCU03 TOTALSLOTS
Enter PCU output current (25, 50, 100, 200): 25
Total 25A Places: 16
Total 25A Places:
```

SET NETSURE SUBSYSTEM CALVOLT

Description: Sets the VPS/NPS "subsystem voltage" calibration.

Command Level: 6

Syntax: SET NETSURE SUBSYSTEM CALVOLT
SE N SU CAL

Comments: The current value is displayed, followed by a prompt to enter a new value.

Notes: The following message is displayed if the setting was not accepted by the MCA.

Power system did not accept the new value, setting remains unchanged.

The following message is displayed if a subsystem is not installed.

No Subsystem Installed

Related Commands: none

Example:

```
Command<6>: SET N SUBSYSTEM CALVOLT  
Subsystem Calibrate Voltage: 27.60 VDC  
Subsystem Calibrate Voltage:
```

SET NETSURE SUBSYSTEM FACTORYCAL

Description: Resets the VPS/NPS "subsystem voltage" calibration to the factory default value.

Command Level: 6

Syntax: SET NETSURE SUBSYSTEM FACTORYCAL
SE N SU FACTORY

Comments: None

Notes: The following message is displayed if a subsystem is not installed.

No Subsystem Installed

Related Commands: none

Example:

```
Command<6>: SET N SUBSYSTEM FACTORYCAL  
Subsystem calibrate voltage set to Factory default setting.
```

SET NETSURE SUBSYSTEM HIVALM

Description: Sets the VPS/NPS "subsystem high voltage alarm" value.

Command Level: 5

Syntax: SET NETSURE SUBSYSTEM HIVALM
SE N SU HIV

Comments: The current value is displayed, followed by a prompt to enter a new value.

Notes: The following message is displayed if the setting was not accepted by the MCA.

Power system did not accept the new value, setting remains unchanged.

The following message is displayed if a subsystem is not installed.

No Subsystem Installed

Related Commands: none

Example:

```
Command<5>: SET N SUBSYSTEM HIVALM
Subsystem High Voltage Alarm: 28.00 VDC
Subsystem High Voltage Alarm:
```

SET NETSURE SUBSYSTEM LVALM

Description: Sets the VPS/NPS "subsystem low voltage alarm" value.

Command Level: 5

Syntax: SET NETSURE SUBSYSTEM LVALM
SE N SU LVALM

Comments: The current value is displayed, followed by a prompt to enter a new value.

Notes: The following message is displayed if the setting was not accepted by the MCA.

Power system did not accept the new value, setting remains unchanged.

The following message is displayed if a subsystem is not installed.

No Subsystem Installed

Related Commands: none

Example:

```
Command<5>: SET N SUBSYSTEM LVALM
Subsystem Low Voltage Alarm: 27.00 VDC
Subsystem Low Voltage Alarm:
```

SET NETSURE SUBSYSTEM OVRCURRENT

Description: Sets the VPS/NPS "subsystem overcurrent alarm" value.

Command Level: 5

Syntax: SET NETSURE SUBSYSTEM OVRCURRENT
SE N SU OVRCURRENT

Comments: The current value is displayed, followed by a prompt to enter a new value.

Notes: The following message is displayed if the setting was not accepted by the MCA.

Power system did not accept the new value, setting remains unchanged.

The following message is displayed if a subsystem is not installed.

No Subsystem Installed

Related Commands: none

Example:

```
Command<5>: SET N SUBSYSTEM OVRCURRENT  
Subsystem Overcurrent: 1800 Amps  
Subsystem Overcurrent:
```

SET NETSURE SYSTEM 25APLACES

Description: Sets the number of 25A PCU mounting positions available (filled and empty) in the VPS/NPS (you can also use the command SET NETSURE PCU TOTALSLOTS).

Command Level: 6

Syntax: SET NETSURE SYSTEM 25APLACES
SE N SY 25A

Comments: The current value is displayed, followed by a prompt to enter a new value.

Notes: The following message is displayed if the setting was not accepted by the MCA:

Power system did not accept the new value, setting remains unchanged.

Related Commands: SET NETSURE PCU TOTALSLOTS

Example:

```
Command<6>: SET N SYS 25APLACES
Total 25A Places: 0
Total 25A Places:
```

SET NETSURE SYSTEM 50APLACES

Description: Sets the number of 50A PCU mounting positions available (filled and empty) in the VPS/NPS (you can also use the command SET NETSURE PCU TOTALSLOTS).

Command Level: 6

Syntax: SET NETSURE SYSTEM 50APLACES
SE N SY 50A

Comments: The current value is displayed, followed by a prompt to enter a new value.

Notes: The following message is displayed if the setting was not accepted by the MCA:

Power system did not accept the new value, setting remains unchanged.

Related Commands: SET NETSURE PCU TOTALSLOTS

Example:

```
Command<6>: SET N SYS 50APLACES  
Total 50A Places: 0  
Total 50A Places:
```

SET NETSURE SYSTEM 100APLACES

Description: Sets the number of 100A PCU mounting positions available (filled and empty) in the VPS/NPS (you can also use the command SET NETSURE PCU TOTALSLOTS).

Command Level: 6

Syntax: SET NETSURE SYSTEM 100APLACES
SE N SY 100A

Comments: The current value is displayed, followed by a prompt to enter a new value.

Notes: The following message is displayed if the setting was not accepted by the MCA:

Power system did not accept the new value, setting remains unchanged.

Related Commands: SET NETSURE PCU TOTALSLOTS

Example:

```
Command<6>: SET N SYS 100APLACES  
Total 100A Places: 0  
Total 100A Places:
```

SET NETSURE SYSTEM 200APLACES

Description: Sets the number of 200A PCU mounting positions available (filled and empty) in the VPS/NPS (you can also use the command SET NETSURE PCU TOTALSLOTS).

Command Level: 6

Syntax: SET NETSURE SYSTEM 200APLACES
SE N SY 200A

Comments: The current value is displayed, followed by a prompt to enter a new value.

Notes: The following message is displayed if the setting was not accepted by the MCA:

Power system did not accept the new value, setting remains unchanged.

Related Commands: SET NETSURE PCU TOTALSLOTS

Example:

```
Command<6>: SET N SYS 200APLACES
Total 200A Places: 0
Total 200A Places:
```

SET NETSURE SYSTEM 50%BATONDISCH

Description: Sets the VPS/NPS "system 50% battery on discharge alarm" value.

Command Level: 5

Syntax: SET NETSURE SYSTEM 50%BATONDISCH
SE N SY 50%

Comments: The current value is displayed, followed by a prompt to enter a new value.

Notes: The following message is displayed if the setting was not accepted by the MCA.

Power system did not accept the new value, setting remains unchanged.

Related Commands: none

Example:

```
Command<5>: SET N SYSTEM 50%BATONDISCH
System 50% Battery On Discharge:
System 50% Battery On Discharge:
```

SET NETSURE SYSTEM AUTOEQMULT

Description: Sets the VPS/NPS "auto equalize time multiplier" value.

Command Level: 5

Syntax: SET NETSURE SYSTEM AUTOEQMULT
SE N SY A

Comments: The current value is displayed, followed by a prompt to enter a new value.

Notes: The following message is displayed if the setting was not accepted by the MCA.

Power system did not accept the new value, setting remains unchanged.

Related Commands: none

Example:

```
Command<5>: SET NETSURE SYSTEM AUTOEQMULT Auto Equalize Multiplier: 0  
Auto Equalize Multiplier:
```

SET NETSURE SYSTEM BATONDISCH

Description: Sets the VPS/NPS "system battery on discharge alarm" value.

Command Level: 5

Syntax: SET NETSURE SYSTEM BATONDISCH
SE N SY BAT

Comments: The current value is displayed, followed by a prompt to enter a new value.

Notes: The following message is displayed if the setting was not accepted by the MCA.

Power system did not accept the new value, setting remains unchanged.

Related Commands: none

Example:

```
Command<5>: SET N SYSTEM BATONDISCH
System Battery On Discharge: 51.00 VDC
System Battery On Discharge:
```

SET NETSURE SYSTEM BATTCURLIM

Description: Sets the VPS/NPS "system battery current limit" value.

Command Level: 6

Syntax: SET NETSURE SYSTEM BATTCURLIM
SE N SY BATTC

Comments: The current value is displayed, followed by a prompt to enter a new value.

Notes: The following message is displayed if the setting was not accepted by the MCA.

Power system did not accept the new value, setting remains unchanged.

Related Commands: none

Example:

```
Command<6>: SET NETSURE SYSTEM BATTCURLIM Battery Current Limit: 275.0 Amps  
Battery Current Limit:
```

SET NETSURE SYSTEM BATTOVRCUR

Description: Sets the VPS/NPS "battery overcurrent alarm" value.

Command Level: 6

Syntax: SET NETSURE SYSTEM BATTOVRCUR
SE N SY BATT

Comments: The current value is displayed, followed by a prompt to enter a new value.

Notes: The following message is displayed if the setting was not accepted by the MCA.

Power system did not accept the new value, setting remains unchanged.

Related Commands: none

Example:

```
Command<6>: SET NETSURE SYSTEM BATTOVRCUR Battery Overcurrent: 2000 Amps  
Battery Overcurrent:
```

SET NETSURE SYSTEM CALVOLT

Description: Sets the VPS/NPS "system voltage" calibration.

Command Level: 6

Syntax: SET NETSURE SYSTEM CALVOLT
SE N SY CAL

Comments: The current value is displayed, followed by a prompt to enter a new value.

Notes: The following message is displayed if the setting was not accepted by the MCA:

Power system did not accept the new value, setting remains unchanged.

Related Commands: none

Example:

```
Command<6>: SET N SYSTEM CALVOLT  
System calibrate voltage: 50.48 VDC  
System calibrate voltage:
```

SET NETSURE SYSTEM COMPMAX

Description: Sets the "digital battery charge temperature compensation feature's maximum voltage" value.

Command Level: 6

Syntax: SET NETSURE SYSTEM COMPMAX
SE N SY COMPM

Comments: The current value is displayed, followed by a prompt to enter a new value.

Notes: The following message is displayed if the setting was not accepted by the MCA:

Power system did not accept the new value, setting remains unchanged.

Related Commands: none

Example:

```
Command<6>: set netsure system compmax Digital Temp. Comp. Max voltage: 56.50 VDC  
Digital Temp. Comp. Max voltage:
```

SET NETSURE SYSTEM COMPMIN

Description: Sets "digital battery charge temperature compensation feature's minimum voltage" value.

Command Level: 6

Syntax: SET NETSURE SYSTEM COMPMIN
SE N SY COMPMI

Comments: The current value is displayed, followed by a prompt to enter a new value.

Notes: The following message is displayed if the setting was not accepted by the MCA:

Power system did not accept the new value, setting remains unchanged.

Related Commands: none

Example:

```
Command<6>: SET NETSURE SYSTEM COMPMIN Digital Temp. Comp. Min voltage: 50.00 VDC  
Digital Temp. Comp. Min voltage:
```

SET NETSURE SYSTEM COMPSLOPE

Description: Sets the "digital battery charge temperature compensation feature's compensation slope" value.

Command Level: 6

Syntax: SET NETSURE SYSTEM COMPSLOPE
SE N SY CO

Comments: The current value is displayed, followed by a prompt to enter a new value.

Notes: The following message is displayed if the setting was not accepted by the MCA:

Power system did not accept the new value, setting remains unchanged.

Related Commands: none

Example:

```
Command<6>: SET NETSURE SYSTEM COMPSLOPE Digital Temp. Comp. Slope: 0.000 V/DEGC  
Digital Temp. Comp. Slope:
```

SET NETSURE SYSTEM COMPSOURCE

Description: Sets the Digital Battery Charge Temperature Compensation source.

Command Level: 6

Syntax: SET NETSURE SYSTEM COMPSOURCE
SE N SY COMPSO

Comments: The current value is displayed, followed by a prompt to enter a new value.

Notes: The following message is displayed if the setting was not accepted by the MCA:

Power system did not accept the new value, setting remains unchanged.

Related Commands: none

Example:

```
Command<6>: SET N SYSTEM COMPSOURCE  
Digital Temp. Comp. Source: Highest  
Digital Temp. Comp. Source(Highest, Averaged, or Probel):
```

SET NETSURE SYSTEM CURLIMIT

Description: Sets the VPS/NPS "current limit value".

Command Level: 6

Syntax: SET NETSURE SYSTEM CURLIMIT
SE N SY CURLIMIT

Comments: The current value is displayed, followed by a prompt to enter a new value.

Notes: The following message is displayed if the setting was not accepted by the MCA.

Power system did not accept the new value, setting remains unchanged.

Related Commands: none

Example:

```
Command<6>: SET N SYSTEM CURLIMIT  
Current limit: 500 Amps  
Current limit:
```

SET NETSURE SYSTEM FACTORYCAL

Description: Resets the VPS/NPS "system voltage" calibration to the factory default value.

Command Level: 6

Syntax: SET NETSURE SYSTEM FACTORYCAL
SE N SY FACTORY

Comments: None

Notes: None

Related Commands: none

Example:

```
Command<6>: SET N SYSTEM FACTORYCAL  
System calibrate voltage set to Factory default setting.
```

SET NETSURE SYSTEM FLTVOLT

Description: Sets the VPS/NPS "float output voltage" value.

Command Level: 6

Syntax: SET NETSURE SYSTEM FLTVOLT
SE N SY FLT

Comments: The current value is displayed, followed by a prompt to enter a new value.

Notes: The MCA does not allow an adjustment which could result in a service interruption. Refer to the VPS/NPS instruction manual's float voltage adjustment procedure for details.

The following message is displayed if the setting was not accepted by the MCA.

```
Power system did not accept the new value, setting remains unchanged.
```

Related Commands: none

Example:

```
Command<6>: SET N SYSTEM FLTVOLT  
Float voltage:  
Float voltage:
```

SET NETSURE SYSTEM HIVLTALM1

Description: Sets the VPS/NPS "system high voltage alarm 1" value.

Command Level: 5

Syntax: NETSURE SYSTEM HIVLTALM1
 SE N SY HIVLTALM1

Comments: The current value is displayed, followed by a prompt to enter a new value.

Notes: The following message is displayed if the setting was not accepted by the MCA.

Power system did not accept the new value, setting remains unchanged.

Related Commands: none

Example:

```
Command<5>: SET N SYSTEM HIVLTALM1
System High Voltage 1 Alarm: 50.00 VDC
System High Voltage 1 Alarm:
```

SET NETSURE SYSTEM HIVLTALM2

Description: Sets the VPS/NPS "system high voltage alarm 2" value.

Command Level: 5

Syntax: SET NETSURE SYSTEM HIVLTALM2
SE N SY HIVLTALM2

Comments: The current value is displayed, followed by a prompt to enter a new value.

Notes: The following message is displayed if the setting was not accepted by the MCA.

Power system did not accept the new value, setting remains unchanged.

Related Commands: none

Example:

```
Command<5>: SET N SYSTEM HIVLTALM2
System High Voltage 2 Alarm: 53.00 VDC
System High Voltage 2 Alarm:
```

SET NETSURE SYSTEM HVS

Description: Sets the VPS/NPS "high voltage shutdown" value.

Command Level: 6

Syntax: SET NETSURE SYSTEM HVS
SE N SY HVS

Comments: The current value is displayed, followed by a prompt to enter a new value.

Notes: The MCA does not allow an adjustment which could result in a service interruption. Refer to the VPS/NPS instruction manual's high voltage shutdown adjustment procedure for details.

The following message is displayed if the setting was not accepted by the MCA.

```
Power system did not accept the new value, setting remains unchanged.
```

Related Commands: none

Example:

```
Command<6>: SET N SYSTEM HVS  
System How Voltage Shutdown: 59.50 VDC  
System How Voltage Shutdown:
```

SET NETSURE SYSTEM INVENTORY

Description: Resets the VPS/NPS "inventory" to reflect the current system configuration.

Command Level: 6

Syntax: SET NETSURE SYSTEM INVENTORY
SE N SY INV

Comments: None

Notes: None

Related Commands: none

Example:

```
Command<6>: SET N SYSTEM INVENTORY  
Equipment inventory has been reset
```

SET NETSURE SYSTEM MODE

Description: Toggles the VPS/NPS operating mode (float output voltage or test/equalize output voltage).

Command Level: 6

Syntax: SET NETSURE SYSTEM MODE
SE N SY MODE

Comments: The current operating mode is displayed, followed by a prompt to change the operating mode.

Notes: None

Related Commands: none

Example:

```
Command<6>: SET N SYSTEM MODE
System Mode: Float
System Mode (Float or TestEq):
```

SET NETSURE SYSTEM NAGTIMER

Description: Sets the VPS/NPS "nag minutes" (audible alarm cutoff reset time period) value.

Command Level: 4

Syntax: SET NETSURE SYSTEM NAGTIMER
SE N SY NAG

Comments: The current value is displayed, followed by a prompt to enter a new value.

Notes: The following message is displayed if the setting was not accepted by the MCA.

Power system did not accept the new value, setting remains unchanged.

Related Commands: none

Example:

```
Command<4>: SET N SYSTEM NAGTIMER  
NAG (ACO) Timer: 5 minutes  
NAG (ACO) Timer:
```

SET NETSURE SYSTEM OVRCURRENT

Description: Sets the VPS/NPS "system overcurrent alarm" value.

Command Level: 5

Syntax: SET NETSURE SYSTEM OVRCURRENT
SE N SY OVRCURRENT

Comments: The current value is displayed, followed by a prompt to enter a new value.

Notes: The following message is displayed if the setting was not accepted by the MCA.

Power system did not accept the new value, setting remains unchanged.

Related Commands: none

Example:

```
Command<5>: SET N SYSTEM OVRCURRENT
System Overcurrent: 2000 Amps
System Overcurrent:
```

SET NETSURE SYSTEM RLYTESTTIME

Description: Sets the VPS/NPS "alarm relay test time period" value.

Command Level: 5

Syntax: SET NETSURE SYSTEM RLYTESTTIME
SE N SY R

Comments: The current value is displayed, followed by a prompt to enter a new value.

Notes: The following message is displayed if the setting was not accepted by the MCA:

Power system did not accept the new value, setting remains unchanged.

Related Commands: none

Example:

```
Command<5>: SET NETSURE SYSTEM RLYTESTTIME
Relay Test Time: 45 seconds
Relay Test Time:
```

SET NETSURE SYSTEM TEMPCOMP

Description: Sets the VPS/NPS battery charge temperature compensation module's "calibration voltage" value.

Command Level: 6

Syntax: SET NETSURE SYSTEM TEMPCOMP
SE N SY TEMPCOMP

Comments: The current value is displayed, followed by a prompt to enter a new value.

Notes: The following message is displayed if the setting was not accepted by the MCA.

Invalid value entered, request to update setting denied.

Related Commands: none

Example:

```
Command<6>: SET N SYSTEM TEMPCOMP  
Temperature compensation Voltage: 48.09 VDC  
Temperature compensation Voltage:
```

SET NETSURE SYSTEM TEMPHIGH

Description: Sets the VPS/NPS "high temperature alarm" values.

Command Level: 5

Syntax: SET NETSURE SYSTEM TEMPHIGH<n>
SE N SY TEMPH<n>

Comments: The current value is displayed, followed by a prompt to enter a new value.

Notes: The following message is displayed if the setting was not accepted by the MCA:

Power system did not accept the new value, setting remains unchanged.

Related Commands: none

Example:

```
Command<5>: SET NETSURE SYSTEM TEMPHIGH
Which Temperature Probe (1-8)? 1
Temperature Probe #1 not installed
```

```
Command<5>: SET NETSURE SYSTEM TEMPHIGH 1
Temperature Probe #1 not installed
```

SET NETSURE SYSTEM TEMPLOW

Description: Sets the VPS/NPS "low temperature alarm" values.

Command Level: 5

Syntax: SET NETSURE SYSTEM TEMPLOW<n>
SE N SY TEMPL<n>

Comments: The current value is displayed, followed by a prompt to enter a new value.

Notes: The following message is displayed if the setting was not accepted by the MCA:

Power system did not accept the new value, setting remains unchanged.

Related Commands: none

Example:

```
Command<5>: SET NETSURE SYSTEM TEMPLOW
Which Temperature Probe (1-8)?
Temperature Probe #1 not installed
```

```
Command<5>: SET NETSURE SYSTEM TEMPLOW 1
Temperature Probe #1 not installed
```

SET NETSURE SYSTEM TSTEQTIME

Description: Sets the "timed equalize feature's equalize time period" value.

Command Level: 6

Syntax: SET NETSURE SYSTEM TSTEQTIME
SE N SY TSTEQT

Comments: The current value is displayed, followed by a prompt to enter a new value.

Notes: The following message is displayed if the setting was not accepted by the MCA:

Power system did not accept the new value, setting remains unchanged.

Related Commands: none

Example:

```
Command<6>: SET NETSURE SYSTEM TSTEQTIME
Test/Equalize Timeout: 1 hours
Test/Equalize Timeout:
```

SET NETSURE SYSTEM TSTEQVOLT

Description: Sets the VPS/NPS "test/equalize output voltage" value.

Command Level: 6

Syntax: SET NETSURE SYSTEM TSTEQVOLT
SE N SY TSTEQVOLT

Comments: The current value is displayed, followed by a prompt to enter a new value.

Notes: The MCA does not allow an adjustment which could result in a service interruption. Refer to the VPS/NPS instruction manual's test/equalize adjustment procedure for details.

The following message is displayed if the setting was not accepted by the MCA.

Invalid value entered, request to update setting denied.

Related Commands: none

Example:

```
Command<6>: SET N SYSTEM TSTEQVOLT
Test/Equalize Voltage: 53.00 VDC
Test/Equalize Voltage:
```

STATS

Description: Displays the Basic Statistics for analog and function channels.

Command Level: 1

Syntax: STATS[*node_designator*] [*channel_range*] [*node_range*] [*group_designator*]
 STATS A
 STATS F
 STATS A[[*node_number*]*channel_number*]
 STATS F[*channel_number*]
 ST[*node_designator*] [*channel_range*] [*node_range*] [*group_designator*]

Comments: Information presented includes the three hourly averages and their time and date of occurrence, the time and date of the peak value, and the time and date of the minimum value recorded. Entering the command STATS without a number n will display the statistics for all analog inputs and function channels.

Notes: Any statistic showing a zeroed date and time means the statistic has been recently reset. When using channel_range, only channel types A or F are valid.

When readings have not yet been taken, the Stats will display the smallest possible reading for high or maximum averages and the highest possible reading for the minimum.

Related Commands: STATS DAILY, STATS WEEKLY, STATS CHANNELS, SET STATS CHANNELS, CLR STATS, CLR STATS DAILY, CLR STATS WEEKLY

Example:

```
Command<1>: stats
A0001 stats: Analog Channel 1. Last reset 03/22/01 02:12:18
  #1 High Hrly Avg of -20000 Amps at 00/00/00 00/00.
  #2 High Hrly Avg of -20000 Amps at 00/00/00 00/00.
  #3 High Hrly Avg of -20000 Amps at 00/00/00 00/00.
  Maximum of -20000 Amps at 00/00/00 00/00.
  Minimum of 20000 Amps at 00/00/00 00/00.
A0002 stats: Analog Channel 2. Last reset 03/21/01 23:56:38
  #1 High Hrly Avg of -20000 Amps at 00/00/00 00/00.
  #2 High Hrly Avg of -20000 Amps at 00/00/00 00/00.
  #3 High Hrly Avg of -20000 Amps at 00/00/00 00/00.
  Maximum of -0.000 Amps at 03/22/00 00:08.
  Minimum of -0.000 Amps at 03/21/00 23:56.
A0003 stats: Analog Channel 3. Last reset 03/21/01 23:56:38
  #1 High Hrly Avg of 1.970 Amps at 03/22/00 01:00.
  #2 High Hrly Avg of 0.001 Amps at 03/22/00 00:00.
  #3 High Hrly Avg of -20000 Amps at 00/00/00 00/00.
  Maximum of 5.163 Amps at 03/22/00 01:59.
  Minimum of 0.001 Amps at 03/22/00 00:59.

Command<6>: stats f
F0001 stats: Function Channel 1. Last reset 03/21/01 23:56:38
  #1 High Hrly Avg of -99999 Amps at 00/00/00 00/00.
  #2 High Hrly Avg of -99999 Amps at 00/00/00 00/00.
  #3 High Hrly Avg of -99999 Amps at 00/00/00 00/00.
  Maximum of 0.000 Amps at 03/22/00 00:09.
  Minimum of 0.000 Amps at 03/22/00 00:09.

Command<6>: stats ?
STATS DAILY           Daily stats of all channels in stats channel group
STATS WEEKLY         Weekly stats of all channels in stats channel group
STATS CHANNELS       Show advanced statistics channel group
```

STATS	stats for all active channels
STATS <t>	stats for all active channels by type
STATS <t<n>>	stats for a specific active channel
STATS <t<n-n>>	stats for a range of active channels
STATS <N<x>>	stats for all active channels by node
STATS <N<x>> <t>	stats for all active channels by node and type
STATS <N<x-x>>	stats for all active channels on a range of nodes
STATS <N<x-x>> <t>	stats for all active channels on a range of nodes by type
STATS <G>	stats for all group channels
STATS <G<n>>	stats for specific group channels
STATS <U>	stats for all user channels

STATS CHANNELS

Description: Displays the Analog and Function channels set for Advanced Statistics.

Command Level: 1

Syntax: STATS CHANNELS

Comments: none

Notes: none

Related Commands: STATS, STATS DAILY, STATS WEEKLY, SET STATS CHANNELS, CLR STATS, CLR STATS DAILY, CLR STATS WEEKLY

Example:

```
Command<1>: stats channels
```

```
Daily/Weekly Statistics channel list:
```

```
<tncc>, <tncc>, <tncc>, <tncc>, <tncc>, <tncc>, <tncc>, <tncc>, <tncc>, <tncc>
```

STATS DAILY

Description: Displays the Daily Advanced Statistics for analog and function channels set for Advanced Statistics.

Command Level: 1

Syntax: STATS DAILY [USER | *group_designator*] [CSV]

Comments: Information presented includes the daily peak maximum, peak minimum, and hour-average values.

Entering the command modifier USER displays statistics for only analog and function channels that are set for Advanced Statistics and are also part of the current User's channel group.

Entering the command modifier *group_designator* displays statistics for only analog and function channels that are set for Advanced Statistics and are also in that group. The group designator must be entered in the form 'G<n>', where 'n' is a number 1-8.

Entering the command modifier CSV displays the statistics in the "comma separated value" format. This allows the data to be imported into a spreadsheet.

Notes: A system reset has no effect on the collection and processing of daily statistical data except as it affects the calculations of the minute and hour averages used. A reset causes calculations for these values to be restarted. Thus, the hour averages will include data calculations using values collected from the time of the reset through the end of the hour. Data calculations for the hour using values collected prior to the reset are lost.

A system reset after a change in date (i.e., system was powered down during a period when the date changed) does not affect the collection and processing of the hour-average data except for a change in the date portion of the time/date stamp. A change in date affects the collection of daily statistical data in the following manner.

- Statistical comparisons for the present day (old date) are completed and collection of statistical data for the new day (date) is started.

A change in time affects the collection and processing of daily and weekly statistical data only as the number of time periods (hours, minutes) in which data is be collected may be greater or less than normal. A change in time affects the collection and processing of the hour-average data in the following manner.

- Calculations for the present hour (old time) are completed and the data is stamped with a date and time of the new time less one hour (e.g., time was changed from 14:34 to 11:42 , the timestamp is 10:42).
- Calculations are started for the present hour (of the new time) and are completed at the end of the hour. The time/date stamp is the new hour.

Related Commands: STATS, STATS WEEKLY, STATS CHANNELS, SET STATS CHANNELS, CLR STATS, CLR STATS DAILY, CLR STATS WEEKLY

Example:

```
Command<1>: stats daily
DAILY STATISTICS
```

```
10/25/2005 - Tuesday
      CHAN  DESCRIPTION                VALUE  MEAS  DATE/TIME
-----
MAXIMUM PEAK A9001 System Voltage - Fifth Flr Plt 52.08 VDC  09/22/05 14:17:20
```

```
MINIMUM PEAK A9001 System Voltage - Fifth Flr Plt 52.08 VDC 09/22/05 14:17:20
MAX HOUR AVG A9001 System Voltage - Fifth Flr Plt 52.08 VDC 09/22/05 14:00:00
```

```
MAXIMUM PEAK A9002 System Current                200 AMPS 09/22/05 13:17:20
MINIMUM PEAK A9002 System Current                200 AMPS 09/22/05 15:17:20
MAX HOUR AVG A9002 System Current                200 AMPS 09/22/05 15:00:00
```

10/26/2005 - Wednesday

CHAN	DESCRIPTION	VALUE	MEAS	DATE/TIME
MAXIMUM PEAK A9001	System Voltage - Fifth Flr Plt	54.21 VDC		09/22/05 14:17:20
MINIMUM PEAK A9001	System Voltage - Fifth Flr Plt	54.21 VDC		09/22/05 14:17:20
MAX HOUR AVG A9001	System Voltage - Fifth Flr Plt	54.21 VDC		09/22/05 14:00:00
MAXIMUM PEAK A9002	System Current	200 AMPS		09/22/05 13:17:20
MINIMUM PEAK A9002	System Current	195 AMPS		09/22/05 15:17:20
MAX HOUR AVG A9002	System Current	200 AMPS		09/22/05 15:00:00

Command<6>: stats daily ?

```
STATS DAILY          stats of all channels
STATS DAILY CSV      stats of all channels in comma-separated format
STATS DAILY USER     stats of user's channels
STATS DAILY USER CSV stats of user's channels in comma-separated format
STATS DAILY G<n>     stats of group <n>'s channels
STATS DAILY G<n> CSV stats of group <n>'s channels in comma-separated format
Associated commands: CLR STATS DAILY , SET STATS CHANNELS
```

STATS WEEKLY

Description: Displays the Weekly Advanced Statistics for analog and function channels set for Advanced Statistics.

Command Level: 1

Syntax: STATS WEEKLY [USER | *group_designator*] [CSV]

Comments: Information presented includes the weekly peak maximum, peak minimum, and hour-average values.

Entering the command modifier USER displays statistics for only analog and function channels that are set for Advanced Statistics and are also part of the current User's channel group.

Entering the command modifier *group_designator* displays statistics for only analog and function channels that are set for Advanced Statistics and are also in that group. The group designator must be entered in the form 'G<n>', where 'n' is a number 1-8.

Entering the command modifier CSV displays the statistics in the "comma separated value" format. This allows the data to be imported into a spreadsheet.

Notes: A system reset has no effect on the collection and processing of weekly statistical data except as it affects the calculations of the minute and hour averages used. A reset causes calculations for these values to be restarted. Thus, the hour averages will include data calculations using values collected from the time of the reset through the end of the hour. Data calculations for the hour using values collected prior to the reset are lost.

A system reset after a change in date (i.e., system was powered down during a period when the date changed) does not affect the collection and processing of the hour-average data in the except for a change in the date portion of the time/date stamp. A change in date affects the collection of weekly statistical data in the following manner.

- If the change in date does not cross a boundary of a week the only effect is that the length of the statistical period (i.e., week) may be longer or shorter than normal.
- If the change in date crosses a boundary of the present week statistical comparisons for the present week (old date) are completed and collection of statistical data for the new week (date) is started.

A change in time affects the collection and processing of daily and weekly statistical data only as the number of time periods (hours, minutes) in which data is be collected may be greater or less than normal. A change in time affects the collection and processing of the hour-average data in the following manner.

- Calculations for the present hour (old time) are completed and the data is stamped with a date and time of the new time less one hour (e.g., time was changed from 14:34 to 11:42 , the timestamp is 10:42).
- Calculations are started for the present hour (of the new time) and are completed at the end of the hour. The time/date stamp is the new hour.

Related Commands: STATS, STATS DAILY, STATS CHANNELS, SET STATS CHANNELS, CLR STATS, CLR STATS DAILY, CLR STATS WEEKLY

Example:

```
Command<1>: stats weekly  
WEEKLY STATISTICS
```

10/23/2005

CHAN	DESCRIPTION	VALUE	MEAS	DATE/TIME
MAXIMUM PEAK A9001	System Voltage - Fifth Flr Plt	52.08	VDC	09/22/05 14:17:20
MINIMUM PEAK A9001	System Voltage - Fifth Flr Plt	52.08	VDC	09/22/05 14:17:20
MAX HOUR AVG A9001	System Voltage - Fifth Flr Plt	52.08	VDC	09/22/05 14:00:00
MAXIMUM PEAK A9002	System Current	200	AMPS	09/22/05 13:17:20
MINIMUM PEAK A9002	System Current	200	AMPS	09/22/05 15:17:20
MAX HOUR AVG A9002	System Current	200	AMPS	09/22/05 15:00:00

10/30/2005

CHAN	DESCRIPTION	VALUE	MEAS	DATE/TIME
MAXIMUM PEAK A9001	System Voltage - Fifth Flr Plt	54.21	VDC	09/22/05 14:17:20
MINIMUM PEAK A9001	System Voltage - Fifth Flr Plt	54.21	VDC	09/22/05 14:17:20
MAX HOUR AVG A9001	System Voltage - Fifth Flr Plt	54.21	VDC	09/22/05 14:00:00
MAXIMUM PEAK A9002	System Current	200	AMPS	09/22/05 13:17:20
MINIMUM PEAK A9002	System Current	195	AMPS	09/22/05 15:17:20
MAX HOUR AVG A9002	System Current	200	AMPS	09/22/05 15:00:00

Command<6>: stats weekly ?

```

STATS WEEKLY          stats of all channels
STATS WEEKLY CSV     stats of all channels in comma-separated format
STATS WEEKLY USER    stats of user's channels
STATS WEEKLY USER CSV stats of user's channels in comma-separated format
STATS WEEKLY G<n>    stats of group <n>'s channels
STATS WEEKLY G<n> CSV stats of group <n>'s channels in comma-separated format
Associated commands: CLR STATS WEEKLY , SET STATS CHANNELS

```

STATUS

Description: Displays the status page.

Command Level: 1

Syntax: STATUS

Comments: After entering the command STATUS, the user can review the titles of the status pages. After review, the user is prompted to enter a status page number. Entering a page number displays the selected page. Each of the eight status pages permits convenient review of several related channel scans. The channels listed on a status page are determined by the user, and can include the channel header information if desired.

Notes: none

Related Commands: SET STATUS

Example:

```
Command<1>: status
STATUS PAGES:
Pg 1: PBD02 STATUS          Pg 9:
Pg 2:                      Pg 10:
Pg 3:                      Pg 11:
Pg 4:                      Pg 12:
Pg 5:                      Pg 13:
Pg 6:                      Pg 14:
Pg 7:                      Pg 15:
Pg 8:                      Pg 16:
Which page (1-16) ? 1
```

```

                                PBD02 STATUS
Chan Description      Value Unit Alarm1 Alarm2 Alarm3 Alarm4
A0001 PBD02 LOAD 11  +0.0 Amps N    0 N    0 N    0 N    0
A0002 PBD02 LOAD 12  +0.1 Amps N    0 N    0 N    0 N    0
A0003 PBD02 LOAD 13  +0.0 Amps N    0 N    0 N    0 N    0
A0004 PBD02 LOAD 14  +0.0 Amps N    0 N    0 N    0 N    0
```

TIME

Description: Displays the current day of the week, month, day, year, and time.

Command Level: 1

Syntax: TIME
 T

Comments: none

Notes: none

Related Commands: DATE

Example:

```
Command<1>: time
Today is Thursday 06/19/01 at 15:34:21.
```

TIMEOUT

Description: Lists the length of time that the system will remain on-line without a command, carriage return, or line feed being entered.

Command Level: 2

Syntax: TIMEOUT
 TIMEO

Comments: At the end of the time interval, the system will terminate the communications session.

Notes: none

Related Commands: SET TIMEOUT

Example:

```
Command<2>: TIMEOUT  
User timeout: 300 seconds.
```

UNIT

Description: Displays the unit name, unit number, system identifier, unit header, unit pager code, and pager delay.

Command Level: 1

Syntax: UNIT
 U

Comments: None

Notes: none

Related Commands: SET UNIT

Example:

```
Command<1>: UNIT
LMS1000 v3.0.0
Unit Name: Central Office - Unit #1
System Identifier (SID):
Unit Header:
THIS IS THE UNIT HEADER
Unit Pager Code:
Pager Delay:
```

UPLOAD

Description: Allows transfer of configuration information to the system from any personal computer capable of uploading and downloading a file to a disk using XMODEM protocol with CRC error checking.

Command Level: 5, "User Configuration" data is only downloaded if the access level of the User is level '6'.

Syntax: UPLOAD
 UP

Comments: The UPLOAD command expects to receive information that is from a DOWNLOAD command. Before using the upload command it is recommended that the defaults first be set (SET DEFAULTS).

Notes: The personal computer must be equipped with a communications software package which allows saving of information and transfer of information to a floppy disk, hard disk, or RAM. The software package must also be capable of uploading information from the personal computer to another device, such as the system. Refer to the communications software package instruction manual for specific operating information.

Related Commands: DOWNLOAD

Example:

```
Command<6>: UPLOAD
UPLOAD using XMODEM Protocol with CRC error checking
```

UPLOAD TFTP

Description: Allows transfer of configuration information to the system from any networked personal computer capable of uploading and downloading a file to a disk using the TFTP Protocol.

Command Level: 5, "User Configuration" data is only downloaded if the access level of the User is level '6'.

Syntax: UPLOAD TFTP
 UP TFTP

Comments: The UPLOAD TFTP command expects to receive information that has been downloaded via a DOWNLOAD or DOWNLOAD TFTP command. Before using the upload command, it is recommended that the default first be set (SET DEFAULTS).

Notes: A separate TFTP client session must be started on the host from which the configuration file is transferred.

Related Commands: DOWNLOAD TFTP

Example:

```
Command<6> : UPLOAD TFTP
UPLOAD using TFTP
```

UPLOAD TFTP NPS

Description: Allows transfer of configuration information to the NPS from any personal computer capable of uploading and downloading a file to a disk using the TFTP Protocol.

Command Level: 5, "User Configuration" data is only downloaded if the access level of the User is level '6'.

Syntax: UPLOAD TFTP NPS
 UP TFTP NPS

Comments: The UPLOAD TFTP NPS command expects to receive information that has been downloaded via a DOWNLOAD NPS or DOWNLOAD TFTP NPS command.

Notes: A separate TFTP client session must be started on the host from which the configuration file is transferred.

Related Commands: DOWNLOAD TFTP NPS

Example:

```
Command<6> : UPLOAD TFTP NPS
UPLOAD NPS Power System Custom Message Text Blocks (Y or N): n
UPLOAD using TFTP
Bytes Received 1653
```

File Received

TFTP Complete.

```
Command<6> : UPLOAD TFTP NPS
UPLOAD NPS Power System Custom Message Text Blocks (Y or N): n
UPLOAD using TFTP
```

```
Could not transfer the configuration file
"Timeout"
```

UPLOAD TFTP NETSURE

Description: Allows transfer of configuration information to the VPS/NPS from any personal computer capable of uploading and downloading a file to a disk using the TFTP Protocol.

Command Level: 5, "User Configuration" data is only downloaded if the access level of the User is level '6'.

Syntax: UPLOAD TFTP NETSURE
 UP TFTP NETSURE

Comments: The UPLOAD TFTP NETSURE command expects to receive information that has been downloaded via a DOWNLOAD NETSURE or DOWNLOAD TFTP NETSURE command.

Notes: A separate TFTP client session must be started on the host from which the configuration file is transferred.

Related Commands: DOWNLOAD TFTP NETSURE

Example:

```
Command<6> : UPLOAD TFTP NETSURE
UPLOAD NETSURE Power System Custom Message Text Blocks (Y or N): n
UPLOAD using TFTP
Bytes Received 1653
```

File Received

TFTP Complete.

```
Command<6> : UPLOAD TFTP NETSURE
UPLOAD NETSURE Power System Custom Message Text Blocks (Y or N): n
UPLOAD using TFTP
```

```
Could not transfer the configuration file
"Timeout"
```

UPLOAD NPS

Description: Allows transfer of configuration information to the NPS from any personal computer capable of uploading and downloading a file to a disk using XMODEM protocol with CRC error checking.

Command Level: 5, "User Configuration" data is only downloaded if the access level of the User is level '6'.

Syntax: UPLOAD NPS
 UP N

Comments: The UPLOAD NPS command expects to receive information that is from a DOWNLOAD NPS command.

Notes: The personal computer must be equipped with a communications software package which allows saving of information and transfer of information to a floppy disk, hard disk, or RAM. The software package must also be capable of uploading information from the personal computer to another device, such as the NPS. Refer to the communications software package instruction manual for specific operating information. This command requires a communication program which supports XMODEM and CRC checking.

Related Commands: DOWNLOAD NPS

Example:

```
Command<6>: UPLOAD NPS
Upload NPS Power System Custom Message Text Blocks (Y or N)?n
UPLOAD using XMODEM Protocol with CRC error checking
9 blocks received OK.
Upload complete.
```

UPLOAD NETSURE

Description: Allows transfer of configuration information to the VPS/NPS from any personal computer capable of uploading and downloading a file to a disk using XMODEM protocol with CRC error checking.

Command Level: 5, “User Configuration” data is only downloaded if the access level of the User is level ‘6’.

Syntax: UPLOAD NETSURE
 UP N

Comments: The UPLOAD NETSURE command expects to receive information that is from a DOWNLOAD NETSURE command.

Notes: The personal computer must be equipped with a communications software package which allows saving of information and transfer of information to a floppy disk, hard disk, or RAM. The software package must also be capable of uploading information from the personal computer to another device, such as the VPS/NPS. Refer to the communications software package instruction manual for specific operating information. This command requires a communication program which supports XMODEM and CRC checking.

Related Commands: DOWNLOAD NETSURE

Example:

```
Command<6>: UPLOAD NETSURE
Upload NETSURE Power System Custom Message Text Blocks (Y or N)?n
UPLOAD using XMODEM Protocol with CRC error checking
9 blocks received OK.
Upload complete.
```

USERS

Description: Lists each user and associated configuration information.

Command Level: 6

Syntax: USERS
 USERS n
 US
 US n

Comments: none

Notes: When the command is entered with a command modifier, the active/inactive state for that user is shown. When the command is entered with no command modifier, inactive users are also listed along with the configurations of all active users.

Related Commands: Set Users

Example:

Command<6>: USER 8

USER NO. 8 CONFIGURATION - User is: inactive

Name: User #8	Occurred Alarm Report: No
Password: 8	Retired Alarm Report: No
Access Level: 6	Persistent Alarm Report: No
Callback: No	Persistent Alarm Report Period: 0m
Mechanized Interface: No	Daily Report: No
Report Mode: Off	Daily Report Command:
Report Device: Modem	Daily Report Time:
Report Retry Time: 15m	
Primary Phone:	
Primary E-mail:	
Primary Phone Valid Days: 1-7	
Primary Phone Valid Hours: 00-23	
Alternate Phone:	
Alternate E-mail:	

USER NO. 8 CHANNELS: None

Command<6>: USER

. . .

USER NO. 2 CONFIGURATION - User is: active

Name: User #2	Occurred Alarm Report: No
Password: 2	Retired Alarm Report: No
Access Level: 2	Persistent Alarm Report: No
Callback: No	Persistent Alarm Report Period: 0m
Mechanized Interface: No	Daily Report: No
Report Mode: Off	Daily Report Command:
Report Device: Modem	Daily Report Time:
Report Retry Time: 15m	
Primary Phone:	
Primary E-mail:	
Primary Phone Valid Days: 1-7	
Primary Phone Valid Hours: 00-23	

Alternate Phone:
Alternate E-mail:

USER NO. 2 CHANNELS: None

USER NO. 3 is inactive

USER NO. 4 CONFIGURATION - User is: active

Name: User #4	Occurred Alarm Report: No
Password: 4	Retired Alarm Report: No
Access Level: 4	Persistent Alarm Report: No
Callback: No	Persistent Alarm Report Period: 0m
Mechanized Interface: No	Daily Report: No
Report Mode: Off	Daily Report Command:
Report Device: Modem	Daily Report Time:
Report Retry Time: 15m	
Primary Phone:	
Primary E-mail:	
Primary Phone Valid Days: 1-7	
Primary Phone Valid Hours: 00-23	
Alternate Phone:	
Alternate E-mail:	

USER NO. 4 CHANNELS: None

. . .

VI

Description: Show Plant Voltage and Load.

Command Level: 1

Syntax: VI

Comments: none

Notes: The Plant Voltage and Plant Current channels default to settings shown below.

NetSure 702/801/802: Voltage channel - A9901; Current channel - A9903

NetSure 701/VPS: Voltage channel - A9001; Current channel - A9002

Stand-alone: Voltage channel - none; Current channel - none

Related Commands: none

Example:

```
Command<1>: VI
Plant Voltage: A9001
Plant Current: A9002
```

IP NETWORKING COMMANDS

IP Networking Commands (in alphabetical order)

This section presents a more detailed description of each IP NETWORKING command, again in alphabetical order. Command syntax and examples of typical screen displays are given.

The following page shows a sample command page that explains the format used for the commands listed in this section. Following the sample command page is an explanation of the conventions used, plus other information on using command options.

Sample Command

Description: This section describes the purpose of the command.

Command Level: This section tells what level of access is required to execute the command.

Syntax: command [options], where command is the name of the command and options are as defined on the next page. Listed in this section is the entire command name, plus the least amount of characters that have to be typed for the command to be recognized.

Comments: This section describes the command in more detail and also explains the use of the command's options.

Notes: This section discusses important points related to the use of the command, such as limitations or warnings.

Related Commands: Lists related commands.

Example: Shows one or more examples that illustrate how to use the command plus a typical screen display.

Command Conventions and Options

Command Conventions

The following conventions are used for the command options.

<u>Convention</u>	<u>Usage</u>
<i>italics</i>	Items shown in italics are variables and requires you to supply the text. For example, when text appears in italics, you should type the desired text.
[brackets]	Items in brackets are optional information that may be used with a command. To include optional information, type a space after the command name and then type the information within the brackets. Do not type the brackets themselves.

Command Options

Command options provide a command with extra information that affect the operation of the command. If options are omitted, the command either prompts you to supply them or uses a default value. The valid options for a command may be one or more of the following, but you can only use one option at a time.

<u>Option</u>	<u>Description</u>
Address	nnn.nnn.nnn.nnn, where $0 \leq nnn \leq 255$

Commands

IP

Description: Display information regarding the user configurable IP Network variables.

Command Level: 6

Syntax: IP

Comments: This command displays all the relevant IP information.

Notes: If the **Network Address**, **Netmask**, or **Gateway Address** is 0.0.0.0, the address will be displayed as **NONE**. If there are no hosts on the access list, the command displays:

No host access list. Unrestricted access granted.

The authorized host list is the list of remote computers permitted to access the system via **telnet**, **TFTP**, or **SNMP**. Hosts are identified on the list by their IP address. The list supports a maximum of 32 entries.

If there are no hosts on the list, access is granted to any computer attempting to connect to the system.

Related Commands: IP ADDRESS
IP DELETE
IP GATEWAY
IP HOST
IP NETMASK

Example:

```
Command<6> : IP
  IP Network Address : 216.32.74.51
  IP Gateway Address : 216.32.74.1
  IP Netmask         : 255.255.255.0
  Ethernet Address   : 00:0C:0A:60:12:2C
  IP Authorized Hosts : 216.32.74.42
                     216.32.74.43
```

IP ADDRESS

Description: Set the Unit's IP address.

Command Level: 6

Syntax: IP ADDRESS [*address*]

Comments: Enter the address in the format nnn.nnn.nnn.nnn, where $0 \leq nnn \leq 255$. The address must be a valid address and must not be 255.255.255.255.

Notes: An IP address of 0.0.0.0 will prevent an Ethernet access to the unit.

Related Commands:

- IP
- IP DELETE
- IP GATEWAY
- IP HOST
- IP NETMASK

Example:

```
Command<6> : IP ADDRESS 216.32.74.51
```

IP DELETE

Description: Remove a host from the list of authorized hosts.

Command Level: 6

Syntax: IP DELETE [address]

Comments: See ***IP*** for a description of the hosts list.

Enter the address in the format nnn.nnn.nnn.nnn, where $0 \leq nnn \leq 255$.

Notes: [address] must be a host currently on the list of authorized hosts.

Related Commands:

- IP
- IP ADDRESS
- IP GATEWAY
- IP HOST
- IP NETMASK

Example:

```
Command<6> : IP DELETE 216.32.74.42
```

IP GATEWAY

Description: Set the unit's gateway address.

Command Level: 6

Syntax: IP GATEWAY [*address*]

Comments: Enter the address in the format nnn.nnn.nnn.nnn, where $0 \leq nnn \leq 255$. This command sets the address of the gateway of the network on which the unit resides.

Notes: The gateway address must be a valid IP address and must not be 255.255.255.255.

Related Commands:

- IP
- IP ADDRESS
- IP DELETE
- IP HOST
- IP NETMASK

Example:

```
Command<6> : IP GATEWAY 216.32.74.1
```

IP HOST

Description: Add a new host to the list of authorized hosts.

Command Level: 6

Syntax: IP HOST [*address*]

Comments: See *IP* for a description of the hosts list.

Enter the address in the format nnn.nnn.nnn.nnn, where $0 \leq \text{nnn} \leq 255$. Addresses of 0.0.0.0 and 255.255.255.255 are not permitted on the list.

Notes: none

Related Commands: IP
IP ADDRESS
IP DELETE
IP GATEWAY
IP NETMASK

Example:

```
Command<6> : IP HOST 216.32.74.42
```

```
IP host added.
```

IP NETMASK

Description: Set the unit's network netmask.

Command Level: 6

Syntax: IP NETMASK [*address*]

Comments: Enter the address in the format nnn.nnn.nnn.nnn, where $0 \leq nnn \leq 255$.

Notes: none

Related Commands: IP
IP ADDRESS
IP DELETE
IP GATEWAY
IP HOST

Example:

```
Command<6> : IP NETMASK 255.255.255.0
```

SNMP COMMANDS

SNMP Commands (in alphabetical order)

This section presents a more detailed description of each SNMP command, again in alphabetical order. Command syntax and examples of typical screen displays are given.

The following page shows a sample command page that explains the format used for the commands listed in this section. Following the sample command page is an explanation of the conventions used, plus other information on using command options.

Sample Command

Description: This section describes the purpose of the command.

Command Level: This section tells what level of access is required to execute the command.

Syntax: command [options], where command is the name of the command and options are as defined on the next page. Listed in this section is the entire command name, plus the least amount of characters that have to be typed for the command to be recognized.

Comments: This section describes the command in more detail and also explains the use of the command's options.

Notes: This section discusses important points related to the use of the command, such as limitations or warnings.

Related Commands: Lists related commands.

Example: Shows one or more examples that illustrate how to use the command plus a typical screen display.

Command Conventions and Options

Command Conventions

The following conventions are used for the command options.

<u>Convention</u>	<u>Usage</u>
<i>italics</i>	Items shown in italics are variables and requires you to supply the text. For example, when text appears in italics, you should type the desired text.
[brackets]	Items in brackets are optional information that may be used with a command. To include optional information, type a space after the command name and then type the information within the brackets. Do not type the brackets themselves.

Command Options

Command options provide a command with extra information that affect the operation of the command. If options are omitted, the command either prompts you to supply them or uses a default value. The valid options for a command may be one or more of the following, but you can only use one option at a time.

<u>Option</u>	<u>Description</u>
Address	nnn.nnn.nnn.nnn, where $0 \leq nnn \leq 255$
community name	String of alpha/numeric characters.

Commands

SNMP

Description: Display the value of the current SNMP user configurable options.

Command Level: 6

Syntax: SNMP

Comments: This displays the value of the SNMP variables, **SNMP Enabled/Disabled**, **GET community string**, and **PUT community string**.

Notes: none

Related Commands: SNMP GET
SNMP OFF
SNMP ON
SNMP SET

Example:

```
Command<6> : SNMP  
SNMP:on GET:public SET:private
```

SNMP GET

Description: Set the SNMP "get" community name.

Command Level: 6

Syntax: SNMP GET [*community name*]

Comments: Enter the community name. The **GET** community name provides a simple means of authentication for all **SNMP GET**, **GETNEXT**, and **GETBULK** (in the case of SNMP 2c) operations.

Notes: The string may not contain more than 128 characters.

Related Commands: SNMP
SNMP OFF
SNMP ON
SNMP SET

Example:

```
Command<6> : SNMP GET public
```

SNMP OFF

Description: Disable SNMP access.

Command Level: 6

Syntax: SNMP OFF

Comments: This command disables all access to the unit via SNMP. The unit will not respond to a SNMP request nor will any SNMP TRAP be sent.

Notes: Prevents access to the system through the Ethernet port via an SNMP browser. Access to the system can be enabled by issuing the local command SNMP ON.

Related Commands: SNMP
SNMP GET
SNMP ON
SNMP SET

Example:

```
Command<6> : SNMP OFF
```

SNMP ON

Description: Enable SNMP access.

Command Level: 6

Syntax: SNMP ON

Comments: This command enables all access to the unit via SNMP. The unit responds to SNMP requests and will permit a TRAP be sent.

Notes: Enables access to the system through the Ethernet port via an SNMP browser. Access to the system can be disabled by issuing the local command SNMP OFF.

Related Commands: SNMP
SNMP GET
SNMP OFF
SNMP SET

Example:

Command<6> : SNMP ON

SNMP SET

Description: Set the SNMP "set" community name.

Command Level: 6

Syntax: SNMP SET [*community name*]

Comments: Enter the community name. The **PUT** community name provides a simple means of authentication for all **SNMP PUT** operations.

Notes: The string may not contain more than 128 characters.

Related Commands: SNMP
SNMP GET
SNMP OFF
SNMP ON

Example:

```
Command<6> : SNMP SET private
```

TRAPS

Description: Display the user-configurable SNMP TRAP information.

Command Level: 5

Syntax: TRAPS

Comments: none

Notes: none

Related Commands: TRAPS ADD
TRAPS DELETE
TRAPS ON
TRAPS OFF
TRAPS VERSION
TRAPS OCCURRED
TRAPS RETIRED
TRAPS PERSISTENT
TRAPS COMMUNITY

Example:

```
Command<6> : TRAPS
TRAPS      : on  Version : V2
OCCURRED   : on  RETIRED : on
PERSISTENT : on  Period  : 20
Addresses: 198.137.240.91
           198.137.240.92
```

TRAPS ADD

Description: Add a new SNMP Trap recipient to the list of TRAP hosts.

Command Level: 5

Syntax: TRAPS ADD [*address*]

Comments: Enter the address in the format nnn.nnn.nnn.nnn, where $0 \leq nnn \leq 255$. This adds a new trap recipient to the list of hosts to which TRAPs will be sent. A maximum of 32 host address may appear on this list.

Notes: All traps will be sent to all hosts on this list.

A host may not appear on this list more than once.

The addresses 0.0.0.0 and 255.255.255.255 are not permissible addresses.

Related Commands: TRAPS
TRAPS DELETE
TRAPS OFF
TRAPS ON
TRAPS VERSION

Example:

```
Command<6> : TRAPS ADD 198.137.240.91
```

TRAPS COMMUNITY

Description: Set the SNMP TRAPS community name.

Command Level: 6

Syntax: TRAPS COMMUNITY [*community name*]

Comments: Enter the community name. The TRAPS community name provides a simple means of authentication for all SNMP TRAPS received.

Notes: The string may not contain more than 128 characters. SNMP TRAPS are sent using this string as their community name.

Related Commands:

- TRAPS ADD
- TRAPS DELETE
- TRAPS ON
- TRAPS OFF
- TRAPS VERSION
- TRAPS OCCURRED
- TRAPS RETIRED
- TRAPS PERSISTENT

Example:

```
Command<6> : TRAPS COMMUNITY public
```

TRAPS DELETE

Description: Remove a host address from the list TRAP hosts.

Command Level: 5

Syntax: TRAPS DELETE [*address*]

Comments: Enter the address in the format nnn.nnn.nnn.nnn, where $0 \leq nnn \leq 255$. This removes a trap recipient host from the list of hosts to which TRAPs will be sent.

Notes: See ***TRAPS ADD*** for restrictions on the [*address*].
[*address*] must be a valid host currently on the list.

Related Commands: TRAPS
TRAPS ADD
TRAPS OFF
TRAPS ON
TRAPS VERSION

Example:

```
Command<6> : TRAPS DELETE 198.137.240.91
```

TRAPS OCCURRED

Description: Disable/Enable the system's ability to send SNMP Occurred Alarm TRAPS.

Command Level: 5

Syntax: TRAPS OCCURRED OFF
TRAPS OCCURRED ON

Comments: This enables the system to send or disables the system from sending Occurred Alarms TRAPS. If occurred alarms traps are disabled, no occurred alarms will be sent under any circumstances.

Notes: If TRAPS are disabled altogether via the TRAPS OFF command, Occurred Alarms TRAPS will not be sent regardless of the setting of the Occurred Alarms TRAPS.

Related Commands: TRAPS
TRAPS ON
TRAPS OFF

Example:

Command<6> : TRAPS OCCURRED OFF

TRAPS OFF

Description: Disable the system's ability to send SNMP TRAPS.

Command Level: 5

Syntax: TRAPS OFF

Comments: This prevents the system from generating TRAPS. If traps are disabled, no trap will be sent under any circumstances.

Notes: none

Related Commands: TRAPS
TRAPS ADD
TRAPS DELETE
TRAPS ON
TRAPS VERSION

Example:

```
Command<6> : TRAPS OFF
```

TRAPS ON

Description: Enable the system to send SNMP TRAPS.

Command Level: 5

Syntax: TRAPS ON

Comments: This enables the system to generate a TRAP when required. If traps are enabled, all traps are sent to the configured hosts.

Notes: none

Related Commands: TRAPS
TRAPS ADD
TRAPS DELETE
TRAPS OFF
TRAPS VERSION

Example:

Command<6> : TRAPS ON

TRAPS PERSISTENT

Description: Disable/Enable the system's ability to send SNMP Persistent Alarm TRAPS or set the Persistent Alarms reporting interval.

Command Level: 5

Syntax: TRAPS PERSISTENT OFF
TRAPS PERSISTENT ON
TRAPS PERSISTENT {period}

Comments: This enables the system to send or disables the system from sending Persistent Alarms TRAPS. If Persistent Alarms traps are disabled, no Persistent Alarms will be sent under any circumstances.

{period} must be in the range

$$1 \leq \{\text{period}\} \leq 1440$$

where period represents the number of minutes between successive traps for a given channel.

Notes: If TRAPS are disabled altogether via the TRAPS OFF command, Persistent Alarms TRAPS will not be sent regardless of the setting of the Persistent Alarms TRAPS.

The system default Persistent Alarm period is 20 minutes.

Related Commands: TRAPS
TRAPS ON
TRAPS OFF

Example:

Command<6> : TRAPS PERSISTENT OFF

Command<6> : TRAPS PERSISTENT 20

TRAPS RETIRED

Description: Disable/Enable the system's ability to send SNMP Retired Alarm TRAPS.

Command Level: 5

Syntax: TRAPS RETIRED OFF
TRAPS RETIRED ON

Comments: This enables the system to send or disables the system from sending Retired Alarms TRAPS. If Retired Alarms traps are disabled, no Retired Alarms will be sent under any circumstances.

Notes: If TRAPS are disabled altogether via the TRAPS OFF command, Retired Alarms TRAPS will not be sent regardless of the setting of the Retired Alarms TRAPS.

Related Commands: TRAPS
TRAPS ON
TRAPS OFF

Example:

Command<6> : TRAPS RETIRED OFF

TRAPS VERSION

Description: Change the version of SNMP TRAPS sent by the system.

User Access Level: 5

Syntax: TRAPS VERSION <V1 | V2>

Comments: This tells the system whether V1 formatted or V2c traps will be created when a trap is sent.

Notes: The system supports both Version 1 and Version 2c traps.

Related Commands:

- TRAPS
- TRAPS ADD
- TRAPS DELETE
- TRAPS ON
- TRAPS OFF

Example:

```
Command<6> : TRAPS VERSION V1
```

TL1 COMMANDS, AUTONOMOUS MESSAGES, AND ERROR CODES SUPPORTED

TL1 Commands, Autonomous Messages, and Error Codes

The system can also operate as a Network Element (NE) in a Network Maintenance and Administration (NMA) system. NMA is software developed by Bell Communications Research (Bellcore) to run on an Operations System (OS). This system utilizes the Transaction Language 1 (TL1) command language.

This section lists the specific TL1 commands and autonomous messages (in alphabetical order) the system supports when the TL1 software option is furnished. A brief description of each is provided. Also provided is a list of error codes for the TL1 commands supported.



NOTE! *The system does not currently support parameter grouping in TL1 commands.*

Refer to the current issue of the following Bellcore publications for further information on the NMA system and TL1 command language.

TR-NWT-000831
TR-NWT-000833
TR-NWT-000835
TR-NWT-000199
TA-NWT-000199
TA-NWT-000200
TA-NWT-001360

TL1 Commands Supported

TL1 Commands Supported (in alphabetical order)

This section lists the specific TL1 commands (in alphabetical order) the system supports when the TL1 software option is furnished. A brief description of each is provided.

Commands

ACTIVATE-USER **(ACT-USER)**

Referenced In: TR-NWT-000835, Issue 3, pg. 3-23

General Description: Sets up a session with the system (i.e., logging into the system).

An entry is made in the event log indicating that a user session was established and identifying the user who executed the command.

Related Commands: None

LMS1000 Access Level: NA

LMS1000 Equivalent: None

LMS1000 Input Format Variation:

<aid>

The access identifier (<aid>) parameter is the same value as the user identifier (<uid>) parameter for the user attempting to gain access to the system. The user identifier parameter is the NAME attribute from this user's LMS1000 user configuration. Invalid values received for this parameter return an error response with the error code IIAC.

<pid>

The personal identifier (<pid>) parameter is the PASSWORD attribute from this user's LMS1000 user configuration.

LMS1000 Response Format Variation: The "e" (date and time of last session established by this user) and "f" (number of unsuccessful session attempts since last session) parameters are currently not supported in LMS1000.

ALLOW-MESSAGE-ALL **(ALW-MSG-ALL)**

Referenced In: TR-NWT-000833, Issue 5, pg. 4-39

General Description: Enables the system to resume transmission of automatic messages after being placed in the inhibit message mode.

Selective enabling of messaging is not implemented in LMS1000. Unreported alarms and events which have occurred since messaging was inhibited and which have been written over by a more recent alarm or event (this occurs after two hundred entries) are not reported. All other unreported alarms and events are reported via the proper autonomous message type (REPORT ALARM or REPORT EVENT).

This command enables autonomous messaging for all LMS1000 users whose REPORT DEVICE attribute is X25. When executed, the command sets the REPORT MODE attribute of these users' LMS1000 user configuration to TL1.

An entry is made in the LMS1000's event log indicating this command was executed by the current sessions user. The event description indicates that automatic messaging was enabled.

Related Commands: None

LMS1000 Access Level: 6

An error response with the error code PICC is returned if this command is entered by a valid user whose level of access is less than the access level of this command.

LMS1000 Equivalent: None

LMS1000 Input Format Variation: Command code modifiers other than ALL are not supported by LMS1000.

<aid>

The access identifier (<aid>) parameter can only be the value ALL. Invalid values received for this parameter return an error response with the error code IIAC.

<ntfcncde>, <condtype>, <tmper>

These parameters are not implemented in LMS1000. The only valid value for these parameters are NULL. Invalid values received for this parameter return an error response with the error code INUP.

LMS1000 Response Format Variation: None

CANCEL-USER
(CANC-USER)

Referenced In: TR-NWT-000835, Issue 3, pg. 3-33

General Description: Terminates a session with the system (i.e., logging off of the system).

Related Commands: None

LMS1000 Access Level: 1

LMS1000 Equivalent: BYE

LMS1000 Input Format Variations:

<aid>

The access identifier (<aid>) parameter is the same value as the user identifier (<uid>) parameter for the user terminating the LMS1000 session. The user identifier parameter is the NAME attribute from this user's LMS1000 user configuration. Invalid values received for this parameter return an error response with the error code IIAC.

LMS1000 Response Format Variations: None

DELETE-USER-SECURITY **(DLT-USER-SECU)**

Referenced In: TR-NWT-000835, Issue 3, pg. 3-45

General Description: Deactivates an LMS1000 user.

When executed, the command sets the USER ACTIVE attribute of this user's LMS1000 user configuration to N. This command conforms to the LMS1000's restriction that a user may not deactivate oneself. If a user attempts to deactivate oneself, then an error response is returned with the error code PIUC.

An entry is made in the LMS1000's event log indicating this command was executed by the current sessions user. The event description indicates that the specified user was deactivated.

Related Commands: None

LMS1000 Access Level: 6

An error response with the error code PICC is returned if this command is entered by a valid user whose level of access is less than the access level of this command.

LMS1000 Equivalent: None

LMS1000 Input Format Variations:

<aid>

The access identifier (<aid>) parameter is the same value as the user identifier (<uid>) parameter for the user who is being deactivated. The user identifier parameter is the NAME attribute from this user's LMS1000 user configuration. Invalid values received for this parameter return an error response with the error code IIAC.

A user cannot deactivate oneself. If a user attempts to delete oneself, then an error response is returned with the error code PIUC.

LMS1000 Response Format Variations: None

EDIT-DATE_AND_TIME **(ED-DAT)**

Referenced In: TA-NWT-000199, Issue 6, Supplement 1, pg. 3-18

General Description: Changes the LMS1000's system date and/or time.

An entry is made in the LMS1000's event log indicating this command was executed by the current sessions user. The event description indicates that the date and/or time was set through the TL1 interface.

Delayed activation is not allowed.

Related Commands: None

LMS1000 Access Level: 3

An error response with the error code PICC is returned if this command is entered by a valid user whose level of access is less than the access level of this command.

LMS1000 Equivalent: none

LMS1000 Input Format Variations:

<aid>

The access identifier (<aid>) parameter does not apply. The only valid value for this parameter is NULL. Invalid values received for this parameter return an error response with the error code IIAC.

<date>

This is the value for the new date in the format YY-MM-DD.

YY last two digits of year from 00 to 99
MM month of the year ranging from 01 to 12
DD day of the month ranging from 01 to 31

Invalid values for this parameter return an error response with the error code IDNV.

<time>

This is the value for the new time in the format HH-MM-SS.

HH hour of the day in twenty-four hour format (00 to 23)
MM minutes of the hour from 00 to 59
SS seconds of the minute from 00 to 59

Invalid values for this parameter return an error response with the error code IDNV.

LMS1000 Response Format Variations: None

EDIT-PID **(ED-PID)**

Referenced In: TR-NWT-000835, Issue 3, pg. 3-51

General Description: Edits the current user's privilege identifier (<pid>) parameter (i.e., LMS1000 user password).

When executed, the command sets the PASSWORD attribute of the current user's LMS1000 user configuration to the specified new name.

An entry is made in the LMS1000's event log indicating this command was executed by the current sessions user. The event description indicates that the user changed his/her own password.

Related Commands: None

LMS1000 Access Level: 1

LMS1000 Equivalent: None

LMS1000 Input Format Variations:

<aid>

The access identifier (<aid>) parameter is the same value as the user identifier (<uid>) parameter for the current user. The user identifier parameter is the NAME attribute for this user's LMS1000 user configuration. Invalid values received for this parameter return an error response with the error code IIAC.

<oldpid>

This is the old privilege identifier (LMS1000 password) being replaced by a new one. This parameter is the current PASSWORD attribute of the current user's LMS1000 user configuration. Invalid values received for this parameter return an error response with the error code IDNV.

<newpid>

This is the new privilege identifier (LMS1000 password) which replaces the current one. This parameter is the new PASSWORD attribute for the current user's LMS1000 user configuration. The LMS1000 allows a maximum of eight characters for a password. At least two characters must be non-alpha, and at least one character must be a symbol. (Valid symbols are the '#', '%', and '+' characters.) Invalid values received for this parameter return an error response with the error code IDNV. If the entered value for this parameter matches an existing privilege identifier for another user, an error response with the error code PIUI is returned.

LMS1000 Response Format Variations: None

EDIT-USER-SECURITY **(ED-USER-SECU)**

Referenced In: TR-NWT-000835, Issue 3, pg. 3-59

General Description: Edits the user identifier (<uid>) parameter (i.e., LMS1000 user name), privilege identifier (<pid>) parameter (i.e., LMS1000 user password), calling identifier (<cid>) parameter (i.e., LMS1000 user primary phone number), and user access privilege (<uap>) parameter (i.e., LMS1000 user access level) of the specified user.

When executed, the command sets the NAME, PASSWORD, PRIMARY PHONE, and ACCESS LEVEL attributes of the specified user's LMS1000 user configuration to the new values.

An entry is made in the LMS1000's event log indicating this command was executed by the current sessions user. The event description indicates that the specified user's LMS1000 user parameters were edited.

Related Commands: None

LMS1000 Access Level: 6

An error response with the error code PICC is returned if this command is entered by a valid user whose level of access is less than the access level of this command.

LMS1000 Equivalent: None

LMS1000 Input Format Variations:

<aid>

The access identifier (<aid>) parameter is the same value as the user identifier (<uid>) parameter for the user whose parameters are being edited. Invalid values received for this parameter return an error response with the error code IIAC.

<uid>

The user identifier (<uid>) parameter determines the new user identifier which replaces the current one. This parameter is the new NAME attribute for the specified user's LMS1000 user configuration. Invalid values received for this parameter return an error response with the error code IDNV. If the entered value for this parameter matches an existing user identifier for another user, an error response with the error code PIUI is returned.

<pid>

The privilege identifier (<pid>) parameter determines the new privilege identifier which replaces the current one. This parameter is the new PASSWORD attribute for the specified user's LMS1000 user configuration. The LMS1000 allows a maximum of eight characters for a password. At least two characters must be non-alpha, and at least one character must be a symbol. (Valid symbols are the '#', '%', and '+' characters.) Invalid values received for this parameter return an error response with the error code IDNV. If the entered value for this parameter matches an existing privilege identifier for another user, an error response with the error code PIUI is returned.

<cid>

The calling identifier (<cid>) parameter determines the new calling identifier which replaces the current one. This parameter is the new PRIMARY PHONE attribute for the specified user's LMS1000 user configuration. It

can either be the network address or the phone number of the specified user. Invalid values received for this parameter return an error response with the error code IDNV.

<uap>

The user access privilege (<uap>) parameter determines the new user access privilege which replaces the current one. This parameter is the new ACCESS LEVEL attribute for the specified user's LMS1000 user configuration. The LMS1000 prohibits a user from changing one's own access level. If the user being edited is the same as the session user (i.e., user who is performing the edit) this parameter cannot be changed. If an invalid value is entered or if the session user requests to change his own user privilege code, then an error response is returned using the error code PIUC.

<keyword-defined block>

This parameter has no relevance in LMS1000, and is ignored if included.

LMS1000 Response Format Variations: None

ENTER-USER-SECURITY **(ENT-USER-SECU)**

Referenced In: TR-NWT-000835, Issue 3, pg. 3-71

General Description: Activates a user and enters the specified security parameters for this user. These security parameters consist of the user identifier (<uid>) parameter (i.e., LMS1000 user name), privilege identifier (<pid>) parameter (i.e., LMS1000 user password), calling identifier (<cid>) parameter (i.e., LMS1000 user primary phone number), and user access privilege (<uap>) parameter (i.e., LMS1000 user access level).

When executed, the command sets the USER ACTIVE attribute of this user's LMS1000 user configuration to Y. The command also sets the USER NAME, PASSWORD, PRIMARY PHONE, and ACCESS LEVEL attributes of this user's LMS1000 user configuration to the specified values. The following attributes of this user's LMS1000 user configuration are also set as indicated.

Callback	N
Alternate Phone	(none entered)
Report Device	X25
Report Mode	TL1

If the specified access identifier (<aid>) parameter matches the NAME attribute of an inactive LMS1000 user, the following attributes for this LMS1000 user remain unchanged. If the specified access identifier does not match the NAME attribute of an inactive LMS1000 user, the following attributes of this user's LMS1000 user configuration are set to the default values indicated below.

From Day	1
Thru Day	7
From Hour	0
Thru Hour	23
TL1 Report Condition Interval	0
Report Retry Time	15

An entry is made in the LMS1000's event log indicating this command was executed by the current sessions user. The event description indicates that the specified user was activated.

Related Commands: None

LMS1000 Access Level: 6

An error response with the error code PICC is returned if this command is entered by a valid user whose level of access is less than the access level of this command.

LMS1000 Equivalent: None

LMS1000 Input Format Variations:

<aid>

The access identifier (<aid>) parameter is the same value as the user identifier (<uid>) parameter for the user who is being activated. The user identifier parameter is the new NAME attribute for this user's LMS1000 user configuration. If the access identifier parameter matches the NAME attribute of an inactive LMS1000 user, that user is activated. If the access identifier parameter does not match the NAME attribute of an inactive LMS1000 user, the first inactive LMS1000 user is activated. The NAME attribute for this user is changed to that specified by this value. If there are no inactive LMS1000 users remaining, then an error response is returned with the

error code SROF. If the user being activated is already active, then an error response is returned using the error code PIUI. Other invalid values return an error response with the error code IIAC.

<pid>

The privilege identifier (<pid>) parameter determines the new privilege identifier which replaces the current one. This parameter is the new PASSWORD attribute for the specified user's LMS1000 user configuration. The LMS1000 allows a maximum of eight characters for a password. At least two characters must be non-alpha, and at least one character must be a symbol. (Valid symbols are the '#', '%', and '+' characters.) Invalid values received for this parameter return an error response with the error code IDNV. If the entered value for this parameter matches an existing privilege identifier for another user, an error response with the error code PIUI is returned.

<cid>

The calling identifier (<cid>) parameter determines the new calling identifier which replaces the current one. This parameter is the new PRIMARY PHONE attribute for the specified user's LMS1000 user configuration. It can either be the network address or the phone number of the specified user. Invalid values received for this parameter return an error response with the error code IDNV.

<uap>

The user access privilege (<uap>) parameter determines the new user access privilege which replaces the current one. This parameter is the new ACCESS LEVEL attribute for the specified user's LMS1000 user configuration. Invalid values received for this parameter return an error response with the error code PIUC.

<keyword-defined block>

This parameter has no relevance in LMS1000, and is ignored if included.

LMS1000 Response Format Variations: None

INHIBIT-MESSAGE-ALL **(INH-MSG-ALL)**

Referenced In: TR-NWT-000833, Issue 5, pg. 4-117

General Description: Disables LMS1000 transmission of automatic messages.

Selective disabling of messaging is not implemented in LMS1000. Unreported alarms and events that occur while autonomous messaging is inhibited are reported via the proper message type (REPORT ALARM or REPORT EVENT) when autonomous messaging is re-enabled.

This command disables autonomous messaging for all LMS1000 user's whose REPORT DEVICE attribute is X25. When executed, the command sets the REPORT MODE attribute of these users' LMS1000 user configuration to OFF.

An entry is made in the LMS1000's event log indicating this command was executed by the current sessions user. The event description indicates that automatic messaging was disabled.

Related Commands: None

LMS1000 Access Level: 6

An error response with the error code PICC is returned if this command is entered by a valid user whose level of access is less than the access level of this command.

LMS1000 Equivalent: None

LMS1000 Input Format Variances: Command code modifiers other than ALL are not supported by LMS1000.

<aid>

The access identifier (<aid>) parameter can only be the value ALL. Invalid values received for this parameter return an error response with the error code IIAC.

<ntfncde>, <condtype>, <tmper>

These parameters are not implemented in LMS1000. The only valid value for these parameters are NULL. Invalid values received for these parameters return an error response with the error code INUP.

LMS1000 Response Format Variances: None

INITIALIZE-LOG **(INIT-LOG)**

Referenced In: TA-NWT-000200, Issue 5, pg. 132

General Description: Instructs LMS1000 to initialize (i.e., clear) the specified log (alarm or event).

When this command is executed, it clears the contents of the existing log.

An entry is made in the LMS1000's event log indicating this command was executed by the current sessions user. The event description indicates that the specified log was cleared.

Related Commands: None

LMS1000 Access Level: 6

An error response with the error code PICC is returned if this command is entered by a valid user whose level of access is less than the access level of this command.

LMS1000 Equivalent: CLR LOG, CLR EVENTS

LMS1000 Input Format Variations:

<aid>

The access identifier (<aid>) parameter does not apply. The only valid value for this parameter is NULL. Invalid values received for this parameter return an error response with the error code IIAC.

<lognm>

This is the name of the log. Valid values for this parameter are the text strings ALARM and ACTIV. The string ALARM specifies clearing the LMS1000's alarm log, and the string ACTIV specifies clearing the LMS1000's event log. Invalid values received for this parameter return an error response with the error code IDNV.

<stadat>

This parameter is not implemented in LMS1000, and must be the value NULL. Null specifies a default value of the current date. Invalid values received for this parameter return an error response with the error code INUP.

<statm>

This parameter is not implemented in LMS1000, and must be the value NULL. Null specifies a default value of the current time. Invalid values received for this parameter return an error response with the error code INUP.

LMS1000 Response Format Variations: None

INITIALIZE-REGISTER **(INIT-REG-{EQPT|ALL})**

Referenced In: TR-NWT-000833, Issue 5, pg. 4-139

General Description: Instructs LMS1000 to initialize to a specific value one or more storage registers or event counters associated with one or more equipment units, facilities, etc. within LMS1000.

In most common instances, these registers contain performance monitoring information.

An entry is made in the LMS1000's event log indicating this command was executed by the current sessions user. The event description indicates that the statistics were cleared.

Related Commands: None

LMS1000 Access Level: 6

An error response with the error code PICC is returned if this command is entered by a valid user whose level of access is less than the access level of this command.

LMS1000 Equivalent: CLR STATS <t<n>>

LMS1000 Input Format Variations: The command code modifier COM is not supported by LMS1000.

<aid>

Specifying a value of ALL for the access identifier (<aid>) parameter initializes all registers for all access identifiers of the type defined by the command code modifier. If the command code modifier is ALL, the value of the access identifier parameter must be ALL. A NULL value is not permitted for this parameter. Invalid values received for this parameter return an error response with the error code IIAC.

<montype>

This parameter is not supported by LMS1000. The only valid value for this parameter is ALL. Invalid values received for this parameter return an error response with the error code IDNV.

<monval>

This parameter is not supported by LMS1000. The only valid value for this parameter is NULL. Invalid values received for this parameter return an error response with the error code IDNV.

<locn>

This parameter does not apply to LMS1000. The only valid value for this parameter is NULL. Invalid values received for this parameter return an error response with the error code IDNV.

<dirn>

This parameter does not apply to LMS1000. The only valid value for this parameter is NULL. Invalid values received for this parameter return an error response with the error code IDNV.

<timper>

This is the accumulation time period for the Performance Monitoring (PM) information. This parameter is not supported by LMS1000. The only valid value for this parameter is NULL. A NULL value causes the parameter to default to 1-HR. Invalid values received for this parameter return an error response with the error code IDNV.

<mondatt>

This parameter is not supported by LMS1000. The only valid value for this parameter is ALL. Invalid values received for this parameter return an error response with the error code IDNV.

<montm>

This parameter is not supported by LMS1000. The only valid value for this parameter is ALL. Invalid values received for this parameter return an error response with the error code IDNV.

LMS1000 Response Format Variations: None

INITIALIZE SYSTEM **(INIT-SYS)**

Referenced In: TR-NWT-000833, Issue 5, pg. 4-145

General Description: Instructs LMS1000 to initialize its system processor and/or associated subsystems.

This command may contain various levels of initialization. The highest level is a cold restart which is equivalent to a power-up reset. The level of initialization is specified by a data parameter within the command string.

An entry is made in the LMS1000's event log indicating this command was executed by the current sessions user. The event description indicates that the system was initialized to the specified level.

Related Commands: None

LMS1000 Access Level: 6

An error response with the error code PICC is returned if this command is entered by a valid user whose level of access is less than the access level of this command.

LMS1000 Equivalent: None

LMS1000 Input Format Variations:

<aid>

The access identifier (<aid>) parameter identifies the equipment unit that is to be initialized. A value of ALL for this parameter denotes the system processor, and is the only value which is supported. A NULL value is not permitted for this parameter. Invalid values received for this parameter return an error response with the error code IIAC.

<ph>

This parameter specifies the level of initialization to be performed. The value of <ph> must be an integer greater than or equal to zero. The lowest value (0) is the lowest level of initialization, and the highest value specifies a cold restart initialization.

Valid values for this parameter and the level of initialization associated with them are listed below.

- 10 Clear alarm log and event log.
- 20 Clear alarm log and event log, and hour-average/max-min peak statistics of all analog and function channels.
- 50 Clear all channels which have been ACOed.
- 51 Clear all control channels (relay, LED) which have been forced on manually.
- 60 Clear all channels which have been ACOed, and all control channels (relay, LED) which have been forced on manually.
- 120 Clear alarm log and event log and hour-average/max-min peak statistics, and clear all channels which have been ACOed and all control channels (relay, LED) which have been forced on manually.
- 127 Perform a system cold restart (i.e., a power-up reset). The user session and possibly the connection is terminated.

Invalid values received for this parameter return an error response with the error code shown below.

If <ph> is greater than or equal to zero and less than or equal to 127, the error code is IDNV.

If <ph> is less than zero or greater than 127, the error code is IORD.

LMS1000 Response Format Variations: Since a normal response cannot be sent after a cold restart, a normal response is sent immediately prior to executing the cold restart function.

OPERATE-ALARM CUTOFF **(OPR-ACO-{EQPT|ALL})**

Referenced In: TR-NWT-000833, Issue 5, pg. 4-149

General Description: Cuts off the office audible alarm indications without changing the local alarm indications.

Only alarms which are currently active at the time the command is received are affected. LMS1000 remains capable of transmitting its current alarm and status conditions.

This command functions in the same manner as LMS1000 command SET ACO, with one exception. If the command modifier EQPT is used, only those channels with an access identifier type of "EQPT" are affected by the alarm cutoff function.

An entry is made in the LMS1000's event log indicating this command was executed by the current sessions user. The event description indicates that the alarm cutoff feature was operated for the specified access identifier.

Related Commands: None

LMS1000 Access Level: 4

An error response with the error code PICC is returned if this command is entered by a valid user whose level of access is less than the access level of this command.

LMS1000 Equivalent: SET ACO

LMS1000 Input Format Variations: The command code modifier COM is not supported.

<aid>

Specifying a value of ALL for the access identifier (<aid>) parameter initializes all registers for all access identifiers of the type defined by the command code modifier. The value of the access identifier parameter must be ALL. A NULL value is not permitted for this parameter. Invalid values received for this parameter return an error response with the error code IIAC.

LMS1000 Response Format Variation: None

OPERATE-EXTERNAL-CONTROL **(OPR-EXT-CONT)**

Referenced In: TR-NWT-000833, Issue 5, pg. 4-153

General Description: Instructs LMS1000 to activate a specified relay channel to operate an external control. Momentary operation of the external control is not implemented in LMS1000.

An entry is made in the LMS1000's event log indicating this command was executed by the current sessions user.

Related Commands: RELEASE-EXTERNAL-CONTROL, RETRIEVE-EXTERNAL-CONTROL

LMS1000 Access Level: 5

An error response with the error code PICC is returned if this command is entered by a valid user whose level of access is less than the access level of this command.

LMS1000 Equivalent: SET RLY

LMS1000 Input Format Variations:

<aid>

Specifying a value of ALL for the access identifier (<aid>) parameter requests the activation of all LMS1000 relay channels specified by the control type (<conttype>) parameter. A NULL value is not permitted for this parameter. Invalid values received for this parameter return an error response with the error code IIAC.

<conttype>

The control type (<conttype>) parameter is an attribute of the LMS1000 relay channel configuration. A NULL value requests activation of all LMS1000 relay channels identified by the access identifier (<aid>) parameter. When the access identifier (<aid>) parameter is ALL, the control type (<conttype>) parameter should not be NULL. Invalid values received for this parameter return an error response with the error code IDNV.

<dur>

This is the duration for which the external control is to be operated. Parameter grouping cannot be used with this parameter.

Valid values for the <dur> parameter are as follows:

CONTSContinuous

LMS1000 does not support the value of MNTRY for this parameter. If the value MNTRY is received, an error response with the error code INUP is returned. Other invalid values received for this parameter return an error response with the error code IDNV. A NULL value for this parameter is not allowed. If a NULL value is received for this parameter, an error response with the error code IDNV is returned.

LMS1000 Response Format Variations: None

RELEASE-EXTERNAL-CONTROL **(RLS-EXT-CONT)**

Referenced In: TR-NWT-000833, Issue 5, pg. 4-179

General Description: Instructs LMS1000 to de-activate a specified relay channel to release an external control.

The external control can be released either momentarily or continuously.

An entry is made in the LMS1000's event log indicating this command was executed by the current sessions user.

Related Commands: OPERATE-EXTERNAL-CONTROL, RETRIEVE-EXTERNAL-CONTROL

LMS1000 Access Level: 5

An error response with the error code PICC is returned if this command is entered by a valid user whose level of access is less than the access level of this command.

LMS1000 Equivalent: CLR RLY

LMS1000 Input Format Variations:

<aid>

Specifying a value of ALL for the access identifier (<aid>) parameter requests the de-activation of all LMS1000 relay channels specified by the control type (<conttype>) parameter. A NULL value is not permitted for this parameter. Invalid values received for this parameter return an error response with the error code IIAC.

<conttype>

The control type (<conttype>) parameter is an attribute of the LMS1000 relay channel configuration. A NULL value requests de-activation of all LMS1000 relay channels identified by the access identifier (<aid>) parameter. When the access identifier (<aid>) parameter is ALL, the control type (<conttype>) parameter should not be NULL. Invalid values received for this parameter return an error response with the error code IDNV.

<dur>

This is the duration for which the external control is to be released. Parameter grouping cannot be used with this parameter.

Valid values for the <dur> parameter are as follows:

CONTSContinuous

LMS1000 does not support the value of MNTRY for this parameter. If the value MNTRY is received, an error response with the error code INUP is returned. Other invalid values received for this parameter return an error response with the error code IDNV. A NULL value for this parameter defaults to the value of CONTS.

LMS1000 Response Format Variations: None

RETRIEVE-ALARM
(RTRV-ALM-{EQPT|ALL})

Referenced In: TR-NWT-000833, Issue 5, pg. 4-205

General Description: Instructs LMS1000 to send the current state of its alarm conditions associated with one or more equipment units, facilities, etc. within LMS1000.

Related Commands: None

Related Messages: REPORT ALARM EQUIPMENT

LMS1000 Access Level: 1

LMS1000 Equivalent: ALARMS <t<n>>

LMS1000 Input Format Variations: The command code modifier COM is not supported.

<aid>

Specifying a value of ALL for the access identifier (<aid>) parameter requests retrieval of alarm conditions for all access identifiers of the type defined by the command code modifier. Use of the command code modifier ALL results in retrieval of all alarm conditions in LMS1000. If the command code modifier is ALL, the value of the access identifier must be ALL. A NULL value is not permitted for this parameter. Invalid values received for this parameter return an error response with the error code IIAC.

<ntfcncde>

Specifies the notification code parameter associated with the alarm conditions being retrieved. This parameter is an attribute of the LMS1000 channel or limit configuration.

Valid values for this parameter are as follows:

- CR critical alarm
- MJ major alarm
- MN minor alarm
- NULL request retrieval of alarm conditions for all of the above codes

Invalid values for this parameter return an error response with the error code IDNV.

<condtype>

Specifies the condition type parameter of alarm conditions to be retrieved. A NULL value causes all conditions classified as alarm conditions to be retrieved. This parameter is an attribute of the LMS1000 channel or limit configuration. Invalid values for this parameter return an error response with the error code IDNV.

<srveff>

Specifies the service effect parameter caused by the alarm conditions to be retrieved. This parameter is an attribute of the LMS1000 channel or limit configuration.

Valid values for this parameter are as follows:

- SA service-affecting condition
- NSA nonservice-affecting condition
- NULL request retrieval of alarm conditions for both of the above codes

Invalid values for this parameter return an error response with the error code IDNV.

<locn>

This parameter does not apply to LMS1000. The only valid value for this parameter is NULL. Invalid values received for this parameter return an error response with the error code IDNV.

<dirn>

This parameter does not apply to LMS1000. The only valid value for this parameter is NULL. Invalid values received for this parameter return an error response with the error code IDNV.

<tmper>

This parameter does not apply to LMS1000. The only valid value for this parameter is NULL. Invalid values received for this parameter return an error response with the error code INUP.

LMS1000 Response Format Variations:

<aidtype>

Valid values for an access identifier type response parameter are:

EQPT	equipment
COM	common

<ntfcncde>

This is the notification code parameter associated with a single alarm condition given in this block. Valid values are the same as for the input format. Values are derived from the NOTIFICATION CODE attribute of the LMS1000 channel or limit configuration with which the alarm condition is associated.

<condtype>

This is the condition type parameter of the alarm condition being given in this block. Values are derived from the CONDITION TYPE attribute of the LMS1000 channel or limit configuration with which the alarm condition is associated.

<srveff>

This is the service effect parameter associated with a single alarm condition given in this block. Valid values are the same as for the input format. Values are derived from the SERVICE EFFECT CODE attribute of the LMS1000 channel or limit configuration with which the alarm condition is associated.

<ocrdat>

This is the date when the triggering event occurred. The format for this parameter is MOY-DOM (Month-Of-Year - Day-Of-Month). MOY ranges from 1 to 12, and DOM ranges from 1 to 31. A NULL value for this parameter defaults to the current date unless the <ocrtm> parameter is NULL, then this parameter does not apply.

<ocrtm>

This is the time when the triggering event occurred. The format for this parameter is HOD-MOH-SOM (Hour-Of-Day - Minute-Of-Hour - Second-Of-Minute). HOD ranges from 0 to 23. MOH and SOM range from 0 to 59. A NULL value means this parameter and the <ocrdat> parameter are not applicable.

<locn>, <dirn>, <aiddet>, <obsdbhvr>, <exptdbhvr>, <dgntype>, <tblist>

These parameters do not apply or are not implemented in LMS1000. A NULL value is inserted for them when the <tmper> parameter has a value other than NULL.

<tmper>

This is the accumulation time period for Performance Monitoring (PM) parameters. It represents the length of time the alarm condition has been active. The format for this parameter is VAL-UN, where valid values for VAL (value) and UN (unit) are:

<u>VAL (value)</u>	<u>UN (unit)</u>
1	DAY (day)
1 to 24	HR (hour)
1 to 1440	MIN (minute)

<conddescr>

This parameter is a text message which provides a detailed description of the alarm, event, or condition. It is an ASCII string enclosed within a pair of escaped quotes (\"). It may also be used to describe any action to be taken as a result of the condition. For this application, values are derived from the CONDITION DESCRIPTION parameter of the LMS1000 channel or limit configuration with which the alarm condition is associated. If the channel or limit parameter has not been configured, a NULL will be inserted for this parameter.

RETRIEVE-ALARM-ENVIRONMENT **(RTRV-ALM-ENV)**

Referenced In: TR-NWT-000833, Issue 5; pg. 4-217

General Description: Instructs LMS1000 to send the current state of its alarm conditions associated with the LMS1000 environment.

Related Commands: None

Related Messages: REPORT ALARM ENVIRONMENT

LMS1000 Access Level: 1

LMS1000 Equivalent: None

LMS1000 Input Format Variations:

<aid>

The access identifier (<aid>) parameter identifies equipment associated with the environmental alarm being requested. Entering a value of ALL requests retrieval of all environmental alarms specified by the notification code (<ntfcncde>) parameter and alarm type (<almtype>) parameter. A NULL value is not permitted for this parameter. Invalid values received for this parameter return an error response with the error code IIAC.

<ntfcncde>

Specifies the notification code parameter associated with the environmental alarm conditions being retrieved. This parameter is an attribute of the LMS1000 channel or limit configuration.

Valid values for this parameter are as follows:

CR	critical alarm
MJ	major alarm
MN	minor alarm
NULL	request retrieval of environmental alarm conditions for all of the above codes

Invalid values for this parameter return an error response with the error code IDNV.

<almtype>

Specifies the alarm type parameter associated with the environmental alarms being retrieved. Specifying a NULL value requests retrieval of all types of environmental alarms. Values are derived from the CONDITION TYPE attribute of the LMS1000 channel or limit configuration with which the alarm is associated. A value of MISC for this attribute is not supported in LMS1000. The error code for an invalid value for this parameter is INUP.

<almmsg>

This parameter is not supported in LMS1000.

LMS1000 Response Format Variations:

<ntfcncde>

This is the notification code parameter associated with a single alarm condition given in this block. Valid values are the same as for the input format. Values are derived from the NOTIFICATION CODE attribute of the LMS1000 channel or limit configuration with which the alarm condition is associated.

<almtype>

This is the alarm type parameter associated with the environmental alarm given in this block. Values are derived from the CONDITION TYPE attribute of the LMS1000 channel or limit configuration with which the alarm condition is associated.

<ocrdat>

This is the date when the triggering event occurred. The format for this parameter is MOY-DOM (Month-Of-Year - Day-Of-Month). MOY ranges from 1 to 12, and DOM ranges from 1 to 31. A NULL value for this parameter defaults to the current date unless <ocrtm> parameter is NULL, then this parameter does not apply.

<ocrtm>

This is the time when the triggering event occurred. The format for this parameter is HOD-MOH-SOM (Hour-Of-Day - Minute-Of-Hour - Second-Of-Minute). HOD ranges from 0 to 23. MOH and SOM range from 0 to 59. A NULL value means this parameter and the <ocrdat> parameter are not applicable.

<almmsg>

This parameter is not supported in LMS1000.

RETRIEVE-ATTRIBUTE (RTRV-ATTR-{EQPT|ALL})

Referenced In: TR-NWT-000833, Issue 5, pg. 4-223

General Description: Instructs LMS1000 to send the current notification code associated with the specified events.

Related Commands: SET-ATTRIBUTE

LMS1000 Access Level: 2

An error response with the error code PICC is returned if this command is entered by a valid user whose level of access is less than the access level of this command.

LMS1000 Equivalent: None

LMS1000 Input Format Variations: The command code modifier COM is not supported.

The <aid>, <ntfncde>, and <condtype> parameters should not all be specified as non-null values.

<aid>

Specifying a value of ALL for the access identifier (<aid>) parameter requests retrieval of attributes conditions for all access identifiers of the type defined by the command code modifier. Use of the command code modifier ALL results in retrieval of all attributes for the LMS1000. If the command code modifier is ALL, the value of the access identifier must be ALL. A NULL value is not permitted for this parameter. Invalid values received for this parameter return an error response with the error code IIAC.

<ntfncde>

Specifies the notification code parameter associated with the alarm conditions being retrieved. This parameter is an attribute of the LMS1000 channel or limit configuration.

Valid values for this parameter are as follows:

CR	critical alarm
MJ	major alarm
MN	minor alarm
NA	not alarmed
NR	not reported
NULL	request retrieval of alarm conditions for all of the above codes

Invalid values for this parameter return an error response with the error code IDNV.

<condtype>

Specifies the condition type parameter associated with the attributes to be retrieved. Specifying a NULL value causes all attributes to be retrieved which match the other bounding parameters. This parameter is an attribute of the LMS1000 channel or limit configuration. Invalid values for this parameter return an error response with the error code IDNV.

<locn>

This parameter does not apply to LMS1000. The only valid value for this parameter is NULL. Invalid values for this parameter return an error response with the error code IDNV.

<dirn>

This parameter does not apply to LMS1000. The only valid value for this parameter is NULL. Invalid values for this parameter return an error response with the error code IDNV.

<tmper>

This parameter does not apply to LMS1000. The only valid value for this parameter is NULL. Invalid values for this parameter return an error response with the error code INUP.

LMS1000 Response Format Variations:

<aidtype>

Valid values for an access identifier type response parameter are:

EQPT	equipment
COM	common

<ntfcncde>

This is the notification code parameter associated with a single alarm condition given in this block. Valid values are the same as for the input format. Values are derived from the NOTIFICATION CODE attribute of the LMS1000 channel or limit configuration with which the alarm condition is associated.

<condtype>

This is the condition type parameter associated with the alarm condition given in this block. Valid values are the same as for the input format. Values are derived from the NOTIFICATION CODE attribute of the LMS1000 channel or limit configuration with which the alarm condition is associated.

<locn>, <dirn>, <tmper>

These parameters do not apply to LMS1000. A NULL value is inserted for them.

RETRIEVE-ATTRIBUTE-ENVIRONMENT **(RTRV-ATTR-ENV)**

Referenced In: TR-NWT-000833, Issue 5, pg. 4-237

General Description: Instructs LMS1000 to send the current attributes associated with the specified environmental alarm.

Related Commands: SET-ATTRIBUTE-ENVIRONMENT

LMS1000 Access Level: 2

An error response with the error code PICC is returned if this command is entered by a valid user whose level of access is less than the access level of this command.

LMS1000 Equivalent: None

LMS1000 Input Format Variations:

<aid>

The access identifier (<aid>) parameter identifies equipment associated with the environmental alarm being requested. Entering a value of ALL requests retrieval of all environmental alarms specified by the notification code (<ntfcncde>) parameter and alarm type (<almtype>) parameter. A NULL value is not permitted for this parameter. Invalid values received for this parameter return an error response with the error code IIAC.

<ntfcncde>

Specifies the notification code parameter associated with the environmental alarm conditions being retrieved. This parameter is an attribute of the LMS1000 channel or limit configuration.

Valid values for this parameter are as follows:

CR	critical alarm
MJ	major alarm
MN	minor alarm
NULL	request retrieval of attributes for environmental alarms for all of the above codes

Invalid values for this parameter return an error response with the error code IDNV.

<almtype>

Specifies the alarm type parameter associated with the environmental alarms being retrieved. Specifying a NULL value requests retrieval of all types of environmental alarms. Values are derived from the CONDITION TYPE attribute of the LMS1000 channel or limit configuration with which the alarm is associated. The error code for an invalid value for this parameter is IDNV.

LMS1000 Response Format Variations:

<ntfcncde>

This is the notification code parameter associated with the environmental alarm given in this block. Valid values are the same as for the input format. Values are derived from the NOTIFICATION CODE attribute of the LMS1000 channel or limit configuration with which the alarm condition is associated.

<almtype>

This is the alarm type parameter associated with the environmental alarm given in this block. Values are derived from the CONDITION TYPE attribute of the LMS1000 channel or limit configuration with which the alarm condition is associated.

<almmsg>

This parameter is not implemented in LMS1000.

RETRIEVE-CONDITION (RTRV-COND-{EQPT|ALL})

Referenced In: TR-NWT-000833, Issue 5, pg. 4-257

General Description: Instructs LMS1000 to send the current state and standing condition (alarm or status) associated with one or more equipment units, facilities, etc. within LMS1000.

In addition, it may be used to summarize the status of the LMS1000 by providing entity states.

Related Messages: REPORT CONDITION EQUIPMENT

LMS1000 Access Level: 1

LMS1000 Equivalent: None

LMS1000 Input Format Variations: The command code modifier COM is not supported.

<aid>

Specifying a value of ALL for the access identifier (<aid>) parameter requests retrieval of conditions for all access identifiers of the type defined by the command code modifier. Use of the command code modifier ALL results in retrieval of all conditions in the LMS1000. If the command code modifier is ALL, the value of the access identifier must be ALL. A NULL value is not permitted for this parameter. Invalid values received for this parameter return an error response with the error code IIAC.

<typereq>

Specifies the type of condition or state to be retrieved. A valid value can be any condition type (<condtype>) parameter. Values are derived from the CONDITION TYPE attribute of the LMS1000 channel or limit configuration with which the alarm condition is associated. A NULL value causes all condition types to be retrieved. Invalid values for this parameter return an error response with the error code IDNV.

<locn>

This parameter does not apply to LMS1000. The only valid value for this parameter is NULL. Invalid values for this parameter return an error response with the error code INUP.

<dirn>

This parameter does not apply to LMS1000. The only valid value for this parameter is NULL. Invalid values for this parameter return an error response with the error code INUP.

<tmper>

This parameter does not apply to LMS1000. The only valid value for this parameter is NULL. Invalid values for this parameter return an error response with the error code INUP.

LMS1000 Response Format Variations:

<aidtype>

Valid values for an access identifier type response parameter are:

EQPT	equipment
COM	common

<ntfcncde>

This is the notification code parameter associated with a single condition given in this block. Values are derived from the NOTIFICATION CODE attribute of the LMS1000 channel or limit configuration with which the alarm condition is associated.

Valid values for this parameter are as follows:

CR	critical alarm
MJ	major alarm
MN	minor alarm
NA	not alarmed
NR	not reported

NULL defaults to NA when the <typerep> parameter is a condition type, and has no meaning if the <typerep> parameter is a state

<typereq>

This is the type of the condition being given in this block. Values are derived from the CONDITION TYPE attribute of the LMS1000 channel or limit configuration with which the condition is associated. If no condition exists on an LMS1000 channel, then the value of this parameter is IS-NR (in service-normal).

<srveff>

This is the service effect parameter associated with a single alarm condition given in this block. Valid values are the same as for the input format. Values are derived from the SERVICE EFFECT CODE attribute of the LMS1000 channel or limit configuration with which the alarm condition is associated. A NULL value implies that the effect on service is unknown or that the <srveff> parameter does not apply.

<ocrdat>

This is the date when the triggering event occurred. The format for this parameter is MOY-DOM (Month-Of-Year - Day-Of-Month). MOY ranges from 1 to 12, and DOM ranges from 1 to 31. A NULL value for this parameter defaults to the current date unless the <ocrtm> parameter is NULL, then this parameter does not apply.

<ocrtm>

This is the time when the triggering event occurred. The format for this parameter is HOD-MOH-SOM (Hour-Of-Day - Minute-Of-Hour - Second-Of-Minute). HOD ranges from 0 to 23. MOH and SOM range from 0 to 59. A NULL value means this parameter and the <ocrdat> parameter are not applicable.

<locn>, <dirn>

These parameters do not apply to LMS1000. A NULL value is inserted for them when the <tmper> parameter has a value other than NULL.

<tmper>

This is the accumulation time period for Performance Monitoring (PM) parameters. It represents the length of time the condition has been active. If the condition or state is normal, it defaults to NULL. The format for this parameter is VAL-UN, where valid values for VAL (value) and UN (unit) are:

<u>VAL (value)</u>	<u>UN (unit)</u>
1	DAY (day)
1 to 24	HR (hour)
1 to 1440	MIN (minute)

<conddescr>

This parameter is a text message which provides a detailed description of the alarm, event, or condition. It is an ASCII string enclosed within a pair of escaped quotes (\"). It may also be used to describe any action to be taken as a result of the condition. For this application, values are derived from the CONDITION DESCRIPTION parameter of the LMS1000 channel or limit configuration with which the alarm condition is associated. If the channel or limit parameter has not been configured, a NULL will be inserted for this parameter.

RETRIEVE-EXTERNAL-CONTROL **(RTRV-EXT-CONT)**

Referenced In: TR-NWT-000833, Issue 5; pg. 4-279

General Description: Instructs LMS1000 to retrieve the state of the specified LMS1000 relay channels controlling external controls.

Related Commands: OPERATE-EXTERNAL-CONTROL, RELEASE-EXTERNAL-CONTROL

LMS1000 Access Level: 1

LMS1000 Equivalent: None

LMS1000 Input Format Variations:

<aid>

Specifying a value of ALL for the access identifier (<aid>) parameter requests the retrieval of all external control states specified by the control type (<conttype>) parameter. A NULL value is not permitted for this parameter. Invalid values received for this parameter return an error response with the error code IIAC.

<conttype>

The control type (<conttype>) parameter is an attribute of the LMS1000 relay channel configuration. A NULL value requests retrieval of all LMS1000 relay channel states identified by the access identifier (<aid>) parameter. When the access identifier (<aid>) parameter is ALL, the control type (<conttype>) parameter should not be NULL. Invalid values received for this parameter return an error response with the error code IDNV.

LMS1000 Response Format Variations:

<aid>

Identifies the external control for which the state is being retrieved.

<conttype>

This is the control type parameter associated with the LMS1000 relay channel. Values are derived from the CONTROL TYPE attribute of the LMS1000 relay channel configuration.

<dur>

This is the duration for which an LMS1000 relay channel is to be activated.

Valid values for the <dur> parameter are as follows:

CONTS Continuous

LMS1000 does not support the value of MNTRY for this parameter.

<contstate>

This is the state of the LMS1000 relay channel.

Valid values for the <contstate> parameter are:

OPER Operated

RLS Released

The value of NA for this parameter is not supported by LMS1000. The value of this parameter also cannot be NULL.

RETRIEVE-HEADER **(RTRV-HDR)**

Referenced In: TR-NWT-000833, Issue 5, pg. 4-283

General Description: Requests that LMS1000 reply with a "normal" response indicating COMPLD.

The information of interest in the reply, is the reply itself along with information that the LMS1000 has about itself, namely the source identifier parameter, the date parameter, and the time parameter.

This command provides information similar to that provided by the LMS1000's UNIT command. This command can be used to verify the access to a specific LMS1000. There is no allowances in the response format to send additional information.

Related Commands: None

LMS1000 Access Level: 1

LMS1000 Equivalent: UNIT

LMS1000 Input Format Variations:

<aid>

The access identifier (<aid>) parameter does not apply. The only valid value for this parameter is NULL. Invalid values received for this parameter return an error response with the error code IIAC.

LMS1000 Response Format Variations: None

RETRIEVE-LOG **(RTRV-LOG)**

Referenced In: TA-NWT-000200, Issue 5, pg. 242

General Description: Instructs LMS1000 to retrieve the contents of an existing log.

Related Commands: None

LMS1000 Access Level: 1

LMS1000 Equivalent: LOG, HSTRY, EVENTS

LMS1000 Input Format Variations:

<aid>

The access identifier (<aid>) parameter does not apply. The only valid value for this parameter is NULL. Invalid values received for this parameter return an error response with the error code IIAC.

<lognm>

This is the name of the log.

Valid values for this parameter are the following text strings.

ALARM specifies the retrieval of the LMS1000s alarm log

HSTRY specifies retrieval of the predetermined number of alarm log entries specified by the LMS1000s mechanized interface configuration

ACTIV specifies the retrieval of the LMS1000s event log

Invalid values for this parameter return an error response with the error code IDNV.

LMS1000 Response Format Variations:

<lognm>

This is the name of the log. Valid values are the same as for the input format.

RETRIEVE-PERFORMANCE MONITORING **(RTRV-PM-{EQPT|ALL})**

Referenced In: TR-NWT-000833, Issue 5, pg. 4-307

General Description: Instructs LMS1000 to send its current set of Performance Monitoring (PM) data associated with one or more equipment units, facilities, etc. within LMS1000.

Parameters are provided to retrieve past PM data for LMS1000s that can store a history of performance monitoring information.

The TL1 command language allows for reporting of Performance Monitoring information, enabling/disabling of these reports, and scheduling of these reports. In addition, the TL1 commands for Performance Monitoring can specify the equipment unit(s) on which performance monitoring is to be done. LMS1000 does not currently have these types of capabilities for statistical information.

Related Commands: None

LMS1000 Access Level: 1

LMS1000 Equivalent: STATS

LMS1000 Input Format Variations:

<aid>

Use of the command code modifier ALL causes retrieval of Performance Monitoring (PM) data for all access identifiers of the proper type. If the command code modifier is ALL, the value of the access identifier parameter must be ALL. A NULL value is not permitted for this parameter. Invalid values received for this parameter return an error response with the error code IIAC.

<montype>

Specifies the type of monitored parameter for which a value is requested. This parameter is not supported by LMS1000. The only valid value for this parameter is ALL. An ALL value for this parameter requests all types of monitored parameters be retrieved. Invalid values received for this parameter return an error response with the error code IDNV.

<monlev>

Specifies the discriminating level for the requested monitored parameter. This parameter is not supported by LMS1000. The only valid value for this parameter is NULL. A NULL value causes the parameter to default to 1-UP. Invalid values for this parameter return an error response with the error code IDNV.

<locn>

This parameter does not apply to LMS1000. The only valid value for this parameter is NULL. Invalid values for this parameter return an error response with the error code IDNV.

<dirn>

This parameter does not apply to LMS1000. The only valid value for this parameter is NULL. Invalid values received for this parameter return an error response with the error code IDNV.

<timper>

This is the accumulation time period for the Performance Monitoring (PM) information. This parameter is not supported by LMS1000. The only valid value for this parameter is NULL. A NULL value causes the parameter to default to 1-HR. Invalid values received for this parameter return an error response with the error code INUP.

<mondat>

This parameter is not supported by LMS1000. The only valid value for this parameter is ALL. Invalid values received for this parameter return an error response with the error code IDNV.

<montm>

This parameter is not supported by LMS1000. The only valid value for this parameter is ALL. Invalid values received for this parameter return an error response with the error code IDNV.

LMS1000 Response Format Variations:

<aid>

The access identifier parameter identifies the equipment unit to which the retrieved monitored parameter value pertains.

<aidtype>

Valid values for an access identifier type response parameter are:

EQPT equipment

<montype>

This is the monitor type parameter for a retrieved performance monitoring value. Values are derived from the MONITOR TYPE attribute of the LMS1000 analog or function channel configuration. This parameter may contain a suffix to designate the type of performance monitoring value being retrieved. The suffix is separated from the MONITOR TYPE by a hyphen, and takes the form C or F to indicate maximum or minimum types respectively.

Example: DCVOLT-C

<monval>

This is the monitor value format parameter for a retrieved performance monitoring value. Values are derived from the MONITOR TYPE attribute of the LMS1000 analog or function channel configuration.

<vldty>

This is the validity indicator for historical monitoring information. It indicates whether the information for the specified time period was accumulated for the entire period, or only a portion of it.

Valid values for this parameter are:

COMPLData accumulated over entire time period

A value of NULL for this parameter defaults to COMPL.

<locn>, <dirn>

These parameters do not apply to LMS1000. A NULL value is inserted for them when the <tmper> parameter has a value other than NULL.

<tmper>

This is the accumulation time period for Performance Monitoring (PM) parameters. The format for this parameter is VAL-UN, where valid values for VAL (value) and UN (unit) are:

<u>VAL (value)</u>	<u>UN (unit)</u>
1	DAY (day)
1 to 24	HR (hour)
1 to 1440	MIN (minute)

A value of NULL for this parameter defaults to 1-HR. A time period of 1-HR is used for hour averages, and a time period of 1-MIN is used to indicate maximum and minimum peaks.

<mondatt>

This is the date of the beginning of the Performance Monitoring (PM) period. The format for this parameter is MOY-DOM (Month-Of-Year - Day-Of-Month). MOY ranges from 1 to 12, and DOM ranges from 1 to 31.

<montm>

This is the beginning of the time of day of the Performance Monitoring (PM) period. The format for this parameter is HOD-MOH (Hour-Of-Day - Minute-Of-Hour). HOD ranges from 0 to 23. MOH and SOM range from 0 to 59.

RETRIEVE-THRESHOLD **(RTRV-TH-{EQPT|ALL})**

Referenced In: TR-NWT-000833, Issue 5; pg. 4-337

General Description: Instructs LMS1000 to send the current threshold level (alarm limits) of one or more monitored parameters for which violation will trigger an automatic message.

These threshold levels may apply to one or more equipment units, facilities, etc. within LMS1000.

Related Commands: SET-THRESHOLD

LMS1000 Access Level: 2

An error response with the error code PICC is returned if this command is entered by a valid user whose level of access is less than the access level of this command.

LMS1000 Equivalent: LIMITS <t<n>>

LMS1000 Input Format Variations:

<aid>

The access identifier (<aid>) parameter identifies the equipment for which threshold levels are being retrieved. Specifying a value of ALL requests retrieval of thresholds for all access identifiers of the type defined by the command code modifier. If the command code modifier is ALL, the value of the access identifier parameter should be ALL. A NULL value is not permitted for this parameter. Invalid values received for this parameter return an error response with the error code IIAC.

<montype>

The monitor type (<montype>) parameter identifies the particular monitored parameter for which the threshold is being retrieved. Values are derived from the MONITOR TYPE attribute of the LMS1000 analog or function channel configuration. This parameter may contain a suffix to designate the type of threshold to be retrieved. The suffix is separated from the monitor type parameter by a hyphen and takes the form LT or HT to indicate low or high threshold types, respectively.

Example: DCVOLT-LT

A NULL value implies that threshold levels for all applicable monitored parameters are requested. Valid values for this parameter can only contain alpha characters. Invalid values received for this parameter return an error response with the error code IDNV.

<locn>

A NULL value is the only valid value for this parameter. Invalid values received for this parameter return an error response with the error code INUP.

<tmper>

This parameter does not apply to LMS1000. The only valid value for this parameter is NULL. Invalid values received for this parameter return an error response with the error code IDNV.

LMS1000 Response Format Variations: If no threshold can be found which matches the input parameters, an error response with the error code IDNV is returned.

<aid>

The access identifier parameter identifies the single equipment unit for which a threshold is being retrieved.

<aidtype>

Valid values for an access identifier type response parameter are:

EQPTequipment

<montype>

This is the monitor type parameter of the threshold given in this block. Values are derived from the MONITOR TYPE attribute of the LMS1000 analog or function channel configuration. This parameter contains a suffix to designate the type of threshold being retrieved. The suffix is separated from the monitor type parameter by a hyphen, and takes the form LT or HT to indicate low or high threshold types, respectively.

Example: DCVOLT-LT

<locn>

This is the location of the threshold being retrieved. This parameter specifies the threshold number (alarm limit number) of the specified analog or function channel. Valid values for this parameter are LILMS1000-x, where x is a positive integer from one through four, which specifies the threshold number of the channel with which the threshold is associated.

<dirn>

This parameter does not apply to LMS1000. The value of this parameter is returned as a NULL value.

<thlev>

This is the current threshold level for the monitored parameter. Valid data types for the threshold level for a given monitor type are the same as for the corresponding monitor type parameter (e.g., for the channel with which the threshold is associated).

<tmper>

This parameter does not apply in LMS1000. A NULL value is inserted for this parameter.

RETRIEVE-USER-SECURITY **(RTRV-USER-SECU)**

Referenced In: TR-TSY-000835, Issue 3, pg. 103

General Description: Retrieves a user's security parameters. The calling identifier (<cid>) parameter (i.e., LMS1000 user primary phone number), and user access privilege (<uap>) parameter (i.e., LMS1000 user access level) of the specified user is retrieved.

Related Commands: None

LMS1000 Access Level: 6

An error response with the error code PICC is returned if this command is entered by a valid user whose level of access is less than the access level of this command.

LMS1000 Equivalent: None

LMS1000 Input Format Variations:

<aid>

The access identifier (<aid>) parameter is the same value as the user identifier (<uid>) parameter for the user whose security parameters are being retrieved. If the user being retrieved is not an active user, then an error response is returned with the error code IIAC.

LMS1000 Response Format Variations:

<cid>

This is the calling identifier parameter of the user whose security parameters are being retrieved. The value is derived from the PRIMARY PHONE attribute from the specified user's LMS1000 user configuration. It can either be the network address or the phone number of the specified user. If the primary phone number parameter does not meet the syntax requirements for the <cid> parameter, the error code PIFC is returned.

<uap>

This is the user access privilege parameter of the user whose security parameters are being retrieved. The value is derived from the ACCESS LEVEL attribute from the specified user's LMS1000 user configuration.

<keyword-defined block>

This parameter has no relevance in LMS1000 and is not be returned.

SET-ATTRIBUTE (SET-ATTR-{EQPT})

Referenced In: TR-NWT-000833, Issue 5, pg. 4-385

General Description: Instructs LMS1000 to set the current notification code associated with the specified events.

An entry is made in the LMS1000's event log indicating this command was executed by the current user.

Related Commands: RETRIEVE-ATTRIBUTE

LMS1000 Access Level: 6

An error response with the error code PICC is returned if this command is entered by a valid user whose level of access is less than the access level of this command.

LMS1000 Equivalent: None

LMS1000 Input Format Variations: The command code modifier COM is not supported.

<aid>

Specifying a value of ALL for the access identifier (<aid>) parameter requests setting of attributes for all access identifiers of the type defined by the command code modifier. A NULL value is not permitted for this parameter. Invalid values received for this parameter return an error response with the error code IIAC.

<ntfncde>

Specifies the notification code parameter associated with the alarm conditions being set. This parameter is an attribute of the LMS1000 channel or limit configuration.

Valid values for this parameter are as follows:

CR	critical alarm
MJ	major alarm
MN	minor alarm
NA	not alarmed
NR	not reported
NULL	defaults to NA

Invalid values for this parameter return an error response with the error code IDNV.

<condtype>

The condition type (<condtype>) parameter identifies the type of event for which a notification code (<ntfncde>) parameter is being changed. This parameter is an attribute of the LMS1000 channel or limit configuration. This parameter is required in the input. Invalid values for this parameter return an error response with the error code IDNV.

<locn>

This parameter does not apply to LMS1000. The only valid value for this parameter is NULL. Invalid values for this parameter return an error response with the error code IDNV.

<dirn>

This parameter does not apply to LMS1000. The only valid value for this parameter is NULL. Invalid values for this parameter return an error response with the error code IDNV.

<tmper>

This parameter does not apply to LMS1000. The only valid value for this parameter is NULL. Invalid values for this parameter return an error response with the error code INUP.

LMS1000 Response Format Variations: None

SET-ATTRIBUTE-ENVIRONMENT **(SET-ATTR-ENV)**

Referenced In: TR-NWT-000833, Issue 5, pg. 4-395

General Description: Instructs LMS1000 to set the current attributes associated with the specified environmental alarm.

An entry is made in the LMS1000's event log indicating this command was executed by the current user.

Related Commands: RETRIEVE-ATTRIBUTE-ENVIRONMENT

LMS1000 Access Level: 6

An error response with the error code PICC is returned if this command is entered by a valid user whose level of access is less than the access level of this command.

LMS1000 Equivalent: None

LMS1000 Input Format Variations:

<aid>

The access identifier (<aid>) parameter identifies equipment associated with the environmental alarm for which attributes are being set. A NULL value is not permitted for this parameter. Invalid values received for this parameter return an error response with the error code IIAC.

<ntfncde>

Specifies the value for the notification code parameter associated with the environmental alarm conditions being set. Parameter grouping cannot be used with this parameter. This parameter is an attribute of the LMS1000 channel or limit configuration and is required in the input.

Valid values for this parameter are as follows:

CR	critical alarm
MJ	major alarm
MN	minor alarm
NULL	leaves <ntfncde> unchanged

Invalid values for this parameter return an error response with the error code IDNV.

<almtype>

Specifies the alarm type parameter associated with the attribute being set. Parameter grouping cannot be used with this parameter. Values are derived from the CONDITION TYPE attribute of the LMS1000 channel or limit configuration. This parameter is required in the command input. The error code for an invalid value for this parameter is IDNV.

<almmsg>

This parameter is not implemented in LMS1000. A NULL value leaves the <almmsg> parameter unchanged, and is the only value which is accepted. Parameter grouping cannot be used with this parameter. Invalid values for this parameter return an error response with the error code INUP.

LMS1000 Response Format Variations: None

SET-SYSTEM_IDENTIFICATION **(SET-SID)**

Referenced In: TA-NWT-000199, Issue 6, Supplement 1, pg. 3-30

General Description: Instructs LMS1000 to change its system identifier (SID) parameter to a given value. The system identifier parameter can also be set using the "SET UNIT" command.

LMS1000 uses the value of the system identifier parameter as the target identifier in an input command and source identifier in a command response or autonomous message.

An entry is made in the LMS1000's event log indicating this command was executed by the current sessions user.

Related Commands: None

LMS1000 Access Level: 6

An error response with the error code PICC is returned if this command is entered by a valid user whose level of access is less than the access level of this command.

LMS1000 Equivalent: SET UNIT

LMS1000 Input Format Variations:

<aid>

The access identifier (<aid>) parameter does not apply. The only valid value for this parameter is NULL. Invalid values received for this parameter return an error response with the error code IIAC.

<sid>

This parameter determines the new system identifier to be assigned to LMS1000. The value may be any valid simple or compound TL1 identifier, or a text string with a maximum length of twenty characters. Valid character values are any alphanumeric characters or the - character. Invalid values for this parameter return an error response with the error code IDNV.

LMS1000 Response Format Variations: None

SET-THRESHOLD **(SET-TH-(EQPT))**

Referenced In: TR-NWT-000833, Issue 5, pg. 4-417

General Description: Instructs LMS1000 to set threshold levels (alarm limits) for a monitored parameter that, when exceeded, will trigger an automatic message.

These threshold levels may apply to one or more equipment units, facilities, etc. within LMS1000.

An entry is made in the LMS1000's event log indicating this command was executed by the current sessions user.

Related Commands: RETRIEVE-THRESHOLD

Related Messages: None

LMS1000 Access Level: 6

An error response with the error code PICC is returned if this command is entered by a valid user whose level of access is less than the access level of this command.

LMS1000 Equivalent: SET LIMITS <tn>

LMS1000 Input Format Variations:

<aid>

The access identifier (<aid>) parameter identifies the equipment for which threshold levels are being set. Specifying a value of ALL requests setting of thresholds for all access identifiers of the type defined by the command code modifier. A NULL value is not permitted for this parameter. Invalid values received for this parameter return an error response with the error code IIAC.

<montype>

The monitor type (<montype>) parameter identifies the particular monitored parameter for which the threshold is being set. Values are derived from the MONITOR TYPE attribute of the LMS1000 analog or function channel configuration. This parameter must contain a suffix to designate the type of threshold to be set. The suffix is separated from the monitor type parameter by a hyphen and takes the form LT or HT to indicate low or high threshold types, respectively.

Example: DCVOLT-LT

Parameter grouping cannot be used with this parameter. This parameter cannot have a value of NULL. Valid values for this parameter can contain only alpha characters. This parameter is required in the input. Invalid values received return an error response with the error code IDNV.

<thlev>

This is the desired threshold level to be set for the monitor type parameter specified. Valid data types for the threshold level parameter for a given monitor type parameter are the same as for the corresponding monitor type parameter (e.g., for the channel with which the threshold is associated). This parameter is required in the input.

<locn>

This is the location of the threshold being set. This parameter specifies the threshold number (alarm limit number) of the specified analog or function channel. Valid values for this parameter are LINE-x, where x is a positive integer from one through four, which specifies the threshold number of the channel with which the threshold is associated. This parameter is required in the input. Invalid values received for this parameter return an error response with the error code IDNV.

<dirn>

This parameter does not apply to LMS1000. The only valid value for this parameter is NULL. Invalid values received for this parameter return an error response with the error code IDNV.

<tmper>

This parameter does not apply to LMS1000. The only valid value for this parameter is NULL. Invalid values received for this parameter return an error response with the error code IDNV.

LMS1000 Response Format Variations: None

TL1 Autonomous Messages Supported

TL1 Autonomous Messages Supported (in alphabetical order)

This section lists the specific autonomous messages (in alphabetical order) LMS1000 supports when the TL1 software option is furnished. A brief description of each is provided.

Commands

CANCEL SESSION (TIMEOUT)

Referenced In: TR-TSY-000835, Issue 2, pg. 12.5-13

General Description: This is an automatic message transmitted by LMS1000 when an established session is terminated because of a "timeout", i.e., no messages were exchanged for an interval equal to TMOUT (Appendix B, section B.2.2, item 3.5).

Related Commands: None

Related Messages: None

LMS1000 Equivalent: "User Timeout" message

LMS1000 Message Format Variations:

<uid>

This refers to the user whose session is terminated due to timeout.

REPORT ALARM (REPT ALM {EQPT/COM})

Referenced In: TR-NWT-000833, Issue 5, pg. 5-5

General Description: Generated by an LMS1000 to report the occurrence of alarmed events. Trouble events occurring in LMS1000 are classified as alarmed or non-alarmed events.

Related Commands: RETRIEVE-ALARM, RETRIEVE-CONDITION

Related Messages: REPORT EVENT

LMS1000 Equivalent: None

LMS1000 Message Format Variations:

<aid>

Identifies the single entity in LMS1000 to which the alarm pertains. If the message code modifier is COM, then this parameter must be COM, indicating a system-wide failure that is not specific to a particular sub-unit. A NULL value is not permitted with this parameter. Parameter grouping cannot be used with this parameter.

<ntfcncde>

This is the notification code parameter associated with a single alarm condition given in this block.

Valid values are as follows:

CR	Critical alarm
MJ	Major alarm
MN	Minor alarm
CL	Cleared alarm

Values are derived from the NOTIFICATION CODE attribute of the LMS1000 channel or limit configuration with which the alarm condition is associated. Parameter grouping cannot be used with this parameter.

<condtype>

This is the condition type parameter of the alarm indication being given in this block. Values are derived from the CONDITION TYPE attribute of the LMS1000 channel or limit configuration with which the alarm condition is associated. Parameter grouping cannot be used with this parameter.

<srveff>

This is the service effect parameter associated with a single alarm condition given in this block.

Valid values are as follows:

SA	Service-affecting condition immediate action required.
NSA	Nonservice-affecting condition, action required.

Values are derived from the SERVICE EFFECT CODE attribute of the LMS1000 channel or limit configuration with which the alarm condition is associated. Parameter grouping cannot be used with this parameter.

<ocrdat>

This is the date when the triggering event occurred (i.e., the threshold was crossed). The format for this parameter is MOY-DOM (Month-Of-Year - Day-Of-Month). MOY ranges from 1 to 12, and DOM ranges from 1 to 31. A null value for this parameter defaults to the date in the message header.

<ocrtm>

This is the time when the triggering event occurred. The format for this parameter is HOD-MOH-SOM (Hour-Of-Day - Minute-Of-Hour - Second-Of-Minute). HOD ranges from 0 to 23. MOH and SOM range from 0 to 59. A null value for this parameter defaults to the time in the message header.

<locn>, <dirn>

These parameters do not apply in LMS1000. A NULL value is inserted for them.

<monval>

This is the measured value of the monitored value associated with the alarm condition. A NULL value is inserted if there is no measured value associated with this trouble. Parameter grouping cannot be used with this parameter.

<thlev>

This is the value of the threshold level if the condition type parameter is a threshold violation. A NULL value means there is no threshold level associated with the alarm condition. Parameter grouping cannot be used with this parameter.

<tmper>

This is the accumulation time period for Performance Monitoring (PM) parameters. It represents the length of time the alarm condition has been active. Parameter grouping cannot be used with this parameter. The format for this parameter is VAL-UN, where valid values for VAL (value) and UN (unit) are:

<u>VAL (value)</u>	<u>UN (unit)</u>
1	DAY (day)
1 to 24	HR (hour)
1 to 1440	MIN (minute)

<conddescr>

This parameter is a text message which provides a detailed description of the alarm, event, or condition. It is an ASCII string enclosed within a pair of escaped quotes (\"). It may also be used to describe any action to be taken as a result of the condition. For this application, values are derived from the CONDITION DESCRIPTION parameter of the LMS1000 channel or limit configuration with which the alarm condition is associated. If the channel or limit parameter has not been configured, a NULL will be inserted for this parameter.

<aiddet>, <obsdbhvr>, <exptdbhvr>, <dgntype>, <tblast>

These parameters do not apply or are not implemented in LMS1000. A NULL value is inserted for them.

REPORT ALARM ENVIRONMENT **(REPT ALM ENV)**

Referenced In: TR-NWT-000833, Issue 5, pg. 5-13

General Description: Generated by an LMS1000 to report the occurrence of environmental alarms.

Related Commands: RETRIEVE-ALARM ENVIRONMENT

Related Messages: None

LMS1000 Equivalent: None

LMS1000 Message Format Variations:

<ntfcncde>

This is the notification code parameter associated with the environmental alarm conditions being reported.

Valid values for this parameter are as follows:

CR	critical alarm
MJ	major alarm
MN	minor alarm
CL	cleared alarm

Values are derived from the NOTIFICATION CODE attribute of the LMS1000 channel or limit configuration with which the alarm condition is associated. Parameter grouping cannot be used with this parameter.

<almtype>

This is the alarm type parameter of environmental alarm(s) to be reported. Values are derived from the CONDITION TYPE attribute of the LMS1000 channel or limit configuration with which the alarm condition is associated. Parameter grouping cannot be used with this parameter.

<ocrdat>

This is the date when the triggering event occurred (i.e., the threshold was crossed). The format for this parameter is MOY-DOM (Month-Of-Year - Day-Of-Month). MOY ranges from 1 to 12, and DOM ranges from 1 to 31. A NULL value for this parameter defaults to the date in the message header. Parameter grouping cannot be used with this parameter.

<ocrtm>

This is the time when the triggering event occurred. The format for this parameter is HOD-MOH-SOM (Hour-Of-Day - Minute-Of-Hour - Second-Of-Minute). HOD ranges from 0 to 23. MOH and SOM range from 0 to 59. A NULL value for this parameter defaults to the time in the message header. Parameter grouping cannot be used with this parameter.

<almmsg>

This parameter is not implemented in LMS1000. A NULL value is inserted for this parameter.

REPORT CONDITION (REPT COND {EQPT/COM})

Referenced In: TR-NWT-000833, Issue 5, pg. 5-21

General Description: Provides a periodic report of selected LMS1000 standing conditions such as equipment units out of service, etc. The reporting period and conditions are defined in the LMS1000's requirements.

Related Commands: RETRIEVE-CONDITION

Related Messages: REPORT EVENT

LMS1000 Equivalent: None

LMS1000 Message Format Variations:

<aid>

Identifies the single entity in the LMS1000 to which the condition pertains. If the message code modifier is COM, then this parameter must be COM, indicating a system-wide condition that is not specific to a particular sub-unit. A NULL value is not permitted with this parameter. Parameter grouping cannot be used with this parameter.

<ntfcncde>

This is the notification code parameter associated with a single alarm condition given in this block.

Valid values are as follows:

CR	Critical alarm
MJ	Major alarm
MN	Minor alarm
NA	Not alarmed
NR	Not reported when the event occurs

A NULL value for the notification code defaults to NA.

Values are derived from the NOTIFICATION CODE attribute of the LMS1000 channel or limit configuration with which the alarm condition is associated. Parameter grouping cannot be used with this parameter.

<condtype>

This is the condition type parameter of the alarm indication given in this block. Values are derived from the CONDITION TYPE attribute of the LMS1000 channel or limit configuration with which the alarm condition is associated. Parameter grouping cannot be used with this parameter.

<srveff>

This is the service effect parameter associated with a single alarm condition given in this block.

Valid values are as follows:

SA	Service-affecting condition immediate action required.
NSA	Nonservice-affecting condition, action required.

Values are derived from the SERVICE EFFECT CODE attribute of the LMS1000 channel or limit configuration with which the alarm condition is associated. Parameter grouping cannot be used with this parameter.

<ocrdat>

This is the date when the triggering event occurred (i.e., the threshold was crossed). The format for this parameter is MOY-DOM (Month-Of-Year - Day-Of-Month). MOY ranges from 1 to 12 and DOM ranges from 1 to 31. A null value for this parameter defaults to the current date unless <ocrtm> is null, then this parameter does not apply. Parameter grouping cannot be used with this parameter.

<ocrtm>

This is the time when the triggering event occurred. The format for this parameter is HOD-MOH-SOM (Hour-Of-Day - Minute-Of-Hour - Second-Of-Minute). HOD ranges from 0 to 23. MOH and SOM range from 0 to 59. A NULL value means this parameter and the <ocrdat> parameter are not applicable. Parameter grouping cannot be used with this parameter.

<locn>, <dirn>

These parameters do not apply to LMS1000. A NULL value is inserted for them.

<timper>

This is the accumulation time period for Performance Monitoring (PM) parameters. It represents the length of time the alarm condition has been active. Parameter grouping cannot be used with this parameter. The format for this parameter is VAL-UN, where valid values for VAL (value) and UN (unit) are:

<u>VAL (value)</u>	<u>UN (unit)</u>
1	DAY (day)
1 to 24	HR (hour)
1 to 1440	MIN (minute)

REPORT EVENT (REPT EVT {EQPT/COM})

Referenced In: TR-NWT-000833, Issue 5, pg. 5-35

General Description: Generated by LMS1000 to report the occurrence of non-alarmed events. Trouble events occurring in LMS1000 are classified as alarmed and non-alarmed events. This message may also be used to report the recovery from off-normal or trouble conditions. This is done by using the value NORMAL for the parameter CONDTYPE, and associating the previous trouble report by the fractional part of the automatic tags (atag).

Related Commands: RETRIEVE-ALARM, RETRIEVE-CONDITION

Related Messages: REPORT ALARM

LMS1000 Equivalent: None

LMS1000 Message Format Variations:

<aid>

Identifies the single entity in LMS1000 to which the alarm pertains. If the message code modifier is COM, then this parameter must be COM, indicating a system-wide failure that is not specific to a particular sub-unit. A NULL value is not permitted with this parameter. Parameter grouping cannot be used with this parameter.

<condtype>

This is the condition type parameter of the event given in this block. Values are derived from the CONDITION TYPE attribute of the LMS1000 channel or limit configuration with which the alarm condition is associated. Parameter grouping cannot be used with this parameter.

<condeff>

Indicates the effect of the event on the condition of LMS1000. The event may initiate a standing condition (i.e., a non-alarmed condition occurrence), or may clear a standing condition or alarm. Parameter grouping cannot be used with this parameter.

Valid values are as follows:

CL Standing condition cleared. This indicates that an existing alarmed or non-alarmed condition has cleared.

SC Standing condition raised. This indicates that a non-alarmed condition has occurred.

TC Transient condition (this condition is not supported).

<ocrdat>

This is the date when the triggering event occurred (i.e., the threshold was crossed). The format for this parameter is MOY-DOM (Month-Of-Year - Day-Of-Month). MOY ranges from 1 to 12, and DOM ranges from 1 to 31. A null value for this parameter defaults to the date in the message header.

<ocrtm>

This is the time when the triggering event occurred. The format for this parameter is HOD-MOH-SOM (Hour-Of-Day - Minute-Of-Hour - Second-Of-Minute). HOD ranges from 0 to 23. MOH and SOM range from 0 to 59. A null value for this parameter defaults to the time in the message header.

<locn>, <dirn>

These parameters do not apply to LMS1000. A NULL value is inserted for them.

<monval>

This is the measured value of the monitored value associated with the alarm condition. A NULL value is inserted if there is no measured value associated with this trouble. Parameter grouping cannot be used with this parameter.

<thlev>

This is the value of the threshold level if the condition type parameter is a threshold violation. A NULL value means there is no threshold level associated with the alarm condition. Parameter grouping cannot be used with this parameter.

<timper>

This is the accumulation time period for Performance Monitoring (PM) parameters. It represents the length of time the alarm condition has been active. Parameter grouping cannot be used with this parameter. The format for this parameter is VAL-UN, where valid values for VAL (value) and UN (unit) are:

<u>VAL (value)</u>	<u>UN (unit)</u>
1	DAY (day)
1 to 24	HR (hour)
1 to 1440	MIN (minute)

<conddescr>

This parameter is a text message which provides a detailed description of the alarm, event, or condition. It is an ASCII string enclosed within a pair of escaped quotes (\"). It may also be used to describe any action to be taken as a result of the condition. For this application, values are derived from the CONDITION DESCRIPTION parameter of the LMS1000 channel or limit configuration with which the alarm condition is associated. If the channel or limit parameter has not been configured, a NULL will be inserted for this parameter.

<aiddet>, <obsdbhvr>, <exptdbhvr>, <dgntype>, <tblast>

These parameters do not apply or are not implemented in LMS1000. A NULL value is inserted for them.

List of Error Codes for TL1 Commands Supported

List of Error Codes for TL1 Commands Supported (in alphabetical order)

This section provides a list of error codes for the TL1 commands supported.

ENAC - Equipage, Not equipped with Alarm Cutoff
ENEQ - Equipage, Not Equipped
ENPM - Equipage, Not equipped for Performance Monitoring
ENRI - Equipage, Not equipped for Retrieving specified Information
ENSI - Equipage, Not equipped for Setting specified Information
ICNV - Input, Command Not Valid
IDNV - Input, Data Not Valid
IDRG - Input, Data Range
IIAC - Input, Invalid Access Identifier
IICT - Input, Invalid Correlation Tag
IIFM - Input, Invalid Data Format
IIPG - Input, Invalid Parameter Grouping
IISP - Input, Invalid Syntax or Punctuation
IITA - Input, Invalid Target identifier
INUP - Input, Non-null Unimplemented Parameter
IORD - Input, Out of Range Data
PICC - Privilege, Illegal Command Code
PIFC - Privilege, Illegal Field Code
PIUC - Privilege, Illegal User Code
PIUI - Privilege, Illegal User Identity
SARB - Status, All Resources Busy
SAOP - Status, Already Operated
SCNF - Status, Command Not Found
SDNR - Status, Data Not Ready
SPNF - Status, Process Not Found
SROF - Status, Requested Operation Failed

MAINTAINING LMS1000

Observe the Following Admonishment



DANGER! AC and DC power may be present. This system operates from DC input power. Various AC and/or DC voltages may be connected to the input/output circuit cards contained within the system. Performing the following procedures may expose service personnel to hazards. These procedures should be performed by qualified service personnel familiar with the hazards associated with this type of equipment. These hazards may include shock, energy, and/or burns. To avoid these hazards:

- a) The tasks should be performed in the order indicated.
- b) Remove watches, rings, and other jewelry.
- c) Prior to contacting any uninsulated surface or termination, use a voltmeter to verify that no voltage or the expected voltage is present.
- d) Wear eye protection, and use recommended tools.



WARNING! Before handling any circuit card, read and follow the instructions contained on the Static Warning Page located at the beginning of this manual. DC input power should always be removed from the shelf before inserting or removing a circuit card. To avoid possibility of circuit card damage from static discharge, a static wrist strap grounded through a one megohm resistor should always be worn when handling the circuit cards.

Replacing the CPU Memory Backup Battery (586505000/586505500 Main Cabinet or 582140000/582140001/582126100 Primary Bay Only)



CAUTION! Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

Vertiv Co. recommends that the memory backup battery be replaced once a year.

The CPU circuit card employs a 3 volt 170 mAH lithium battery (P/N 241163100) which has a shelf life of ten years. Under typical discharge conditions (25 degrees C), the battery can power the memory for about 5000 hours. If the circuit card is removed from service for an extended period of time, the battery should be insulated from the battery holding clamp using a piece of cardstock or similar material. However, this action will destroy all contents of the memory and clock. If it is necessary to save the configuration of a system, download the information to a floppy disk and then later upload the information back into the system. Refer to "UPLOADING AND DOWNLOADING THE CONFIGURATION" in "Operating LMS1000".

When the lithium battery reaches approximately 2.5 volts, a local indicator illuminates. When this happens it means the lithium battery, under typical conditions, will be able to power the memory for about another ten days.

Procedure:



NOTE! Refer to **Figure 4: Replacing the CPU Memory Backup Battery (Main Cabinet or Primary Bay Only)** (cont'd on next page) as this procedure is performed.

1. Remove DC input power from the LMS1000 CPU circuit card.

2. **586505000/586505500 LMS1000 Cabinet:** Rotate the two captive fasteners on the front of the shelf until the arrow on the fastener points up or down, and pivot the door open.
or
582140000/582140001/582126100 Power System: Open the bay's front door.
3. Connect an approved grounding strap to your wrist. Attach the other end to a suitable ground.
4. If external CPU/hardware fail alarms are connected to J4 on the circuit card, gently remove the top half of connector J4 from the bottom half.
5. Remove the CPU circuit card by loosening the retaining screw. In a 582140000/582140001/582126100 Power System, note that if a modem is installed, it also contains a bracket with a retaining screw. Remove the modem cable, if present.
6. When you remove the CPU battery, memory is maintained because the capacitor supplies power to the memory for at least one minute (worst case). Do not remove the battery until the replacement battery is ready to be inserted.
7. Remove the existing battery, and insert the replacement battery, observing correct polarity.
8. Re-install the CPU circuit card by sliding the CPU circuit card into its mounting position, ensuring the rear edge connector is firmly seated. Secure the circuit card by tightening the retaining screw located on the circuit card assembly (this is also the RS 232 Connector Grounding Screw). In a 582140000/582140001/582126100 Power System, note that if a modem is installed, it also contains a bracket with a retaining screw.
9. Attach the top half of J4 to the bottom half, if previously removed.
10. Remove the grounding wrist strap.
11. **586505000/586505500 LMS1000 Cabinet:** Close the shelf door and secure with the two captive fasteners (arrow on fastener points towards outside of cabinet).
or
582140000/582140001/582126100 Power System: Close the bay's front door.
12. Re-apply DC input power to the LMS1000 CPU circuit card.

Figure 4: Replacing the CPU Memory Backup Battery (Main Cabinet or Primary Bay Only) (cont'd on next page)

586505000
Main Cabinet
(586505500 similar)

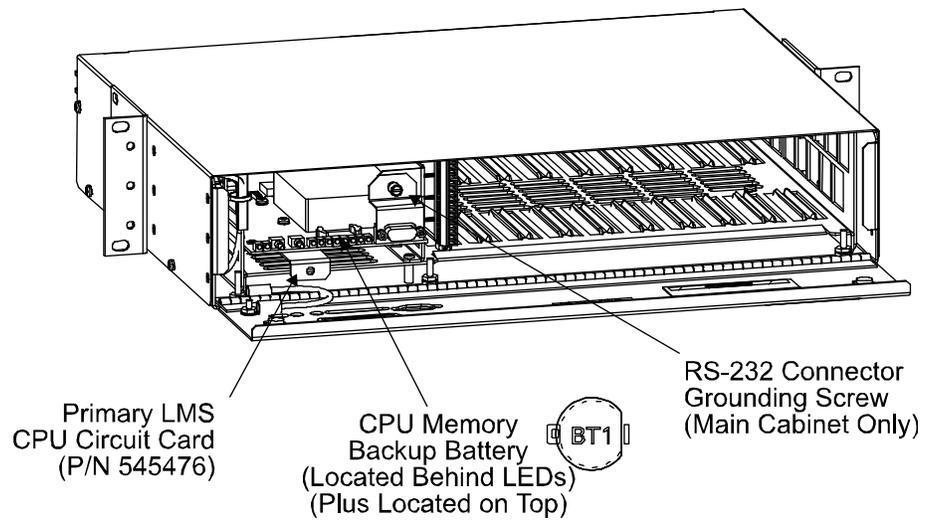
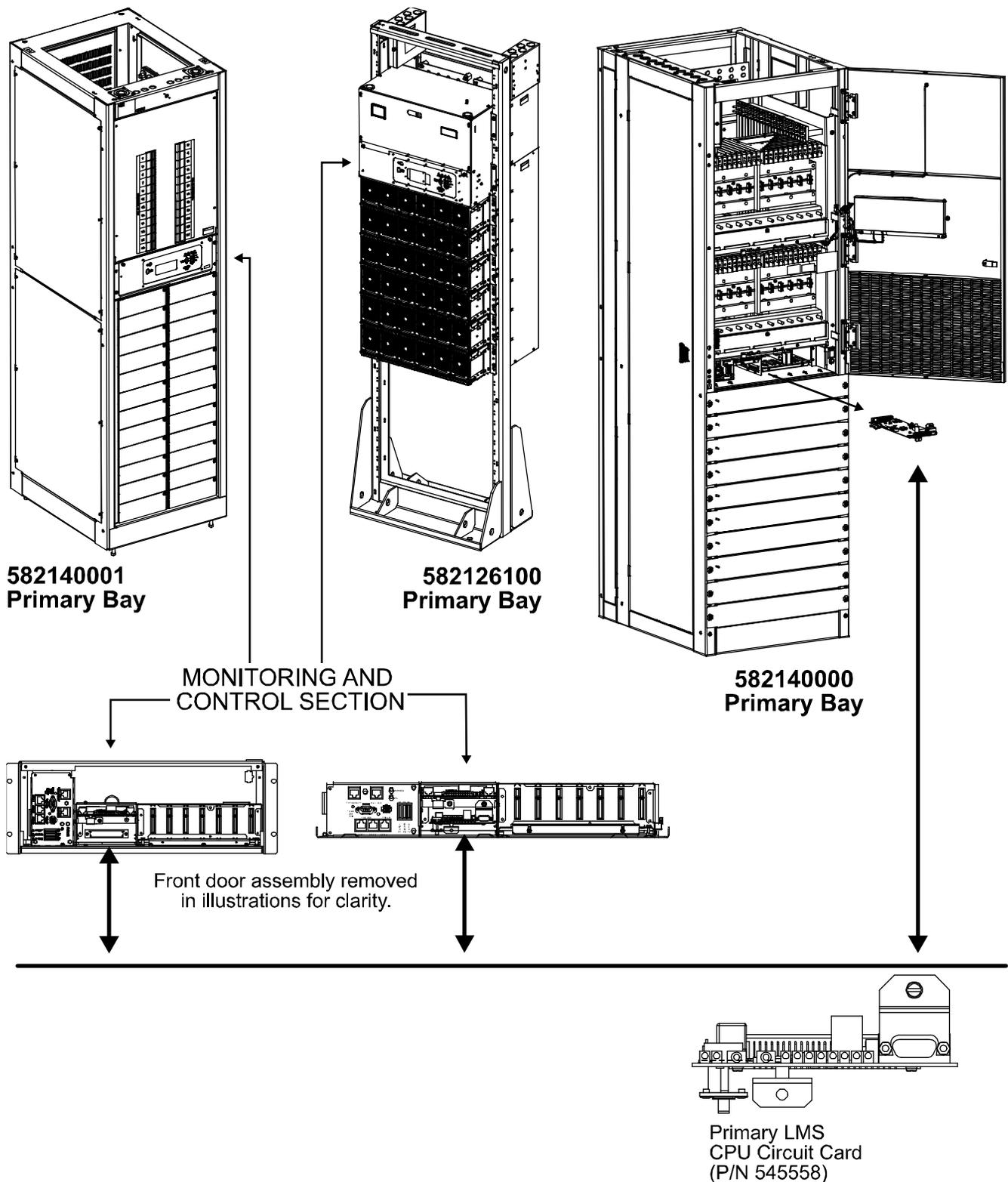


Figure 4: Replacing the CPU Memory Backup Battery (Main Cabinet or Primary Bay Only) (cont'd from previous page)



Adding an Input/Output (I/O) Circuit Card

Refer to the Installation Instructions (Section 5879) located in the separate INSTALLATION MANUAL for procedures to do the following. Section 5879 is also provided on the CD (Electronic Documentation Package) furnished with your system.

- Install the circuit card.
- Wire to the circuit card.
- Configure the associated channels of the circuit card.



NOTE! When adding or removing a circuit card from the network, the associated Node must be re-initialized before the network recognizes the addition or removal of the circuit card. If the Node is not re-initialized, alarms may be present. Re-initialize the Node to clear the alarms. Note that the configuration for the channels on the source node may need re-configuring after executing the NODE INITIO command. Refer to the "NODE INITIO" command in the Commands section.

Adding a Modem Circuit Card

Refer to the Installation Instructions (Section 5879) located in the separate INSTALLATION MANUAL for procedures to do the following. Section 5879 is also provided on the CD (Electronic Documentation Package) furnished with your system.

- Install the circuit card.
- Connect the phone line.
- Configure modem parameters.

Upgrading the Firmware

Contact a Vertiv Co. service facility. Contact information is provided in a Service Information Sheet (Section 4154). Section 4154 can be accessed via the CD (Electronic Documentation Package) furnished with your system.

Adding Software Options

Contact a Vertiv Co. service facility. Contact information is provided in a Service Information Sheet (Section 4154). Section 4154 can be accessed via the CD (Electronic Documentation Package) furnished with your system.

TROUBLESHOOTING AND REPAIRING LMS1000

Contact Information

Refer to Section 4154 (Service Information Sheet) for service contact information. You can find Section 4154 on the CD (Electronic Documentation Package) furnished with your system.

Observe the Following Admonishments



DANGER! AC and DC power may be present. This system operates from DC input power. Various AC and/or DC voltages may be connected to the input/output circuit cards contained within the system. Performing the following procedures may expose service personnel to hazards. These procedures should be performed by qualified service personnel familiar with the hazards associated with this type of equipment. These hazards may include shock, energy, and/or burns. To avoid these hazards:

- a) The tasks should be performed in the order indicated.
- b) Remove watches, rings, and other jewelry.
- c) Prior to contacting any uninsulated surface or termination, use a voltmeter to verify that no voltage or the expected voltage is present.
- d) Wear eye protection, and use recommended tools.



WARNING! Installation or removal of the circuit cards requires careful handling. Before handling any circuit card, read and follow the instructions contained on the Static Warning Page located at the beginning of this manual. DC input power should always be removed from the circuit card before inserting or removing the circuit card. To avoid possibility of circuit card damage from static discharge, a static wrist strap grounded through a one megohm resistor should always be worn when handling the circuit cards.

Preliminary Troubleshooting

Before attempting to troubleshoot the system, it must be determined that a failure has occurred in the system, and not in any equipment connected to it. Eliminate any interconnected equipment as a trouble cause before proceeding.

Once trouble has been isolated to the system, and before attempting to replace any circuit cards, various visual and operational checks should be made to eliminate any obvious failure causes. Before starting any troubleshooting procedure, check the following:



DANGER! Battery voltage may be present at the DC input terminals. Servicing personnel must observe all safety precautions normally associated with the maintenance and repair of electronic equipment, and must avoid direct contact with any energized electrical termination.

- a) Check to be sure DC input power is available to the system.
- b) Check all electrical and alarm connections for disconnected or loose terminations.
- c) Insure that all circuit cards are properly seated.

Component failures are sometimes evident during visual inspection of the circuitry. Obvious trouble symptoms such as loose connections; overheated, discolored, or burned components; open fuses; or burned and melted wire insulation should be corrected and the cause determined before proceeding with more detailed troubleshooting procedures.

Diagnostic Mode

The system contains a self-diagnostic feature. If the system automatically enters the diagnostic mode (distinguished by RED flashing LEDs or no response to access attempts), contact a Vertiv Co. service facility. Contact information is provided in a Service Information Document (Section 4154). The Service Information Document can be accessed via the CD (Electronic Documentation Package) furnished with your system.

LMS1000 Self Diagnostic Alarms (Binary Channels B0081 – B0096)

The system provides for connection of an external Self Diagnostic Alarm. This alarm activates when one or more of the Hardware Fail channels alarm.

Contact a Vertiv Co. service facility if the following "Actions" do not eliminate the error condition. Contact information is provided in a Service Information Sheet (Section 4154). Section 4154 can be accessed via the CD (Electronic Documentation Package) furnished with your system.

ERROR TYPE (CHANNEL #)	DESCRIPTION/ACTION
Self Diagnostics Error (B0081)	<p>Description: Clock Battery Low, Application check during power up tests failed, SRAM check during power up tests failed, Real Time Clock check during power up tests failed, Bus Clock check during power up tests failed.</p> <p>Action: Replace Main Cabinet CPU Memory Backup Battery if 'Clock Battery low' listed by ALARMS command. Otherwise, remove and restore power to Main Cabinet to perform power on diagnostics and replace Main Cabinet CPU if alarm persists.</p>
Main Cabinet H/W Failure (B0082)	<p>Description: The specified card(s) has been removed or failed. The type of card failed can be determined via the BOARDS command. All cards to the right of a failed or missing card will be reported as failed.</p> <p>Action: Replace failed or missing cards with exact type.</p>
Main Cabinet H/W Mismatch (B0083)	<p>Description: I/O card does not match that which is recorded in memory.</p> <p>Action: Determine the exact card number and type via the ALARMS command. Replaced errant card as described in "Adding an Input/Output (I/O) Circuit Card" subsection of the MAINTAINING LMS1000 section of the manual. Otherwise enter the NODE INITIO command as described in the COMMANDS section of the manual.</p>
Main Cabinet Foreign H/W (B0084)	<p>Description: I/O card in main cabinet is not a recognized assembly of the current firmware revision.</p> <p>Action: Call a Vertiv Co. service and request an upgrade of the firmware to a revision capable of recognizing the new I/O card.</p>
Power System Comm. Link Failure (B0085)	<p>Description: Communication Link to Power System has failed.</p> <p>Action: Verify proper connection of LMS/MCA communications cable. Verify recognition of the remote interface on the MCA inventory menu. Verify proper seating of MCA communications daughter card on the MCA assembly. Verify proper MCA communications daughter card on the MCA assembly.</p>
Network Failure (B0086)	<p>Description: I/O network firmware has failed.</p> <p>Action: Enter the SYSTEM RESET command. Call a Vertiv Co. services if alarm persists.</p>
Foreign Node Error (B0087)	<p>Description: Node assembly number that is not in list of known node assembly numbers.</p> <p>Action: Call a Vertiv Co. service and request an upgrade of the firmware to a revision capable of recognizing the new node assembly.</p>
Unexpected Response (B0088)	<p>Description: May have multiple nodes with identical address on network or additional hardware in a node.</p> <p>Action: Determine the source node via the ALARMS command. Enter the NODE ADD command and check the resulting list of nodes for new nodes discovered. If the alarm persists for more than 60 seconds, enter the NODE INITIO command. Note that the configuration for the channels on the source node may need re-configuring after executing the NODE INITIO command.</p>

ERROR TYPE (CHANNEL #)	DESCRIPTION/ACTION
Node Communication Error (B0089)	<p>Description: Unable to communicate with expansion cabinet or assembly.</p> <p>Action: Determine the source node via the ALARMS and NODE LIST command. First, verify the node has power. Next, verify the echelon network connection. For Expansion Cabinets, verify all installed I/O cards are recognized types for the version of firmware installed in the LMS1000. Refer to SAG586505000/SAG586505500 for valid card types. The SAG can be accessed via the Electronic Documentation Package provided on the CD shipped with your system.</p>
Node Watch Dog Reset Error (B0090)	<p>Description: A node on the network has been reset by its watchdog supervisory circuit.</p> <p>Action: Note the occurrence in a record or log (such as an LMS1000 INFO page). Replace node CPU circuit card in any node exhibiting this error more than one time in any given six month period.</p>
Node Configuration Mismatch (B0091)	<p>Description: Reported node configuration parameter does not match configuration stored on Master: Cabinet spec, Cabinet serial, Cabinet location, Point use flags, Distribution module number.</p> <p>Action: Determine the source node via the ALARMS command. Execute the NODE CONFIG command and verify the configuration stored is correct. Be sure to save changes whether any made or not when prompted. Verify the nodes channels as well.</p>
Node Assembly Mismatch (B0092)	<p>Description: Reported Assembly Number doesn't match information stored on Master node.</p> <p>Action: Determine the source node via the ALARMS command. Execute the NODE CONFIG command and verify the assembly number stored is correct. Be sure to save changes whether any made or not when prompted. Verify the nodes channels as well.</p>
Node H/W Mismatch (B0093)	<p>Description: Hardware reported by node does not match information stored on Master node: Number of boards, Board style, Number of point groups, Point type, Number of points, Failure to get point group.</p> <p>Action: Determine the source node via the ALARMS command. Verify the I/O circuit cards in the node are the desired configuration. Enter the NODE INITIO command. Note that the configuration for the channels on the source node may need re-configuring after executing the NODE INITIO command.</p>
Node I/O H/W Failure (B0094)	<p>Description: Expansion Cabinet: I/O card failure. All cards to the right of a failed or missing card will be reported as failed. Expansion Assembly: A/D Malfunction, Neuron Circuitry Failure.</p> <p>Action: Expansion Cabinet: Determine the source card via the ALARMS command. Replace failed or missing cards with exact type. Expansion Assembly: Replace the Expansion Assembly as described in the "Replacing an Expansion Assembly Card" subsection of the "Troubleshooting and Repairing" section of the manual.</p>
Analog H/W Configuration Error (B0095)	<p>Description: Reported configuration of universal A/D point does not match configuration stored in Network or Master Node I/O Subsystem.</p> <p>Action: Determine the source channel via the ALARMS command. Enter the CONFIG Axxxx command and verify the channel configuration is as desired. Be sure to save changes even if none are made. Verify the error clears within 15 seconds.</p>
Temperature Probe Failure (B0096)	<p>Description: Temperature probe sensor has failed.</p> <p>Action: Replace the temperature probe specified by the ALARMS command.</p>

Troubleshooting Four Input Analog Circuit Cards

TROUBLESHOOTING FOUR INPUT ANALOG CIRCUIT CARDS		
POSSIBLE CAUSES	TEST PROCEDURE	LOOK FOR ...
1) Jumpers on Analog Input circuit card incorrectly set.	Refer to Section 5879 (Installation Instructions) and verify correct jumper placement for each analog input.	--
2) Analog inputs connected to wrong terminals on Analog Input circuit card.	Refer to Section 5879 (Installation Instructions) and verify correct terminal block connection for each analog input.	--
3) Shunt size is incorrect.	Visually inspect shunt to verify that it is the correct size (full scale millivolts are as desired).	--
4) Analog input source to Analog Input circuit card defective.	Verify the analog input source for proper reading going into the circuit card.	--
5) High impedance or open input leads connected to the Analog Input circuit card giving the false reading.	Remove input power to the LMS1000. Remove one input lead at the source. Short it to the other input lead. Measure the resistance (ohms) between the input leads at the Analog Input circuit card terminal block. This value should not be significantly greater than the sum of any current limit resistors located in the input leads.	Open current limit fuses or resistors. Wrong value current limit resistors. (49.9 ohm resistor recommended when monitoring shunts). Open input leads. Poor solder connections. Poor terminal connections.
6) Shorted or low impedance input leads connected to the Analog Input circuit card giving the false reading.	Remove input power to the LMS1000. Remove and isolate one input lead at the source. Measure the resistance (ohms) between the input leads at the analog circuit card terminal block. This value should be infinite.	Leads damaged or pinched. Poor connection at terminal block.
7) Noise injected onto the input leads.	If another analog channel appears to operate correctly, swap the input leads of the analog circuit card associated with this channel with those associated with the defective channel. If the problem now exists on the swapped channel, the problem is external to the LMS1000.	Input leads should always be twisted pairs. Input leads running with other leads carrying AC signals or near electrically noisy equipment may pick up noise.
8) SCALE FACTOR attribute incorrectly set in the analog channel configuration.	Log on to the unit. Enter the command CONFIG Ax, where x is the number of the analog channel giving the false reading. Verify (and change if necessary) the scale factor of this channel.	--

TROUBLESHOOTING FOUR INPUT ANALOG CIRCUIT CARDS

POSSIBLE CAUSES	TEST PROCEDURE	LOOK FOR ...
<p>9) Open terminal block connection on the analog input circuit card giving the false reading.</p>	<p>Remove input power to the LMS1000. The terminal block on the circuit card is a two piece unit that can be separated. Remove the detachable half of the terminal block. Visually inspect both halves of the terminal block for damaged pins. Reconnect the terminal block half. Measure the resistance between the stationary half of the terminal block and the detachable half. You should measure near zero ohms.</p>	<p>--</p>
<p>10) Defective Analog Input circuit card causing false reading.</p>	<p>On the Analog Input circuit card, remove the wires from a pair of input terminals and jumper the pair of input terminals together. If the reading for that input does not go to zero or one, the fuse on the Analog Input circuit card may be open or the circuit card may not be calibrated properly.</p> <p>Try a different channel (preferably swap the wiring from the defective input with the wiring of a known working channel on that circuit card or another circuit card) to see if the problem follows the input wiring or the channel.</p> <p>Replace the analog input circuit card with a known working Analog Input circuit card.</p>	<p>--</p>

Repair and Replacement Information



WARNING! Ensure that DC input power is removed from the system before performing any repair or replacement procedures.

Circuit Cards



WARNING! Installation or removal of the circuit cards requires careful handling. Before handling any circuit card, read and follow the instructions contained on the Static Warning Page located at the beginning of this manual. DC input power should always be removed from the circuit card before inserting or removing the circuit card. To avoid possibility of circuit card damage from static discharge, a static wrist strap grounded through a one megohm resistor should always be worn when handling the circuit cards.

When a trouble symptom is localized to a faulty circuit card, that particular circuit card should be replaced in its entirety. No attempt should be made to troubleshoot or repair individual components on any circuit card.

A circuit card can easily be replaced if a failure condition should occur. For circuit card replacement, follow the procedures presented in this section.

DC input power should always be removed from the circuit card when inserting or removing a circuit card. When a circuit card is removed from the system shelf, it should immediately be placed in a static protective bag.

The terminal blocks located on the circuit cards can be removed by first loosening the two screws, then gently pulling the terminal block body away from the circuit card. This feature facilitates circuit card replacement.

Replacement Circuit Card Part Numbers

Refer to SAG586505000/SAG586505500 (System Application Guide) for replacement part numbers. The SAG can be accessed via the CD (Electronic Documentation Package) furnished with your system.

Replacement Procedures

Replacing a 586505000/586505500 Main Cabinet or 582140000/582140001/582126100 Primary Bay CPU Circuit Card



NOTE! Refer to **Figure 5** as this procedure is performed.



NOTE! When performing any step in this procedure which requires removal of existing hardware, retain all hardware for use in subsequent steps.

Procedure:

Observe Admonishments

1. Observe the admonishments presented at the beginning of this section, and in the previous section titled "REPAIR AND REPLACEMENT INFORMATION".

Download the LMS1000 Configuration

1. Download the configuration from the LMS1000 to a PC by following one of the procedures detailed next.

Downloading the Configuration from the LMS1000 to a PC using XMODEM

 **NOTE!** A fully configured system downloaded over a phone line at 1200 bits/s may require up to 15 minutes.

 **NOTE!** The communications parameters of the remote terminal must match the system's default parameters. The default parameters are 8 data bits, 1 stop bit, and no parity. These defaults cannot be changed.

- a) Log on to the system. The user must have access to level 6 commands.
- b) Enter the command DOWNLOAD, then press ENTER. You have up to 1 minute to initiate a file transfer.
- c) The system will wait up to 1 minute before aborting the process if no file transfer occurs. The system waits for a 'C' character, which is the synchronization character for starting an XMODEM CRC file transfer.
- d) At the PC, initiate a file transfer using XMODEM CRC protocol.

Downloading the Configuration from the LMS1000 to a PC using TFTP

- a) Start a separate TFTP client session on the host to which the configuration file is transferred.
- b) Log on to the system. The user must have access to level 6 commands.
- c) Enter the command **DOWNLOAD TFTP**, then press **ENTER**. The following will be displayed.
- d) DOWNLOAD using TFTP
- e) After seeing the above prompt, start the download process from the client. **DO NOT ATTEMPT THE DOWNLOAD UNTIL THE PROMPT ABOVE IS DISPLAYED.**

Save the Node Configuration

1. Enter the command NODE LIST, and copy the displayed information. This information is currently not saved when the configuration is downloaded using the DOWNLOAD command. This information has to be manually re-entered after replacing the CPU card.

Replace the CPU Circuit Card

1. Remove DC input power from the LMS1000 CPU circuit card.
2. **586505000/586505500 LMS1000 Cabinet:** Rotate the two captive fasteners on the front of the shelf until the arrow on the fastener points up or down, and pivot the door open.
or
582140000/582140001/582126100 Power System: Open the bay's front door.
3. Connect an approved grounding strap to your wrist. Attach the other end to a suitable ground.
4. If external CPU/hardware fail alarms are connected to J4 on the circuit card, gently remove the top half of connector J4 from the bottom half located on the existing CPU circuit card.
5. Remove the CPU circuit card by loosening the retaining screw. In a 582140000/582140001/582126100 Power System, note that if a modem is installed, it also contains a bracket with a retaining screw. Remove the modem cable, if present.
6. Remove the modem circuit card, if present.

7. Reinstall the modem circuit card onto the replacement CPU circuit card, if present. Replace the modem cable, if present.
8. Slide the replacement CPU circuit card into its mounting position, ensuring the rear edge connector is firmly seated. Secure the circuit card by tightening the retaining screw located on the circuit card assembly (this is also the RS 232 Connector Grounding Screw). In a 582140000/582140001/582126100 Power System, note that if a modem is installed, it also contains a bracket with a retaining screw.
9. If external hardware fail alarms were connected to J4 on the existing circuit card, remove the supplied top half of J4 from the replacement CPU circuit card. This piece is not used, and may be saved or discarded. Attach the top half of J4 (removed from the old CPU circuit card) to the bottom half of J4 located on the replacement CPU circuit card.
10. Remove the grounding wrist strap.
11. **586505000/586505500 LMS1000 Cabinet:** Close the shelf door and secure with the two captive fasteners (arrow on fastener points towards outside of cabinet).
or
582140000/582140001/582126100 Power System: Close the bay's front door.
12. Reapply DC input power to the LMS1000 CPU circuit card.
13. Log onto the system using the default level six password (6).
14. Enter the command SYSTEM INIT.

Upload the LMS1000 Configuration

1. Upload the configuration from a PC to the LMS1000 by following one of the procedures detailed next.

Uploading the Configuration from a PC to the LMS1000 using XMODEM



NOTE! *The communications parameters of the remote terminal must match the system's default parameters. The default parameters are 8 data bits, 1 stop bit, and no parity. These defaults cannot be changed.*

- a) Log onto the system using the default level six password (6).
- b) Enter the command UPLOAD, then press ENTER. The following will be displayed.

```

UPLOAD using XMODEM Protocol with CRC error checking
You have up to 1 minute to initiate a file transfer. Each second during
this 1 minute period the system sends a 'C' character, which is the
synchronization character for starting an XMODEM CRC file transfer.
  
```

- c) At the PC, initiate a file transfer using XMODEM CRC protocol.
- d) When the transfer is complete, the following is displayed.

```

84 blocks received OK.
Upload Complete.
The number of blocks received may vary.
  
```

 **NOTE!** If an error message (as shown below) appears, the file being uploaded must be re-edited to correct the appropriate program line. The CLR PROG command may be used instead of re-editing the upload file. Refer to the CLR PROG command in the COMMANDS section.

```
202 blocks received OK.
R01=h1
  ^
Program error -- Bad Character
Upload Complete.
```

Uploading the Configuration from a PC to the LMS1000 using TFTP

- a) Start a separate TFTP client session on the host from which the configuration file is transferred.
- b) Log onto the system using the default level six password (6).
- c) Enter the command **UPLOAD TFTP**, then press **ENTER**. The following will be displayed.

```
UPLOAD using TFTP
```

- d) After seeing the above prompt, start the upload process from the client. **DO NOT ATTEMPT THE UPLOAD UNTIL THE PROMPT ABOVE IS DISPLAYED.**

Configuring the Nodes

1. Enter the NODE LIST command and verify all nodes that were previously present are still present.

 **NOTE!** Node numbers and names will NOT be the same as before. Verify the nodes using the neuron ID and other node parameters.

2. Enter the NODE CONFIG command and configure the node numbers and names using the information recorded earlier.

Replacing an Expansion Cabinet CPU Circuit Card

 **NOTE!** Refer to **Figure 5** as this procedure is performed.

 **NOTE!** When performing any step in this procedure which requires removal of existing hardware, retain all hardware for use in subsequent steps.

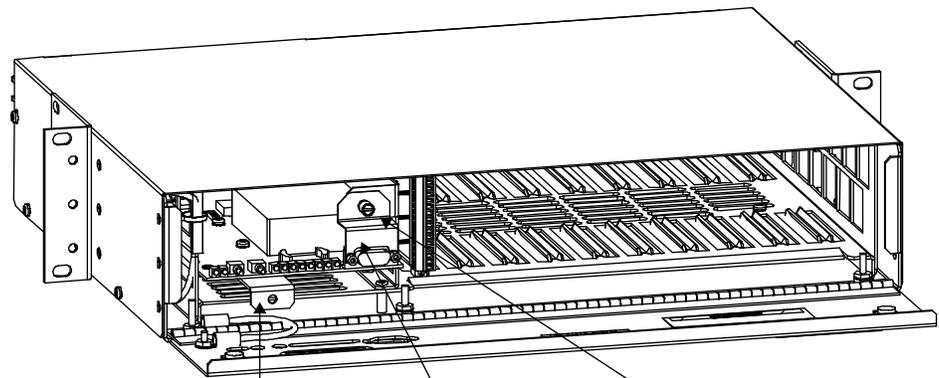
Procedure:

1. Observe the admonishments presented at the beginning of this section, and in the previous section titled "REPAIR AND REPLACEMENT INFORMATION".
2. Remove DC input power from the LMS1000 CPU circuit card.
3. **586505000/586505500 LMS1000 Cabinet:** Rotate the two captive fasteners on the front of the shelf until the arrow on the fastener points up or down, and pivot the door open.
or
582140000/582140001/582126100 Power System: Open the bay's front door.
4. Connect an approved grounding strap to your wrist. Attach the other end to a suitable ground.

5. Remove the CPU circuit card by loosening the retaining screw.
6. Make a note of the replacement CPU circuit card's neuron identifier number (written on the card). Slide the replacement CPU circuit card into its mounting position, ensuring the rear edge connector is firmly seated. Secure the circuit card by tightening the retaining screw located on the circuit card assembly.
7. Remove the grounding wrist strap.
8. **586505000/586505500 LMS1000 Cabinet:** Close the shelf door and secure with the two captive fasteners (arrow on fastener points towards outside of cabinet).
or
582140000/582140001/582126100 Power System: Close the bay's front door.
9. Reapply DC input power to the LMS1000 CPU circuit card.
10. Log onto the system as a level 6 user.
11. Enter the command NODE REPLACE. Enter the correct information for the node whose CPU is being replaced and the new node CPU being installed.

Figure 5: CPU Circuit Card Replacement (cont'd on next page)

586505000
Main Cabinet
(586505500 similar)

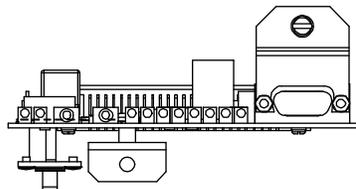


Main Cabinet Shown.
 Expansion Cabinet Similar,
 Except J4 and Grounding
 Screw.

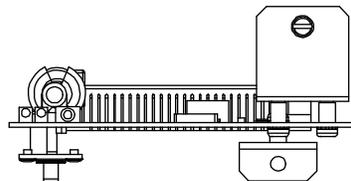
CPU Circuit Card

J4
 (located behind bracket)
 (Main Cabinet Only)

RS-232 Connector
 Grounding Screw
 (Main Cabinet Only)

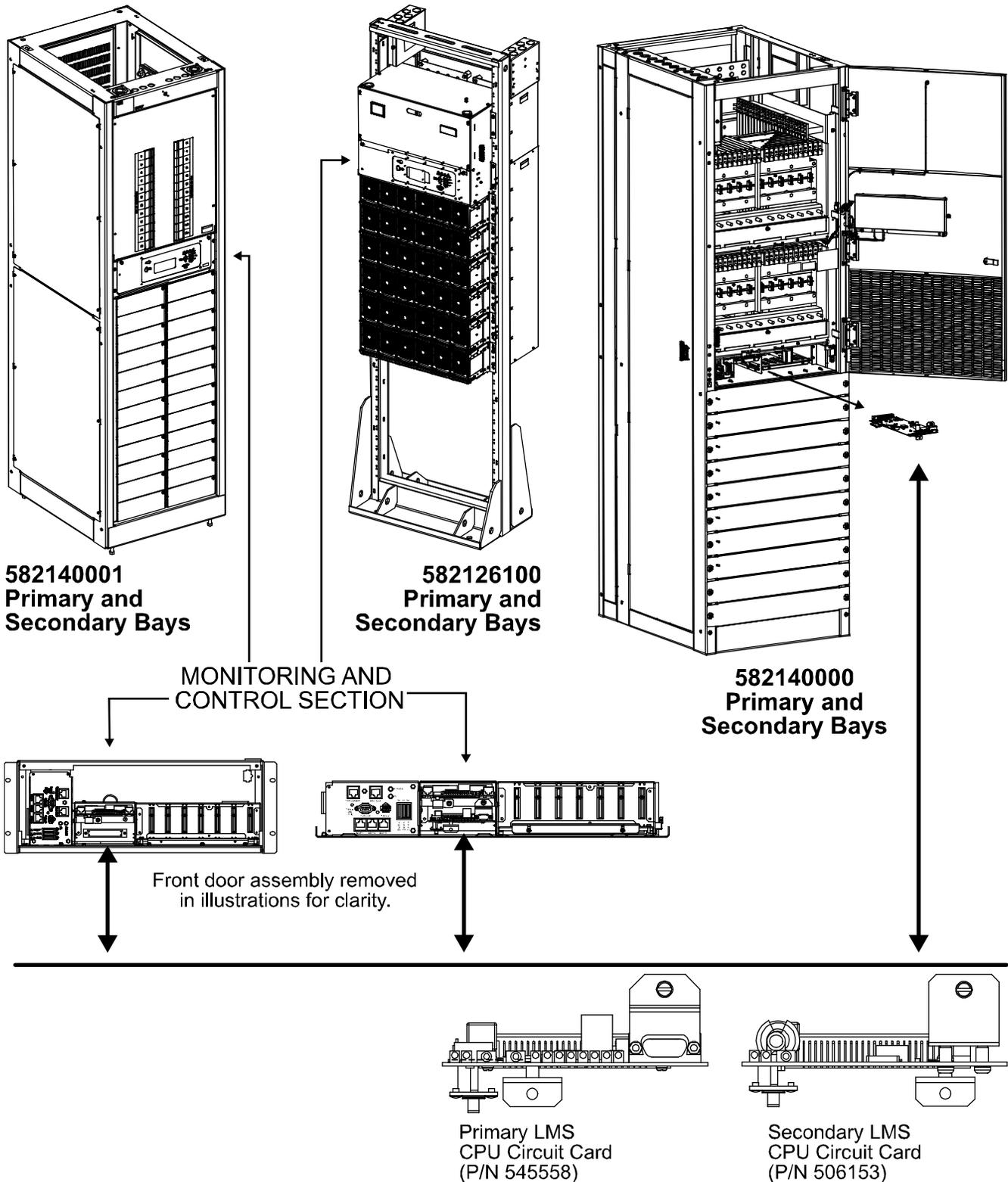


Primary LMS
 CPU Circuit Card
 (P/N 545476)



Secondary LMS
 CPU Circuit Card
 (P/N 506153)

Figure 5: CPU Circuit Card Replacement (cont'd from previous page)



Replacing a 586505000/586505500 Expansion Assembly



NOTE! When performing any step in this procedure which requires removal of existing hardware, retain all hardware for use in subsequent steps.

Procedure:

1. Observe the admonishments presented at the beginning of this section, and in the previous section titled "REPAIR AND REPLACEMENT INFORMATION".
2. Remove DC input power to the assembly.
3. Connect an approved grounding strap to your wrist. Attach the other end to a suitable ground.
4. Disconnect all cable connections and remove the assembly.
5. Install the new assembly (make a note of the assembly's neuron identifier number [written on the assembly]). Reconnect all cables.
6. Remove the grounding wrist strap.
7. Reapply DC input power to the assembly.
8. Log onto the system as a level 6 user.
9. Enter the command NODE REPLACE. Enter the correct information for the node whose CPU is being replaced and the new node CPU being installed.

Modem Circuit Card Replacement

Refer to the Installation Instructions (Section 5879) located in the separate INSTALLATION MANUAL for procedures to do the following. Section 5879 is also provided on the CD (Electronic Documentation Package) furnished with your system.

- Install the circuit card.
- Connect the phone line.
- Configure modem parameters.

I/O Circuit Card Replacement

Refer to the Installation Instructions (Section 5879) located in the separate INSTALLATION MANUAL for procedures to do the following. Section 5879 is also provided on the CD (Electronic Documentation Package) furnished with your system.

- Install the circuit card.
- Wire to the circuit card.
- Configure the associated channels of the circuit card.

 **NOTE!** When removing a circuit card from the network, the associated Node must be re-initialized before the network recognizes the removal of the circuit card. If the Node is not re-initialized, alarms may be present. Re-initialize the Node to clear the alarms. Note that the configuration for the channels on the source node may need re-configuring after executing the `NODE INITIO` command. Refer to the "NODE INITIO" command in the *Commands* section.



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