# *Vertiv™ Liebert® TFX PDU*

50* – 300 kVA

Efficient and reliable power distribution for your mission-critical applications

## Efficient and reliable power distribution for your mission-critical applications

The Vertiv™ Liebert® TFX is a floor-mounted power distribution unit (PDU) for enterprise companies and multi-tenant colocation providers. Offering customized configuration and a compact footprint, the Liebert® TFX provides reliable uninterrupted single- or two-stage power distribution in small-to mid-sized data centers, network and server rooms, edge applications, and remote mission-critical facilities.

For companies that require custom distribution to meet the specific needs of their facilities, the Liebert TFX offers flexible power options. The unit is made-to-order, and is shipped to you with panelboards and subfeeds configured according to your specifications. Also, as power demands grow, you can add Vertiv™ Liebert® TFX FLX expansion cabinets to supplement the base transformer with additional capacity.

The Liebert® TFX helps to solve the problems of limited space and mobility for PDUs in data center facilities. The compact transformer cabinet can easily be moved through doorways and installed in corners, enabling you to make better use of floorspace for IT equipment. The unit's modular design features isolated panelboards, making it safe for engineers to do onsite maintenance on individual low-voltage monitoring components while the rest of the unit is live. An intuitive power monitoring system keeps you informed of operating status, equipment loads, and potential overloads.

## Ideally suited for:

- Local and remote computing
- Small to mid-sized data centers
- Server rooms
- Network closets
- Edge facilities
- Distributed computer networks
- Containerized and micro data centers

## Features of the Vertiv™ Liebert® TFX

| Flexible Power Distribution | Compact, Modular Design | Intelligent Power Monitoring and System Control |
|---|---|---|
| Customized distribution according to your power needs and applications | Compact unit minimizes space requirements | 9-inch color touchscreen display |
| Supports multiple input/output configurations | Easy mobility and installation | Easily program the system and manage equipment loads using the touchscreen display's navigation menu |
| Customized unit includes up to 3x42P panelboards, and 5x600AF or 12x250AF subfeeds | Top and bottom wire input and exit | On-screen display offers one-line system and individual breaker status, and equipment load levels |
| Available as a Standard Configuration in 200 kVA, 225 kVA, 250 kVA, and 300 kVA models.<br>*Available as ETO - Engineered to Order in 50kVA, 75kVA, 100kVA, 125kVA and 150kVA models. | Subfeed breakers include pre-wired circuit transformers | Voltage, current, power, & energy metering |
| Single / Dual-stage distribution options | Front-serviceable | Import or export site-specific settings to or from other PDUs |
| High power capacity | Isolated high-voltage and low voltage printed circuit boards for safe and easy maintenance | Automatic notifications of potential overloads and other emergencies |
| Copper (Cu) and Aluminum (Al) transformer options | Compliant with UL60950 & UL62368-1 | Vertiv™ Liebert® DPM with Waveform Capture Available |
| Vendor agnostic | | Four-level security access control |
| Operates at up to 40C | | Local and remote emergency power-off |
| Easy coordination between Vertiv UPS and STS units | | Easily integrate with your BMS to monitor and manage local and remote power distribution |
| DOE2016 compliant transformers | | |
| Up to ANSI/IEEE C62.41 | | |
| Vertiv™ Liebert® TFX FLX expansion cabinets available for additional power distribution | | |

# Vertiv™ Liebert® TFX PDU Features



Depth = 35.1” without front door

* Top conduit plate adds 4” to overall installed height

**Compact design:** Space-saving unit requires minimal floor space, and can fit through any doorway or into freight elevators.

**Touchscreen control:** 9-inch color LCD touchscreen for system programming with Vertiv™ Liebert® DPM power monitoring.

**Easy maintenance access:** Front access only for service, side access recommended for installation.

**Custom configurations:** Power configurations are made-to-order, according to your application demands.

**Panelboards and subfeeds:** Each unit includes up to 3 x 42P panelboards, and 5 x 600AF or 12 x 250AF subfeeds.

**Isolated PCBs:** Engineers can safely service or replace low voltage printed circuit boards while high-voltage breakers are live.

**Product warranty:** Comprehensive coverage through a standard exchange warranty. (One year after product startup, or 18 months after shipment.)

## Distribution topology

Up to 12x250AF or 5x600AF SF’s or up to 3x42P PB’s

## Monitoring

DPM with internally or externally monitored breaker accessories

## Breaker accessories

Auxiliary Switch(s), Alarm Switch

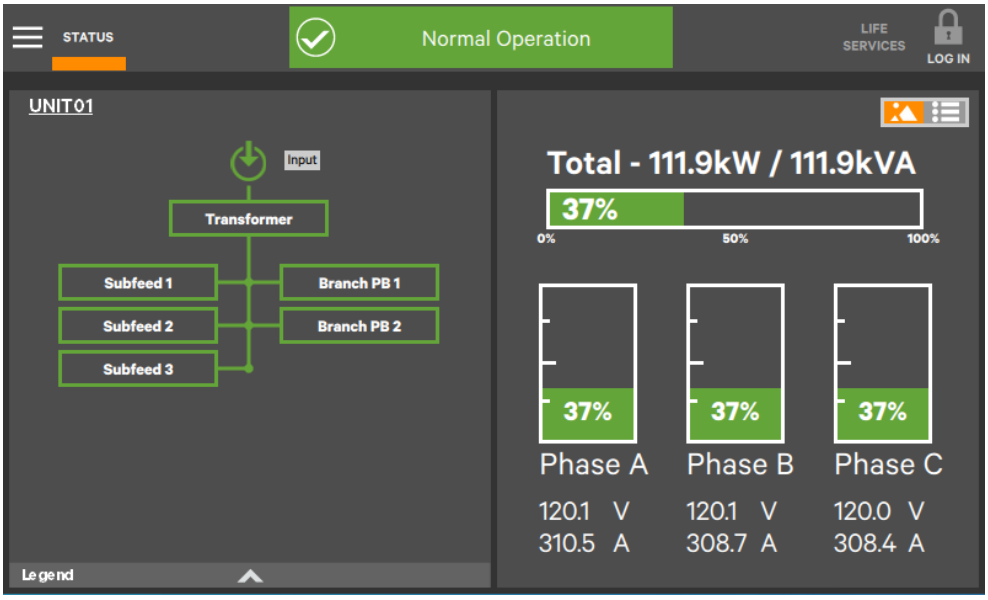
## Access

Front access only for service, side access recommended for installation

## Vertiv™ Liebert® TFX PDU Distribution Power Monitoring

The Vertiv™ Liebert® TFX PDU features an intelligent distribution power monitoring system, with a 9-inch color touchscreen display. Figure 1 (below) shows the "Status Page" visible on the display screen.

**Figure 1: DPM Observer main screen**




At left is a "single-line," an electrical diagram of the PDU unit, showing the input, the transformer, and the output distribution of branch panelboards and subfeed breakers. At right is the PDU's total output load, with individual power levels for each phase in a 3-phase distribution, including voltage and amperage for each phase.

**Figure 2: DPM Observer metering screen**


| Component | Freq | Voltage L-L (Volts) Ph. A | Ph. B | Ph. C | Current (Amps) Ph. A | Ph. B | Ph. C | Current (%) | Power (kW) | Peak Curr. | Peak Demand |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Input | 60.1 | 480.0 | 480.0 | 480.0 | | | | | | | |
| Transformer | 60.1 | 208.0 | 208.1 | 207.9 | 310.5 | 308.7 | 308.4 | 37.3 | 111.9 | | 120.0 |
| Branch PB 1 | 60.1 | 208.0 | 208.1 | 207.9 | 145.59 | 145.53 | 145.59 | 36.4 | 52.45 | 156.22 | 56.28 |
| Branch PB 2 | 60.1 | 208.0 | 208.1 | 207.9 | 74.76 | 74.75 | 74.76 | 18.7 | 26.93 | 80.22 | 28.90 |
| Subfeed 1 | 60.1 | 208.0 | 208.1 | 207.9 | 45.15 | 45.60 | 43.80 | 18.2 | 16.43 | 51.07 | 18.40 |
| Subfeed 2 | 60.1 | 208.0 | 208.1 | 207.9 | 34.04 | 33.19 | 34.38 | 13.8 | 12.39 | 38.51 | 13.87 |
| Subfeed 3 | 60.1 | 208.0 | 208.1 | 207.9 | 29.48 | 27.71 | 28.30 | 11.8 | 10.62 | 33.02 | 11.90 |

Figure 2 shows the Metering display screen, which gives a one-line status summary and equipment load levels for each component of the PDU unit, including the power input. Using the touchscreen display, you can tap on any of the components in the list, and receive more detailed power distribution information for that component.

**Figure 3: DPM Observer event log**

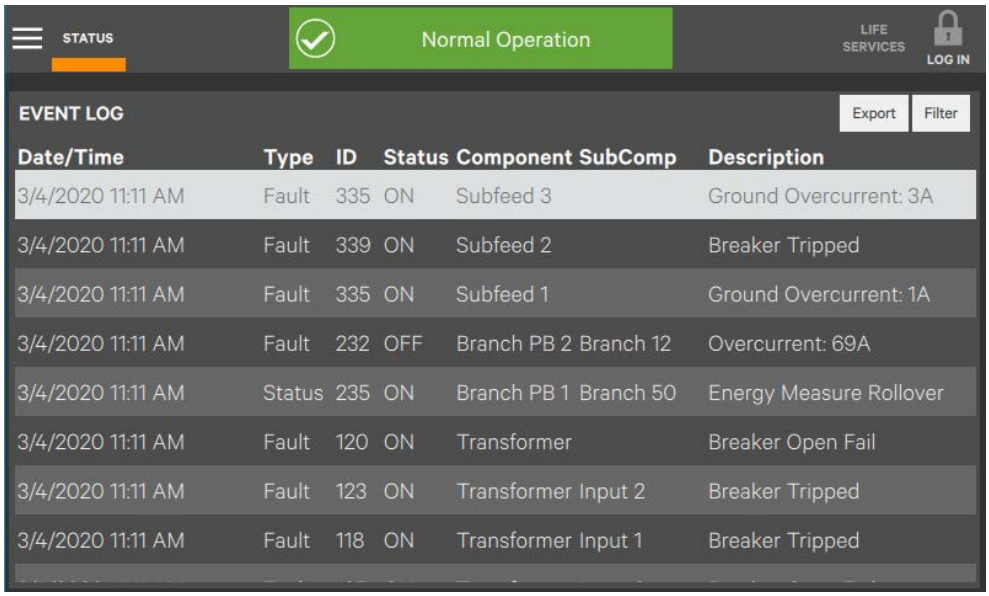
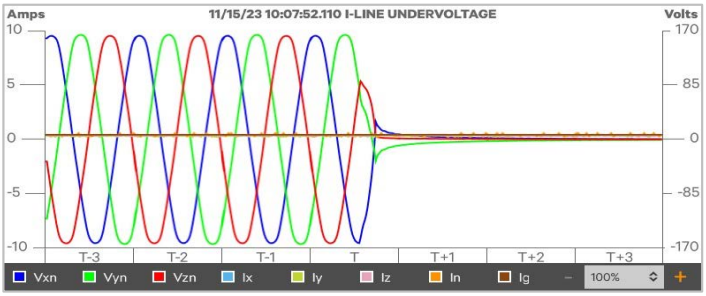



Figure 3 shows the Event Log, which gives one-line summaries of power events that have occurred in the unit, with the location, date, and time of those events.

## Benefits

- User-friendly graphical interface
- Single-line mimic diagram showing real-time system status. Easily identify root cause of power quality issues or outages
- Unit monitors power usage for billing or cost allocation
- Automatic charting display for logged power and environmental data
- Power monitoring system allows management of equipment loads on local and remote facilities
- Automatic warnings of near overload conditions
- Waveform Capture Available as an option

- 9-Inch Touchscreen Display
- Breaker Accessory Monitoring
- Alarm Annunciation
- On-Screen Programming
- Transformer in/out
- Waveform Capture



## Monitoring that's meaningful

The Vertiv™ Liebert® TFX PDU features an intelligent power monitoring system, Vertiv™ Liebert® DPM. The Liebert® DPM includes a user interface monitor mounted on the front door of the Vertiv™ Liebert® PPC. This intelligent system provides one-line system overview, individual breaker status, and equipment load levels. This monitor features a 9-inch color LCD display touchscreen panel, an audible alarm, and an EPO push button. The monitored parameters and alarms displayed on the local display are available.

- At left side, user has a "single-line" electrical diagram of the PDU unit, showing the input, the transformer, and the output distribution of branch panelboards and subfeed breakers.
- At right side user has the PDU's total output load, including voltage and amperage with individual power levels for each phase in a 3-phase distribution.

## Consistent and Reliable Power Distribution

- Reliable PDU delivers uninterrupted power to your mission-critical IT equipment
- Transforms voltage from your UPS into standard voltage, for distribution throughout your IT environment
- Energy levels between 50*-300 kVA make it suitable for small to mid-sized facilities
- Single-stage option lets you distribute power directly to IT rack PDUs
- Dual-stage option lets you distribute power to Remote Power Panels (RPPs) or busways, for distribution to server racks or cabinet rows
- Manufactured for high energy efficiency
- Custom Configurations
- Each unit is configured to handle your facility's specific power requirements
- Units are made to order, with the right combination of panelboards, subfeeds, or both (For example, your custom PDU may include one 42P panelboard and seven 250AF subfeeds)
- Limited onsite customization of subfeed breakers and branch circuit breakers can be performed at your facility after installation
- Optional Vertiv™ Liebert® TFX FLX expansion cabinets provide additional distribution as power needs grow

## Easy Installation with Better Use of Space

- Compact PDUs allows you to maximize floorspace for IT equipment
- Ideal for small data centers, network closets, server rooms, and containerized/micro data centers with limited space issues
- Caster wheels make it easy to move the unit into place
- Front-serviceable unit can be installed next to walls, in corners or alcoves
- 36-inch depth allows unit to fit through doorways and on freight elevators
- Top and bottom wire input/exit accommodates both overhead and underfloor electrical conduit runs
- Subfeed breakers come with pre-wired circuit transformers on the phases
- On-screen display lets you program system and breaker configurations, and export or import those configurations to other PDUs in the data center

## Easy Maintenance

- Isolated printed circuit boards allow service personnel to replace or troubleshoot high- and low-voltage PCBs without powering down the unit
- Modular design of the unit minimizes downtime to critical power path during maintenance
- Unit reduces potential for downstream short circuit fault currents
- Accessible and knowledgeable tech support and field service engineers

## Intelligent Power Monitoring

- Best-in-class power monitoring by the Vertiv™ Liebert® DPM with intuitive 9” color touchscreen display which lets you check system/breaker status and manage equipment loads.
- Accurate voltage, current, power, and energy metering
- Vertiv™ Liebert® DPM- Waveform Capture Available
- Unit monitors power usage for billing or cost allocation
- Easily identify root cause of power quality issues or outages
- Automatic warnings of near overload conditions
- Local and remote emergency Power-Off
- Integration with your BMS allows you to manage and monitor offsite PDUs in remote data centers and edge facilities

## PDU Specifications

| | |
|---|---|
| **Electrical** | |
| kVA Rating | 200kVA, 225kVA, 250kVA, 300kVA Standard / *50kVA, 75kVA, 100kVA, 125kVA, 150kVA *ETO - Engineered to Order. |
| Input | 3-phase, 3-wire plus ground |
| Input Voltage | @50Hz, 380V-415V<br>@60Hz, 480V |
| Output | 3-phase, 4-wire plus ground |
| Output Voltage | @50Hz: 380/230V, 415/240V<br>@60Hz: 415/240V, 208/120V |
| Agency listed to | UL-60950-1, UL-62368-1, FCC Part 15, and ANSI/IEEE C62.41 for Category B1 locations |
| **Operating Conditions** | |
| Operating Temperature | 0 to 40°C |
| Storage Temperature | -20 to 55°C |
| Audible Noise | Meets NEMA ST-20 standard |
| Relative Humidity | 0 to 90% non-condensing |
| Altitude | up to 6,600ft |
| **Transformer** | |
| Meets DOE2016 standard | |
| Transformer Ratings available in | K4, K13, K20 |
| Transformer Material Type | Copper (Cu) and Aluminum (Al) |
| Neutral conductor rating | 200% |
| Temp Rise options | 150°C (Standard), 115°C, 80°C |
| Vertiv transformers have been designed and built by Vertiv in our world-class manufacturing factility for over 40 years | |
| **Monitoring** | |
| Monitoring Configurations | Monitoring at the System level (Input and Output) Monitoring down to the branch circuit level (BCMS) |
| Display | 9.0" Color touchscreen |
| Measured Values | Voltage, Current, Power Factor, Energy, Harmonics / Waveform Capture Available as an option. |
| Protocols | Modbus TCP, SNMP, BACnet IP or MSTP, Modbus/RTU, SMS, Email, HTTP/HTTPS and Vertiv Protocol |
| Environmental sensor enabled through same protocols | |

## Additional expansion cabinets

If your facility requires additional power configurations, the following expansion cabinets are used to supplement the Vertiv™ Liebert® TFX.

### Vertiv™ Liebert® TFX FLX12A front-facing subfeed distribution cabinet

- Features 4x250AF or 3x600AF subfeed breakers
- 12-inch width

### Vertiv™ Liebert® TFX FLX12D side-facing panelboard distribution cabinet

- Featuring 250A and/or 400A panelboards
- 12-inch width

### Vertiv™ Liebert® FLX18E side-facing I-LinePanelboard distribution cabinet

- Features 800A I-Line panelboard, 800A back-fed main breaker (100% rated)
- 18-inch width

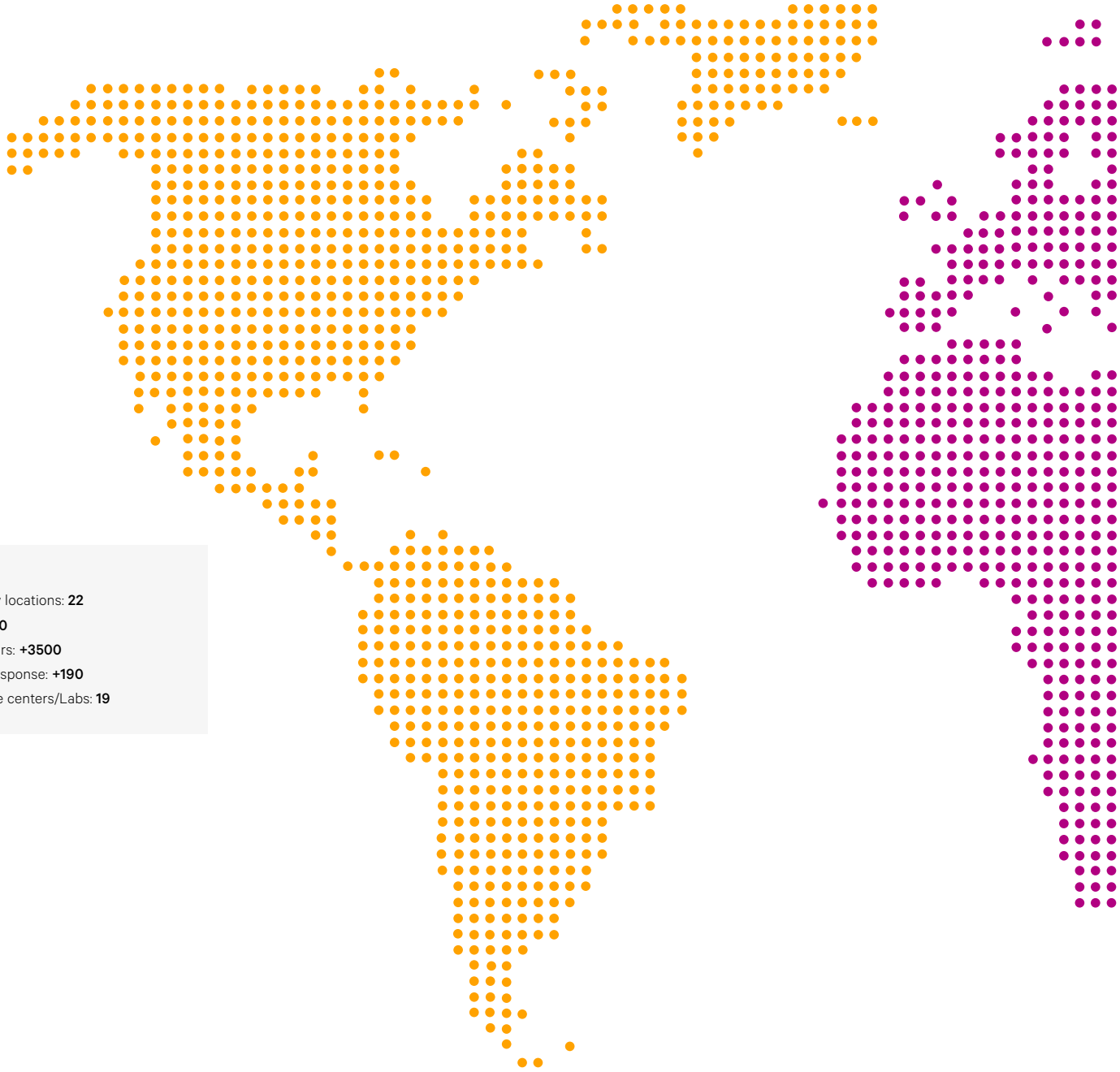
### About Vertiv

Vertiv brings together hardware, software, analytics and ongoing services to ensure its customers' vital applications run continuously, perform optimally and grow with their business needs. Vertiv solves the most important challenges facing today's data centers, communication networks and commercial and industrial facilities with a portfolio of power, cooling and IT infrastructure solutions and services that extends from the cloud to the edge of the network. Headquartered in Westerville, Ohio, USA, Vertiv employs around 27,000 people and does business in more than 130 countries. For more information, and for the latest news and content from Vertiv, visit Vertiv.com.

## Warranty Information

Vertiv™ Liebert® Three-Phase AC Power Products: A period of one (1) year from product start-up and commissioning performed by Vertiv personnel, which period shall expire no later than eighteen (18) months from the Product shipment date. Product shipment date is determined only from the bill of lading.

If any part or portion of the Vertiv product fails to conform to the warranty within the warranty period, Vertiv, at its option, will furnish new or factory remanufactured products for repair or replacement of that failed portion or part. Repair or replacement of a defective product or part thereof does not extend or restart the original warranty period. Vertiv does not control the use of any product and, accordingly, materials classified as "descriptions" are not warranties of performance and not warranties of fitness for a particular purpose.



**Worldwide**

Manuf. and assembly locations: **22**

Service centers: **+240**

Service field engineers: **+3500**

Technical support/response: **+190**

Customer experience centers/Labs: **19**



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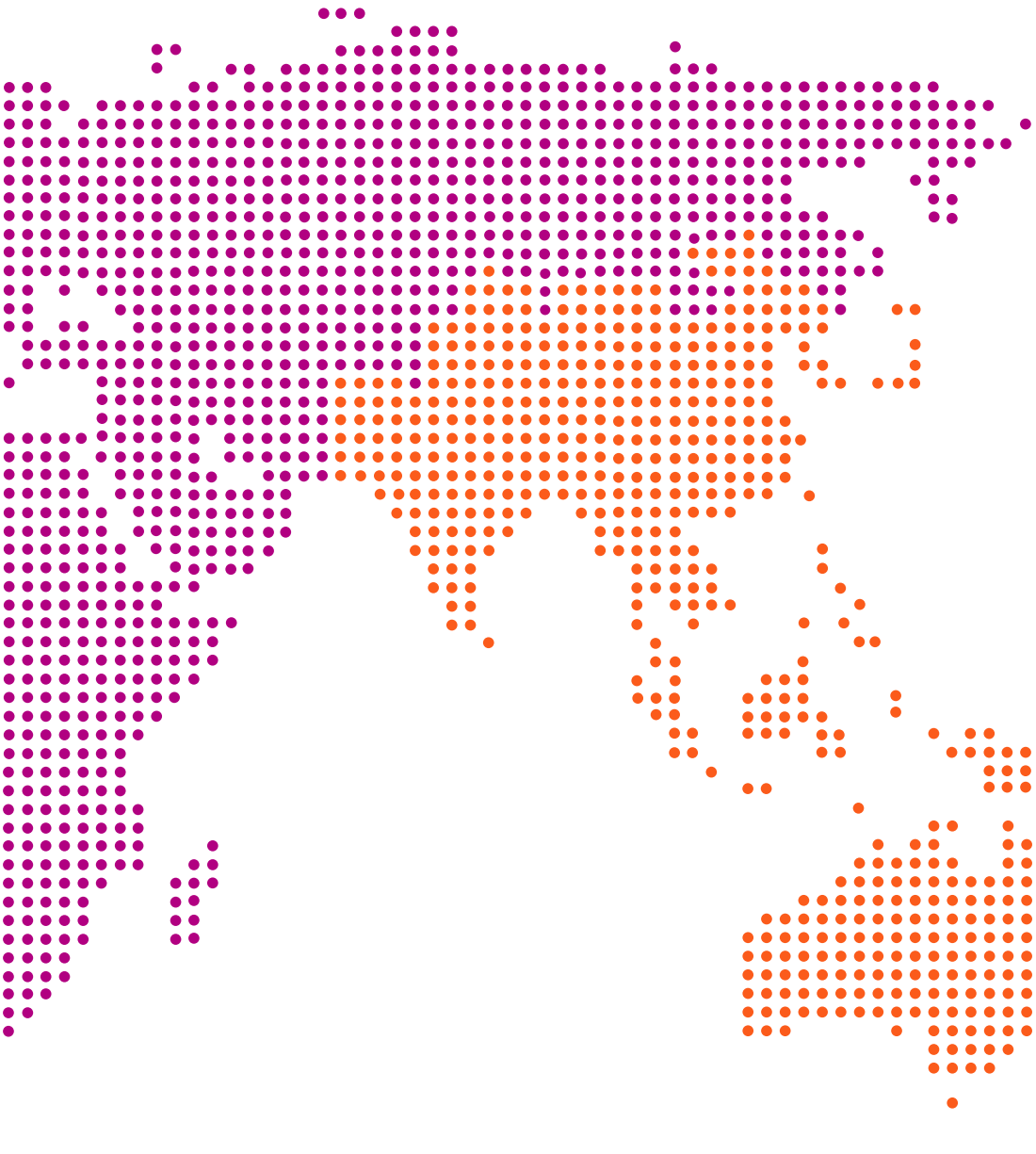

### Americas

- Manuf. and assembly locations: **8**
- Service centers: **+100**
- Service field engineers: **+1600**
- Technical support/response: **+70**
- Customer experience centers/Labs: **5**

### Europe, Meddle East and Africa

- Manuf. and assembly locations: **9**
- Service centers: **+60**
- Service field engineers: **600**
- Technical support/response: **100**
- Customer experience centers/Labs: **5**

### Asia Pacific

- Manuf. and assembly locations: **5**
- Service centers: **+80**
- Service field engineers: **1300**
- Technical support/response: **+20**
- Customer experience centers/Labs: **9**


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