



LAYERZERO
POWER SYSTEMS, INC.

The Foundation Layer

Series 70 eRPP-SL2

High-Density Slim Remote Power Panel



Product Brochure

eRPP-SL2 Facilitates High-Density Distribution With 336 Poles In Two Tiles

Make The Most of Available Data Center Space

The Series 70: eRPP-SL2 maximizes white space by allowing up to 336 poles in two floor tiles. The eRPP-SL2 permits a variety of configurations; single floor-mounted, single wall-mounted, side-by-side, back-to-back, and back-to-back plus both sides. eRPP-SL2 maximizes safety, with the finger-safe SafePanel® panel board, and no exposed live parts. eRPP-SL2 includes LayerZero DPQM, with advanced power quality monitoring capabilities, including real-time waveform capture. For applications that require maximization of available critical facility space while maintaining the highest reliability, eRPP-SL2 is an ideal solution.



Reliability



Silver Plated Terminals:
Silver Has Excellent Conductivity To Provide Superior Electrical Performance and Reliability



Convection Cooling:
Natural Convection-Cooled Heat Dissipation System is Maintenance-Free



Machined Hardware:
Machined Cap Screws and Engineered Disc Springs Maintain Constant Torque Throughout Product Life



Selective Trip Coordination:
Main Breaker Will Not Trip In The Event of a Downstream Fault.



Serialized Critical Board Tracking:
Critical Boards Are Serialized And Cataloged in an Active Database For Traceability

Safety



INSIGHT IR® Cameras:
Built-in Infrared Cameras to Continuously Scan Bolted Connections For Irregular Rises In Temperature



Sectionalized Components:
Separations Between Each Section To Maintain Maximum Operator Safety



Polycarbonate Windows:
Allows Critical Board LEDs To Be Viewed With The Dead-Front Door Closed



Guided Wireways:
Helps Keep Wires Organized



Dead Front Hinged Doors:
Barrier To Provide A Safe Working Area With No Exposed Live Parts



SafePanel® Distribution:
IP-20 Rated Finger-Safe Panel Board with No Exposure to Exposed Live Parts

Connectivity

Ethernet Connectivity:
Secure VPN Router Connects To Network For Advanced Remote Monitoring Capabilities

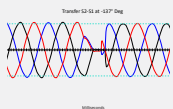
Modbus/TCP:
Open Connectivity to Existing Monitoring Systems Without Proprietary Limitations

NTP Time Clock Synchronization:
Facilitates Timeline-Based Logging For Post-Event Reconstruction

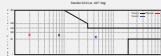
SNMP Connectivity:
Permits Remote Management Via Simple Network Management Protocol

Dry Contacts:
Access Alarms Data with Dry Contacts Connections

Power Quality Monitoring



Real-Time Waveform Capture:
Automatically Captures A Picture Of The Power Six-Cycles Before and After Every Event

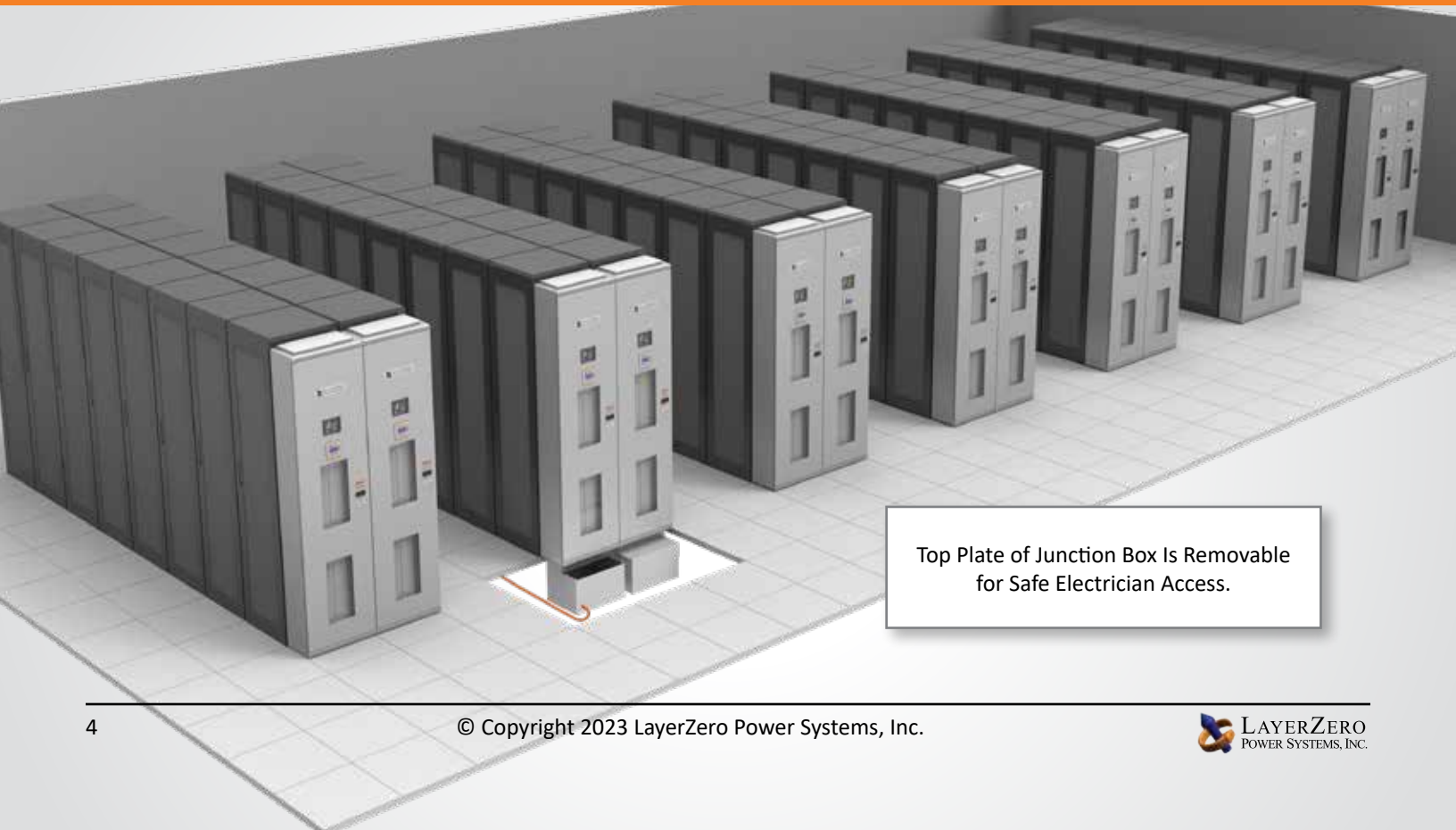
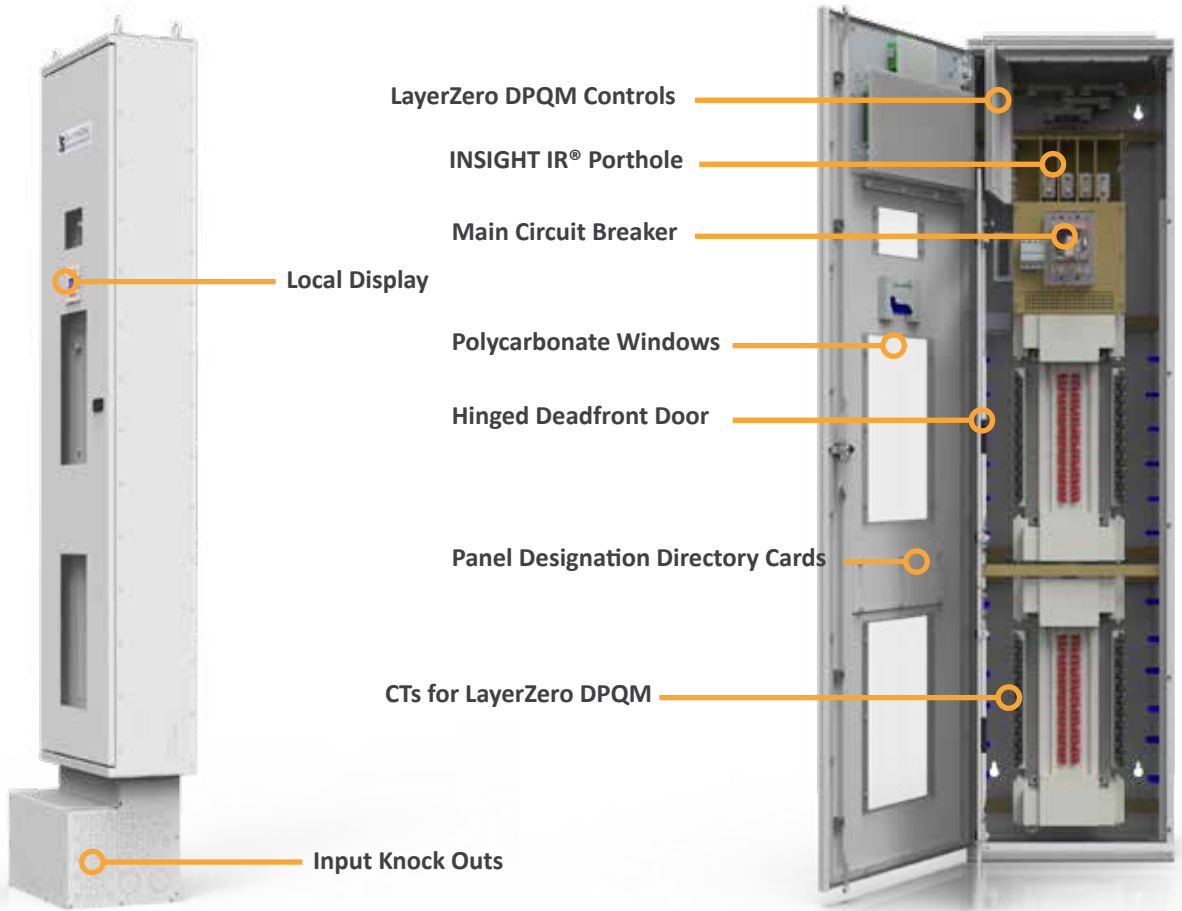


ITIC Plotting:
Generate ITIC Plots To Determine if Connected Equipment Was Affected by Power Quality Events



Optional Local Touch-Screen Interface:
Password-Protected Color Touch-Screen GUI For Local STS Setup/Operation/Administration

Equipment Layout



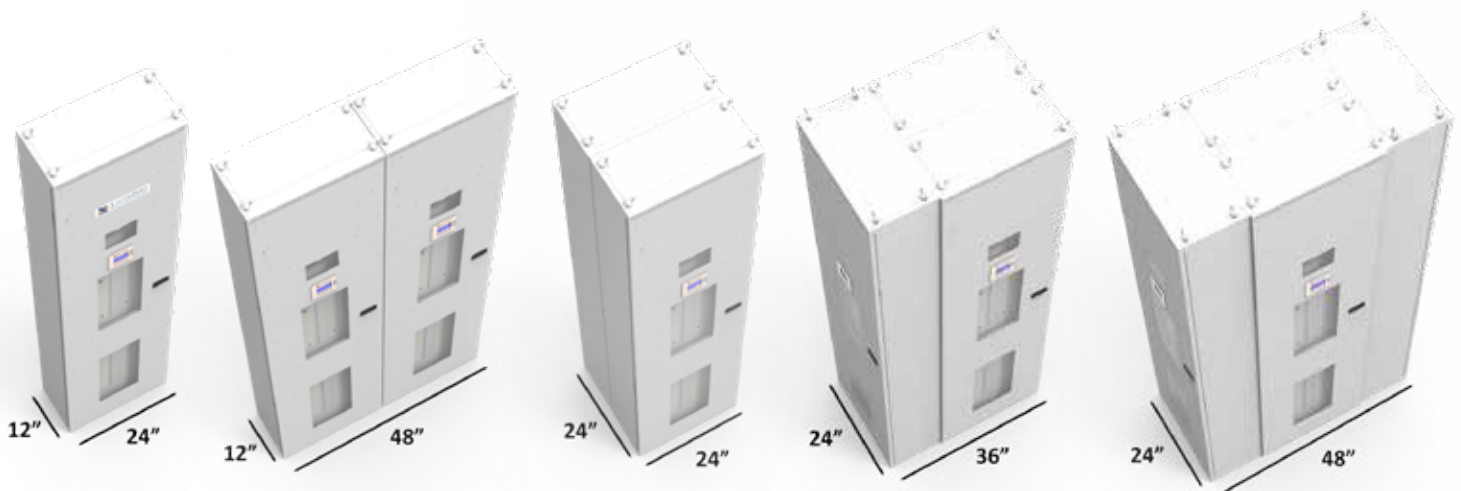
Mounting Configurations

Flexible Mounting Options

eRPP-SL2 can be free-standing or mounted on a wall.

Feeder cables are located below the tile.

eRPP-SL2 is available in a variety of configurations that maximize the effectiveness of critical facility space. Up to 336 poles can be installed in two data center tiles.



Single

- Half Tile
- Wall or Floor Mounted

Side-By-Side

- 2X Half Tile
- Wall or Floor Mounted

Back-To-Back

- Single Tile
- Floor Mounted

Back-To-Back + 1 Side

- Single Tile + Half Tile
- Floor Mounted

Back-to-Back + 2 Sides

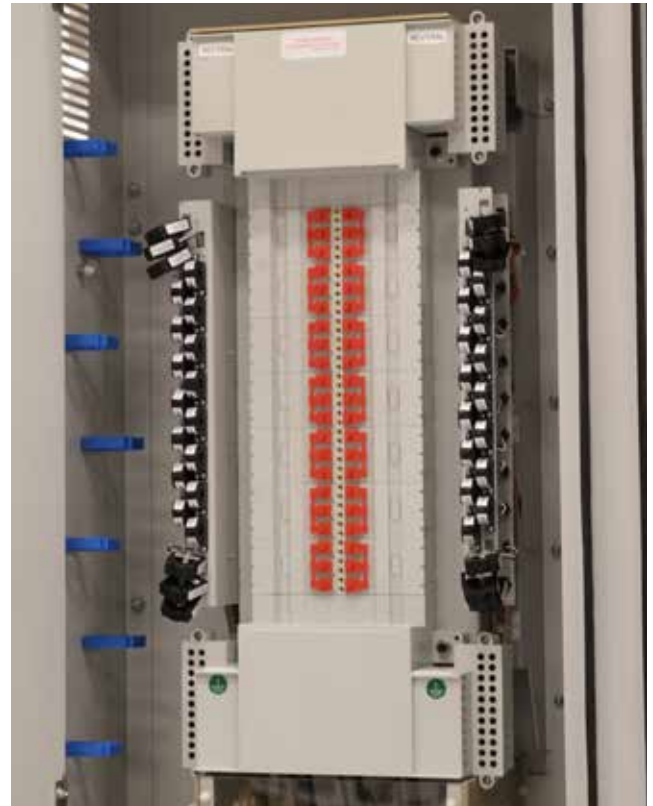
- Two Tiles
- Floor Mounted

Reliability Features

Selective Trip Coordination

LayerZero Series 70 eRPP-SL2 Remote Power Panels are selective trip coordinated.

Selective Trip Coordination ensures that the main breaker will remain unaffected by the branch circuit breakers in the event of a downstream fault.



The 42-Circuit Finger-Safe SafePanel® Panel Board



The Fault Current Opens the Solenoid Magnet, Causing The Contacts To Part



Unequal Pressure on Each Side of The Arc Causes the Plasma Wave To Rotate Away From The Contacts



The Plasma Wave is Driven into 12 Evenly Spaced Dividers



The Plasma is Rapidly Cooled



Transient Voltage Attempts To Re-Strike The Arc, But The Plasma Is Again Pushed Into The Dividers



When Sufficiently Cool, Charged Particles Recombine And The Fault Current Is Stopped Quickly & Safely

Ease of Maintenance

Scan Bolted Connections with Dead-Front Doors Closed

Strategically positioned IR-scan portholes to enable safe thermal scanning of all bolted connections with the deadfront closed, without exposing the operator to power circuit voltage.

The IR window swivels upward and unlocks with key-hole access to reveal a mesh, allowing the operator to point-and-shoot thermal cameras to obtain accurate readings. LayerZero provides documentation for proper thermal scanning procedures.



INSIGHT IR® Porthole on eRPP-SL2

View Status LEDs and Distribution CB Positions With Dead-Front Doors Closed

The Series 70: eRPP-SL2 is equipped with polycarbonate windows located on the outer door.

Circuit breaker positions for the main and branch circuit breakers can be viewed with the dead-front door closed.



Polycarbonate Windows on the LayerZero eRPP-SL2

Silver Plated Terminals

LayerZero utilizes silver plating on all bus joints to be able to provide the highest performance. Silver has high conductivity and low resistance - which makes for a great contact.



Silver-Plated Customer Connections

Machined Hardware

Our bolted connections utilize machined cap screws and engineered disc springs. The result is a flat pressure vs deflection profile to ensure that all bolted connections maintain constant torque through the life of the product.

These technologies have been well tested in disparate environments of wide temperature ranges to help ensure that, once connections have been tightened, they stay that way.



Machined Cap Screws and Engineered Disc Springs Utilized in LayerZero Power Systems Products

Serialized circuit boards

We serialize and track all critical circuit boards and memory cards through our eBOSS portal, which allows customers to reference which components their machines are made from, who tested the components, as well as the ability to view notes generated from testing.

Serialized components offer the ability to drill-down on prospective component failure utilizing predictive modeling techniques, so if part fails, the instance can be cross-referenced with similar parts. This preventative maintenance helps ensure maximum uptime.



All Critical Boards are Serialized and Tracked in a Database

Safety Features

Circuit Breaker Shrouds

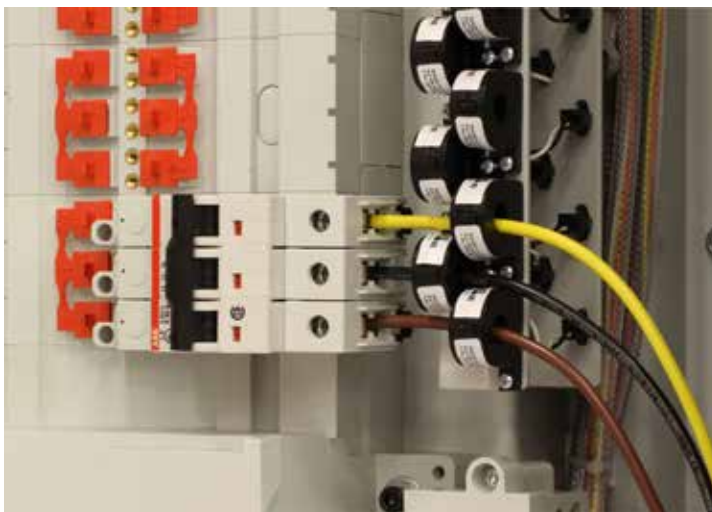
LayerZero Series 70 eRPP-SL2 Remote Power Panel provides optional circuit breaker shrouds, designed to eliminate exposure to live parts.

No Exposed Live Parts

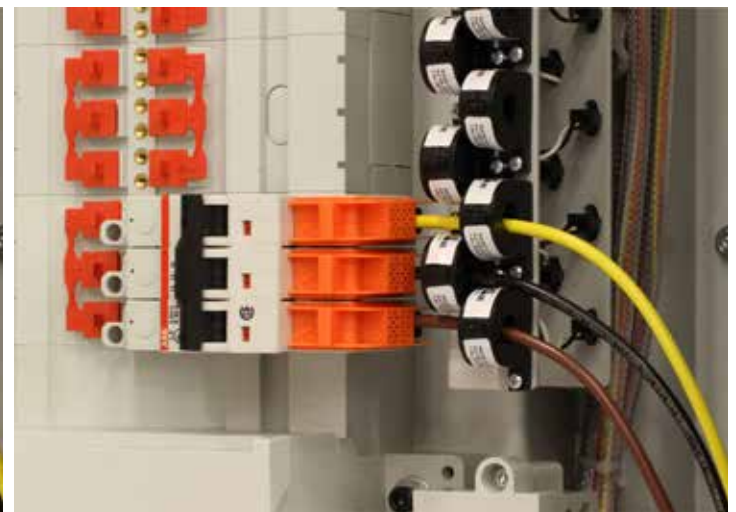
LayerZero's patented Circuit Breaker Shrouds cover exposed wiring, maximizing operator safety.



LayerZero's patented orange Circuit Breaker Shrouds



Wiring Without Shrouds Leaves Wiring Exposed



Circuit Breaker Shrouds Maximize Operator Safety

Safety Features

The LayerZero Finger-Safe SafePanel®

The Series 70 eRPP-SL2 features an IP-20, finger-safe panel board, meaning that the opening will not allow ingress of ½" (12.5mm) diameter probe, for maximum operator safety.

An arc can form as two live conductors are separated – such as the removal of a circuit breaker from a panel board. The SafePanel design ensures that a potential arc would be contained in the connection well so that even if a branch breaker were to be removed, the arc would be contained in the connection well.

Insulated with the components deeply isolated, removal of the breaker is safe and easy.



Isolated, Non-Conducting Brass Screws



The Protective Cover Is Removed



The Breaker Is Inserted Into The Opening



The Breaker Snaps Into The DIN Rail



The Breaker Is Secured With An Isolated, Non Conducting Screw

Power Quality Monitoring



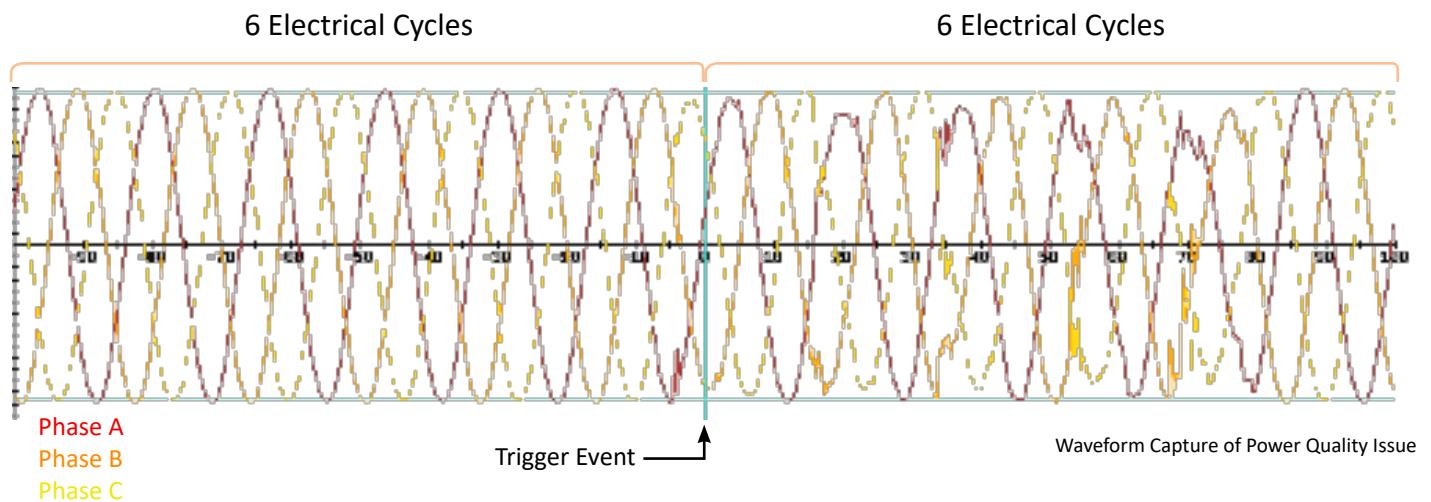
The Series 70 eRPP-SL2 is equipped with LayerZero DPQM (Distribution Power Quality Monitoring), an all encompassing monitoring system with local and remote communications options.

From basic monitoring & alarm reporting, to advanced power quality monitoring functionality, LayerZero DPQM provides a wide-range of options to help you be aware, be vigilant, be proactive in your quest to create a safe, stable and reliable operation.



LayerZero DPQM Provides Answers

LayerZero DPQM provides timestamped pictures of waveforms before and after events, providing information that enables facilities to go back in time to methodically identify and correct the root causes of events. LayerZero actively captures power quality information at the STS, PDU, and RPP - permitting thorough post-event analysis.



Technical Specifications



LayerZero DPQM Parameters		Mains	Subfeeds or Branch Circuits
Voltage Monitor	Volts (L-L) Phase A/B/C (volts RMS)	✓	
	Volts (L-N) Phase A/B/C (volts RMS)	✓	
	Phase Rotation	✓	
Current Monitor	CT Reversed Phase A/B/C/N	✓	✓
	Current Phase A/B/C/N (amperes RMS)	✓	✓
Power Monitor	Frequency (hertz)	✓	
	Real Power (kilowatts)	✓	✓
	Apparent Power (kilovolt-amperes)	✓	✓
	Reactive Power (kilovolt-amperes reactive)	✓	✓
	Power Factor	✓	✓
	Energy (kilowatt-hours)	✓	✓
	Block Demand (kilowatts)	✓	✓
	Block Demand Peak (kilowatts)	✓	✓
	Rolling Demand (kilowatts)	✓	✓
Power Quality	Percent VTHD (percent)	✓	✓
	Waveform Capture	✓	✓
Alarms	Phase - Under Voltage A/B/C (Alarm)	✓	
	Phase - Over Voltage A/B/C (Alarm)	✓	
	Phase - Low Voltage A/B/C (Warning)	✓	
	Phase - High Voltage A/B/C (Warning)	✓	
	Phase - Over Current A/B/C (Alarm)	✓	✓
	Phase - High Current A/B/C (Warning)	✓	✓
	Under Frequency (Alarm)	✓	
	Over Frequency (Alarm)	✓	
	High VTHD (Warning)	✓	
	Over VTHD (Alarm)	✓	
	Phase Rotation (Alarm)	✓	

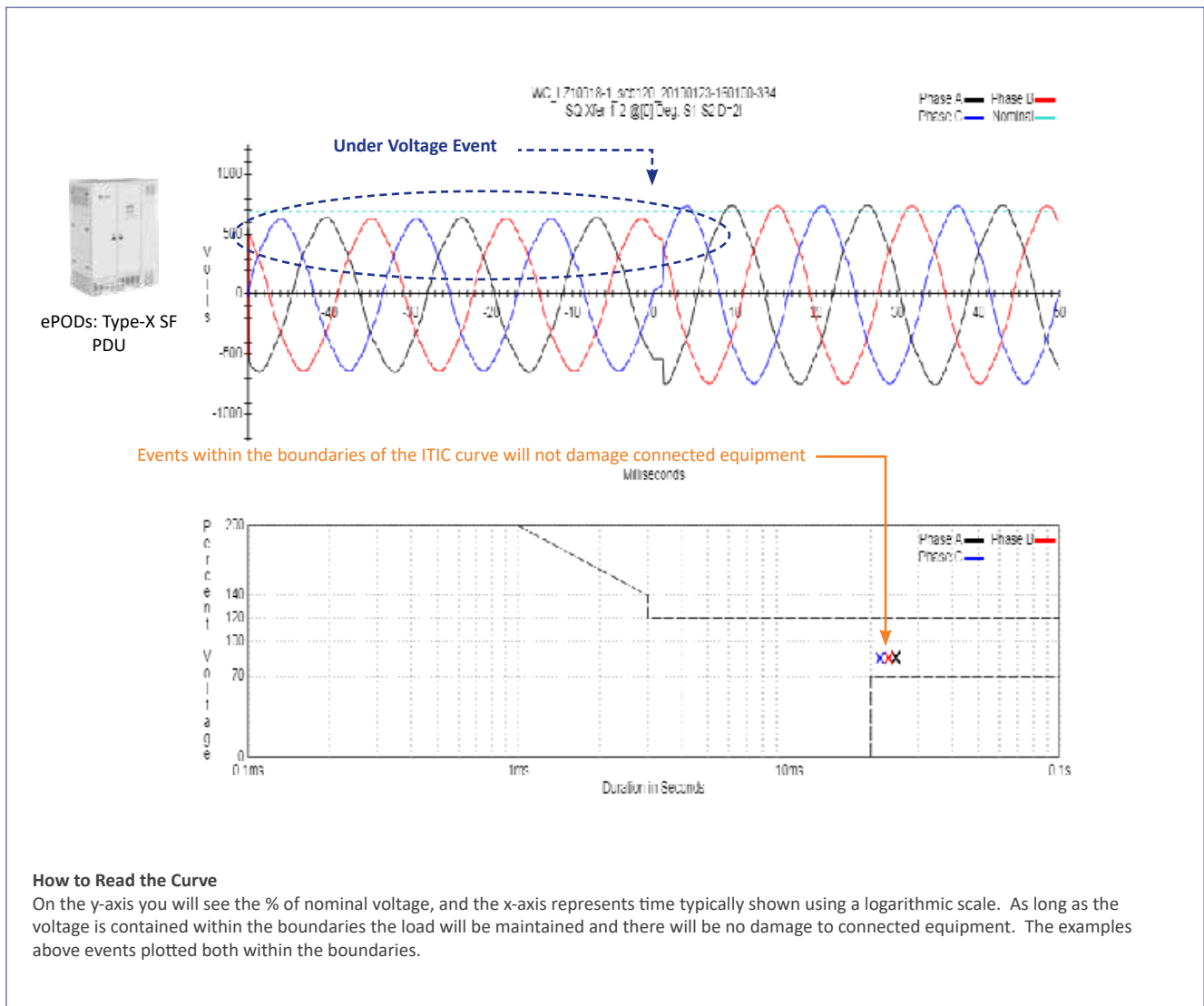
All product specifications are subject to change without notice.

All LayerZero products break down power sources into samples for power quality analysis. This data is remotely accessible by connecting to the units via web browser.

The following “voltage sag” factory test was performed on a LayerZero Series 70 ePODs: Type-X PDU. Each phase is represented by a colored line, plotting the voltage over a period of time.

In the example below, the voltage of all three phases dropped below the user-defined setpoint, which triggered an undervoltage event, an automatic waveform capture, and an ITIC plot of the event.

On LayerZero PDUs and RPPs, waveforms and ITIC plots are generated for every phase, on every circuit, for every event.



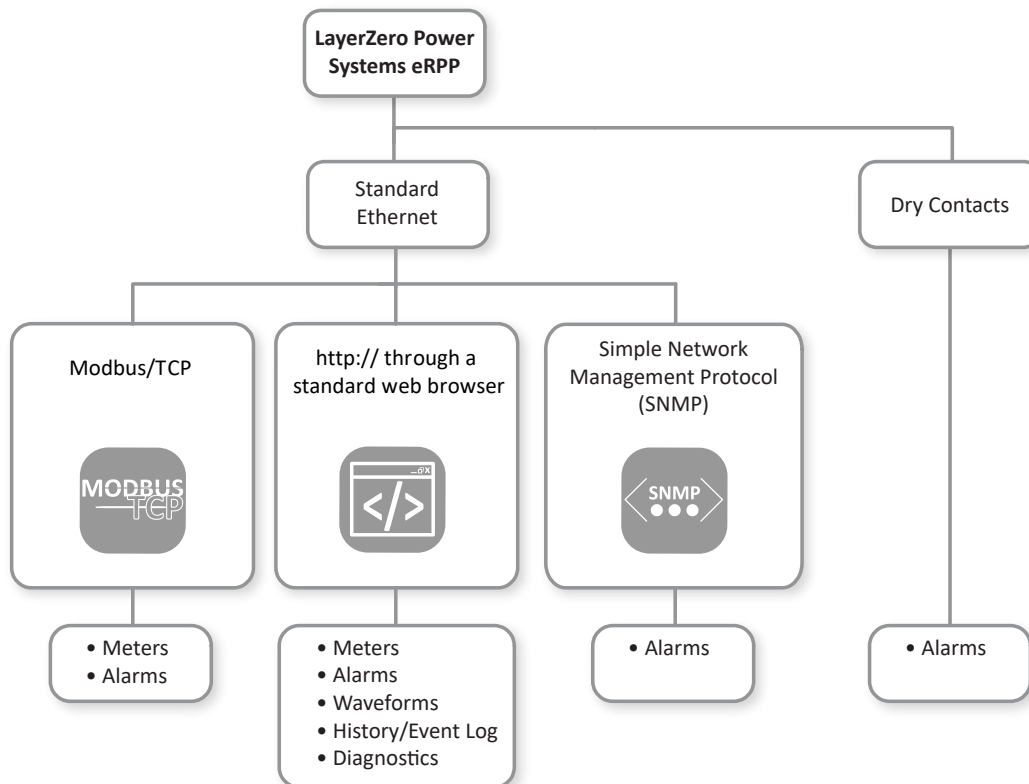
eRPP-SL2 Models with System Withstand Ratings	
120/208 V, 3-phase, 4-wire + Ground	35 kA
220/380 V, 3-Phase, 4-Wire + Ground	
230/400 V, 3-Phase, 4-Wire + Ground	14 kA
240/415 V, 3-Phase, 4-Wire + Ground	
277/480 V, 3-Phase, 4-Wire + Ground	
480 V, 3-Phase, 3-Wire + Ground	

Mechanical Characteristics	
Dimensions	24"W x 93"H x 12"D (610 mm x 2362 mm x 305 mm)
Weight	550 lbs (250 kg)
Enclosure Mounting	Free-Standing, Wall-Mounted
Mounting Clustering	Single-Mount, Double (Back-To-Back), Double (Side-To-Side), Triple (Back-To-Back + Single Side), Quadruple (Back-to-Back + Two Sides)
Frame Construction	Welded Frame
Internal Electrical Connections	Flexible Laminated Bus, Silver-Plated Solid Busbar
Color	Textured Powder Coat White (RAL 7035), Blue (RAL 5017), Black, Custom
Seismic Floor Anchors	Optional
Seismic Floor Stand	Optional
Sectionalization	Engineered Composite Insulation, Dead Front Doors
Circuit Breaker Identification	Labels Viewable Through Polycarbonate Window
Electrical Characteristics	
Input Voltage	120/208 V, 3-phase, 4-wire + Ground; 220/380 V, 3-Phase, 4-Wire + Ground; 230/400 V, 3-Phase, 4-Wire + Ground; 240/415 V, 3-Phase, 4-Wire + Ground; 277/480 V, 3-Phase, 4-Wire + Ground; 480 V, 3-Phase, 3-Wire + Ground
Circuit Breaker Mounting Type	Fixed, Plug-In
Frequency	50 Hz, 60 Hz
Poles	3-pole, 4-pole
Input Feeder Termination	Two-Hole, Compression Nema Hole Pattern; Single Mechanical; Dual Mechanical
Neutral Rating	100%, 200%
Number of Output CBs	84-Circuit
Distribution	SafePanel® Distribution
Power Quality Monitoring	
Power Quality Monitoring Technology	LayerZero DPQM (Distribution Power Quality Monitoring)
Waveform Capture	Local Display, Remote Display via Web Browser

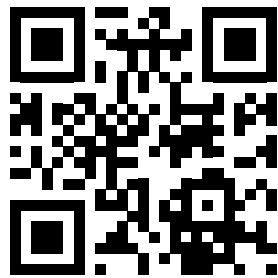
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Technical Specifications

Operational Characteristics	
Cooling	Convection Cooling
Cable Access	Top/Bottom
Service Access	Front and Top Only Access
IR Scan Port Type	INSIGHT IR® Portholes on Input
Display Type	3.2" LCD with Membrane,
Connectivity	
Meters	Local Display, Ethernet, Modbus/TCP, http via Web Browser (Non-Proprietary)
Alarms	Local Display, Ethernet, Modbus/TCP, http via Web Browser (Non-Proprietary)
Summary Alarm	Dry Contacts
Waveforms	Local Display, Ethernet, http via Web Browser (Non-Proprietary)
History/Event Log	Local Display, Ethernet, http via Web Browser (Non-Proprietary)
Diagnostics	Local Display, Ethernet, http via Web Browser (Non-Proprietary)
Time Synchronization	Network Time Protocol (NTP)
Standards Conformance	
UL	ETL and cETL listed to UL 60950, UL 67
CSA	CSA 22.2



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Learn more at www.LayerZero.com



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