Series 70 ePanel-HD1

High-Density Wall-Mounted Remote Power Panel

Product Brochure

Be Ready For *Ultra* High-Density Requirements With
ePanel-HD1 High-Density RPP

Standard features include: Selective Trip Coordination, Bluetooth Connectivity, Disturbance Analyzing

Waveform Capture, Modbus/TCP, SNMP, HTTP protocols supported.

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LayerZero's ePanel-HD1 Product Features

Reliability

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

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

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

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

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

☑ **High Density Distribution:** Supports High-Density and Ultra-High Density Distribution

Safety

☑ **InSight™ IR Portholes:** Bolted Connections Can Be IR Scanned With the Dead-Front Doors Closed

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

☑ **Polycarbonate Windows:** Allows Circuit Breaker Positions Viewed With The Dead-Front Door Closed

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

☑ **Guided Wireways:** Helps Keep Wires Organized

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

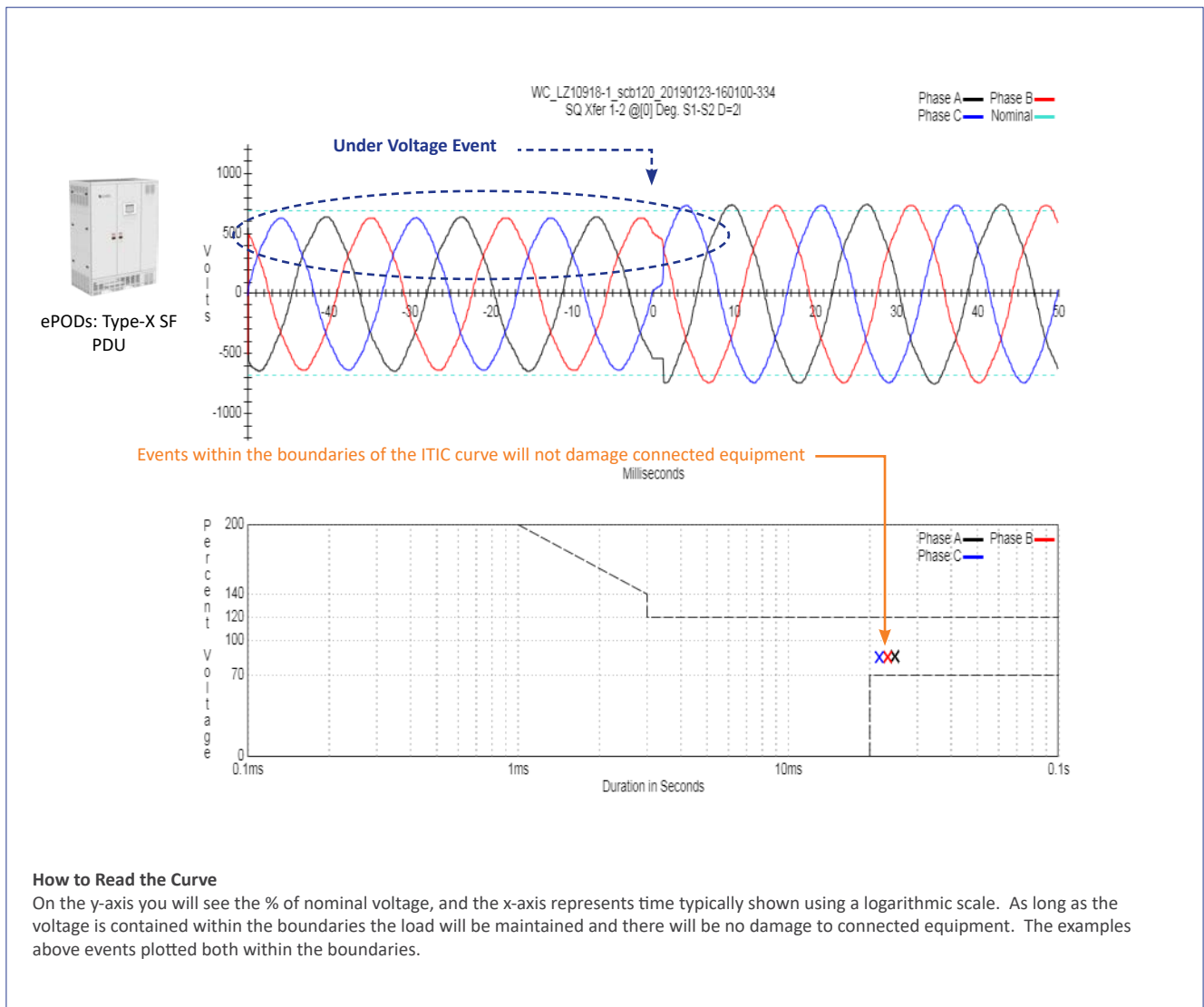☑ **Bluetooth Connectivity:** Wirelessly Set Up Panels At The Point-Of-Impact

⊙zen DPQM

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

☑ **Optional Local Touch-Screen Interface:** Password-Protected Color Touch-Screen GUI For Local ePODs Setup/Operation

☑ **Black-Box Forensics:** ePanel-HD1 Captures and Records Events To Provide Vital Information In Root-Cause Analysis

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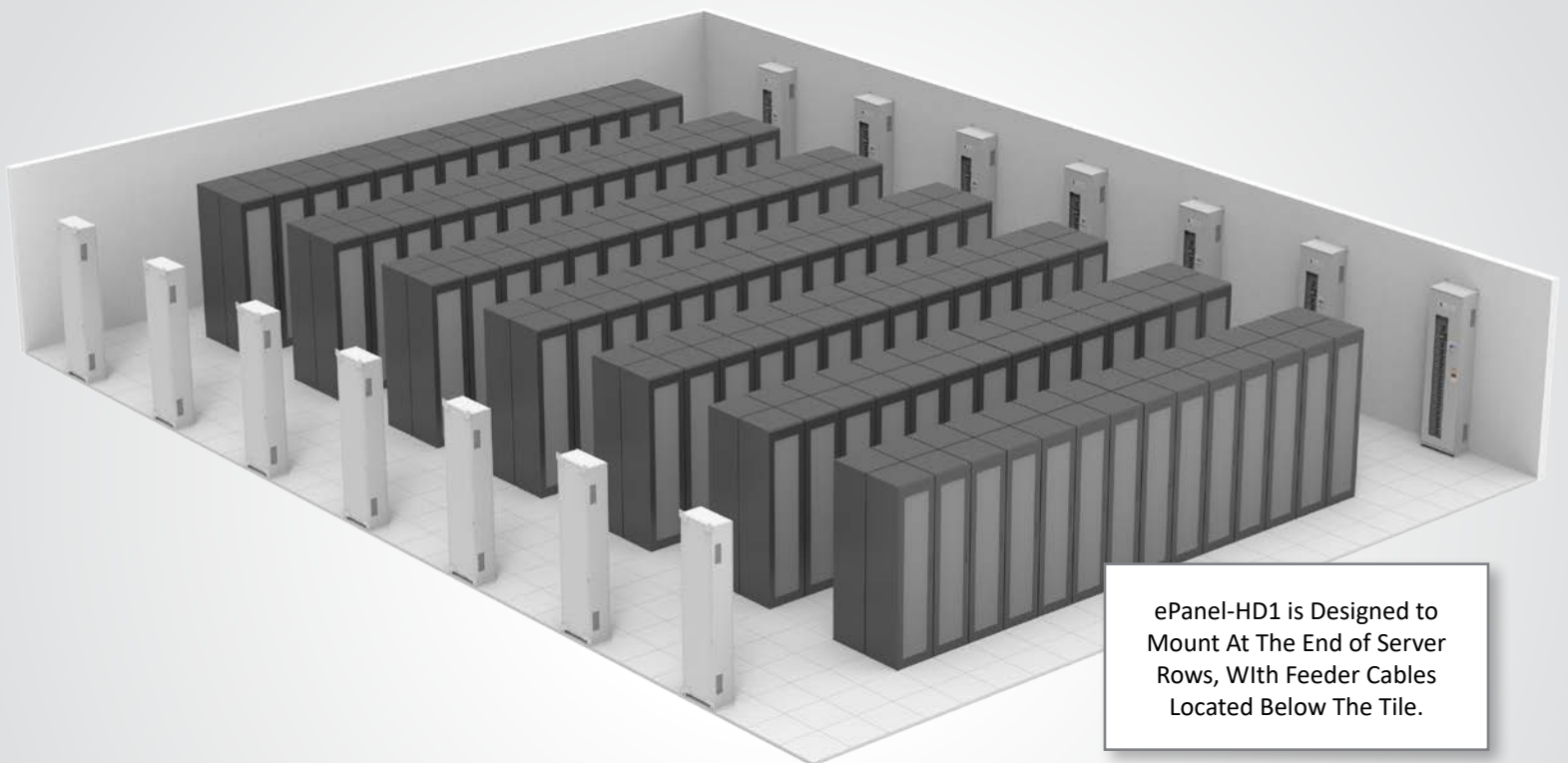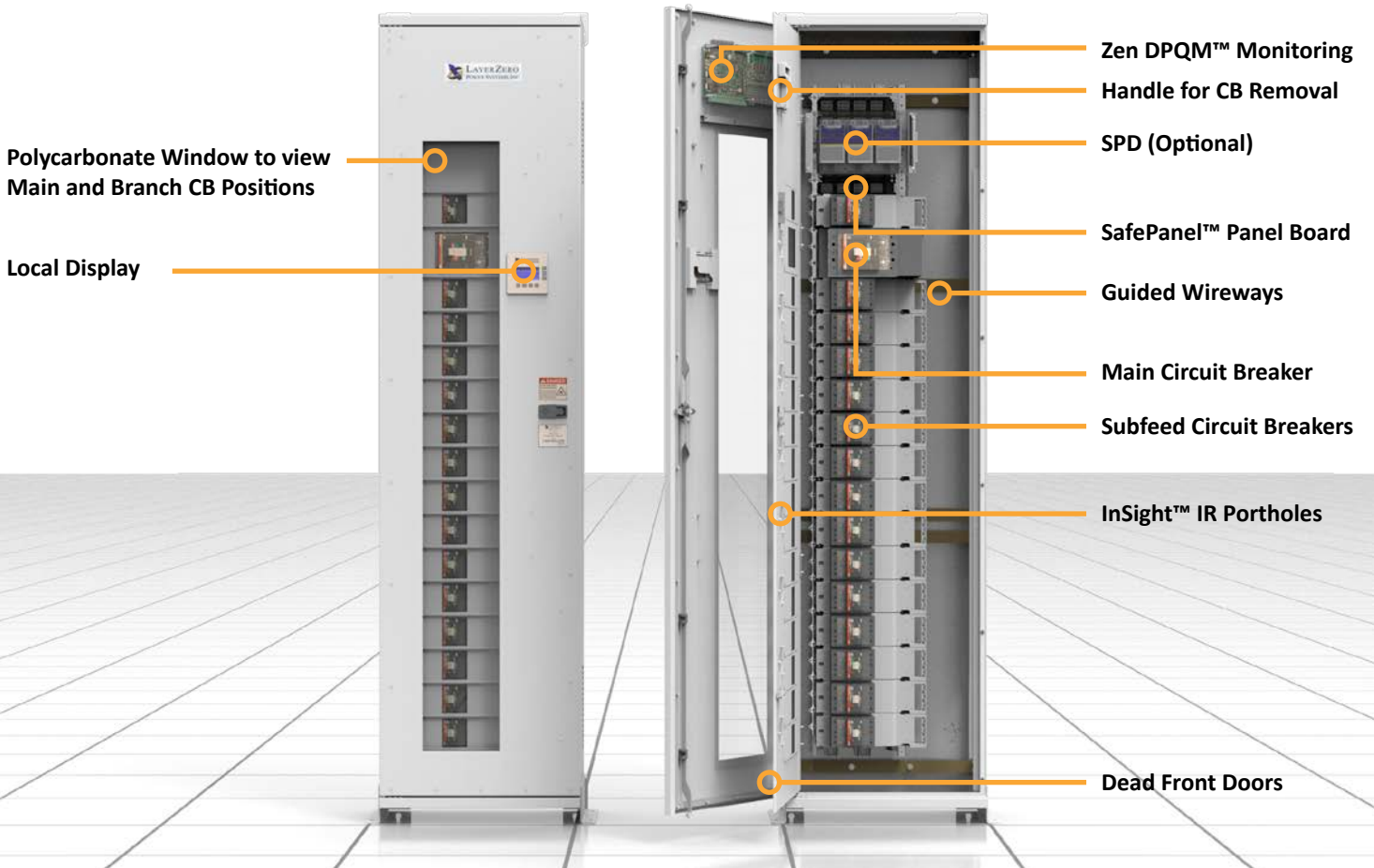
The following "voltage sag" factory test was performed on a LayerZero Series 70 ePODs: Type-X PDU. Each phase is represented by a colored line, plotting the voltage over a period of time.

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.

How to Read the Curve
On the y-axis you will see the % of nominal voltage, and the x-axis represents time typically shown using a logarithmic scale. As long as the voltage is contained within the boundaries the load will be maintained and there will be no damage to connected equipment. The examples above events plotted both within the boundaries.

Equipment Layout

- Zen DPQM™ Monitoring
- Handle for CB Removal
- SPD (Optional)
- SafePanel™ Panel Board
- Guided Wireways
- Main Circuit Breaker
- Subfeed Circuit Breakers
- InSight™ IR Portholes
- Dead Front Doors
- Polycarbonate Window to view Main and Branch CB Positions
- Local Display

ePanel-HD1 is Designed to Mount At The End of Server Rows, WIth Feeder Cables Located Below The Tile.

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Floor or Wall Mounted Distribution

ePanel-HD1 has the option to be floor mounted or mounted on a wall.

Dead-Front Hinged Doors Maximize Operator Safety

The Series 70 ePanel-HD1 utilizes dead-front hinged doors.

Dead-Front hinged doors allows for operation of circuit breakers safely.

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View CB Positions With Dead-Front Doors Closed

Our Series 70 product line was inspired by NFPA-70E, to help data centers drastically reduce the risks of their energy distribution systems.

SafePanel circuit breaker positions can be viewed with the dead-front door closed.

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.
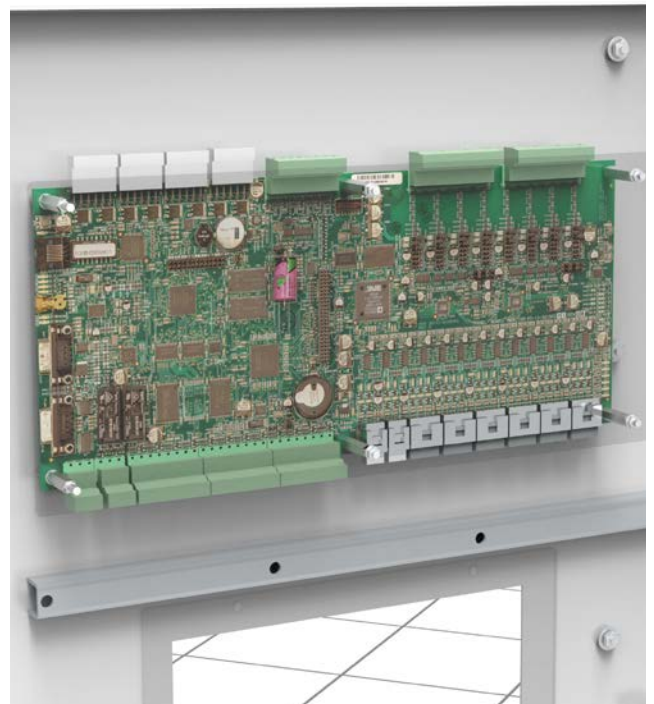
The LayerZero SafePanel™

The Series 70 ePanel-HD1 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.

ePanel-HD1 1200 A Circuit Breaker Installation Process

The Breaker Is Inserted Into The SafePanel

The Handle Is Unlocked

Screws Help Secure The Breaker

For Maximum Safety, The SafePanel Has Recessed Bus Work and Finger Safe Lattice.

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High Density Distribution

LayerZero Series 70 ePanel-HD1 is a High Density Remote Power Panel, designed for critical power applications such as data centers and mission-critical environments.

In addition, ePanel-HD1 is ready for *ultra* high-density applications.

Guided Wireways

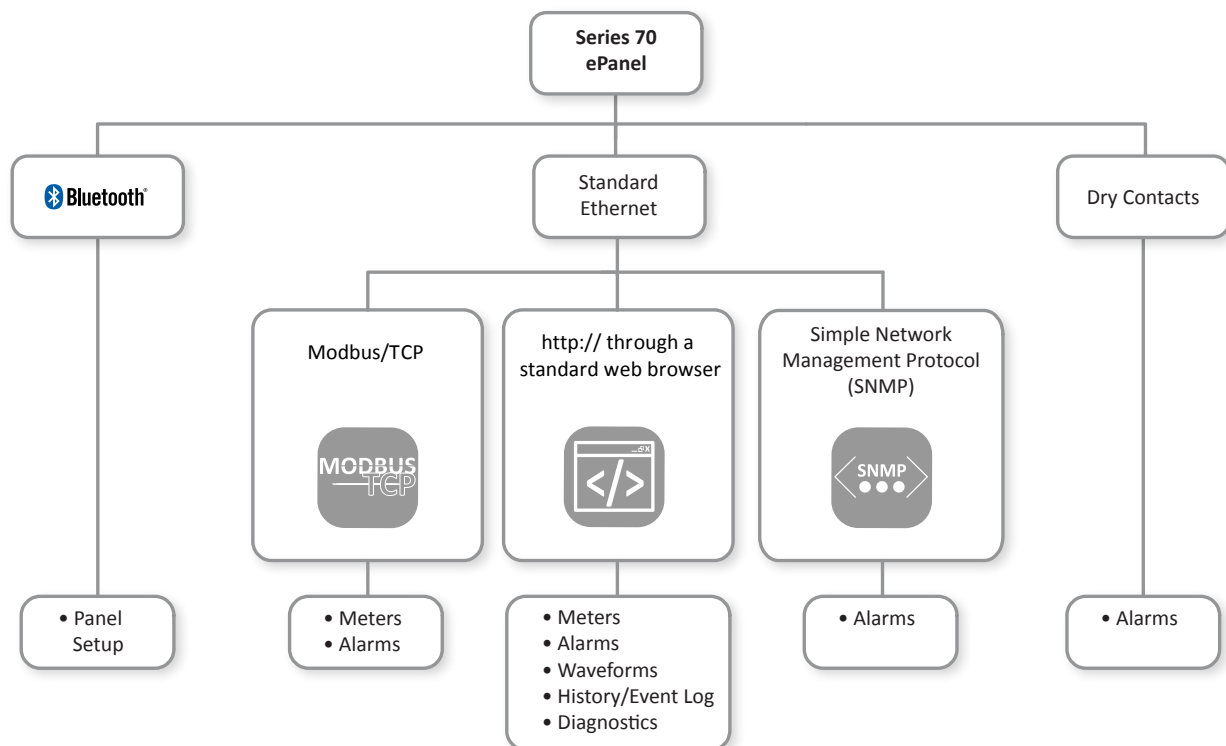Help keep cables and wiring organized with our guided wireways.

                   LAYERZERO POWER SYSTEMS, INC.
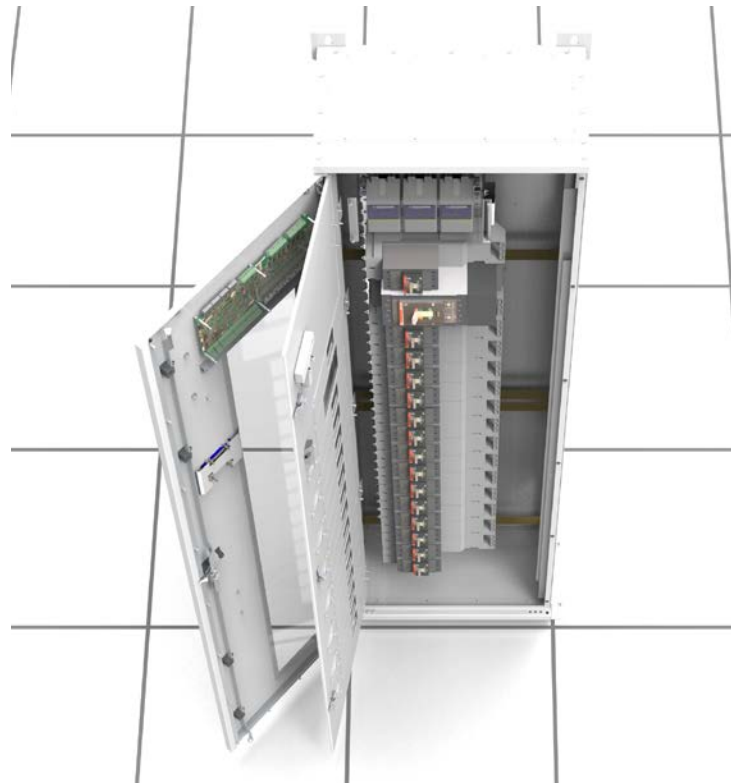
Connectivity Options

Bluetooth Keeps Panel Board Names Up-To-Date

Coordinate efforts to keep panel board naming conventions accurate and up-to-date with Bluetooth connectivity. In critical facilities, Facilities typically install the physical circuit breakers, while IT workers manage naming of panel designations.

With Bluetooth connectivity, the naming of circuit breakers can be taken care of at the point-of-impact, bringing together the efforts of facilities and IT for more accurate panel names.

Series 70 ePanel

Bluetooth

Standard Ethernet

Dry Contacts

Modbus/TCP

http:// through a standard web browser

Simple Network Management Protocol (SNMP)

MODBUS TCP

SNMP

• Panel Setup

• Meters
• Alarms

• Meters
• Alarms
• Waveforms
• History/Event Log
• Diagnostics

• Alarms

• Alarms
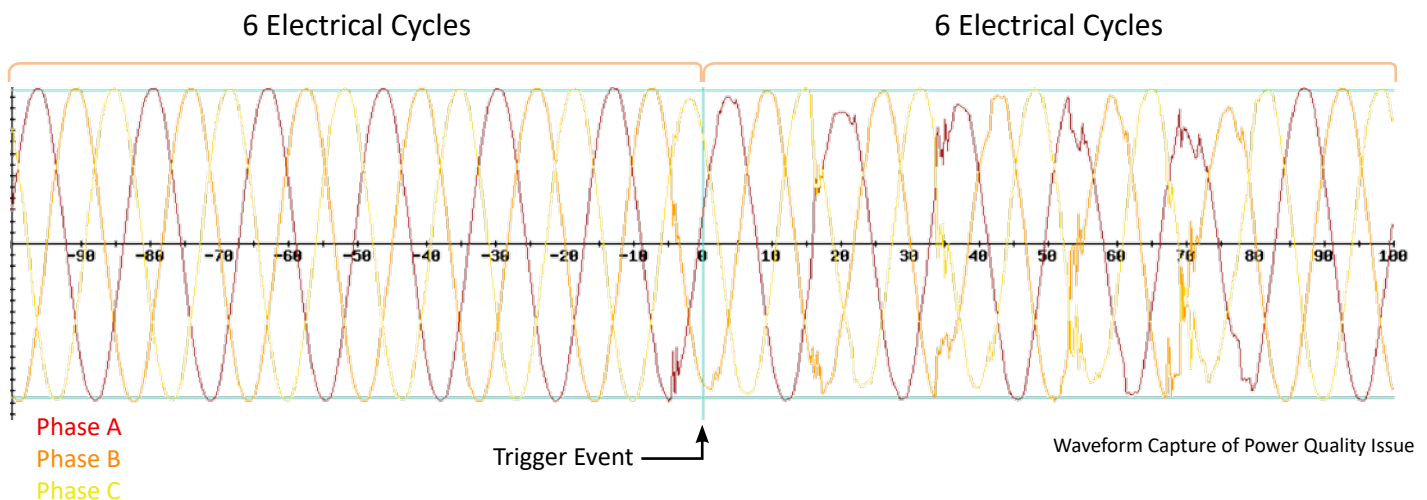
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⟳zen DPQM

The Series 70 ePanel-HD1 is equipped with Zen 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, Zen 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.

Zen DPQM Provides Answers

Zen 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. Zen actively captures power quality information at the STS, PDU, and RPP - permitting thorough post-event analysis.
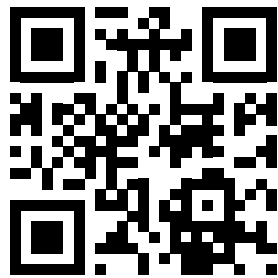

6 Electrical Cycles   6 Electrical Cycles

Phase A
Phase B
Phase C

Trigger Event

Waveform Capture of Power Quality Issue

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⟳zen DPQM

Zen 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)	✔	✔
	Rolling Demand Peak (kilowatts)	✔	✔
Power Quality	Percent VTHD1 (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 VTHD1 (Warning)	✔	
	Over VTHD1 (Alarm)	✔	
	Phase Rotation (Alarm)	✔	

All product specifications are subject to change without notice.

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Technical Specifications

ePanel-HD1 Models with System Withstand Ratings	
	Fault Rating at Rated Voltage - Electronic Trip, Molded Case Switch Main Circuit Breaker
120/208 V, 3-Phase, 4-Wire + Ground	65kAIC
220/380 V, 3-Phase, 4-Wire + Ground	25kAIC or 65kAIC
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	

Mechanical Characteristics	
Dimensions:	24"W x 95"H x 12"D (609.6 mm W x 2286mm H x 304.8 mm D)
Weight	450 lbs (204 kg)
Enclosure Mounting	Wall-Mounted or Free Standing
Color	Textured Powder Coat White (RAL 7035), Blue (RAL 5017), Black, Custom
Sectionalization	Hinged Dead Front Doors with IR Ports
Circuit Breaker Identification	Labels Viewable Through Polycarbonate Window

Electrical Characteristics	
Panel Board Withstand	65 kA
Frequency	50 Hz, 60 Hz
Poles	3-pole
Phases	3-Phase, 3-Wire (Input); 3-Phase, 4-Wire + Ground (Output)
Neutral Rating	100%, 200%
Input Feeder Termination	Main Circuit Breaker Mechanical Lugs
Distribution	SafePanel™ Distribution
Main Circuit Breaker Type	400 AF (100% Rating Available) Electronic Trip, or Molded Case Switch
Branch Circuit Breakers Type	15 A-100 A Thermal Magnetic
Selective Trip Coordination	Guaranteed Selective Trip Coordination up to 25 kAIC

Power Quality Monitoring	
Power Quality Monitoring Technology	Zen DPQM™ (Distribution Power Quality Monitoring)
Waveform Capture	Local Display, Remote Display via Web Browser; Includes Disturbance Analyzer

Operational Characteristics	
Cooling	Convection Cooling
Cable Access	Top/Bottom
Service Access	Front Only Access
IR Scan Port Type	InSight™ IR Portholes
Display Type	3.2" LCD with Membrane, 10.5" Color Touch Screen GUI (Optional)

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 listed to UL 60950
CSA	cETL listed to Std C22.2 No. 107.1

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LayerZero Power Systems, Inc.
1500 Danner Drive
Aurora, OH 44202 U.S.A.

Learn more at www.LayerZero.com