



LAYERZERO
POWER SYSTEMS, INC.

The Foundation Layer

Series 70 eRDP: SafeArm™

Remote Distribution Panel → Subfeed Distribution

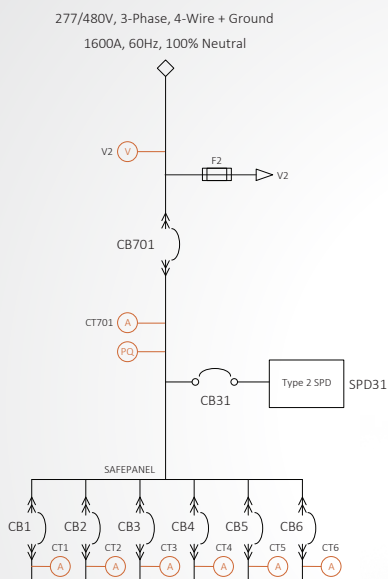


Product Brochure

The LayerZero eRDP: SafeArm™ Maximizes Operator Safety

eRDP: SafeArm™ Is Inspired by NFPA-70E

The Series 70 eRDP: SafeArm™ is a finger-safe switchboard rated: 1600A, 65kAIC. for critical industries. It features an NFPA 70E friendly design, sectionalized layout, and the IP-20 rated Finger-Safe SafePanel, to help protect operators and ensure safe operation. With an emphasis on reliability, safety, power quality monitoring, and connectivity, the Series 70 eRDP: SafeArm™ provides highreliability power distribution. The Series 70 eRDP: SafeArm™ is designed to be easy to work with, to minimize risk during installation, ideal for growing or constantly changing environments.



One Line Diagram



LayerZero's eRDP SafeArm™ 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
- ✓ **Screw Thread Inserts:** Prevents Screws From Loosening Under Vibration For Long-Term Reliability
- ✓ **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
- ✓ **Transformer Vibration Isolation:** Vibro-Elastic Pads to Absorb Vibrations from the Transformer

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 To Be 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

zenDPQM

- ✓ **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:** eRDP Captures and Records Events To Provide Vital Information In Root-Cause Analysis

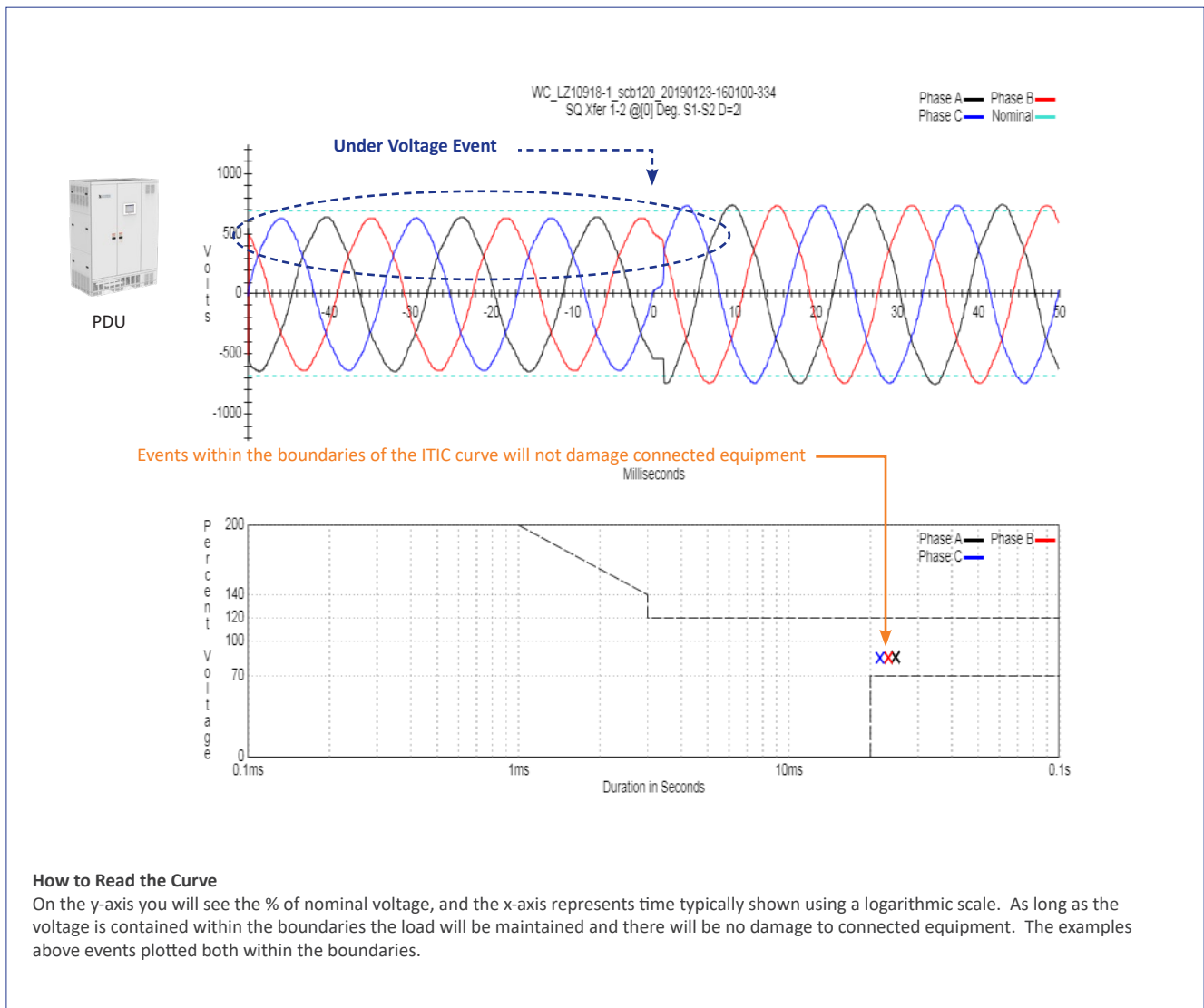
Series 70 eRDP: SafeArm

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.

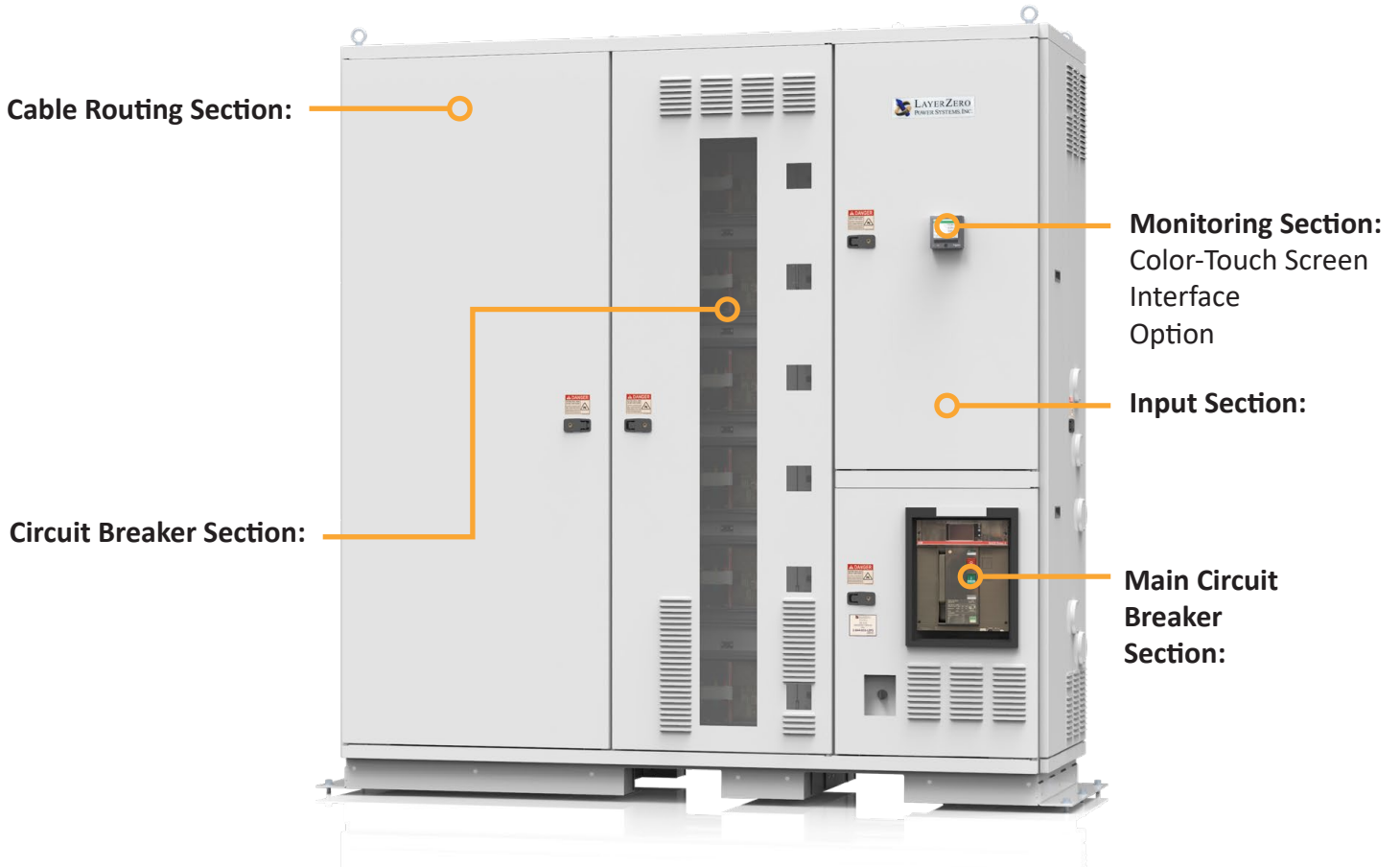
The following “voltage sag” factory test was performed on a LayerZero PDU. Each phase is represented by a colored line, plotting the voltage over a period of time.

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.



Equipment Layout



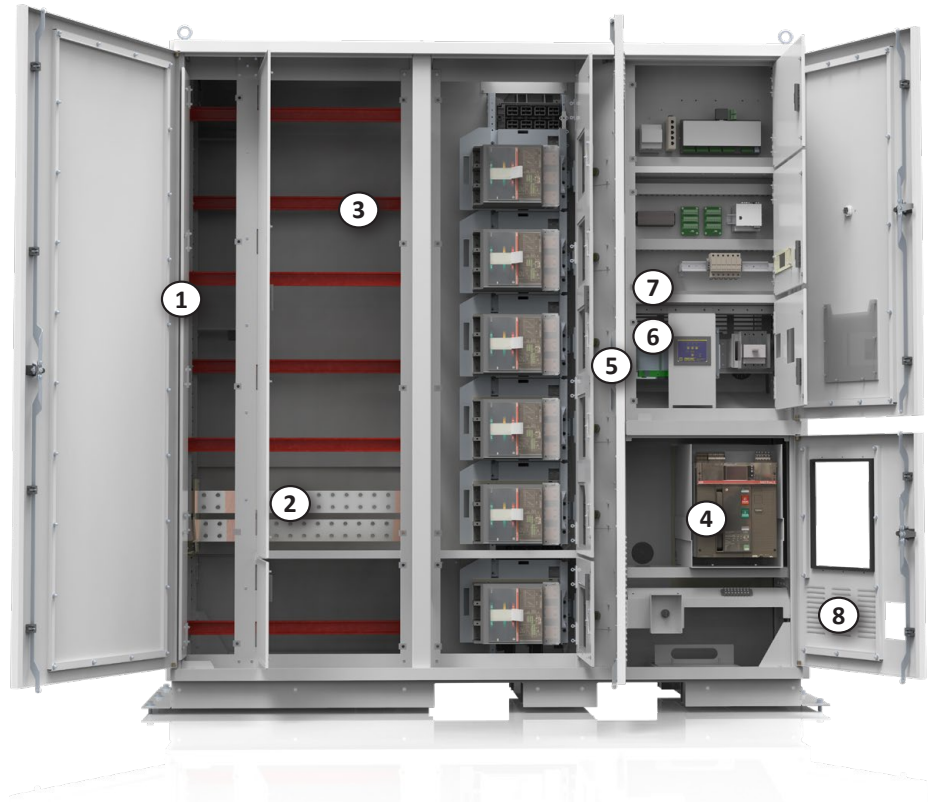
1. The circuit breaker is installed
2. Cables are routed through the inner left-side panels



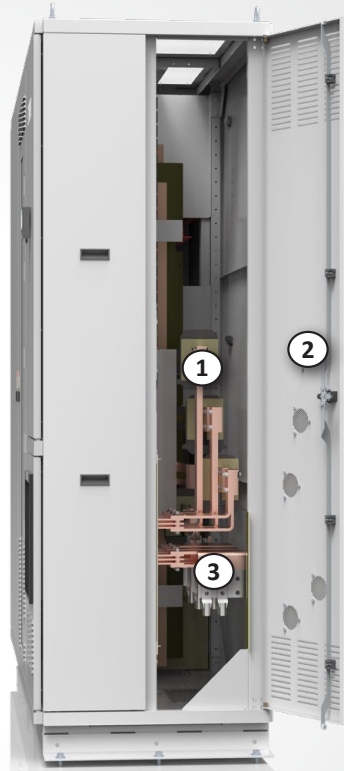
Series 70 eRDP: SafeArm

Equipment Construction Detail

1. Hinged Dead Front Doors
2. Silver Plated Terminals
3. Wire Routing
4. Main Circuit Breaker
5. InSight™ IR Portholes
6. Zen DPQM Controls
7. Bluetooth Connectivity
8. Louvered Convection Cooled Intake



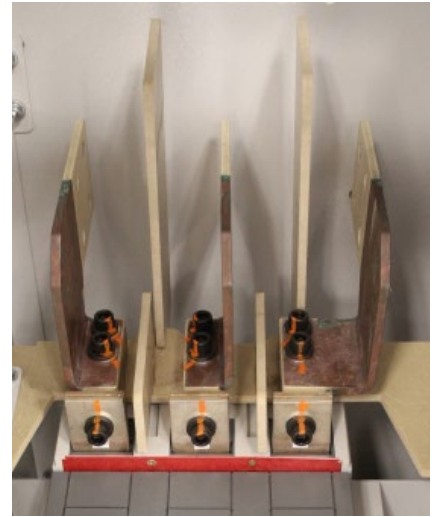
1. Dual Compression-Style Lug
2. InSight™ IR Portholes
3. Silver-Plated Terminals



Reliability Features

Silver Plated Terminals

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



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.



View CB Positions With Dead-Front Doors Closed

The Series 70: SafeArm™ is equipped with polycarbonate windows located on the outer door of the subfeed circuit breaker section.

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



Scan Bolted Connections with Dead-Front Doors Closed

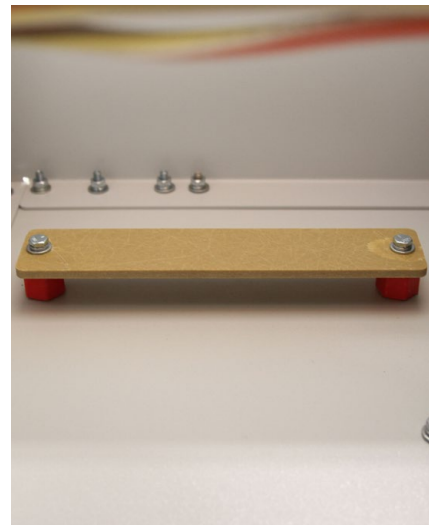
Strategically positioned IR-scan portholes to enable safe thermal scanning of all bolted connections with the deadfront closed, without exposing the operator to power circuit voltage.

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.



Cable Lashing Supports

Help keep cables and wiring organized with our cable lashing supports.



Sectionalization Maximizes Operator Safety

Operators are well-protected from exposed connections. Normal operator sections (breakers/switches) are physically separated from the power electronics and control electronics sections, so that maintenance on a section can be safely performed. If maintenance is required on a particular section, power can be bypassed to another section to allow for safe repairs to be made.

After installation, there is no need to open the eRDP left cabinet.

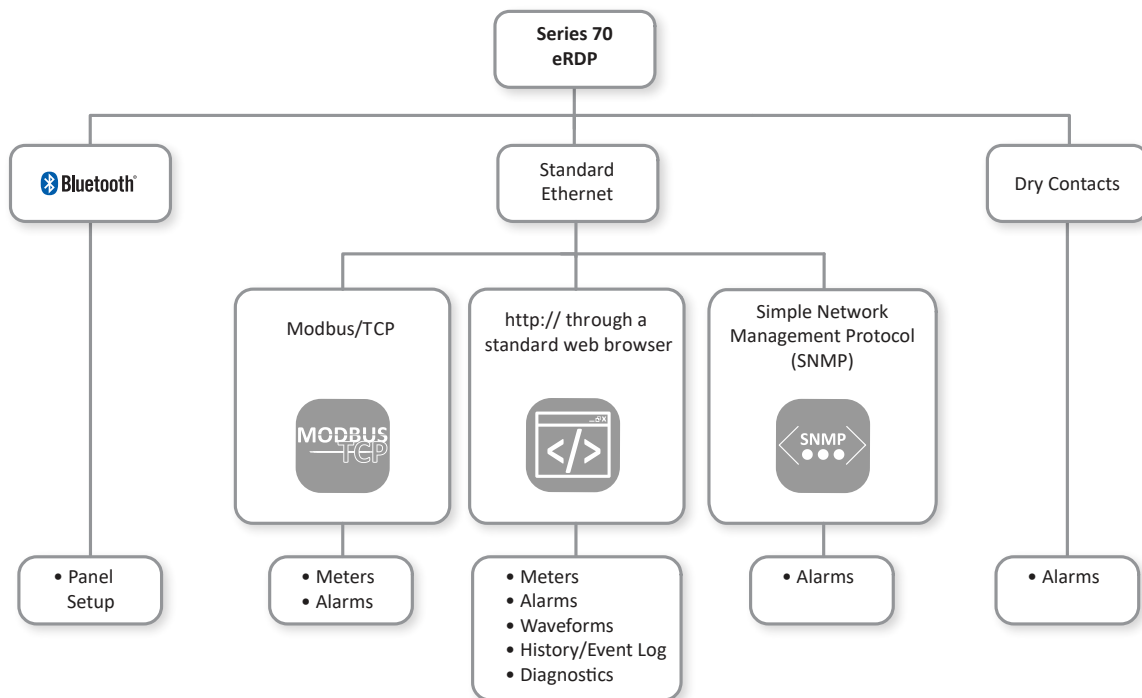


The LayerZero SafePanel™

The Series 70 SafeArm™ 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.

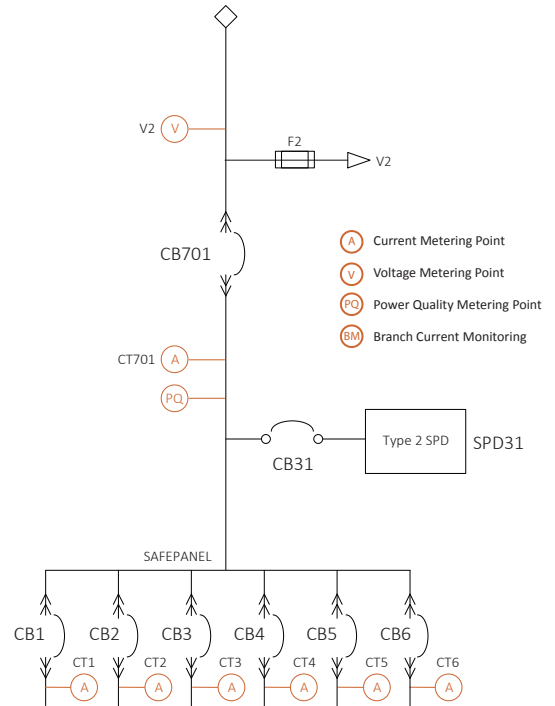


zen DPQM

The Series 70 SafeArm 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.

277/480V, 3-Phase, 4-Wire + Ground
1600A, 60Hz, 100% Neutral





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 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.

Series 70 eRDP: SafeArm

Technical Specifications

Mechanical Characteristics	
Dimensions	90.2" H x 86.9" W x 29.7" D (5101 mm H x 2206 mm W x 755 mm D)
Heat Dissipation	Please Contact LayerZero Engineering.
Weight	2,500 lbs (1134kg)- Varies on configuration, Please Contact LayerZero Engineering
Frame	Construction Welded Frame
Color	Textured Powder Coat White (RAL 7035), Blue (RAL 5017), Black, Custom
Seismic Floor Anchors	Optional
Seismic Floor Stand	Optional
Sectionalization	Dead Front Doors; Main CB(s); Monitoring; Transformer

Electrical Characteristics	
Input Voltages	208V, 3-phase, 3-wire + Ground 120/208V, 3-Phase, 4-Wire + Ground 220/380V, 3-Phase, 4-Wire + Ground 230/400V, 3-Phase, 4-Wire + Ground 240/415V, 3-Phase, 4-Wire + Ground 277/480V, 3-Phase, 4-Wire + Ground 480V, 3-Phase, 3-Wire + Ground 575V, 3-Phase, 3-Wire + Ground 600V, 3-Phase, 3-Wire + Ground
Frequency	60 Hz
Current Rating	1600 A
Short Circuit Rating	65kAIC
Distribution	SafePanel™ Distribution

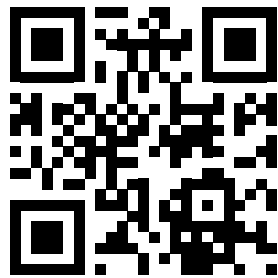
Power Quality Monitoring	
Metering Accuracy	Metering is 1% Revenue Grade per IEEE C12.1
Power Quality Monitoring Technology	Zen DPQM™ (Distribution Power Quality Monitoring)
Waveform Capture	Local Display, Remote Display via Web Browser

Operational Characteristics	
Cooling	Convection Cooling
Cable Access	Top/Bottom
Service Access	Front Only Access
IR Scan Port Type	InSight™ IR Portholes
Embedded Thermography	INSIGHT IR®
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 891

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Learn more at www.LayerZero.com



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

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