

LayerZero® DPQM Provides Advanced Power Quality Monitoring Capabilities

LayerZero DPQM (Power Quality Monitoring) is an all encompassing revenue grade power 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 Maximizes Infrastructure Awareness

LayerZero DPQM continuously captures critical voltage and current data and makes this information readily accessible in the form of revenue grade metering, waveforms, warnings, and alarms. With LayerZero DPQM, you see and gain an understanding as to what quality power looks like, helping you identify potential issues before they disrupt critical operations. In addition, LayerZero DPQM permits users with the capability to go back in time to retrace the exact sequence of historical events. No other tool in the mission-critical industry empowers users with this robust capability.



An Optional 10.4" Color Touch Screen Permits Local Viewing Capabilities



An LCD Membrane Panel is Standard, Color Touch Screen Optional.

LayerZero DPQM Provides Answers

LayerZero DPQM provides timestamped pictures of waveforms before and after events, providing information that enables facilities to methodically identify and correct the root causes of power quality events. As electrons flowing through conductors have no memory, without a mechanism for capturing power quality data in real-time, this information is all too often lost.

Waveform captures of voltage and current for every pole of every circuit breaker are stored immediately before and after an event. Critical information is stored in battery backed non-volatile memory. The data is preserved in the event of a power loss.

LayerZero DPQM Monitors Every Pole of Every Breaker

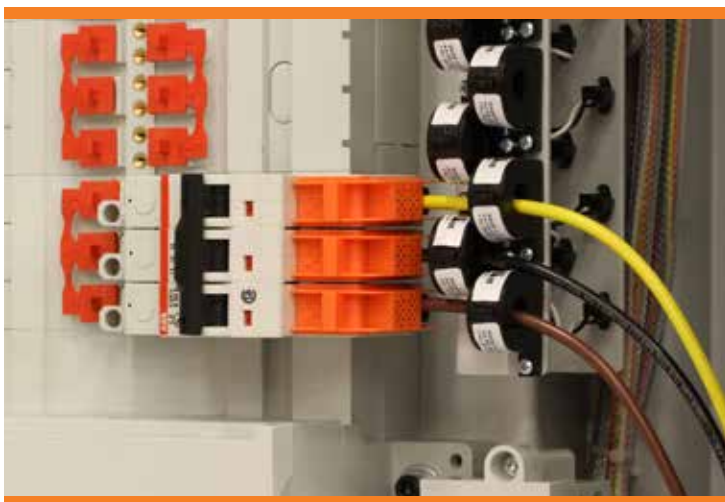
LayerZero’s DPQM System is based on a Panel Board Monitor (PBM) with modular expansion boards. Branch circuit monitoring is available from one to six 42-circuit panel boards. Sub-feed circuit monitor is available for up to (14) 3-pole sub-feed circuit breakers, 100AF - 800AF.

Features include Ethernet connectivity, a display port, primary alarm dry contacts, up to 4 control power inputs for redundancy, and battery-backed non-volatile data storage memory.

High Accuracy Revenue Grade Power Metering

LayerZero DPQM provides revenue grade voltage and current measurements for usage in billing and monitoring applications. Information generated from LayerZero DPQM is accurate and accountable, suitable for monitoring the actual usage cost of individual tenants.

LayerZero DPQM is ideal for colocation customers who require accurate revenue grade metering of individual branch circuits for sub-billing applications.



Wiring Installed Through CTs on 42-Circuit SafePanel™

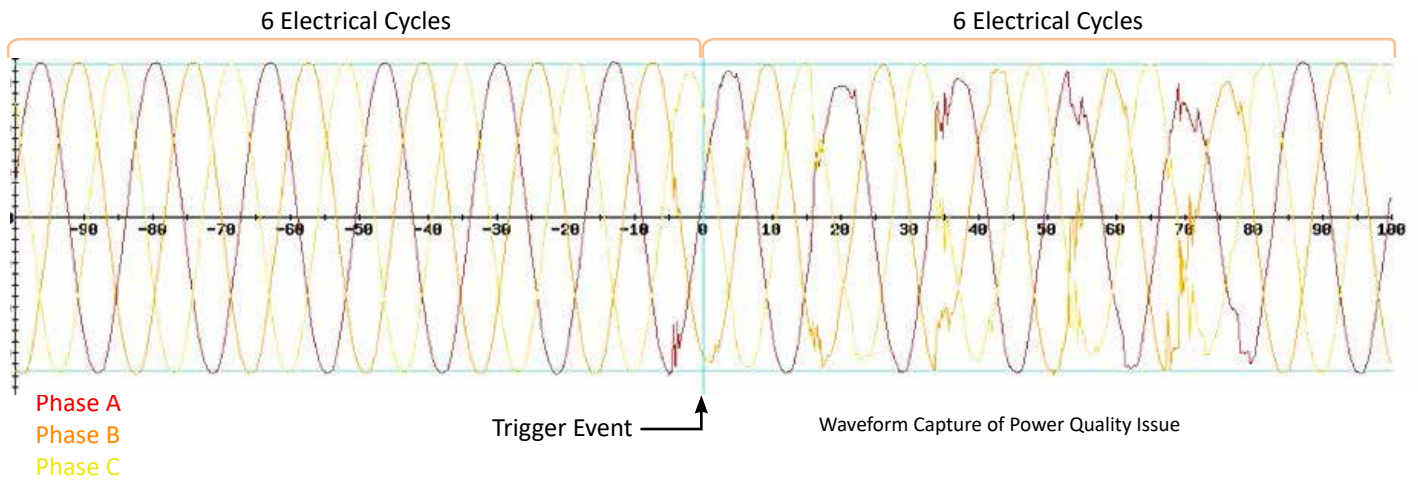
LayerZero DPQM Technical Specifications		
Revenue Grade Voltage Monitor	Mains	Subfeed or Branch Circuits
Volts (L-L) Phase A/B/C (volts RMS)	✓	
Volts (L-N) Phase A/B/C (volts RMS)	✓	
Phase Rotation	✓	
Revenue Grade Current Monitor		
CT Reversed Phase A/B/C/N	✓	✓
Current Phase A/B/C/N (amperes RMS)	✓	✓
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.

* N Applies to 4-Wire Power Systems

Waveform Capture for Root Cause Analysis of Past Events

LayerZero DPQM captures waveforms of voltage and current of all phases six cycles before and after events. Events include bus voltage anomalies, instantaneous bus overcurrent, and single sub-feed circuit overcurrent.



LayerZero DPQM Enables Auditing Even If Power Is Lost

LayerZero's PBM Monitor provides a waveform capture (WFC) before and after an event.

A battery located on the printed circuit board retains the data in the RAM if power to the PCB is lost.

If an incident occurs, PBM Monitor captures all the data you need to determine the root cause:

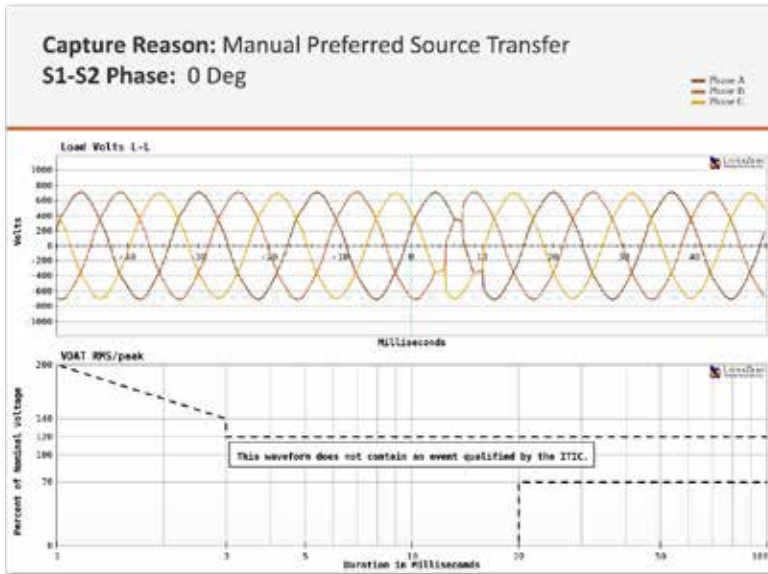
- LayerZero DPQM synchronizes its clock with an external reference via the network
- A WFC of voltage & current is captured before, during, and after the event
- WFC at PDU inputs & outputs, at RPP inputs, and at each branch CB output
- Waveforms can be analyzed to determine the root cause of events



LayerZero DPQM Monitors Every Branch CB

Built-In VDAT Platting Capabilities

LayerZero's VDAT (Voltage Disturbance Analyzer Tool) gives you a binary answer to whether connected equipment was affected by power quality events or not.



LayerZero DPQM Data Can Be Accessed With a Standard Web Browser

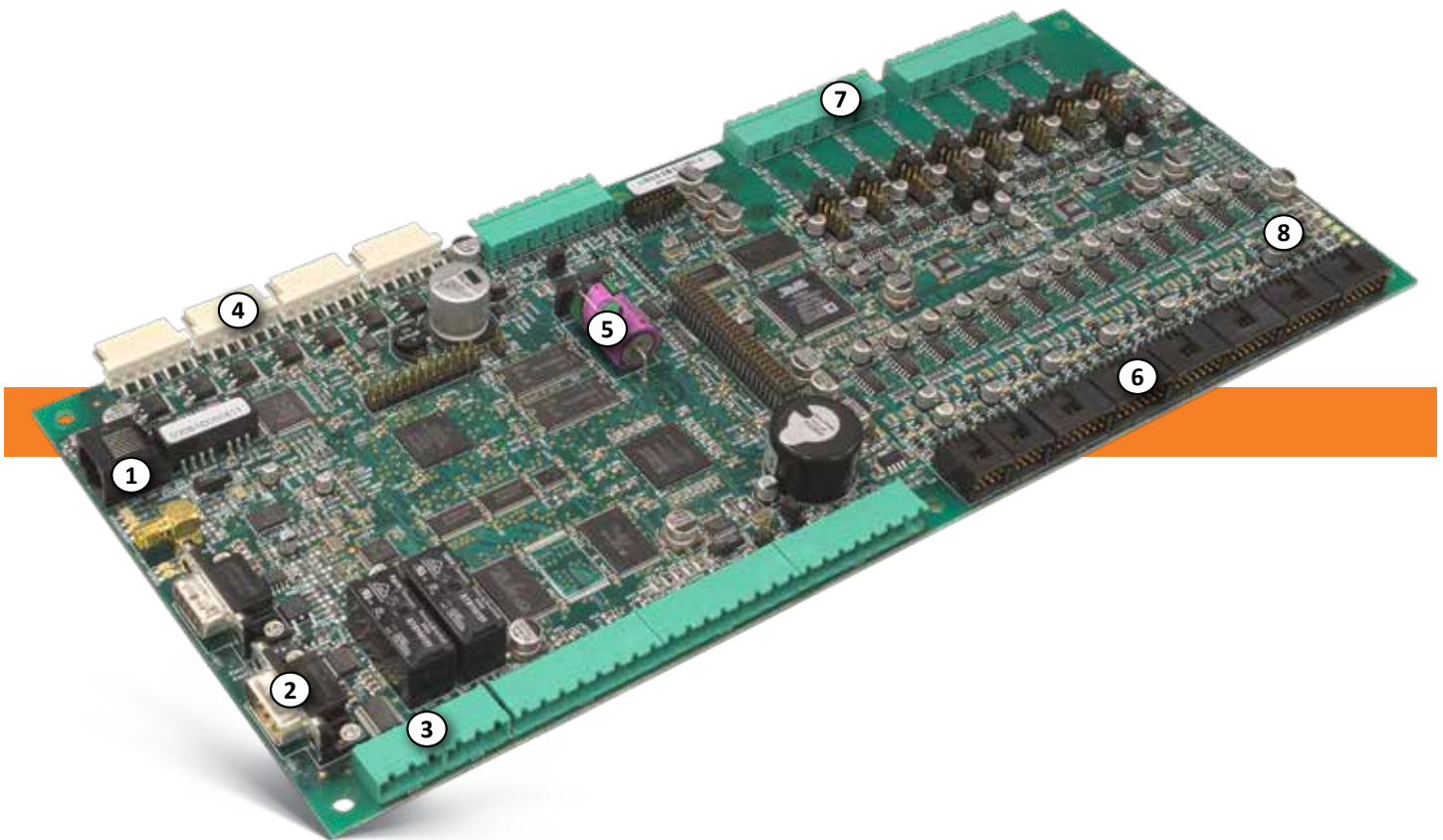


Remote Connectivity via http, SNMP, and Modbus/TCP

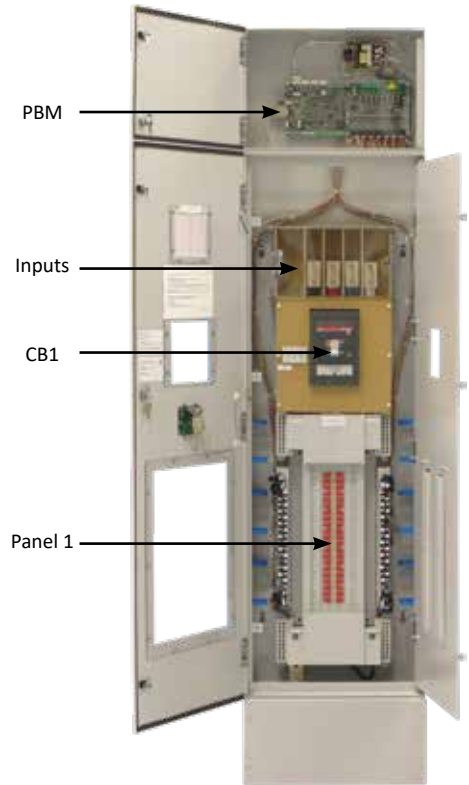
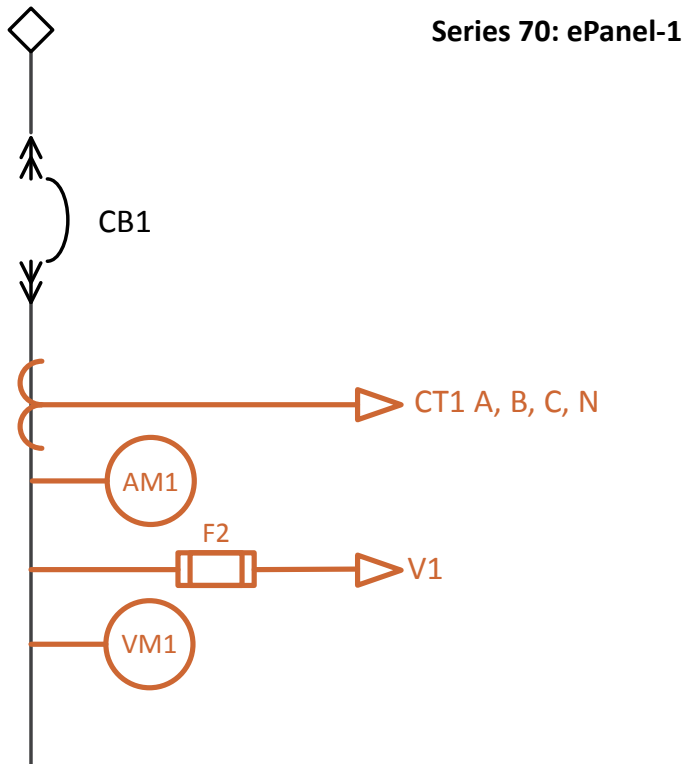
LayerZero DPQM Feature Guide	
Use on LV, MV, and HV systems	<600V
Current accuracy	0.50%
Voltage accuracy	0.50%
Number of samples/cycle or sample frequency	128 Waveform Resolution
Instantaneous RMS Values	
Current, voltage, frequency	✓
Active, reactive, apparent power	✓
Power factor	✓
Energy Values	
Active, reactive, apparent energy	✓
Demand Values	
Current (Present and max. values)	✓
Active, reactive, apparent power (Present but not max)	✓
Setting of calculation mode (Sliding window & standard block demand)	✓
Power Quality Measurements	
Harmonic distortion	✓
Individual harmonics	✓
Waveform capture (6 cycles before and 6 cycles after event)	✓
Detection of voltage swells and sags	✓
Fast acquisition	✓
Customizable data outputs (using logic and math functions)	✓
Data Recording	
Min/max of instantaneous values (Min is peak)	✓
Event logs	✓
SER (Sequence of event recording)	✓
Time stamping	✓
GPS synchronization (±1 ms)	✓
Storage (in Gigabytes)	Limited by SD Card

LayerZero DPQM Panel Board Monitor PCB Offers Many Connectivity Options

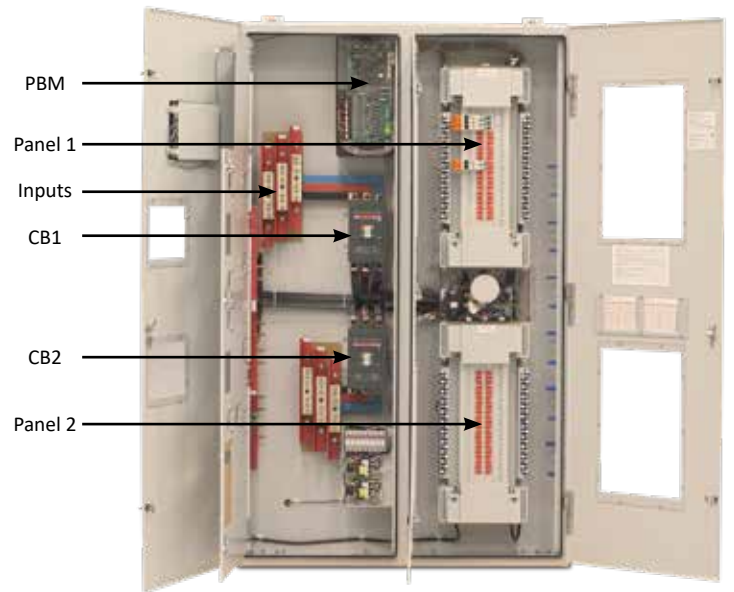
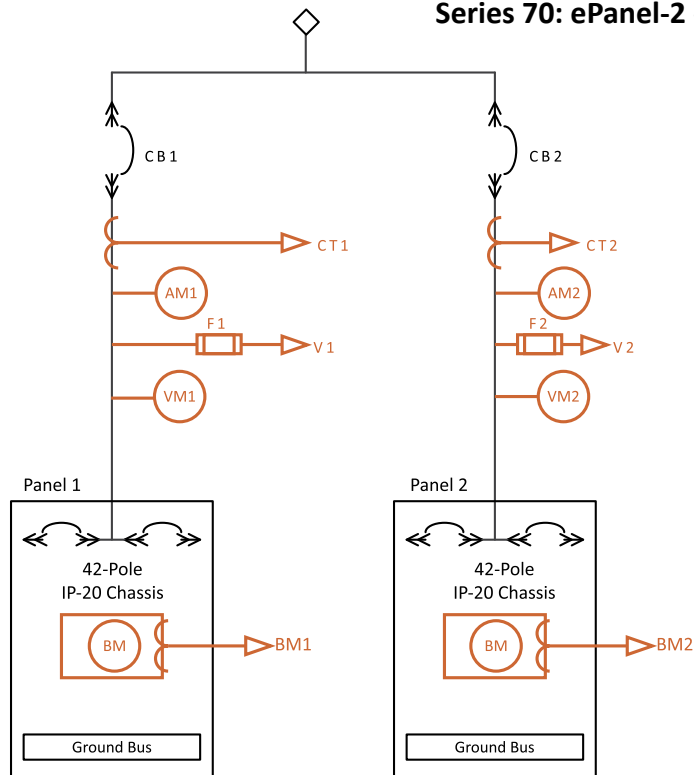
The LayerZero DPQM Panel Board Monitor printed circuit board is designed specifically for power quality monitoring. LayerZero DPQM provides voltage & current inputs, communications ports, a built-in backup battery, and diagnostic LEDs. LayerZero DPQM Panel Board Monitor is expandable via Expansion Boards, and with an Enclosure Management Board.



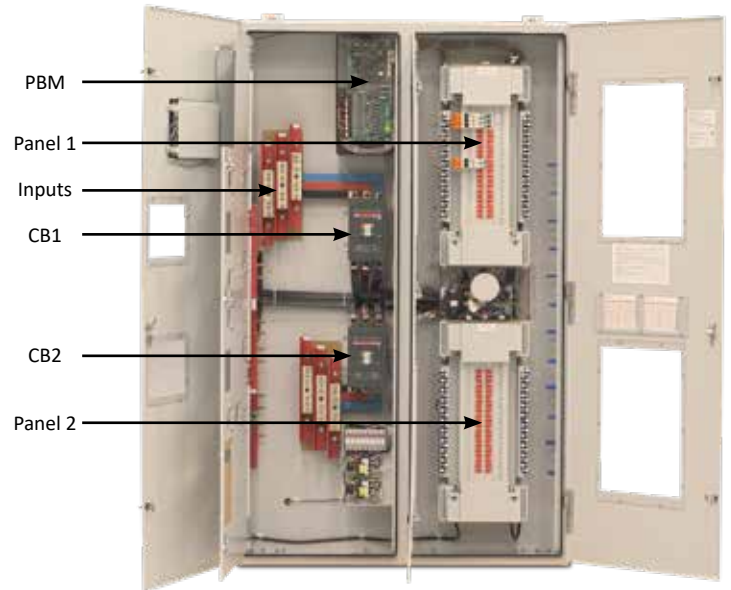
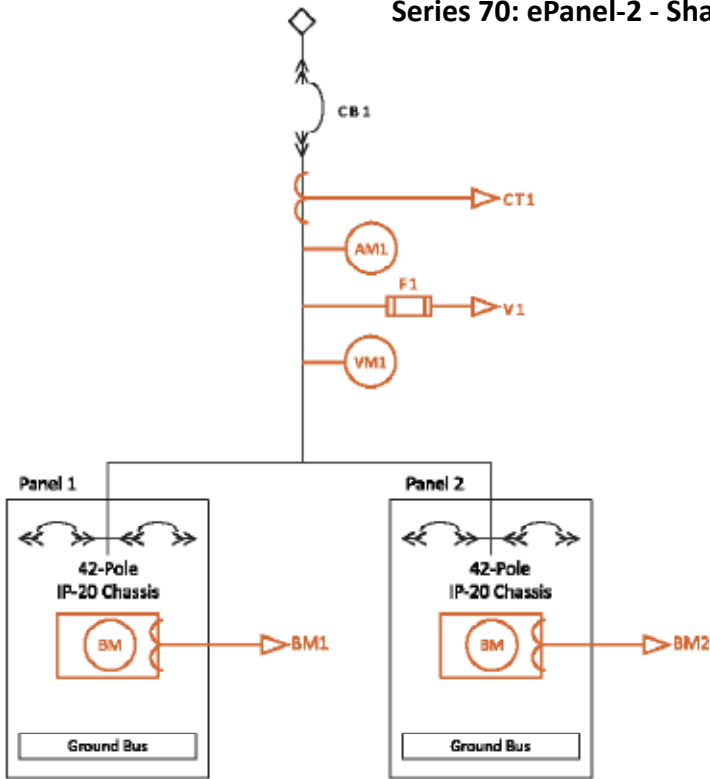
1. **CAT5 (Ethernet) Port:** Connects to LAN Networks for Real-Time Power Monitoring
2. **Service Port:** Serial Connection for LZPS Customer Service Engineers
3. **Summary Alarm Dry Contacts:** Permits Connectivity for Dry Contacts Alarms
4. **Redundant Control Power Inputs:** Permits (4) Multiple Power Sources where Redundancy is Appropriate
5. **Battery Backup for Data Storage:** Saves Information in Non-Volatile Memory
6. **Current Sense Inputs:** Captures Current Data
7. **Voltage Sense Inputs:** Captures Voltage Data
8. **Diagnostic LEDs:** Provides Diagnostic Capabilities



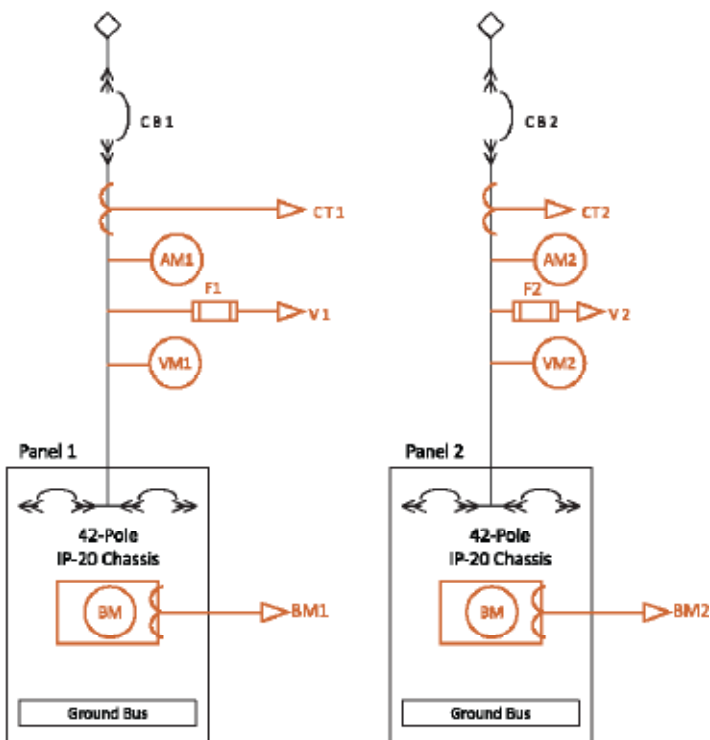
Series 70: ePanel-2 - Parallel Configuration



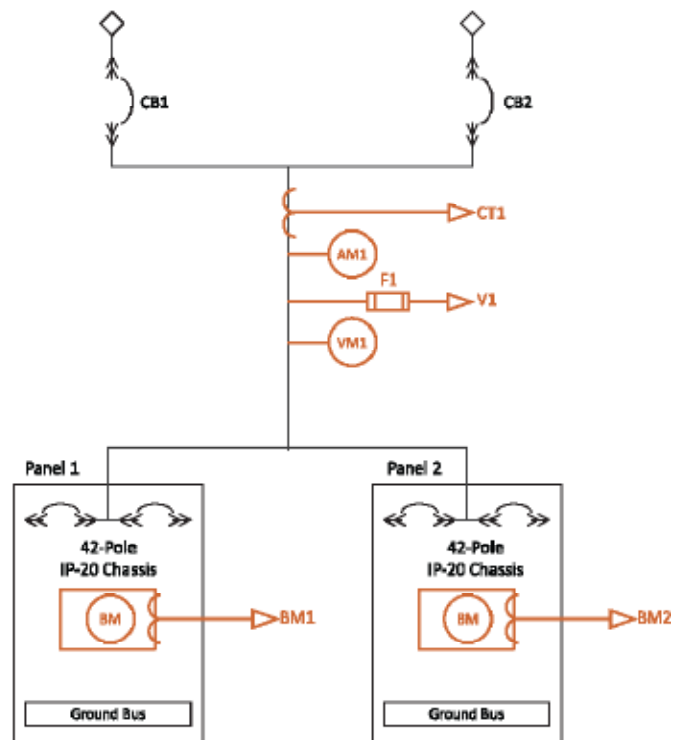
Series 70: ePanel-2 - Shared Parallel Configuration



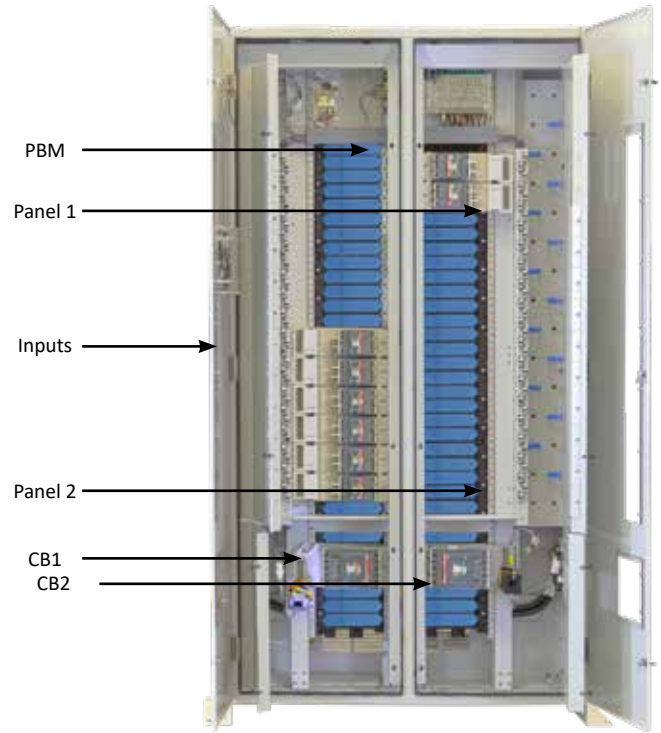
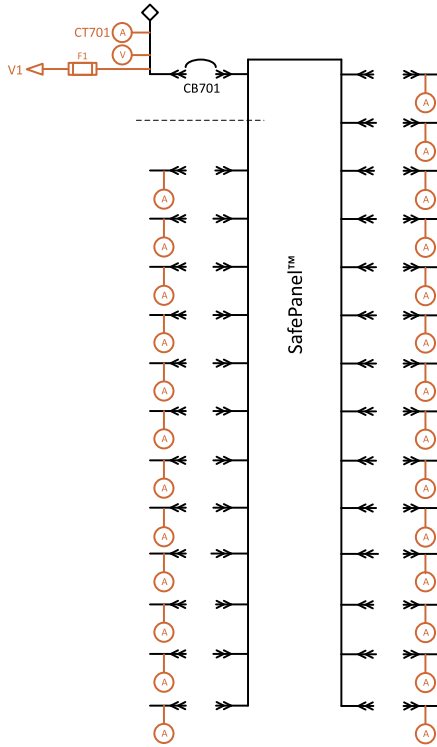
Series 70: ePanel-2 - Dedicated Configuration



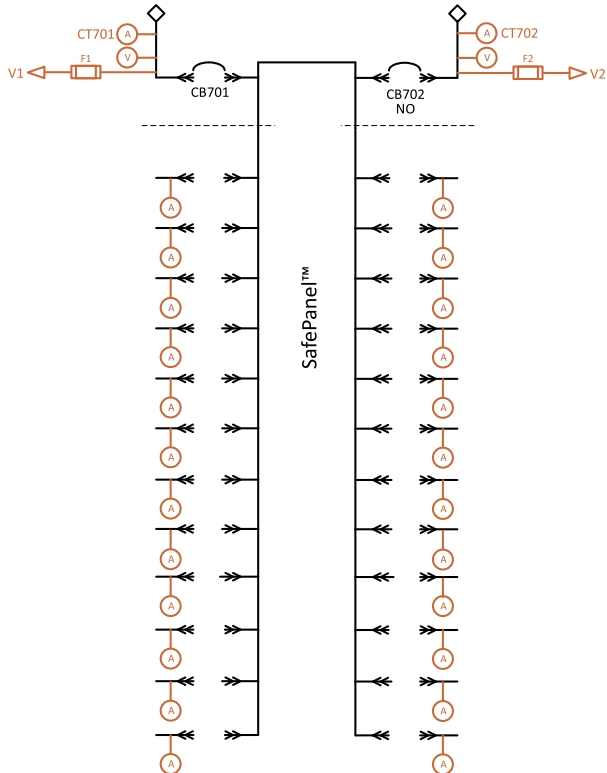
Series 70: ePanel-2 - Feed Through Configuration



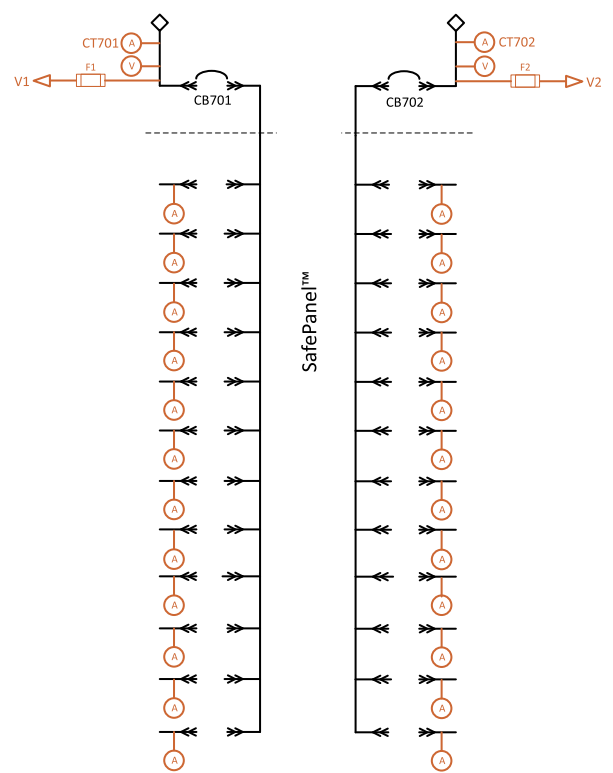
Series 70: ePanel-HD - Shared Parallel Configuration

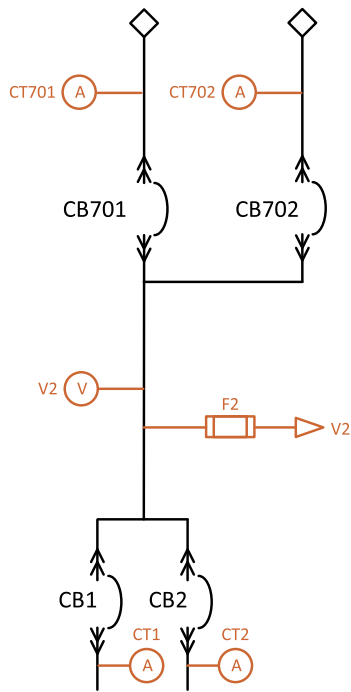


Series 70: ePanel-HD - Feed Through Configuration

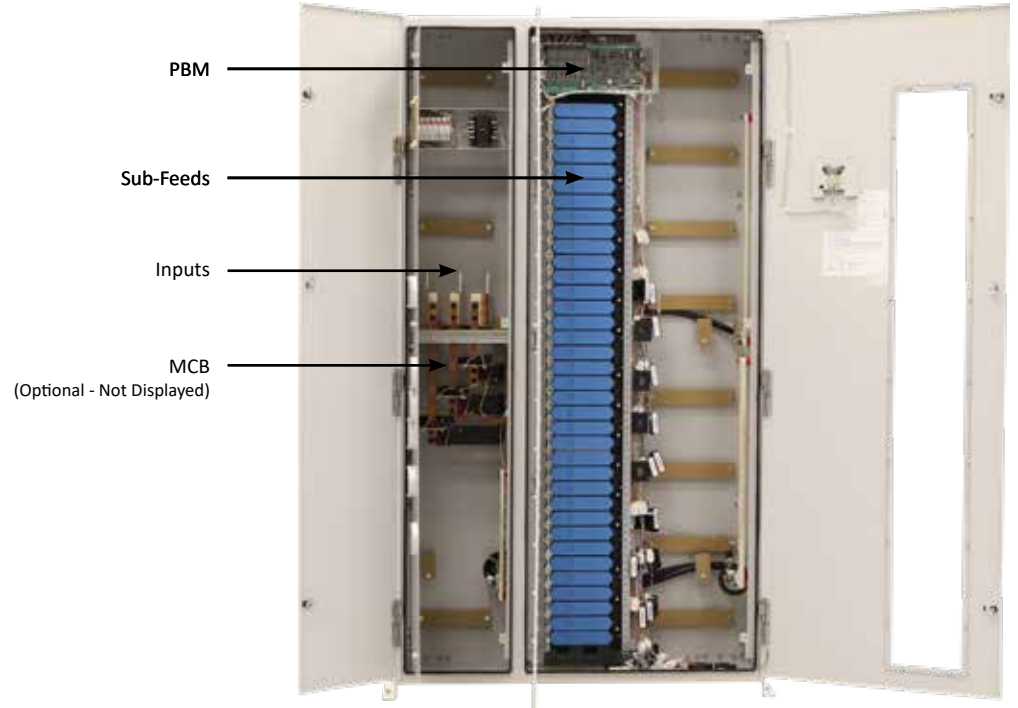


Series 70: ePanel-HD - Dedicated Configuration

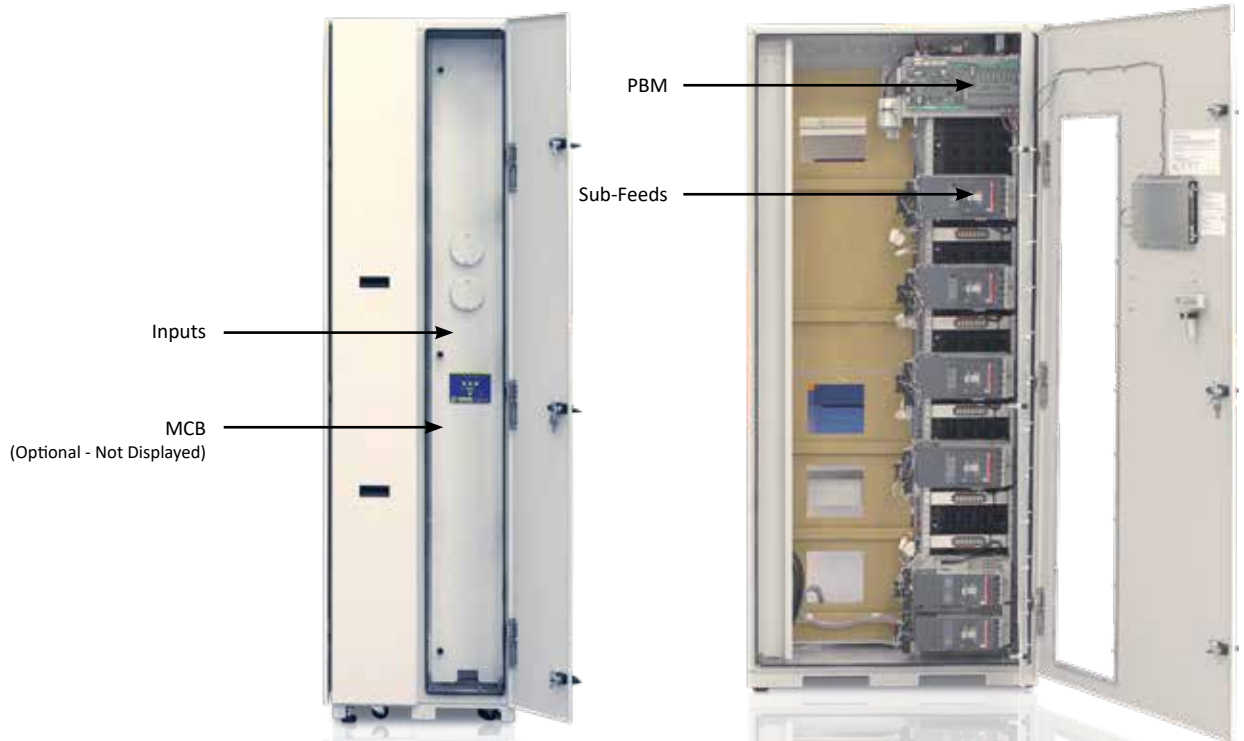




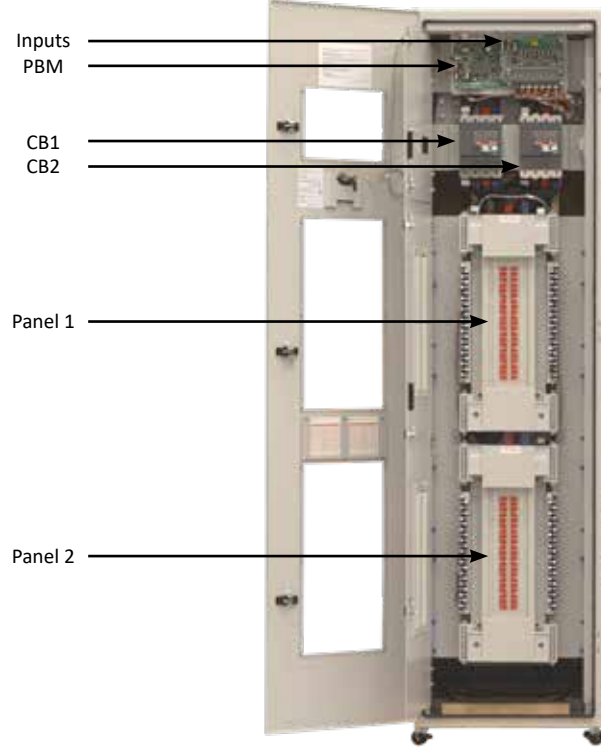
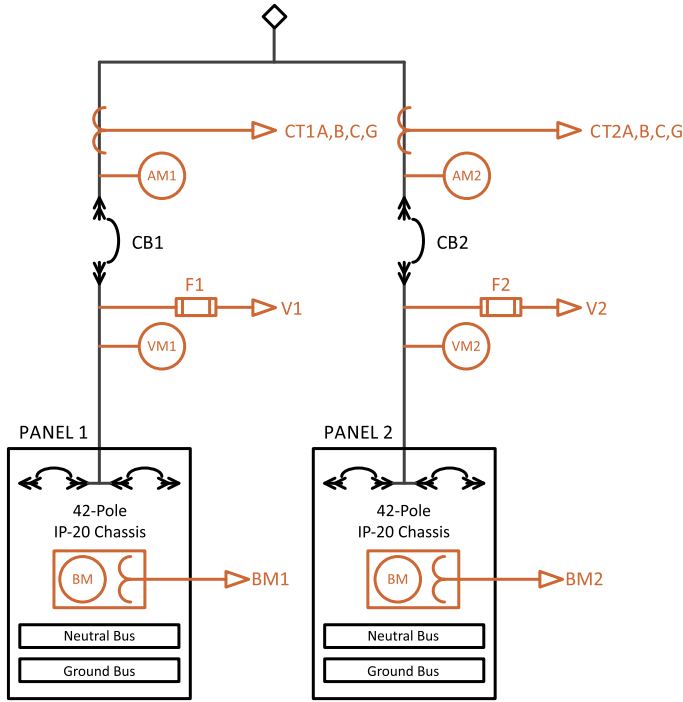
Series 70: eRDP



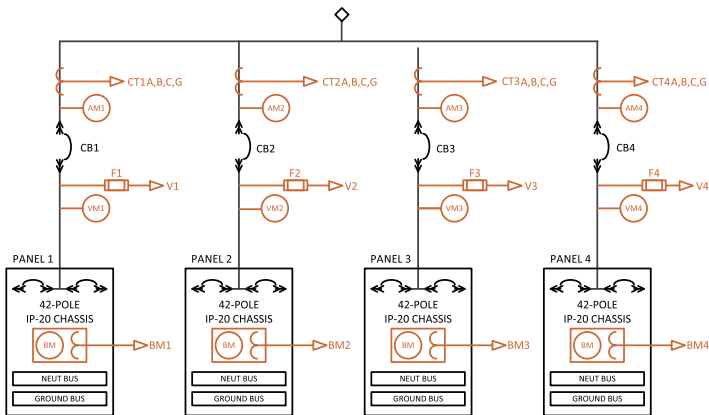
Series 70: eRDP-FS



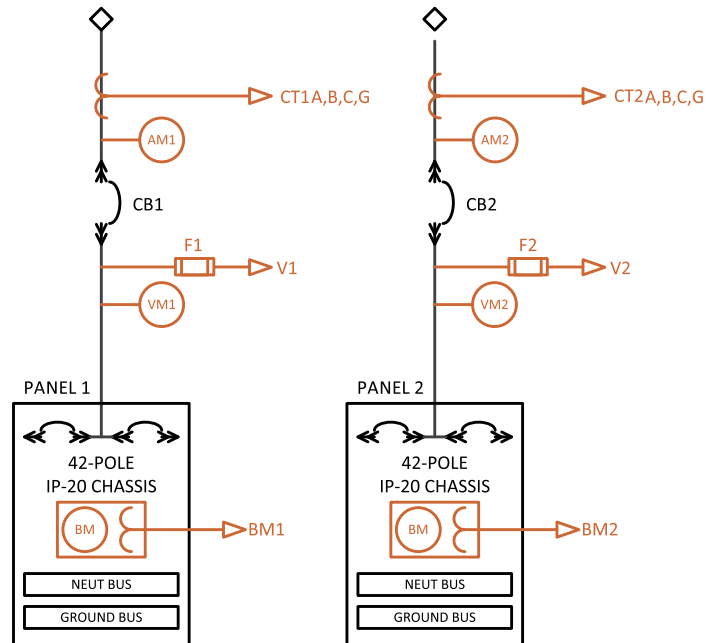
Series 70: eRPP - 1 Input 2 Panel Parallel Configuration



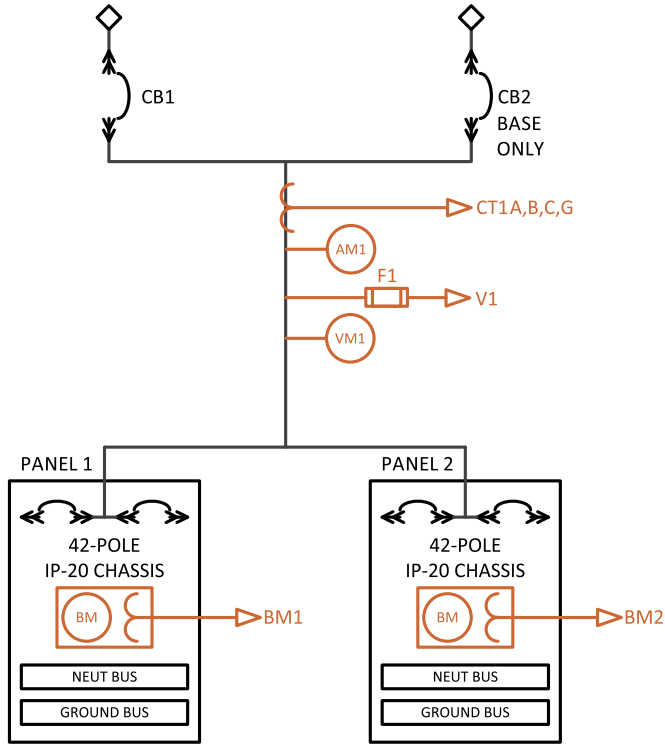
Series 70: eRPP - 1 Input 4 Panel Parallel Configuration



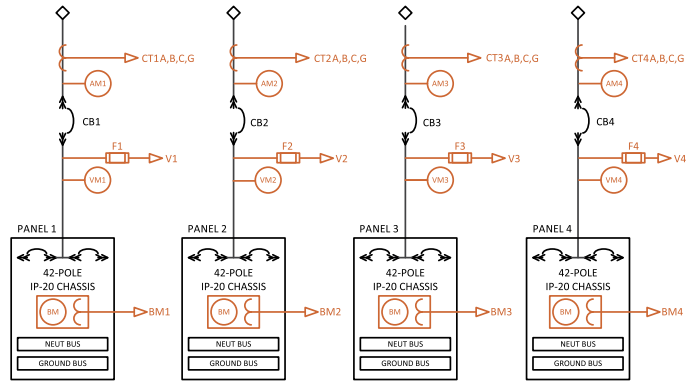
Series 70: eRPP - 1 Input 2 Panel Dedicated Configuration



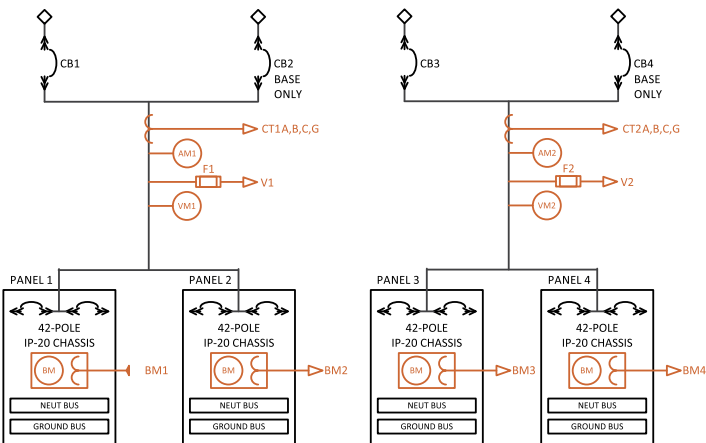
Series 70: eRPP - 2 Input 2 Panel Feed-Through Configuration



Series 70: eRPP - 4 Input 4 Panel Dedicated Configuration



Series 70: eRPP - 4 Input 4 Panel Feed-Through Configuration

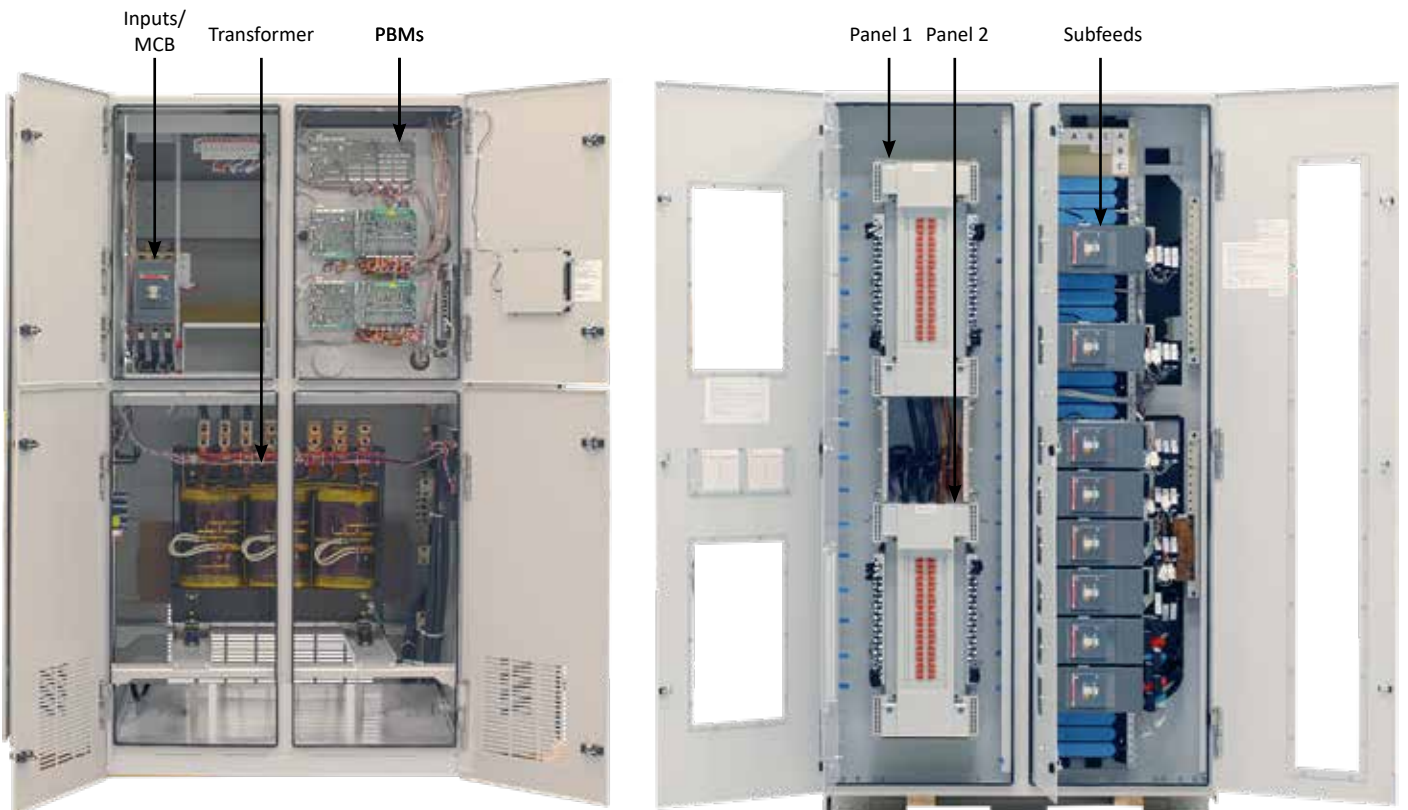
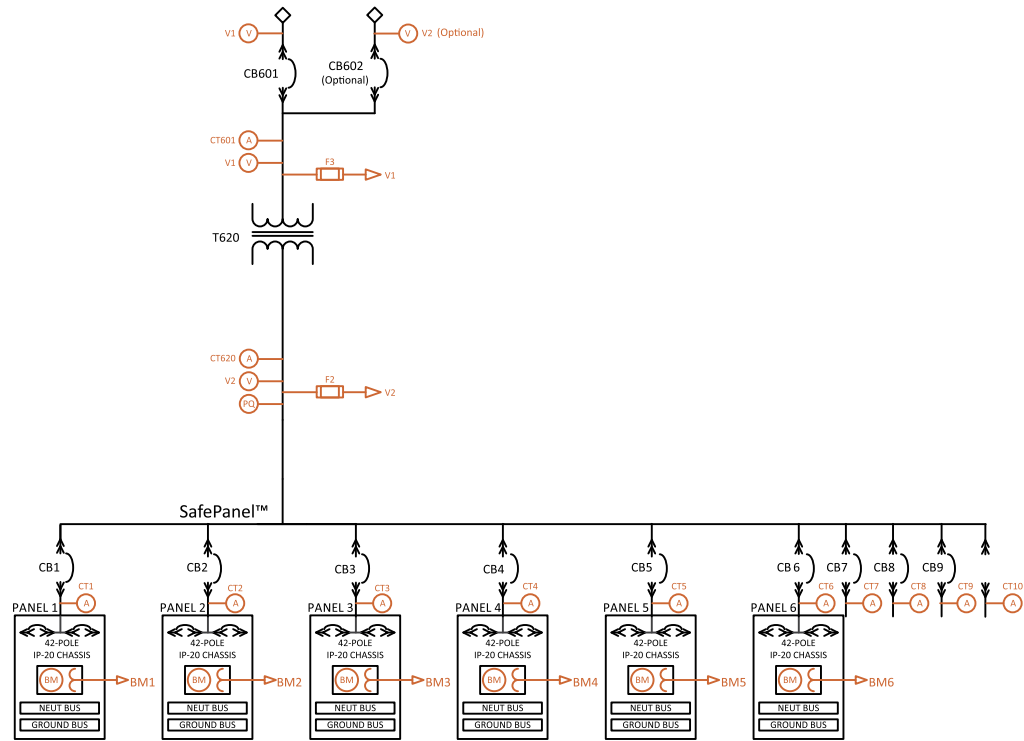


Series 70: eRPP - 2 Input 2 Panel Main-Tie-Main Configuration

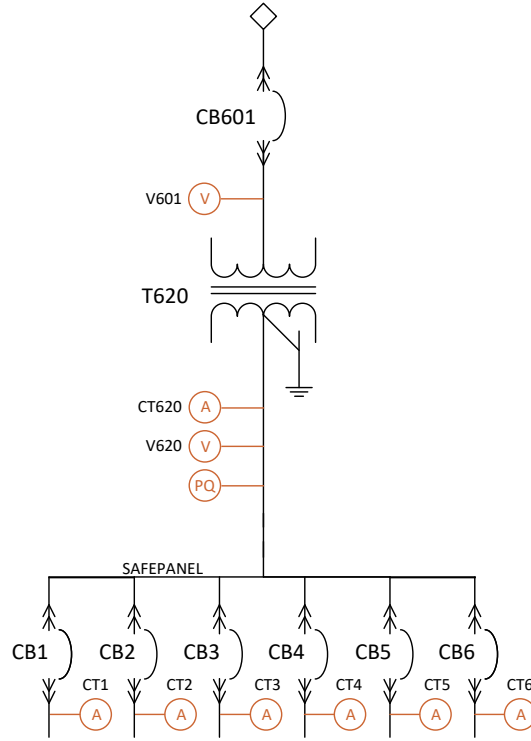
Series 70: eRPP - 4 Input 4 Panel Main-Tie-Main Configuration

eRPP MTM One-Lines
Currently Unavailable

Series 70 ePODs: Type-X - Subfeed/Panel Board Configuration



Series 70 ePODs: Type-X SF - Subfeed Configuration





LayerZero produces real-time waveform captures for every pole of every breaker.



LayerZero synchronizes its clock with an external reference via the network



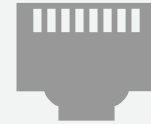
LayerZero allows you to pinpoint the exact moment that power quality events happen.



LayerZero display provides local viewing of all parameters via touch screen display.



LayerZero equips you with the ability to view meters and waveforms remotely.



LayerZero connects to the network with an Ethernet connection.



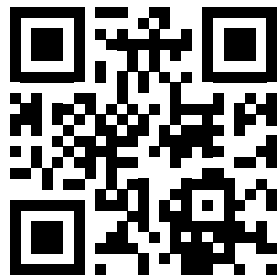
LayerZero supports Modbus/TCP for open connectivity.



LayerZero permits connectivity to SNMP for Remote Monitoring.



Designed, Manufactured, Tested, and Serviced by LayerZero Power Systems



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Learn more at www.LayerZero.com

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Rev. 11/23 #13