

## PMM

Power Distribution Unit  
30-300kVA

*Complete power  
management & distribution*

### Advanced Features

#### Distribution

- ▶ Accommodates up to 252 breakers
- ▶ Optional mainframe distribution breakers
- ▶ Instant front access (hinged panels)
- ▶ Easily expandable using the Remote PMM
- ▶ 200% rated neutral bus
- ▶ Spacious raceway and landing area
- ▶ Top or bottom cable entry (no footprint penalty)

#### Isolation

- ▶ Computer grade high K-factor isolation transformer, double shielded for very low noise (EMI/RFI)

#### Grounding

- ▶ Electronic quality grounding (ensures ground point)
- ▶ Optional isolated ground

#### Monitoring

- ▶ Comprehensive monitoring & alarms
- ▶ Remote communications (RS485)

#### Reliability

- ▶ Unique MGE reliability enhancement monitoring
  - Branch circuit current monitoring
- ▶ Panelboard main breaker high current monitoring and alarm
- ▶ Field proven reliability over 25 years
- ▶ Backed by 7/24 MGE service
- ▶ UL/cUL listed



**MGE's Power Management Module (PMM)** integrates isolation, electronic grade grounding, and distribution for up to 252 output breakers in a single system. The result is a simple, versatile solution for constructing high reliability distribution systems.

Designed specifically to handle the high current distortion associated with electronic equipment, the PMM features a computer grade high K-Factor isolation transformer and 200% rated neutral bus. This allows the PMM to resist thermal stresses that compromise conventional transformers and distribution systems for unsurpassed reliability.

Instant front access via hinged doors, dead front panels, and ample raceway and landing space simplifies cable routing changes and makes adding circuits easy. Since all necessary components are integrated into the PMM, the requirement for extra parts is limited, keeping wiring pathways neat and increasing the integrity of all connections. This is why thousands of Engineers, Technicians, and MIS professionals realize the PMM is the best way to deliver reliable power to all critical loads.

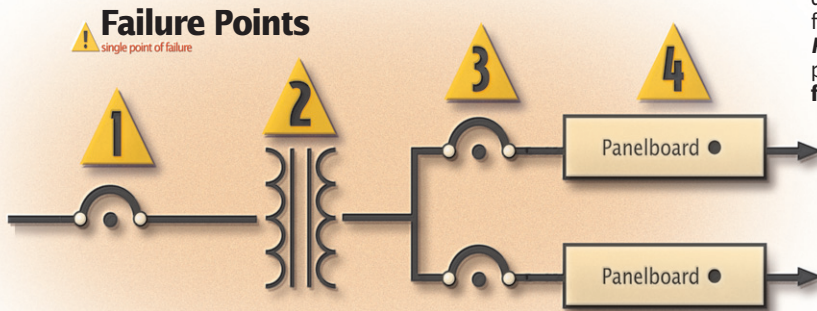
*The proven solution for simplifying critical power distribution*

THE UNINTERRUPTIBLE POWER PROVIDER

**M G E**  
UPS SYSTEMS



Only MGE eliminates the four single points of failure on a distribution system. . .



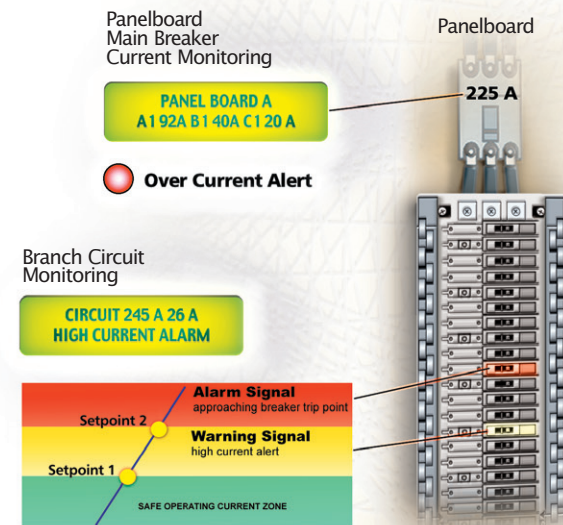
Eliminating the Four Single Points of Failure  
The key to building the most reliable distribution system

There are four single points of failure that can compromise any distribution system. MGE has taken a unique approach to negate the failures associated with all four points making the **Power Management Module (PMM)** the most reliable critical power distribution system available. The **four potential points of failure** to your distribution system are:

- 1 Main Input Breaker
- 2 Transformer Failure
- 3 Panel board Main Breaker
- 4 Branch Circuit Breaker

## Breaker Current Scanning Technology ~ A new level of reliability

**MGE's Multi Circuit Monitor (MCM)** option provides detailed power information on a large format LCD screen. The monitor includes an RS485 interface as well as IR port for conveniently downloading information to a PDA.



**Combining the MCM with Innovative Reliability Enhancement Monitoring Systems and advanced breaker scanning technology virtually eliminates 3 of the 4 primary points of failure.** Together these systems help prevent distribution load losses before they happen, optimizing distribution reliability and current utilization by:

- ▶ Alerting operators before breakers are at risk of tripping
- ▶ Providing detailed current information for phase balancing and circuit management
- ▶ Accurately indicating which circuits have available capacity

**Main Circuit Breaker Monitoring:** Distribution panel boards are equipped with 225A main breakers, but typically feed in excess of 500A worth of distribution circuit breakers putting the main breaker at risk of tripping as load densities increase. Current on the main input breaker is monitored to prevent over current conditions, which can result in catastrophic trips.

## The MGE Panelboard Main Circuit Breaker Monitoring System

continuously scans the panelboard main breaker current, alarming when it approaches trip levels. Individual panelboard phase currents are also displayed, optimizing panelboard capacity and simplifying the balancing of phases.

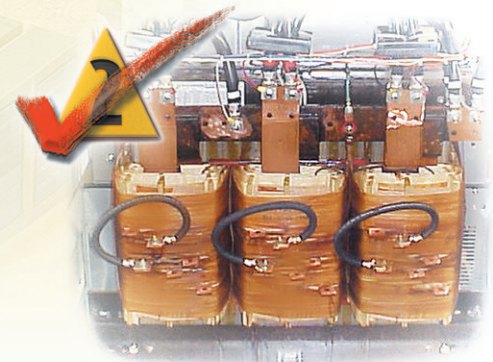
## Branch Circuit Current Monitoring:

Accidental tripping of branch circuit breakers due to overloading is a leading threat to reliability. The *Branch Circuit Current Monitor* scans the current of all panelboard branch circuits, alarming when current levels exceed a user programmable set point before the circuit breaker is at risk of tripping. Branch circuit currents can also be viewed on the local LCD or downloaded onto a PDA via the PMM's IR port.

## Superior MGE Transformer Technology ~ The heart of your distribution system

**MGE's PMM transformers incorporate a host of unique features that contribute to unsurpassed reliability and performance eliminating the final single point of failure.** Manufactured by MGE in our own state-of-the-art facility, all MGE transformers include:

- ▶ Dual copper shields between windings virtually eliminate EMI and RFI noise from being transmitted to the critical loads.
- ▶ 220° C rated Nomex™ insulation between windings eliminates the risk of internal shorting.
- ▶ Solid bus bar tabs ensure maximum surface area for solid life-time input/output connections.
- ▶ Very low impedance for lower voltage harmonics and superior voltage regulation.
- ▶ High efficiency for significant operating cost savings.
- ▶ Harmonic reduction topology significantly reduces the third harmonic for cleaner power.
- ▶ K-20 design handles high harmonic load content without thermally stressing the transformer.



# Power Distribution Solutions

## PMM Topology

### The All In One Solution

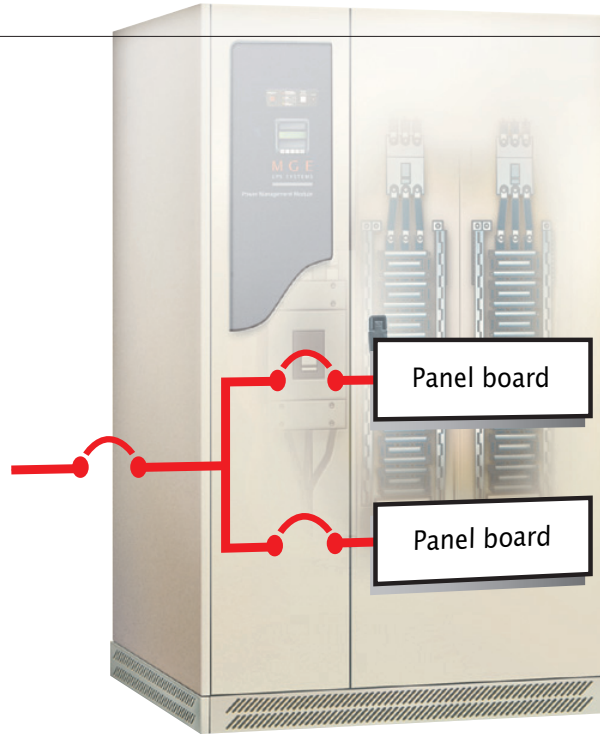
The PMM integrates isolation, monitoring and ample distribution capacity into one small cabinet greatly simplifying your power distribution.

### Easy to Wire

From the removable deadfront covers to the spacious landing and raceway area, wiring the PMM is far easier than traditional PDUs.

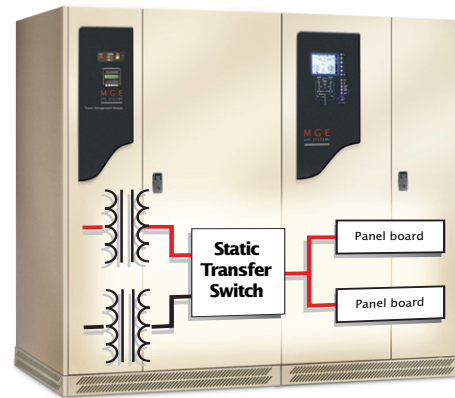
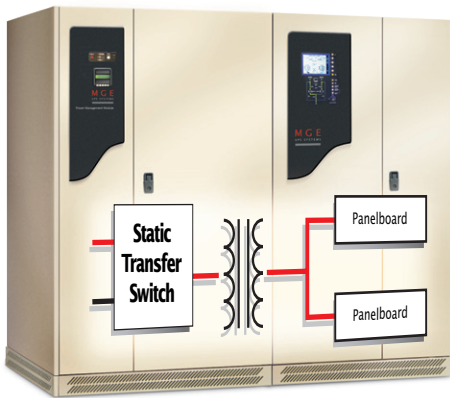
### Expandability

The PMM can be outfitted with main frame distribution breakers that can feed stand alone Remote PMM panelboards for expanded distribution capacity.



## PMM Plus

## PMM Ultra

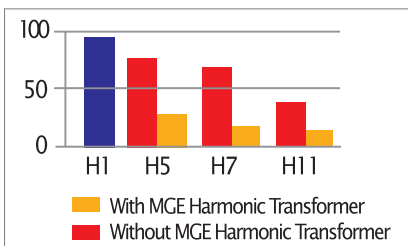


### Optimized critical power availability

The PMM Plus and PMM Ultra integrate the *Power Management Module* with MGE's *Epsilon Static Transfer Switch* to provide dual input distribution with automatic source selection. Automatically sensing power quality deficiencies, the STS seamlessly transfers to an alternate input power source in under four milliseconds.

## Total Harmonic Management Solutions

Harmonics commonly reflected from computer and electronic loads can cause disturbances throughout your distribution system. The PMM's optional *Harmonic Management Transformer* traps harmonics reflected by distribution loads, significantly reducing the harmonic content of your distribution system.



### PMM with integrated Harmonic Management Transformer



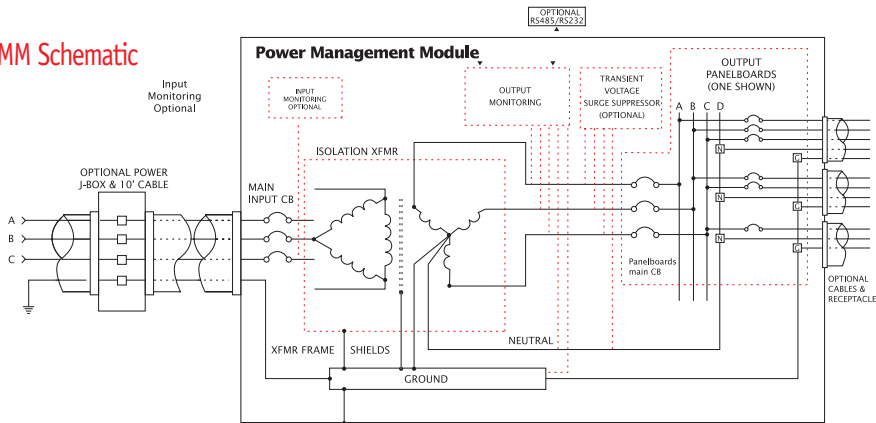


## PMM Technical Specifications

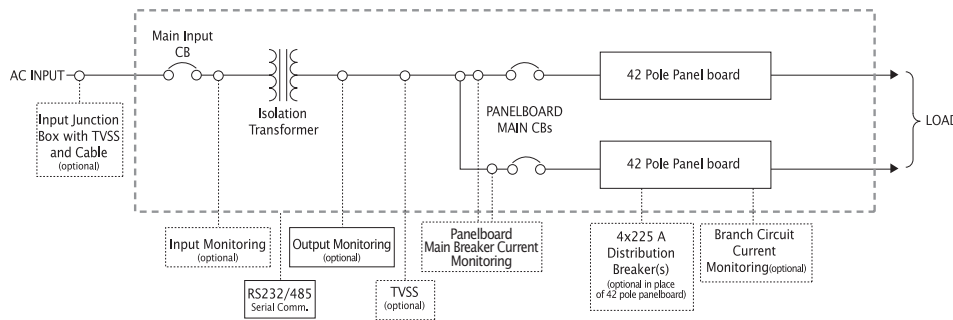
Transformer (kVA)	30	30	30	50	50	50	50	75	75	75	75	75
Input Voltage (VAC)	208/120	208	480	208/120	208	480	600	208/120	208	380	480	600
Input Current (A)	83	83	38	139	139	63	48	208	208	114	94	72
Input CB Trip (A)	110	110	50	175	175	80	60	300	300	150	125	90
Output Current (A)@208 V	83	83	83	139	139	139	139	208	208	208	208	208
Heat Rejection (BTUs/hr)	600	3200	3200	600	5300	5300	5300	600	8000	8000	8000	8000
Typical Wt.(lbs) 42/84 pole	675	1075	1075	675	1200	1200	1200	675	1325	1525	1525	1525
	126/168 pole add 250 lbs			210/252 pole add 500 lbs								

Transformer (kVA)	100	100	125	125	150	150	150	200	225	225	225	300
Input Voltage (VAC)	208/120	480	480	600	380	480	600	480	380	480	600	480
Input Current (A)	278	126	157	120	228	188	144	251	342	282	217	377
Input CB Trip (A)	350	150	200	150	300	225		350	450	400	300	600
Output Current (A)@208 V	278	278	347	347	416	416	416	555	625	625	625	833
Heat Rejection (BTUs/hr)	600	8800	10900	10900	13100	13100	13100	13900	15700	15700	15700	20900
Typical Wt.(lbs) 42/84 pole	675	1575	1825	1825	2075	1900	1900	2250	2450	2325	2325	3365
	126/168 pole add 250 lbs				210/252 pole add 500 lbs							

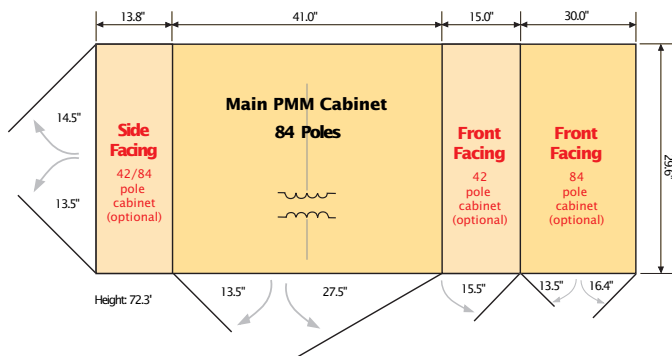
## PMM Schematic



## PMM Single Line Diagram



## PMM Dimensions



The standard 42" PMM cabinet contains two x 42 pole panelboards. Up to four extra panelboards (252 poles total) can be added using either front facing or side facing cabinet configurations. 4 x 225 A distribution breakers may be substituted for 42 pole panelboards.

## Specifications

### Input Rating:

- Voltage: 208/120, 208, 480, 600, 380 (50 Hz only) VAC
- Frequency: 60Hz,  $\pm 5$ Hz / 50 Hz (380 VAC)
- Phase: 3 $\phi$ , 3 Wire + G (3 $\phi$ , 4 Wire + G transformerless models only)

### Output Rating:

- Voltage: 208/120 VAC
- Phase: 3 $\phi$ , 4 Wire + Ground with full load
- Efficiency: > 96 - 97%

### Cable Connection:

- Top or bottom input/output cable entry available

### Ventilation:

- Convection cooled

### Grounding:

- Single point ground
- Optional isolated ground

### Optional Power Monitoring & Communications:

- MCM meter (output/load side)
- PM800 meter (output/load side)
- Input (line side) monitoring Powerlogic CM4000 premium monitoring (web enabling option)
- DMMS300 (output/load side)
- Panelboard main circuit breaker current monitoring
- Branch circuit breaker current monitoring

### Isolation Transformer:

- Delta / Wye K-20 double shielded isolation transformer w/ 220' C Nomex™ insulation (optional Harmonic Cancellation Transformer—dual output)
- <150 kVA aluminum (copper optional)/  $\geq 150$  kVA copper standard

### Output Distribution Panelboards:

- 42 pole panelboard with 225 A main breaker. Accommodates SquareD QOB breakers & QO breakers
- Neutral: 450 Amp (200 % rated),

### UL 60950 (supercedes UL/CSA 950)\*

### Mechanical features:

- Casters, levelers
- Removable swing-out dead front covers

### Optional:

- Copper transformer (where not standard)
- Input junction box w/ 10' cable and line side TVSS
- Manual restart
- Harmonic cancellation transformer
- High KAIC input CB
- 4 x 225 A mainframe CB (in place of 42 pole panelboard)
- TVSS (load side -100 kA)
- Remote EPO
- Floor stands (12" or 18")
- Isolated ground (per panelboard)
- Locking door
- Remote PMM distribution module
- Seismic bracket
- Transient suppression plate

\*not on 380 V systems

## MGE UPS SYSTEMS

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