

**THE
one**
ANSWER TO
ALL YOUR
POWER NEEDS



PMM MODULAR SERIES

12-30 kVA PMM 101
12-60 kVA PMM 301
12-4800 kVA PMM 303



1:1

3:1

3:3

UNITY POWER FACTOR MODULE

**UNINTERRUPTABLE
POWER SUPPLY SYSTEMS**



POWER-ONE EXPERIENCE

Power-One Micro Systems Pvt. Ltd., headquartered in Bangalore, with three State-of-the-Art Factories having 50,000 sq. feet manufacturing area, is a power conversion technology leader. Started in 1992, Power-One has accumulated rich experience in Power Protection Solutions, predominantly on Indian Power Condition. Today Power-One serves the nation, with 56 Offices, catering to multiple power solution demands across all industry verticals.

RANGE OF PRODUCT: PMM Series can be configurable in a frame vertically up to 600 kVA/kW and Horizontally up to 6 Frames reaching to 4.8 MW. PMM Modular Series have modules in the range of 6/10/15/20/25/30/40/50 and 60 kVA/kW Capacity.

SALIENT FEATURES

- Online Double Conversion with DSP Control Design VFI-SS-111
- High Input Power Factor (0.99) and Unity Power Factor (VA=W) Output
- High Power Density Design, Smaller Footprint
- Modular design with Power, Bypass and Monitoring Modules Hot-swappable
- 3 Level IGBT Topology up to 96% Online Efficiency
- Structured Design, Front Access for Easy Maintenance
- Best-In-Class Wide Input Range
- Supports 100% Unbalanced Load
- Power Walk-In Function to reduce Generator sizing
- Thickened Conformal coating to use in Harsh environments.
- Best-In-Class Flexible DCBUS 30-50 Battery of Choice
- 4 Frames to Parallel 1200 kVA to increase the power availability up to 4.8MW
- Dual Input Source Configuration
- Best-In-Class Charging Current Capability, enhanced Battery Run Time
- Extended Parallel operation up to 6 Frames with all 2U Modules.

Independent Modular Parallel Architecture

In Environments where total reliability is of great importance, a single point of failure can disrupt continuity. To increase reliability, Powerone brings convenient smaller UPS modules which can be integrated vertically and horizontally to avoid impacts of failure of independent modules in the total system. 6/10 and 15 kVA with Single phase output and 10-60 kVA Modules with three phase output, PMM Modular series have Best-In Class features.

Scalable vertically and Horizontally up to 4.8 MW

PMM Modular Series UPS systems are VFI-SS-111 Class, Double conversion three Level IGBT Modules enabling configurations from 18 kVA (3x6) to 600 kVA (10x60) in a Single Cabinet. The widest range of configurations for Medium-to-large sized power solutions. PMM Modular Series UPS challenges the conventional way of growing, by providing the option of vertical and Horizontal growth up to 4.8MW at any point of time.

Unparallel Features:

Best In Class Availability and Reliability

PMM Modular Series UPS's are Featured with DSP control, Decentralised Parallel Structure, Modular +X Parallel Redundancy, Touch Screen LCD Display, Hot-swappable, Programmable Battery Voltage, Intelligent Charge Modes with settable Charge Current, SNMP/MODBUS Protocol.

Precise Scalability and Industry Best Design Dimensions

The PMM Modular Series UPS's have industry-best Online Mode AC to AC efficiency, up to 96% and 99% in Eco mode and all Modules are designed with Unity Power Factor output. Modules are available in 2U and 3U sizes which delivers improved efficiency from a considerably smaller and lighter design. PMM Modular Series UPS's Independent Modular Parallel Architecture offers the much required and awaited smaller design dimensions in 2U sizes up to 30 kW Modules and 40/50 and 60 kW Modules are made in 3 U Size. This enhances the PMM Series UPS frame to accommodate 30% more power.

Advanced Flexible Battery Management

This PMM Modular Series UPS's has Advanced Battery Management with a flexible DC BUS from 360 to 600 VDC, selectable. It helps customers to select the batteries between 30 to 50 numbers, connected to independent frames or connected in parallel up to 6 frames.

Total Independent Modules

Each Module incorporates an individual Rectifier, Inverter, Battery Charger, Static Bypass, Control Logic, User interface (Display and Buttons) Ease of Load distribution, Battery

Charging and Maintenance Operations. Each cabinet incorporates a Static Bypass and a Maintenance Bypass appropriate for the total power that it can assume. It helps PMM Modular Series be ready to expand without the need of reconfiguring the cabinet every time the Power is changed.

Best in Class MTTR and MTBF:

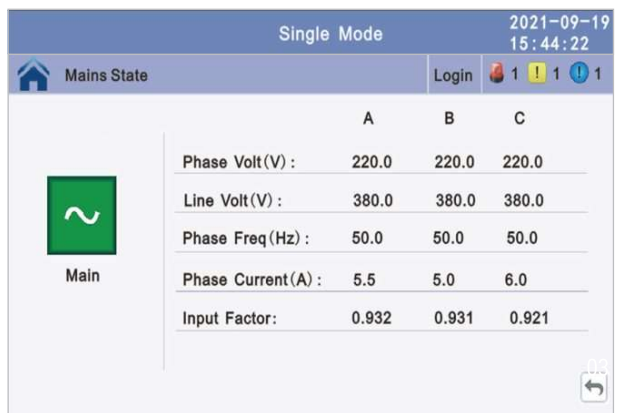
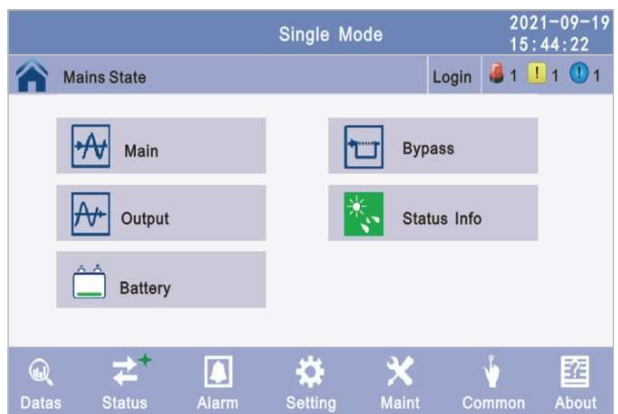
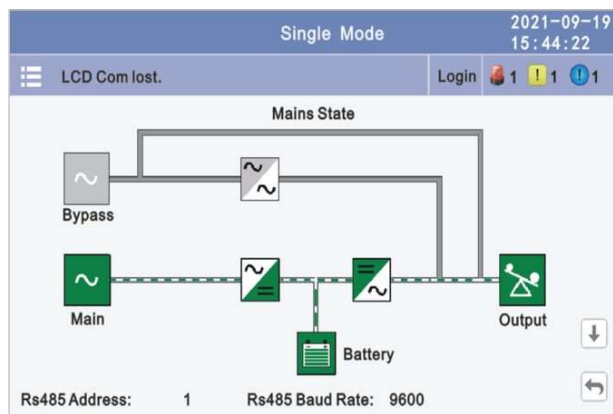
Predictive Easy Maintenance

Highly controlled module Electronics design and Serial production, to limit Manufacturing faults, increases the mean time between failures (MTBF). Easy removal from the front of all plug-in modules (Power, Bypass and Display) helps to reduce Mean Time to Repair (MTTR) This proportionally increases availability up to 99.9999.

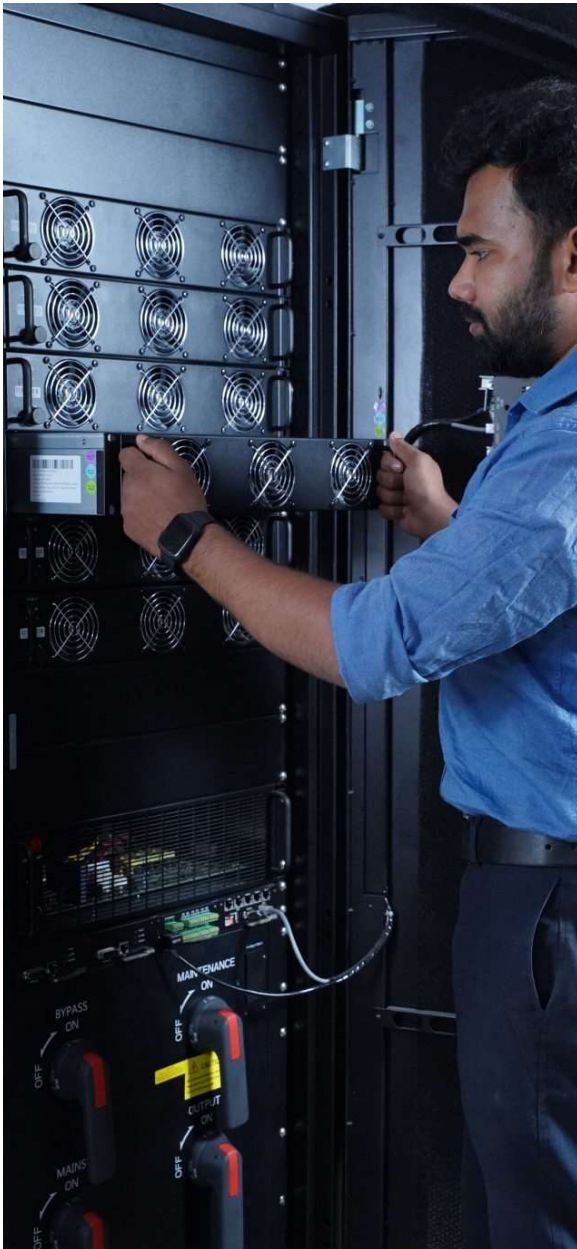
Futuristic Front Panel User Friendly 7" Touch Screen with Graphic Display

The Status of PMM Modular Series UPS has a User-friendly 7" touch-screen multilingual colour graphic display which enables the user to work upon every aspect of the UPS and set the conditions. The Touch Screen also allows users to watch the 1200 events recorded on a first cum first basis.

User friendly 7" touch screen multilingual colour graphics display to provide real time data.



SINGLE PHASE MODULES					
MODULE	FRAME SIZE	INPUT	OUTPUT	MODULE QTY	DC BUS VOLTAGE
PMM 6	30KVA	Three/Single	Single	6 KVA X 5	192 V to 240 V
PMM 10	50KVA	Three/Single	Single	10 KVA X 5	192 V to 240 V
PMM 15	45KVA	Three/Single	Single	15 KVA X 3	384 V to 480 V



PMM Modular Series UPS systems are VFI-SS-111 Class, Double conversion three Level IGBT Modules with flexible ratings of 6/10/15/20/25/30/40/50 and 60 kVA/ kW. Wide range of configurations in Cabinets of 2,3,4,5,6,8 and 10 Modules.

THREE PHASE MODULES					
MODULE	TOTAL	INPUT	OUTPUT	MODULE QTY	DC BUS VOLTAGE
PMM 10	30KVA	Three	Three	10 KVA X 3	360 V to 600V
PMM 10	50KVA	Three	Three	10 KVA X 5	360 V to 600V
PMM 10	100KVA	Three	Three	10 KVA X 10	360 V to 600V
PMM 15	45KVA	Three	Three	15 KVA X 3	360 V to 600V
PMM 15	75KVA	Three	Three	15 KVA X 5	360 V to 600V
PMM 15	150KVA	Three	Three	15 KVA X 10	360 V to 600V
PMM 20	60KVA	Three	Three	20 KVA X 3	360 V to 600V
PMM 20	100KVA	Three	Three	20 KVA X 5	360 V to 600V
PMM 20	120KVA	Three	Three	20 KVA X 6	360 V to 600V
PMM 20	200KVA	Three	Three	20 KVA X 10	360 V to 600V
PMM 25	50KVA	Three	Three	25 KVA X 2	360 V to 600V
PMM 25	125KVA	Three	Three	25 KVA X 5	360 V to 600V
PMM 25	250KVA	Three	Three	25 KVA X 10	360 V to 600V
PMM 30	60KVA	Three	Three	30 KVA X 2	360 V to 600V
PMM 30	120KVA	Three	Three	30 KVA X 4	360 V to 600V
PMM 30	150KVA	Three	Three	30 KVA X 5	360 V to 600V
PMM 30	270KVA	Three	Three	30 KVA X 9	360 V to 600V
PMM 30	300KVA	Three	Three	30 KVA X 10	360 V to 600V
PMM 40	80KVA	Three	Three	40 KVA X 2	360 V to 600V
PMM 40	120KVA	Three	Three	40 KVA X 3	360 V to 600V
PMM 40	200KVA	Three	Three	40 KVA X 5	360 V to 600V
PMM 40	320KVA	Three	Three	40 KVA X 8	360 V to 600V
PMM 40	400KVA	Three	Three	40 KVA X 10	360 V to 600V
PMM 40	520KVA	Three	Three	40 KVA X 13	360 V to 600V
PMM 50	100KVA	Three	Three	50 KVA X 2	360 V to 600V
PMM 50	150KVA	Three	Three	50 KVA X 3	360 V to 600V
PMM 50	200KVA	Three	Three	50 KVA X 4	360 V to 600V
PMM 50	250KVA	Three	Three	50 KVA X 5	360 V to 600V
PMM 50	300KVA	Three	Three	50 KVA X 6	360 V to 600V
PMM 50	400KVA	Three	Three	50 KVA X 8	360 V to 600V
PMM 50	500KVA	Three	Three	50 KVA X 10	360 V to 600V
PMM 50	600KVA	Three	Three	50 KVA X 12	360 V to 600V
PMM 50	800KVA	Three	Three	50 KVA X 16	360 V to 600V
PMM 50	1000KVA	Three	Three	50 KVA X 20	360 V to 600V
PMM 60	120KVA	Three	Three	60 KVA X 2	360 V to 600V
PMM 60	300KVA	Three	Three	60 KVA X 5	360 V to 600V
PMM 60	600KVA	Three	Three	60 KVA X 10	360 V to 600V
PMM 60	840KVA	Three	Three	60 KVA X 14	360 V to 600V
PMM 60	1080KVA	Three	Three	60 KVA X 18	360 V to 600V
PMM 60	1200KVA	Three	Three	60 KVA X 20	360 V to 600V

TECHNICAL SPECIFICATIONS	
INPUT	
Input voltage	400VAC/415VAC (3Ph+N)
Voltage Range	305VAC ~ 485VAC (Ph-Ph)
Frequency Range	40Hz to 70Hz
Power factor	>0.99
THDi	<3%
OUTPUT	
Voltage	380VAC / 400VAC / 415VAC (3Ph +N)
Voltage Regulation	± 1%
Frequency	50Hz / 60Hz
Waveform	Pure sine wave
Total Harmonic Distortion (THD)	<1% (linear Load) <3% (Non-linear load)
Phase Displacement	120°±1% (imbalance 50% of the load)
Recovery time	Within 1 cycle
Overload capacity	110% for 60 min ; 125% for 10min ; 150% for 60 sec ; 200% for 200ms
Crest factor	3:1
Power factor	Unity
Protection	Overvoltage, Undervoltage, short circuit, RMS Voltage Limit High Crest – Factor current: Peak Voltage Limit
Transient Response	±5% (Dynamic Regulation for 10% to 90% step linear load)
Transient Recovery	<1 cycle (Steady state condition after 10% to 90% step linear load)
STATIC BYPASS	
Voltage	280 VAC ~ 470 VAC (Ph-Ph)
Transfer time	Zero
Overload	125% for 10min ; 150% for 60 sec ; 150% for 200ms
BATTERY & CHARGER	
Battery type	VRLA SMF/Tubular/NICAD/Lithium
Battery numbers	Adjustable from 30 to 50 Batteries
Battery Voltage	360-600 VDC for 3 phase UPS 1ph 192v to 240v
Charging current battery	Up to 60 Amps
STANDARDS	
EMI	62040-1
EMC	62040-2
Performance	62040-3
Quality standards	ISO 9001, ISO 14001, ISO 45001 & ISO 50001
COMMUNICATIONS	
Network Management	RS232, RS 485 MODBUS, SNMP, DRY CONDUCT, LBS, PARALLEL
ENVIRONMENTAL PARAMETER	
Ingress protection	IP21
Operating Temperature	0- 40 °C
Humidity	0- 95 % (Non Condensing)
Altitude	0-1500 M without derating
Noise Level	< 65 Db
Color	Black