



Power Meter Monitor

Business and Mission-Critical  
Solutions Provider

# PMM0210 VOLTAGE SELECTION RELAY

## USER MANUAL



**Model:** PMM0210

**Document:** User Manual

**Document version:** 1.9



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## DECLARATION OF CONFORMITY

This restriction is subject to provide protection for system operation in business environment, which will produce, use and transmit radio frequency energy. Without notice of the instructions of the correct installation and use, it may cause harmful interference to radio communication. The interference prevention cannot be guaranteed even with proper installation according to the manual. If the device gets bad effect on the signal of radio / TV. User could insure by turn device on/off.

When this device produces some harmful interference, user can use the following measure to solve interference problem:

Setting the receiving antenna's direction or location  
Increase the distance between this device and receiver.

Plug in this device's power connector into different circuits of the power outlet with receiver.  
If you need technical support, please inform the dealer or experienced radio/TV technical personnel.

## TECHNICAL SUPPORT AND SERVICE

Please visit: [Pmm-usa.us](http://Pmm-usa.us) to get the details.

User should collect the product information following:

- Product name and serial number.
- Attached device's description.
- User software description (operational system, vision, application software and so on).
- Full description of the product's problem -Full details of every error information.

## SAFETY INSTRUCTIONS

- Read the safety operating introduction carefully.
- Be cautious of the warnings and notices on the device.
- DO NOT use any liquid or decontamination spray to clean up the device, and assure that it is totally disconnected while cleaning!
- Ensure that the device is in a stable position before installation; to avoid falling it down.
- Ensure that the out voltage of power outlet, fits the required voltage, before connecting the device.
- Keep the cables in suitable covered place.
- If the device is not used for a long time, shut off the power to avoid the damages by transient overvoltage.
- DO NOT allow any liquid flow into the device; to avoid fire or short circuit.
- DO NOT pull the device up by yourself, let certificated engineer collaborate for safety assurance purposes.
- DO NOT store the device in out of the recommended temperature range; NOT less than -30°C or higher than 80°C.

If you face the following situations, please repair it by professional party:

- Broken Power cable or connector.
- Liquid flow into the device.
- Device is not working properly.
- The device falls down or damaged.
- Appearing of any obvious malfunctions.

### Warning:

- Read the power supply input carefully.
- Package: be careful, please take the device by both hands.
- Maintenance: clean and maintain the device using recommended, safe and suitable methods.

### Caution:

If user changes the unauthorized setting, or repairs the device without any approval of the relevant authority; then user's rights of controlling this device will be canceled.

# Contents

## OVERVIEW

FEATURES .....	5
APPLICATION .....	5
DESCRIPTION .....	5
SCHEMATIC DIAGRAM .....	6
AMR AND SCADA INTEGRATION (OPTIONAL).....	6
ORDERING INFORMATION.....	7
OPTIONAL ITEMS.....	7
ACCESSORIES.....	7
WORLDWIDE DISTRIBUTION (OUT OF USA).....	7
SPECIAL MODIFICATIONS TO FIT YOUR NEEDS .....	7
ENCLOSURE ASSEMBLY INFORMATION.....	8
ENCLOSURE DIMENTIONS .....	9
FACE PLATE AND PANEL OPENNING .....	10
TECHNICAL SPECIFICATIONS .....	11

## HAZARDOUS MATERIALS DISCLOSURE

HAZARDOUS MATERIALS DISCLOSURE TABLE FOR IPB PRODUCTS CERTIFIED AS ROHS COMPLIANT.....	12
UNDER 2002/95/EC WITHOUT MERCURY	

## FEATURES

- Ultra-fast switching time (< 7ms)
- Detects voltage circuit failures
- Compact design
- Mechanically stable
- Detects phase angle imbalance
- Detects reverse phase sequence
- Detects supply undervoltage
- Single or double shot reclose with selectable auto reset mode.
- LED indicators to show healthy incoming and outgoing supplies.
- 110V, 220V, 415V 50Hz or 60Hz versions.
- Failsafe operation (Contact normally connected to primary source (source 1).
- Din rail, Size 2 rack or flush mount draw out case mounting options.
- Optional CPU and RS485 communication module (Modbus RTU).

## APPLICATION

The PMM0210 is a high-speed voltage selection relay designed to automatically change over from a primary 3 phase supply to a secondary 3 phase supply if any phase of the primary supply has faulted.

The relay monitors the three-phase voltage supply and operates if the supply is interrupted or becomes unbalanced due to failure of the voltage transformers primary or secondary.

Recovery of the primary supply to a healthy condition will cause the relay to change back to the primary supply if automatic source 1 priority selected, the automatic can be selected by connecting priority terminals together.

In case of manual mode, you need to press the reset button on the front panel to reset the connection to the primary source.

Front panel LEDs will indicate the status of operation and sources thus allowing fault recognition. The LEDs will extinguish for the following conditions:

- Input sources line status.
- Output health and active source indicators.
- Phase rotation sequence indicator.
- Automatic reset selection.
- CPU status.
- RS485 Communication status.

A typical application as a voltage selection relay is the automatic connection of metering equipment to an alternative supply if the primary or preferred supply fails, or any similar application.

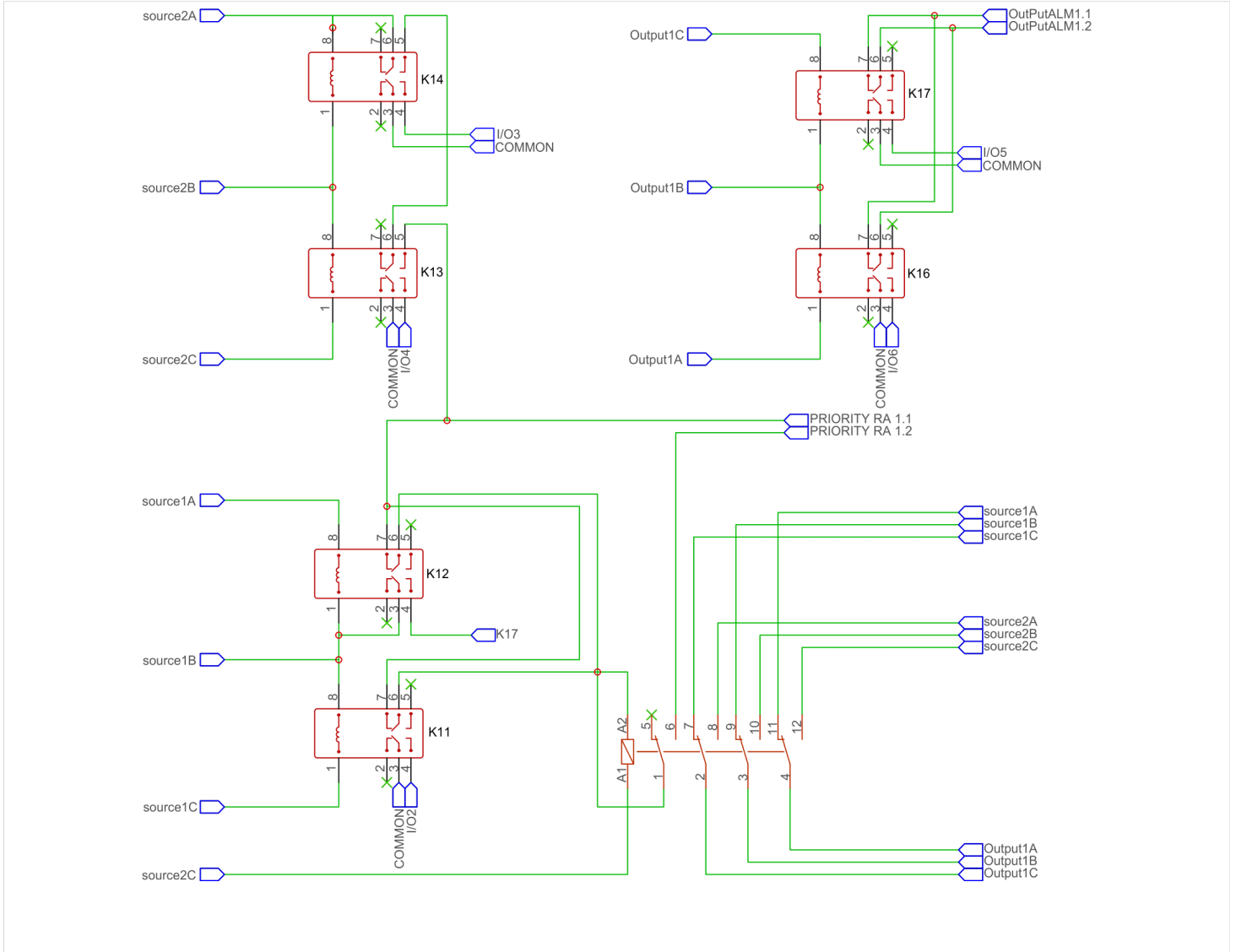
## DESCRIPTION

PMM0210 in basic; is a phase failure relay suitable for 3 phase supplies, an internal relay allows for automatic changeover from a primary to secondary 3 phase supply when a fault is detected in the primary supply. An additional alarm contact & front panel LED indicator are provided for ease of fault diagnosis.

PMM0210 has an optional CPU board which provide the client with RS485 connection to monitor the status of primary and secondary supply as well as alarm and fault log.

The CPU board provides an independent internal source of signals which can be integrated in metering system and provide the client with accurate switching time for invoicing calculation purposes.

# SCHEMATIC DIAGRAM



## AMR AND SCADA INTEGRATION (OPTIONAL)

An optional CPU board with (MODBUS RTU) communication unit can be added which provide the client with the ability to monitor the status of primary, secondary supply and the alarms log, this optional unit comes with variety of options for supply voltage which covers most standard used industrial power supplies.

# ORDERING INFORMATION

Type	Description
PMM0210-XXXV	Basic Automatic Voltage Selection Relay with XXX volts operating value, available options: 110: 110VAC 220: 220VAC 415: 415VAC

## OPTIONAL ITEMS

PMM0210-CPU	Internal CPU card for functional monitoring
PMM0210-RS485	Internal RS485 Communication module
PMM0210-INV-XXX	DC/AC internal power supply (XXX: value in Volts), with the following available options: 050: 10-56VDC / 10-48VAC 100: 100-300VDC / 85-265VAC

## ACCESSORIES

PMM0210-DIN02	1x DIN Rail Clip
PMM0210-MB02	2x Mounting Bracket
PMM0210-PM02	2x Front panel Bracket
PMM0210-FP02	1x Face Plate (4mm screw)

## WORLDWIDE DISTRIBUTION (OUT OF USA)

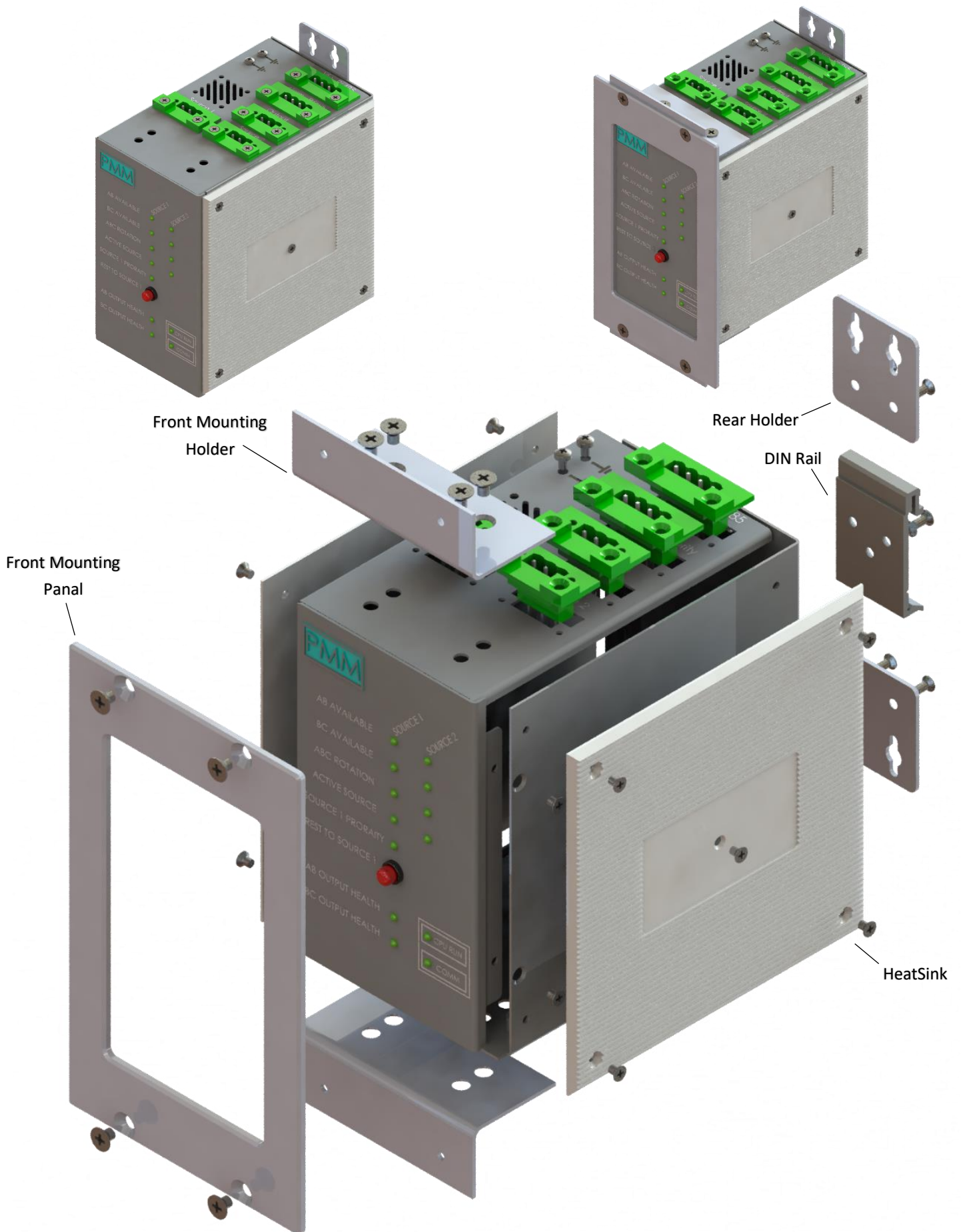
Amazon, ebay, and direct sales are the sole and exclusive distributor outside the territory of USA.

For dirt quotation contact us on [sales@Pmm-usa.us](mailto:sales@Pmm-usa.us)

## SPECIAL MODIFICATIONS TO FIT YOUR NEEDS

For any customized inquiries and orders; contact us on [sales@Pmm-usa.us](mailto:sales@Pmm-usa.us)

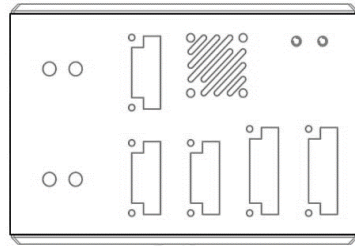
# ENCLOSURE ASSEMBLY INFORMATION





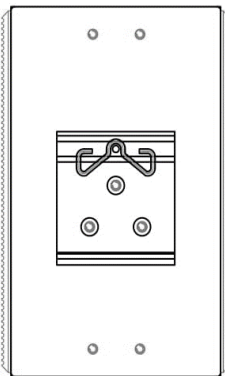
# ENCLOSURE DIMENTIONS

Top View

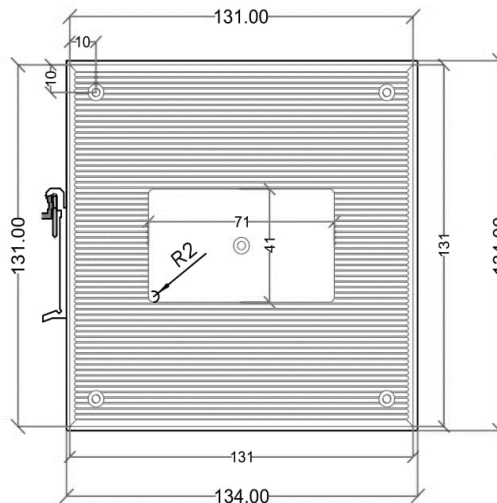
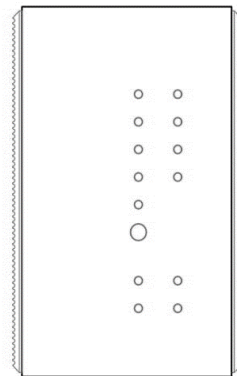


Top View

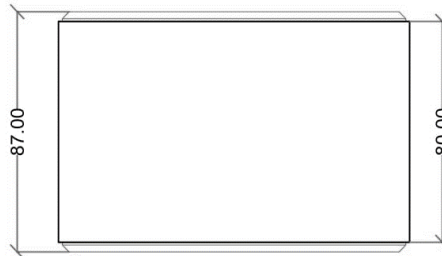
Back View



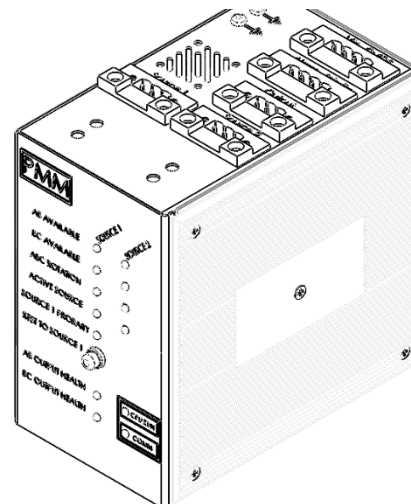
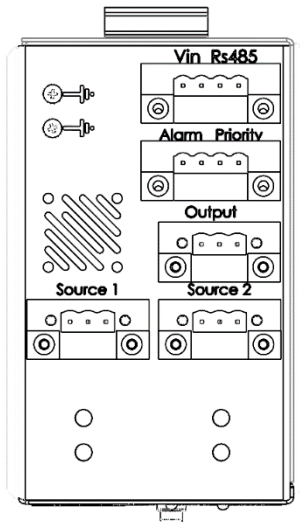
Front View



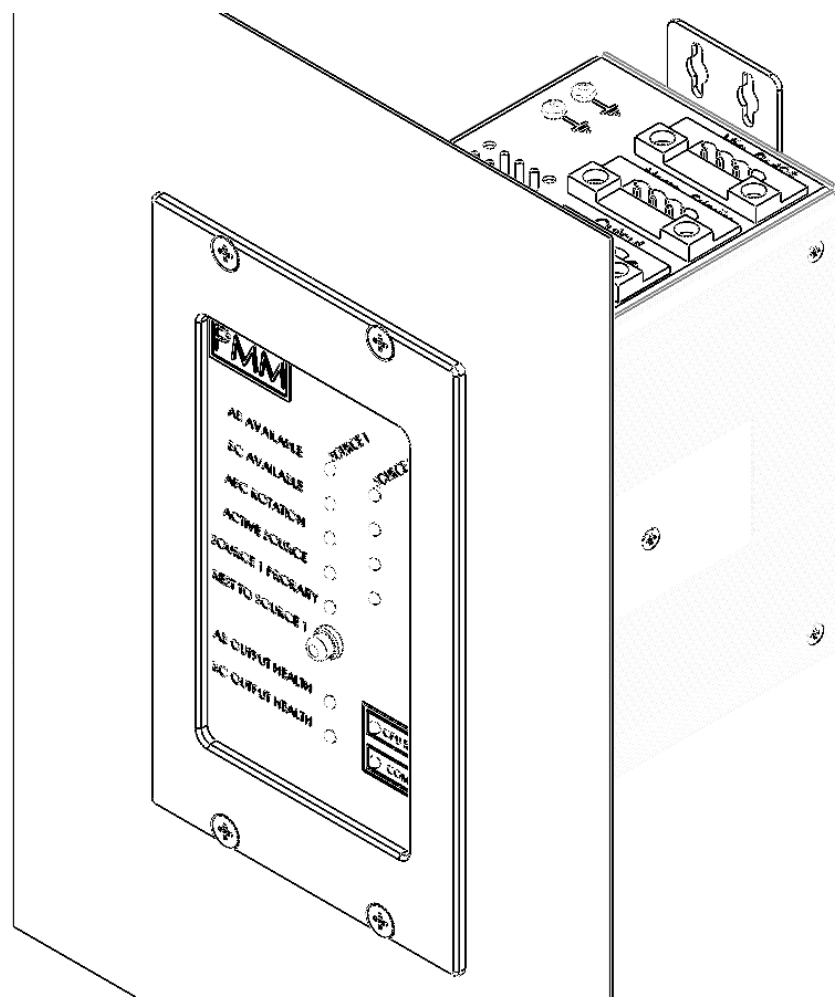
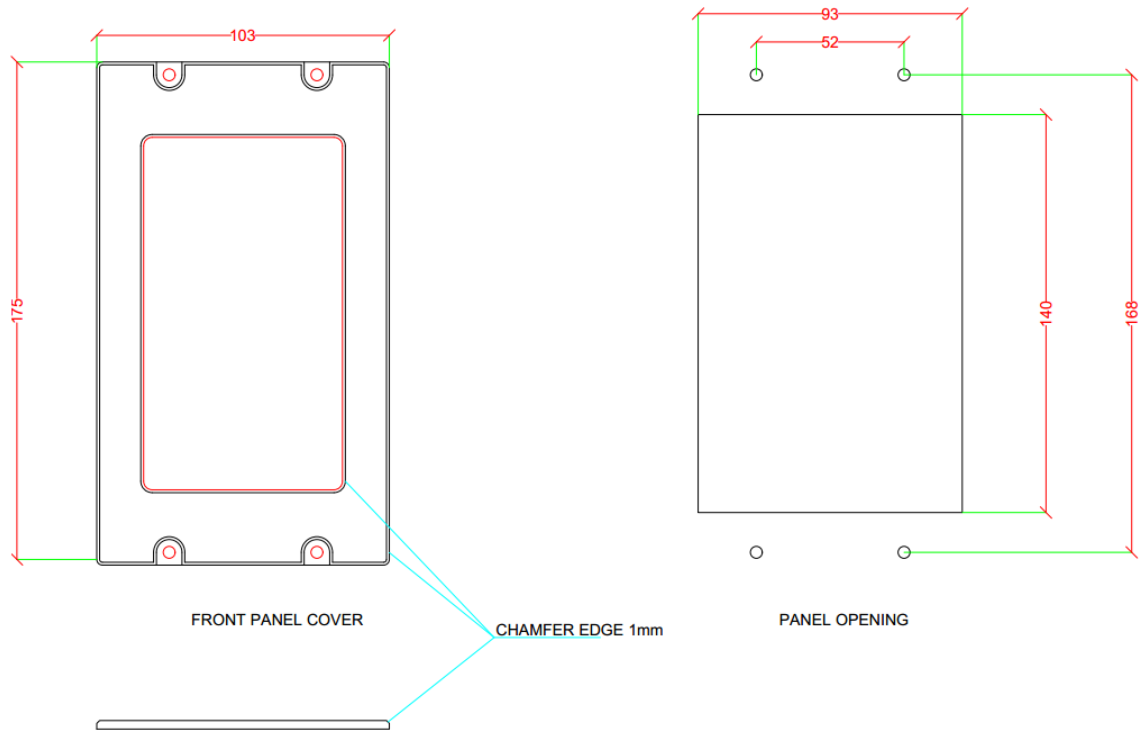
Side View



Bottom View



# FACE PLATE AND PANEL OPENNING



# TECHNICAL SPECIFICATION

## Ratings

Voltage Ratings	110/125V ac 220/250V 415/440V
Burdens	Less than 0.1 amp per phase at rated voltage
Frequency	50 or 60Hz
Operating boundaries	80% – 125% of lower rating
Contacts	Six pairs of isolated self-reset changeover contacts are provided for voltage selection switching.
Make and carry continuously	1250VA with maxima of 5A and 660V
Make and carry for 3 seconds	7500VA with maxima of 30A and 660V
Break	1250VA with maxima of 5A and 660V

## Voltage withstand

Dielectric IEC 255-5	2kV rms for 1 minute between all case terminals connected and the case earth terminal. 2kV rms for 1 minute between independent circuits including contact circuits. 1kV rms for 1 minute across normally open outgoing contact pairs.
High voltage impulse IEC 255-5	5kV peak, 1.2/50ms, 0.5J between all terminals and case earth and between adjacent terminals.
High frequency disturbance IEC 255-22-1 Class III	Static relays only: 2.5kV peak between independent circuits 2.5kV peak between circuits and case earth 1MHz bursts decaying to 50% of circuit's peak values after 3-6 cycles.

## Environmental withstand

Temperature IEC 68-2-1	Storage and transit –25°C to +70°C
IEC 68-2-2	Operating –25°C to +55°C.
Humidity	56 days (at 93% RH and +40°C)
Enclosure protection IEC 529	IP50 (dust protected) (individual relays)
Vibration IEC 255-21-1 Class 1	0.5g between 60Hz and 300Hz, 0.07mm peak–peak between 10Hz and 60Hz.
Mechanical durability	
Loaded contact	10,000 operations minimum
Unloaded contact	100,000 operations minimum

## HAZARDOUS MATERIALS DISCLOSURE

### Hazardous Materials Disclosure Table for IPB Products Certified as RoHS Compliant Under 2002/95/EC without Mercury

The details provided in this appendix are to ensure that the product is compliant with the Peoples United states of America (USA) RoHS standards. The table below acknowledges the presences of small quantities of certain materials in the product and is applicable to USA RoHS only.

A label will be placed on each product to indicate the estimated “Environmentally Friendly Use Period” (EFUP). This is an estimate of the number of years that these substances would “not leak out or undergo abrupt change.” This product may contain replace able sub-assemblies/components which have a shorter EFUP such as batteries and lamps. These components will be separately marked.

Please refer to the table below.

Part Name	Toxic or Hazardous Substances and Elements					
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent Chromium (CR(VI))	Polybrominated Biphenyls (PBB)	Polybrominated Diphenyl Ethers(PBDE)
Housing	X	O	O	O	O	X
Housing	X	O	O	O	O	X
Printed Circuit Board	X	O	O	O	O	X
Metal Fasteners	X	O	O	O	O	O
Cable Assembly	X	O	O	O	O	X
Fan Assembly	X	O	O	O	O	X
Fan Assembly	X	O	O	O	O	X
Battery	O	O	O	O	O	O

O: This toxic or hazardous substance is contained in all the homogeneous materials for the part is below the limit requirement in SJ/T11363-2006

X: This toxic or hazardous substance is contained in at least one of the homogeneous materials for this part is above the limit requirement in SJ/T11363-2006