



Power Meter Monitor

Business and Mission-

Critical Solutions Provider

AUTOMATIC VOLTAGE SELECTION RELAY

Data Sheet



Model: PMM1010

Document: Data Sheet

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DECLARATION OF CONFORMITY

This restriction is subject to protect the operational process of the system in the business environment, which will produce, use, and transmit radiofrequency energy. Harmful interference to radio communication could result if instructions to the correct installation and usage were not applied. The interference prevention cannot be guaranteed even with proper installation according to the manual. If the device causes a bad effect on the radio / TV signal. The user could preclude that by turning the device on/off.

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

1-Setting the receiving antenna's direction or location to increase the distance between this device and receiver.

2-Plug in the device's power connector into different circuits of the power outlet with the receiver.

3-If any technical support is needed, the dealer or experienced radio/TV technical personnel must be informed.

TECHNICAL SUPPORT AND SERVICE

Visit Pmm-usa.us to browse FAQs and get further details.

User should collect the following information before submitting technical support and service requests:

- Product name, model, and serial number.
- Installed software (operating system, OS version, installed applications and so on).
- Full description of the problem
- Detailed information about every error.

SAFETY INSTRUCTIONS

- Only trained and qualified personnel can install, operate, or maintain the device.
- Before starting the installation, all safety precautions must be read and warning labels affixed to the device must be observed. Doing so protects the device from damage and ensures your safety.
- Safety precautions provided in this document may not cover all safety aspects, note to always remain mindful of safety.
- PMM is not liable for any consequence that results from violation of regulations pertaining to safe operations or safety codes pertaining to design, production, and equipment usage.
- DO NOT use liquids or decontamination spray to clean the device surface and assure that it is totally disconnected while cleaning.
- Take all measures to prevent device drop before or during installation.
- Prior to connecting the device to power source, ensure the source and device voltage and power are 100% matched.
- Keep the cables in a 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.
- The recommended storage temperature range should NOT be less than 30°C OR higher than 85°C.



Warning:

- Read the power source and device inlet carefully.
- Handle device with both hands.
- Clean and maintain the device using recommended, safe and suitable methods.



Caution:

If any unauthorized changes of settings or repairs are done without PMM approval; then user's rights of controlling this device will be canceled.



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KEY FEATURES

- Ultra-fast switching time (< 7ms)
- Detects source voltage failures
- Detects phase angle imbalance
- Detects reverse phase sequence
- Detects supply under-voltage
- Single or double shot reclose with selectable auto reset mode.
- LED indicators to show healthy incoming and outgoing voltage sources.
- 110V, 220V, 415V 50Hz or 60Hz versions.
- Failsafe operation (contact normally connected to primary source (source 1)).
- Compact design and mechanically stable
- Din Rail, wall and panel mount mounting options.
- Optional CPU and RS485 communication module (Modbus RTU).

TARGET APPLICATION

PMM1010 monitors the three-phase voltage supply and operates immediately if the supply is interrupted or becomes unbalanced due to failure of the primary or secondary voltage sources.

The recovery of the primary supply to a healthy condition will cause the relay to change back to the primary supply (if automatic mode for source 1 priority is selected).

The automatic recovery mode can be set by connecting priority terminals together. In case of manual mode, the user needs 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 sources and device operation and thus allowing fault recognition. The LEDs will be activated due to the following conditions:

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

Also, 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

PMM1010 is an internal, high-speed metering auto voltage selection relay designed to allow automatic changeover from a primary 3-phase supply to a secondary 3-phase supply if any fault in the primary supply is detected. An alarm contact and front panel LEDs indicators are provided to ease fault diagnosis.

The device also, has an optional CPU board which provides the client with RS485 connection to remotely 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 the metering system, therefore, providing the client with an accurate switching time for invoicing calculation purposes.

TECHNICAL SPECIFICATIONS

Ratings

Voltage ratings	110/125V AC
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 maximum of 5A and 660V
Make and carry for 3 seconds	7500VA with maximum of 30A and 660V
Break	1250VA with maximum of 5A and 660V

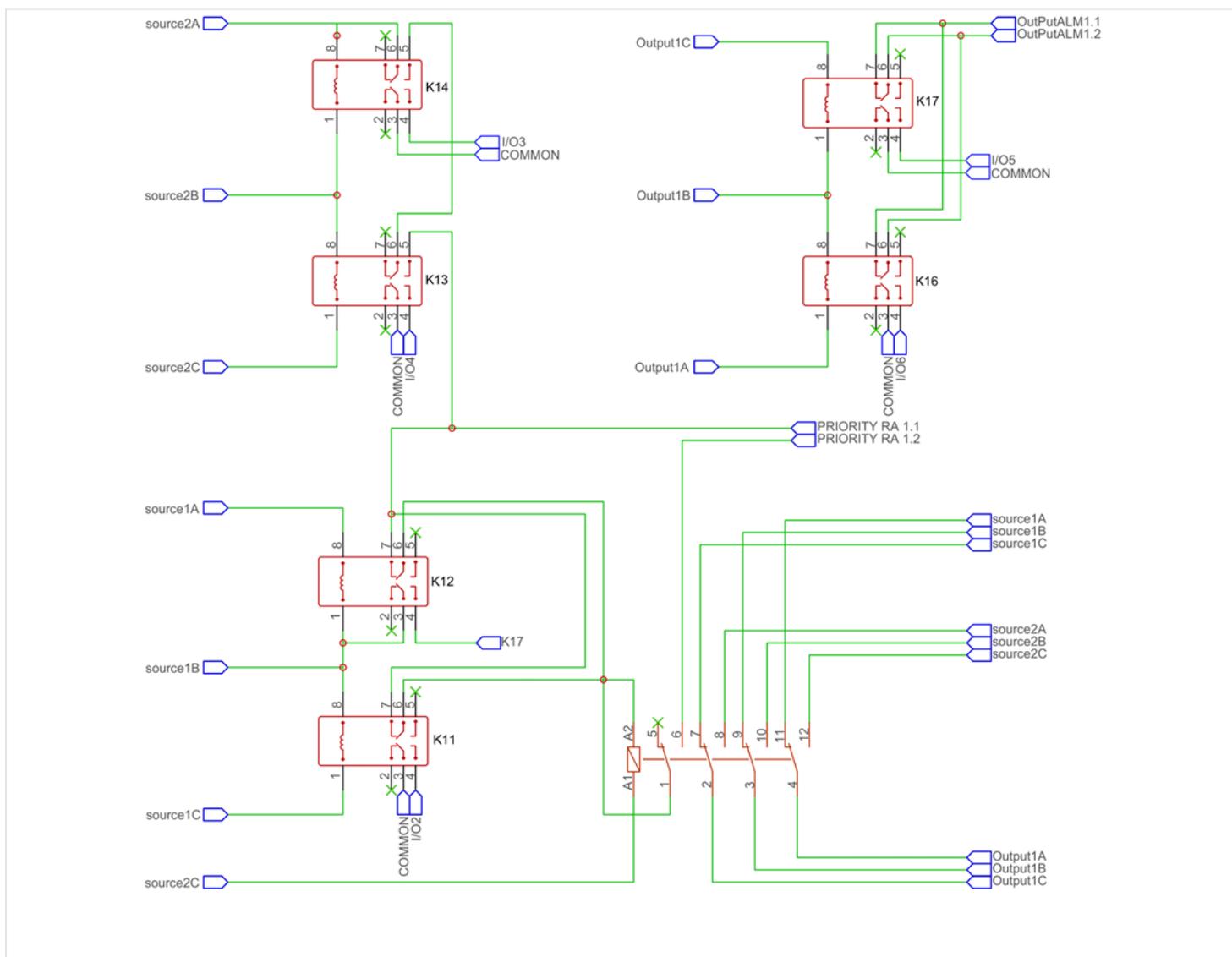
Voltage Operating Ranges

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 Conditions

Temperature IEC 68-2-1 IEC 68-2-2	Storage and transit –25°C to +70°C 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 Unloaded contact	10,000 operations minimum 100,000 operations minimum

SCHEMATIC DIAGRAM



*AMR AND SCADA INTEGRATION (OPTIONAL)

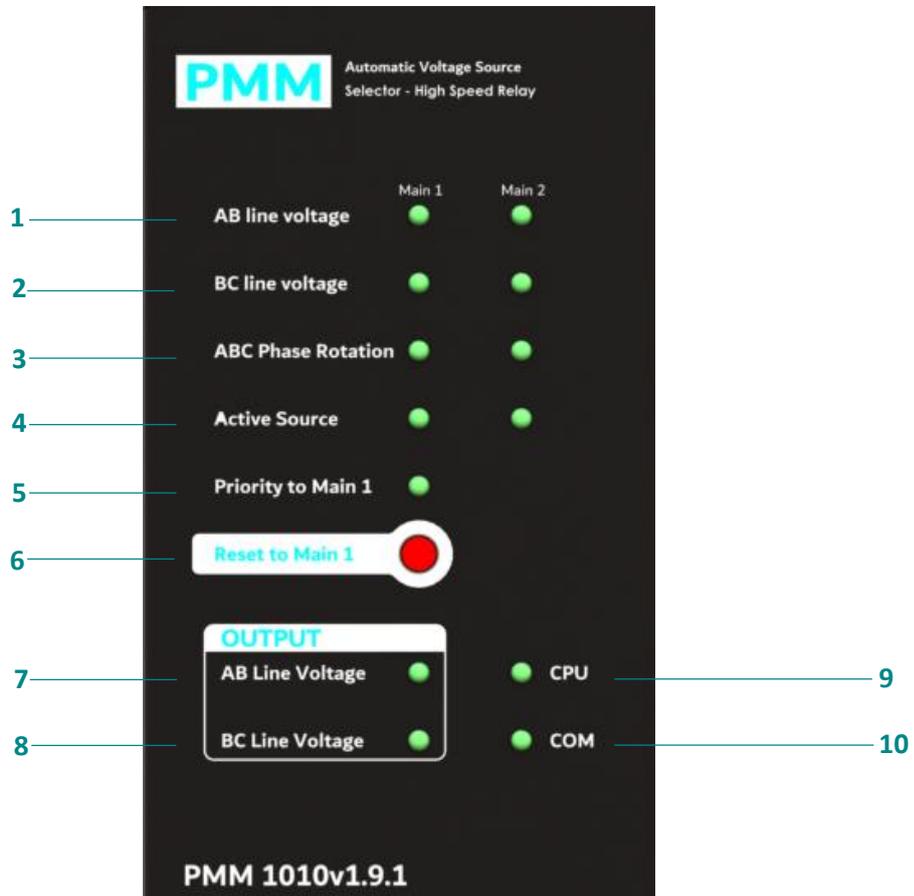
If it has been chosen to purchase PMM1010 with the optional CPU board, then AMR (Automatic Meter Reading) and SCADA systems integration can be performed, that is basically; an optional CPU board with (MODBUS RTU) communication unit that can be added to provide the ability of remotely monitoring of primary, secondary supply sources the read alarms logs and history. This optional unit comes with a variety of options for supply voltage which covers most standard-used industrial power supplies.

ENCLOSURE ASSEMBLY INFORMATION



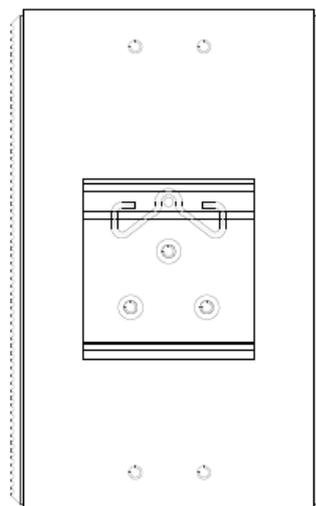
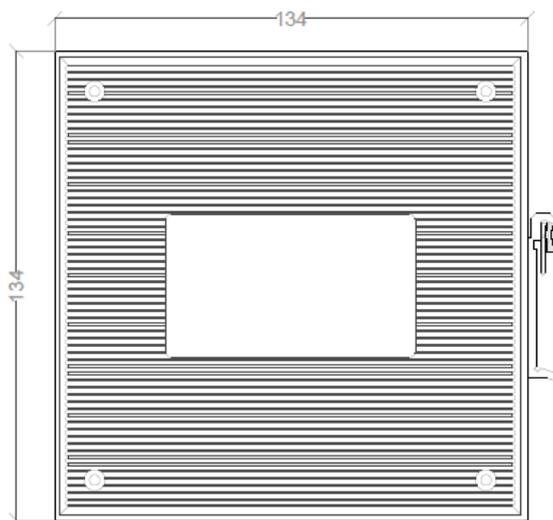
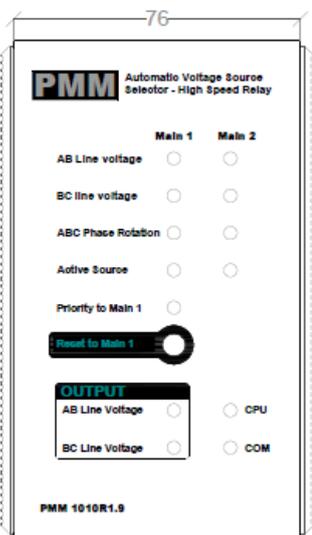
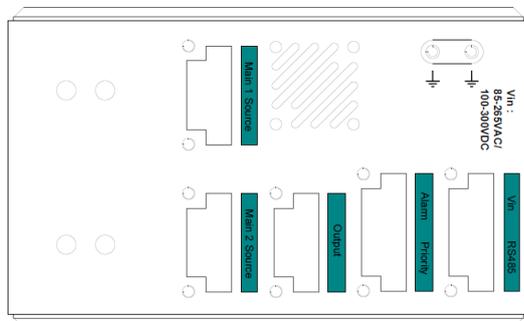
ITEM	DESCRIPTION
1	Vin + RS485
2	Alarm + Priority
3	Output
4	Source 2
5	Source 1
6	LED indicators
7	Heat sink
8	Screw

LEDS INDICATOR PANEL



ITEM	DESCRIPTION
1	When phase angles and amplitude between A and B are precise the LED status is ON
2	When phase angles and amplitude between B and C are precise the LED status is ON
3	When wrong phase sequence rotation is detected the LED status is ON
4	The activate source indicator
5	If fault is detected, the LED will be turned ON until the source returns to healthy condition and reverted to source1 automatically
6	Reset button to return to Source1 manually
7	When the AB output is healthy, the LED status is ON
8	When the BC output is healthy the LED status is ON
9	Device with CPU options installed
10	RS485 communication blinking LED

ENCLOSURE DIMENSIONS



ORDERING INFORMATION

Order Configuration Table				
PMM1010	- X	*- XX	*- XXX	*- XXXX
Source1,2 Voltage				
110:110 VAC	-A			
*Optional Items:				
Power Supply				
85-265 VAC (needed if below CPU and PMM0912 are purchased)		-1		
CPU				
PMM0941 ATSAMD			-E	
PMM0942 ESP32			-F	
COM Module				
PMM0912 (RS485)				-0912

Accessories

DIN Mounting Kit (Included 1 Kit)	DIN Rail Mounting Bracket
Wall Mounting Kit (Included 1 Kit)	2x Wall Mounting Bracket
Panel Mounting Kit	2x Panel Mounting Bracket
Rack Mounting Kit	Rack Mounting Bracket

CONTACT INFORMATION

For direct inquiries or any customized orders, contact us on sales@Pmm-usa.us