



Power Meter Monitor

**Business and Mission-  
Critical Solutions Provider**

## Two Axis Position Sensor PMM Tracking Solutions

# Data Sheet



**Model:** PMM1102

**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](http://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

- Waterproof outdoor simple and easy to install
- 1x Modbus RTU (2 wires RS485)
- 2x Analog Output (Voltage range: 0-10V or 0-5V) for each axis
- Supports two options:
  - Absolute reading (Optional)
  - Instant reading
- High accuracy and reliable
- Proof tested
- Wide range of power supply options (10-60 VDC)
- EMI, EMS, EMC and shock protected
- -40 to 85°C (-40 to 185°F) Operating temperature
- 5% to 90% Non-condensing Relative Humidity
- Standard 35mm din rail mounting bracket

## DESCRIPTION

Tracker-mounted photovoltaic and solar thermal installations' efficiency and profitability greatly depend on how precisely the receiving units are directed at the sun; as a result, tracking control intelligence is essential to maximizing energy and profit return.

PMM1102 provides accurate reading of the tracker position. Which allows for comparing the current position of the tracker with the most precise position relative to the sun. In addition, based on the sensor feedback which compares the collector position and the solar position PMM1102 provides a drive analog signal (0-10V or 0-5V) until the two positions are equal.

As certified by independent third parties, PMM tracking systems performs the control intelligence that delivers maximized energy harvesting of tracker-mounted PV and solar-thermal installations. The system is scalable to performs single to multiple trackers exist in utility scale power plants.

## APPLICATIONS

- Single axis PV.
- Concentration PV (CPV).
- High-concentration PV (HCPV).
- Solar-thermal.
- Concentration solar-thermal.

# TECHNICAL SPECIFICATIONS

## Interfaces

|        |   |
|--------|---|
| Serial | 1x RS485 port   |
| AI/AO  | 2x Analog Output (Voltage range: 0-10V or 0-5V) for each axis |
| USB    | 1x USB2.0 Type micro-B  |

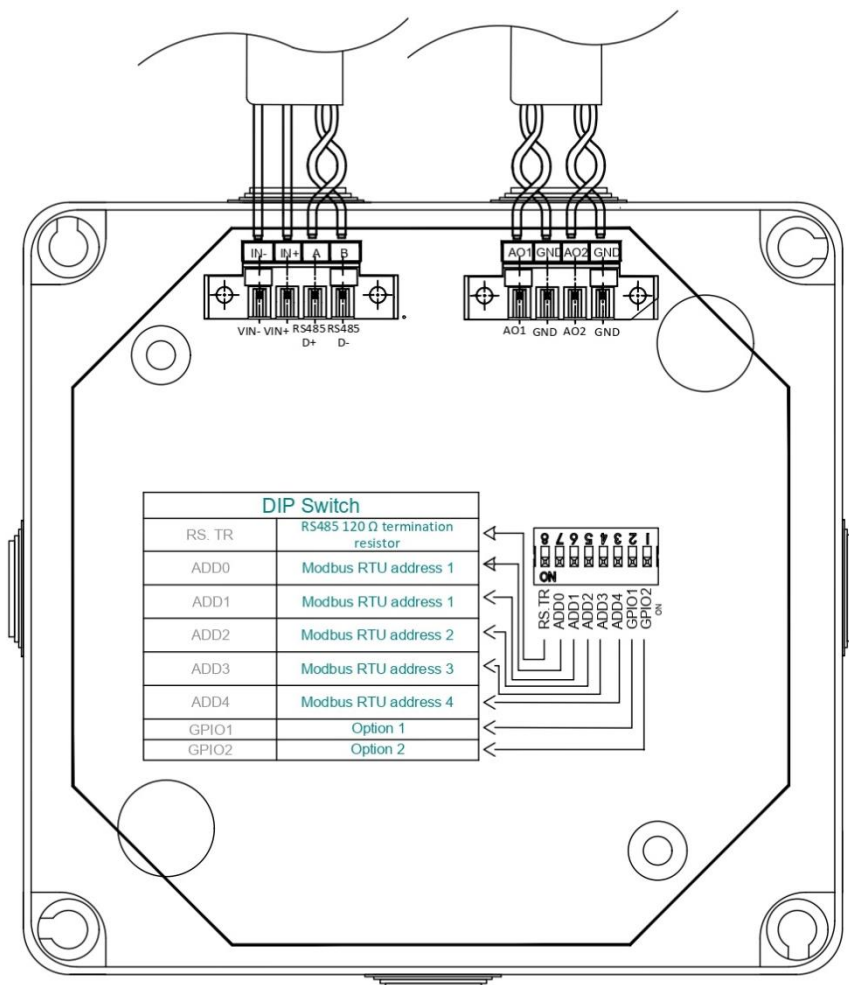
## Power Parameters

|                            |                              |
|----------------------------|------------------------------|
| Input Power Supply Options | 10-60 VDC                    |
| Power Connector            | Phoenix Contact 4 pins 3.5mm |

## Physical Characteristics

|                      |   |
|----------------------|---|
| Housing Plastic      | Plastic                                   |
| Degree of Protection | IP165                                     |
| Dimensions           | 4.1 x 4.1 x 2.56 inch (105 x 105 x 65 mm) |
| Certifications       | RoHS, CE and FCC                          |

## PIN DESCRIPTION



# HARDWARE CONNECTIONS

## 1. Connecting Power

PMM1102 requires input power of 10-60VDC, the user has to connect the positive power line (+) to pin VIN+ and the negative line (-) to pin VIN- as illustrated in the pin's assignments.

**Note:** the power is protected against transient voltage and reverse polarity in case of wrong connection.

## 2. Connecting Serial Device

If you are connecting an RS485 multidrop network with multiple devices, note the following:

1. All devices that are connected to a single serial port must use the same protocol (i.e., either Modbus RTU or Modbus ASCII).
2. Connect the D+ with pin A and D- with pin B and Earth with pin no.4 as illustrated in the pin's assignments to complete the connection successfully.

## 3. Connecting Analog output

For the first analog output, connect the positive wire with AO+ pin and the negative with the GND pin.

For the second analog output, connect the positive wire with AO+ pin and the negative with the GND pin.

# DIP SWITCH CONFIGURATION

PMM1102 can be alternatively switched between many preprogrammed modes through the dip switch shown in the figure.

- Turn on the dip switch (closed circuit) on the mode number to enable the device to run in functional programmed mode.
- In case of not choosing any modes by the user the device will run in the general/default mode.

| PIN    | Description                             |
|--------|---|
| RS. TR | RS485 120 $\Omega$ termination resistor |
| ADD0   | Modbus RTU address 0                    |
| ADD1   | Modbus RTU address 1                    |
| ADD2   | Modbus RTU address 2                    |
| ADD3   | Modbus RTU address 3                    |
| ADD4   | Modbus RTU address 4                    |
| GPIO1  | Option 1                                |
| GPIO2  | Option 2                                |

## ORDERING INFORMATION

| Order Configuration Table         |  |       |
|-----------------------------------|--|-------|
| <b>PMM1102 (Instant Reading)</b>  |  | -09xx |
| <b>COM Port 1</b>                 |  |       |
| RS485 (PMM0912)                   |  | -0912 |
| <b>COM Port 2</b>                 |  |       |
| RS485 (PMM0912)                   |  | -0912 |
|                                   |  |       |
| <b>PMM1102 (Absolute Reading)</b> |  | -09xx |
| <b>COM Port 1</b>                 |  |       |
| RS485 (PMM0912)                   |  | -0912 |
| <b>COM Port 2</b>                 |  |       |
| RS485 (PMM0912)                   |  | -0912 |

### Accessories

|                                  |                           |
|----------------------------------|---------------------------|
| DIN Mounting Kit (Included 1Kit) | DIN Rail Mounting Bracket |
|----------------------------------|---------------------------|

## CONTACT INFORMATION:

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