



Power Meter Monitor

**Business and Mission-
Critical Solutions Provider**

8 x AI (12bit, Flex AI)

Data Sheet



Model: PMM0632

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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.

Contents

DESCRIPTION4

KEY FEATURES.....4

TECHNICAL SPECIFICATIONS.....5

HARDWARE CONFIGURATION.....5

PIN ASSIGNMENTS.....6

HARDWARE CONNECTIONS.....7

 1. Connecting Power.....7

 2. Connecting Serial Device7

 3. Connecting Analog Input:7

ENCLOSURE DIMENSIONS8

KEY FEATURES

- 8 x 12-bit Flex Analog Input/Output
- 32-bit ARM core CPU with 48 MHz clock
- Hot swap redundancy exchange and fail safe ready
- Stand-alone programming or Modular operation modes
- 1x Ethernet 10/100 port
- 1x Serial RS485 port with power surge $\pm 2.5\text{kV}$ isolation protection
- Overvoltage and reverse polarity protected
- Onboard Termination resistor via dip switch
- Wide range of power supply options (9-56 VDC)
- 5000V system/field isolation
- Simple to set up and cost effective
- High speed data read/write with high reliability and accuracy
- EMI, EMS, EMC and shock protected
- -40 to 80 °C Operating temperature
- 5% to 90% Non-condensing Relative Humidity
- Standard 35mm din rail mounting bracket

DESCRIPTION

PMM0632 is a reliable, and simple to set up 8 x 12 bit Flex Analog Input module. It is useful and could be used for many industrial applications as the module either sends to the CPU the received analog signals from sensors and field devices directly or sends analog signals from the CPU to field actuators through connection with signal conditioner (refer to [HARDWARE CONFIGURATION](#) section for more details) based on the functional code. The AI/AO signals are either voltage signals (0-3.3V) or current (4-20mA). The voltage AI/AO signals are directly connected with the CPU. However, to convert the current signals to voltage the dip switch must be turned on. The dip switch has eight pins, the user can configure any of them individually based on how many current inputs/outputs are needed.

Moreover, PMM0632 operates under three operational modes:

- **Modular operation mode:** the module is connected to a PLC by RS485 and implement specific function assigned by the PLC.
- **Fail Safe mode:** the module should be pre-programmed in case of lost connection with the PLC to carry on its function effectively.
- **Stand-alone:** the module can be programmed to work as PLC and control the field devices.

In addition, PMM0632 industrial grade IO module can function under harsh environmental conditions of any site. It is reliable, easy to configure, has an extreme accuracy and high resolution.

TECHNICAL SPECIFICATIONS

Interfaces

Serial	1x RSR85 port
Ethernet	1x 10/100
AI/AO	8 x AI/ AO (12bit)
USB	1x USB2.0 Type micro-B
LED Indicators	1x LED for power indication 1x LED for code execution indication 1x LED for Tx and 1x LED for Rx for communication over RS485 port indication

Power Parameters

Input Power Supply Options	9-56 VDC (10-40 VAC)
Power Connector	Phoenix Contact 4 pins 3.5mm

Physical Characteristics

Housing	Polyamide (Nylon 6.66)/PA
Dimensions	3.91x4.37x0.99 inch (99.4x111.2x22.6 mm)
Mounting Options	DIN Rail

HARDWARE CONFIGURATION

The module directly receives analog input signals from the field side. However, to send analog output signals there must be a signal conditioner connected directly with the output performing signal conversion to a compatible voltage/current range to the actuators.

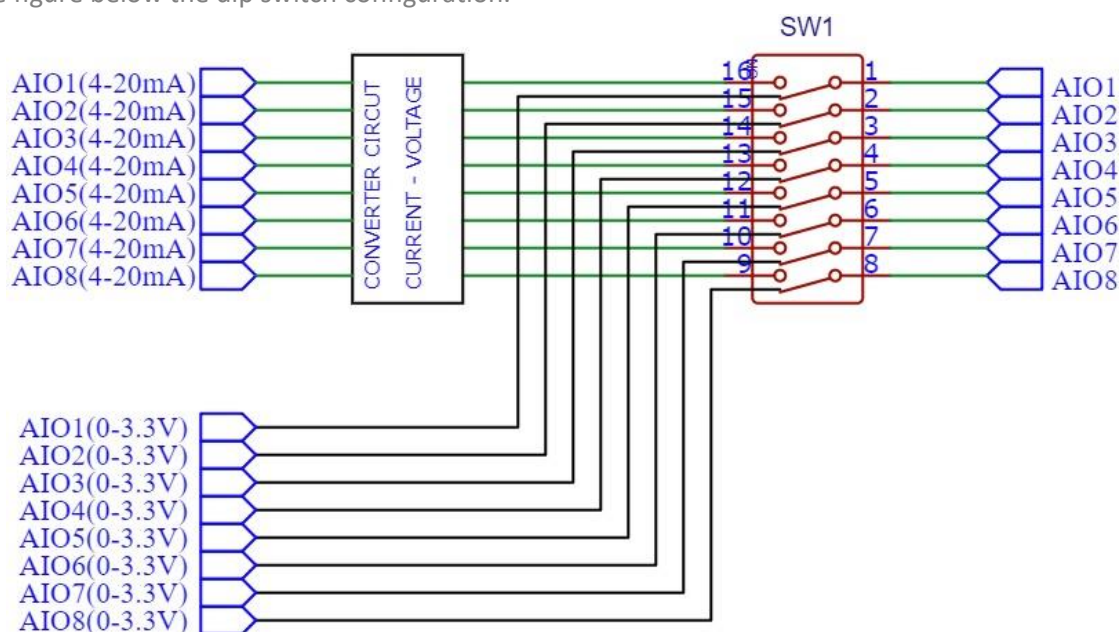
PMM07 series offers a wide variety of signal conditioners options with different conversion ranges and specifications.

PMM Signal Conditioners

Voltage analog signals whether input or output are connected directly to the CPU unlike the current signals that needs dip switch configuration for each input or output in order to convert the signal from 4-20mA range to 0-3.3V.

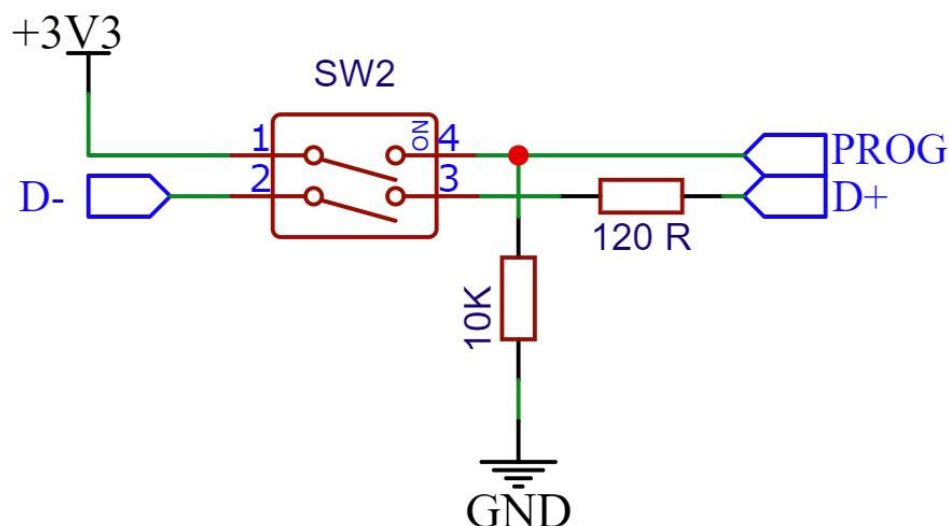
- The initial state of the dip switch is off, if the signal type is voltage keep the switch off
- If the signal type is current turn on the dip switch individually for each input/output to convert the signal

Shown in the figure below the dip switch configuration.



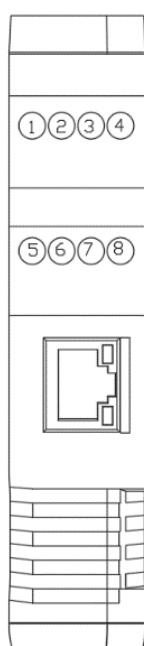
Termination resistor is needed to avoid data-corrupting reflections and expand the network between D+ and D- lines for the RS485.

- Turn on the dip switch (closed circuit) to have a termination resistor of 120Ω between D+ and D- lines.
- The other dip switch is for PROG mode, it is used to switch between two customized modes. As shown in the figure below.



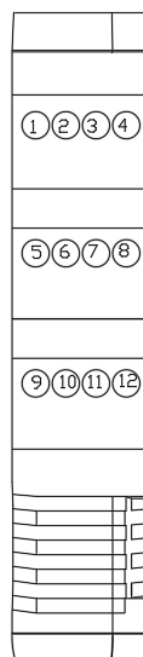
PIN ASSIGNMENTS

TOP VIEW



1. D+ (RS485)
2. D- (RS485)
3. V reference
4. Earth
5. V DC+ (9-56)
6. V DC- (9-56)
7. Earth
8. Earth

BOTTOM VIEW



1. Input/Output 01
2. Input/Output 02
3. Input/Output 03
4. Input/Output 04
5. Input/Output 05
6. Input/Output 06
7. Input/Output 07
8. Input/Output 08
9. GND
10. VCC 5V
11. GND
12. VCC 5V

HARDWARE CONNECTIONS

1. Connecting Power

PMM0632 has two power supply options 9-56V DC or 10-40 V AC, the user has to connect the positive power line (+) to pin no.5 in the top view and the negative line (-) to pin no.6 as illustrated in the pin's assignments.

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

2. Connecting Serial Device

The unit's serial port is located on the top panel. If you are connecting an RS485 multidrop network with multiple devices, note the following:

- All devices that are connected to a single serial port must use the same protocol (i.e., either Modbus RTU or Modbus ASCII).
- Connect the D+ with pin no.1 and D- with pin no.2 and Earth with pin no.4 as illustrated in the pin's assignments to complete the connection successfully.
- Turn on the dip switch to have 120 Ω termination resistor between the D+ and D- lines. Refer hardware configuration section.

3. Connecting Analog Input:

There are two types of the field sensors and devices that can be connected with the module and each one has a different connection:

- If the device has two lines connect the signal line with one of the eight analog input pins on the bottom view (01-08) and the ground line with pin no.9 or 11
- If the device has three lines connect the signal line with one of the eight analog input pins on the bottom view (01-08), the VCC 5V line with pin no.10 or 12 and the ground line with pin no.9 or 11.

4. Connecting to a Host or the Network

There is a 10/100 Ethernet port at the module's top panel. This port is used to connect the module with a host or Ethernet network.

ENCLOSURE DIMENSIONS

