PMM
Power Meter Monitor

Business and Mission-

Critical Solutions Provider

LoRaWAN to RS485 BusLink

Data Sheet
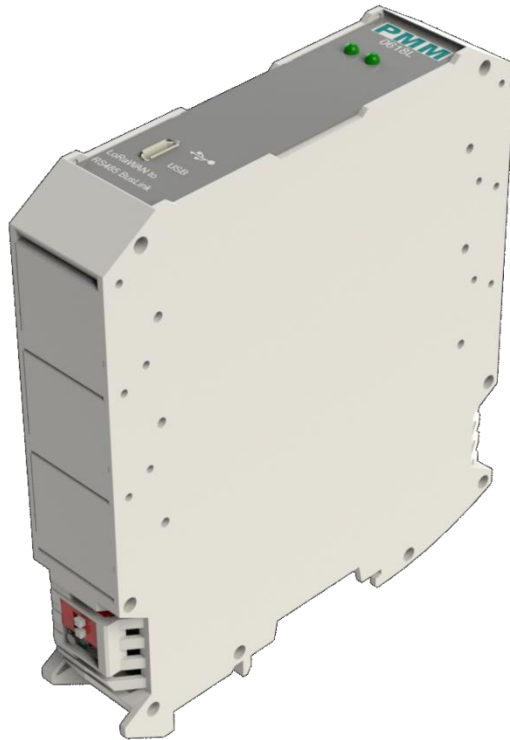
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DECLARATION OF CONFORMITY

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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Contents

KEY FEATURES

- Simple to set up and cost effective
- Support Modbus protocol devices
- STM32L072CZT6 MCU
- SX1276/78 LoRa Wireless Chip
- LoRaWAN Class C protocol
- Flexible rules to connect different RS485 devices
- Bands: CN470/EU433/KR920/US915 EU868/AS923/AU915/IN865/RU864
- AT Commands to change parameters
- Uplink on periodically or polling
- Downlink to send RS485 commands
- 1x Ethernet 10/100 port
- 1x Serial RS485 port with power surge ±2.5kV isolation protection
- Overvoltage and reverse polarity protected
- Onboard Termination resistor via dip switch
- Wide range of power supply options 10-60 VDC (10-48 VAC)
- 5000V system/field isolation
- 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

PMM0618L is a reliable, and simple to set up interface converter that implements data exchange. LoRaWAN TO RS485 Converter converts the LoRaWAN signal into RS485 wireless signal which simplify the IoT installation and reduce the installation/maintaining cost. It allows the user to monitor and control RS485 devices and reach extremely long ranges. It provides ultra-long range spread spectrum communication, and high interference immunity while minimizing current consumption.

For data uplink, RS485-LN sends user-defined commands to RS485 devices and get the return from the RS485 devices. RS485-LN will process these returns according to the user-define rule to get the final payload to upload to LoRaWAN server. For data downlink, RS485-LN runs in LoRaWAN Class C and will forward the commands from LoRaWAN server to RS485 devices.

The LoRaWAN specification is a Low Power, Wide Area (LPWA) networking protocol designed to wirelessly connect battery operated 'things' to the internet in regional, national or global networks, and targets key Internet of Things (IoT) requirements such as bi-directional communication, end-to-end security, mobility and localization services.

APPLICATIONS

It can be widely used in but not limited to the following applications:

- Irrigation systems
- Smart metering
- Smart cities
- Smart phones detection
- Smart Buildings/ Building automation
- Home Automation Logistics
- Supply Chain Management
- Smart Factory
- Smart Agriculture

TECHNICAL SPECIFICATIONS

Interfaces

Serial	1x RSR85 port
Ethernet	1x 10/100
USB	1x USB2.0 Type micro-B
LoRaWAN	1LoRaWAN PORT
LED Indicators	1x LED for Tx and 1x LED for Rx for communication over RS485 port indication

Power Parameters

Input Power Supply Options	10-60 VDC (10-48 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
Degree of protection	IP45

HARDWARE CONFIGRATION

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.
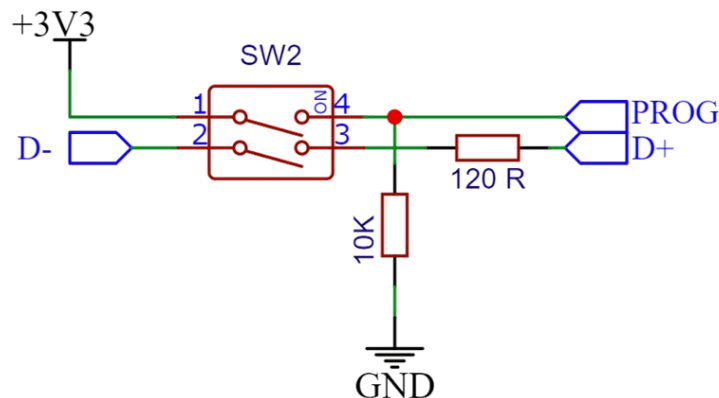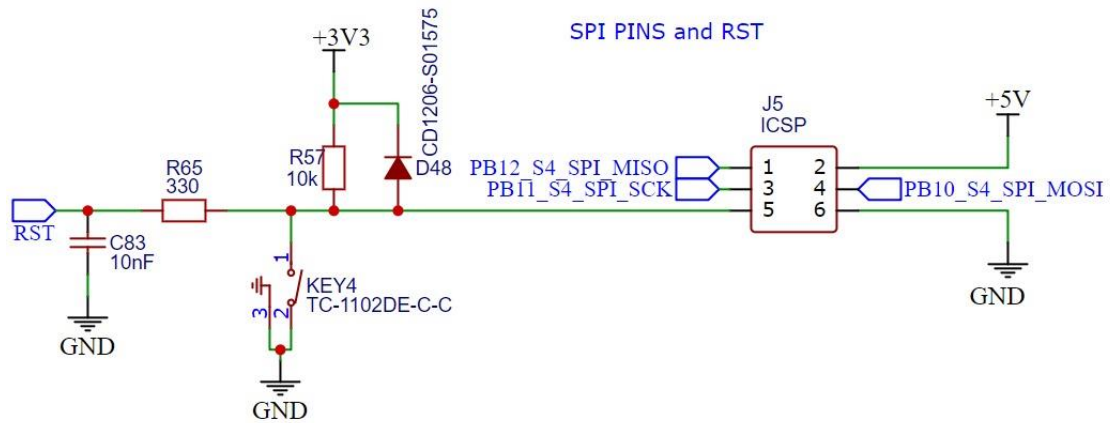

PMM0618L can be alternatively switched between two preprogrammed modes through the second dip switch.

- Turn on the dip switch (closed circuit) on mode number one to enable the device to run in the first functional programmed mode.
- Turn on the dip switch (closed circuit) on mode number two to enable the device to run in the second functional programmed mode.
- In case of not choosing any modes by the user the device will run in the general/default mode.
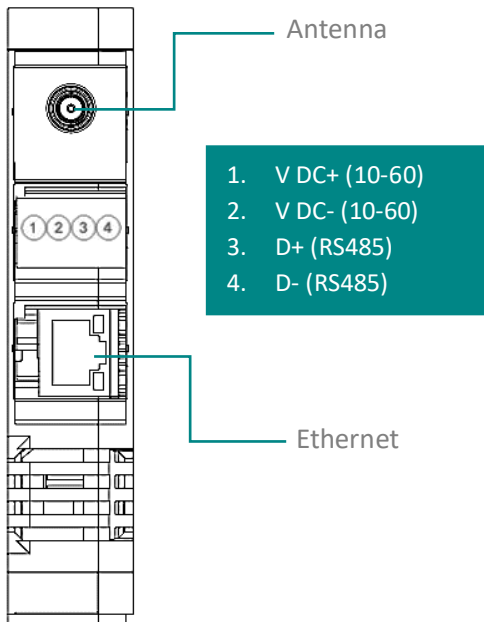
In addition, there is a reset button enabling the user to reset the device to the default settings.

- In order to reset the device; push the reset button.
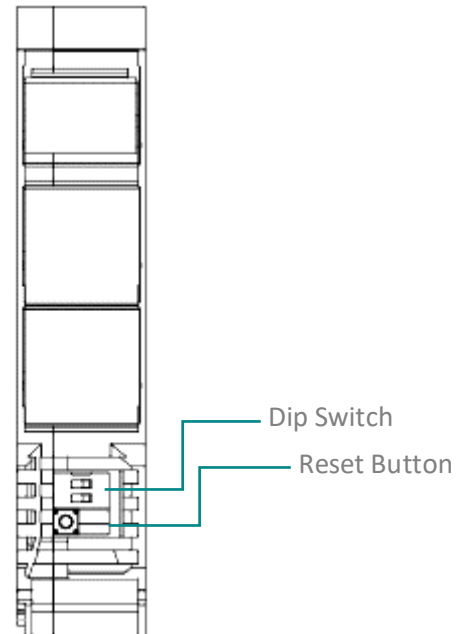- The device will reset automatically to the default settings.
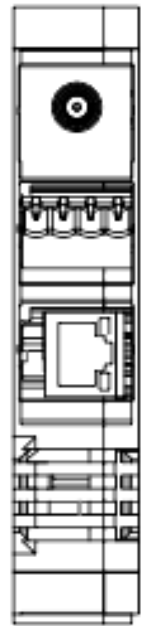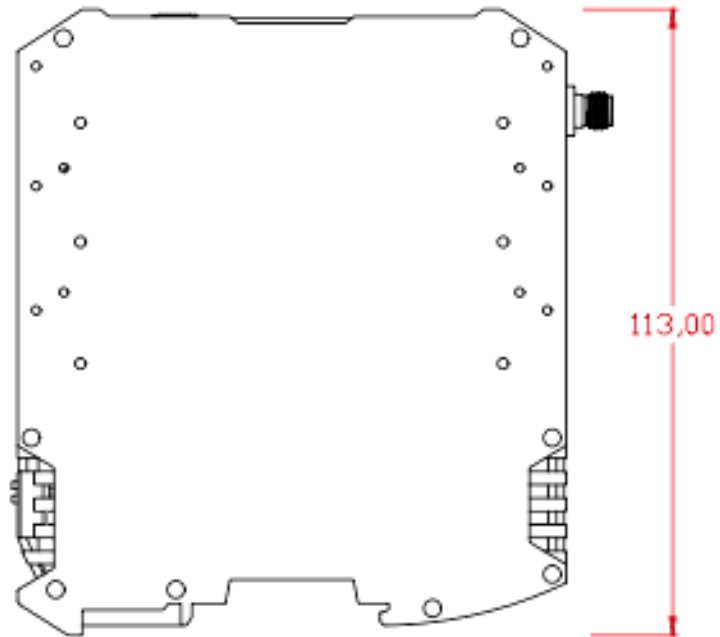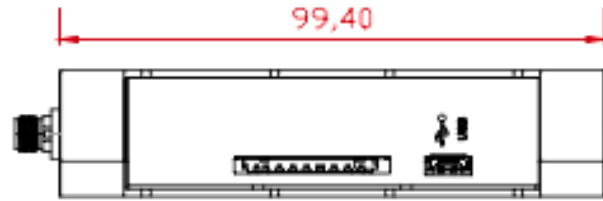

PINS ASSIGNMENTS

TOP VIEW

Antenna

1. V DC+ (10-60)
2. V DC- (10-60)
3. D+ (RS485)
4. D- (RS485)

Ethernet

BOTTOM VIEW

Dip Switch

Reset Button

ENCLOSURE DIMENSIONS

99,40

113,00

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ORDERING INFORMATION

Order Configuration Table		
PMM0618L	-09xx	
COM Port 1		
RS485 (PMM0912)	-0912	
COM port 2 (*Same as **COM port 1** options*)	-09XX	
RS485 (PMM0912)	-0912	

Accessories

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

CONTACT INFORMATION:

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