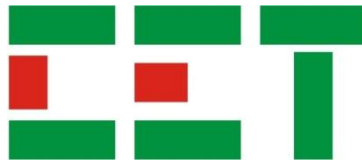


PMC-1202
Ethernet Serial/LoRa Gateway
User Manual
Version: V1.0
September 16, 2025



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Standards Compliance



DANGER

This symbol indicates the presence of danger that may result in severe injury or death and permanent equipment damage if proper precautions are not taken during the installation, operation or maintenance of the device.



CAUTION

This symbol indicates the potential of personal injury or equipment damage if proper precautions are not taken during the installation, operation or maintenance of the device.



DANGER

Failure to observe the following instructions may result in severe injury or death and/or equipment damage.

- Installation, operation and maintenance of the meter should only be performed by qualified, competent personnel that have the appropriate training and experience with high voltage and current devices. The meter must be installed in accordance with all local and national electrical codes.
- Ensure that all incoming AC power and other power sources are turned OFF before performing any work on the meter.
- Before connecting the meter to the power source, check the label on top of the meter to ensure that it is equipped with the appropriate power supply, and the correct voltage and current input specifications for your application.
- During normal operation of the meter, hazardous voltages are present on its terminal strips and throughout the connected potential transformers (PT) and current transformers (CT). PT and CT secondary circuits are capable of generating lethal voltages and currents with their primary circuits energized. Follow standard safety precautions while performing any installation or service work (i.e. removing PT fuses, shorting CT secondaries, ...etc).
- Do not use the meter for primary protection functions where failure of the device can cause fire, injury or death. The meter should only be used for shadow protection if needed.
- Under no circumstances should the meter be connected to a power source if it is damaged.
- To prevent potential fire or shock hazard, do not expose the meter to rain or moisture.
- Setup procedures must be performed only by qualified personnel familiar with the instrument and its associated electrical equipment.
- DO NOT open the instrument under any circumstances.

Limited warranty

- CET Electric Technology (CET) offers the customer a minimum of 12-month functional warranty on the meter for faulty parts or workmanship from the date of dispatch from the distributor. This warranty is on a return to factory for repair basis.
- CET does not accept liability for any damage caused by meter malfunctions. CET accepts no responsibility for the suitability of the meter to the application for which it was purchased.
- Failure to install, set up or operate the meter according to the instructions herein will void the warranty.
- Only CET's duly authorized representative may open your meter. The unit should only be opened in a fully anti-static environment. Failure to do so may damage the electronic components and will void the warranty.

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Chapter 1 Introduction

This chapter provides an overview of the PMC-1202 Ethernet Serial/LoRa Gateway and summarizes many of its key features.

1.1 Overview

The PMC-1202 is an Intelligent Ethernet Serial/LoRa Gateway that provides one 10Base-T/100Base-TX Ethernet port, 2xRS-485 port, and one optional wireless LoRa port with configurable ISM Bands. Featuring DIN-Rail mounting and compact construction, it is an ideal equipment that serves as a gateway to connect RS-485 and/or LoRa enabled devices to an IP-based Ethernet LAN over an Ethernet network for any SCADA or Automation applications. It also supports Multiple Masters for Transparent Gateway function. Further, the PMC-1202 has been specifically designed with industrial automation in mind and therefore provides unsurpassed performance and reliability under the harshest industrial or commercial environments.

1.2 Features

- 1x10Base-T/100Base-TX (RJ45) port with MDI/MDIX auto-detect, 1.5kV isolation protection
- 2xRS-485 port with 15kV (Air Discharge) & 8kV (Contact Discharge) ESD protection and 3kV isolation protection
- Optional LoRa port with configurable ISM Bands for EU863-870, RU864-870, IN865-867, US902-928, AU915-928, AS920-923 and AS923-925
- Transparent Gateway between Ethernet port and RS-485/LoRa
 - TCP Server/Client and UDP Server/Client modes
 - Maximum 4 Masters per RS-485/LoRa port
 - Maximum 128 downstream LoRa devices per PMC-1202
- Modbus TCP to RTU Gateway
 - TCP Server and TCP Client modes
 - 32 Slave IEDs per RS-485 port
 - Maximum 4 Masters per RS-485/LoRa port
 - Supports caching up to 32 messages per RS-485/LoRa and max. 6 configurable function codes (Read-Only) under TCP Server mode
- WebSocket and HTTPD Client
- Communication Delay < 10 ms under normal operating conditions
- One-key Reset to Factory Default
- Built-in Web Interface for configurations
- Online firmware upgrade with free software via Ethernet
- DIN-Rail Mounting
- Extended operating temperature

1.3 Applications

Please refer to Chapter 5 for detailed information.

1.4 Getting more information

Additional information is available from CET via the following sources:

- Visit www.cet-global.com
- Contact your local representative
- Contact CET directly via email at support@cet-global.com

Chapter 2 Installation

2.1 Appearance

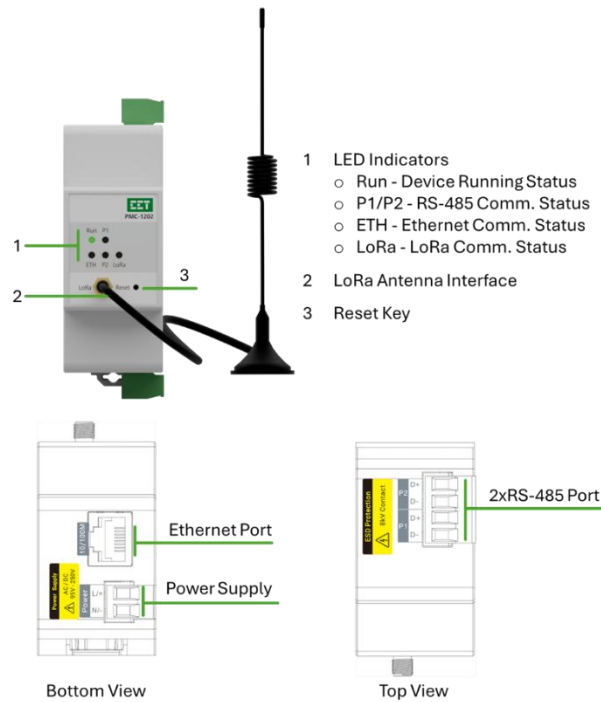


Figure 2-1 Appearance

2.2 Unit Mounting

The PMC-1202 should be installed in a dry environment with no dust and kept away from heat, radiation and electrical noise sources.

Installation steps:

- Before installation, make sure that the DIN Rail is already in place.
- Move the installation clip at the back of the PMC-1202 downward to the “unlock” position.
- Align the top of the mounting channel at the back of the PMC-1202 at an angle against the top of the DIN Rail as shown in Figure 2-2.
- Rotate the bottom of the PMC-1202 towards the back while applying slight pressure to make sure that the device is completely and securely fixed on to the DIN Rail.
- Push the installation clip upward to the “lock” position to secure the PMC-1202 on to the DIN Rail.

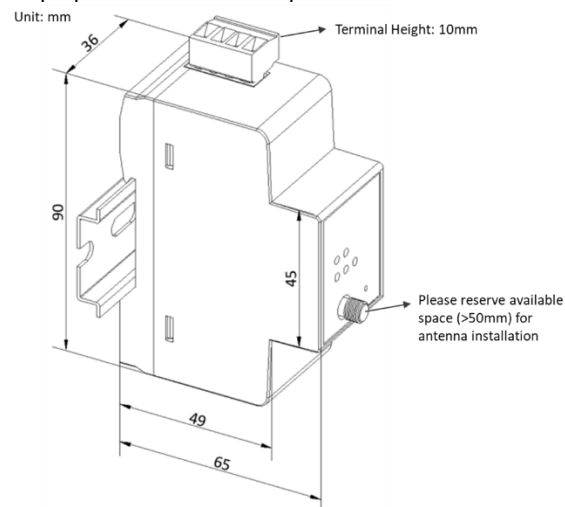


Figure 2-2 Unit Mounting

2.3 Main Unit and Accessories Dimensions

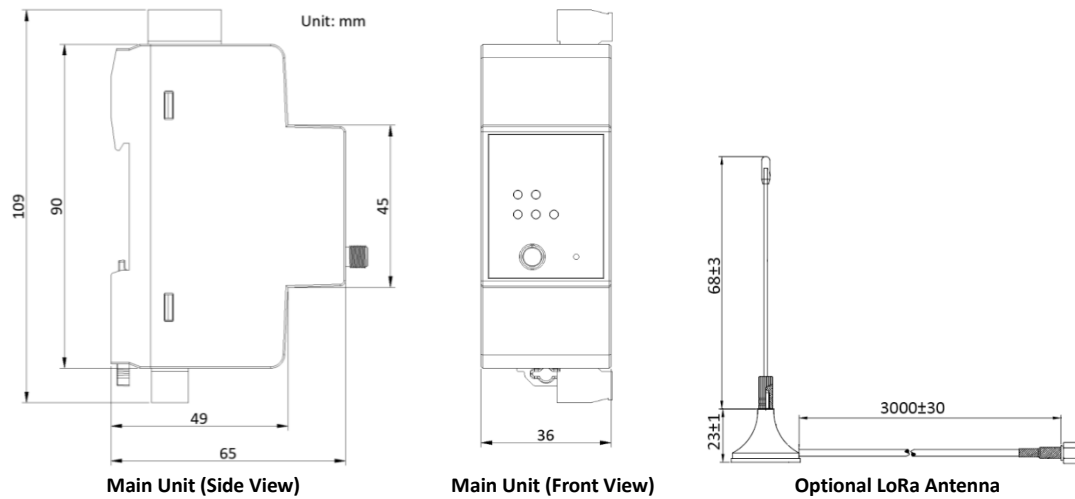
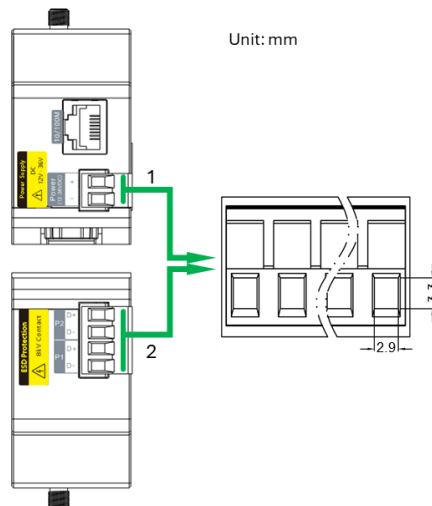


Figure 2-3 Main Unit and Accessories Dimensions

2.4 Terminal Dimensions



	Terminal	Terminal Dimensions	Wire Size	Tightening Torque	Max. Torque
1	Power Supply (L+, N/-)	2.9x3.3mm	0.2 -3.5 mm ² (28-12 AWG)	4 kgf.cm/M3	5.1 kgf.cm/M3
2	RS-485 (D+, D-)			3.54 lb-in/0.4N.m	4.42 lb-in/0.5 N.m

Figure 2-4 Terminal Dimensions

2.5 Ethernet Port (10Base-T/100Base-TX)

The PMC-1202 comes standard with an Ethernet Port using the MDI/MIDX Auto-detect RJ45 connector, which means users can connect with a straight-through cable or a cross-over cable. The table below lists the meaning for each pin.

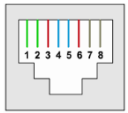
RJ45 Connector	Pin	Meaning
	1	Transmit Data+
	2	Transmit Data-
	3	Receive Data+
	4,5,7,8	NC
	6	Receive Data-

Table 2-2 RJ45 Connector Pin Description for 10Base-T/100Base-TX Applications

The figure below shows connections for the straight-through cable and the crossover cable:

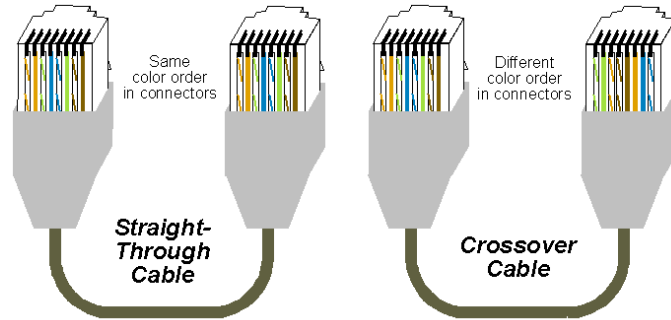


Figure 2-5 Straight-Through Cable and Crossover Cable

2.6 LoRa Antenna Mounting (Optional)

Connect the antenna to the PMC-1202 by applying the correct torque to tighten the connection as shown in the figure below. For best communication performance, the antenna should be mounted outside of a metal enclosure and preferably positioned vertically. The base of the antenna is equipped with a magnetic coupler for easy mounting on metal surface.



Antenna Specifications

Frequency Range	860-930 MHz configurable
Band Width	75MHz
Impedance	50Ω
Power	50W
VSWR	≤2
Gain	2.0dBi
Polarization	Vertical
Radiation Pattern	Omnidirectional
Height	91±5mm
Connector Type	SMA
Cable Length	3000±30mm

Figure 2-6 Antenna Mounting & Specifications

2.7 RS-485 Wiring

The PMC-1202 provides two RS-485 ports (P1 and P2). Up to 32 devices can be connected on each RS-485 bus. The overall length of the RS-485 cable connecting all devices should not exceed 1200m.

The following figure illustrates the RS-485 communications connections on the PMC-1202:

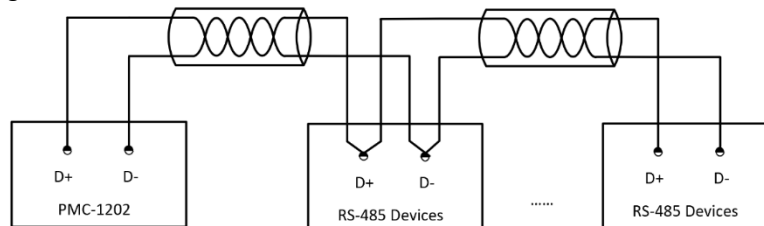


Figure 2-7 RS-485 Connections

2.8 Power Supply Wiring

For AC supply, connect the live wire to the L/+ terminal and the neutral wire to the N/- terminal. For DC supply, connect the positive wire to the L/+ terminal and the negative wire to the N/- terminal.

3.15A

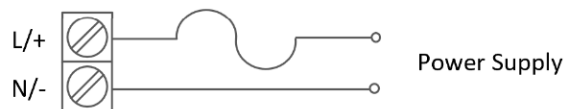


Figure 2-8 Power Supply Connections

Chapter 3 Front Panel

3.1 Front Panel LED Indicators

The table below describes the LED indicators on the PMC-1202's Front Panel:

LED Indicator	Color	Status	Function
Run	Green	On	Device is running abnormally.
		Off	Power is off or device is running abnormally.
		Blinking	Power is on and device is running normally.
ETH	Yellow	On	Ethernet port is running at 10/100Mbps speed without data activity.
		Blinking	Ethernet port is transmitting/receiving data.
		Off	Ethernet link is not established.
P1/P2	Green	Blinking	P1/P2 is receiving data.
	Yellow	Blinking	P1/P2 is transmitting data.
LoRa	Yellow	Blinking	LoRa port is functioning normally.
		Off	LoRa port is disabled or functions abnormally.

Table 3-1 LED Indicators Definitions

3.2 Reset Button

The PMC-1202 provides a **Reset** button at the lower right-hand corner of Front Panel to reboot or load factory default settings.

1) Reboot the PMC-1202

Pressing and holding the **Reset** button for 1 to 5 seconds will cause the PMC-1202 to initiate a reboot sequence. The reboot process would be completed in approximately 30 seconds.

2) Reset the PMC-1202 to Factory Default

Pressing and holding the **Reset** button for more than 5 seconds will reset the PMC-1202 to default factory configuration. Do not press and hold the **Reset** button for more than 15 seconds.



Figure 3-1 PMC-1202's Reset button

Chapter 4 Web Interface

The default IP Address of the PMC-1202's Ethernet Port is 192.168.0.127. Please make sure to configure the IP Address, Subnet Mask and Default Gateway such that it's on the same subnet as the PC that is being used to access the gateway.

4.1 Setting PC's IP Address

To determine the PC's IP Address, click the **Start** icon , then the **Settings** button  on Windows 11 (for other MS Windows systems, please refer to this [link](#) for more instructions).

Click  **Network & Internet**, select the **Ethernet** network if the PC is connected to and then find the appropriate Ethernet connection.

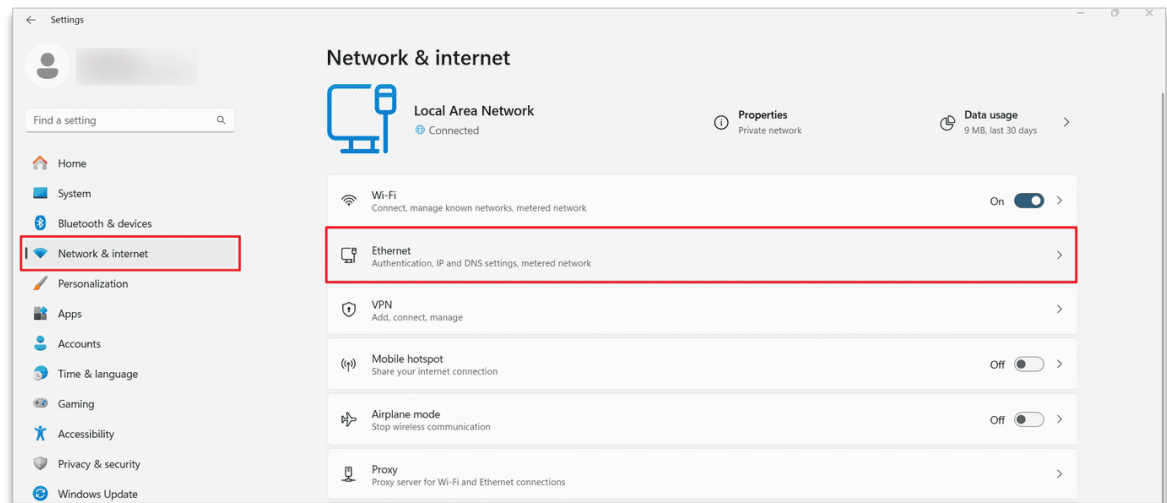


Figure 4-1 Settings-> Network & Internet

Click **Edit** for **IP assignment** option.

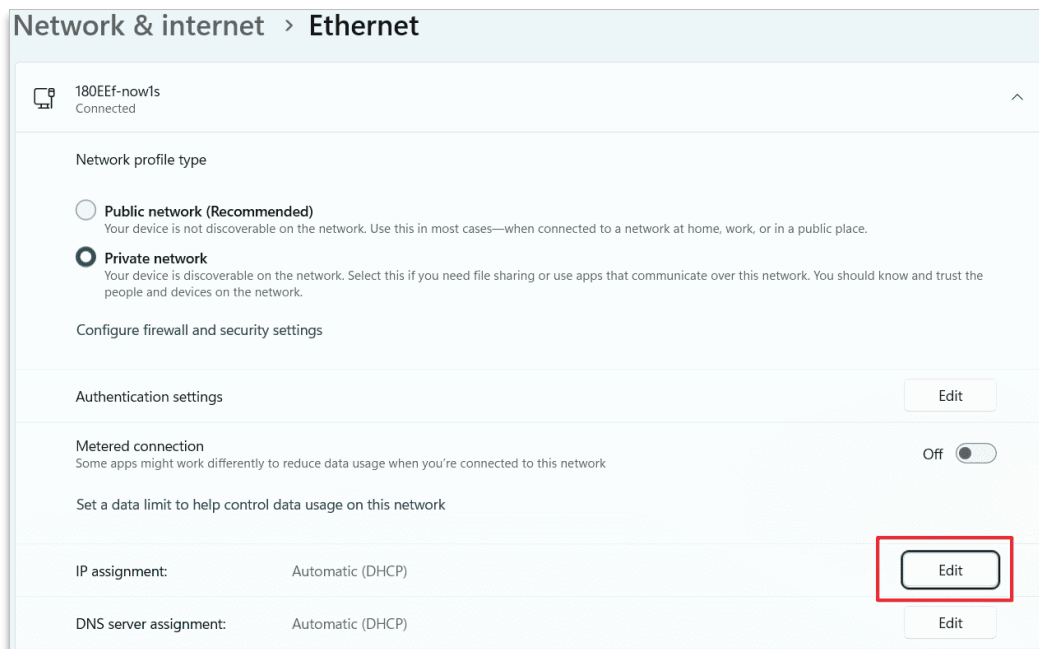


Figure 4-2 Network and Sharing Center

Set the IP assignment as Manual and enable the IPv4 with proper IP address, Subnet mask and Gateway setting.

Figure 4-3 Setting PC's IP Address

4.2 Web Login

The PMC-1202's Web Interface is compatible with various web browsers.

Browser	Browser Version
Internet Explorer	IE10 and above
Firefox	24.0 and above
Google Chrome	35.0 and above

Table 4-1 Supported Web Browser

- 1) Enter the IP Address (e.g. 192.168.0.127) of the PMC-1202 in the Address input box of the Internet Explorer and then press **Enter**.
- 2) The PMC-1202's Web login page appears. Enter the Username and Password and then click **Login**. The default web username and password are "user" and "123456", respectively.

Figure 4-4 Login Interface

- 3) The **Ethernet Setup** page appears after login. There are two items on the Navigation Menu (left sidebar), **Comm. Setup** and **Maintenance**. By clicking  button the Navigation Menu will be collapsed and then click  button to expand it.

4.2.1 Comm. Setup

The Comm. Setup menu contains **Ethernet**, **RS-485** and **LoRa** submenus for communication settings.

4.2.1.1 Ethernet Setup

The **Ethernet** port's settings can be configured here based on the actual situation.

PMC-1202 Ethernet Serial/LoRa Gateway user EN

Home > Comm. Setup > Ethernet

Ethernet

IP Address: 192.168.0.127

Subnet Mask: 255.255.255.0

Default Gateway: 192.168.0.1

DNS

DNS 1: 8.8.8.8

DNS 2: 114.114.114.114

Save

Figure 4-5 Comm. Setup -> Ethernet Setup Page

Click the **Save** to store the changes to the device's memory and reboot the device to make these settings effective.

The following table illustrates the Ethernet setup parameters and the setup range with default values.

Parameter	Range/Option, Default*
Ethernet	
(The IP Address and Default Gateway should be in the same subnet)	
IP Address	192.168.0.127*
Subnet Mask	255.255.255.0*
Default Gateway	192.168.0.1*
DNS	
(In order to use DNS feature, it's required to set the IP address of the DNS server to be able to access the host with the domain name. DNS2 is included for use when DNS1 is unavailable.)	
DNS1	Primary DNS server address. 8.8.8.8*
DNS2	Secondary DNS server address. 114.114.114.114*

Table 4-2 Ethernet Setup Parameters

4.2.1.2 RS-485 Setup

The PMC-1202 is equipped with two independent RS-485 ports.

Click **RS-485** at the navigation bar, the **P1 (RS-485)** and **P2 (RS-485)** ports' settings can be configured independently of each other, allowing for flexible integration into diverse network architectures.

Each port supports a wide range of operating modes to suit various application requirements:

- **Transparent Transmission:** TCP Server, TCP Client, UDP Server, UDP Client
- **Protocol Gateway:** Modbus TCP Server, Modbus TCP Client
- **Specialized IoT Protocols:** WebSocket Client, HTTPD Client

The specific parameters available for configuration are dynamically presented based on the selected operation mode.

Transparent TCP Server mode

Figure 4-6 Transparent TCP Server mode

The following table illustrates the setup parameters for Transparent TCP Server mode and the setup range with default values.

Parameter	Options/Range, Default*
Basic	
Baudrate	300, 600, 1200, 2400, 4800, 9600*, 19200, 38400
Data Bits	7, 8*
Parity	None, Odd, Even*
Stop Bits	1*, 2
Packet Length	1 to 1024 Bytes, 1024*
Packet Interval	0 to 60000 ms, 20*
Advance	
Local IP Port	1024 to 65535. 20001* for P1, 20002* for P2.
Idle Timeout	0 to 60000 s, 300*. A value of 0 disables this feature, meaning the connection will be kept alive indefinitely, regardless of inactivity.
Multi Master	Disable*/Enable
Polling Delay	1 to 60000 ms, 30*
Packet Timeout	0 to 60000 ms, 1000*

Table 4-3 Transparent TCP Server Mode Setting Parameters

Transparent TCP Client mode

PMC-1202 Ethernet Serial/LoRa Gateway

Home > Comm. Setup > RS-485

P1 (RS-485) P2 (RS-485)

Basic

Baudrate: 9600 Data Bits: 8

Parity: Even Stop Bits: 1

Packet Length: 1024 Bytes (1~1024) Packet Interval: 20 ms (0~60000)

Advance

Protocol: Transparent Gateway Mode: TCP Client

Registration Packet: Idle Timeout: 300 s (0~60000)

Heartbeat Packet: Heartbeat Interval: 0 s (0~60000)

Multi Master: Disable Reconnect Interval: 300 s (0~60000)

Number of Network Connections

Dest. Addr.	Dest. Port
1	502 (1~65535)
2	502 (1~65535)
3	502 (1~65535)
4	502 (1~65535)

Save

Figure 4-7 Transparent TCP Client mode

The following table illustrates the setup parameters for Transparent TCP Client mode and the setup range with default values.

Parameter	Options/Range, Default*
Basic	
Baudrate	300, 600, 1200, 2400, 4800, 9600*, 19200, 38400
Data Bits	7, 8*
Parity	None, Odd, Even*
Stop Bits	1*, 2
Packet Length	1 to 1024 Bytes, 1024*
Packet Interval	0 to 60000 ms, 20*
Advance	
Registration Packet	Up to 63 bytes defined as hexadecimal characters (00 to FF), with bytes separated by a space. For example, AA BB EF 01 00. Blank (null)*. If left blank, no registration packet is sent.
Idle Timeout	0 to 60000 s, 300*. A value of 0 disables this feature, meaning the connection will be kept alive indefinitely, regardless of inactivity.
Heartbeat Packet	Up to 63 bytes defined as hexadecimal characters (00 to FF), with bytes separated by a space. For example, AA BB EF 01 00. Blank (null)*. If left blank, no heartbeat packet is sent. The heartbeat function is only active if a valid packet is defined and the heartbeat interval is greater than 0.
Heartbeat Interval	0 to 60000 s, 0*. A value of 0 disables the sending of heartbeat packet, regardless of the heartbeat packet setting.
Multi Master	Disable*/Enable
Polling Delay	1 to 60000 ms, 30*
Packet Timeout	0 to 60000 ms, 1000*

Reconnect Interval	0 to 60000 s, 300*
Number of Network Connections (Check the box to activate the corresponding connection)	
Dest. Address 1-4	Blank (null)*.
Dest. Port 1-4	1 to 65535, 502*.

Table 4-4 Transparent TCP Client Mode Setting Parameters

Transparent UDP Server mode

PMc-1202 Ethernet Serial/LoRa Gateway

Home > Comm. Setup > RS-485

P1 (RS-485) P2 (RS-485)

Basic

Baudrate: 9600 Data Bits: 8

Parity: Even Stop Bits: 1

Packet Length: 1024 Bytes (1~1024) Packet Interval: 20 ms (0~60000)

Advance

Protocol: Transparent Gateway Mode: UDP Server

Local IP Port: 20001 (1024~65535) Idle Timeout: 300 s (0~60000)

Multi Master: Disable

Save

Figure 4-8 Transparent UDP Server Mode

The following table illustrates the setup parameters for Transparent UDP Server mode and the setup range with default values.

Parameter	Options/Range, Default*
Basic	
Baudrate	300, 600, 1200, 2400, 4800, 9600*, 19200, 38400
Data Bits	7, 8*
Parity	None, Odd, Even*
Stop Bits	1*, 2
Packet Length	1 to 1024 Bytes, 1024*
Packet Interval	0 to 60000 ms, 20*
Advance	
Local IP Port	1024 to 65535. 20001* for P1, 20002* for P2.
Idle Timeout	0 to 60000 s, 300*. A value of 0 disables this feature, meaning the connection will be kept alive indefinitely, regardless of inactivity.
Multi Master	Disable*/Enable
Polling Delay	1 to 60000 ms, 30*
Packet Timeout	0 to 60000 ms, 1000*

Table 4-5 Transparent UDP Server Mode Setting Parameters

Transparent UDP Client mode

PMc-1202 Ethernet Serial/LoRa Gateway

Home > Comm. Setup > RS-485

P1 (RS-485) P2 (RS-485)

Basic

Baudrate: 9600 Data Bits: 8

Parity: Even Stop Bits: 1

Packet Length: 1024 Bytes (1~1024) Packet Interval: 20 ms (0~60000)

Advance

Protocol: Transparent Gateway Mode: UDP Client

Local IP Port: 20001 (1024~65535) Multi Master: Disable [Configure](#)

Number of Network Connections

☐ Dest. Addr. 1 Dest. Port 1 502 (1~65535)

☐ Dest. Addr. 2 Dest. Port 2 502 (1~65535)

☐ Dest. Addr. 3 Dest. Port 3 502 (1~65535)

☐ Dest. Addr. 4 Dest. Port 4 502 (1~65535)

[Save](#)

Figure 4-9 Transparent UDP Client Mode

The following table illustrates the setup parameters for Transparent UDP Client mode and the setup range with default values.

Parameter	Options/Range, Default*
Basic	
Baudrate	300, 600, 1200, 2400, 4800, 9600*, 19200, 38400
Data Bits	7, 8*
Parity	None, Odd, Even*
Stop Bits	1*, 2
Packet Length	1 to 1024 Bytes, 1024*
Packet Interval	0 to 60000 ms, 20*
Advance	
Local IP Port	1024 to 65535. 20001* for P1, 20002* for P2.
Multi Master	Disable*/Enable
Polling Delay	1 to 60000 ms, 30*
Packet Timeout	0 to 60000 ms, 1000*
Number of Network Connections (Check the box to activate the corresponding connection)	
Dest. Address 1-4	Blank (null)*.
Dest. Port 1-4	1 to 65535, 502*.

Table 4-6 Transparent UDP Client Mode Setting Parameters

Modbus TCP Server mode

PMC-1202 Ethernet Serial/LoRa Gateway

user EN

Home > Comm. Setup > RS-485

P1 (RS-485) P2 (RS-485)

Basic

Baudrate: 9600 Data Bits: 8

Parity: Even Stop Bits: 1

Packet Interval: 20 ms (0~60000)

Polling Delay: 30 ms (1~60000) Packet Timeout: 1000 ms (0~60000)

Advance

Protocol: Modbus Gateway Mode: TCP Server

Local IP Port: 502 (502~65535) Idle Timeout: 300 s (0~60000)

Cache

Cache: Disable TTL: 300 s (0~60000)

Cache Code 1: 1 (0~255) Cache Code 2: 2 (0~255)

Cache Code 3: 3 (0~255) Cache Code 4: 4 (0~255)

Cache Code 5: 0 (0~255) Cache Code 6: 0 (0~255)

Modbus Slave ID Map

Map ID (Remote): 1 ~ 247 (1~247)

Offset: 0 (-246~246)

Unit ID (Local): 1 ~ 247 (1~247)

Save

Figure 4-10 Modbus TCP Server Mode

The following table illustrates the setup parameters for Modbus TCP Server mode and the setup range with default values.

Parameter	Options/Range, Default*
Basic	
Baudrate	300, 600, 1200, 2400, 4800, 9600*, 19200, 38400
Data Bits	7*, 8
Parity	None, Odd, Even*
Stop Bits	1, 2*
Packet Interval	0 to 60000 ms, 20*
Polling Delay	1 to 60000 ms, 30*
Packet Timeout	0 to 60000 ms, 1000*
Advance	
Local IP Port	1024 to 65535. 502* for P1, 503* for P2.
Idle Timeout	0 to 60000 s, 300*. A value of 0 disables this feature, meaning the connection will be kept alive indefinitely, regardless of inactivity.
Cache	
Cache	Disable*/Enable
TTL	0 to 60000 s, 300*
Cache Code 1-6	0 to 255 (0x00 to 0xFF). Each code is defined as a single byte, represented in

	decimal notation. (e.g., 1 for 0x01, 3 for 0x03). A value of 0 indicates that no function code is assigned. By default, the gateway is configured to cache the most common read commands: 1 (0x01), 2 (0x02), 3 (0x03), and 4 (0x04). Cache code 5 and 6 are disabled (set to 0). The caching feature only supports read-only function codes. Writing commands (e.g., 0x05, 0x06, 0x0F, 0x10) are not supported and must not be configured here.
Modbus Slave ID Map	
Map ID (Remote)	1 to 247
Offset	-246 to 246. 0*. The offset is the primary editable field used to define the remapping. The Unit ID (Local) will be automatically adjusted based on changes to the Map ID (Remote) and Offset, following the formula: Unit ID (Local) = Map ID (Remote) + Offset.
Unit ID (Local)	1 to 247. This value is not editable here and is determined by the physical device's configuration.

Table 4-7 Modbus TCP Server Mode Setting Parameters

Modbus TCP Client mode

PMC-1202 Ethernet Serial/LoRa Gateway user EN

Home > Comm. Setup > RS-485

P1 (RS-485) P2 (RS-485)

Basic

Baudrate: 9600 Data Bits: 8

Parity: Even Stop Bits: 1

Packet Interval: 20 ms (0~60000)

Packet Timeout: 1000 ms (0~60000)

Advance

Protocol: Modbus Gateway Mode: TCP Client

Registration Packet: Idle Timeout: 300 s (0~60000)

Heartbeat Packet: Heartbeat Interval: 0 s (0~60000)

Reconnect Interval: 300 s (0~60000)

Number of Network Connections

Dest. Addr.	Port	Modbus ID Range
1	502 (1~65535)	1 ~ 1 (1~247)
2	502 (1~65535)	2 ~ 2 (1~247)
3	502 (1~65535)	3 ~ 3 (1~247)
4	502 (1~65535)	4 ~ 4 (1~247)

Save

Figure 4-11 Modbus TCP Client Mode

The following table illustrates the setup parameters for Modbus Client mode and the setup range with default values.

Parameter	Options/Range, Default*
Basic	
Baudrate	300, 600, 1200, 2400, 4800, 9600*, 19200, 38400
Data Bits	7, 8*
Parity	None, Odd, Even*
Stop Bits	1*, 2
Packet Interval	0 to 60000 ms, 20*

Packet Timeout	1 to 1024 Bytes, 1024*
Advance	
Registration Packet	Up to 63 bytes defined as hexadecimal characters (00 to FF), with bytes separated by a space. For example, AA BB EF 01 00. Blank (null)*. If left blank, no registration packet is sent.
Idle Timeout	0 to 60000 s, 300*. A value of 0 disables this feature, meaning the connection will be kept alive indefinitely, regardless of inactivity.
Heartbeat Packet	Up to 63 bytes defined as hexadecimal characters (00 to FF), with bytes separated by a space. For example, AA BB EF 01 00. Blank (null)*. If left blank, no heartbeat packet is sent. The heartbeat function is only active if a valid packet is defined and the heartbeat interval is greater than 0.
Heartbeat Interval	0 to 60000 s, 0*. A value of 0 disables the sending of heartbeat packet, regardless of the heartbeat packet setting.
Reconnect Interval	0 to 60000 s, 300*
Number of Network Connections (Check the box to activate the corresponding connection)	
Dest. Address 1-4	Blank (null)*.
Dest. Port 1-4	1 to 65535, 502*.
Modbus ID Range	1 to 247.

Table 4-8 Modbus TCP Client Mode Setting Parameters

WebSocket Client mode

PMC-1202 Ethernet Serial/LoRa Gateway user EN

Home > Comm. Setup > RS-485

P1 (RS-485) P2 (RS-485)

Basic

Baudrate: 9600 Data Bits: 8

Parity: Even Stop Bits: 1

Packet Interval: 20 ms (0~60000)

Advance

Protocol: WebSocket Client Mode: TCP Client

Idle Timeout: 300 s (0~60000) Reconnect Interval: 300 s (0~60000)

WebSocket Setting

WebSocket Address: 192.168.0.250

WebSocket Port: 8443 (1~65535)

URL Path: /v1

WebSocket Ping Interval: 120 s (0~255)

Save

Figure 4-12 WebSocket Client Mode

The following table illustrates the setup parameters for WebSocket Client mode and the setup range with default values.

Parameter	Options/Range, Default*
Basic	
Baudrate	300, 600, 1200, 2400, 4800, 9600*, 19200, 38400
Data Bits	7, 8*
Parity	None, Odd, Even*
Stop Bits	1*, 2
Packet Interval	0 to 60000 ms, 20*
Advance	
Idle Timeout	0 to 60000 s, 300*. A value of 0 disables this feature, meaning the connection will be kept alive indefinitely, regardless of inactivity.
Reconnect Interval	0 to 60000 s, 300*
WebSocket Setting	
WebSocket Address	Valid IP address or domain name of the remote WebSocket server the gateway will connect to. 192.168.0.250*.
WebSocket Port	1 to 65535. 8443*
URL Path	A valid HTTP path string. /v1 (default).
WebSocket Ping Interval	0 to 255. 120*. A value of 0 disables the sending of PING frames.

Table 4-9 WebSocket Client Mode Setting Parameters

HTTPD Client mode

PMC-1202 Ethernet Serial/LoRa Gateway

user EN

Home > Comm. Setup > RS-485

P1 (RS-485) P2 (RS-485)

Basic

Baudrate: 9600 Data Bits: 8

Parity: Even Stop Bits: 1

Packet Interval: 20 ms (0~60000)

Advance

Protocol: HTTPD Client Mode: TCP Client

Idle Timeout: 300 s (0~60000)

HTTPD Setting

HTTPD Address: 192.168.0.250

HTTPD Port: 8080 (1~65535)

URL Path: /iot/test GET

HTTPD Request Header: Connection: keep-alive, Accept: */*, User-Agent: Mozilla/5.0, Pragma: no-cache

Save

Figure 4-13 HTTPD Client Mode

The following table illustrates the setup parameters for HTTPD Client mode and the setup range with default values.

Parameter	Options/Range, Default*
Basic	
Baudrate	300, 600, 1200, 2400, 4800, 9600*, 19200, 38400
Data Bits	7, 8*
Parity	None, Odd, Even*
Stop Bits	1*, 2
Packet Interval	0 to 60000 ms, 20*
Advance	
Idle Timeout	0 to 60000 s, 300*. A value of 0 disables this feature, meaning the connection will be kept alive indefinitely, regardless of inactivity.
HTTPD Setting	
HTTPD Address	Valid IP address or domain name of the remote HTTPD server the gateway will connect to. 192.168.0.250*.
HTTPD Port	1 to 65535. 8080*
URL Path	A valid HTTP path string for GET or POST request. /tot/test (default).
HTTPD Request Header	Custom HTTP headers to be included in the outgoing request. These are used to control the behavior of the request and provide metadata to the server. Connection: keep-alive Accept: */* User-Agent: Mozilla/5.0 Pragma: no-cache (default)

Table 4-10 WebSocket Client Mode Setting Parameters

4.2.1.3 Optional LoRa Setup

Click **LoRa** to set up the gateway's LoRa wireless communication and its network protocol conversion.

Figure 4-14 Optional LoRa Setup Screen

The following table illustrates the setup parameters for LoRa configuration and the setup range with default values.

Parameter	Options/Range, Default*
Basic	
Band	EU863-870, RU864-870, IN865-867, US902-928, AU915-928, AS920-923, AS923-925*, Custom, Advanced.
Channel	CH1-CH16. CH1*.
Baudrate	1200*, 2400, 3800, 7500, 15000.

Freq.	923.00 MHz*.
Packet Length	1 to 1024 bytes. 1024*
Please refer to Section 4.2.1.2 for the setup range/default value of Advance Parameters for LoRa communications.	

Table 4-11 LoRa Setting Parameters

4.2.2 Maintenance

The Maintenance menu consists of **Device Info.**, **Network Detection**, **Change Password** and **Reboot & Reset** submenus.

4.2.2.1 Device Info.

The Device Info. page displays the **Device Model**, **Device Type**, **Firmware Version** and its **Release Date**, **S/N** and **MAC Address**.

PMC-1202 Ethernet Serial/LoRa Gateway user EN

Home > Maintenance > Device Info.

Information

Model	PMC-1202
Description	Ethernet Serial/LoRa Gateway
Firmware	V1.00.01
Date	2024-12-03
S/N	3504162144
MAC	E4-C8-06-0D-46-61

Save

Figure 4-15 Device Info. Page

4.2.2.2 Network Detection

The **Network Detection** page allows users to perform a Network Detection (via PING command test) to verify network connectivity with a specified destination IP address or domain name.

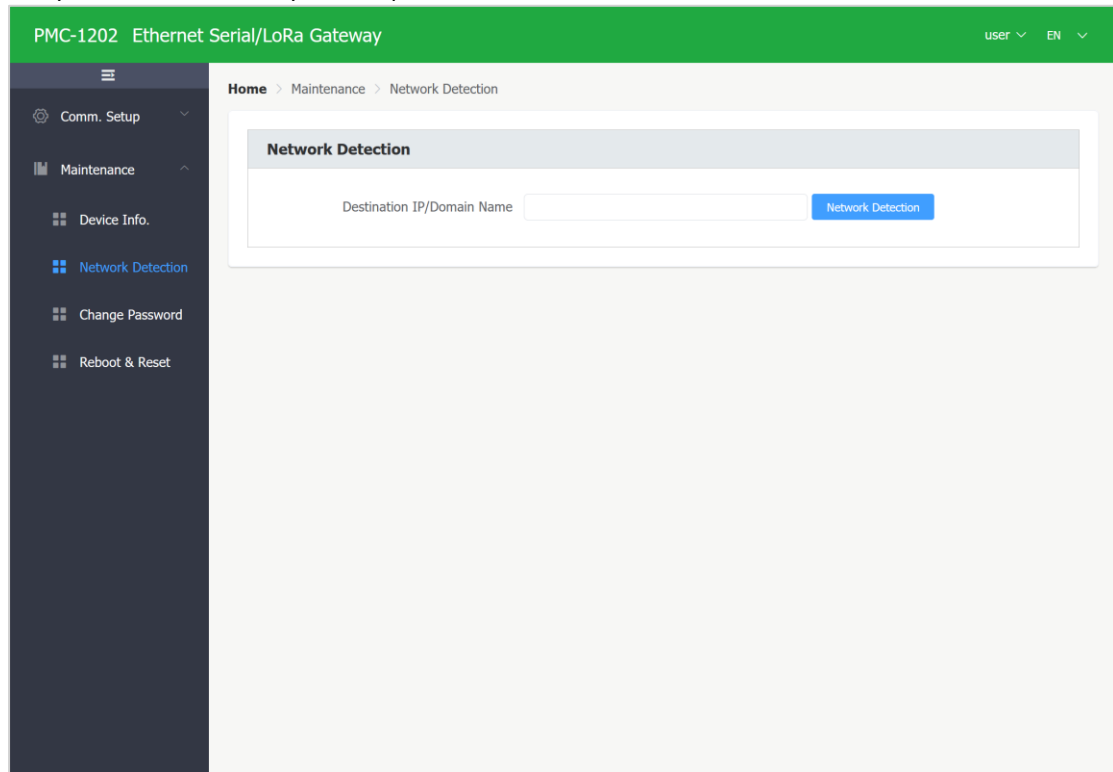


Figure 4-16 Network Detection Page

4.2.2.3 Change Password

The Web Interface's login password can be changed by clicking on the down arrow at the upper right-hand corner of the page and then selecting **Change Password** or clicking on **Maintenance** -> **Change Password**. The new password must be between 4 and 16 characters and consists of digits, letters, underscores, hyphens and/or spaces.

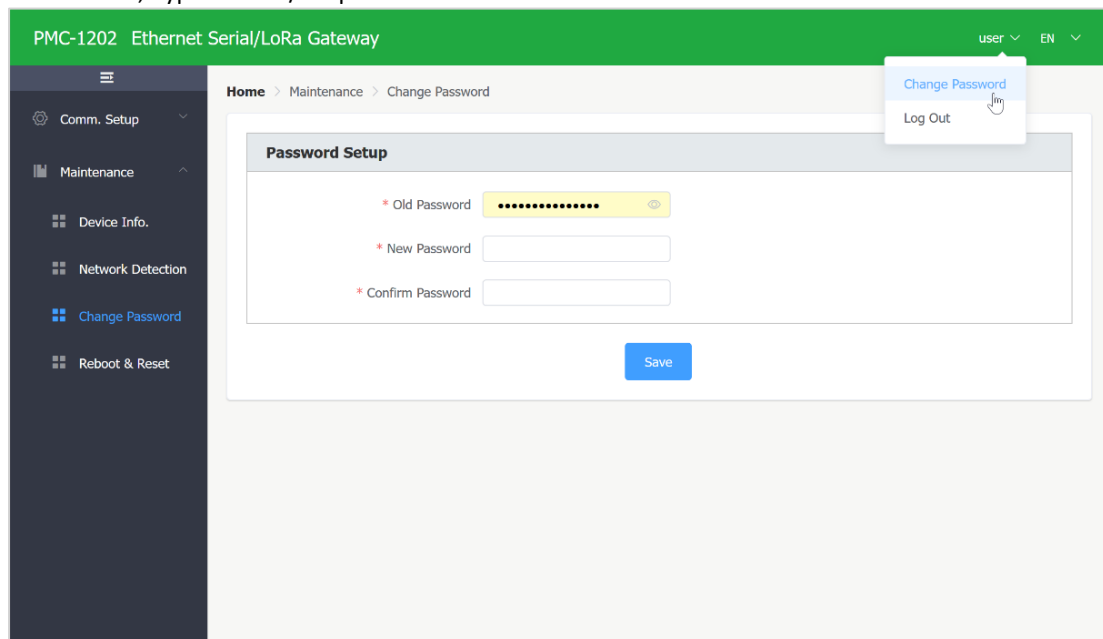


Figure 4-17 Change Login Password for Web Interface

4.2.2.4 Reboot & Reset

The Reboot & Reset page provides two critical operations for system management - Reboot and Reset.

- 3) Reboot - Click Reboot to restart the gateway immediately.
- 4) Reset - Click Load Factory Default to reset all configurations to the factory default. Please note that the reset operation is irreversible.

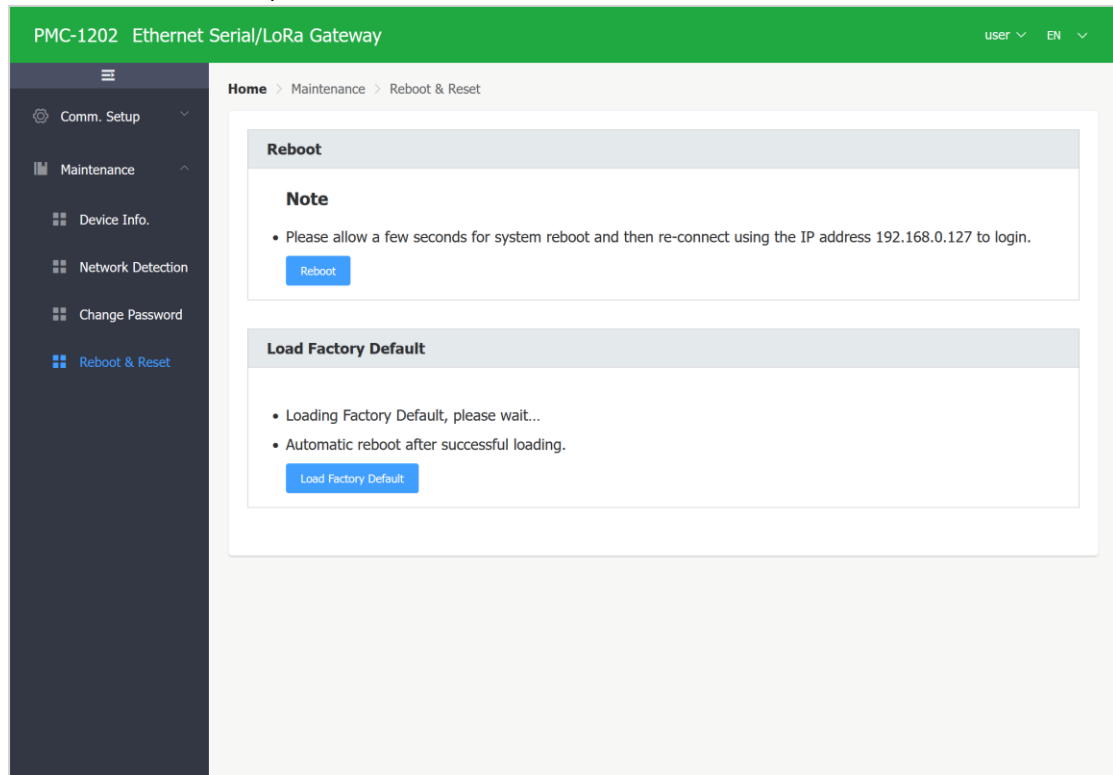


Figure 4-18 Reboot & Reset Page

Chapter 5 Application

The PMC-1202 enables efficient transfer of serial packets between upstream network - based applications and downstream RS-485 or optional LoRa wireless devices through a TCP/IP connection.

Traditional methods often involve using a Windows - based “Virtual COM” driver along with a port - mapping utility. However, this approach frequently encounters driver incompatibility issues across various Windows versions. In contrast, the PMC-1202 allows applications to directly connect to it via TCP/IP. This enables transparent transfer of serial packets within TCP/IP frames to and from downstream devices.

The PMC-1202 is ideally suited for communicating with industrial devices featuring timing - sensitive protocols. It offers a reliable interface for SCADA or similar applications. These applications, which already support direct connection with an Ethernet Gateway, can communicate with serial devices regardless of the protocols used.

Moreover, the PMC-1202 supports the Modbus TCP to Modbus RTU Gateway function. This function simplifies the process for any Modbus TCP Master applications to interface with Modbus RTU - enabled IEDs over a local area network. A user - friendly web - based interface allows easy configuration of the TCP to RTU address mapping for downstream Slave IEDs connected via RS-485, Ethernet or optional LoRa.

The PMC-1202 can be configured to support multiple Masters. This not only facilitates information sharing but also minimizes implementation costs. Additionally, the optional LoRa port supports configurable ISM Bands, making it suitable for wireless IoT applications in most countries.

The following figure illustrates a typical application scenario for the PMC-1202.

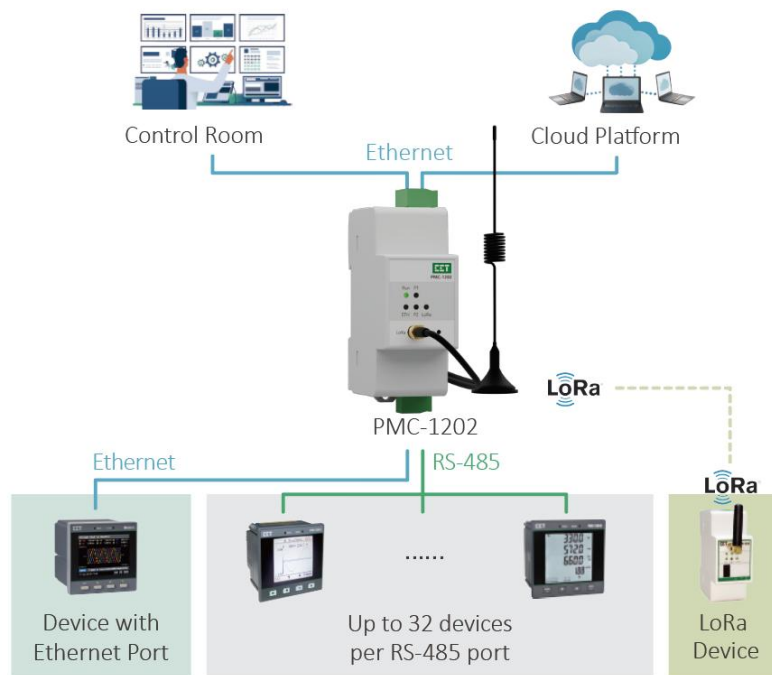


Figure 5-1 Typical Application

5.1 Transparent Gateway

The PMC-1202 supports the efficient transfer of serial packets between the upstream network-based applications and the downstream RS-485/LoRa devices via a TCP/IP connection.

The Transparent Gateway function on the PMC-1202 supports two modes: TCP Server and TCP Client.

5.1.1 TCP Server Mode

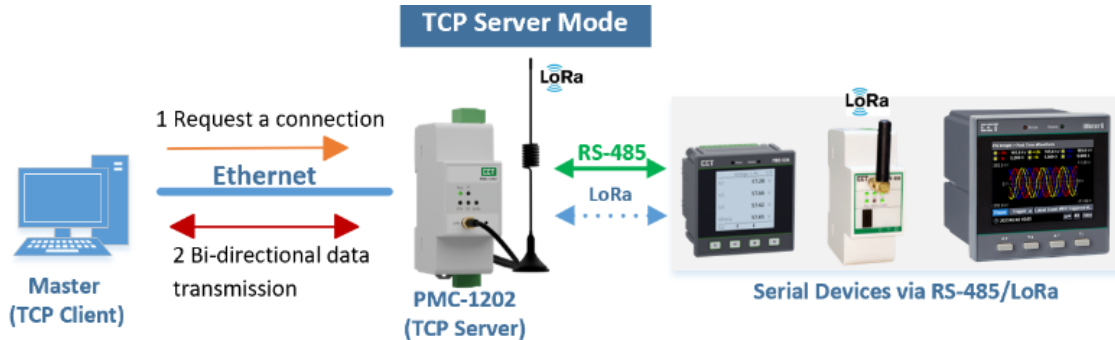


Figure 5-1 TCP Server Mode

The PMC-1202, which works in the TCP Server mode, will wait passively network connection requests from the Master via Ethernet, allowing the Master to establish a connection with and retrieve data from the downstream serial devices. The PMC-1202 will listen on the local port set by the user and build a connection after receiving Master's connection request. Data from the serial devices will be sent to the Master via the PMC-1202. As illustrated in the figure above, the process is as follows:

1. The Master requests a connection to the PMC-1202.
2. Once the connection is established, data can be transmitted between the Master and serial devices via the PMC-1202.

5.1.2 TCP Client Mode

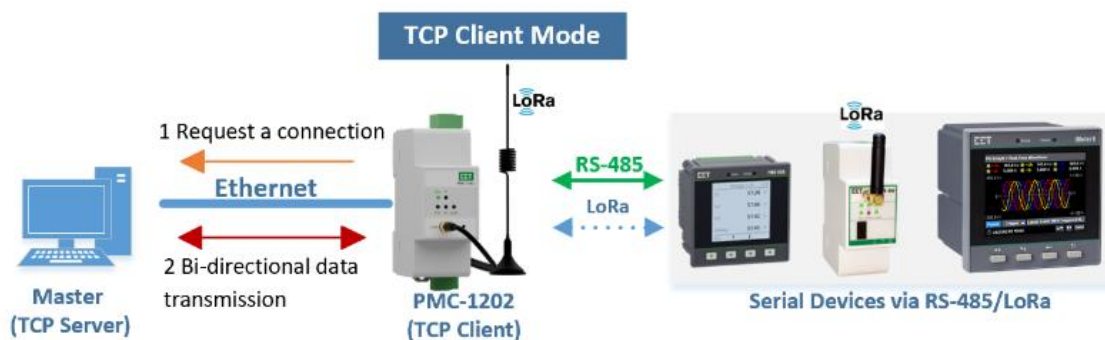


Figure 5-2 TCP Client Mode

The PMC-1202 that works in the TCP Client mode will connect to the Master to enable data transmission between the serial devices and the Master. The PMC-1202 can actively establish a TCP connection to the Master when serial data is received. As illustrated in the figure above, the process is as follows:

1. The PMC-1202 requests a connection to the Master.
2. Once the connection is established, data can be transmitted between the Master and serial devices via the PMC-1202.

5.1.3 Multiple Masters

The PMC-1202 supports Multiple-Master connections under Transparent Gateway to allow multiple network clients to send requests asynchronously. The gateway queues these requests and executes them sequentially on the RS-485 bus. For each request, it waits for the response for up to the Packet Timeout duration. After each transaction (whether a successful response or a timeout), the gateway enforces the Polling Delay. This mechanism ensures fair and stable access to the shared RS-485 bus for all network masters, preventing data corruption. The Multiple Masters function is disabled by default and can be enabled via the Web Console.

5.2 Modbus Gateway

The PMC-1202 provides the Modbus Gateway function that makes it extremely simple for any Modbus TCP Master applications to interface with slaves (Modbus RTU enabled IEDs) over a local area network.

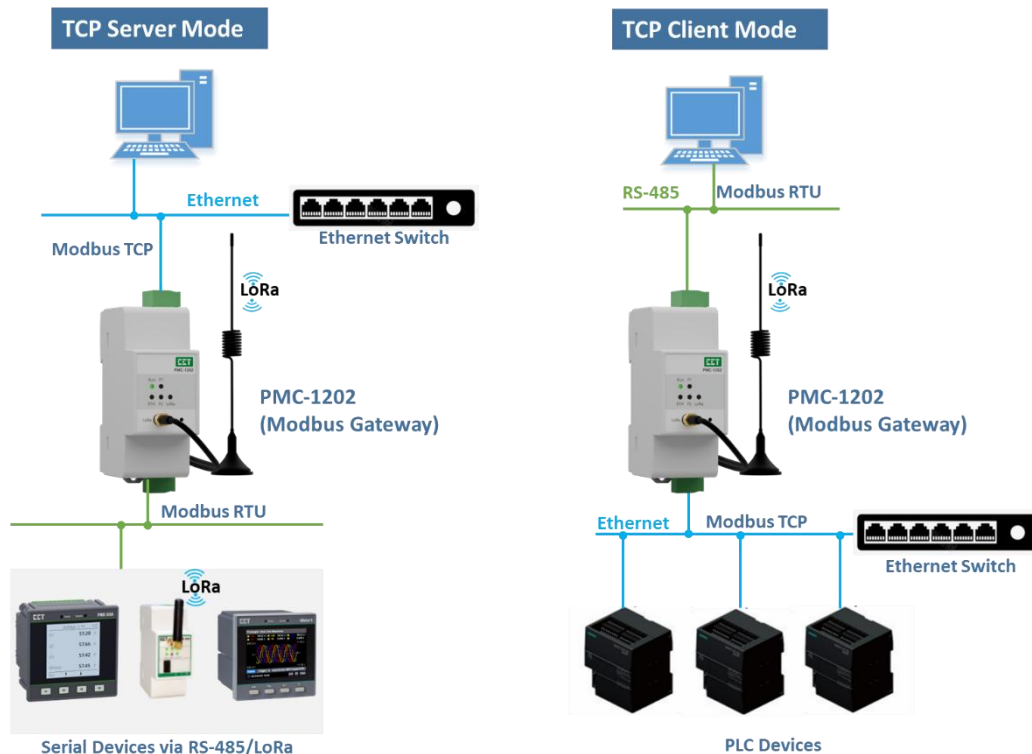


Figure 5-3 Modbus Gateway Function

The PMC-1202 supports:

- TCP Server and TCP Client modes
 - TCP Server mode: The PMC-1202 provides the master with **server** functionality via Modbus TCP through the Ethernet port.
 - TCP Client mode: The PMC-1202 provides the master with **client** functionality via Modbus TCP through the Ethernet port.
- A maximum of 128 downstream LoRa devices per PMC-1202
- 32 Slave IEDs per RS-485 port
- A maximum of 4 Masters per RS-485/LoRa port

The following is the process flow:

1. Establish connection between the Master and the PMC-1202.
 - TCP Server mode: The Master requests a connection to the PMC-1202.
 - TCP Client mode: The PMC-1202 requests a connection to the Master.
2. After the connection is established, the Master sends TCP message to the PMC-1202.
3. PMC-1202 converts the received RTU message to TCP format and sends it to the slaves.
4. The slaves returns a response (RTU message) to the PMC-1202.
5. The PMC-1202 converts the RTU message to TCP format and returns it to the Master.

A simple web console allows users to easily configure the TCP to RTU address mapping for downstream Slave IEDs connected via RS-485/LoRa port. Please refer to **Section 4.2.1.2** for details.

Appendix A Technical Specifications

Communication	
Ethernet Port	10/100 Mbps
Protocol	TCP, UDP, HTTPD, WebSocket
RS-485 (P1, P2)	
Baudrate	300/600/1200/2400/4800/ 9600/19200/38400 bps
Data Bits	7, 8
Stop Bits	1, 2
LoRa (Optional)	
RF Range	860-930 MHz
ISM Bands	EU863-870, RU864-870, IN865-867, US902-928, AU915-928, AS920-923, AS923-925
RF Output Power	22 dBm (Maximum)
Receiver Sensitivity	-124 dBm (Maximum)
FCC 47 CFR Part 15C	Certified
Power Supply (L/+, N/-)	
Standard	95-250VAC/DC $\pm$ 10%, 47-440Hz
Optional	12-36VDC
Burden	$\leq$ 3W
Protection	
ESD Protection	15kV (Air) & 8kV (Contact)
Isolation Protection	3kV for RS-485 Ports 1.5kV for Ethernet Port
Environmental Conditions	
Operating Temp.	-25°C to +70°C
Storage Temp.	-40°C to +85°C
Humidity	5% to 95% non-condensing
Atmospheric Pressure	70kPa to 106kPa
Mechanical Characteristics	
Unit Dimensions	36x65x90mm
Mounting	DIN Rail

Appendix B Standards of Compliance

Safety Requirements	
Audio/Video, Information and Communication Technology Equipment - Part 1: Safety Requirements	EN 62368-1: 2014 + A11: 2017
Electromagnetic Compatibility CE EMC Directive 2014 / 30 / EU (EN 55035: 2017 + A11: 2020)	
Electrostatic Discharge	EN 61000-4-2: 2009
Radiated Fields	EN IEC 61000-4-3: 2020
Fast Transients	EN 61000-4-4: 2012
Surges	EN 61000-4-5: 2014 + A1: 2017
Conducted Disturbances	EN 61000-4-6: 2014
Magnetic Fields	EN 61000-4-8: 2010
Voltage Dips and Interruptions	EN IEC 61000-4-11: 2020
Emission Tests	
Electromagnetic Compatibility of Multimedia Equipment-Emission Requirements	EN 55032: 2015 + A11: 2020
Electromagnetic Compatibility of Multimedia Equipment-Immunity Requirements	EN 55035: 2017 + A11: 2020
Limits for Harmonic Current Emissions for Equipment with Rated Current ≤ 16 A	EN IEC 61000-3-2: 2019 + A1: 2021
Limitation of Voltage Fluctuations and Flicker in Low-Voltage Supply Systems for Equipment with Rated Current ≤ 16 A	EN 61000-3-3: 2013 + A1: 2019 + A2: 2021
Radiated Emission and Conducted Emission	ETSI EN 301 489-1 V2.2.3 ETSI EN 301 489-3 V2.3.2
Radio Equipment Directive (RED) 2014 / 53 /EU	
Assessment of Electronic and Electrical Equipment Related to Human Exposure Restrictions for Electromagnetic Fields (0Hz - 300 GHz)	EN IEC 62311: 2020
Determination of RF Field Strength, Power Density and SAR in the Vicinity of Radio Communication Base Station for the Purpose of Evaluating Human Exposure	EN 62232: 2017
Short Range Devices (SDR) Operating in the Frequency Range 25 MHz to 1000MHz	ETSI EN 300 220-1 V3.1.1: 2017 ETSI EN 300 220-2 V3.1.1: 2017
Mechanical Tests	
Freefall	IEC 60068-2-31: 2008
Vibration	IEC 60068-2-6: 2007
Shock	IEC 60068-2-27: 2008

Appendix C Ordering Guide

		Version 20241108					
Product Code		Description					
PMC-1202		Ethernet Serial/LoRa Gateway					
	Basic Function						
	T	Modbus TCP/RTU Gateway and Transparent Gateway					
	Power Supply						
	2	95-250VAC/DC ± 10%, 47-440Hz					
	3*	12-36VDC					
	Communication Ports						
	T2	1x10/100BaseT Ethernet Port+2xRS-485 Port					
	LoRa						
	N	None					
	7*	LoRa (860-930 MHz) configurable for EU863-870, RU864-870, IN865-867, US902-928, AU915-928, AS920-923, AS923-925)					
Language							
E	English						
PMC-1202	-	T	2	T2	N	E	PMC-1202-T2T2NE(Standard Model)

* Additional charges apply

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