

## What's new in PM8000 series firmware v1.3.1

Firmware version v1.3.1 for the PowerLogic™ PM8000 series meter adds a new feature that provides automatic temperature compensation for your meter's internal clock. This firmware also resolves a previously unknown issue with firmware version v1.3.0.

Features added from the previous firmware version include IPv6 global addressing and IPv6 gateway support.

### Resolved: Modbus master issue

Firmware version v1.3.1 resolves the issue that rendered the meter inoperable if the meter was configured as a Modbus TCP master.

Schneider Electric devices and systems are tested thoroughly at the factory. In some situations, previously unknown issues are identified after a device upgrade firmware has been publicly released. These issues are sent to our Engineering team for analysis, and a resolution is typically integrated in a future meter firmware version.

The Modbus master issue was identified in firmware version v1.3.0.

Upgrading your meter to firmware v1.3.1 resolves the issue.

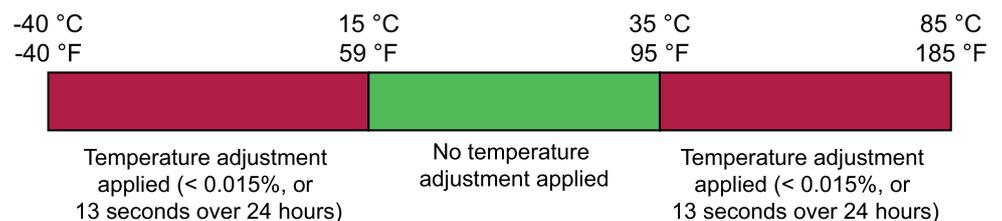
### Internal clock temperature compensation

The time accuracy of the meter has been improved by compensating for clock drift if the meter's operating temperature falls outside the optimum temperature range.

Your meter's internal clock is adjusted based on the internal clock temperature compensation parameters.

#### Internal clock temperature compensation parameters

Your meter's internal clock is adjusted based on the temperature profile of its components.



### IPv6 overview

Internet Protocol version 6 (IPv6) is the next generation of the internet protocol (IP) and is intended to replace IPv4.

IPv6 was developed to address the issue of IP address exhaustion, mainly caused by the rapidly increasing number of internet-enabled devices in the world.

IPv6 protocol defines a valid IPv6 address as a 128-bit number arranged as eight sets of hexadecimal numbers from 0 to FFFF separated by colons, which yields  $2^{128}$  or approximately  $3.4 \times 10^{38}$  unique IPv6 addresses (as compared to  $2^{32}$  or approximately 4.3 billion unique IPv4 addresses).

In addition to scalability, IPv6 offers many other advantages over IPv4, such as better end-to-end connectivity, faster and more efficient routing, automatic device discovery, and improved security.

## IPv6 address structure

An IPv6 address is made up of the network address and the unique device address. Hosts belonging to the same IPv6 network have the same network address.

If an IPv6 address includes CIDR (classless inter-domain routing) information, it is notated as a slash at the end of the IPv6 address, followed by a decimal number which corresponds to the number of initial bits that make up the network address.

For example, the IPv6 address

`FDC3:46C2:5C04:C78F:9263:78FF:FE04:5943` could be represented in the following manner, depending on how its network is defined:

**FDC3:46C2:5C04:C78F:9263:78FF:FE04:5943/64**

Network address	Unique device address
FDC3:46C2:5C04:C78F	9263:78FF:FE04:5943

**FDC3:46C2:5C04:C78F:9263:78FF:FE04:5943/80**

Network address	Unique device address
FDC3:46C2:5C04:C78F:9263	78FF:FE04:5943

**FDC3:46C2:5C04:C78F:9263:78FF:FE04:5943/112**

Network address	Unique device address
FDC3:46C2:5C04:C78F:9263:78FF:FE04	5943

## IPv6 shorthand notation

The following rules can be applied to abbreviate an IPv6 address:

- Leading zeroes from any group of hexadecimal digits can be removed.
- Consecutive groups containing all zeroes can be replaced with a double colon.

For example, the IPv6 address

`FE80:0000:0000:0000:0260:78FF:FE04:5943` can be shortened to:

- `FE80:0:0:0:260:78FF:FE04:5943` – by removing all leading zeroes in each group.
- `FE80::260:78FF:FE04:5943` – by replacing the second, third and fourth groups of zeroes with a double colon and removing the leading zero in the fifth group.

**NOTE:** Only one double colon is allowed in the abbreviated IPv6 address.

## Network port numbers and IPv6

A colon is used at the end of an IPv4 address to specify a port number to use for a specific protocol. To eliminate ambiguity in IPv6, square brackets are used to enclose the IPv6 address. For example, `[FE80::260:78FF:FE04:5943]:25`.

## IPv6 implementation

The meter uses dual-stack IPv4/IPv6 routing technology to manage network communications and allow network hosts to communicate with the meter using either IPv4 or IPv6.

To support the new IPv6 address format, additional setup registers have been added to the meter's Ethernet communications ION module: *IPv6 Global Address* and *IPv6 Gateway*:

- *IPv6 Global Address* is the meter's unique IPv6 device address identifier and is used by hosts to communicate with the meter.
- *IPv6 Gateway* is the address the meter uses to route communications to a different network or subnet.

## IPv6 configuration

To enable full IPv6 communications for your meter (internal and external networks), you must set up the IPv6 global address and IPv6 gateway parameters.

All meters ship from the factory with the IPv6 global address and IPv6 gateway undefined. These parameters are set to "::", which is a shorthand notation for all zeroes (0000:0000:0000:0000:0000:0000:0000), and equivalent to the value "None".

**NOTE:** See your network administrator to obtain the IPv6 global address and IPv6 gateway information for your meter.

You can view the meter's IPv6 global address and IPv6 gateway settings through the meter display, webpages or ION Setup, but configuration can be performed only through the meter webpages or ION Setup.

The meter is typically configured as a device in a private network or subnet. The meter's *IPv6 Global Address* is configured to enable hosts in the same network to communicate with the meter. If communications need to be routed outside the subnet, the meter's *IPv6 Gateway* parameter must also be configured.

## Configuring IPv6 address using the meter webpages

You can use the meter webpages to configure the IPv6 global address and IPv6 gateway for the meter.

You can access the meter webpages by entering the meter's IPv4 or IPv6 link local address in the web browser or by double-clicking the meter's network icon, as described in the "Self-discovery over Ethernet" topic in the user manual.

**NOTE:** You must enclose an IPv6 address in square brackets when typing it in a web browser, for example: "http://[fe80::260:78ff:fe04:5943]".

If you are connected to your device over Ethernet, changing Ethernet configuration parameters without another method of configuration enabled may cause loss of communications with your device and render it inoperable. In this case, a factory reconfiguration of your device is required, which resets your device to its factory defaults and all logged data is lost.

### NOTICE

#### DATA LOSS

Ensure you maintain sufficient access to communicate with and configure your device.

**Failure to follow these instructions may result in data loss.**

1. Connect to your meter's webpages using the meter's IPv4 address or its IPv6 link local address.

2. Navigate to **Setup > Ethernet**.
3. Enter the IP addresses for **IPv6 Global Address** and **IPv6 Gateway**.

**NOTE:** To disable communications to the IPv6 global subnet, set **IPv6 Global Address** and **IPv6 Gateway** to "::" or "None".

4. Click **Apply**.

## Configuring IPv6 address using ION Setup

You can use ION Setup to configure the IPv6 global address and IPv6 gateway for the meter.

If you are connected to your device over Ethernet, changing Ethernet configuration parameters without another method of configuration enabled may cause loss of communications with your device and render it inoperable. In this case, a factory reconfiguration of your device is required, which resets your device to its factory defaults and all logged data is lost.

<b>NOTICE</b>
<b>DATA LOSS</b> Ensure you maintain sufficient access to communicate with and configure your device. <b>Failure to follow these instructions may result in data loss.</b>

1. Start ION Setup.
2. Open the **Setup Assistant** for your device.
3. Select **Communications > Network Settings**, then click the **IPv6** tab.
4. Select **Global Address**, then click **Edit**.
5. Type the IPv6 global address in the box, then click **OK**.
6. Select **IPv6 Gateway**, then click **Edit**.
7. Type the IPv6 gateway address in the box, then click **OK**.

**NOTE:** To disable communications to the IPv6 global subnet, set **Global Address** and **IPv6 Gateway** to "::" or "None".

8. Click **Exit**.