


# Chapter 16 Maintenance and upgrades

This section describes maintenance information and upgrade procedures for the meter.

 **DANGER**

**HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH**

- Do not attempt to service the meter. CT and PT inputs may contain hazardous currents and voltages.
- Do not perform a dielectric (hi-pot) or Megger test on the meter. High voltage testing of the meter may damage it.
- Before performing hi-pot or Megger testing on any equipment in which the meter is installed, disconnect all input and output wires to the meter.

**Failure to follow these instructions will result in death or serious injury.**

## Maintenance

The meter does not contain any user-serviceable parts.

**NOTICE**


**RISK OF DAMAGE TO THE METER**

- Do not open the meter case.
- Do not attempt to repair any components of the meter.

**Failure to follow these instructions can result in equipment damage.**

Do not open the meter. Opening the meter voids the warranty. If the meter requires service, contact your local Schneider Electric representative.

## Wrench icon

The wrench icon  appears on the top corner of the display screen to alert you of an overvoltage condition or a potential hardware or firmware problem in the meter that requires attention. It could also indicate that the energy LED is in an overrun state.

Navigate to **Maint > Diag > Meter** to view details of the meter status. Make note of the information shown on the screen, then contact Technical Support.

## Troubleshooting LED indicators

Abnormal heartbeat / serial communications LED behavior could mean potential problems with the meter.

Problem	Probable causes	Possible solutions
LED flash rate does not change when data is sent from the host computer.	Communications wiring	If using a serial-to-RS-485 converter, trace and check that all wiring from the computer to the meter is properly terminated.
	Internal hardware problem	Perform a hard reset: turn off control power to the meter, then re-apply power. If the problem persists, contact Technical Support.
Heartbeat / serial communications LED remains lit and does not flash ON and OFF	Internal hardware problem	Perform a hard reset: turn off control power to the meter, then re-apply power. If the problem persists, contact Technical Support.
Heartbeat / serial communications LED flashes, but the display is blank	Display setup parameters incorrectly set	See “Setting up Ethernet communications” on page 36.

If the problem is not fixed after troubleshooting, contact Technical Support for help. Make sure you have your meter’s firmware version, model and serial number information available.

## Meter memory

The meter uses its non-volatile memory (NVRAM) to retain all data and metering configuration values. Under the operating temperature range specified for the meter, the NVRAM has an anticipated life of 45 years or longer. The meter stores its data logs in a memory chip, which has a life expectancy of up to 20 years under the operating temperature range specified for the meter.

### Clock battery

The internal battery in the meter keeps its clock running and helps maintain the time even when the meter is powered down.

The life expectancy of the internal battery is estimated to be over 10 years at 25°C under typical operating conditions.

## Firmware version, model and serial number

You can view the meter’s firmware version, model and serial number from the display panel or through the meter webpages:

- Using the display panel: Navigate to **Maint > Diag > Info**. See “Maintenance” on page 74 for details.
- Using the meter webpages: Navigate to **Diagnostics > Meter Information**. See “Diagnostics” on page 48 for details.

## Firmware upgrades

There are a number of reasons why you may want to upgrade your meter’s firmware.

- Improve meter performance (e.g., optimize processing speed)
- Enhance existing meter features and functions
- Add new functionality to the meter
- Achieve compliance to new industry standards

**NOTE:** For MID compliance, the PM5561 meter’s firmware upgrade functionality is permanently disabled.

## Meter upgrade requirements

There are some requirements to consider before you upgrade your meter's firmware.

In order to upgrade the meter, you need to:

- Be connected to the meter using Ethernet.
- Make sure the meter's FTP server is enabled.
- Have Product Master credentials to log in to the meter's FTP server. The FTP server uses the same user accounts as the meter's webpages.
- Download the latest upgrade files from [www.schneider-electric.com](http://www.schneider-electric.com). The upgrade files include:
  - App2.out: this file contains the files needed to upgrade the code and initialization files that run the Ethernet communications.
  - PM556x\_vX.Y.Z.fwa (where X.Y.Z is the specific firmware version): this file contains all the files needed to upgrade other meter components, such as the meter's operating system, language files and webpages.
  - PM5500StartUpgrade.shtml

Save these files to a location you can access from the computer you use to perform the upgrade

**NOTE:** After you use the FTP meter upgrade process, you can no longer use DLF3000 software to upgrade the meter.

### ***Related topics***

- See “User accounts” on page 52 for information on user accounts.
- See “Enabling and disabling the FTP server using the webpages” on page 66 for instructions on enabling the FTP server.

## Upgrading your meter

You can upgrade the meter's firmware, language files, webpages and Ethernet communications card using the meter's internal FTP server.

Your meter, Ethernet card and accessories do not operate normally during firmware upgrade, and your meter's digital outputs may change state during a firmware upgrade.

### **⚠ WARNING**

#### **UNINTENDED OPERATION OR METER DAMAGE**

- Do not use this device for critical control or protection applications where human or equipment safety relies on the operation of the control circuit.
- Do not turn off power to the meter while the firmware upgrade is in progress.

**Failure to follow these instructions can result in death, serious injury or equipment damage.**

This example walks through upgrading your meter using Windows Explorer to access the meter's FTP server. You can also use other FTP clients, such as FileZilla.

1. Open Windows Explorer and connect to your meter by entering ftp://<meter IP address> in the address field, replacing <meter IP address> with the IP address of the meter you want to upgrade.
2. Enter a Product Master username and password when prompted. The FTP server appears, containing the folders fw and www.
3. Open another instance of Windows Explorer and navigate to the location where you saved the firmware upgrade files.
4. Copy the PM5500StartUpgrade.shtml file and paste it into the www folder on the meter's FTP server.
5. Copy the App2.out and PM556x\_vX.Y.Z.fwa files and paste them into the fw folder on the meter's FTP server.

**NOTE:** If a file with the same name already exists on the meter, you are prompted to confirm whether or not you want to replace that file. Click **Yes** (to replace that one file) or **Yes to All** (to replace all files).

**NOTE:** If you have added a large number of custom files (such as webpages) to the meter's FTP server, there may not be enough memory on the meter's Ethernet communications card to paste the files, and you may receive an error when you try to paste the files. You may need to temporarily move some of these custom files before proceeding.

6. Exit Windows Explorer after the file copying is complete.
7. Navigate to the PM5500StartUpgrade.shtml webpage to trigger the upgrade.

The address is http://<meter IP address>/PM5500StartUpgrade.shtml, where <meter IP address> is replaced with your meter's IP address. Enter your login credentials when prompted.

**NOTE:** Accessing this webpage restarts the meter's Ethernet communications card, which initiates the upgrade process.

From the PM5500StartUpgrade.shtml page, you can click on the **view upgrade status** link to view information about the upgrade process. This might take up to a minute while the meter's Ethernet communications card is reset and the upgrade initialized.

**NOTE:** If the status page indicates that one of the upgrade processes failed, restart the upgrade process from the beginning by reconnecting to the meter's FTP server, recopying the files then following the rest of the procedure.

## Technical assistance

Visit [www.schneider-electric.com](http://www.schneider-electric.com) for support and assistance with lost passwords or other technical problems with the meter.

Make sure you include your meter's model, serial number and firmware version in your email or have it readily available if calling Technical Support.

## Diagnostics screen

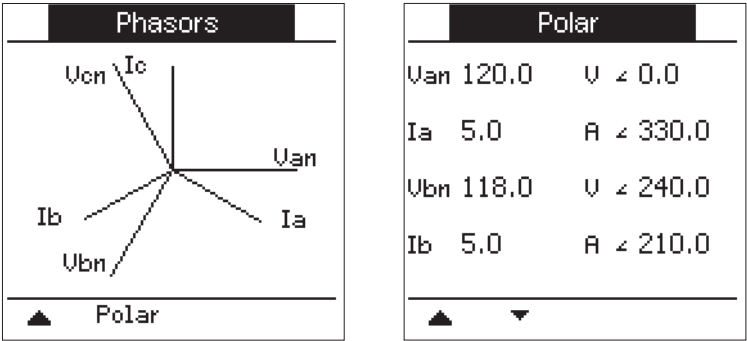
You can use the Diagnostics screens to obtain information that may help you troubleshoot meter problems.

Info, Meter and CI Pwr

See “Maintenance” on page 74 for description of the Info (information), Meter and CL Pwr (loss of control power) diagnostics screens.

Phasors

Phasors are used to represent the voltage and current magnitudes and phase angles.



The graph on the Phasors screen shows a representation of the phase angles in degrees, with the size of the lines representing the relative RMS magnitude of the voltages with respect to the other phase voltages, and the currents with respect to the other phase currents. The phasor for phase A voltage is set to a phase angle of zero, and all other phase angles are measured relative to phase A.

The Polar screen shows the RMS value and phase angle of each voltage and current phases.

Phasors can be used to troubleshoot incorrect connections on the meter’s voltage and current inputs. The phasors can reveal switched phase wiring or polarity errors.

**NOTE:** If two phasor lines overlap (i.e. if they have the same relative phase angle), only one phase label is visible as phasor diagram labels are overwritten dynamically on the display panel.

Maintenance log

The meter’s maintenance log can be accessed using the webpages. See “Diagnostics” on page 48.

