

# Maintenance

## Maintenance overview

The meter does not contain any user-serviceable parts. If the meter requires service, contact your local Schneider Electric Technical Support representative.

NOTICE
<p><b>METER DAMAGE</b></p> <ul style="list-style-type: none"><li>• Do not open the meter case.</li><li>• Do not attempt to repair any components of the meter.</li></ul> <p><b>Failure to follow these instructions can result in equipment damage.</b></p>

Do not open the meter. Opening the meter voids the warranty.

## Lost user access

If you lose your meter’s user access (password) information, contact your local Schneider Electric representative for instructions on how to return your meter for factory reconfiguration.

**NOTE:** Have your meter’s serial number available for reference.

## Diagnostics information

The meter provides you with diagnostics information to help with troubleshooting.


The display provides

- the Info (information), Meter and CL Pwr (loss of control power) diagnostics screens.
- the Phasor and Polar screens to help troubleshoot incorrect wiring.

You can access the meter’s maintenance log using the webpages.

## Wrench icon

The wrench icon appears on the top corner of the display screen.

The wrench icon  alerts you when there is an overvoltage condition or a potential hardware or firmware problem in the meter that requires attention. It could also indicate that the energy pulsing 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	Review display parameter setup.

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.

## Phasors

Phasors are used to represent the voltage and current relative magnitude and angles.

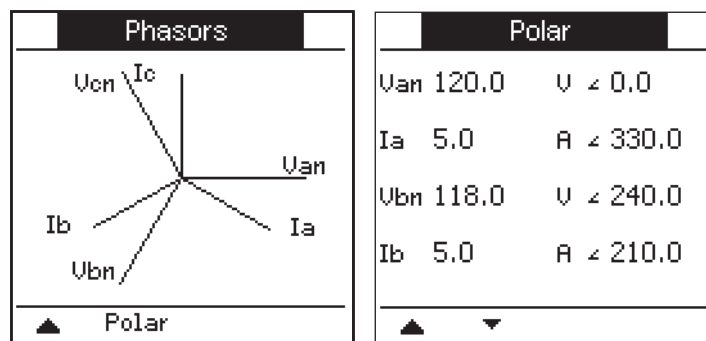
The length of the lines in the phasor diagram represent the relative magnitude of the voltages with respect to the other phase voltages, and the currents with respect to the other phase currents. All angles are measured with respect to the  $V_a/V_1$  phase. The  $V_a/V_1$  phasor is fixed to the right-hand horizontal axis (positive x-axis). Positive angles are measured counterclockwise.

Numeric values are provided for the magnitude and relative angle for each voltage and current phase.

Phasor information can be used to troubleshoot incorrect connections on the meter's voltage and current inputs (for example, switched phase wiring or polarity errors), if you know how the phasors should be oriented for your power system.

## Phasor screens

Phasor information is available on the meter's display.



The graph on the Phasors screen shows a representation of the phase angles in degrees. The Polar screen shows the RMS value and phase angle of each voltage and current phases.

**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.

## Meter memory

The meter stores configuration and logging information in non-volatile memory and a long-life memory chip.

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.

## Meter battery

The internal battery in the meter keeps the meter's clock running when it is powered down to help maintain the meter time.

The life expectancy of the meter's 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 (including OS, RS and Ethernet versions), model and serial number from the display panel or through the meter webpages.

- Using the display panel: Navigate to **Maint > Diag > Info**.
- Using the meter webpages: Navigate to **Diagnostics > Meter Information**.

**NOTE:** For MID compliance, the firmware upgrade functionality is permanently disabled on MID models. The OS CRC value is a number that identifies the uniqueness between different OS firmware versions.

## 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

## 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.

**NOTE:** It is recommended that you change the IP Address Acquisition Mode to Stored during the firmware upgrade. If the mode is set to DHCP, the IP address might change during the upgrade, which will result in a loss of communications with the meter.

- Make sure the meter's FTP server is enabled.
- Have Product Master credentials to login 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.

**NOTE:** The PM5561 meter model running on firmware version 10.6.3 or later, can be upgraded to a compatible higher firmware version. However, firmware upgrades - successful and unsuccessful - are limited to 10 attempts in PM5561, after which further attempts will be blocked.

## 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> 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. Open your browser and enter `http://<meter IP address>/PM5500StartUpgrade.shtml` to trigger the upgrade, 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. It might take a minute or two while the meter's Ethernet communications card is reset and the upgrade initialized.

From the `PM5500StartUpgrade.shtml` page, you are redirected to a firmware upgrade status page where you can view information about the upgrade process.

**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.