Getting Started with the MeteoPV ☀️


Revision: 10/2023

Info Link →

www.campbellsci.com/meteopv ⤢

1. Overview

The MeteoPV is a Modbus/TCP Modbus/RTU gateway device. It allows you to connect multiple RS-485 sensors, and compile the data from all of them into one collection point. The MeteoPV reads data from all the attached sensors and assembles one Modbus map containing data and metadata from each sensor. All the data can be simply collected by a Modbus Master over Modbus/TCP.

> **NOTE:**
> The MeteoPV can be powered by USB (for configuration only), or by a 10 to 30 VDC power supply connected to its + and - input terminals, or by power over Ethernet (PoE). If powered by the 0 to 30 VDC power supply or by PoE, the MeteoPV will supply 12 VDC power to attached RS-485 sensors. The MeteoPV will not supply power to attached sensors if it is being powered only by USB.

Smart Sensors   **MeteoPV**   **SCADA System**
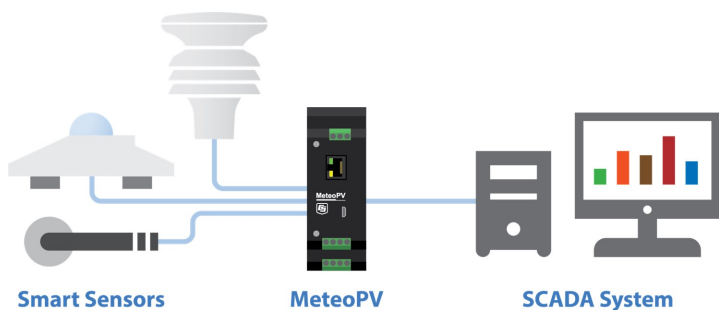
You can get up and running with your MeteoPV in no time. Once you are connected to the MeteoPV with a web browser, navigate to the **Configuration** page. You can configure a **Station Name**, **Location field**, and add **Station Notes**, if desired,

then follow these instructions to **Add Sensors**, and set up **Network Options**.

To configure the MeteoPV remotely, you will need to set up an account with **Administrator privileges.** See Set up user accounts (p. 2) for more information.

2. Connect to the MeteoPV

This information is provided in the *Let's Go!* post card that is shipped with the MeteoPV:

1. Use the USB cable to connect the MeteoPV to the computer USB port.

2. Type www.linktodevice.com or 192.168.66.1 (default IP) in the computer browser.

3. Click **Getting Started**.

3. Add sensors

You can configure the MeteoPV to read data from digital sensors connected to its RS-485 terminals. To customize the MeteoPV to read your sensors, follow these steps:

1. 1. Click **+Add Measurement** to see a list of available sensors.

2. Add up to four pyranometers, one compact weather sensor, and up to four back-of-module temperature sensors.

3. After a sensor appears in the list, type the parameters for that sensor to customize it for your application.

4. View the wiring diagram for the sensor by clicking on **Wiring**.

5. If you selected a sensor by mistake or no longer wish to have the MeteoPV read data from it, remove it from the running configuration by clicking the red trash can icon next to the sensor heading.

6. Once you have added all of the sensors, perform the Network options (p. 1) and Apply configuration (p. 2) steps. Once the configuration is applied, the MeteoPV will start reading your sensors.

4. Network options

After you have finished adding sensors as outlined in Add sensors (p. 1), click the **Network** tab above the **+Add Measurement** button.

## 4.1 Ethernet

MeteoPV   **SCADA System**

The Modbus TCP/IP protocol is used to communicate with the local SCADA system or other data collection platform. The **Ethernet Device Settings** configure the MeteoPV IP connection. Configure the Ethernet Interface by entering the **IP Address**, **Netmask**, and **Gateway** that the data collection system is expecting to use to communicate with the MeteoPV.

For more information on the IP settings, visit the **Network** section of the **MeteoPV Configuration** screen and click ❶ for inline context help.

4.2 RS-485
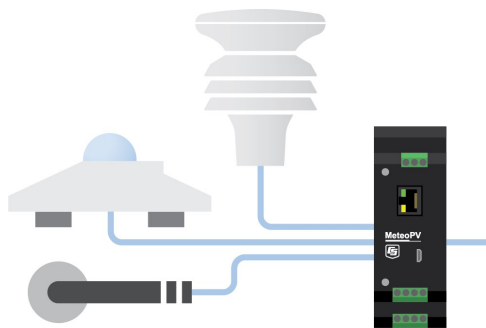
Smart Sensors   **MeteoPV**

The Modbus RTU protocol over RS-485 is used to interface with the sensors. The RS-485 **Device Settings** configure the connection to the attached sensors. Configure the RS-485 **Network Baud Rate**, **Data Bits**, **Parity**, and **Stop Bits**. Ensure that any sensors connected to the MeteoPV are configured with matching parameters. For more information on the RS-485 settings, visit the **Network** section of the MeteoPV **Configuration** window and click ❶ for inline context help.

4.2.1 RS-485 specifications

Maximum cable length:	1200 m
Output voltage:	12 V supplied by RS-485 terminals; varies with load
Minimum:	11 V
Maximum:	14.5 V
Typical (under full load of 500 mA):	11.6 V
Current supply limit:	500 mA

5. Apply configuration

Once you have added all of the sensors and set the network options click **Apply to Station**. This will save the configuration to the station. You may also click **Save to File** to keep a copy of the configuration. It can then be loaded to this or another station using **Load from File**.

Once the configuration is applied, the MeteoPV will start reading from the configured devices using the configured network options.

6. Set up user accounts

The device is protected by password access. If you are connected using the USB connection, all access is granted. If you want to be able to control how the device is accessed remotely, you can set up user accounts. To configure the device remotely (over the Ethernet port), you need to set up a user account with **Administrator** permission level. Click **User Accounts** to access the **MeteoPV User Account Setup** dialog box. The following table explains what permission levels are available.

Table 6-1: User account permissions	
Permission level	**Access**
None	Disable an account without deleting it.
Read only	Permission to view the device values.
Administrator	Permission to view the device values, to edit the device configuration, and to create and edit accounts.

> **NOTE:**
> Creating an account with the user name anonymous, without a password, allows access to anyone that connects to the device without having to enter a user name. A default anonymous account exists with read only access. This allows anyone to be able to see the **Dashboard**, **Historic Data**, and **Modbus Map** without having to enter a user name.
>
> The anonymous account without password must exist to properly access the device using the Apple Safari browser.

7. More information

Additional information is provided at: www.campbellsci.com/meteopv ⬈.