CAMPBELL SCIENTIFIC®
WHEN MEASUREMENTS MATTER

MeteoPV Troubleshooting Tips ⛰️

Problem	Try this
Some of the **Station Health & Status** fields are empty.	Verify your configuration: Navigate to the **Configuration** page and verify the settings. If changes were made, click **Apply to Station**.
Modbus Master Status is offline.	Check your **SCADA Modbus Master** settings: Verify that the **SCADA Modbus Master** is configured to poll this station. Note the **IP Address** on the **Dashboard** and verify that the **Modbus Master** is configured to poll this address. Check the low-level **Modbus/TCP Communications**: Navigate to the **Diagnostics** page and click the **Watch** tab. Select **Modbus/TCP** as the **Communications** port to watch and click the **Start** button. If the MeteoPV is receiving polls from the Modbus Master, the low level Modbus bytes will be displayed in the **Watch** window.
No sensors are listed in the **Measurement Values** section.	Verify your configuration: Navigate to the **Configuration** page. Configure the device by clicking the **+Add Measurement** button and add the desired sensors. Click the **Network** tab and configure the device with the necessary Ethernet and RS-485 settings. Click **Apply to Station**.
A sensor **Modbus Result** is offline. This indicates that the MeteoPV cannot communicate with the specified sensor. The counter will increment every time the MeteoPV attempts unsuccessfully to communicate with it.	Verify the sensor connection: Verify that your sensor is connected to the MeteoPV according to the wiring diagram. On the **Configuration** page, click the sensor in question to expand the settings, then click the **Wiring** button to view the wiring diagram. The wiring diagram is also found in the **Configuration Report**, which is available by clicking the **Config Report** button on the **Configuration** page. If you still have trouble, acquire a wiring diagram from the sensor manufacturer and verify it matches the one in the **Configuration**. Power cycle the sensor: The sensor may have encountered an internal problem and is unresponsive. In this situation, the sensor may need to be turned off and on. To do this, disconnect the power wire from the MeteoPV terminal. Wait 15 to 20 seconds before reconnecting. Check the **Modbus Address**: Navigate to the **Configuration** page and click the sensor name to expand the parameters for that sensor. Verify that the **Modbus Address** setting matches that configured in your sensor. Check the **RS-485 Network** settings: Navigate to the **Configuration** page and click the **Network** tab. Verify that the RS-485 **Baud Rate**, **Data Bits**, **Parity**, and **Stop Bits** are configured to match that of your sensor(s). Swap the RS-485 A and B data lines: Different labeling conventions for RS-485 communications can result in mixing up the data lines (A and B). If A and B are connected in reverse, the sensor is not damaged but communications will fail. Try reversing the data lines and see if communications starts working. Also while the A and B data lines are reversed, try different **RS-485 Network** settings as detailed in the previous tip. **NOTE**: Move through these variations in a methodical manner. Campbell Scientific recommends only changing one thing at a time. If reversing the data lines do not fix your problem, make sure to change the data lines back to how they were originally wired according to the wiring diagram. Check the RS-485 low level communications: Navigate to the **Diagnostics** page and click the **Watch** tab. Select **RS-485** as the **Communications** port to watch and click the **Start** button. If the MeteoPV is polling sensors, the low-level Modbus query bytes will be shown in the watch window preceded by a time-stamp and the letter 'T' (for transmit). For example, hh:mm:ss.ms T BB BB BB, where BB are the low-level Modbus bytes.. If the MeteoPV is receiving responses from sensors, the low-level Modbus response bytes will be shown in the watch window preceded by a relative time-stamp and the letter 'R' (for receive).

Problem	Try this
NAN is reported for one or more measurement values. (**NAN** stands for not a number and indicates a problem reading the sensor.)	Check the **Modbus Result**: 　If it is offline, try the suggestions provided for the previous problem. 　If it indicates **Success**, there may be a problem with the sensor. Contact Campbell Scientific for more information. Ensure that the cable length for each sensor is less than 1200 m. Check the RS-485 Network settings: 　Navigate to the **Configuration** page and click the **Network** tab. Verify that the RS-485 **Baud Rate**, **Data Bits**, **Parity**, and **Stop Bits** are configured to match that of your sensor(s).
All sensors are reporting offline or **NAN** for the measurement values	If you have already tried the steps listed regarding offline status and/or **NAN** measurements, try removing one sensor at a time from the bus to see if the other sensors start responding. One sensors, with a hardware problem, can bring down the entire RS-485 bus.

More Information

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