

SUN URJA ENERGY SOLUTION

A Complete Solar Solutions

Datasheet [MPT100V] Ambient Temperature Sensor

MODEL

MPT 100V

DATASHEET

Introduction

It is an ambient temperature with or without naturally aspirated, 6-plate radiation shield. Its louvered construction allows air to pass freely through the shield, serving to keep the probe at ambient temperature. The shield's white color reflects solar radiation.

The most effective passive shelter protects temperature sensor from solar radiation and other sources of radiated and reflected heat. It's a multi-plate construction for maximum airflow.

Specifications

Construction	UV-stabilized white thermoplastic plates, aluminum mounting bracket, white powder-coated, stainless-steel U-bolt clamp
Plate Diameter	196 mm
Plate Height	110mm
Measuring Range	0 to 100 deg C
Accuracy	± 0.5 deg C
Output	A. 0 – 1 VDC B. 0 – 5 VDC C. 4 – 20 mA D. MODBUS RTU
Supply Voltage	12 to 24 VDC
Housing Electronics	Poly carbonate watertight enclosure Protection: IP-65

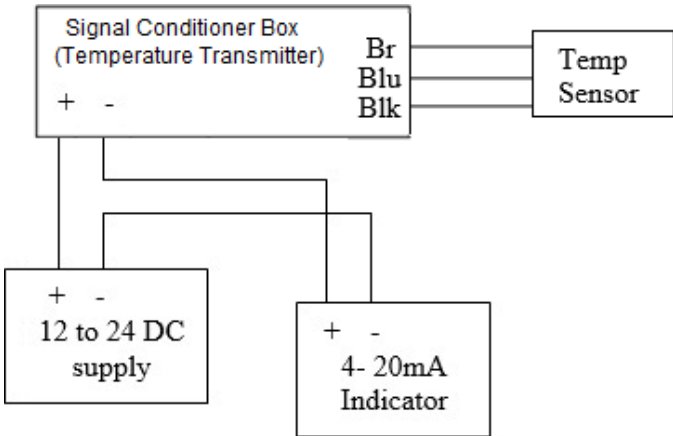
With Radiation Shield

Without Radiation Shield

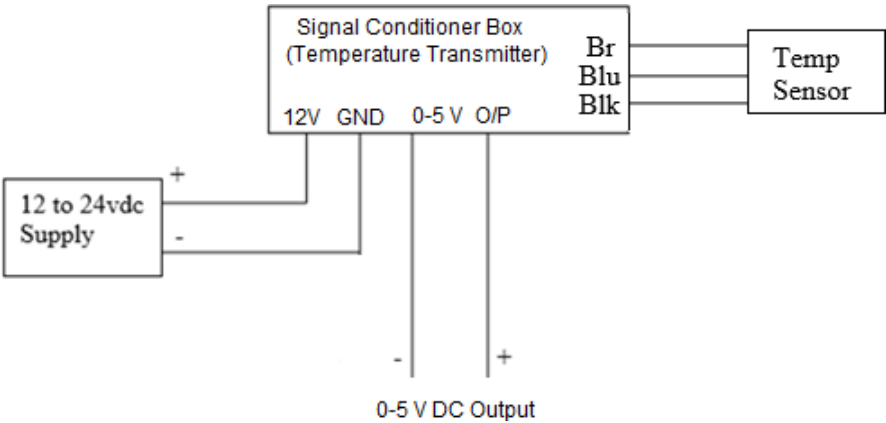


Wiring Diagram

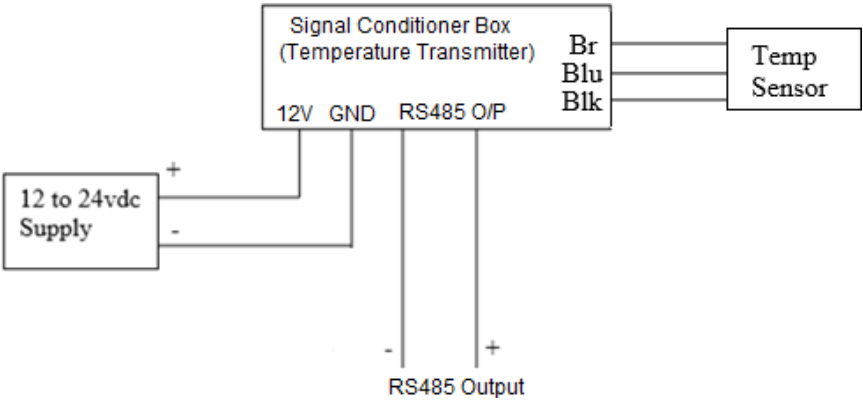
I/O Specifications for
4-20 mA Sensor Output



I/O Specifications for
0-5 V DC Sensor Output



RS485 pinout for
Sensor with RS485 Output



INSTALLATION

Guidelines

The ambient temperature sensor can be installed anywhere in the vicinity of the PV array. It is recommended to place the Ambient Temperature Sensor on the north side (in the northern hemisphere) of the array, otherwise you must provide array shading setback

Tools and Materials Needed

Please make sure you have all the necessary material as mentioned below:

- Wrench or pliers
- Wire cutters and stripper
- Multi meter
- Wire ties and tabs
- Electrical Tapes to cover the wire

Might be needed for mounting:

- Hammer
- Drill with 3/16 in drill bit (4.7 mm) to drill pilot holes
- Adjustable wrench or 11/32 in. wrench and 7/16 in

Location Recommendation

Use the following guidelines to determine the best location for mounting the ambient temperature Sensor

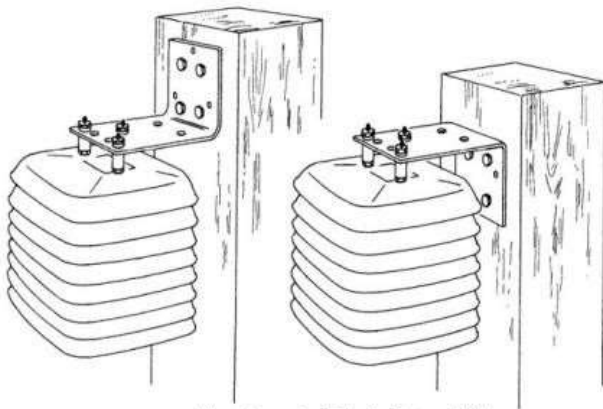
- It works best when in a location with a steady breeze. Mount away from fences, buildings, trees, or other obstructions.
- Do not install over or near sprinklers.
- If attaching to a building, the preferred location is the north side in the northern hemisphere and the south side in the southern hemisphere.

Mounting

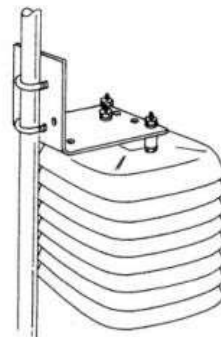
Observe the following requirements regarding the mounting location of the module temperature sensor.

The Solar Radiation Shield may be mounted in three orientations.

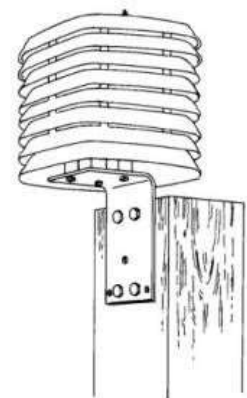
- On the side of a wooden post or a wall
- On a metal pipe with outside diameter between 1 in. and 1-1/4 in. (25 mm and 31 mm)
- On top of a wood post



Mounting on the Side of a Post or Wall

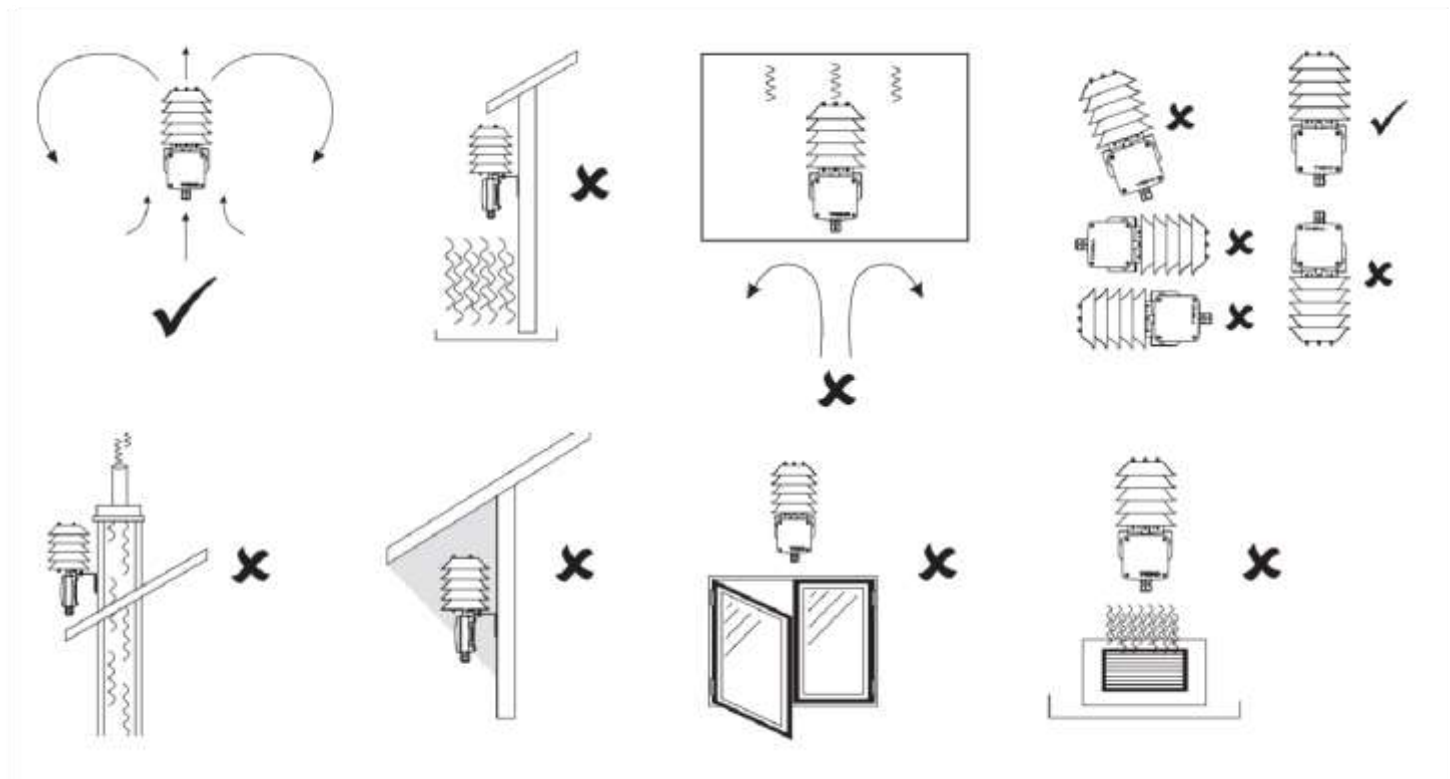


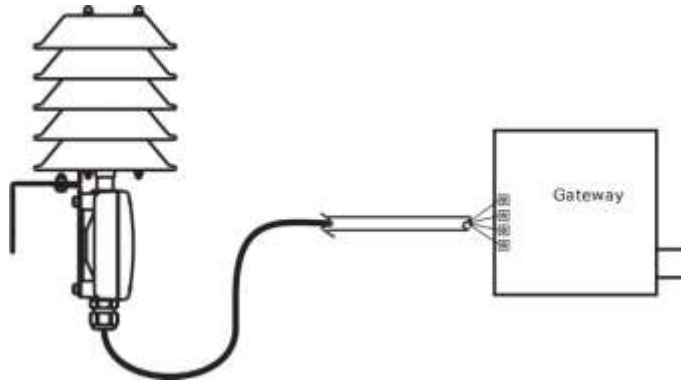
Mounting on a Pipe



Mounting on Top of a Post

Orientation





Example Installations



Calibration

If using Modbus sensor, then the Ambient Temperature is factory calibrated.

If using analog output sensor then use the following info to calibrate:

Output: 0 - 5 V_{DC} (0- 100 deg C)

Temperature in deg C = $20 * \text{Sensor Output voltage (in Volt)}$

Output: 4-20mA (0- 100 deg C)

Temperature in deg C = $6.25 * (\text{Output in mA} - 4)$ It is highly recommended that the calibration be checked annually.