Datasheet & Installation Guide
Dynalab Ambient Temperature Sensor
[DWT 8102]

Internet of Things

Solar Energy

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MODEL

DWT 8102

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.

PRINCIPLE OF OPERATION:

The sensor used for measurement is an RTD (PT 1000). Here the resistance of the element varies with temperature (increases with temperature), approximately 3.9 ohms/degree Celsius. The weather shield Is provided to avoid direct heating of the sensor by sun's radiation and to protect it from rain and snow

Specifications

Sensing	Standard Platinum RTD element PT1000 mounted inside a weather shield
Range	- 40 degrees to + 60 degrees Celsius.
Resolution	0.1 degrees Celsius.
Accuracy	+ 0.2 degrees Celsius.
Output	A: 0-5V B: Modbus RTU
Weather Shield	ABS plastic molded Non-Aspirated weather shield coated with weather proof reflective white paint.
Size of body	200(H) x 150 mm diameter (with weather shield).
Housing	Sensor mounted in a slotted tube on a Brass stem Inside a weather shield. The sensor is supplied with 10 Meters shielded cable
Power requirement	5V

Wiring Diagram

NA

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

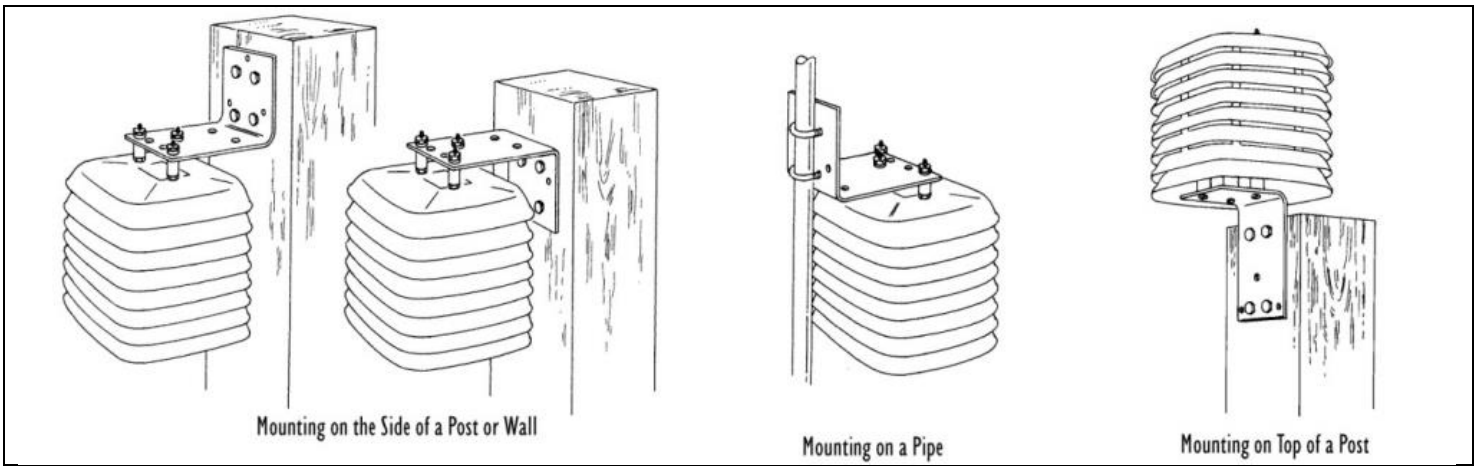
- It works best when in a location with a steady breeze. Mount away from fences, buildings, trees, or other obstructions.
- Do not install over or near sprinklers.
- If attaching to a building, the preferred location is the north side in the northern hemisphere and the south side in the southern hemisphere.

Mounting

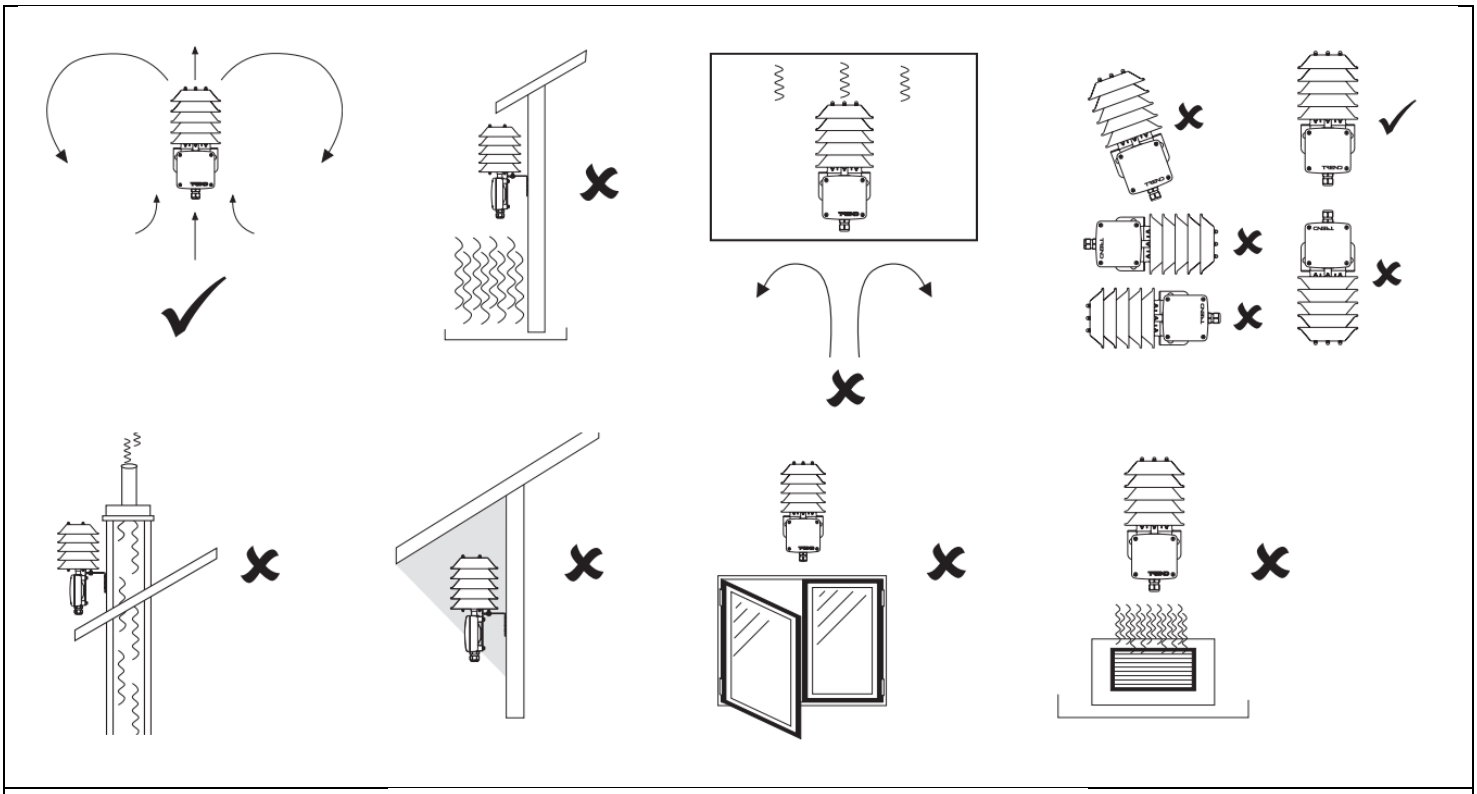
Observe the following requirements regarding the mounting location of the module temperature sensor.

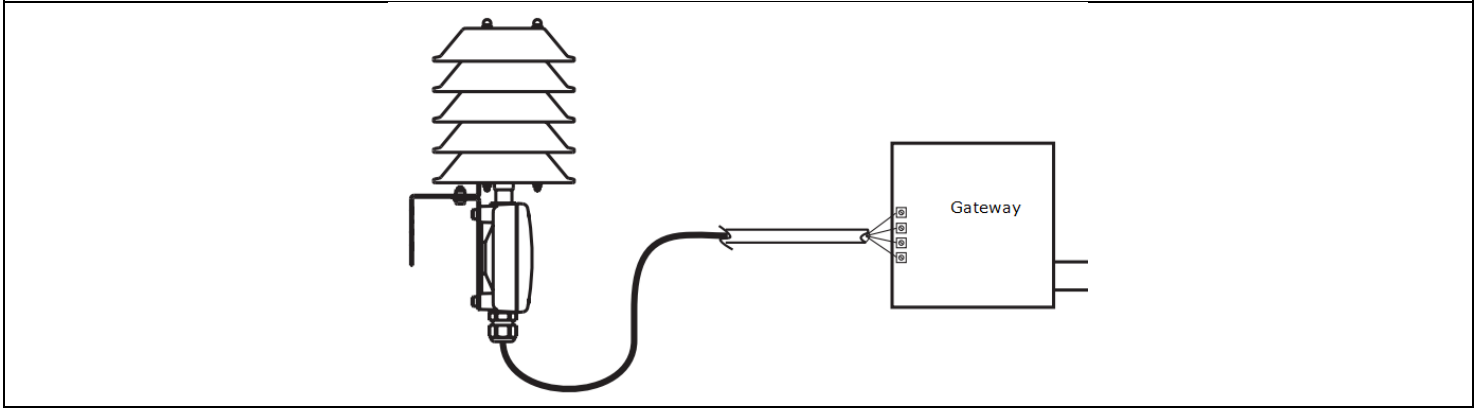
The Solar Radiation Shield may be mounted in three orientations.

- 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



Orientation





Example Installations

NA

Calibration

- If using Modbus sensor, then the Ambient Temperature is factory calibrated.
- If using analog output senor, then use the following info to calibrate:
  Output- 0 to 5 VDC (-40 to 60 0 deg C)

It is highly recommended that the calibration be checked annually.

Connection Diagram

A. For ANALOG output connections, please search for '*Installation Guide – Analog Sensors*' on: www.trackso.in/documentation
B. For MODBUS output connections, please search for '*Installation Guide – MODBUS Sensors*' on: www.trackso.in/documentation

Sensor Maintenance

- Over time, the sensing element may become covered in dust. The dust can be removed using compressed air.
- The effectiveness of the Radiation Shield will be reduced if the surfaces of the shield become dirty. Wipe the surfaces of the shield using a damp cloth to remove dirt, debris, etc.
- Keep areas between Radiation Shield plates free of debris that may obstruct air flow e.g., leaves, twigs, webs.
- Under no circumstances should water or cleansing agents be used on the sensing elements. It is recommended that the accuracy of the sensor is verified every 12 months.
- DO NOT remove nesting insects or animals by spraying insect killer of any kind into the Radiation Shield because this may damage the sensors and the Radiation Shield.

Disclaimer

Sensor: This sensor is a low-cost alternative to the Class 1/Class 2 sensors of the same type. Since this sensor fall under no class, there will be some variation in the real vs. expected values. If you wish to minimise the error/deviation in output values, we recommend that you purchase Class 1/Class 2 sensor.

Please note, we do not manufacture the sensor but only sell them along with our TrackSo IoT service. We do not guarantee the output/performance of the sensor.

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