



**MODEL 094-1, 094-2
SOLAR RADIATION SENSOR**

OPERATION MANUAL
Document No 094-9800



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094-9800 Operation Manual Rev B

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1. General Information

The Model 094 Solar Radiation Sensor is a thermopile pyranometer designed to measure total solar radiation. The Model 094 is an accurate and sensitive sensor using a black painted thermopile sensing element and designed for the continuous global horizontal or plane of array solar radiation measurements.

The Model 094 fully complies with the requirements of ISO 9060 and the World Meteorological Organization's requirements for solar measurements, as an ISO Second Class and WMO Moderate Quality sensor. This provides accurate, bankable data for all applications where accuracy matters.

1.1. Specifications

| | |
|--------------------------|---|
| • Sensor Type | : Thermopile pyranometer |
| • Wavelength range | : 300-2800 nm |
| • Sensing method | : Black paint sensing plate |
| • Sensitivity | : 5-15 mV/kW/m ² |
| • Output accuracy | : Approx. ± 3% |
| • Response time | : <16 sec (95%) |
| • Zero offset | : <5 W/m ² (temp change 5 K/h) |
| • Non-linearity | : <2% (0-1000 W/m ²) |
| • Azimuth error | : <30 W/m ² (1000 W/m ² beam @ 80°) |
| • Tilt error | : <2% (0-90° 1000 W/m ²) |
| • Temperature range | : -40°C to +60°C |
| • Field of view | : 180° |
| • Measurement range | : 0-2000 W/m ² |
| • Temperature dependence | : <5% (-10°C to +40°C) |
| • Body material | : Aluminum (PBT cover) |
| • Waterproof | : IP67 |
| • Cable | : 10m shielded cable included, S-VSVC, 0.16in dia. (4mm) |
| • Weight | : 7oz (200g) sensor, 1lb 8oz (700g) with 10m Cable |
| • Dimension | : 3.2in dia. X 2.3in H. (80mm dia. x 57mm) |

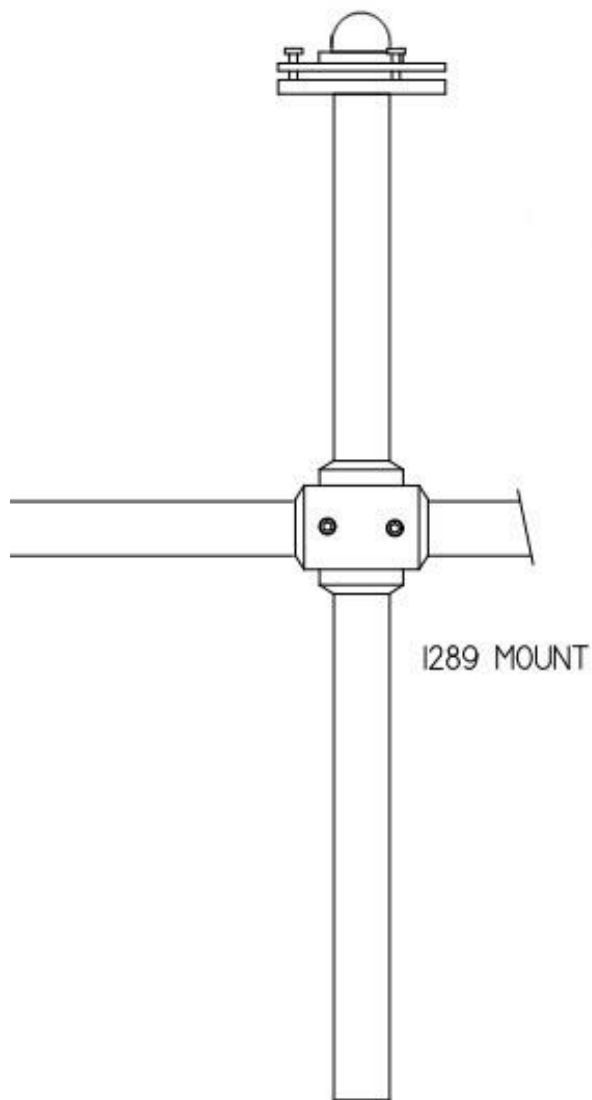
2. Installation

The Model 094 can be ordered in 2 easy mounting options, the 094-1 crossarm mount, and the 094-2 tower mount.

2.1. 094-1 Crossarm Mount

The 094-1 includes a crossarm mounting adaptor, for easy mounting to a standard Met One cross-arm or any other horizontally mounted $\frac{3}{4}$ " IPS pipe.

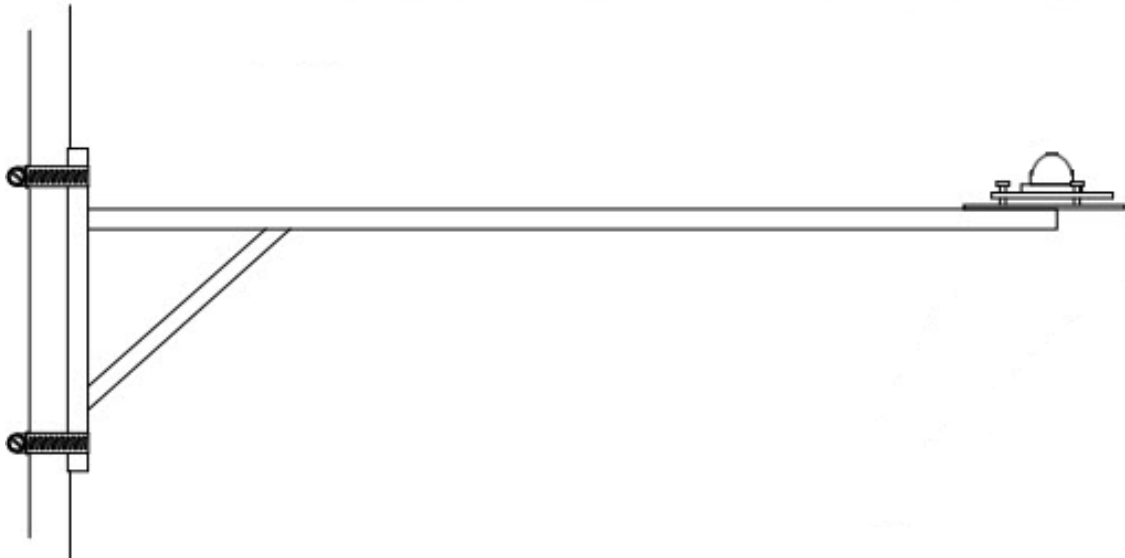
The included horizontal pipe fitting is slipped over the horizontal IPS pipe, and 2ea set screws tightened with included allen wrench.



2.2. 094-2 Tower & Tripod Mount

The 094-2 includes a 24" arm that can be quickly mounted to any vertical pipe, tower section, or tripod mast.

The mounting arm is attached to a vertical pole up to a 2 inch diameter using the 2 included hose clamps. Poles of larger diameters can be mounted to using larger clamps available at many hardware stores.



2.3. Leveling

After the 094 sensor is mounted to the tower or crossarm, the three leveling screws should be adjusted until the bubble level is centered.





3. Sensor Connections

The 094 comes standard with 10 meters of attached high quality shielded signal cable; other lengths are available upon request. The 094 does not require power as its thermopile element generates small voltage signals when exposed to solar radiation.

3.1. Cable Connections

| | |
|-------------|-----------------|
| White wire: | Signal Positive |
| Black wire: | Signal Ground |
| Shield | Earth Ground |

4. Maintenance

4.1. General Maintenance Schedule*

Inspect sensor for proper operation as per Section 3.0.

Clean sensor element monthly using clean rag or tissue.

*Schedule is based on average to adverse environments.