



MODEL 70201

SOLAR RADIATION SENSOR WITH INTERFACE

INSTRUCTION SHEET 70201-90
REV 9-01

INTRODUCTION

The Model 70201 Solar Radiation Sensor measures global solar radiation for agricultural, meteorological and hydrological applications. The 70201 features a silicon photovoltaic detector mounted in a fully cosine-corrected head along with an interface circuit to provide a calibrated 0-1VDC output. This sensor compares favorably with first class thermopile type pyranometers in clear unobstructed daylight conditions.

INSTALLATION

The sensor should be installed in a location with clear solar exposure throughout the day. The rugged offset bracket and u-bolt mounting clamp attaches easily to any vertical pipe up to 2 inch diameter.

Refer to the included wiring diagram for proper sensor and output connections. The sensor and interface are calibrated at the factory. A calibration tag attached to the cable of the sensor states a multiplier value which is used for correct scaling of the signal.

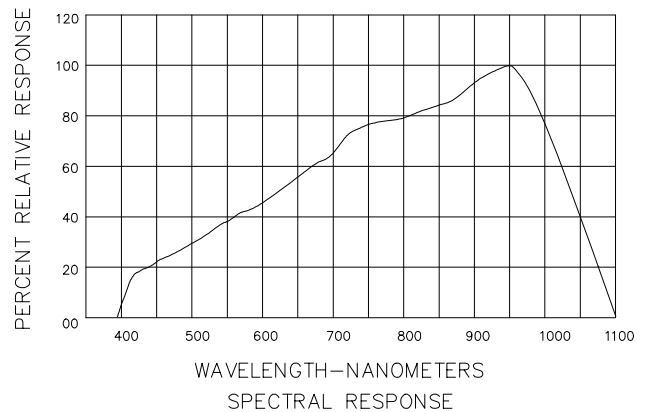
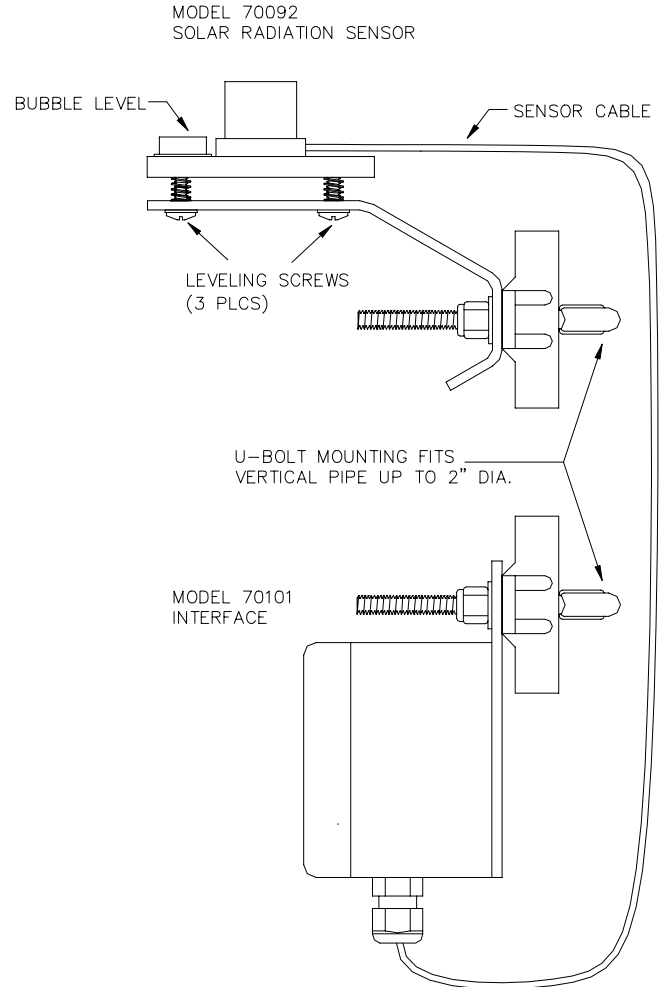
The interface circuit provides 0-1VDC calibrated output representing 0-1000 watts per square meter.

MAINTENANCE

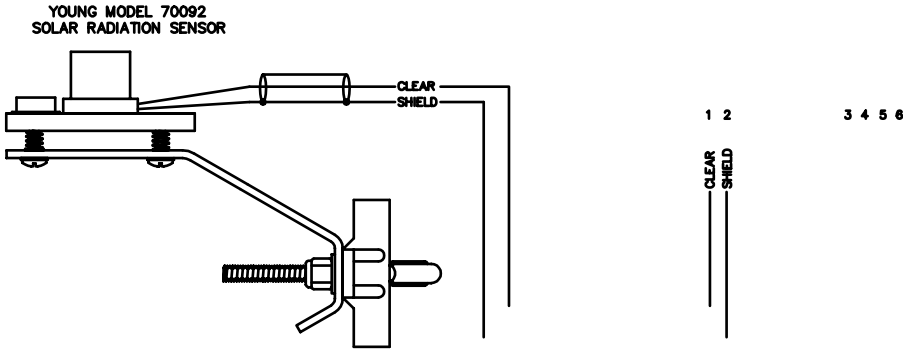
The Solar Radiation Sensor requires minimal maintenance under normal conditions. Dirt or dust accumulation should be removed with soap and water. Do not use solvents.

SPECIFICATIONS

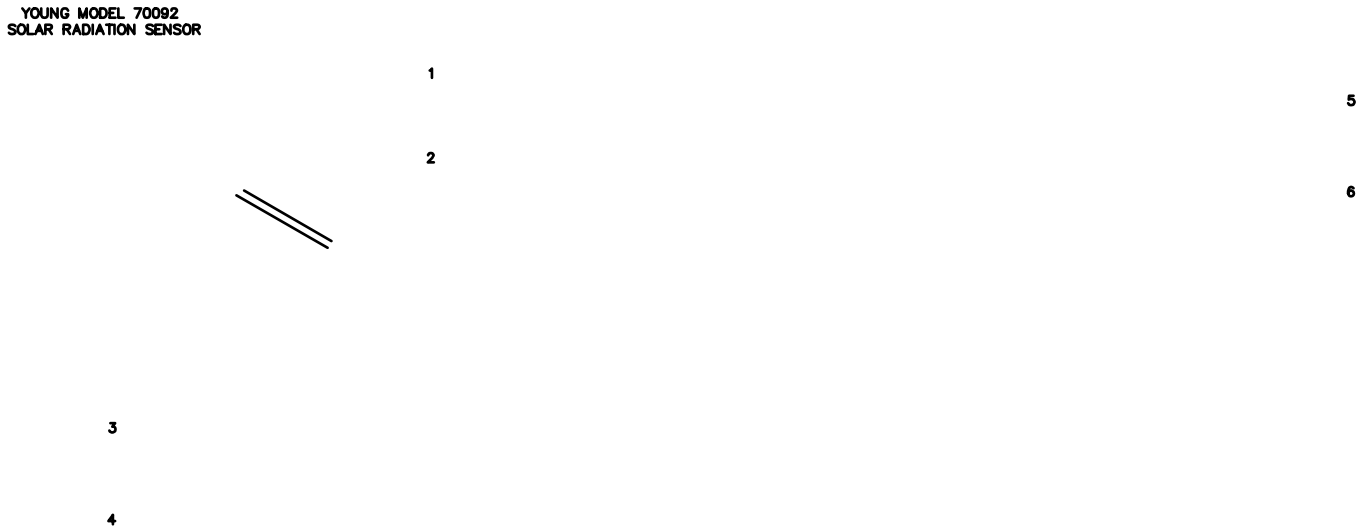
Sensor type:	High stability silicon photovoltaic detector (blue enhanced)
Measurement range:	400-1100 nanometers
Sensitivity:	Typically 80 μ A per 1000 W m ⁻²
Linearity:	1% max up to 1000 W m ⁻²
Stability:	< \pm 2 % per year
Output:	0-1VDC = 0-1000 Wm ⁻²
Temperature dependence:	0.15% per °C maximum
Cosine Correction:	Cosine corrected up to 80° angle of incidence
Operating temperature:	-20 to +65°C (-4 to 149°F)
Weight:	1.0 kg. (2.2 lbs)
Sensor Cable:	3 meters shielded coaxial included



WIRING DIAGRAM



CIRCUIT SCHEMATICS



MOVE JUMPER J1 TO POSITION MATCHING SENSOR OUTPUT RANGE. EACH POSITION REPRESENTS SENSOR OUTPUT IN μ AMPS AT 1000 WATTS PER SQ. METER

3. EXPOSE SENSOR TO KNOWN SOLAR RADIATION INTENSITY OR SIMULATED SIGNAL AND ADJUST GAIN FOR CORRECT OUTPUT.

IF 70101 IS LOCATED MORE THAN SEVERAL FEET FROM DATA LOGGER, MEASURE OUTPUT DIFFERENTIALLY OR USE SUFFICIENTLY LARGE WIRE (18 GAUGE) FOR POWER SUPPLY REFERENCE TO MINIMIZE VOLTAGE DROP.

NOTES:

1. ALL RESISTORS ARE 1/4-W, METAL-FILM, 1% UNLESS OTHERWISE NOTED.
2. ALL CAPACITORS ARE IN μ F, UNLESS OTHERWISE NOTED.
3. PP=POLYPROPYLENE