Solar Radiation Measurements

SEC SEV

Jan.08

SEV

Features

- **Works at any latitude**
- **Cosine corrected**
- **Compact sensor for solar energy measurement**
- **Perfect for weather or energy balance studies**
- **Spectral response 450-950nm**
- **Adjustable sensitivity**
- **High grade silicon cell sensor**
- **Easy to use**
- **Measures sunshine duration**
- **Long term stability**
- **Optional mountings**

Technical Data

Basic sensor:	Photodiode Si
Spectral range:	450nm - 950nm
Viewing angle:	Corrected in accordance with Cosine law
Typical output:	0-10Vdc@24Vac or 16-40Vdc 4-20mA@10-40Vdc
Sensitivity:	1-100mV(mW/m2)
Power absorption:	10mA
Working temperature:	-20/+60C
Electrical protection:	Protected against polarity inversions
Dimensions:	59x65x52mm
Protection Class:	IP67
Max Cable Length:	150m

These products meets the requirements of CE-approval

Typical daily Total Solar Radiation levels in the UK
Measured by a Solar Radiation Sensor, in Watts/m2

APPROXIMATE GUIDELINES

Winter's day: **overcast** sky up to 150 Watts/m2
Summer's day: **overcast** sky up to 200 Watts/m2

Winter's day: **clear** sky up to 400 Watts/m2
Summer's day: **clear** sky up to 1100 Watts/m2

Threshold level:

for measurement of **'daylight hours'** 120 Watts/m2
for measurement of '**sunshine hours**' 200 Watts/m2

Application

The Solar Irradiance Sensor SEV offers a compact sensor for solar energy measurements and offers considerable financial savings.

Modern buildings come with large areas of glass, and sophisticated building control system.

The original architectural design included solar blind controls, triggered in this instance by the Solar Sensor included in the rooftop weather station.

Uncomfortable low-angle glare at sunrise and sunset is cut out by appropriate on relevant side of the building.

During the middle of day, direct sun heat loads on the glass are reduced by automatic blind closure in the affected areas

Ordering Codes

SEV 20	Solar radiation sensor	0,2-20W/m2	0-10Vdc
SEV 200	Solar radiation sensor	2-200W/m2	0-10Vdc
SEV 2000	Solar radiation sensor	20-2000W/m2	0-10Vdc
SEC 20	Solar radiation sensor	0,2-20W/m2	4-20mA
SEC 200	Solar radiation sensor	2-200W/m2	4-20mA
SEC 2000	Solar radiation sensor	20-2000W/m2	4-20mA

Installation of transmitters

After choosing the right position where too install SEV, we need to provide the electric connections inside the transmitter.

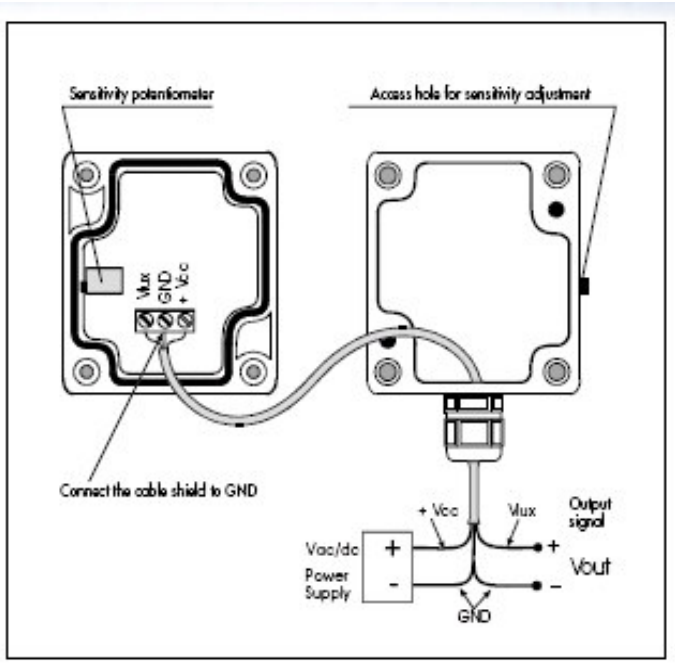
Loosen the four screws on the lid in order to lift it, the inside of the transmitter will look as in figure below.

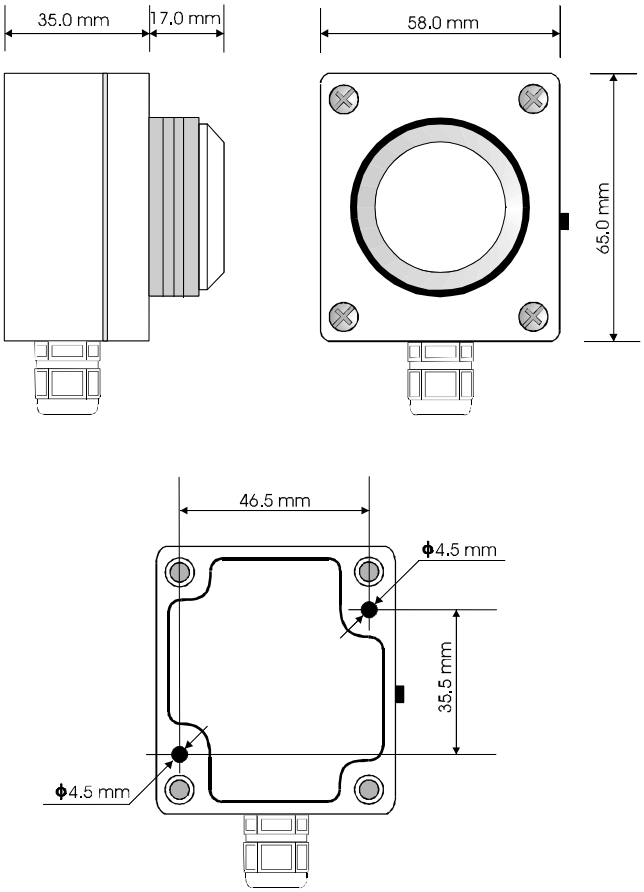
On the terminal board we will locate three terminals with the followings tags:

GND= measuring the ground refered to power supply and output signal.

+Vcc= where the positive pole of the power supply has to connected (in case of continous power being employed)

Vlux(output)= system output to be connected to the positive pole of a Multimeter or Datalogger.





Design Features

This sensor consists of a semiconductor diode, cosine corrected head and a light filter system for the wavelength range 450nm-950nm.

The head is completely sealed and can be left indefinitely in exposed conditions making it perfect for weather or energy balance studies.

The sensor has been calibrated under open sky conditions against reference pyranometers and hence referred to the World Radiometric Reference.

The calibration thus refers to Solar energy in the waveband 300nm-3000nm, i.e. the acceptance band of thermopile pyranometers.

The sensor can be installed either for indoor or outdoor applications.

The transmitters sensitivity can be modified "on site" (1/100 ratio) using a multitum potentiometer accessible from outside.