



AANDERAA INSTRUMENTS

DATA COLLECTING INSTRUMENTS FOR LAND SEA AND AIR



SUNSHINE DURATION SENSOR 3160

Measures the duration of visible solar radiation without regard to its intensity.

This sensor will make it easier to automatically measure the presence and duration of sunshine. The reading of this sensor can provide useful information regarding cloud cover, enabling the experienced observer to draw a number of conclusions about the weather. The sensor can be fitted on the sensor arm of an Aanderaa Automatic Weather Station, or it can be used as a separate unit.

The sensor fulfills all the demands that are made of a modern sunshine duration recording system. It requires no calibration, provides a digital output, and the readings are unaffected by the latitude at which the instrument is installed.

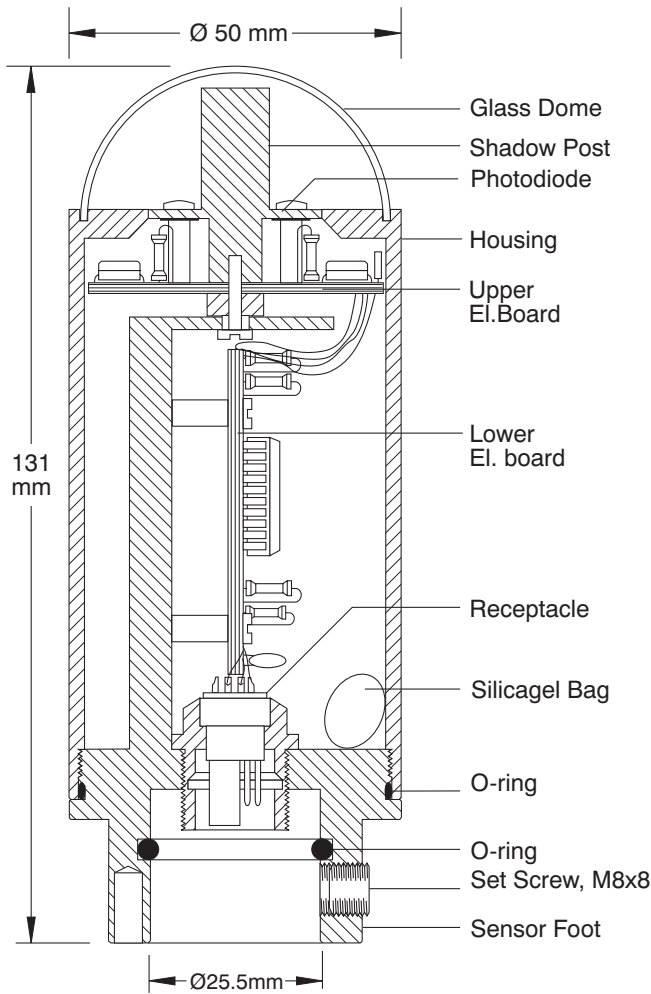
The sensor records the duration of solar radiation as long as there is a defined shadow. The reading is given in minutes of sunshine during a sampling interval which is set by the user.

A shadow post is used to create a radiation intensity contrast between opposite photodiodes. The diameter of the post is such that at least 1 of the 8 diodes will be in shadow as long as the sun is shining on the sensor.

The housing is made of aluminum and to avoid corrosion this sensor should be fastened to aluminum or plastic structures. The reading of this sensor may be affected if the glass dome is covered with dust. The glass dome should therefore be inspected regularly and cleaned when necessary.

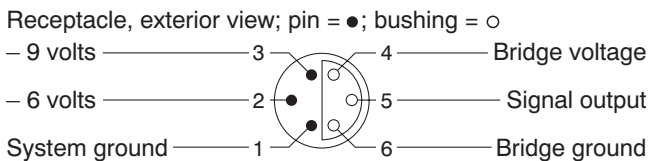
The sensor's output is digital in the standard Aanderaa SR10 code. The sensor is powered by the Sensor Scanning Unit. To prevent reflections from the aluminum body, the top surface and the shadow post are painted black with matt optic lacquer.

SPECIFICATIONS FOR SUNSHINE DURATION SENSOR 3160



- Wave Length:** 400–1100 nm
- Output:** Minutes
- Resolution:** 1 minute
- Sensor Type:** Aanderaa SR10 code (10-bit shift register)
- Supply Voltage:** 7–14 VDC. Nominal 9V
- Current Consumption:** 60 µA
- Operating Temperature:** –40 to +50°C
- Electrical Connection:** Receptacle 2843 mating Water-tight Plug 2828 or sensor outlet on Sensor Cross Arm
- Mounting:** On Aanderaa Sensor Cross Arms 3415/3425/3435 or on a 25 mm OD vertical aluminum tube
- Glass Dome:** Borosilicate
- Material and Finish:** Aluminum 6061-T6 , anodized 10µ
- Weight:** 247 grams
- Warranty:** Two years against faulty materials and workmanship

PIN CONFIGURATION



SENSOR READING

The sensor has nominal calibration coefficients which are the same for all 3160 sensors. To convert the raw data reading (N) obtained by the Sensor Scanning Unit or Data-logger, use the formula:

$$\text{Sunshine duration (minutes)} = A + BN + CN^2 + DN^3$$

where coefficients A, C and D = 0, B = 1

Representative's Stamp

— Latest version is on the Internet —

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