

## Solar radiation sensor with silicon cell



### Description

The purpose of the sensor is to continuously measure global radiation ( $W/m^2$ ), that is the sum of the contributions of the direct radiation of the sun and that spread from the sky and from cloud systems.

The sensor consists of a photodiode that, using the photovoltaic capabilities of silicon, converts solar radiation, in wavelengths from 0.36 to  $1.1\mu m$ , in an electrical voltage.

The silicon cell is fixed inside a cylindrical body, made of anticorrosive aluminum with surface oxidation treatment, and protected from external atmospheric agents by a lens, made of opal polycarbonate, capable of uniformly spreading solar radiation on the cell itself, without filtering radiation within the sensitive spectrum.

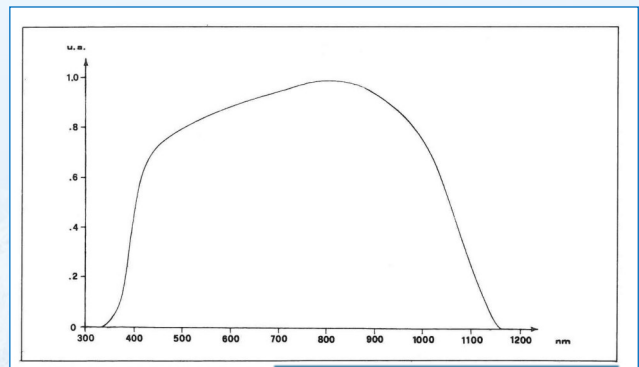
For the FAR616xx versions, an internal management electronic board, based on a low power consumption 32bit microprocessor, allows to characterize the operation of the sensor in several points within the operating field; This allows you to linearize the response curve by increasing the overall accuracy of the instrument.

On the lower end is mounted the connector, quick coupling with tear-resistant safety connection for the connection of the signal cable.

The sensor is ideal for monitoring in the field of photovoltaic generation systems. For this purpose, to simplify integration with existing sensors, the sensor can be supplied with different standard electrical outputs.



Solar radiation sensor



Pyranometer—application example

Technical specifications may be varied without prior notice

## Technical specifications

<b>Sensor type</b>	Silicon photodiode
<b>Measurement spectrum</b>	0,36 ... 1,1 $\mu$ m
<b>Measuring range</b>	0 ... 1600W/m <sup>2</sup>
<b>Response time</b>	< 0,5s
<b>Operating temperature</b>	-40 ... +70°C
<b>Accuracy</b>	±5%
<b>Sensitivity</b>	0,1mV/(W/m <sup>2</sup> ) - mod. FAR612BA
<b>Non-linearity</b>	±2%
<b>Electrical output</b>	0 ... 160mV; 4 ... 20mA; 0 ... 1V; 0 ... 2V; 0 ... 5V; RS485 Modbus - mod. FAR616xx
<b>Power supply</b>	9 ... 24V - mod. FAR616xx
<b>Power consumption</b>	≤10mA @ 12V (+ electrical signal output versions 4-20mA) - mod. FAR616xx
<b>Protection rate</b>	IP65
<b>Electrical transient protection</b>	Fast zener (diodes ICTE) - mod. FAR616xx
<b>Dimensions</b>	H=60mm Diam.=40mm (mod. FAR612xx) H=250mm Diam.=40mm (mod. FAR616xx)
<b>Weight</b>	0,2Kg (mod. FAR612xx) 0,5Kg (mod. FAR616xx)
<b>Maintenance</b>	Cleaning every 6/12 months
<b>Calibration</b>	Suggested every 2 years

## Ordering codes

Silicon solar radiation sensor, electrical output 0,1mV/(W/m <sup>2</sup> ) - power supply not required	<b>FAR612BA</b>
Silicon solar radiation sensor, electrical output 0 ... 1V; 0 ... 2V; 0 ... 5V (to define at the order)	<b>FAR616AA</b>
Silicon solar radiation sensor, electrical output 4 ... 20mA	<b>FAR616BA</b>
Silicon solar radiation sensor, output RS485 Modbus	<b>FAR616EA</b>

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