

Sunshine Duration Sensor *DPD504*



Description

Sensor for measurement of sunshine duration. WMO defines sunshine duration during a given period as „the sum of that sub-period for which direct solar irradiance exceeds 120 W/m²„ [WMO-8].

The sensor provides a status (sunshine Yes/No) as well as direct normal radiation DNI.

The electric heating ensures icefree operation during wintertime.

Technical Data

Sensor

Sensing element	photodiode
Status output	contact closure indicates sunshine Yes/No, max. contact load: 30 V, 300 mA
Serial output	serial interface provides 1 min and 10 min sunshine duration, RS485 half duplex, 9600 baud, 8N1
Spectral response.....	400..1100 nm
Viewing angle.....	270°
Threshold	120 W/m ²
Latitude for operation	-15°..+90°

Accuracy

Accuracy	>95 % (error < 0.1 h/h)
Longterm drift.....	±2 %/a
Threshold stability	±0.5 %/a
Temperature dependence	±1.8 %
Response time	1 s

Power Supply

Supply voltage	6..24 VDC
Current consumption	7 mA
Heating supply voltage.....	12..24 VDC
Heating current consumption	260 mA @ 12 VDC

Casing

Material	anodised aluminium / glass
Desiccation	replaceable desiccators
Protection class	IP 65
Weight	0.6 kg
Dimensions	87 x 120 x 150 mm
Mounting.....	M6 internal thread

Electrical Connection

Cable	8 x 0.5 mm ² , shielded
Cable length.....	3 m
Terminals.....	wire end sleeves

Wiring

red	(+) supply
blue	GND
orange/pink	(+) heating supply
violet	(-) heating supply
yellow	RS485 (+)
green	RS485 (-)
grey	contact output (+)
brown.....	contact output (-)
yellow/green	cable screen

Environmental Conditions

Operating temperature.....	-40..+70°C
Relative humidity.....	0..100%

Compliance

WMO-No. 8, Chapter 8, Measurement of Sunshine Duration [WMO-8]

References and Further Information

[WMO-8]:..... WMO-No. 8, Guide to Meteorological Instruments and Methods of Observation, 7th edition, Geneva 2008]



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