

Instruction for Use

021062/01/06

Sensor PAR 5.3

7.1418.00.xxx



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1 Models

Order- No.	Elect. output	Measuring range	Operating Voltage
7.1418.00.040	0 ... 20 mA	0 ... 2255 $\mu\text{mol}/(\text{s}\cdot\text{m}^2)$	+10 ... +24 V DC
7.1418.00.041	4 ... 20 mA	0 ... 2255 $\mu\text{mol}/(\text{s}\cdot\text{m}^2)$	+10 ... +24 V DC
7.1418.00.051	0 ... 5 V	0 ... 2255 $\mu\text{mol}/(\text{s}\cdot\text{m}^2)$	+10 ... +24 V DC
7.1418.00.061	0 ... 10 V	0 ... 2255 $\mu\text{mol}/(\text{s}\cdot\text{m}^2)$	+14 ... +24 V DC

2 Application

With the *Sensor PAR 5.3* photochemical development processes both in outdoor plants and in greenhouse plants can be optimised.

The ability of a plant to absorb light through chlorophyll is of eminent importance for its growth. The sensitivity of the sensor corresponds to the optimum effectiveness of chlorophyll.

When there is insufficient light, the plant has too little energy to organize its growth. In the presence of too much light, it emits energy in the form of fluorescence. This is a criterion for the condition of the plant.

Too much light leads to desiccation and burning.

3 Construction

The *Sensor PAR 5.3* is a fragile electronic-optical device. The housing is made of anodized aluminium with an uv-transparent dome of plastic. The instrument is protected against jets of water and rain. A small package of silica-gel serves for drying the inner housing and protects the dome against steaming-up.

The measured value is emitted as a standardized analogue signal in correspondence with the measuring range.

Every *Sensor PAR 5.3* includes a testing certificate.

4 Installation

The mounting shall be effected with greatest care. The *Sensor PAR 5.3* is fixed with two screws M4 onto a suited holder, and should be exactly in horizontal position. The mounting site should be selected in a way, that the sun radiation reaches the surface of the sensor all day. The *Sensor PAR 5.3* must have a free horizon into all directions.

For the data transmission please use the cable available. For the connector pin assignment please refer to chapter 5. When connecting the cable coupling to the *Sensor PAR 5.3* please take care that the mounting notches of coupling and plug coincide. The cap nut is to be screwed tightly.

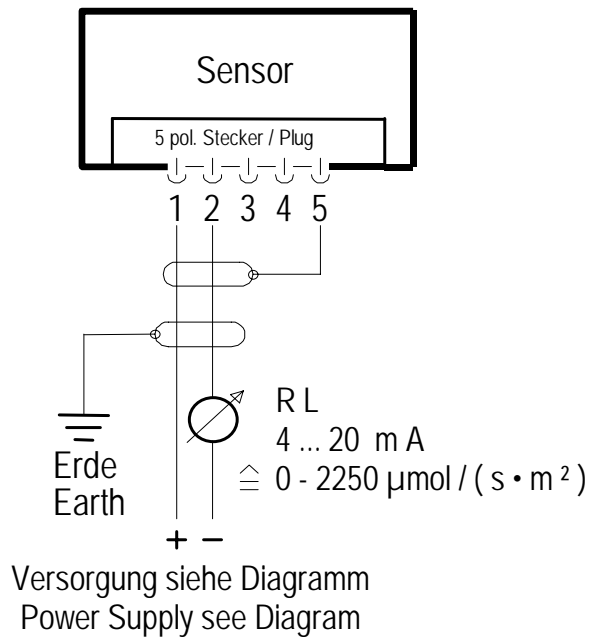
In case of cable extension please select a 3- or 5-core version, watertight.

A cable length of up to 50 m is possible for instruments with voltage output. Recommended is then a cable with shielding (for ex. 5 x 0,25 mm² LiYCY).

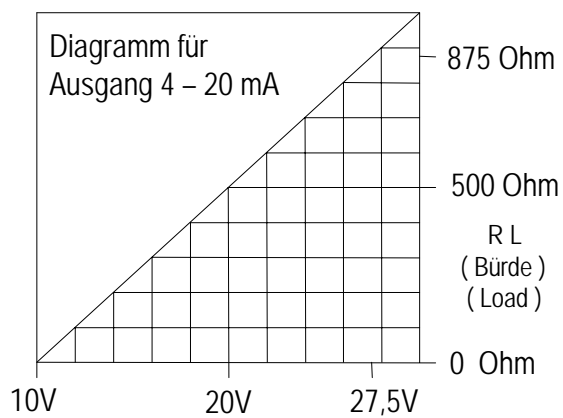
Moreover, in mounting the instrument, make sure that the instrument dome is easily accessible as dirt and impurities influence the measurement results considerably. - Please bear the operating voltage in mind.

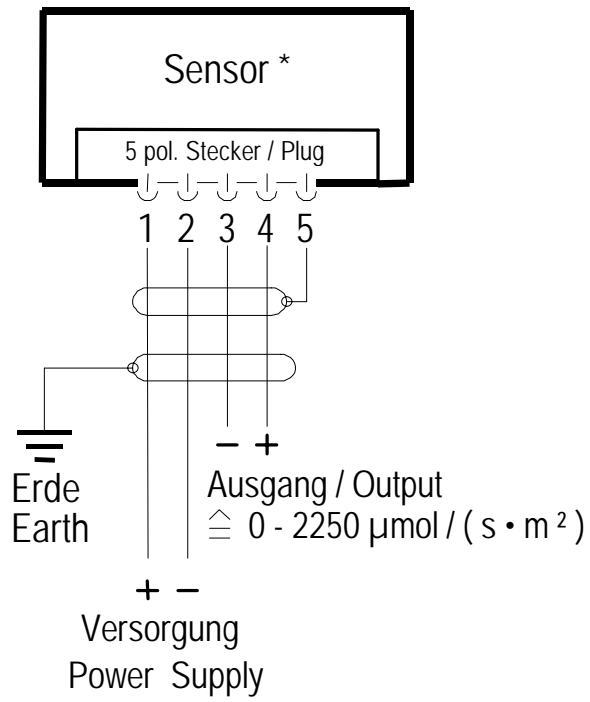
5 Connecting Diagram

Order – No.
7.1418.00.041



RL – Funktion of the Main Power





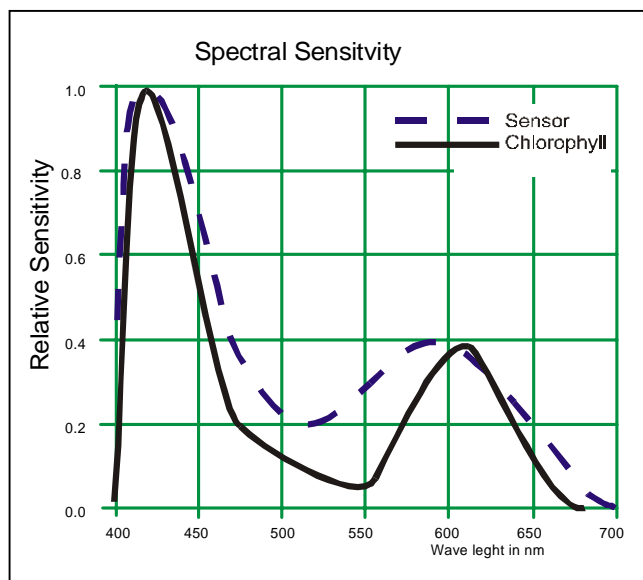
* Order – No.	Power Supply	Output
7.1418.00.040	10 ... 24 V DC	0 ... 20 mA
7.1418.00.051	10 ... 24 V DC	0 ... 5 V
7.1418.00.061	14 ... 24V DC	0 ... 10 V

6 Technical Data

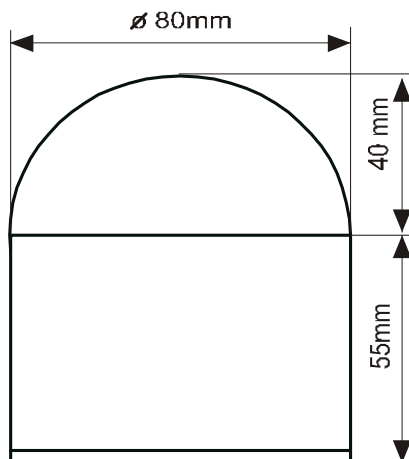
Description

Meas. range	0 ... 2255 $\mu\text{mol}/(\text{s}\cdot\text{m}^2)$, corresponds to 0 500 W/m^2
spectral sensitivity	0.38 ... 0,7 μm
max. spectral sensitivity	0.42 μm and 0.6 μm
Electr. Output/	see models and enclosed test certificate
Operating voltage	see models
Current consumption	max. 750 μA with V-output
Ambient temperature	-20 ... +60 $^{\circ}\text{C}$
Diffusor	PTFE
Dome	PMMA
Cos-correction	error f2 < 3%
Linearity	< 1 %
Absolute error	< 10 %
Residual voltage (E=0)	< 10 mV
Connection	Plug with 5-m cable
Weight	0.30 kg

- For the sensor PAR 5.3 applies: $1\text{W}/\text{m}^2 = 4,51 \mu\text{mol}/(\text{s}\cdot\text{m}^2)$



7 Dimension diagram



8 Maintenance

The electronic-optical part of the *Sensor PAR 5.3* needs no service. A check of the calibration is possible acc. to the customer's request. The glass dome, and the housing are to be cleaned, if necessary, with a soft and wet cloth twice a year. Please use only liquid cleaning agents without abrasive additives or solvents. The outer cleaning should be done with clear water or possibly with washing-up liquid.

9 Guarantee

Broken glass or damage resulting from improper handling is not included in the guarantee. The guarantee expires immediately if the instrument is opened.

10 Accessories (optional)

Adapter compact	506664	(mounting plate)
Universal Mast holder	506614	(clamping range 48 - 102 mm)



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