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***Silicon Sunshine Indicator SDE***

**7.1420.00.000**



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## Contents

1	Model .....	2
2	Range of Application.....	3
3	Set-Up and Mode of Operation .....	3
4	Mounting .....	3
5	Maintenance .....	3
6	Circuit Diagram .....	4
7	Technical Data.....	5
8	Dimensional Drawing .....	6
9	Warranty .....	6
10	EC-Declaration of Conformity .....	7

## 1 Model

Order – No.	Meas. range	Electr. output	Operating voltage
7.1420.00.000	Global Radiation: 0...ca. 1300 W/m <sup>2</sup>	0 - 5 V	9... 24 V DC
	Sunshine: yes (>120 W/m <sup>2</sup> )	4.5 – 5.0V	
	Sunshine: no (<120 W/m <sup>2</sup> )	0 – 0.6V	

## 2 Range of Application

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The **Sunshine Indicator SDE** serves for the measurement of the sunshine duration and the global radiation. The global radiation is the sum of direct solar radiation and diffuse radiation.

The threshold of sunshine duration is stated by the German Weather Service (DWD) with 120 W/m<sup>2</sup> (direct radiation), and is delivered as Yes-No-information.

## 3 Set-Up and Mode of Operation

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The dome is made of glass and serves as spectral band-pass filter, facilitating the total solar spectrum to reach the sensor. Moreover, it protects the sensor from weather influences, and its geometrical form allows a cos-error correction to the greatest possible extent.

The glass dome is very delicate to strokes and scratches.

According to the measuring range the measuring value is delivered as standardized analogue signal.

Delivery of the **Sunshine indicator** includes a calibration certificate.

## 4 Mounting

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The **Sunshine Indicator SDE** is fastened on a plane surface with 2 screws.

Make sure that there are no objects in vicinity of the sensor side which could lead to shading. The alignment of the *shadow bow* must guarantee a permanent shading in direction to the *bow half side* up to the margin of the diffuser.

The optimum alignment of the shadow bow depends on the geographical position of the location. An optimum measurement for the Northern hemisphere is achieved by aligning the bow to North, for the Southern hemisphere, however, by South alignment of the bow.

The electrical connection is to be carried out in accordance with the circuit diagram. For data transmission please use only the coupling delivered with the instrument. The cable to data transmission must be a 5-core watertight cable. Possible cable length for instruments with voltage output is up to 50 m. It is recommendable to use a *shielded* cable.

The instrument should be easily accessible for cleaning of the instrument dome, as dirt and pollution can considerably falsify the measuring results. - Please pay attention to the operating voltage!

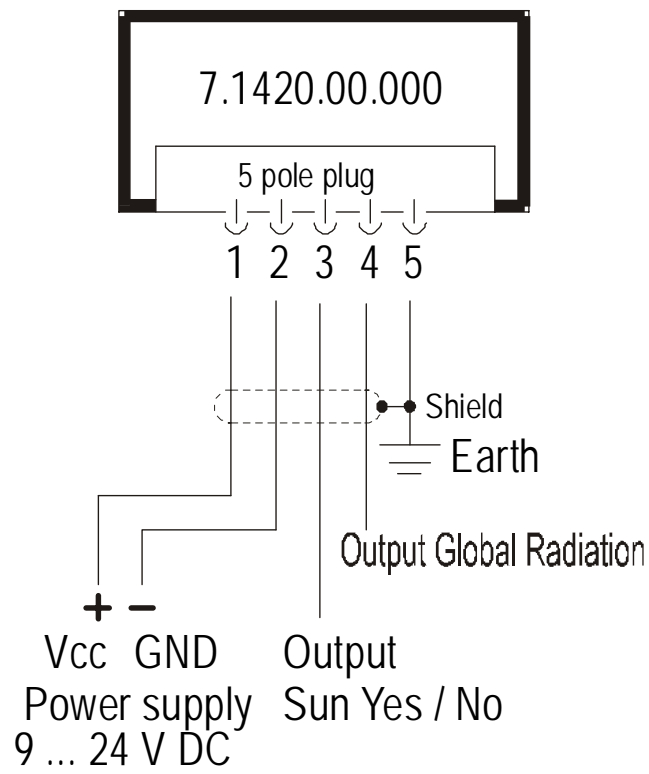
## 5 Maintenance

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The opto-electronic part of the **Sunshine indicator SDE** is maintenance-free. Glass dome and housing should be cleaned carefully with a soft moist cloth, at least once in a month – depending on local conditions. Please use a solvent-free light cleaner without scrubbing alloy.

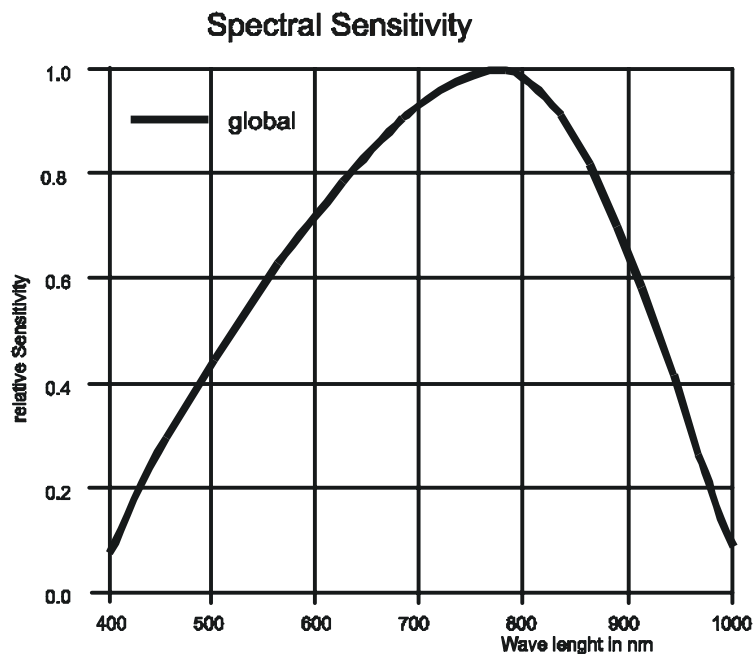
## 6 Circuit Diagram

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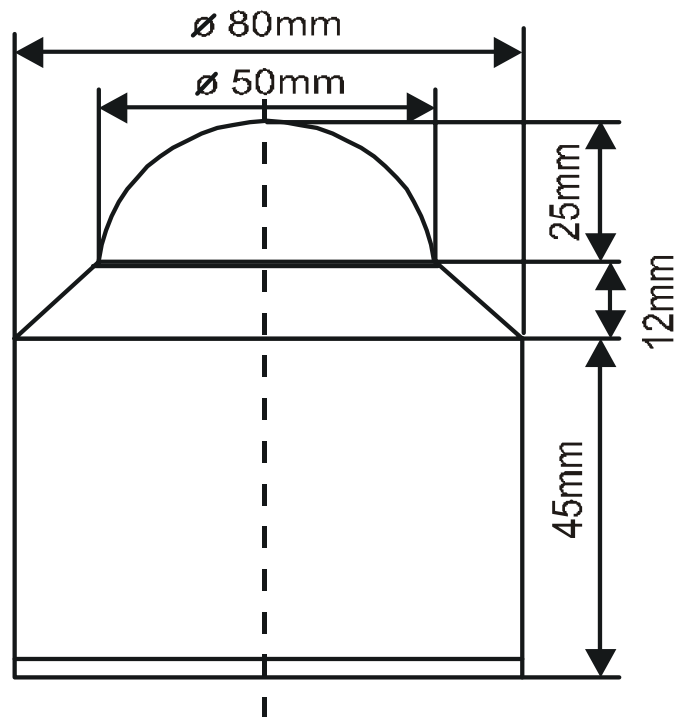
## 7 Technical Data

Measuring range		
Global radiation	0 ..approx.1300 W/m <sup>2</sup>	
Sunshine	yes / no	
Spectral range		
	380 ... 1100 nm	
Max. spectral sensitivity		
	780 nm	
Ambient temperature		
	-20°C - +60°C	
Electr. Output		
Global radiation	0 ..... 5,0 V	Load: >1MΩ
Sunshine yes (>120 W/m <sup>2</sup> )	4,5 ... 5,0 V	
Sunshine no (<120 W/m <sup>2</sup> )	0 .. . 0,6 V	
Threshold f. Sun yes/no		
	120 W/m <sup>2</sup>	
Operating voltage		
	9 ...24 V DC	Power consumption: typ. 3 mA / max. 6 mA
Sensor type		
	Silicon photo- diode	
Dome		
	Optical glass	
shadow bow direction		
	North / South	see chapter 4
Cos – correction		
	error f2 < 3 %	
Linearity		
	< 1%	
Abs. fault		
	< ±10%	
Installation		
	2 screws M4 in the ground of housing	
Kind of connection		
	Plug with 5 m cable	
Gewicht		
	approx. 0.3 kg	



## 8 Dimensional Drawing

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## 9 Warranty

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The warranty does not comprise damages caused by improper use, or broken glass. The right to claim under guarantee expires in case that the instrument has been opened.

# 10 EC-Declaration of Conformity

Document-No.: 000319

Month: 06 Year: 08

Manufacturer: **ADOLF THIES GmbH & Co. KG**

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Description of Product: **Pyranometer; Silicon Pyranometer; UVAB Sensor; UVB Sensor; Silicon-Sensor PAR; Sunshine Indicator**

Article No.	7.1415.05.040	7.1415.05.041	7.1415.05.051	7.1415.05.061
7.1415.09.040	7.1415.09.041	7.1415.09.051	7.1415.09.061	7.1416.10.040
7.1416.10.041	7.1416.10.051	7.1416.10.061	7.1416.20.040	7.1416.20.041
7.1416.20.051	7.1416.20.061	7.1418.00.040	7.1418.00.041	7.1418.00.051
7.1418.00.061	7.1420.00.000			

specified technical data in the document: **021430/12/04; 021006/07/01; 021052/11/03; 021054/05/02; 021051/01/06; 021049/05/04**

The indicated products correspond to the essential requirement of the following European Directives and Regulations:

- 2004/108/EC DIRECTIVE 2004/108/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 15 December 2004 on the approximation of the laws of the Member States relating to electromagnetic compatibility and repealing Directive 89/336/EEC
- 2006/95/EC DIRECTIVE 2006/95/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 12 December 2006 on the harmonisation of the laws of Member States relating to electrical equipment designed for use within certain voltage limits
- 552/2004/EC Regulation (EC) No 552/2004 of the European Parliament and the Council of 10 March 2004 on the interoperability of the European Air Traffic Management network (the interoperability Regulation)

The indicated products comply with the regulations of the directives. This is proved by the compliance with the following standards:

Reference number	Specification
IEC 61000-6-2: 2005	Electromagnetic compatibility Immunity for industrial environment
IEC 61000-6-3: 2006	Electromagnetic compatibility Emission standard for residential, commercial and light industrial environments
IEC 61010-1: 2001	Safety requirements for electrical equipment for measurement, control and laboratory use. Part 1: General requirements

Place: Göttingen

Date: 26.06.2008

Legally binding signature:

issuer:

.....  
Wolfgang Behrens, General Manager

.....  
Joachim Beinhorn, Development Manager

This declaration certifies the compliance with the mentioned directives, however does not include any warranty of characteristics. Please pay attention to the security advises of the provided instructions for use.



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