

## Instruction for use

021317/05/07

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# ***Brightness Transmitter***

- direction-independent

**7.1414.40.xxx**



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## 1 Models

| Order- No.    | Meas. Range     | Electr. Output | Supply Voltage                       | Heating voltage          |
|---------------|-----------------|----------------|--------------------------------------|--------------------------|
| 7.1414.40.002 | 0...100 000 Lux | 0...10 V       | 18... 36 V DC<br>or<br>18... 24 V AC | without heating          |
| 7.1414.40.102 | 0...100 000 Lux | 0...10 V       | 18... 36 V DC<br>or<br>18... 24 V AC | 24 V AC<br>or<br>24 V DC |
| 7.1414.40.112 | 0...10 000 Lux  | 0...10 V       | 18... 36 V DC<br>or<br>18... 24 V AC | 24 V AC<br>or<br>24 V DC |
| 7.1414.40.141 | 0.....1 000 Lux | 4 ... 20 mA    | 18... 36 V DC<br>or<br>18... 24 V AC | 24 V AC<br>or<br>24 V DC |
| 7.1414.40.152 | 0.....5 000 Lux | 0 ... 10 V     | 18... 36 V DC<br>or<br>18... 24 V AC | 24 V AC<br>or<br>24 V DC |

## 2 Range of Application

The direction-independent brightness transmitter is adapted to the sensitivity of the human eye, and serves for the acquisition of the brightness.

The output signal of the brightness transmitter is delivered as light-proportional voltage, and is used, for example, as input signal for the regulation of shading devices, heating- and irrigation plants in automatically controlled green houses.

### 3 Mode of Operation

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Through the sensor, and a connected electronic system the falling daylight is converted into a proportional output dimension. Thanks to its special construction the sensor achieves an almost direction-independent sensibility in the elevation angle (height of 0° up to 90 °, an in the azimuth of 0° up to 360 °. In order to avoid a possible dewing the model 7.1414.40.102 can be heated.

### 4 Mounting

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The Brightness Transmitter is designed to be mounted to a horizontal surface out-of-doors. To do so, first unscrew the cover of the case. Mount the instrument using respective screws through the now accessible boreholes.

Use a shielded LiYCY 6x0.25 mm<sup>2</sup> cable to connect the instrument electrically. For the brightness transmitter without heating you can use LiYCY 4x0,5 mm<sup>2</sup> cable. Lead the cable through the screw-type conduit fitting and place it on the terminal strip as given in the connecting diagram. Ground the shielding.

**Mounting Instruction:**

*When mounting the instrument, please take into consideration that this sensor evaluates also laterally falling light, and accumulates it to the directly falling sunlight.*

*If the brightness transmitter is mounted horizontally in front of a strongly reflecting vertical wall, the measuring values are considerably higher than they would be in the free field, or in front of a hardly reflecting surface.*

**Attention:**

*The output voltage of this brightness sensor can be compared only with brightness measuring transmitters showing no cosine action in the elevation angle of 0 ° up to 90 °, and measuring independently from direction also in the azimuth of 0° up to 360°-*

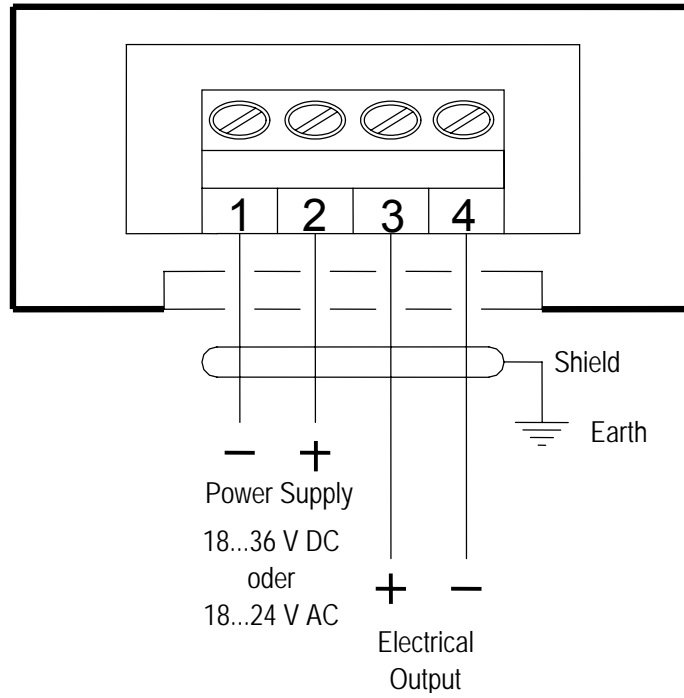
### 5 Maintenance

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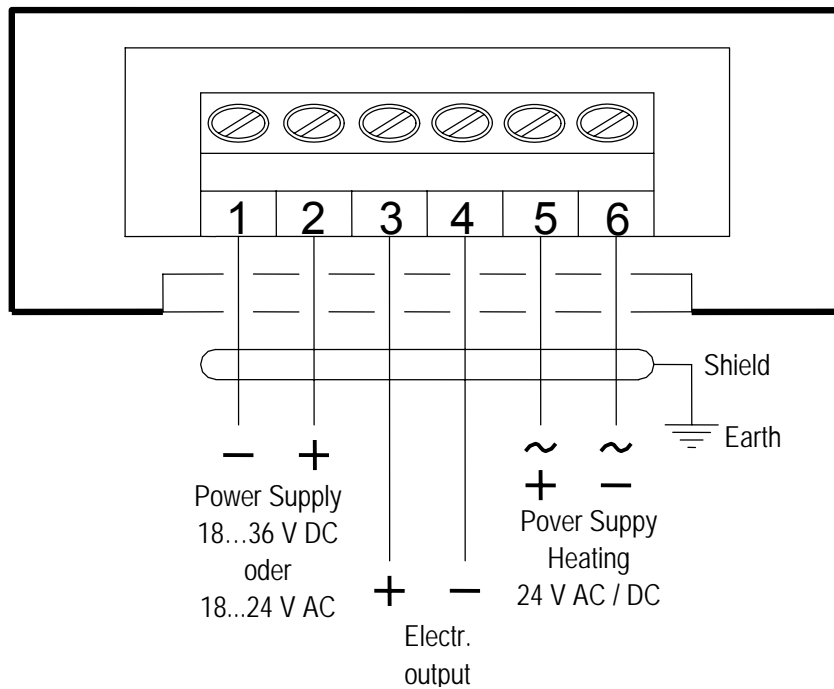
Clean the light dome at regular intervals – depending on the extent of soiling – with a soft cloth and pure water (no additives).

## 6 Connecting Diagram

7.1414.40.002



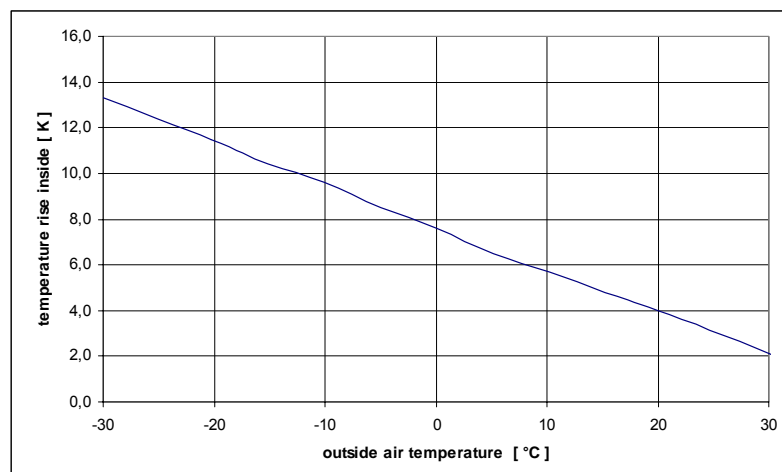
7.1414.40.102  
7.1414.40.112  
7.1414.40.141  
7.1414.40.152



## 7 Technical Data

|                        |                                                                         |
|------------------------|-------------------------------------------------------------------------|
| Measuring Range        | see model                                                               |
| Electrical output      | see model                                                               |
| Sensor type            | BPW 21                                                                  |
| Accuracy               | ± 2% of calibration norm                                                |
| Spectral range         | 350...820 nm                                                            |
| Acquisition            | Angel Elevation 0...90°<br>Azimuth 0... 360°                            |
| Electrical Output      | shortcut- safe output<br>voltage [U] 0...10 V<br>current [I] 4...20 mA  |
| Operating voltage      | Electronic 18...36 V DC or 18 ... 24 V AC<br>Heating 24 V AC or 24 V DC |
| Load                   | ≥ 1000 Ω with voltage- output [U]<br>≤ 500 Ω with current- output [I]   |
| Current consumption of | electronics approx. 10 mA, unloaded<br>heating max. 300 mA              |
| Ambient temperature    | - 30...+ 70° C                                                          |
| Dimension              | see Dimensional drawing                                                 |
| Protection             | IP 65                                                                   |
| Weight                 | approx. 150g                                                            |
| Connection             | via cable screwing M16 x 1.5                                            |

## 8 Temperature Diagram (only for instruments with heating)



Outside - inside – difference temperature by using the heating.

When the outside temperature is falling the heating capacity raises.

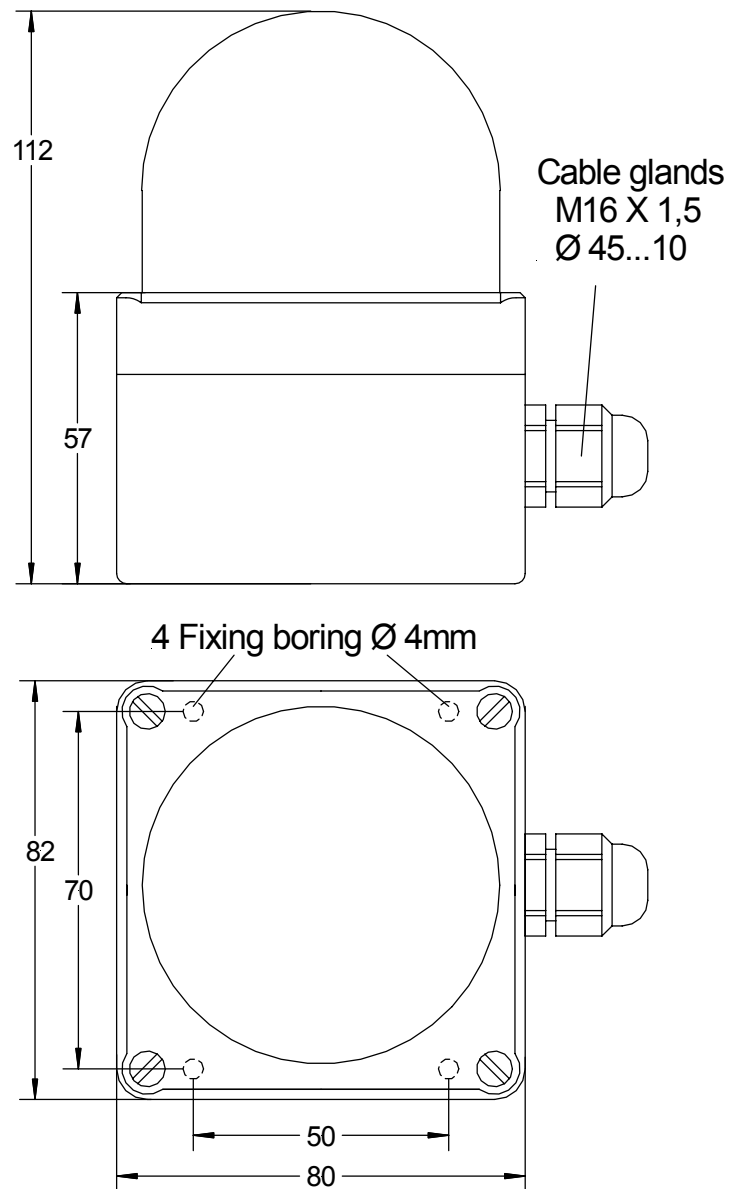
At a power supply of 24 V the heating current is flowing as follows:

approx. 20 mA at 30 °C, and approx. 140 mA at –30 °C

The raised inside temperature prevents the light dome from being moistened by dew.

## 9 Dimensional drawing

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# 10 EC-Declaration of Conformity

Document-No.: **000318**

Month: 06 Year: 07

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

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Description of Product: **Brightness Transmitter**

|             |                      |                      |                      |                      |
|-------------|----------------------|----------------------|----------------------|----------------------|
| Article No. | <b>7.1414.10.040</b> | <b>7.1414.10.041</b> | <b>7.1414.10.061</b> | <b>7.1414.10.541</b> |
|             | <b>7.1414.10.561</b> | <b>7.1414.10.941</b> | <b>7.1414.12.040</b> | <b>7.1414.12.041</b> |
|             | <b>7.1414.12.061</b> | <b>7.1414.15.040</b> | <b>7.1414.15.041</b> | <b>7.1414.15.061</b> |
|             | <b>7.1414.22.040</b> | <b>7.1414.22.041</b> | <b>7.1414.22.061</b> | <b>7.1414.25.040</b> |
|             | <b>7.1414.25.041</b> | <b>7.1414.25.061</b> | <b>7.1414.40.002</b> | <b>7.1414.40.102</b> |
|             | <b>7.1414.40.112</b> | <b>7.1414.40.141</b> | <b>7.1414.40.152</b> | <b>7.1414.51.150</b> |
|             | <b>7.1414.51.550</b> |                      |                      |                      |

specified technical data in the document: **020923/05/07; 021316/05/07; 021327/04/03**

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
- 73/23/EEC COUNCIL DIRECTIVE of 19. Feb.1973 on the harmonization of the law of Member States relating to electrical equipment designed for use within certain voltage limits (73/23/EEC)
- 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                                                                                                          |
|------------------|------------------------------------------------------------------------------------------------------------------------|
| EN61000-6-2:2002 | Electromagnetic compatibility<br>Immunity for industrial environment                                                   |
| EN61000-6-3:2002 | Electromagnetic compatibility Emission standard for residential, commercial and light industrial environments          |
| EN61010-1:2001   | Safety requirements for electrical equipment for measurement, control and laboratory use. Part 1: General requirements |

Place: **Göttingen**  
Legally binding signature:

.....  
**Wolfgang Behrens**

Date: 15.06.2007

issuer:

.....  
**Joachim Beinhorn**

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.