

## Instruction for use

021328/05/10

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# ***Brightness Transmitter***

**7.1414.51.150**

**7.1414.51.550**



### **ADOLF THIES GmbH & Co. KG**

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## **Contents**

1	Models .....	3
2	Application .....	3
3	Mode of Operation .....	3
4	Programming of Measuring Ranges and electrical outputs .....	3
5	Montage .....	5
6	Maintenance .....	6
7	Connecting Diagram .....	6
8	Technical Data .....	6
9	Dimensional drawing.....	7
10	EC-Declaration of Conformity .....	8

# 1 Models

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Order-No.	Meas. Range (Lux) (Output 1)	Meas. Range (Lux) (Output 2)	Electrical Output	Supply Voltage	Cable Length
7.1414.51.150	0...150 000 * 0...100 000 0.....50 000 0.....10 000	0...1000 Lux	0...20 mA 4...20mA *	15...36 V DC oder 15...24V AC	5 m
7.1414.51.550	0...750 * 0...500 0...250 0.....50	0...5 Lux	0...10V(max. 5 mA)		12 m

\* = Factory setting

## 2 Application

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The direction-independent brightness transmitter is adapted to the sensitivity of the human eye, and serves for the acquisition of the brightness. The measuring values are delivered as analogue signals. There are two outputs available. Output 1 serves for different measuring ranges. Output 2 is used as fixed measuring range, particularly for the twilight range.

Both output signals of the brightness transmitter can be delivered as proportional voltages or currents, and can be used, for example, as input signal for the regulation of shading devices, heating and irrigation plants in automatically controlled green houses or as twilight sensor.

## 3 Mode of Operation

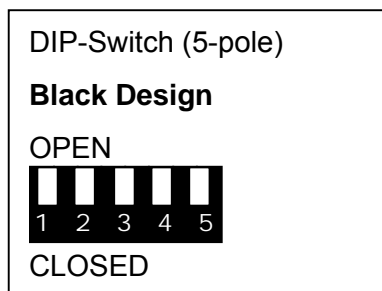
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Through the sensor, and a connected electronic system the falling daylight is converted into a proportional output size. This output size can be a current of 0/4...20 mA or a voltage of 0...10 V (selectable through DIP-switch) according to the conditioned method of operation. Thanks to its special construction the sensor achieves an almost direction-independent sensibility in the elevation angle (height) of 0° up to 90 °, and in the azimuth of 0° up to 360 °.

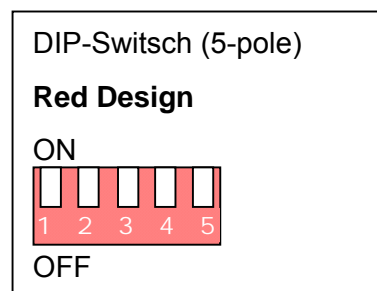
## 4 Programming of Measuring Ranges and electrical outputs

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After removing of the locking screw Pg 16 (bottom part) the DIP-switch and the change-over-switch are visible.



or

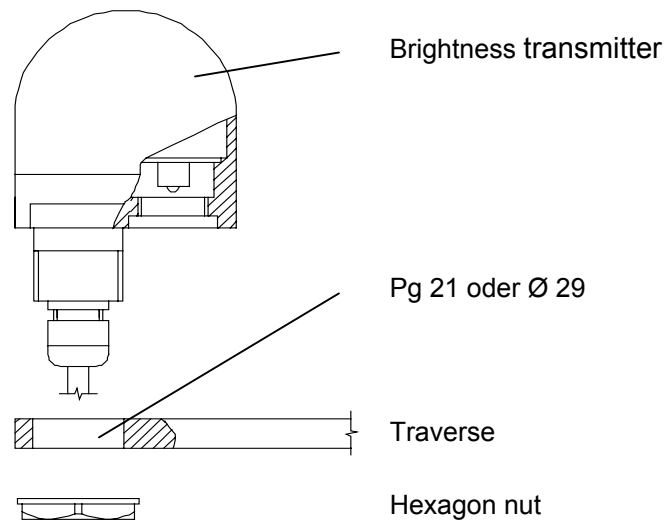


DIP-Switch (5-pole): Black Design						
Meas. Range	Switch position					Order - No
	S1	S2	S3	S4	S5	
0...10 KLux	CLOSED	OPEN	OPEN			7.1414.51.150
0...50 KLux	OPEN	CLOSED	OPEN			
0...100 KLux	OPEN	OPEN	CLOSED			
0...150 KLux	OPEN	OPEN	OPEN			
0...50 Lux	CLOSED	OPEN	OPEN			7.1414.51.550
0...250 Lux	OPEN	CLOSED	OPEN			
0...500 Lux	OPEN	OPEN	CLOSED			
0...750 Lux	OPEN	OPEN	OPEN			
0...20 mA				OPEN	OPEN	
4...20 mA				CLOSED	CLOSED	
U / I	V <input type="checkbox"/> mA			V <input type="checkbox"/> mA		

DIP-Switch (5-pole): Red Design						
Meas. Range	Switch position					Order - No
	S1	S2	S3	S4	S5	
0...10 KLux	ON	OFF	OFF			7.1414.51.150
0...50 KLux	OFF	ON	OFF			
0...100 KLux	OFF	OFF	ON			
0...150 KLux	OFF	OFF	OFF			
0...50 Lux	ON	OFF	OFF			7.1414.51.550
0...250 Lux	OFF	ON	OFF			
0...500 Lux	OFF	OFF	ON			
0...750 Lux	OFF	OFF	OFF			
0...20 mA				OFF	OFF	
4...20 mA				ON	ON	
U / I	V <input type="checkbox"/> mA			V <input type="checkbox"/> mA		

## 5 Montage

The sensor is mounted for example on a mast tube, hanger with a threaded tube Pg 21 or on the **traverse – compact order-no. 4.3171.30.000** with a borehole of  $\varnothing 29$  mm. Run the cable (type LiYCY) through the borehole, and fasten the brightness transmitter by means of a hexagon nut (SW 36). Mounting is carried out in vertical position.



### **Mounting Instructions**

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

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.

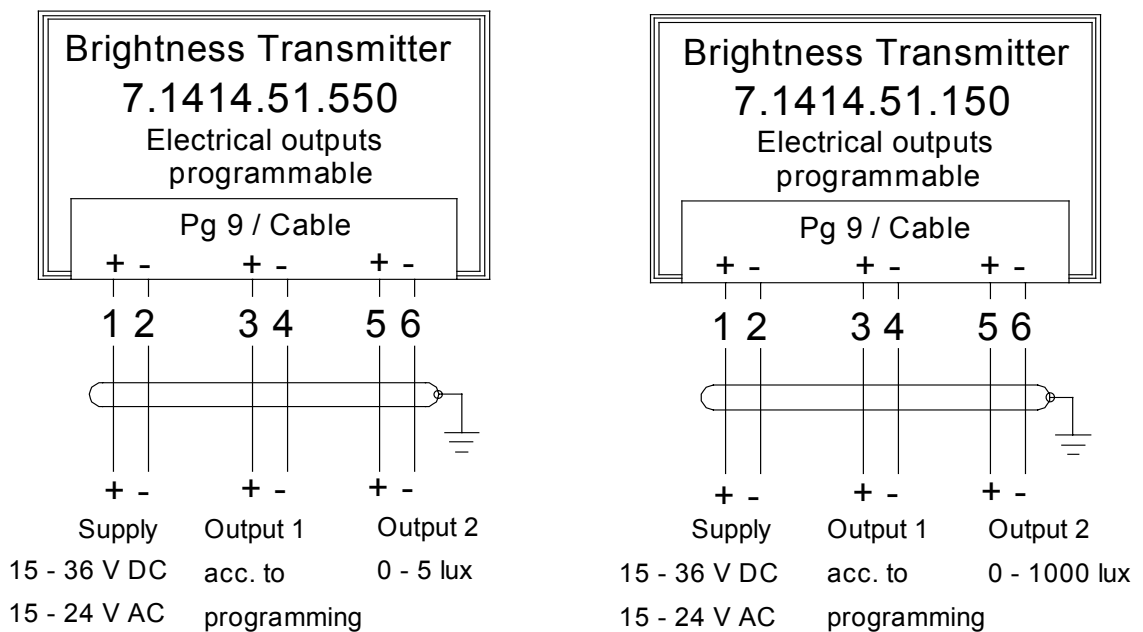
#### **Attention:**

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

## 6 Maintenance

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

## 7 Connecting Diagram

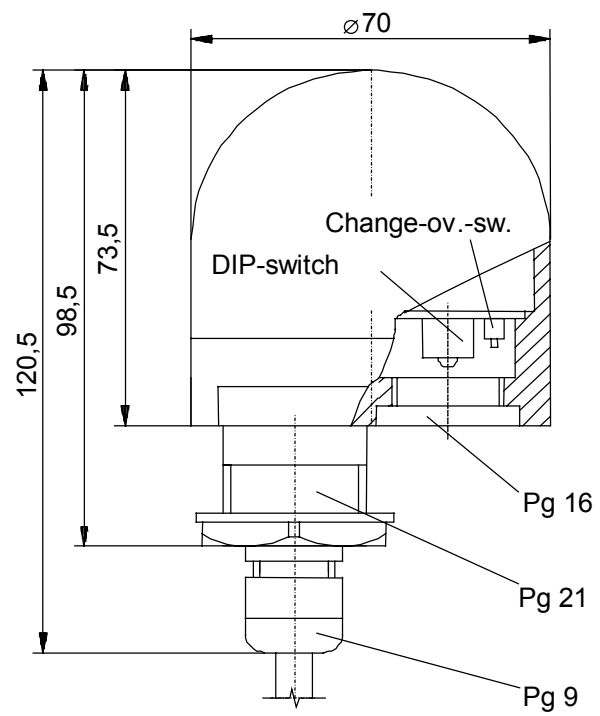


## 8 Technical Data

Meas. range	see Models
Type of sensor	BPW 21
Accuracy	± 3 % of meas. range
Spectral range	350...820 nm
Angel of acquisition I (Elevation)	0...90°
Angel of acquisition (Azimuth)	0...360°
Electr. output	See models
Operating voltage	See models
Load for current output	350 Ω
Operating current	max. 50 mA
Ambient temperature	- 30...+ 70° C
Protection	IP 65
Weight	150g (w/o cable)
Cable type	LIYCY 6 x 0,25 mm <sup>2</sup>

## 9 Dimensional drawing

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# 10 EC-Declaration of Conformity

Document-No.: **000318**

Month: 05 Year: 10

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

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Description of Product: **Brightness Transmitter**

Article No.	<b>7.1414.10.003</b>	<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>7.1414.40.103</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>	
	<b>7.1414.60.000</b>	<b>7.1414.60.040</b>	<b>7.1414.60.041</b>	<b>7.1414.60.500</b>
	<b>7.1414.61.000</b>	<b>7.1414.61.040</b>	<b>7.1414.61.041</b>	

specified technical data in the document: **020923/05/07; 021316/05/07; 021327/05/10; 021524/05/07; 021458/12/08; 021601/01/09; 021630/02/10**

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:

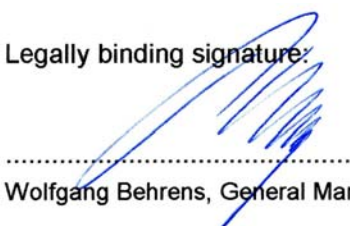
Reference number	Specification
IEC 61000-6-2: 2005	Electromagnetic compatibility Immunity for industrial environment
IEC 61000-6-3: 2006	Electromagnetic compatibility Emission standard for residential, commercial and light industrial environments
IEC 61010-1: 2001	Safety requirements for electrical equipment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

Place: Göttingen

Date: 18.05.2010

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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