

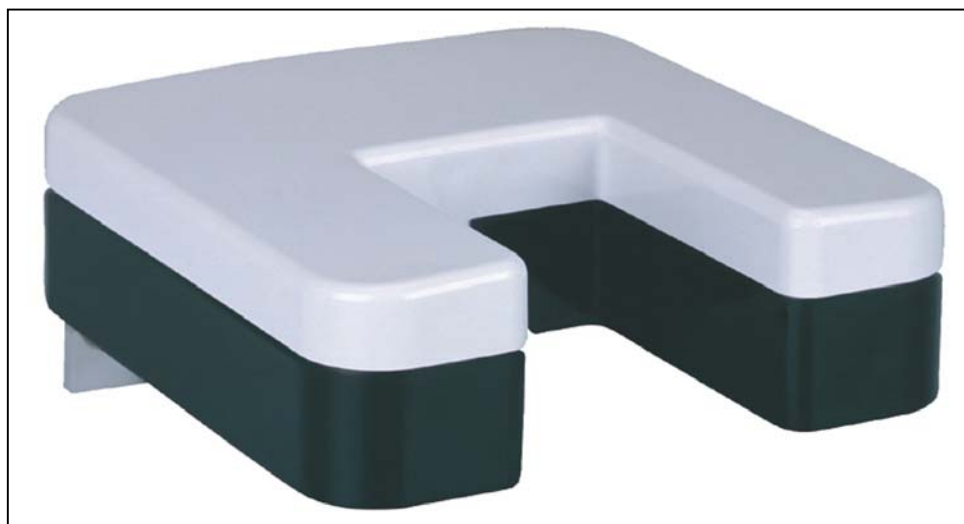
Instruction for use

021335/04/05

Precipitation Sensor

with analogue Intensity Output

5.4103.20.041, 5.4103.20.741



ADOLF THIES GmbH & Co. KG

Hauptstraße 76

Box 3536 + 3541

Phone ++551 79001-0

www.thiesclima.com

37083 Göttingen Germany

37025 Göttingen

Fax ++551 79001-65

info@thiesclima.com

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1 Model

Order-No.	Elect. Output	Operating Voltage	Connection
5.4103.20.041	4 ... 20 mA	24 V AC/DC	Cable gland
5.4103.20.741	4 ... 20 mA	24 V AC/DC	7 pole plug connection

Table 1: Models

2 Range of Application

The precipitation sensor serves as measuring instrument for the determination of the instantaneous precipitation intensities (mm precipitation / min.). By integration of the precipitation intensities, the precipitation quantity can be calculated, as well. Control- and warning signals can be derived from the precipitation intensity.

The measuring signal is output as intensity-dependent analogue output value. The dimension of the measurement value output is divided into 4 linear characteristic segments, which show a tenth of the slope of the more sensitive segment.

Thus, it is possible to represent an intensity range from approx. 0,001mm/min. (light drizzle) up to 10 mm/min. (extremely heavy rain) with reasonable resolution (quasi-logarithmic output).

3 Mode of Operation

Precipitation in the form of drizzle, rain, snow, or hail falls through a light band, induced by light diodes, and lead to shadowing effects on the receiving side. The sent light is pulse-modulated so that outside light effects cannot falsify the measurement results. From the extent of shading along with the duration of falling through a factor is calculated that gives the information if there is a precipitation incident or not.

The instrument is equipped with a heating system for extreme weather condition. This avoids ice and snow forming on the housing surface. In addition, the surface retains a temperature of $>0^{\circ}$ by means of a regulated heating.

4

Please Note:

- *The electrical connection is to be carried out by experts only. Please open the instrument only with dry ambient conditions. Do not damage the exposed electronics!*

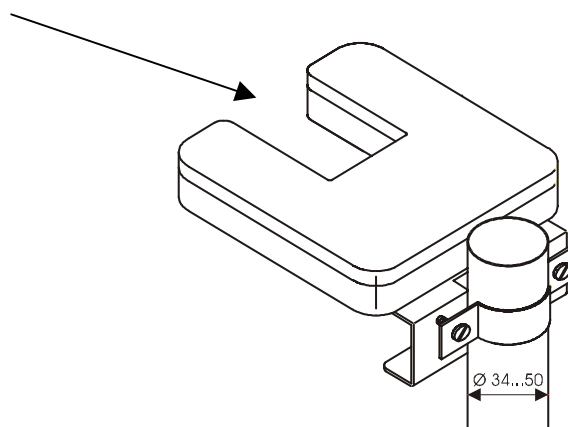
Remark:

- *In order to achieve an optimal electro-magnetic immunity (> 20 V/m) please use shielded cable.*

4.1 Mechanical Mounting

The mounting system of the instrument is designed for attachment to a mast. When mounting make sure, that the precipitation can easily reach the opening of the sensor, and that the instrument is not exposed to strong vibrations or shocks.

Sensor opening



4.2 Electrical Mounting for Precipitation Sensor with Cable Gland

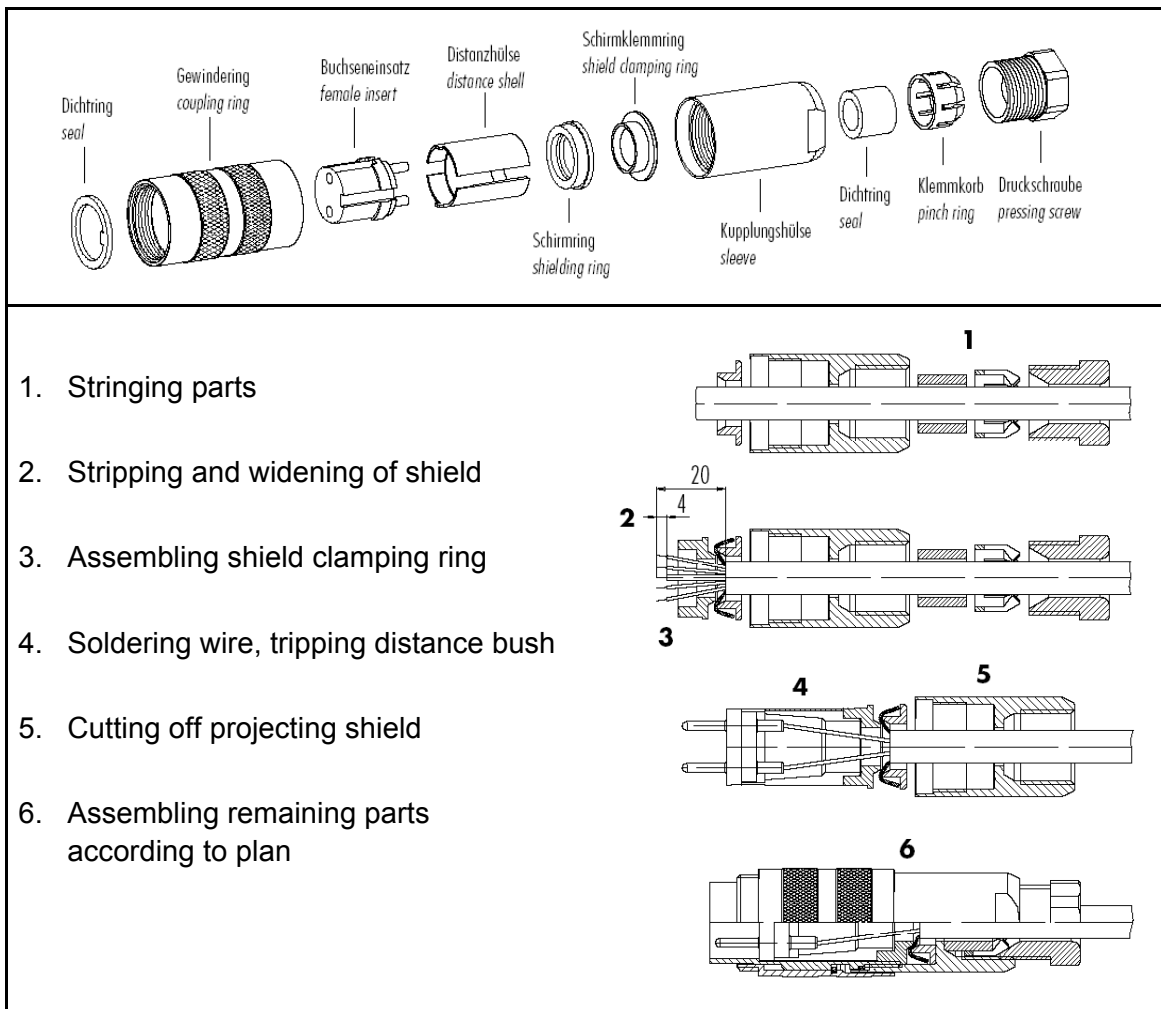
To connect the instrument electrically, remove the cover with its 5 screws. The connecting terminals and the DIP-switches for selecting the number of incidences and switch-off delays are then accessible. The electrical connection is carried out according to the Circuit diagram. Insert the cable from below through the screwed cable gland on the bottom of the case and connect it to the connecting terminals and the shield connection. After the wiring – and mounting work is done, the nuts of the screwed cable gland, and the screws of the cover are to be screwed evenly tight with the case so that water cannot penetrate it. The fixing screws for the cover must be screwed down with a torsional of 1 Nm to 2 Nm.

4.3 Electrical Mounting for Precipitation Sensor with Plug Connection

The electrical connection is carried out by plug in accordance with the connecting diagram.

4.3.1 Plug Mounting

Applies only to instruments with connection „plug“.



5 Taking into Operation

After the electrical connection has been established, and the case has been screwed, the operating voltage can be switched on. The dimension of the measurement value output is reset when the supply voltage is switched on.

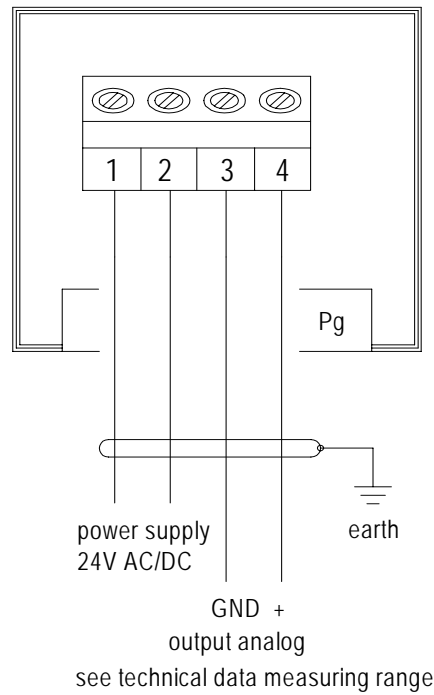
6 Maintenance

A layer of dirt can form on the windows of the sensor as a result of atmospheric pollution, which, however, is usually washed off by the precipitation. According to the local degree of pollution the windows of the sensor should be checked and possibly be cleaned in appropriate intervals.

7 Connecting Diagram / Connecting Table

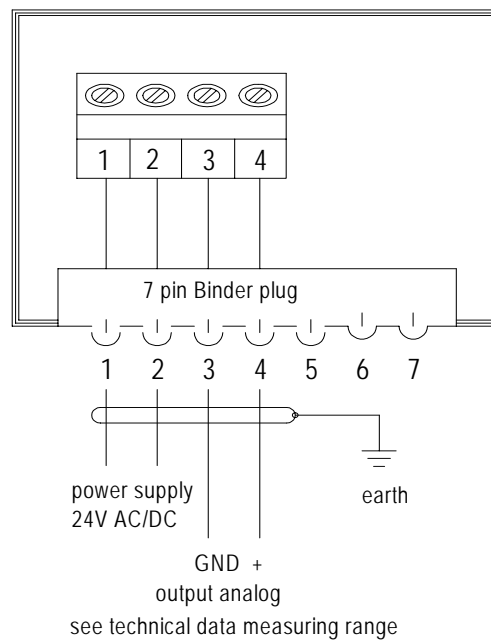
Order-No.
5.4103.20.041

Clamp connection

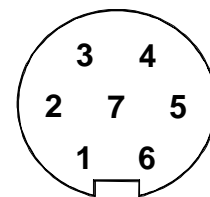


Order-No.
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Plug connection



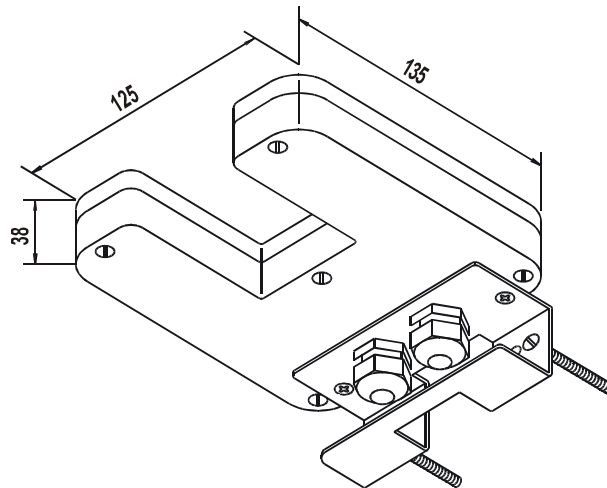
View on the soldering side of the counter plug.



8 Technical Data

Measuring Value	: Precipitation intensity
Measuring range	: 0 – 0,01 mm / min → 4,0 – 8,0mA 0,01 – 0,1 mm / min → 8,0 – 12,0 mA 0,1 – 1,0 mm / min → 12,0 – 16,0 mA 1,0 – 10 mm / min → 16,0 – 20,0 mA
Output	: constant current, depending on measuring value, between 4,0mA and 20,0mA
Active sensor surface	: 25 cm ²
Minimum drop size	: 0,2 mm
Operating voltage	: 24 V AC/DC ± 15 %
Operating current	: approx. 90 mA
Heating current	: max. 1 A
Ambient temperature	: -30 ... +60°C
Protection	: IP 65 acc. to DIN 40050
EMV	: EN 61000-6-2 ; EN 61000-6-3
Weight	: 0,4 kg
Connection	See model

9 Dimensional diagram



10 Accessories (Optional)

Power Supply Unit	9.3388.00.002	<p>The power supply unit provides for the current supply of the Precipitation Sensor. It supplies the necessary operation voltage for the electronics and the heating.</p> <p>Primary : 230 V / 50 Hz Secondary : 24 V AC / 20VA Housing : synthetic Protection : IP 65 acc. to DIN 40050 Dimensions : 107 x 125 x 100 mm Weight : 1,2 kg</p>
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	ADOLF THIES GmbH & Co. KG		
Hauptstraße 76 P.O. Box 3536 + 3541 Phone ++551 79001-0 www.thiesclima.com	37083 Göttingen Germany 37025 Göttingen Fax ++551 79001-65 info@thiesclima.com		

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