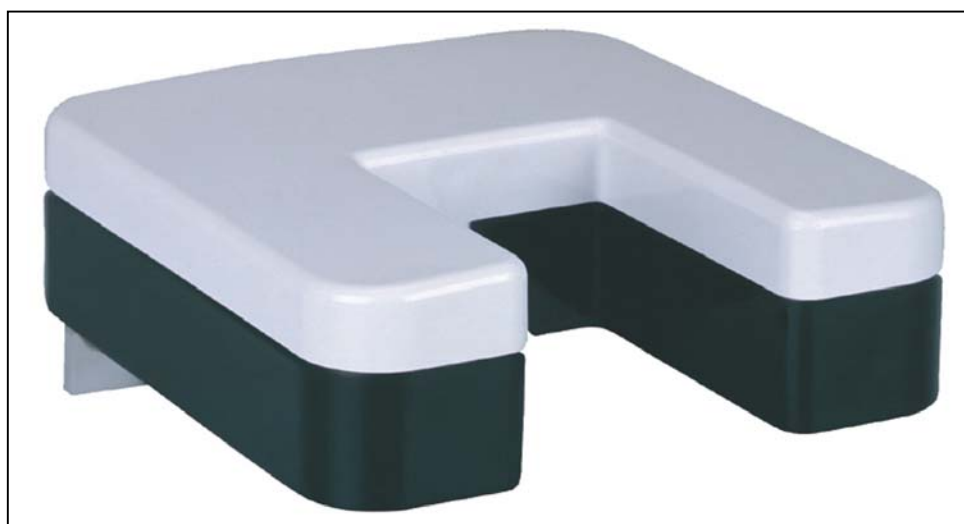

Precipitation Monitor

5.4103.10.012



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1 Model

Order- No.	Elect. Output	Operating Voltage	Connection
5.4103.10.012	relay	12 V AC/DC	Cable gland

Table 1: Model

2 Range of Application

The precipitation monitor transmits signals to determine the beginning and the end of precipitation and the duration of the period of precipitation as required by meteorological services.

In addition, the precipitation monitor can be used to report status or to transmit control signals to connected rain protection devices such as windows, air vents, awnings, or Venetian blinds.

3 Mode of Operation

Precipitation in the form of drizzle, rain, snow or hail is detected by means of a IR light barrier system and trigger a signal in the connected electronics.

A built-in incidence-filter shall smooth the triggering of switching signals in case of individual

incidences, as for example leaves, bird droppings, insects etc. For this, a certain number of at least n incidences should have occurred within a time-window of 50 sec. The number of drop incidences (1...15) can be selected through the DIP-switch on the pc-board.

With the precipitation end the switching signal is reset after a selectable switch-off delay. Thanks to the immediate evaluation of the incidences it is possible to determine precisely the beginning and end of the precipitation period.

4 Installation

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!***

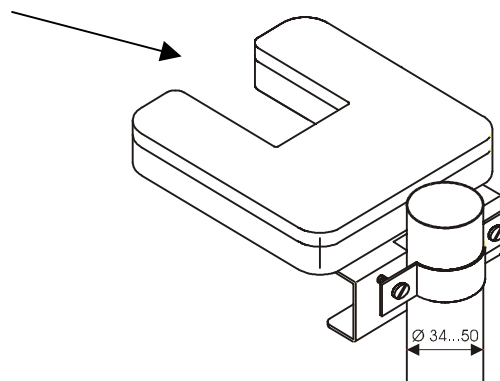
Remark:

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, while operating, is not exposed to strong vibrations or shocks.

Opening of Sensor



4.2 Electrical Mounting for Precipitation 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 die 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.

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 setting of the relay output is undefined after switching on the operating voltage and shows „no precipitation“.

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 Adjusting of Incidences and Switch-off Delay

The adjustment carried out in the factory is for 12 drop incidences within 50 seconds with a switch-off delay of 25 seconds .

If this adjustment is to be changed, the **switch-off delay**, and the number of **drop incidences** are set through the DIP-switches acc. to the table.

DIP – switch for switch-off delay

DIP – switch for drop incidences

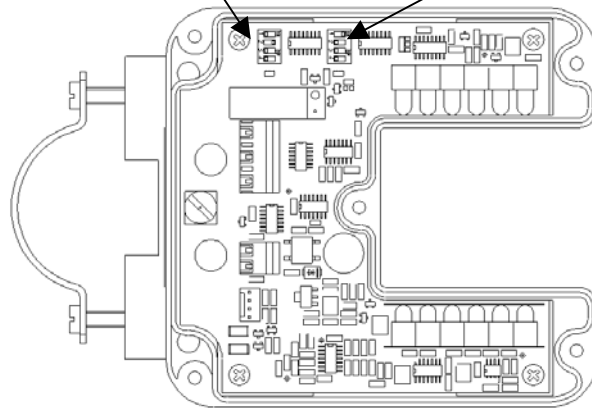
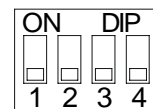
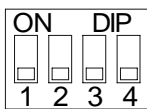
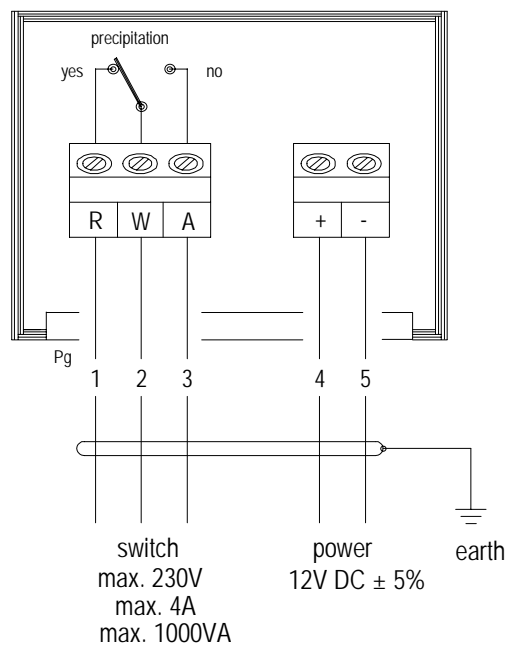


Figure 1: DIP – switch

DIP- switch-off delay (1 = ON)					DIP- drop incidences – filter (1 = ON)				
S 1	S 2	S 3	S 4	time (sec)	S 1	S 2	S 3	S 4	drops
1	0	0	0	25	1	0	0	0	1
0	1	0	0	50	0	1	0	0	2
1	1	0	0	75	1	1	0	0	3
0	0	1	0	100	0	0	1	0	4
1	0	1	0	125	1	0	1	0	5
0	1	1	0	150	0	1	1	0	6
1	1	1	0	175	1	1	1	0	7
0	0	0	1	200	0	0	0	1	8
1	0	0	1	225	1	0	0	1	9
0	1	0	1	250	0	1	0	1	10
1	1	0	1	275	1	1	0	1	11
0	0	1	1	300	0	0	1	1	12
1	0	1	1	325	1	0	1	1	13
0	1	1	1	350	0	1	1	1	14
1	1	1	1	375	1	1	1	1	15

Table 2: DIP – switch adjustment

8 Circuit Diagram



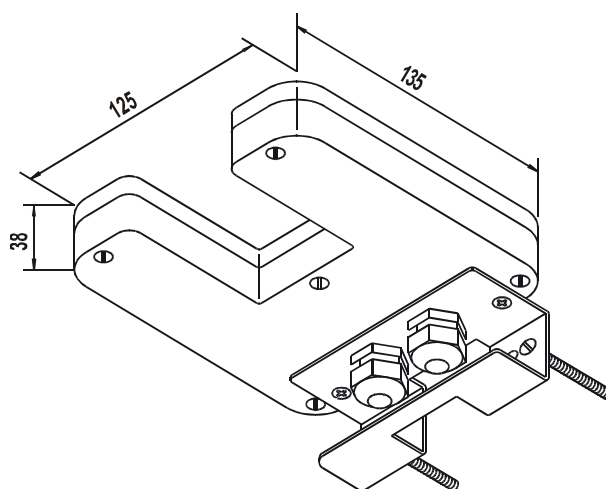
Please Note:

The relays-output is connected on a manner that a failure of supply voltage is signalled as "precipitation".

9 Technical Data

Measuring value	: Status of precipitation (rain, snow, hail, etc.)
Output	: Precipitation = Relais OFF (also at $U_B = 0$); no precipitation = Relais ON
Sensor area	: 25 cm ²
Drop size	: $\geq 0,2$ mm
Switch-on condition	: 1... 15 incidences within 50 sec.
Switch-on delay	: none
Switch-off delay	: 25 ... 375 s ; see „Adjusting incidences and switch-off delay“
Contact loading max.	: max. 230 V AC; 4 A
Operating voltage	: 12 V DC \pm 5 %
Operation current	: ca. 50 mA
Heating	: deactivated
Ambient temperature	: -25 ... +55°C if ice free
Protection	: IP 65 acc. to DIN 40050
EMV	: EN 61321-1 with EN 61000-4-3
Weight	: 0,4 kg

10 Dimension diagram



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