

RAIN DETECTOR DRD11A

Instruction Manual

DRD11A-U334en-1.1
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1. GENERAL

The working principle of the Rain Detector DRD11A is based on detection of water on the active portion of the sensor plate. A heater is integrated in the sensor plate to dry out water droplets or any condensation. DRD11A can be used also for detection of snow, since the heater keeps the plate over nonfreezing temperatures and thus melts the snow on the sensor plate. There are two different outputs in DRD11A. One is called Rain On/Off and the other Analog Out, which is also available as Frequency Out.

The Rain On/Off output is based on droplet detection rather than on signal level threshold. Special delay circuitry allows a two-minute interval between raindrops before assuming an OFF (no rain) position. This enables the sensor to distinguish between rain cessation and light rain.

The Analog Out signal is proportional to the moisture level of the sensor plate so, that when the plate is dry, the signal is 3 V and when it is fully wet, the signal drops to 1 V. This feature can be used to estimate the level of rain intensity.

There is also a Heater Off input. Grounding this input forces all heating off.

The **DRD11A** Precipitation Detector fully replaces versions DPD12A and DRD11.

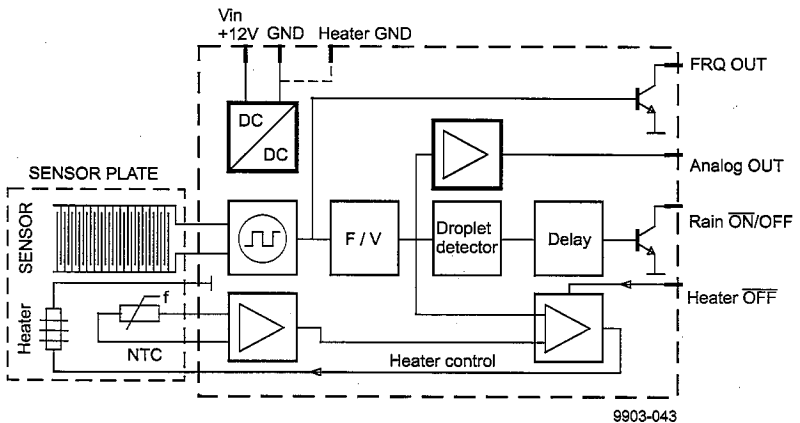
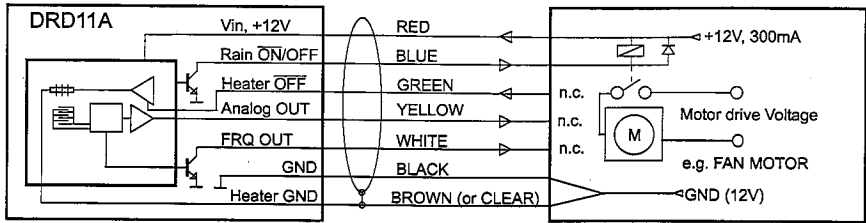


Figure 1-1 DRD11A Block Diagram

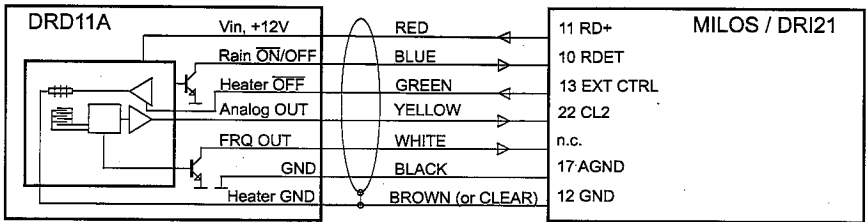
2. TYPICAL APPLICATIONS

2.1 Stand alone use (e.g. fan control)



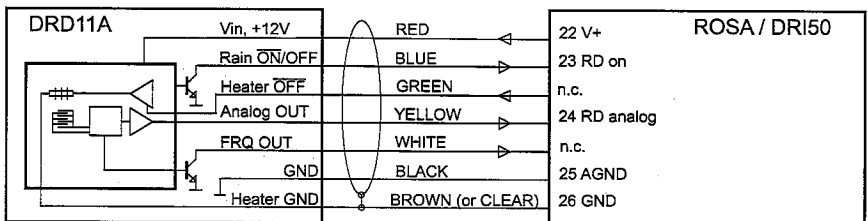
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2.2 Use together with MILOS™-interface card DRI21



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2.3 Use together with ROSA / Interface card DRI50



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3. INSTALLATION AND MAINTENANCE

CAUTION

Do not touch the sensor plate with your hand without touching first some electrically grounded part of the installation. Electric discharge may damage the electronics.

The space direct above the sensor must be free of cables, branches of trees and any objects which could disturb the detection of the rain.

The sensor is mounted to the end of the sensor arm by one screw. Installation for other applications may need separate fixing brackets depending on the application (not supplied with the sensor).

The mounting height is a compromise between low positioning to make the cleaning easy and high positioning (cable max 4 m) which prevents the access of dust from road surface.

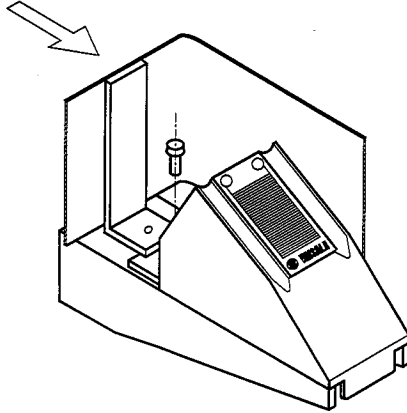
The reason for false detection is probably caused by dirty sensor surface. Then the sensor has to be cleaned up. Pure water and a soft towel should be sufficient. Use of mild detergent is allowed.

NOTE

In case of true malfunction the whole detector has to be replaced. There is no user replaceable parts in the detector.

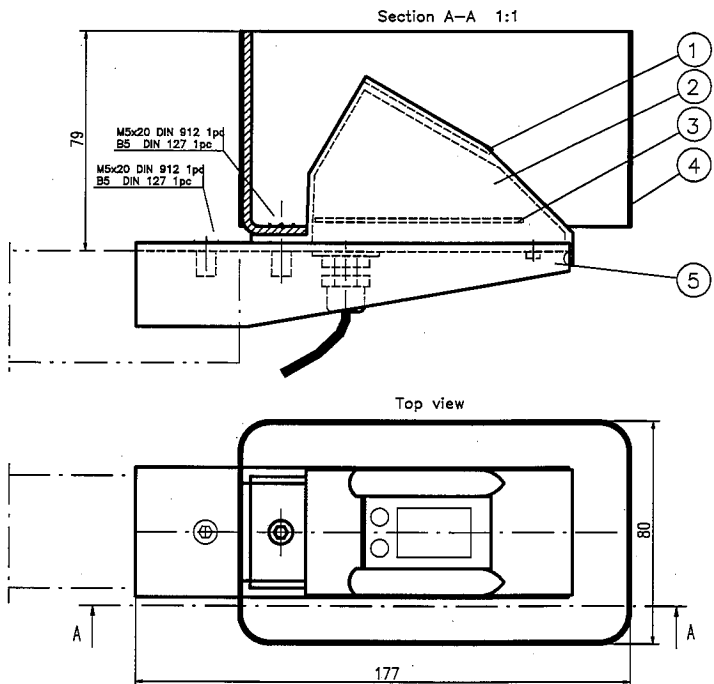
3.1 Wind shield installation

Attach the wind shield to the sensor with the screw as described.



3.2 Mechanical dimensions

1. Sensor, RainCap™
2. Polyurethane moisture shield
3. Component assembly
4. Wind shield
5. Mounting plate



4. TECHNICAL DATA

Sensor

Capacitive principle, thick layer sensor **RainCap™**, with a thin glass shield. Integrated heater element.

Sensitivity of Rain Detection

Minimum wet area 0.05 cm²

Detection delay < 0.1 ms

OFF-Delay (Active) < 5 min

Physical

Sensor plate

Sensing area 7.2 cm²

Angle 30 °

Housing material Polypropylen

Windshield and support bracket Aluminum

Moisture shield Polyurethane

Dimensions (H x W x L)

With wind shield 110x80x175 mm

Without wind shield 90x46x157 mm

Weight 500 g

Cable length 4 m

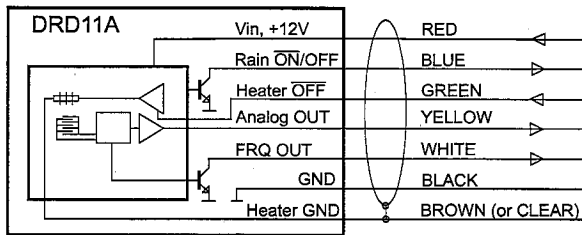
Ambient Conditions

Operating temperature range
within specifications -15...+55 °C (5...+131 °F)

Storage -40...+65 ° (-40...+149 °F)

Mounting

By one screw (M5x20 mm) to sensor arm (40x40 mm)



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Figure 4-1 DRD11A Electrical Connections