

HE 5413

3-channel dp-measuring transducer



Quick guide

(Translation of Original German version)

Legal Notice

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1 Legal Provisions

Manufacturer

AXXERON HESCH electronics GmbH, Boschstraße 8, 31535 NEUSTADT, GERMANY

Intended use

- The 3-channel dp-measuring transducer is used for measuring up to 3 differential pressures and is mainly applied in the dust extraction and ventilation industry.
- The device can be operated within the operating and environmental conditions approved in these operating instructions without impairing its safety.
- The manufacturer is not liable for improper use and any resulting personal injury or material damage; the risk is borne solely by the user. Failure to comply with the above criteria for intended use will result in the expiry of the warranty and liability for the device.

Personnel qualification

All work on the device may only be carried out by qualified electricians with sufficient knowledge in the field of electrical engineering.

Device Safety

The device has been constructed and tested in accordance with VDE 0411 / EN 61010-1 and has left the factory in perfect safety condition. To maintain this condition and to ensure safe operation, the user must observe the instructions and warnings described in this quick guide.

2 Safety Information

2.1 Symbols and Basic Safety Instructions

This chapter contains important safety regulations and notes. For protection against personal injury and material damage, it is necessary to read this chapter carefully before working with the device.

Symbols used

The following symbols are used in this quick guide. All safety instructions have a uniform structure.



Personal injury warning!

The severity of the danger is indicated by the respective signal word.



Explosive atmosphere warning!



High voltage warning!



Material damage warning due to electrostatic charge!



Material damage warning!



Note!

Identifies possible malfunctions and indicates optimum operating conditions.

2.2 Signal Words

DANGER!

Indicates an imminently hazardous *high* risk situation which, if not avoided, will result in death or serious injury.

WARNING!

Indicates a potentially hazardous *medium* risk situation which, if not avoided, can result in death or serious injury.

CAUTION!

Indicates a hazardous *low* risk situation which, if not avoided, could result in minor or moderate injury.

2.3 Safety in the individual operating phases



Danger of Electrocutation!

Before working on the device, switch off all power supplies used. The electrical cables must be laid according to the respective national regulations (in Germany VDE 0100). The measuring cables must be laid separately from the power lines. Connect the protective earth connector (in the respective equipment carrier) to the protective earth conductor.



Danger of Electrocutation!

In case of any interruption of the protective conductor in the equipment carrier, the device can become hazardous. Intentional interruptions are not permitted. If it can be assumed that safe operation is no longer possible, put the device out of operation and secure it against unintentional operation.



Danger of Electrocutation!

Do **not** open the device while under voltage! When opening the devices or removing covers and parts, live parts may be exposed. Connection parts can also be live!



Attention!

If the device is obviously damaged, it must not be put into operation.



Attention!

During installation, commissioning, maintenance and troubleshooting, observe the accident prevention regulations applicable to your system, e.g. DGUV Regulation 3 "Electrical installations and equipment".



Warning of material damage caused by electrostatic charge!

The device must be cleaned regularly to avoid increased dust formation on the device.

Clean the housing with **damp** cleaning agents only, to avoid electrostatic discharge!



Troubleshooting!

At the beginning of troubleshooting, all possible sources of faults on additional devices or supply lines (measuring lines, wiring, downstream devices) should be taken into consideration. If the fault is not found after checking these points, we recommend sending the device to AXXERON HESCH electronics GmbH.



Decommissioning!

Switch off the power supply on all poles, for decommissioning the device.

Secure the device against unintentional operation!

If the device is connected to other devices and / or equipment, consider the impacts and take appropriate precautions before switching it off.

3 Technical Data

General	
Supply voltage	19...30 V DC with reverse voltage protection (currently) The supply must be provided by a SELV (Safety Extra Low Voltage) or PELV (Protective Extra Low Voltage).
Power consumption	max. 5 W
Electrical Safety	According to DIN-EN 61010-1, DIN EN 61010-2-201
EMC	Immunity: DIN EN 61000-6-2 Emission: DIN EN 61000-6-3
Protection class	IP 65
Service interface	RJ10 socket

Housing	
Material	Polycarbonate
Dimensions	191 × 80 × 60 mm

Power connection	
Connection type	M12 connector plug (currently)

dp module	
Number	1...3
Current output:	
Effective dynamic range	4...20 mA
Output load	Load ≤ 600 Ω
Linearity	< 1 %
Precision	< 1 %
Temperature drift	≤ 0.1 % / 10 K
Galvanic separation	none
Voltage output:	
Effective dynamic range	0...10 V
Output load	Load ≥ 1 kΩ
Linearity	< 1 %
Precision	< 1 %
Temperature drift	≤ 0.1 % / 10 K
Galvanic separation	none

Environmental conditions	
Storage	-40°...+70°C
Transport	-40°...+70°C
Operation	-20°...+50°C
Climatic application class	3K6 according to DIN EN 60721-3 with restriction, relative humidity: 75% annual average, no condensation permitted
Condensed water	not permitted
Formation of ice	not permitted
Max. operation height above NN	2000 m
<u>Air pressure:</u>	
During operation and transport	80 kPa to 106 kPa
During transport	70 kPa to 106 kPa

4 Device Description

HE 5413 is a differential pressure measuring transducer, which can measure up to three differential pressures.

Up to 3 differential pressure modules are mounted onto the circuit board, in order to be able to record the differential pressures (see *Figure 1*).

Currently the device is available for 24 V DC and is equipped with an M12 connector plug (see *chapter 6.1 Electrical connection via M12 connector plug*).



Note!

The advantage of devices with M12 connector plug is that they do not need to be opened for electrical commissioning.

There is a service interface on the circuit board (see *Figure 1*) for connecting the HIMOD interface adapter (AXXERON HESCH item number #58513007). Firmware updates can be carried out via this interface.

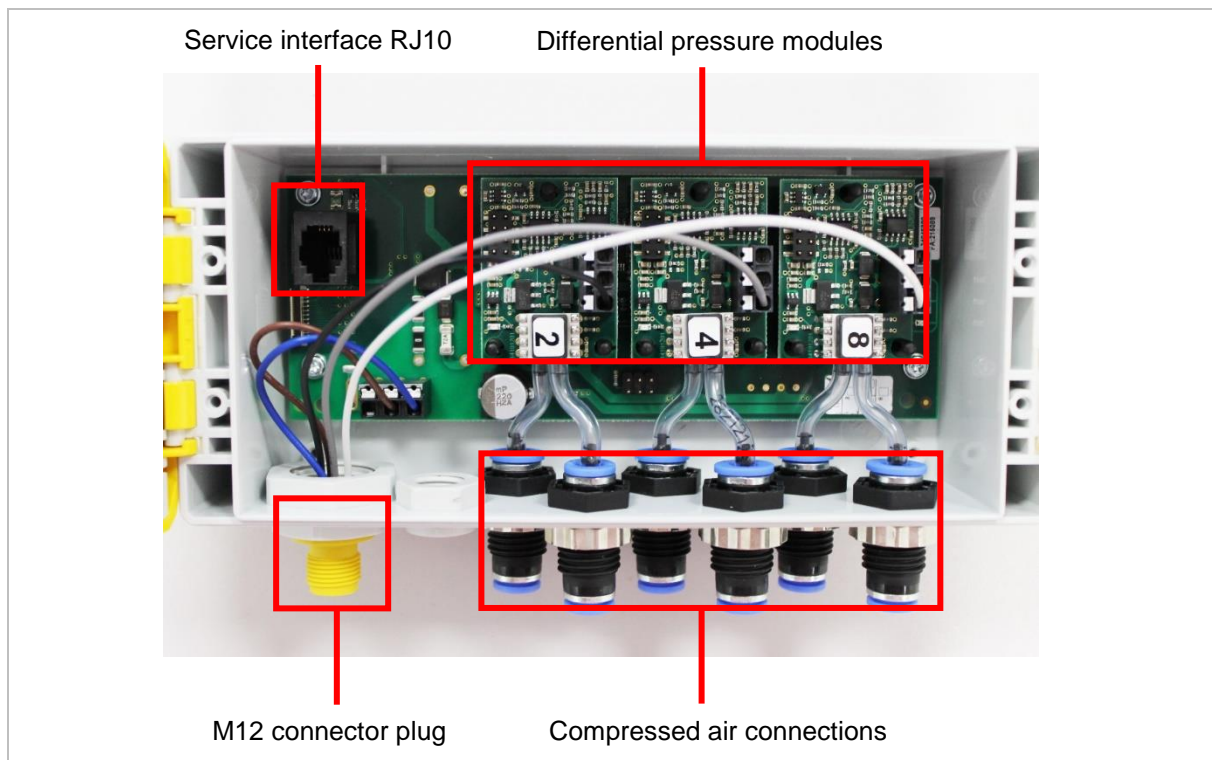


Figure 1 Design of printed circuit board



Figure 2 Channels 1 ... 3

4.1 Position of the device identification

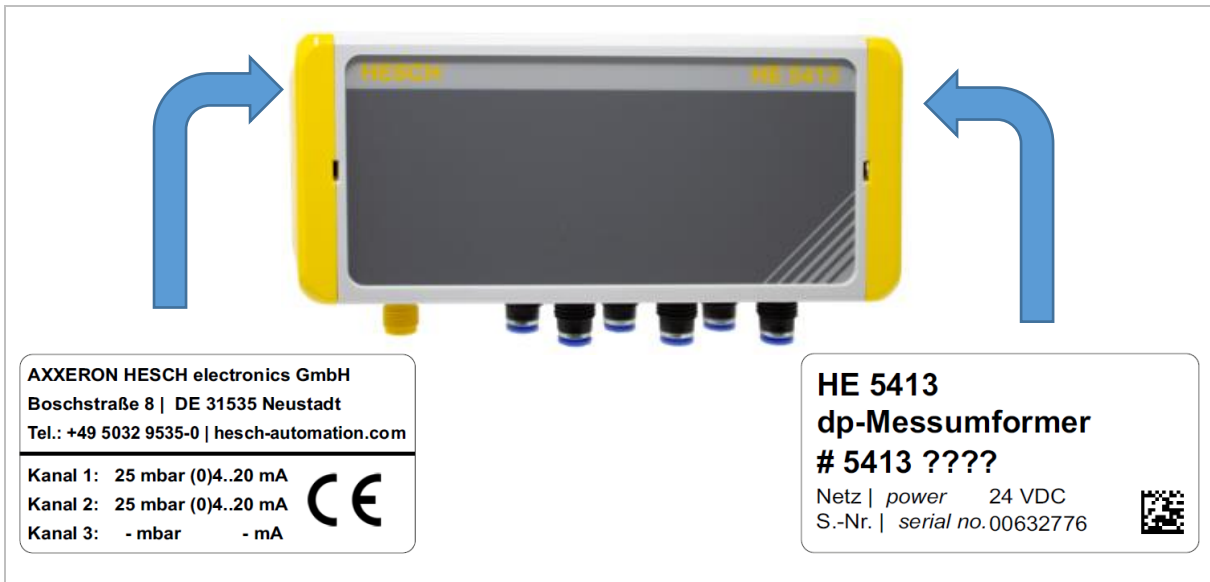


Figure 3 Position of the device identification

5 Mounting



Note!

If you wish to mount the device to the wall, *Figure 4* can be used as a drilling template.

The ambient temperature at the installation point must not exceed the permissible temperature for nominal use specified in the technical data.

5.1 Dimensions

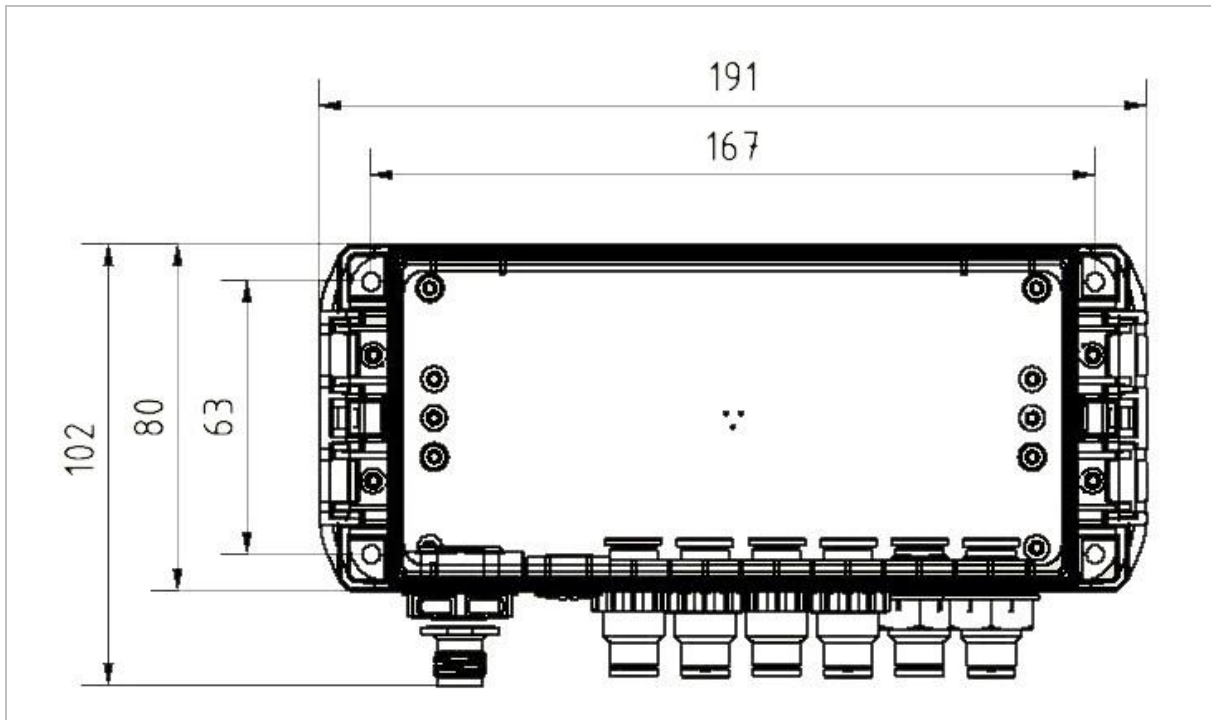


Figure 4 Housing dimensions

Scope of Delivery

- HE 5413 3-channel dp-measuring transducer
- Quick guide



Note!

Check the delivery upon receipt for completeness and visible defects. In case of a complaint, contact your responsible service representative of AXXERON HESCH electronics GmbH immediately.

5.2 Opening the device

Opening and closing the device works without screws by means of hinge technology. A flat-tip screwdriver is required to open the device. Apply the screwdriver to the respective position on the housing lid (see *step 1 in Figure 5*).



Note!

Make sure to move the screw driver **to the right** to open the hinge (see *step 2 in Figure 5*). If you move the screwdriver to the left, the housing lid may be damaged.

Open the housing lid to the left up to an angle of 105° (see *step 3 in Figure 5*).

Optionally, the housing lid can in addition be closed with 4 screws to protect it from unauthorised access. For further information, please contact the service of AXXERON HESCH electronics GmbH (see *chapter 8 Maintenance and Service*).

The screwless hinge closure is recommended for quick service access.

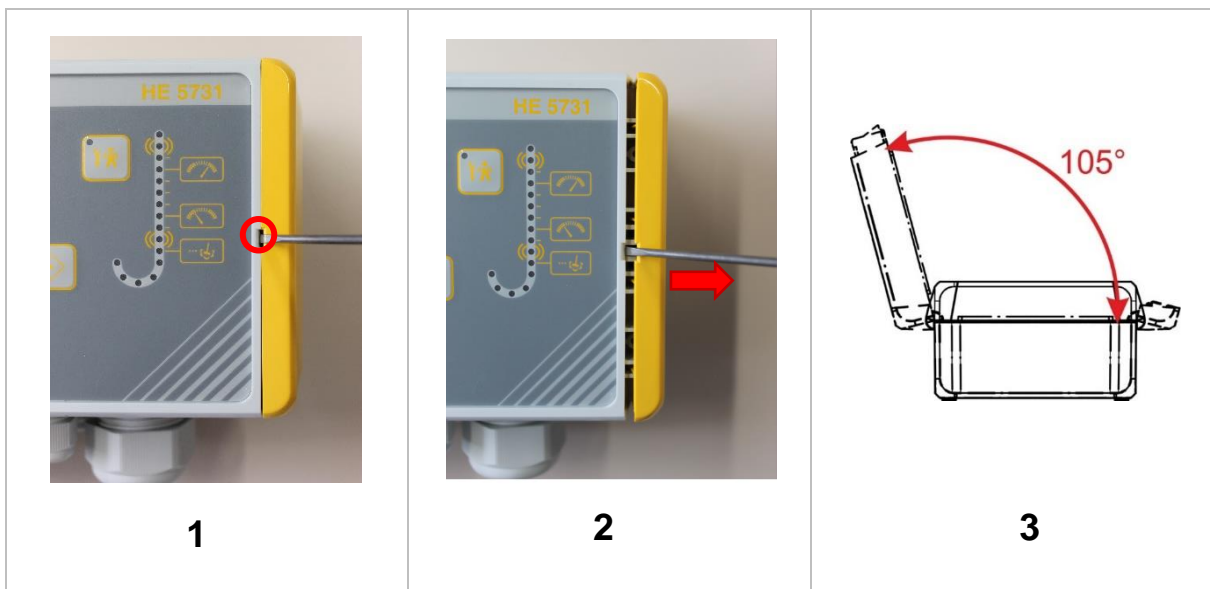


Figure 5 Opening the housing lid to the left



Note!

Figure 5 shows a similar device. However, the principle of opening is identical to HE 5413.

5.3 Mounting the device

4 screws are required to fasten the device to the wall. (**Not included in the scope of delivery!**)



Note!

The positions of the bore holes for the screws are the same for every device.
The housing in *Figure 6* is an example.

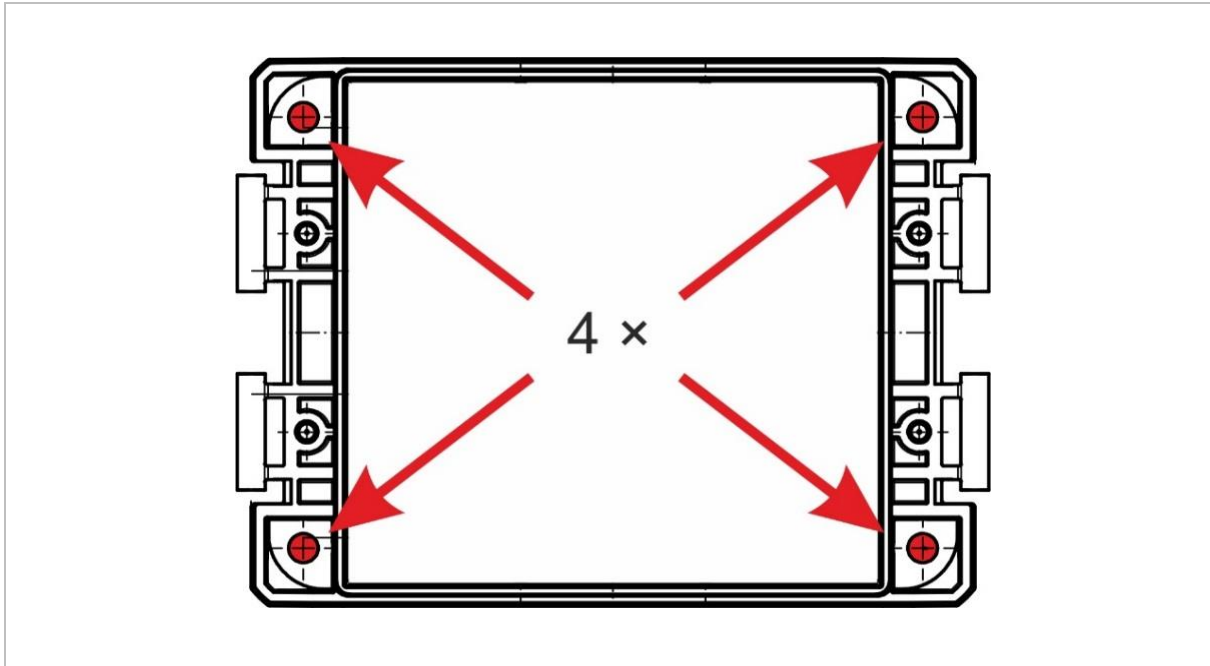


Figure 6 Rear of the housing



Note!

Alternatively the wall mounting can be done with wall brackets. For further information, please contact the service of AXXERON HESCH electronics GmbH (see *chapter 8 Maintenance and Service*).

6 Electrical Commissioning



Danger of Electrocutation!

Electrical installation must only be carried out when the power is disconnected.



Material damage due to electrostatic charge!

Observe the safety measures according to DIN EN 61340-51/-3 to avoid electrostatic discharge!



Material damage due to wrong supply voltage!

The power supply must correspond to the voltage indicated on the nameplate.



Note!

Before commissioning, please observe the information on the nameplate!



Note!

Please connect the cables properly to the cable glands.



Note!

The given temperature limitations for device application, must be observed before and during operation.

6.1 Electrical connection via M12 connector plug



Note!
The channels 1, 2 and 3 are **not** galvanically separated from each other in devices with M12 connector plug.



M12 connector plug, 5-pin, A-coded



Figure 7 Electrical connection via M12 connector plug

Pin assignment:

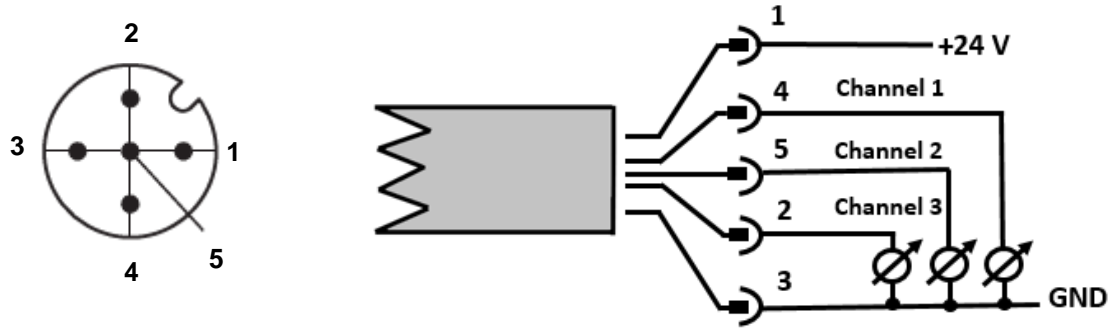


Figure 8 Connection diagram with M12 connector plug

Contact	Designation	Colour
1	+24 V supply	Brown
4	Channel 1	Black
5	Channel 2	Grey
2	Channel 3	White
3	GND supply	Blue

6.2 Assembly of measuring hose to pressure connection

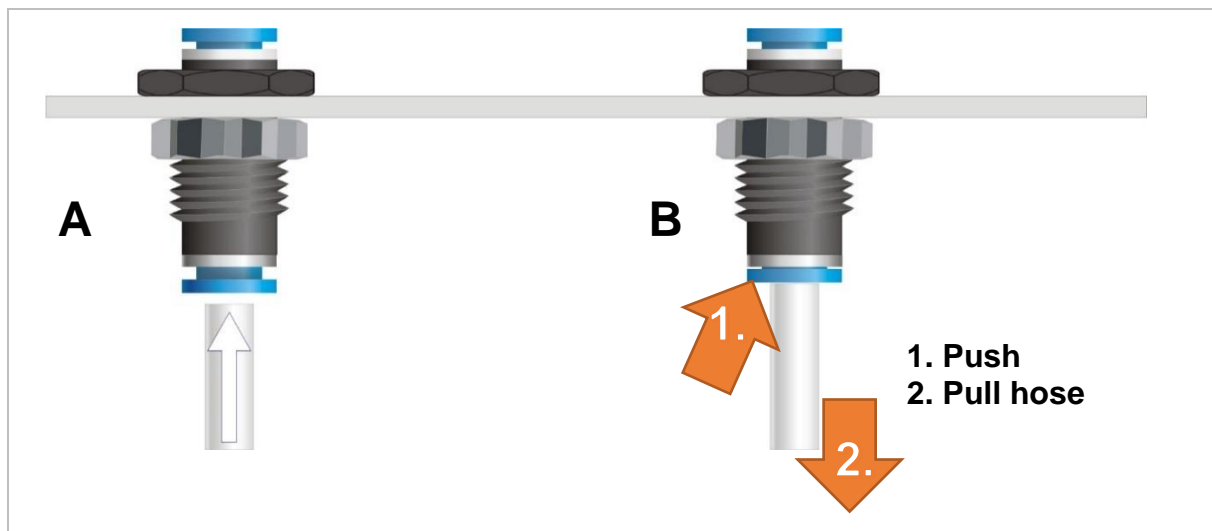


Figure 9 Assembly of hose onto push-in bulkhead fitting

A Hose connection

Insert hose with 6 mm outer diameter into the connection.

B Hose disconnection

1. Press the blue retaining ring to open the lock.
2. Pull the hose out of the connection.

7 Display elements

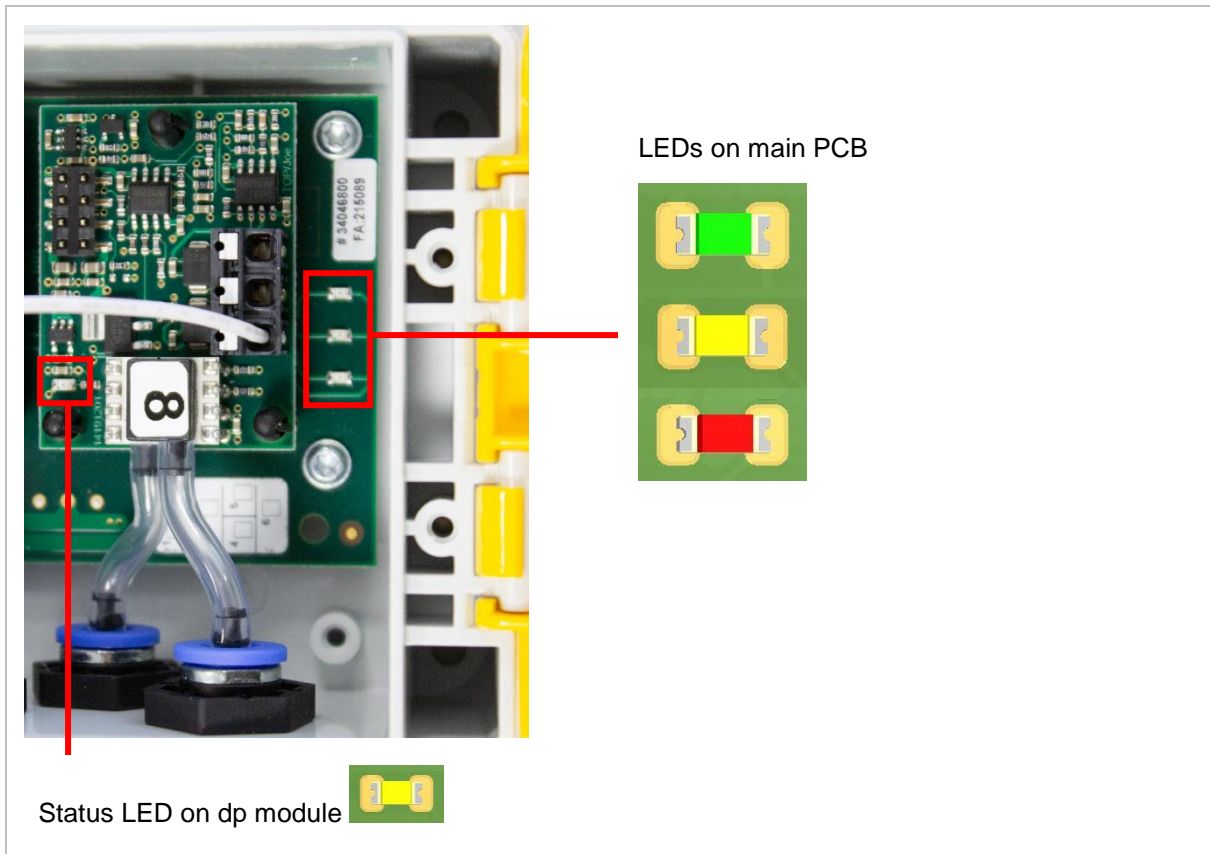
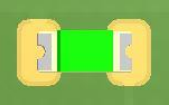
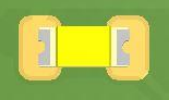




Figure 10 LEDs

LEDs	Meaning
On main PCB:	
	LED operation Lights up green <u>permanently</u> , when a supply voltage is applied.
	LED status Lights up yellow <u>permanently</u> , when the device is operating. <u>Flashes quickly</u> , when the controller is in the boot loader (start programme). A software update is necessary. The LED <u>is off</u> , when the device is not working or when no valid firmware is available.
	LED error Lights up green <u>permanently</u> , when an error occurred.
On dp modules:	
	LED status Lights up yellow <u>permanently</u> , when the dp module is active.

8 Maintenance and Service

Maintenance, Repair

The device must be cleaned regularly to prevent an increased generation of dust on the device. The housing must be cleaned with damp cleaning agents only.

Disposal

Dispatch metals and plastics for recycling. Electrical and electronic components must be collected separately and disposed of properly. Dispose of equipped printed circuit boards properly.

Service

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