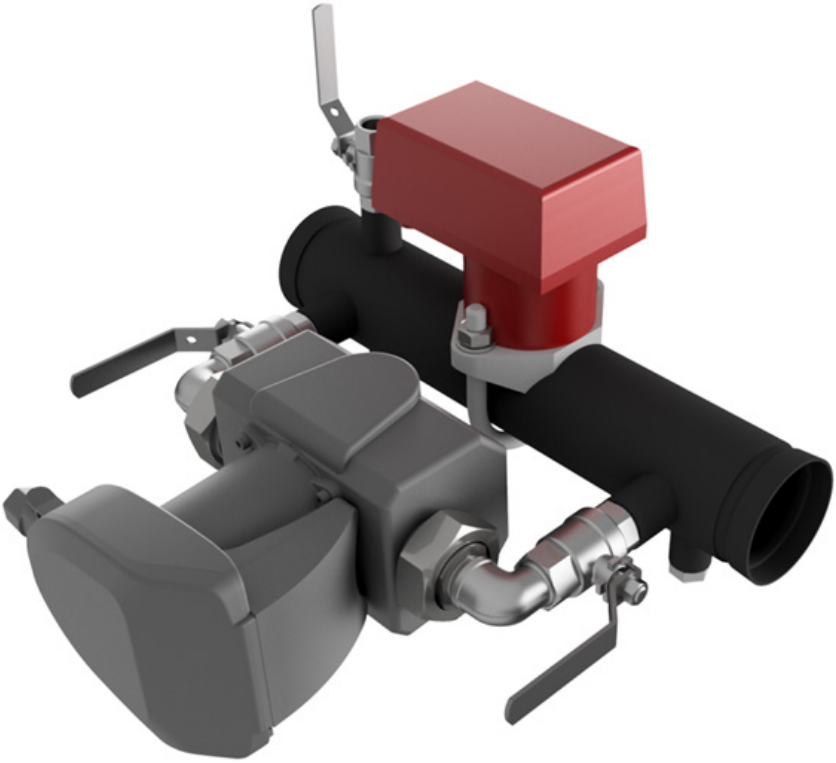
OPERATING INSTRUCTION

MECON
SAFETY CONTROL

Zone-Lux®



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Content

1 SAFETY INSTRUCTIONS

1.1 Intended use

With the Zone-Lux®, a pump is used to pump water in the loop and the flow switch is activated this way. There is no release of water.

The testing system is equipped with shut-off mechanisms, which allow maintenance of the pump without need to empty the sprinkler group.

The approvals necessary for this from VdS Schadenverhütung GmbH are available.

According to the installation guidelines, flow switches are to be tested on a regular basis, to test proper functionality when one or more sprinklers are triggered.

The test intervals can vary, depending on the guideline used for the installation or requirements of insurance providers and the authorities.

Warning!

Responsibility for the use of the testing system in respect to suitability, intended use, and in particular the corrosion resistance of the used materials in relation to the medium, lies with the user alone. In particular, care must be taken to ensure that the chosen materials of the parts of the testing system in contact with the medium are suitable for the medium used.

The manufacturer is not liable for damage which occurs through improper use of this testing system or use it is not intended for.
The testing system may only be used within the pressure, temperature and supply voltage limits specified in the operating manual. Before replacing a testing system it is always necessary to check whether the testing system is free of hazardous media and pressures. If you return testing systems to MECON GmbH, please observe the "form for device returns" in the Internet under www.mecon.de/en/device-returns/. Repairs or inspection by MECON GmbH are not possible without this fully completed form.

1.2 Approvals

VdS approval CEA 4001 and testing criteria according to EN 12259-5:2002
VdS approval number: G422034
FM approval number: PR464050

1.3 Safety instructions

Installation, commissioning and maintenance may only be performed by persons qualified for these tasks.

Work on electrical connections may only be performed by persons who are qualified and licensed to perform these tasks.

Only activate the power supply after the full installation is completed.

When doing maintenance work, the power supply is to be switched off over the fuse installed in the unit.

1.4 Safety instructions of the manufacturer

The manufacturer is not liable for damages of any kind caused by use of the testing system, including, but not limited to damage and consequential damage occurring directly, indirectly, and incidentally.

For every product purchased from the manufacturer the warranty applies, according to the relevant product documentation and the general terms and conditions.

The manufacturer reserves the right to revise the content of the documents, including this disclaimer, without prior notice, and is not liable in any way for possible consequences of such changes.

The responsibility for whether the Zone-Lux® is suitable for the particular application rests solely with the operator. MECON GmbH assumes no liability for consequences of misuse, modifications or repairs that were carried out by the customer without prior consultation.

In the case of a complaint, the offending testing system must be returned to us cleaned of hazardous substances, unless otherwise agreed.

To prevent injury to the user or damage to the testing system, it is necessary that you read the information in this manual carefully before starting to use the testing system.

This manual is intended for both correct installation as well as for operation and maintenance of the testing system.

1.5 Risk assessment

When correctly installed and operated as intended the Zone-Lux® has no influence on the effectiveness of the extinguishing system.

Accidental activation of the pump for testing the flow switch can lead to a false alarm. Tests in which possible alarm forwarding systems are not switched off can likewise lead to a false alarm.

Regular tests of the flow switches is an issue related to the operational safety of the extinguishing system. The visual display on the key switch as well as activation of the feedback to the fire alarm control panel ensure that any activation of a flow switch is signalled to the user.

Testing all the connected flow switches simultaneously reduces the time in which any possible alarm forwarding system is out of operation, so it reduces the time in which the alarm system is not fully operational. If multiple flow switches are installed, it must be possible to test these individually.

2 SCOPE OF THE TESTING SYSTEM

2.1 Scope of delivery

- Zone-Lux® (main pipe with flow switch and pump)
- Operating manuals
- Key switches (optional)

2.2 Nameplate

① Type
② Serial no.
③ Nominal size and process connection

Fig. 1 Name plate

3 INSTALLATION AND MODE OF OPERATION

3.1 Information about installation

Information!

All testing systems have been carefully checked for proper functionality before being shipped out. Immediately after receiving it, check the packaging for damage or indications of improper handling.

Notify the carrier and your responsible sales employee of any possible damage. In such cases provide a description of the problem, and the type and serial number of the testing system.

Unpack the testing system carefully, to avoid any damage.

Use the packing list to check the completeness of the delivery. Using the name plate, check to ensure that the testing system supplied corresponds to your order.

The Zone-Lux® is only intended for use in wet systems.

For installation, the ambient conditions of the respective components, as indicated in section 5, are to be observed.

Special VdS requirement: The version with roll groove connection may only be put to use in combination with VdS-approved pipe couplings from the manufacturers Anvil (all Gruvlok mechanical grooved pipe couplings), Jinan Meide (casting couplings type 1G), Minimax, Modgal, Tyco (all Grinell Mechanical and G-Fire steel IPS pipe couplings) and Victaulic.

3.2 Installation

A gap corresponding to the installation dimension must be provided for between the pipe ends of the sprinkler group where the Zone-Lux® is installed. The pipe ends must be parallel. The additional weight is to be taken into account with the pipe brackets.

Installation in the piping of the sprinkler system is done with the help of couplings that are certified for use in sprinkler systems.

The certified couplings are to be mounted according to the manufacturer's instructions.

The delay time of the flow switch can be configured with the help of the manufacturer's data sheet. It may not exceed the maximum delay time specified in the installation guidelines that are used.

For the nominal sizes DN150 and DN200 the pump of the Zone-Lux® requires a start-up time of approx. 15 seconds; this must be taken into account when configuring the delay time of the flow switch. This does not apply for nominal sizes smaller than DN150.

The marker arrow on the pump housing indicates the direction of flow through the pump, and is opposite to the direction of flow in the sprinkler system.

In horizontal installation the flow switch must always face vertically upwards, as shown in the following figures.

Integration of a slope in the direction of the air vent (figures 2 to 6) allows more efficient air-venting of the pump, so it is recommendable.

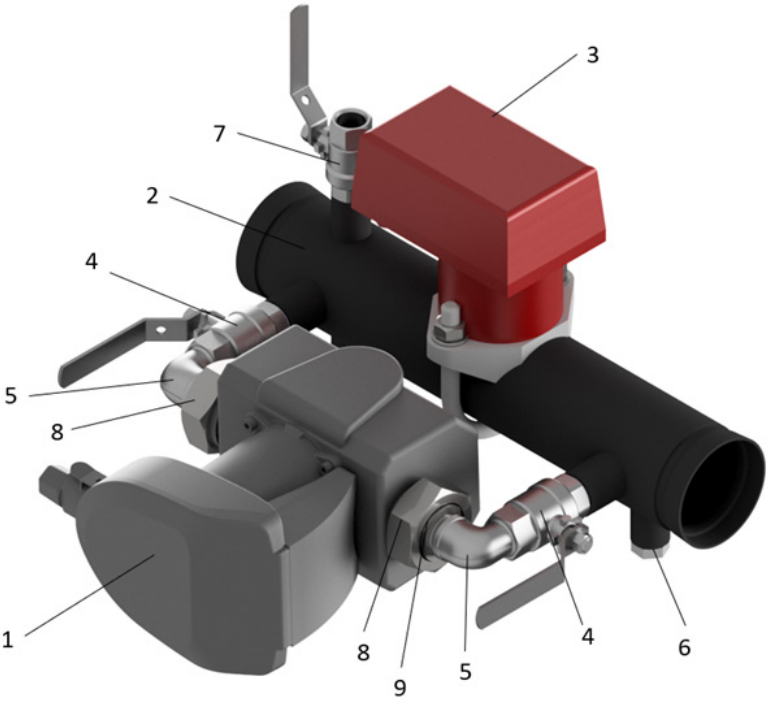

Fig. 2 Main pipe overview

Number	Description
» 1	» Pump
» 2	» Main pipe
» 3	» Potter flow monitor/switch, type VSR-EU
» 4	» Ball valve, 3/4 internal/external thread
» 5	» 90° elbow, 3/4 internal/external thread
» 6	» Dummy plug 1/2
» 7	» Ball valve, 1/2 internal/external thread
» 8	» Union nut 1 1/2
» 9	» Backflow preventer

Tab. 1 Zone-Lux® components

3.3 Horizontal mounting

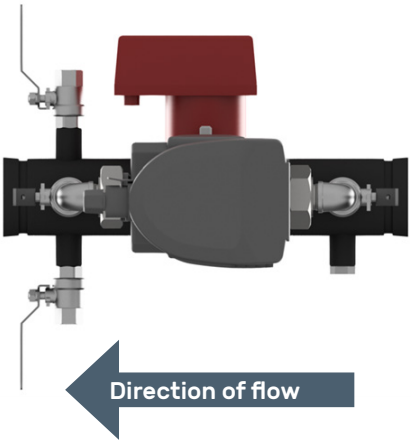

Fig. 3 Horizontal mounting - piping - flow direction right / left

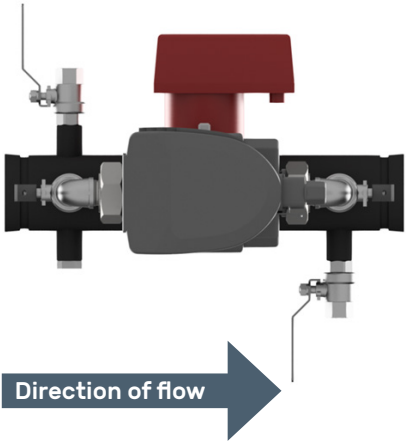

Fig. 4 Horizontal mounting - piping - flow direction left / right

3.4 Vertical mounting

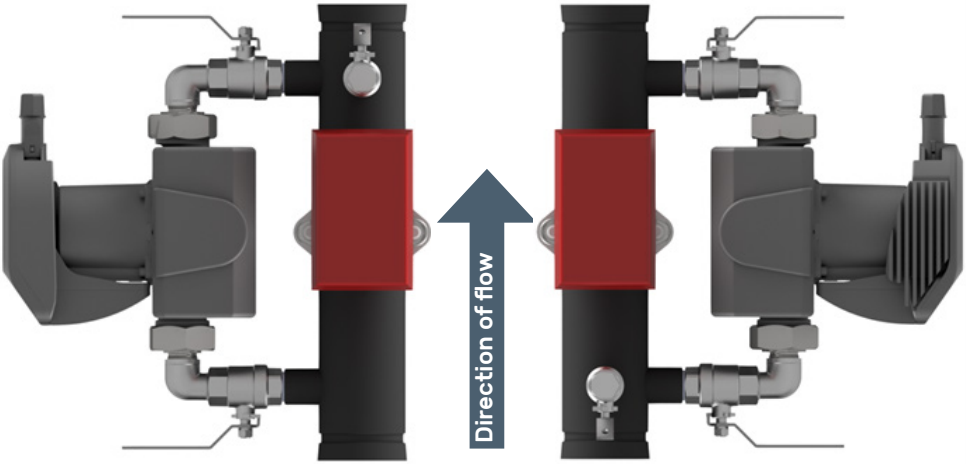

Fig. 5 Vertical mounting, main pipe piping flow direction right / left

Fig. 6 Vertical mounting, main pipe piping flow direction left / right

3.5 Electrical installation

3.5.1 General remark on electrical installation

For work on the electrical installation specialized skills are required. For this reason, such work may only be performed by trained and qualified electricians.

3.5.2 Pump and flow detector/flow switch connection

The pump and flow detector/flow switch are to be connected according to the supplied documents.

3.5.3 Connecting the Zone-Lux® to the key switch

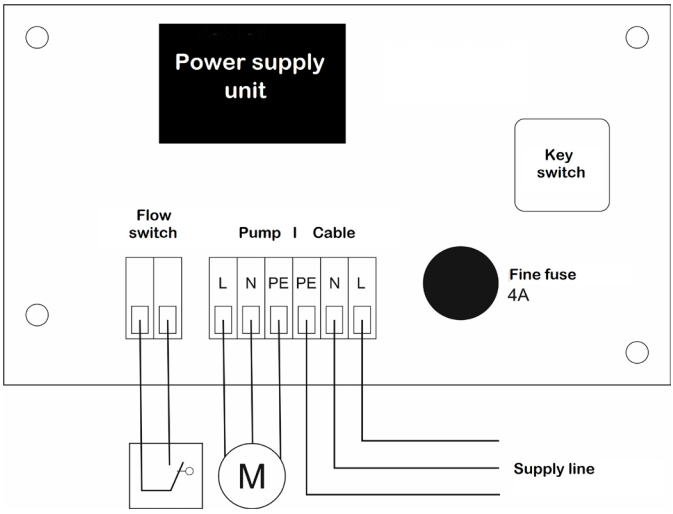

Fig. 7 Key switch connection diagram

4 COMMISSIONING

Fill the sprinkler group with water, ensuring that excess pressure does not exist in the system. Ensure that the ball valves 1 and 3 (Fig. 8) are shut before filling.

If the sprinkler group is under pressure, a large amount of water may come out when air-venting.

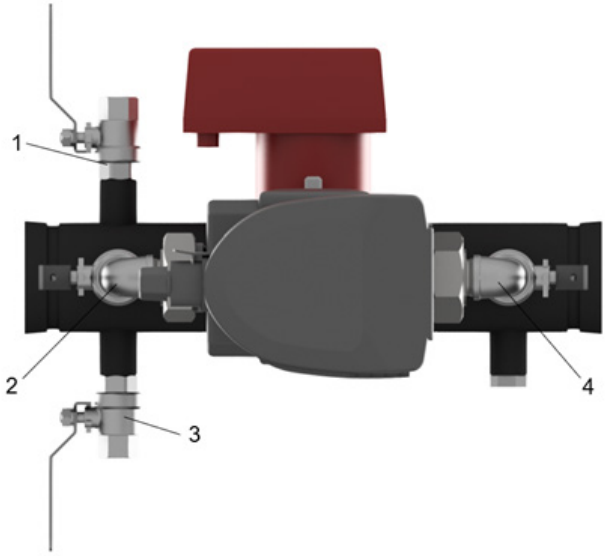

Fig. 8 Overview of main pipe commissioning

It is necessary to vent air in the bypass line with the pump.

» A suitable hose is to be connected to the air-venting valve (1), to catch any water that escapes.
» Open the shut-off valves (2) and (4).
» Open the air-venting valve (1) until water escapes, then close it.
» Perform test cycle on Zone-Lux®.
» If the pump does not run smoothly or if the flow switch does not trigger, vent the air again.

» Check that the valves are in an operation-ready position:
Air-venting valve (1) closed (pictured open)
Water-venting valve (3) closed (pictured open)
Shut-off valves (2) and (4) open.
» Check the system for leaks.

4.1 Performing a test cycle with the Zone-Lux®

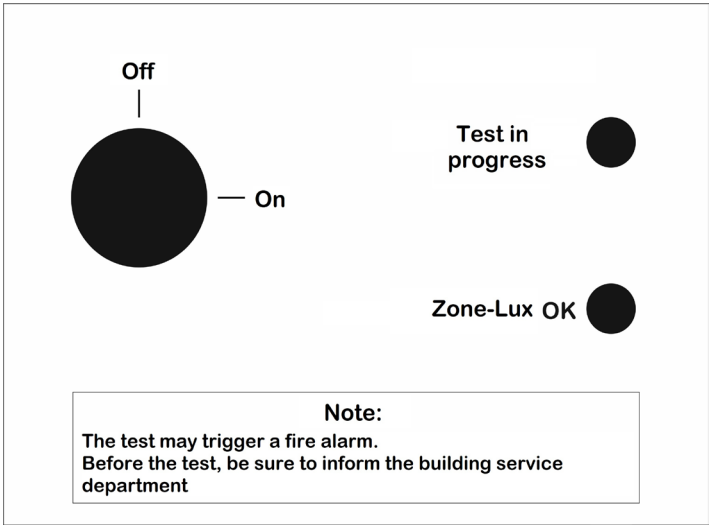

Fig. 9 Cover of key switch

1. Rotate the key switch to the “On” position; the red LED lights up and the pump of the Zone-Lux® is switched on.
2. Feedback from the flow switch is expected within 2 minutes (closed contact on the orange terminals (see Fig. 7)).
3. Once the flow switch trips, the green LED also lights up. The flow switch is only OK if both LEDs light up simultaneously. Ensure that you check whether the relevant fire alarm arrives at the fire alarm control panel. If this is the case, the test was a success and you can set the key switch to the “Off” position. The key can only be pulled out in position “Off”!

5 TECHNICAL SPECIFICATIONS

General	
» Operating pressure	» 16 bar
» Temperature	» 39.2 °F ... 122 °F (4 °C ... 50 °C)

Pipe	
» Length	» 400 mm
» Connection	» grooved

Pump	
»Protection class	» IP44
» Input voltage (nominal)	» 220 ... 240 V AC
» Current (230 V AC)	» 0.43 A
» AC frequency range	» 50 ... 60 Hz

Flow switch	
» Type	» Potter VSR-EU
» Protection class	» IP54
» Operating pressure (max.)	» 16 bar
» Flow sensitivity (VdS)	» 30 ... 57 l/min
» Pressure loss	» ≤ 0.2 bar (3 psi) at 5 m/s (DN 50 ... 100) » ≤ 0.07 bar (1 psi) at 5 m/s (DN 150 ... 200)
» Contact loads	» Two SPDT devices (Form C) » 10.0 A at 125/250 V AC » 2.0 A at 30 V DC resistance » 10 mA min. at 24 V DC

Tab. 2 Technical specifications

5.1 Dimensions and weights

5.1.2 Main pipe

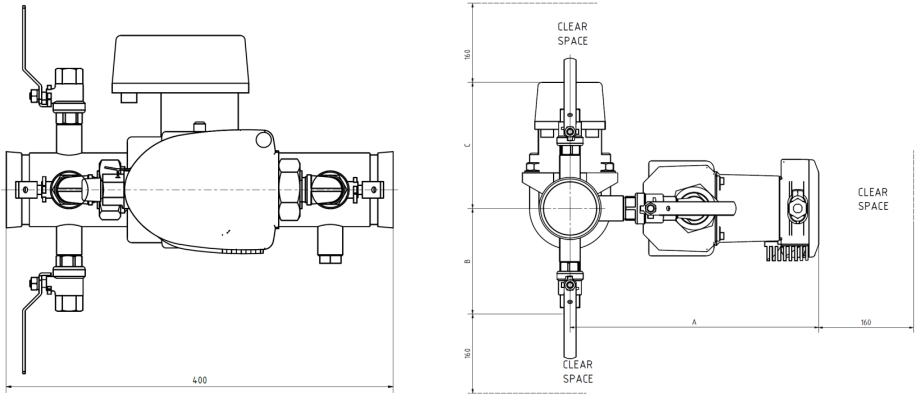

Fig. 10 Main pipe dimensions

Nominal size	External diameter	A	B	C	Weight (kg)
» DN 50	» 60.3	310	140	155	approx. 10.0
» DN 65	» 73.0	320	145	165	approx. 11.0
» DN 65	» 76.1	320	145	165	approx. 11.0
» DN 80	» 88.9	325	150	170	approx. 11.5
» DN 100	» 114.3	340	165	180	approx. 12.0
» DN 125	» 139.7	350	175	195	approx. 12.0
» DN 150	» 165.1	365	190	205	approx. 15.5
» DN 150	» 168.3	365	190	205	approx. 15.5
» DN 200	» 219.1	390	215	230	approx. 22.0

External diameter info, A, B and C in mm

Tab. 3 Dimensions and weights

The pipe length of the Zone-Lux® is 400 mm (for the nominal sizes DN 50 ... DN 150, 50 mm long adapter pieces can optionally be ordered).

5.1.3 Key switch

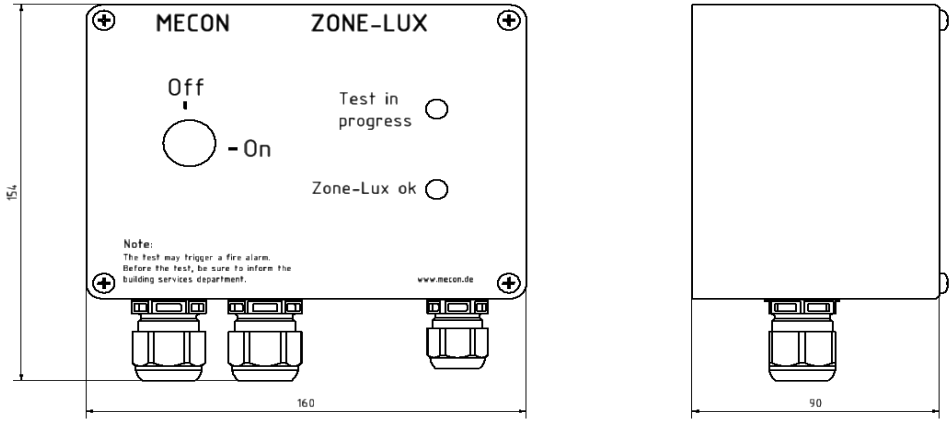

Fig. 11 Key switch dimensions

Key switch	Weight (kg)
» Weight	» approx. 0.8

6 SERVICE

6.1 Storage

The emptied testing system is to be stored dry and dust-free. Avoid direct sunlight and heat. Permissible storage temperatures are -20 ... 60 °C. Avoid external loads on the testing system.

6.2 Maintenance

Should damage be ascertained on the key switch or the Zone-Lux®, the damage is to be evaluated and a check is to be done as to whether the test procedure functions to the full extent. .

6.3 Returning the testing system to the manufacturer

Based on careful manufacturing processes and final inspections on the testing system, problem-free use of the Zone-Lux® can be expected if installed and operated in accordance with this manual.

Should it be necessary to return the testing system to MECON GmbH despite this, the following must be observed:

Attention!

For legal reasons related to environmental protection and work safety, and to protect the health and safety of our employees, all testing systems sent back to MECON GmbH for repair must be free of all toxic and hazardous substances. This also applies to the spaces inside the testing system. If necessary, the testing system must be neutralised or flushed by the customer before sending it back to MECON GmbH.

The customer must confirm this by filling out a related form, which can be downloaded from the MECON GmbH website, and include this form with the returned item:

» ***https://www.mecon.de/en/device-returns/***

6.4 Disposal

Attention!

The pertinent regulations of your country must be complied with when disposing of the testing systems.

6.5 Troubleshooting

No feedback that a flow switch triggered.

» Did feedback arrive at the relevant alarm control panel?
  - o Yes: Check the cable/cable route and signal lamp
  - o No: Check the flow switch and pump. Are all ball valves in the right position (section 4)? Ensure that the flow switch tester was not accidentally switched off.

6.6 Protection and safety related to electrical equipment

After correct installation, all connections have suitable contact-protection. Moreover, all circuits are installed in a sealed housing, and only authorised personnel has access to the operating units. Components that have suitable CE markings are used.
Based on information from the manufacturer, a heat calculation was also performed for the dimensioning of the lines. No hazard due to temperature, heat radiation or electric arcs exists.
The restrictions for the ambient conditions and conditions of use and the fasteners/ mounts as well as installation of the components/housing assume that no mechanical hazards occur and the electric equipment can withstand the expected loads.
If the suitable, specified cable is used, sufficiently safe insulation can be assumed.

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