

Installation and commissioning instructions

Ex-Electrode relay XR-4x0, XR-4x1

Important safety instructions please read and note !

The precondition for a perfect and safe operation of the electrode relays are proper transport, storage and mounting, professional installation and commissioning, operation as intended and maintenance.

These activities may only be carried out by persons with the necessary expertise and qualifications. The relevant safety regulations for the assembly and operation of electrical equipment and the assembly requirements for **equipment in Ex-areas** must be complied with.

Please contact the manufacturer if the information included in these instructions is not adequate in some way. In addition, the EC-Type Examination Certificate **TÜV 10 ATEX 555760** has to be considered.

Electrical connection

The operating voltage must lie within the voltage range of the XR-4x0, XR-4x1. The electrical connection must be made while without power. In case of activated line monitoring, probes with **built-in line break resistor (100k)** must be used.

Mounting

XR-4x0 and XR-4x1 electrode relay modules are intended for mounting on standard mounting rails 35mm according to DIN EN 50 022. The maximum ambient temperature of the electrode relay (see technical data) must not be exceeded at the place of installation.

Connection of the electrodes

Electrode for channel 1:
must be connected to the terminals **E0** (reference electrode), **E1** (Max) and **E2** (Min).

Electrode for channel 2:
must be connected to the terminals **E5** (reference electrode), **E6** (Max) and **E7** (Min).

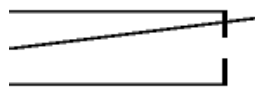
Note:

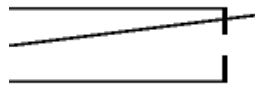
Care must be taken when installing the sensor line that it is installed with adequate distance to power cables. If this is not possible, the use of a shielded cable can reduce interference from coupling.

Connection of supply voltage

Make the electrical connection according to the imprint on the enclosure cover at the terminals identified with **A1(+)** and **A2(-)**; refer to the type plate for the voltage. According to EN 61010-1, all-pole disconnection is to be provided in the building installation which must be accessible as disconnecting device – marked as such – near the electrode relay. Over-current protection of the devices is provided by a fuse matching the supply voltage.

Connection of the potential-free output contacts

Device	Terminal	Assignment	Relay not actuated/released
XR-41x Channel 1	12	NC Normally closed contact	
XR-42x Channel 1	11	COM Common port	
	14	NO Normally open contact	

XR-41x Channel 1	22	NC Normally closed contact	
XR-42x Channel 2	21	COM Common port	
	24	NO Normally open contact	

As output are two potential-free change over contacts available at each channel on the XR-41x and one potential-free at each channel are available on the XR-42x.

Display elements / control elements:

LED GREEN "PWR"	LIGHTING	Ready for operation
	DARK	Power failure
LED RED "ERR"	LIGHTING	Line fault (active only when DIP switch 3 is in ON position)
	DARK	No line fault, otherwise DIP switch 3 is in OFF position
LED YELLOW "OUT"	LIGHTING	Max-electrode immersed
	LIGHTING	Min-electrode still immersed (at min-max control)
	DARK	No electrode immersed

Function button

Relays XR-4x1 are equipped with an alarm memory. This means, the alarm is stored until the cause of the fault was corrected and the alarm acknowledged with the button on the front of the relay.

Optionen

The desired device function can be made at the 4-pole DIP switch after opening the device being **without power**. To prevent damage caused by electrostatic discharge at circuit parts, the adjustment must be carried out with anti-static tools.

DIP-Switch for Channel 1		Switch 1
Switch 1: OFF and switch 2: OFF	Switching delay approx. 0,2 sec.	
Switch 1: ON and switch 2: OFF	Switching delay approx. 2 sec.	
Switch 1: OFF and switch 2: ON	Switching delay approx. 4 sec.	
Switch 1: ON and switch 2: ON	Switching delay approx. 10 sec.	
Switch 3: ON = Line monitoring ON	OFF = Line monitoring OFF	
Switch 4: ON = closed-circuit current	OFF = operating current	
DIP-Switch for Channel 2		Switch 2
Switch 1: OFF and switch 2: OFF	Switching delay approx. 0,2 sec.	
Switch 1: ON and switch 2: OFF	Switching delay approx. 2 sec.	
Switch 1: OFF and switch 2: ON	Switching delay approx. 4 sec.	
Switch 1: ON and switch 2: ON	Switching delay approx. 10 sec.	
Switch 3: ON = Line monitoring ON	OFF = Line monitoring OFF	
Switch 4: ON = closed-circuit current	OFF = operating current	

Commissioning / Setting

In the delivery state all DIP switches are set to OFF, and the potentiometer set to minimum sensitivity. For the 2-channel devices the setting can be made separately for each channel. Set the desired device function on the DIP switches and then close the device housing correctly.

After the device setting, the connection of the electrodes and the supply voltage, the electrode relay must be set to the medium to be detected. For this purpose, first the sensitivity is set to the minimum value (Turn potentiometer with a screwdriver to the left stop - max. 25 revolutions).

With the immersed electrodes in the medium ("Max" and "Ground"), now the potentiometer must be turned to the right, until the yellow LED lights up. If this setting is found, the potentiometer is still turned by approx 1 turn to the right, to be with fluctuating conductivity in the safe switching area. This setting is applied to both channels.

Function control

To check the function, immerse the to the relay connected electrodes in the medium. The switching function is to check for each channel on the status LEDs (yellow) at the relay and to the downstream devices or warning devices.

Maintenance / cleaning


The relay does not require any special maintenance beyond the general inspection / function check of the electrical system.

Technical data

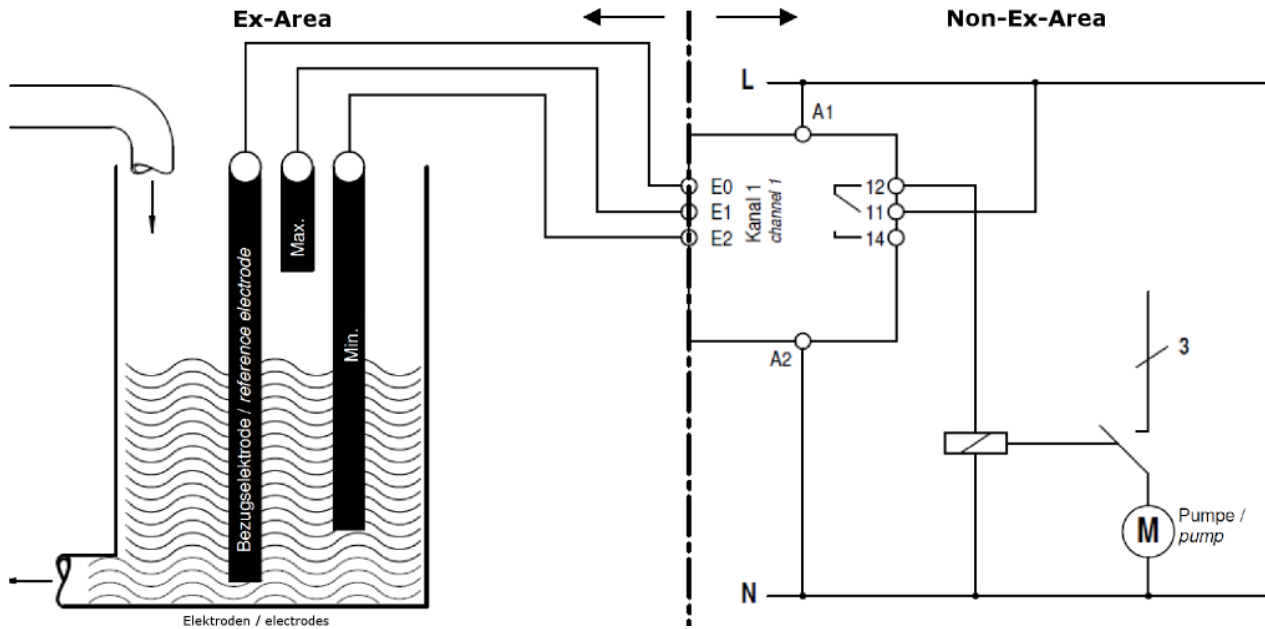
Electrical Data:	See EC-Type Examination Certificate TÜV 10 ATEX 555760
Dimensions WxDxH:	<u>XR-4xx-B</u> : 22.5 x 114,5 x 99mm, <u>XR-4xx-C</u> : 22.5 x 114,5 x 112mm
Measuring range	2 kOhm ... 300 kOhm
Line break resistance	100 kOhm (only if line monitoring is activated)
Storage temperature:	- 30 ... + 80 °C
Operation temperature:	- 20 ... + 60 °C
System of protection:	Terminals IP 20; Housing IP 40

Type key

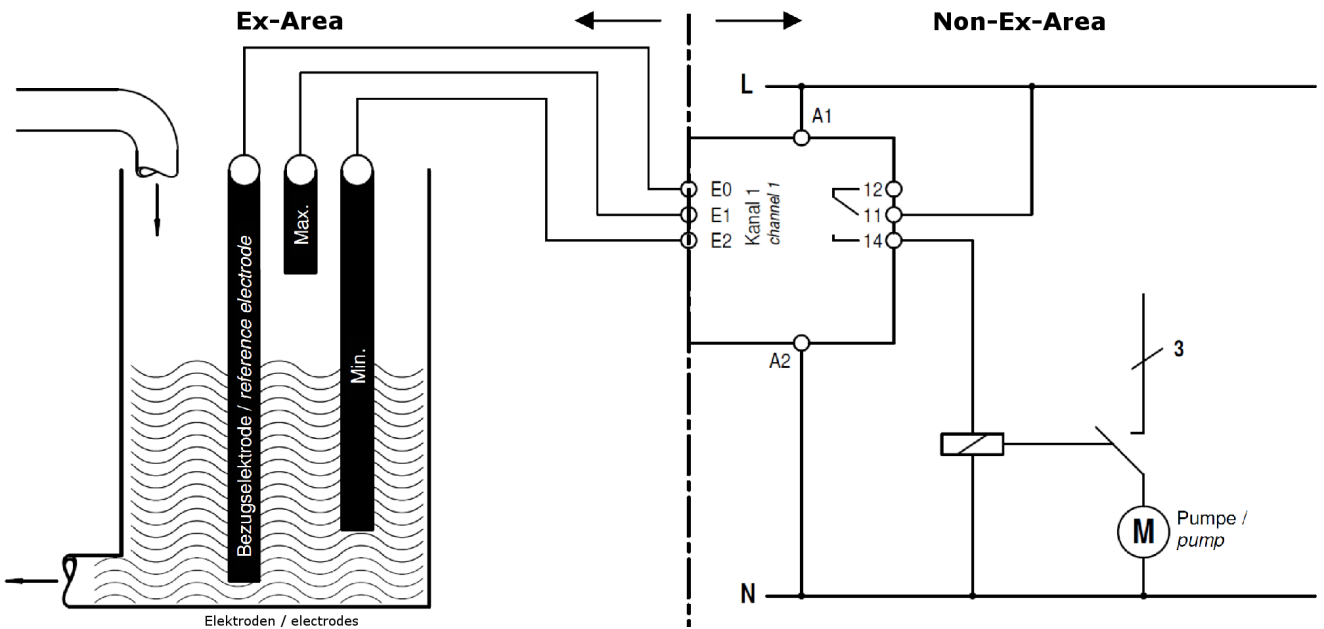
Basic designation

<p>Number of channels 1 = 1 channel 2 = 2 channels</p> <p>Option 0 = Without acknowledgement-button (standart) 1 = With acknowledgement-button</p> <p>Housing B = Plugged clamps (for screwing) C = Plugged clamps (spring force)</p> <p>Output 1 = 1 change-over contact (2 channel version) 2 = 2 change-over contacts (1 channel version)</p> <p>Switching delay 0 = 0,2 - 2 - 4 - 10 seconds adjustable</p> <p>Sensitivity range 1 = 2...300 kOhm 2 = 8...800 kOhm 3 = 0,2...3 kOhm</p> <p>Supply voltage 0 = 24 V DC 6 = 230 V DC 9 = 20...230 V AC/DC multi voltage power supply unit</p> <p>Construction form without indication = 22,5 mm mounting rail K = 19" board version B = Bus connection option at 24 V DC</p> <p>Optional: SIL „saftey integrity level“ TÜV NORD 4479912399841-013 1 = SIL 1 2 = SIL 2</p>	
--	---

Connection examples XR-41x

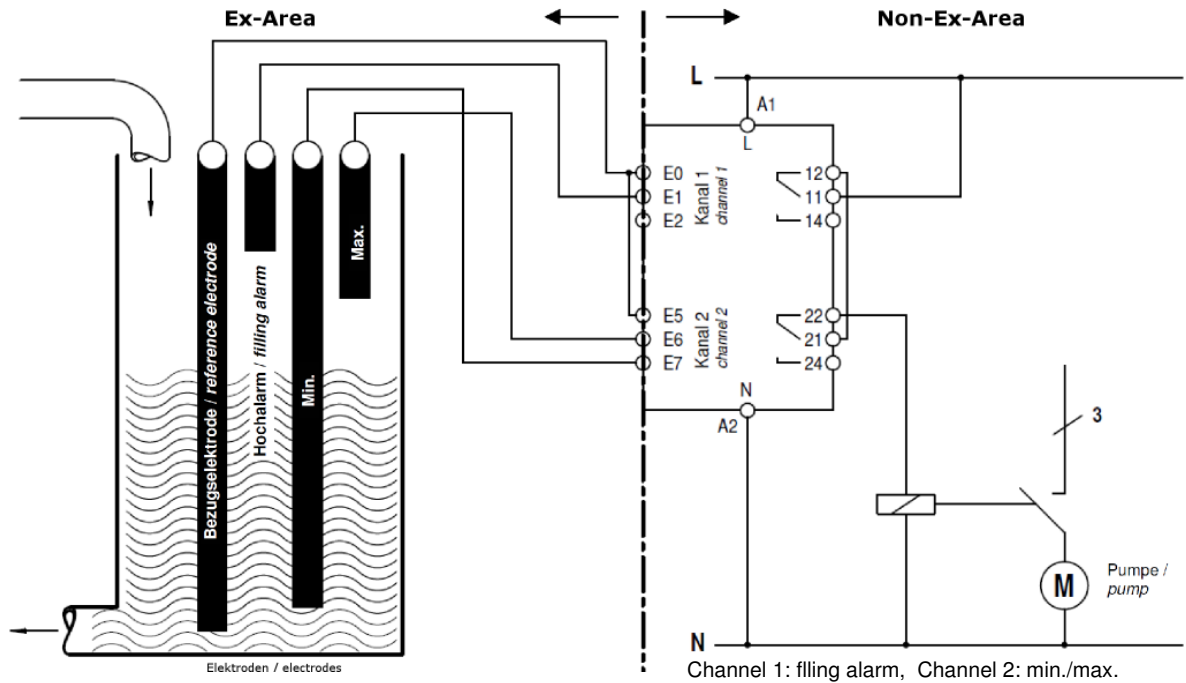


Closed circuit current: min./max.; fill the container

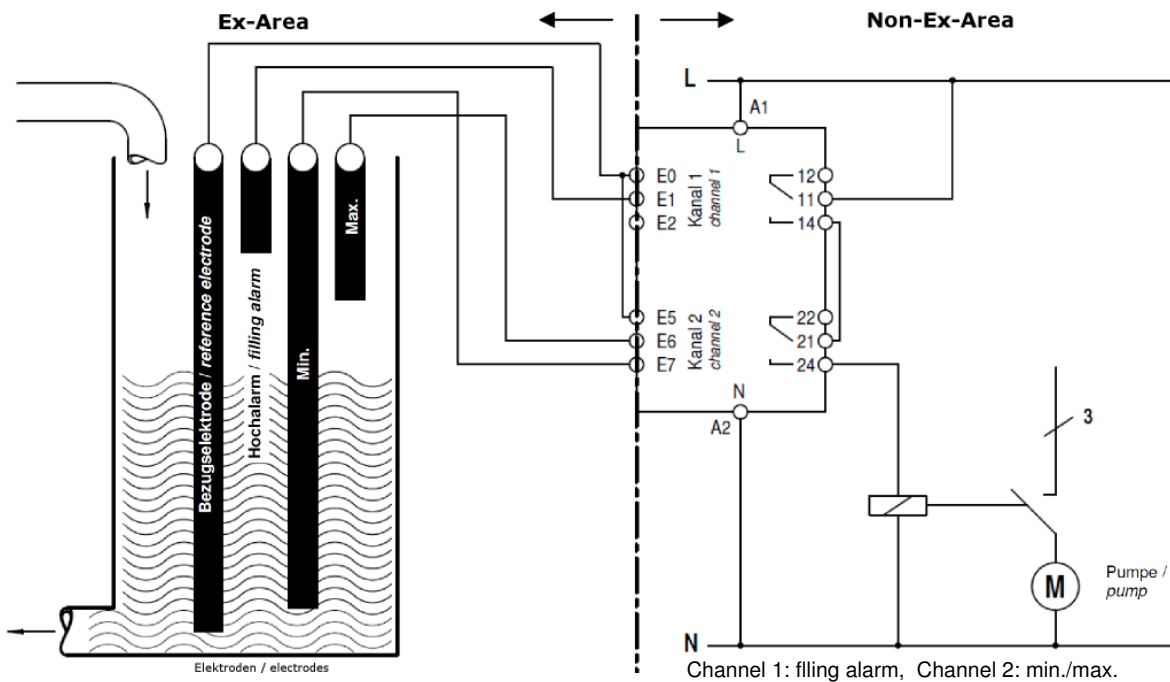


Operating circuit current: min./max.; fill the container

Connection examples XR-42x



Closed circuit current: fill the container



Operating circuit current: fill the container