Leckstar 101/G conductive electrode relay

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The units described in this documentation may only be installed, connected, started up, serviced and replaced by suitably qualified personnel!

Subject to deviations from the diagrams and technical data.

The details in this brochure are product specification descriptions and do not constitute assured properties in the legal sense.

Leckstar 101/G conductive electrode relay

Table of contents

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without DIBt certificate

- **with cable break monitoring feature and with automatic self-hold in case of leakage alarm**
- **for the connection of 1 conductive electrode with Z10 cable break monitoring unit**
- **with touch sensor button for alarm acknowledgement/reset**
- **with 2 potential-free changeover contacts at the output and**
- **with 1 status signal output DC 20 V for the building control system (for optional use)**

Electrode relay in surface-mount housing, with transparent cover, with 3 LEDs for operating status indication and with 1 LED for acknowledgement status indication, inside the housing

- **Signalling line with common system ground with the status signal output (for optional use)**

The Leckstar 101/G electrode relay possesses an input for the connection of one signalling line.

A signalling line consists of one or more conductive electrodes. If electrodes designed for this purpose are used, it is possible to connect several electrodes one after the other to permit cable break monitoring at any point along the line route. At the end of the signalling line there is an electrode with integrated Z10 cable break monitoring unit. None of the other electrodes in the signalling line may be equipped with an integrated cable break monitoring unit.

In principle, the conductive electrodes consist of a pair of sensitive elements in the form of electrode plates, electrode rods or electrode ropes. One sensitive element is the control electrode and the other the ground electrode.

The electrode circuit is supplied with a safety extra low voltage generated in the Leckstar 101/G which is reliably galvanically separated from the mains circuit and the potential-free changeover contacts of the two output relays.

The signalling line and the status signal output (for optional use) have a common system ground, which means there is no galvanic separation between them. This factor must always be taken into account in the case of long signalling lines extending into different parts of the building and in particular with the use of cable, tape, twin or mat electrodes. There is a risk of formation of ground loops if the electrodes are mounted in such a way that an electrode can take on ground potential. It may be necessary to perform local potential equalisation in order to avoid potential equalisation currents via the signalling line. In case of using the status signal output please refer to the relevant standards and directives for insulation coordination and surge protection.

• Type of indication
A group of 3 LEDs of different colours is assigned to the signalling line.

Operating status	Type of indication
Power supply	When the supply voltage is switched on, the relay first indicates standby status. Then one of the three LEDs of the signalling line lights up to indicate the operating status.
Leakage	Red LED lights, if the signalling line reports leakage • with effect on the two power circuits • with effect on the DC 20 V status signal output for the building control system (for optional use)
Standby	Green LED lights, if the signalling line reports standby • with effect on the two power circuits • with effect on the DC 20 V status signal output for the building control system (for optional use)
Cable break	Yellow LED flashes, if the signalling line reports cable break • with effect on the two power circuits • with effect on the DC 20 V status signal output for the building control system (for optional use)

• Power circuits
Two potential-free changeover contacts are available at the output, one of which reacts based on the working current principle and the other on the quiescent current principle. In addition, there is a DC 20 V binary status output signal based on the quiescent current principle for the building control system (for optional use). The potential-free changeover contact based on the working current principle can be acknowledged/reset via a touch sensor button acting through the housing cover of the unit.

Power circuits	Switching statuses
Output relay 1 in working current principle	Output relay 1 is not energised in currentless status of the Leckstar 101/G and in the standby status of the signalling line. In the event of leakage or cable break, output relay 1 is energised if the alarm has not been acknowledged/reset. Output relay 1 can be acknowledged/reset using the touch sensor button.
Output relay 2 in quiescent current principle	Output relay 2 is energised in standby status of the signalling line. Output relay 2 is not energised in currentless status of the Leckstar 101/G and in the case of leakage or cable break.
1 status signal output (DC 20 V) for the building control system (for optional use)	A DC 20 V binary switching status output signal in quiescent current principle is available for the signalling line: High signal, DC 20 V = standby status of the signalling line Low signal, DC 0 V = • currentless status of the Leckstar 101/G or • leakage or cable break in the signalling line The output is short circuit-protected and has a common reference ground with the signalling line. There is no galvanic separation with the signalling line.

Technical data	Leckstar 101/G
Supply voltage (terminals 1 and 2)	AC 230 V, other supply voltage, e.g. DC 24 V, on request
Power consumption	approx. 3 VA
Electrode circuit (one of the two ground terminals = ground and E1 = control input)	1 terminal under safety extra low voltage, with a common ground connection with the status signal output. Local potential equalisation is to be performed to avoid ground loops in critical installations.
No-load voltage	18 V_{eff} ⎍ 10 Hz (safety extra low voltage SELV)
Short circuit current	max. 0.5 mA_{eff}
Response sensitivity	approx. 30 kΩ or approx. 33 µS (conductance), other response sensitivities for special applications on request
1st power circuit (output relay 1 - terminals 3, 4, 5)	1 single-pole potential-free changeover contact based on the working current principle, for group alarm in the event of leakage (with self-hold) or cable break (without self-hold), can be acknowledged via the touch sensor button
2nd power circuit (output relay 2 - terminals 6, 7, 8)	1 single-pole potential-free changeover contact based on the quiescent current principle, for group alarm in the event of leakage (with self-hold, when output relay 1 has not yet been acknowledged) or cable break (without self-hold)
Electrical values of the potential-free changeover contacts:	**Due to the compact design and the resulting low clearance and creepage distances between the two output relays, only voltages with the same protection class are permitted to be connected to both changeover contacts: either a supply voltage or a safety extra low voltage, however not combined.**
• switching voltage	max. AC 250 V
• switching current	max. AC 4 A
• switching capacity	max. 500 VA
Status signal output for the building control system for optional use (one of the two ground terminals = ground and A1 = control output)	1 terminal under safety extra low voltage for DC 20 V binary switching status output signal without mutual galvanic separation to the electrode circuit, with a joint ground connection. **For connection to the building control system (e.g. PLC) opto-couplers should be fitted for the purpose of galvanic separation.** Standby of the signalling line: High signal (DC 20 V) Leakage/cable break in the signalling line: Low signal (DC 0 V)
No-load voltage	DC 20 V (sufficient for 24 V inputs, as at least 15 V are normally required for High signal)
Short circuit protection	short circuit current limitation with ≤ 30 mA

Technical data	Leckstar 101/G
Switching status indication for the signalling line	optical indication by 3 differently coloured LEDs
• the red LED lights up	**Leakage** output relay 1 is energised (working current principle) output relay 2 is not energised (quiescent current principle) output signal for the building control system is at Low signal (quiescent current principle)
• the green LED lights up	**Standby** output relay 1 is not energised (working current principle) output relay 2 is energised (quiescent current principle) output signal for the building control system is at High signal (quiescent current principle)
• the yellow LED flashes	**Cable break** output relay 1 is energised (working current principle) output relay 2 is not energised (quiescent current principle) output signal for the building control system is at Low signal (quiescent current principle)
Housing	insulating material, approx. 130 x 94 x 57 mm, with 3 cable entries 2 special seals are delivered for introduction of 2 sheathed cables of Ø 5 mm each in one cable entry
Connection	inside terminals
Protection class	IP54
Mounting	surface mounting using 4 screws
Mounting orientation	any
Temperature range	– 20°C to + 60°C
Max. length of signalling line	1,000 m between electrode relay and Z10 cable break monitoring unit
EMC	• for interference emission in accordance with the appliance-specific requirements for households, business and commerce as well as small companies • for interference immunity in accordance with the appliance-specific requirements for industrial companies

• Automatic self-hold function

In the event of leakage: An alarm will be stored. The electrode relay continues to signal the alarm even if the cause of the alarm (e.g. the presence of water) is no longer present, in other words if the electrode is dry again.

In the event of cable break: An alarm will not be stored, that means that the alarm signal will automatically be cancelled as soon as the cable is reconnected.

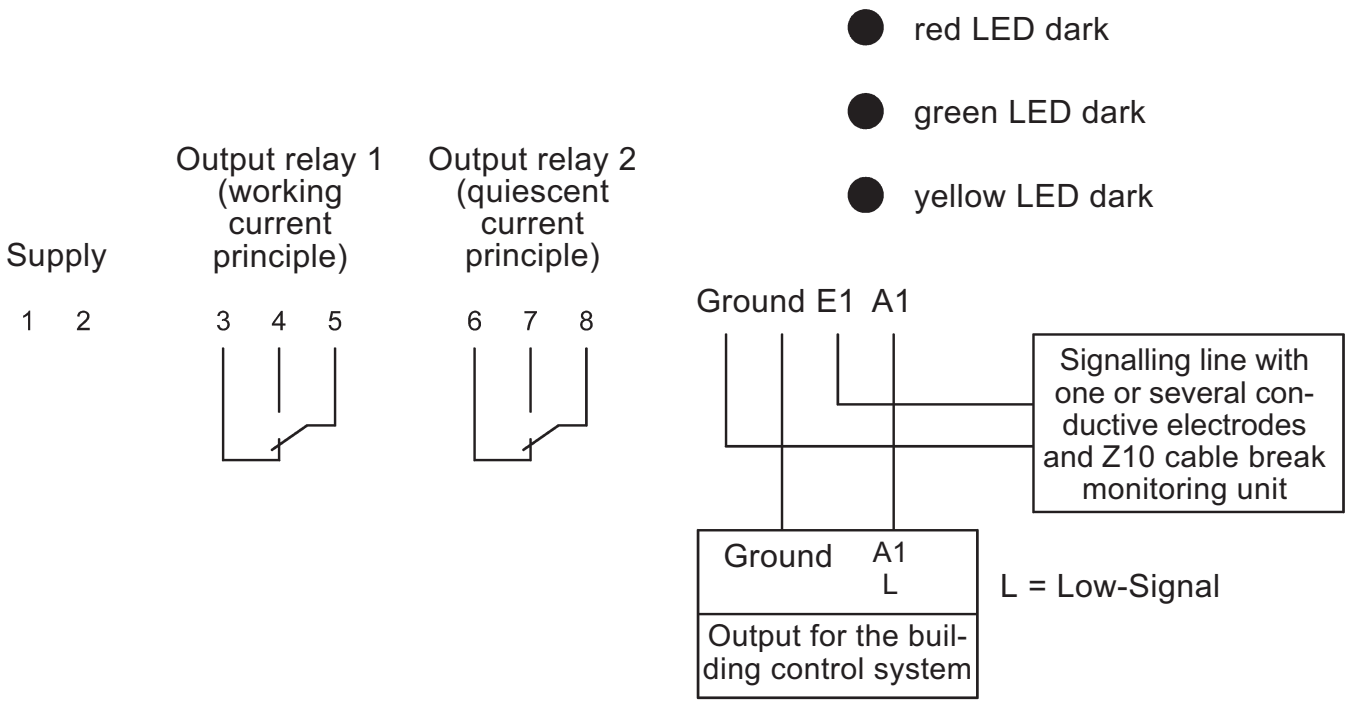
• Acknowledgement/reset via touch sensor button

In the event of leakage: In this case (red reset LED flashes) output relay 1 can be acknowledged/reset (red reset LED then reverts to steady) and output relay 2 remains in its initial position.
If the cause of the alarm is no longer present, both output relays can be acknowledged/reset (red reset LED is then dark). If output relay 1 has already been acknowledged/reset during an alarm status, output relay 2 will then automatically be reset as soon as the alarm reason disappeares.

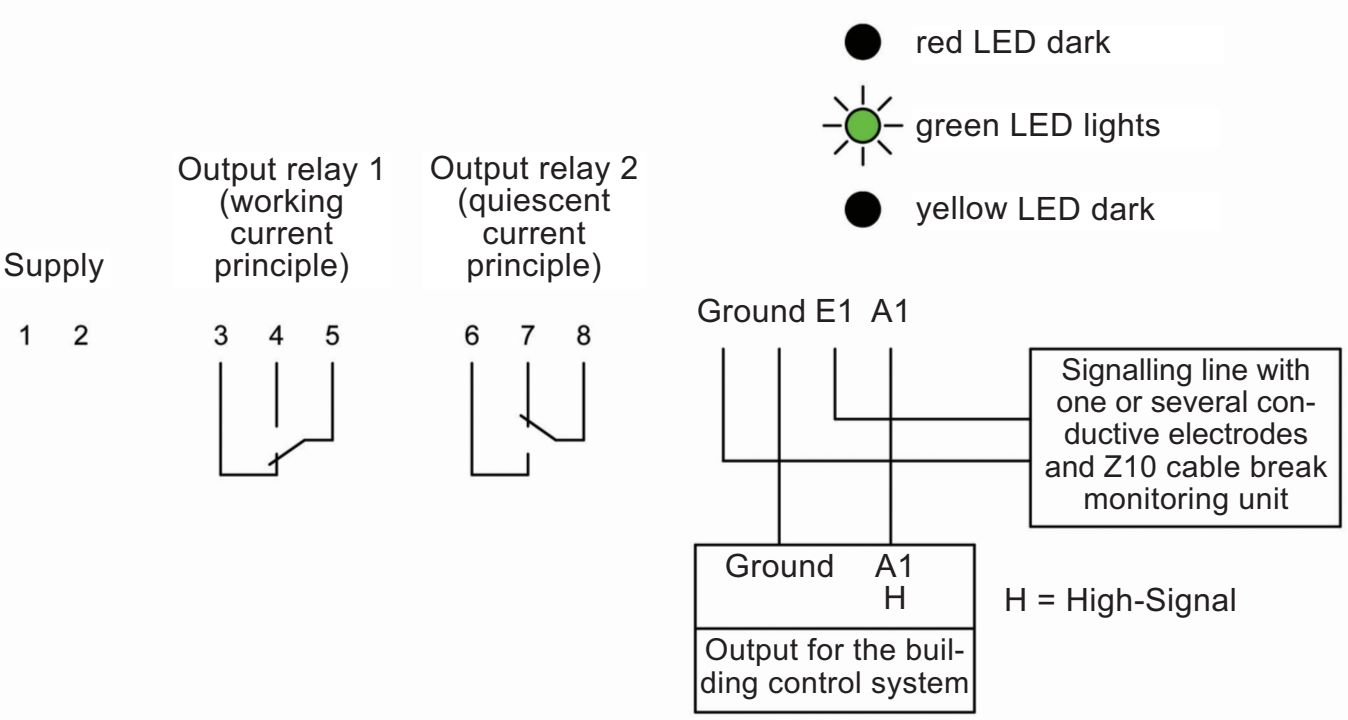
In the event of cable break: In this case (red reset LED flashes) output relay 1 can be acknowledged/reset (red reset LED then reverts to steady) and output relay 2 remains in its initial position.
Both output relays are automatically reset when the cause of the alarm is no longer present (red reset LED is then dark).

Position of the output contacts of the Leckstar 101/G electrode relay

Without voltage

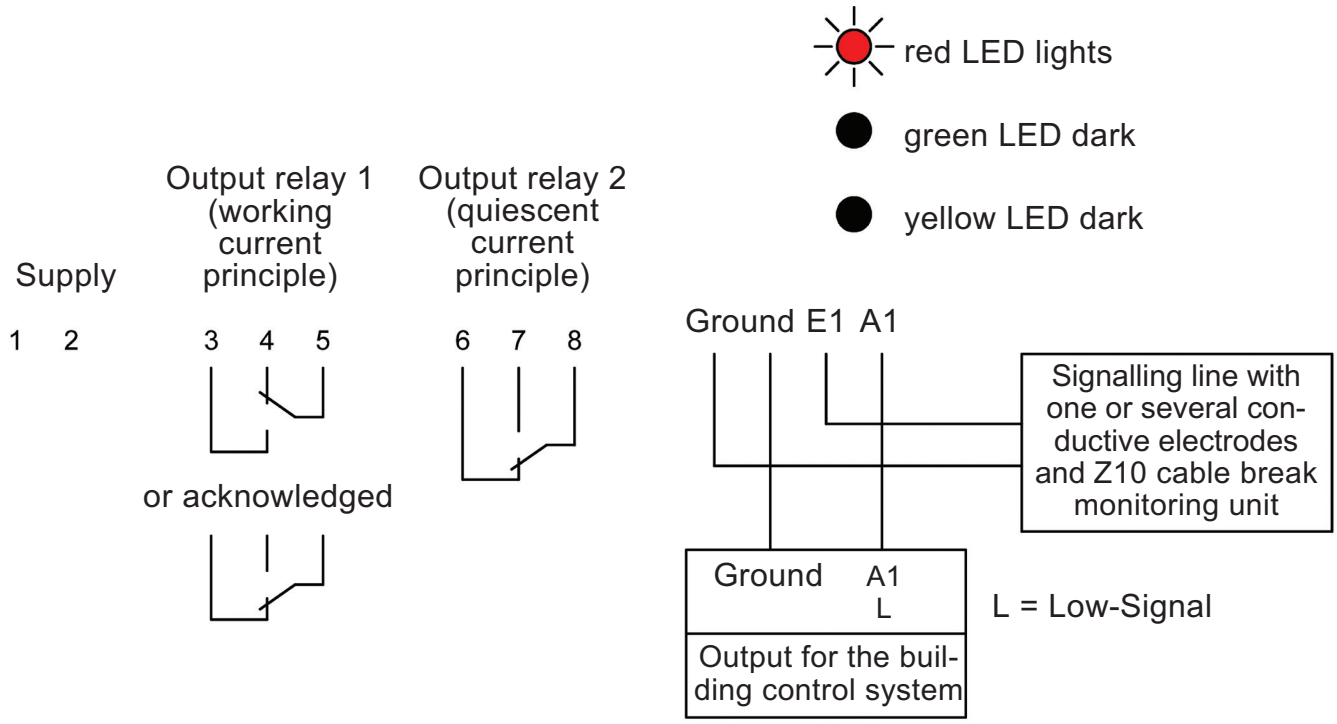


Standby status

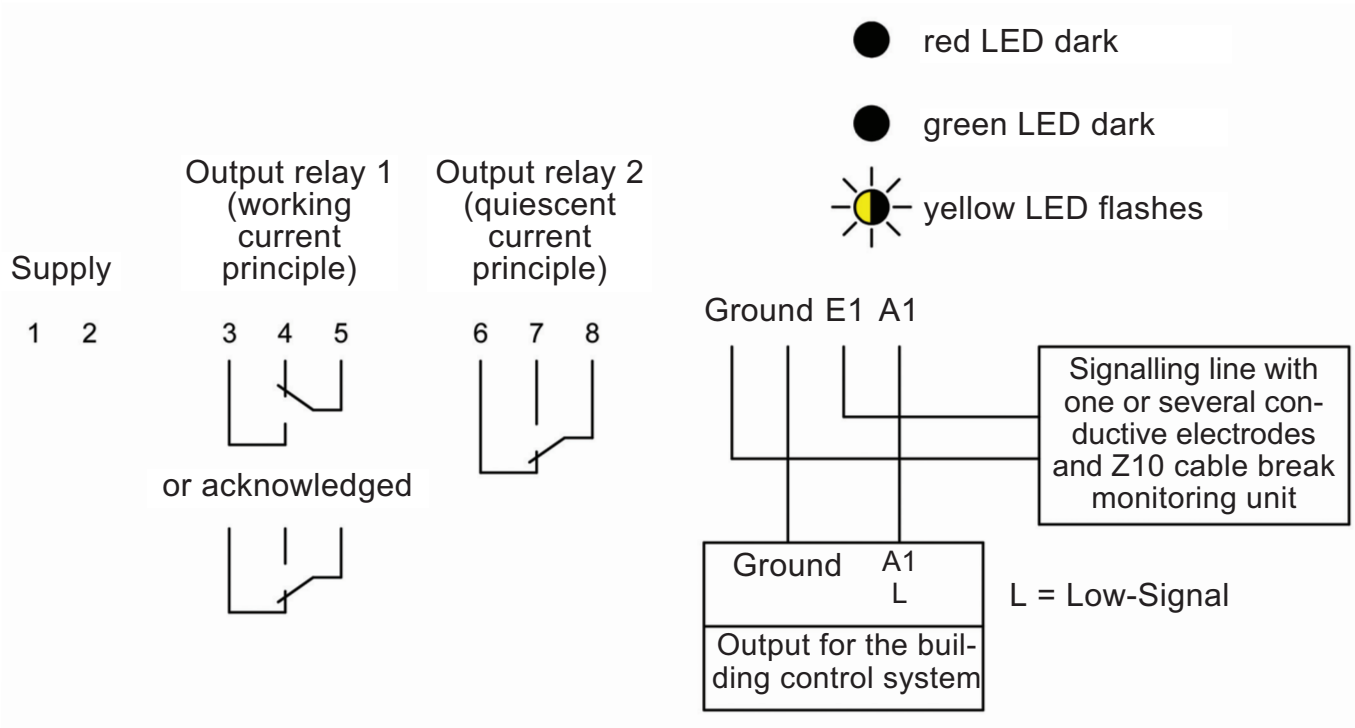


Position of the output contacts of the Leckstar 101/G electrode relay

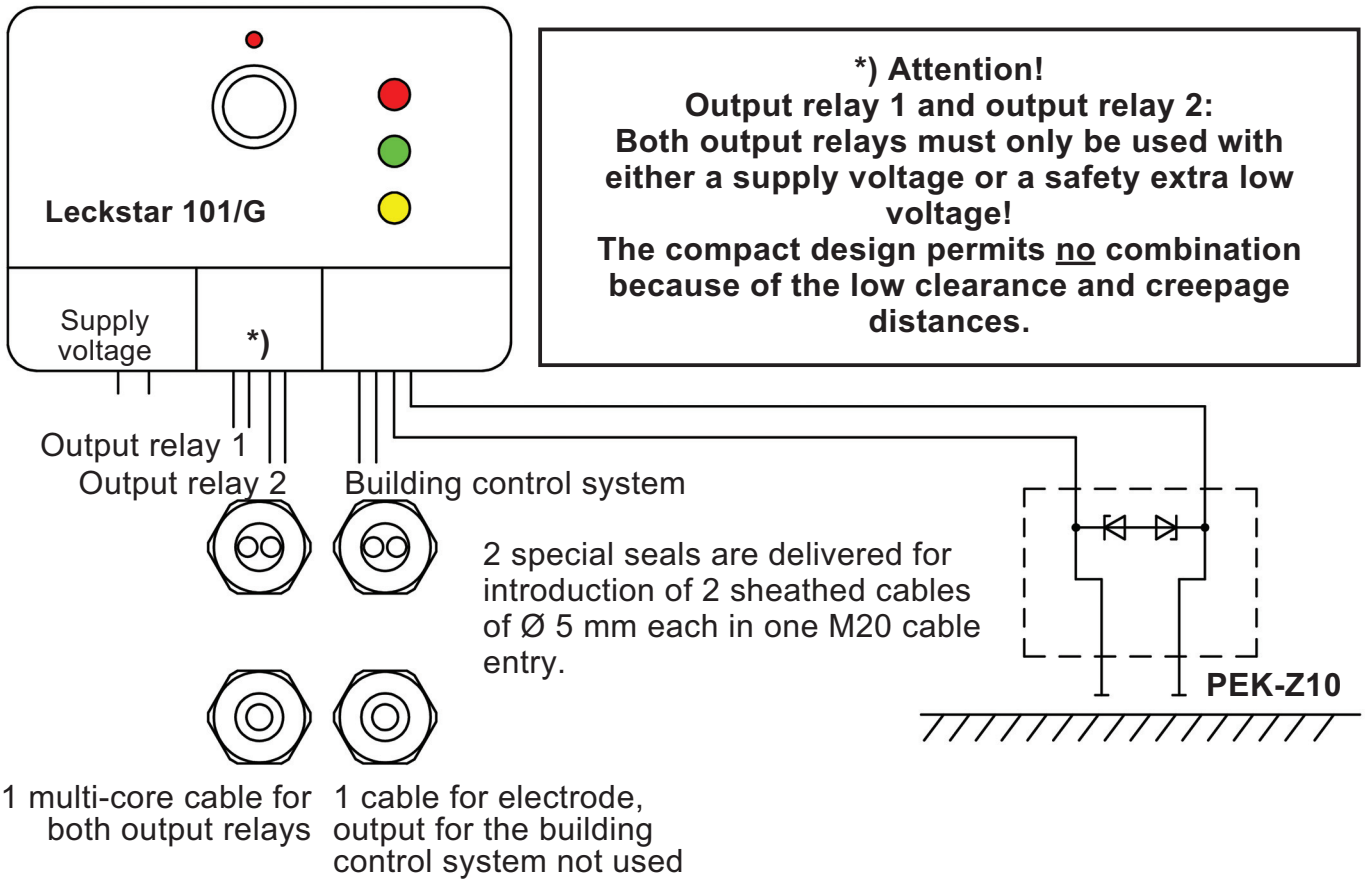
Leackage



Cable break

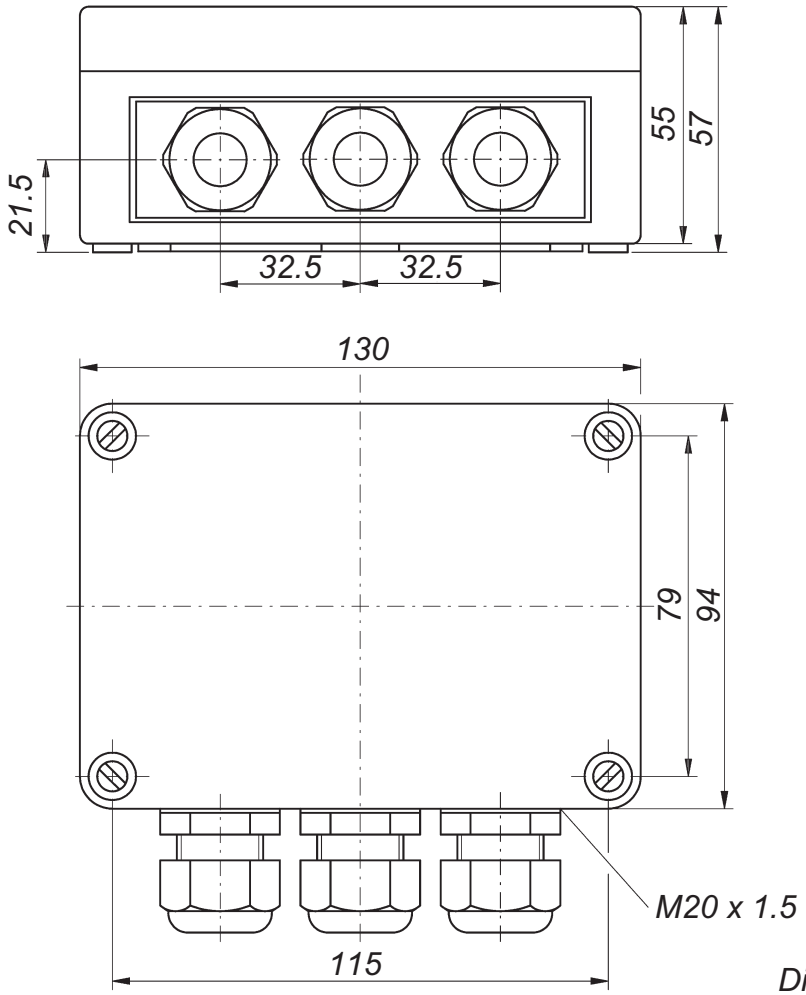


Connection diagram Leckstar 101/G electrode relay



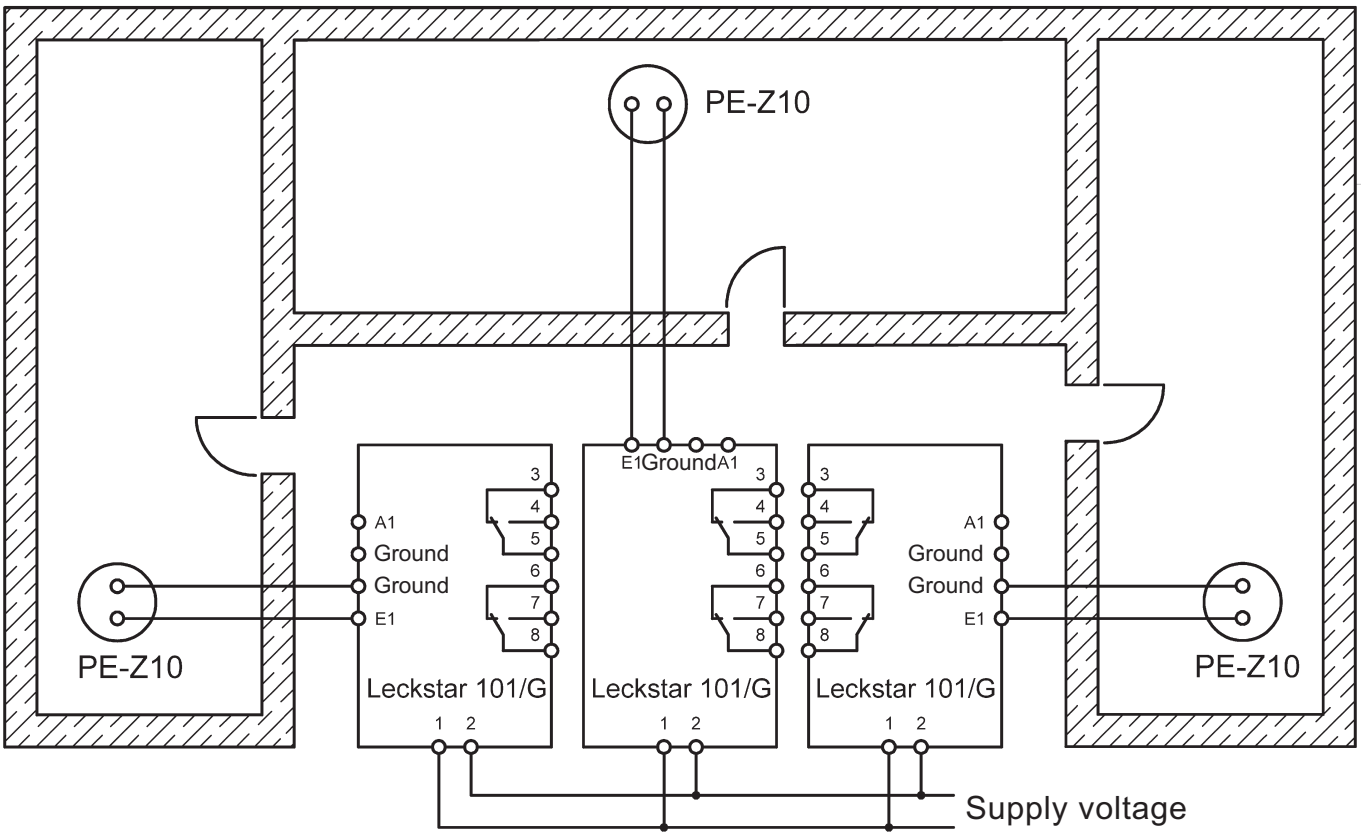
***) Attention!**
Output relay 1 and output relay 2:
Both output relays must only be used with either a supply voltage or a safety extra low voltage!
The compact design permits no combination because of the low clearance and creepage distances.

Dimensions Leckstar 101/G



Dimensions in mm

Connection diagrams (position of contacts when Leckstar 101/G without voltage)



Connection of several plate electrodes to several Leckstar 101/G electrode relay – separate alarm

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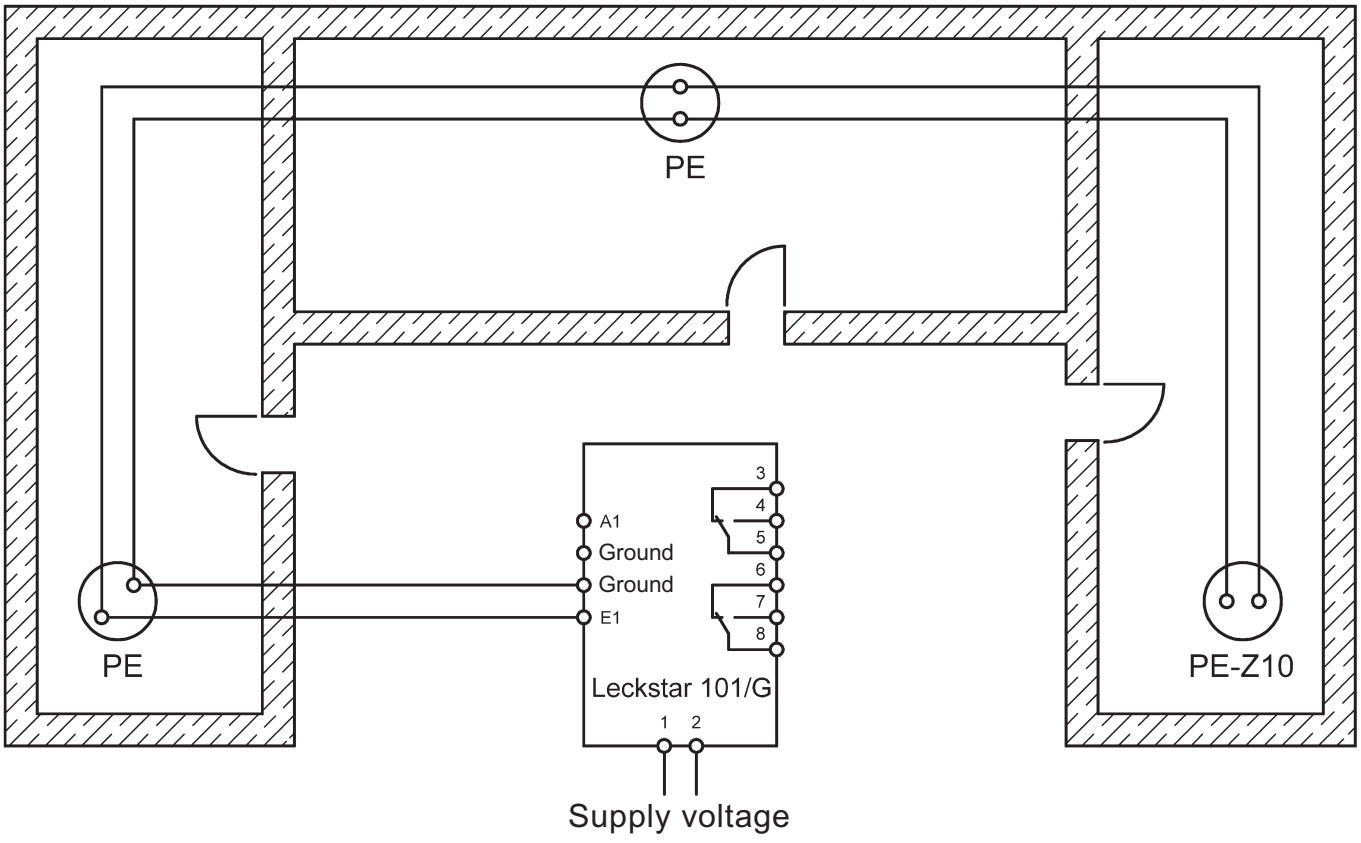

Connection of several plate electrodes to one Leckstar 101/G electrode relay – group alarm

Connection diagrams:
Connection of several electrodes to one Leckstar 101/G electrode relay