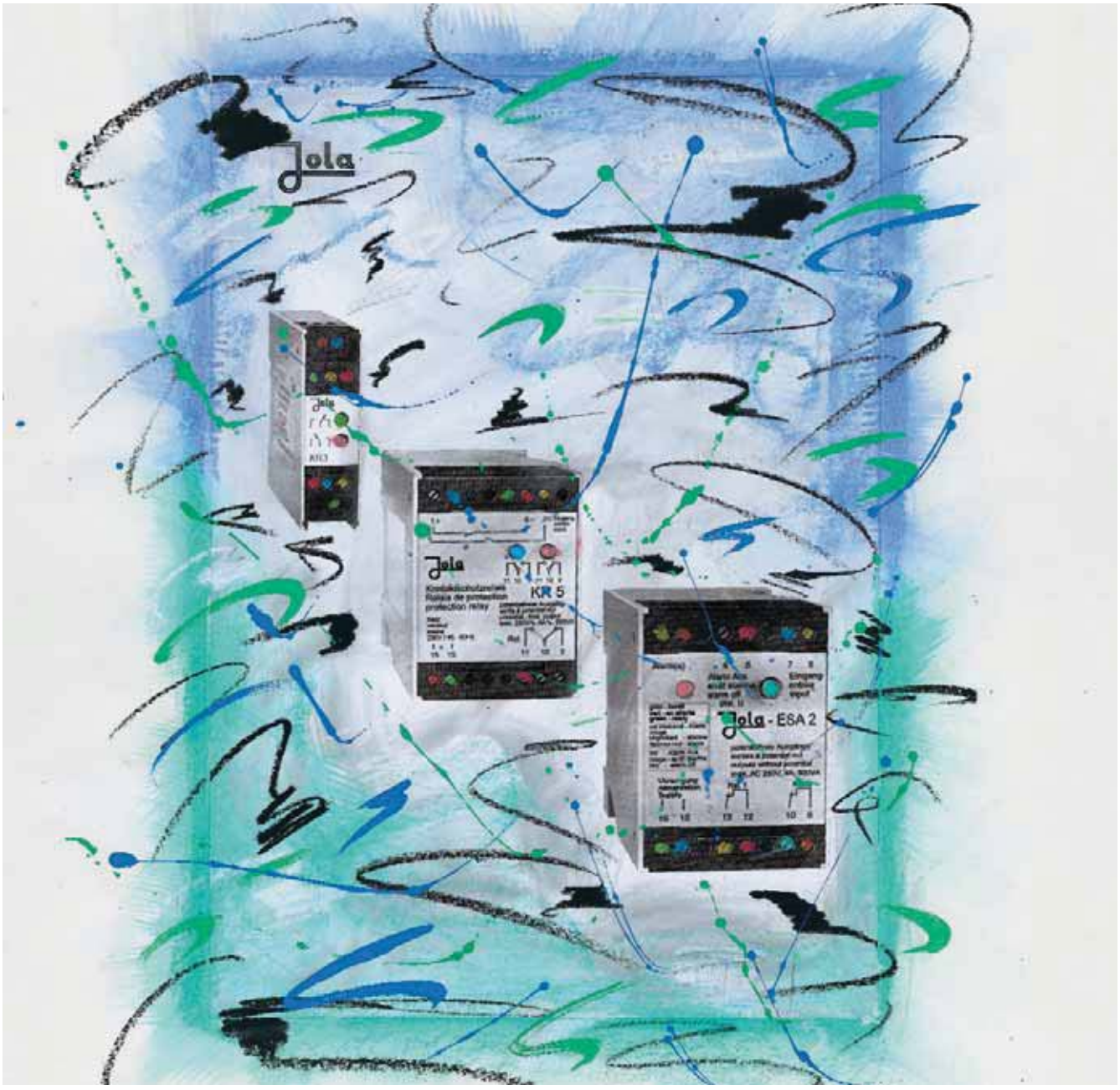
Jola-Protection relays

for connection of binary sensors
(e.g. Jola floating switches or Jola immersion probes) or
for connection of Namur-sensors
(e.g. inductive or capacitive proximity sensors)
and

Jola-Alarm relays

for connection of several relays to one alarm relay or
for connection of binary sensors
(e.g. Jola floating switches or Jola immersion probes)



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KR 3 and KR 3 A protection relays

for signalling a limit level (1 sensor) or for two-point control (2 sensors)

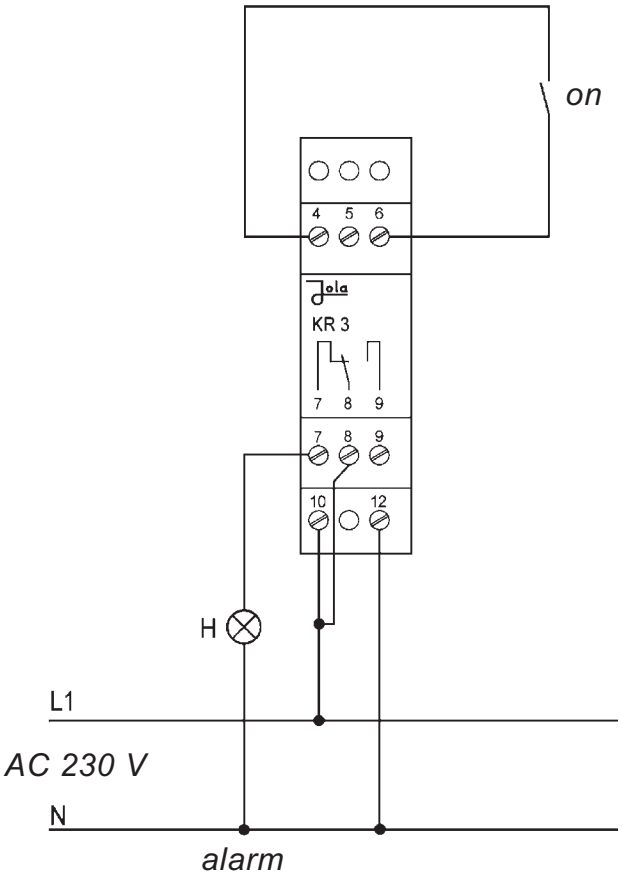
Protection relay for U-bar mounting, with connection terminals on top of housing and with 2 built-in LEDs for signalling the respective switching status.

These appliances are designed for switch cabinet installation or mounting in an appropriate protective housing and may therefore not be installed in other locations. They are only suitable for use in clean environments.

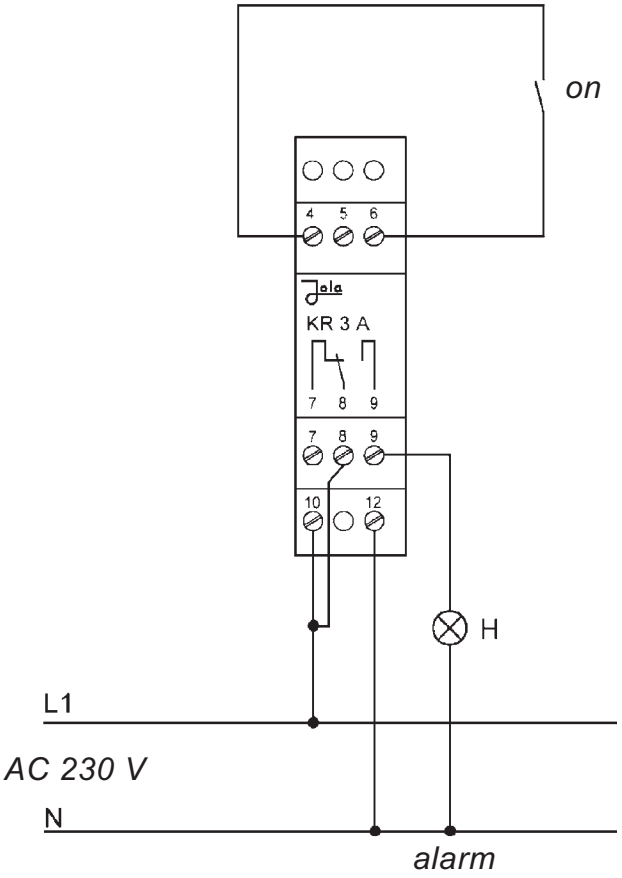
Technical data	KR 3 | KR 3 A
Alternative supply voltages (AC versions: terminals 10 and 12; DC versions: - terminal 10: – - terminal 12: +)	- AC 230 V (delivered if no other supply voltage is specified in the order) or - AC 240 V or - AC 115 V or - AC 24 V or - DC 24 V or } in these two cases, the unit must only be connected - DC 12 V or } to a low safety voltage which corresponds to the safety regulations relating to the application - further supply voltages on request
Power input	approx. 3 VA
Control circuit (terminals 4, 5, 6)	3 terminals (under safety extra low voltage SELV), acting on 1 output relay with self-hold
Sensor connection	according to DIN EN 50 227
– no-load voltage	DC 8.4 V (safety extra low voltage SELV)
– short-circuit current	< 10 mA
– response hysteresis	1.5 mA ⊓ 1.8 mA
Controlled circuit (terminals 7, 8, 9)	**1 single-pole potential-free changeover contact with self-hold**
Principle	**quiescent current principle | working current principle**
Switching status indicators	1 green LED lights when the output relay is energised 1 red LED lights when the output relay is not energised
Switching voltage	max. AC 250 V
Switching current	max. AC 4 A
Switching capacity	max. 500 VA
Housing	insulating material, 75 x 22.5 x 100 mm (dimensions see p. 12-1-13)
Connection	terminals on top of housing
Protection class	IP 20
Mounting	clip attachment for U-bar to DIN 46 277 and EN 50 022
Mounting orientation	any
Temperature appl. range	from – 15°C to + 60°C
Max. cable length between relay and sensor(s)	**1,000 m**
VDE marks licence in accordance with - the EMC guideline	for interferences emission in accordance with the appliance-specific requirements for households, business and commerce as well as small companies, and for interference immunity in accordance with the appliance-specific requirements for industrial companies
VDE marks licence certific.	114502
- in accordance with the low-voltage guideline	in accordance with EN 60 730
VDE marks licence certific.	97540

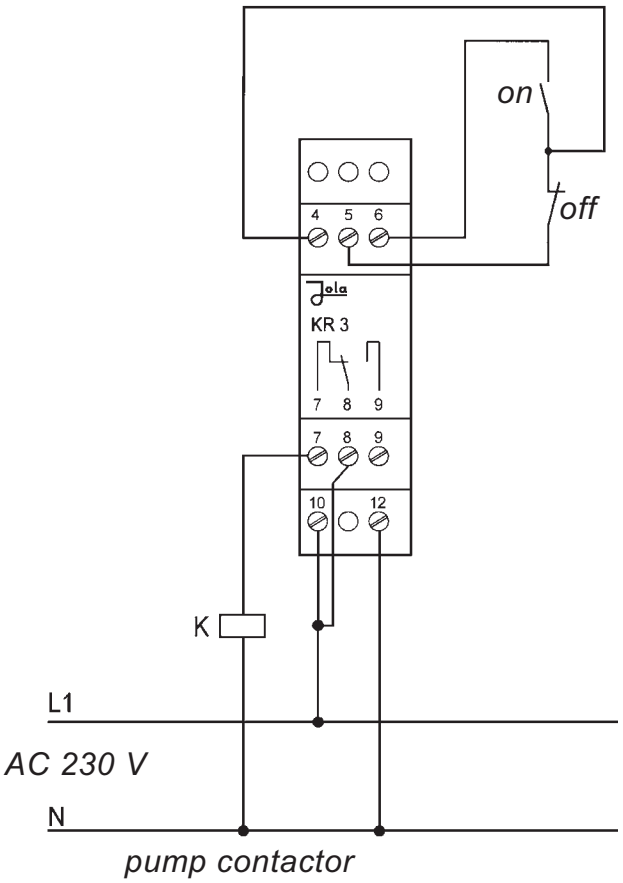
Connection diagrams

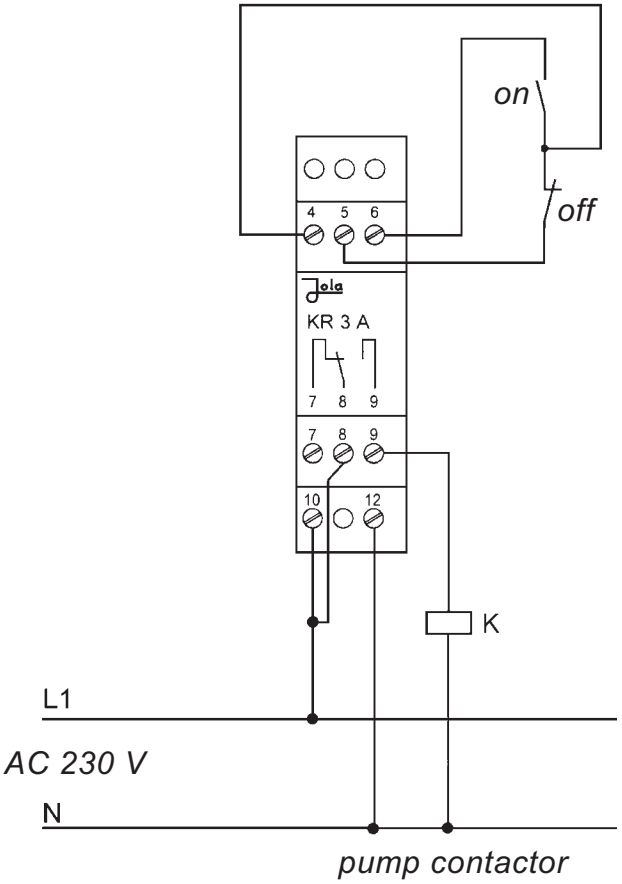
KR 3



KR 3 A







Output contact shown in no-current condition

KR 5 and KR 5 A protection relays

for signalling a limit level (1 sensor) or for two-point control (2 sensors)

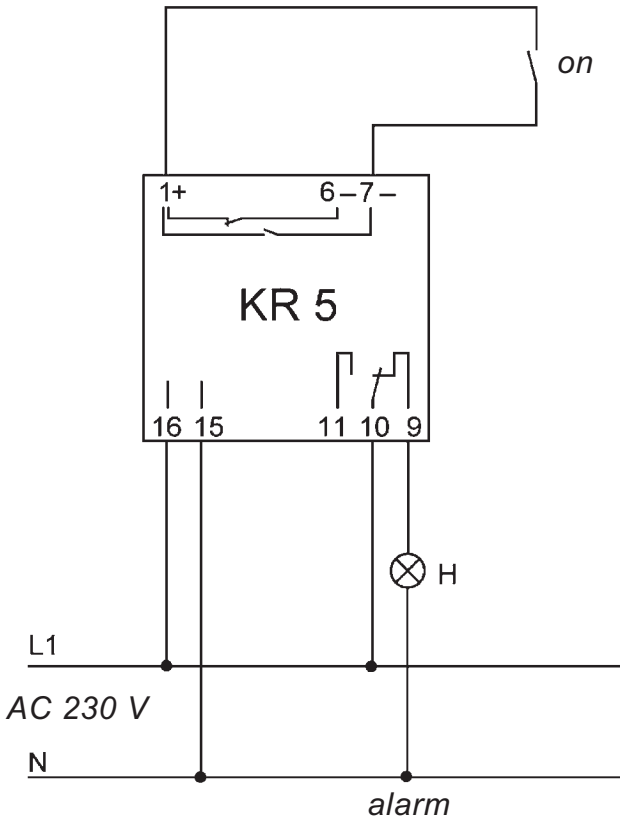
Protection relay for U-bar mounting or surface mounting, with connection terminals on top of housing and with 2 built-in LEDs for signalling the respective switching status.

These appliances are designed for switch cabinet installation or mounting in an appropriate protective housing and may therefore not be installed in other locations. They are only suitable for use in clean environments.

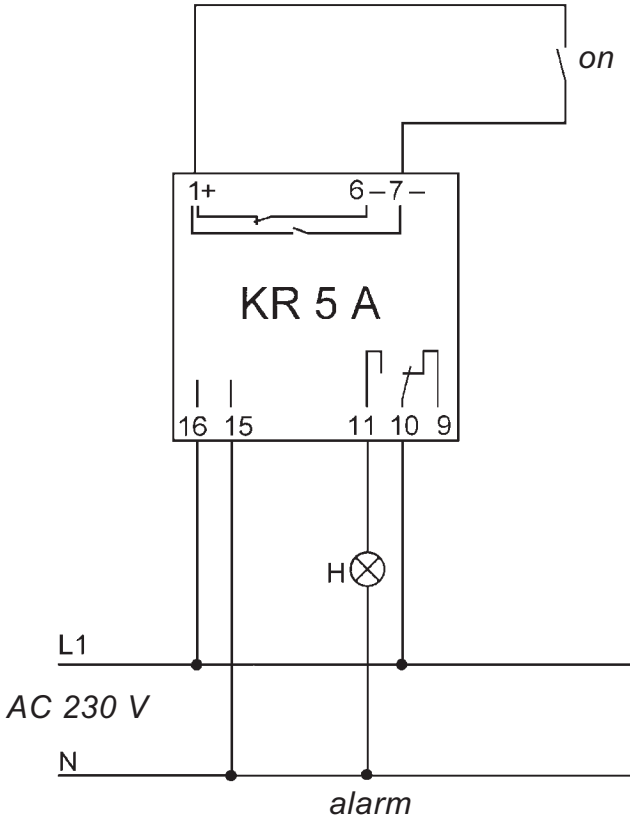
Technical data	KR 5 / KR 5 A
Alternative supply voltages (AC versions: terminals 15 and 16; DC versions: - terminal 15: – - terminal 16: +)	- AC 230 V (delivered if no other supply voltage is specified in the order) or - AC 240 V or - AC 115 V or - AC 24 V or - DC 24 V or } in these two cases, the unit must only be connected - DC 12 V or } to a low safety voltage which corresponds to the safety regulations relating to the application - further supply voltages on request
Power input	approx. 3 VA
Control circuit (terminals 1, 6, 7)	3 terminals (under safety extra low voltage SELV), acting on 1 output relay with self-hold according to DIN EN 50 227
Sensor connection – no-load voltage – short-circuit current – response hysteresis	DC 8.4 V (safety extra low voltage SELV) < 10 mA 1.5 mA ⌐ 1.8 mA
Controlled circuit (terminals 9, 10, 11)	**1 single-pole potential-free changeover contact with self-hold**
Principle	**quiescent current principle** | **working current principle**
Switching status indicators	1 green LED lights when the output relay is energised 1 red LED lights when the output relay is not energised
Switching voltage	max. AC 250 V
Switching current	max. AC 4 A
Switching capacity	max. 500 VA
Housing	insulating material, 75 x 55 x 110 mm (dimensions see page 12-1-13)
Connection	terminals on top of housing
Protection class	IP 20
Mounting	clip attachment for U-bar to DIN 46 277 and EN 50 022 or fastening via two boreholes
Mounting orientation	any
Temperature appl. range	from – 15°C to + 60°C
Max. cable length between relay and sensor(s)	**1,000 m**
VDE marks licence in accordance with the EMC guideline	for interference emission in accordance with the appliance-specific requirements for households, business and commerce as well as small companies, and for interference immunity in accordance with the appliance-specific requirements for industrial companies
VDE marks licence cert.	114502

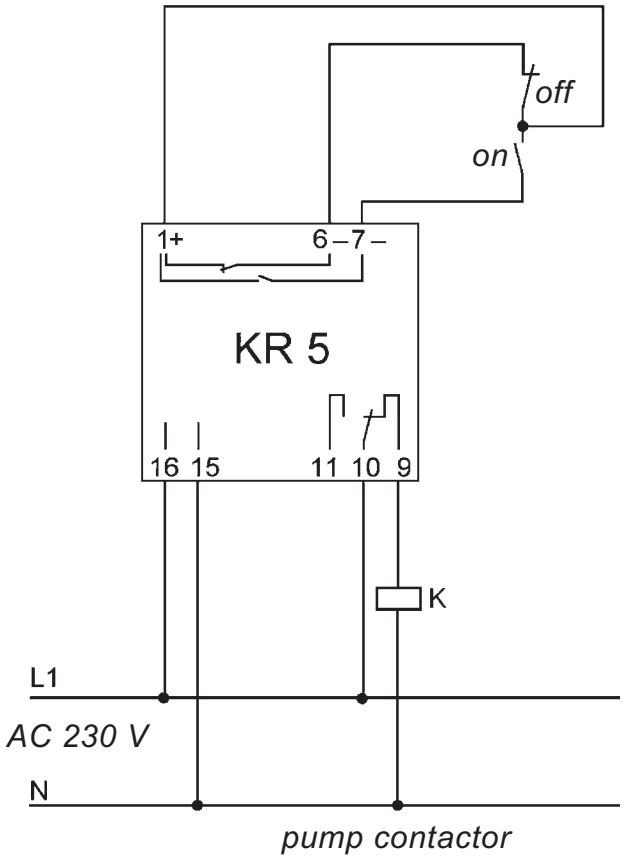
Connection diagrams

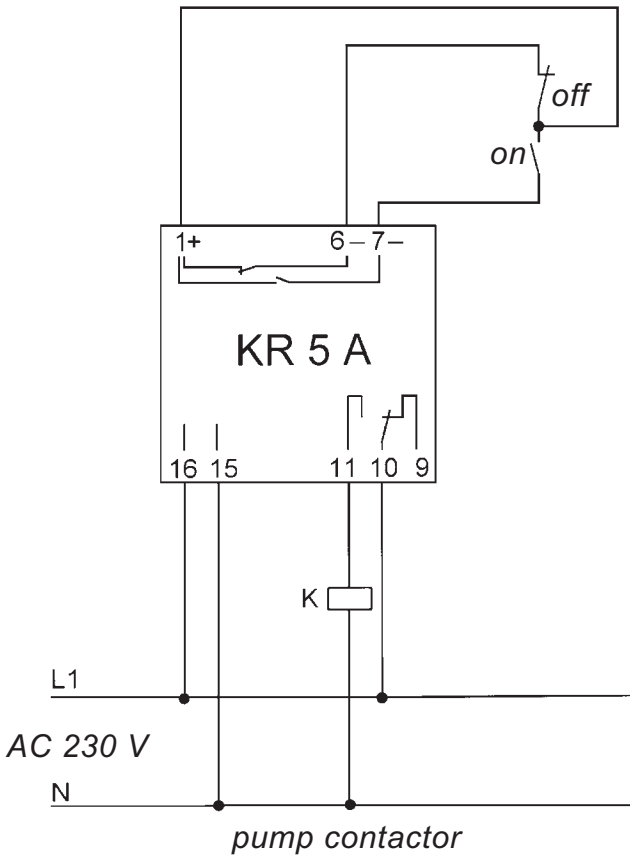
KR 5



KR 5 A







Output contact shown in no-current condition

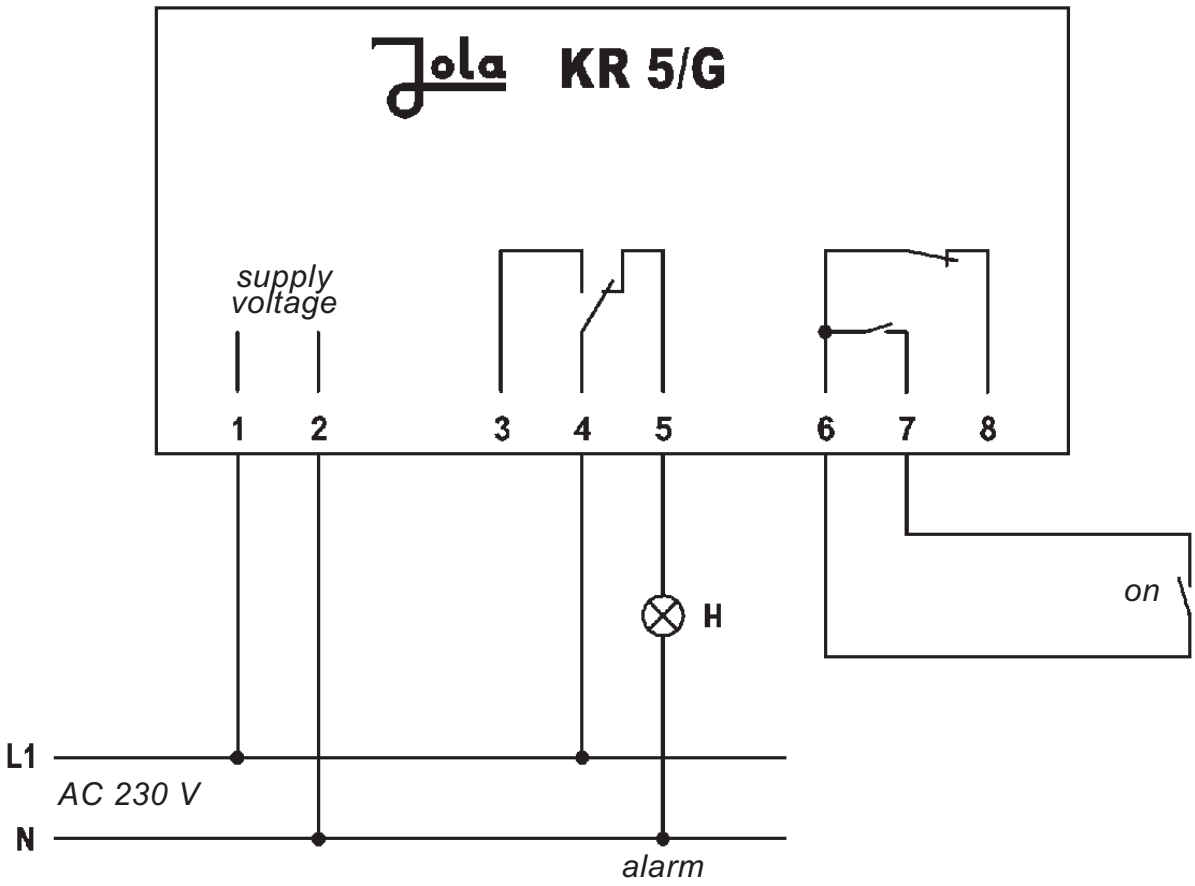
KR 5/G protection relay

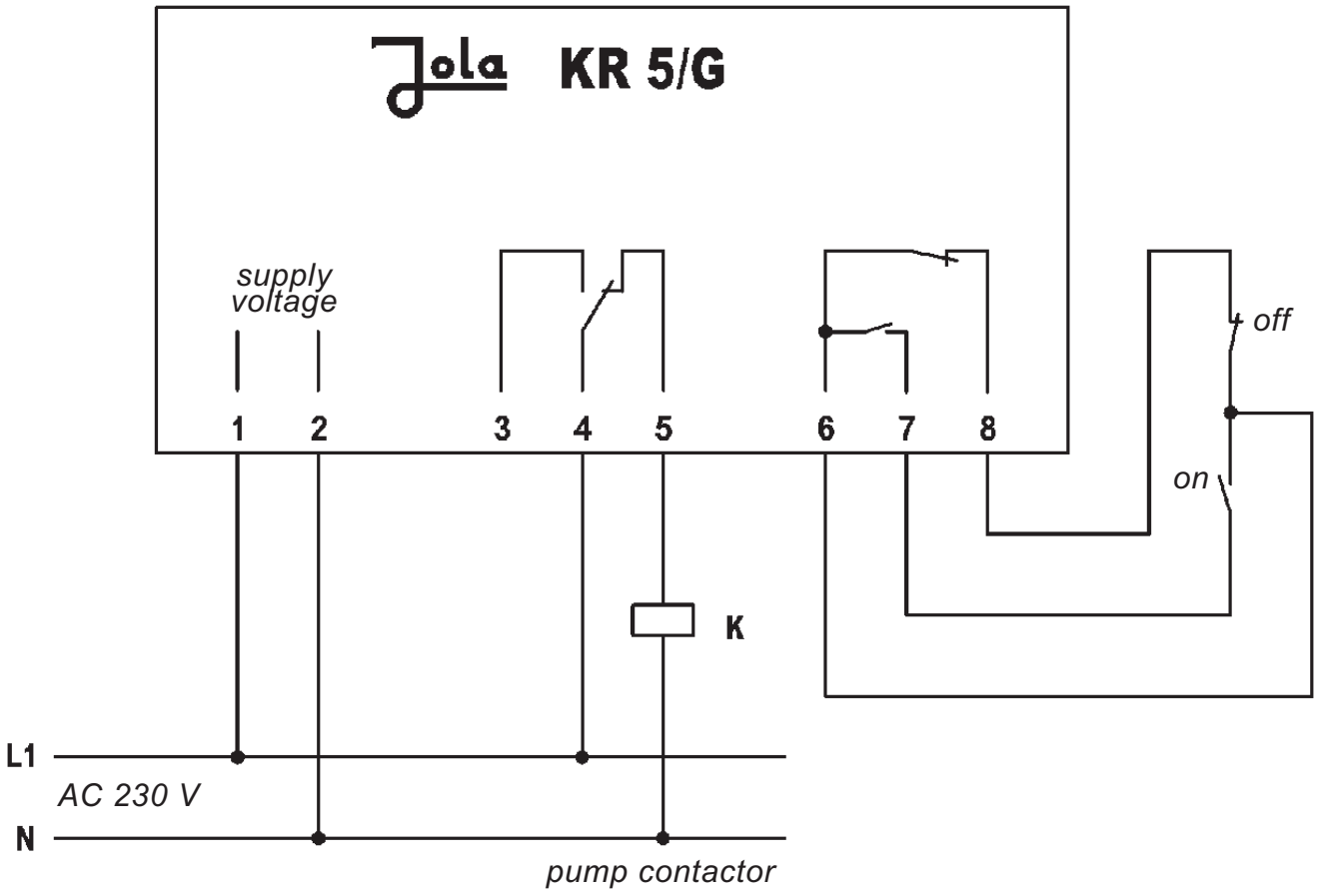
for signalling a limit level (1 sensor) or for two-point control (2 sensors)

Protection relay in surface-mount housing, with transparent cover and switching status indicators inside the housing

Technical data	KR 5/G
Alternative supply voltages AC versions: terminals 1 and 2; DC versions: - terminal 1: – - terminal 2: +)	- AC 230 V (delivered if no other supply voltage is specified in the order) or - AC 240 V or - AC 115 V or - AC 24 V or - DC 24 V or } in these two cases, the unit must only be connected to a low safety voltage which corresponds to the safety regulations relating to the application - DC 12 V or } - further supply voltages on request
Power input	approx. 3 VA
Control circuit (terminals 6, 7, 8)	3 terminals (under safety extra low voltage SELV), acting on 1 output relay with self-hold
Sensor connection	according to DIN EN 50 227
– no-load voltage	DC 8.4 V (safety extra low voltage SELV)
– short-circuit current	< 10 mA
– response hysteresis	1.5 mA ⌐¬ 1.8 mA
Controlled circuit (terminals 3, 4, 5)	**1 single-pole potential-free changeover contact with self-hold**
Principle	**quiescent current principle**
Switching status indicators	1 green LED lights when the output relay is energised 1 red LED lights when the output relay is not energised
Switching voltage	max. AC 250 V
Switching current	max. AC 4 A
Switching capacity	max. 500 VA
Housing	insulating material, with 3 screw connections (dimensions see page 12-1-14)
Connection	internal terminals
Protection class	IP 54
Mounting	surface mounting using 4 screws
Mounting orientation	any
Temperature appl. range	from – 15°C to + 60°C
Max. cable length between relay and sensor(s)	**1,000 m**
VDE marks licence in accordance with the EMC guideline	for interference emission in accordance with the appliance-specific requirements for households, business and commerce as well as small companies, and for interference immunity in accordance with the appliance-specific requirements for industrial companies
VDE marks licence cert.	114502

Connection diagrams





Output contact shown in no-current condition

ESA 2 alarm relay

Alarm relay for U-bar mounting or surface mounting, with connection terminals on top of housing and built-in two-colour LED for signalling the respective switching status.

This appliance is designed for switch cabinet installation or mounting in an appropriate protective housing and may therefore not be installed in other locations. It is only suitable for use in clean environments.

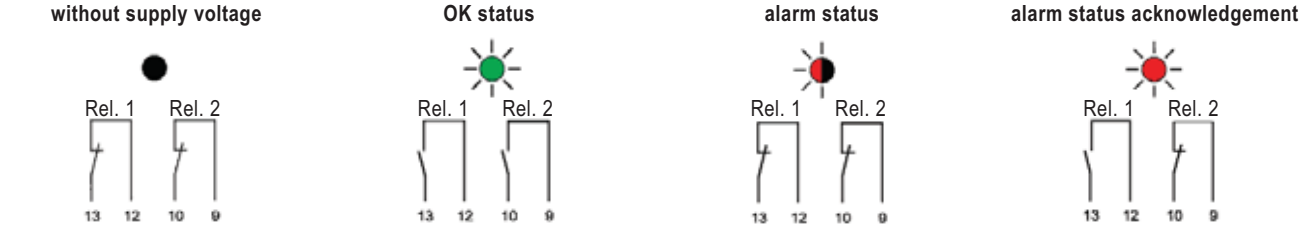
The design of the alarm relay is based on the **quiescent current principle**, in other words, an alarm signal is given if there is no connection between terminals 7 and 8; the output contacts of the unit also revert to alarm status if there is a supply voltage failure.

In standby status (unit is supplied with voltage and connection between terminals 7 and 8), the two potential-free outputs are in activated condition = open and the LED lights green.

In the event of an alarm (unit supplied with voltage and no connection between terminals 7 and 8), the two potentiel-free outputs are in non activated condition (contacts in quiescent state = closed) and the LED flashes red.

In order to cancel the alarm given via the output, one of the two relays in the output can be reset using the built-in acknowledgement button or a connected external acknowledgement button. The LED then stops flashing and reverts to permanent red.

Position of output contacts in the ESA 2 alarm relay



LED dark –
both output relays not energised –
output contacts closed

LED lights green –
both output relays energised –
output contacts open

LED flashes red –
both output relays not energised –
output contacts closed

LED lights red –
output relay 1 energised –
contact 12, 13 open –
output relay 2 not energised –
contact 9, 10 closed

Technical data	ESA 2
Alternative supply voltages (AC versions: terminals 15 and 16; DC versions: - terminal 15: – - terminal 16: +)	- AC 230 V (delivered if no other supply voltage is specified in the order) or - AC 240 V or - AC 115 V or - AC 24 V or - DC 24 V or } in these two cases, the unit must only be connected to a low safety voltage which corresponds to the safety regulations relating to the applications - DC 12 V or } - further supply voltages on request
Power input	approx. 3 VA
Control circuit (terminals 7 and 8)	2 terminals (under safety extra low voltage SELV), acting on 2 output relays without self-hold, where one can be reset if an alarm is activated
– no-load voltage – short-circuit current – response sensitivity	9 V_{eff} ⊓⊔ 10 Hz (safety extra low voltage SELV) max. 0.5 mA_{eff} approx. 30 kOhm
Controlled circuits (terminals 12, 13 – rel. 1, terminals 9, 10 – rel. 2)	**2 potential-free normally closed contacts based on the quiescent current principle, both activated in standby status. One of the two normally closed contacts (terminals 12, 13 – rel. 1) can be reset in the event of alarm. The other normally closed contact (terminals 9, 10 – rel. 2) retains its switching status as long as the alarm is given.**
Acknowledgement	output relay 1 (terminals 12, 13) can be reset via a built-in button or external acknowledgement button (connection option at terminals 4 and 5)
Switching status indicator	via two-colour LED: green = standby, both output relays energised flashing red = alarm, both output relays not energised lights red = alarm acknowledged, output relay 1 reset
Switching voltage	max. AC 250 V
Switching current	max. AC 4 A
Switching capacity	max. 500 VA
Housing	insulating material, 75 x 55 x 110 mm (dimensions see page 12-1-13)
Connection	terminals on top of housing
Protection class	IP 20
Mounting	clip attachment to U-bar to DIN 46 277 and EN 50 022 or fastening via two boreholes
Mounting orientation	any
Temperature application range	from – 15°C to + 60°C
Max. cable length between relay and contact(s) / sensor(s)	**1,000 m**
EMC	for interference emission in accordance with the appliance-specific requirements for households, business and commerce as well as small companies, and for interference immunity in accordance with the appliance-specific requirements for industrial companies

ESA 2/G alarm relay

Alarm relay in surface-mount housing with transparent cover and switching status indicators inside the housing.

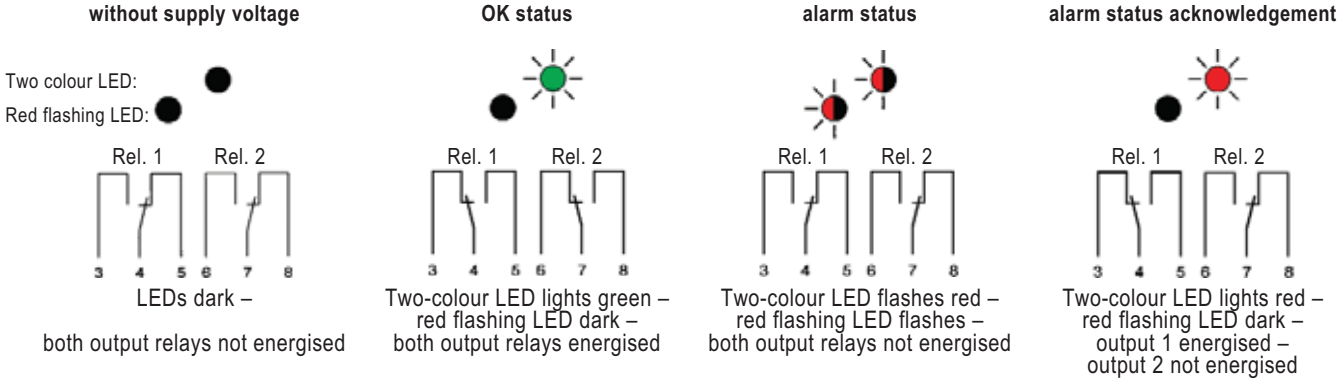
The design of the relay is based on the **quiescent current principle**, in other words, an alarm signal is given if there is no connection between terminals 11 and 12; the output contacts of the unit also revert to alarm status if there is a supply voltage failure.

In standby status (unit supplied with voltage and connection between terminals 11 and 12), the two potential-free outputs are in activated condition and the two-colour LED lights green.

In the event of an alarm (unit supplied with voltage and no connection between terminals 11 and 12), the two potential-free outputs are in non activated condition (contacts in quiescent state), and the two-colour LED flashes red; an additionnal red flashing LED also flashes as a switching status indicator for the relay which can be acknoledged.

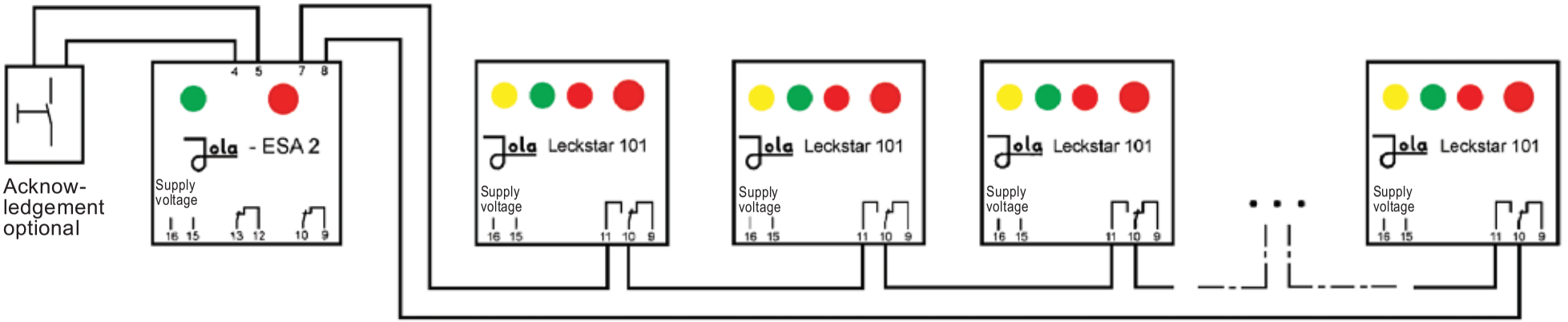
In order to cancel the alarm given via the output, one of the two relays in the output (terminals 3, 4, 5) can be reset using a connected external acknowledgement button (connection option at terminals 9 and 10). The red flashing LED then stops flashing and the two-colour LED reverts to permanent red.

Position of output contacts in the ESA 2/G alarm relay



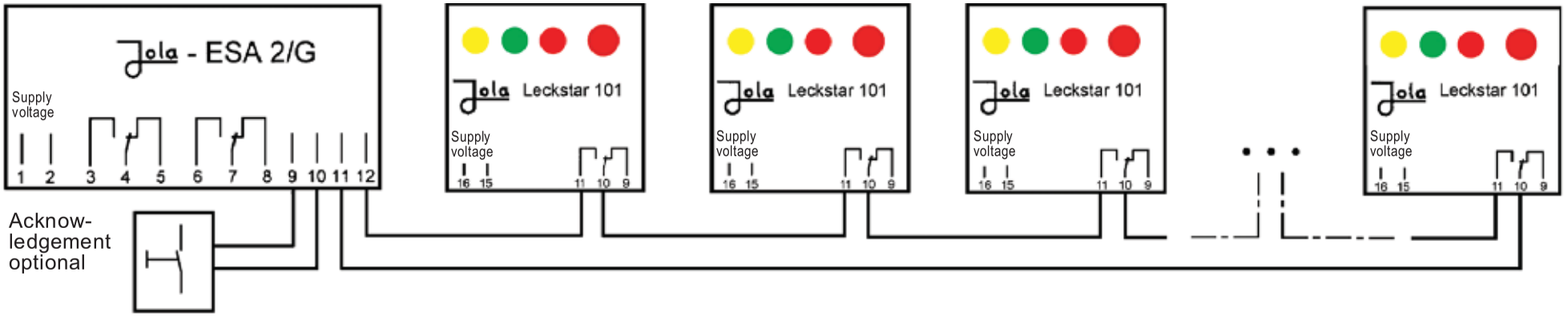
Technical data	ESA 2/G
Alternative supply voltages (AC versions: terminals 1 and 2; DC versions: - terminal 1: – - terminal 2: +)	- AC 230 V (delivered if no other supply voltage is specified in the order) or - AC 240 V or - AC 115 V or - AC 24 V or - DC 24 V or } in these two cases, the unit must only be connected to a low safety voltage which corresponds to the safety regulations relating to the application - DC 12 V or } - further supply voltages on request
Power input	approx. 3 VA
Control circuit (terminals 11 and 12)	2 terminals (under safety extra low voltage SELV), acting on 2 output relays without self-hold, where one can be reset if an alarm is activated
– no-load voltage – short-circuit current – response sensitivity	9 V_{eff} ⊓⊔ 10 Hz (safety extra low voltage SELV) max. 0.5 mA_{eff} approx. 30 kOhm
Controlled circuit (terminals 3 to 8)	**2 potential-free changeover contacts based on the quiescent current principle, both activated in standby status. One of the two changeover contacts (terminals 3, 4, 5 – rel. 1) can be reset in the event of alarm. The other changeover contact (terminals 6, 7, 8 – rel. 2) retains its switching status as long as the alarm is given.**
Acknowledgement	output relay 1 (terminals 3, 4, 5) can be reset via a connected external acknowledgement button (connection option at terminals 9 and 10)
Switching status indicators	– via two-colour LED: green = standby, both output relays energised flashing red = alarm, both output relays not energised lights red = alarm acknowledged, output relay 1 reset – and one red flashing LED: flashes red = output relay 1 in alarm status
Switching voltage	max. AC 250 V
Switching current	max. AC 4 A
Switching capacity	max. 500 VA
Housing	insulating material, with 3 screw connections (dimensions see page 12-1-14)
Connection	internal terminals
Protection class	IP 54
Mounting	surface mounting using 4 screws
Mounting orientation	any
Temperature application range	from – 15°C to + 60°C
Max. cable length between relay and contact(s) / sensor(s)	**1,000 m**
EMC	for interference emission in accordance with the appliance-specific requirements for households, business and commerce as well as small companies, and for interference immunity in accordance with the appliance-specific requirements for industrial companies

Circuit diagram for connection of several Leckstar 101 relays connected to each other to an alarm relay ESA 2 (example)



Output contacts shown in no-current condition

Circuit diagram for connection of several Leckstar 101 relays connected to each other to an alarm relay ESA 2/G (example)



Output contacts shown in no-current condition

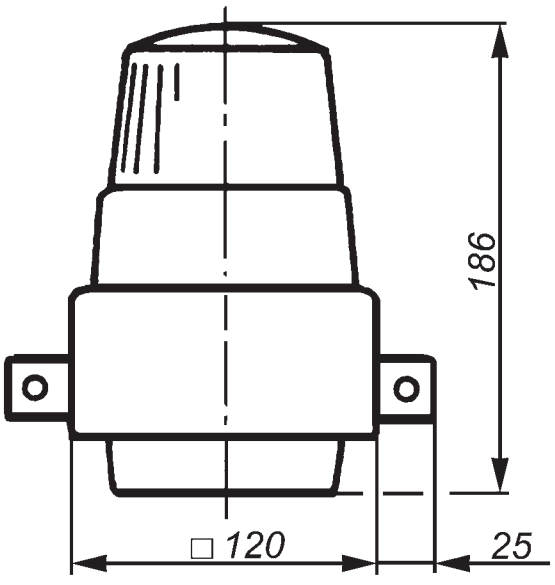
Hooter

for connection to an alarm relay ESA 2 or ESA 2/G

Technical data	HU 2	HU 4	HU 12, with incorporated flashlight
Application	dry rooms	damped rooms or outer mounting	dry rooms
Control voltage		**AC 230 V**	
Current consumption	AC 0.01 A	AC 0.1 A	AC 0.08 A
Power consumption	approx. 2.2 VA	approx. 22 VA	approx. 17.6 VA
Sound level at a distance of 1 m	approx. 93 dB	approx. 110 dB	approx. 100 dB
Dimensions	approx. 70 x 170 mm	approx. 140 x 162 mm	approx. 170 x 186 mm
Protection class	IP 33	IP 55	IP 43

HU 2

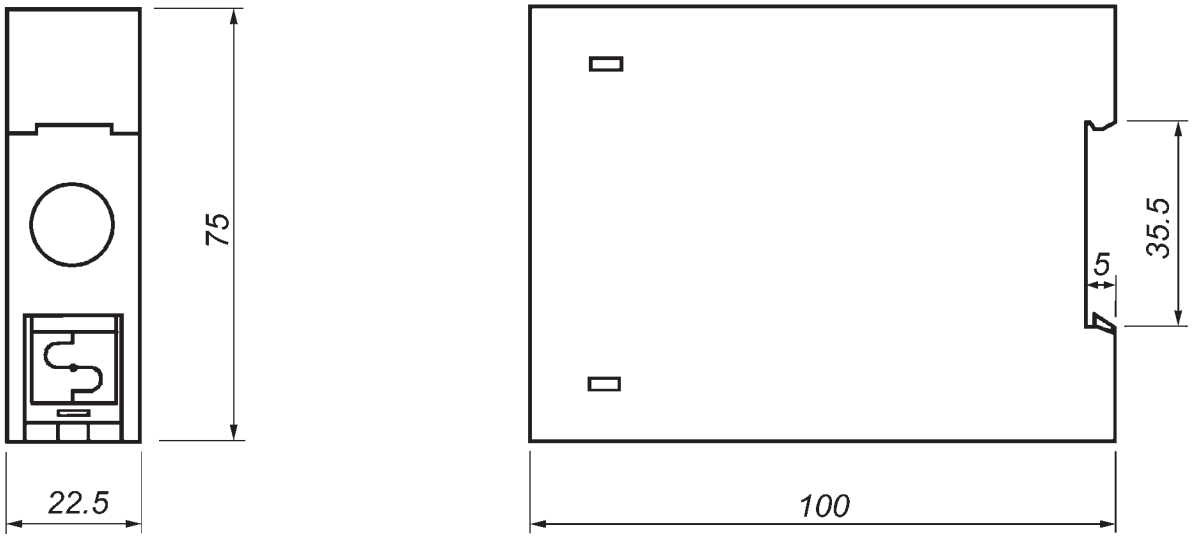
HU 4



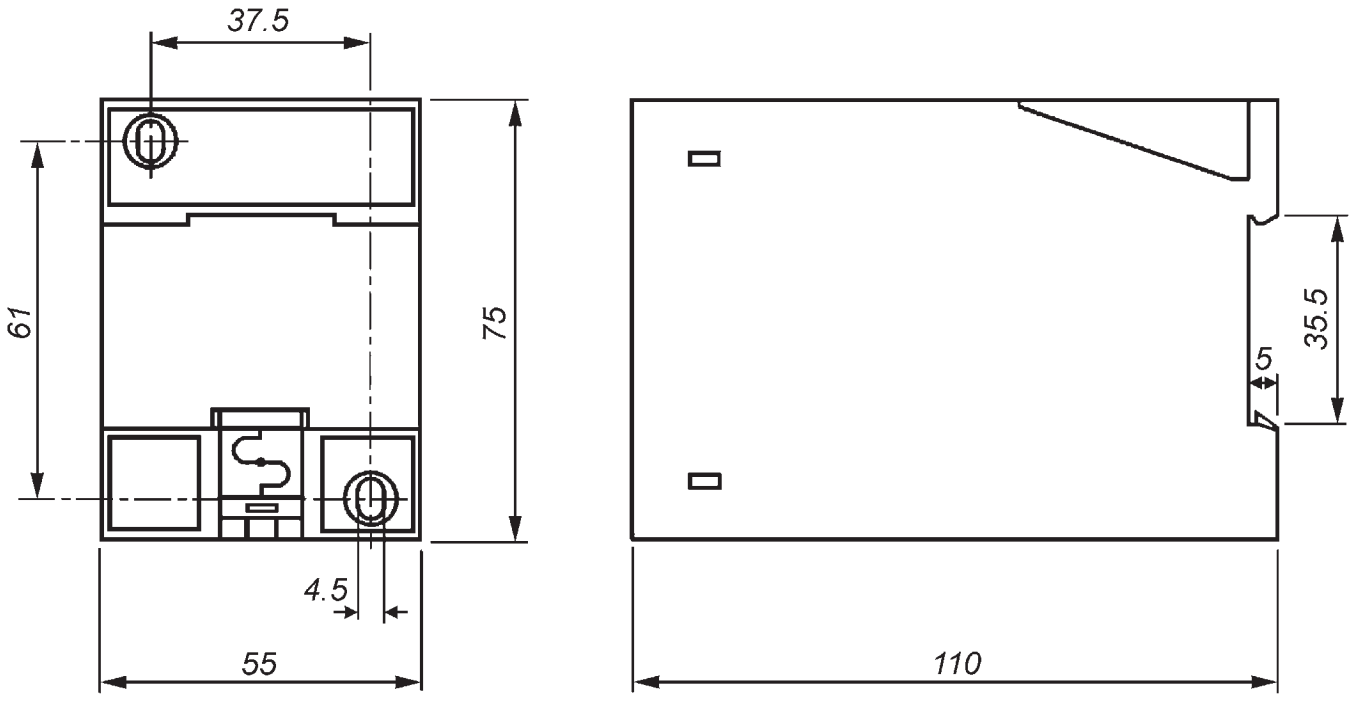
HU 12

12-1-12

Dimensional drawings

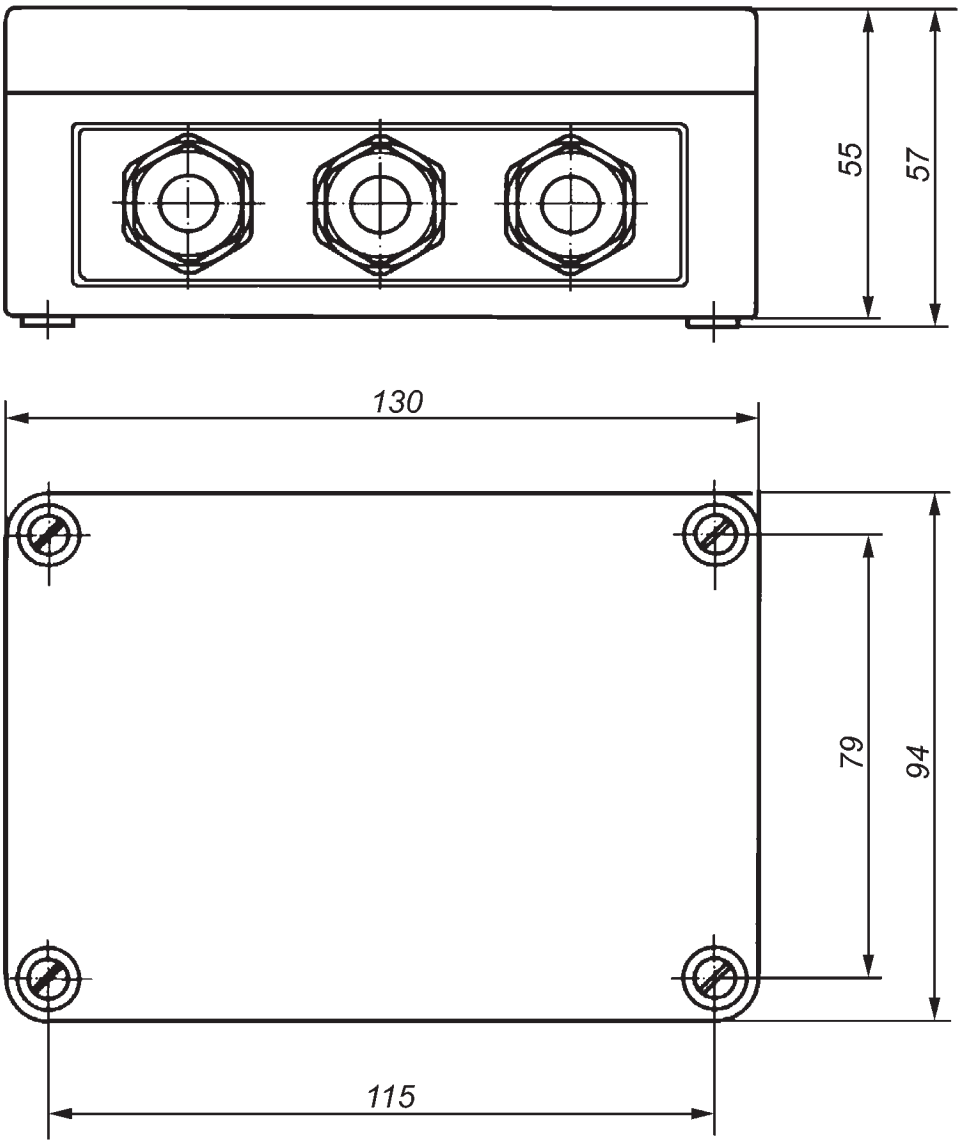


KR 3 or KR 3 A



KR 5, KR 5 A or ESA 2

Dimensional drawings



KR 5/G or ESA 2/G

The units described in this documentation may only be installed, connected and started up 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.