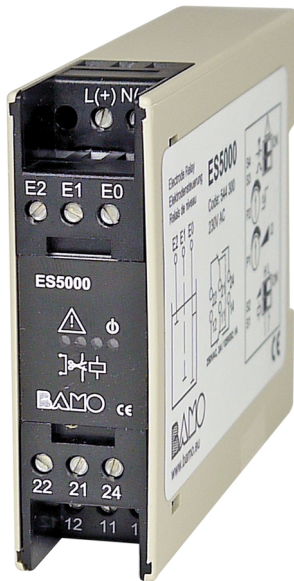


Relay with resistive loop detection

ES 5000



- For electrical conductive liquids
- Level control or leakage detection
- With integrity detection loop diagnostic
- Adjustable sensitivity, hysteresis and delay

APPLICATIONS

Remote signal, with corresponding electrodes/ sensor, for monitoring:

- Levels of water, sewage, acids, alkalis
- Leak detector

DESCRIPTION

The relay ES 5000 operates on the conductive principle; The electrical conductivity liquid is used as an electrical bridge between the wet electrodes/ sensor.

Restrictions

Conductive level controllers are not suitable for liquids that are oily or greasy, or where electrically insulating deposits stick on the electrodes.

Detection ranges

The system can be used for liquids whose resistor value between the electrodes is less than 150 k Ω , or whose conductivity is greater than 6.6 $\mu\text{S}/\text{cm}$

Level control

Pump automation with 3 electrodes.

Monitoring of a level and/ or overflow, dry-running alarm, with 2 electrodes. (Metal container structure may be used as the reference electrode)

Leakage detection

In use with a LISA ribbon sensor or BES detector, the relay ES 5000 allows a leakage detection on floor or piping.

This function is fail safe: The relay has an auto-diagnostic which signals any cable break or short circuit.

The diagnostic function of detection loop can be disabled through a DIP switch.

Note:

The diagnostic function is not available for pump automation with 3 electrodes.

TECHNICAL FEATURES

Power supply	230 V AC - 50/60 Hz or 24V DC $\pm 10\%$
Consumption	< 2 VA and < 2 W
Ambient temperature	-15 ... +45 °C
Casing	dim. 22.5x75x100 mm; For DIN rail 35x7.5mm (EN 50 022) or in a cabinet for wall mount (88x150x130 mm; IP55)
Terminals	Degree of protection IP20, screw terminals, max. 2.5 mm ²
Detection loop	Galvanic insulated, alternative current < 6 V and < 2 mA
Cable	Max. 500 m (without detection loop diagnostic) Max. 50 m (with detection loop diagnostic) Cross section Min. 0.5 mm ²

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detection
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TECHNICAL FEATURES (continued)

Operating detector Automation between 2 levels
 Control of Min. or Max. level
 Leakage detection

Can be used for Leakage detection

Open-circuit diagnostic (only with connected 680 kΩ load resistor)

Unabled via DIP 4, if resistance of detection loop R > 1.5 MΩ :
 Red LED alarm lit and relay drops

Short-circuit diagnostic:

Unabled via DIP3, if resistance of detectionloop R < 1 kΩ :
 Red LED alarm lit, Relay drops

*) DIP 1 = OFF

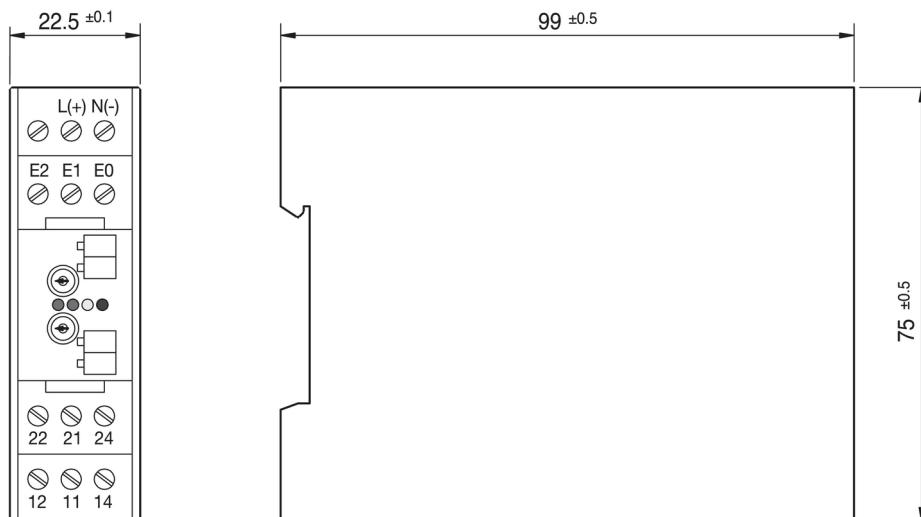
Sensitivity	Adjustable on 2 ranges Low: 5 ... 70 kΩ (14 ... 200 μS/cm) High: 15 ... 150 kΩ (6.7 ... 66 μS/cm)
Hysteresis	About 10% of the sensitivity value
Outputs	2 change-over contacts, potential free AC: 250 V AC, 5 A, 500 VA DC: Max. 125 V DC, 1 A
Operating Delay	DIP switch to select N.C. or N.O. status Or Pull-in or drop-off, delay From 0.5 up to 3 s, adjustable by the potentiometer

EC Conformity: The instrument meets the legal requirements of the current European Directives.

CODE NUMBERS AND REFERENCES

Code	Reference	Description
544 300	ES 5000 / 220 V AC	Resistive relay, IP 40, power supply 230 V AC – 50/60 Hz
544 310	ES 5000 / 115 V AC	Resistive relay, IP 40, power supply 115 V AC – 50/60 Hz
544 320	ES 5000 / 48 V AC	Resistive relay, IP 40, power supply 48 V AC – 50/60 Hz
544 330	ES 5000 / 24 V AC	Resistive relay, IP 40, power supply 24 V AC – 50/60 Hz
544 352	ES 5000 / 12 V DC	Resistive relay, IP 40, power supply 12 V DC
544 354	ES 5000 / 24 V DC	Resistive relay, IP 40, power supply 24 V DC

DIMENSIONS



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