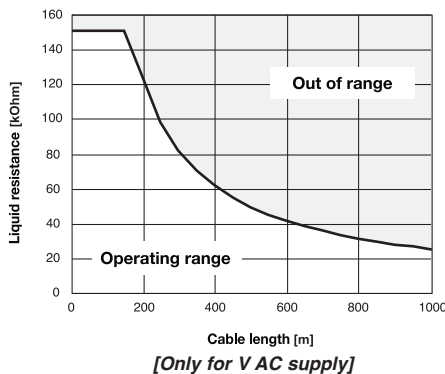


Instructions manual

Relay for resistive level detection

Relay ES5000



1. TECHNICAL FEATURES

Power supply input: 230, 115, 48, 24 V AC - 50/60 Hz; 12, 24 V DC
 Consumption: < 2 VA
 Ambient temperature: -15 to +45°C
 Mass: 100 g
 Mounting: DIN rail (DIN 46277)
 Dimensions: 22.5 x 75 x 99 mm
 Protection: IP40 – Tropicalized on request (*varnish*)
 Hysteresis: About 10%
 Adjustable timer: 0.5 ... 3 s (*increase and decreasing signal*)
 Sensitivity: Low range= 1 to 70 kΩ; High range= 15 to 150 kΩ
 Current loop output: Galvanic insulated, < 6 V ac / < 2 mA
 Relay outputs (2): Max 250 V, 3 A [AC];
 Max 125 V, 1 A [DC]

CE Labels: In accordance with low voltage guidelines (2006/95/EEC) and (89/336/CEE)

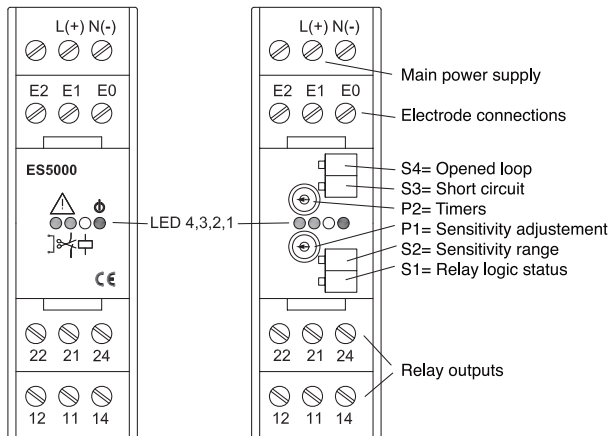
2. OPERATING RANGE

The capacitive resistance of a long cable reduces the sensitivity of the relay ES5000. A standard PVC cable, shielded, 3 conductors, has a capacitance of approx. 100 pF/m. This results in an operating range which is dependent upon cable length and the liquid resistance.

Caution: Choose a suitable cable with 0.5 mm² wires – Over 25 m distances, preferably use a shielded cable – All the detection loop, must be faraway from high power lines

- To assure the self diagnostic of the detection loop (*short circuit on the loop detection and sensor break off*) using the relay ES5000, the standard cable (2 wires 0.5 mm²) connecting the sensor, is 50 m as a maximum.

3. SET UP AND DISPLAYS



LED 1 blue	Power ON
LED 2 yellow	Output relay actuating
LED 3 red	Detection loop opened
LED 4 red	Short circuit on the loop detection

Potentiometer	To the left	To the right
P1 sensitivity	Minimal	Maximal
P2 timer	0.5 s approx.	3 s approx.

Switch	ON	OFF
S1	ON status (*)	OFF status
S2	Highest sensitivity range	Lowest sensitivity range
S3	Short circuit monitoring	Without
S4	Opened loop monitoring	Without

Switch 1: "ON"

The active relay actuation is maintained when the main supply is shut off, even if there is sufficient liquid (*factory set up*).

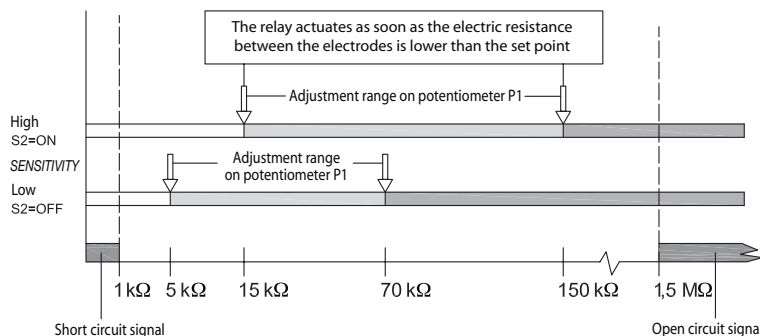
Switch 1: "OFF"

This set up lives the relay non active when the main supply is shut off, even if there is or not liquid.

Timer: To avoid false detection when the fluid surface is moving (*waves or sudden level changes*).

Sensitivity: To adapt the detection level to the liquid conductivity.

Hysteresis: To avoid false alarms originated by smog, foam or condensation of vapours.



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Relay for resistive
 level detection
ES5000

MES

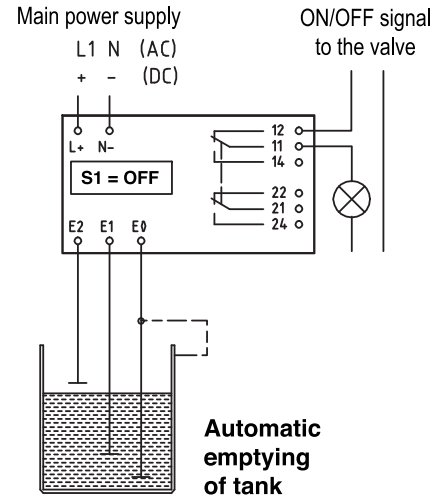
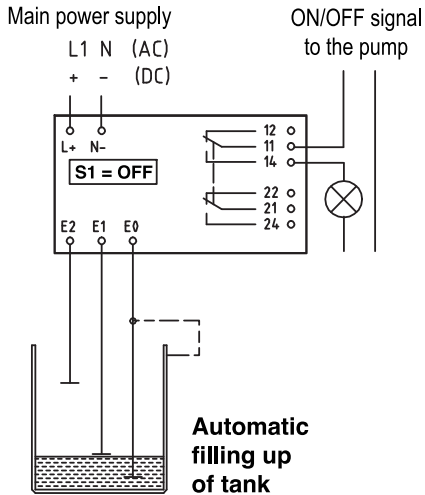
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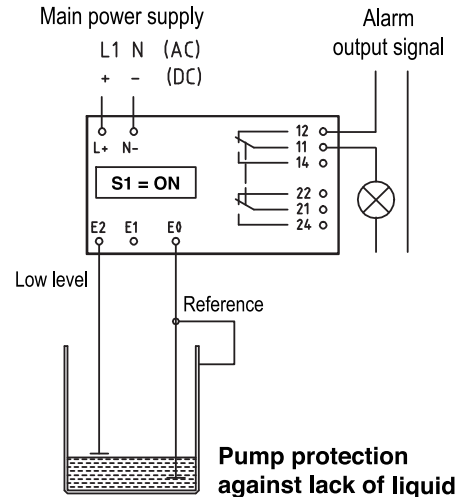
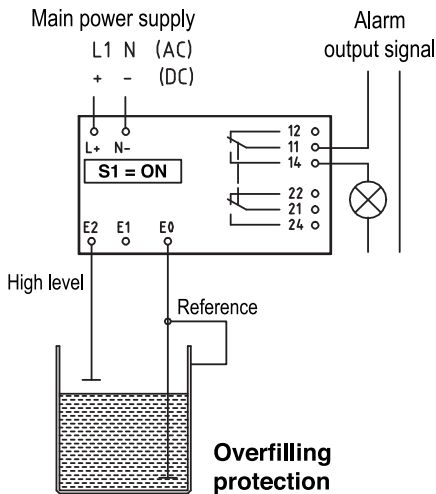
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4. WIRING

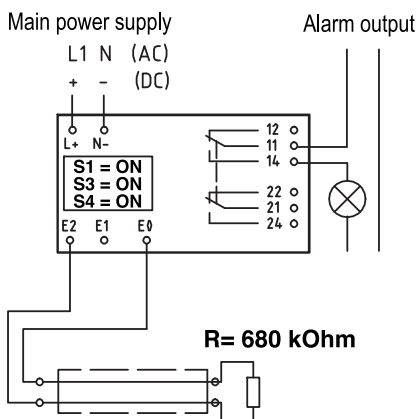
ON/OFF Regulation: 3 rods (S3 and S4 position "OFF")



ON/OFF Regulation: 2 rods (S3 and S4 position "OFF")



LEAKAGE DETECTION: (S3 and S4 position "ON")



The electrical resistance value for the loop may be between
1.5 kOhm and 1 MOhm

Leakage detection application

Opened loop monitoring
(Inserting a 680 kOhm resistance)

With S4 - position ON

The red LED is lighting when $R_{LOOP} > 1.5 \text{ MOhm}$ and the relay status changes.

Short circuit monitoring

With S3 - position ON

The red LED is lighting when $R_{LOOP} < 1 \text{ kOhm}$ and the relay status changes.