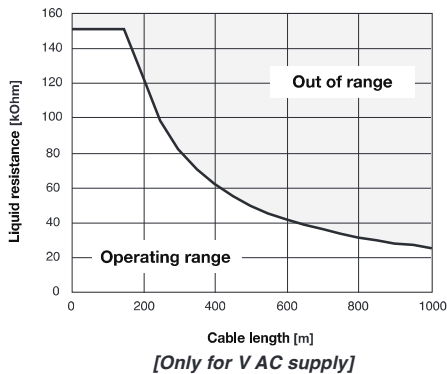


## Relay ES5000



## 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 k ; High range= 15 to 150 k  
 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)

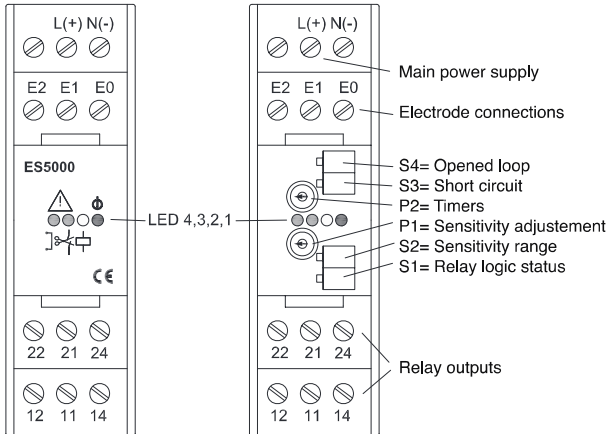
## 2. OPERATING RANGE

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 mm<sup>2</sup> 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 mm<sup>2</sup>) connecting the sensor, is 50 m as a maximum.

## 3. SET UP AND DISPLAYS



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

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

<b>Switch</b>	<b>ON</b>	<b>OFF</b>
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*).

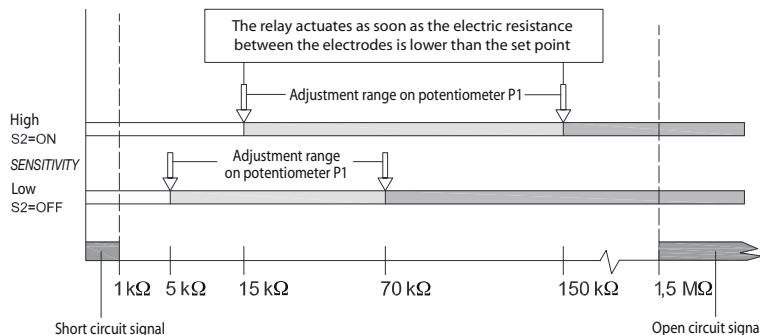
### Switch 1: "OFF"

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*).

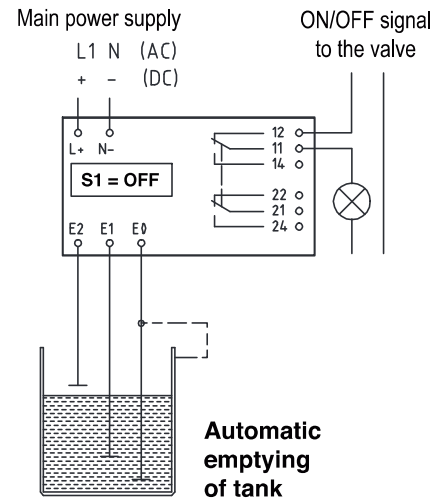
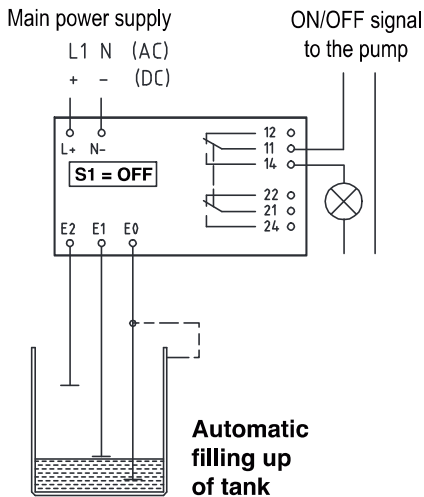
**Sensitivity:** To adapt the detection level to the liquid conductivity.

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

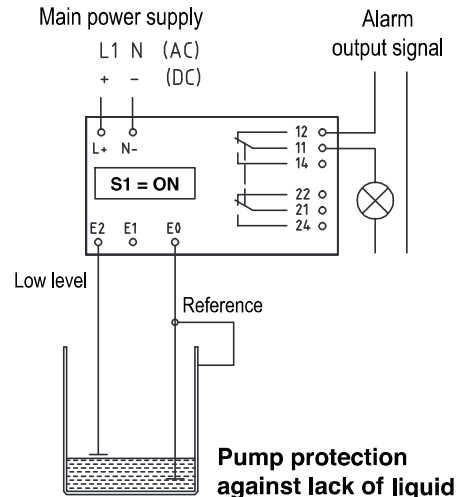
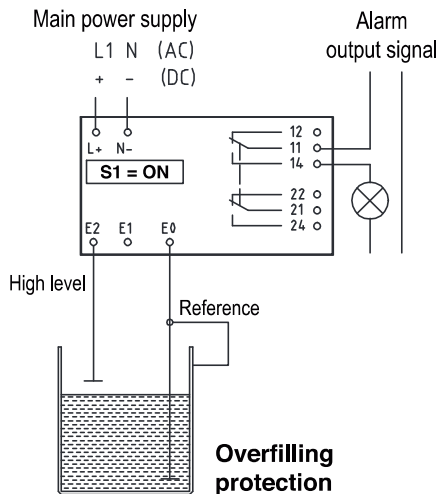


## 4. WIRING

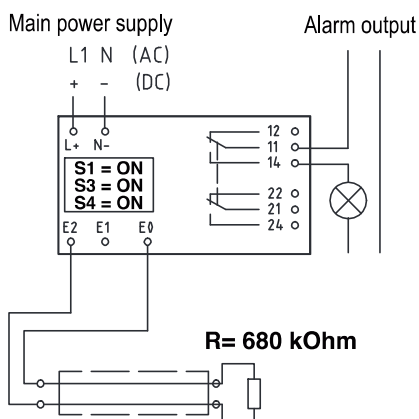
### ON/OFF Regulation: 3 rods (S3 and S4 position "OFF")



### 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.

