RESISTIVE AMPLIFIER RELAY FOR LEVEL CONTROL
ES 2001

- For all electrical conductive liquids
- Dimensions: 22.5 mm width, rail DIN mounting
- Adjustable sensitivity and timer
- Selection of action mode
- Functions: On/Off level controller between 2 rods
  Level regulation between 3 rods

PRINCIPLE

The resistive amplifier relay for level control ES 2001 works with the electrical conductivity property of the liquid, detecting the opening or closing circuit between two electrodes. A complete range of probes and rods are specially designed to answer to all type of applications.

The sensibility is adjusted in relation to the liquid conductivity from 1 to 150 kOhm. The hysteresis between on/off relay switching is about 10% of sensibility; this is to avoid false alarms originated by smog, foam or condensation of vapours. With both timers, it is easy to adjust the level detection or level regulation even if the fluid surface is moving (small wave effect).

APPLICATIONS

- Reed contact, models included in BRK60, BW60, CNL, MNR6, MNR7 etc.
- Flow switch, such as ZE951 (IDP – PDP), CDP etc.

Also on level control for electrically conductive liquid media:
Minimal or maximal levels – Dosing, flow detection and alarm, pump control, solenoid valve control, fluid detection in a pipe.
With appropriate electrodes for use as limit transducer in: Water, wastewater – Acids, lye – Brines, etc.

It is necessary to have one relay ES2001 for each detection level.

TECHNICAL FEATURES

Main power supply: 230 V AC ±10% – 50/60 Hz (standard) – other on request
 Consumption: 2 VA
 Working temperature: Maximal, +45°C
 Housing: IP40 – cabinet, tropicalized version, on request
 Mounting: Rail DIN 46277
 Galvanic insulation: Between main line and electrodes circuit
 Sensitivity: 2 adjustable ranges, 1...70 kOhm and 5...150 kOhm
 Switching power: 500 VA / 250 V AC / 5 A – 1 A / 125 V DC / 40 W
 Screw connectors for reverse contact
 Timers, adjustable: t = 0.5 to 5 s for increasing level
 0.5 t for decreasing level
 Hysteresis: approx. 10% of adjusted sensitivity
 Electrodes circuit: 6 V AC, < 1.5 mA
 Indicators: 1 operating LED, 1 switching status LED

CODE NUMBERS AND REFERENCES

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<th>Code</th>
<th>Reference</th>
<th>Designation</th>
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<td>530 200</td>
<td>ES 2001 /230</td>
<td>Main supply 230 V - 50/60 Hz</td>
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<td>530 210</td>
<td>ES 2001 /115</td>
<td>Main supply 115 V - 50/60 Hz</td>
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Operating range

- The capacitive resistance of long cables reduces the sensitivity of the electrode controls.
- A typical, shielded, 3 conductor PVC cable has a capacitance of approx. 100 pF per metre.
- This results in an operating range which is dependent upon cable length and the resistance of the liquid in accordance with the following diagram:

[only for V AC supply]
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DIMENSIONS

SAFE DETECTION SET UP

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.

WIRING
Multiple wire cable of 0.5 mm² should be used. Care to separate this cable from power cables. Over 25 m long, it is necessary to use a shielded cable, with a maximum length of 300 m.

FUNCTION

1. ON/OFF DETECTION: 2 rods
The relay actuates when the liquid allow the current to go through the loop.

2. ON/OFF REGULATION: 3 rods
The relay actuates and keeps its function until the liquid reach the upper level (filling) or the lower level (emptying).
A LED indicates the relay status.

Relay testing: Disconnect all the rods (electrodes)
Alarm function Shunt 6 and 5: relay actuates
Regulation function Shunt 6, 5 and 4. Let free 5 and then 4