

## Installation and Maintenance Rules for: Conductive level indicator CLC40



### CLC40

#### STANDARD FEATURES

The **CLC40** is a sensor for the detection of level thresholds on conductive liquids, built in compliance with the regulations in force in the European Union and specifically with:

- Casing in PA6 (Nylon). Ingress protection IP65. Threaded connection 1" 1/2 Gas.
- Stainless steel electrodes (AISI 316).
- Intended power supplies: 115/230 or 24/48 VAC 50/60 Hz - 24 VDC
- Use contacts capacity: 8A - 250VAC
- Electric draw: 1W
- Maximum working pressure: 5 bar
- Operating temperature: from -10 to +70°C
- Maximum liquid temperature: +90°C
- Electrical conductivity: min. 5µS/cm with 20mm of electrode covered

#### SAFETY RULES

**All the operations described in the documentation must be carried out only by qualified personnel authorized by the plant manager, adopting all the appropriate safety precautions to reduce the risk of fire, electric shock and personal injury.**

The operational safety of the device is guaranteed only by use in accordance with the regulations, the instructions for use and any additional instructions. Arbitrary transformations or modifications are categorically prohibited. In the event of improper or non-intended use, the device can be a source of dangers related to the specific application, or damage to the plant due to incorrect assembly or configuration.

Verify that the power supply system complies with the standards, with an automatic protection switch incorporated. Any control, cleaning, maintenance, change or replacement of parts must be carried out with the indicator disconnected and the plug disconnected from the power supply.

#### INSTALLATION

Before installation, perform a visual inspection of the device to make sure that it did not suffer any damage during transport or storage. If anomalies are found, the product must be sent to the Manufacturer for restoration of efficiency.

The CLC40 indicator can be installed in different positions (Pic. 1). With two electrodes it is possible to detect a single level (maximum level for overflow protection, or minimum level for dry running protection); with three electrodes there is a two-point control (filling pump switched on when the minimum level is reached and switched off at the maximum level). The incoming liquid flow should not directly hit the electrodes (danger of false signals). With liquids that tend to form a conductive patina, vertical mounting is preferable (from the top of the tank), however it is not recommended for use with greasy and oily products that might form an insulating film on the surface of the electrodes.

To adjust the intervention height, it is possible to shorten the electrodes. Before carrying out this operation, unscrew the bars from the casing to avoid damaging the level sensor. The numbers of the bars are visible on the back of the threaded connection (Pic. 2). The length of the reference electrode (E1) must be equal to or greater than that of the minimum measurement electrode (E2).

#### WIRING

**Disconnect the power supply, before proceeding with the connection operations.**

Use cables with an adequate section to guarantee a current density, in each conductor, not exceeding 4A / mm<sup>2</sup>. Use flexible cables with an external diameter suitable for the cable gland used (not supplied) to ensure watertight integrity. Use 6.3x0.8 mm Faston cable lugs with Faston cover for all contacts.

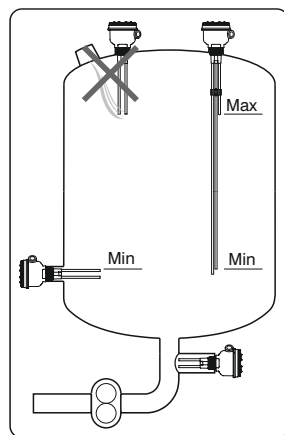
Inside the level indicator, on the printed circuit, there are indications for the electrical connection of the power supply and relay (Pic. 3).

#### OPERATION

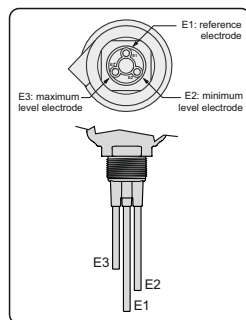
If at least two electrodes are covered by a conductive product, small alternating currents will pass from the measuring electrode (E2 or E3) towards the reference electrode (E1), causing an intervention command.

On the printed circuit board there are a few service elements, shown in Pic. 4:

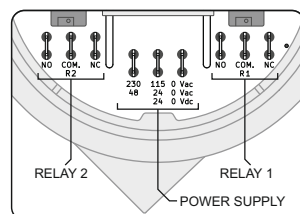
- Relay 1 and relay 2 signalling LEDs;
- **DIP Switch** to choose the setting, one or two point operation and intervention delay;
- **TRIMMER** to adjust the instrument sensitivity (clockwise rotation = sensitivity increase).



Pic. 1



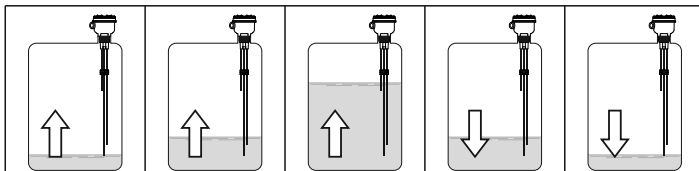
Pic. 2



Pic. 3

The **CLC40** can work with 1 or 2 relays, in the default setting (de-energized relays) or inverted (energized relays).

To set the operating mode of the instrument, use the first two selectors of the **DIP Switch**, as shown in the following table.



DEFAULT	 Both relays are operating 1 OFF / 2 ON	R1	<input type="radio"/> DE-ENERGIZED	<input checked="" type="radio"/> ENERGIZED	<input checked="" type="radio"/> ENERGIZED	<input checked="" type="radio"/> ENERGIZED	<input type="radio"/> DE-ENERGIZED	
		R2	<input type="radio"/> DE-ENERGIZED	<input type="radio"/> DE-ENERGIZED	<input checked="" type="radio"/> ENERGIZED	<input type="radio"/> DE-ENERGIZED	<input type="radio"/> DE-ENERGIZED	
INVERTED	 Only R1 is operating 1 OFF / 2 OFF	R1	<input type="radio"/> DE-ENERGIZED	<input type="radio"/> DE-ENERGIZED	<input checked="" type="radio"/> ENERGIZED	<input checked="" type="radio"/> ENERGIZED	<input type="radio"/> DE-ENERGIZED	
		R2	<input type="radio"/> DE-ENERGIZED	<input type="radio"/> DE-ENERGIZED	<input type="radio"/> DE-ENERGIZED	<input type="radio"/> DE-ENERGIZED	<input type="radio"/> DE-ENERGIZED	
	INVERTED	 Both relays are operating 1 ON / 2 ON	R1	<input checked="" type="radio"/> ENERGIZED	<input type="radio"/> DE-ENERGIZED	<input type="radio"/> DE-ENERGIZED	<input type="radio"/> DE-ENERGIZED	<input checked="" type="radio"/> ENERGIZED
			R2	<input checked="" type="radio"/> ENERGIZED	<input checked="" type="radio"/> ENERGIZED	<input type="radio"/> DE-ENERGIZED	<input checked="" type="radio"/> ENERGIZED	<input checked="" type="radio"/> ENERGIZED
INVERTED	 Only R1 is operating 1 ON / 2 OFF	R1	<input checked="" type="radio"/> ENERGIZED	<input checked="" type="radio"/> ENERGIZED	<input type="radio"/> DE-ENERGIZED	<input type="radio"/> DE-ENERGIZED	<input checked="" type="radio"/> ENERGIZED	
		R2	<input type="radio"/> DE-ENERGIZED	<input type="radio"/> DE-ENERGIZED	<input type="radio"/> DE-ENERGIZED	<input type="radio"/> DE-ENERGIZED	<input type="radio"/> DE-ENERGIZED	

With the last two selectors of the **DIP Switch** it is also possible to set an intervention delay for the CLC40, which can be used for example to avoid false signals.

Finally, thanks to the **TRIMMER** it is possible to adjust the sensitivity of the instrument, which increases by rotating it clockwise (screw). In particular, for liquids whose conductivity is lower than 1 mS, follow the procedure described below:

1. Fill the tank to cover about 1 cm of the minimum level electrode (E2).
2. Position the **DIP Switch** on the default setting (de-energized relays).
3. Switch on the power supply.
4. Gently unscrew (counter-clockwise) the **TRIMMER** to the minimum position.
5. Gently screw (clockwise) the **TRIMMER** until the **R1 LED** turns on.

The sensor will then be properly adjusted to the product.

### MAINTENANCE

The **CLC40** sensor, used appropriately in normal operating conditions, does not require any maintenance.

Deposits of limestone or other non-conductive films can interact with the correct functioning of the sensor. In such cases it is necessary to periodically clean the electrodes.

### WARRANTY

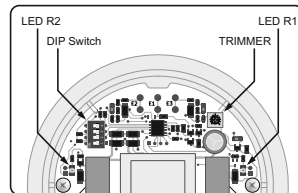
**CAMLogic**, in addition to the terms of the supply contract, guarantees its products for a period of twenty-four (24) months from the date of shipment.

his warranty is expressed only in the repair or replacement free of charge of parts that, after careful examination by the Manufacturer, turn out to be defective. Warranty, excluding all liability for direct or indirect damage, is considered to be restricted to only defects in materials and has no effect if the parts returned turn out to have been anyhow dismantled, tampered with or repaired by anyone other than the Manufacturer.

Warranty likewise excludes damage deriving from negligence, carelessness, bad or improper use of the level gauge, or from bad handling by the operator and faulty installation. Warranty is moreover forfeit if non-genuine spare parts have been used.

A returned level gauge, even if under warranty, must be shipped carriage free.

INTERVENTION DELAY	 3 ON 4 OFF	3 OFF 4 OFF	No delay
	 3 ON 4 ON	3 ON 4 OFF	2 sec.
	 3 OFF 4 ON	3 OFF 4 ON	6 sec.
	 3 ON 4 ON	3 ON 4 ON	10 sec.



Pic. 4

