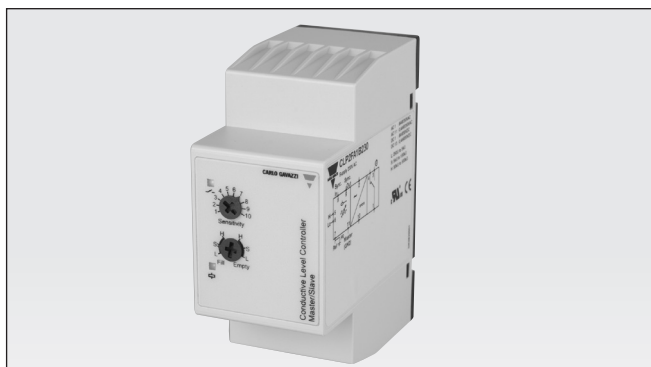


# Conductive Sensors 2-point Level Controller, Cascade Coupling Type CL with Potentiometer

CARLO GAVAZZI



- Conductive level controller
- Adjustment sensitivity – operating resistance from 250Ω to 500 KΩ
- For filling or emptying applications
- Low-voltage AC electrodes
- Easy installation with 11 pin circular plug
- Rated operational voltage:  
24 VAC/DC, 115 VAC or 230 VAC
- Output 8A/250 VAC SPDT relay
- LED indication for: Output ON, Power ON
- Possibility of serial connection



## Product Description

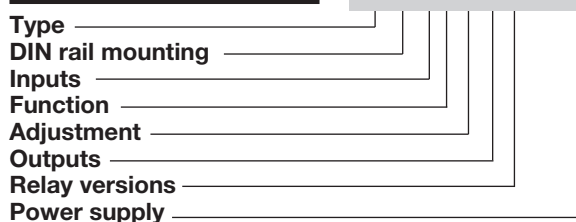
Level control relay for conductive liquids which can control two levels of filling or emptying.

The relay features a sensitivity range from 250Ω to 500kΩ corresponding to 4m sie-

mens to 2μ siemens. If more than two levels are required more systems can be added.

## Ordering Key

**CLP2FA1BM24**



## Type Selection

Mounting	Ordering no. Supply: 24 VAC/DC	Ordering no. Supply: 115 VAC	Ordering no. Supply: 230 VAC
11-p circular plug	CLP2FA1BM24	CLP2FA1B115	CLP2FA1B230

## Specifications

<b>Rated operational voltage (U<sub>B</sub>)</b> Pin 2 & 10	230 115	195 to 265 VAC, 45 to 65 Hz 98 to 132 VAC, 45 to 65 Hz	<b>Dielectric voltage</b>	>2.0 KVAC (rms) (contacts / electronics)
Supply class 2	24	19.2 to 28.8 VAC/DC	<b>Rated impulse withstand volt.</b>	4 kV (1.2/50 μS) (contacts / electronics) (IEC 664)
Rated insulation voltage		<2.0 kVAC (rms)	<b>Operating frequency (f)</b> Relay output	0.5 HZ
Rated impulse withstand voltage		4 kV (1.2/50 μs) (line/neutral)	<b>Response time</b> OFF-ON (t <sub>on</sub> ) ON-OFF (t <sub>off</sub> )	1 s 1 s
<b>Rated operational power</b> AC supply AC/DC supply	5 VA 5 VA / 5 W		<b>Environment</b> Overvoltage category Degree of protection Pollution degree	III (IEC 60664) IP 20 (IEC 60529, 60947-1) 2 (IEC 60664/60664A, 60947-1)
<b>Delay on operate (t<sub>v</sub>)</b>	< 300 mS		<b>Temperature</b> Operating Storage	-20° to +50°C (-4° to + 122°) -50° to +85°C (-58° to +185°F)
<b>Outputs</b> Rated insulation voltage	250 VAC (rms) (cont./elec.)		<b>Housing material</b>	Noryl PPO, light grey
<b>Relay Rating (AgCdO)</b> Resistive loads	AC1 DC1	μ (micro gap) 8 A / 250 VAC (2500 VA) 1 A / 250 VDC (250 W) or 10 A / 25 VDC (250 W)	<b>Screw type</b>	M3
Small induc. Loads	AC15 DC13	0,4 A 250 VAC 0,4 A / 30 VDC	<b>Tightening torque min/max</b>	0.4Nm/0.8Nm
Mechanical life (typical)		≥ 30 x 10 <sup>6</sup> operations @ 18'000 imp/h	<b>Weight</b> AC supply AC/DC supply	200 g 125 g
Electrical life (typical)	AC1	> 250'000 operations	<b>Approvals</b> UL CSA	UL508 CSA-C22.2 No.247
<b>Level probe supply</b>	Max. 5 VAC		<b>CE marking</b>	Yes
<b>Level probe current</b>	Max. 2 mA		*C <sub>F</sub> = maximum Cable Capacitance	
<b>Sensitivity</b>	250Ω to 500KΩ Factory settings standard range "S" 100KΩ Ranges L (Low sensitivity) Ranges S (Standard sensitivity) Ranges H (High sensitivity)	250Ω to 5KΩ, C <sub>F</sub> * = 4.7 nF 5KΩ to 100KΩ, C <sub>F</sub> * = 2.2 nF 50KΩ to 500KΩ, C <sub>F</sub> * = 1.0 nF		

Specifications are subject to change without notice (14.12.2015)



## Mode of Operation

### Connection cable

2 or 3 conductor PVC cable, normally screened. Cable length: max. 100 m. The resistance between the cores and the ground must be at least 500k. Normally, it is recommended to use a screened cable between probe and controller, e.g. where the cable is placed in parallel to the load cables (mains). The screen has to be connected to pin 7 (reference).

### Cascade

If more than 2 levels are required, up to 7 amplifiers can be cascaded, as shown in the example below. Connect pin 11 of the master controller to ground and pin 9 of the master controller to pin 8 of the next con-

troller, the slave controllers (see drawing). Pin 11 of the slave controller must be left open! Pin 9 of the first slave must be connected to pin 8 of the second. Pin 9 of the last slave should be connected to pin 8 of Master. The connections must be made by screened cable to achieve optimal operation, e.g. in cable pits or trays where the cable is close to power cables. Connect the screen to pin 7, and be sure that the distance between two systems is max 3m. Adjust the connected system sensitivity and the systems are ready to work.

### Example 1

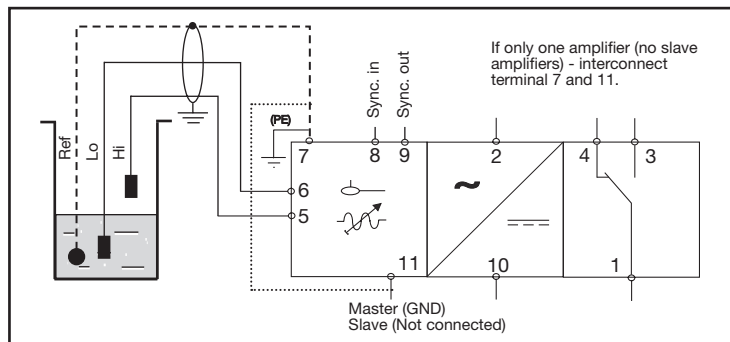
The diagram shows the level control connected as max. and min. control. The relay react to the low alternating current created when the electrodes are in contact with the liquid.

The reference (Ref) must be connected to the container

or if the container consists of a non-conductive material, to an additional electrode. (To be connected to pin 7). (In the diagram this electrode is shown by the dotted line)..

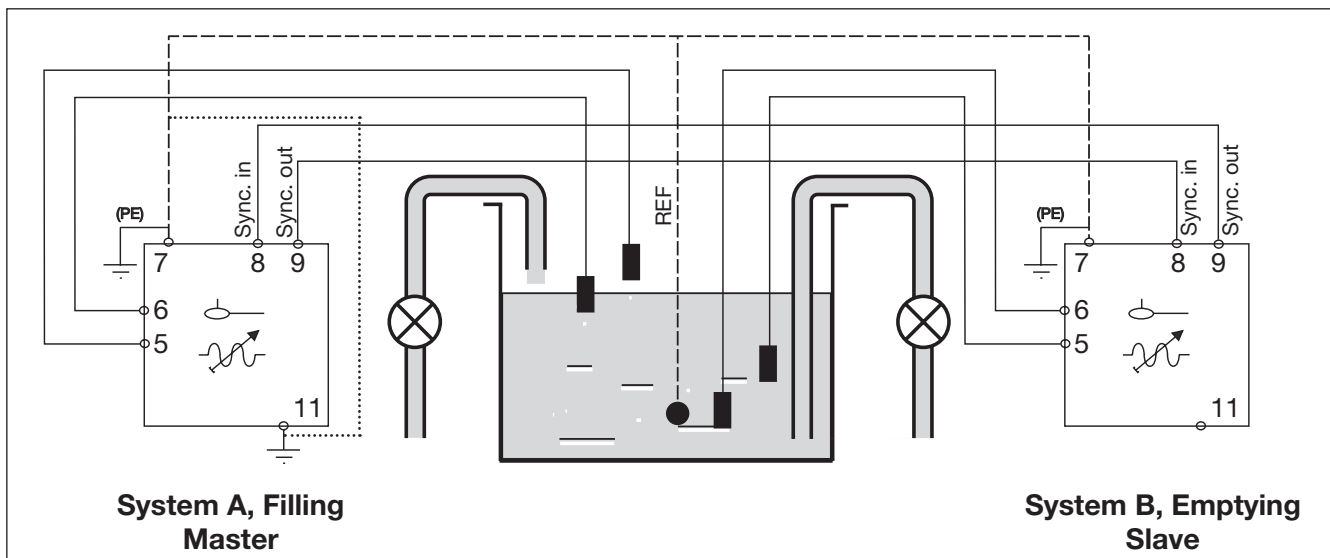
### NB!

If only one level detection is required - interconnect the two inputs 5 and 6.



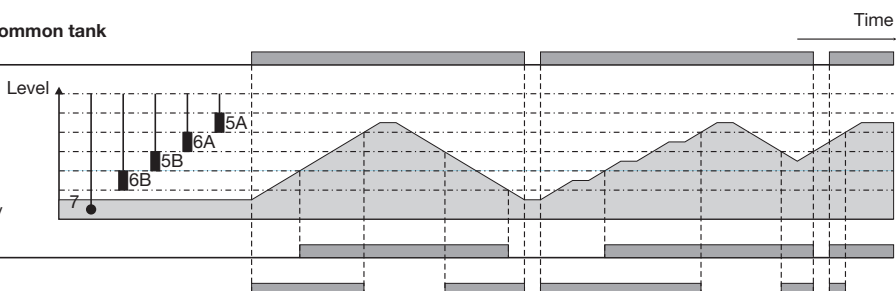
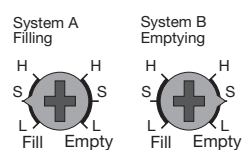
## Operation Diagram

### Filling and Emptying one common tank



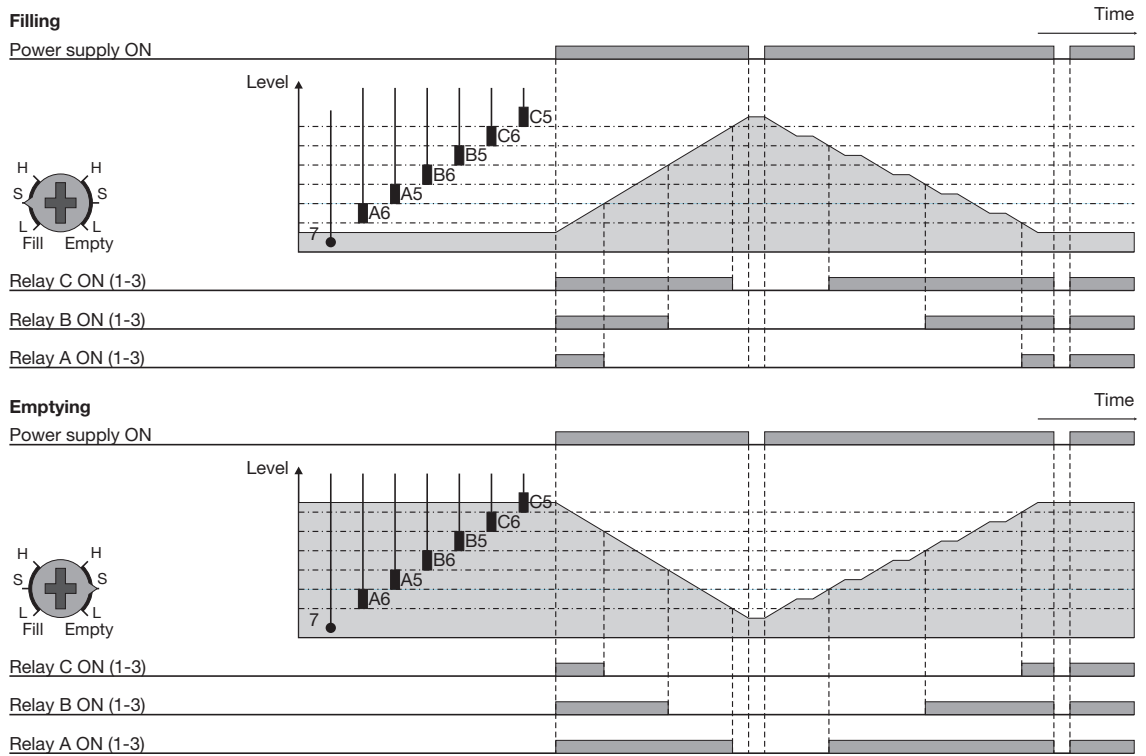
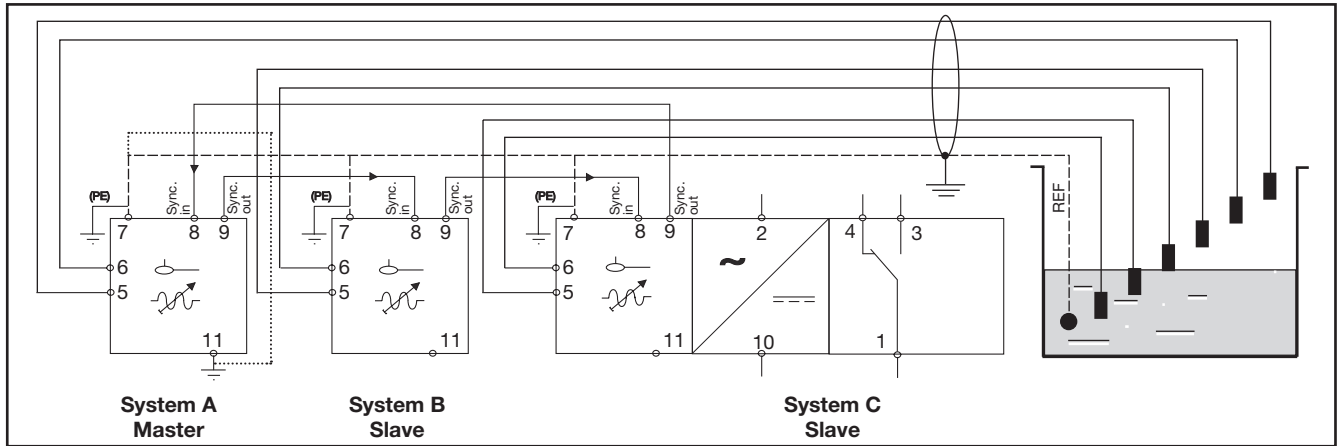
### Filling and Emptying one common tank

Power supply ON

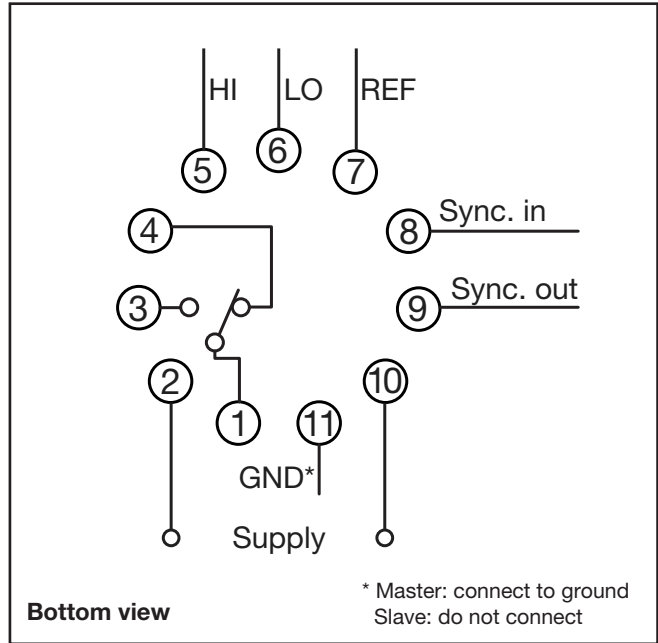
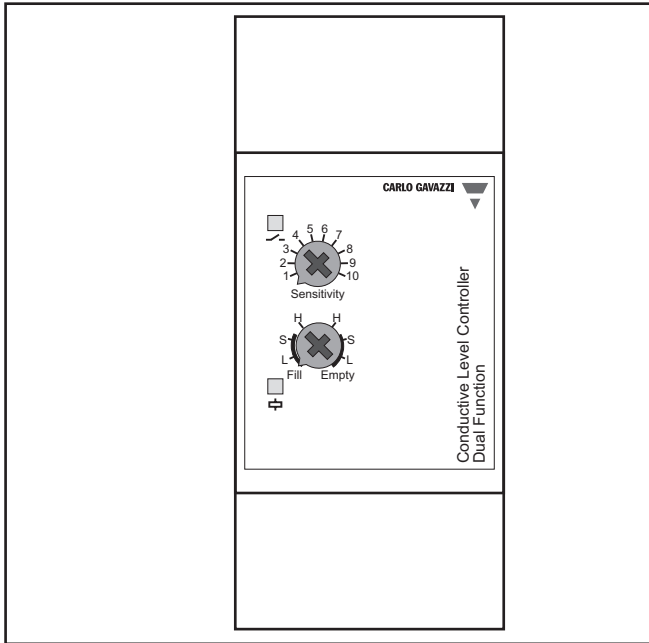


# Operation Diagram

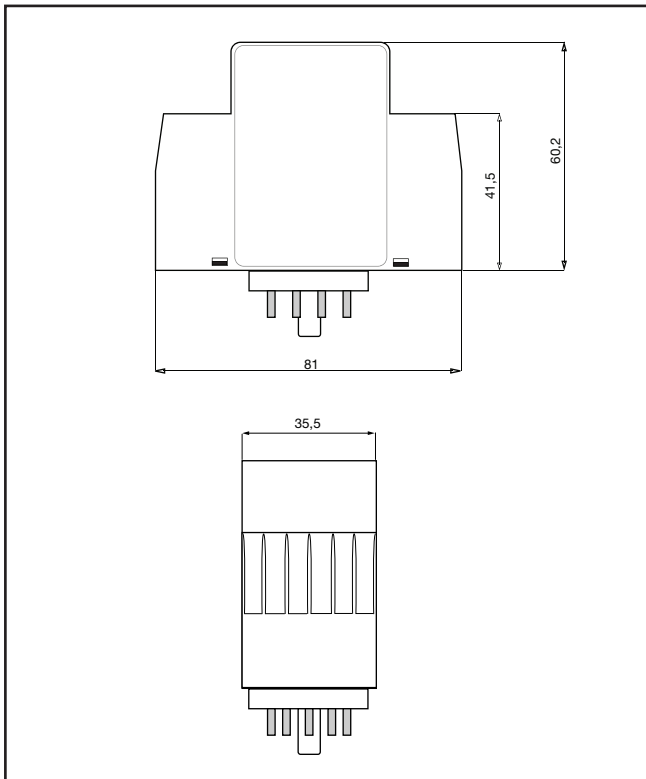
## Multilevel application in one tank



## Wiring Diagram



## Dimension Drawings



## Accessories

- 11 pole circular socket ZPD11
- Holding spring HF

## Delivery Contents

- Amplifier
- Packaging: Carton box
- Manual