

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

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- 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

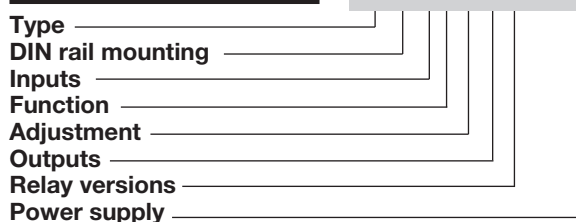
Level control relay for conductive liquids which can control two levels of filling or emptying.

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>		<b>Dielectric voltage</b>	>2.0 KVAC (rms) (contacts / electronics)
Pin 2 & 10	230		
	115	<b>Rated impulse withstand volt.</b>	4 kV (1.2/50 μS) (contacts / electronics) (IEC 664)
Supply class 2	24		
Rated insulation voltage		<b>Operating frequency (f)</b>	
Rated impulse withstand voltage		Relay output	0.5 HZ
		<b>Response time</b>	
<b>Rated operational power</b>		OFF-ON (t <sub>on</sub> )	1 s
AC supply	5 VA	ON-OFF (t <sub>off</sub> )	1 s
AC/DC supply	5 VA / 5 W		
<b>Delay on operate (t<sub>v</sub>)</b>	< 300 mS	<b>Environment</b>	
<b>Outputs</b>		Overvoltage category	III (IEC 60664)
Rated insulation voltage	250 VAC (rms) (cont./elec.)	Degree of protection	IP 20 (IEC 60529, 60947-1)
<b>Relay Rating (AgCdO)</b>		Pollution degree	2 (IEC 60664/60664A, 60947-1)
Resistive loads	AC1		
	DC1	<b>Temperature</b>	
		Operating	-20° to +50°C (-4° to + 122°)
		Storage	-50° to +85°C (-58° to +185°F)
Small induct. Loads	AC15	<b>Housing material</b>	Noryl PPO, light grey
	DC13	<b>Screw type</b>	M3
		<b>Tightening torque min/max</b>	0.4Nm/0.8Nm
Mechanical life (typical)		<b>Weight</b>	
		AC supply	200 g
		AC/DC supply	125 g
Electrical life (typical)	AC1	<b>Approvals</b>	
		UL	UL508
<b>Level probe supply</b>	Max. 5 VAC	CSA	CSA-C22.2 No.247
<b>Level probe current</b>	Max. 2 mA	<b>CE marking</b>	Yes
<b>Sensitivity</b>			
	250Ω to 500KΩ		
	Factory settings standard range "S" 100KΩ		
	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		
Ranges L (Low sensitivity)			
Ranges S (Standard sensitivity)			
Ranges H (High sensitivity)			

\*C<sub>F</sub> = maximum Cable Capacitance



## 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

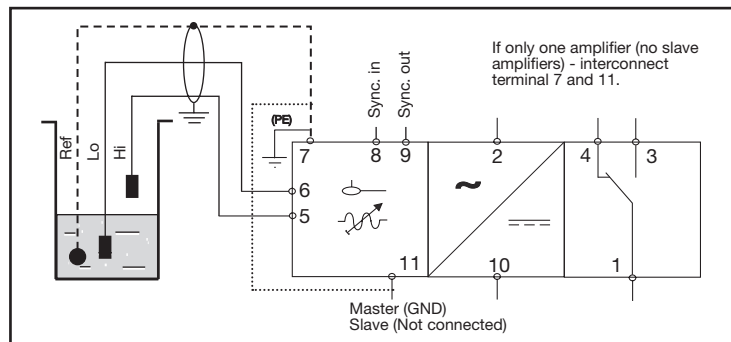
The diagram shows the level control connected as max. and min. control. The relay react to the low alternating current created when the electrodes are in contact with the liquid.

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)..

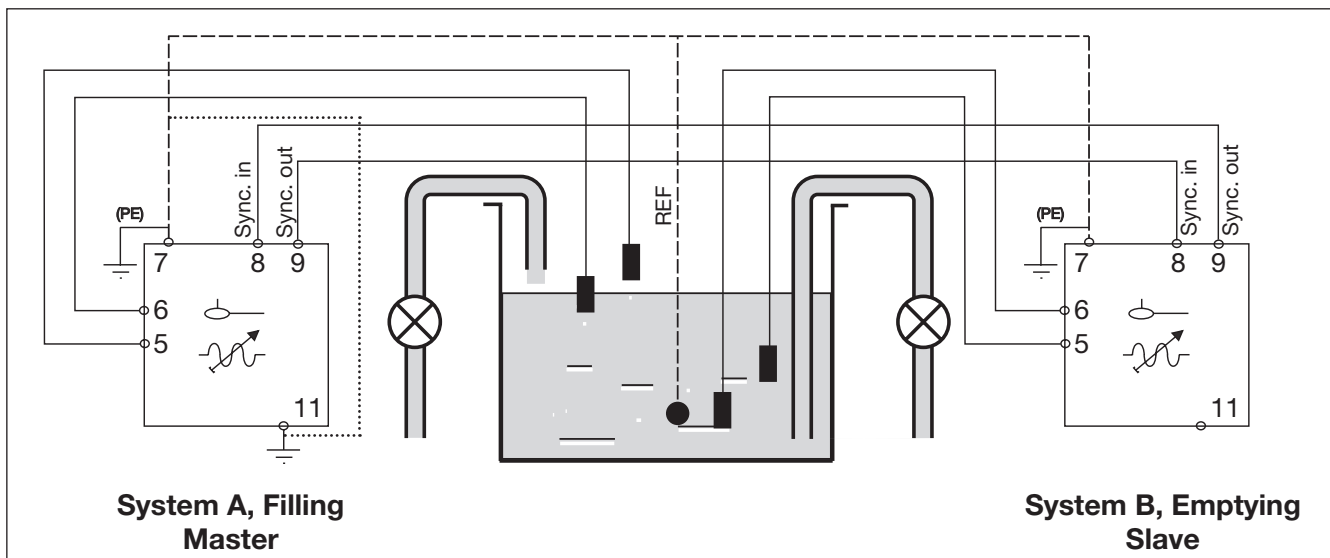
### NB!

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



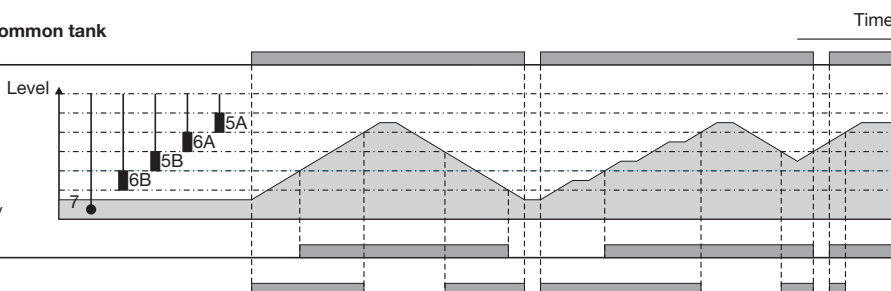
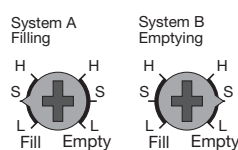
## Operation Diagram

### Filling and Emptying one common tank



### Filling and Emptying one common tank

Power supply ON



Relay B ON (1-3)

Relay A ON (1-3)

# Operation Diagram

## Multilevel application in one tank

