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Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



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 _____
DIN rail mounting _____
Inputs _____
Function _____
Adjustment _____
Outputs _____
Relay versions _____
Power supply _____

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

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

*C_F = 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

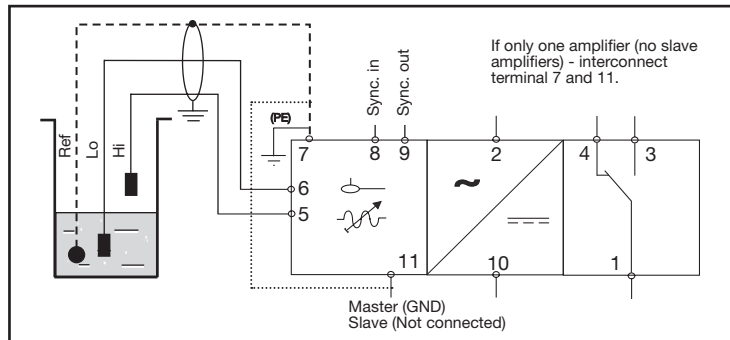
The diagram shows the level control connected as max. and min. control. The relay react to the low alternating current created when the electrodes are in contact with the liquid.

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)..

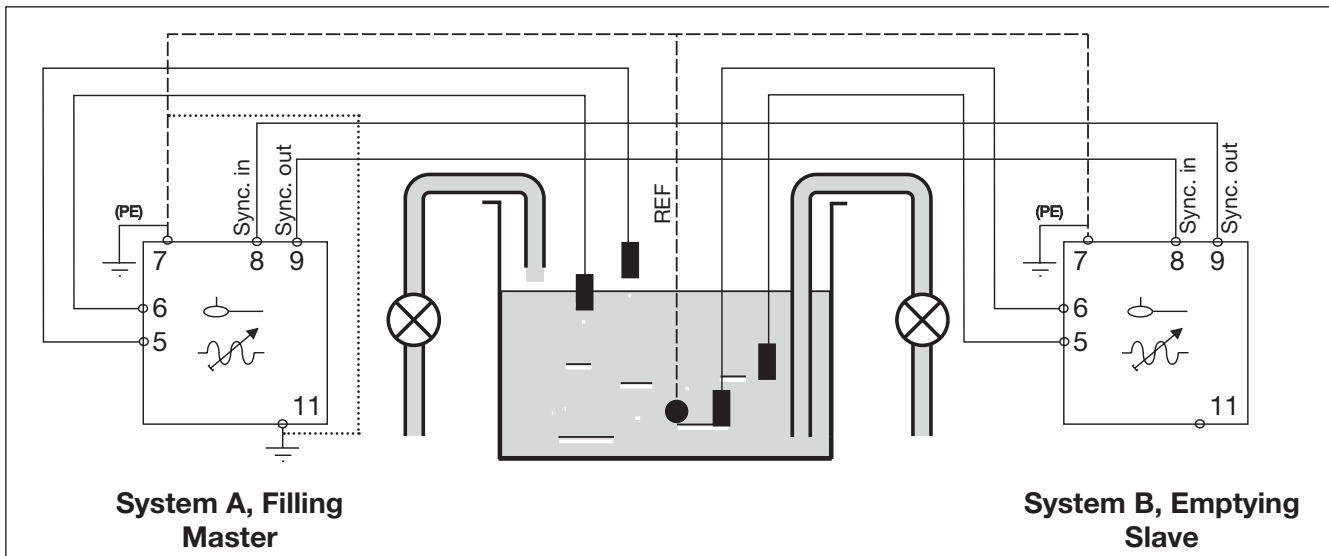
NB!

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



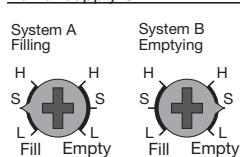
Operation Diagram

Filling and Emptying one common tank



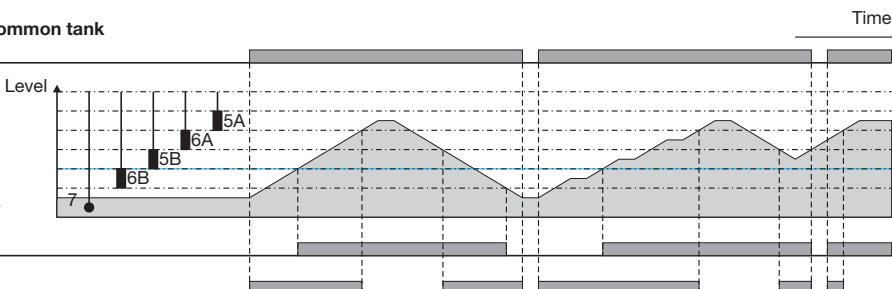
Filling and Emptying one common tank

Power supply ON



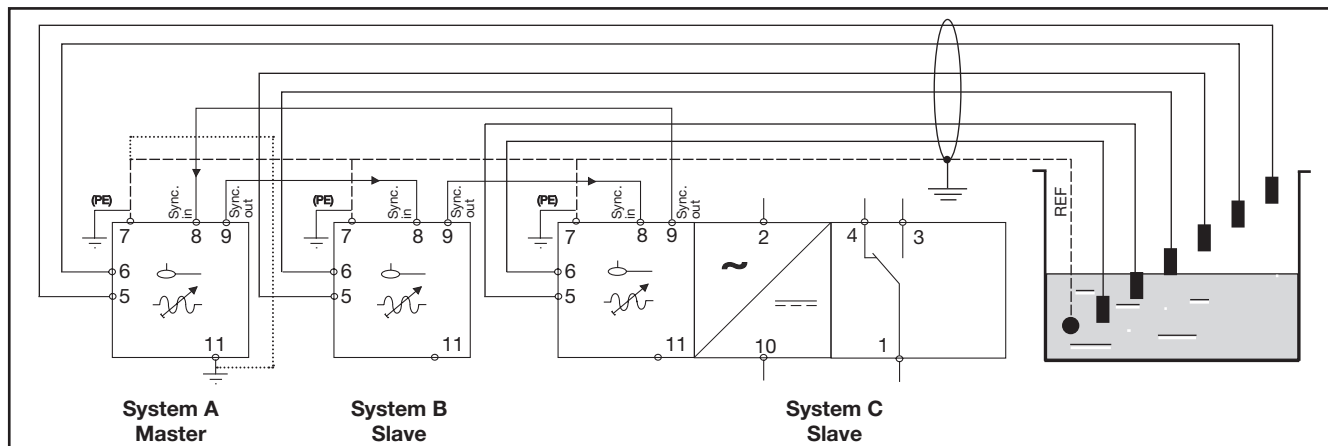
Relay B ON (1-3)

Relay A ON (1-3)



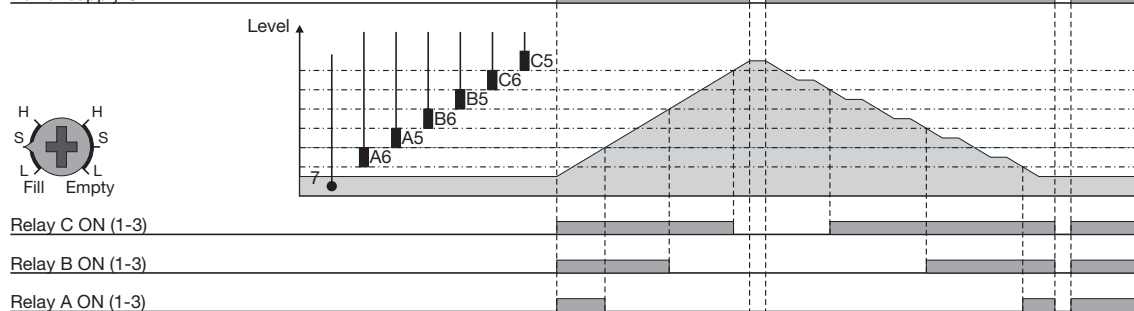
Operation Diagram

Multilevel application in one tank



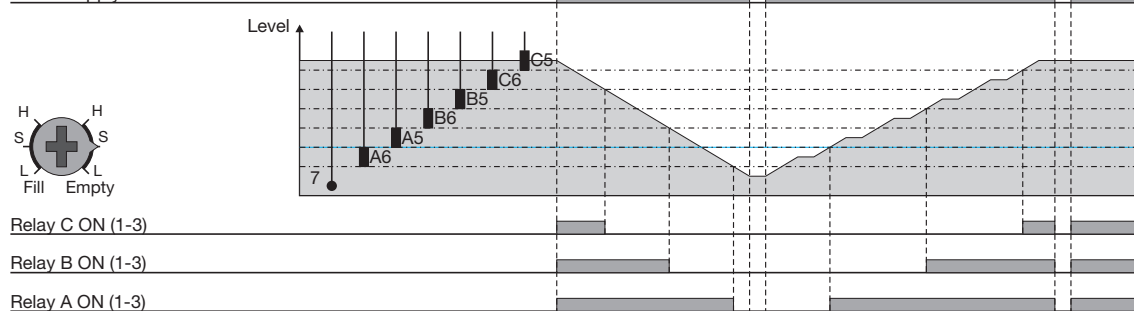
Filling

Power supply ON



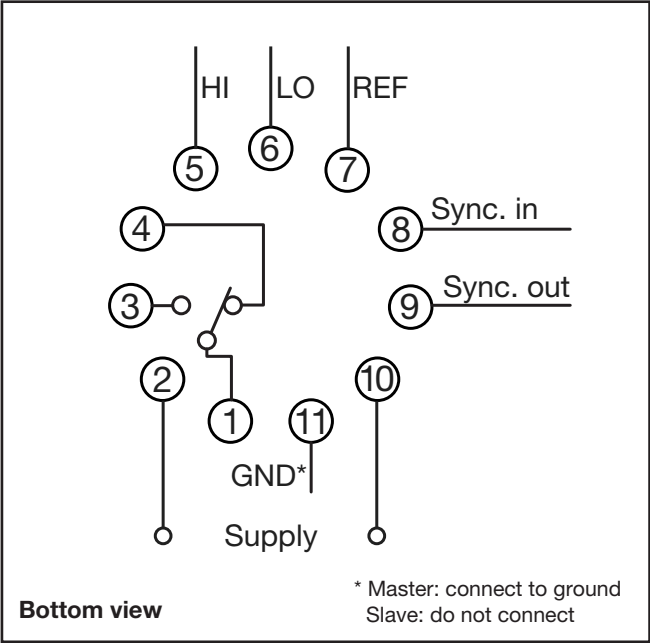
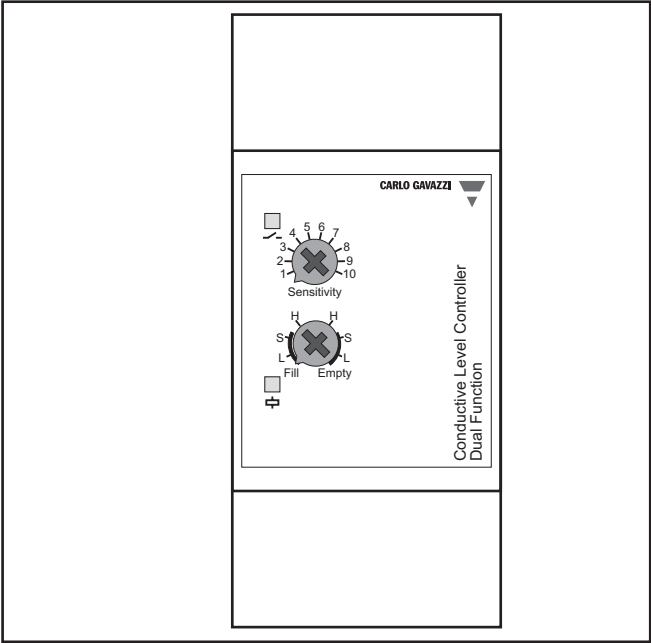
Emptying

Power supply ON

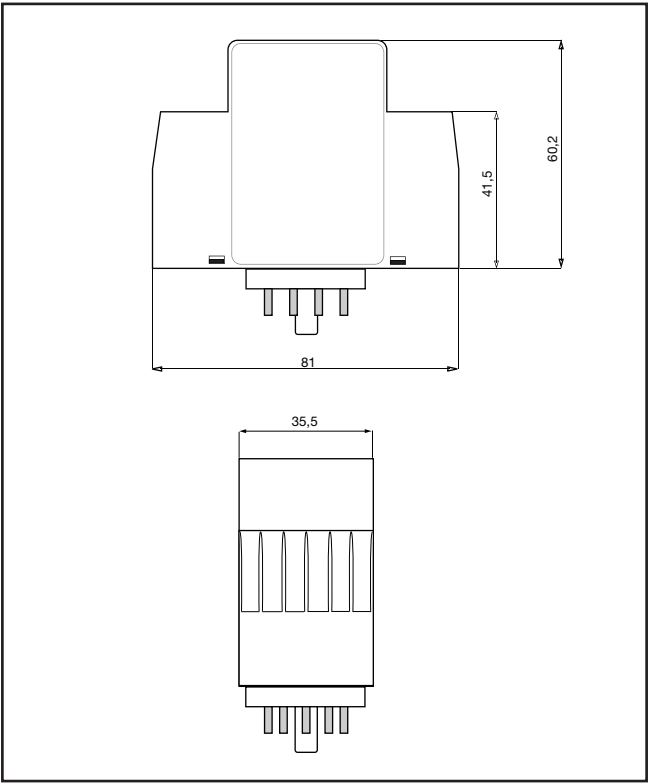




Wiring Diagram



Dimension Drawings



Accessories

- 11 pole circular socket
 - Holding spring
- ZPD11
HF

Delivery Contents

- Amplifier
- Packaging: Carton box
- Manual