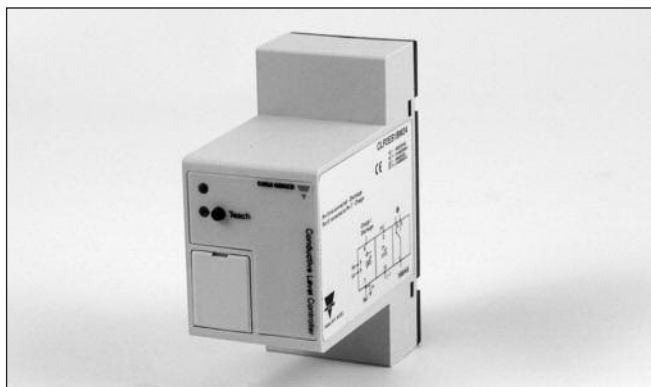


# Conductive Sensors 2-point Basic Level Controller Type CL with Teach-in

CARLO GAVAZZI



- Conductive level controller
- Teach-in of sensitivity – operating resistance from 3.5K $\Omega$  to 50 K $\Omega$
- 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: Calibration, faulty operation and relay status
- Possibility of serial connection

## Product Description

$\mu$ -Processor based level sensitivity is adjustable by controller. means of the teach-in function. Max./min. control of charging/ discharging of liquids. The

## Ordering Key

**CLP2ES1BM24**

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	CLP2ES1BM24	CLP2ES1B115	CLP2ES1B230

## Specifications

<b>Rated operational voltage (U<sub>B</sub>)</b>		195 to 265 VAC, 45 to 65 Hz 98 to 132 VAC, 45 to 65 Hz 19.2 to 28.8 VAC/DC <2.0 kVAC (rms)  4 kV (1.2/50 μs) (line/neutral)	<b>Dielectric voltage</b>	>2.0 KVAC (rms) (contacts / electronics)	
Pin 2 & 10	230		<b>Rated impulse withstand volt.</b>	4 kV (1.2/50 μS) (contacts / electronics) (IEC 664)	
	115				
	24				
Rated insulation voltage			<b>Operating frequency (f)</b>	Relay output 2 HZ	
Rated impulse withstand voltage					
<b>Rated operational power</b>			<b>Response time</b>	OFF-ON (t <sub>on</sub> ) OFF-ON (t <sub>off</sub> )	1,5 s 1,5 s
AC supply	5 VA				
AC/DC supply	5 VA / 5 W				
<b>Delay on operate (t<sub>v</sub>)</b>			<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>Outputs</b>					
Rated insulation voltage					
<b>Relay Rating (AgCdO)</b>		μ (micro gap) 8 A / 250 VAC (2500 VA) 8 A / 30 VDC (24 W) 8 A 25 VDC (250 W) 0,4 A 200 VAC 0,4 A / 30 VDC	<b>Temperature</b>	Operating Storage	-20° to +50°C (-4° to + 122°) -50° to +85°C (-58° to +185°F)
Resistive loads	AC1				
	DC1				
	or				
Small induc. Loads	AC11	≥ 30 x 106 operations @ 18'000 imp/h > 250'000 operations	<b>Weight</b>	AC supply AC/DC supply	200 g 125 g
	DC13				
Mechanical life (typical)					
Electrical life (typical)	AC1				
<b>Level probe supply</b>		Max. 5 VAC	<b>Approvals</b>	UL508, cULus	
<b>Level probe current</b>					Max. 1.5 mA
<b>Sensitivity</b>					
Factory preset		3,5KΩ to 50KΩ 47KΩ	<b>CE marking</b>	Yes	



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 50k. 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).

**Teach-in:**  
Make sure that the reference electrode and one of the other electrodes are in contact with the liquid – approximately 1 cm. Press the “teach” pushbutton at the front of the controller for approximately 2 seconds, until the green LED turns OFF. The controller will now auto-adjust itself according to the resistance of the

measuring liquid. If the resistance of the liquid is outside the maximum range handled by the controller, the green LED will flash quickly for a period of 2 seconds, indicating a wrong teach-in.

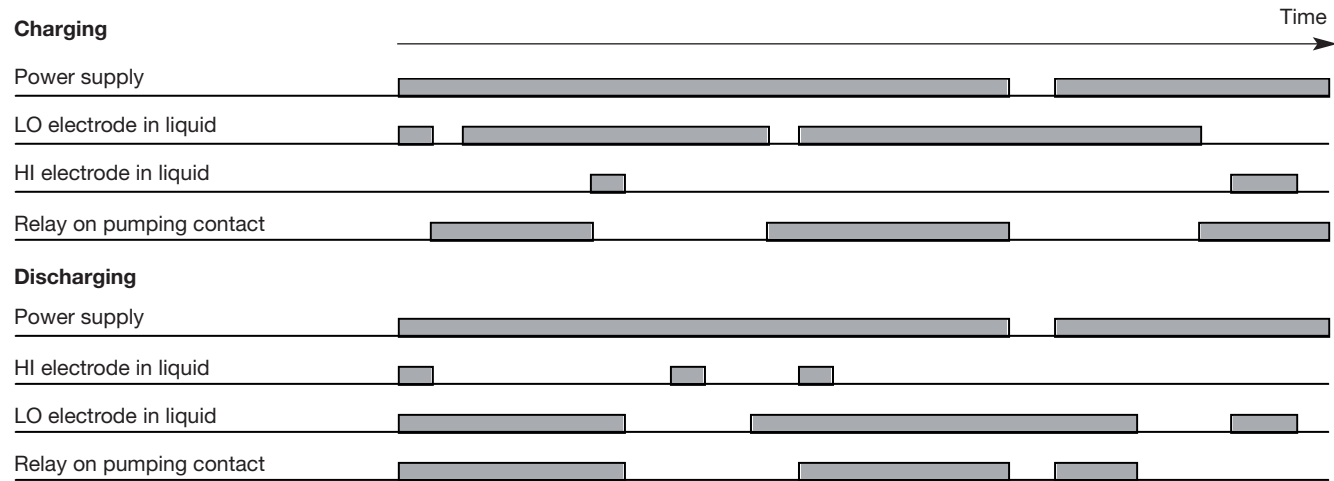
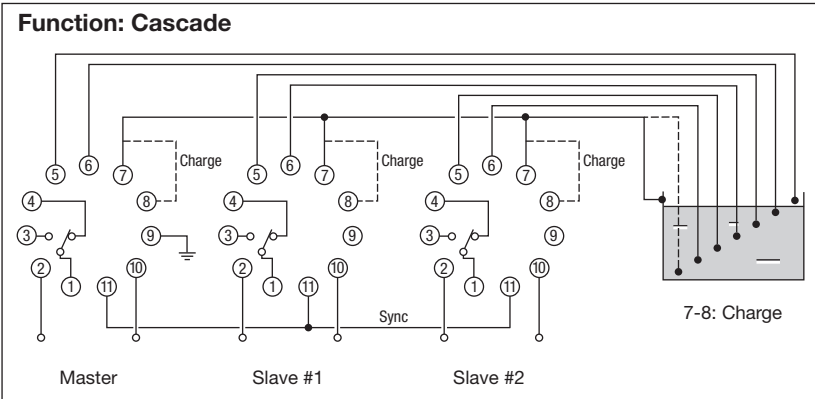
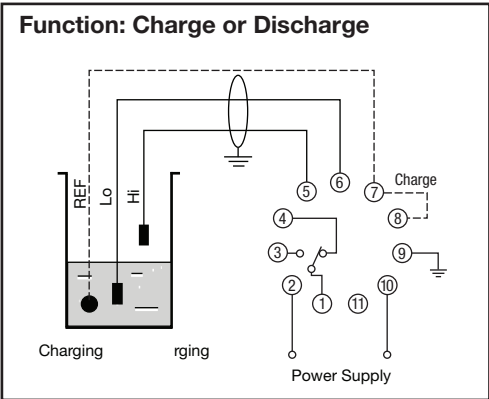
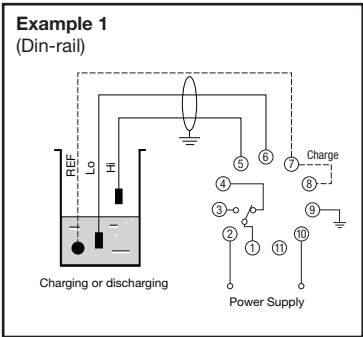
**Function setting**  
The controller works per default as discharge. Connect pin 7 to pin 8 for charge.

**Cascade**  
If more than 2 levels are required, up to 7 amplifiers can be cascaded, as shown in the example below. Connect pin 9 of the master controller to ground and pin 11 of the master controller to pin 11 of the next controllers, the slave controllers (see drawing). Pin 9 of the slave controllers must be left open! 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. Fill the tank with the liquid to be measured and teach in the master controller. If the teach in is performed correctly, the green power LED of the slave controller(s) will switch off and indicate: ready for teach in. Teach in the slave controllers one by one, until all the green power LED's are on again. The system is now in run-mode.



**Example 1**  
The diagram shows the level control connected as max. and min. control. The relay react to the low alternating cur-

rent 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)..

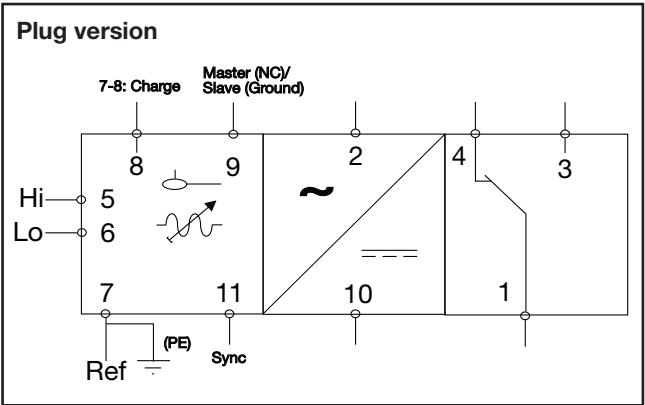


# Operating Schedule

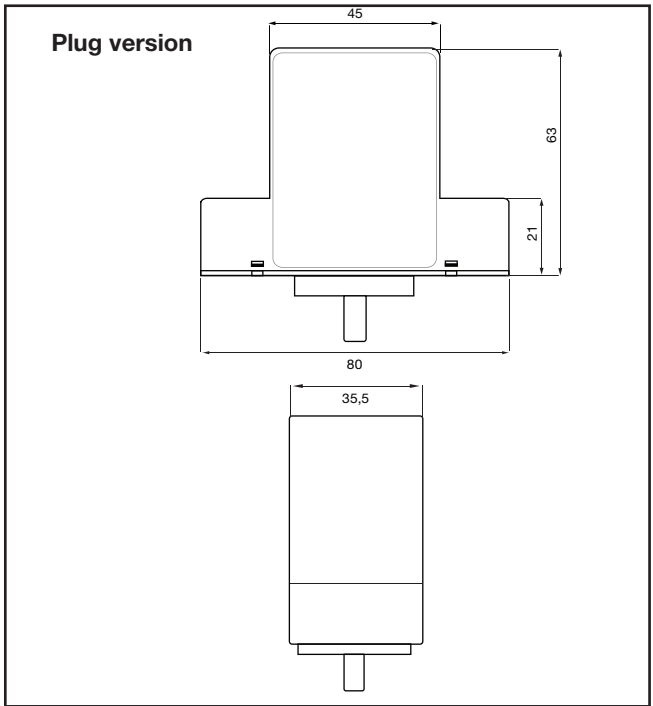
The following schedule provides an overview of the setup and failure situations

Situation	Condition	Action	Green Control lamp
Teach-in	Fill the tank with the liquid to be measured until the second longest electrode is immersed approx. 1 cm	Press the Teach button in front of the controller for approx. 2 seconds until the green control lamp turn off continuously. Release the teach button	
Failure indication	The Green lamp is flashing fast for approx. 2 seconds after a teach-in operation	Control the electrode for short-cut connections. Control that the resistance of the measured liquid is within the specified range	

# Wiring Diagram



# Dimension Drawings



# Accessories

- 11 pole corcular socket ZVD11
- Mounting rack SM13

# Delivery Contents

- Amplifier
- Packaging: Carton box
- Manual