

# Conductive Sensors 2-point level controller Type CL with potentiometer

CARLO GAVAZZI



- Conductive level controller
- Sensitivity adjustment from 250 Ω to 500 KΩ
- For filling or emptying applications
- Low-voltage AC electrodes
- Easy installation on DIN rails or with 11 pin circular plug
- Rated operational voltage:  
24 VAC/DC, 115 VAC or 230 VAC
- Output 2 x 8A/250 VAC DPDT relay
- LED indication for: Output ON and Power ON



## Product Description

μ-Processor based level controller for liquids with a wide sensitivity range (like sewage water, chemicals, salt water etc.).

Max./min. control of charging/discharging. The sensitivity is adjustable by means of the potentiometer and the rotary switch.  
2 x 8A DPDT relay output.

## Ordering Key

**CLD2EA1CM24**

- Conductive level
- DIN rail or plug mounting
- No of inputs
- Charge/discharge
- Adjustment potentiometer
- 1 relay output
- Relay DPDT
- Power supply

## Type Selection

Mounting	Relay	Ordering no. Supply: 24 VAC/DC	Ordering no. Supply: 115 VAC	Ordering no. Supply: 230 VAC
DIN-rail	DPDT	CLD2EA1CM24	CLD2EA1C115	CLD2EA1C230
11-p circular plug		CLP2EA1CM24	CLP2EA1C115	CLP2EA1C230

## Specifications

<b>Rated operational voltage (U<sub>B</sub>)</b>			Ranges S (Standard sensitivity)	5 KΩ to 100 KΩ, C <sub>F</sub> = 2.2 nF*
Pin 2 & 10	230	195 to 265 VAC, 45 to 65 Hz	Ranges H (High sensitivity)	50 KΩ to 500 KΩ, C <sub>F</sub> = 1.0 nF*
	115	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
Rated impulse withstand voltage		4 kV (1.2/50 μs) (line/neutral)		0.5 HZ
<b>Rated operational power</b>			<b>Response time</b>	OFF-ON (t <sub>on</sub> )
AC supply		5 VA		1 s
AC/DC supply		5 VA / 5 W	ON-OFF (t <sub>off</sub> )	1 s
<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	μ (micro gap)	<b>Temperature</b>	
	DC1	8 A / 250 VAC (2500 VA)	Operating	-20° to +50°C (-4° to + 122°F)
		1 A / 250 VDC (250 W)	Storage	-50° to +85°C (-58° to +185°F)
		or 10 A 25 VDC (250 W)	<b>Housing material</b>	
Small induc. Loads	AC15	0,4 A 250 VAC	CLP	NORYL PPO, light grey
	DC13	0,4 A / 30 VDC	CLD	ABS VO, light grey
Mechanical life (typical)		≥ 30 x 10 <sup>6</sup> operations	<b>Weight</b>	
		@ 18'000 imp/h	AC supply	200 g
Electrical life (typical)	AC1	> 250'000 operations	AC/DC supply	125 g
<b>Level probe supply</b>		Max. 5 VAC	<b>UL Approvals</b>	cULus
<b>Level probe current</b>		Max. 2 mA		UL508, UL325, CSA-C22.2 No.247
<b>Sensitivity</b>		250Ω to 500KΩ	<b>CE marking</b>	Yes
		Factory settings standard range "S" 100KΩ		
		Ranges L (Low sensitivity)		
		250 Ω to 5 KΩ, C <sub>F</sub> = 4.7 nF*		

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

## Mode of Operation

### Connection cable

2, 3, or 4 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 Y3 (reference).

### Example 1

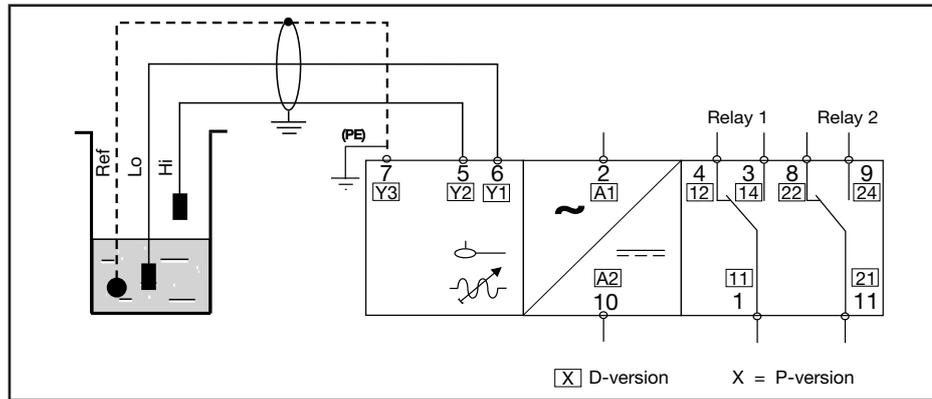
The diagram shows the level control connected as max. and min. control. The relays react to the low alternating current created when the

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 Y3). (In the diagram this electrode is shown by the dotted line).

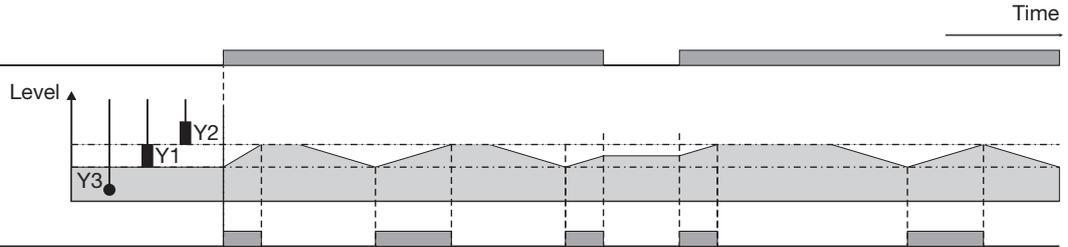
### NB!

If only one level detection is required - interconnect the two inputs Y1 and Y2.



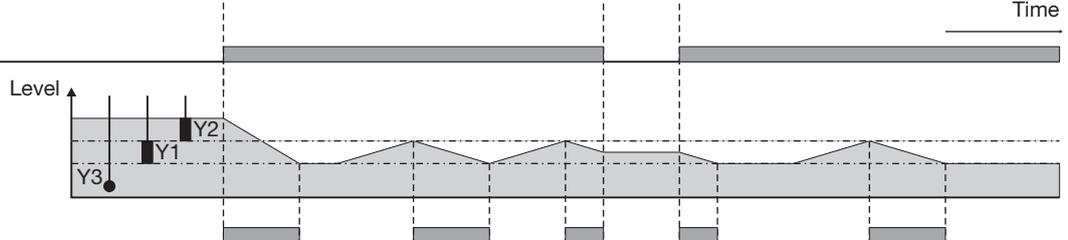
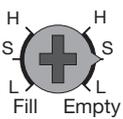
### Filling

Power supply ON



### Emptying

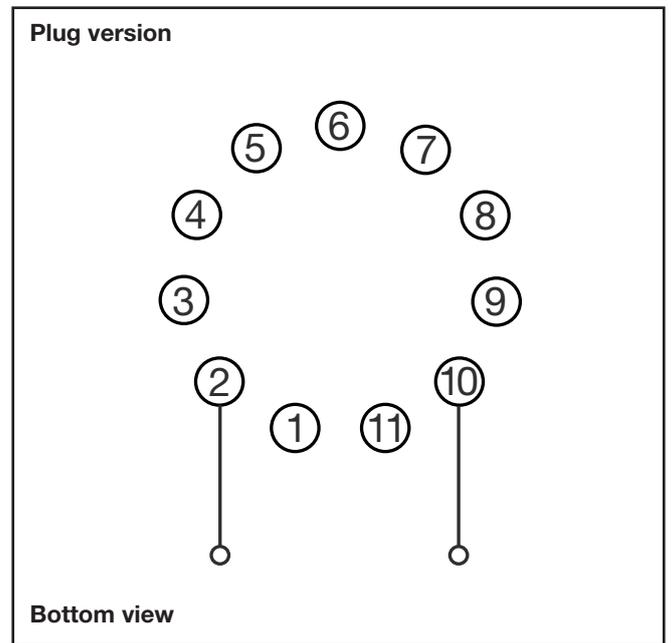
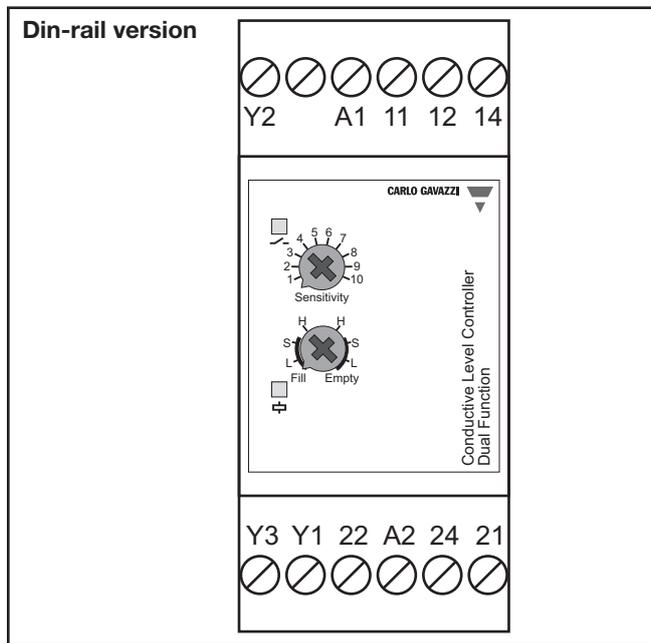
Power supply ON



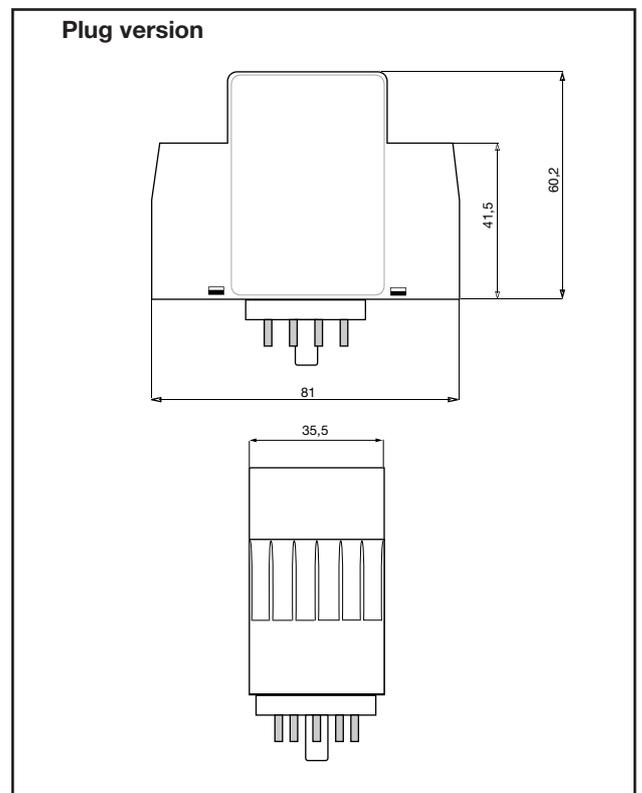
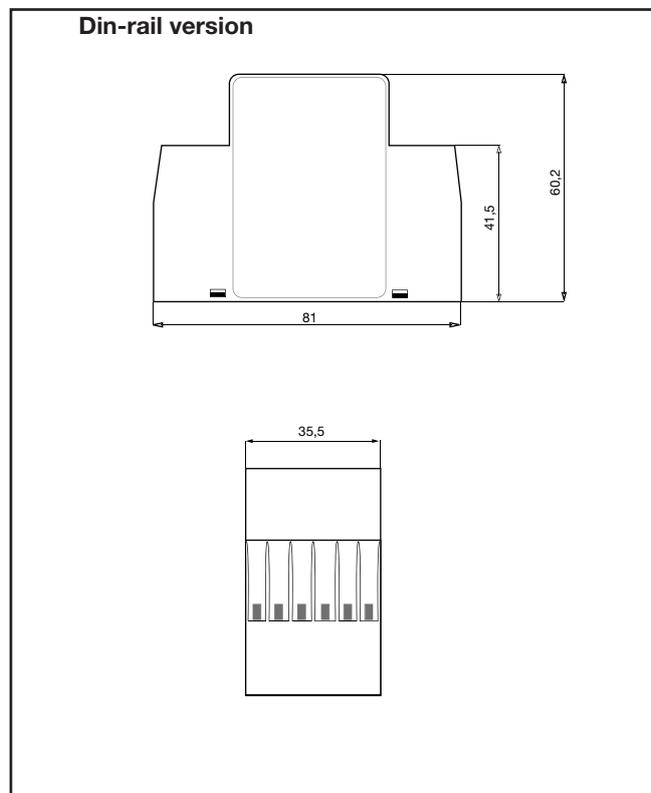
Relay ON [11-14] (1-3)

[D-version] (P-version)

## Wiring Diagram



## Dimension Drawings



## Accessories

- 11 pole circular socket ZPD11
- Retaining spring HF

## Delivery Contents

- Amplifier
- Packaging: Carton box
- Manual