

# 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.<br>Supply: 24 VAC/DC | Ordering no.<br>Supply: 115 VAC | Ordering no.<br>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)<br>(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

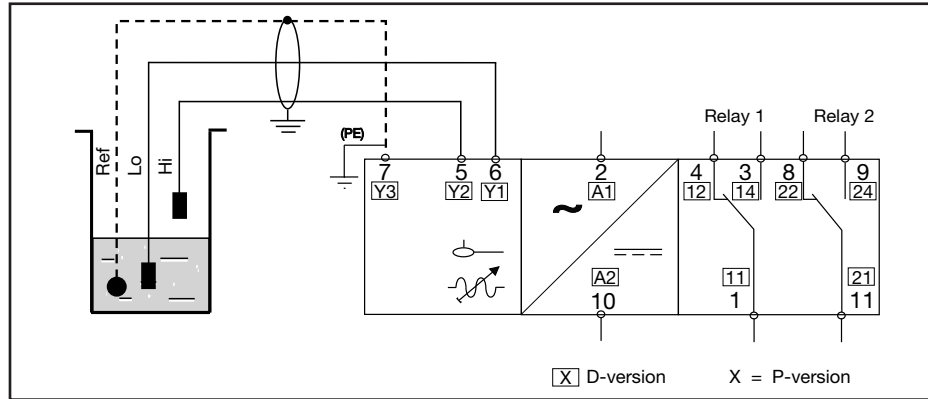
The diagram shows the level control connected as max. and min. control. The relays react to the low alternating current created when the

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).

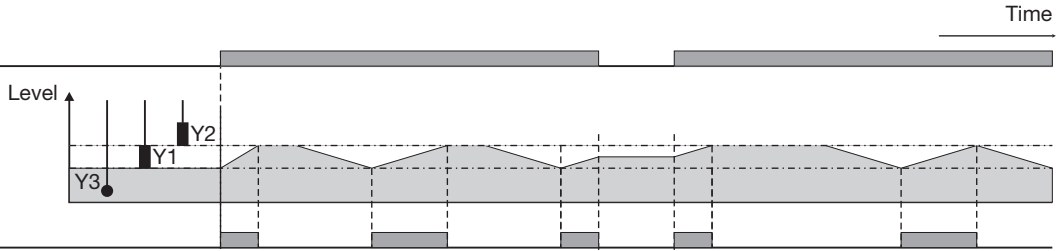
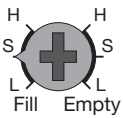
### NB!

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



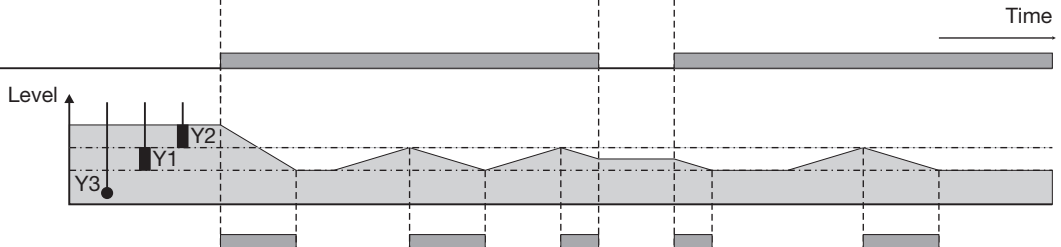
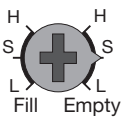
### Filling

Power supply ON



### Emptying

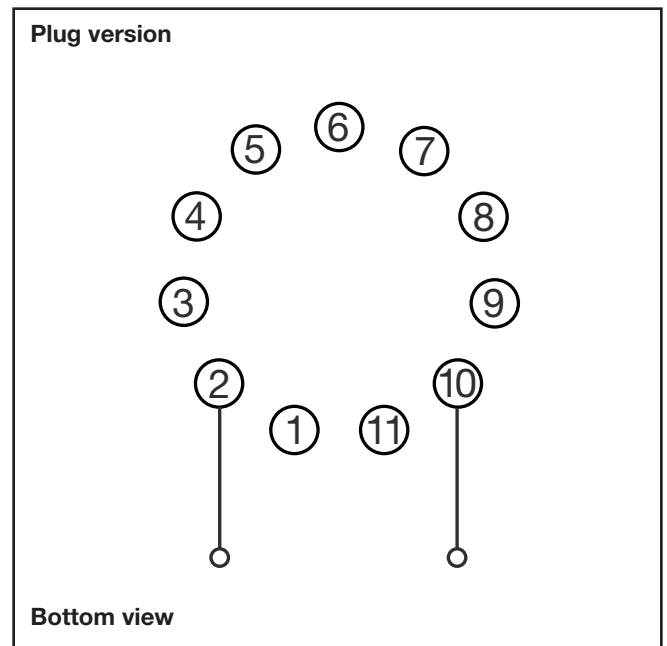
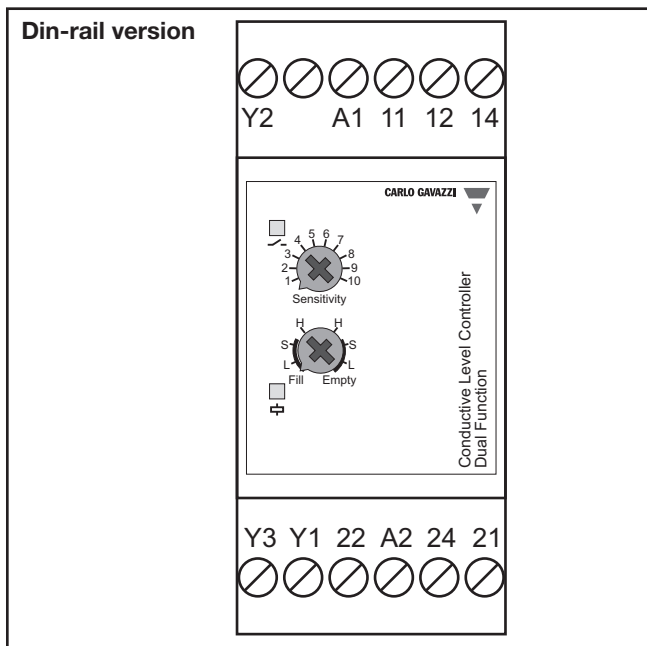
Power supply ON



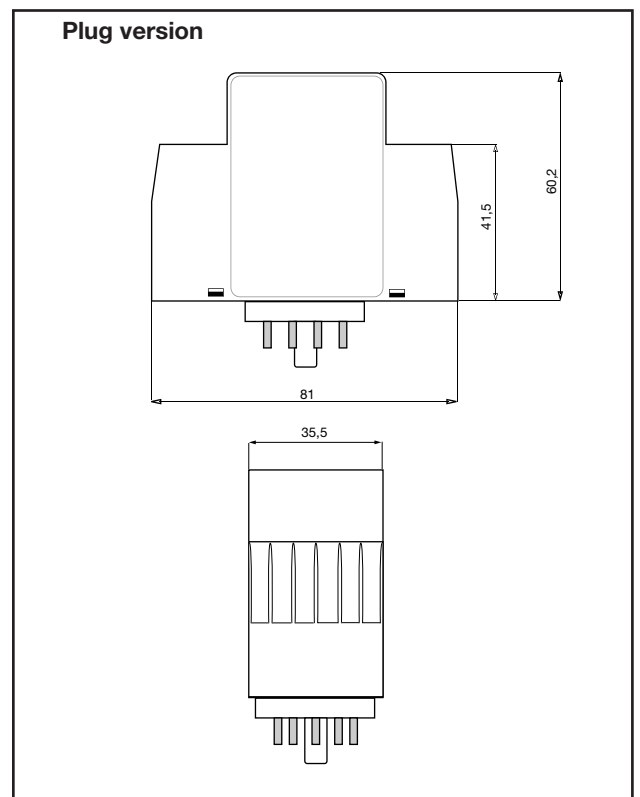
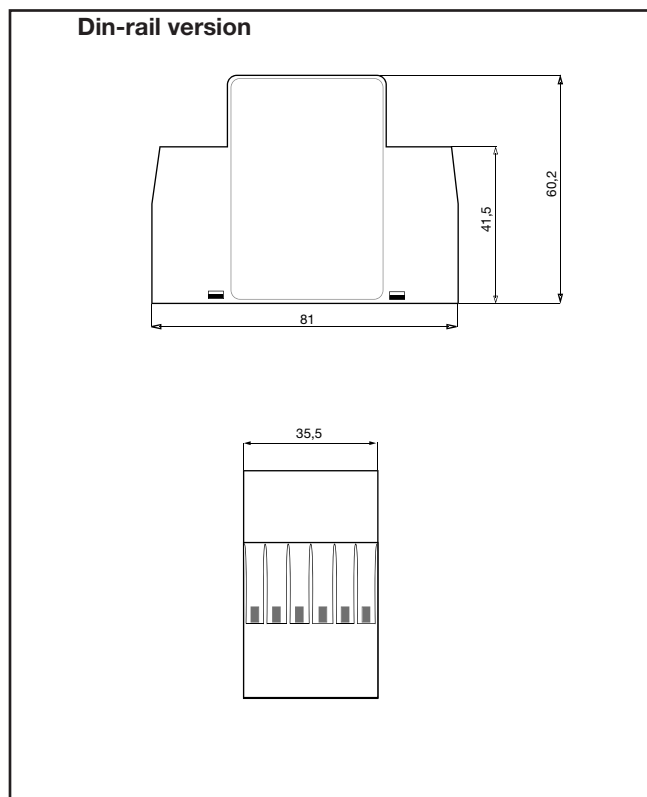
Relay ON [11-14] (1-3)

[D-version] (P-version)

## Wiring Diagram



## Dimension Drawings



## Accessories

- 11 pole circular socket ZPD11
- Retaining spring HF

## Delivery Contents

- Amplifier
- Packaging: Carton box
- Manual

# Level Sensors Conductive Type VS2



- Food and beverage usage
- 2 Teflon isolated electrodes
- For welding in container
- Screw connection

## Product Description

Level sensor for measuring the level of conductive liquids, i.e. max./min. control of charging for discharging. The function is determined by the amplifier relay used. The

sensors are delivered with standard length electrodes - these are cut off to suit the application. For use in the food and beverage industry.

## Ordering Key VS 2

Type \_\_\_\_\_  
 Housing material \_\_\_\_\_  
 Number of electrodes \_\_\_\_\_

## Type Selection

Ordering no.  
2 electrodes

VS 2

## Mode of Operation

The length of the electrodes determines the levels which will be detected and the amplifier chosen determines the function (see SV...,

S195/196, S1961, ELA, ELC or ELD). If the container is made of a conductive material this can be used as common electrode.

## Specifications

|                       |                                 |
|-----------------------|---------------------------------|
| <b>Electrodes</b>     |                                 |
| Isolation             | Teflon (PTFE)                   |
| Material              | Stainless steel                 |
| Standard length       | 40 cm                           |
| Diameter              | Ø 4 mm                          |
| <b>Housing</b>        |                                 |
| Material              | Silumin                         |
| Top                   | Stainless steel                 |
| Probe head            | Screw terminals                 |
| Connection            |                                 |
| <b>Environment</b>    |                                 |
| Degree of protection  | IP 54                           |
| Operating temperature | 0° to +120°C (+32° to +246 °F)  |
| Storage temperature   | -25° to +130°C (-13° to +266°F) |
| Pressure              | 149 bar at 120°C                |

## Dimensions

