

Conductive Sensors 2-point level controller Type CL with teach-in

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- Conductive level controller
- Teach-in of sensitivity – operating resistance from 220Ω to 220KΩ
- 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 2x5A/250 VAC DPDT relay
- LED indication for: Calibration, faulty operation and relay status

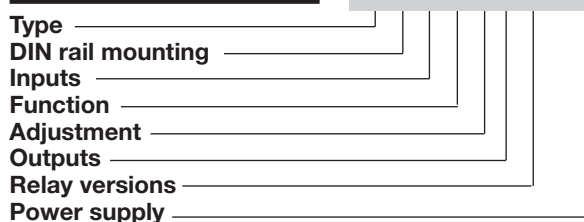
Product Description

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 teach-in function. 2 X 5A DPDT relay output.

Ordering Key

CLD2ET1CM24



Type Selection

Mounting	Relay	Ordering no. Supply: 24 VAC/DC	Ordering no. Supply: 115 VAC	Ordering no. Supply: 230 VAC
DIN-rail	DPDT	CLD2ET1CM24	CLD2ET1C115	CLD2ET1C230
11-p circular plug		CLP2ET1CM24	CLP2ET1C115	CLP2ET1C230

Specifications

Rated operational voltage (U_B) Pin 2 & 10	230 115 924	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)	Dielectric voltage	>2.0 kVAC (rms) (contacts / electronics)
Rated insulation voltage			Rated impulse withstand volt.	4 kV (1.2/50 μS) (contacts / electronics) (IEC 664)
Rated impulse withstand voltage		4 kV (1.2/50 μS) (line/neutral)	Operating frequency (f) Relay output	1 HZ
Rated operational power			Response time	1 s (3.5 s with filter)
AC supply	5 VA		Environment	
AC/DC supply	5 VA / 5 W		Overvoltage category	III (IEC 60664)
Delay on operate (t_v)	< 300 mS		Degree of protection	IP 20 /IEC 60529, 60947-1)
Outputs			Pollution degree	2 (IEC 60664/60664A, 60947-1)
Rated insulation voltage		250 VAC (rms) (cont./elec.)	Temperature	
Relay Rating (AgCdO)		μ (micro gap)	Operating	-20° to +70°C (-4° to + 158°)
Resistive loads	AC1 DC1 or	5 A / 250 VAC (2500 VA) 1 A / 250 VDC (250 W) 5 A 25 VDC (250 W)	Storage	-50° to +85°C (-58° to +185°F)
Small induc. Loads	AC11 DC13	0,4 A 250 VAC 0,4 A / 30 VDC	Housing material	NORYL SE1, light grey
Mechanical life (typical)		≥ 30 x 106 operations @ 18'000 imp/h	Weight	
Electrical life (typical)	AC1	> 250'000 operations	AC supply	200 g
Level probe supply		Max. 12 VAC	AC/DC supply	125 g
Level probe current		Max. 2.5 mA	Approvals	UL508, CSA
Sensitivity		220Ω to 220KΩ Factory preset: 47KΩ	CE marking	Yes



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 220k. 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).

DIP-switch setting

Select the needed function on the DIP-switches, so that the desirable application occurs. Press the pushbutton in front of the controller shortly, until the green LED flashes once. The DIP-switch setting will now be read by the controller.

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.

Filter

The signal delay is selectable from 1 second or 3 seconds, and works for the on/off switching of the output relays.

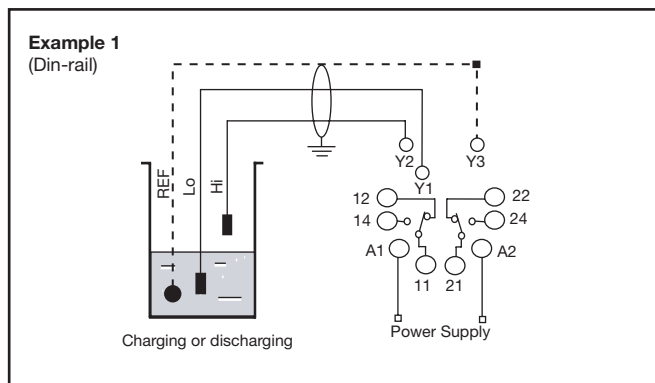
Example 1

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).



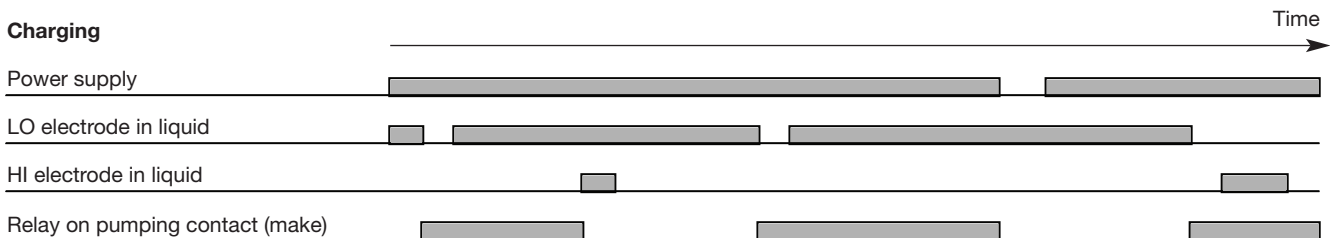
Function: Charge or Discharge

The Controller can be used as a minimum-maximum control for one system.

- ON
DIP switches
- 1 Discharge
 - 1 Charge
 - 2 Filter off
 - 2 Filter on
- ON

X-REFERENCE	
TERM	PLUG
Y1	6
Y2	5
Y3	7
22	8
A1	2
A2	10
11	1
12	4
14	3
21	11
24	9

Charging

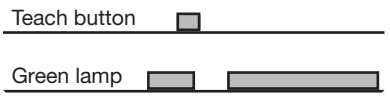
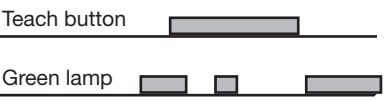
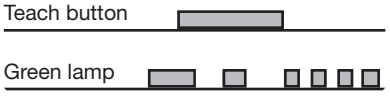


Discharging

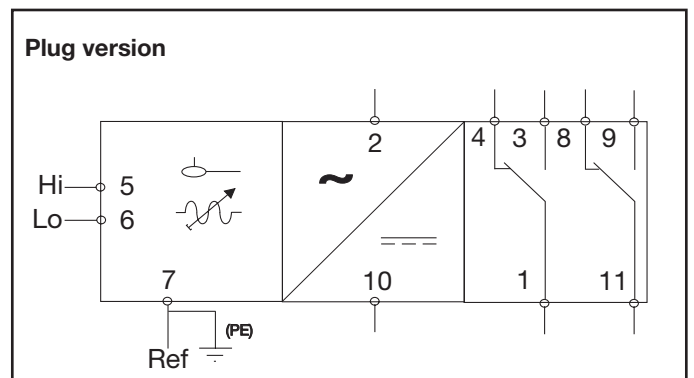
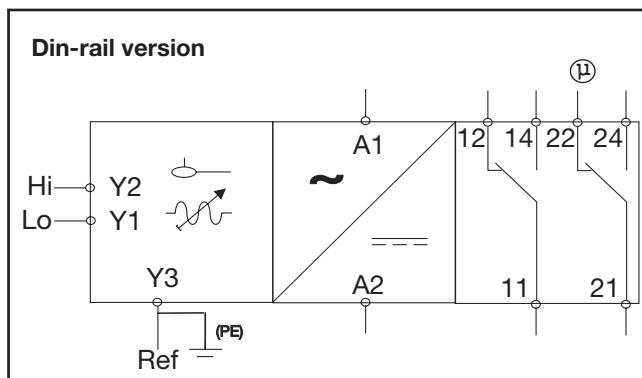


Operating Schedule

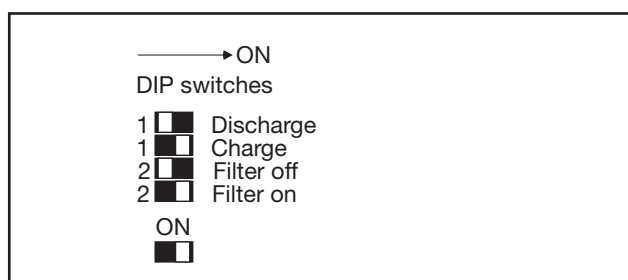
The following schedule provides an overview of the setup and failure situations

Situation	Condition	Action	Green Control lamp
Read DIP-switch setting	The DIP-switch setting has to match one of the descriptions written in "mode of operation"	Press the Teach-button in front of the controller shortly until the green control lamp turns off. Release the teach button immediately	
Teach-in	Fill the tank with the liquid to be measured until the second longest electrode is immersed approx. 1cm	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	

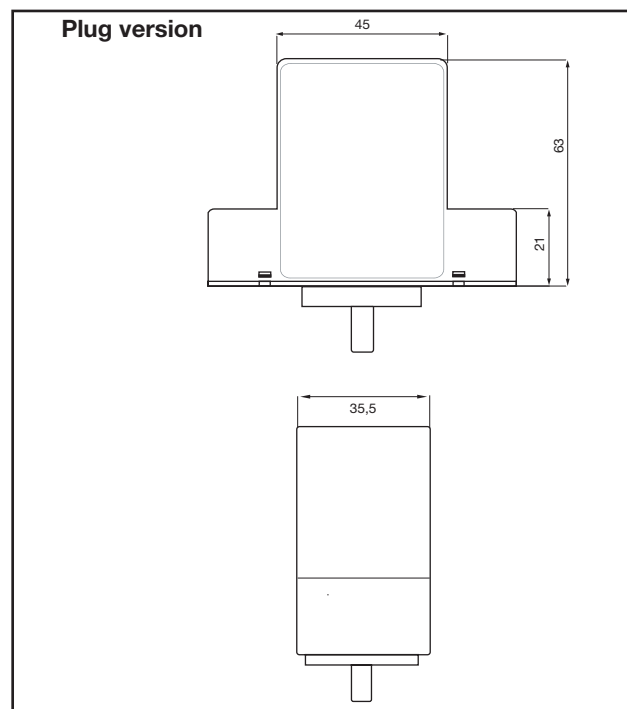
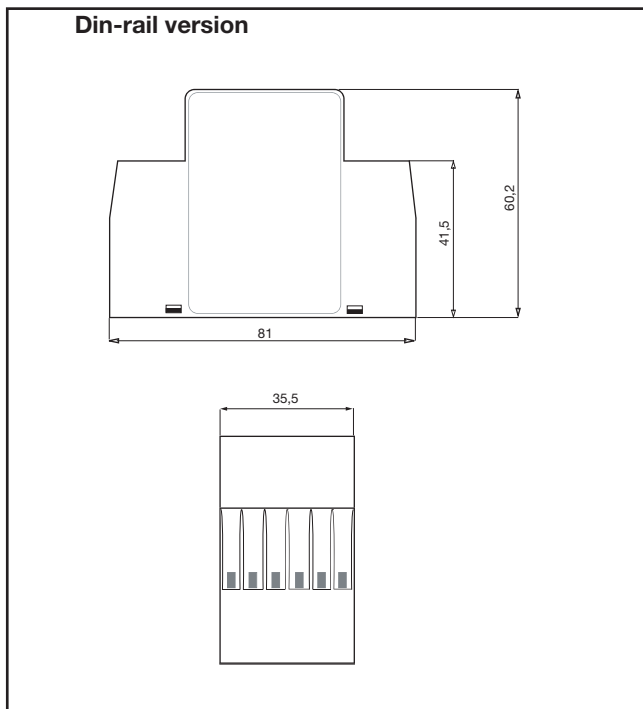
Wiring Diagram



Dip Switch Settings



Dimension Drawings



Accessories

- 11 pole corcular socket ZVD11
- Mounting rack SM13

Delivery Contents

- Amplifier
- Packaging: Carton box
- Manual