Level Sensors
Amplifier, Conductive
Type H 496

- **Level control for conductive liquids**
- **Max.- min. control of charging/discharging**
- **Selection of charging or discharging by inter-connection of the terminals**
- **3 sensitivity ranges, from 200 Ω to 220 kΩ, selectable by switch in the front**
- **Adjustable sensitivity**
- **Possibility of parallel connection**
- **Level probe supply max. 6 V_{pp}, 1.5 mA, according to IEC 60364-4-41, PELV/SELV**
- **Output: 8 A DPDT relay**
- **LED-indication for relay and power supply ON**
- **AC power supply**

Product Description

Level control relay for conductive liquids which can control two levels of charging or discharging. The relay features sensitivity ranges from 200 Ω to 220 kΩ (5 m Siemens to 4.5 µ Siemens). If more than two levels are required, more relays can be coupled in parallel.

Ordering Key

H 496 166 230

Housing
Type/function
Output
Power supply

Type Selection

Output	Supply: 24 VAC	Supply:115 VAC	Supply: 230 VAC
DPDT	**H 496 166 024**	**H 496 166 115**	**H 496 166 230**

Input Specifications

Level probe supply	6 V_{pp} (IEC 60364-4-41, PELV/SELV)
Level probe current	
Range 1: 200 Ω - 2.2 kΩ	1.5 mA
Range 2: 2.0 kΩ - 22 kΩ	150 µA
Range 3: 20 kΩ - 220 kΩ	15 µA
Clock in/clock out	Clock in: terminal 2 Clock out: terminal 1 Approx. 100 Hz ±15 Hz square wave Duty cycle typically 60-40 For parallel coupling of amplifiers Always use screened cable to avoid ambient noise Screen must be connected to terminal 8
Reaction time	Approx. 1 s

Output Specifications

Output		DPDT relay
Rated insulation voltage		250 VAC (rms) (cont./elect.)
Contact ratings (Ag-CdO)		(IEC 60947-5-1/IEC 60337)
Resistive loads	AC 1	8 A/250 VAC (2000 VA)
	DC 1	0.4 A/250 VDC (100 VA)
	or	4 A/25 VDC (100 VA)
Small inductive loads	AC 15	2.5 A/230 VAC
	DC 13	5 A/24 VDC
Mechanical life		≥ 30 x 10^6 operations
Electrical life	AC 1	≥ 2.5 x 10^5 operations (at max. load)
Operating frequency		≤ 7200 operations/h
Insulation voltages		
Rated insulation voltage		≥ 2.0 kVAC (rms) (cont./elect.)
Rated impulse withstand voltage		4 kV (1.2/50 µs) (cont./elect.) (IEC 60664)

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Supply Specifications

Power supply	Overvoltage cat. III (IEC 60664)
Rated operational voltage	
through term. 21 & 22 230	230 VAC ±15%, 50/60 Hz, -5/+5 Hz
115	115 VAC ±15%, 50/60 Hz, -5/+5 Hz
024	24 VAC ±15%, 50/60 Hz, -5/+5 Hz
Voltage interruption	≤ 40 ms
Rated insulation voltage	≥ 2.0 kVAC (rms)
Rated impulse withstand volt.	4 kV (1.2/50 µs) (line/neutral)
Rated operational power	2.5 VA

General Specifications

Indication for	
Power supply ON	LED, green
Output ON	LED, red
Environment	
Degree of protection	IP 20 B
Pollution degree	3 (IEC 60664)
Operating temperature	-20 to +50°C (-4 to +122°F)
Storage temperature	-50 to +85°C (-58 to +185°F)
Scale accuracy	+/- 20%
Hysteresis	100% of set value
Weight	200 g

Mode of Operation

Max., min. control of charging/discharging.

Example 1
The diagram shows the level control connected as max. and min. control, i.e. detection of 2 levels. The relay operates (out)/releases (in) when the liquid reaches the max. electrode (terminal 5), provided that the min. electrode (terminal 6) is in contact with the liquid.

The relay releases (out)/operates (in) when the min. electrode is no longer in contact with the liquid.

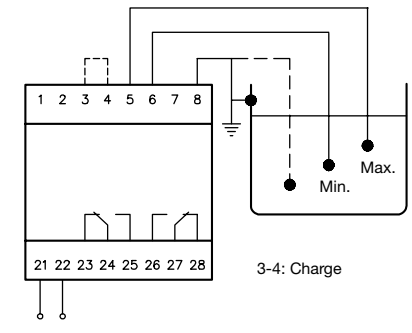
By use of a container of a conductive material terminal 8 can be connected to the container. If the container is made of a non-conductive material, an additional electrode is needed, indicated by the dotted line in the diagram. If only one level is required, terminals 5 and 6 must be interconnected, to select either max. or min. control.

Example 2
If more than 2 levels are required, two or more amplifires can be coupled in parallel, as in example 2.
Pin 8 (clock out) and pin 9 (clock in) are connected to synchronize the clock in all systems - otherwise interference may occur. This means that one system determines the clock for all systems cascaded.

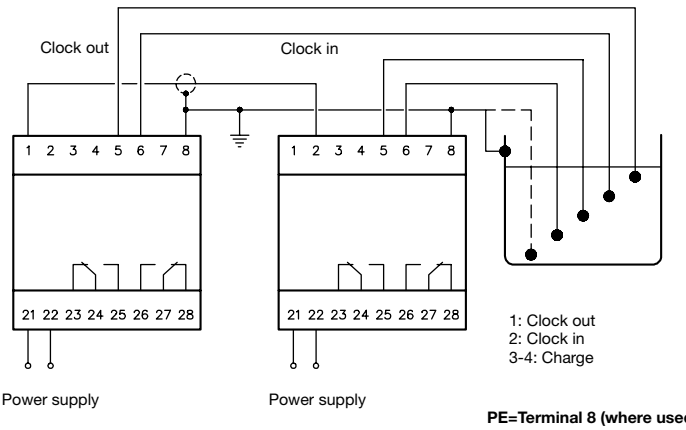
The clock in/clock out connection must be screened cable. In some cases screened cable must be used to achieve perfect operation e.g. in cable pits or trays where the sensor cable is placed in parallel with power cables. The screen must be connected to terminal 8.

Wiring Diagrams

Example 1



Example 2



PE=Terminal 8 (where used)