

# Level Sensors Amplifier, Capacitive Types SV 150/250, SV 160/260

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SV 150/250



SV 160/260

- Level control for solid, fluid, or granulated substances
- SV 150/250: Max./min. control of DISCHARGING
- SV 160/260: Max./min. control of CHARGING
- Factory-set sensitivity
- For capacitive sensors VR.. and VRY..
- 10 A SPDT or 8 A DPDT output relay
- LED-indication: SV 150/250: Power supply and relay ON
- SV 160/260: Relay ON
- AC or DC power supply

## Product Description

Level control relays for capacitive sensors, types VR and VRY. The relays can control one or two levels of charging (SV 160/260) or discharging (SV 150/250).

## Ordering Key

**SV 150 024**

Housing \_\_\_\_\_  
Output \_\_\_\_\_  
Power supply \_\_\_\_\_

## Type Selection

| Plug     | Output | Function    | Supply: 24 VAC | Supply: 115 VAC | Supply: 230 VAC | Supply: 24 VDC |
|----------|--------|-------------|----------------|-----------------|-----------------|----------------|
| Circular | SPDT   | Discharging | SV 150 024     | SV 150 115      | SV 150 230      | SV 150 724     |
|          | DPDT   | Discharging | SV 250 024     | SV 250 115      | SV 250 230      | SV 250 724     |
|          | SPDT   | Charging    | SV 160 024     | SV 160 115      | SV 160 230      | SV 160 724     |
|          | DPDT   | Charging    | SV 260 024     | SV 260 115      | SV 260 230      | SV 260 724     |

## Input Specifications

|                                     |   |
|-------------------------------------|---|
| <b>Sensitivity</b>                  | Depends on sensor type and material                             |
| <b>Sensor voltage</b>               | Max. 24 VDC<br>Terminal 6 is negative                           |
| <b>Sensor current</b>               | Activated: Min. 15 mA, max. 20 mA<br>Not activated: Max. < 5 mA |
| <b>Sensor short-circuit current</b> | Max. 45 mA  |

## General Specifications

|                       |                                 |
|-----------------------|---------------------------------|
| <b>Indication for</b> |                                 |
| Output ON             | LED, red                        |
| Power supply          | LED, green<br>(only SV 150/250) |
| <b>Environment</b>    |                                 |
| 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)  |
| <b>Approvals</b>      | UL, CSA                         |
| <b>CE-marking</b>     | Yes                             |

## Supply Specifications

|  |                                    |
|--|------------------------------------|
| <b>Power supply AC-types</b>                 | Overvoltage cat. II (IEC 60664)    |
| Rated operational voltage through pin 2 & 10 | 230 230 VAC ± 15%                  |
|  | 115 115 VAC ± 15%                  |
|  | 024 24 VAC ± 15%                   |
| Rated insulation voltage                     | ≥ 2.0 kVAC (rms)                   |
| Rated impulse withstand voltage              | 4 kV (1.2/50 μs)<br>(line/neutral) |
| <b>Power supply DC-types</b>                 | Installation cat. II (IEC 60664)   |
| Rated operational voltage                    | 724 24 VDC ±15% (pin 2 pos.)       |
| Rated insulation voltage                     | None                               |
| Rated transient protection volt.             | 800 V (1.2/50 μs)                  |



## Output Specifications

|                                 |       |  | SV150/SV160                                    | SV250/SV260                                    |
|---------------------------------|-------|--|--|--|
| <b>Output</b>                   |       |  | SPDT relay                                     | DPDT relay                                     |
| Rated insulation voltage        |       |  | 250 VAC (rms)<br>(cont./elec.)                 | 250 VAC (rms)<br>(Cont./elec., cont./cont.)    |
| <b>Contact ratings (Ag-CdO)</b> |       |  | μ (micro gap)                                  | μ (micro gap)                                  |
| Resistive loads                 | AC 1  |  | 10 A/250 VAC (2500 VAC)                        | 8 A/250 VAC (200 VA)                           |
|                                 | DC 1  |  | 1 A/250 VAC (250 W)                            | 0,4 A/250 VDC (100 W)                          |
|                                 | or    |  | 10 A/25 VDC (250 W)                            | 4 A/25 VDC (100 W)                             |
| Small inductive loads           | AC 15 |  | 2.5 A/230 VAC                                  | 2.5 A/230 VAC                                  |
|                                 | DC 13 |  | 5 A/24 VDC                                     | 5 A/24 VDC                                     |
| <b>Mechanical life</b>          |       |  | ≥ 5 x 10 <sup>7</sup> operations               | ≥ 5 x 10 <sup>7</sup> operations               |
| <b>Electrical life</b>          |       |  | ≥10 <sup>5</sup> operations                    | ≥10 <sup>5</sup> operations                    |
| <b>Operation frequency</b>      |       |  | ≤ 7200 operations/h                            | ≤ 7200 operations/h                            |
| <b>Insulation voltages</b>      |       |  |  |  |
| Rated insulation voltage        | AC    |  | ≥ 2.0 kVAC (rms)<br>(cont./elect.)             | ≥ 2.0 kVAC (rms)<br>(cont./elect.)             |
|                                 | DC    |  | None   | None   |
| Rated impulse withstand voltage | AC    |  | 4 kV (1.2/50 μs)<br>(cont./elect.) (IEC 60664) | 4 kV (1.2/50 μs)<br>(cont./elect.) (IEC 60664) |
|                                 | DC    |  | 800 V  | 800 V  |

## Mode of Operation

**Max. and/or min. control of solid, fluid or granulated substances, e.g. sand, gravel, sugar or chemicals.**

**SV 150/250: Relay control of DISCHARGING**

**SV 160/260: Relay control of CHARGING**

### Example 1

The diagram shows the level control connected as max. and min. control, i.e. registration of 2 levels during charging (discharging).

The relay releases (operates) when the max. sensor is in contact with the substance,

provided that the min. sensor is immersed. The relay operates (releases) when the min. sensor is no longer in contact with the substance.

### Example 1

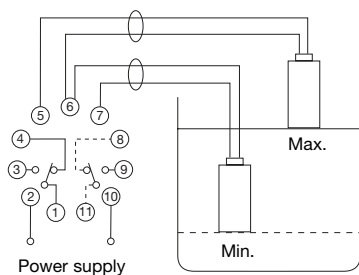
The diagram shows the level control connected as max. or min. control, i.e. registration

of 1 level during charging (discharging).

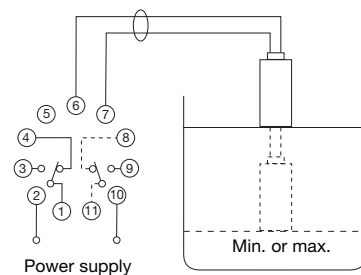
The relay releases (operates) when the sensor is in contact with the substance.

## Wiring Diagrams

**Example 1: Two levels max./min.**



**Example 2: One level**

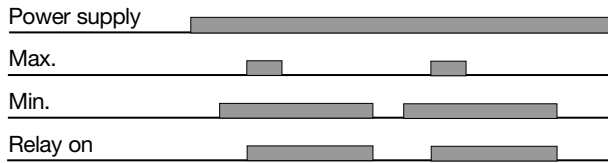


## Operation Diagrams

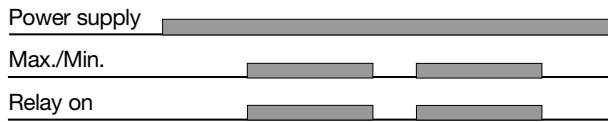
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### SV 150/250 DISCHARGING

#### Example 1

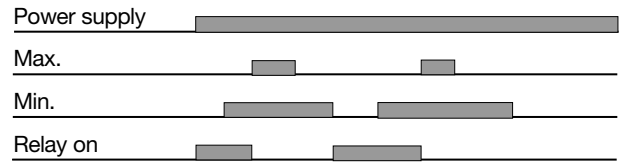


#### Example 2

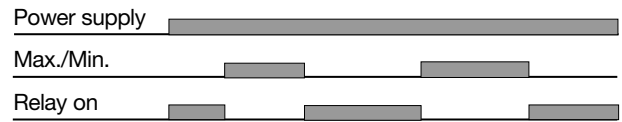


### SV 160/260 CHARGING

#### Example 1



#### Example 2



## Accessories

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Sensors: Types VR and VRY

Bases  
 Hold down spring  
 Base covers  
 Front mounting bezel