

Proximity Sensors Capacitive Amplifier, Capacitive, Optical Type SV 190 (Charging/Discharging)

CARLO GAVAZZI



- Level control relay
- Max.-min. control of charging/discharging
- For use with refractive optical sensors or capacitive sensors
- Controls liquid/granulate presence or absence with one sensor, or liquid/granulate level within max./min. limits with two sensors
- Normal or inverted function selectable
- 10 A SPDT output relay
- LED-indication: relay ON
- AC or DC power supply

Product Description

Level control relay for transparent liquids or granulates which can control one or two levels of charging or discharging. For use with opti-

cal sensors (VP.) or capacitive sensors (DR. or EC.). Open collector NPN-types only.

Ordering Key

SV 190 230

Type _____
Power supply _____

Type Selection

| Plug | Output | Supply: 24 VAC | Supply: 115 VAC | Supply: 230 VAC | Supply: 24 VDC |
|----------|--------|----------------|-----------------|-----------------|----------------|
| Circular | SPDT | SV 190 024 | SV 190 115 | SV 190 230 | SV 190 724 |

Input Specifications

| | |
|--|----------------------------------|
| Sensor supply through pins 7 and 9 (+) | 12 VDC, stabilized max. 60 mA |
| Short-circuit protection | Yes |
| Sensor input One level | Pin 5 |
| Two levels | Pin 5 and 6 |
| Operating frequency | Max. 5 Hz. |
| Input resistance | 25 kΩ |
| Cable resistance | Max. 100 Ω |

Supply Specifications

| | |
|--|------------------------------------|
| Power supply AC-types | Overvoltage cat. II (IEC 60664) |
| Rated operational voltage through pin 2 & 10 | 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) (line/neutral) |
| Power supply DC-types | Installation cat. II (IEC 60664) |
| Rated operational voltage | 24 VDC ±15% (pin 2 pos.) |
| Rated insulation voltage | None |
| Rated transient protection volt. | 800 V (1.2/50 μs) |

General Specifications

| | |
|--|------------------------------|
| Time delay before availability | 0.5 s |
| Indication for 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) |
| Approvals | UL, CSA |
| CE-marking | Yes |

Output Specifications

| | |
|--|---|
| Output Rated insulation voltage | SPDT relay 250 VAC (rms) (cont./elec.) |
| Contact ratings (Ag-Cd0) Resistive loads | μ (micro gap) AC 1 10 A/250 VAC (2500 VA) DC 1 1 A/250 VDC (250 W) or Small inductive loads AC 15 2.5 A/230 VAC DC 13 5 A/24 VDC |
| Mechanical life | $\geq 30 \times 10^6$ operations |
| Electrical life | AC 1 $\geq 2.5 \times 10^5$ operations (at max. load) |
| Operating frequency | ≤ 7200 operations/h |
| Insulation voltages Rated insulation voltage | ≥ 2.0 kVAC (rms) (cont./elec.) |
| Rated transient protection voltage | 4 kV (1.2/50 μ s) (cont./elec.) (IEC 60664) |

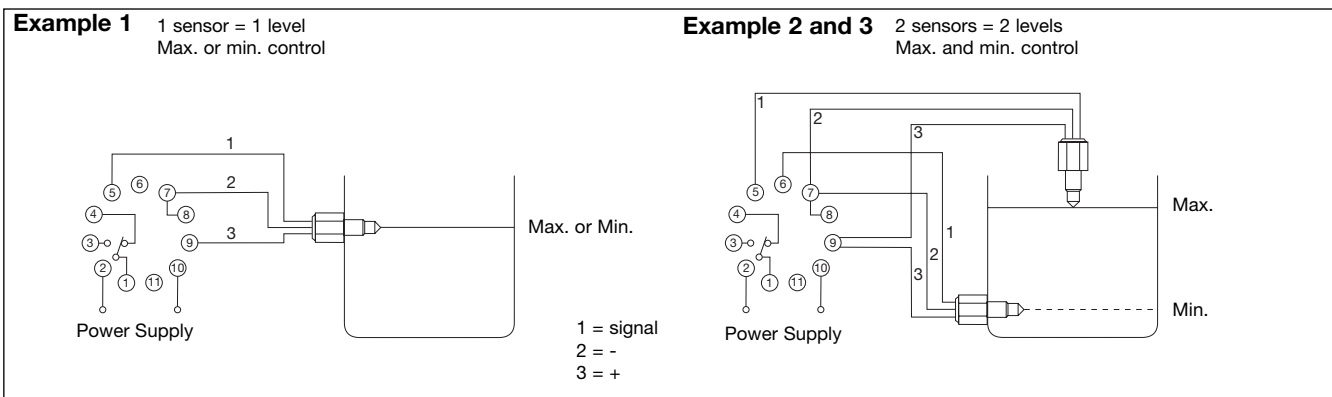
Accessories

Sensors, open collector NPN-types:

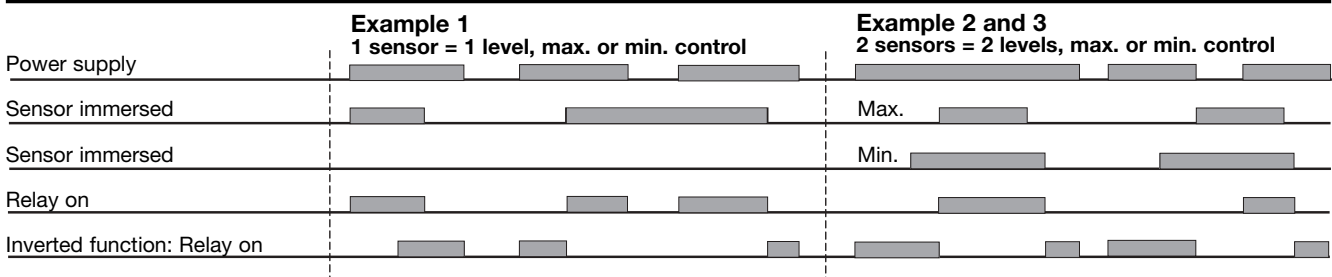
Optical: VP
Capacitive: DR, EC

Bases
Hold down spring
Base covers
Front mounting bezel

Wiring Diagrams



Operation Diagrams



Mode of Operation

Example 1

One sensor/one level

The relay operates when the sensor is immersed and releases when the sensor is no longer immersed. When pins 7 and 8 are interconnected (dotted line), the relay is inverted.

The relays releases at desired max. level making the pump stop. In case of power supply interruptions, the relay releases and the pump stops, thus overflow is prevented.

Sensor characteristics

The optical sensors VP for liquids must not be exposed to more than 100 lux from ambient light sources.

Example 2: Discharging

Two sensors/two levels

The relay operates when the upper sensor (max. level) is immersed and releases when the lower sensor (min. level) is no longer immersed. When pins 7 and 8 are interconnected (dotted line), the relay is inverted.

The capacitive sensors DR and EC are for solid, fluid or granulated substances. The activating distance depends on the physical and electrical characteristics of the object to be detected.

Example 3: Charging.

Two sensors/ two levels

In fill-up applications inverted function (pins 7 and 8 connected) should always be used and the pump always be supplied through pin 3 (relay ON).

Note: Solid or fluid conductors are detected at a greater distance than light or porous insulators.