

# 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

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

## Supply Specifications

<b>Power supply AC-types</b>	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)
<b>Power supply DC-types</b>	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

<b>Time delay before availability</b>	0.5 s
<b>Indication for Output ON</b>	LED, red
<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

## Output Specifications

<b>Output</b> Rated insulation voltage	SPDT relay 250 VAC (rms) (cont./elec.)
<b>Contact ratings</b> ( Ag-Cd0)	μ (micro gap)
Resistive loads	AC 1 10 A/250 VAC (2500 VA) DC 1 1 A/250 VDC (250 W) or 10 A/25 VDC (250 W)
Small inductive loads	AC 15 2.5 A/230 VAC DC 13 5 A/24 VDC
<b>Mechanical life</b>	≥ 30 x 10 <sup>6</sup> operations
<b>Electrical life</b>	AC 1 ≥ 2.5 x 10 <sup>5</sup> operations (at max. load)
<b>Operating frequency</b>	≤ 7200 operations/h
<b>Insulation voltages</b>	
Rated insulation voltage	≥ 2.0 kVAC (rms) (cont./elec.)
Rated transient protection voltage	4 kV (1.2/50 μs) (cont./elec.) (IEC 60664)

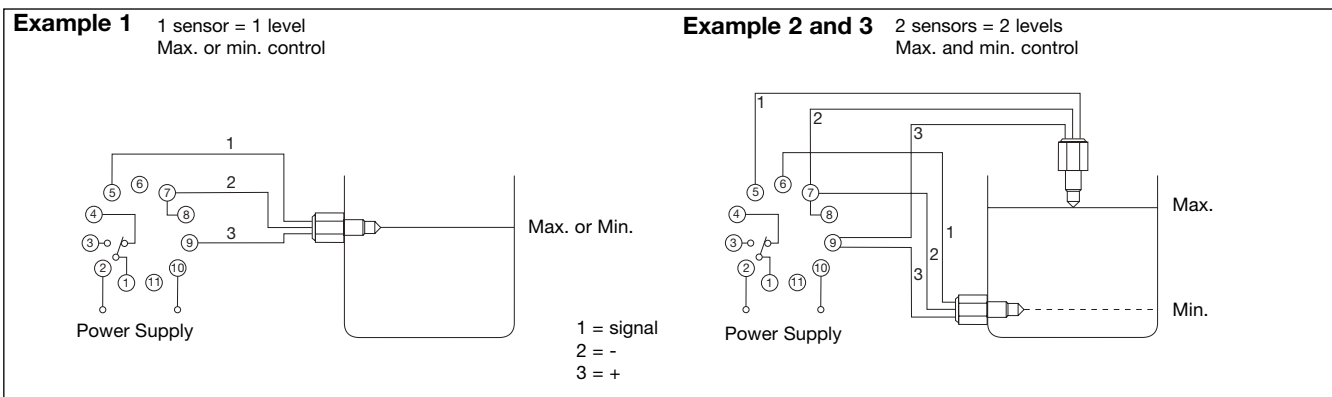
## Accessories

Sensors, open collector NPN-types:

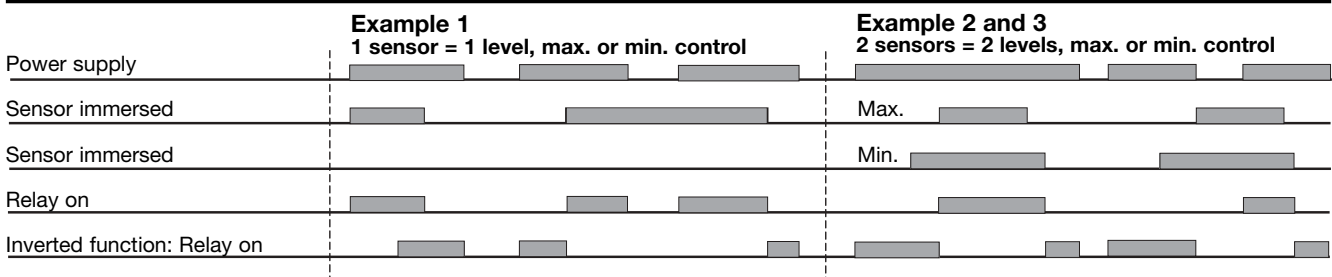
Optical: VP  
Capacitive: DR, EC

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.