

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	SPDT relay	
Rated insulation voltage	250 VAC (rms) (cont./elec.)	
Contact ratings (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
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./elec.)	
Rated transient protection voltage	4 kV (1.2/50 μs) (cont./elec.) (IEC 60664)	

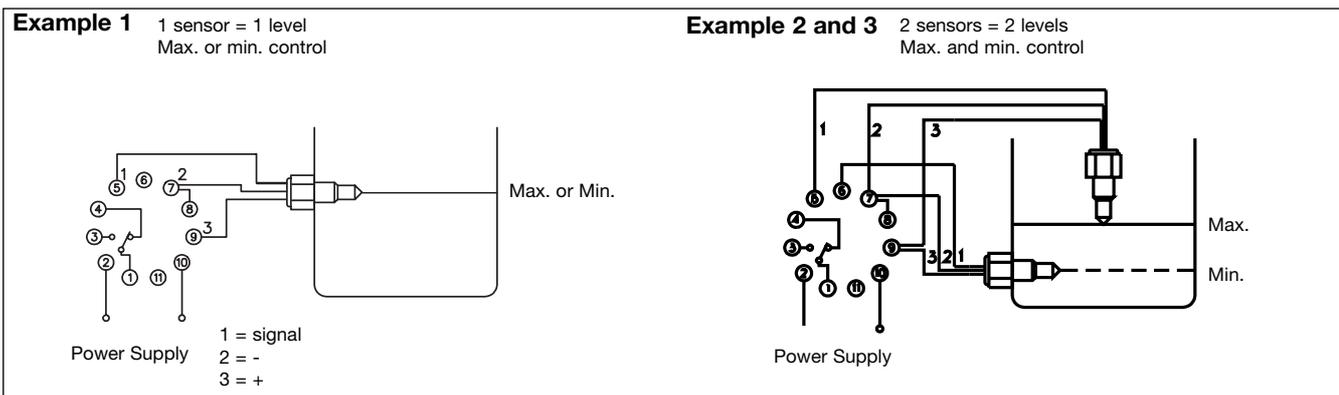
Accessories

Sensors, open collector NPN-types:

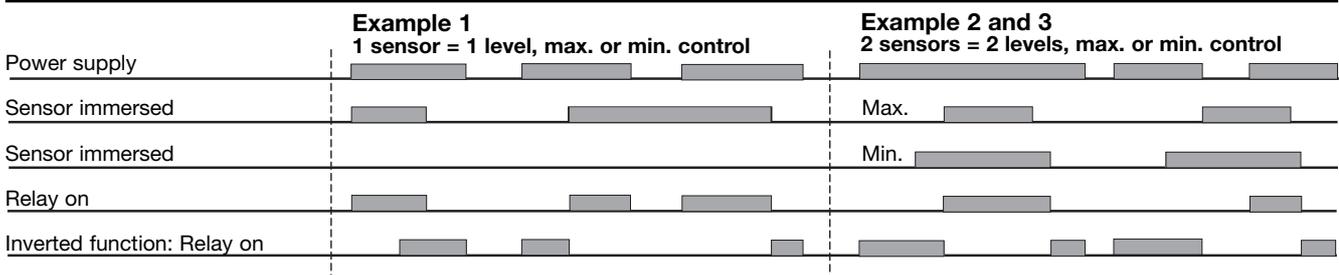
Optical: VP
Capacitive: DR, EC

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.