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 optical 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

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 +50ºC (-4 to +122ºF)
Storage temperature	-50 to +85ºC (-58 to +185ºF)
Approvals	UL, CSA
CE-marking	Yes

Supply Specifications

Power supply AC-types		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) (line/neutral)
Power supply DC-types		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)

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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	$\geq 30 \times 10^6$ 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 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

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.

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.

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 alwalys be supplied through pin 3 (relay ON).

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.

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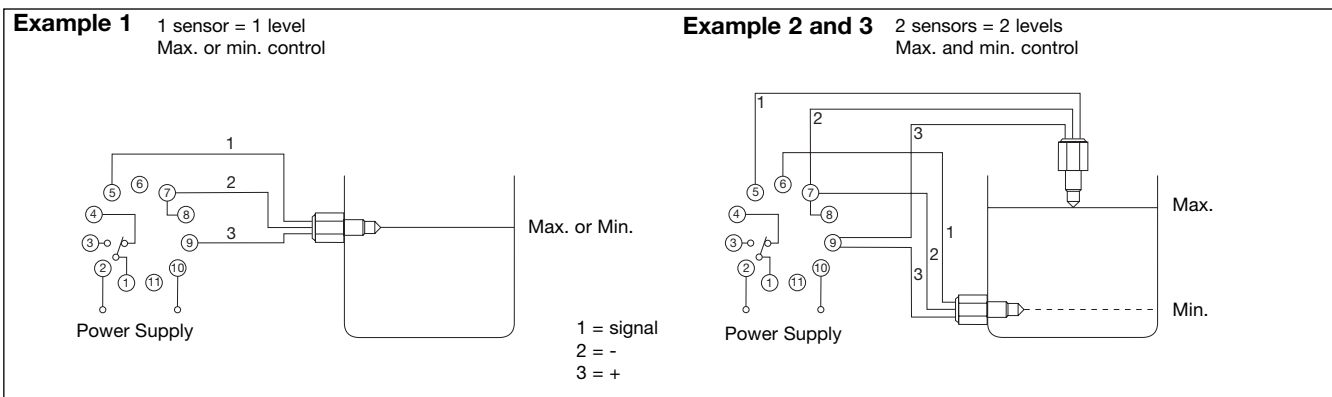
Note: Solid or fluid conductors are detected at a greater distance than light or porous insulators.

Wiring Diagrams

Example 1 — 1 sensor = 1 level, Max. or min. control. Power Supply. Max. or Min. 1 = signal, 2 = -, 3 = +

Example 2 and 3 — 2 sensors = 2 levels, Max. and min. control. Power Supply. Max. Min.

Operation Diagrams

	Example 1 1 sensor = 1 level, max. or min. control	Example 2 and 3 2 sensors = 2 levels, max. or min. control
Power supply		
Sensor immersed		Max.
Sensor immersed		Min.
Relay on		
Inverted function: Relay on		