Conductive Sensors
Amplifier, Charging or Discharging
Type S 1961

- **Level control for conductive liquids**
- **Max.- min. control of charging/discharging**
- **Selection of charging or discharging by inter-connection of the pins**
- **3 sensitivity ranges, from 200 Ω to 220 kΩ, selectable by switch in the front**
- **Adjustable sensitivity**
- **Possibility of parallel connection**
- **Level probe supply max. 6 V_{pp}, 1.5 mA, according to IEC 60364-4-41, FELV**
- **Output: 10 A SPDT relay**
- **LED-indication for relay and power supply ON**
- **AC or DC power supply**

Product Description

Level control relay for conductive liquids which can control two levels of charging or discharging. The relay features sensitivity range from 200 Ω to 220 kΩ (5 mSiemens to 4,5 µSiemens). If more than two levels are required, more relays can be cascaded.

Ordering Key

Plug	Output	Supply: 24 VAC	Supply: 115 VAC	Supply: 230 VAC	Supply: 24 VDC
Circular	SPDT	S 1961 156 024	S 1961 156 115	S 1961 156 230	S 1961 156 724
	Art.No.	**4230-008**	**4230-009**	**4230-010**	**4230-011**

Input Specifications

Level probe supply	6 V_{pp} (IEC 60364-4-41, FELV)
Level probe current	
Range 1: 200 Ω - 2.2 kΩ	1.5 mA
Range 2: 2.0 kΩ - 22 kΩ	150 µA
Range 3: 20 kΩ - 220 kΩ	15 µA
Clock in/clock out	Clock in: pin 9 Clock out: pin 8 Approx. 100 Hz ±15 Hz square wave Duty cycle typically 60-40 For cascading of more amplifiers Always use screened cable to avoid ambient noise Screen must be connected to pin 7
Reaction time	Approx. 1 s

Output Specifications

Output		SPDT relay
Rated insulation voltage		250 VAC (rms) (cont./elect.)
Contact ratings (Ag-CdO)		(IEC 60947-5-1/IEC 60337)
Resistive loads	AC 1	10 A/250 VAC (2500 VA)
	DC 1	1 A/250 VDC (250 VA)
	or	10 A/25 VDC (250 VA)
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./elect.)
Rated impulse withstand voltage		4 kV (1.2/50 µs) (cont./elect.) (IEC 60664)

Supply Specifications

Power supply AC types		Overvoltage cat. III (IEC 60664)
Rated operational voltage through pins 2 & 10	230	230 VAC ±15%, 50/60 Hz, -5/+5 Hz
	115	115 VAC ±15% 50/60 Hz, -5/+5 Hz
	024	24 VAC ±15% 50/60 Hz, -5/+5 Hz
Voltage interruption		≤ 40 ms
Rated insulation voltage		≥ 2.0 kVAC (rms)
Rated impulse withstand voltage		4 kV (1.2/50 µs) (line/neutral)
Power supply DC type		Overvoltage cat. III (IEC 60664)
Rated operational volt.	724	24 VDC ±15% (pin 2 pos.)
Rated insulation voltage		None
Rated impulse withstand voltage		800 V (1.2/50 µs) (line/neutral)
Rated operational power		
AC supply		2.5 VA
DC supply		1.5 W

General Specifications

Indication for		
Power supply ON		LED, green
Output ON		LED, red
Environment		
Degree of protection		IP 20 B
Pollution degree		2 (IEC 60664)
Operating temperature		-20° to +50°C (-4° to +122°F)
Storage temperature		-50° to +85°C (-58° to +185°F)
Scale accuracy		+/- 20%
Hysteresis		100% of set value
Weight	AC-Types	200 g
	DC-Type	125 g
Approvals		UL, CSA
CE-marking		Yes

Mode of Operation

Max., min. control of charging/discharging.

Example 1
The diagram shows the level control connected as max. and min. control, i.e. detection of 2 levels. The relay operates (out)/releases (in) when the liquid reaches the max. electrode (pin 5), provided that the min. electrode (pin 6) is in contact with the liquid.
The relay releases (out)/operates (in) when the min. electrode is no longer in contact with the liquid.

By use of a container of a conductive material pin 7 can be connected to the container. If the container is made of a non-conductive material, an additional electrode is needed, indicated by the dotted line in the diagram.
If only one level is required, pins 5 and 6 must be interconnected, to select either max. or min. control.

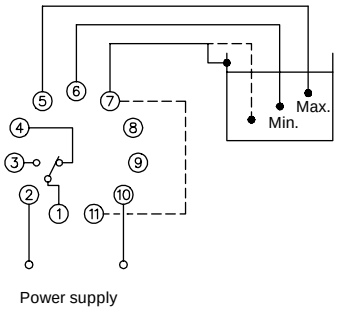
Example 2
If more than 2 levels are required, two or more amplifiers can be cascaded, as shown in example 2.

Pin 8 (clock out) and pin 9 (clock in) are connected to synchronize the clock in all systems - otherwise interference may occur. This means that one system determines the clock for all systems cascaded.

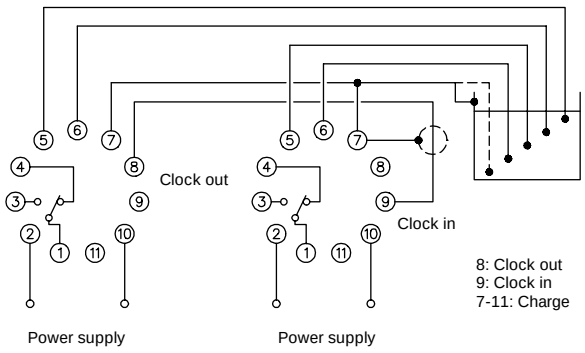
The clock in/clock out connection must be screened cable. In some cases screened cable must be used to achieve perfect operation, e.g. in cable pits or trays where the sensor cable is close to power cables. Connect the screen to pin 7.

Wiring Diagrams

Example 1

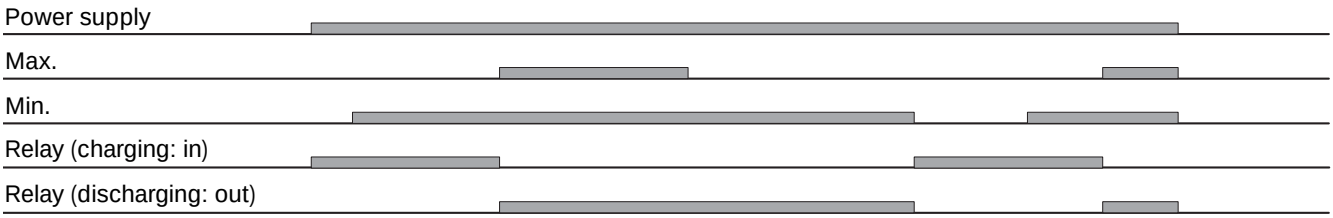


Example 2



PE=Pin 7

Operation Diagram



Accessories

Conductive level probes:
VN..., VNI..., VNY..., VNYI..., VT..., VTI..., VPP..., VPC..., VH...

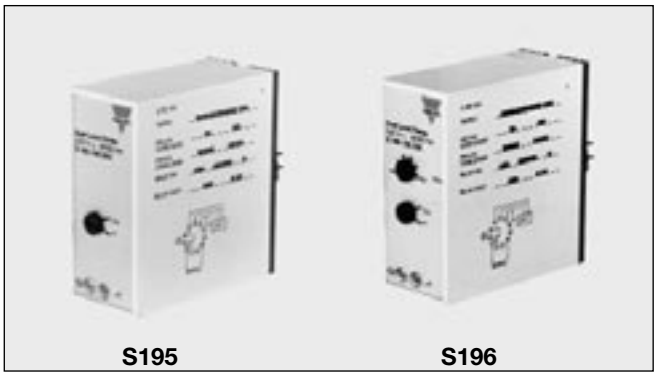
Socket◊	S 411
Hold down spring◊	HF
Mounting rack	SM 13
Socket cover	BB 4
Front mounting bezel	FRS 2

Settings

Upper knob: Sensitivity

Lower knob: Range selection

Conductive Sensors
Amplifier
Types S196 (Charging/Discharging)



S195 S196

- **Level control for conductive liquids**
- **Max.-min. control of charging/discharging**
- **Selection of charging or discharging by a switch at the front of the system**
- **Adjustable sensitivity**
- **10 A SPDT or 8 A DPDT output relay**
- **LED-indications: Power supply and relay ON**
- **AC power supply**

Product Description

Level control relays for conductive liquids which can control two levels of charging or discharging. When the relays are used for registering only one level, the sensitivity is half as large.

Ordering Key

Plug	Output		Supply: 24 VAC	Supply: 115 VAC	Supply: 230 VAC
Circular	SPDT	Type	S 196 156 024	S 196 156 115	S 196 156 230
		Art.No	**4230-002**	**4230-004**	**4230-006**
Circular	DPDT	Type	S 196 166 024	S 196 166 115	S 196 166 230
		Art.No	**4230-003**	**4230-005**	**4230-007**

Input Specifications

Level probe supply	Max. 24 VAC
Level probe current	Max. 2.5 mA
Sensitivity	
ON	
S195 (pin 5-6 and 7)	< 25 kΩ (approx.)
S196 (pin 5-6 and 7)	3.5 - 30 kΩ (approx.)
OFF	
S195 (pin 5-6 and 7)	> 50 kΩ (approx.)
S196 (pin 5-6 and 7)	15-60 kΩ (approx.)

Supply Specifications

Power supply		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/nautral)

General Specifications

Indication for	
Power supply ON	LED, green
Output ON	LED, red
Approvals	UL, CSA
CE-marking	Yes

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)

Output Specifications

		S 19x 156	S19x 166
Output		SPDT relay	DPDT relay
Rated insulation voltage		250 VAC (rms) (cont./elec.)	250 VAC (rms) (cont./elec., cont./cont.)
Contact ratings (Ag-Cd0)		µ (micro gap)	µ (micro gap)
Resistive loads	AC 1	10 A/250 VAC (2500 VA)	8 A/250 VAC (2000 VA)
	DC 1	1 A/250 VDC (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 13	2.5 A/230 VAC	2.5 A/230 VAC
	DC 15	5 A/24 VDC	5 A/24 VDC
Mechanical life		≥ 30 x 10^6 operations	≥ 30 x 10^6 operations
Electrical life	AC 1	≥ 2.5 x 10^5 operations (at max. load)	≥ 2.5 x 10^5 operations (at max. load)
Operating frequency		≤ 7200 operations/h	≤ 7200 operations/h
Insulation voltages			
Rated insulation voltage		≥ 2.0 kVAC (rms) (cont./elec.)	≥ 2.0 kVAC (rms) (cont./elec.)
Rated transient protection voltage		4 kV (1.2/50 µs) (cont./elec.) (IEC 60664)	4 kV (1.2/50 µs) (cont./elec.) (IEC 60664)

Mode of Operation

The switch at the front is set in the desired mode IN (charging) or OUT (discharging).

Connection cable
2 or 3 core PVC cable, normally unscreened. Cable length: max. 100 m. The resistance between the cores and the ground must be at least 220 kΩ. In certain cases it is recommended to use screened cable between sensor and amplifier, e.g. where the cable is placed in parallel to the load cables (mains). The screen is connected to pin 7.

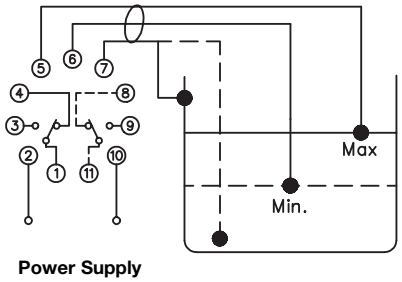
Example 1 and 3
The diagram shows the level control connected as max. and min. control, i.e. registration of 2 levels. The relay operates (OUT)/releases (IN) when the liquid reaches the max. electrode (pin 5), provided that the min. electrode (pin 6) is in contact with the liquid.

The relay releases (OUT)/-operates (IN) when the min. electrode is no longer in contact with the liquid. Pin 7 must be connected to the container. If the container consists of a non-conductive material, an additional electrode must be used. (To be connected to pin 7. In the diagram this electrode is shown by the dotted line.

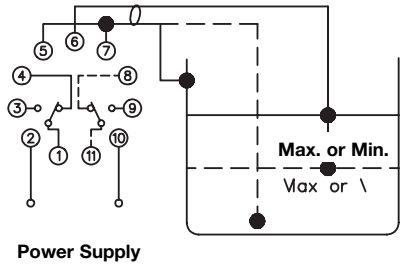
Example 2 and 4
The diagram shows the level control connected as max. or min. control, i.e. registration of 1 level. The relay operates (OUT)/releases (IN) when the electrode (pin 6) is in contact with the liquid. An additional electrode must be used if the container consists of a non-conductive material. Interconnect pins 5 and 6 directly on the base.

Wiring Diagrams

Example 1 and 3

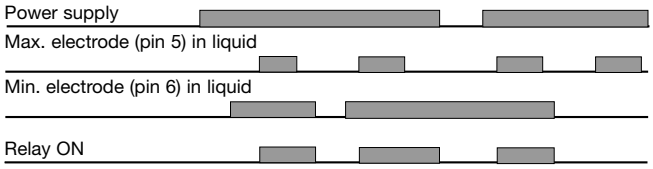


Example 2 and 4

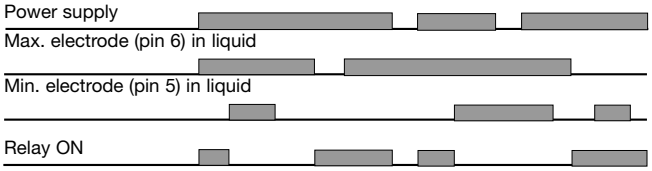


Operation Diagrams

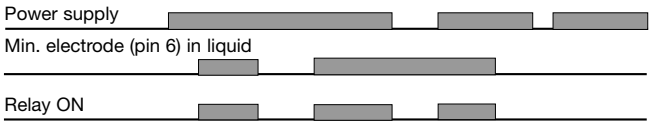
Example 1 OUT (Discharging)



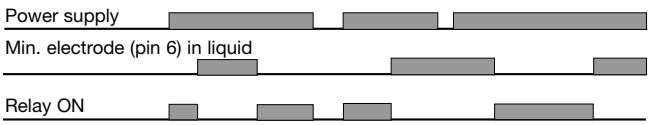
Example 3 IN (Charging)



Example 2 OUT (Discharging)



Example 4 IN (Charging)



Accessories

Conductive level probe:

VH	Base S411
VPC, VPP	Hold down spring HF
VN, VNY, VNI	Base covers BB 4
VT, VTI	Front mounting bezel FRS2
VS	

Settings

Knob adjustable sensitivity on relative scale (S 196).

ON: From 3.5 to 30 kΩ
OFF: From15 to 60 kΩ

When S 196 is used for registering only one level, the sensitivity is half as large

Conductive Sensors
Amplifier
Type S 197 (Charging/Discharging)

- **Controller for conductive liquids**
- **Controls minimum/maximum and indicates over and under alarm**
- **Filling or emptying function selectable**
- **Fixed sentitivity**
- **2 x 5 A 250 VAC relay outputs, SPST**
- **4 LED indications: Pump running, power supply ON, alarm high (HiHi) and alarm low (LoLo)**
- **AC power supply: 24 VAC, 115 VAC and 230 VAC**

Product Description

Level control relay for conductive liquids. Unit features output for controlling high and low levels as well as separate output for alarm indication in case of tank running dry or an overflow condition.

Ordering Key

S 197 256 024

Housing
Type/function
Output configuration
Power supply

Ordering Key

Plug		Supply: 24 VAC	Supply: 115 VAC	Supply: 230 VAC
11-pin circular	Type	S 197 256 024	S 197 256 115	S 197 256 230
	Art.No	**4230-0**	**4230-013**	**4230-014**

Note: There is approximately a 2 seconds delay on the output to compensate for wave action.

Input Specifications

Level probe supply	Max. 12 VAC
Level probe current	Max. 2.5 mA
Sensitivity	
ON (pin 5-6 and 7)	< 25 kΩ (approx.)
OFF (pin 5-6 and 7)	> 35 kΩ (approx.)

Supply Specifications

Power supply		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)

Output Specifications

Output		SPST relay
Rated insulation voltage		250 VAC (rms) (cont./elec.)
Contact ratings (AgCd0)		µ (micro gap)
Resistive loads	AC 1	5 A/250 VAC (2500 VA)
	DC 1	1 A/250 VDC (250 W)
	or	5 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 volt.		4 kV (1.2/50 µs) (cont./elec.) (IEC 60664)

General Specifications

Indication for	
Power supply ON	LED, green
Output ON	LED, yellow
Alarm HiHi	LED, red
Alarm LoLo	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)
CE-marking	Yes

Mode of Operation

The switch at the front is set in the desired mode IN (charging) or OUT (discharging).

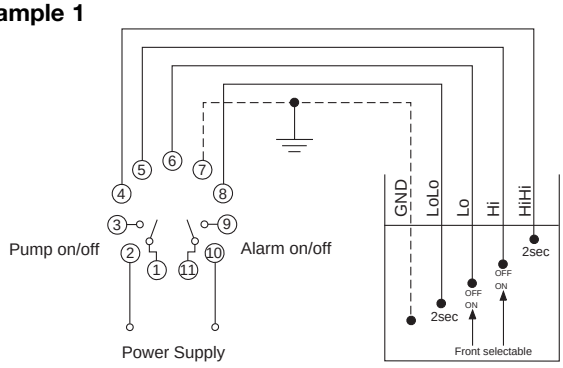
Connection cable
2 or 3 core PVC cable, normally unscreened. Cable length: max. 100 m. The resistance between the cores and the ground must be at least 220 kΩ. In certain cases it is recommended to use screened cable between sensor and amplifier, e.g. where the cable is placed in parallel to the load cables (mains). The screen is connected to pin 7.

Example 1
The diagram shows the level control connected as max. and min. control, i.e. registration of 2 levels. The relay operates (OUT)/releases (IN) when the liquid reaches the Hi electrode (pin 5), provided that the Lo electrode (pin 6) is in contact with the liquid. The relay releases (OUT)/-operates (IN) when the Lo electrode is no longer in contact with the liquid. Pin 7 must be connected to the container. If the container consists of a non-conductive material, an additional electrode must be used. (To be connected to pin 7. In the diagram this electrode is shown by the dotted line.)

The alarm outputs utilise electrodes on pin 4 for HiHi alarm and pin 8 for LoLo alarm. Because alarm conditions of HiHi and LoLo can not be experienced at the same time the LED indication on the front of the housing offers visual confirmation as to which alarm condition is active or present.

Wiring Diagram

Example 1

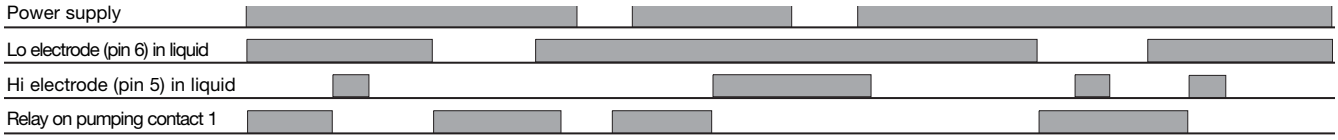


Accessories

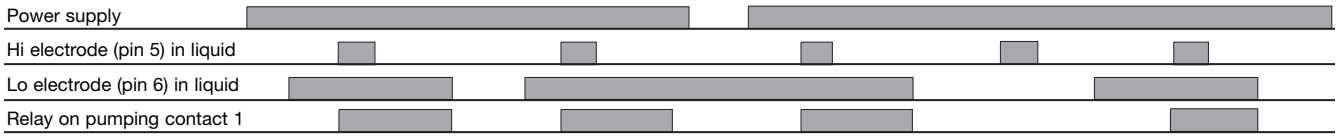
Conductive level probes:	VH VPC, VPP VN, VNY, VNI VT, VTI VS
Base	S 411
Hold down spring	HF
Base cover	BB 4
Front mounting bezel	FRS 2

Operation Diagrams

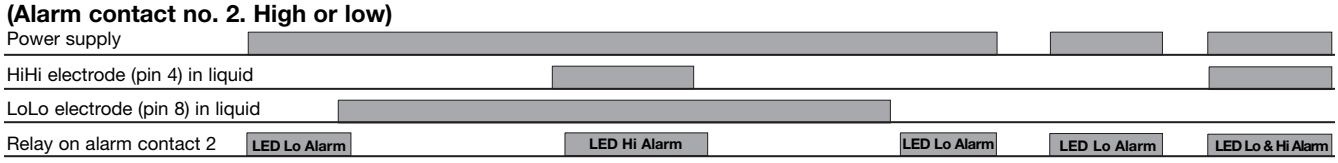
(Charging contact no. 1. pumping) ON-OFF



(Discharging contact no. 1. pumping) OFF-ON



(Alarm contact no. 2. High or low)



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

- **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

Ordering Key

Plug	Output		Supply: 24 VAC	Supply: 115 VAC	Supply: 230 VAC	Supply: 24 VDC
Circular	SPDT	Type	SV 190 024	SV 190 115	SV 190 230	SV 190 724
		Art No	**4225-001**	**4225-002**	**4225-003**	**4225-004**

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	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)

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

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

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.

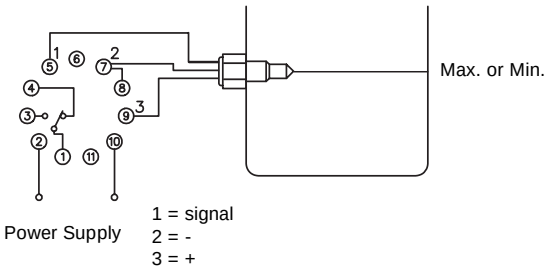
Sensor characteristics
The optical sensors VP for liquids must not be exposed to more than 100 lux from ambient light sources.

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.

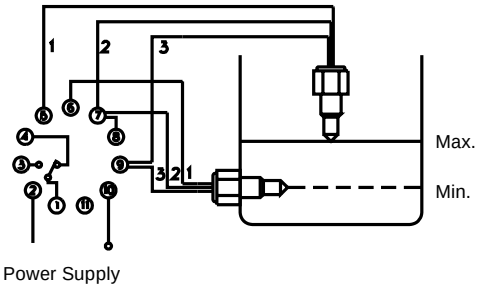
Note: Solid or fluid conductors are detected at a greater distance than light or porous insulators.

Wiring Diagrams

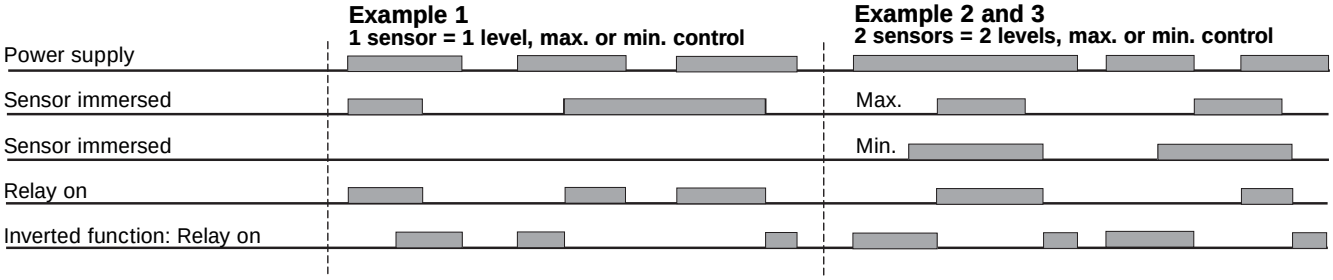
Example 1 1 sensor = 1 level
Max. or min. control



Example 2 and 3 2 sensors = 2 levels
Max. and min. control



Operation Diagrams



Level Sensors
Namur Amplifier Relays
Types SD 110, SD 210, SD 270

- **According to DIN 19 234**
- **SD 110/210: Amplifier with relay output**
- **SD 270: Set/reset amplifier with relay output for 2 proximity switches**
- **Power supply to proximity switch 8.2 VDC/1 kΩ**
- **Galvanically separated output relay**
- **Load: 10 A SPDT or 8 A DPDT relay**
- **LED-indication for output ON**
- **AC or DC power supply**

Product Description

Namur amplifier relay for inductive or capacitive Namur proximity switches. Single amplifier, set-reset functions. Short circuit and cable failure monitoring. Mounting socket type S 411.

Ordering Key

			Namur Amplifier Relay		Set-reset Amplifier for 2 Namur Proximity Switches
Plug	**Supply**		**10 A SPDT relay**	**8 A DPDT relay**	**8 A DPDT relay**
Circular	24 VAC	Typ	SD 110 024	SD 210 024	SD 270 024
		Art.No	**4226-001**	**4226-005**	**4226-009**
Circular	110 VAC	Typ	SD 110 110	SD 210 110	SD 270 110
		Art.No	**4226-002**	**4226-006**	**4226-010**
Circular	230 VAC	Typ	SD 110 230	SD 210 230	SD 270 230
		Art.No	**4226-003**	**4226-007**	**4226-011**
Circular	24 VDC	Typ	SD 110 724	SD 210 724	SD 270 724
		Art.No	**4226-004**	**4226-008**	**4226-012**

Input Specifications

	SD110, SD210	**SD270**
Inputs	1	2
Proximity switch voltage	8.2 VDC	8.2 VDC
Proximity switch current		
- activated	≤ 1.2 mA	≤ 1.2 mA
- not activated	≥ 2.1 mA	≥ 2.1 mA
Internal resistance	1 kΩ	1 kΩ
Operating frequency	10 Hz	10 Hz
Pulse time	≥ 20 ms	≥ 20 ms
Connection cable	Unshielded	Unshielded
- max. resistance	50 Ω	50 Ω

Output Specifications

		SD110	**SD210, SD270**
Output		SPDT relay	DPDT relay
Rated insulation voltage		250 VAC (rms) (cont./elec.)	250 VAC (rms) (cont./elec., cont./cont.)
Contact ratings (AgCdO)		µ (micro gap)	µ (micro gap)
Resistive loads	AC1	10 A/250 VAC (2500 VA)	8 A/250 VAC (2000 VA)
	DC1	1 A/250 VDC (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	AC15	2.5 A/230 VAC	2.5 A/230 VAC
	DC13	5 A/24 VDC	5 A/24 VDC
Mechanical life		≥ 30 x 10^6 op.	≥ 30 x 10^6 op.
Electrical life			
(at max. load)	AC 1	≥ 2.5 x 10^5 op.	≥ 2.5 x 10^5 op.
Operating frequency		≤ 7200 op./h	≤ 7200 op./h
Dielectric strength			
Dielectric voltage		2 kVAC (rms) (cont./elec.)	2 kVAC (rms) (cont./elec.)
Rated impulse withstand voltage		4 kV (1.2/50 µs) (cont./elec.) (IEC 60664)	4 kV (1.2/50 µs) (cont./elec.) (IEC 60664)

Supply Specifications

Power supply AC types		Overvoltage cat. III (IEC 60664)
Rated operational volt.	230	230 VAC ± 15%, 50 to 60 Hz
Through pins 2 & 10	115	115 VAC ± 15%, 50 to 60 Hz
	024	24 VAC ± 15%, 50 to 60 Hz
Voltage interruption		≤ 40 ms
Dielectric voltage		≥ 2 kVAC (rms) (supply/elec.)
Rated impulse withstand volt.		2 kV (1.2/50 µs) (line/neutral)
Power supply DC types		Overvoltage cat. III (IEC 60664)
Rated operational volt.	724	24 VDC ± 15%
Dielectric voltage		None
Rated impulse withstand volt.		800 V (1.2/50 µs)
Rated operational power		
AC supply		2.5 VA
DC supply		1.5 W

General Specifications

Indication for		
Output ON		LED, red
Environment		
Degree of protection		IP 20 B
Pollution degree		2 (IEC 60664)
Operating temperature		-20° to +50°C (-4° to +122°F)
Storage temperature		-50° to +85°C (-58° to +185°F)
Weight	AC types	200 g
	DC types	125 g
Approvals		UL, CSA
CE-marking		Yes (only SD 270)

Mode of Operation

SD x10
Example 1
The relay operates when the proximity switch is activated. The relay releases automatically in case of interruption or short-circuit of proximity switch or cable.

Example 2
The relay operates when the proximity switch is inactive. The relay operates in case of short-circuit of proximity switch or cable.

SD x70
The set-reset relays SD 270 are used with 2 proximity switches in the following way:

The relay operates when proximity switch S1 is activated momentarily and subsequently remains on.

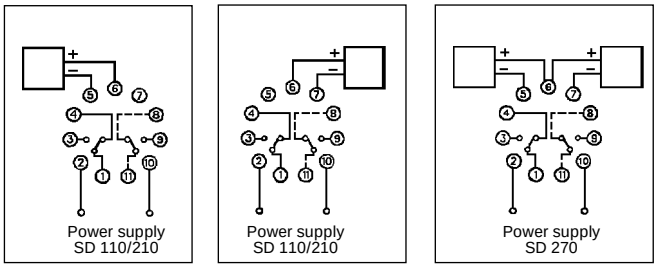
When proximity switch S2 is activated momentarily or the power supply is interrupted, the relay releases.

If both proximity switches are activated at the same time, S2 has priority and the relay therefore releases.

Accessories

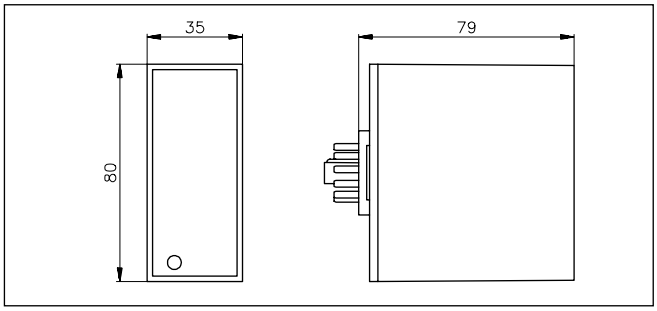
Socket◊	S 411
Hold down spring◊	HF
Mounting rack	SM 13
Socket cover	BB 4
Front mounting bezel	FRS 2

Wiring Diagrams



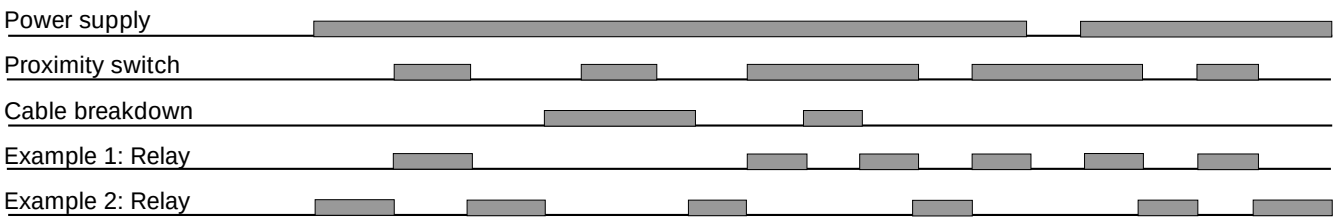
Example 1 **Example 2**

Dimensions



Operation Diagrams

SD x10



SD 270