Current and Voltage Controls 1-Phase DC Current/Voltage Amplifier Type S 183



Product Description

Programmable DC amplifier plug-in metering relay for sensors with outputs according to IEC 381. With its built-in time delay, delay on operate or on release, latch function and adjustable hysteresis this relay can control many different applications.

- Programmable DC amplifier for sensors with voltage/current outputs, in accordance with IEC 381
- Selectable current/voltage ranges
- Built-in adjustable timer function: delay on operate and delay on release
- Sensor output: 22 VDC/25 mA, IEC 381
- Latching at set level possible
- Output: 10 A SPDT relay
- Plug-in type module
- S-housing
- LED-indication for power supply and output ON
 AC power supply

Power supply

Type Selection

Plug	Output	Supply: 24 VAC	Supply: 115 VAC	
Circular	SPDT	S 183 156 024	S 183 156 115	

Output Specifications

Output Rated insulation volta	SPDT relay 250 VAC (rms) (cont./elect.)				
Contact ratings (AgCo	IO)	µ (micro gap)			
Resistive loads	ÁC 1	10 A/250 VAC (2500 VA)			
	DC 1	1 A/250 VDC (2	250 W)		
	or	10 A/25 VDC (2	250 W)		
Small inductive loads	AC 15	2.5 A/230 VAC			
	DC 13	5 A/24 VDC			
Mechanical life	\ge 30 x	10 ⁶ operations			
Electrical life	Electrical life AC 1		\geq 2.5 x 10 ⁵ operations		
	(at max. load)				
Operating frequency		≤ 7200 operations/h			
Dielectric strength					
Dielectric voltage		\geq 2 kVAC (rms) (cont./elect.)			
Rated impulse withsta	and volt.	4 kV (1.2/50 ms) (cont./elect.)			
		(IEC 60664)			
Power supply to sense	or	Pins 8 & 7			
		pin 7 ground			
		22 VDC, 25 mA	۱.		
		stabilized and sh	ort-circuit proof		
		(DIN/IEC 60381)		

Supply: 230 VAC

S 183 156 230

Input Specifications

Input	
Pins 6 & 7	Voltage input (pin 6 pos.)
Pins 5 & 7	Current input (pin 5 pos.)
Pins 7	Ground
Current ranges	0 - 10 mA
	2 - 10 mA
	0 - 20 mA (IEC 60381-1)
	4 - 20 mA (IEC 60381-1)
Voltage ranges	0 - 5 V (IEC 60381-1)
	1 - 5 V (IEC 60381-1)
	0 - 10 V (IEC 60381-1)
	2 - 10 V
	- 10 - + 10 V (IEC 60381-1)
Impedance	
Pins 6 & 7	1 MΩ
Pins 5 & 7	50 Ω
Reduction of impedance	Insert external resistor betweer
	pins 6 & 7
Latching	Interconnection of pins 9 &11 latching at set level



Supply Specifications

Overvoltage cat. III (IEC 60664) (IEC 60038)		
24 VAC ± 15%, 45 to 65 Hz		
115 VAC ± 15%, 45 to 65 Hz		
230 VAC ± 15%, 45 to 65 Hz		
≤ 40 ms		
2 kVAC (rms)(supply/elect.)		
4 kV (1.2/50 μs) (line/neutral),		
no direct connection to		
electronics		
8 VA		

General Specifications

Power ON delay	≤ 600 ms
Reaction time	τ = 100 ms, worst case reaction time may be up to 5 x τ
Indication for	
Power supply ON	LED, green
Output ON	LED, red
Environment	(IEC 60947-1)
Degree of protection	IP 20 B (IEC 60529)
Pollution degree	2 (IEC 60664)
Operating temperature	-20° to +50°Ć (-4° to +122°F)
Storage temperature	-50° to +85°C (-58° to +185°F)
Weight	200 g
Approvals	UL, CSA, SEV

Mode of Operation

The S 183 is a max. or min. level amplifier relay for use with sensor having an analogue output or voltage signals which are in accordance with IEC 381-1/381-2.

9 input ranges are selectable by the last 3 DIP-switches at the front (see below). Standard hysteresis is 5%, but may be increased by inserting an external resistor between pins 9 and 11. The relay can be latched if pins 9 and 11 are short-circuited and set point is exceeded.

The delay on operate or delay on release timer functions are selected by the 1. DIPswitch and the time is adjustable (0.15 - 10 s) on the upper potentiometer at the front.

Wiring Diagrams

The 2. DIP-switch is for selection of max. or min. level detection, output relay on or off.

S 183 contains 22 VDC/25 mA power supply for sensor; power supply is stabilized and short-circuit proof.

1	2	3	4	Ę

Delay on operate, max. level detection

Example ⁻

The relay operates when the measured value exceeds set point for more than the set time. The relay releases when the measured value drops below set point less hysteresis. If the relay is latched it remains ON once it has been activated.



Delay on release, max. level detection (min. level guard)

The relay operates when the measured value exceeds set point. The relay releases when the measured value drops below set point less hysteresis for more than the set time. If the relay is latched it remains ON once it has been activated.

5

	1	2	3	4
Evennela 0				
Example 3				
Delay on relea	se	,		
min. level dete	ecti	ion	1	
(max. level gua	ard	I)		
The relay oper	ate	es	whe	en

The relay operates when the measured value drops below





Example 4 Delay on operate, min. level detection

The relay operates when the measured value drops below set point less hysteresis for more than the set time. The relay releases when the measured value exceeds set point.



Time/Range Setting

Time setting

Adjustable on potentiometer 0.15 s - 10 s (tolerance on max.: -1 s, +3 s).



Latch/Hysteresis

Hysteresis normally 5%. Pins 9 and 11. Different hysteresis are available by inserting a resistor.



DIP-switches are placed behind a small removable front

Min. level control:

Max. level control:

plate on the relay.

Accessories

Sockets◊	S 411
Hold down spring◊	HF
Mounting rack	SM 13
Socket covers	BB 4
Front mounting bezel	FRS 2
Potentiometer lock	A 82-10, E 82-20 25, A 82-20 PL 2

For further information refer to "Current Metering Transformers", and "Accessories".

Oper	ation	Diagram

td = Power ON delay

t = Adjustable timer (0.15 - 10 s)

Power supply						
Set level						
Hysteresis		\checkmark			\checkmark	
Latch						
Example 1: Relay ON	⊢ T			⊢⊤⊣		Td T
Example 2: Relay ON		⊢T			⊢T	Td T
Example 3: Relay ON	Td ├─T ─		<u>⊢</u> τ –∣	Td ⊣T →		Td T
Example 4: Relay ON	Td	⊢ T –	1	Td		⊢ τ →