

Current and Voltage Controls

1-Phase Max. and Min. Voltage Control

Type S 177

CARLO GAVAZZI



- AC monitoring relay for upper and lower voltage control
- Measures on own AC power supply
- Measuring range: 20 - 260 VAC
- Upper and lower limits separately adjustable
- Built-in adjustable timer function
- Output: 10 A SPDT relay
- Plug-in type module
- S-housing
- LED-indication for power supply and output ON

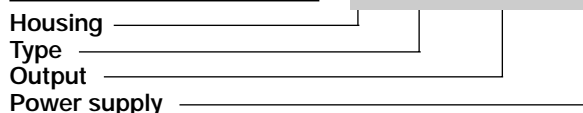
Product Description

1-phase knob-adjustable upper and lower voltage plug-in monitoring relay. Built-in time delay function prevents reaction to sudden voltage peaks.

Often used in applications where the mains has to be controlled within a set voltage range.

Ordering Key

S 177 156 220



Type Selection

Plug	Output	Supply: 24 VAC	Supply: 120 VAC	Supply: 220 VAC
Circular	SPDT	S 177 156 024	S 177 156 120	S 177 156 220

Input Specifications

Input Through pins 2 & 10	Supply voltage		
Measuring ranges Type	Range (VAC)	Lower limit	Upper limit
S .77 024	20- 28	20-23.5	24.5-28
S .77 120	100-140	100-118	122-140
S .77 220	180-260	180-217	223-260
measuring range equals rms-value of a sinusoidal voltage, measures on own supply			

Supply Specifications

Power supply AC types	Overvoltage cat. III (IEC 60664) (IEC 60038)
Rated operational voltage	20- 28 VAC, 45 to 65 Hz
Through pins 2 & 10	120 100-140 VAC, 45 to 65 Hz
	220 180-260 VAC, 45 to 65 Hz
Voltage interruption	≤ 40 ms
Dielectric voltage	None (supply/elect.)
Rated impulse withstand volt.	4 kV (1.2/50 μs) (line/neutral), direct connection to elect.
Rated operational power	5 VA

Output Specifications

Output Rated insulation voltage	SPDT relay 250 VAC (rms) (cont./elect.)
Contact ratings (AgCdO)	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
Dielectric strength	Dielectric voltage ≥ 2 kVAC (rms) (cont./elect.) Rated impulse withstand volt. 4 kV (1.2/50 μs) (cont./elect.) (IEC 60664)



General Specifications

Power ON delay (t_d)	6 s ± 2 s
Reaction time	τ = 1.2 s, worst case reaction time may be up to 5 x τ Adjustable delay on release built-in (0.15s - 10s)
Accuracy OFF delay	10s, -1/+3 s on max. < 0.1 s on min.
Indication for Power supply ON Output ON	LED, green LED, red
Environment Degree of protection Pollution degree Operating temperature Storage temperature	(IEC 60947-1) IP 20 B (IEC 60529) 2 (IEC 60664) -20° to +50°C (-4° to +122°F) -50° to +85°C (-58° to +185°F)
Weight	200 g
Approvals	UL, CSA

Mode of Operation

S 177 measures the average of its own sinusoidal power supply. The two set points, calibrated to rms-value, are set on upper or middle potentiometer.

The relay operates as long as the value of the measured power supply lies within the

separately adjustable upper and lower limits.

The relay releases with an adjustable time delay of 0.15 to 10 s when the value of the measured power supply is above the upper limit or below the lower limit.

Time/Range Setting

Range setting

Upper potentiometer:
Setting of upper limit on absolute scale in volts.
Middle potentiometer:
Setting of lower limit on absolute scale in volts.

Time

Delay on release, adjustable 0.15 to 10 s.
However, the delay on release will never be of shorter duration than the reaction time.

Time setting

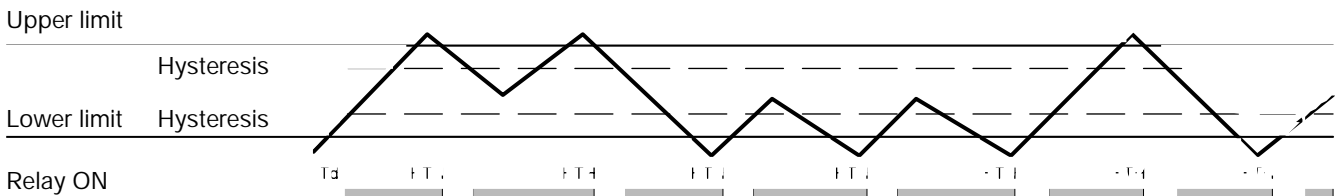
Bottom potentiometer:
Setting of time on relative scale.

Hysteresis

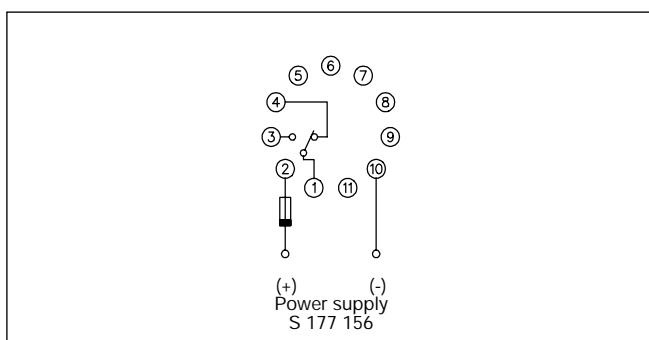
Hysteresis in relation to measuring voltage is approx. - 2% for upper limit and approx. + 2% for lower limit.

Operation Diagram

t_d = Power-ON delay
t = Time (delay on release)



Wiring Diagram



Accessories

Sockets∅	S 411
Hold down spring∅	HF
Mounting rack	SM 13
Socket covers	BB 4
Front mounting bezel	FRS 2
Potentiometer lock	PL 2

For further information refer to "Accessories".