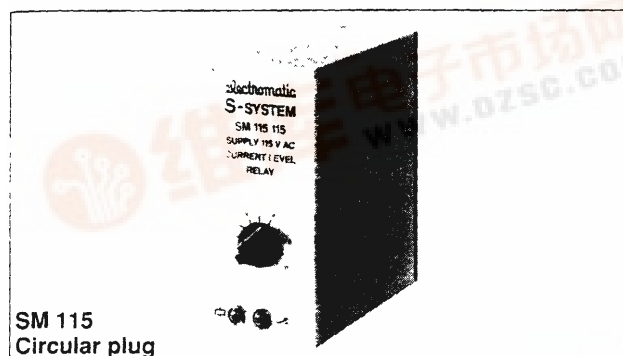


† 1-Phase AC/DC Voltage - AC Current Control Types SM 115, SM 125

CARLO GAVAZZI



- AC/DC voltage/current control relay
- Current measuring range: 0.1 - 500 AAC through current metering transformer
- Voltage measuring range: 0.1 - 500 VAC/DC, divided into 5 ranges
- Knob-adjustable set point
- 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 or DC power supply

Product Description

An AC/DC voltage and current break or short-circuit to avoid metering plug-in relay. Often used where heating elements are wanted to be controlled for damage to the equipment.

Ordering Key

SM 125 024 200

Housing _____
Function _____
Output _____
Type _____
Power supply _____
Measuring range _____

Type Selection

Plug	Output	Measuring ranges	Supply: 24 VAC	Supply: 115 VAC	Supply: 230 VAC	Supply: 24 VDC
Current measuring						
Circ.	SPDT	0.1 - 500 AAC	SM 115 024	SM 115 115	SM 115 230	SM 115 724
Voltage measuring						
Circ.	SPDT	0.1 - 4 VAC/DC	SM 125 024 4	SM 125 115 4	SM 125 230 4	SM 125 724 4
		2 - 20 VAC/DC	SM 125 024 20	SM 125 115 20	SM 125 230 20	SM 125 724 20
		5 - 50 VAC/DC	SM 125 024 50	SM 125 115 50	SM 125 230 50	SM 125 724 50
		20 - 200 VAC/DC	SM 125 024 200	SM 125 115 200	SM 125 230 200	SM 125 724 200
		50 - 500 VAC/DC	SM 125 024 500	SM 125 115 500	SM 125 230 500	SM 125 724 500

Input Specifications

Input	Types	Ranges	Internal resist.	Max. volt. VAC/DC
Pins 5 & 7	SM 115	0.1 - 4*	8 kΩ	20
Measuring ranges				
Types	Types	Ranges AAC RMS	Max. current RMS	
MI 5	SM 125	0.5 - 5	20 AAC	
MI 20	SM 125 ..	2 - 20	50 AAC	
MI 100	SM 125	10 - 100	250 AAC	
MI 500	SM 125 ..	50 - 500	700 AAC	

Latching
latching at set level

Interconnect pins 8 & 9

† Three phase current monitoring possible by using SM115 with MP Series current transformers.

Output Specifications

		SM 115, SM 125
Output		
Rated insulation voltage		SPDT relay 250 VAC (RMS) (cont./elect.)
Contact ratings (AgCdO)		
Resistive loads	AC 1 DC 1 or	μ (micro gap) 10 A/250 VAC (2500 VA) 1 A/250 VDC (250 W) 10 A/25 VDC (250 W)
Small inductive loads	AC 11 DC 11	2.5 A/230 VAC 5 A/24 VDC
Mechanical life		
		$\geq 30 \times 10^6$ operations
Electrical life (at max. load)		
AC 1		$\geq 2.5 \times 10^5$ operations
Operating frequency		
		≤ 7200 operations/h
Dielectric strength		
Dielectric voltage		≥ 2 kVAC (RMS) (cont./elect.)
Rated impulse withstand volt.		4 kV (1.2/50 μ s) (cont./elect.) (IEC 664)

General Specifications

Hysteresis		10% \pm 6%
Reaction time		Relay operates: $\tau = 12$ ms Relay releases: $\tau = 64$ ms. worst case reaction time may be up to $5 \times \tau$
Indication for		
Power supply ON		LED, green
Output ON		LED, red
Environment		(IEC 947-1)
Degree of protection		IP 20 B (IEC 529)
Pollution degree		2 (IEC 664)
Operating temperature		-20 to +50°C (-4 to +122°F)
Storage temperature		-50 to +85°C (-58 to +185°F)
Weight		
AC supply		200 g
DC supply		125 g
Approvals		UL, CSA, SEV

Supply Specifications

Power supply AC types		Overvoltage cat. III (IEC 664) (IEC 38)
Rated operational voltage through pins 2 & 10	024 115 230	24 VAC \pm 15%, 45 to 65 Hz 115 VAC \pm 15%, 45 to 65 Hz 230 VAC \pm 15%, 45 to 65 Hz
Voltage interruption		≤ 40 ms
Dielectric voltage		2 kVAC (RMS) (supply/elect.)
Rated impulse withstand volt		4 kV (1.2/50 μ s) (line/neutral, line/line), no direct connection to electronics
Power supply DC types		Overvoltage cat. III (IEC 664) (IEC 38)
Rated operational voltage through pins 2 & 10	724	24 VDC \pm 15%
Dielectric voltage		none (supply/elect.)
Rated impulse withstand volt.		800 V (1.2/50 μ s) +/-
Rated operational power		
AC supply		2.5 VA
DC supply		1.5 W

Mode of Operation

SM 115

Example 1

AC current metering

The relay operates when the current through the current transformer reaches set point. The relay releases when the voltage drops below set point (see hysteresis) or by interrupting power supply.

Example 2

AC current metering - latching

The relay operates when the current through the current transformer reaches set point and latches in operating position. The relay releases by removing the latch i.e. by opening the contact between pins 8 and 9, provided that the current has dropped below set point (see hysteresis), or by interrupting power supply.

SM 125

Example 3

AC/DC voltage metering

The relay operates when the voltage (peak voltage at AC) reaches set point. The relay releases when the voltage drops below set point (see hysteresis), or by interrupting power supply.

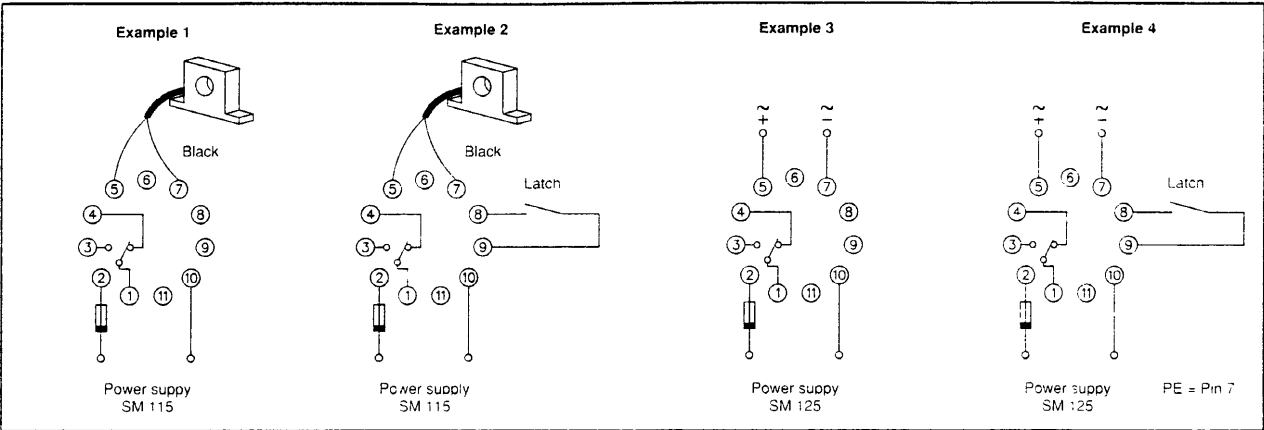
Example 4

AC/DC voltage metering - latching

The relay operates when the voltage (peak voltage at AC) reaches set point and latches in operating position. The relay releases by removing the latch i.e. by opening the contact between pins 8 and 9, provided that the voltage in all 3 phases has dropped below set point (see hysteresis), or by interrupting power supply.

Note At DC supply, do not connect pins 7 and 10 (3 and A2) as these pins are internally connected via a resistor of 3.9 k Ω .

Wiring Diagrams



Range Setting

Range setting
Adjustment of set point on relative scale.

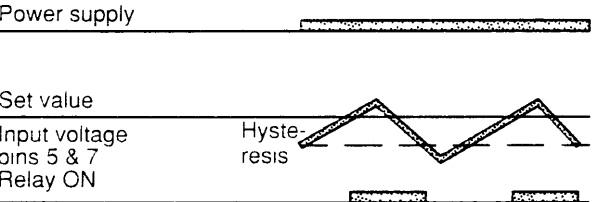
Hysteresis
10% ± 6%.
The hysteresis may be extended to 75% by connecting a resistor between pins 8 and 9. Resistor limits are 1 MΩ and 15 kΩ. The hysteresis is increased by decreasing resistance

Accessories

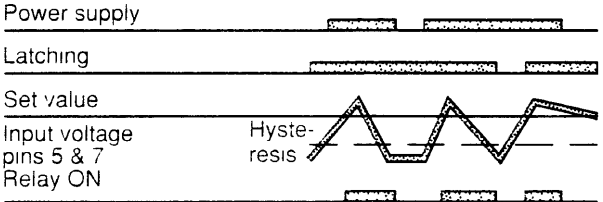
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|-------------------------------|-----------------------------|
| Sockets | S 411 |
| Hold down spring | HF |
| Mounting rack | SM 13 |
| Socket covers | BB 4 |
| Front mounting bezel | FRS 2 |
| Current metering transformers | MI 5, MI 20, MI 100, MI 500 |
| Potentiometer lock | PL 1 |
- For further information refer to "Accessories."

Operation Diagrams

Example 1 and 3



Example 2 and 4



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