

Current and Voltage Controls

1-Phase AC/DC Over Current

Type EII

CARLO GAVAZZI



- AC/DC over current metering (open circuit) relay
- Current measuring through internal shunt
- 3 position rotary switch for selection of measuring range
- Measuring ranges: 0.4 mA - 10 A
- Adjustable current limit on relative scale
- Adjustable time function (0.1-10 s)
- Adjustable hysteresis
- Programmable latching at set level
- Output: 5 A SPDT
- For mounting on DIN-rail in accordance with DIN/EN 50 022
- 22.5 mm Euronorm housing
- LED-indication for relay and power supply ON
- Galvanically separated power supply

Product Description

EII is a precise AC/DC over current metering relay and often used in applications where small loads have to be controlled. The advantage of

using the latch function is that the output relay can be kept energized so that e.g. a short-circuit can be indicated.

Ordering Key

EII C 230 20mA

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

Type Selection

Mounting	Output	Measuring range	Supply: 24 VAC	Supply: 115 VAC	Supply: 230 VAC
For DIN-rail	SPDT	0.4 - 20 mA	EII C 024 20mA	EII C 115 20mA	EII C 230 20mA
	SPDT	10 - 500 mA	EII C 024 500mA	EII C 115 500mA	EII C 230 500mA
	SPDT	0.2 - 5 A	EII C 024 5A	EII C 115 5A	EII C 230 5A
	SPDT	0.4 - 10 A	EII C 024 10A	EII C 115 10A	EII C 230 10A

Input Specifications

Input		current level	
Through terminals Y1 & Y2			
Measuring ranges		Internal resist.	Max. curr.
20 mA type			
Rotary 1: 0.4 - 2 mA	50 Ω	50 mA	
Switch 2: 1 - 5 mA	50 Ω	50 mA	
Position 3: 4 - 20 mA	50 Ω	50 mA	
500 mA type			
Rotary 1: 10 - 50 mA	3.9 Ω	600 mA	
Switch 2: 40 - 200 mA	3.9 Ω	600 mA	
Position 3: 100 - 500 mA	3.9 Ω	600 mA	
5 A type			
Rotary 1: 0.2 - 1 A	0.05 Ω	6 A	
Switch 2: 0.4 - 2 A	0.05 Ω	6 A	
Position 3: 1 - 5 A	0.05 Ω	6 A	
Max. current for 10 s	30 A		
10 A type			
Rotary 1: 0.4 - 2 A	0.01 Ω	12 A	
Switch 2: 1 - 5 A	0.01 Ω	12 A	
Position 3: 2 - 10 A	0.01 Ω	12 A	
Max. current for 10 s	40 A		
Max. line voltage	277/480 VAC/DC		

Output Specifications

Output	SPDT relay
Rated insulation voltage	250 VAC (contact/elect.)
Contact ratings (AgCdO)	μ (micro gap)
Resistive loads AC 1	5 A, 250 VAC
DC 1	5 A, 24 VDC
Small inductive loads AC 15	2 A, 250 VAC
DC 13	3 A, 24 VDC
Mechanical life	≥ 40 x 10 ⁶ operations
Electrical life	≥ 10 ⁵ operations (at max. load)
Operating frequency	≤ 7200 operations/h
Dielectric strength	
Dielectric voltage	2 kVAC (rms)
Rated impulse withstand volt.	4 kV (1.2/50 μs)

Supply Specifications

Power supply	Overvoltage cat. III (IEC 60664)
Rated operational voltage through pins A1 & A2	(IEC 60038)
024	24 VAC, -10/+15%
115	115 VAC, -10/+15%
230	230 VAC, -10/+15%
Voltage interruption	≤ 40 ms
Dielectric voltage	≥ 2 kVAC (RMS)
Rated impulse withstand voltage	4 kV (1.2/50 μs)
Rated operational power	1.5 VA

General Specifications

Power ON delay	< 2 s
Power OFF delay	> 200 ms
Reaction time	τ < 200 ms worst case reaction time may be up to 5 x τ Adjustable delay on operate built-in (0.1-10 s).
Accuracy	
Input	±10% (DC/AC @ 50 Hz)
ON delay	10 s, -1/+3 s on max. < 0.1 s on min.
Temperature drift	≤ 0.2%/°C (≤ 0.11%/°F)
Indication for	
Power supply ON	LED, green
Output ON	LED, yellow
Environment	
Degree of protection	IP 20
Pollution degree	3
Operating temperature	-20 to +50°C (-4 to +122°F)
Storage temperature	-50 to +85°C (-58 to +185°F)
Weight	140 g
Screw terminals	
Tightening torque	Max. 0.5 Nm acc. to IEC 60947
Approvals	UL, CSA

Mode of Operation

EII measures both AC and DC over current through an internal shunt.

Example 1

(no connection between terminals Z1 & Z2)

The relay operates when the measured value exceeds the set level for more than the set delay time.

The relay releases when the current drops min. 5% below the set level (see hysteresis), or when power supply is interrupted.

Example 2

(connection between terminals Z1 & Z2)

The relay operates and latches in operating position when the

measured value exceeds the set level for more than the set delay time.

Provided that the voltage has dropped min. 5% below the set point (see hysteresis), the relay will release when the interconnection between terminals Z1 & Z2 is interrupted, or power supply is interrupted.

If the measured value is above the set level when power supply is applied, the relay will operate immediately with no time delay.

The yellow LED is flashing until the delay-time has expired or the measured value drops below the fixed hysteresis (5%) again.

Range/Level/Time Setting

Upper knob:

Setting of current range on rotary switch.

Centre knob:

Current level setting on relative scale.

Lower knob:

Setting of ON delay on absolute scale (0.1-10 s).

Hysteresis

Normally 5%. The hysteresis can be extended by inserting a resistor between terminals Z1 & Z2.

Approx.

10%: 39 kΩ

25%: 12 kΩ

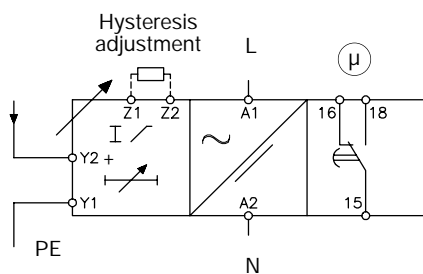
50%: 4.7 kΩ

75%: 2.2 kΩ

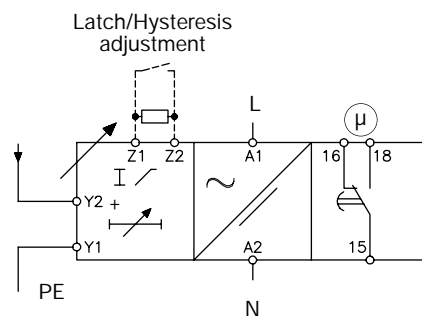
Latch: <500 Ω

Wiring Diagrams

Example 1



Example 2



Operation Diagrams

