



Monitoring relays - GAMMA series
Multifunction
16.6 to 400Hz
Fault latch
Zoom voltage 24 to 240V a.c./d.c.
2 change-over contacts
Width 22.5mm
Industrial design



Technical data

1. Functions

a.c./d.c. current monitoring in 1-phase mains with adjustable thresholds, timing for start-up suppression and tripping delay separately adjustable and the following functions (selectable by means of rotary switch)

OVER	Overcurrent monitoring
OVER+LATCH	Overcurrent monitoring with fault latch
UNDER	Undercurrent monitoring
UNDER+LATCH	Undercurrent monitoring with fault latch
WIN	Monitoring the window between Min and Max
WIN+LATCH	Monitoring the window between Min and Max with fault latch

2. Time ranges

	Adjustment range
Start-up suppression time:	0s 10s
Tripping delay:	0.1s 10s

3. Indicators

Green LED ON:	indication of supply voltage
Green LED flashes:	indication of start-up suppression time
Yellow LED ON/OFF:	indication of relay output
Red LED ON/OFF:	indication of failure of the corresponding threshold
Red LED flashes:	indication of tripping delay of the corresponding threshold

4. Mechanical design

Self-extinguishing plastic housing, IP rating IP40
Mounted on DIN-Rail TS 35 according to EN 60715
Mounting position: any
Shockproof terminal connection according to VBG 4 (PZ1 required), IP rating IP20
Tightening torque: max. 1Nm
Terminal capacity:
1 x 0.5 to 2.5mm² with/without multicore cable end
1 x 4mm² without multicore cable end
2 x 0.5 to 1.5mm² with/without multicore cable end
2 x 2.5mm² flexible without multicore cable end

5. Input circuit

Supply voltage:
24 to 240V a.c./d.c. terminals A1-A2 (galvanically separated)
Tolerance:
24 to 240V d.c. -20% to +25%
24 to 240V a.c. -15% to +10%
Rated frequency:
24 to 240V a.c. 48 to 400Hz
48 to 240V a.c. 16 to 48Hz
Rated consumption: 4.5VA (1W)
Duration of operation: 100%
Reset time: 500ms
Wave form for a.c.: Sinus
Residual ripple for d.c.: 10%
Drop-out voltage: >15% of the supply voltage
Overvoltage category: III (in accordance with IEC 60661-1)
Rated surge voltage: 4kV

6. Output circuit

2 potential free change-over contacts
Rated voltage: 250V a.c.
Switching capacity (distance <5mm): 750VA (3A / 250V a.c.)
Switching capacity (distance >5mm): 1250VA (5A / 250V a.c.)
Fusing: 5A fast acting
Mechanical life: 20 x 10⁶ operations
Electrical life: 2 x 10⁵ operations
Switching frequency: max. 60/min at 100VA resistive load
max. 6/min at 1000VA resistive load (in accordance with IEC 60947-5-1)
III (in accordance with IEC 60664-1)
Overvoltage category: III
Rated surge voltage: 4kV

7. Measuring circuit

Measured variable: d.c. or a.c. Sinus (16.6 to 400Hz)
Input:
20mA a.c./d.c. terminals K-11(+)
1A a.c./d.c. terminals K-12(+)
5A a.c./d.c. terminals K-13(+)
Overload capacity:
20mA a.c./d.c. 250mA
1A a.c./d.c. 3A
5A a.c./d.c. 10A
Input resistance:
20mA a.c./d.c. 2.7Ω
1A a.c./d.c. 47mΩ
5A a.c./d.c. 10mΩ
Switching threshold:
Max 10% to 100% of I_N
Min 5% to 95% of I_N
Overvoltage category: III (in accordance with IEC 60664-1)
Rated surge voltage: 4kV

8. Accuracy

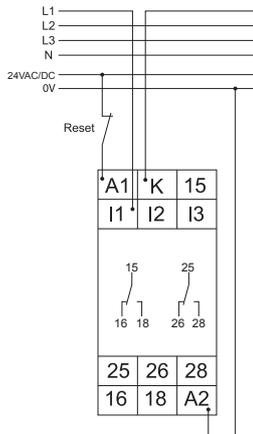
Base accuracy: ≤3% (of maximum scale value)
Frequency response: -10% to +5% (16.6 to 400Hz)
Adjustment accuracy: ≤5% (of maximum scale value)
Repetition accuracy: ≤2%
Voltage influence: -
Temperature influence: ≤0.05% / °C

9. Ambient conditions

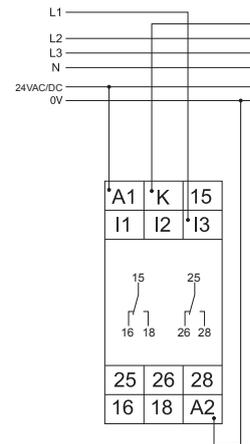
Ambient temperature: -25 to +55°C
(in accordance with IEC 60068-1)
-25 to +40°C (in accordance with UL 508)
Storage temperature: -25 to +70°C
Transport temperature: -25 to +70°C
Relative humidity: 15% to 85%
(in accordance with IEC 60721-3-3 class 3K3)
Pollution degree: 3 (in accordance with IEC 60664-1)
Vibration resistance: 10 to 55Hz 0.35mm
(in accordance with IEC 60068-2-6)
Shock resistance: 15g 11ms
(in accordance with IEC 60068-2-27)

Connections

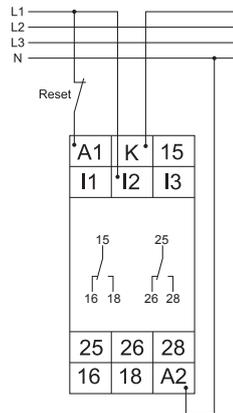
Range 20mA, supply voltage 24V a.c./d.c. and fault latch



Range 5A, supply voltage 24V a.c./d.c. without fault latch



Range 1A, supply voltage 230V a.c. and fault latch



Dimensions

