# DC voltage monitoring in 1-phase mains

**G4UF500V03**

part no.: 2394504

Monitoring relays - GAMMA series

Over- and undervoltage monitoring

Zoom voltage 24V to 240V AC/DC

3 change over contacts

Width 45mm

Industrial design


## Technical data

**1. Functions**
DC over- and undervoltage monitoring in 1-phase mains with fixed adjustable thresholds and fixed adjustable hysteresis.

**2. Time ranges**

| | Adjustment range |
|---|---|
| Start-up suppression time: | - |
| Tripping delay: | - |

**3. Indicators**

| | |
|---|---|
| Green LED U ON: | indication of supply voltage |
| Red LED max / min ON/OFF: | indication of failure of the corresponding threshold max or min |
| Yellow LED Rel Max ON/OFF: | indication of relay output Rel Max |
| Yellow LED Rel Min ON/OFF: | indication of relay output Rel Min |

**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: | |
| 24V to 240V AC/DC | terminals A1-A2 (galvanically separated) |
| Tolerance: | |
| 24V to 240V DC | -20% to +25% |
| 24V to 240V AC | -15% to +10% |
| Rated frequency: | |
| 48Hz to 400Hz | 24V to 240V AC |
| 16Hz to 48Hz | 48V to 240V AC |
| Rated consumption: | 1.5VA (1.1W) |
| Duration of operation: | 100% |
| Reset time: | 500ms |
| Residual ripple of DC: | - |
| Drop-out voltage: | >30% of the supply voltage |
| Overvoltage category: | II (in accordance with IEC 60664-1) |
| Rated surge voltage: | 4kV |

**6. Output circuit**
3 potential free change over contacts

| | |
|---|---|
| 1 change over contact | indication of overvoltage<br>terminals 15-16-18 |
| 2 change over contacts | indication of undervoltage<br>terminals 25-26-28 / 35-36-38 |
| Rated voltage: | 250V AC |
| Switching capacity: | 750VA (3A / 250V AC) |

If the distance between the devices is less than 5mm!

| | |
|---|---|
| Switching capacity: | 1250VA (5A / 250V AC) |

If the distance between the devices is greater than 5mm!

| | |
|---|---|
| Fusing: | 5A fast acting |
| Mechanical life: | 20 x $10^6$ operations |
| Electrical life: | 2 x $10^5$ operations at 1000VA resistive load |
| Switching frequency: | max. 60/min at 100VA resistive load<br>max. 6/min at 1000VA resistive load<br>(in accordance with IEC 60947-5-1) |
| Overvoltage category: | III (in accordance with IEC 60664-1) |
| Rated surge voltage: | 4kV |

**7. Measuring circuit**

| | |
|---|---|
| Fusing: | max. 20A (in accordance with UL 508) |
| Measured variable: | DC Sinus (48 to 63Hz) |
| Measurement input: | |
| 216V DC | terminals L1-E |
| 288V DC | terminals L2-E |
| 360V DC | terminals L3-E |
| Overload capacity: | |
| 216V DC | 500V DC |
| 288V DC | 500V DC |
| 360V DC | 500V DC |
| Input resistance: | |
| 216V DC | 1MW |
| 288V DC | 1MW |
| 360V DC | 1MW |
| Switching threshold | |
| max: | fixed, 260V DC / 346V DC / 432V DC |
| min: | fixed, 216V DC / 288V DC / 360V DC |
| Overvoltage category: | III (in accordance with IEC 60664-1) |
| Rated surge voltage: | 4kV |

**8. Accuracy**

| | |
|---|---|
| Base accuracy: | ±1.5% |
| Frequency response: | - |
| Adjustment accuracy: | - |
| Repetition accuracy: | ≤1% |
| Voltage influence: | ≤0.5% |
| Temperature influence: | ≤0.1% / °C |

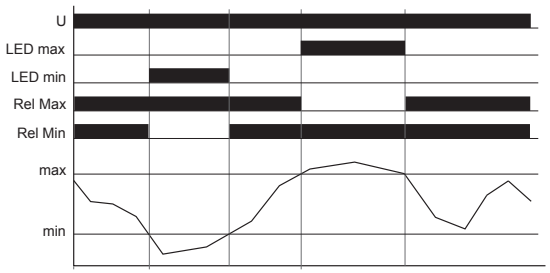
**9. Ambient conditions**

| | |
|---|---|
| Ambient temperature: | -25 to +55°C (in accordance with IEC 60068-1)<br>-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%<br>(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<br>(in accordance with IEC 60068-2-6) |
| Shock resistance: | 15g 11ms<br>(in accordance with IEC 60068-2-27) |

# Functions

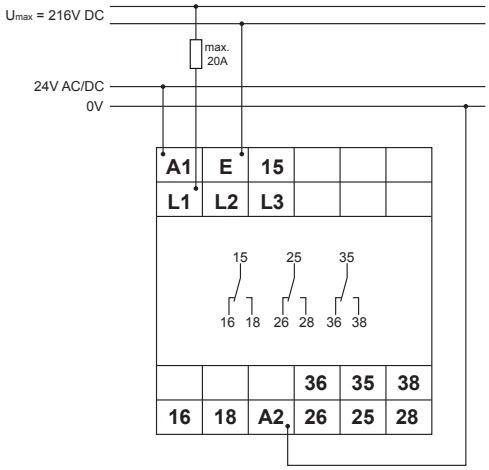
If a failure already exists when the device is activated, the output relays Rel Min and Rel Max remains in off-position and the red LED of the corresponding threshold (min or max) illuminate.

**Over- and undervoltage monitoring**
When the measured voltage exceeds the Max-value, the output relay Rel Max switches into off-postion immediately (yellow LED Rel Max not illuminated / red LED max illuminated). As soon as the measured voltage falls below the Max-value, the output relay Rel Max switches into on-position again (yellow LED Rel Max illuminated / red LED max not illuminated). When the measured voltage falls below the Min-value, the output relay Rel Min switches into off-postion immediately (yellow LED Rel Min not illuminated / red LED min illuminated). As soon as the measured voltage exceeds the Min-value, the output relay Rel Min switches into on-position again (yellow LED Rel Min illuminated / red LED min not illuminated).

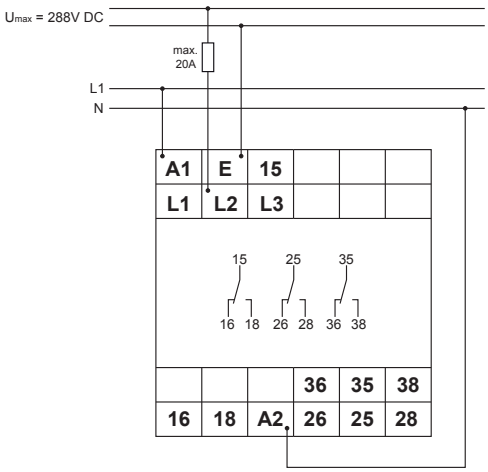



# Connections

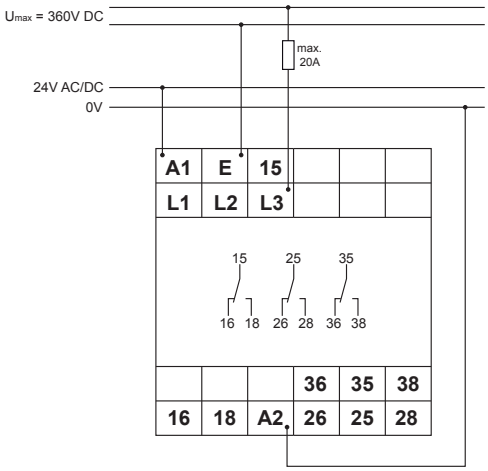
Measuring range 216V DC, supply voltage 24V AC/DC




Measuring range 288V DC, supply voltage 230V AC




Measuring range 360V DC, supply voltage 24V AC/DC




# Dimensions