Voltage monitoring in 3-phase mains

G2PU690VS20

Monitoring relays - GAMMA series

Undervoltage monitoring

Monitoring of phase sequence and phase failure

Supply voltage = measuring voltage

2 change-over contacts

Width 22.5mm

Industrial design



Read and understand these instructions before installing, operating or maintaining the equipment.

Danger!
Never carry out work on live parts! Danger of fatal injury! The product must not be used in case of obvious damage. To be installed by an authorized person.

Technical data

1. Functions
Undervoltage monitoring in 3-phase mains, monitoring of phase sequence and phase failure.

UNDER	Undervoltage monitoring

2. Time ranges

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

3. Indicators

Green LED U ON:	indication of supply voltage
Red LED MIN ON:	indication of failure - undervoltage
Red LED MIN flashes:	indication of tripping delay
Red LED SEQ ON:	indication of failure - phase sequence
Yellow LED ON/OFF:	indication of relay output

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:	
3~ 208V - 690V	terminals L1-L2-L3 = measuring voltage
Tolerance:	
3~ 208V - 690V	3~ 177V - 794V
Rated frequency:	20 to 70Hz
Rated consumption:	2VA (1.2W)
Duration of operation:	100%
Reset time:	500ms
Drop-out voltage:	>20% of the supply voltage
Overvoltage category:	III (in accordance with IEC 60664-1)
Rated surge voltage:	6kV

6. Output circuit
2 potential free change-over contacts

Rated voltage:	250V a.c.
Max. switching voltage (a.c.):	400V a.c.
Switching capacity:	1250VA (5A / 250V a.c.) @ +55°C 150VA (5A / 30V d.c.) @ +55°C 75VA (2,5A / 30V d.c.) @ +70°C B300 @ +55°C C300 @ +70°C
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 max. 6/min at 1000VA resistive load (in accordance with IEC 60947-5-1)
Overvoltage category:	III (in accordance with IEC 60664-1)
Rated surge voltage:	4kV

7. Measuring circuit

Measured variable:	a.c. Sinus (20 to 70Hz)
Input:	
3~ 208V - 690V	terminals L1-L2-L3 (= supply voltage)
Overload capactiy:	
3~ 208V - 690V	3~ 794V
Input resistance:	-
Switching threshold	
Min:	180V to 690V
Hysteresis:	approx. 2% of the adjustment value
Asymmetry:	fix, 25%
Overvoltage category:	III (in accordance with IEC 60664-1)
Rated surge voltage:	6kV

8. Accuracy

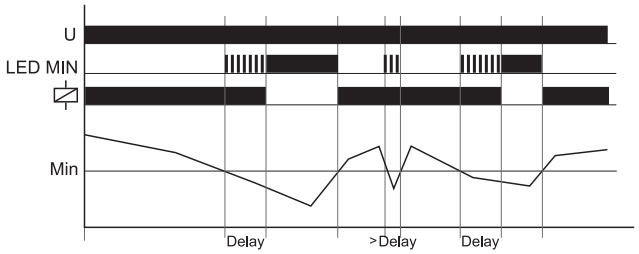
Base accuracy:	≤3% (of maximum scale value)
Frequency response:	-
Adjustment accuracy:	≤5% (of maximum scale value)
Repetition accuracy:	≤2%
Voltage influence:	-
Temperature influence:	≤0.07% / °C

9. Ambient conditions

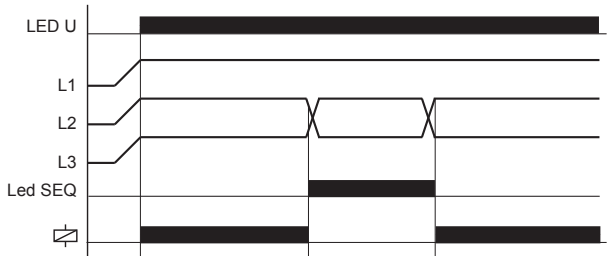
Ambient temperature:	-25 to +70°C @ C300 -25 to +55°C @ B300 (in accordance with IEC 60068-1)
Storage temperature:	-25 to +70°C
Transport temperature:	-25 to +70°C
Relative humidity:	15% to 85% (in accordance with IEC 60721-3-3 class 3K3)
Pollution degree:	3 (in accordance with IEC 60664-1)
Vibration resistance:	10 to 55Hz 0.35mm (in accordance with IEC 60068-2-6)
Shock resistance:	15g 11ms (in accordance with IEC 60068-2-27)

Functions

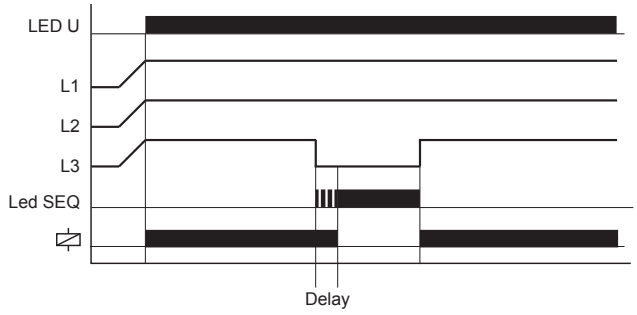
Under voltage monitoring (UNDER, UNDER+SEQ)
When the measured voltage (mean value of phase-to-phase voltages) falls below the value adjusted at the MIN-regulator, the set interval of the tripping delay (DELAY) begins (red LED MIN flashes). After the interval has expired (red LED MIN illuminated), the output relays switches into off-position (yellow LED not illuminated). The output relays switches into on-position again (yellow LED illuminated), when the measured voltage exceeds the value adjusted at the MIN-regulator.
The adjustable undervoltage threshold or the fixed asymmetry allow the detection of phase loss despite of reverse voltage.



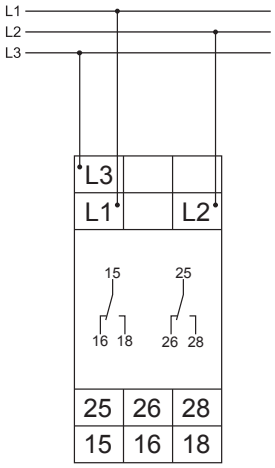
Phase sequence monitoring (SEQ)
If a change in phase sequence is detected (red LED SEQ illuminated), the output relays switch into off-position immediately (yellow LED not illuminated).



Phase failure monitoring
If one of the phase voltages fails, the set interval of the tripping delay (DELAY) begins (red LED SEQ flashes). After the interval has expired (red LED SEQ illuminated), the output relays switch into off-position (yellow LED not illuminated). Reverse voltages of a consumer (e.g. a motor which continues to run on two phases only) do not effect the disconnection but can be monitored by using a proper value for the asymmetry.



Connections



Dimensions

