BENDER
The Power in Electrical Safety©

Undervoltage and overvoltage relay SUA200Z

for AC or DC systems

TDB301003en/06.2007

SUA200Z

Undervoltage and overvoltage relay for AC or DC systems without external supply voltage

SUA200Z

Device features

- Undervoltage and overvoltage relay for AC and DC systems
- Window discriminator function
- Without external supply voltage
- Individually adjustable response values for undervoltage and overvoltage
- Setting ranges 0.7…0.95/1.05…1.3 x U_n
- Nominal voltages AC/DC: 24, 42, 48, 60, 100, 110, 220, 230 V
- Response delay 0.5…5 s/2…20 s
- Power On LED, alarm LEDs for undervoltage and overvoltage
- 1 N/C contact and 1 N/O contact
- Integrated energy backup

Note

In case of new installations refer to VME421H.

Approvals

AE25

Product description

Relays of the SUA200 series are designed to monitor the voltage in single-phase AC or DC systems. The devices are suitable for undervoltage and overvoltage monitoring (window discriminator function). External supply voltage is not required. The response values for undervoltage and overvoltage are individually adjustable.

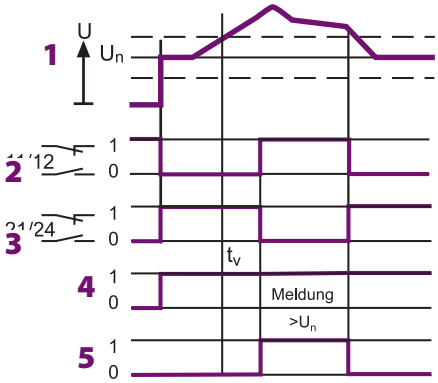
Typical applications

- Monitoring of the power supply of motors or electrical installations
- Monitoring of battery systems
- Switching on and switching off at a certain voltage level
- Monitoring of stand-by and emergency supply systems
- Supply voltage monitoring of portable loads

Function

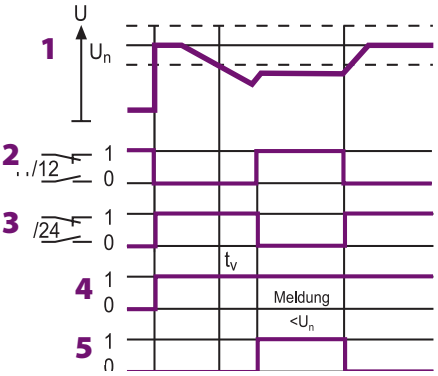
When the supply voltage applied is within the set response range, the alarm relay works in N/C operation (relay energized) and the alarm LEDs "< U_n" and "> U_n" do not light. When the system voltage U_n falls below the set response value < U_n, the alarm LED "<U_n" lights. When the response value > U_n is exceeded, the alarm LED "> U_n" lights. The common alarm relay switches once the set response delay t_V has elapsed. When the response values are within the set response ranges again, the SUA200Z switches back to its original state within 400 ms.

Contact function SUA200Z in case of overvoltage



1 - Response value Y
2 - Alarm relay N/C contact
3 - N/O contact
4 - Power On LED
5 - Alarm LED
tv - Response delay

Contact function SUA200Z in case of undervoltage



1 - Response value Y
2 - Alarm relay N/C contact
3 - N/O contact
4 - Power On LED
5 - Alarm LED
tv - Response delay

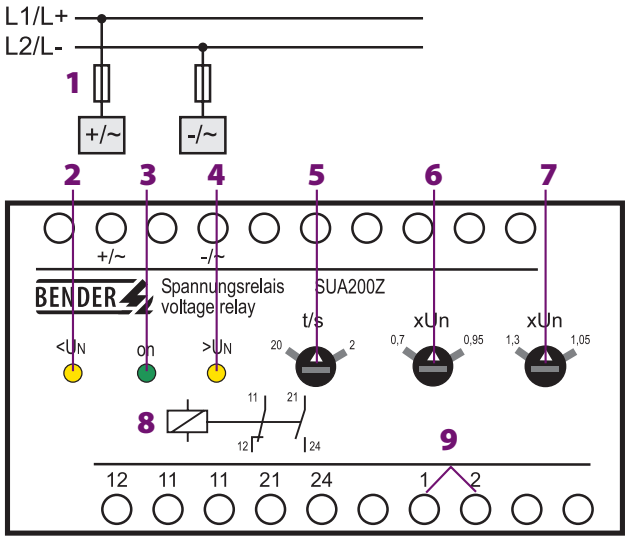
Note

False alarms resulting from operational measurement errors can be suppressed by setting a time delay. The set response delay remains effective even in case of complete supply voltage failure.

Standards

The SUA200Z series complies with the requirements of the device standards: IEC 60255-6.

Wiring diagram



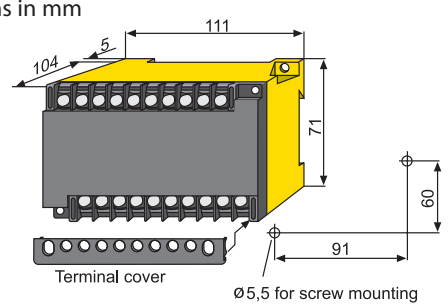
1 - 6 A fuse
2 - Alarm LED undervoltage “<Un”
3 - Power On LED “on”
4 - Alarm LED overvoltage “>Un”
5 - Setting potentiometer for time delay “t/s”
6 - Setting potentiometer for undervoltage “xUn”
7 - Setting potentiometer for overvoltage “xUn”
8 - Alarm relay for signalling undervoltage and overvoltage
9 - AC system: Bridge terminal 1 with terminal 2
DC system: Terminal 1 and 2 remain unassigned.

Ordering information

Response delay	Nominal system voltage U_n	Type	Art. No.
0.5…5 s	AC/DC 24 V	SUA200Z	B 932 361
	AC/DC 42 V	SUA200Z	B 932 316
	AC/DC 48 V	SUA200Z	B 932 313
	AC/DC 60 V	SUA200Z	B 932 255
	AC/DC 100 V	SUA200Z	B 932 223
	AC/DC 110 V	SUA200Z	B 932 220
	AC/DC 220 V	SUA200Z	B 932 172
	AC/DC 230 V	SUA200Z	B 932 634
2…20 s	AC/DC 24 V	SUA200Z	B 932 362
	AC/DC 42 V	SUA200Z	B 932 317
	AC/DC 48 V	SUA200Z	B 932 314
	AC/DC 60 V	SUA200Z	B 932 256
	AC/DC 100 V	SUA200Z	B 932 224
	AC/DC 110 V	SUA200Z	B 932 221
	AC/DC 220 V	SUA200Z	B 932 173

Dimension diagram X200

Dimensions in mm



Technical data

Insulation coordination acc. to IEC 60664-1

Rated insulation voltage	AC 250 V
Rated impulse voltage/pollution degree	2.5 kV/3

Supply voltage

Supply voltage U_S	none
Power consumption	≤ 3 VA

Measuring circuit

Nominal system voltage U_n	see ordering information
Rated frequency f_n	DC, 40…400 Hz
Response values (undervoltage)	0.7…0.95 x U_n
Response values (overvoltage)	1.05…1.3 x U_n
Response delay t_V	2…20 s/0.5…5 s
Hysteresis	approx. 3 %
Recovery time t_b	5 s
Delay on release	approx. 400 ms
Repitition accuracy	1.4 %
Temperature influence	< 0.2 %/°C

Switching elements

Number of contacts	1 N/C contact/ 1 N/O contact
Operating principle	N/C operation
Electrical service life, number of cycles	12000
Contact class IEC 60255 Part 0-20	IIB
Rated contact voltage	AC 250 V/DC 300 V
Limited making capacity	AC/DC 5 A
Breaking capacity	2 A, AC 230 V, cos phi 0.4 0.2 A, DC 220 V, L/R = 0.04 s

Environment/EMC

EMC immunity	acc. to IEC 61000-6-2
EMC emission	acc. to IEC 61000-6-4
Shock resistance IEC 60068-2-27 (during operation)	15 g/11 ms
Bumping IEC 60068-2-29 (during transport)	40 g/6 ms
Vibration resistance IEC 60068-2-6 (during operation)	1 g/10…150 Hz
Vibration resistance IEC 60068-2-6 (during transport)	2 g/10…150 Hz
Ambient temperature, during operation	-15…+60 °C
Ambient temperature during storage	-20…+70 °C
Climatic class acc. to IEC 60721-3-3	3K5

Connection

Connection	Flat terminals with self-lifting clamp washers
Connection properties	
single wire	2 x (1…1.5) mm²
flexible with end ferrules	2 x (0.75…1.5) mm²

Other

Operating mode	continuous operation
Mounting	any position
Degree of protection, internal components (IEC 60529)	IP50
Degree of protection, terminals/with terminal covers (IEC 60529)	IP10/IP20
Screw fixing	refer to dimension diagram
DIN rail mounting acc. to	IEC 60715
Flammability class	UL94V-0
Operating manual	BP301003
Weight	≤ 300 g

BENDER
The Power in Electrical Safety©

Bender GmbH & Co. KG
P.O. Box 1161 • 35301 Gruenberg • Germany
Londorfer Strasse 65 • 35305 Gruenberg • Germany
Tel.: +49 6401 807-0 • Fax: +49 6401 807-259
E-Mail: info@bender.de • www.bender.de

BENDER Group