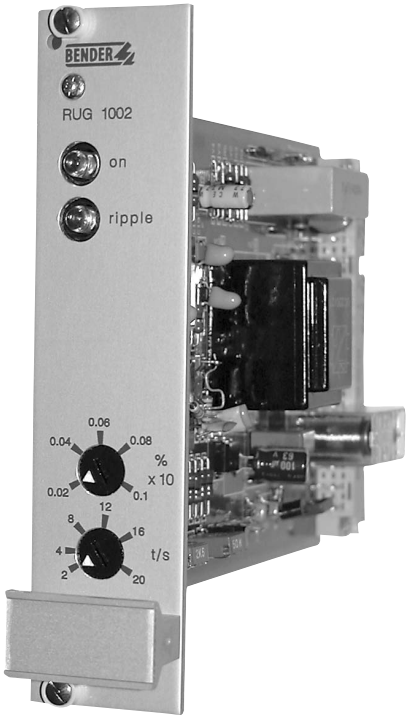
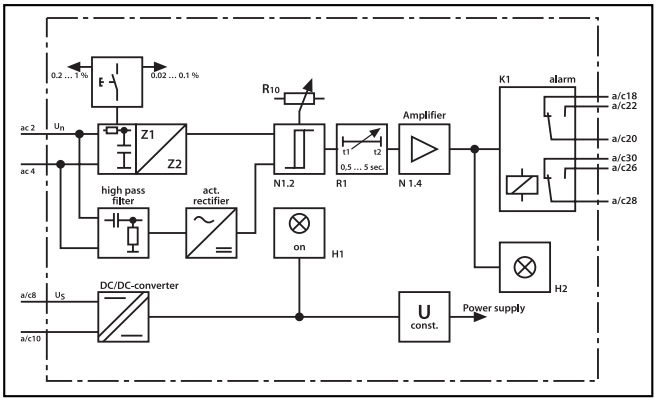
Ripple Detector RUG1002Z



Function diagram



Device characteristics

- built-in operation and alarm LED
- two adjustable response values
- output relay with two change over contacts
- plug-in Euro card module

Product Description

The ripple detector monitors the AC component of a DC voltage. The response value of the ripple dectector can be set on the front plate.

A visual indication is given when the set value is exceeded and the set response delay is expired. The output contacts operate in N/Coperation.

The response value of the RUG1002Z can be set from 0.2 % … 1 % U_n to 0.02 % … 0.1 % U_n.

The ripple detector is supplied externally via terminals. The supply voltage can, however, be the same as the voltage of the network to be monitored.

Function

When the supply voltage US is present, the green LED H1 illuminates. The internal power supply is galvanically separated from the input supply by the internal DC/DC converter and is stabilized.

Terminals ac2/ac4 carry the DC voltage to be monitored. The amplifier Z1/Z2 with an integrating characteristic supplies the reference signal to the circuit. The ripple value is applied via a high pass filter and an active rectifier which has an averaging capabilitiy. The comparator N 1.2 compares the ripple value with the circuit voltage. If the response values set by R10 are exceeded, the comparator gives a visual indication H2 via the delay circuit and operational amplifier and operates relay K1. The alarm is not stored. After elimination of the fault, the device will be reset automatically.

Technical Data RUG1002Z

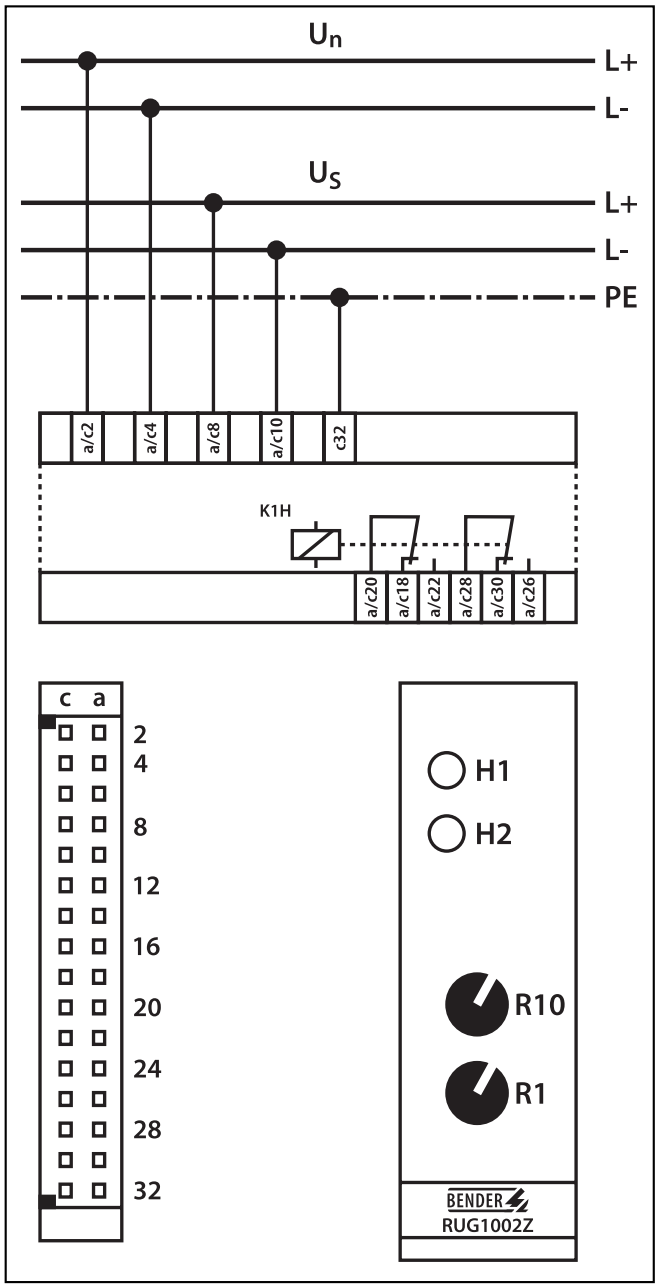
Insulation	
Nominal insulation voltage	250 V
Insulation class acc. to DIN VDE 0110	C
Dielectric test	2000 V
Operation class	permanent operation
Network being monitored	
Rated mains voltage U_n	DC 220 V
Operating range	0.7 … 1.3 U_n
Supply voltage	
Supply voltage U_S	DC 220, 110, 60 V
Operating range	0.8 … 1.1 US
Self-consumption max.	3 W
Response values	
Response value	0.02 … 0.1% U_n or 0.2 … 1% U_n
Response delay	1 sec
Time delay	2 … 20 sec
Switching hysteresis (+10 °C … + 40 °C)	approx. 20%
Contact circuit	
Switching components	2 change-over contacts
Switching capacity max.	330 VA
Rated contact voltage	220 V
Permanent current	1.5 A
Break capacity	
DC 110 V and L/R = 40 ms	0.3 A
Operating principle	N/C operation
Environmental conditions	
Ambient temperature, during operation	-5 °C … +55 °C (268 K … 328 K)
Storage temperature range	-20 °C … +60 °C (253 K … 333 K)
Climatic class acc. to DIN 40040	
General data	
Front plate width	6 TE
Type of connection	plugs according to DIN 41612; Type C32
Protection class acc. to DIN 40050	
Internal components	IP 00
Weight approx.	200 g
Wiring diagram	Z 320 051

Ordering details

Type	Rated mains voltage UN	Supply voltage US	Art.-No.
RUG1002Z	DC 24 V … 220 V	DC 60 V	B 980 159
	DC 24 V … 220 V	DC 110 V	B 980 166
	DC 24 V … 220 V	DC 220 V	B 980 158
	DC 24 V … 220 V	DC 77 … 286 V*	B 980 190

* This information represents absolute values for the supply voltage, to which the working range is not applicable.

Wiring diagram



Legend to wiring diagram

H1	operation LED, green„on“
H2	alarm LED, red: ripple
K1H	output relay with two change over contacts in N/C operation
R1	potentiometer for adjusting the time delay
R10	potentiometer for adjusting the response value
U_n	connection to the DC network to be monitored
U_S	supply voltage