Automatic restart relay ZUE150

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ZUE150

Device features

- Adjustable power up delay time and drop-out delay time
- Alarm relay with one N/O contact
- 45 mm enclosure

Product description

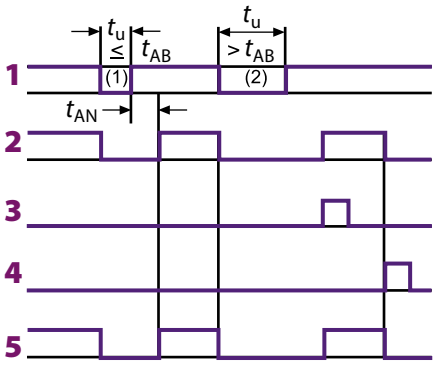
A voltage drop or interruption in control circuits of production lines or conveying systems the processes of which are susceptible to interruptions may cause considerable costs. Therefore, it is often desired to restart the loads automatically after voltage interruptions. In order to avoid that all loads are connected to supply at the same time, the loads have to be connected staggered in time. When the duration of undervoltage (power supply failure) exceeds the adjusted maximum bridging time, an automatic restart must be prevented. The automatic restart relay ZUE150 meets these requirements by measuring the voltage value and by giving a start signal after the continuously adjustable power-up delay has elapsed.

Typical applications

- Chemical and und petrochemical industries
- Plastics processing
- Industrial mills
- Mechanical engineering
- Lighting equipment

Function

When the power supply is interrupted or when the voltage falls below the response value, for a period not exceeding the adjusted bridging time, the contact 11/14 closes on voltage recovery after the adjusted power-up delay has elapsed, enabling the external contactor to operate, if wired accordingly. If the duration of power supply failure exceeds the adjusted bridging time, there will be no automatic restart. The device can be switched on without delay. The device can be switched on manually at any time, independent of the power-up delay. Pressing the external OFF button will cause a tripping of the external contactor so that an automatic restart is prevented even in the case of voltage failure.



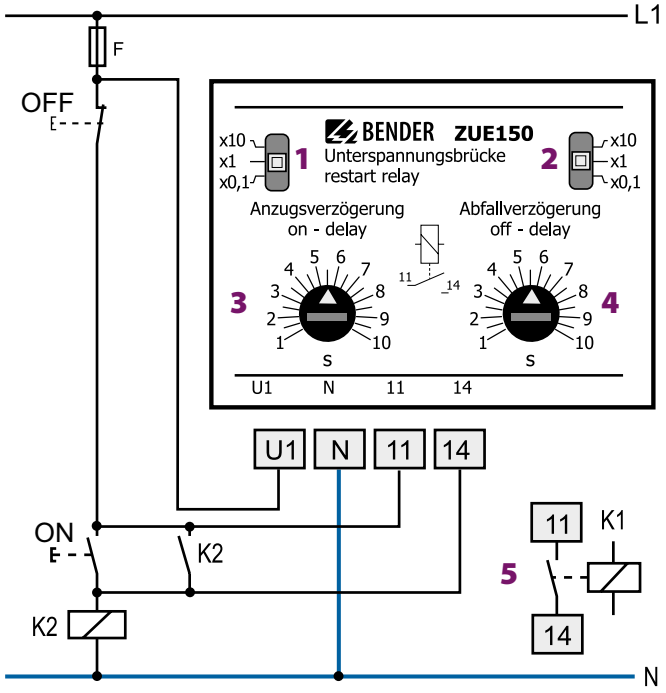
1 - System voltage
2 - Relay contact (with option *U*3 the relay is activated for 200 ms only)
3 - External ON button (button pressed)
4 - External OFF button (button pressed)
5 - External contactor K2
t_{AB} - Adjusted bridging time
t_{AN} - Adjusted power-up delay
t_u - Duration of power supply interruption

If the duration of t_u (1) is below the adjusted bridging time, the relay contact K1 closes when the power-up delay t_{AN} has elapsed.

If t_u (2) exceeds the adjusted bridging time, no automatic restart signal is sent by the restart relay.

The limit values for voltage drop or voltage recovery are set to 65 % resp. 80 % of the respective nominal voltage (internal device setting).

Wiring diagram



1 - Three-position switch to set the multiplying factor for t_{AN}

2 - Three-position switch to set the multiplying factor for t_{AN}

3 - Potentiometer for setting the power-up delay t_{AN}

4 - Continuously adjustable potentiometer for setting the drop-out delay time t_{AB}

5 - Alarm relay with one N/O contact

F - 6 A fuse is recommended

t_{AB} - Potentiometer for setting the continuous bridging time, scale division 1…10. By means of a three-position switch, the time range can be selected between 0.1…1s (x 0.1), 1…10 s (x 1) and 10…100 s (x 10).

t_{AB} - Potentiometer for setting the continuous bridging time 1…10. The time domain can be selected in the same way as described for t_{AN}.
When the duration of undervoltage/voltage interruption exceeds the adjusted time t_{AB}, an automatic restart is prevented.

Option U3

Restart contact with 200 ms contact making.

Ordering information

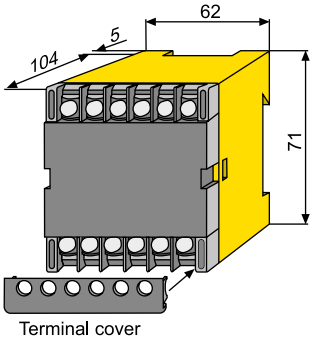
Nominal system U_n	Option	Type	Art. No.
AC 110 V, 50 Hz		ZUE150	B 936 600
AC 220 V, 50 Hz		ZUE150	B 936 150
AC 230 V, 50 Hz		ZUE150	B 936 156
	U3	ZUE150-U3	B 936 158
AC 240 V, 50 Hz		ZUE150	B 936 601

Accessories

Type designation	Art. No.
Mounting clip for screw mounting (1 piece per device)	B 974 728

Dimension diagram X150

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

System being monitored

Power consumption	
Terminal U1	≤ 3 VA
Terminal 11, 14	≤ 0.5 VA

Measuring circuit

Nominal system voltage	see ordering information
Rated frequency f_n	AC 50/60 Hz
Operating range	0.65…1.15 U_n

Response values

Undervoltage threshold	0.65 x U_n
Threshold value for voltage return	0.8 x U_n
Time setting scale continuously adjustable	1…10
Timing ranges for power-on delay t_{AN} and bridging time t_{AB}	
x 0.1 (0.1…1 s) , Toleranz (0.1s + 50 ms…1 s ± 20 %)	
x 1 (1…10 s), Toleranz ± 20 %	
x 10 (10…100 s), Toleranz ± 20 %	

Switching elements

Number of contacts	1 N/O contact
Electrical endurance, number of cycles	12000
Contact class	IIB
Rated contact voltage	AC 250 V/DC 300 V
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 (device in operation)	15 g/11 ms
Bumping IEC 60068-2-29 (transport)	40 g/6 ms
Vibration resistance IEC 60068-2-6 (device in operation)	1 g/10…150 Hz
Vibration resistance IEC 60068-2-6 (device not in operation)	2 g/10…150 Hz
Ambient temperature, during operation	-10…+60 °C
Ambient temperature, during storage	-20…+70 °C
Climatic class acc. to IEC 60721-3-3	3K5 (except condensation and formation of ice)

Connection

Connection	flat terminals with self-lifting clamp washers
Connection properties	
single wire	2 x (1…1.5) mm²
flexible with end ferrule	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
DIN rail mounting acc. to	IEC 60715
Flammability class	UL94V-0
Documentation number	D00293
Weight	≤ 400 g

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