



BZ935 T

Safety Relay 24VDC

With SIL2 similar function
B+Z Art. Nr. 892



Content:

Page:

1.	Application / Function	2
2.	Technical data	2 / 3
2.	Wiring diagram	5
4.	Measures	6

B + Z Elektronik AG
CH-8108 Dällikon
Tel: +41(0)44 8440355
www.bahnelektronik.ch

Erstellt: 2.11.2018
Änderung:
Index:
Datei: BZ935T_24V_e_kd.doc

Seite: 1/6



Für dieses Dokument und den darin dargestellten Gegenstand behalten wir uns alle Rechte vor. Vervielfältigung, Bekanntgabe an Dritte oder andere Verwertung dieses Dokumentes sind ohne unsere ausdrückliche Zustimmung verboten. © B+Z Elektronik AG

Article / Function

Application

This safety relay is designed for use in industrial continuous operation applications.
Safety relay according to standard EN61810 type A with forcibly guided contacts and integrated protection circuit for mounting on standard T Rail system.
Inside 2 relay coils are in parallel use, but the contacts are in serial connection to achieve a kind of SIL2 safety.
In total there are 4 contacts NO and 2 contacts NC.

Safe isolation distance between coil and contact area (>5,5 mm); as well as between contacts (>5,5 mm)
Medium required power ca. 0,66W, Hold force ca. 0,20W
The LED at the front panel indicates when power is applied to the coil.

Technical Data

Type designation: **BZ935T 24V**

• Standards

The product is manufactured in accordance with the following standards:

ISO 9001:2015

Electronic equipment used on rolling stock: EN50155

Isolation: EN50124-1

Shock and vibration: EN50155/EN61373

Fire protection according to EN 45545

The standards applicable to this product are dependent on the version available at the time of development.

Mechanical data

Measures (WxHxD): 22,5 x 120 x 88mm
Max. length: with counterconnector in place ca. 175mm
Weight: ca. 95g (without counterconnector)

• Materials

Housing: Plastic
PCB: Epoxy resin

• **Mounting:** Horizontal snap on standard Rail 35mm, (EN-50022-35)

• **Marking / Labeling** Wiring label on housing



B + Z Elektronik AG

Created: 22.05.2018
Modified:
Index:
File: BZ935T_24V_e_kd.doc

Checked:

Page: 2/6

BZ931T
Safety relay 24VDC

Connector

- **Screwless front edge connector**

14-pin edge connector: WAGO (coded at PIN7 !)

- **Counter connector (optional)**

14-pin female connector strip: WAGO single row or double row available
Grid 5.08mm. (not included at delivery)

Electrical Data

- **Operating Voltage**

Nominal voltage: 24V DC
Tolerance according to railway standard: -30% +25%
Idle Current : ca. 56mA at 24VDC

- **Contact data**

Relay type: A, nach EN61810
Load max DC: ohm = 50V/2A, induktive = 50V/0.8A
Minimal current: 10mA at 10V



B + Z Elektronik AG

Created: 22.05.2018
Modified:
Index:
File: BZ935T_24V_e_kd.doc

Checked:

Page: 3/6

BZ931T
Safety relay 24VDC

• **Relay data:** Relay type: A, according to EN61810

Contact Data

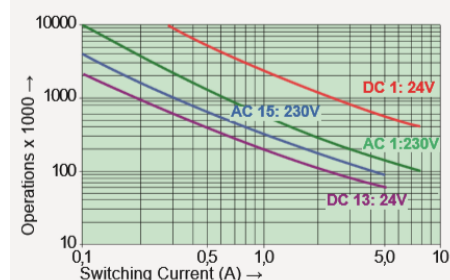
Contact material	AgCuNi + 0,2 µm Au
Type of contact	Single contact with notched crown
Rated switching capacity	250 VAC 8 A AC1 2000 VA
Electr. Life AC1(360 S / h)	approx. 100000
Inrush current max.	30 A for 20 ms
Switching voltage range	5 to 250 VDC / VAC
Switching current range*	3 mA to 8 A
Switching capacity range*	40 mW to 2000 W(VA)
Contact resistance (as delivered)	≤100 mΩ / 6 V / 100 mA

*Guided values

Insulation Data

- Double or reinforced insulation	at 250 VAC
- Air and creepage distance	>5,5 mm
- Test voltage	4000 V / 50 Hz / 1 min
Test voltage contact open	1500 V / 50 Hz / 1 min
Creepage resistance	CTI 175
Pollution degree	2
Overvoltage category	III
Insulation resistance at Up 500 VDC	>100 MΩ

Contact Lifetime for NO Contacts



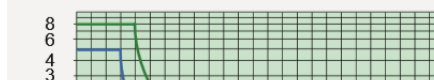
Maximal switching characteristics (DIN EN 60947-5-1)

AC 1:	250 V / 8 A
AC 15:	230 V / 5 A
DC 1:	24 V / 8 A
DC 13:	24 V / 5 A / 0,1 Hz
UL 508:	B300 / R300

Maximal contact load at AC 1 with 230 V:

- 2 contacts with 8 A each
- 3 contacts with 6 A each
- 4 contacts with 4,5 A each

Load Limit Curve with Direct Current



Additional Data

Mechanical endurance	>10 x 10 ⁶ operations
Switching frequency, mechanical	15 Hz
Response time (all NO closed)	typically 20 ms
Drop-out time** (NC closed)	typically 8 ms
Bounce time of NO contact	typically 1,5 ms
Bounce time of NC contact	typically 15 ms
Shock resistance 16 ms	NO > 10g NC > 6g
Vibration resistance (10-200 Hz)	NO > 10g NC > 2g
Resistance to short circuiting contacts NO	1000 A SCPD 10 A gG / gL (pre-fuse)
Resistance to short circuiting contacts NC	1000 A SCPD 6 A gG / gL (pre-fuse)
Ambient temperature	-40°C to +70°C
Thermal Resistance	47 K / W
Temperature limit for coil	120°C
Weight	approx. 35 g
Mounting position	any
Type of protection	RT II
Solder bath temperature	270°C / 5 s

**without spark suppression

• **Internal electrical protection**

Protection circuits: Reverse polarity protection, protective circuit for relay coil and Transients suppression diodes

• **Mechanical protection**

Type: IP30



B + Z Elektronik AG

Created: 22.05.2018
Modified:
Index:
File: BZ935T_24V_e_kd.doc

Checked:
Page: 4/6

BZ931T
Safety relay 24VDC

- **Climatic conditions**

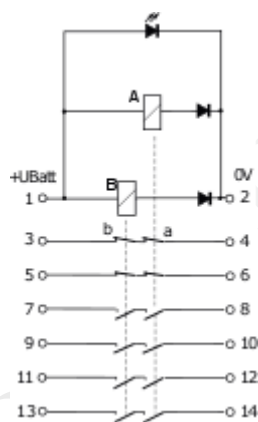
Environment temperature: -20°C bis +70°C

Humidity : max 90% rF, at 30°C, non condensing.

- **Disposal / Recycling**

According to local regulations

3. Wiring diagram



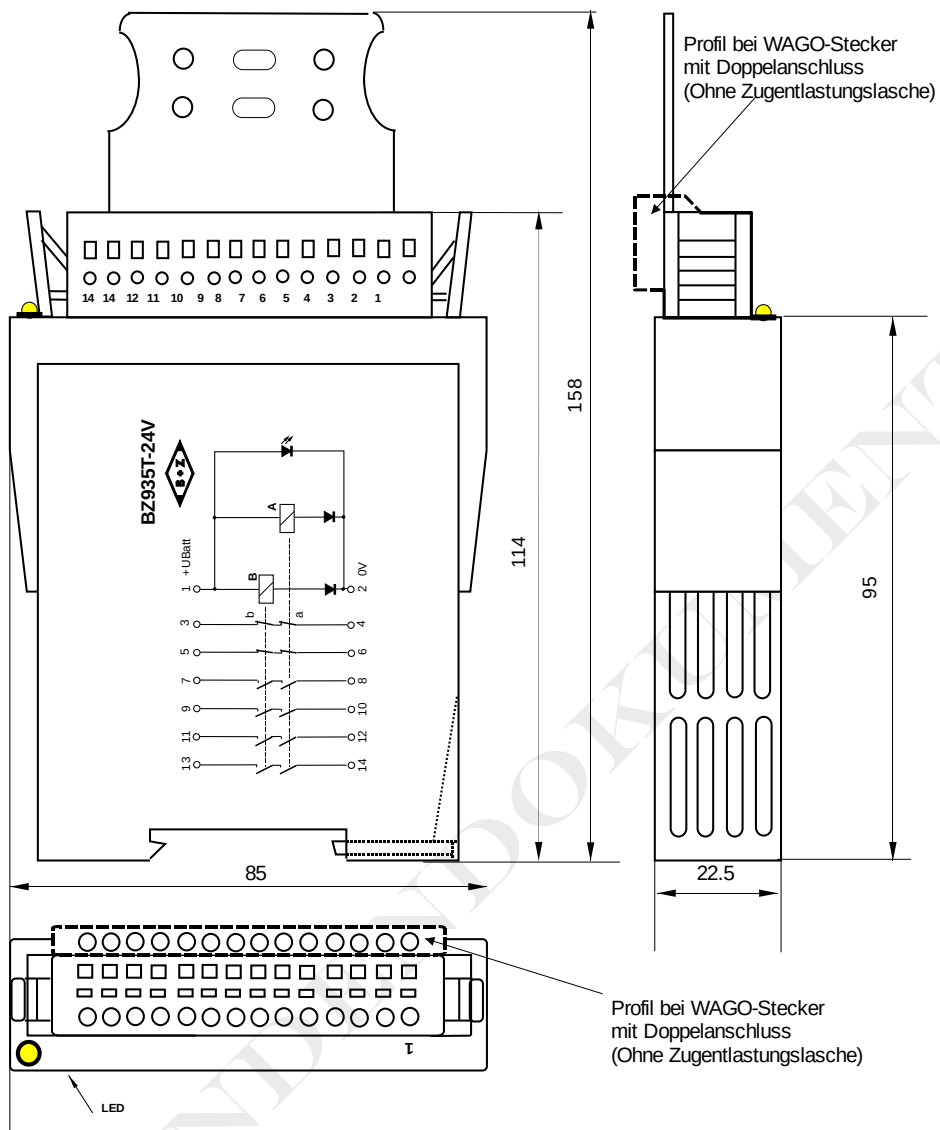
B + Z Elektronik AG

Created: 22.05.2018
Modified:
Index:
File: BZ935T_24V_e_kd.doc

Checked:
Page: 5/6

BZ931T
Safety relay 24VDC

4. Measures



B + Z Elektronik AG

Created: 22.05.2018
 Modified:
 Index:
 File: BZ931T_24V_e_kd.doc

Checked:
 Page: 6/6

BZ931T
 Safety relay 24VDC

We reserve all rights to this document and the object described therein. Any reproduction, disclosure to third parties, or any other utilization of this document is prohibited without our express permission. © B+Z Elektronik AG