



BZ901 T

Safety Relay 24VDC

BZ Art. Nr. 688



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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. The strength of this safety relay is the guaranteed function with minimum contact current 1mA at 5V. It makes it also suitable for switching bus signals. The gold plated contacts may not be used in "fritting" applications!

The LED at the front panel indicates when power is applied to the coil.

- Contacts : 3 NO / 3 NC
- Nominal voltages also available for 15VDC / 24VDC / 48VDC / 72VDC / 110V DC
- With reverse polarity protection, overvoltage surge protection, LED status indicator
- Front connector : 1 wire terminal block on all pins
- Screwless front connector - wires plugable without special tools; AWG 24-16
- Optional front connector block for looping through on all pins available

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

Technical Data

Type designation: **BZ901T 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 85 x 72mm
Max. length: with counterconnector in place ca. 125mm
Weight: ca. 95g (without counterconnector)



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- **Materials**

Housing: Plastic
PCB: Epoxy resin

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

- **Marking / Labeling**

Wiring label on housing

Connector

- **Screwless front edge connector**

14-pin edge connector: WAGO (codeable)

- **Counter connector (optional)**

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

2.2. Electrical Data

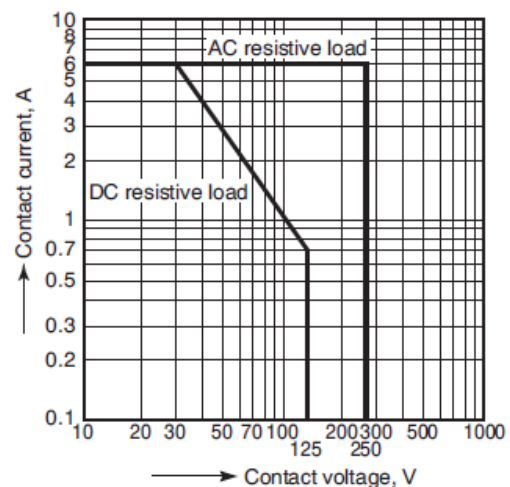
- **Operating Voltage**

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

- **Contact data**

Relay type: A, nach EN61810
Load max DC: max 6A per contact
Minimal current: 1 mA at 5V (depending on switching cycles)

- **Maximal switching load**



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• **Relay data**

| | | | |
|--|--------------------------|--|--|
| Max. operating speed | | 20 cpm (at nominal voltage) | |
| Initial insulation resistance*1 | | Min. 1,000 MΩ at 500 V DC | |
| Initial breakdown voltage*2 | Between open contacts | 1,500 Vrms for 1 min. | |
| | Between contact sets | 2,500 Vrms for 1 min.: 7-8/9-10 | 2,500 Vrms for 1 min.: 7-8/11-12 9-10/13-14 11-12/13-14 |
| | | 4,000 Vrms for 1 min.: 3-4/5-6 3-4/7-8 5-6/9-10 | 4,000 Vrms for 1 min.: 3-4/5-6 3-4/7-8 5-6/9-10 7-8/9-10 |
| | Between contact and coil | 4,000 Vrms for 1 min. | |
| Operate time (at nominal voltage) | | Max. 20 ms*3 | |
| Response time*4 (without diode) (at nominal voltage) | | Max. 8 ms*3 | |
| Release time (without diode) (at nominal voltage) | | Max. 20 ms*3 | |
| Shock resistance | Functional*5 | Min. 200 m/s ² | |
| | Destructive*6 | Min. 1,000 m/s ² | |
| Vibration resistance | Functional*7 | 10 to 55 Hz at double amplitude of 1.5 mm | |
| | Destructive | 10 to 55 Hz at double amplitude of 1.5 mm | |
| Conditions for operation, transport and storage*8 (Not freezing and condensing at low temperature) | Ambient temp. | -40°C to +85°C -40°F to +185°F | |
| | Humidity | 5 to 85% R.H. | |
| Unit weight | | Approx. 20 g Approx. .71 oz | Approx. 23 g Approx. .81 oz |

• **Outline of performance [Socket for PC board/DIN terminal socket]**

| | |
|---------------------------------|--|
| Max. carrying current | 6 A (Reduce by 0.1 A/°C for temperatures 70 to 85°C.) |
| Initial breakdown voltage | Between each terminal: 2,500 Vrms for 1 min. (Detection current: 10mA) |
| Initial insulation resistance*1 | Min. 1,000 MΩ at 500V DC |

Remarks

- *1 Measurement at same location as "Initial breakdown voltage" section
- *2 Detection current: 10mA
- *3 Excluding contact bounce time
- *4 Response time is the time after the coil voltage turns off until the time when "a" contact turns off.

• **Contact specifications:**

| | | |
|--|---|--|
| Initial contact resistance, max. (By voltage drop 6 V DC 1 A) | | 100 mΩ |
| Contact material | | Gold-flashed AgSnO ₂ type |
| Rating (resistive load) | Nominal switching capacity | 6 A 250 V AC, 6 A 30 V DC |
| | Max. switching power | 1,500 VA, 180 W |
| | Max. switching voltage | 250 V AC, 30 V DC |
| | Max. switching current | 6 A (Reduce by 0.1 A/°C for temperatures 70 to 85°C.) |
| | Min. switching capacity (Reference value) #1 | 1 mA 5 V DC |
| Expected life (min. operations) | Mechanical (at 180 cpm) | 10 ⁷ |
| | Electrical | 250 V AC 6 A resistive load: 10 ⁵ (at 20 cpm) |
| | | 30 V DC 6 A resistive load: 10 ⁵ (at 20 cpm) |
| | | 250 V AC 1 A resistive load: 5×10 ⁵ (at 30 cpm) |
| | | 30 V DC 1 A resistive load: 5×10 ⁵ (at 30 cpm) |
| | | [AC 15] 240 V AC 2 A inductive load: 10 ⁵ (at 20 cpm, cosφ = 0.3) |
| [DC 13] 24 V DC 1 A inductive load: 10 ⁵ (at 20 cpm, L/R = 48 ms) | | |

#1 This value can change due to the switching frequency, environmental conditions, and desired reliability level, therefore it is recommended to check this with the actual load.



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- **Internal electrical protection**

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

- **Mechanical protection**

Type: IP30

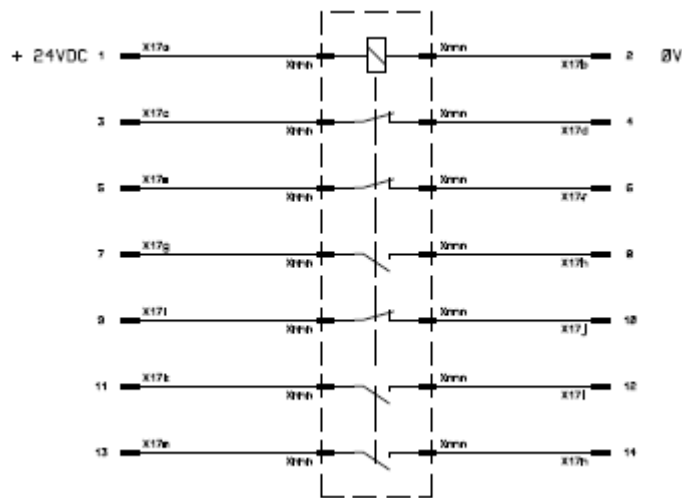
- **Climatic conditions**

Environment temperature: -20°C bis +70°C
 Humidity : max 90% rF, at30°C, non condensing.

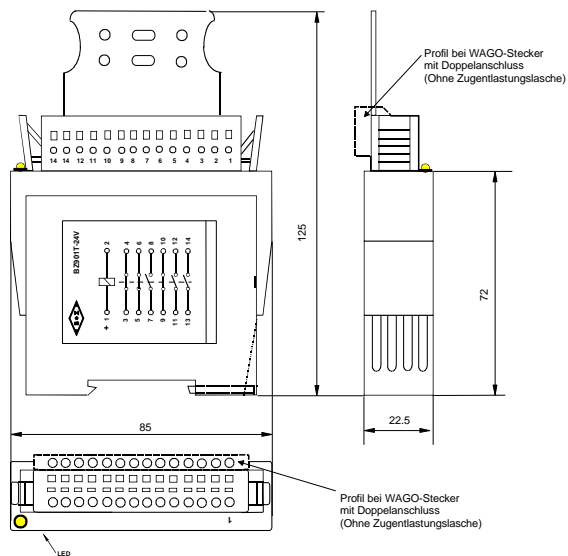
- **Disposal / Recycling**

According to local regulations

3. Wiring diagram



4. Measures



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