Safety gate monitor BD 5985N
safemaster

According to EC Directive for machines 98/37/EG
According to IEC/EN 60 204-1, ZH1-457
Safety category 4 according to EN 954-1
Inputs for 2 position switches
Output: 2 NO contacts for AC 250 V
Gold-plated contacts to switch small loads (input for PLC)
Monitoring of external contactors for contact multiplication / reinforcement via feedback circuit
Overvoltage and short circuit protection
Wire connection: also 2 x 1,5 mm² stranded ferruled (isolated), DIN 46 228-1/-2/-3/-4 or 2 x 2,5 mm² stranded ferruled DIN 46 228-1/-2/-3
Width 45 mm

Function diagram

Block diagram

Circuit diagram

Approvals and marking

For the existing BG certificate DOLD has not demanded for an extension. There has not been made any changes on the product since then.

* see variants

Applications

Monitoring of status of position switches on a safety gate

Notes

On closed gate the contacts of the position switches must be closed. The gold-plated contacts of the BD 5985N mean that this module is also suitable for switching small loads of 1 mVA ... 7 VA, 1 mW ... 7 W in the range 0,1 ... 60 V, 1 ... 300 mA. The contacts also permit the maximum switching current. However, since the gold plating will be burnt off at this current level, the device is no longer suitable for switching small loads after this.

One or more extension modules BN 5989 or external contactors with positively-driven contacts may be used to multiply the number of contacts of the safety gate monitor BN 5985N.

Technical data

Input
Nominal voltage $U_N$: DC 24 V, AC 24, 42, 110, 230, 240 V
Voltage range: at 10 % residual ripple: AC 0,8 ... 1,1 $U_N$
at 48 % residual ripple DC 0,8 ... 1,1 $U_N$
Nominal consumption: AC 24 ... 230 V 4,0 VA
DC 24 V 2,5 W
Nominal frequency: 50 / 60 Hz
Delay time for simultaneity demand: max. 3 s
Recovery time: 1 s
Control contacts: 2 x 1 NO contacts
Device fuse protection: internal with PTC

Output
Contacts BD 5985N.02: 2 NO contacts
Operate / release time: typ. 30 ms / typ. 30 ms
Contact type: Relay, positively-driven
Nominal output voltage: AC 250 V
DC: see limit curve for arc-free operation
Thermal current $I_{th}$: see continuous current limit curve (max. 10 A in one contact path)
Switching capacity to AC 15: 5 A / AC 230 V
Electrical life to AC 15 at 2 A, AC 230 V: 10⁶ switching cycles
IEC/EN 60 947-5-1
Permissible operating frequency: max. 360 switching cycles / h

All technical data in this list relate to the state at the moment of edition. We reserve the right for technical improvements and changes at any time.
Technical data

Short circuit strength
max. fuse rating: 6 A gL IEC/EN 60 947-5-1
max. line circuit breaker: C 10 A

Mechanical life: 10 x 10^6 switching cycles

General data

Operating mode: Continuous operation
Temperature range: - 15 ... + 55 °C
Clearance and creepage distances
overvoltage category / contamination level: 4 kV / 2 IEC 60 664-1

EMC
Electrosttic discharge: 8 kV (air) IEC/EN 61 000-4-2
HF irradiation: 10 V / m IEC/EN 61 000-4-3
Fast transients: 2 kV IEC/EN 61 000-4-4
Surge voltages between
wires for power supply: 1 kV IEC/EN 61 000-4-5
between wire and ground: 2 kV IEC/EN 61 000-4-5
HF-irradiation: 10 V IEC/EN 61 000-4-6

Interference suppression: Limit value class B EN 55 011

Degree of protection
Housing: Thermoplastic with V0 behaviour according to UL subject 94
Terminal plate: IP 20 IEC/EN 60 529

Vibration resistance:
Amplitude 0,35 mm, frequency 10 ... 55 Hz

Climate resistance:
15 / 055 / 04 IEC/EN 60 068-1

Terminal designation:
EN 50 005

Wire connection:
1 x 4 mm² solid or
1 x 2,5 mm² stranded ferruled (isolated)
or
2 x 1,5 mm² stranded ferruled (isolated)
DIN 46 228-1/-2/-3/-4 or
2 x 2,5 mm² stranded ferruled
DIN 46 228-1/-2/-3

Wire fixing:
Plus-minus terminal screws M 3.5,
box terminal with wire protection

Mounting:
DIN rail IEC/EN 60 715

Weight:
450 g

Dimensions
Width x height x depth: 45 x 74 x 121 mm

Standard type
BD 5985N.02 DC 24 V
Article number: 0035304 stock item
• Output: 2 NO contacts
• Nominal voltage U N: DC 24 V
• Width: 45 mm

Variant
BD 5985N.02/61: with UL approval (Canada/USA)

Ordering example for Variant
BD 5985N.02 /61 AC 230 V 50/60 Hz

Characteristics

Limit curve for arc-free operation with resistive load
Continuous current limit curves as a function of ambient temperature

Application examples
Two-channel safety gate monitoring

Contact multiplication via external positively-driven contactors