Safety technique

Two-hand safety relay BD 5980N
safemaster

- According to EC Directive for machines 98/37/EG
- Safety level Type III-A according to EN 574 (02-1997)
- Safety category 2 according to EN 954-1
- Optionally dual-voltage version
- 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 diagrams

Approvals and marking

Application

Designed for use in press controls in metalworking as well as in other working machines with dangerous closing movements.

Technical data

Input

Nominal voltage $U_N$

BD 5980N.02: DC 24 V,
AC 24, 42, 110, 230, 240 V
BD 5980N.02/024: DC 24 V (+) + AC 24 V (2)
DC 24 V (+) + AC 42 V (2)
DC 24 V (+) + AC 110 V (2)
DC 24 V (+) + AC 230 V (2)
DC 24 V (+) + AC 240 V (2)

Voltage range:
at 10% residual ripple: DC 0.8 ... 1.1 $U_N$
at 48% residual ripple: DC 0.8 ... 1.1 $U_N$

Nominal consumption:

AC 24 V ... 230 V 4.0 VA
DC 24 V 2.5 W

Nominal frequency:

50 / 60 Hz

Delay time for simultaneity demand:

0.5 s

Control contacts:

2 x 1 NO contacts

Current via control contacts:

35 mA at 24 V

The control lines must not exceed a length of 30 m and must be routed separately from line cables

Device fuse protection:

internal with PTC

Output

Contacts

BD 5980N.02: 2 NO contacts

Operate / release time:
typ. 30 ms / typ. 30 ms

Contact type:
Relay, positively-driven

Nominal output voltage:
AC 250 V

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
IEC/EN 60 947-5-1

Electrical life
to AC 15 at 2 A, AC 230 V:
10^6 switching cycles IEC/EN 60 947-5-1

Permissible operating frequency:

max. 1200 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 10⁶ switching cycles

General data

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

EMC
- Electrostatic discharge: 8 kV (air) IEC/EN 61 000-4-2
- Fast transients: 2 kV IEC/EN 61 000-4-4
- Surge voltages between wires for power supply: 2 kV IEC/EN 61 000-4-5
- between wire and ground: 4 kV IEC/EN 61 000-4-5
- Interference suppression:
  - Limit value class B EN 55 011

Degree of protection:
- Housing: IP 40 IEC/EN 60 529
- Terminal plate: IP 20 IEC/EN 60 529
- Housing: Thermoplastic with V0 behaviour according to UL subject 94

Vibration resistance:
- Amplitude 0.35 mm, IEC/EN 60 068-2-6
- Frequency 10 ... 55 Hz

Climate resistance:
- 15 / 05/ 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)
- 2 x 1.5 mm² stranded ferruled (isolated)
- DIN 46 228-1/-2/-3/-4 or DIN 46 228-1/-2/-3
- DIN 46 228-2/-3/-4 or DIN 46 228-2/-3

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

Mounting:
- DIN rail IEC/EN 60 715

Weight:
- 410 g

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

Standard type

BD 5980N.02   DC 24 V
- Article number: 0035300 stock item
- Nominal voltage Uₐ: DC 24 V
- Simultaneity: 0.5 s
- Output: 2 NO contacts
- Width: 45 mm

Variants

BD 5980N.02/61: with UL approval (Canada/USA)
BD 5980N.02/024: dual voltage version

Ordering example for Variants

BD 5980N.02/024   DC 24 V + AC 230 V  50/60 Hz

Characteristics

Continuous current: I (A)
Ambient temperature: T (°C)

Limit curve for arc-free operation with resistive load

Application examples

Two-hand control

Two-hand control with contact reinforcement via external positively-driven contactors