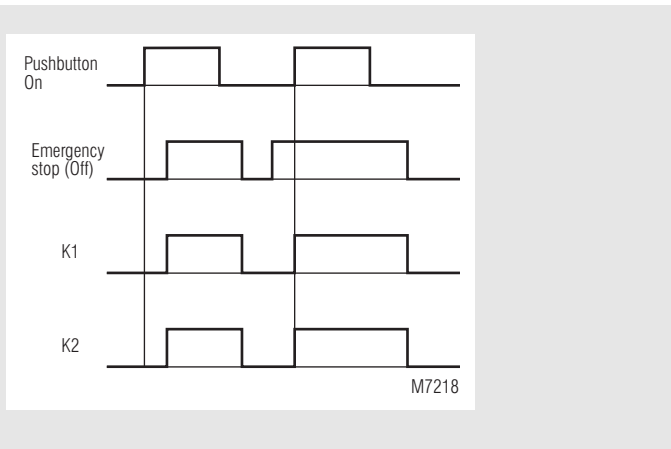




- According to EC Machines Directive 98/37/EG
- According to IEC/EN 60 204-1
- Safety category 4 according to EN 954-1
- Output: optionally 2 NO, 1 NO / 1 NC or 3 NO / 1 NC contacts for AC 250 V
- Single-channel connection
- Optionally automatic on feature when operating voltage applied or activation via the on button
- LED indicators for channels 1 and 2, and operating state
- Short circuit protection
- BD 5934.02 with gold-plated contacts to switch low loads
- Wire connection: also 2 x 1,5 mm<sup>2</sup> stranded ferruled (isolated), DIN 46 228-1/-2/-3/-4 or 2 x 2,5 mm<sup>2</sup> stranded ferruled DIN 46 228-1/-2/-3
- Width 45 mm

### Function diagram



### Approvals and marking



\* see variants

### Applications

- Protection of persons and machines
- Emergency stop circuits of machines

### Indication

LED power supply: on when operating voltage present  
 LED K1/K2: on when current flows through relay K1/K2

### Notes

Because of the gold-plated contacts the BD 5934.02 can be used to switch small loads 1 mVA ... 7 VA, 1 mW ... 7 W in the range of 0,1 ... 60V, 1 ... 300 mA. The gold-plated contacts allow also to switch the maximum current but the gold plating will be burnt off. After that the contacts cannot be used any more to switch the small loads.

### ATTENTION - AUTOMATIC START!



According to IEC/EN 60 204-1 part 9.2.5.4.2 it is not allowed to restart automatically after emergency stop. Therefore the machine control has to disable the automatic start after emergency stop.

### Technical data

#### Input

**Nominal voltage  $U_N$ :** AC 24, 48, 110, 127, 230, 240 V  
 DC 24 V

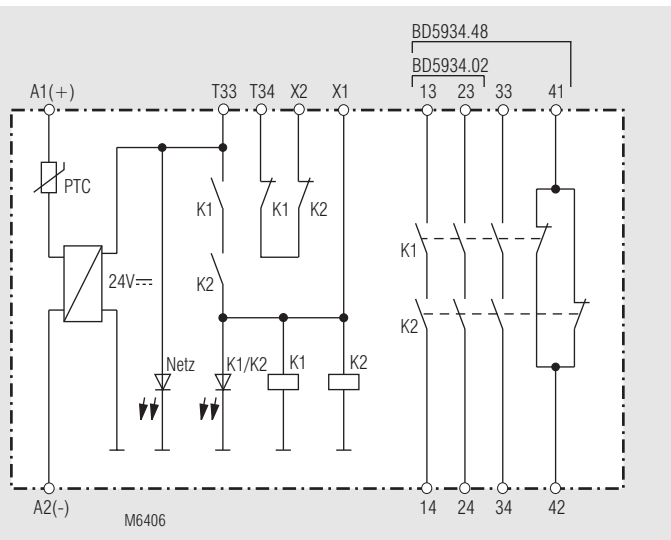
**Voltage range**  
 at 10 % residual ripple: DC 0,9 ... 1,1  $U_N$   
 at 48 % residual ripple: DC 0,8 ... 1,1  $U_N$  AC 0,8 ... 1,1  $U_N$

**Nominal consumption:** DC 24 V approx. 1,6 W  
 DC 24 V

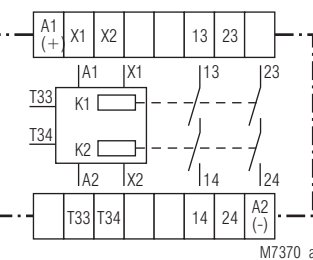
**Control voltage at X1:** typ. DC 45 mA

**Recovery time:** 0,5 s

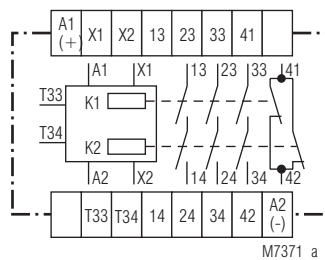
### Block diagram



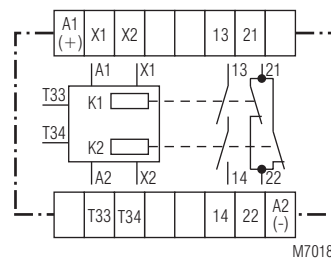
### Circuit diagrams



BD 5934.02



BD 5934.48



BD 5934.16, BD 5934.16/61

## Technical data

### Output

### Contacts

BD 5934.02:	2 NO contacts
BD 5934.16:	1 NO / 1 NC contacts
BD 5934.48:	3 NO / 1 NC contacts
	The NO contacts are safety contacts.
	<b>ATTENTION! The NC contacts 21-22 or 41-42 can only be used for monitoring.</b>

### Response time

Start with On-button:	max. 100 ms
Automatic start:	max. 100 ms
Release time:	max. 35 ms
Release time:	max. 35 ms
Contact type:	relay, positively driven
Thermal current $I_{th}$ :	6 A
Output voltage:	AC: 250 V

### Switching capacity

to AC 15:	AC 5 A / 230 V	IEC/EN 60 947-5-1
	for the NO contact	
	AC 2 A / 230 V	IEC/EN 60 947-5-1
	for the NC contact	

### Electrical life

to AC 15 at 2 A, AC 230 V:	10 <sup>5</sup> switching cycles IEC/EN 60 947-5-1
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### Permissible switching frequency:

	600 switching cycles / h
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### Short-circuit strength

max. fuse rating:	6 A gL	IEC/EN 60 947-5-1
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### Mechanical life:

	10 x 10 <sup>6</sup> switching cycles
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## 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
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### EMC

Electrostatic discharge:	6 kV (air)	IEC/EN 61 000-4-2
HF irradiation:	10 V / m	IEC/EN 61 000-4-3
Fast transients:	4 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  
Terminals: 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 / 055 / 04 IEC/EN 60 068-1

### Terminal designation:

EN 50 005

### Wire connection:

1 x 4 mm<sup>2</sup> solid or  
1 x 2,5 mm<sup>2</sup> stranded ferruled (isolated) or  
2 x 1,5 mm<sup>2</sup> stranded ferruled (isolated)  
DIN 46 228-1/-2/-3/-4 or  
2 x 2,5 mm<sup>2</sup> 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
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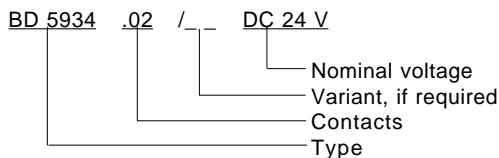
## Standard type

BD 5934.48 DC 24 V		
Article number:	0045577	stock item
• Output:	3 NO / 1 NC contacts	
• Nominal voltage $U_N$ :	DC 24 V	
• Width:	45 mm	

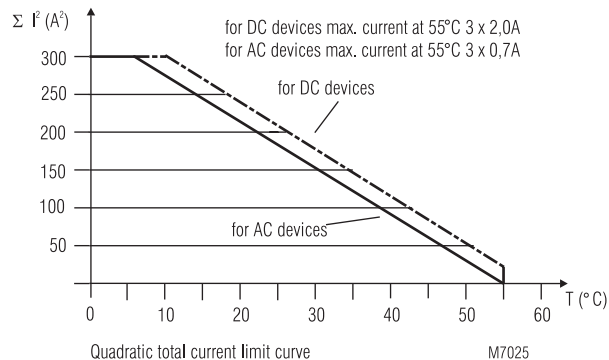
## Variant

BD 5934. \_\_ /61: with UL-approval

## Ordering example for Variant

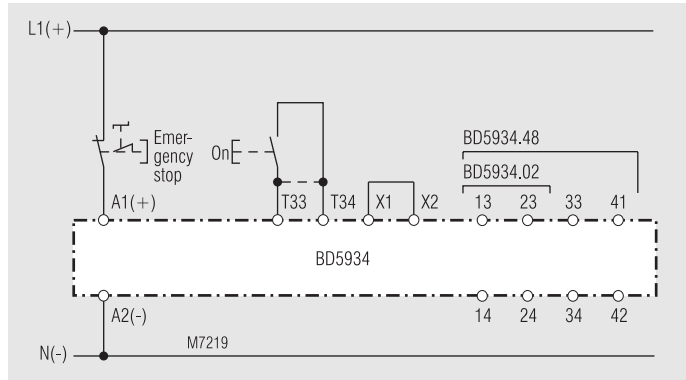


## Characteristics



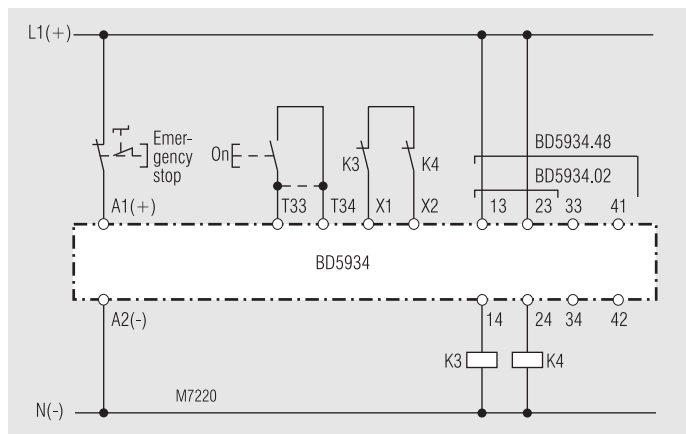
Total current limit curve

## Applications



Single-channel emergency stop circuit without feedback circuit (X1-X2 jumpered), optionally with or without automatic on feature.

For the automatic on function, the T33-T34 jumper should be closed. No on switch.



Contact reinforcement by means of external contactors.

With switching currents greater than 5 A, the output contacts can be reinforced with external contactors with positively driven contacts. The functioning of the external contactors is monitored by looping the NC contacts into the feedback circuit (terminals X1-X2).