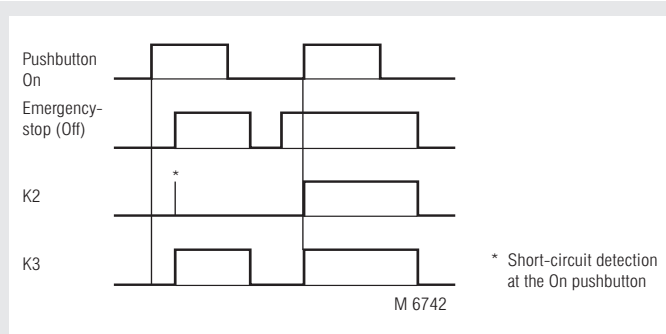


- According to
 - SIL-Claimed Level (SIL CL) 3 to EN 62061
 - Performance Level (PL) e to DIN EN ISO 13849-1
- Device diversity
- Output: 2 NO contacts for AC 250 V
- Gold-plated contacts to switch small loads (input for PLC)
- 1-channel or 2-channel connection
- Line fault detection on On pushbutton
- Operating state display
- LED display for channels 1 and 2 and Netz
- 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



Approvals and markings



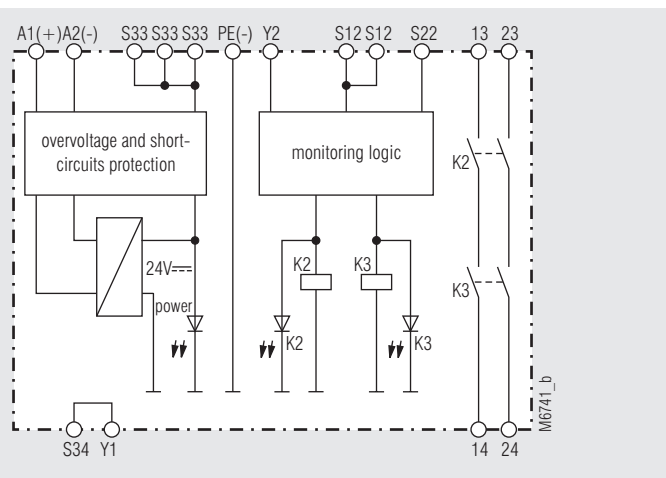
Applications

Safety shutdown of furnace installations

Indication

LED power supply:	on when operating voltage present
LED K2:	on when supply on relay K2
LED K3:	on when supply on relay K3

Block diagram



Notes

Line fault detection at the On pushbutton:

The output contacts cannot be closed if the On pushbutton is already closed before the voltage is applied to S12, S22 (also in the event of a line fault at the On pushbutton).

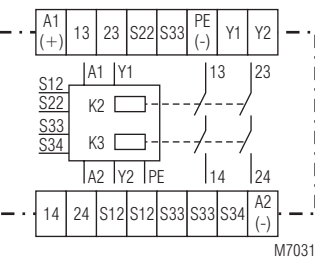
A line fault at the On pushbutton which occurs after activation of the device is recognized when switching-on takes place again and closing of the output contacts is then prevented.

If a line fault occurs at the On pushbutton after the voltage is already present at S12, S22 undesired activation will take place, because this line fault does not differ from the normal closing function.

The gold-plated contacts of the BD 5937 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.

The PE terminal permits operation of the device in IT systems with insulation monitoring and also serves as a reference point for testing the control voltage. The internal short-circuit protection will be bridged on DC devices, if the protective ground is connected to terminal PE.

Circuit diagram



Technical Data

Input

Nominal voltage U_N:	AC 24, 48, 110, 127, 230, 240 V DC 24 V
Voltage range:	AC 0.8 ... 1.1 U_N DC 0.9 ... 1.2 U_N
at 10% residual ripple:	DC 0.8 ... 1.1 U_N
at 48% residual ripple:	DC 0.8 ... 1.1 U_N
Nominal consumption:	approx. 3 VA
Nominal frequency:	50 / 60 Hz
Control voltage at S33:	typ. DC 24 V
Control current:	typ. DC 55 mA
Minimum voltage at terminals S12, S22:	DC 21 V with activated device
Recovery time:	0.5 s; A minimum switch-off time of 5 s must be observed if the line fault monitoring function at the On push button is active

Output

Contacts	BD 5937.02:	2 NO contacts The NO contacts are safety contacts.
Operate / release time:		max. 100 ms / max. 20 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. 6 A in one contact path)
Switching capacity		
to AC 15		
NO contact:	3 A / AC 230 V	IEC/EN 60 947-5-1
Electrical life:		
to AC 15 at 3 A, AC 230 V:	10 ⁶ switching cycles	IEC/EN 60 947-5-1
Permissible operating frequency:		6 000 switching cycles / h
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 at max. 90 % humidity	
Clearance and creepage distances		
rated impuls voltage / pollution degree:	4 kV / 2	IEC 60 664-1
EMC		
Electrostatic 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:	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 55011
Degree of protection:		
Enclosure:	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 ² solid or 1 x 2.5 mm ² stranded ferruled (isolated) or 2 x 1.5 mm ² stranded ferruled (isolated) DIN 46 228-1/-2/-3/-4 or 2 x 2.5 mm ² stranded ferruled DIN 46 228-1/-2/-3	

Technical Data

Wire fixing:	Plus-minus terminal screws M 3.5, box terminal with wire protection
Mounting:	DIN rail IEC/EN 60 715
Weight:	440 g
Dimensions	
Width x height x depth:	45 x 74 x 121 mm
Safety related data	
Probability of dangerous Failure per Hour (PFH_D):	6.75 · 10 ⁻¹⁰ 1/h
Safe Failure Fraction (SFF):	97.1 %
Proof Test Intervall (T1):	20 Years



The values stated above are valid for the standard type. Safety data for other variants are available on request

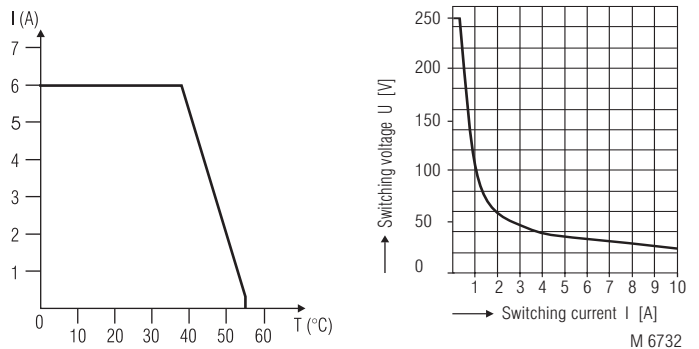
Standard type

BD 5937.02 DC 24 V		
Article number:	0040919	stock item
• Output:	2 NO contacts	
• Nominal voltage U_N :	DC 24 V	
• Width:	45 mm	

Ordering example

BD 5937.02	AC 230 V	50/60 Hz	
			Nominal frequency
			Nominal voltage
			Type

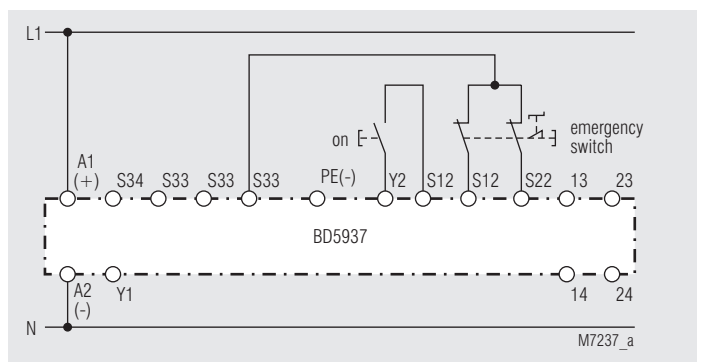
Characteristics



Current via one contact row M7239

Limit curve for arc-free operation with resistive load M 6732

Application example



Two-channel safety shutdown. Terminals S12 and S22 must be jumpered in the case of one-channel control.