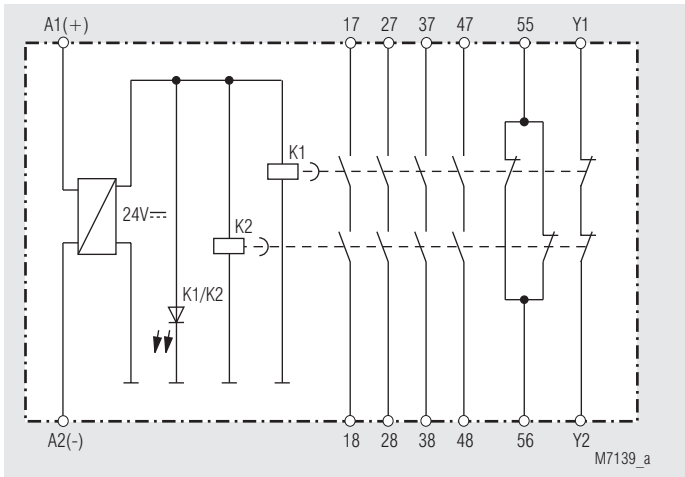


## SAFEMASTER Delay Module, Release Delay BG 7926

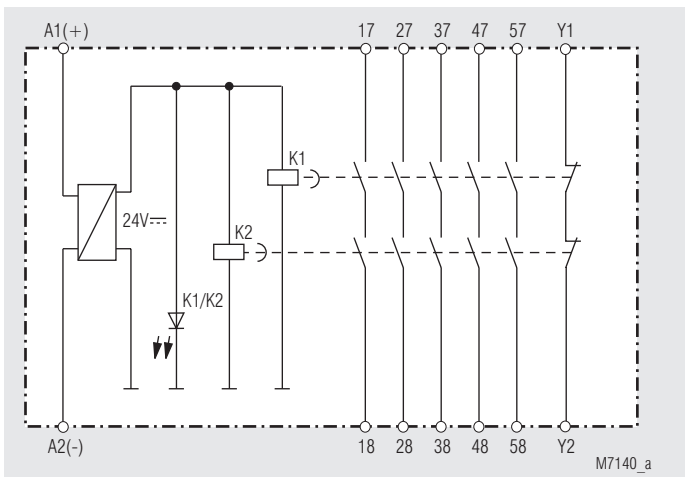


- According to
  - Performance Level (PL) d and category 2 to EN ISO 13849-1: 2008
  - SIL Claimed Level (SIL CL) 2 to IEC/EN 62061
  - Safety Integrity Level (SIL) 2 to IEC/EN 61508 and IEC/EN 61511 when connected to a suitable safety module
- Redundant and forcibly guided contacts
- 1 timing circuit
- Fixed time delay 1, 2 or 3 sec
- Without auxiliary supply
- Output: 5 NO contacts or 4 NO contacts / 1 NC contact, 1 NC contact for feed back circuit
- Indicator LED for operation
- Removable terminal strips
- Wiring diameter: also 2 x 1.5 mm<sup>2</sup> stranded ferruled with sleeve  
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 22.5 mm

### Block Diagrams



BG 7926.54



BG 7926.60

### Approvals and Marking



\* see variants

### Application

Delayed disconnection of safety relevant circuits, stop category 1 according to IEC/EN 60 204-1.

### Indicator

LED K1/K2: On, when control voltage applied

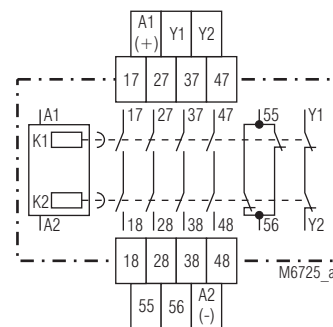
### Notes

#### Attention!

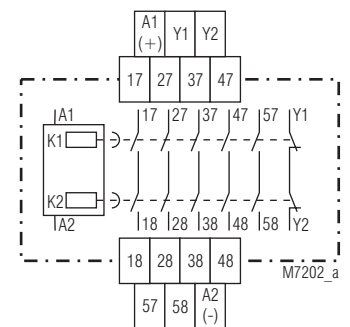


To achieve the safety levels stated under features, the supervising control (e. g. BG 5924) must check the NC contact Y1/Y2 before starting to make sure that both relays (K1 and K2) are switched off.

### Circuit Diagrams



BG 7926.54



BG 7926.60

## Technical Data

### Time circuit

<b>Release time:</b>	1 s; 2 s; 3 s fixed other times on request
<b>Time accuracy:</b>	30 %
<b>Repeat accuracy:</b>	± 5 % of nominal value
<b>Min. closing time:</b>	200 % of nominal value

### Input

<b>Nominal voltage <math>U_N</math>:</b>	AC/DC 24 V
<b>Voltage range:</b>	AC 0.8 ... 1.1 $U_N$
at 10 % residual ripple:	DC 0.9 ... 1.1 $U_N$
at 48 % residual ripple:	DC 0.8 ... 1.1 $U_N$
<b>Nominal consumption</b>	
AC 24 V:	2.1 VA
DC 24 V:	3 W
<b>Nominal frequency:</b>	50 / 60 Hz
<b>Control current</b>	
AC 24 V:	100 mA
DC 24 V:	120 mA

### Output

<b>Contacts</b>		
BG 7926.60:	5 NO contacts, 1 NC contact for feed back circuit	
BG 7926.54:	4 NO contacts, 1 NC contact, 1 NC contact for feed back circuit	
<b>Response time:</b>	max. 20 ms	
<b>Release time:</b>	1 s, 2 s, 3 s	
<b>Type of contact:</b>	relay, forcibly guided	
<b>Nominal output voltage:</b>	AC 250 V	
<b>Thermal current <math>I_{th}</math>:</b>	max. 5 A (see total current limit curve)	
<b>Switching capacity</b>		
to AC 15		
NO contact:	3 A / AC 230 V	IEC/EN 60 947-5-1
NC contact:	2 A / AC 230 V	IEC/EN 60 947-5-1
to DC 13		
NO contact:	1 A / DC 24 V	IEC/EN 60 947-5-1
NC contact:	1 A / DC 24 V	IEC/EN 60 947-5-1
to DC 13		
NO contact:	4 A / 24 V at 0.1 Hz	
NC contact:	4 A / 24 V at 0.1 Hz	
<b>Electrical life</b>		IEC/EN 60 947-5-1
to AC 15 at 2 A, AC 230 V:	10 <sup>5</sup> switching cycles	
<b>Permissible switching frequency:</b>	600 switching cycles / h	
<b>Short circuit strength</b>		
max. fuse rating:	4 A gL	IEC/EN 60 947-5-1
line circuit breaker:	C8A	
<b>Mechanical life:</b>	10 x 10 <sup>6</sup> switching cycles	

### General Data

<b>Operating mode:</b>	Continuous operation	
<b>Temperature range:</b>	- 15 ... + 55°C	
<b>Clearance and creepage distances</b>		
rated impuls voltage / pollution degree:	4 kV / 2 (basis insulation)	IEC 60 664-1
<b>EMC</b>		
Electrostatic discharge:	8 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:	1 kV	IEC/EN 61 000-4-5
between wires and ground:	4 kV	IEC/EN 61 000-4-5
HF-wire guided:	10 V	IEC/EN 61 000-4-6
Interference suppression:	Limit value class B	EN 55011
<b>Degree of protection</b>		
Housing:	IP 40	IEC/EN 60 529
Terminal plate:	IP 20	IEC/EN 60 529
<b>Housing:</b>	Thermoplastic with V0-behaviour according to UL subject 94	
<b>Vibration resistance:</b>	Amplitude 0.35 mm Frequenz 10 ... 55 Hz,	IEC/EN 60 068-2-6
<b>Climate resistance:</b>	15 / 055 / 04	IEC/EN 60 068-1

## Technical Data

<b>Wire connection:</b>	1 x 4 mm <sup>2</sup> solid or 1 x 2.5 mm <sup>2</sup> stranded ferruled with sleeve or 2 x 1.5 mm <sup>2</sup> stranded ferruled with sleeve DIN 46 228-1/-2/-3/-4 or 2 x 2.5 mm <sup>2</sup> stranded ferruled DIN 46 228-1/-2/-3
<b>Wire connection:</b>	Plus-Minus terminal screws M3.5 Box terminals with wire protection
<b>Mounting:</b>	DIN rail IEC/EN 60 715
<b>Weight:</b>	180 g

### Dimensions

<b>Width x height x depth:</b>	22.5 x 84 x 121 mm
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### Safety Related Data

#### Values according to EN ISO 13849-1:

Category:	2	
PL:	d	
MTTF <sub>d</sub> :	142.1	a (years)
DC <sub>avg</sub> :	98.2	%
d <sub>op</sub> :	365	d/a (days/year)
h <sub>op</sub> :	24	h/d (hours/day)
t <sub>cycle</sub> :	3600	s/Zyklus
	≅ 1	/h (hour)

#### Values according to IEC/EN 62061 / IEC/EN 61508 / IEC/EN 61511:

SIL CL:	2	IEC/EN 62061
SIL:	2	IEC/EN 61508 / IEC/EN 61511
HFT <sup>1)</sup> :	0	
DC <sub>avg</sub> :	98.2	%
SFF:	99.4	%
PFH <sub>D</sub> :	1.26E-08	h <sup>-1</sup>
PFD:	5.41E-05	
T <sub>1</sub> :	20	a (years)

<sup>1)</sup> HFT = Hardware-Failure Tolerance



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

The safety relevant data of the complete system has to be  
determined by the manufacturer of the system.

### UL-Data

The safety functions were not evaluated by UL. Listing is accomplished according to requirements of Standard UL 508, "general use applications"

<b>Nominal voltage <math>U_N</math>:</b>	AC/DC 24 V
<b>Ambient temperature:</b>	-15 ... +50°C,
<b>Switching capacity</b>	
NO contact :	Pilot duty B300 5A 250Vac Resistive 5A 24Vdc Resistive or G.P.
NC contact:	5A 250Vac Resistive 5A 24Vdc Resistive or G.P.
<b>Wire connection:</b>	60°C / 75°C copper conductors only AWG 20 - 12 Sol Torque 0.8 Nm AWG 20 - 14 Str Torque 0.8 Nm



Technical data that is not stated in the UL-Data, can be found  
in the technical data section.

### Standard Type

BG 7926.60 3 s AC/DC 24 V 50/60 Hz  
 Article number: 0050808  
 • Output: 5 NO contacts, 1 NC contact for feed back circuit  
 • Release time: 3 s  
 • Nominal voltage  $U_N$ : AC/DC 24 V  
 • Width: 22.5 mm

### Ordering Example

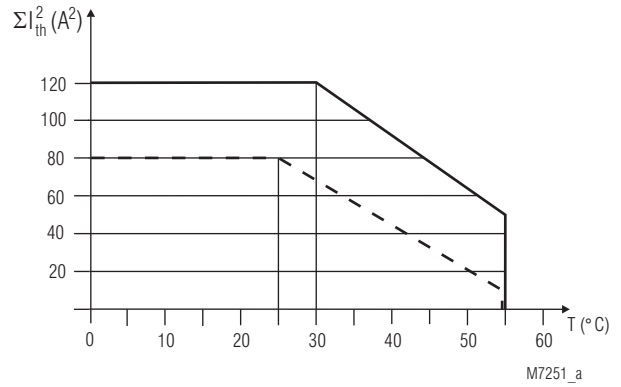
BG 7926 .60 3 s AC/DC 24 V 50 / 60 Hz

\_\_\_\_\_ Nominal frequency  
 \_\_\_\_\_ Nominal voltage  
 \_\_\_\_\_ Release time  
 \_\_\_\_\_ Contacts  
 \_\_\_\_\_ Type

### Variant

BG 7926/61: with UL-approval

### Characteristic



— AC / DC 24 V device mounted on distance with aircondition  
 - - - AC / DC 24 V device mounted without distances heated by devices with same load

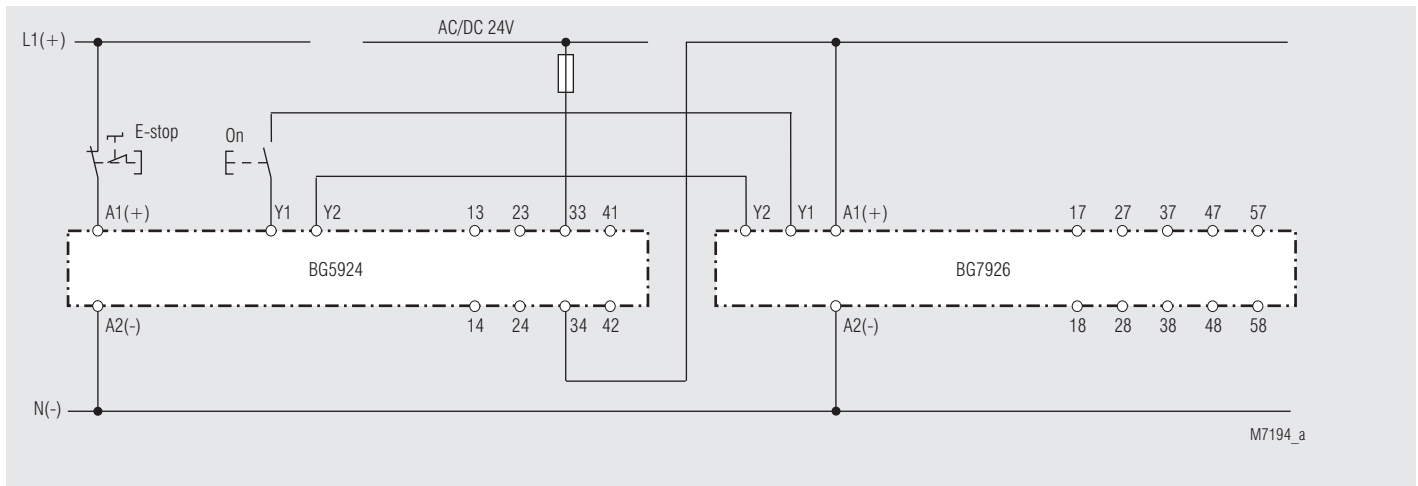
quadratic total current

$$\Sigma I_{th}^2 = I_{th1}^2 + I_{th2}^2 + I_{th3}^2 + I_{th4}^2 + I_{th5}^2$$

$I_{th1}$  ,  $I_{th2}$  ,  $I_{th3}$  ,  $I_{th4}$  ,  $I_{th5}$  : thermal current  $I_{th}$  on contact rows

Total current limit curve

### Application Example



Multiplication of contacts at single channel E-stop circuit with feedback loop.  
 Suited up to SIL2, Performance Level d, Cat. 2

