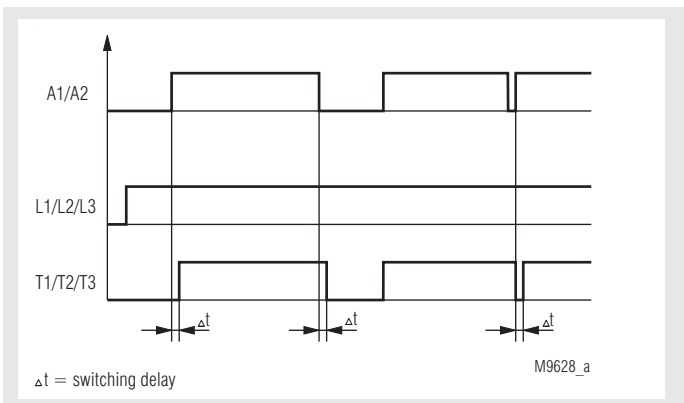


**Semiconductor contactor BF 9250/0\_8  
POWERSWITCH**



- According to IEC/EN 60 947-4-2, IEC/EN 60 947-4-3
- 1-, 2- and 3-pole versions
- Load current up to 50 A at  $T_U = 40^\circ \text{C}$
- For AC load up to 530 V
- Switching at zero crossing, optionally immediate switching
- Protected by varistors
- Mounting on DIN-rail
- Widths: 22,5 mm, 45 mm and 90 mm

**Function diagram**



**Approvals and marking**

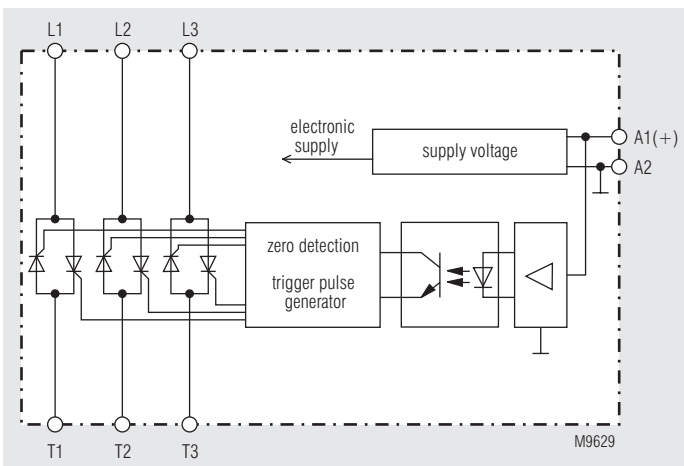


\* pending

**Applications**

- Fast and noiseless switching of:
- heating elements
  - motors
  - valves
  - lighting

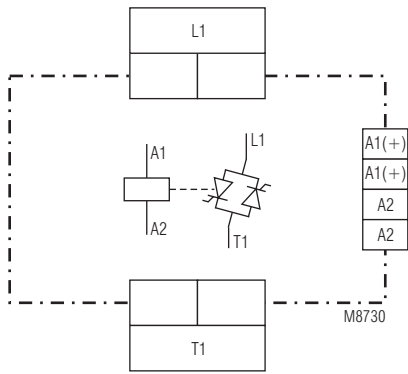
**Block diagram**



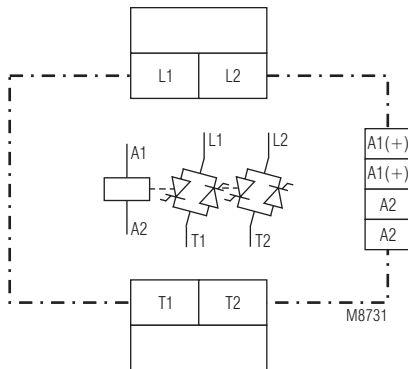
**Indication**

LED green: on, when voltage on A1/A2

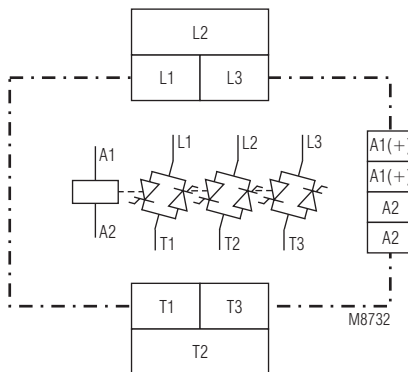
## Circuit diagrams



BF 9250.91/008 (1-pole)



BF 9250.92/008 (2-pole)



BF 9250.93/008 (3-pole)

## Technical Data

### Input:

<b>Control voltage A1/A2:</b>	DC 24 V
<b>Control voltage range:</b>	
<b>1-pole:</b>	DC 4 ... 32 V
<b>2-pole:</b>	DC 7 ... 32 V
<b>3-pole:</b>	DC 9 ... 32 V
<b>Start up delay [ms]:</b>	≤ 1 + 1/2 period *)
<b>Release delay [ms]:</b>	≤ 1 + 1/2 period *)
	*) for variant with immediate switching only 1 periode for on and off delay

### Output

#### Load output T1, T2, T3

#### Load currents at 100 % duty cycle:

BF 9250/008	Ambient temperature	Width		
		22,5 mm	45 mm	90 mm
<b>1-pole</b>	25°C	13 A	30 A	55 A
	40°C	10 A	25 A	50 A
<b>2-pole</b>	25°C	7 A	17,5 A	28 A
	40°C	6,5 A	15 A	25 A
<b>3-pole</b>	25°C	6 A	14 A	20 A
	40°C	5 A	10 A	15 A

#### Current reduction over 40°C

BF 9250/008	Device without heat sink	Device with small heat sink	Device with large heat sink
<b>1-pole</b>	0,2 A / °C	0,4 A / °C	0,6 A / °C
<b>2-pole</b>	0,2 A / °C	0,3 A / °C	0,4 A / °C
<b>3-pole</b>	0,2 A / °C	0,2 A / °C	0,3 A / °C

<b>Load voltage L1, L2, L3:</b>	AC 230 V, AC 480 V
<b>Load voltage range::</b>	24 ... 264 V, AC 24 ... 530 V
<b>Frequency range:</b>	50 / 60 Hz
<b>Leakage current in off state :</b>	approx. 1,0 mA
<b>Peak reverse voltage:</b>	± 1 200 Vp
<b>Short circuit current at t=10 ms</b>	
BF 9250.91, BF 9250.92:	600 A
BF 9250.93:	400 A
<b>Power dissipation:</b>	P = 1,2 [V] x I eff. [A] / k [W] with k as formfactor and k = 1.1 for sinusoidal current

### Semiconductor fuse

		Semiconductor fuse			
	I <sub>N</sub>	Load limit integral of the semiconductor	Type	Art.-No.	Brand
<b>1-pole devices</b>	10 A	1800 A <sup>2</sup> s	fuse 10 x 38 NH-00	6003434.16	SIBA
	25 A			6003434.30	
	50 A			2020920.63	
<b>2-pole devices</b>	2 x 6,5 A	1800 A <sup>2</sup> s	fuse 10 x 38	6003434.10	SIBA
	2 x 15 A			6003434.20	
	2 x 25 A			6003434.30	
<b>3-pole devices</b>	3 x 5 A	800 A <sup>2</sup> s	fuse 10 x 38	6003434.8	SIBA
	3 x 10 A			6003434.16	
	3 x 15 A			6003434.20	

**Varistor voltage:** AC 510 V

## Technical Data

### General Data

<b>Mounting position:</b>	cooling ribs vertically
<b>Operating mode:</b>	Continuous operation
<b>Temperature range:</b>	0 ... 40°C
<b>max. temperature:</b>	60°C (with current derating factor)
	see table
<b>Storage temperature:</b>	- 20 ... + 80°C

### Clearance and creepage distances

rated impuls voltage / pollution degree	4 kV / 3	IEC 60 664-1
<b>EMC</b>	IEC/EN 61 000-6-4,	IEC/EN 61 000-6-1
Electrostatic discharge:	8 kVair / 6 kV contact	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-wire guided:	10 V	IEC/EN 61 000-4-6
Interference suppression:	Limit value class A	IEC/EN 60 947-4-3
	A higher suppression class can be reached by connecting capacitors of 0.47 µF / 600 V AC across the phases	

or across phase and neutral.

### Insulation voltages

Input to Output:	2.5 kV
Input to semiconductor monitoring output (NC contact)	2.0 kV
Input to heat sink:	2.5 kV
Output to Output:	2.5 kV
Output to heat sink:	2.5 kV

### Degree of protection

Housing:	IP 40	IEC/EN 60 529
Terminals:	IP 20	IEC/EN 60 529

### Vibration resistance:

Amplitude 0.35 mm	
frequency 10 ... 55 Hz	IEC/EN 60 068-2-6
0 / 060 / 04	IEC/EN 60 068-1

### Climate resistance:

EN 50 005

### Terminal designation:

DIN 46 228-1/-2/-3/-4

Load terminals:	1 x 10 mm <sup>2</sup> solid
	1 x 6 mm <sup>2</sup> stranded ferruled
Control terminals:	1 x 0.75 mm <sup>2</sup> stranded ferruled (isolated)
	DIN 46 228-1/-2/-3/-4
	1 x 1.5 mm <sup>2</sup> stranded ferruled
	DIN 46 228-1/-2/-3

### Wire fixing

Load terminals:	Terminal screws M 4	
	Box terminal with wire protection	
Control terminals:	cage clamp terminals	
<b>Mounting:</b>	DIN rail	IEC/EN 60 715

### Weight

Width 22,5 mm:	350 g
Width 45 mm:	580 g
Width 90 mm:	1050 g

## Dimensions

### Width x height x depth:

Dependent of contacts and load current (see table load current):	22,5 x 85 x 120 mm
	45 x 85 x 120 mm
	90 x 85 x 120 mm

## Standard types

BF 9250.91/008	DC 24 V	AC 480 V	50/60 Hz	10 A
Article number:		0056823		Lagergerät
• 1-pole				
• Control voltage range:	DC 4 ... 32 V			
• Load voltage range:	AC 24 ... 530 V			
• Load voltage:	10 A (bei T <sub>U</sub> = 40° C)			
• with indicator output				
• Width:	22,5 mm			

## Ordering example

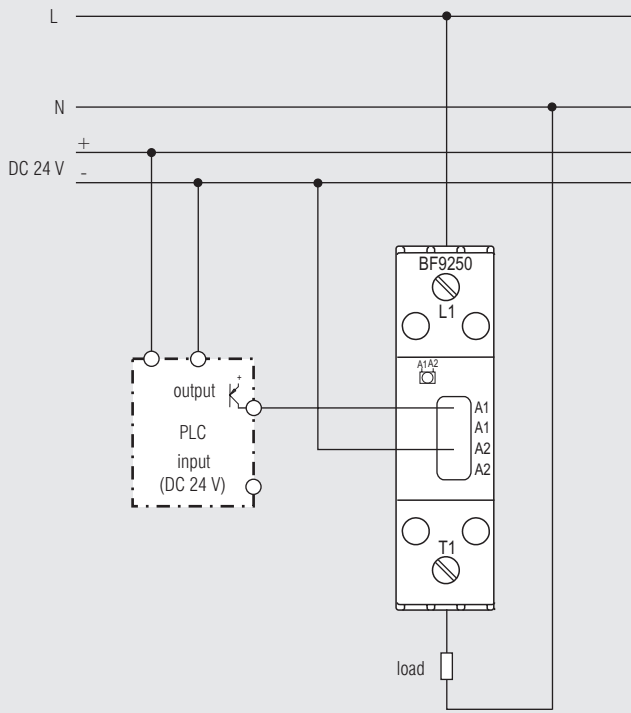
BF 9250	.91 / 0	_ 8	DC 24 V	AC 480 V	50/60 Hz	50 A
						load current
						Frequeny range
						Load voltage
						Control voltage
						/008: Control by
						A1/A2 with cage clamp
						terminals
						zero crossing
						/018: Control by
						A1/A2 with cage clamp
						terminals
						immediate switching
						.91: 1-pole
						.92: 2-pole
						.93: 3-pole
						Type

## Installation

Recommended distance:  
upper / lower side to cable duct: 20 mm  
distance on left and right: 10 mm; with max. load current and 100 % duty cycle

## Application example

### single phase system

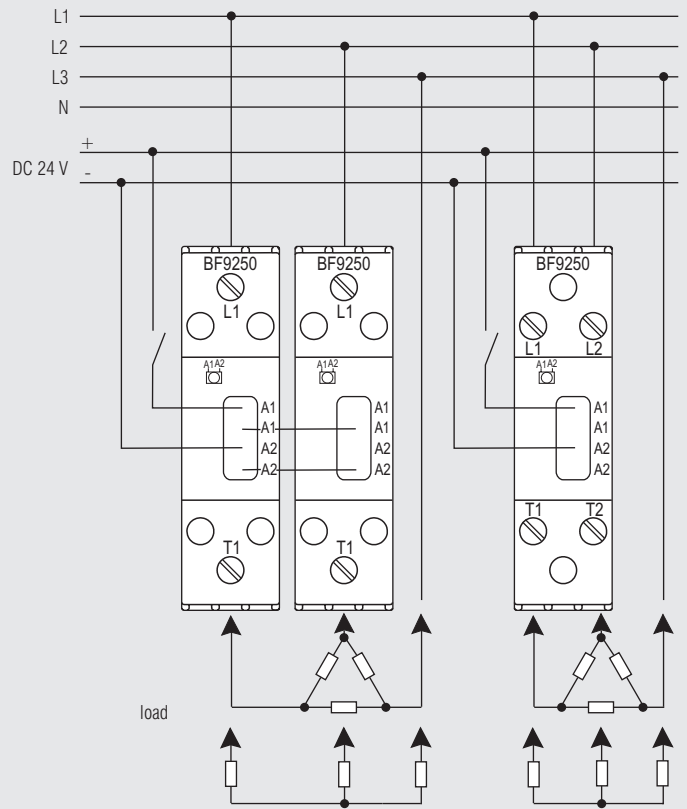


M9630

Single phase load switched by 1-pole semiconductor contactor controlled from PLC or Temperature controller output.

Width mm	22,5	45	90
$I_L$ / phase	10 A	25 A	50 A

### 3-phase system, 2 phases controlled



M9631

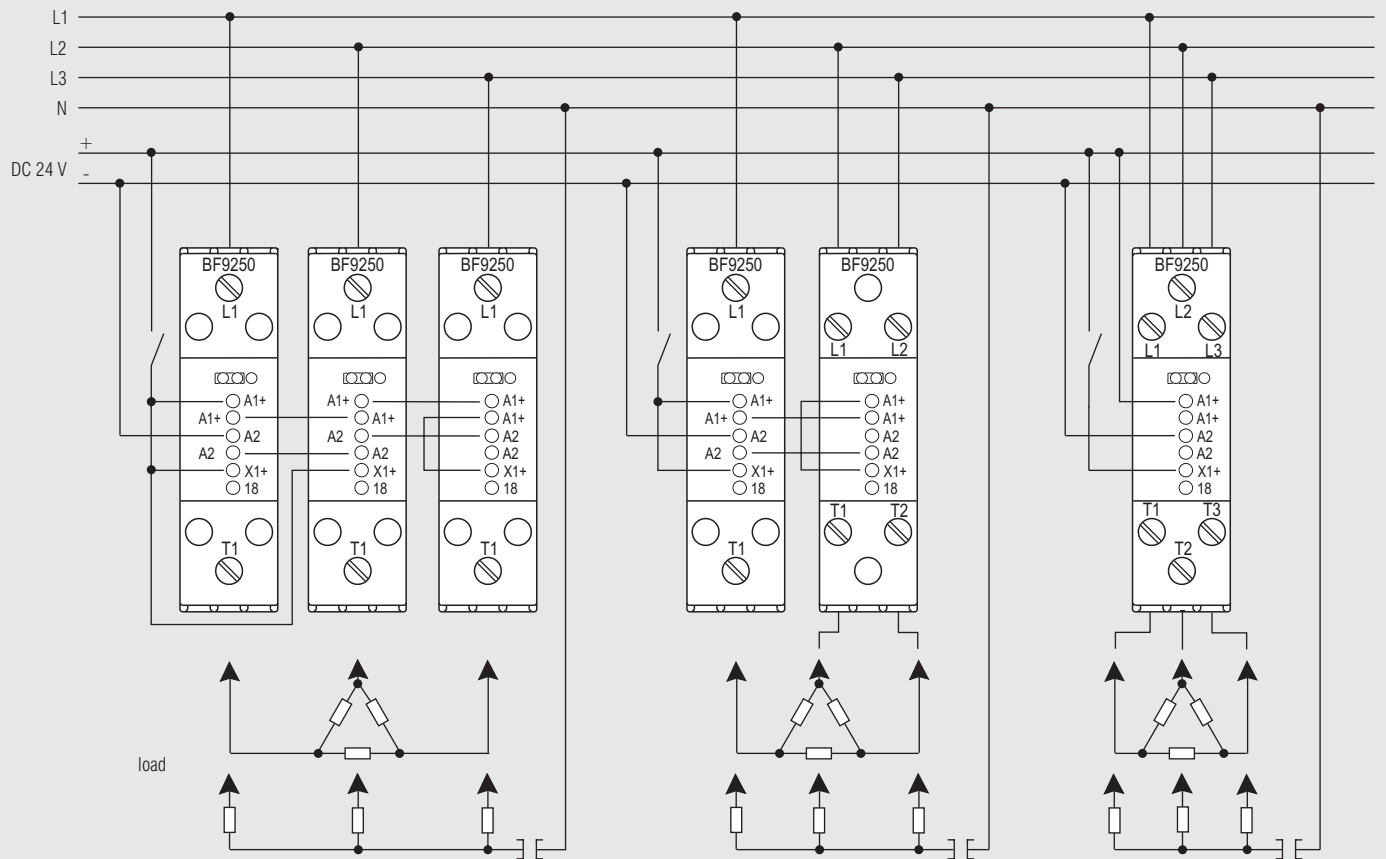
3-phase load, switched by 2 single-pole semiconductor contactors (left side) or by 1 2-pole semiconductor contactor (right side)

22,5	45	90
10 A	25 A	50 A

22,5	45	90
6,5 A	15 A	25 A

## Application example

3-phase system, 3-phases controlled



M9633

3-phase load switched by 3 single-pole semiconductor contactors

3-phase load switched by 1 single-pole an 1 2-pole semiconductor contactor

3-phase load switched by 1 3-pole semiconductor contactor

Width mm	22,5	45	90
$I_L$ / phase	10 A	25 A	50 A

22,5	45	90
6,5 A	15 A	25 A

22,5	45	90
5 A	10 A	15 A

