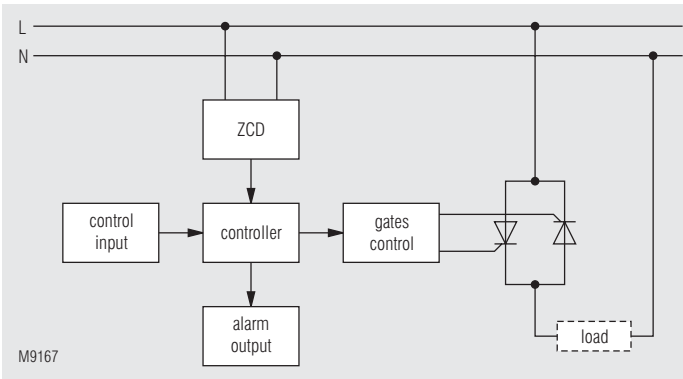




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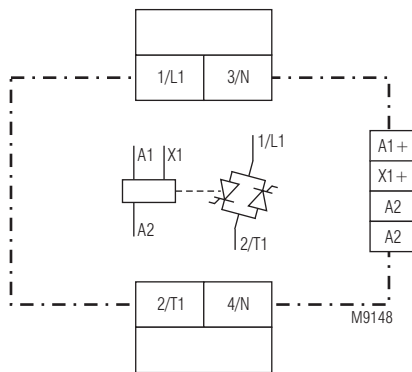
- Analogue controller for accurate process temperature control
- Burst firing control of heaters
- Control input optional with DC 0 ... 10 V, DC 4 ... 20 mA, 0 ... 10 kΩ
- Reverse action operation possible
- Rated operational voltage range AC 230 ... 480 V
- Rated operational current is up to AC 50 A
- Zero cross switching
- Protected by varistors
- Temperature protection of the power semiconductors
- LED indications for supply, output status and alarm status
- Alarm indication on mains synchronisation failure
- Alarm indication on control input failure
- Alarm indication on over temperature of power semiconductors
- DIN-rail mountable
- BF 9250/0\_2 to 10 A: Width 22.5 mm
- BF 9250/0\_2 to 25 A: Width 45 mm
- BF 9250/0\_2 to 50 A: Width 90 mm

**Block diagram**



M9167

**Circuit diagram**



M9148

**Approvals and marking**



**Application**

Fast and noiseless switching of heating elements

**Indication**

**Normal operation**

Green LED:	ON
Yellow LED:	ON according to output status
Red LED:	OFF

**Mains synchronisation failure alarm**

Green LED:	Flashing
Yellow LED:	OFF
Red LED:	Flashing

(This alarm status is not latched)

**Control input failure**

Green LED:	ON
Yellow LED:	OFF
Red LED:	Flashing

(This alarm status is not latched)

**Over temperature of power semiconductors alarm**

Green LED:	ON
Yellow LED:	OFF
Red LED:	ON

(This alarm status is latched. Supply on A1+/A2 has to be switched off and back on after a short time to reset this status)

**Technical Data**

**Input**

Supply voltage $U_H$ A1/A2:	DC 24 V
Supply current:	< 26 mA at DC 24 V

**Control input**

<b>Current controlled input</b>	
Control current range:	DC 0 ... 20 mA or DC 4 ... 20 mA
Allowable input current:	< 35 mA
Over current protection:	YES
Alarm for over current:	YES
Reverse polarity protection:	YES
Voltage drop:	1.02 V at 20 mA

## Technical data

### Voltage controlled input

**Control voltage range:** DC 0 ... 5 V or DC 0 ... 10 V  
**Control input current:** < 0.01 mA at DC 10 V

### Potentiometer controlled input

**Potentiometer value:** 10 kΩ ±10 %

### Control accuracy

**Range:** 0 ... 100 %  
**Step:** 1.5625 %

## Output

**Nominal load voltage:** AC 110 ... 240 V or AC 230 ... 480 V

**Load current  $I_L$ :** AC 10 A, 25 A, 50 A

**Minimum operational current:** AC 400 mA

**Operating mode:** Continuous

### Current reduction over 40°C

**$I_L$  AC 10 A:** 0.2 A / °C

**$I_L$  AC 25 A:** 0.4 A / °C

**$I_L$  AC 50 A:** 0.6 A / °C

**Frequency range:** 45 ... 65 Hz

**Varistor voltage:** AC 510 V

**Load types:** Resistive

**Power loss:** 1.2 (V) x  $I_L$  (A) approx.

**Average power output:** 0 ... 100 %

### Output power resolution

bei BF 9250/002: 1.5625 %

bei BF 9250/042: 5 %

**Zero crossing detection:** YES

**Off state leakage current at rated voltage and frequency:** 1.0 mA  
 ( $T_j = 125^\circ\text{C max.}$ )

### $I^2t$ for fusing $t = 1$ to 10 ms

**$I_L$  AC 10 A, 25 A:** 800 A<sup>2</sup>s

**$I_L$  AC 50 A:** 1800 A<sup>2</sup>s

**Peak inverse voltage:** ±1200 V<sub>p</sub>

Note: Higher current capacities on request

## Installation

### Recommended distance with max. load current and 100 % duty cycle upper / lower side to cable duct:

20 mm

left / right: 10 mm

## General data

**Maximum humidity:** 75 %, no condensation

**Operating temperature:** 0 ... 40°C

**Maximum temperature:** 60° (using appropriate derating)

**Storage temperature:** - 20 ... + 80°C

**Cooling:** Natural convection

Junction temperature: < 125 °C

**Rated withstand voltage input to output:** 3500 V

### Degree of protection

**Housing:** IP 40 IEC/EN 60 529

**Terminals:** IP 20 IEC/EN 60 529

**Mounting:** DIN rail IEC/EN 60 715

### Wire fixing

### Wire connection

**Load terminals:** 1 x 10 mm<sup>2</sup> solid

1 x 6 mm<sup>2</sup> stranded wire with sleeve

**Control terminals:** 1 x 0.75 mm<sup>2</sup> stranded wire with sleeve and with insulation  
 1 x 1.5 mm<sup>2</sup> stranded wire with sleeve and with insulation

**Load terminals:** box terminals

**Control terminals:** cage clamps

### Weight

BF 9250/0\_2 to 10 A: 350 g

BF 9250/0\_2 to 25 A: 580 g

BF 9250/0\_2 to 50 A: 1094 g

## Dimensions

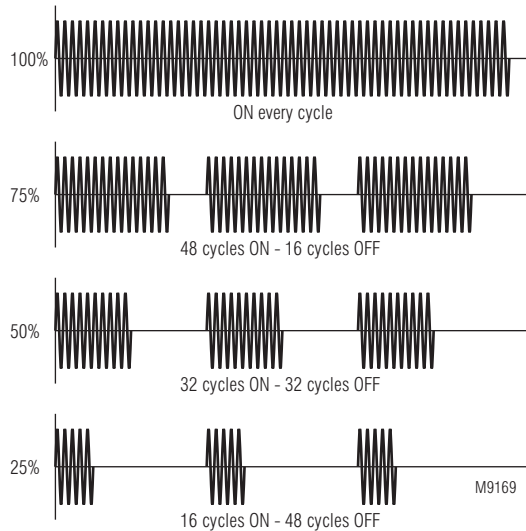
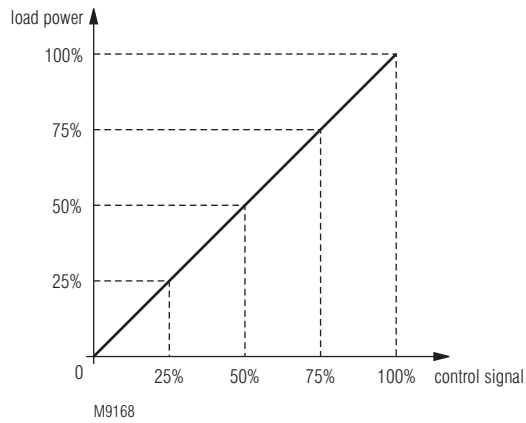
### Width x height x depth

BF 9250/0\_2 to 10 A: Width 22.5 mm

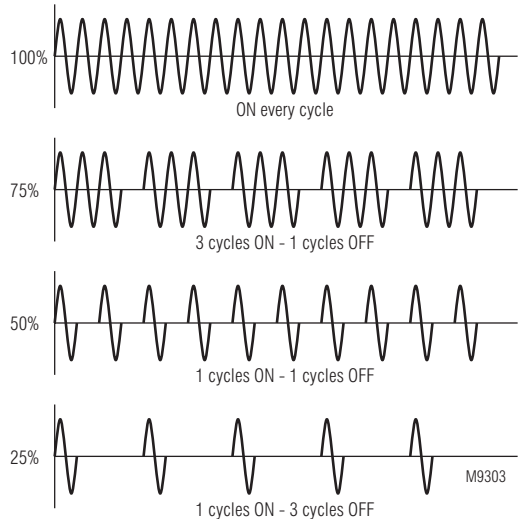
BF 9250/0\_2 to 25 A: Width 45 mm

BF 9250/0\_2 to 50 A: Width 90 mm

## Characteristics



### Variant BF 9250/002



### Variant BF 9250/042

## Standard type

BF 9250.91/042	U <sub>H</sub> DC 24 V	DC 0 ... 10 V	AC 230 ... 480 V	AC 10 A	stock item
Article number:		0059168			
• 1-pole					
• Control input:		DC 0 ... 10 V			
• Auxiliary voltage:		DC 24 V			
• Load voltage:		AC 230 ... 480 V			
• Load current:		AC 10 A			
• Width:		22.5 mm			

## Variants

- BF 9250/002:** Output control with fixed period of 64 cycles, pulse-space ratio according to input signal
- BF 9250/042:** Self optimising, to achieve as short as possible control periods, suitable for infrared lamps

## Application example

