

POWERSWITCH

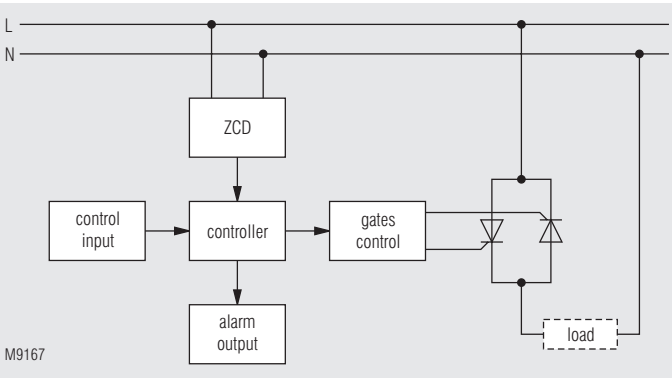
Semiconductor Contactor With Analogue input For Pulsed Output BF 9250/0_2

Now with optimised
pulse-space ratio
for infrared lamps



- 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 k Ω
- Reverse action operation possible
- Rated operational voltage range up to 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

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

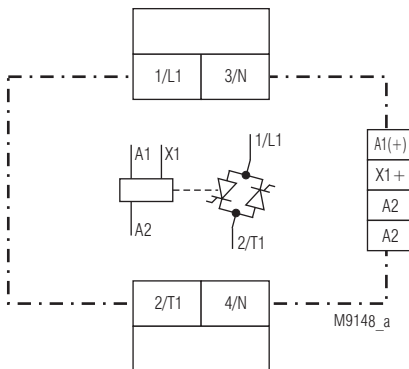
(This alarm status is not latched)

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)

Circuit Diagram



M9148_a

Technical Data

Input

Supply voltage U_H

A1/A2:	AC/DC 24 V
Supply current:	< 26 mA at DC 24 V

Control Input

Current controlled input

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 24 ... 115 V; AC 110 ... 240 V or AC 230 ... 480 V

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

Minimum operational current: AC 40 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) × I_L (A) approx.

Average power output: 0 ... 100 %

Output power resolution at BF 9250/002: 1.5625 %

at 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 A²s

I_L AC 50 A: 1800 A²s

Peak inverse voltage: ±1200 V_p

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 mm² solid
1 x 6 mm² stranded wire with sleeve
Control terminals: 1 x 0.75 mm² stranded wire with sleeve and with insulation
1 x 1.5 mm² stranded wire with sleeve and with insulation

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

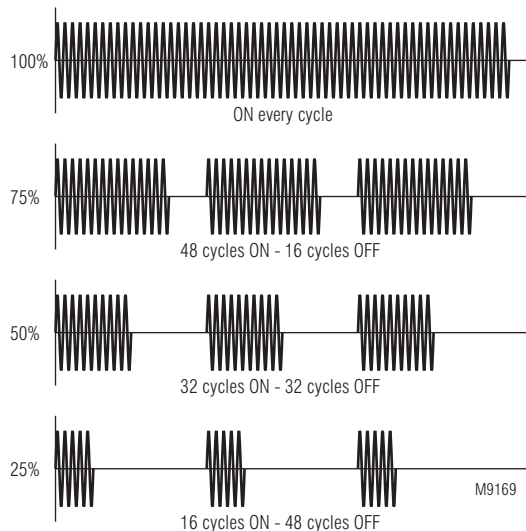
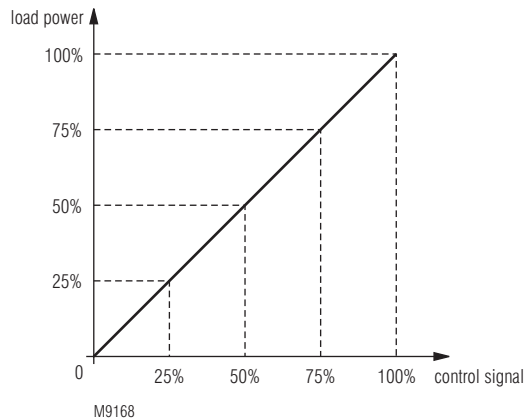
Width x height x depth

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

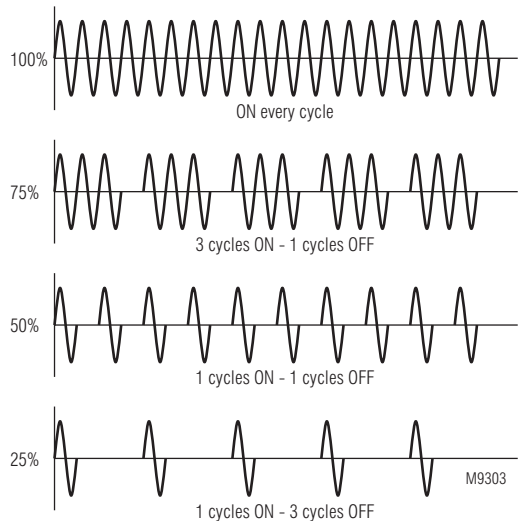
BF 9250/0_2 to 25 A: Width 45 mm

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_H AC/DC 24 V DC 0 ... 10 V AC 230 ... 480 V AC 10 A
Article number: 0059168 stock item

- 1-pole
- Control input: DC 0 ... 10 V
- Auxiliary voltage: AC/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

