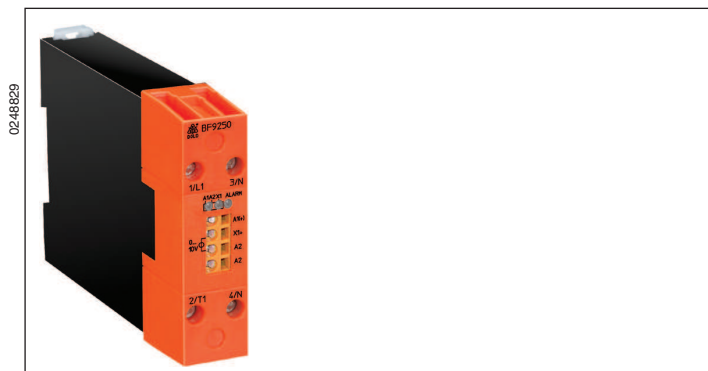


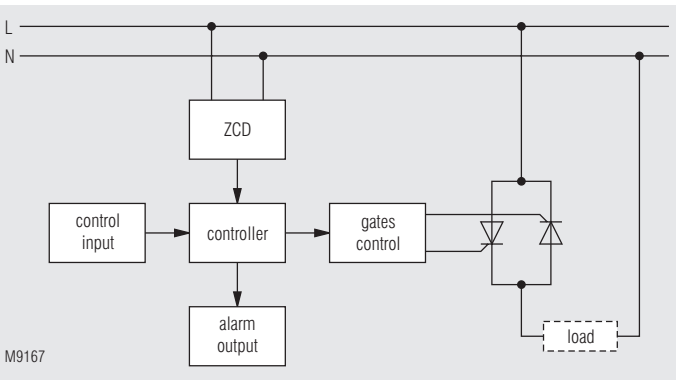
POWERSWITCH

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

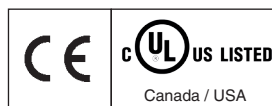


- Analogue controller for accurate process temperature control
- Burst firing control of heaters
- Control input optional with DC 0 ... 10 V, DC 4 ... 20 mA, 0 ... 10 k Ω
- Reverse action operation possible
- Rated operational voltage range up to 480 V
- Rated operational current is up to AC 50 A
- Zero 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



Approvals and Markings



Applications

- Analogue control for precise temperature control
- Fast and noiseless switching of heating elements

Indicators

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)

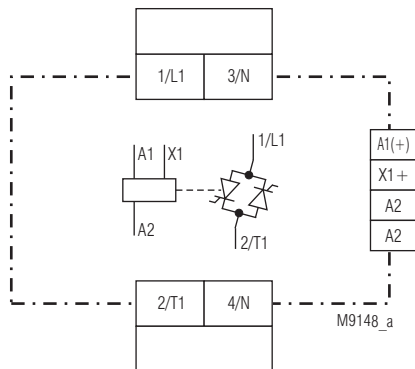
Control input failure

- 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 Diagrams



Connection Terminals

Terminal Designation	Signal Designation
A1 (+)	+ / L
A2	- / N
X1	Control input
L1, N	Mains connection
T1, N	Load output

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
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 k Ω $\pm$ 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) $\times$ 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°C max.)
I^2t for fusing $t = 1$ to 10 ms	
I_L AC 10 A, 25 A:	800 A ² s
I_L AC 50 A:	1800 A ² s
Peak inverse voltage:	$\pm$ 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

Technical Data		
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 1 x 0.75 mm² stranded wire with sleeve and with insulation 1 x 1.5 mm² stranded wire with sleeve and with insulation	
Control terminals:	box terminals cage clamps	
Load terminals:		
Control terminals:		
Fixing torque:	1.2 Nm	
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 x 85 x 120 mm
BF 9250/0_2 to 25 A: Width	45 x 85 x 120 mm
BF 9250/0_2 to 50 A: Width	90 x 85 x 120 mm

UL-Data according to UL508

Input

Wire connection:	60°C / 75°C copper conductors only AWG 24 - 14 Sol/Str
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Control input

Current input:	DC 4 ... 20 mA
Voltage input:	DC 0 ... 5 V bzw. DC 0 ... 10 V
Potentiometer input:	10 k Ω $\pm$ 10 %

Load circuit

Fixed screw terminal:	75°C copper conductors only AWG 18 - 8 Sol Torque 0.8 Nm or AWG 18 - 10 Str Torque 0.8 Nm (only possible at variants up to 30 A)
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Temperature range:	0 ... 40 °C
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Frequency range:	50 / 60 Hz
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Pollution degree:	2
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In the final circuit an overvoltage protector R/CSPD (VZCA2/8) with min. 480V AC, 50/60Hz, VPR=2500V, Type 3 has to be installed.



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

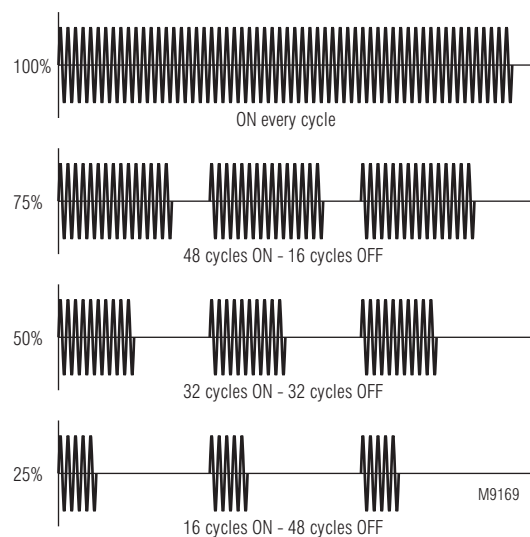
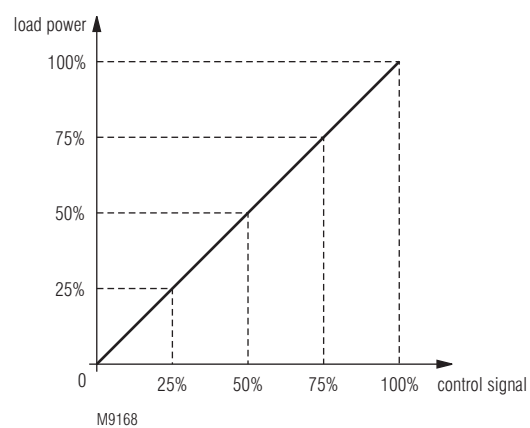
Standard Type

BF 9250.91/042	U_H AC/DC 24 V	DC 0 ... 10 V	AC 230 ... 480 V	AC 10 A
Article number:	0059168			
• 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			

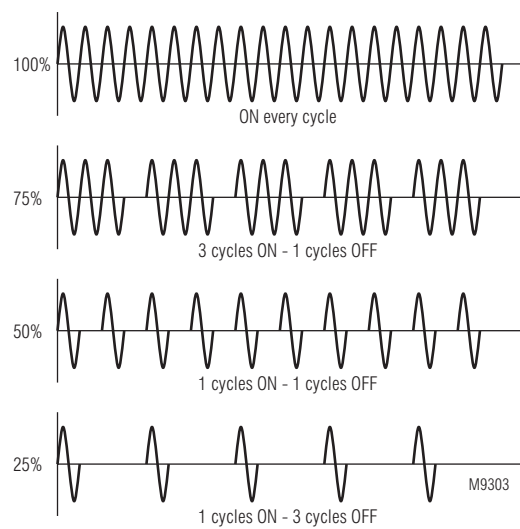
Variants

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

Characteristics



Variant BF 9250/002



Variant BF 9250/042

