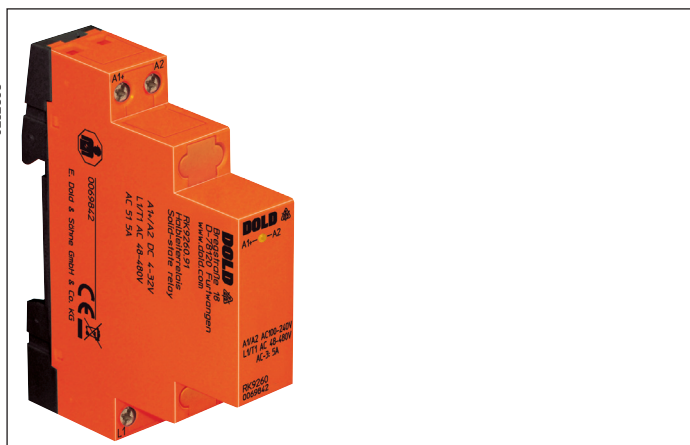


POWERSWITCH Solid-State Relay For Resistive Load RK 9260

Translation
of the original instructions



Your Advantages

- High switching frequency and long life
- Space saving, only 17.5 mm width
- Silent
- Vibration- and shock resistance

Features

- AC solid-state relay / -contactor
- According to IEC/EN 62314 and IEC/EN 60947-4-3
- Switching at zero crossing for resistive loads
- 2 anti-parallel thyristors
- LED status indicator
- Peak reverse voltage up to ± 1600 V
- Insulation voltage 4000 V
- As option: Instant-on switching

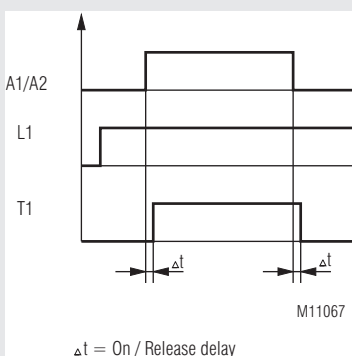
Product Description

The solid-state relay RK 9260 is designed with 2 anti-parallel connected thyristors switching at zero crossing for resistive loads (e.g. heating systems). When connecting the control voltage the output of the solid-state relay is activated at the next zero crossing of the sinusoidal voltage. When disconnecting the control voltage the output is switched off at the next zero crossing of the load current. The LED shows the state of the control input.

Approvals and Markings



Function Diagram



Applications

Solid-state relays switching at zero crossing:

For frequent no-wear and no-noise switching of:

- Heating systems
- Cooling systems
- Lighting systems

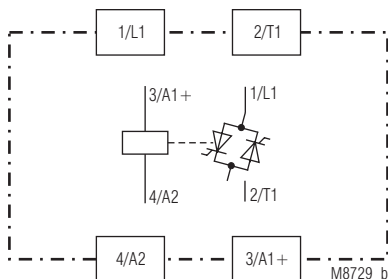
The solid-state relay switches at zero crossing and is suitable for many applications e.g. extrusion machines for plastic and rubber, packaging machines, solder lines, machines in food industry.

Notes

Depending on the application it may be useful to protect the solid-state relay with special superfast semiconductor fuses against shortcircuit.

Multiple devices mounted on the same DIN Rail must be placed at least 20 mm apart to be able to pass the full rated current. If this is not possible the load current must be reduced by 30 %.

Circuit Diagram



Connection Terminals

Terminal designation	Signal description
A1(+), A2	Control input
L1	Mains connection
T1	Load output

Operation Notes

EMC disturbance during operation has to be reduced by corresponding measures and filters. If several solid-state relays are mounted together sufficient cooling and ventilation has to be provided.

Safety Notes



Risk of fire or other thermal hazards!
Danger to life, risk of serious injuries or property damage.

- The device has no overtemperature alarm or shut-off. If the relay fails, it may overheat and become a fire hazard.

Control Circuit

Control voltage range [V]:	DC 4 ... 32	AC 100 ... 280
Pick-up Voltage [V]:	3.0	80
Drop-out voltage [V]:	1.0	25
Nominal input current [mA]:	12	20 at 240 V AC
Turn-on delay [ms]:	$\leq 1.0 + \frac{1}{2} \text{ cycle}^*$	$\leq 10 + \frac{1}{2} \text{ cycle}^*$
Turn-off delay [ms]:	$\leq 1.0 + \frac{1}{2} \text{ cycle}^*$	$\leq 35 + \frac{1}{2} \text{ cycle}^*$

*) $\frac{1}{2}$ cycle delay only when switching at 0-crossing, at instantaneous switching the delay = 0

Output

Load voltage AC [V]:	24 ... 280	48 ... 480	48 ... 600
Peak reverse voltage [V]:	± 650	± 1200	± 1600
Frequency range [Hz]:	47 ... 63		

Solid-state relay

AC-51 Load current I_{enn} [A] at $T_u = 40 \text{ °C}$ (acc. to EN 60947-4-3):	5	5	5
AC-51 Load current I_{enn} [A] at $T_u = 20 \text{ °C}$ (max. current at $T_j < 125 \text{ °C}$):	7.0	7.0	7.0
Current derating above 40 °C [A/°C]:	0.07 ^{*)}		
Max. overload current [A], $t = 10 \text{ ms}$:	≤ 380	≤ 400	≤ 620
Load limit integral I^2t [A ² s]:	720	800	1920
Off-state leakage current [mA]	≤ 2.0		
Min. current [mA]	20		
On-state voltage at rated current [V]:	1.0		
Off-state voltage dV/dt [V/ μ s]:	200	1000	1000
Rate of rise of current di/dt [A/ μ s]:	150	150	100

*) $I_u = I_{\text{enn}} - [0.07 \times (T_u - 40 \text{ °C})]$

General Technical Data

Operating mode:	Continuous operation (Current reduction above 40 °C)	
Temperature range		
Operation:	- 25 ... 60 °C	
Storage:	- 25 ... 85 °C	
Relative air humidity:	< 95 % non-condensing at 40 °C	
Clearance and creepage distances		
Rated impulse voltage / pollution degree:	6 kV / 3	IEC/EN 60664-1
EMC:	IEC/EN 61000-6-4,	IEC/EN 61000-4-1
Electrostatic discharge (ESD):	8 kV air / 6 kV contact	IEC/EN 61000-4-2
HF irradiation:	10 V / m	IEC/EN 61000-4-3
Fast transients:	2 kV	IEC/EN 61000-4-4
Surge voltages		
Control circuit between A1 / A2:	1 kV	IEC/EN 61000-4-5
Between output and ground:	2 kV	IEC/EN 61000-4-5
HF-wire guided:	10 V	IEC/EN 61000-4-6
Interference suppression:	Limit value class A	IEC/EN 60947-4-3
Degree of protection:	IP 20	IEC/EN 60529
Vibration resistance:	Amplitude 0.35 mm Frequency 10 ... 55 Hz, IEC/EN 60068-2-6 PC flame resistant; UL 94 V0	
Housing material:		
Connections		
Load and Control Circuit:	M3.5 Pozidrive PZ1 Plus-minus	
Mounting torque:	1.2 Nm	
Wire cross section:	1 x 0.5 ... 6 mm ² solid or 1 x 0.5 ... 6 mm ² stranded wire with sleeve	
Nominal insulation voltage		
Control circuit – load circuit:	4 kV _{eff.}	
Overvoltage category:	III	
Mounting:	DIN rail	IEC/EN 60715
Weight:	Approx. 67 g	

Dimensions

Width x height x depth: 17.5 x 90 x 71 mm

Standard Type

RK 9260.91 AC 48 ... 480 V 5 A DC 4 ... 32 V

Article number:

- Load voltage: AC 48 ... 480 V
- Load current: 25 A
- Control voltage: DC 4 ... 32 V
- Width: 17.5 mm

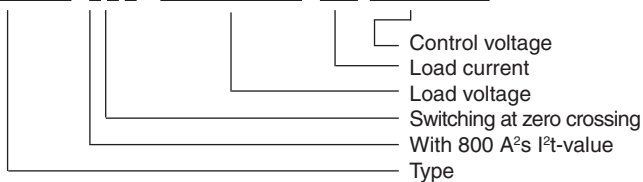
Variants

RK 9260 .91 / _ _ 0

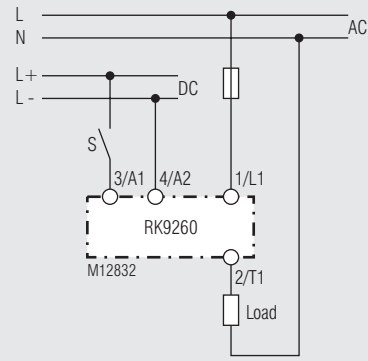
- | | |
|---|---|
| 0 | Switching at zero crossing |
| 1 | Instantaneous switching |
| 0 | Standard |
| 1 | With 800 A ² s I ² t-value |
| 2 | With 1920 A ² s I ² t-value |

Ordering Examples for Variants

RK 9260.91 /1 0 0 AC 48 ... 480 V 5 A DC 4 ... 32 V



Connection Example



Single-phase

