

Solid State Relays

Industrial, 1-Phase ZS (IO) w. LED and Built-in Varistor

Types RM 23, RM 40, RM 48, RM 60



- Zero switching (RM1A) or instant-on switching (RM1B) AC Solid State Relay
- Direct copper bonding (DCB) technology
- LED indication
- Built-in varistor
- Clip-on IP 20 protection cover
- Self-lifting terminals
- Housing free of moulding mass
- 2 input ranges: 3-32* VDC and 20-280VAC/22-48VDC
- Operational ratings: Up to 100AACrms and 600VACrms
- Blocking voltage: Up to 1400V_p
- Opto-isolation: > 4000VACrms



Product Description

The industrial, 1-phase relay with antiparallel thyristor output is the most widely used industrial SSR due to its multiple application possibilities. The relay can be used for resistive, inductive and capacitive loads. The zero switching relay switches ON when the sinusoidal curve crosses zero and switches OFF when the current crosses zero.

The instant-on relay with DC control input can be used for phase control. The built-in varistor secures transient protection for the heavy industrial applications, and the LED indicates the status of the control input. The clip-on cover is securing touch protection to IP 20. Protected output terminals can handle cables up to 16mm².

Ordering Key

RM 1 A 23 D 25

Solid State Relay
Number of poles
Switching mode
Rated operational voltage
Control voltage
Rated operational current

Type Selection

Switching mode	Rated operational voltage	Control voltage	Rated operational current
A: Zero Switching (ZC) B: Instant-on switching (IO)	23: 230VACrms 40: 400VACrms 48: 480VACrms 60: 600VACrms	A: 20-280VAC / 22-48VDC D: 3-32VDC* *4 to 32VDC for 400, 480 and 600VAC types *4 to 32VDC for RM1B types	25: 25AACrms 50: 50AACrms 75: 75AACrms 100: 100AACrms

Selection Guide

Rated operational voltage, Switching mode	Blocking voltage	Control voltage	Rated operational current with suitable heatsink			
			25A	50A	75A	100A
230VACrms, ZC	650V _p	3 - 32VDC	RM1A23D25	RM1A23D50	RM1A23D75	RM1A23D100
		20 to 280VAC 22 to 48VDC	RM1A23A25	RM1A23A50	RM1A23A75	RM1A23A100
400VACrms, ZC	800V _p	4 - 32VDC	RM1A40D25	RM1A40D50	RM1A40D75	RM1A40D100
		20 to 280VAC 22 to 48VDC	RM1A40A25	RM1A40A50	RM1A40A75	RM1A40A100
480VACrms, ZC	1200V _p	4 - 32VDC	RM1A48D25	RM1A48D50	RM1A48D75	RM1A48D100
		20 to 280 VAC 22 to 48VDC	RM1A48A25	RM1A48A50	RM1A48A75	RM1A48A100
600VACrms, ZC	1400V _p	4 - 32VDC	RM1A60D25	RM1A60D50	RM1A60D75	RM1A60D100
		20 to 280VAC 22 to 48VDC	RM1A60A25	RM1A60A50	RM1A60A75	RM1A60A100

Selection Guide

Rated operational voltage, Switching mode	Blocking voltage	Control voltage	Rated operational current with suitable heatsink			
			25A	50A	75A	100A
230VACrms, IO	650V _p	4 - 32VDC	RM1B23D25	RM1B23D50	RM1B23D75	RM1B23D100
		20 - 280VAC/ 22 - 48VDC	RM1B23A25	RM1B23A50	RM1B23A75	RM1B23A100
400VACrms, IO	800V _p	4 - 32VDC	RM1B40D25	RM1B40D50	RM1B40D75	RM1B40D100
480VACrms, IO	1200V _p	4 - 32VDC	RM1B48D25	RM1B48D50	RM1B48D75	RM1B48D100
600VACrms, IO	1400V _p	4 - 32VDC	RM1B60D25	RM1B60D50	RM1B60D75	RM1B60D100
		20 - 280VAC/ 22 - 48VDC	RM1B60A25	RM1B60A50	RM1B60A75	RM1B60A100

Note: For AC control, IO switching part numbers will be created on request

General Specifications

	RM1.23...	RM1.40...	RM1.48...	RM1.60...
Operational voltage range				
RM1A...	24 to 265VACrms	42 to 440VACrms	42 to 530VACrms	42 to 660VACrms
RM1B...	42 to 265VACrms	42 to 440VACrms	42 to 530VACrms	42 to 660VACrms
Blocking voltage	650V _p	800V _p	1200V _p	1400V _p
Zero voltage turn-on	≤ 10V	≤ 10V	≤ 10V	≤ 10V
Operational frequency range	45 to 65Hz	45 to 65Hz	45 to 65Hz	45 to 65Hz
Power factor	> 0.5 @ 230VACrms	> 0.5 @ 400VACrms	> 0.5 @ 480VACrms	> 0.5 @ 600VACrms
Approvals	UR, cUR, CSA, CCC, EAC	UR, cUR, CSA, CCC, EAC	UR, cUR, CSA, CCC, EAC	UR, cUR, CSA, CCC, EAC
CE-marking	Yes	Yes	Yes	Yes *
UKCA Marking	Yes	Yes	Yes	Yes *
Isolation				
Input to Output	4000 Vrms	4000 Vrms	4000 Vrms	4000 Vrms
input and Output to case	4000 Vrms	4000 Vrms	4000 Vrms	4000 Vrms

* Heatsink must be connected to ground

Input Specifications

	RM1...D..	RM1...A..
Control voltage range		
RM1A23...	3 - 32VDC	20 - 280VAC, 22 - 48VDC
RM1A40... RM1A48... RM1A60...	4 - 32VDC	20 - 280VAC, 22 - 48VDC
RM1B...	4 - 32VDC	20 - 280VAC, 22 - 48VDC
Pick-up voltage @ Ta = 25°C		
RM1A23...	2.5VDC	18VAC/DC
RM1A40... RM1A48... RM1A60...	3.5VDC	18VAC/DC
RM1B ...	3.5VDC	18VAC/DC
Reverse voltage	32VDC	-
Drop out voltage	1.2VDC	6VAC/DC
Input current @ max input voltage		
RM1A	≤12 mA	≤ 20mA
RM1B	≤15 mA	≤ 20mA
Response time pick-up		
RM1A	≤1/2 cycle	≤ 12ms
RM1B	≤0.1ms	≤ 12ms
Response time drop-out		
RM1A	≤1/2 cycle	≤ 40ms
RM1B	≤1/2 cycle	≤ 40ms

Output Specifications

	RM1....25	RM....50	RM1....75	RM1....100
Rated operational current AC51 @ Ta=25°C AC53a @ Ta=25°C	25Arms 5Arms	50Arms 15Arms	75Arms 20Arms	100Arms 30Arms
Min. operational current	150mA	250mA	400mA	500mA
Rep. overload current t=1 s	< 55AACrms	< 125AACrms	< 150AACrms	< 200AACrms
Non-rep. surge current t=10 ms	325A _p	600A _p	1150A _p	1900A _p
Off-state leakage current @ rated voltage and frequency	< 3mArms	< 3mArms	< 3mArms	< 3mArms
I²t for fusing t=10 ms	< 525A ² s	< 1800A ² s	< 6600A ² s	< 18000A ² s
Critical dV/dt off-state min.	1000V/μs	1000V/μs	1000V/μs	1000V/μs
Endurance testing acc. to UL508	100,000 cycles	100,000 cycles	100,000 cycles	6,000 cycles

Note: UL requirement for General Use Endurance testing is 6,000 cycles

Motor Ratings*: HP (UL508)

	230VAC	400VAC	480VAC	600VAC
RM1..25	1.5HP	3HP	3HP	5HP
RM1..50	3HP	5HP	7.5HP	10HP
RM1..75	5HP	10HP	10HP	15HP
RM1..100	7.5HP	15HP	20HP	25HP

* with suitable heatsink

Electromagnetic Compatibility

EMC Immunity	EN60947-4-3	Radiated Radio Frequency Immunity 10V/m, 80 - 1000 MHz 10V/m, 1.4 - 2.0GHz 3 V/m, 2.0 - 2.7GHz	IEC/EN 61000-4-3 Performance Criteria 1 Performance Criteria 1 Performance Criteria 1
Electrostatic Discharge (ESD) Immunity Air discharge, 8kV Contact, 4kV	IEC/EN 61000-4-2 Performance Criteria 2 Performance Criteria 2	Conducted Radio Frequency Immunity 10V/m, 0.15 - 80 MHz	IEC/EN 61000-4-6 Performance Criteria 1
Electrical Fast Transient (Burst) Immunity Output: 2kV, 5kHz Input: 1kV, 5kHz	IEC/EN 61000-4-4 Performance Criteria 1 Performance Criteria 1	Voltage Dips Immunity 0% for 0.5, 1 cycle 40% for 10 cycles 70% for 25 cycles 80% for 250 cycles	IEC/EN 61000-4-11 Performance Criteria 2 Performance Criteria 2 Performance Criteria 2 Performance Criteria 2
Electrical Surge Immunity Output, line to line, 1kV Output, line to earth, 2kV Input, line to line, 1kV Input, line to earth, 2kV	IEC/EN 61000-4-5 Performance Criteria 2 Performance Criteria 2 Performance Criteria 2 Performance Criteria 2	Voltage Interruptions Immunity 0% for 5000ms	IEC/EN 61000-4-11 Performance Criteria 2
EMC Emission	EN60947-4-3	Radio Interference Field Emission (Radiated) 30 - 1000MHz	IEC/EN 55011 Class B
Radio Interference Voltage Emission (Conducted) 0.15 - 30MHz	IEC/EN 55011 Class A (industrial) with external filters		

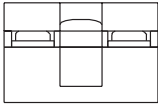
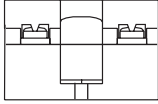
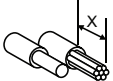
Notes:

- Use of AC solid state relays may, according to the application and the load current, cause conducted radio interferences. Use of mains filters may be necessary for cases where the user must meet E.M.C requirements. The capacitor values given inside the filtering specification tables should be taken only as indications, the filter attenuation will depend on the final application.
- The control terminals A1, A2 (RM1..A) shall be supplied by a secondary circuit where power is limited by a transformer, rectifier, voltage divider, or similar device that derives power from a primary circuit, and where the short-circuit limit between conductors of the secondary circuit or between conductors and ground is 1500 VA or less. The short-circuit volt ampere limit is the product of the open circuit voltage and the short circuit ampere.
- Control input lines must be installed together to maintain products' susceptibility to Radio Frequency interference.
- Performance Criteria 1: No degradation of performance or loss of function is allowed when the product is operated as intended.
- Performance Criteria 2: During the test, degradation of performance or partial loss of function is allowed. However, when the test is complete the product should return operating as intended by itself.
- Performance Criteria 3: Temporary loss of function is allowed, provided the function can be restored by manual operation of the controls.

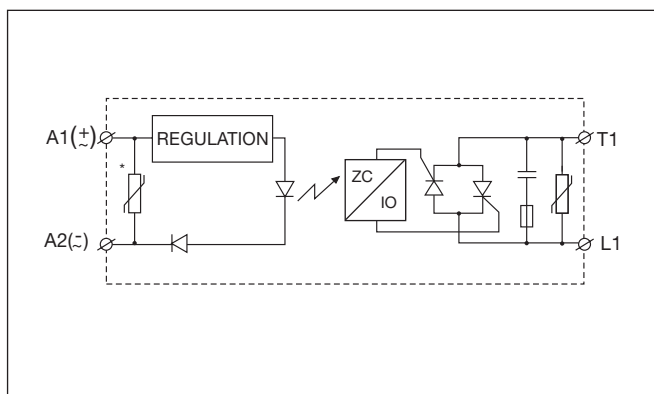
Housing Specifications

Weight 25A, 50A 75A, 100A	Approx. 60g Approx. 100g	Relay Mounting screws Mounting torque	M5 1.5-2.0Nm
Baseplate 25A, 50A 75A, 100A	Aluminium Copper, nickel-plated		
Potting compound	None		

Connection Specifications

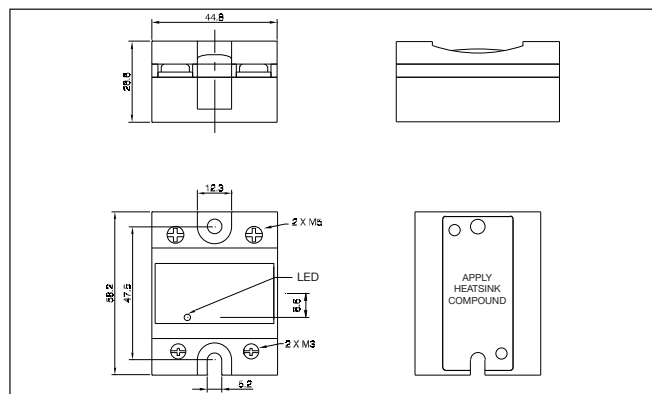
Connection terminals	L1, T1	A1, A2
		
Stripping length (X)	12 mm	8 mm
Connection Type	M5 screw with captivated washer	M3 screw with captivated washer
Rigid (solid & stranded) UR rated data	 1x 2.5 - 6.0 mm ² 1x 14 - 10 AWG	 2x 2.5 - 6.0 mm ² 2x 14 - 10 AWG
Flexible with end sleeve	 1x 1.0 - 4.0 mm ² 1x 18 - 12 AWG	 2x 1.0 - 2.5 mm ² 2x 2.5 - 4.0 mm ² 2x 18 - 14 AWG 2x 14 - 12 AWG
Flexible without end sleeve	 1x 1.0 - 6.0 mm ² 1x 18 - 10 AWG	 2x 1.0 - 2.5 mm ² 2x 2.5 - 6.0 mm ² 2x 18 - 14 AWG 2x 14 - 10 AWG
Torque specification	 Pozidrive 2 2.4 Nm (21.2 lb-in)	 Pozidrive 1 0.5 Nm (4.4 lb-in)
Aperture for termination lug	12 mm	7.5 mm

Functional Diagram



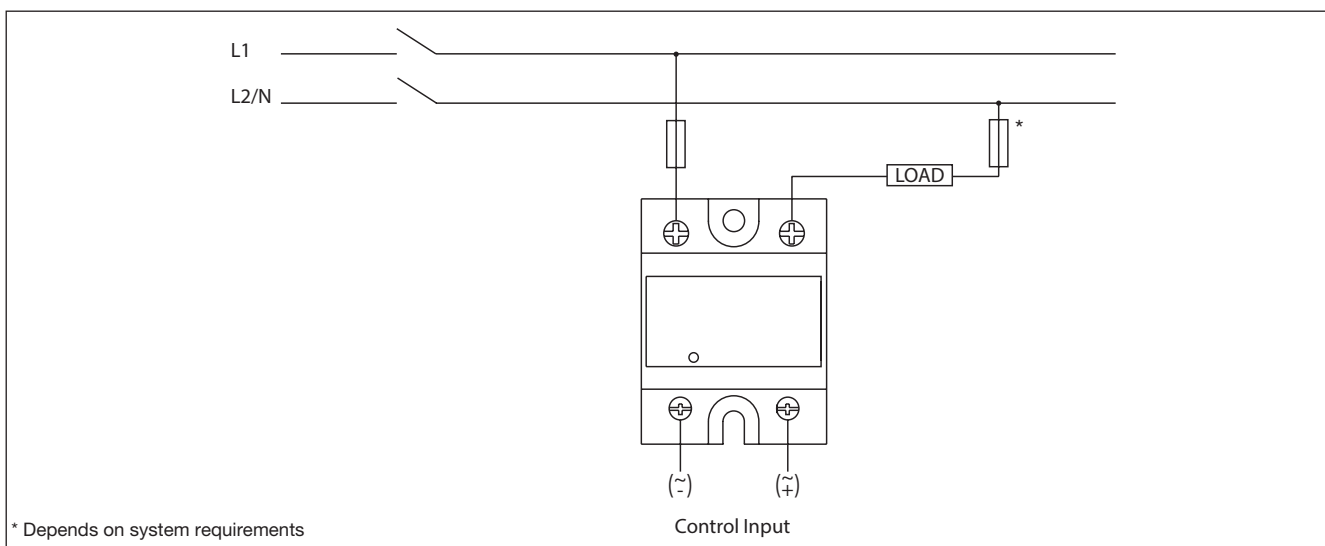
* Varistor across input applies to AC control versions only.

Dimensions



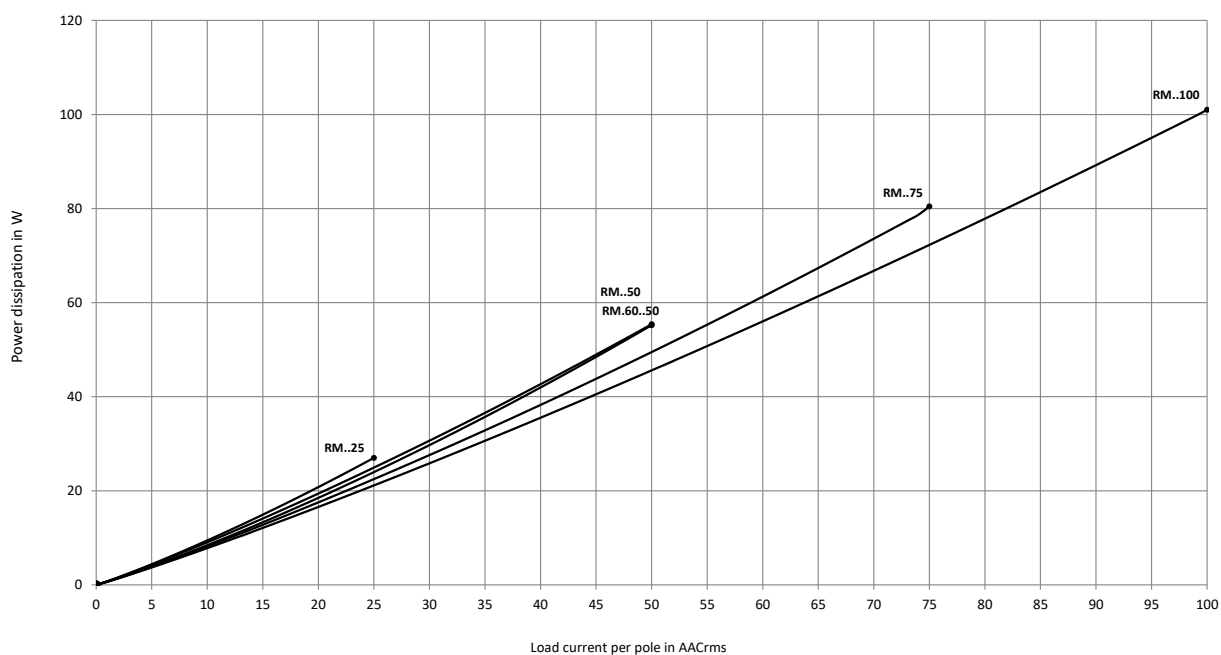
All dimensions in mm

Connection Diagram



* Depends on system requirements

Output Power Dissipation



Heatsink Dimensions (load current versus ambient temperature)

RM..25

Load current [A]	Thermal resistance [°C/W]					
	20	30	40	50	60	70
25.0	2.70	2.34	1.98	1.61	1.25	0.89
22.5	3.10	2.69	2.28	1.86	1.45	1.04
20.0	3.61	3.13	2.65	2.18	1.70	1.23
17.5	4.26	3.70	3.14	2.59	2.03	1.47
15.0	5.14	4.47	3.80	3.14	2.47	1.80
12.5	6.38	5.56	4.73	3.91	3.09	2.27
10.0	8.25	7.19	6.14	5.08	4.02	2.97
7.5	11.4	9.94	8.49	7.04	5.59	4.14
5.0	17.7	15.4	13.2	11.0	8.74	6.51
2.5	-	-	-	-	18.2	13.6

T_A

Ambient temp. [°C]

RM..50

Load current [A]	Thermal resistance [°C/W]					
	20	30	40	50	60	70
50.0	1.03	0.86	0.70	0.53	0.37	0.20
45.0	1.27	1.32	0.90	0.71	0.52	0.33
40.0	1.54	1.59	1.10	0.89	0.67	0.45
35.0	1.85	1.95	1.34	1.08	0.82	0.57
30.0	2.26	2.47	1.65	1.34	1.03	0.72
25.0	2.85	3.24	2.08	1.70	1.32	0.94
20.0	3.73	3.24	2.75	2.26	1.77	1.27
15.0	5.22	4.54	3.86	3.19	2.51	1.83
10.0	8.21	7.16	6.11	5.05	4.00	2.95
5.0	17.2	15.0	12.9	10.7	8.51	6.33

T_A

Ambient temp. [°C]

Junction to ambient thermal resistance, R _{th j-a}	< 20.0	°C/W
Junction to case thermal resistance, R _{th j-c}	< 0.80	°C/W
Case to heatsink thermal resistance, R _{th c-s} ²	< 0.20	°C/W
Maximum allowable case temperature	100	°C
Maximum allowable junction temperature	125	°C

Junction to ambient thermal resistance, R _{th j-a}	< 20.0	°C/W
Junction to case thermal resistance, R _{th j-c}	< 0.50	°C/W
Case to heatsink thermal resistance, R _{th c-s} ²	< 0.20	°C/W
Maximum allowable case temperature	100	°C
Maximum allowable junction temperature	125	°C

RM1.60..50

Load current [A]	Thermal resistance [°C/W]					
	20	30	40	50	60	70
50.0	0.99	0.81	0.63	0.44	0.26	0.08
45.0	1.28	1.07	0.86	0.65	0.44	0.23
40.0	1.64	1.40	1.15	0.91	0.67	0.42
35.0	2.11	1.82	1.54	1.25	0.96	0.67
30.0	2.60	2.25	1.90	1.55	1.20	0.85
25.0	3.30	2.86	2.43	1.99	1.55	1.11
20.0	4.36	3.79	3.22	2.65	2.08	1.51
15.0	6.1	5.4	4.6	3.77	2.97	2.18
10.0	9.76	8.52	7.3	6.0	4.8	3.54
5.0	--	--	15.47	12.85	10.24	7.6

T_A

Ambient temp. [°C]

RM..75

Load current [A]	Thermal resistance [°C/W]					
	20	30	40	50	60	70
75.0	0.91	0.78	0.65	0.52	0.39	0.26
67.5	1.10	0.96	0.81	0.66	0.51	0.36
60.0	1.34	1.17	1.00	0.83	0.66	0.49
52.5	1.60	1.40	1.20	1.00	0.80	0.60
45.0	1.93	1.68	1.44	1.20	0.96	0.72
37.5	2.38	2.08	1.78	1.49	1.19	0.89
30.0	3.06	2.68	2.30	1.91	1.53	1.15
22.5	4.21	3.68	3.16	2.63	2.10	1.58
15.0	6.51	5.70	4.88	4.07	3.26	2.44
7.5	13.5	11.77	10.09	8.41	6.73	5.04

T_A

Ambient temp. [°C]

Junction to ambient thermal resistance, R _{th j-a}	< 20.0	°C/W
Junction to case thermal resistance, R _{th j-c}	< 0.72	°C/W
Case to heatsink thermal resistance, R _{th c-s} ²	< 0.10	°C/W
Maximum allowable heatsink temperature	100	°C
Maximum allowable junction temperature	125	°C

Junction to ambient thermal resistance, R _{th j-a}	< 20.0	°C/W
Junction to case thermal resistance, R _{th j-c}	< 0.35	°C/W
Case to heatsink thermal resistance, R _{th c-s} ²	< 0.10	°C/W
Maximum allowable heatsink temperature	100	°C
Maximum allowable junction temperature	125	°C

Heatsink Dimensions (load current versus ambient temperature) (cont.)

RM...100

Load current [A]	Thermal resistance [°C/W]					
	20	30	40	50	60	70
100.0	0.54	0.45	0.36	0.27	0.18	0.09
90.0	0.68	0.58	0.47	0.37	0.27	0.17
80.0	0.86	0.74	0.62	0.50	0.38	0.26
70.0	1.08	0.94	0.80	0.66	0.52	0.38
60.0	1.37	1.20	1.03	0.85	0.68	0.51
50.0	1.70	1.49	1.28	1.06	0.85	0.64
40.0	2.21	1.93	1.66	1.38	1.10	0.83
30.0	3.06	2.68	2.30	1.91	1.53	1.15
20.0	4.78	4.18	3.59	2.99	2.39	1.79
10.0	9.98	8.73	7.49	6.24	4.99	3.74

Ambient temp. [°C]

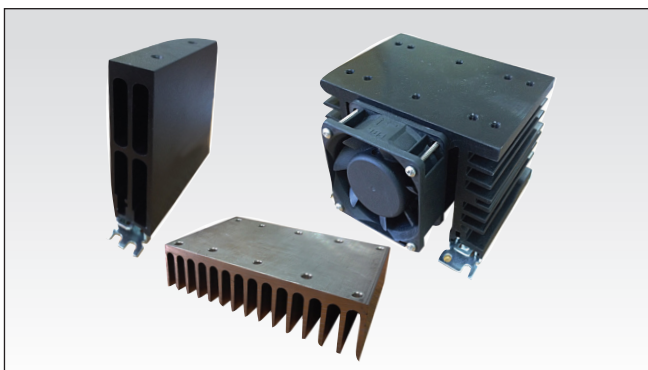
Junction to ambient thermal resistance, $R_{th\ j-a}$	< 20.0	°C/W
Junction to case thermal resistance, $R_{th\ j-c}$	< 0.30	°C/W
Case to heatsink thermal resistance, $R_{th\ c-s}^2$	< 0.10	°C/W
Maximum allowable heatsink temperature	100	°C
Maximum allowable junction temperature	125	°C

2. Thermal resistance case to heatsink valves are applicable upon application of a fine layer of silicon based thermal paste HTS02S from Electrolube between SSR and heatsink.

Thermal Specifications

	RM1...25	RM1...50	RM1.60.50	RM1...75	RM1...100
Operating temperature range	-20° to 70°C	-20° to 70°C	-20° to 70°C	-20° to 70°C	-20° to 70°C
Storage temperature range	-40° to 100°C	-40° to 100°C	-40° to 100°C	-40° to 100°C	-40° to 100°C
Junction temperature	≤ 125°C	≤ 125°C	≤ 125°C	≤ 125°C	≤ 125°C
R_{th} junction to case	≤ 0.80°C/W	≤ 0.50°C/W	≤ 0.72°C/W	≤ 0.35°C/W	≤ 0.30°C/W
R_{th} junction to ambient	≤ 20.0°C/W	≤ 20.0°C/W	≤ 20.0°C/W	≤ 20.0°C/W	≤ 20.0°C/W

Heatsink Selection



Ordering Key

RHS..

- Heatsinks and fans
- 5.40°C/W to 0.12°C/W thermal resistance
- DIN, panel or thru wall mounting
- Single or multiple SSR mounting

Heatsink Range Overview:

https://gavazziautomation.com/images/PIM/DATASHEET/ENG/SSR_Accessories.pdf

Heatsink Selector Tool:

https://gavazziautomation.com/nsc/hq/en/solid_state_relays

Specifications are subject to change without notice (31.01.2023)

Short Circuit Protection

Protection Co-ordination, Type 1 vs. Type 2:

Type 1 protection implies that after a short circuit, the device under test will no longer be in a functioning state. In type 2 co-ordination the device under test will still be functional after the short circuit. In both cases, however, the short circuit has to be interrupted. The fuse between enclosure and supply shall not open. The door or cover of the enclosure shall not be blown open. There shall be no damage to conductors of terminals and the conductors shall not separate from terminals. There shall be no breakage or cracking of insulating bases to the extent that the integrity of the mounting of live parts is impaired. Discharge of parts or any risk of fire shall not occur.

The product variants listed in the table hereunder are suitable for use on a circuit capable of delivering not more than 65,000A rms Symmetrical Amperes, 600Volts maximum when protected by fuses. Tests at 65,000A were performed with Class J, fast acting: please refer to the table below for maximum allowed ampere rating of the fuse. Use fuses only.

Co-ordination type 1 (UL508)

Part No.	Prospective short circuit current [kArms]	Max. fuse size [A]	Class/ Model	Voltage [VAC]
RM1..25..	65	30	J or CC	600
RM1..50..	65	30	J	600
		20	HSJ20 (Mersen*)	600
RM1..75..	65	80	J	600
		60	HSJ60 (Mersen*)	600
RM1..100..	65	80	J	600
		60	HSJ60 (Mersen*)	600

Co-ordination type 2 (IEC/EN60947-4-3)

Part No.	Prospective short circuit current [kArms]	Max. fuse size [A]	Brand	Model	Size
RM1.xx.25.. (xx = 23, 40 or 48)	10	25	Mersen*	6.9 gRB 10-25	10.3 x 38
RM1.60.25..	10	20	Mersen*	6.9 gRB 10-20	10.3 x 38
RM1.xx.50.. (xx = 23 or 40)	10	50	Mersen*	6.9zz CP gRC 14x51/50	14 x 51
RM1.xx.50.. (xx = 48 or 60)	10	50	Mersen*	6.9zz CP gRC 22x58/50	22 x 58
RM1.xx.75.. (xx = 23, 40, 48 or 60)	10	63	Mersen*	6.9zz CP gRC 22x58/63	22 x 58
RM1.xx.100.. (xx = 23, 40, 48 or 60)	10	100	Mersen*	6.9zz CP gRC 22x58/100	22 x 58

zz = 00, without fuse trip indication

zz = 21, with fuse trip indication

* Formerly Ferraz Shawmut

Type 2 Protection with Miniature Circuit Breakers (M.C.B.s)

Solid State Relay type	ABB Model no. for Z - type M. C. B. (rated current)	ABB Model no. for B - type M. C. B. (rated current)	Wire cross sectional area [mm ²]	Minimum length of Cu wire conductor [m]*
RM1..25..	1-pole			
	S201-Z4 (4A)	S201-B2 (2A)	1.0	21.0
	S201-Z6 UC (6A)	S201-B2 (2A)	1.0	21.0
			1.5	31.5
RM1..50..	1-pole			
	S201-Z10 (10A)	S201-B4 (4A)	1.0	7.6
			1.5	11.4
			2.5	19.0
	S201-Z16 (16A)	S201-B6 (6A)	1.0	5.2
			1.5	7.8
			2.5	13.0
			4.0	20.8
	S201-Z20 (20A)	S201-B10 (10A)	1.5	12.6
			2.5	21.0
	S201-Z25 (25A)	S201-B13 (13A)	2.5	25.0
			4.0	40.0
	2-pole			
	S202-Z25 (25A)	S202-B13 (13A)	2.5	19.0
			4.0	30.4
RM1..75..	1-pole			
	S201-Z20 (20A)	S201-B10 (10A)	1.5	4.2
			2.5	7.0
			4.0	11.2
	S201-Z32 (32A)	S201-B16 (16A)	2.5	13.0
			4.0	20.8
			6.0	31.2
	2-pole			
	S202-Z20 (20A)	S202-B10 (10A)	1.5	1.8
			2.5	3.0
			4.0	4.8
	S202-Z32 (32A)	S202-B16 (16A)	2.5	5.0
			4.0	8.0
			6.0	12.0
			10.0	20.0
RM1..100..	1-pole			
	S201-Z50 (50A)	S201-B25 (25A)	4.0	4.8
			6.0	7.2
			10.0	12.0
			16.0	19.2
	S201-Z63 (63A)	S201-B32 (32A)	6.0	7.2
			10.0	12.0
			16.0	19.2

* Between MCB and Load (including return path which goes back to the mains).

Note: A prospective current of 6kA and a 230/400V power supply system is assumed for the above suggested specifications. For cables with different cross section than those mentioned above please consult Carlo Gavazzi's Technical Support Group.



Environmental Information

The declaration in this section is prepared in compliance with People’s Republic of China Electronic Industry Standard SJ/T11364-2014: Marking for the Restricted Use of Hazardous Substances in Electronic and Electrical Products.

Part Name	Toxic or Harardous Substances and Elements					
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent Chromium (Cr(VI))	Polybrominated biphenyls (PBB)	Polybrominated diphenyl ethers (PBDE)
Power Unit Assembly	x	O	O	O	O	O
O: Indicates that said hazardous substance contained in homogeneous materials fot this part are below the limit require- ment of GB/T 26572.						
X: Indicates that said hazardous substance contained in one of the homogeneous materials used for this part is above the limit requirement of GB/T 26572.						

环境特性

这份申明根据中华人民共和国电子工业标准
SJ/T11364-2014：标注在电子电气产品中限定使用的有害物质

零件名称	有毒或有害物质与元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴化联苯 (PBB)	多溴联苯醚 (PBDE)
功率单元	x	O	O	O	O	O
O:此零件所有材料中含有的该有害物低于GB/T 26572的限定。						
X: 此零件某种材料中含有的该有害物高于GB/T 26572的限定。						



FASTON terminals



- Faston tabs
- Tab dimensions according to DIN 46342 part 1
- Pure tin-plated brass

Ordering Key

Screw mounted Faston terminals

RM1A48D25 | **F 4**^{*}

RS, RM Solid State Relay

Faston terminals

Tab orientation

Input Tab width: 4.8mm

Output Tab width: 6.3mm

Faston terminals in packs of 20

RM48^{**} | **F4**^{*}

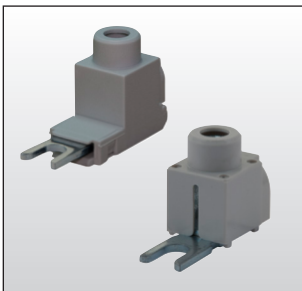
RS, RM Solid State Relay

Tab orientation

- * 0: Flat (0°)
4: Angled (45°)

- ** 48: 4.8mm faston for input
63: 6.3mm faston for output

Fork Terminals



- Terminal adaptors for 35mm² cable
- Type RM635FK
- Pack size: 10 pieces

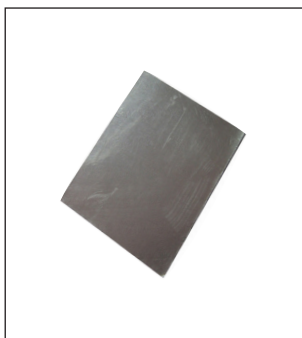
Ordering Key

RM635FK | **P**

RM terminal adaptor

Touch protected (optional)

Other Accessories



- Graphite thermal pad with adhesive on one side
- Type KK071CUT
- Dimensions: 35 x 43 x 0.25mm
- Packing quantity: 50pcs.



- Touch safety cover
- Type RMIP20
- IP20 protection degree
- Pack size: 20 pieces

All accessories can be ordered pre-assembled with Solid State Relays.
Other accessories include DIN rail adaptors, fuses, varistors and spacers.

For further information refer to Accessories datasheets at:
https://gavazziautomation.com/images/PIM/DATASHEET/ENG/SSR_Accessories.pdf

Mounting Instructions | Installationsvejledning | Instrucciones de montaje | Installationsanleitungen |
Instructions d'installation | Istruzioni per l'installazione | Руководство по монтажу | 安装说明

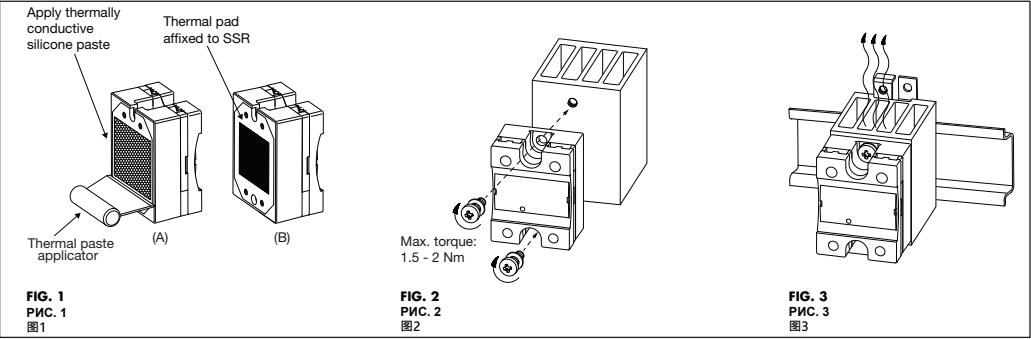


FIG. 1: A thermal interface is required between SSR and mounting surface. Thermally conductive silicone paste shall be applied and spread throughout the base of the SSR (A). Alternatively, an interface material with adhesive on one side shall be affixed to the baseplate of the SSR before mounting the SSR on the heatsink (B).

Caution: Synthetic thermal compound will destroy the housing material and should not be used.

FIG. 2: The SSR shall be tightened with the appropriate screws and washers. The SSR shall be tightened gradually alternating between the two screws to 0.75Nm before being tightened to the maximum torque specified for the specific SSR. There shall be no airgap between the SSR and the heatsink.

FIG. 3: Mount the heatsink in the correct orientation so as not to obstruct airflow through the heatsink.

FIG. 1: Une interface thermique est obligatoire entre le relais statique et la surface de montage. Appliquer une fine couche pâte thermique à base de silicone en l'embase du relais statique (A). Avant montage sur le dissipateur, on peut en variante appliquer à l'embase du relais statique, une interface dont l'un des côtés est doté d'un adhésif (B).

Attention: Un produit thermique synthétique détruit la semelle du relais statique et il faut donc éviter d'utiliser d'un tel produit.

FIG. 2: Serrer le relais au moyen des vis et rondelles adéquates. Serrer progressivement le relais statique à 0,75 Nm en alternant entre les deux vis avant serrage au couple final spécifié pour un relais statique donné. Il ne doit y avoir aucun entrefer entre le relais statique et le dissipateur.

FIG. 3: Au montage, orienter correctement le dissipateur, afin de permettre au flux d'air de le traverser.

FIG. 1: Der skal benyttes en termisk grænseflade mellem SSR'en og monteringsfladen. Varmeledeende silikonpaste skal påføres og fordeles over hele SSR-basen (A). Alternativt kan et grænseflademateriale med klæbestof på den ene side påsættes basepladen på SSR'en, før den monteres på kolepladen (B).

Advarsel: Syntetisk termisk kolepasta ødelægger husmaterialet og må ikke anvendes.

FIG. 2: SSR skal fastspændes med de relevante skruer og spændeskiver. SSR'en skal tilspændes gradvist ved at skifte mellem de to skruer til 0,75 Nm, før de spændes til det maksimale moment, der er specificeret for den pågældende SSR. Der må ikke være luft mellem SSR'en og kolepladen.

FIG. 3: Monter kolepladen, så den vender korrekt og ikke blokerer for luftstrømmen via kolepladen.

FIG. 1: Per la corretta installazione a pannello o su dissipatore del relé statico è richiesto l'utilizzo di materiale che favorisca lo scambio termico. Tale materiale deve essere posto sulla base dell' SSR prima di montarlo sul dissipatore (A). In alternativa alla pasta termo conduttiva, potrà essere utilizzato un materiale termico di contatto dotato di una superficie adesiva, da fissare sulla base del l'SSR (B).

Attenzione: Composti termici sintetici distruggerebbero il materiale della custodia, e quindi non devono essere adoperati.

FIG. 2: L'SSR dovrà essere fissato utilizzando viti e rondelle di tipo appropriato. Il montaggio deve essere eseguito stringendo alternativamente, le due viti di fissaggio con una coppia di 0,75Nm prima di serrarle definitivamente con la massima coppia ammessa e specifica per ogni dispositivo. Non dovranno essere lasciati spazi tra la superficie dello statico e il dissipatore.

FIG. 3: Montare il dissipatore di calore nella posizione corretta, in modo da consentire il corretto flusso d'aria attraverso il componente.

FIG. 1: Se necesita un elemento de transferencia térmica entre el relé estático y la superficie de montaje. Debe aplicarse pasta de silicona térmicamente conductora, extendiéndola por toda la base del relé de estado sólido (A). De forma alternativa, puede fijarse con adhesivo un material térmicamente conductor a la placa base del relé de estado sólido antes de montar éste en el disipador (B).

Atención: No se deben utilizar pastas térmicas sintéticas ya que destruyen el material de la carcasa.

FIG. 2: El relé de estado sólido puede ser fijado con los tornillos y arandelas apropiados. El relé de estado sólido debe ser fijado apretando gradualmente y de forma alternativa los dos tornillos hasta 0,75Nm antes de apretarlos hasta el máximo par de apriete indicado para el relé de estado sólido en cuestión. No debe de haber espacio alguno entre el relé y el disipador.

FIG. 3: Instalar el disipador con la orientación correcta, de manera que no se obstruya la circulación de aire a través del disipador.

РИС. 1: Между ТТР и монтажной поверхностью требуется теплопроводная прокладка. Теплопроводная силиконовая паста наносится на монтажную поверхность ТТР (А). Как альтернатива, теплопроводный состав с клеевым слоем с одной стороны закрепляется на монтажной поверхности ТТР перед установкой ТТР на радиатор (В).

Осторожно: Синтетические теплопроводные составы разрушают материал корпуса и не рекомендуются к применению.

РИС. 2: Крепление ТТР осуществляется соответствующими винтами и шайбами. Затяг крепежа ТТР осуществляется постепенно, попеременно, до момента 0,75 Нм перед затягом до максимального момента, указываемого в паспорте ТТР. Воздушный зазор между ТТР и радиатором не допускается.

РИС. 3: Устанавливайте радиатор в правильном положении, с беспрепятственным проходом воздуха.

FIG. 1: Zwischen dem SSR und der Montagefläche muss ein Wärmeleitmaterial angebracht werden. Auf der Grundplatte des Halbleiterrelais muss thermisch leitfähige Silikonpaste (A). Alternativ kann passende Wärmeleitfolie mit Klebstoff auf der Grundplatte des Halbleiterrelais angebracht werden, bevor das Halbleiterrelais auf dem Kühlkörper befestigt wird (B).

Achtung! Wärmeleitpaste ohne Silikon wird das Gehäusematerial angreifen und sollte daher nicht verwendet werden.

FIG. 2: Das Halbleiterrelais wird mit den entsprechenden Schrauben und Unterlegscheiben festgezogen. Zum Befestigen des Halbleiterrelais schrittweise abwechselnd die zwei Schrauben auf 0,75 Nm festziehen, bevor sie mit dem für das jeweilige Halbleiterrelais angegebenen maximalen Drehmoment festgezogen werden. Es darf kein Luftspalt zwischen dem Halbleiterrelais und dem Kühlkörper vorhanden sein.

FIG. 3: Stellen Sie sicher, dass der Kühlkörper in der passenden Ausrichtung montiert wird, damit ein ungehinderter Luftstrom durch den Kühlkörper gewährleistet ist.

图1: SSR 和安装表面之间需要热界面材料。应在 SSR 底座上涂抹导热硅膏并铺开 (A)。或者，可在将 SSR 安装到散热器上时，将一侧有粘合剂的界面材料固定到 SSR 的底板上 (B)。

注意: 合成导热化合物会破坏外壳材料，因此不应使用。

图2: 应使用合适的螺钉和垫圈拧紧 SSR。拧紧 SSR 时，应渐次地交替拧紧 两颗螺钉至扭矩 0.75 Nm，再拧紧至 特定 SSR 的规定最大扭矩。SSR 和散热器之间不应有气隙。

图3: 按正确的方向安装散热器，以免通过散热器的气流受阻。

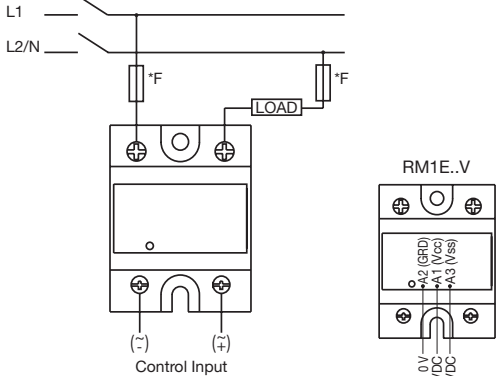
RM, RAM, RS Series

1-phase Solid State Relays

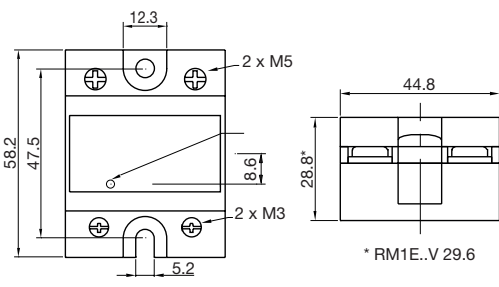


- Operating Instructions • Kom godt i gang
- Instrucciones • Betriebsanleitung
- Notice d'utilisation • Istruzioni d'uso
- Руководство по эксплуатации • 操作说明

Connection diagram | Tilslutningsdiagrammer | Diagrama de conexiones | Anschlussdiagramme Diagramme de raccordement | Diagramma delle connessioni | Схема подключения | 连接图



Dimensions (mm) | Mål (mm) | Dimensiones (mm) | Abmessungen (mm) | Dimensions (mm) | Dimensioni (mm) | Размеры (мм) | 尺寸 (mm)



7680622-02

RM_RAM_RS_inst_leaf_09_21



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Terminations | Termineringer | Terminales | Anschlüsse | Terminations | Terminali | Клеммы | 端接

	L1, T1	A1, A2
X	12mm	8mm
Connection Type	M5 screw with captivated washer	M3 screw with captivated washer
	1x 2.5 - 6.0 mm² 1x 14 - 10 AWG 2x 2.5 - 6.0 mm² 2x 14 - 10 AWG	1x 0.5 - 2.5 mm² 1x 18 - 12 AWG 2x 0.5 - 2.5 mm² 2x 18 - 12 AWG
	1x 1.0 - 4.0 mm² 1x 18 - 12 AWG 2x 1.0 - 2.5 mm² 2x 2.5 - 4.0 mm² 2x 18 - 14 AWG 2x 14 - 12 AWG	1x 0.5 - 2.5 mm² 1x 18 - 12 AWG 2x 0.5 - 2.5 mm² 2x 18 - 12 AWG
	1x 1.0 - 6.0 mm² 1x 18 - 10 AWG 2x 1.0 - 2.5 mm² 2x 2.5 - 6.0 mm² 2x 18 - 14 AWG 2x 14 - 10 AWG	
	Pozidrive 2 2.4 Nm (21.2 lb-in)	Pozidrive 1 0.5 Nm (4.4 lb-in)

*F: refer to datasheet | se dataark | véase hoja de datos | siehe Datenblatt | voir fiche technique | fare riferimento alla scheda tecnica | см. технические характеристики | 请参阅数据表

ENGLISH

ATTENTION

Hazardous Voltage can cause death or serious injury. Disconnect power before proceeding with any work on this equipment. Never touch the terminals of the solid state relay if voltage is present at its terminals. The output terminals remain live even in the off-state (leakage current, SSR breakdown). Heatsink may be hot, even after removing the power.



IMPORTANT

- Should you require information about installation, operation or maintenance of the product that is not covered in this instruction document you should refer the matter to an authorised Carlo Gavazzi representative. The information in this document is not considered binding on any product warranty.
- Only authorised and qualified personnel should be allowed to install and perform maintenance on this equipment
 - Always use the SSR within its rated specifications and follow provided instructions otherwise malfunction, damage or fire may result
 - The relay must be protected against overload (short circuit) by means of an external semiconductor fuse
 - Heat generated by incorrect terminations may result in fire. Ensure the use of proper cable sizes and allow an adequate radius of curvature for wire bends
 - Loose terminals generate abnormal heat. Tighten to the specified torque. Re-tighten after 48 hours to minimize wire cold flow. Re torque every 3 – 6 months
 - For use in Pollution Degree 2 Environment
 - Ideal protection is achieved through varistors (metal oxide varistors) mounted across the power semiconductor. The varistor voltage has to match with the line voltage in your application. Wrong selection can cause limited protection or a hazardous situation on a number of models. The varistor is already mounted internally (please refer to datasheet for more information)
 - This product has been designed for Class A equipment (external filtering may be required). Use of this product in domestic environments may cause radio interference, in which case the user may be required to employ additional mitigation methods



FRANCAIS

ATTENTION DANGER

Tension électrique dangereuse susceptible de provoquer la mort ou de graves préjudices corporels. Couper l'alimentation secteur du relais avant toute intervention sur le matériel. Éviter impérativement tout contact avec les bornes du relais statique lorsqu'il est alimenté. Les bornes de sortie restent sous tension même à l'état bloqué (courant de fuite, claquage du relais). Le dissipateur peut être brûlant, même après mise hors tension.



IMPORTANT

- Pour plus amples détails concernant l'installation, le fonctionnement ou la maintenance du produit et n'apparaissant pas dans cette fiche technique, consulter un concessionnaire agréé Carlo Gavazzi. Les informations contenues figurant dans ce document ne constituent aucune obligation de garantie de quelque nature.
- Seul un personnel autorisé et qualifié est habilité à installer et à effectuer des opérations de maintenance sur ce produit
 - Toujours utiliser le relais statique à l'intérieur des limites spécifiées. Respecter les instructions fournies sous peine de dysfonctionnement, avarie ou risque d'incendie
 - Le relais doit être protégé contre les surcharges (court-circuits) à l'aide d'un fusible externe.
 - La chaleur générée par des terminaisons incorrectes peut provoquer un incendie. S'assurer que la section des fils utilisée est correcte et le cas échéant, que le rayon de courbure des fils est adéquat
 - Les connecteurs desserrés génèrent une chaleur anormale. Serrer au couple spécifié. Resserrer après 48 heures pour minimiser la déformation sous charge. Resserrer au couple indiqué tous les 3 à 6 mois
 - Pour exploitation en environnement de degré de pollution 2
 - La protection idéale est obtenue à l'aide de varistances (varistances à oxyde métallique) montée à travers le semi-conducteur. La tension de varistance doit correspondre au voltage de ligne de votre application. Un mauvais choix peut avoir pour résultat une protection limitée ou une situation dangereuse. La varistance est déjà montée à l'intérieur sur un grand nombre de modèles (pour de plus amples informations, prière de se reporter à la fiche technique).
 - Ce produit est conçu pour les équipements de Classe A (un filtrage externe peut être requis). En raison des interférences radio magnétiques que ce produit est susceptible de générer en environnement résidentiel, il pourra être demandé à l'utilisateur de mettre en œuvre des méthodes supplémentaires d'atténuation



DANSK

BEMÆRK

Farlig spænding kan forårsage dødsfald eller alvorlig personskade. Afbryd udstyret, inden du fortsætter med at udføre arbejde på dette udstyr. Rør aldrig ved terminalerne på halvlæderrelæet (SSR), hvis der er spænding til stede på terminalerne. Ydelsesterminalerne forbliver strømførende selv i slukket tilstand (lækagestrøm, SSR-svigt). Varmeaflederen forbliver varm, selv efter at strømmen er blevet afbrudt.



VIGTIGT

- Såfremt du har behov for oplysninger vedrørende installation, betjening eller vedligeholdelse af produktet, der ikke er indeholdt i dette dokument, bedes du rette henvendelse til en autoriseret Carlo Gavazzi-repræsentant. Oplysningerne i dette dokument er ikke bindende i henhold til nogen produktgaranti.
- Det er kun autoriseret personale, der må installere og udføre vedligeholdelse på dette udstyr
 - Anvend altid SSR'en inden for de angivne specifikationer og følg de angivne instruktioner, da der ellers vil være risiko for fejlfunktion, skader eller brand
 - Relæet skal beskyttes mod overbelastning (kortslutning) ved hjælp af en udvendig halvlædersikring
 - Varme, der opstår som følge af forkerte slutninger, kan forårsage brand. Sørg for at benytte kabler i den rette størrelse, og sørg for, at der er en passende radius med plads til ledningerne, så de ikke bøjes for meget
 - Løse klemmer kan generere unormal varme. Tilspænd til det angivne drejningsmoment. Spænd igen efter 48 timer for at minimere ledningskrybning. Genspænd til momentet hver 3. til 6. måned
 - Til brug i miljøer med forureningsgrad 2
 - Den ideelle beskyttelse opnås ved at anvende varistorer (zinkoxid-varistorer), der monteres hen over effekt-halvlederen. Varistorspændingen skal svare til netspændingen i applikationen. Forkert valg kan medføre nedsat beskyttelse eller en farlig situation. På en række modeller er varistoren allerede monteret indvendigt (der findes flere oplysninger i dataarket).
 - Dette produkt er blevet udformet til klasse A-udstyr (et udvendigt filter kan være påkrævet). Brugen af dette produkt i husholdninger kan forårsage radiointerferens. Hvis dette sker, kan brugen blive pålagt at anvende yderligere reduceringsmetoder



ITALIANO

ATTENZIONE

Pericolo alta tensione può causare morte o gravi lesioni. Scollegare l'alimentazione prima di procedere con qualsiasi intervento su questa apparecchiatura. Non toccare mai i terminali del relé allo stato solido (SSR) se è presente tensione ai suoi capi. I morsetti di uscita rimangono in tensione anche in stato OFF (dispersione di corrente oppure SSR guasto). Il dissipatore di calore può essere caldo, anche dopo aver tolto l'alimentazione.



IMPORTANTE

- Se avete bisogno di informazioni su installazione, funzionamento o manutenzione del prodotto non riportate in questo documento è necessario sottoporre la questione ad un rappresentante autorizzato Carlo Gavazzi. Le informazioni contenute in questo documento non sono da considerare vincolanti per alcuna garanzia sul prodotto.
- L'installazione e la manutenzione di questo dispositivo devono essere effettuate da personale autorizzato e qualificato
 - Utilizzare sempre l'SSR entro i limiti di funzionamento, come da specifiche tecniche. In caso contrario si potrebbero verificare malfunzionamenti, danneggiamenti o principi di incendio
 - Il relé deve essere protetto da sovraccarico (corto circuito) per mezzo di un fusibile semiconduttore esterno.
 - Il calore generato da una non corretta installazione / terminazione dei cavi di collegamento può causare rischio di incendio. Assicurarsi di utilizzare la sezione di cavo più adatto alla specifica applicazione e garantire un adeguato raggio di curvatura dei conduttori
 - Un serraggio meccanico dei terminali, non corretto, può generare un surriscaldamento degli stessi. Assicurarsi che le viti dei morsetti siano strette con la coppia di serraggio appropriata. Ricontrollare i cablaggi dopo 48 ore dalla prima installazione. Effettuare ulteriori controlli ogni 3-6 mesi
 - Per utilizzo in ambiente con grado di inquinamento 2
 - La protezione ideale si ottiene mediante varistori (varistori a ossido di metallo) montati trasversalmente al semiconduttore di potenza. La tensione di varistore deve essere pari alla tensione di linea nell'applicazione in questione. Una scelta errata può determinare una protezione limitata o una situazione di pericolo. In diversi modelli il varistore è già incorporato (per ulteriori informazioni, consultare il foglio tecnico).
 - Questo prodotto è stato progettato per apparecchiature di classe A (può essere richiesto filtro esterno). L'uso di questo prodotto in ambienti domestici può causare interferenze radio, nel qual caso l'utente è tenuto a ricorrere a metodi supplementari di attenuazione



ESPAÑOL

ATENCIÓN

Tensiones peligrosas pueden causar la muerte o provocar serios daños. Desconecte siempre la tensión antes de manipular el equipo. No toque nunca los terminales del relé estático si hubiera tensión en ellos. Los terminales de salida permanecen activos incluso si el equipo está desconectado (corriente de fuga, rotura del relé estático). El disipador puede incluso estar caliente, aún desconectado el equipo.



IMPORTANTE

- En caso de necesitar información sobre la instalación, funcionamiento o mantenimiento del producto que no venga reflejada en este documento de instrucciones, deberá consultar con su distribuidor o con una oficina de Carlo Gavazzi. La información de este documento no se considera vinculante con la garantía del producto.
- Solo personal autorizado y cualificado puede instalar y realizar labores de mantenimiento de este equipo
 - Asegúrese de que el relé estático se usa dentro de los valores nominales especificados y siguiendo las instrucciones, en caso contrario podría producirse un funcionamiento erróneo, daños o incendio
 - El relé debe estar protegido contra sobrecargas (cortocircuito) por medio de un fusible ultra-rápido externo.
 - El calor generado por terminaciones incorrectas puede provocar un incendio. Asegurarse de que se usa el tamaño de cable adecuado y que se permite un radio de curvatura apropiado para poder doblar el cable
 - Terminales flojos generan un calor anormal. Apretar usando el par de apriete especificado y volver a apretar pasadas 48 horas para reducir el flujo de frío en el cable. Apretar todo cada 3 - 6 meses
 - Para uso en entornos con grado de contaminación 2
 - La protección óptima se obtiene por medio de varistores (varistores de óxido metálico) montados en paralelo al semiconductor de potencia. La tensión del varistor tiene que ser ligeramente superior a la tensión de línea de su aplicación (tensión 400V, tensión del varistor 420V). Una selección equivocada puede limitar la protección o causar una situación peligrosa. En algunos de los modelos el varistor ya está montado internamente (para más información, consulte la hoja de datos).
 - El relé es un equipo Clase A (se necesita filtro externo). Si se usa con electrodomésticos puede causar radiointerferencias. Es posible que se precise añadir métodos adicionales para disminuir las interferencias



РУССО

ВНИМАНИЕ

Опасное напряжение может привести к смерти или серьезному увечью. Отключите питание перед началом любых работ на оборудовании. Не прикасайтесь к клеммам. ТТР при наличии на них напряжения. На выходных клеммах даже в отключенном состоянии может оставаться напряжение (ток утечки, пробой ТТР). Радиатор может быть горячим, даже после отключения напряжения.



ВАЖНО

- Если Вам требуется информация по электромонтажу, эксплуатации или обслуживанию изделия, не содержащаяся в настоящем Руководстве, обратитесь с Вашим вопросом к местному авторизованному представителю Carlo Gavazzi. Информация в этом документе не считается связанной с любыми гарантиями на изделие.
- Только авторизованный и квалифицированный персонал имеет право установки и обслуживания данного оборудования
 - Применяйте ТТР в цепях, параметры которых не превышают их номиналов и строго следуйте указаниям настоящего Руководства, в противном случае возможны неправильная работа, повреждение устройства или возгорание
 - ТТР должно быть защищено от перегрузки (КЗ) внешним полупроводниковым предохранителем.
 - Нагрев в результате некачественного подключения проводов к клеммам может привести к пожару. Обеспечьте надлежащие сечения проводников и соблюдение минимальных радиусов их изгиба
 - Плохо затянутые клеммы ведут к нагреву. Затягивайте винты клемм с предписанным моментом. Через 48 ч работы однократно подтяните винты во избежание ослабления. Контроль затяга проводите каждые 3 – 6 месяцев
 - Для применения при Степени Загрязнения 2
 - Идеальная защита обеспечивается варисторами (металлооксидные) поперек силового полупроводника. Напряжение варистора должно соответствовать линейному напряжению Вашей цепи. Результатом неправильного подбора может стать недостаточная защита или опасная ситуация. У ряда моделей уже имеется встроенная варисторная защита (Более подробно см. паспорт изделия).
 - Устройство разработано для оборудования Класса А (может потребоваться внешний фильтр). Применение изделия в жилых помещениях может вызвать радиопомехи, в этом случае пользователю необходимо использовать дополнительные способы помехоподавления



DEUTSCH

ACHTUNG

Hochspannung kann zum Tod führen oder schwere Verletzungen hervorrufen. Trennen Sie die Stromversorgung, bevor Sie Arbeiten jedweder Art an dem Gerät durchführen. Berühren Sie niemals die Anschlüsse des Halbleiterrelais (Halbleiterrelais/-schütz), wenn an den Anschlüssen Spannung anliegt. Die Ausgangsanschlüsse führen auch im Aus-Zustand Spannung (Leckstrom, Ausfall des SSR). Der Kühlkörper kann auch nach dem Abschalten des Gerätes noch hohe Temperaturen aufweisen.



WICHTIG

- Wenn Sie Informationen zur Installation, zum Betrieb oder zur Wartung des Produkts benötigen, die nicht in dieser Anleitung enthalten sind, wenden Sie sich mit Ihrer Frage an einen autorisierten Vertriebspartner von Carlo Gavazzi. Die Informationen in -diesem Dokument sind nicht bindend hinsichtlich der Produktgarantieleistung.
- Die Installation und Wartung dieses Geräts darf nur von qualifiziertem Fachpersonal durchgeführt werden
 - Betreiben Sie das SSR stets innerhalb der Spezifikationen und gemäß den beiliegenden Anweisungen, da es andernfalls zu Fehlfunktionen
 - Das Halbleiterrelais muss mittels einer externen Halbleitersicherung oder passendem Sicherungsautomaten gegen Überlastung (Kurzschluss) abgesichert werden.
 - Bei fehlerhafter Ausführung der Anschlüsse kann die entstehende Wärme zu Brandgefahr führen. Stellen Sie sicher, dass die verwendeten Leitungen eine geeignete Größe aufweisen und an Biegestellen ausreichend Platz für einen geeigneten Kurvenradius zur Verfügung steht
 - Lose Anschlüsse können zu übermäßiger Wärmeentwicklung führen. Befestigen Sie die Anschlüsse mit dem vorgegebenen Anzugsdrehrmoment. Ziehen Sie die Anschlüsse nach 48 Stunden nach, um den Kaltfluss zu minimieren. Ziehen Sie die Anschlüsse alle 3 – 6 Monate nach
 - Stellen Sie die ausreichende Belüftung der Schalttafel sicher. Für die Verwendung in einer Umgebung mit dem Verschmutzungsgrad 2
 - Ein idealer Schutz wird durch parallel zum Lastkreis geschaltete Varistoren (Metalloxid-Varistoren) erzielt. Die Varistoren sind auf die Netzspannung der jeweiligen Anwendung auszugleichen. Eine verkehrte Auswahl kann zu verringertem Schutz oder einer gefährlichen Situation führen. Bei einer Reihe von Modellen ist der Varistor bereits eingebaut (Weitere Informationen finden Sie im Datenblatt).
 - Das Produkt wurde für Geräte der Klasse A entwickelt (möglicherweise externe Filter erforderlich). Der Einsatz des Produkts in Wohnungsumgebung kann Funkstörungen hervorrufen. Unter diesen Umständen ist der Anwender möglicherweise verpflichtet, zusätzliche Abhilfemaßnahmen zu ergreifen



简体中文

注意事项

危险电压可能导致死亡或严重 伤害。继续对本设备进行任何操作之前，请断开电源。如果固态继电器的 端子上有电压，请勿触摸 端子。即使在断电状态（漏电流、SSR 击穿）下，输出端子仍然带电。散热器可能很烫，即使是断电之后。



重要事项

- 如果您需要本说明文档中 未涵盖的产品的安装、操作或 维护等相关信息，请咨询 Carlo Gavazzi 授权 代表。本文档中的信息 对任何产品保修均无约束力。
- 只允许经过授权的合格人员 安装和维护 本设备
 - 务必在其额定规格参数范围内使用 SSR，并按照规定说明操作，否则可能导致故障、损坏或火灾
 - 必须通过外部半导体熔断器 保护继电器，避免过载（短路）。
 - 不正确的端接产生的热量可能 导致火灾。确保使用的电缆规格正确，并为导线弯曲提供足够的曲率 半径
 - 端子松动会产生异常热量。拧紧 至规定扭矩。48 小时后再次拧紧，以最大限度降低导线冷变形。每 3 至 6 个月重新 拧紧
 - 适用于 2 度污染环境
 - 理想的保护方式是 在功率半导体 上安装压敏电阻（金属氧化物压敏电阻）。压敏电阻电压 必须与您应用的线路电压 匹配。选择不当可能导致保护效果受限或 危险情况。一些 型号内部已经 安装有压敏电阻(有关更多信息，请参阅数据表)。
 - 本产品系为 A 类 设备设计（可能需要外部滤波）。在 家庭环境中使用本产品时，可能会导致无线电干扰，在这种情况下，用户 可能需要采用其他缓解方法



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