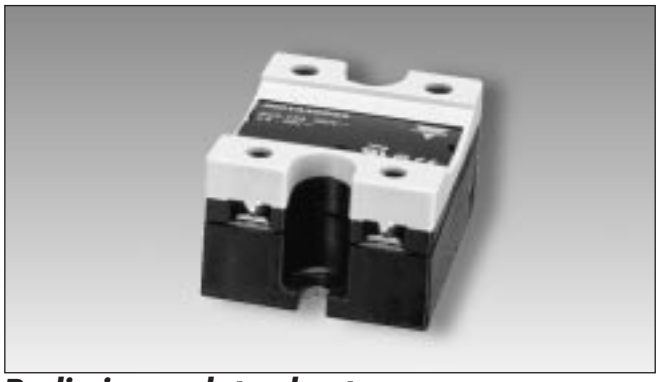
Solid State Relays
Industrial, 1-Phase ZS w. LED
Types RS 23, RS 40, RS 48

CARLO GAVAZZI



- **Zero switching AC Solid State Relay**
- **LED indication**
- **Clip-on IP protection cover**
- **Self-lifting terminals**
- **Housing free of moulding mass**
- **2 input ranges: 4.5-32 VDC and 18-36 VAC/VDC**
- **Operational ratings up to 40 AACrms and 480 VAC**
- **Non-repetitive voltage: Up to 1200 V_p**
- **Opto-insulation: > 4000 VACrms**

Preliminary data sheet

Product Description

The zero switching relay with triac (10 A) or alternistor output (25 A, 40 A) is an inexpensive solution for resistive loads. The zero switching relay switching relay switches ON when the sinusoidal curve crosses zero and switches OFF when the current crosses zero. The LED indicates the status of the control input. The clip-on cover is securing touch safety to IP 20. Protected output terminals can take cables up to 16 mm^2.

Ordering Key

RS 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	Rated operational current	Control voltage
A: Zero Switching	23: 230 VACrms 40: 400 VACrms 48: 480 VACrms	10: 10 AACrms 25: 25 AACrms 40: 40 AACrms	LA: 18 - 36 VAC/VDC D: 4.5 - 32 VDC

Selection Guide

ɔera- ltage	Non-rep. voltage	Control voltage	Rated operational current 10 A	 25 A	 40 A
230 VACrms	650 V_p	4.5-32 VDC	**RS1A23D10**	**RS1A23D25**	**RS1A23D40**
		18-36 VAC/DC	**RS1A23LA10**	**RS1A23LA25**	**RS1A23LA40**
400 VACrms	850 V_p	4.5-32 VDC	**RS1A40D10**	**RS1A40D25**	**RS1A40D40**
		18-36 VAC/DC	**RS1A40LA10**	**RS1A40LA25**	**RS1A40LA40**
480 VACrms	1200 V_p	4.5-32 VDC	**RS1A48D10**	**RS1A48D25**	**RS1A48D40**
		18-36 VAC/DC	**RS1A48LA10**	**RS1A48LA25**	**RS1A48LA40**

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General Specifications

	RS1A23...	RS1A40...	RS1A48...
Operational voltage range	42 to 265 VACrms	42 to 440 VACrms	42 to 530 VACrms
Non-rep. peak voltage	≥ 650 V_p	≥ 850 V_p	≥ 1200 V_p
Zero voltage turn-on	≤ 15 V	≤ 15 V	≤ 15 V
Operational frequency range	45 to 65 Hz	45 to 65 Hz	45 to 65 Hz
Power factor	≥ 0.95 @ 230 VACrms	≥ 0.95 @ 400 VACrms	≥ 0.95 @ 480 VACrms
Approvals	UL, CSA	UL, CSA	UL, CSA
CE-marking	Yes	Yes	Yes

Input Specifications

	RS1A..D..	RS1A..LA...
Control voltage	4.5-32 VDC	18-36 VAC/DC
Pick-up voltage	≤ 4.25 VDC	≤ 18 VAC/DC
Reverse voltage	≤ 32 VDC	-
Drop out voltage	≥ 1 VDC	≥ 5 VAC/DC
Input current @ max input voltage	≤ 12 mA	≤ 15 mA
Response time pick-up	≤ 1/2 cycle	≤ 1 cycle
Response time drop-out	≤ 1/2 cycle	≤ 2 cycles

Output Specifications

	RS1A...10	RS1A...25	RS1A...40
Rated operational current AC1 @ Ta=25°C	10 Arms	25 Arms	40 Arms
Min. operational current	150 mA	150 mA	150 mA
Rep. overload current t=1 s	< 12 AACrms	< 37 AACrms	< 60 AACrms
Non-rep. surge current t=10 ms	100 Ap	230 Ap	300 Ap
Off-state leakage current @ rated voltage and frequency	< 3 mArms	< 3 mArms	< 3 mArms
I^2t for fusing t=1-10 ms	≤ 50 A^2s	≤ 265 A^2s	≤ 450 A^2s
Critical dV/dt	≥ 10 A/µs	≥ 50 A/µs	≥ 100 A/µs
On-state voltage drop @ rated current	≤ 1.6 Vrms	≤ 1.6 Vrms	≤ 1.6 Vrms
Critical dV/dt off-state	≥ 250 V/µs	≥ 250 V/µs	≥ 250 V/µs

Thermal Specifications

	RS1A...10	RS1A...25	RS1A...40
Operating temperature	-20° to 70°C	-20° to 70°C	-20° to 70°C
Storage temperature	-40° to 100°C	-40° to 100°C	-40° to 100°C
Junction temperature	≤ 125°C	≤ 125°C	≤ 125°C
R_{th} junction to case	≤ 4.80 K/W	≤ 1.10 K/W	≤ 0.90 K/W
R_{th} junction to ambient	≤ 40 K/W	≤ 20 K/W	≤ 20 K/W

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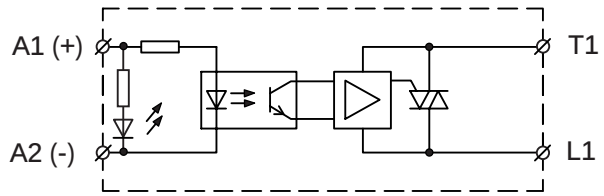
Housing Specifications

Weight	Approx. 60 g
Housing material	Noryl GFN 1, black
Baseplate	Aluminium
Potting compound	None
Relay	
Mounting screws	M5
Mounting torque	1.5-2.0 Nm
Control terminal	
Mounting screws	M3 x 6
Mounting torque	0.5 Nm
Power terminal	
Mounting screws	M5 x 9
Mounting torque	2.4 Nm

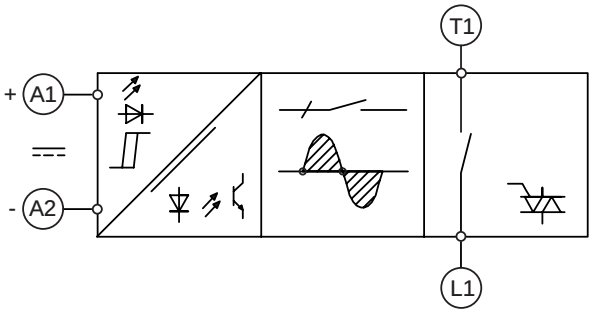
Insulation

Rated insulation voltage Input to output	≥ 4000 VACrms
Rated insulation voltage Output to case	≥ 4000 VACrms

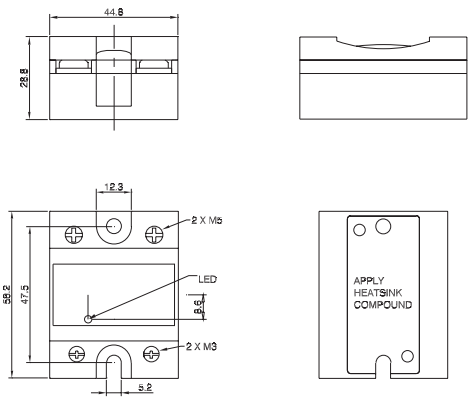
Wiring Diagram



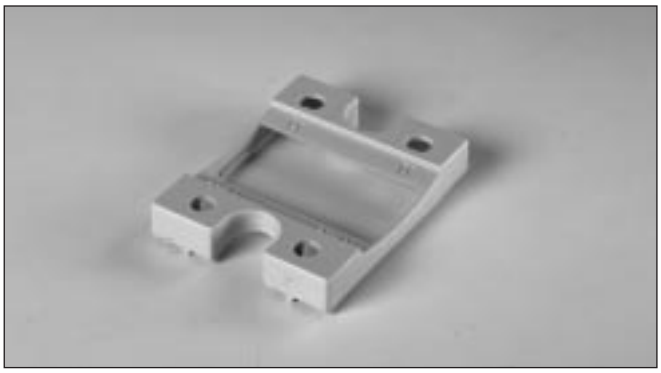
Functional Diagram



Dimensions



Accessories



RM IP20
IP20 cover for RS and RM. This accessory is available in packs of 20 pieces with the above reference.