

Solid State Relay System Monitoring Relay (Sense Relay) Type RA4825L12NCSS00

CARLO GAVAZZI



- System (line and load) monitoring relay
- Zero switching
- Rated operational current: 25 AACrms
- Rated operational voltage: 480 VACrms
- High surge current capability
- Alarm output signal
- LED indication for alarm and supply
- High level immunity against electrical fast transients
 - EN61000-4-4 (4kV on output)

Product Description

The system monitoring solid state relay (sense relay) provides an alarm output in the event of a circuit failure. Internal circuits monitor:

- line voltage/line current
- correct functioning of the SSR
- SSR input status

The relay is designed for applications where immediate fault detection is required. A red LED indicates an alarm, a green LED indicates DC control supply OK (half LED light intensity) resp. relay switched ON (full LED light intensity).

Ordering Key RA 48 25 L 12 NC S 000

Solid State Relay
Switching mode
Rated operational voltage
Rated operational current
Control input
Non-rep. peak voltage
Alarm output type
Sense SSR
Special (High I²t, fast-on terminals on output, special 6 way connector on input)

General Specifications

Operational voltage range	170 to 528 VACrms
Non-rep. peak voltage	1200 V _p
Zero voltage turn-on	≤ 15 V
Operational frequency range	45 to 65 Hz
Power factor cos φ	≥ 0.5 @ 480 VACrms
CE-marking	Yes

Output Specifications

Rated operational current AC 51	≤ 25 Arms
AC 53a	20 Arms
Min. operational load current	Refer to derating curve
Non-rep. surge current t=20 ms	≤ 1150 A _p
Off-state leakage current @ rated voltage and frequency	≤ 6 mA
I ² t for fusing t=1-10 ms	≤ 6600 A ² s
Critical dv/dt	≥ 500 V/μs

Control Specifications

Supply voltage range	20 to 32 VDC
Supply current @ 24 VDC	≤ 40 mA DC
Response time pick-up @ 50 Hz	≤ 10 ms
Response time drop-out @ 50 Hz	≤ 10 ms
Active low control input	
Pick-up voltage (V _{cc} = 24V)	0 - 12 VDC
Drop-out voltage (V _{cc} = 24V)	19 - 32 VDC
Input current (V _{cc} = 32 V)	≤ 4 mA
NPN Alarm output	
Alarm output voltage open	≤ 32 VDC
Alarm output voltage @ 100 mA	2 VDC
Alarm output current	≤ 100 mA

Sense Specifications

Current	
Sensed load current	≥ 50 mA
Non-sensed leakage current	≤ 20 mA
Voltage	
Sensed line voltage @ Ta=25°C	typ. 160 Vrms
Sensed line voltage @ Ta= -20°C	≥ 170Vrms
Non-sensed line voltage	≤ 50 Vrms
Timing	
Voltage dip duration for no alarm	≤ 30ms
Response time from fault to alarm output	≤ 100 ms
Short-circuit of semiconductor	Will be sensed



Thermal Specifications

Operating temperature	-20° to +80°C (-4° to +176°F)
Storage temperature	-40° to +100°C (-40° to +212°F)
Junction temperature	≤ 125°C (257°F)

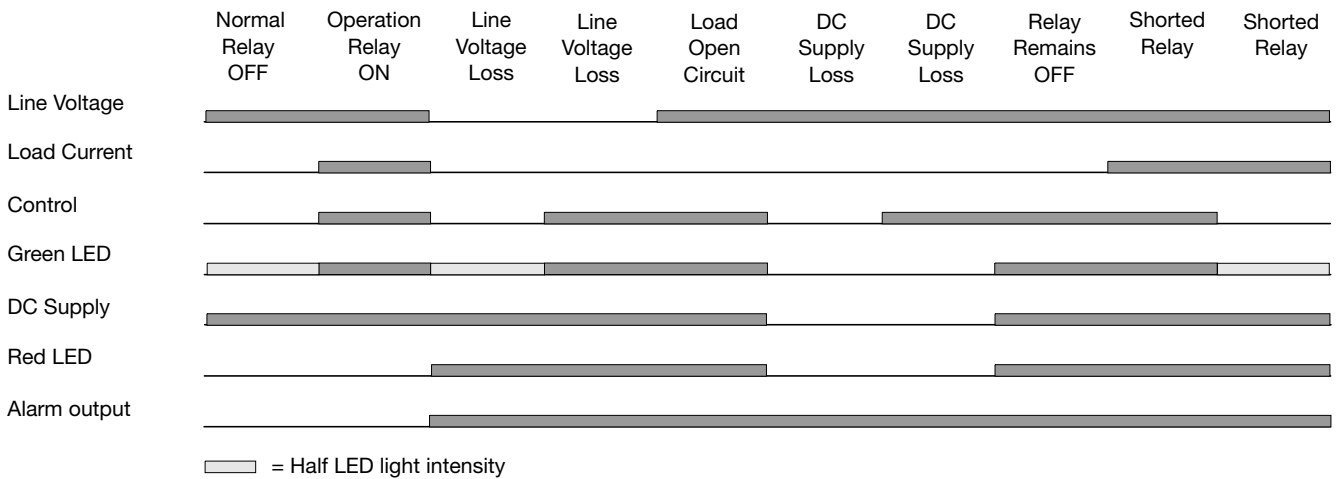
Insulation

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

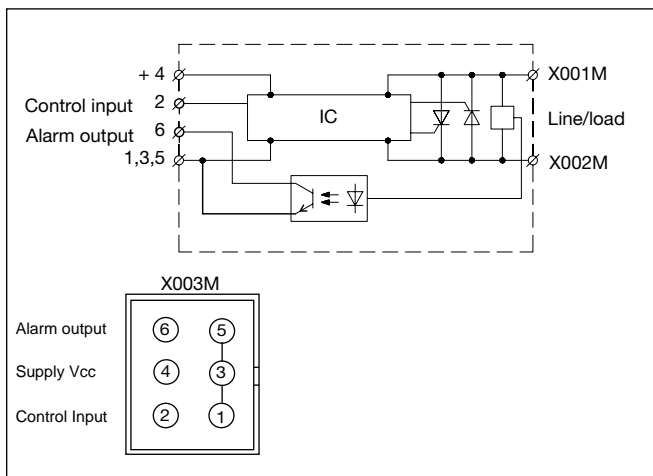
Housing Specifications

Weight	Approx. 85 g
Base plate	Aluminium, nickel-plated
Potting compound	None
Relay Mounting screws Mounting torque	M5 ≤ 1.5 Nm
Power terminal Faston terminals	2 x 6.3 mm
Control connector	6 pole, centre distance 2.54 mm

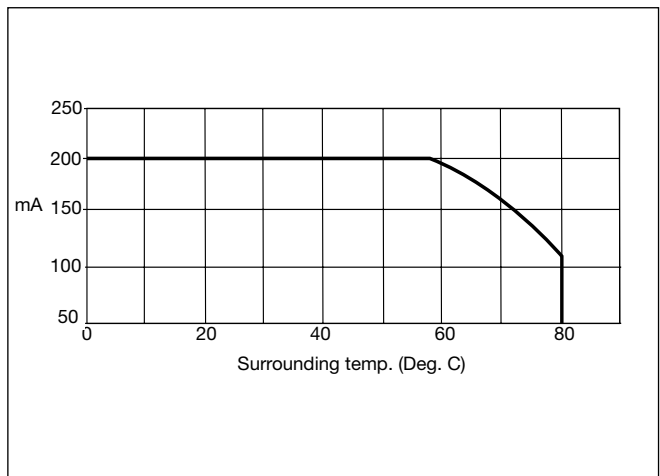
Operation Diagram



Wiring Diagrams



Minimum Operational Load Current



Note: Derating curve up to 200 mA AC51

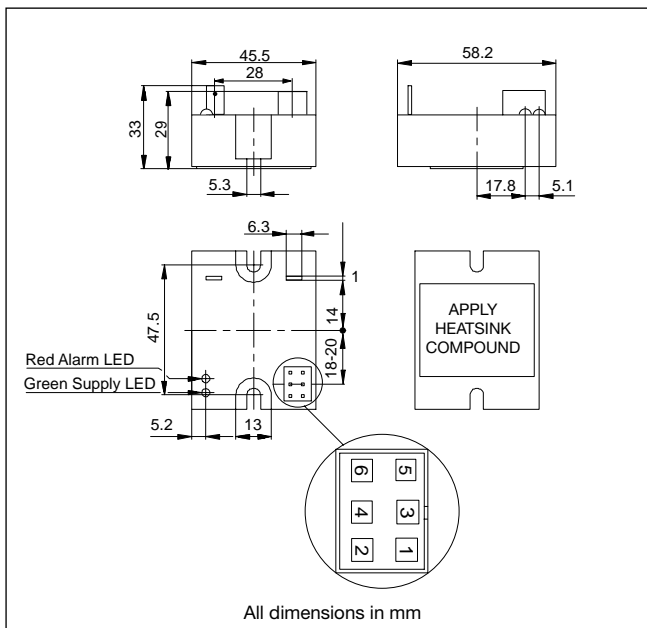
Heatsink Dimensions

Load current [A]	Thermal resistance [K/W]							Power dissipation [W]	T _A Ambient temp. [°C]
	20	30	40	50	60	70	80		
25	3.70	3.24	2.77	2.31	1.85	1.39	0.92	22	
22.5	4.16	3.64	3.12	2.60	2.08	1.56	1.04	19	
20	4.73	4.14	3.55	2.96	2.37	1.78	1.18	17	
17.5	5.47	4.79	4.11	3.42	2.74	2.05	1.37	15	
15	6.46	5.66	4.85	4.04	3.23	2.42	1.02	12	
12.5	7.85	6.87	5.89	4.91	3.93	2.94	1.96	10	
10	9.94	8.70	7.45	6.21	4.97	3.73	2.48	8	
7.5	13.42	11.74	10.06	8.39	6.71	5.03	3.35	6	
5	-	-	-	12.74	10.19	7.64	5.10	4	
2.5	-	-	-	-	-	-	10.32	2	

Heatsink Selection

Carlo Gavazzi Heatsink (See "General Accessories")	Thermal resistance..	...for power dissipation
No heatsink required	---	N/A
RHS 300	5.00 K/W	> 0 W
RHS 100	3.00 K/W	> 25 W
RHS 45C	2.70 K/W	> 60 W
RHS 45B	2.00 K/W	> 60 W
RHS 90A	1.35 K/W	> 60 W
RHS 45C plus fan	1.25 K/W	> 0 W
RHS 45B plus fan	1.20 K/W	> 0 W
RHS 112A	1.10 K/W	> 100 W
RHS 301	0.80 K/W	> 70 W
RHS 90A plus fan	0.45 K/W	> 0 W
RHS 112A plus fan	0.40 K/W	> 0 W
RHS 301 plus fan	0.25 K/W	> 0 W
Consult your distributor	< 0.25 K/W	N/A
Infinite heatsink - No solution	---	N/A

Dimensions



Accessories

- Heatsinks
- DIN rail adapter
- Varistors
- Fuses