CARLO GAVAZZI
Automation Components

CARLO GAVAZZI

RG series: 1-phase solid state switching solutions

Switch

RG series
Concentrated power

The RG series is the latest addition to the range of Solid State Relays (SSRs) and Solid State Contactors (SSCs) offered by Carlo Gavazzi. With this series, Carlo Gavazzi continues to distinguish itself as a leader in Solid State Switching by introducing the first SSR and SSC in the smallest DIN dimension of 17.5mm.

The RG series adapts an innovative thermal efficient design which translates to compact solutions available throughout the RG range. Panel space savings up to 25% is possible with RG SSRs and SSCs. Apart from solutions for AC output and DC output switching, the RG series includes variants, introduced hereafter, which integrate other functions than just the switching function associated with SSRs and SSCs.

Manufacturing of the RG series is done in an ISO9001 facility which is also certified for ISO14001.

The new generation of solid state switches

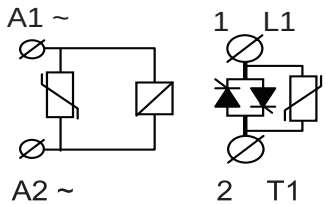
Solid State Relays
RGS1 series

SSRs within this series do not have integrated heatsink for thermal dissipation. Size and design of the heatsink, if required, is determined by the end user.

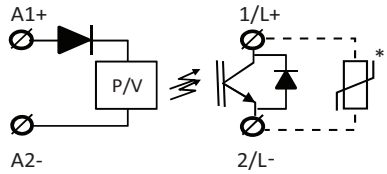
Solid State Contactors
RGC1 and RGH1 series

The RGC1 and RGH1 series are complete, ready to use solutions, that have a factory installed heatsink. Product has an associated rating at specific working temperatures eliminating the need for end user to calculate necessary heatsinking for safe operation of the Solid State Switch.

AC Output Switching
Switching through back to back thyristors



DC Output Switching
Switching through IGBT

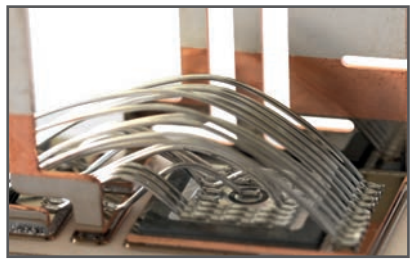


* varistor not included

Features

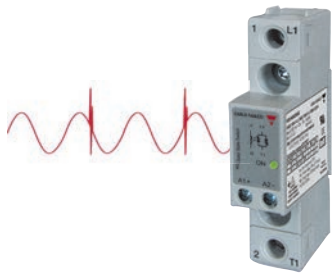
Long lifetime

Thermal stress on the semiconductor is eliminated with the introduction of wire bonding. SSR lifetime is increased by 2 to 3 times as compared to other SSRs using only die solder technology



Protection against overvoltages

The integrated varistor across the output of the solid state switch provides adequate protection against uncontrolled overvoltages. There is no need to connect this externally for conformance to the surge immunity test according to EN 61000-4-5



Terminals correctly sized to handle large cables

Box clamp variants provide robust connections for easy and fast connection of power cables up to 25mm^2 / AWG3

High I^{2}t for short circuit protection with MCBs

The I^{2}t specification in the RG range goes up to 18,000A^{2}s in only 17.5mm product width. The RG with 18,000A^{2}s is the ideal solution when protection of the SSR against short circuits with economic, easily accessible, Miniature Circuit Breakers is desired

100kArms Short Circuit Current Rating (SCCR)

Industrial Control Panels designed according to UL508A need to have a SCCR marking based on the lowest SCCR of the components used inside the panel. With 100kArms SCCR for the RG series, Carlo Gavazzi SSRs are no limitation to panel builders needing a high SCCR marking on their panels

508A Industrial Control Panel

Configuration flexibility

Various connection configuartions are available in the RG series. Layout configurations are available either in E-type (Contactor configuartion) or U-type (SSR configuration). Control terminals connection is available either through screw or through spring loaded pluggable terminals

RG Series
Product Range Overview

AC Output Switching - RGS1, RGC1, RGH1 series

This series encompasses 1-phase solid state switching solutions for resisitve loads as well as for motor loads. The RGS series is the slimmest SSR in the market and is available in a product width of only 17.5mm with operational voltage up to 600VAC and operational current up to 90AAC. The RGC and RGH series are ready to use solutions with ratings starting from 20AAC @ 40°C in a product width of 17.5mm going up to 85AAC in a product width of 70mm

DC Output Switching - RGS1D, RGC1D series

This series of 1-phase solid state DC switches is primarily intended for switching of strings in photovoltaic panels and hence operational ratings go up to 1000VDC, 25ADC

Protection against overheating - RGC..P series

Solid state switch overtemperature protection is an optional feature available with the RGC series that protects the SSR against damage from overheating. Thyristor operating temperature is continously monitored. In case of overheating the output is immediately switched off. Alarm condition is signalled through a transistor output and is also visible by a red LED on the front plate of the unit. The alarm condition is automatically cleared as soon as the overheating condition is no longer present

Integrated fuse protection - RGC1F series

The RGC1F is equipped with an easily accessible onboard semiconductor fuse that protects the SSR in case of short circuits. The RGC1FS is a more elaborate version that is additionally able to detect load and SSR malfunction and hence is able to detect mains loss, load loss, SSR open circuit and SSR short circuit conditions

Load current monitoring - RGS1S, RGC1S series

The RG Current Sensing series is an intelligent device which is able to detect variations in the load current by means of integrated current measurement. In case of variations >16.67% (1/6) from current set point, a partial load failure alarm is issued without inhibiting the output of the SSR. Apart from this condition, the RG Current Sensing is also able to detect mains loss, total load failure, SSR over temperature, SSR open circuit and SSR short circuit conditions

Applications

Plastic and rubber

A fully solid state solution with integrated protection against over voltages on the power lines is:
- a guranatee for process and machine reliability
- permits reduction in maintenance and downtime costs

Food and beverage

The RG series is RoHS compliant and does not include mercury or other restricted substances. It can operate in a relative non-condensing humidity of 95% making it the ideal solution for use in ovens and coffee machines. The RG series provides
- environmental friendly solutions
- high number of ON/OFF switches without compromising lifetime

HVAC

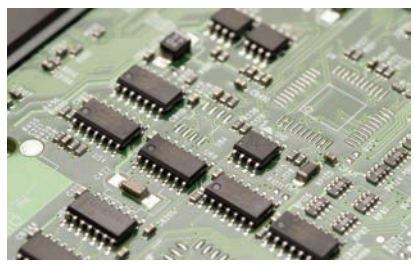
The click clack sound of a mechanical contactor is a nuisance in areas frequented by people. The RG series, being fully solid state, does not have any moving parts making this the ideal product for switching of heaters in such environments. Benefits of SSRs include:
- silent operation
- long operating lifetime

Packaging and wrapping

Ready to use solutions, that is solutions with integrated heatsink, make it easy for end users to select the product needed for the specific application since a current rating is available at each possible operating temperature. Ready to use solutions are very compact solutions that promote:
- panel space saving
- eliminates possibilites of incorrect heatsink sizes and hence SSR overheating

Semiconductor

The RG series is fully compliant to the Industrial Electro Magentic Compatibility immunty standards without the need to add additional external components. Versions with high surge current capability also enable protection coordination with other means than semiconductor fuses. The RG series:
- allows protection coordination with Miniature Circuit Breakers
- is fully complaint to EMC immunity limits



Slimline RG

RGS series

In most cases, when utilising a solid state relay, a heatsink is required for heat dissipation. The size and shape of the heatsink is dictated by the specific application and is not always to be fitted in standard sized industrial control panels.

The RGS series does not have integrated heatsink and hence allows end users to design and adapt their own heatsinking solutions. Different heatsinks on which the RGS can be fitted are available from Carlo Gavazzi.

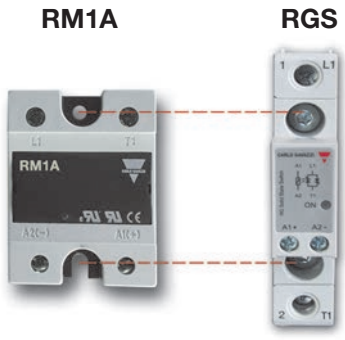
All variants in the RGS series are available in a platform with a product width of 17.5mm.

AC output Solid State Relays

RGS series

- 17.5mm product width
- Ratings up to 600VAC, 90AAC
- Zero cross or Instant ON (Random) switching
- I^2t up to 18,000A^2s
- Control range: 4-32VDC, 20-275VAC (24-190VDC)
- Integrated varistor across output
- Motor ratings up to 4kW (400VAC), 15HP (600VAC)
- 100kArms short circuit current rating acc. to UL508
- 'E' type or 'U' type configuration
- Box clamps for 25mm^2 / AWG 3 power cables
- Spring loaded control plug option

Mounting of RGS



Identical mounting hole spacing specifications

Options

DIN mounting

RGS1 solid state relay can be DIN mounted by means of the **RGS1DIN** accessory. RGS1 rating up to 12AAC @ 40°C (104°F) when mounted on RGS1DIN

RGS Power Pack

A pack with maximum 11 RGS1.. on heatsink with integrated overheat protection. Rating per SSR goes up to 30AAC @ 40°C (104°F)

Thermal pads

An alternative to thermal paste: **RGHT** is a pack of 10 thermal pads. Suffix 'HT', hence RGS...HT, for factory mounted thermal pad

Heatsinks

A number of heatsinks are available for mounting the RGS on different heatsinks than those offered in the RGC series. The smallest heatsink in the range is a low profile 17.5mm heatsink, the **RHS37A**

Selection guide

RGS..E

Rated voltage, Blocking voltage, Switching mode	Connection Control/ power	Control voltage	25AAC (525A²s) 17.5mm	50AAC (1800A²s) 17.5mm	75AAC (3200A²s) 17.5mm	90AAC (6600A²s) 17.5mm	90AAC (18000A²s) 17.5mm
230VAC, 800Vp ZC	x / Screw	3 - 32VDC	RGS1A23D25xKE	RGS1A23D50xKE	RGS1A23D75KKE	-	-
		20 - 275VAC (24 - 190VDC)	RGS1A23A25xKE	RGS1A23A50xKE	RGS1A23A75KKE	-	-
600VAC, 1200Vp ZC	x / Screw	4 - 32VDC	RGS1A60D25xKE	RGS1A60D50xKE	RGS1A60D75KKE	RGS1A60D90xKE	RGS1A60D92xKE
		20 - 275VAC (24 - 190VDC)	RGS1A60A25xKE	RGS1A60A50xKE	RGS1A60A75KKE	RGS1A60A90xKE	RGS1A60A90xKE
	x / Box	4 - 32VDC	-	RGS1A60D50xGE	-	-	RGS1A60D92xGE
		20 - 275VAC (24 - 190VDC)	-	RGS1A60A50KGE	-	-	RGS1A60A92KGE
600VAC, 1600Vp ZC	Screw / Screw	4 - 32VDC	-	RGS1A60D51KKE	-	RGS1A60D91KKE	-
		20 - 275VAC (24 - 190VDC)	-	RGS1A60A51KKE	-	RGS1A60A91KKE	-
600VAC, 1200Vp IO	Screw / Screw	4 - 32VDC	RGS1B60D25KKE	RGS1B60D50KKE	RGS1B60D75KKE	RGS1A60D90KKE	-

RGS..U

Rated voltage, Blocking voltage, Switching mode	Connection Control/ power	Control voltage	20AAC (525A²s) 17.5mm	30AAC (1800A²s) 17.5mm	-	-	-
230VAC, 800Vp ZC	Screw / Box	3 - 32VDC	RGS1A23D20KGU	RGS1A23D30KGU	-	-	-
		20 - 275VAC (24 - 190VDC)	RGS1A23A20KGU	RGS1A23A30KGU	-	-	-
600VAC, 1200Vp ZC	Screw / Box	4 - 32VDC	RGS1A60D20KGU	RGS1A60D30KGU	-	-	-
		20 - 275VAC (24 - 190VDC)	RGS1A60A20KGU	RGS1A60A30KGU	-	-	-
600VAC, 1200Vp IO	Screw / Box	4 - 32VDC	RGS1B60D20KGU	RGS1B60D30KGU	-	-	-

x = control connection type, x = 'K' for screw, x = 'M' for spring
ZC = Zero Cross Switching, IO = Instant On Switching

Further details are available on online datasheet at www.productselection.net

Slimline RG

RGC, RGH series

Unlike the RGS series, the RGC and RGH have integrated heatsink and hence are referred to as ready to use solutions since end users do not need to calculate and mount the solid state switch on an additional heatsink.

Beacuse of this, each variant in the RGC and RGH series has an associated current rating at a specific working ambient temperature that is determined by the size of the heatsink of that particular model. The physical sizes and hence ratings in the RGC and RGH series are dictated by the size of the heatsink.

The smallest product in the RGC and RGH range is a product with 17.5mm width and associated rating goes up to 25AAC @ 40°C. Product width in the RGC, RGH range goes up to 70mm extending the series to a maximum rating of 85AAC @ 40°C.

AC output Solid State Contactors

RGC series

- 1200Vp blocking voltage; I^2t up to 18,000A^2s
- Current ratings at 40°C (104°F) up to:
  25AAC (17.5mm), 30AAC (22.5mm), 43AAC (35mm), 65AAC (70mm), 85AAC (70mm with fan)
- Operational voltage up to 600VAC
- Zero cross or Instant ON (Random) switching
- Control range: 4-32VDC, 20-275VAC (24-190VDC)
- Integrated varistor across output
- Motor ratings up to 4.4kW (400VAC), 15HP (600VAC)
- 100kArms short circuit current rating acc. to UL508
- 'E' type or 'U' type configuration
- Spring loaded control plug option
- Optional overtemperature protection

RGH series

- 1600Vp blocking voltage; I^2t up to 6,600A^2s
- Current ratings at 40°C (104°F) up to:
  23AAC (17.5mm), 30AAC (22.5mm), 40AAC (35mm), 65AAC (70mm)
- Operational voltage up to 690VAC**
- Zero cross switching
- Control range: 4-32VDC, 20-275VAC (24-190VDC)
- Integrated varistor across output**
- Motor ratings up to 4.4kW (400VAC), 15HP (600VAC)
- 100kArms short circuit current rating acc. to UL508
- 'E' type or 'U' type configuration
- Spring loaded control plug option

* GL applies only to RGC..15, RGC..20, RGC..25, RGC..30

** 690V version CE marking only and no varistor

Selection guide

'E' type configurations

		Power connection: Screw 'K'			Power connection: Box 'G'			
Rated voltage, Blocking voltage, Switching mode	**Control voltage**	**20AAC ($525A^2s$) 17.5mm short**	**25AAC ($1800A^2s$) 17.5mm short**	**30AAC ($1800A^2s$) 22.5mm**	**40AAC ($3200A^2s$) 35mm**	**43AAC ($18000A^2s$) 35mm**	**60AAC ($3200A^2s$) 70mm**	**65AAC ($18000A^2s$) 70mm**
230VAC, 800Vp ZC	3 - 32VDC	RGC1A23D15xKE	RGC1A23D25xKE	RGC1A23D30xKE	RGC1A23D40xGE	RGC1A23D42xGE	RGC1A23D60xGE	RGC1A23D62xGE
	20 - 275VAC (24 - 190VDC)	RGC1A23A15xKE	RGC1A23A25xKE	RGC1A23A30xKE	RGC1A23A40xGE	RGC1A23A42xGE	RGC1A23A60xGE	RGC1A23A62xGE
600VAC, 1200Vp ZC	4 - 32VDC	RGC1A60D15xKE	RGC1A60D25xKE	RGC1A60D30xKE	RGC1A60D40xGE	RGC1A60D42xGE	RGC1A60D60xGE	RGC1A60D62xGE
	20 - 275VAC (24 - 190VDC)	RGC1A60A15xKE	RGC1A60A25xKE	RGC1A60A30xKE	RGC1A60A40xGE	RGC1A60A42xGE	RGC1A60A60xGE	RGC1A60A62xGE
600VAC, 1200Vp IO	4 - 32VDC	RGC1B60D15xKE	RGC1B60D25xKE	RGC1B60D30xKE	RGC1B60D40xGE	RGC1B60D42xGE	RGC1B60D60xGE	RGC1B60D62xGE

		Power connection: Screw 'K'			Power connection: Box 'G'			
Rated Voltage, Blocking Voltage, Switching Mode	**Control voltage**	**23AAC ($6600A^2s$) 17.5mm short**	**23AAC ($1800A^2s$) 17.5mm short**	**30AAC ($6600A^2s$) 22.5mm**	**40AAC ($1800A^2s$) 35mm**	**40AAC ($6600A^2s$) 35mm**	**60AAC ($6600A^2s$) 70mm**	-
600VAC, 1600Vp ZC	4 - 32VDC	RGH1A60D15xKE	RGH1A60D20xKE	RGH1A60D31xKE	RGH1A60D40KGE	RGH1A60D41xGE	RGH1A60D60KGE	-
	20 - 275VAC (24 - 190VDC)	RGH1A60A15xKE	RGH1A60A20xKE	RGH1A60A31xKE	RGH1A60A40KGE	RGH1A60A41xGE	RGH1A60A60KGE	-

'U' type configurations

		Power connection: Box 'G'			Power connection: Box 'G'			
Rated voltage, Blocking voltage, Switching mode	**Control voltage**	**20AAC ($525A^2s$) 17.5mm**	**25AAC ($1800A^2s$) 17.5mm**	**30AAC ($1800A^2s$) 22.5mm**	**40AAC ($3200A^2s$) 35mm**	**43AAC ($1800A^2s$) 35mm**	**60AAC ($3200A^2s$) 70mm**	**65AAC ($1800A^2s$) 70mm**
230VAC, 800Vp ZC	3 - 32VDC	RGC1A23D15KGU	RGC1A23D25KGU	RGC1A23D30KGU	RGC1A23D40KGU	RGC1A23D42KGU	RGC1A23D60KGU	RGC1A23D62KGU
	20 - 275VAC (24 - 190VDC)	RGC1A23A15KGU	RGC1A23A25KGU	RGC1A23A30KGU	RGC1A23A40KGU	RGC1A23A42KGU	RGC1A23A60KGU	RGC1A23A62KGU
600VAC, 1200Vp ZC	4 - 32VDC	RGC1A60D15KGU	RGC1A60D25KGU	RGC1A60D30KGU	RGC1A60D40KGU	RGC1A60D42KGU	RGC1A60D60KGU	RGC1A60D62KGU
	20 - 275VAC (24 - 190VDC)	RGC1A60D15KGU	RGC1A60A25KGU	RGC1A60A30KGU	RGC1A60A40KGU	RGC1A60A42KGU	RGC1A60A60KGU	RGC1A60A62KGU
600VAC, 1200Vp IO	4 - 32VDC	RGC1A60D15KGU	RGC1B23A25KGU	RGC1B23A30KGU	RGC1B23A40KGU	RGC1B23A42KGU	RGC1B23A60KGU	RGC1B23A62KGU

		Power connection: Screw 'G'			Power connection: Box 'G'			
Rated voltage, Blocking voltage, Switching mode	**Control voltage**	**23AAC ($6600A^2s$) 17.5mm short**	**23AAC ($1800A^2s$) 17.5mm short**	**30AAC ($6600A^2s$) 22.5mm**	**40AAC ($1800A^2s$) 35mm**	**40AAC ($6600A^2s$) 35mm**	**60AAC ($6600A^2s$) 70mm**	-
600VAC, 1600Vp ZC	4 - 32VDC	-	-	-	-	RGH1A60D41KGU	RGH1A60D60KGU	-
	20 - 275VAC (24 - 190VDC)	-	-	-	-	RGH1A60A41KGU	RGH1A60A60KGU	-

x = control connection type, x = 'K' from screw, x = 'M' for spring
ZC = Zero Cross Switching, IO = Instant On Switching

Integrated over temperature protection

Rated voltage, Blocking voltage, Switching mode	**Control voltage**	**Config.**	**23AAC ($525A^2s$) 22.5mm**	**25AAC ($1800A^2s$) 22.5mm short**	**30AAC ($1800A^2s$) 22.5mm**	-	-	-
600VAC, 1200Vp ZC	5 - 32VDC	E- type	RGC1A60D20GKEP	RGC1A60D25GKEP	RGC1A60D30GKEP	-	-	-
	20 - 275VAC (24 - 190VDC)	E- type	RGC1A60A20GKEP	RGC1A60A25GKEP	RGC1A60A30GKEP	-	-	-

Rated voltage, Blocking voltage, Switching mode	**Control voltage**	**Config.**	**40AAC ($3200A^2s$) 35mm**	**43AAC ($18000A^2s$) 35mm**	**60AAC ($3200A^2s$) 70mm**	**65AAC ($18000A^2s$) 70mm**	**85AAC ($6600A^2s$) 70mm + fan**	**85AAC ($18000A^2s$) 70mm + fan**
600VAC, 1200Vp ZC	5 - 32VDC	E- type U- type	RGC1A60D40GGEP RGC1A60D40GGUP	RGC1A60D42GGEP -	RGC1A60D60GGEP RGC1A60D60GGUP	RGC1A60D62GGEP -	RGC1A60D90GGEP RGC1A60D90GGUP	RGC1A60D92GGEP -
	20 - 275VAC (24 - 190VDC)	E- type U- type	RGC1A60A40GGEP RGC1A60A40GGUP	RGC1A60A42GGEP -	RGC1A60A60GGEP RGC1A60A60GGUP	RGC1A60A62GGEP -	RGC1A60A90GGEP RGC1A60A90GGUP	RGC1A60A92GGEP -

Further details are available on online datasheet at www.productselection.net

Current sensing

RGC1S, RGS1S

The RG Current Sensing (CS) series is able to detect variations in the load current thanks to its integrated current measurement. The load current to be used as a reference is set and recorded through a TEACH procedure which can be done either locally or remotely.

During operation, the actual load current is compared to the set point and if a deviation >16.67% (1/6) is observed an alarm is issued to signal a partial load failure. This feature allows 6 loads to be connected to one solid state switch and have a detection of load failure in case only one of the loads fail.

Upon issue of the partial load failure alarm, the output of the solid state switch is not inhibited and so the remaining loads connected to the RGC1S or RGS1S can be switched as dictated by the specific process.

Plug and play

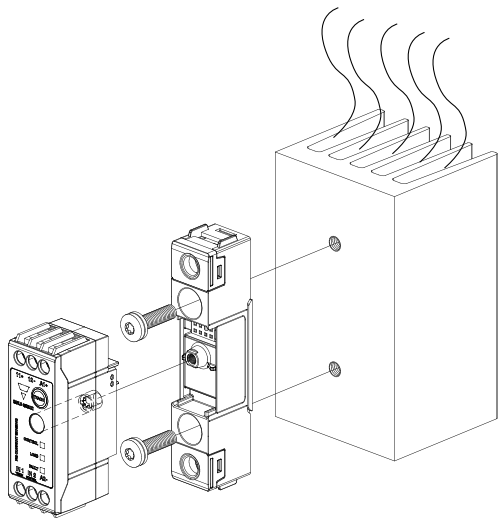
RGC1S series

- Integrated heasink
- Partial load failure detection 1/6
- Ratings up to 600VAC, 85AAC @ 40°C (104°F)
- 4-32VDC control voltage range
- Integrated varistor for overvoltage protection
- 100kArms short circuit current rating acc. to UL508

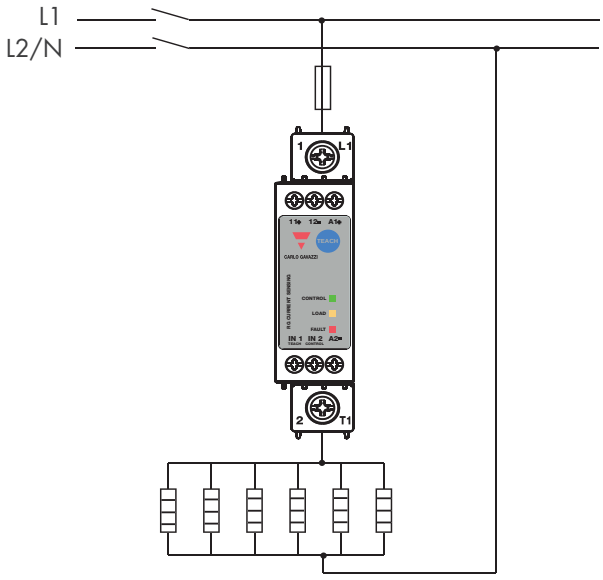
RGS1S series

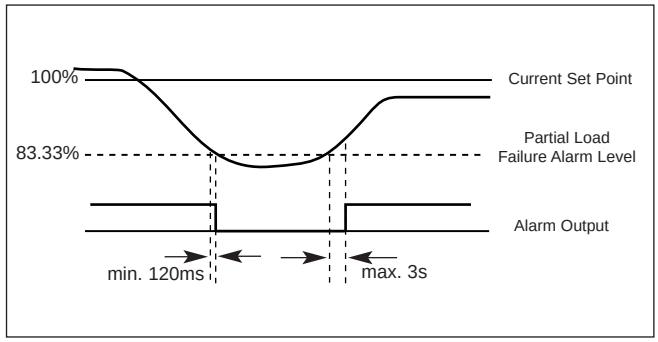
- Product width 22.5mm, Heatsink not integrated
- Partial load failure detection 1/6
- Ratings up to 600VAC, 60AAC
- 4-32VDC control voltage range
- Integrated varistor for overvoltage protection
- 100kArms short circuit current rating acc. to UL508

Mounting of the RGS1S on a heatsink



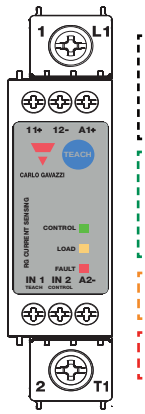
Partial load failure detection





With the RGC1S, RGS1S it is possible to detect a load failure even when multiple loads are connected to one SSR. A maximum of 6 loads can be connected to the RGC1S or RGS1S. In case of a failure of 1 heater, whereby current will deviate from setpoint by 1/6 (16.67%), a partial load failure alarm is issued. The other 5 heaters will continue to be controlled as required by the specific process in the presence of a partial load failure alarm

User interface



Local TEACH
Press for more than 3 seconds for **Current Setpoint**

Green
Half intensity: External Supply ON
Full intensity: Control Input ON

Yellow, Load ON

Red, Alarm ON

Visual alarm indication

Locked TEACH	1 flash	
Open SSR / Open heater	2 flashes	
SSR Overtemperature	3 flashes	
SSR short circuit	4 flashes	
No TEACH setpoint	50%	
Partial load failure	100%	

Selection guide

RGC1S series

Rated voltage, Blocking voltage, Switching mode	Connection Control / power	23AAC (525A²s) 22.5mm	25AAC (1800A²s) 22.5mm short	30AAC (1800A²s) 22.5mm	30AAC (6600A²s) 22.5mm	40AAC (6600A²s) 35mm	60AAC (6600A²s) 70mm	85AAC (6600A²s) 70mm + fan
600VAC, 1200Vp ZC	Box / Screw	RGC1S60D20GKEP	RGC1S60D25GKEP	RGC1S60D30GKEP	RGC1S60D31GKEP	-	-	-
	Box / Box	-	-	-	-	RGC1S60D41GGxP	RGC1S60D61GGxP	RGC1S60D90GGEP

RGS1S series

Rated voltage, Blocking voltage, Switching mode	Connection Control / power	23AAC (525A²s) 22.5mm	25AAC (1800A²s) 22.5mm	30AAC (1800A²s) 22.5mm	30AAC (6600A²s) 22.5mm	40AAC (6600A²s) 35mm	60AAC (6600A²s) 35mm
600VAC, 1200Vp ZC	Box / Screw	RGS1S60D20GKEP	-	RGS1S60D30GKEP	RGS1S60D31GKEP	-	-
	Box / Box	-	-	-	-	-	RGS1S60D61GGxP

x = configuration layout, x = 'E' for E-type, x = 'U' for U-type

Further details are available on online datasheet at www.productselection.net

Integrated fuse

RGC1F

The RGC1F is a series of solid state contactors which integrate protection by means of an on-board semiconductor fuse. The fuse is easily accessible through the front panel of the device. The series consists of two versions, the RGC1FA and the RGC1FS.

The RGC1FA is a version including just the solid state switch and the integrated fuse for protection of the SSR in case of short circuit conditions.

The RGC1FS is a more sophisticated version that apart from the integrated fuse provides also additional monitoring for load status, fuse failure, and SSR malfunction. Alarm status is visible by means of an LED and is also available through an alarm output for remote signalling.

Fit and forget

RGC1F series

- Integrated heasink
- 35mm product width
- Zero cross switching
- Ratings up to 600VAC, 40AAC @ 40°C (104°F)
- 4.5-32VDC control voltage range
- Integrated varistor for overvoltage protection
- 100kArms short circuit current rating acc. to UL508
- Monitoring for load and SSR malfunction (RGC1FS)

RGC1F..40 not UL approved

The RGC1FS series: 4 functions at 1 go

- **Switch**

Solid state switch with integrated heatsink

- **Protection**

Integrated fuse holder and fast acting semiconductor fuse for protection against short circuit currents up to 100kArms

- **Monitoring**

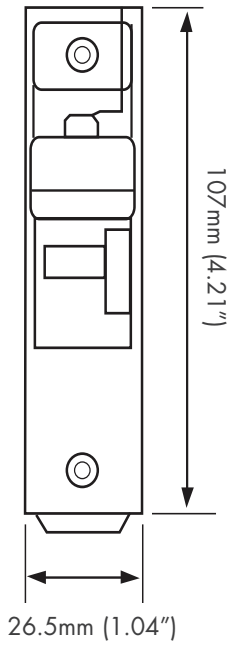
Monitoring and detection of open fuse, load loss, solid state switch malfunction

- **Alarm**

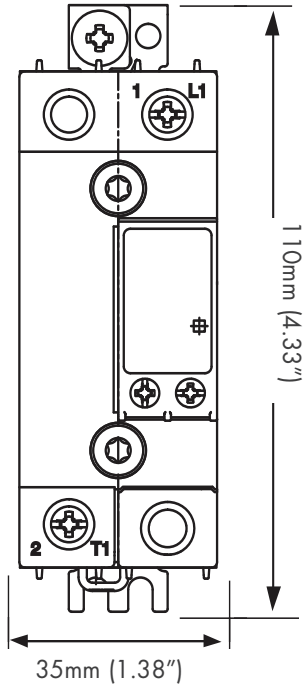
Visual indication through a red LED on the front facia and normally closed alarm output

Space saving with integrated solutions

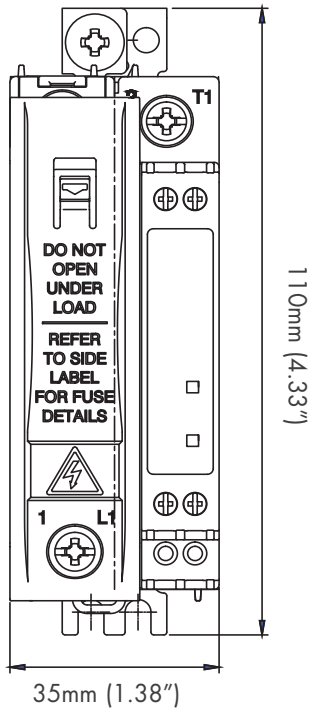
Fuse and fuse holder



40A Solid State Contactor: RGC1A60D40KGE

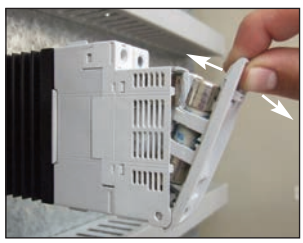


40A Solid State Contactor with integrated fuse in 35mm product width: RGC1FA60D40GGE



Easy accessible fuse

1. Preperation for opening fuse holder.



2. Opening or closing the fuse holder.

3. Removal or Insertion of fuse.

4. Pressing downwards the fuse-holding clip to insert or remove the fuse

Selection guide

Options	Rated voltage, Blocking voltage, Switching mode	Control voltage	20AAC 35mm	30AAC 35mm	40AAC 35mm
Fuse	230VAC, 800Vp ZC	3 - 32VDC	RGC1FA23D20GGE	RGC1FA23D30GGE	RGC1FA23D40GGE
Fuse	600VAC, 1200Vp ZC	4.5 - 32VDC	RGC1FA60D20GGE	RGC1FA60D30GGE	RGC1FA60D40GGE
Fuse + Monitoring	230VAC, 800Vp ZC	3 - 32VDC	RGC1FS23D20GGE	RGC1FS23D30GGE	RGC1FS23D40GGE
Fuse + Monitoring	600VAC, 1200Vp ZC	4.5 - 32VDC	RGC1FS60D20GGE	RGC1FS60D30GGE	RGC1FS60D40GGE

Further details are available on online datasheet at www.productselection.net

Slimline RG

RGS1D, RGC1D

Apart from switching of AC loads, the RG series caters also for switching of DC loads with the RGS1D and RGC1D series.

The RGC1D is offered with integrated heatsink whilst the RGS1D is suitable for panel mounting or for mounting on heatsinks which are specific to the particular application in which the solid state relay is to be used.

Switching is done through an IGBT power semiconductor which is protected by an integrated free-wheeling diode. Ratings extend to 1000VDC, 25ADC. Maximum operational temperature goes up to +80°C (+176°F).

DC output Solid State Switches

RGS1D series
- Without integrated heatsink
- Product width 17.5mm
- Output operational voltage up to 1000VDC
- Operational current up to 25ADC
- 4.5 - 32VDC control voltage range

RGC1D series
- Integrated heasink
- Product width 17.5mm
- Operational voltage up to 1000VDC
- Operational current up to 15ADC @ 40°C (104°F)
- 4.5 - 32VDC control voltage range

- **Repeatable and reliable**

The RG solutions are fully solid state. Lifetime is not compromised by contact arcing. The need for frequent replacements is hence eliminated

- **Efficient heat dissipation**

This series of DC switching solid state switches boasts of high thermal efficiency thanks to the power assembly processes adopted in the RG series

- **Space saving**

Product width of the RGS1D and RGC1D is only 17.5mm. This enables compact control panel designs

Applications

Switching of photovoltaic strings

The 1000VDC rating makes the RGS1D and the RGC1D the ideal solid state switch for the switching of strings in photovoltaic panels. A photovoltaic installation is a long term investment that can only be sustained by a using reliable equipment which ensures minimum downtimes. Unlike electromechanical solutions, the RG series is a fully solid state solution offering a much longer lifetime. Carlo Gavazzi product offering covers also monitoring and smart control systems as well as surge protectors for such applications.

Ask for more information about EOS-Array Control Systems and L-Guard series of Surge protectors from a Carlo Gavazzi representative.

Ambient heating in train cabins

In train applications it is common to have DC voltages which can go well over 600VDC. The 1000VDC operational voltage associated with the RGS1D and RGC1D enables this solid state switch to be used to control DC loads used for space heating in such applications. Working temperature requirements are covered by the wide operating range of the RGC1D, RGS1D.

Selection guide

Model	Output voltage range	Control voltage	Connection control / power	15ADC 17.5mm	25ADC 17.5mm
No heatsink	24 - 1000VDC	4.5 - 32VDC	Screw / Screw	**RGS1D1000D15KKE**	**RGS1D1000D25KKE**
With integrated heatsink	24 - 1000VDC	4.5 - 32VDC	Screw / Screw	**RGC1D1000D15KKE**	-

Further details are available on online datasheet at www.productselection.net

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