



RG series: 1-phase solid state switching solutions

Switches

RG series

A new generation of solid state switches

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 17.5 mm.

The RG series adopts 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 solid state relays. The wire bonding technology used for the output chip assembly reduces thermal and mechanical stress providing a longer lifetime for the solid state switch.

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



Enhanced reliability and panel space optimisation

Solid state relays: RGS1 series

These solutions do not have an integrated heatsink. The size and design of the heatsink, if required, is determined by the end user for the specific application where the SSR is to be used.

Carlo Gavazzi offers a range of heatsinks suitable for DIN, panel or thru wall mounting. Our Heatsink Selector Tool is available on our website: www.gavazziautomation.com and can be used for the selection of the most appropriate Carlo Gavazzi heatsink for the intended application.

Solid state contactors: RGC1, RGH1 series

These are out of the box ready to use solutions that have a factory mounted heatsink. Each product variant has a current derating curve that gives the maximum operational current at a specific working temperature.

Such solutions eliminate the need for the end user to calculate the heatsinking required for the correct operation of the solid state switch.

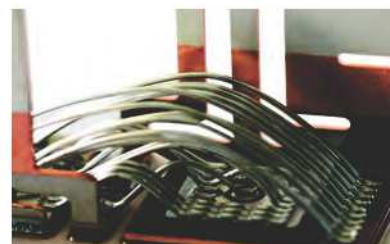
Additionally, these solutions are not approved as components but bear the UL listed mark instead of the UR mark.



Benefits

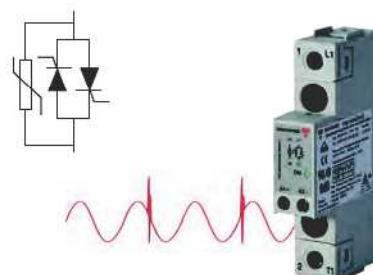
Long lifetime, less maintenance costs

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



Low downtime

The switching of AC loads in the RG range is done with **back-to-back thyristors** which are well known for their superior specifications compared to other switching components.



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

Easy and fast installation

- Integrated heatsink with the RGC series
- Pluggable spring connectors for the input terminals
- Box clamp variants provide robust connections for easy and fast connection of power cables up to 25 mm² / AWG 3



Space saving

The slimmest product in the range has a product width of only **17.5 mm** giving 25% space saving per SSR compared to the 22.5 mm solutions.

Short circuit protection with MCBs

The I²t specification in the RG range goes up to **18,000 A²s** in only 17.5 mm product width. The RG with 18,000 A²s is the ideal solution when protection of the SSR against short circuits with economic, easily accessible, Miniature Circuit Breakers is desired.



High UL fault current rating for panels

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



UL 508A
Industrial
Control Panels

RG series

A complete product offering

Space saving solid state switching solutions for AC loads

RGS1 series

- 17.5mm product width
- Zero cross or Instant on
- Ratings up to 660 VAC, 90 AAC*
- Blocking voltage up to 1600 V_p
- 18,000 A²s for MCB protection
- AC or DC control

RGC1 series, RGH1 series

- Integrated heatsink
- Zero cross or Instant on (RGC1)
- Ratings up to 660 VAC, 85 AAC*
- Blocking voltage 1200 V_p, 1600 V_p (RGH1)
- 18,000 A²s for MCB protection
- AC or DC control
- Optional overtemperature protection



1000 VDC switching solutions in 17.5 mm product width

RGS1D series

- Ratings up to 1000 VDC, 25 ADC
- DC control

RGC1D series

- Integrated heatsink
- Ratings up to 1000 VDC, 15 ADC
- DC control



Fit and forget - Integrated fuse protection and system monitoring

RGC1FA series

- Integrated heatsink
- On-board semiconductor fuse
- Zero cross
- Ratings up to 660 VAC, 40 AAC
- DC control

RGC1FS series

- Integrated heatsink
- On-board semiconductor fuse
- Monitoring for open fuse, heater loss, SSR malfunction
- Zero cross
- Ratings up to 660 VAC, 40 AAC
- DC control



Monitor changes in heater characteristics with the RG current sensing

RGS1S series

- 1/6 partial load failure
- Loadloss, Mainsloss, overtemperature and SSR malfunction detection
- Zero cross
- Ratings up to 660 VAC, 90 AAC
- DC control

RGC1S series

- Integrated heatsink
- 1/6 partial load failure
- Loadloss, Mainsloss, overtemperature and SSR malfunction detection
- Zero cross
- Ratings up to 660 VAC, 85 AAC
- DC control



Power control with analog input solid state switches

RGS1P..AA, RGS1P..V series

- Phase angle, full cycle, advanced full cycle or soft start switching
- Ratings up to 660 VAC, 90 AAC
- 4-20mA, 0-10V, 1-5V, 0-5V, pot input

RGC1P..AA, RGC1P..V series

- Integrated heatsink
- Phase angle, full cycle, advanced full cycle or soft start switching
- Ratings up to 660 VAC, 63 AAC
- 4-20mA, 0-10V, 1-5V, 0-5V, pot input



Soft starting solution for SWIR heaters

RGS1P..K series

- Soft start switching
- Ratings up to 660 VAC, 90 AAC
- 24 VDC control

RGC1P..K series

- Integrated heatsink
- Soft start switching
- Ratings up to 660 VAC, 63 AAC
- 24 VDC control



* RGS and RGH models are available up to 690 VAC nominal operational voltage. These variants are CE marked only and do not have an integrated varistor

Applications

Plastic & Rubber

- Extrusion machines
- Blow moulding equipment
- Auxiliary equipment
- Plastic injection machines
- Film blow moulding
- Thermoforming

Benefits

- Trouble free operation over a large number of cycles
- Panel space optimisation with the RG small footprint
- UL listing facilitates equipment certification process
- 100 kArms short circuit current rating enables high fault rating for UL 508A panels



Food & Beverage

- Electrical ovens
- Vending machines
- Fryers
- Coffee machines
- Griddles

Benefits

- Reliable operation in humid environments of 95% @ 40 °C (104 °F)
- Conformance to legislation for restricted substances (RoHS)
- Glow wire flammability ratings for plastics conform to EN 60335 requirements



HVAC

- Air duct heaters
- Air handling units
- Dehumidifiers
- Underfloor heating

Benefits

- Long lifetime with a fully solid state solution
- Power control with an analog input fed directly to the RGC
- No annoying clicking sound (unlike with mechanical solutions)
- Energy efficiency with RGC1P phase angle mode for speed control of AC fans



Packaging & Wrapping

- Sealing process
- Sterilisation
- Shrink wrapping

Benefits

- Low downtime, less maintenance costs with integrated overvoltage protection
- Fast to install
- 18,000 A²s facilitates short circuit protection coordination



Semiconductor

- Soldering machines
- Drying

Benefits

- Long operating lifetime
- Space saving with the RG slim solutions
- Fault diagnostics with optional load and system monitoring
- Energy efficiency with power control solutions



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 so 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. Our Heatsink Selector Tool is available on our website: www.gavazziautomation.com

All variants in the RGS series are available in a platform with a product width of 17,5 mm.

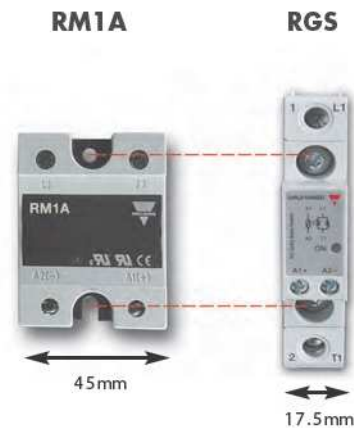


AC output solid state relays

RGS series

- 17.5 mm product width
- Ratings up to 660 VAC, 90 AAC*
- Zero cross or Instant ON (Random) switching
- I²t up to 18,000 A²s
- Control range: 4-32 VDC, 20-275 VAC (24-190 VDC)
- Integrated varistor across output*
- Motor ratings up to 4 kW (400 VAC), 15 HP (600 VAC)
- 100 kArms short circuit current rating acc. to UL 508
- 'E' type or 'U' type configuration
- Box clamps for 25 mm² / AWG 3 power cables
- Spring loaded control plug option

Mounting of RGS



Identical mounting hole spacing specifications



* Options available for 690 VAC nominal operational voltage with CE marking only and no integrated varistor

Applications



DIN mounting

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



RGS Power Pack

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



Thermal pads

An alternative to thermal paste: the **RGHT** is a pack of 10 thermal pads. Add suffix 'HT', (RGS...HT), for factory mounted thermal pad



Heatsinks

A number of heatsinks are available for mounting the RGS on different type of heatsinks such as thru wall mount heatsinks and panel mount heatsinks.

Selection guide

'E' type configurations

Rated voltage, Blocking voltage, Switching mode	Connection control/ power	Control voltage	25 AAC (525 A ² s) 17.5 mm	50 AAC (1800 A ² s) 17.5 mm	75 AAC (3200 A ² s) 17.5 mm	90 AAC (6600 A ² s) 17.5 mm	90 AAC (18000 A ² s) 17.5 mm
230 VAC, 800 Vp ZC	x / Screw	3 - 32 VDC	RGS1A23D25xKE	RGS1A23D50xKE	-	-	-
		20 - 275 VAC (24 - 190 VDC)	RGS1A23A25xKE	RGS1A23A50xKE	-	-	-
600 VAC, 1200 Vp ZC	x / Screw	4 - 32 VDC	RGS1A60D25xKE	RGS1A60D50xKE	RGS1A60D75KKE	RGS1A60D90xKE	RGS1A60D92xKE
		20 - 275 VAC (24 - 190 VDC)	RGS1A60A25xKE	RGS1A60A50xKE	RGS1A60A75KKE	RGS1A60A90xKE	RGS1A60A92xKE
	x / Box	4 - 32 VDC	-	RGS1A60D50xGE	-	-	RGS1A60D92xGE
		20 - 275 VAC (24 - 190 VDC)	-	RGS1A60A50KGE	-	-	RGS1A60A92KGE
600 VAC, 1600 Vp ZC	Screw / Screw	4 - 32 VDC	-	RGS1A60D51KKE	-	RGS1A60D91KKE*	-
		20 - 275 VAC (24 - 190 VDC)	-	RGS1A60A51KKE	-	RGS1A60A91KKE*	-
600 VAC, 1200 Vp IO	Screw / Screw	4 - 32 VDC	-	RGS1B60D50KKE	-	RGS1B60D90KKE	-

'U' type configurations

Rated voltage, Blocking voltage, Switching mode	Connection control/ power	Control voltage	30 AAC (1800 A ² s) 17.5 mm	-	-	-	-
600 VAC, 1200 Vp ZC	Screw / Box	4 - 32 VDC	RGS1A60D30KGU	-	-	-	-
		20 - 275 VAC (24 - 190 VDC)	RGS1A60A30KGU	-	-	-	-
600 VAC, 1200 Vp IO	Screw / Box	4 - 32 VDC	RGS1B60D30KGU	-	-	-	-

x = control connection type, x = 'K' for screw, x = 'M' for spring

ZC = Zero Cross Switching, IO = Instant On Switching

* Similar models are available for 690 VAC rated voltage

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

CARLO GAVAZZI Automation Components. Specifications are subject to change without notice. Illustrations are for example only.

Slimline RG

RGC and 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.

Because 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 17.5 mm width and associated rating goes up to 37 AAC @ 40 °C (104 °F). Product width in the RGC, RGH range goes up to 70mm extending the series to a maximum rating of 85 AAC @ 40 °C (104 °F).



AC output solid state contactors

RGC series

- 1200 Vp blocking voltage; I²t up to 18,000 A²s
- Current ratings at 40 °C (104 °F) up to 85 AAC
- Operational voltage up to 660 VAC
- Zero cross or Instant ON (Random) switching
- Control range: 4-32 VDC, 20-275 VAC (24-190 VDC)
- Integrated varistor across output
- Motor ratings up to 4.4 kW (400 VAC), 15 HP (600 VAC)
- 100 kArms short circuit current rating acc. to UL 508
- 'E' type or 'U' type configuration
- Spring loaded control plug option
- Optional overtemperature protection

RGH series

- 1600 Vp blocking voltage; I²t up to 6,600 A²s
- Current ratings at 40 °C (104 °F) up to 60 AAC
- Operational voltage up to 660 VAC**
- Zero cross switching
- Control range: 4-32 VDC, 20-275 VAC (24-190 VDC)
- Integrated varistor across output**
- Motor ratings up to 4.4 kW (400 VAC), 15 HP (600 VAC)
- 100 kArms short circuit current rating acc. to UL 508
- 'E' type or 'U' type configuration
- Spring loaded control plug option



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

**Options available for 690 VAC rated voltage with CE marking only and no integrated varistor

Selection guide

'E' type configurations

Rated voltage, Blocking voltage, Switching mode	Control voltage	Power connection: Screw 'K'						-
		20 AAC (525 A ² s) 17.5 mm - Short	23 AAC (6600 A ² s) 17.5 mm - Short	25 AAC (1800 A ² s) 17.5 mm - Short	30 AAC (18000 A ² s) 17.5 mm - Short	30 AAC (1800 A ² s) 22.5 mm	30 AAC (6600 A ² s) 22.5 mm	
230 VAC, 800 V _p ZC	3 - 32 VDC	RGCI A23D15xKE	-	RGCI A23D25xKE	-	RGCI A23D30xKE	-	-
	20 - 275 VAC (24 - 190 VDC)	RGCI A23A15xKE	-	RGCI A23A25xKE	-	RGCI A23A30xKE	-	-
600 VAC, 1200 V _p ZC	4 - 32 VDC	RGCI A60D15xKE	-	RGCI A60D25xKE	RGCI A60D32xKE	RGCI A60D30xKE	-	-
	20 - 275 VAC (24 - 190 VDC)	RGCI A60A15xKE	-	RGCI A60A25xKE	-	RGCI A60A30xKE	-	-
600 VAC, 1600 V _p ZC	4 - 32 VDC	-	RGH1 A60D15xKE	-	-	-	RGH1 A60D31xKE	-
	20 - 275 VAC (24 - 190 VDC)	-	RGH1 A60A15xKE	-	-	-	RGH1 A60A31xKE	-
600 VAC, 1200 V _p , IO	4 - 32 VDC	RGCI B60D15KKE	-	RGCI B60D25KKE	-	RGCI B60D30KKE	-	-

Rated voltage, Blocking voltage, Switching mode	Control voltage	Power connection: Box 'G'						-
		37 AAC (18000 A ² s) 17.5 mm - Short	40 AAC (3200 A ² s) 35 mm	40 AAC (6600 A ² s) 35 mm	43 AAC (18000 A ² s) 35 mm	60 AAC (3200 A ² s) 70 mm	60 AAC (6600 A ² s) 70 mm	
230 VAC, 800 V _p ZC	3 - 32 VDC	-	RGCI A23D40KGE	-	RGCI A23D42KGE	RGCI A23D60KGE	-	RGCI A23D62KGE
	20 - 275 VAC (24 - 190 VDC)	-	RGCI A23A40KGE	-	RGCI A23A42KGE	RGCI A23A60KGE	-	RGCI A23A62KGE
600 VAC, 1200 V _p ZC	4 - 32 VDC	RGCI A60D32xGE	RGCI A60D40xGE	-	RGCI A60D42xGE	RGCI A60D60KGE	-	RGCI A60D62xGE
	20 - 275 VAC (24 - 190 VDC)	-	RGCI A60A40xGE	-	RGCI A60A42xGE	RGCI A60A60KGE	-	RGCI A60A62xGE
600 VAC, 1600 V _p ZC	4 - 32 VDC	-	-	RGH1 A60D41xGE*	-	-	RGH1 A60D60KGE*	-
	20 - 275 VAC (24 - 190 VDC)	-	-	RGH1 A60A41xGE*	-	-	RGH1 A60A60KGE*	-
600 VAC, 1200 V _p , IO	4 - 32 VDC	-	RGCI B60D40KGE	-	RGCI B60D42KGE	RGCI B60D60KGE	-	RGCI B60D62KGE

'U' type configurations

Rated voltage, Blocking voltage, Switching mode	Control voltage	Power connection: Box 'G'						-
		20 AAC (525 A ² s) 17.5 mm - Short	25 AAC (1800 A ² s) 17.5 mm - Short	30 AAC (1800 A ² s) 22.5 mm	-	-	-	
230 VAC, 800 V _p ZC	3 - 32 VDC	RGCI A23D15KGU	RGCI A23D25KGU	RGCI A23D30KGU	-	-	-	-
	20 - 275 VAC (24 - 190 VDC)	RGCI A23A15KGU	RGCI A23A25KGU	RGCI A23A30KGU	-	-	-	-
600 VAC, 1200 V _p ZC	4 - 32 VDC	RGCI A60D15KGU	RGCI A60D25KGU	RGCI A60D30KGU	-	-	-	-
	20 - 275 VAC (24 - 190 VDC)	RGCI A60A15KGU	RGCI A60A25KGU	RGCI A60A30KGU	-	-	-	-
600 VAC, 1200 V _p , IO	4 - 32 VDC	RGCI B60D15KGU	RGCI B60D25KGU	RGCI B60D30KGU	-	-	-	-

Rated voltage, Blocking voltage, Switching mode	Control voltage	Power connection: Box 'G'						-
		-	40 AAC (3200 A ² s) 35 mm	40 AAC (6600 A ² s) 35 mm	43 AAC (18000 A ² s) 35 mm	60 AAC (3200 A ² s) 70 mm	60 AAC (6600 A ² s) 70 mm	
600 VAC, 1200 V _p ZC	4 - 32 VDC	-	RGCI A60D40KGU	-	RGCI A60D42KGU	RGCI A60D60KGU	-	RGCI A60D62KGU
	20 - 275 VAC (24 - 190 VDC)	-	RGCI A60A40KGU	-	RGCI A60A42KGU	RGCI A60A60KGU	-	RGCI A60A62KGU
600 VAC, 1600 V _p ZC	4 - 32 VDC	-	-	RGH1 A60D41KGU	-	-	RGH1 A60D60KGU	-
	20 - 275 VAC (24 - 190 VDC)	-	-	RGH1 A60A41KGU	-	-	RGH1 A60A60KGU	-
600 VAC, 1200 V _p , IO	4 - 32 VDC	-	RGCI B60D40KGU	-	RGCI B60D42KGU	RGCI B60D60KGU	-	RGCI B60D62KGU

Integrated over temperature protection

Rated voltage, Blocking voltage, Switching mode	Control voltage	30 AAC (1800 A ² s) 22.5 mm	40 AAC (3200 A ² s) 35 mm	43 AAC (18000 A ² s) 35 mm	60 AAC (3200 A ² s) 70 mm	65 AAC (18000 A ² s) 70 mm	85 AAC (6600 A ² s) 70 mm + fan	85 AAC (18000 A ² s) 70 mm + fan
		600VAC, 1200V _p ZC	5 - 32 VDC	RGCI A60D30GKEP	RGCI A60D40GGUP	RGCI A60D42GGEP	RGCI A60D60GGUP	RGCI A60D62GGEP
20 - 275VAC (24 - 190 VDC)	RGCI A60A30GKEP		RGCI A60A40GGUP	RGCI A60A42GGEP	RGCI A60A60GGUP	RGCI A60A62GGEP	RGCI A60A90GGzP	RGCI A60A92GGEP

x = control connection type, x = 'K' for screw, x = 'M' for spring

z = Type Configuration, z = 'E' for E-type layout, z = 'U' for U-type layout

ZC = Zero Cross Switching, IO = Instant On Switching

* Similar models are available for 690 VAC rated voltage

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

Current sensing

RGC1S and RGS1S series

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 heatsink
- Partial load failure detection 1/6
- Ratings up to 660 VAC, 85 AAC @ 40 °C (104 °F)
- I²t up to 18,000 A²s
- 4-32 VDC control voltage range
- Integrated varistor for overvoltage protection
- 100 kArms short circuit current rating acc. to UL 508

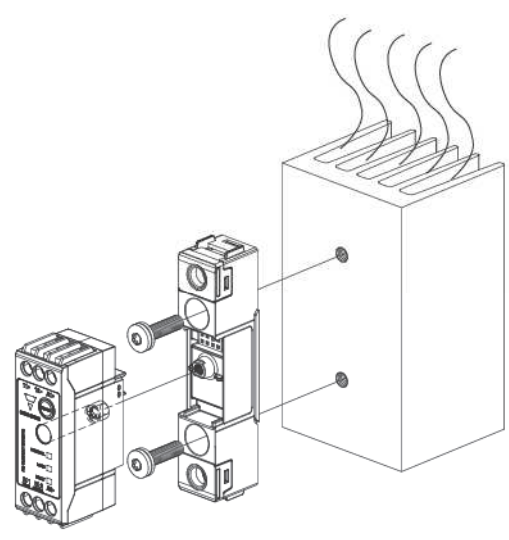


RGS1S series

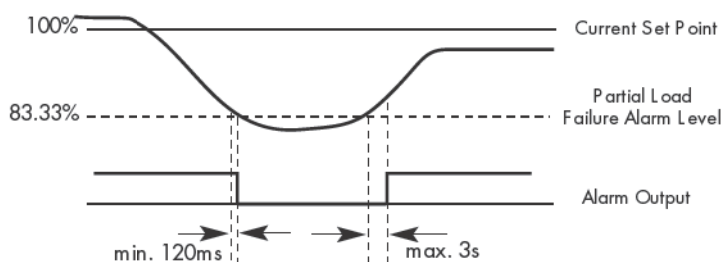
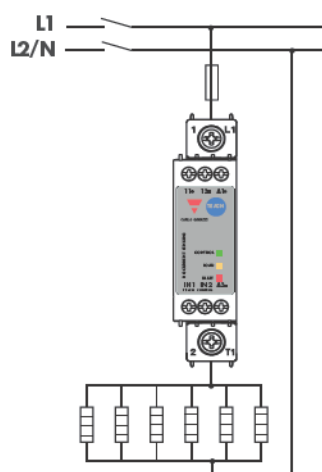
- Product width 22.5 mm, heatsink not integrated
- Partial load failure detection 1/6
- Ratings up to 660 VAC, 90 AAC, 18,000 A²s
- 4-32 VDC control voltage range
- Integrated varistor for overvoltage protection
- 100 kArms short circuit current rating acc. to UL 508



Mounting of the RGS1S on a heatsink

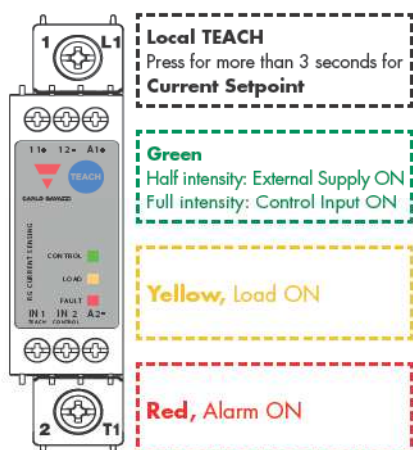


Partial load failure detection



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



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 (integrated heatsink)

Rated voltage, Blocking voltage, Switching mode	23 AAC (525 A ² s) 22.5 mm	25 AAC (1800 A ² s) 22.5 mm - Short	25 AAC (18000 A ² s) 22.5 mm - Short	30 AAC (1800 A ² s) 22.5 mm	30 AAC (6600 A ² s) 22.5 mm	43 AAC (18000 A ² s) 35 mm	65 AAC (18000 A ² s) 70 mm	85 AAC (18000 A ² s) 70 mm + fan
600 VAC, 1200 Vp ZC	RGC1S60D20GKEP	RGC1S60D25GKEP	RGC1S60D26GKEP	RGC1S60D30GKEP	RGC1S60D31GKEP	RGC1S60D41GGEP	RGC1S60D61GGEP	RGC1S60D90GGEP
	-	-	-	-	-	RGC1S60D41GGUP	RGC1S60D61GGUP	-

RGS1S series (no heatsink)

Rated voltage, Blocking voltage, Switching mode	30 AAC (1800 A ² s) 22.5 mm	65 AAC (18000 A ² s) 35 mm	90 AAC (18000 A ² s) 22.5 mm	-	-	-	-	-
600 VAC, 1200 Vp ZC	RGS1S60D30GKEP	-	RGS1S60D92GGEP	-	-	-	-	-
	-	RGS1S60D61GGUP	-	-	-	-	-	-

ZC = Zero cross switching

GK = box clamps for control terminals, screws for power terminals | GG = box damps for control terminals, box clamps for power terminals
Further details are available on online datasheets at www.gavazziautomation.com

Integrated fuse

RGC1F series

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 heatsink
- 35 mm product width
- Zero cross switching
- Ratings up to 660 VAC, 40 AAC @ 40 °C (104 °F)
- 4.5-32 VDC control voltage range
- Integrated varistor for overvoltage protection
- 100 kArms short circuit current rating acc. to UL 508
- Monitoring for load and SSR malfunction (RGC1FS)

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

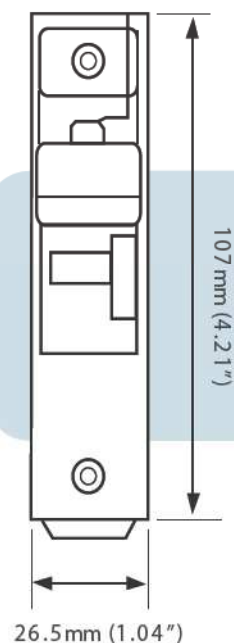
Visual indication through a red LED on the front facia and normally closed alarm output



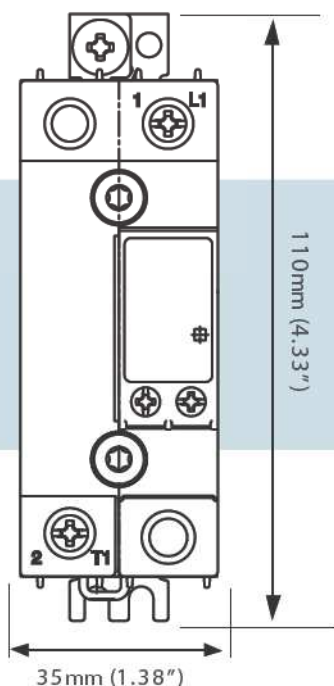
RGC1F..40 not UL approved

Space saving with integrated solutions

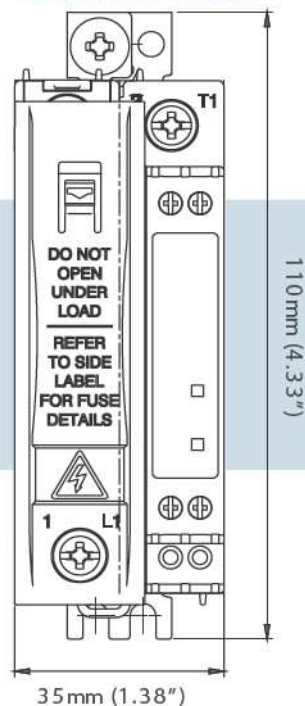
Fuse and fuse holder



40 AAC Solid State Contactor:
RGCI A60D40KGE



40 AAC Solid State Contactor with
integrated fuse in 35 mm product width:
RGCI FA60D40GGE



Easy accessible fuse



1. Preparation 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	Control voltage	20 AAC 35 mm	30 AAC 35 mm	40 AAC 35 mm
Fuse	230 VAC, 800 Vp	3 - 32 VDC	RGCI FA23D20GGE	RGCI FA23D30GGE	RGCI FA23D40GGE
Fuse	600 VAC, 1200 Vp	4.5 - 32 VDC	RGCI FA60D20GGE	RGCI FA60D30GGE	RGCI FA60D40GGE
Fuse + Monitoring	230 VAC, 800 Vp	3 - 32 VDC	RGCI FS23D20GGE	RGCI FS23D30GGE	RGCI FS23D40GGE
Fuse + Monitoring	600 VAC, 1200 Vp	4.5 - 32 VDC	RGCI FS60D20GGE	RGCI FS60D30GGE	RGCI FS60D40GGE

Further details are available on online datasheets at www.gavazziautomation.com

CARLO GAVAZZI Automation Components. Specifications are subject to change without notice. Illustrations are for example only.

Proportional controllers

RGCI P and RGS1 P series

In a number of applications, the output signal from measuring and monitoring devices is an analog signal that needs to be converted to a digital signal to switch a 'common' solid state relay. This can be costly, occupies additional space in the panel and takes a longer time to install.

With the RG proportional controllers there is no need for this conversion since they can be controlled directly with an analog signal. Based on the analog input signal, the RG controller calculates the output power needed by the process and controls the load accordingly.

The RG proportional controller is equipped with user selectable switching modes to address different application such as speed control of AC fans, light dimming, very fine temperature control and reduction of visual flickering associated with short wave infrared heaters.



Analog input, power control solutions

Features

- Selectable switching modes
- 4-20 mA, 0-10 V, 0-5 V, 1-5 V or external pot input
- Integrated heatsink (RGCI P)
- Operational voltage up to 660 VAC
- Current rating up to 63 AAC (RGCI P), 90 AAC (RGS1 P)
- Integrated output overvoltage protection
- 18,000 A²s for MCB protection coordination
- LED indication for control and load status
- 100 kArms short circuit current rating acc. to UL 508

Benefits

Energy saving

Switching the load for less than a half mains cycle makes it possible to regulate speed of AC fans and to maintain a temperature closer to set point leading to potential savings in consumed energy

Inventory reduction

Multifunction controller that integrates various switching modes in one unit

Easy to use

Switching mode is easily selectable with a selector knob. Tamper proof covers, RGTMP, are available

Less down time, lower maintenance costs

RG controllers adopt integrated output overvoltage protection, high surge current capability and process technology that reduces thermo-mechanical stresses on output chips extending the controller lifetime



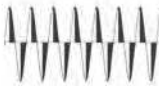
CE, cULus for RGCI P
CE, UR, CSA for RGS1 P

Switches

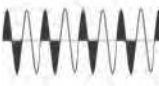
CARLO GAVAZZI Automation Components. Specifications are subject to change without notice. Illustrations are for example only.

A compact, easy to use solid state solution for power control

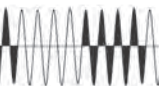
Switching modes for the RGC1P, RGS1P



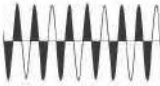
Mode 1: Phase angle switching
low resolution by firing at any point within a mains half cycle.
Ideal for: Speed control of AC fans, light dimming, fine heater control (such as infrared heaters)



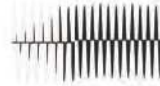
Mode 2: 1x Full cycle switching
1 mains full cycle resolution, less noisy than Mode 1.
Ideal for: Heater control of standard heater elements, long and medium wave infrared heaters




Mode 3: 4x Full cycle switching
Mode 4: 16x Full cycle switching
4 or 16 mains full cycle resolution, heater lifetime expectancy less than Modes 1 and 2, less noisy than Mode 2.
Ideal for: Control of standard heater elements and heater elements with a low thermal inertia



Mode 5: Advanced full cycle switching
non firing in mains half cycles, firing in mains full cycle at >50% input to reduce visual flickering of lamps.
Ideal for: Short and medium wave infrared heaters



Mode 6: Mode 4 with a soft start
Soft start on power up of Mode 4 and when non firing is >5sec to reduce peak inrush currents.
Ideal for: Heater elements which change resistance with time and temperature



Mode 7: Mode 5 with a soft start
Soft start on power up of Mode 5 and when non firing is >5sec to reduce peak inrush currents.
Ideal for: Short and medium wave infrared heaters

Selection guide

RGC1P..AA.., RGC1P..V.. (integrated heatsink)

Control input	Output voltage	Supply voltage	15 AAC (1800 A ² s) 35 mm	30 AAC (1800A ² s) 35 mm	43 AAC (18000 A ² s) 35 mm	50 AAC (3200 A ² s) 70 mm	63 AAC (18000 A ² s) 70 mm
4-20 mA	85 - 265 VAC	-	RGC1P23AA12E	RGC1P23AA30E	RGC1P23AA42E	RGC1P23AA50E	RGC1P23AA62E
	190 - 550 VAC	-	RGC1P48AA12E	RGC1P48AA30E	RGC1P48AA42E	RGC1P48AA50E	RGC1P48AA62E
	410 - 660 VAC	-	-	RGC1P60AA30E	RGC1P60AA42E	-	RGC1P60AA62E
0-10 V 0-5 V 1-5 V External pot	85 - 265 VAC	24 VDC/ VAC	RGC1P23V12ED	RGC1P23V30ED	RGC1P23V42ED	RGC1P23V50ED	RGC1P23V62ED
		90 - 250 VAC	RGC1P23V12EA	RGC1P23V30EA	RGC1P23V42EA	-	RGC1P23V62EA
	190 - 550 VAC	24 VDC/ VAC	RGC1P48V12ED	RGC1P48V30ED	RGC1P48V42ED	RGC1P48V50ED	RGC1P48V62ED
		90 - 250 VAC	RGC1P48V12EA	RGC1P48V30EA	RGC1P48V42EA	-	RGC1P48V62EA
	410 - 660 VAC	24 VDC/ VAC	-	RGC1P60V30ED	RGC1P60V42ED	-	RGC1P60V62ED
		90 - 250 VAC	-	RGC1P60V30EA	RGC1P60V42EA	-	RGC1P60V62EA

RGS1P..AA.., RGS1P..V.. (no heatsink)

Control input	Output voltage	Supply voltage	50 AAC (1800 A ² s) 35 mm	90 AAC (18000 A ² s) 35 mm	-	-	-
4-20 mA	85 - 265 VAC	-	RGS1P23AA50E	RGS1P23AA92E	-	-	-
	190 - 550 VAC	-	RGS1P48AA50E	RGS1P48AA92E	-	-	-
	410 - 660 VAC	-	RGS1P60AA50E	RGS1P60AA92E	-	-	-
0-10 V 0-5 V 1-5 V External pot	85 - 265 VAC	24 VDC/ VAC	RGS1P23V50ED	RGS1P23V92ED	-	-	-
		90 - 250 VAC	RGS1P23V50EA	RGS1P23V92EA	-	-	-
	190 - 550 VAC	24 VDC/ VAC	RGS1P48V50ED	RGS1P48V92ED	-	-	-
		90 - 250 VAC	RGS1P48V50EA	RGS1P48V92EA	-	-	-
	410 - 660 VAC	24 VDC/ VAC	RGS1P60V50ED	RGS1P60V92ED	-	-	-
		90 - 250 VAC	RGS1P60V50EA	RGS1P60V92EA	-	-	-

Soft starters

RGC1P..K and RGS1P..K series

Short wave infrared (SWIR) heaters are nowadays used in a wide range of different applications due to their efficiency in reaching high temperatures in a very short time and hence have the advantage of being more energy efficient over other type of heaters.

The main issue with SWIR is that they exhibit a high cold to hot resistance ratio which results in a very high inrush current on start up from a cold condition. Because of this inrush current, solid state relays have to be over-engineered to handle the surge current. Upstream protection may also trip unnecessarily on start up.

The RGC1P, RGS1P..K variants have been designed to tackle these issues. Upon starting from a cold condition a soft start is performed in order to apply the voltage and current to the load smoothly. This reduces the inrush current when SWIR heaters are switched on from a cold state.



Solid state relays with a soft starting feature

Features

- Soft start on power up or when non firing period is >5 seconds
- Soft start time settable to max. 5 seconds
- Integrated heatsink (RGC1P)
- Operational voltage up to 660 VAC
- Max. current rating 63 AAC (RGC1P), 90 AAC (RGS1P)
- Control voltage 24 VDC
- Integrated output overvoltage protection
- 18,000 A²s for MCB protection coordination
- LED indication for control and load status
- 100 kArms short circuit current rating acc. to UL 508

Benefits

Extended heater lifetime

Eliminating the peak inrush current which can be as high as 15x I_n extends the heater lifetime

Trouble free startup

No peak inrush current exhibited with RGC1P..K, RGS1P..K. Upstream protection does not trip unnecessarily on start up. There is no need to overengineer on the protection and the solid state relay

Low downtime, less maintenance costs

Ensured with integrated output overvoltage protection, high surge current capability and process technology that reduces thermal and mechanical stresses on output chips extending the controller lifetime



Enjoy the benefits of SWIR heaters without the problematics of inrush currents



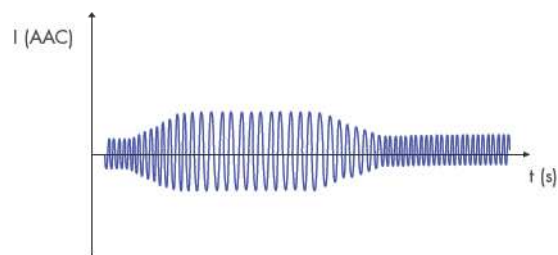
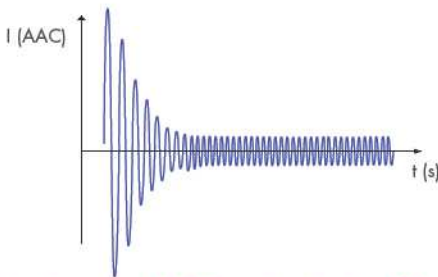
SWIR are used when lower power consumption and faster process cycles are needed.

SWIR resistance is however affected by changes in temperature. This results in a very high inrush current upon starting which can be a nuisance. The RGC1P..K and RGS1P..K are intended to reduce this inrush current by performing a soft start when starting from a cold state.

Extending SWIR heater lifetime

Starting SWIR with a 'common' solid state relay

Using soft starting for switching on SWIR from a cold state

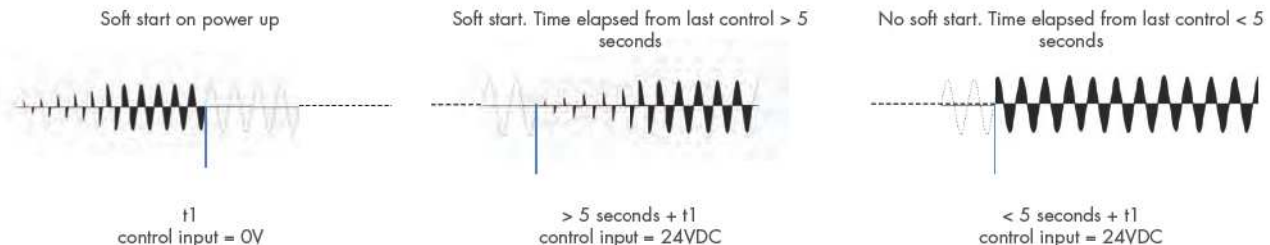


Inrush current of SWIR can be as high as **15x** the nominal current The RGC1P..K, RGS1P..K can reduce the inrush current by **> 60%**

Soft starting only when the SWIR is in a cold state

The cause of the inrush current associated with SWIR is due to the very low resistance of such heaters when in a cold state. When the SWIR is in a hot condition the resistance is stable and no inrush current is exhibited.

For this reason, the RGC1P..K and RGS1P..K do not exhibit a soft start every time a control voltage is applied but only on startup and when control signal has been missing for the previous 5 seconds.



Selection guide

RGC1P..K.. (integrated heatsink)

Control voltage	Output voltage	Supply voltage	30 AAC (1800 A ² s) 35 mm	43 AAC (18000 A ² s) 35 mm	63 AAC (18000 A ² s) 70 mm
24 VDC	85 - 265 VAC	24 VDC/AC	RGC1P23K30ED	RGC1P23K42ED	RGC1P23K62ED
	190 - 550 VAC	24 VDC/AC	RGC1P48K30ED	RGC1P48K42ED	RGC1P48K62ED
	410 - 660 VAC	24 VDC/AC	RGC1P60K30ED	RGC1P60K42ED	RGC1P60K62ED

RGS1P..K.. (no heatsink)

Control voltage	Output voltage	Supply voltage	50 AAC (1800 A ² s) 35 mm	90 AAC (18000 A ² s) 35 mm	-
24 VDC	85 - 265 VAC	24 VDC/AC	RGS1P23K50ED	RGS1P23K92ED	-
	190 - 550 VAC	24 VDC/AC	RGS1P48K50ED	RGS1P48K92ED	-
	410 - 660 VAC	24 VDC/AC	RGS1P60K50ED	RGS1P60K92ED	-

Slim line RG

RGS1D and RGC1D series

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 1000 VDC, 25 ADC. Maximum operational temperature goes up to +80 °C (+176 °F).



DC output solid state switches

RGS1D series

- Without integrated heatsink
- Product width 17.5 mm
- Ratings up to 1000 VDC, 25 ADC
- 4.5 - 32 VDC control voltage range



RGC1D series

- Integrated heatsink
- Product width 17.5 mm
- Ratings up to 1000 VDC, 15 ADC @ 40 °C (104 °F)
- 4.5 - 32 VDC 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 17.5 mm. 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 600 VDC. The 1000 VDC operational voltage associated with the RGS1D and RGC1D enables this solid state switch to be used to control DC loads used for ambient heating in such applications. Working temperature requirements are covered by the wide operating range of the RGC1D, RGS1D.



Selection guide

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

OUR SALES NETWORK IN EUROPE

AUSTRIA

Carlo Gavazzi GmbH
Ketzergasse 374,
A-1230 Wien
Tel: +43 1 888 4112
Fax: +43 1 889 10 53
office@carlogavazzi.at

BELGIUM

Carlo Gavazzi NV/SA
Mechelsesteenweg 311,
B-1800 Vilvoorde
Tel: +32 2 257 4120
Fax: +32 2 257 41 25
sales@carlogavazzi.be

DENMARK

Carlo Gavazzi Handel A/S
Over Hadstensevej 40,
DK-8370 Hadsten
Tel: +45 89 60 6100
Fax: +45 86 98 15 30
handel@gavazzi.dk

FINLAND

Carlo Gavazzi OY AB
Ahventie, 4 B
FI-02170 Espoo
Tel: +358 9 756 2000
myynti@gavazzi.fi

FRANCE

Carlo Gavazzi Sarl
Zac de Paris Nord II, 69, rue de la Belle Etoile,
F-95956 Roissy CDG Cedex
Tel: +33 1 49 38 98 60
Fax: +33 1 48 63 27 43
french.team@carlogavazzi.fr

GERMANY

Carlo Gavazzi GmbH
Pfnorstr. 10-14
D-64293 Darmstadt
Tel: +49 6151 81000
Fax: +49 6151 81 00 40
info@gavazzi.de

GREAT BRITAIN

Carlo Gavazzi UK Ltd
4.4 Frimley Business Park,
Frimley, Camberley, Surrey GU16 7SG
Tel: +44 1 276 854 110
Fax: +44 1 276 682 140
sales@carlogavazzi.co.uk

ITALY

Carlo Gavazzi SpA
Via Milano 13,
I-20020 Lainate
Tel: +39 02 931 761
Fax: +39 02 931 763 01
info@gavazziacbu.it

NETHERLANDS

Carlo Gavazzi BV
Wijkermeerweg 23,
NL-1948 NT Beverwijk
Tel: +31 251 22 9345
Fax: +31 251 22 60 55
info@carlogavazzi.nl

NORWAY

Carlo Gavazzi AS
Melkeveien 13,
N-3919 Porsgrunn
Tel: +47 35 93 0800
Fax: +47 35 93 08 01
post@gavazzi.no

PORTUGAL

Carlo Gavazzi Lda
Rua dos Jerónimos 38-B,
P-1400-212 Lisboa
Tel: +351 21 361 7060
Fax: +351 21 362 13 73
carlogavazzi@carlogavazzi.pt

SPAIN

Carlo Gavazzi SA
Avda. Iparraguirre, 80-82,
E-48940 Leioa (Bizkaia)
Tel: +34 94 480 4037
Fax: +34 94 431 6081
gavazzi@gavazzi.es

SWEDEN

Carlo Gavazzi AB
V:a Kyrkogatan 1,
S-652 24 Karlstad
Tel: +46 54 85 1125
Fax: +46 54 85 11 77
info@carlogavazzi.se

SWITZERLAND

Carlo Gavazzi AG
Verkauf Schweiz/Vente Suisse
Sumpfstrasse 3,
CH-6312 Steinhausen
Tel: +41 41 747 4535
Fax: +41 41 740 45 40
info@carlogavazzi.ch

OUR SALES NETWORK IN THE AMERICAS

USA

Carlo Gavazzi Inc.
750 Hastings Lane,
Buffalo Grove, IL 60089, USA
Tel: +1 847 465 6100
Fax: +1 847 465 7373
sales@carlogavazzi.com

CANADA

Carlo Gavazzi Inc.
2660 Meadowvale Boulevard,
Mississauga, ON L5N 6M6, Canada
Tel: +1 905 542 0979
Fax: +1 905 542 22 48
gavazzi@carlogavazzi.com

MEXICO

Carlo Gavazzi Mexico S.A. de C.V.
Calle La Montaña no. 28, Fracc. Los Pastores
Naucalpan de Juárez, EDOMEX CP 53340
Tel & Fax: +52.55.5373.7042
mexicosales@carlogavazzi.com

BRAZIL

Carlo Gavazzi Automação Ltda.
Av. Francisco Matarazzo, 1752
Conj 2108 - Barra Funda - São Paulo/SP
Tel: +55 11 3052 0832
Fax: +55 11 3057 1753
info@carlogavazzi.com.br

OUR SALES NETWORK IN ASIA AND PACIFIC

SINGAPORE

Carlo Gavazzi Automation
Singapore Pte. Ltd.
61 Tai Seng Avenue
#05-06 UE Print Media Hub
Singapore 534167
Tel: +65 67 466 990
Fax: +65 67 461 980
info@carlogavazzi.com.sg

MALAYSIA

Carlo Gavazzi Automation
(M) SDN. BHD.
D12-06-G, Block D12,
Pusat Perdagangan Dana 1,
Jalan PJU 1A/46, 47301 Petaling Jaya,
Selangor, Malaysia.
Tel: +60 3 7842 7299
Fax: +60 3 7842 7399
sales@gavazzi-asia.com

CHINA

Carlo Gavazzi Automation
(China) Co. Ltd.
Unit 2308, 23/F.,
News Building, Block 1,1002
Middle Shennan Zhong Road,
Shenzhen, China
Tel: +86 755 83699500
Fax: +86 755 83699300
sales@carlogavazzi.cn

HONG KONG

Carlo Gavazzi Automation
Hong Kong Ltd.
Unit 3 12/F Crown Industrial Bldg.,
106 How Ming St., Kwun Tong,
Kowloon, Hong Kong
Tel: +852 23041228
Fax: +852 23443689

OUR COMPETENCE CENTRES AND PRODUCTION SITES

DENMARK

Carlo Gavazzi Industri A/S
Hadsten

MALTA

Carlo Gavazzi Ltd
Zejtun

ITALY

Carlo Gavazzi Controls SpA
Belluno

LITHUANIA

Uab Carlo Gavazzi Industri Kaunas
Kaunas

CHINA

Carlo Gavazzi Automation (Kunshan) Co., Ltd.
Kunshan

HEADQUARTERS

Carlo Gavazzi Automation SpA
Via Milano, 13
I-20020 - Lainate (MI) - ITALY
Tel: +39 02 931 761
info@gavazziautomation.com

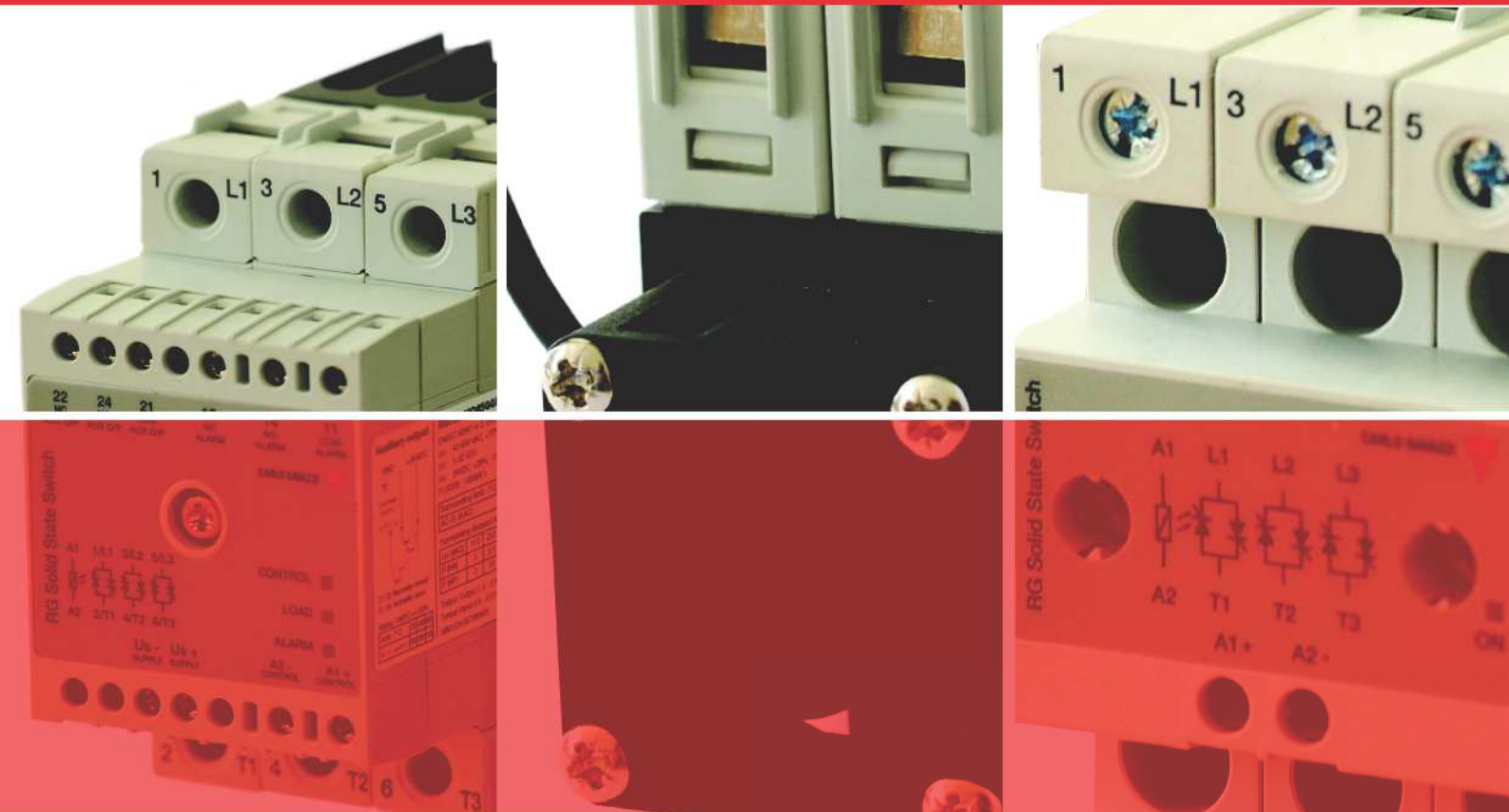


CARLO GAVAZZI
Automation Components

Energy to Components!

www.gavazziautomation.com





RG series: 3-phase solid state switching solutions

Switches

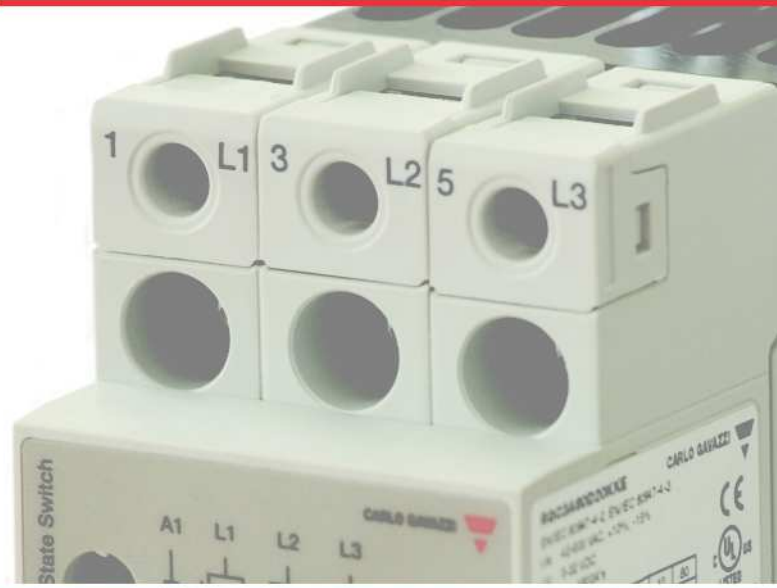
RGC2 RGC3 series

3-phase switching solutions

The 3-phase solid state switching solutions presented hereafter build on the success of the 1-phase version of the RG series whereby the same effective thermal design is adopted. This translates to one of the most compact 3-phase solid state switching solutions available in the market.

The solutions offered in the RGC2 and RGC3 series have an integrated heatsink making it easy for user to match product rating to application needs. Different switching modes are available catering for digital control signals, for example from PLCs, as well as analog signals, current or voltage, directly from temperature controllers output.

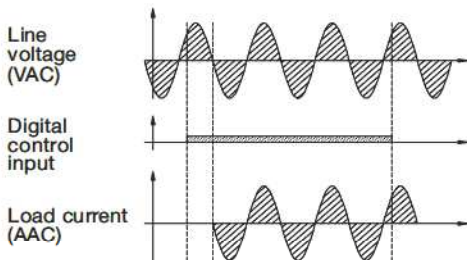
The RGC3 series covers 3-phase, 3-pole switching solutions whilst the RGC2 series is a more economic version consisting of 2 switching poles and a short link.



Solid state switching for 3-phase loads

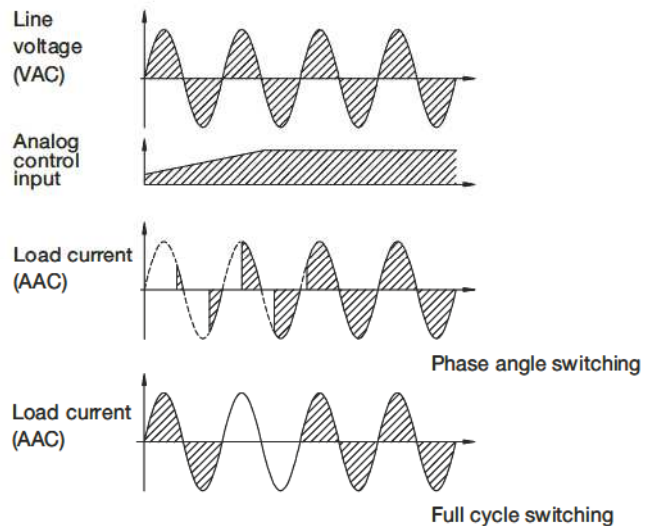
RGC2A, RGC3A series RGCM2A, RGCM3A series

'A': Zero cross switching, digital control



RGC2P, RGC3P series

'P': Proportional switching, analog control



Applications

Plastic & Rubber

- Heater control in extrusion machinery
- Fan switching in extrusion machinery
- Heater control in blow moulding equipment
- Heater control in thermoforming machinery
- Heater control in plastic granules dryers
- Heater control in temperature control units

Benefits

- Long lifetime with a fully solid state solution
- Integrated output overvoltage protection reduces downtime
- Panel space optimisation thanks to the small footprint occupied with the RGC
- UL listing facilitates equipment certification process
- 100kA short circuit current rating enables high fault rating for panels according to UL508A



Food & Beverage

- Heater control in electrical ovens
- Heater control in coffee machines
- Heater control in fryers

Benefits

- Reliable operation in humid environments of 95% @ 40°C (104 °F)
- Conformance to legislation for restricted substances
- Glow wire flammability ratings for plastics conform to EN 60335 requirements



HVAC

- Heater control in building automation systems for comfort heating
- Heater control in dehumidifiers
- Compressor switching in refrigeration systems
- Fan speed control in air handling units

Benefits

- Trouble free operation over a large number of cycles
- Compact dimensions ensure panel space optimisation
- Possibility of proportional switching with an analog input fed directly to the RGC
- No annoying clicking sound (unlike with mechanical solutions)

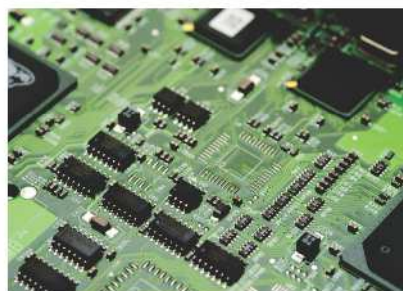


Industrial ovens & furnaces

- Heater control in soldering ovens
- Heater control in ovens for drying of epoxy coating
- Heater control for paint drying
- Heater control in ovens used for battery packs production

Benefits

- Panel space optimisation thanks to the small footprint occupied with the RGC
- Wide product offering from a single source
- Integrated output overvoltage protection reduces downtime
- Easier fault diagnostics with optional load and system monitoring



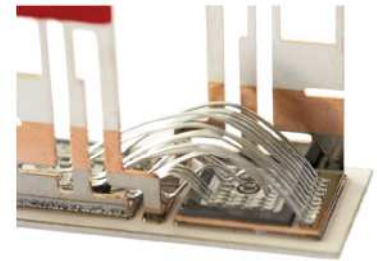
RGC2 RGC3 series

3-phase switching solutions

Features and benefits

Long lifetime

The switching in the RGC 3-phase series is done with back to back thyristors which are well-known for their superior specifications compared to other switching components. The technology used for the assembly of the power switching module reduces thermal and mechanical stresses of the output chips leading to a lifetime that is 2 to 3 times that of solder process technology.



Benefits

- Trouble free operation over a large number of cycles
- Cost savings with less machine stoppages

One component, ready to use

The RGC 3-phase series has integrated heatsinks specifically designed to maximize the RGC thermal performance and at the same time keep very compact dimensions. A wide range of solutions is available for different current ratings. Ratings apply up to 40°C (104°F) without derating. Above this temperature, applicable derating curves are available to help user select the right product for the needed application.

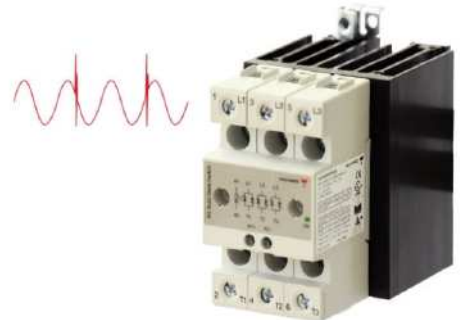


Benefits

- Small occupied footprint for panel space saving
- No worries of incorrect heatsink sizing
- Wide product offering from a single source
- UL listing certification ensures no issues during the equipment certification process

Enhanced reliability

The integration of output overvoltage protection in the RGC 3-phase series ensures that in case of infrequent uncontrolled voltage transients the SSR does not get damaged. The RGC 3-phase is additionally certified as a motor switching device with associated motor ratings. This protection helps in preventing the SSR from damages related to back EMF when used for motor switching

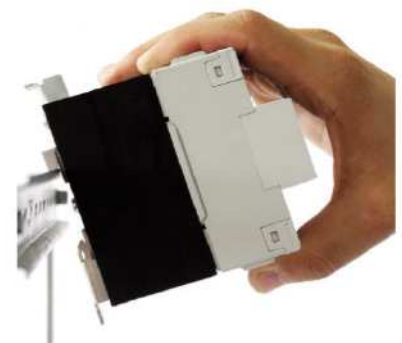


Benefits

- Conformance to immunity standards without the need for external components
- Suitability for use in remote locations that may be subject to infrequent uncontrolled transients
- Suitability for motor switching.

User friendly

The RGC 3-phase is suitable both for back panel mounting and DIN mounting. In the latter case, the product is just placed on a DIN rail and secured by pushing downwards without the need of tools. Power connections for ratings > 30 AAC can easily handle large cables up to 25mm² / AWG3. This eliminates the need for special terminations to connect such large cables to the RGC 3-phase series. Frontal access to the PE terminal enables the PE to be connected with the SSR already in mounted position if required. Other components mounted atop the RGC 3-phase will not hinder accessibility to the PE terminal.



Benefits

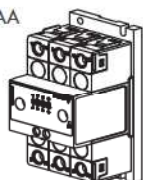
- Time saving in installing and wiring up

Product range overview

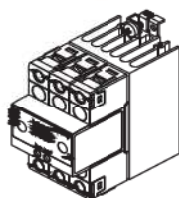
Model	RGC2A 2 pole switching + 1 pole direct	RGC3A 3 pole switching	RGC2A..M 2 pole switching + 1 pole direct	RGC3A..M 3 pole switching	RGC2P 2 pole switching + 1 pole direct	RGC3P 3 pole switching
Ratings						
Operational voltage	42-242 VAC 42-660 VAC	42-242 VAC 42-660 VAC	90-660 VAC	90-660 VAC	180-660 VAC	180-660 VAC
Size 1	10 AAC*	10 AAC*				
Size 2	25 AAC	20 AAC			25 AAC**	20 AAC**
Size 3	40 AAC	25 AAC 30 AAC			40 AAC**	30 AAC**
Size 4			25 AAC	20 AAC	25 AAC	20 AAC
Size 5			40 AAC	25 AAC 30 AAC	40 AAC	30 AAC
Size 6		40 AAC				
Size 7	75 AAC	65 AAC	75 AAC	65 AAC	75 AAC	65 AAC
Load configuration						
3-phase star (Y)	■	■	■	■	■	■
3-phase delta (Δ)	■	■	■	■	■	■
3-phase + N (4-wire)		■				■
Control input						
5-32 VDC	■	■	■	■		
20-275 VAC (24-190 VDC)	■	■	■	■		
0-20 mA, 4-20 mA, 12-20 mA					■	■
0-10 VDC, 0-5 VDC, 1-5 VDC					■	■
Potentiometer control					■	■
Switching mode						
Zero crossing	■	■	■	■		
Phase angle						■
Distributed Full Cycle(s)					■	■
Soft start						■
Soft start + 16 Full Cycles						■
Monitoring						
Mains loss			■	■	■	■
Load loss			■	■	■	■
Overtemperature protection	■ (75 AAC)	■ (65 AAC)	■	■	■	■
SSR open or short circuit			■	■	■	■

* max 9AAC for VDE

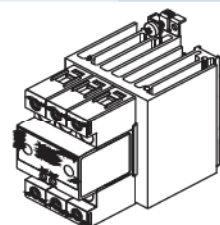
** applies only to RGC..AA



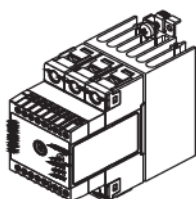
Size 1 (W x H x D)
54 x 106 x 60 mm



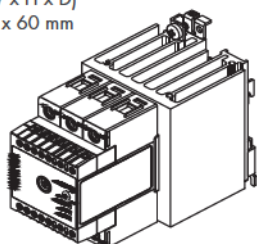
Size 2 (W x H x D)
54 x 110 x 103 mm



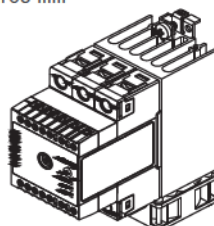
Size 3 (W x H x D)
70 x 110 x 126 mm



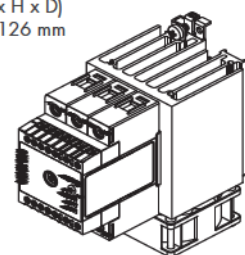
Size 4 (W x H x D)
54 x 110 x 118 mm



Size 5 (W x H x D)
70 x 110 x 141 mm



Size 6 (W x H x D)
54 x 135 x 118 mm



Size 7 (W x H x D)
70 x 141 x 141 mm

W = Width, H = Height, D = Depth

RGC2A RGC3A series

3-phase switching solutions

The RGC2A and RGC3A series offer a one component switching solution dedicated to 3-phase loads. The solutions available are ready to use since they are equipped with an integrated heatsink thus eliminating the possibility of incorrect heatsink sizing.

The high current ratings are achieved with integrated forced ventilation. These versions integrate over temperature protection to protect the solid state contactor against overheating in case of a fan malfunction. The fan operation is controlled and is switched only when necessary to extend its lifetime.

The RGC2A..M and RGC3A..M versions are more sophisticated variants that are able to detect malfunctions in the system. An electromechanical relay output is available for remote indication of such alarm conditions. Alarm LED flash sequence facilitates diagnostics. Additional LEDs indicate presence of control voltage and status of load.



Solid state contactors

Features

- 3-phase zero cross switching
- Rated operational voltage up to 660 VAC
- Rated current up to 75 AAC @ 40 °C/ pole (RGC2A)
- Rated current up to 65 AAC @ 40 °C/ pole (RGC3A)
- Motor ratings up to 11 kW @ 400 VAC/25 HP @ 600 VAC
- Control voltages: 5-32 VDC, 20-275 VAC (24-190 VDC)
- Integrated output overvoltage protection
- 100 kArms short circuit current rating acc. to UL508
- Up to 15,000 A²s for I²t
- Controlled fan operation extending fan lifetime
- Overtemperature protection (for versions with fan)
- System monitoring with RGC..M

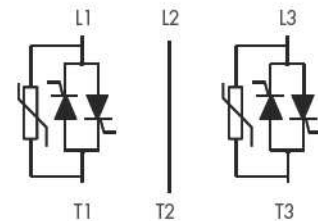


*applies only to RGC..10..

Switches

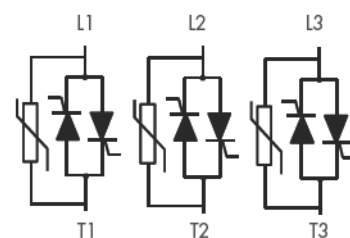
RGC2A series

2 pole switching + 1 pole direct



RGC3A series

3 pole switching



The product range

RGC2A.., RGC3A..



LED indication

■ Control ON

RGC2A..F, RGC3A..F

Versions with integrated fan



Alarm output signal for over-temperature condition



LED indication

■ Control ON / Supply ON

■ Alarm ON

Selection guide

No. of switching poles	Current rating @ 40°C T _A	Operating voltage	Control voltage	External supply voltage	ON/ OFF switching	ON/OFF switching with integrated OTP (integrated fan)	
2-pole switching + 1 pole direct (RGC2 series)	10 AAC (1800 A ² s)	42 - 660 VAC	5 - 32 VDC	-	RGC2A60D10KKE	-	
			20-275VAC / 24 - 190 VDC	-	RGC2A60A10KKE	-	
		42 - 242 VAC	5 - 32 VDC	-	RGC2A22D25KKE	-	
			20-275VAC / 24 - 190 VDC	-	RGC2A22A25KKE	-	
		42 - 660 VAC	5 - 32 VDC	-	RGC2A60D25KKE	-	
			20-275VAC / 24 - 190 VDC	-	RGC2A60A25KKE	-	
	40 AAC (6600 A ² s)	42 - 660 VAC	5 - 32 VDC	-	RGC2A60D40KGE	-	
			20-275VAC / 24 - 190 VDC	-	RGC2A60A40KGE	-	
		42 - 660 VAC	5 - 32 VDC	24 VDC	-	RGC2A60D75GGEDF	
			20 - 275 VAC	90 - 250 VAC	-	RGC2A60D75GGGEAF	
		75 AAC (15000 A ² s)	42 - 660 VAC	5 - 32 VDC	24 VDC	-	RGC2A60D75GGEDF
				20 - 275 VAC	90 - 250 VAC	-	RGC2A60A75GGGEAF
3-pole switching (RGC3 Series)	10 AAC (1800 A ² s)	42 - 242 VAC	5 - 32 VDC	-	RGC3A22D10KKE	-	
			20-275VAC / 24 - 190 VDC	-	RGC3A22A10KKE	-	
		42 - 660 VAC	5 - 32 VDC	-	RGC3A60D10KKE	-	
			20-275VAC / 24 - 190 VDC	-	RGC3A60A10KKE	-	
		42 - 242 VAC	5 - 32 VDC	-	RGC3A22D20KKE	-	
			20-275VAC / 24 - 190 VDC	-	RGC3A22A20KKE	-	
	20 AAC (1800 A ² s)	42 - 660 VAC	5 - 32 VDC	-	RGC3A60D20KKE	-	
			20-275VAC / 24 - 190 VDC	-	RGC3A60A20KKE	-	
		42 - 660 VAC	5 - 32 VDC	-	RGC3A60D25KKE	-	
			20-275VAC / 24 - 190 VDC	-	RGC3A60A25KKE	-	
		25 AAC (1800 A ² s)	42 - 660 VAC	5 - 32 VDC	-	RGC3A60D30KGE	-
				20-275VAC / 24 - 190 VDC	-	RGC3A60A30KGE	-
	30 AAC (6600 A ² s)	42 - 660 VAC	5 - 32 VDC	24 VDC	-	RGC3A60D40GGEDF	
			20 - 275 VAC	90 - 250 VAC	-	RGC3A60A40GGGEAF	
		42 - 660 VAC	5 - 32 VDC	24 VDC	-	RGC3A60D65GGEDF	
			20 - 275 VAC	90 - 250 VAC	-	RGC3A60A65GGGEAF	
		40 AAC (6600 A ² s)	42 - 660 VAC	5 - 32 VDC	24 VDC	-	RGC3A60D65GGEDF
				20 - 275 VAC	90 - 250 VAC	-	RGC3A60A65GGGEAF
65 AAC (15000 A ² s)	42 - 660 VAC	5 - 32 VDC	24 VDC	-	RGC3A60D65GGEDF		
		20 - 275 VAC	90 - 250 VAC	-	RGC3A60A65GGGEAF		

RGC2A..M, RGC3A..M

3-phase switching solutions

Time saving with integrated monitoring for malfunction detection

Detectable faulty conditions with the RGC..M



Mains Loss Alarm

Issued when mains voltage is missing on either L1, L2 and / or L3



Load Loss Alarm

Issued in case of a heater break or no connection on either T1, T2 or T3 terminals.
This alarm is also present on the RGC2A version



Over Temperature Alarm

Issued in case of an SSR overheat. Output is switched off to protect the SSR from damages. Restart occurs automatically once the SSR cools down if control voltage is still ON



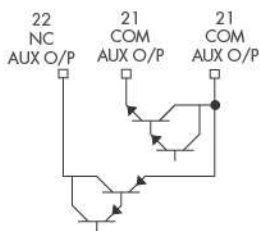
SSR malfunction

This alarm is issued when the SSR does not operate as intended due to an internal short circuit or open circuit

RGC..M is suitable only for resistive loads

The RGC..M product interface

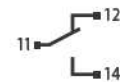
Auxiliary Contacts



NO = Normally Open
NC = Normally Closed
AUX O/P = Auxiliary Output



Alarm output signal



LED Indication

- Control ON / Supply ON
- Load ON
- Alarm ON

Red LED flashes for easy identification of detected fault

A specific flash rate of the red LED is adopted to help identify the type of failure detected

Mains Loss	2 flashes	
Load loss, SSR short circuit	3 flashes	
SSR open circuit	4 flashes	
SSR over temperature	100%	

RGC...M - Selection guide for versions with integrated monitoring

No. of switching poles	Current rating @ 40°C T _A	Operating voltage	Control voltage	External supply voltage	ON/OFF switching with integrated monitoring
2-pole switching + 1 pole direct (RGC2 series)	25 AAC (1800 A ² s)	42 - 660 VAC	5 - 32 VDC	24 VDC	RGC2A60D25GKEDM
				90 - 250 VAC	RGC2A60D25GKEAM
				20 - 275 VAC	RGC2A60A25GKEAM
	40 AAC (6600 A ² s)	42 - 660 VAC	5 - 32 VDC	24 VDC	RGC2A60D40GGEDM
				90 - 250 VAC	RGC2A60D40GGEAM
				20 - 275 VAC	RGC2A60A40GGEAM
	75 AAC (15000 A ² s)	42 - 660 VAC	5 - 32 VDC	24 VDC	RGC2A60D75GGEDFM
				90 - 250 VAC	RGC2A60D75GGEAFM
				20 - 275 VAC	RGC2A60A75GGEAFM
3-pole switching (RGC3 series)	20 AAC (1800 A ² s)	42 - 660 VAC	5 - 32 VDC	24 VDC	RGC3A60D20GKEDM
				90 - 250 VAC	RGC3A60D20GKEAM
				20 - 275 VAC	RGC3A60A20GKEAM
	25 AAC (1800 A ² s)	42 - 660 VAC	5 - 32 VDC	24 VDC	RGC3A60D25GKEDM
				90 - 250 VAC	RGC3A60D25GKEAM
				20 - 275 VAC	RGC3A60A25GKEAM
	30 AAC (6600 A ² s)	42 - 660 VAC	5 - 32 VDC	24 VDC	RGC3A60D30GGEDM
				90 - 250 VAC	RGC3A60D30GGEAM
				20 - 275 VAC	RGC3A60A30GGEAM
65 AAC (15000 A ² s)	42 - 660 VAC	5 - 32 VDC	24 VDC	RGC3A60D65GGEDFM	
			90 - 250 VAC	RGC3A60D65GGEAFM	
			20 - 275 VAC	RGC3A60A65GGEAFM	

Accessories



Fans

The fan utilised on variants of size 6 and 7 (refer to page 5) can be easily replaced in case of breakages.

Reference code: **RGC3FAN40**

This is a 40 x 40mm fan suitable for size 6 models

Reference code: **RGC3FAN60**

This is a 60 x 60mm fan suitable for size 7 models

RGCM, REC2R

3-phase solutions for motor switching

When frequent switching is required, solid state switching guarantee a longer lifetime compared to electromechanical switching solutions. The RGCM and REC series are fully solid state solutions that enable trouble free operation over a large number of switching cycles. The 45mm product width associated with these series allow easy replacement of miniature mechanical contactors.

The RGCM2A and RGCM3A are 3-phase switching solutions certified both for resistive as well as motor switching.

The REC2R is a 3-phase reversing solution with integrated interlocking certified with motor ratings.



45mm miniature solid state contactors

RGCM2A, RGCM3A series

- 45mm product width
- 2 pole switching + 1 direct (RGCM2A) or 3-pole switching (RGCM3A)
- Rated operational voltage up to 660 VAC
- Rated current up to 20 AAC @ 40 °C/pole (RGCM2A)
- Rated current up to 15 AAC @ 40 °C/pole (RGCM3A)
- Motor ratings up to 3 kW (400 VAC) / 5 HP (600VAC)
- Control voltage: 5-32 VDC, 20-275 VAC (24-190VDC)
- Integrated output overvoltage protection
- Pluggable control terminal

REC2R series

- 45mm product width
- Reverse switching with integrated interlocking
- Rated operational voltage up to 530 VAC
- Motor ratings up to 3 kW (400 VAC) / 5 HP (480VAC)
- Blocking voltage up to 1200Vp
- Control voltage: 24 VDC, 90-253 VAC
- LED ON indication: Green for Forward, Red for Reverse
- Pluggable control terminal



RGCM2A - Selection guide for 2-pole switching + 1-pole direct

Current rating, AC-51 @ 40°C T _A	Motor Rating @ 400 VAC	Operating voltage	Control voltage	Reference
20 AAC (1800 A ² s)	3 kW / 3 HP	42 - 660 VAC	5 - 32 VDC	RGCM2A60D20GKE
			24-275 VAC / 24-190 VDC	RGCM2A60A20GKE

RGCM3A - Selection guide for 3-pole switching

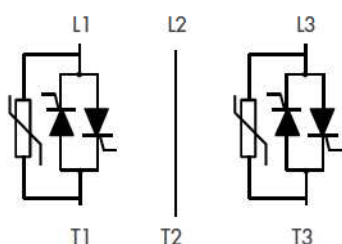
Current rating, AC-51 @ 40°C T _A	Motor Rating @ 400 VAC	Operating voltage	Control voltage	Reference
15.5 AAC (1800 A ² s)	2.2 kW / 2 HP	42 - 660 VAC	5 - 32 VDC	RGCM3A60D15GKE
			24-275 VAC / 24-190 VDC	RGCM3A60A15GKE

REC2R - Selection guide for 3-phase motor reversing

Current rating, AC-51 @ 40°C T _A	Motor Rating @ 400 VAC	Operating voltage	Control voltage	Reference
n/a	3.0 kW / 3 HP	48 - 530 VAC	24 VDC	REC2R48D30GKE
			90-253 VAC	REC2R48A30GKE

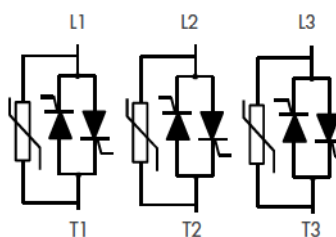
RGCM2A series

2 pole switching + 1 pole direct



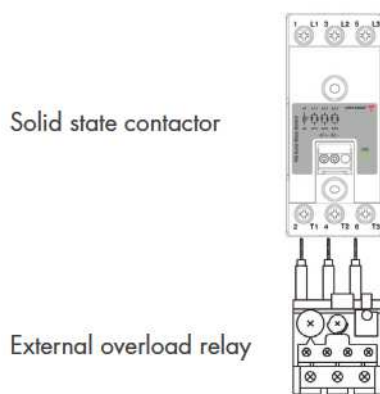
RGCM3A series

3 pole switching

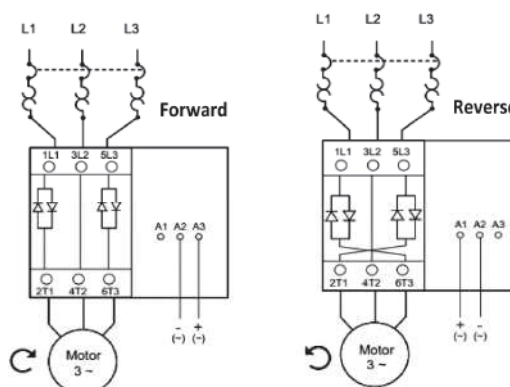


RGCM / REC series

Connection to overload relays



REC2R series



RGC2P, RGC3P

3-phase proportional switching solutions

The RGC2P and RGC3P series cover 3-phase solid state switching controllers that deliver output power in proportion to the control input voltage or current. This series of solid state contactors can be controlled directly through the analog output of auxiliary components present in the system without the need for additional modules to convert such analog signals to digital signals.

Switching modes available with RGC2P and RGC3P series:

- **Phase Angle** (Mode E)
- **Distributed Full Cycle** x1, x4, x16 (Mode C1, Mode C4 and Mode C16)
- **Soft Start** (Mode S16 and Mode S)



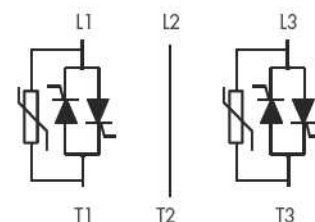
Proportional controllers (Analog input)

Features

- 2-pole + 1 direct (RGC2P) or 3-pole (RGC3P) switching
- Rated operational voltage up to 660 VAC
- Rated current up to 75 AAC @ 40°C/ pole (RGC2P)
- Rated current up to 65 AAC @ 40°C/ pole (RGC3P)
- Current control input: 0-20 mA, 4-20 mA or 12-20 mA
- Voltage control input: 0-10 V, 0-5 V or 1-5 V
- Local setting possible with external potentiometer
- Integrated output overvoltage protection
- Soft start feature with selectable ramp time
- 100kArms short circuit current rating acc. to UL508
- System monitoring for SSR and load malfunction

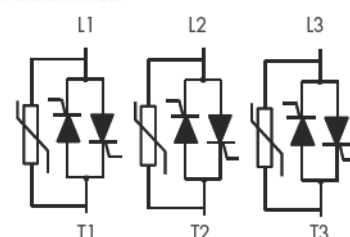
RGC2P

2 pole switching + 1 pole direct



RGC3P

3 pole switching



The product range

RGC..AA.. models

Analog input = 4-20mA



LED Indication

- Control ON
Flashes to indicate:
Mains loss & Internal error

RGC..I., RGC..V.. models

Analog input = 0-20 mA, 4-20 mA, 12-20 mA



Alarm output signal



LED Indication

- Control ON / Supply ON
- Load ON
- Alarm ON
Flashes to indicate identified failure

Integrated monitoring with RGC..I, RGC..V models



Mains Loss Alarm

Issued in case mains voltage is not present on either L1, L2 or L3.



Monitoring Alarm

Issued in case of load loss, SSR open circuit or SSR short circuit.
Load loss not available on RGC3P..E.



Internal Error Alarm

Issued in case of an internal malfunction of the SSR.



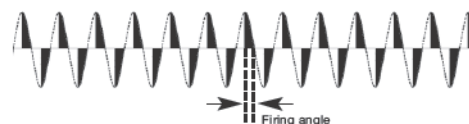
Over Temperature Alarm

Issued in case of SSR overheat. Output is switched off to protect the SSR.

Phase angle switching - Mode E

The power delivered to the load is controlled by the firing of the thyristors over each half cycle. The lowest resolution is a half cycle and hence response is very fast. Due to the chopping of the waveform, however, electromagnetic disturbance is created with this switching mode.

Applications: dimmers, speed control, temperature control



Selection Guide

No of switching poles	Current rating @ 40°C T _A	Control input	External supply voltage	Proportional switching Phase angle Mode E
3-pole switching (RGC3P series)	20 AAC (1800 A ² s)	4-20 mA	24 VDC	RGC3P60AA20E
		0-20, 4-20, 12-20 mA		RGC3P60I20EDP
		0-10, 0-5, 1-5 VDC, pot		RGC3P60V20EDP
	30 AAC (6600 A ² s)	4-20mA	-	RGC3P60AA30E
		0-20, 4-20, 12-20mA	24 VDC	RGC3P60I30EDP
		0-10, 0-5, 1-5VDC, pot	90 - 250 VAC	RGC3P60I30EAP
			24 VDC	RGC3P60V30EDP
		90 - 250 VAC	RGC3P60V30EAP	
			24 VDC	RGC3P60V65EDFP
	65 AAC (15000 A ² s)	0-20, 4-20, 12-20mA	24 VDC	RGC3P60I65EDFP
		0-10, 0-5, 1-5VDC, pot	90 - 250 VAC	RGC3P60I65EAFP
			24 VDC	RGC3P60V65EDFP
90 - 250 VAC	RGC3P60V65EAFP			

RGC2P, RGC3P

3-phase proportional switching solutions

Distributed full cycle switching - Mode C1, Mode C4 and Mode C16

Only full cycles are switched in this mode and so noise emission is reduced since switching is done at zero crossing. The lowest resolution is 1 full cycle and hence response is relatively fast. The number of full cycles switched is determined by the control input. This mode can be utilised also with economy switching and hence with the RGC2P as well as the RGC3P.

Applications: temperature control

4 Full Cycles and **16 Full Cycles** switching mode work on the same principle but the lowest resolution is 4 and 16 full cycles respectively. These modes are utilised with heater types which have a low thermal inertia.

1 Full Cycle 'C1' @ 25% power output



1 Full Cycle 'C1' @ 50% power output



1 Full Cycle 'C1' @ 75% power output



4 Full Cycle 'C4' @ 50% power output



16 Full Cycle 'C4' @ 50% power output



Selection Guide

No. of switching poles	Current rating @ 40°C T _A	Control input	External supply voltage	Proportional switching 1x Full cycle Mode C1	Proportional switching 4x Full cycles Mode C4	Proportional switching 16x Full cycles Mode C16
2-pole switching + 1 pole direct (RGC2P series)	15 AAC (1800 A ² s)	4-20 mA	-	RGC2P60AA15C1	-	-
	25 AAC (1800 A ² s)	4-20 mA	-	RGC2P60AA25C1	-	-
		0-20, 4-20, 12-20 mA	24 VDC	RGC2P60I25C1DM	RGC2P60I25C4DM	-
		0-10, 0-5, 1-5 VDC, pot	-	RGC2P60V25C1DM	-	-
	40 AAC (6600 A ² s)	4-20 mA	-	RGC2P60AA40C1	-	-
		0-20, 4-20, 12-20 mA	24 VDC	RGC2P60I40C1DM	RGC2P60I40C4DM	-
		0-10, 0-5, 1-5 VDC, pot	-	RGC2P60V40C1DM	-	-
	75 AAC (15000 A ² s)	0-20, 4-20, 12-20mA	24 VDC	RGC2P60I75C1DFM	RGC2P60I75C4DFM	-
			90 - 250 VAC	RGC2P60I75C1AFM	RGC2P60I75C4AFM	-
		0-10, 0-5, 1-5VDC, pot	24 VDC	RGC2P60V75C1DFM	-	-
90 - 250 VAC			RGC2P60V75C1AFM	-	-	
3-pole switching (RGC3P series)	20 AAC (1800 A ² s)	4-20 mA	-	RGC3P60AA20C1	-	-
		0-20, 4-20, 12-20 mA	24 VDC	RGC3P60I20C1DM	RGC3P60I20C4DM	RGC3P60I20C16DM
		0-10, 0-5, 1-5 VDC, pot	-	RGC3P60V20C1DM	RGC3P60V20C4DM	RGC3P60V20C16DM
	30 AAC (6600 A ² s)	4-20mA	-	RGC3P60AA30C1	-	-
		0-20, 4-20, 12-20mA	24 VDC	RGC3P60I30C1DM	RGC3P60I30C4DM	RGC3P60I30C16DM
			90 - 250 VAC	RGC3P60I30C1AM	RGC3P60I30C4AM	RGC3P60I30C16AM
		0-10, 0-5, 1-5VDC, pot	24 VDC	RGC3P60V30C1DM	RGC3P60V30C4DM	RGC3P60V30C16DM
	90 - 250 VAC		RGC3P60V30C1AM	RGC3P60V30C4AM	RGC3P60V30C16AM	
	65 AAC (15000 A ² s)	0-20, 4-20, 12-20mA	24 VDC	RGC3P60I65C1DFM	RGC3P60I65C4DFM	RGC3P60I65C16DFM
			90 - 250 VAC	RGC3P60I65C1AFM	RGC3P60I65C4AFM	RGC3P60I65C16AFM
		0-10, 0-5, 1-5VDC, pot	24 VDC	RGC3P60V65C1DFM	RGC3P60V65C4DFM	RGC3P60V65C16DFM
			90 - 250 VAC	RGC3P60V65C1AFM	RGC3P60V65C4AFM	RGC3P60V65C16AFM

Soft start switching - Mode S and Mode S16

Soft start switching is used to limit inrush currents of loads which change characteristics with temperature. This is typical of short wave infrared heaters which exhibit a very high inrush current peak when started from a cold condition.

Soft starting is hence performed either on power up or else when the control signal has been missing for the previous 5 seconds.

In the case of **Mode S**, following the soft starting, the SSR remains ON as long as the control signal is present.

In the case of **Mode S16**, following the soft starting, mode C16 comes into play and hence the SSR switches proportionally according to mode C16 (16x full cycles) based on the control input.

Soft start switching on power up



Soft start switching in case control signal has been missing in the previous 5 seconds



No soft starting in case control signal has been present in the previous 5 seconds



Selection Guide for soft start with analog input

No. of switching poles	Current rating @ 40°C T _A	Control input	External supply voltage	Proportional switching Soft start + 16x Full cycles Mode S16
3 pole switching (RGC3P series)	20 AAC (1800 A ² s)	0-10, 0-5, 1-5 VDC, pot	24 VDC	RGC3P60V20S16DM
	30 AAC (6600 A ² s)	0-10, 0-5, 1-5VDC, pot	24 VDC	RGC3P60V30S16DM
	65 AAC (15000 A ² s)	0-10, 0-5, 1-5VDC, pot	24 VDC	RGC3P60V65S16DFM

Selection Guide for soft start with digital input

No. of switching poles	Current rating @ 40°C T _A	Control input	External supply voltage	ON/OFF Switching with Soft start Mode S
3 pole switching (RGC3P series)	20 AAC (1800 A ² s)	5 - 10 VDC	24 VDC	RGC3P60V20SDM
	30 AAC (6600 A ² s)	5 - 10 VDC	24 VDC	RGC3P60V30SDM
	65 AAC (15000 A ² s)	5 - 10 VDC	24 VDC	RGC3P60V65SDFM

OUR SALES NETWORK IN EUROPE

AUSTRIA

Carlo Gavazzi GmbH
Ketzergrasse 374,
A-1230 Wien
Tel: +43 1 888 4112
Fax: +43 1 889 10 53
office@carlogavazzi.at

BELGIUM

Carlo Gavazzi NV/SA
Mechelsesteenweg 311,
B-1800 Vilvoorde
Tel: +32 2 257 4120
Fax: +32 2 257 41 25
sales@carlogavazzi.be

DENMARK

Carlo Gavazzi Handel A/S
Over Hadstensevej 40,
DK-8370 Hadsten
Tel: +45 89 60 6100
Fax: +45 86 98 15 30
handel@gavazzi.dk

FINLAND

Carlo Gavazzi OY AB
Petaksentie 2-4,
FI-00630 Helsinki
Tel: +358 9 756 2000
Fax: +358 9 756 20010
myynti@gavazzi.fi

FRANCE

Carlo Gavazzi Sarl
Zac de Paris Nord II, 69, rue de la Belle Etoile,
F-95956 Roissy CDG Cedex
Tel: +33 1 49 38 98 60
Fax: +33 1 48 63 27 43
french.team@carlogavazzi.fr

GERMANY

Carlo Gavazzi GmbH
Pfnorstr. 10-14
D-64293 Darmstadt
Tel: +49 6151 81000
Fax: +49 6151 81 00 40
info@gavazzi.de

GREAT BRITAIN

Carlo Gavazzi UK Ltd
4.4 Frimley Business Park,
Frimley, Camberley, Surrey GU16 7SG
Tel: +44 1 276 854 110
Fax: +44 1 276 682 140
sales@carlogavazzi.co.uk

ITALY

Carlo Gavazzi SpA
Via Milano 13,
I-20020 Lainate
Tel: +39 02 931 761
Fax: +39 02 931 763 01
info@gavazziacbu.it

NETHERLANDS

Carlo Gavazzi BV
Wijkermeerweg 23,
NL-1948 NT Beverwijk
Tel: +31 251 22 9345
Fax: +31 251 22 60 55
info@carlogavazzi.nl

NORWAY

Carlo Gavazzi AS
Melkeveien 13,
N-3919 Porsgrunn
Tel: +47 35 93 0800
Fax: +47 35 93 08 01
post@gavazzi.no

PORTUGAL

Carlo Gavazzi Lda
Rua dos Jerónimos 38-B,
P-1400-212 Lisboa
Tel: +351 21 361 7060
Fax: +351 21 362 13 73
carlogavazzi@carlogavazzi.pt

SPAIN

Carlo Gavazzi SA
Avda. Iparraguirre, 80-82,
E-48940 Leioa (Bizkaia)
Tel: +34 94 480 4037
Fax: +34 94 431 6081
gavazzi@gavazzi.es

SWEDEN

Carlo Gavazzi AB
V:a Kyrkogatan 1,
S-652 24 Karlstad
Tel: +46 54 85 1125
Fax: +46 54 85 11 77
info@carlogavazzi.se

SWITZERLAND

Carlo Gavazzi AG
Verkauf Schweiz/Vente Suisse
Sumpfstrasse 3,
CH-6312 Steinhausen
Tel: +41 41 747 4535
Fax: +41 41 740 45 40
info@carlogavazzi.ch

OUR SALES NETWORK IN THE AMERICAS

USA

Carlo Gavazzi Inc.
750 Hastings Lane,
Buffalo Grove, IL 60089, USA
Tel: +1 847 465 6100
Fax: +1 847 465 7373
sales@carlogavazzi.com

CANADA

Carlo Gavazzi Inc.
2660 Meadowvale Boulevard,
Mississauga, ON L5N 6M6, Canada
Tel: +1 905 542 0979
Fax: +1 905 542 22 48
gavazzi@carlogavazzi.com

MEXICO

Carlo Gavazzi Mexico S.A. de C.V.
Circuito Puericultores 22, Ciudad Satelite
Naucalpan de Juárez, EDOMEX CP
53100
Tel & Fax: +52.55.5373.7042
mexicosales@carlogavazzi.com

BRAZIL

Carlo Gavazzi Automação Ltda.
Av. Francisco Matarazzo, 1752
Conj 2108 - Barra Funda - São Paulo/SP
Tel: +55 11 3052 0832
Fax: +55 11 3057 1753
info@carlogavazzi.com.br

OUR SALES NETWORK IN ASIA AND PACIFIC

SINGAPORE

Carlo Gavazzi Automation
Singapore Pte. Ltd.
61 Tai Seng Avenue
#05-06 UE Print Media Hub
Singapore 534167
Tel: +65 67 466 990
Fax: +65 67 461 980
info@carlogavazzi.com.sg

MALAYSIA

Carlo Gavazzi Automation
(M) SDN. BHD.
D12-06-G, Block D12,
Pusat Perdagangan Dana 1,
Jalan PJU 1A/46, 47301 Petaling Jaya,
Selangor, Malaysia.
Tel: +60 3 7842 7299
Fax: +60 3 7842 7399
sales@gavazzi-asia.com

CHINA

Carlo Gavazzi Automation
(China) Co. Ltd.
Unit 2308, 23/F.,
News Building, Block 1, 1002
Middle Shennan Zhong Road,
Shenzhen, China
Tel: +86 755 83699500
Fax: +86 755 83699300
sales@carlogavazzi.cn

HONG KONG

Carlo Gavazzi Automation
Hong Kong Ltd.
Unit 3 12/F Crown Industrial Bldg.,
106 How Ming St., Kwun Tong,
Kowloon, Hong Kong
Tel: +852 23041228
Fax: +852 23443689

OUR COMPETENCE CENTRES AND PRODUCTION SITES

DENMARK

Carlo Gavazzi Industri A/S
Hadsten

MALTA

Carlo Gavazzi Ltd
Zejtun

ITALY

Carlo Gavazzi Controls SpA
Belluno

LITHUANIA

Uab Carlo Gavazzi Industri Kaunas
Kaunas

CHINA

Carlo Gavazzi Automation (Kunshan) Co., Ltd.
Kunshan

HEADQUARTERS

Carlo Gavazzi Automation SpA
Via Milano, 13
I-20020 - Lainate (MI) - ITALY
Tel: +39 02 931 761
info@gavazziautomation.com



CARLO GAVAZZI
Automation Components

Energy to Components!

www.gavazziautomation.com

