

## **RG Series 3-Phase Solutions**

# **Switch**

# RGC2A, RGC3A

## Concentrated Power

Solid State Relays (SSR) have been developed and produced by Carlo Gavazzi for over 30 years. In these years Carlo Gavazzi was always at the forefront of the evolution in technology and production processes.

The latest added innovation is the automated assembly process for the power dies, through wire bonding technology. This was adopted in the RG series; the new generation of solid state relays and contactors by Carlo Gavazzi.

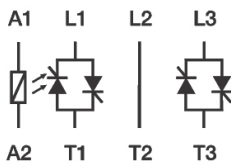
The RGC2A and RGC3A series are a variant in the RG family that offers solid state switching solutions for 3-phase loads. These solutions have an integrated heatsink thus eliminating the possibility of incorrect heatsink sizing.



## 3-phase solid state contactors

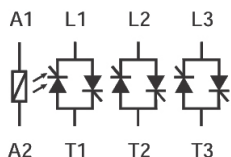
### RGC2A series

2 pole switching + 1 pole direct



### RGC3A series

3 pole switching



### Features

- 3-phase zero cross AC switching
- Operational voltage up to 600VAC
- Up to 75AAC @ 40°C per pole for RGC2A
- Up to 65AAC @ 40°C per pole for RGC3A
- Motor ratings up to 11kW @ 400VAC / 25HP @ 600VAC
- Control voltages: 5-32VDC, 20-275VAC (24-190VDC)
- Output overvoltage protection
- 100kArms short circuit current rating (acc. to UL508)
- Up to 15,000A<sup>2</sup>s for I<sup>2</sup>t
- Controlled fan operation (for versions with fan)
- Overtemperature protection (for versions with fan)
- System monitoring with RGC..M



## Applications

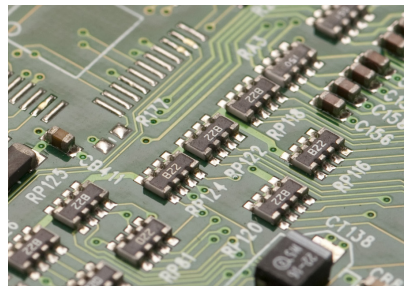
### Plastic and Rubber



### Packaging and Wrapping



### Semiconductor



### Food and Beverage



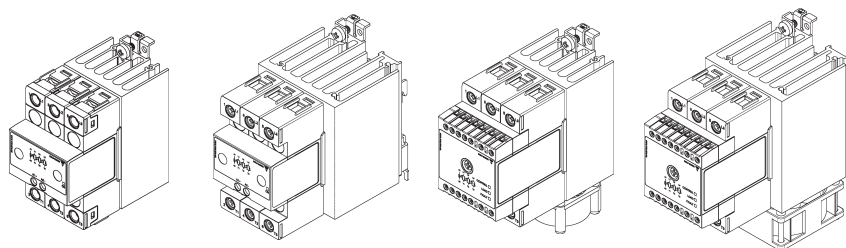
### HVAC



### Furnaces



## Product Overview



<b>Product width</b>	54 mm	70 mm	54 mm + fan	70 mm + fan
<b>RGC2A ratings @ 40°C</b>	25 AAC	40 AAC	-	75 AAC
<b>RGC3A ratings @ 40°C</b>	20 AAC	30 AAC	40 AAC	65 AAC
<b>I<sup>2</sup>t rating</b>	1,800A <sup>2</sup> s	6,600 A <sup>2</sup> s	6,600 A <sup>2</sup> s	15,000 A <sup>2</sup> s
<b>Max. operating temperature, DC control</b>	+80°C +176°F	+80°C +176°F	+70°C +158°F	+70°C +158°F
<b>Max. operating temperature, AC control</b>	+80°C +176°F	+80°C +176°F	+60°C +140°F	+60°C +140°F
<b>Power connections type</b>	Screw	Box clamp	Box clamp	Box clamp
<b>Control connections type</b>	Screw	Screw	Box clamp	Box clamp
<b>Features *</b>	Optional	Optional	OTP**	OTP**

\* refer to page 4

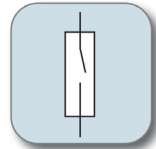
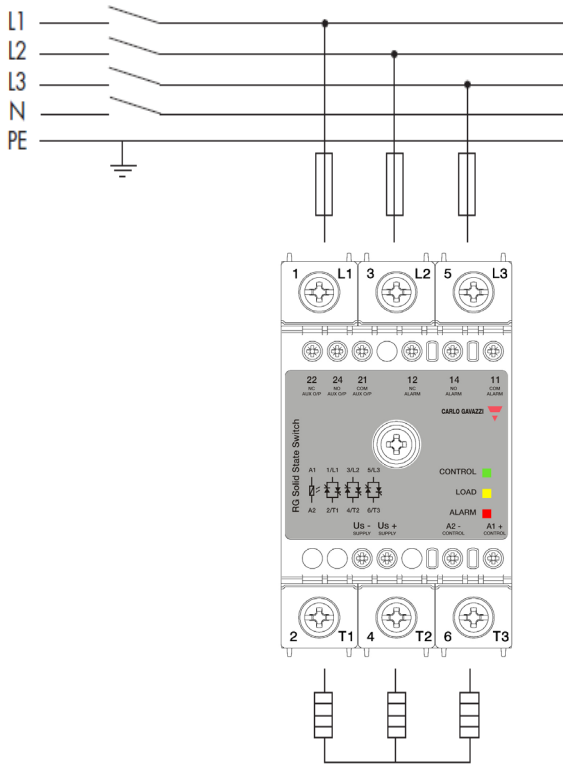
\*\* OTP - Over Temperature Protection

# RGC2A, RGC3A

## System Monitoring

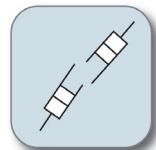
### The RGC2..M and RGC3..M series

The 'M' suffix versions offer the possibility to have additional features that can detect the status of the Mains and the Load in addition to the status of the SSR, whereby conditions of SSR open circuit, SSR short circuit and SSR overheat can be detected. These features facilitate diagnostics. The alarm output makes remote monitoring possible.



#### Mains Loss Alarm

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



#### Load Loss Alarm

Issued in case of a heater break or no connection on either T1, T2 or T3  
*(Applies also to RGC2A i.e. the version with 1 pole direct)*



#### Over Temperature Alarm

Issued in case of an SSR overheat. Output is switched off to protect the SSR. Restart occurs automatically once SSR cools down



#### SSR Malfunction

Alarm issued when the SSR does not operate as intended such as in the case of an SSR open circuit or an SSR short circuit

suitable for resistive loads only

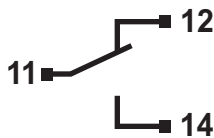
## Alarm Indications

#### Signal:

An electromechanical relay output having user selectable NO or NC contacts

#### Visual:

Flashing red LED



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

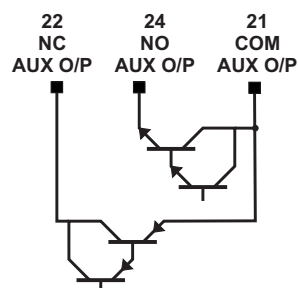
## Auxiliary Output

This has a similar function to the auxiliary contacts of mechanical contactors, but is implemented with a solid state solution. Three terminals are provided and the user can select NO terminals or NC terminals

NO = Normally Open

NC = Normally Closed

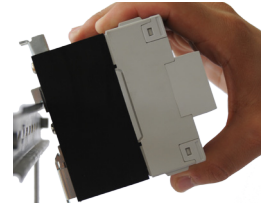
AUX O/P = Auxiliary Output



## Benefits

- **Fast and easy installation**

SSR is just placed on DIN rail and secured by pushing downwards without the need of tools. Back panel mounting is also possible



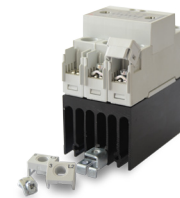
- **Time saving in wiring up**

Robust connections for models rated 30A and over can easily handle power cables up to 25mm<sup>2</sup> / AWG3




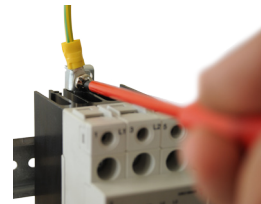
- **Configuration flexibility**

Removable IP20 covers for the versions with screw terminals allow for connection of ring lugs

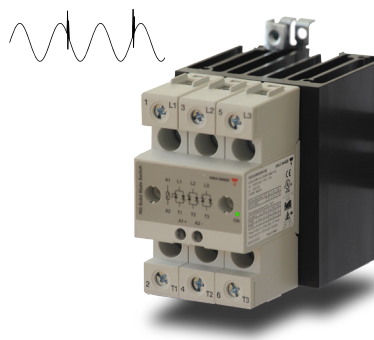


- **User friendly**

Frontal access to the PE screw (if needed) can be done after SSR is mounted on DIN rail. Other components mounted in the panel will not hinder accessibility to this terminal 



## Reliability



### Long lifetime

Elimination of thermal stress on the semiconductors and innovative thermal design improve the SSR lifetime by 2 to 3 times compared to other SSRs using solder process technologies.

### Overvoltages

The RGC2 and RGC3 series conform to the Industrial Immunity standards without need of additional external components. Each pole is protected against overvoltages by a varistor.

### Integrated heatsinks

Derating curves guide users to select the product for the needed application. There is no need for users to calculate their own heatsinks and worry of overheating because of wrong heatsink sizing.

# RGCM2A RGCM3A

## Miniature Solution

The RGCM2A and RGCM3A series are a miniature version of the RGC2A and RGC3A series, as product width does not exceed 45mm. This allows for easy replacement of miniature mechanical contactors.

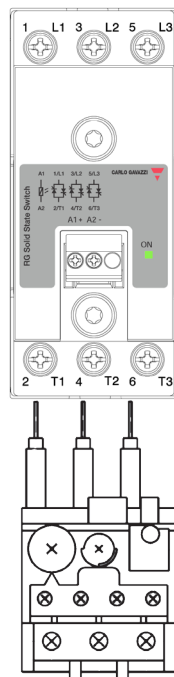
Being fully solid state the RGCM2 and RGCM3 guarantee trouble free operation over a long period of time. Additionally, varistors are integrated across the output of each pole for protection against overvoltages.

The RGCM series is certified as a motor switching device with associated motor ratings up to 3KW @ 400VAC / 5HP @ 600VAC and so can be used for motor switching as well as for resistive loads.



## 45mm 3-phase solid state contactors

**RGCM**  
Solid State Contactor



**Overload relay**

**RGCM2A**  
2-pole switching + 1 pole direct

Rated current	Output voltage	Control voltage	Part No.
20 AAC (1,800 A <sup>2</sup> s)	600 VAC	5-32 VDC	RGCM2A60D20GKE
		20-275 VAC, 24-190 VDC	RGCM2A60A20GKE

**RGCM3A**  
3-pole switching

Rated current	Output voltage	Control voltage	Part No.
16 AAC (1,800 A <sup>2</sup> s)	220 VAC	5-32 VDC	RGCM3A22D15GKE
		20-275 VAC, 24-190 VDC	RGCM3A22A15GKE
	600 VAC	5-32 VDC	RGCM3A60D15GKE
		20-275 VAC, 24-190 VDC	RGCM3A60A15GKE

## Selection Guide: RGC2A Series

Rated current / pole @ 40°C	Output voltage	Control voltage	External supply voltage	No additional features	Integrated fan & OTP	Monitoring features incl. OTP	
<b>25 AAC</b> (1,800 A <sup>2</sup> s)	220 VAC	5-32 VDC	-	RGC2A22D25KKE	-	-	
		20-275 VAC, 24-190 VDC	-	RGC2A22A25KKE	-	-	
	600 VAC	5-32 VDC	-	RGC2A60D25KKE	-	-	
			24 VDC	-	-	RGC2A60D25KKEDM	
600 VAC	20-275 VAC, 24-190 VDC	90-250 VAC	-	RGC2A60A25KKE	-	RGC2A60D25KKEAM	
		-	-	-	-	RGC2A60A25KKEAM*	
<b>40 AAC</b> (6,600 A <sup>2</sup> s)	600 VAC	5-32 VDC	-	RGC2A60D40KGE	-	-	
			24 VDC	-	-	RGC2A60D40GGEDM	
	600 VAC	20-275 VAC, 24-190 VDC	90-250 VAC	-	RGC2A60A40KGE	-	RGC2A60D40GGEAM
			-	-	-	-	RGC2A60A40GGEAM*
<b>75 AAC</b> (15,000 A <sup>2</sup> s)	600 VAC	5-32 VDC	24 VDC	-	RGC2A60D75GGEDF	RGC2A60D75GGEDFM	
			90-250 VAC	-	RGC2A60D75GGEAF	RGC2A60D75GGEAFM	
			20-275 VAC	90-250 VAC	-	RGC2A60A75GGEAF	RGC2A60A75GGEAFM

## Selection Guide: RGC3A Series

Rated current / pole @ 40°C	Output voltage	Control voltage	External supply voltage	No additional features	Integrated fan & OTP	Monitoring features incl. OTP	
<b>20 AAC</b> (1,800 A <sup>2</sup> s)	220 VAC	5-32 VDC	-	RGC3A22D20KKE	-	-	
		20-275 VAC, 24-190 VDC	-	RGC3A22A20KKE	-	-	
	600 VAC	5-32 VDC	-	RGC3A60D20KKE	-	-	
			24 VDC	-	-	RGC3A60D20KKEDM	
600 VAC	20-275 VAC, 24-190 VDC	90-250 VAC	-	RGC3A60A20KKE	-	RGC3A60D20KKEAM	
		-	-	-	-	RGC3A60A20KKEAM*	
<b>25 AAC</b> (1,800 A <sup>2</sup> s)	600 VAC	5-32 VDC	-	RGC3A60D25KKE	-	-	
			24 VDC	-	-	RGC3A60D25GKEDM	
	600 VAC	20-275 VAC, 24-190 VDC	90-250 VAC	-	RGC3A60A25KKE	-	RGC3A60D25GKEAM
			-	-	-	-	RGC3A60A25GKEAM*
<b>30 AAC</b> (6,600 A <sup>2</sup> s)	600 VAC	5-32 VDC	-	RGC3A60D30KGE	-	-	
			24 VDC	-	-	RGC3A60D30GGEDM	
	600 VAC	20-275 VAC, 24-190 VDC	90-250 VAC	-	RGC3A60A30KGE	-	RGC3A60D30GGEAM
			-	-	-	-	RGC3A60A30GGEAM*
<b>40 AAC</b> (6,600 A <sup>2</sup> s)	600 VAC	5-32 VDC	24 VDC	-	RGC3A60D40GGEDF	-	
			90-250 VAC	-	-	-	
<b>65 AAC</b> (15,000 A <sup>2</sup> s)	600 VAC	5-32 VDC	90-250 VAC	-	RGC3A60A40GGEAF	-	
			20-275 VAC	90-250 VAC	-	RGC3A60D65GGEDF	RGC3A60D65GGEDFM
<b>65 AAC</b> (15,000 A <sup>2</sup> s)	600 VAC	20-275 VAC	90-250 VAC	-	RGC3A60D65GGEAF	RGC3A60D65GGEAFM	
			-	90-250 VAC	-	RGC3A60A65GGEAF	RGC3A60A65GGEAFM

\* In these cases AC control range is 20-275VAC only

KKE = screw (K) terminals for control, screw terminals (K) for power  
 GKE = box clamps (G) for control, screw terminals (K) for power  
 KGE = screw (K) terminals for control, box clamps (G) for power  
 GGE = box clamps (G) for control, box clamps (G) for power  
 OTP = Over Temperature Protection

Further details are available on online datasheets at [www.productselection.net](http://www.productselection.net)

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