Solid State Relays
Zero Switching
Types RGC Solid State Contactor 'E' Connection

- **Product Width ranging from 17.5mm up to 70mm**
- **Rated Operational voltage: Up to 600VAC**
- **Rated Operational current: Up to 85AAC @ 40°C**
- **Up to 6600A²s for I²t and 1200Vp blocking voltage**
- **Control voltages: 3-32 VDC, 20-275 VAC (24-190 VDC)**
- **IP20 protection**
- **Design according to EN/IEC60947-4-2, EN/IEC60947-4-3, EN/IEC62314, UL508, CSA 22-2 No. 14-10**
- **Integrated voltage transient protection with varistor**
- **RoHS compliant**
- **Short circuit current rating: 100kA**
- **VDE approval**
- **Germanischer Lloyd approval[1]**

Product Description

This new range of solid state contactors presents a unique opportunity to maximize efficiency in panel space and is an evolution of solid state switches for which Carlo Gavazzi is very well known.

The nominal current ratings are at 40°C. The smallest width is 17.5mm and is rated at 20 AAC. Power and control teminals allow for safe looping of cables.

Voltage transient protection is standard across the output with a varistor. Specifications are stated at 25°C unless otherwise noted.

1. Germanischer Lloyd approval applicable only to models RGC1....15.KE, RGC1...20.KE and RGC1....30.KE

Ordering Key

RGC 1 A 60 A 30 K K E _

- **Solid State Relay**
- **Number of poles**
- **Switching Mode**
- **Rated Operational Voltage**
- **Control voltage**
- **Rated Operational current**
- **Connection type for control**
- **Connection type for power**
- **Connection configuration**
- **Option**

Ordering Key

1Phase SSR with heatsink	Rated Voltage	Control Voltage	Rated Current[2]	Connection Control	Connection Power	Connection Configuration	Option
RGC1A: ZC	23: 230V +10% - 15%, 800Vp	D: 3 or 4-32VDC	15: 20AAC	K: Screw	K: Screw	E: Contactor	P: Overtemperature protection[3]
RGC1B: IO	60: 600V +10% -15%, 1200Vp	A: 20 - 275VAC, 24-190 VDC	20: 23AAC	G: Box clamp	G: Box Clamp		
			30: 30AAC	M: Pluggable spring-loaded			
			40: 40AAC				
			60: 60AAC				
			90: 85AAC				

2. Refer to derating curves
3. Default control connection for RGC...P is Box Clamp. See connections specifications.

Selection Guide (ZC= Zero Cross Switching, IO = Instant-On Switching, OTP= Over Temperature Protection)

Rated Output Voltage	Blocking Voltage	Connection Control/ Power	Control Voltage	Rated Operational Current @ 40°C 20 AAC	23 AAC	23AAC + OTP	30 AAC	30AAC + OTP
230VAC, ZC	800Vp	Screw[3]/Screw	3 - 32VDC[4]	RGC1A23D15KKE	RGC1A23D20KKE	RGC1A23D20GKEP	RGC1A23D30KKE	RGC1A23D30GKEP
		Spring/Screw	3 - 32VDC	RGC1A23D15MKE	RGC1A23D20MKE	-	RGC1A23D30MKE	-
		Screw /Screw	20 - 275VAC, 24 - 190VDC	RGC1A23A15KKE	RGC1A23A20KKE	-	RGC1A23A30KKE	-
		Spring/Screw	20 - 275VAC, 24 - 190VDC	RGC1A23A15MKE	RGC1A23A20MKE	-	RGC1A23A30MKE	-
600VAC, ZC	1200Vp	Screw[3]/Screw	4 - 32VDC[4]	RGC1A60D15KKE	RGC1A60D20KKE	RGC1A60D20GKEP	RGC1A60D30KKE	RGC1A60D30GKEP
		Spring/Screw	4 - 32VDC	RGC1A60D15MKE	RGC1A60D20MKE	-	RGC1A60D30MKE	-
		Screw[3]/Screw	20 - 275VAC, 24 - 190VDC	RGC1A60A15KKE	RGC1A60A20KKE	RGC1A60A20GKEP	RGC1A60A30KKE	RGC1A60A30GKEP
		Spring/Screw	20 - 275VAC, 24 - 190VDC	RGC1A60A15MKE	RGC1A60A20MKE	-	RGC1A60A30MKE	-
600VAC, IO	1200Vp	Screw/Screw	4 - 32VDC	RGC1B60D15KKE	RGC1B60D20KKE	-	RGC1B60D30KKE	-

4. DC control voltage range for RGC..D..P is 5 - 32VDC

Selection Guide (ZC= Zero Cross Switching, IO = Instant-On Switching, OTP = Over Temperature Protection) (cont)

Rated Output Voltage	Blocking Voltage	Connection Control/ Power	Control Voltage	Rated Operational Current @ 40°C 40AAC	40AAC + OTP	60AAC	60AAC + OTP
230VAC, ZC	800Vp	Screw/Box Clamp	3 - 32VDC	RGC1A23D40KGE	-	RGC1A23D60KGE	-
		Spring/Box Clamp	3 - 32VDC	RGC1A23D40MGE	-	-	-
		Screw/Box Clamp	20 - 275VAC, 24 - 190VDC	RGC1A23A40KGE	-	RGC1A23A60KGE	-
		Spring/Box Clamp	20 - 275VAC, 24 - 190VDC	RGC1A23A40MGE	-	-	-
600VAC, ZC	1200Vp	Screw[3]/Box Clamp	4 - 32VDC[4]	RGC1A60D40KGE	RGC1A60D40GGEP	RGC1A60D60KGE	RGC1A60D60GGEP
		Spring/Box Clamp	4 - 32VDC	RGC1A60D40MGE	-	-	-
		Screw[3]/Box Clamp	20 - 275VAC, 24 - 190VDC	RGC1A60A40KGE	RGC1A60A40GGEP	RGC1A60A60KGE	RGC1A60A60GGEP
		Spring/Box Clamp	20 - 275VAC, 24 - 190VDC	RGC1A60A40MGE	-	-	-
600VAC, IO	1200Vp	Screw/Box Clamp	4 - 32VDC	RGC1B60D40KGE	-	RGC1B60D60KGE	-

Rated Output Voltage	Blocking Voltage	Connection Control/ Power	Control Voltage	Rated Operational Current @ 40°C 85AAC + fan + OTP
230VAC, ZC	800Vp	Box Clamp/Box Clamp	5 - 32VDC	RGC1A23D90GGEP
600VAC, ZC	1200Vp	Box Clamp/Box Clamp	5 - 32VDC	RGC1A60D90GGEP
		Box Clamp/Box Clamp	20 - 275VAC, 24 - 190VDC	RGC1A60A90GGEP

3. Default control connection for RGC...P is Box Clamp. See connections specifications.
4. DC control voltage range for RGC..D..P is 5 - 32VDC

Output Voltage Specifications

	RGC..23..	RGC..60..
Operational Voltage Range	24-240 VAC, +10%, -15% on max	42-600 VAC, +10% -15% on max
Blocking Voltage	800Vp	1200 Vp
Internal Varistor	275V	625V

General Specifications

Latching voltage (across L1-T1)	≤20V
Operational frequency range	45 to 65Hz
Power factor	> 0.5 @ Vrated
Finger Protection	IP20
Control input status	continuously ON Green LED, when control input is applied
Pollution degree	2 (non-conductive pollution with possibilities of condensation)

Over-voltage category		III (fixed installations)
Isolation		
Input to Output	RGC...	4000 Vrms
	RGC...D..P	2500 Vrms
	RGC...A..P	4000 Vrms
Input and Output to case	RGC...	4000 Vrms
	RGC...D..P	4000 Vrms
	RGC...A..P	4000 Vrms
Input to Fan/ Alarm Output		
	RGC...A..P	2500 Vrms

Output specifications (@ 25°C unless otherwise specified)

	RGC..15..	RGC..20..	RGC..30..	RGC..40..	RGC..60..	RGC..90..
Rated operational current [6]						
AC-51 rating @ Ta=25°C	20 AAC	25.5 AAC	30 AAC	47.4 AAC	70.4 AAC	85 AAC
AC-51 rating @ Ta=40°C	20 AAC	23 AAC	30 AAC	40 AAC	60 AAC	85 AAC
AC-53a rating @ Ta=40°C	5 AAC	5 AAC	8 AAC	13 AAC	14.8 AAC	18 AAC
Number of motor starts (x:6, Tx:6s, F:50%) at 40°C [5]	30	30	30	30	30	30
Min. operational current	150 mAAC	150 mAAC	250 mAAC	400 mAAC	400 mAAC	400 mAAC
Rep. overload current - (Motor Rating) PF = 0.4 - 0.5 UL508: T_{AMB}=40°C, t_{ON}=1s, t_{OFF}=9s, 50cycles	60 AAC	60 AAC	84 AAC	126 AAC	144 AAC	168 AAC
Maximum transient surge current (I_{TSM})	325 Ap	325 Ap	600 Ap	800Ap	800Ap	1150Ap
Maximum off-state leakage current	3 mA	3 mA	3 mA	3 mA	3 mA	3 mA
I^2t (10ms) Minimum	525 A^2s	525 A^2s	1800 A^2s	3200A^2s	3200A^2s	6600A^2s
Crititcal dv/dt (@ Tj init = 25°C)	1000 V/us	1000 V/us	1000 V/us	1000 V/us	1000 V/us	1000 V/us

5. Overload current profle definition: x: multiple of AC53a rating, Tx: duration of current surge, F: duty cycle
6. See derating curves

Overtemperature alarm specifications for RGC...P

		RGC..D..P	RGC..A..P
Output type		PNP open collector	Potential Free
Normal state		Closed	Closed
Maximum current rating		50 mADC	50 mADC
Rated voltage (EN61131-2: 2003) [8,7], Ua		24VDC -15%, +20%	24VDC -15%, +20%
Rated voltage, Us	RGC...D90GGEP	24VDC ± 10%	N/A
Fan rating, U_f	RGC...A90GGEP	N/A	24VDC ±10%, 50mA nominal
Alarm voltage drop	Typical Maximum	2.8VDC 4VDC	1.8VDC 3.5VDC
Visual Indication		Continous Red LED	Continous Red LED
Reverse polarity protection		24VDC	24VDC

7: DC supply for alarm signal should be supplied from a Class 2 power source
8: Maximum voltage to be applied between 11+ and 12- (Ua) terminals should be 35VDC maximum with reference to A2-

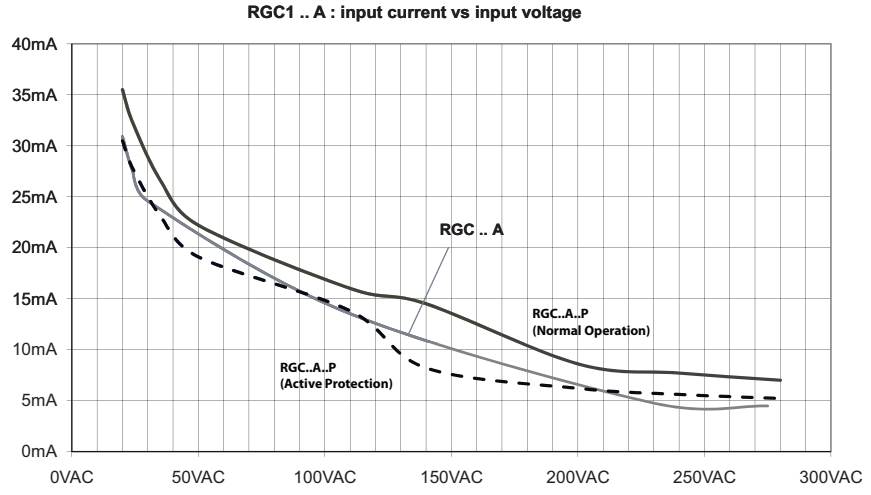
Input specifications

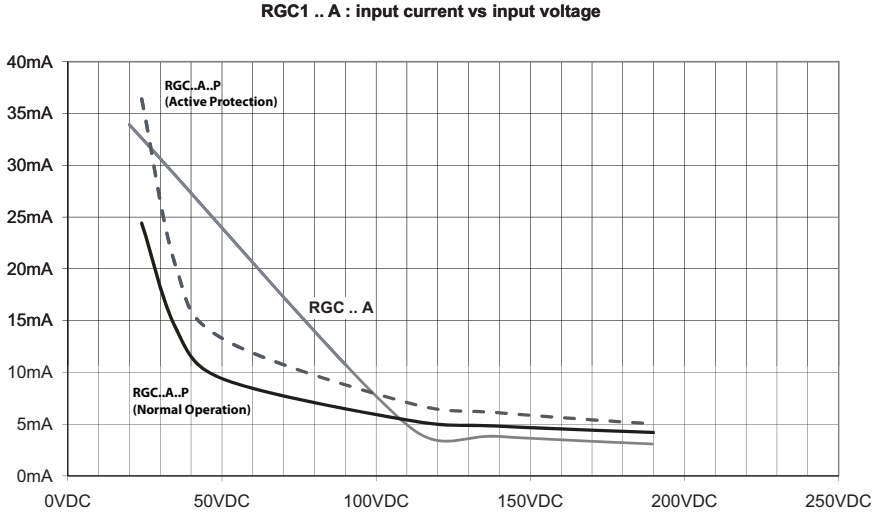
		RGC..D..[9]	RGC..A..
Control voltage range [10]	RGC..23..	3 - 32 VDC	20 - 275 VAC, 24 (-10%) - 190 VDC
	RGC..60..	4 - 32 VDC	20-275 VAC, 24 (-10%) - 190 VDC
	RGC...P (Uc)	5 - 32 VDC	20-275 VAC, 24 (-10%) - 190 VDC
Pick-up voltage	RGC..23.. RGC..60.. RGC...P	3.0 VDC 3.8 VDC 5 VDC	20 VAC/DC 20 VAC/ 24VDC
Drop-out voltage		1 VDC	5 VAC/DC
Maximum Reverse voltage		32 VDC	-
Response time pick-up ZC (RGC1A..)		0.5 cycle + 500µs @ 24VDC	2 cycles @ 230VAC/110VDC
Response time pick-up IO (RGC1B..)		350µs @ 24 VDC	N/A
Response time drop-out		0.5 cycle + 500µs @ 24VDC	0.5 cycle + 40ms @ 230VAC/ 110VDC
Input current @ 40°C		See diagrams below	See diagrams below

9. DC control to be supplied by class 2 power source

10. For GL approved models control range for RGC1.23... is 4-32VDC and for RGC1.60... 5-32VDC

RG..A..

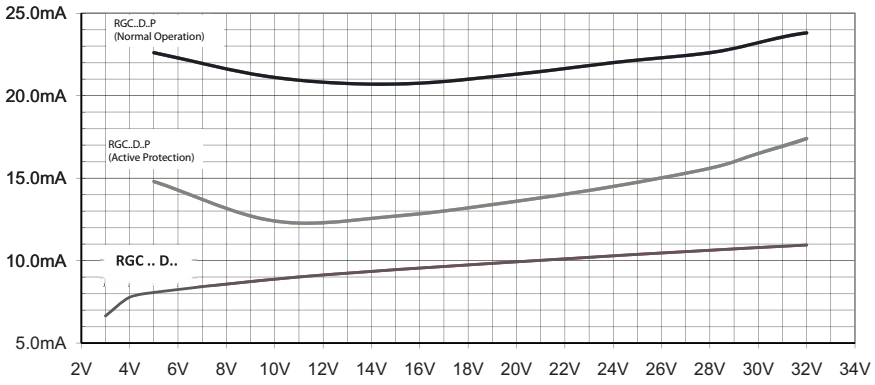




Input specifications (cont.)

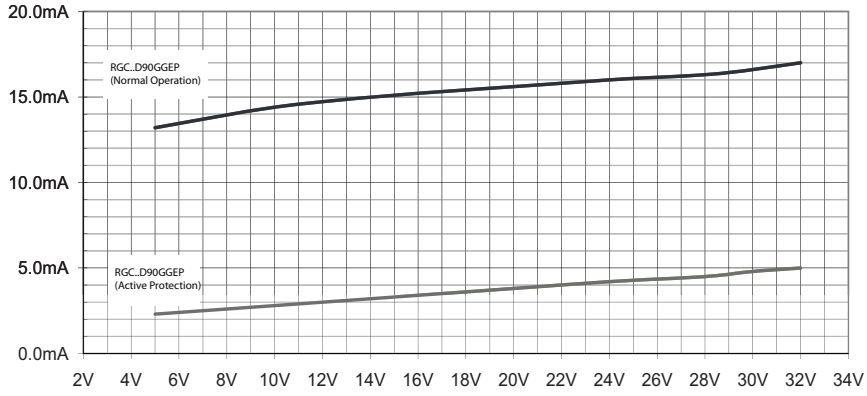
RG..D..

A1 Characteristics: DC input current vs Input voltage [x]



x: Input currents for RGC1..D15, RGC1..D20, RGC1..D30, RGC1..D40, RGC1..D60

IN1 Characteristics: DC input current vs Input voltage [y]



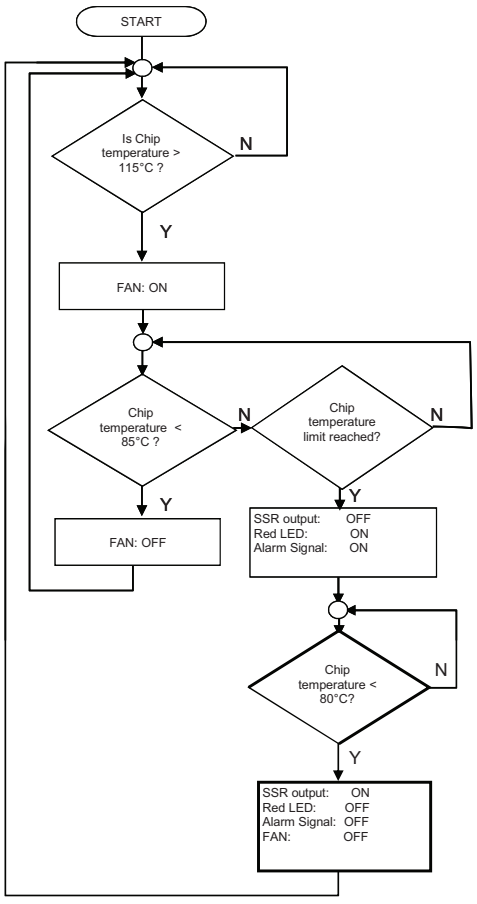
y: input currents valid only for RGC1..D90GGEP

Motor Ratings: HP (UL508) / kW (IEC60947-4-2) @ 40°C

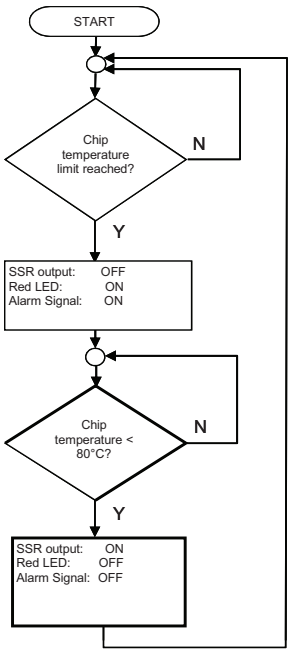
	115 VAC	230 VAC	400 VAC	480 VAC	600 VAC
RGC..15	1/3 HP / 0.18kW	1HP / 0.37kW	2HP / 0.75kW	3HP / 1.1kW	3HP / 1.5kW
RGC..20	½HP / 0.18kW	1-½HP / 0.37kW	2HP / 0.75kW	3HP / 1.1kW	3HP / 1.5kW
RGC..30	3/4HP / 0.37kW	2HP / 1.1kW	3HP / 1.5kW	5HP / 2.2kW	5HP / 3.7kW
RGC..40	1HP / 0.56kW	3HP / 1.5kW	5HP / 2.2kW	5HP / 3.7kW	7-½HP / 4kW
RGC..60	1-½HP / 0.56kW	3HP / 1.5kW	5HP / 3kW	7-½HP / 4kW	10HP / 4kW
RGC..90GGEP	2HP / 0.75kW	5HP / 1.5kW	7½HP / 4kW	10HP / 4kW	15HP / 5.5kW

Detailed Over temperature Alarm Procedure (for RGC...P)

ALARM Signal and Fan
(applicable to RGC..D90GGEP)



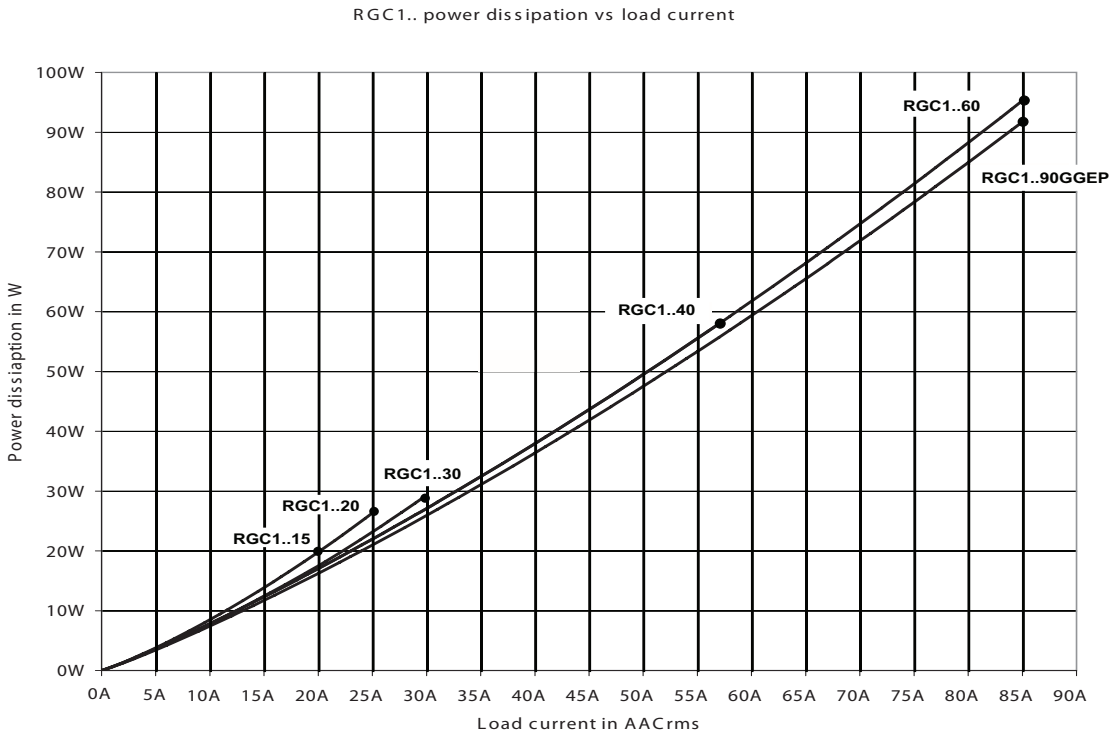
ALARM Signal only



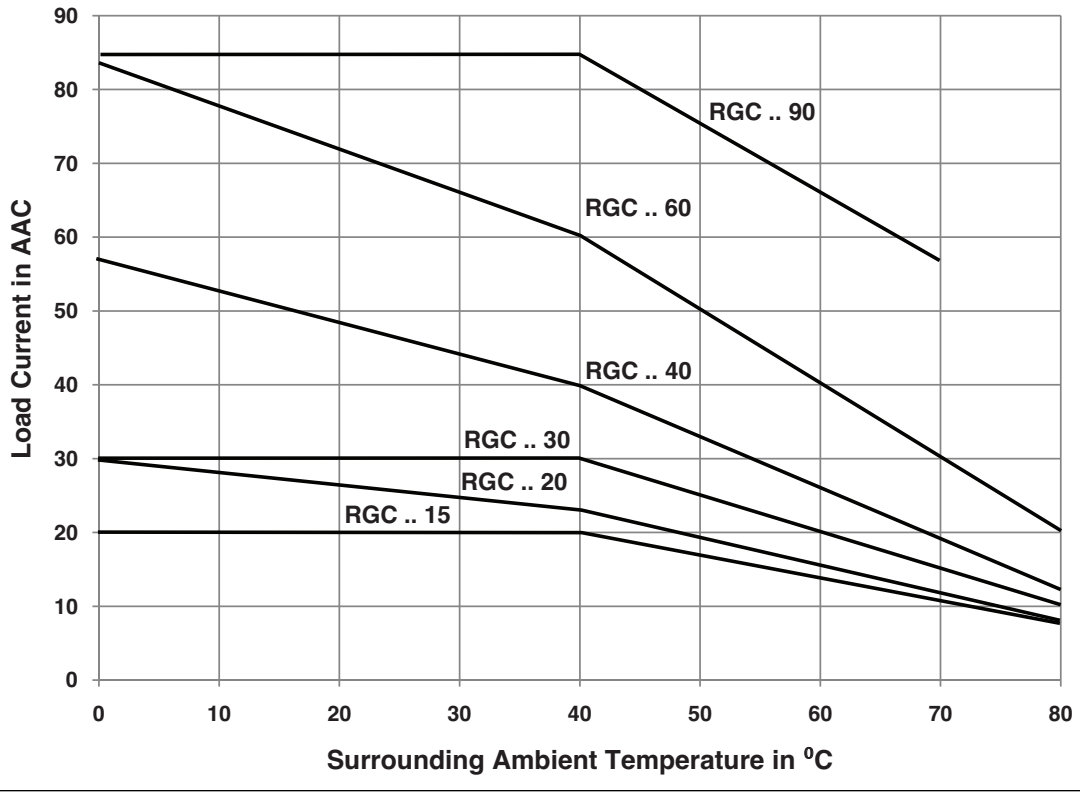
CAUTION

- Alarm condition resets whenever the voltage signal is removed from terminal A1 (+)
- In the case of RGC...D90GGEP, if the voltage signal is not applied across A1(+) and A2 (-) terminals, the overtemperature detection and functionality is lost (including fan operation and alarm signalling)
- In the case of RGC1A60A90GGEP it is necessary to supply IN2 and IN3 with 24VDC for fan operation.
- Alarm procedure for RGC1A60A90GGEP follows 'Alarm signal only' flow since fan is continously operating.
- Alarm condition automatically resets ONLY when power semiconductor temperature < 80°C
- Temperatures indicated are typical figures.

Output Power Dissipation



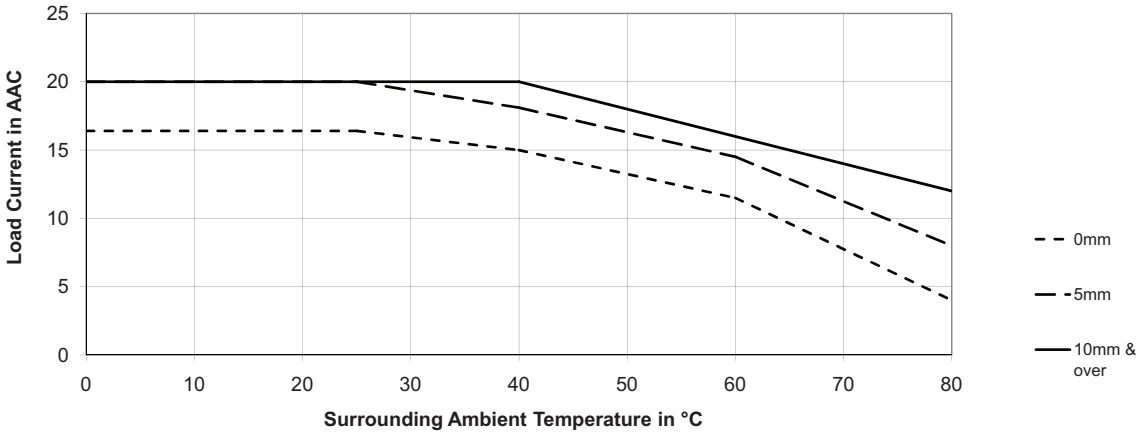
Current Derating (UL508)



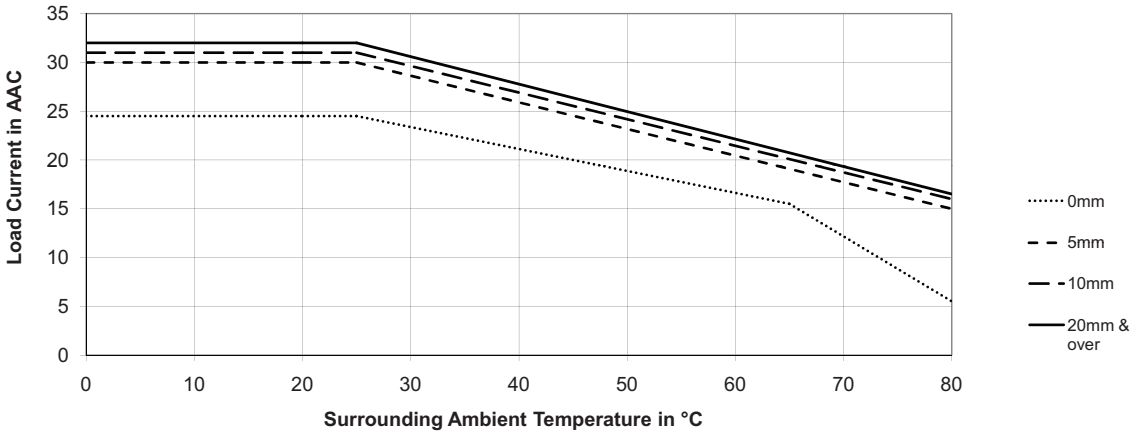
RGC...P models max. operating temperature is + 70°C

Derating vs. Spacing Curves

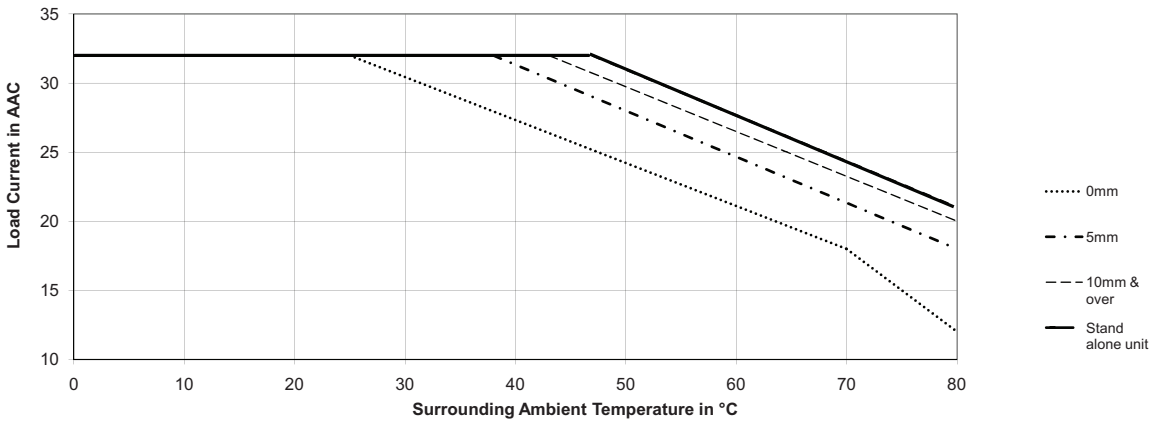
RGC.. 15..



RGC.. 20..

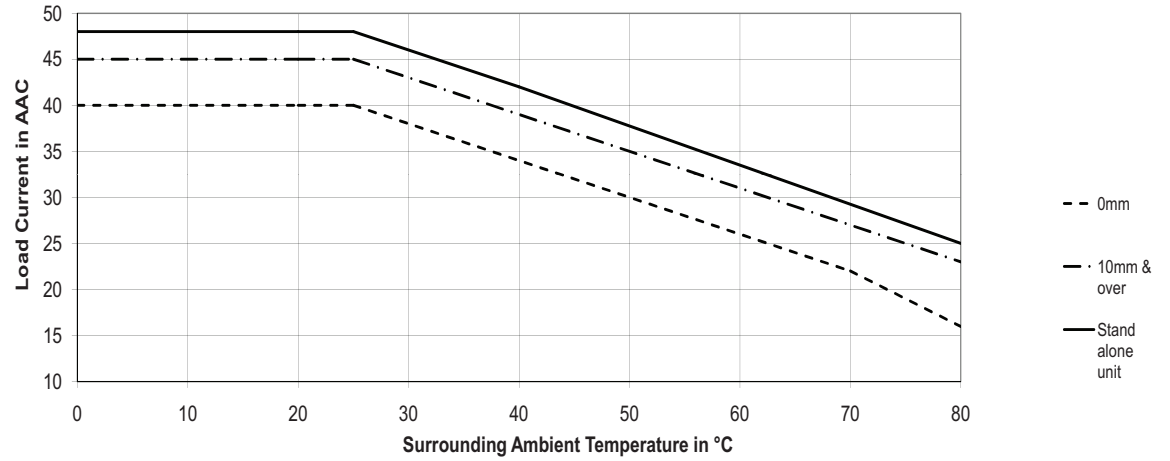


RGC.. 30..

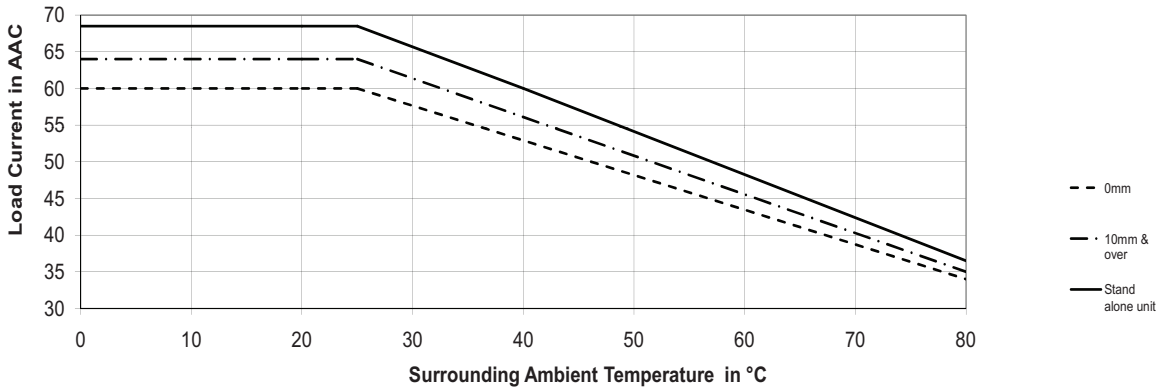


Derating vs. Spacing Curves

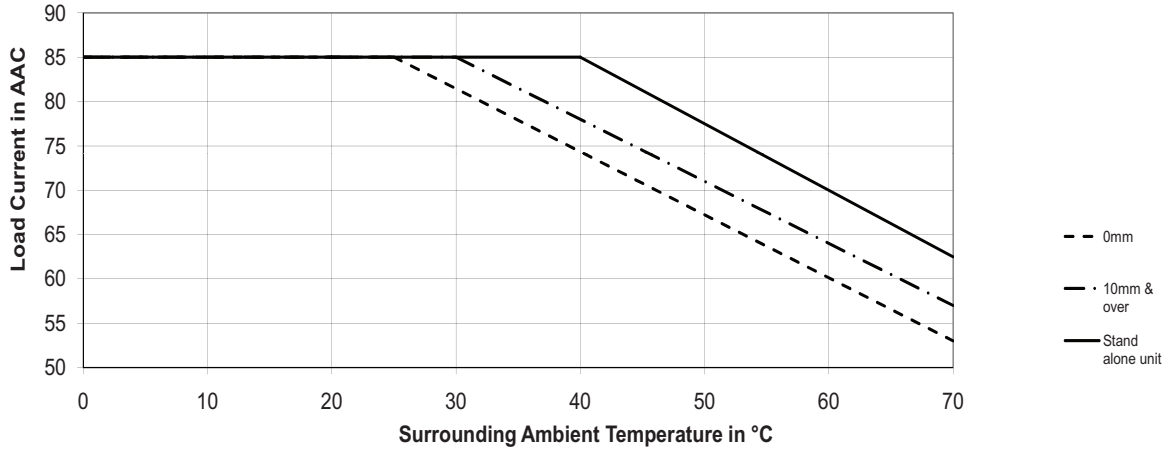
RGC.. 40..



RGC.. 60..



RGC.. 90GGEP



Agency Approvals and Conformances

Conformance	IEC/EN 62314 IEC/EN 60947-4-2 IEC/EN 60947-4-3
Agency Approvals	UL508 Listed (E172877) cUL Listed (E172877) VDE 0660-109 GL[12]
Short Circuit Current Rating	100kA, UL508

Electromagnetic Compatibility

EMC Immunity	IEC/EN 61000-6-2
Electrostatic Discharge (ESD) Immunity	IEC/EN 61000-4-2
Air discharge, 8kV	Performance Criteria 1
Contact, 4kV	Performance Criteria 1
Electrical Fast Transient (Burst) Immunity	IEC/EN 61000-4-4
Output: 2kV, 5kHz	Performance Criteria 1
Input: 1kV, 5kHz	Performance Criteria 1
Electrical Surge Immunity (for RGC...E)	IEC/EN 61000-4-5
Output, line to line, 1kV	Performance Criteria 1
Output, line to earth, 2kV	Performance Criteria 1
Input, line to line, 1kV	Performance Criteria 2
Input, line to earth, 2kV	Performance Criteria 2

Electrical Surge Immunity (for RGC...EP)	IEC/EN 61000-4-5
Output, line to line, 1kV	Performance Criteria 1
Output, line to earth, 2kV	Performance Criteria 1
DC lines, line to line, 500V	Performance Criteria 2
DC lines, line to earth, 500V	Performance Criteria 2
Signal lines, line to earth, 1kV	Performance Criteria 2
Radiated Radio Frequency Immunity	IEC/EN 61000-4-3
10V/m, 80 - 1000 MHz	Performance Criteria 1
10V/m, 1.4 - 2 GHz	Performance Criteria 1
3V/m, 2 - 2.7 GHz	Performance Criteria 1
Conducted Radio Frequency Immunity	IEC/EN 61000-4-6
10V/m, 0.15 - 80 MHz	Performance Criteria 1
Voltage Dips Immunity	IEC/EN 61000-4-11
0% for 10ms/20ms,	Performance Criteria 2
40% for 200ms	Performance Criteria 2
70% for 500ms	Performance Criteria 2
Voltage Interruptions Immunity	IEC/EN 61000-4-11
0% for 5000ms	Performance Criteria 2

EMC Emission	IEC/EN 61000-6-4
Radio Interference Voltage Emission (Conducted)	IEC/EN 55011
0.15 - 30MHz	Class A (industrial) with filters - see filter information IEC/EN 60947-4-2, 60947-4-3 Class A (no filtering needed)

Radio Interference Field Emission (Radiated)	IEC/EN 55011
30 - 1000MHz	Class A (industrial)

Environmental Specifications

Operating Temperature[11]	-40°C to 80°C (-40°F to +176°F)
Storage Temperature	-40°C to 100°C (-40°F to +212°F)
RoHS (2002/95/EC)	Compliant
Impact resistance (EN50155, EN61373)	15/11 g/ms

Vibration resistance (2-100Hz, IEC60068-2-26, EN50155, EN61373)	2g per axis
Relative humidity	95% non-condensing @ 40°C
UL flammability rating (housing)	UL 94 V0

11. Operating temperature range for RGC..P (overtemperature protection) is -30°C to 70°C (-22°F to 158°F)

12. Applicable to models RGC1...15.KE, RGC1...20.KE and RGC1...30.KE

Filtering - EN / IEC 55011 Class A compliance (for class B compliance contact us)

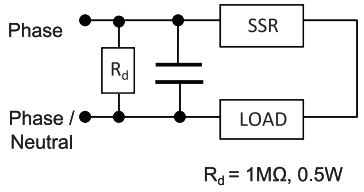
Part Number	Suggested filter for compliance	Maximum Heater current
RGC1A23..15	68nF/ 275 V / X1	20A
RGC1A23..20	68nF/ 275 V / X1	20A
RGC1A23..30	220 nF / 275V / X1	30A
RGC1A23..40	220 nF / 275V / X1 330 nF / 275V / X1	30A 45A
RGC1A23..60	220 nF / 275V / X1 330 nF / 275V / X1	30A 45A
RGC1A23..90GGEP	330 nF / 275V / X1 470 nF / 275V / X1	35A 65A
RGC1A60..15	100 nF / 760V / X1	20A
RGC1A60..20	100 nF / 760V / X1	20A
RGC1A60..30	220 nF / 760V / X1	30A
RGC1A60..40	220 nF / 760V / X1 330 nF / 760V / X1	25A 45A
RGC1A60..60	220 nF / 760V / X1 330 nF / 760V / X1	25A 45A
RGC1A60..90GGEP	330 nF / 760V / X1 470 nF / 760V / X1	40A 65A

Note:

- Control input lines must be installed together to maintain products' susceptability to Radio Frequency interference.
- Use of AC solid state relays may, according to the application and the load current, cause conducted radio interferences. Use of mains filters may be necessary for cases where the user must meet E.M.C requirements. The capacitor values given inside the filtering specification tables should be taken only as indications, the filter attenuation will depend on the final application.
- Performance Criteria 1: No degradation of performance or loss of function is allowed when the product is operated as intended.
- Performance Criteria 2: During the test, degradation of performance or partial loss of function is allowed. However when the test is complete the product should return operating as intended by itself.
- Performance Criteria 3: Temporary loss of function is allowed, provided the function can be restored by manual operation of the controls.

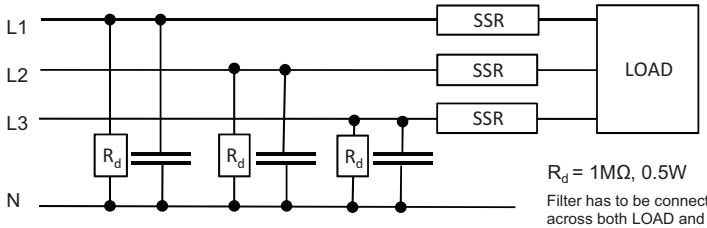
Filter Connection Diagrams

1 Phase



R_d = 1MΩ, 0.5W

3 Phase

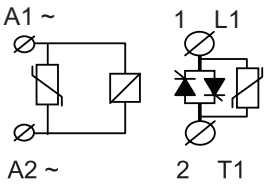


R_d = 1MΩ, 0.5W

Filter has to be connected across both LOAD and SSR

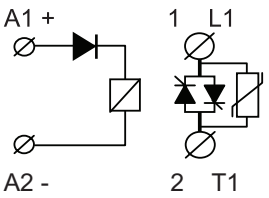
Connection Diagram (No OTP)

AC Controlled



In AC controlled types only (RG..A..) a varistor is placed across A1/A2 terminals.

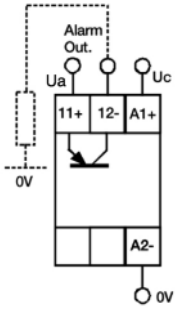
DC Controlled



In DC controlled types only (RG..D..) a diode is placed in series with the control circuit for protection against reverse biased connection.

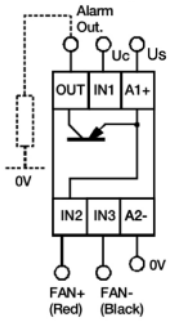
Connection Diagram (with OTP)

RGC1...D20GKEP
RGC1...D30GKEP
RGC1...D40GGEP
RGC1...D60GGEP



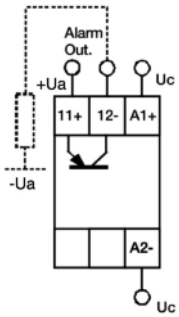
Uc: 5 - 32 VDC
Ua: max 35VDC
Alarm Output: max. 50mA

RGC1...D90GGEP



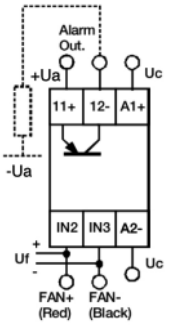
Uc: 5 - 32 VDC
Us: 24 VDC
Alarm Output: max. 50mA

RGC1...A20GKEP
RGC1...A30GKEP
RGC1...A40GGEP
RGC1...A60GGEP



Uc: 24 - 275 VAC
24 - 190 VDC
Ua: max 35VDC
Alarm Output: max. 50mA

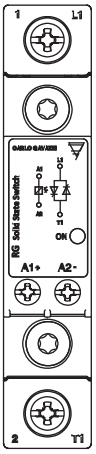
RGC1...A90GGEP

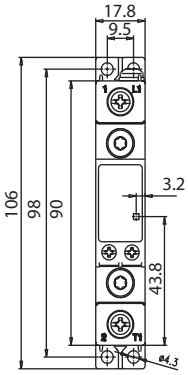


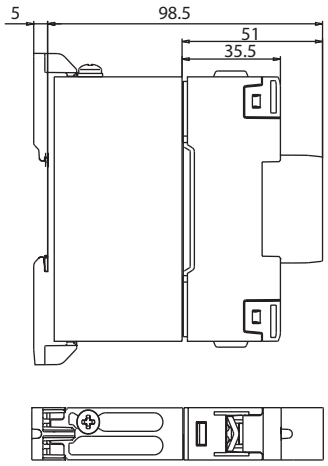
Uc: 24 - 275 VAC
24 - 190 VDC
Ua: max. 35 VDC
Alarm Output: max. 50mA
Ur: 24 VDC

Terminal Layout and Dimensions

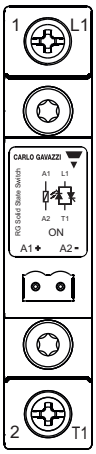
RGC...15KKE

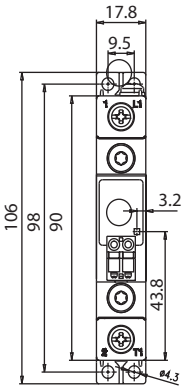


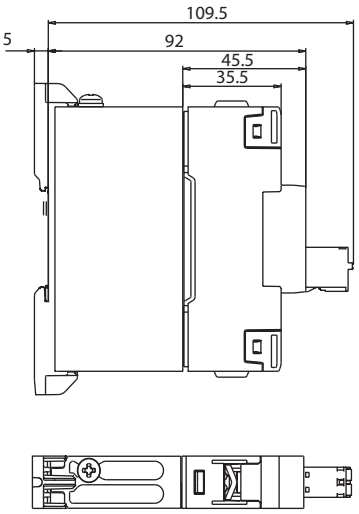




RGC...15MKE





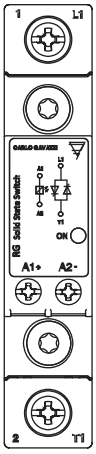


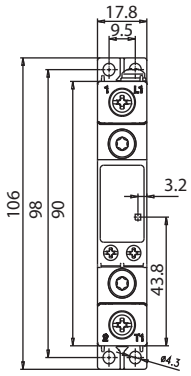
1/L1: Supply connection
2/T1: Load connection
A1 (+): Positive control signal
A2 (-): Control ground

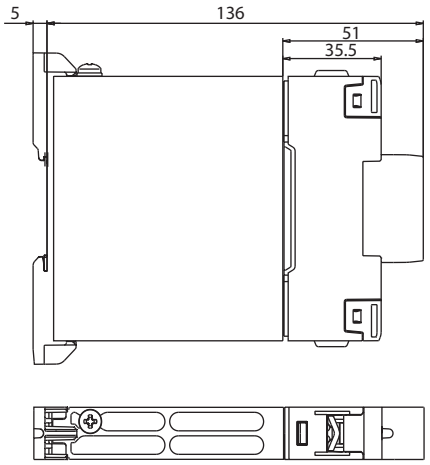
* Housing width tolerance +0.5mm, -0mm…as per DIN43880
All dimensions in mm

Terminal Layout and Dimensions (cont).

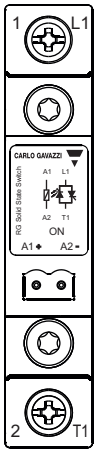
RGC...20KKE

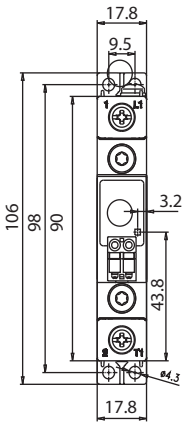


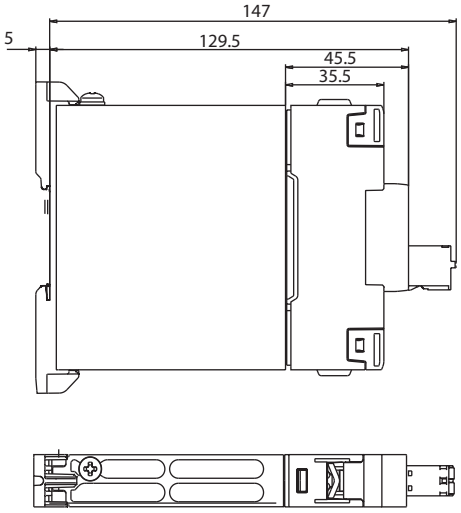




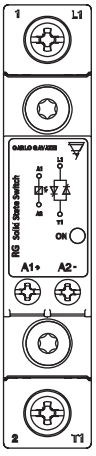
RGC...20MKE

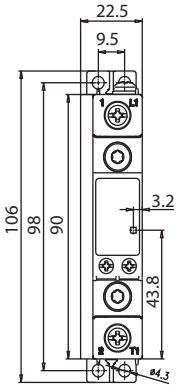


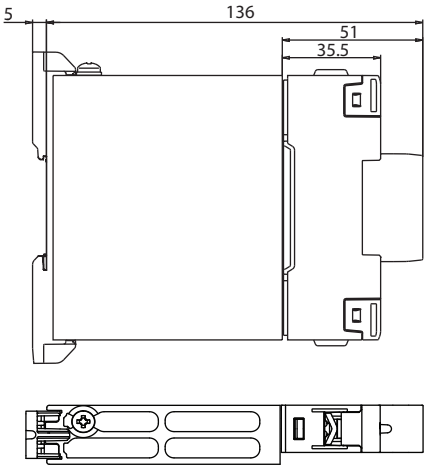




RGC...30KKE







1/L1: Supply connection
2/T1: Load connection
A1 (+): Positive control signal
A2 (-): Control ground

* Housing width tolerance +0.5mm, -0mm…as per DIN43880
All dimensions in mm

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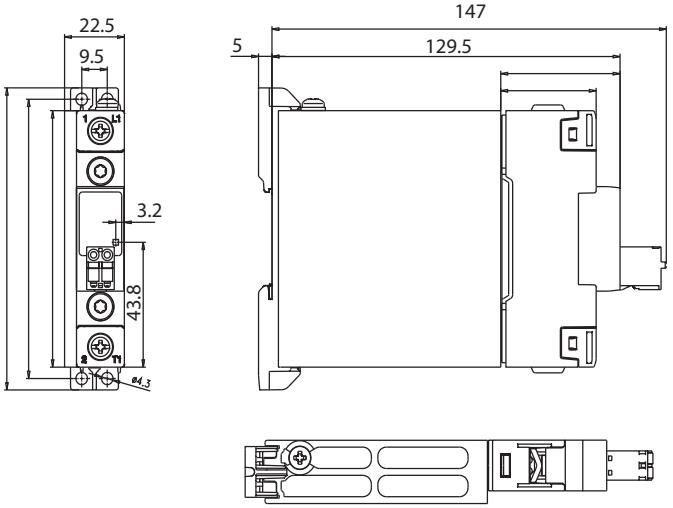
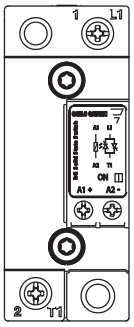
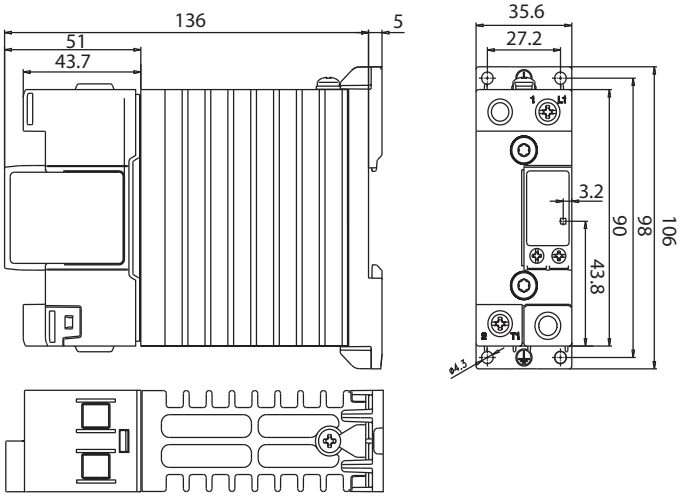
Terminal Layout and Dimensions (cont.)

RGC...30MKE

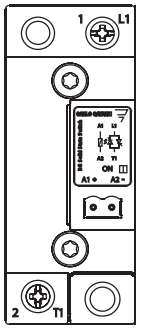


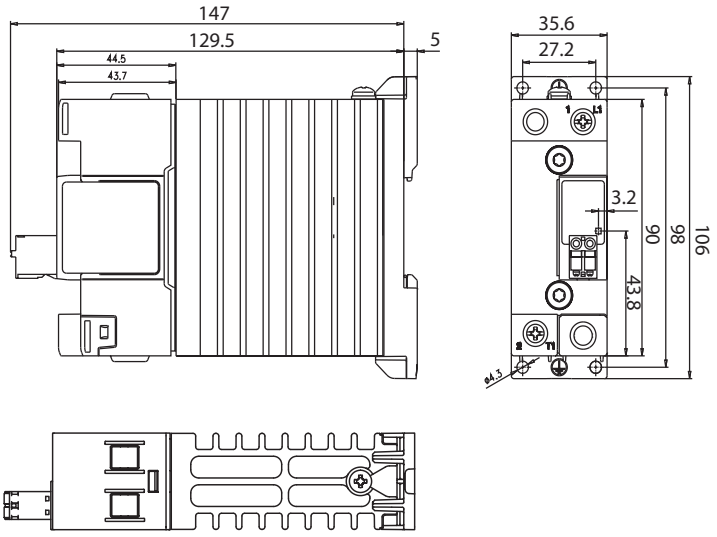
RGC...40KGE





RGC...40MGE





1/L1: Supply connection
2/T1: Load connection
A1 (+): Positive control signal
A2 (-): Control ground

* Housing width tolerance +0.5mm, -0mm…as per DIN43880
All dimensions in mm

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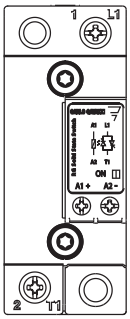
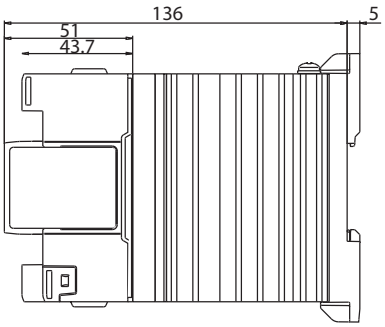
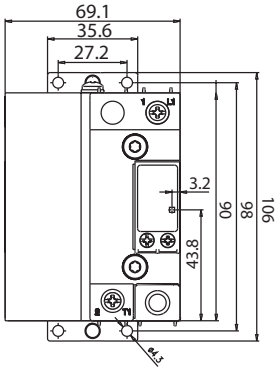
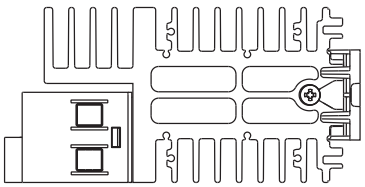
Terminal Layout and Dimensions (cont.)

RGC...60KGE

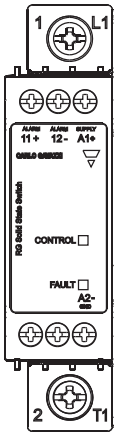


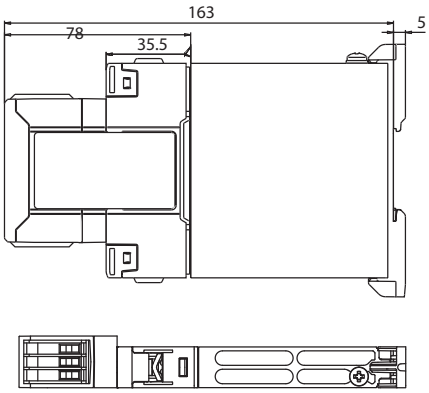


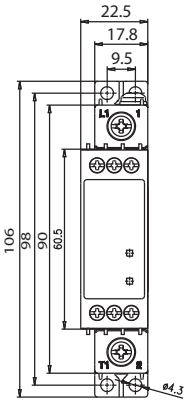




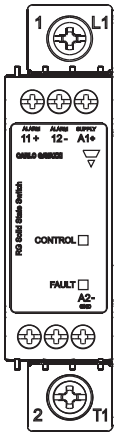
RGC...20GKEP

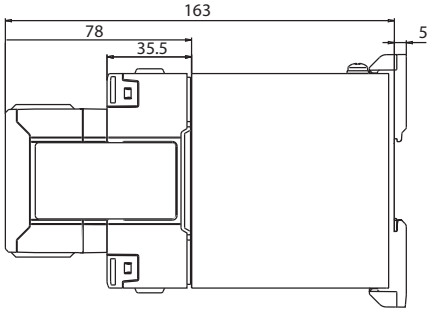


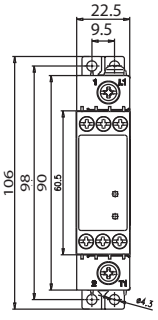




RGC...30GKEP







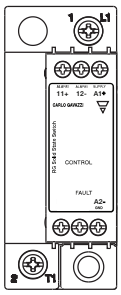
1/L1: Supply connection
2/T1: Load connection
A1 (+): Positive control signal
(Positive supply in case of RGC1A..D90GGEP)
A2 (-): Control ground
IN1: Control signal (only for RGC1A.. D 90GGEP)
IN2: Fan + supply (only for RGC1A60A90GGEP)
IN3: Fan - supply (only for RGC1A60A90GGEP)
11 + : Alarm output (+)
OUT, 12 - : Alarm output (-)

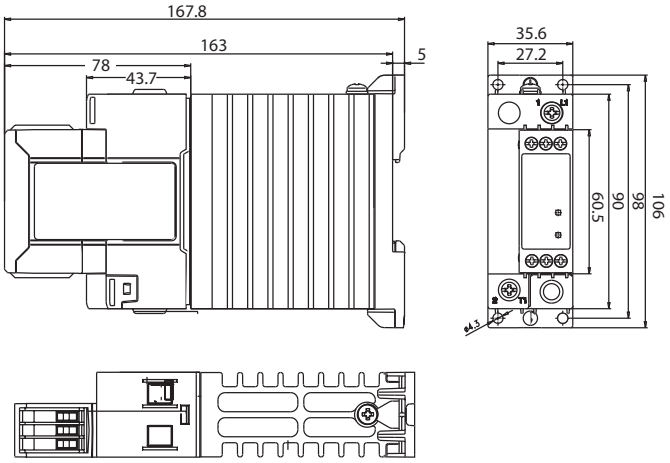
* Housing width tolerance +0.5mm, -0mm…as per DIN43880
All dimensions in mm

CARLO GAVAZZI

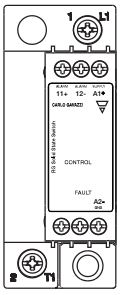
Terminal Layout and Dimensions (cont.)

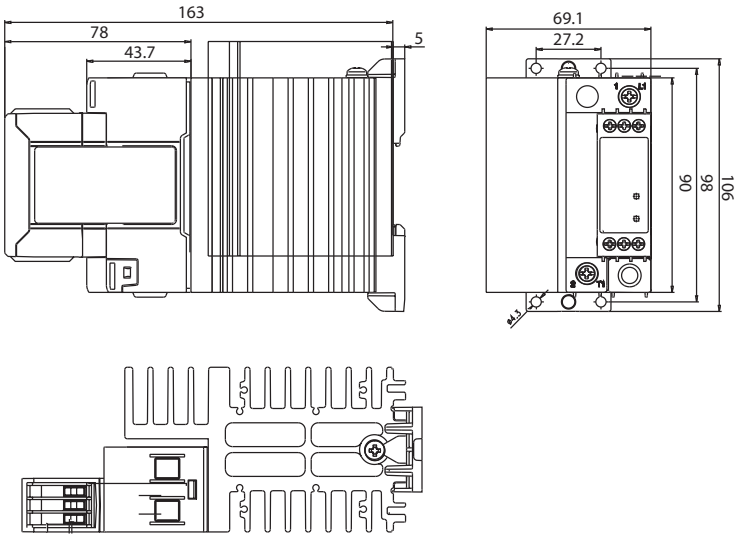
RGC...40GGEP



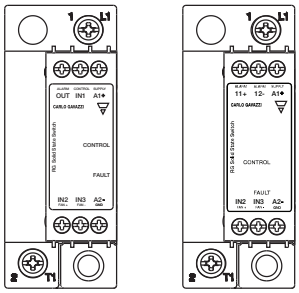


RGC...60GGEP

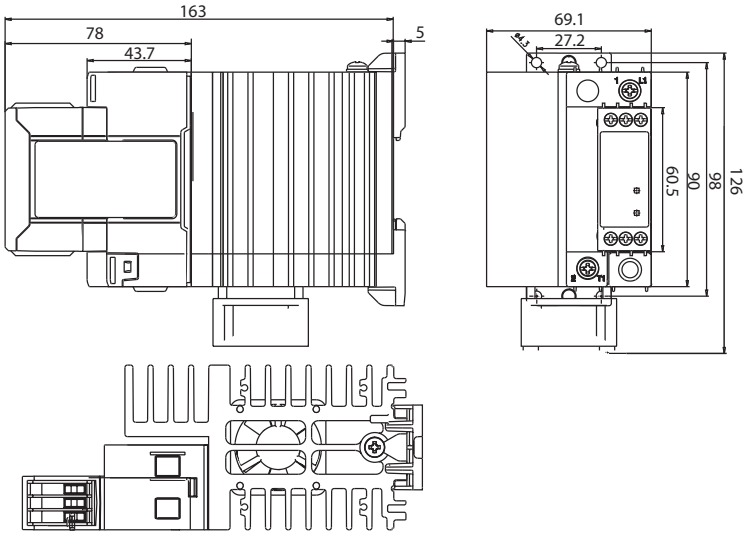




RGC...90GGEP



RGC...D90GGEP **RGC...A90GGEP**



1/L1: Supply connection
2/T1: Load connection
A1 (+): Positive control signal
(Positive supply in case of RGC1A..D90GGEP)
A2 (-): Control ground
IN1: Control signal (only for RGC1A.. D90GGEP)
IN2: Fan + supply (only for RGC1A60A90GGEP)
IN3: Fan - supply (only for RGC1A60A90GGEP)
11 + : Alarm output (+)
OUT, 12 - : Alarm output (-)

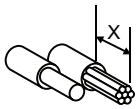
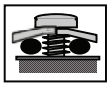
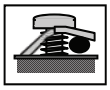
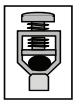
* Housing width tolerance +0.5mm, -0mm…as per DIN43880
All dimensions in mm

CARLO GAVAZZI

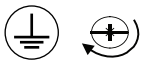
Connection Specifications

POWER CONNECTIONS: 1/L1, 2 /T1

Use 75°C copper (Cu) conductors

	RGC..15.KE. ; RGC..20.KE. ; RGC..30.KE.		RGC..40.GE. ; RGC..60.GE. ; RGC..90GGEP
Stripping Length (X)	12mm		11mm
Connection type	M4 screw with captivated washer		M5 screw with box clamp
Rigid (Solid & Stranded) UL/ cUL rated data 	 2 x 2.5..6 mm² 2 x 14.. 10 AWG	 1 x 2.5..6 mm² 1 x 14.. 10 AWG	 1 x 6..25mm² 1 x 10...3 AWG
Flexible with end sleeve 	2 x 1.0 ... 2.5mm² 2 x 2.5..4mm² 2 x 18.. 14 AWG 2 x 14.. 12 AWG	1 x 1.0..4mm² 1 x 18.. 12 AWG	1 x 2.5..16mm² 1 x 14.. 6 AWG
Flexible without end sleeve 	2 x 1.0 ... 2.5mm² 2 x 2.5.. 6mm² 2 x 18.. 14 AWG 2 x 14.. 10 AWG	1 x 1.0.. 6mm² 1 x 18.. 10 AWG	1 x 4.. 25mm² 1 x 12.. 3 AWG
Torque specifications 	2 Nm (17.7 in-lb). M4, Pozidriv 2		2.5 Nm (22 in-lb). M5, Pozidriv 2
Aperture for termination lug	12.3mm		N/A

Protective Earth Connection



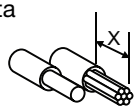
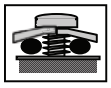
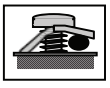
RGC..15, 20: M4, 1.5Nm (13.3 in-lb)

RGC..30, 40, 60, 90: M5, 1.5Nm (13.3 in-lb)

Note: Protective Earth connection must be connected whenever the product is intended to be used in Class 1 applications according to EN/IEC 61140.

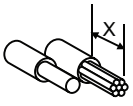
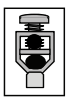
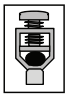
CONTROL CONNECTIONS: A1(+), A2(-)

Use 60/75°C copper (Cu) conductors

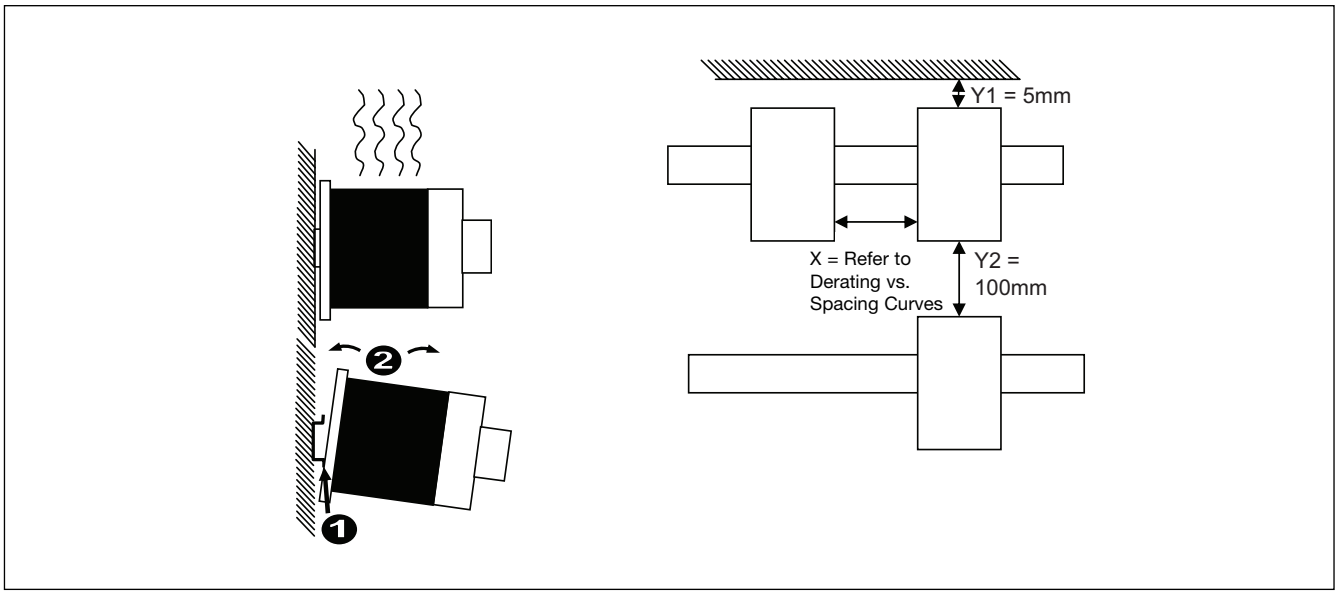
	RGC..K.E		RGC....M.E
Torque specifications 	0.5 Nm (4.4 in-lb); M3, Pozidriv 1		
Stripping Length (X)	8mm		12 - 13mm
Rigid (Solid & Stranded) UL/ cUL rated data 	 2 x 0.5..2.5mm² 2 x 18..12 AWG	 1 x 0.5..2.5mm² 1 x 18..12 AWG	 1 x 0.2...2.5mm² 1 x 24...12 AWG
Flexible with end sleeve 	2 x 0.5..2.5mm² 2 x 18..12AWG	1 x 0.5..2.5mm² 1 x 18..12AWG	

CONTROL CONNECTIONS: A1(+), A2(-), IN1, IN2, IN3, 11 (+), 12(-), OUT

Use 60/75°C copper (Cu) conductors

	RGC...GGEP	
Torque specifications 	0.5 Nm (4.4 in-lb); M3, Pozidriv 1	
Stripping Length (X)	6mm	13mm
Rigid (Solid & Stranded) UL/ cUL rated data 	 2 x 0.5..2.5mm² 2 x 18..12 AWG	 1 x 0.2..2.5mm² 1 x 24..12 AWG
Flexible with end sleeve 	2 x 0.5..2.5mm² 2 x 18..12AWG	1 x 0.2..2.5mm² 1 x 24..12AWG

Installation Instructions



Short Circuit Protection

Protection Co-ordination, Type 1 vs Type 2:

Type 1 protection implies that after a short circuit, the device under test will no longer be in a functioning state. In type 2 co-ordination the device under test will still be functional after the short circuit. In both cases, however the short circuit has to be interrupted. The fuse between enclosure and supply shall not open. The door or cover of the enclosure shall not be blown open. There shall be no damage to conductors or terminals and the condcutors shall not separate from terminals. There shall be no breakage or cracking of insulating bases to the extent that the integrity of the mounting of live parts is impaired. Discharge of parts or any risk of fire shall not occur.

The product variants listed in the table hereunder are suitable for use on a circuit capable of delivering not more than 100,000A rms Symmetrical Amperes, 600 Volts maximum when protected by fuses. Tests at 100,000A were performed with Class J fuses, fast acting; please refer to the table below for maximum allowed ampere rating of the fuse. Use fuses only.

Co-ordination type 1 (UL508)

Part No.	Max. size [A]	Class	Current [kA]	Voltage [VAC]
RGC..15	30	J	100	Max. 600
RGC..20	30	J	100	Max. 600
RGC..30	30	J	100	Max. 600
RGC..40	30	J	100	Max. 600
RGC..60	30	J	100	Max. 600
RGC..90GGEP	40	J	100	Max. 600

Co-ordination type 2 (IEC EN 60947-4-2/ -4-3)

Part No.	Ferraz Shawmut		Siba		Current [kA]	Voltage [VAC]
	Max size [A]	Part number	Max size [A]	Part number		
RGC..15	32	6.9xx CP URD 22x58/32 (xx=00 or 21)	32	50 142 06.32	100	Max. 600
RGC..20	32	6.9xx CP URD 22x58/32 (xx=00 or 21)	32	50 142 06.32	100	Max. 600
RGC..30	40	A70QS40-4	32	50 142 06.32	100	Max. 600
RGC..40	70	A70QS70-4	63	50 194 20.63	100	Max. 600
RGC..60	90	A70QS90-4	80	50 194 20.80	100	Max. 600
RGC..90GGEP	100	A70Q5100-4	100	50 194 20.100	100	Max. 600

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Protection with Miniature Circuit Breakers

Solid State Relay type	Model no. for Z - type M. C. B. (rated current)	Model no. for B - type M. C. B. (rated current)	Wire cross sectional area [mm²]	Minimum length of Cu wire conductor [m][13]
RGC..15, RGC..20	S201 - Z4 (4A) S201 - Z6 UC (6A)	S201 - B2 (2A) S201 - B2 (2A)	1.0 1.0 1.5	21.0 21.0 31.5
RGC..30	S201 - Z10 (10A)	S201-B4 (4A)	1.0 1.5 2.5	7.6 11.4 19.0
	S201 - Z16 (16A)	S201-B6 (6A)	1.0 1.5 2.5 4.0	5.2 7.8 13.0 20.8
	S201 - Z20 (20A)	S201-B10 (10A)	1.5 2.5	12.6 21.0
	S201 - Z25 (25A)	S201-B13 (13A)	2.5 4.0	25.0 40.0
	S202 - Z25 (25A)	S202-B13 (13A)	2.5 4.0	19.0 30.4
RGC..40	S201 - Z25 (25A)	S201-B13 (13A)	2.5 4.0 6.0	7.0 11.2 16.8
RGC..60	S201 - Z25 (25A)	S201-B13 (13A)	2.5 4.0 6.0	7.0 11.2 16.8
RGC..90GGEP	S201 - Z20 (20A)	S201-B10 (10A)	1.5 2.5 4.0	4.2 7.0 11.2
	S202 - Z20 (20A)	S202-B10 (10A)	1.5 2.5 4.0	1.8 3.0 4.8
	S201 - Z32 (32A)	S201-B16 (16A)	2.5 4.0 6.0	13.0 20.8 31.2
	S202 - Z32 (32A)	S202-B16 (16A)	2.5 4.0 6.0 10.0	5.0 8.0 12.0 20.0
	S202 - Z50 (50A)	S202-B25 (25A)	4.0 6.0 10.0	14.8 22.2 37.0

13. between MCB and SSR Relay (including return path which goes back to the mains).
Note: A prospective current of 6kA and a 230/400V power supply system is assumed for the above suggested specifications. For cables with different cross section than those mentioned above please consult Carlo Gavazzi's Technical Support Group.