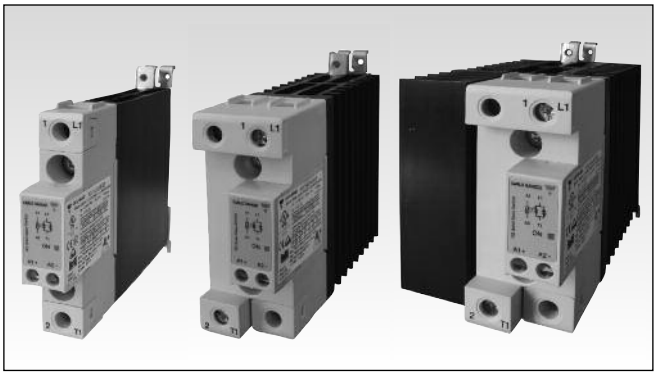
Solid State Relays
1-Phase with Integrated Heatsink
Zero Cross or Instant On Switching
Types RGC Solid State Contactor 'E' Connection



- **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 18,000A²s 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, RGC1..25..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 (Refer to page 2 and 3 for available part numbers)

1Phase SSR with heatsink	Rated Voltage, Blocking Voltage	Control Voltage	Rated Currentat 40°C[2]	Connection Control	Connection Power	Connection Configuration	Option
RGC1A: ZC[4]	23: 230V +10% - 15%, 800Vp	D: 3 or 4-32VDC	15: 20AAC, 525A²s	K: Screw	K: Screw	E: Contactor	P: Overtemperature protection (OTP) [3]
RGC1B: IO[4]	60: 600V +10% -15%, 1200Vp	A: 20 - 275VAC, 24-190 VDC	20: 23AAC, 525A²s	G: Box clamp	G: Box Clamp		
			25: 25AAC, 1800A²s	M: Pluggable spring-loaded			
			30: 30AAC, 1800A²s				
			40: 40AAC, 3200A²s				
			42: 43AAC, 18000A²s				
			60: 60AAC, 3200A²s				
			62: 65AAC, 18000A²s				
			90: 85AAC, 6600A²s				
			92: 85AAC, 18000A²s				

2. Refer to derating curves
3. Default control connection for RGC...P is Box Clamp. See connections specifications
4. ZC= Zero Cross Switching, IO= Instant ON Switching

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Selection Guide

Rated voltage, Blocking voltage, Switching mode	Control voltage	Connection Control/ Power	Rated operational current @ 40°C (I^2t value) Product width			
			20 AAC (525A²s) 17.5mm, low depth	**23 AAC (525A²s)** 17.5mm	**25 AAC (1800A²s)** 17.5mm, low depth	**30 AAC (1800A²s)** 22.5mm
230V, 800Vp ZC	3-32VDC	Screw/Screw	RGC1A23D15KKE	RGC1A23D20KKE	RGC1A23D25KKE	RGC1A23D30KKE
		Spring/Screw	RGC1A23D15MKE	RGC1A23D20MKE	RGC1A23D25MKE	RGC1A23D30MKE
	20-275VAC, 24-190VDC	Screw/Screw	RGC1A23A15KKE	RGC1A23A20KKE	RGC1A23A25KKE	RGC1A23A30KKE
		Spring/Screw	RGC1A23A15MKE	RGC1A23A20MKE	RGC1A23A25MKE	RGC1A23A30MKE
			40 AAC (3200A²s) 35mm	**43 AAC (18000A²s)** 35mm	**60 AAC (3200A²s)** 70mm	**65 AAC (18000A²s)** 70mm
	3-32VDC	Screw/Box	RGC1A23D40KGE	RGC1A23D42KGE	RGC1A23D60KGE	RGC1A23D62KGE
		Spring/Box	RGC1A23D40MGE	RGC1A23D42MGE	-	RGC1A23D62MGE
	20-275VAC, 24-190VDC	Screw/Box	RGC1A23A40KGE	RGC1A23A42KGE	RGC1A23A60KGE	RGC1A23A62KGE
		Spring/Box	RGC1A23A40MGE	RGC1A23A42MGE	-	RGC1A23A62MGE
			20 AAC (525A²s) 17.5mm, low depth	**23 AAC (525A²s)** 17.5mm	**25 AAC (1800A²s)** 17.5mm, low depth	**30 AAC (1800A²s)** 22.5mm
600V, 1200Vp ZC	4-32VDC	Screw/Screw	RGC1A60D15KKE	RGC1A60D20KKE	RGC1A60D25KKE	RGC1A60D30KKE
		Spring/Screw	RGC1A60D15MKE	RGC1A60D20MKE	RGC1A60D25MKE	RGC1A60D30MKE
	20-275VAC, 24-190VDC	Screw/Screw	RGC1A60A15KKE	RGC1A60A20KKE	RGC1A60A25KKE	RGC1A60A30KKE
		Spring/Screw	RGC1A60A15MKE	RGC1A60A20MKE	RGC1A60A25MKE	RGC1A60A30MKE
			40 AAC (3200A²s) 35mm	**43 AAC (18000A²s)** 35mm	**60 AAC (3200A²s)** 70mm	**65 AAC (18000A²s)** 70mm
	4-32VDC	Screw/Box	RGC1A60D40KGE	RGC1A60D42KGE	RGC1A60D60KGE	RGC1A60D62KGE
		Spring/Box	RGC1A60D40MGE	RGC1A60D42MGE	-	RGC1A60D62MGE
	20-275VAC, 24-190VDC	Screw/Box	RGC1A60A40KGE	RGC1A60A42KGE	RGC1A60A60KGE	RGC1A60A62KGE
		Spring/Box	RGC1A60A40MGE	RGC1A60A42MGE	-	RGC1A60A62MGE
			20 AAC (525A²s) 17.5mm, low depth	**23 AAC (525A²s)** 17.5mm	**25 AAC (1800A²s)** 17.5mm, low depth	**30 AAC (1800A²s)** 22.5mm
600V, 1200Vp IO	4-32VDC	Screw/Screw	RGC1B60D15KKE	RGC1B60D20KKE	RGC1B60D25KKE	RGC1B60D30KKE
			40 AAC (3200A²s) 35mm	**43 AAC (18000A²s)** 35mm	**60 AAC (3200A²s)** 70mm	**65 AAC (18000A²s)** 70mm
	4-32VDC	Screw/Box	RGC1B60D40KGE	RGC1B60D42KGE	RGC1B60D60KGE	RGC1B60D62KGE

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Selection Guide - RGC..P (Integrated Overtemperature Protection)

Rated voltage, Blocking voltage, Switching mode	Control voltage	Connection Control/ Power	Rated operational current @ 40°C (I^2t value) Product width			
			23 AAC (525A²s) 22.5mm	25 AAC (1800A²s) 22.5mm, low depth	30 AAC (1800A²s) 22.5mm	85AAC (6600A²s) 70mm + fan
230V, 800Vp ZC	5-32VDC	Screw/Screw	RGC1A23D20GKEP	-	RGC1A23D30GKEP	RGC1A23D90GGEP
			23 AAC (525A²s) 22.5mm	25 AAC (1800A²s) 22.5mm, low depth	30 AAC (1800A²s) 22.5mm	
600V, 1200Vp ZC	5-32VDC	Box/Screw	RGC1A60D20GKEP	RGC1A60D25GKEP	RGC1A60D30GKEP	
	20-275VAC, 24-190VDC	Box/Screw	RGC1A60A20GKEP	RGC1A60A25GKEP	RGC1A60A30GKEP	
			40 AAC (3200A²s) 35mm	43 AAC (18000A²s) 35mm	60 AAC (3200A²s) 70mm	65AAC (18000A²s) 70mm
	5-32VDC	Box/Box	RGC1A60D40GGEP	RGC1A60D42GGEP	RGC1A60D60GGEP	RGC1A60D62GGEP
	20-275VAC, 24-190VDC	Box/Box	RGC1A60A40GGEP	RGC1A60A42GGEP	RGC1A60A60GGEP	RGC1A60A62GGEP
			85AAC (6600A²s) 70mm + fan		85AAC (18000A²s) 70mm + fan	
	5-32VDC	Box/Box	RGC1A60D90GGEP		RGC1A60D92GGEP	
	20-275VAC, 24-190VDC	Box/Box	RGC1A60A90GGEP		RGC1A60A92GGEP	

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
Touch 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

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Output Specifications (@ 25°C unless otherwise specified)

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

	RGC..40..	RGC..42..	RGC..60..	RGC..62..	RGC..90..	RGC..92..
Rated operational current [6]						
AC-51 rating @ Ta=25°C	47 AAC	50 AAC	70 AAC	75 AAC	85 AAC	85 AAC
AC-51 rating @ Ta=40°C	40 AAC	43 AAC	60 AAC	65 AAC	85 AAC	85 AAC
AC-53a rating @ Ta=40°C	13 AAC	16 AAC	14.8 AAC	20 AAC	18 AAC	20 AAC
Number of motor starts (x:6, Tx:6s, F:50%) at 40°C [5]	30	30	30	30	30	30
Min. operational current	400 mAAC	500 mAAC	400 mAAC	500 mAAC	400 mAAC	500 mAAC
Rep. overload current - (Motor Rating) PF = 0.4 - 0.5 UL508: T_{AMB}=40°C, t_{ON}=1s, t_{OFF}=9s, 50cycles	126 AAC	126 AAC	144 AAC	168 AAC	168 ACC	168 AAC
Maximum transient surge current (I_{TSM}), t=10ms	800 Ap	1900 Ap	800 Ap	1900 Ap	1150 Ap	1900 Ap
Maximum off-state leakage current at rated voltage	3 mAAC	3 mAAC	3 mAAC	3 mAAC	3 mAAC	3 mAAC
I^2t for fusing (t=10ms) Minimum	3200 A^2s	18000 A^2s	3200 A^2s	18000 A^2s	6600 A^2s	18000 A^2s
Crititcal dv/dt (@ Tj init = 40°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...D9xGGEP	24VDC ± 10%	N/A
Fan rating, Uf	RGC...A9xGGEP	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-

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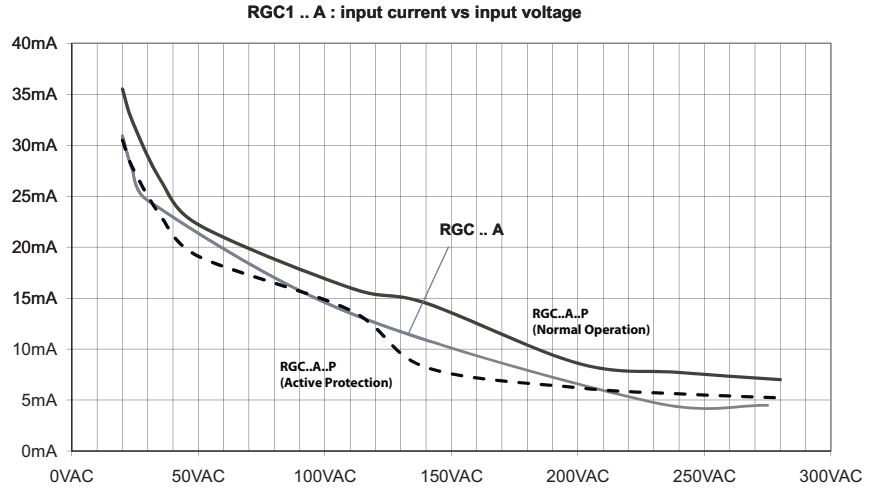
Input specifications

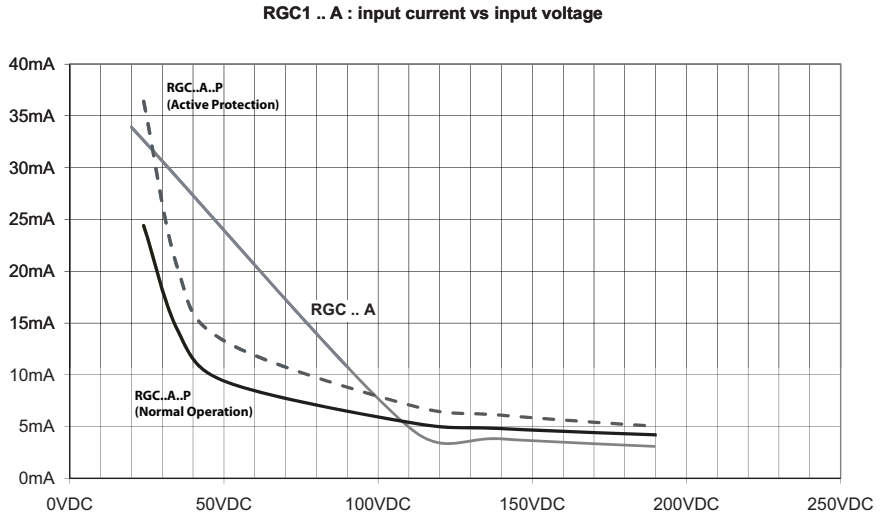
		RGC..D..	RGC..A..
Control voltage range [9,10]	RGC..23..	3 - 32 VDC	20 - 275 VAC, 24 (-10%) - 190 VDC
	RGC..60..	4 - 32 VDC	20-275 VAC, 24 (-10%) - 190 VDC
	RGC...P (Uc)	5 - 32 VDC	20-275 VAC, 24 (-10%) - 190 VDC
Pick-up voltage	RGC..23.. RGC..60.. RGC...P	3.0 VDC 3.8 VDC 5 VDC	20 VAC/DC 20 VAC/ 24VDC
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 according to UL1310

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

RG..A..



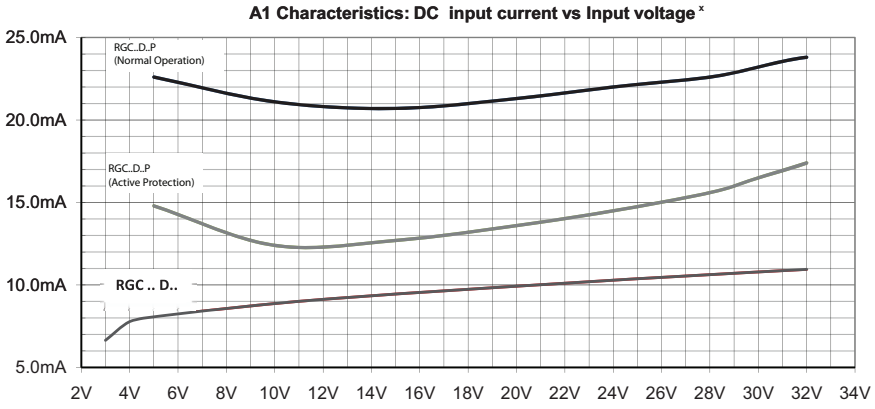


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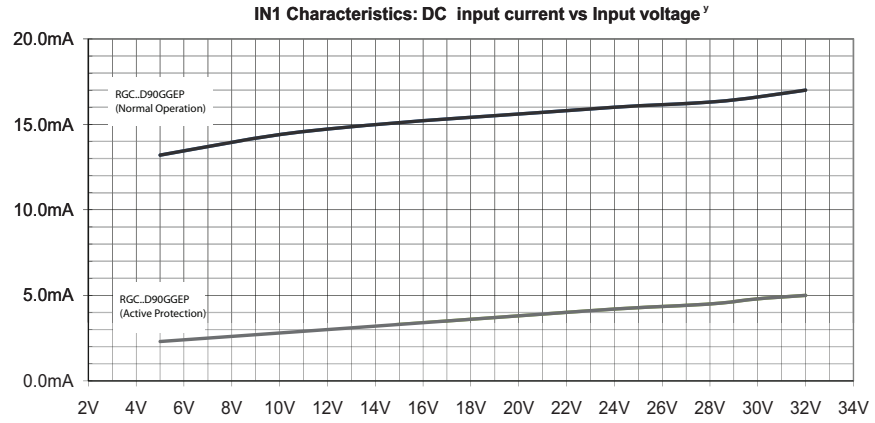
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Input specifications (cont.)

RG..D..



x: Input currents for all models except RGC1..D90GGEP and RGC1..D92GGEP



y: input currents valid only for RGC1..D90GGEP and RGC1..D92GGEP

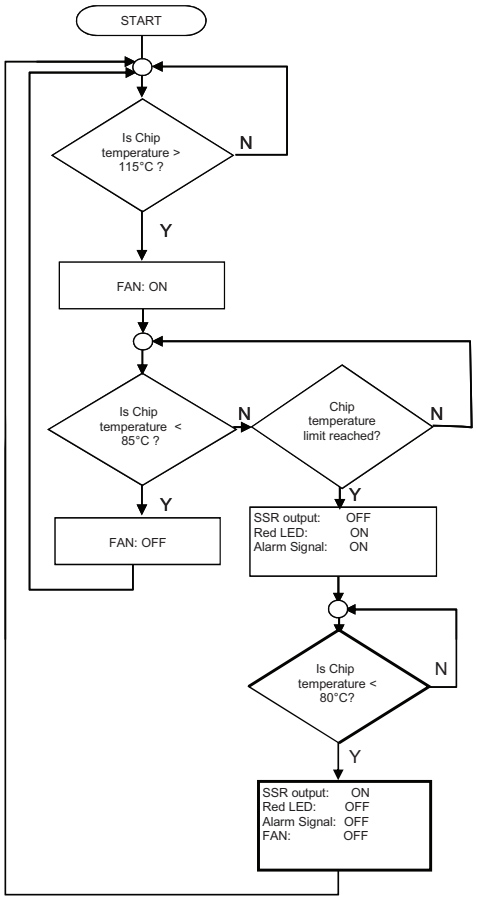
Motor Ratings: HP (UL508) / kW (EN/IEC60947-4-2) @ 40°C

	115 VAC	230 VAC	400 VAC	480 VAC	600 VAC
RGC..15	⅓HP / 0.18kW	1HP / 0.37kW	2HP / 0.75kW	3HP / 1.1kW	3HP / 1.5kW
RGC..20	½HP / 0.18kW	1½HP / 0.37kW	2HP / 0.75kW	3HP / 1.1kW	3HP / 1.5kW
RGC..25	⅓HP / 0.18kW	1HP / 0.37kW	2HP / 0.75kW	3HP / 1.1kW	3HP / 1.5kW
RGC..30	¾HP / 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	7½HP / 4kW
RGC..42	1½HP / 0.56kW	3HP / 1.5kW	5HP / 2.2kW	7½HP / 3.7kW	10HP / 4kW
RGC..60	1½HP / 0.56kW	3HP / 1.5kW	5HP / 3kW	7½HP / 4kW	10HP / 4kW
RGC..62	2HP / 0.75kW	5HP / 1.5kW	7½HP / 4kW	10HP / 4kW	15HP / 5.5kW
RGC..90	2HP / 0.75kW	5HP / 1.5kW	7½HP / 4kW	10HP / 4kW	15HP / 5.5kW
RGC..92	2HP / 0.75kW	5HP / 1.5kW	7½HP / 4kW	10HP / 4kW	15HP / 5.5kW

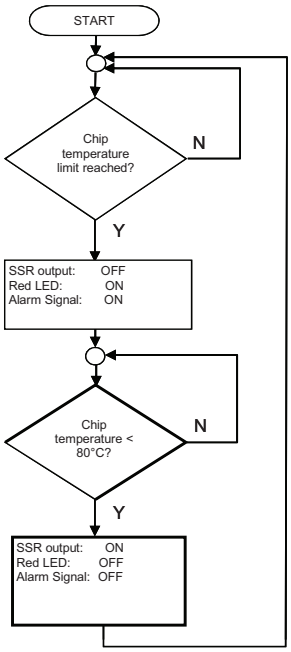
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Detailed Over temperature Alarm Procedure (for RGC...P)

ALARM Signal and Fan
(applicable to RGC..D90GGEP)
(applicable to RGC..D92GGEP)



ALARM Signal only

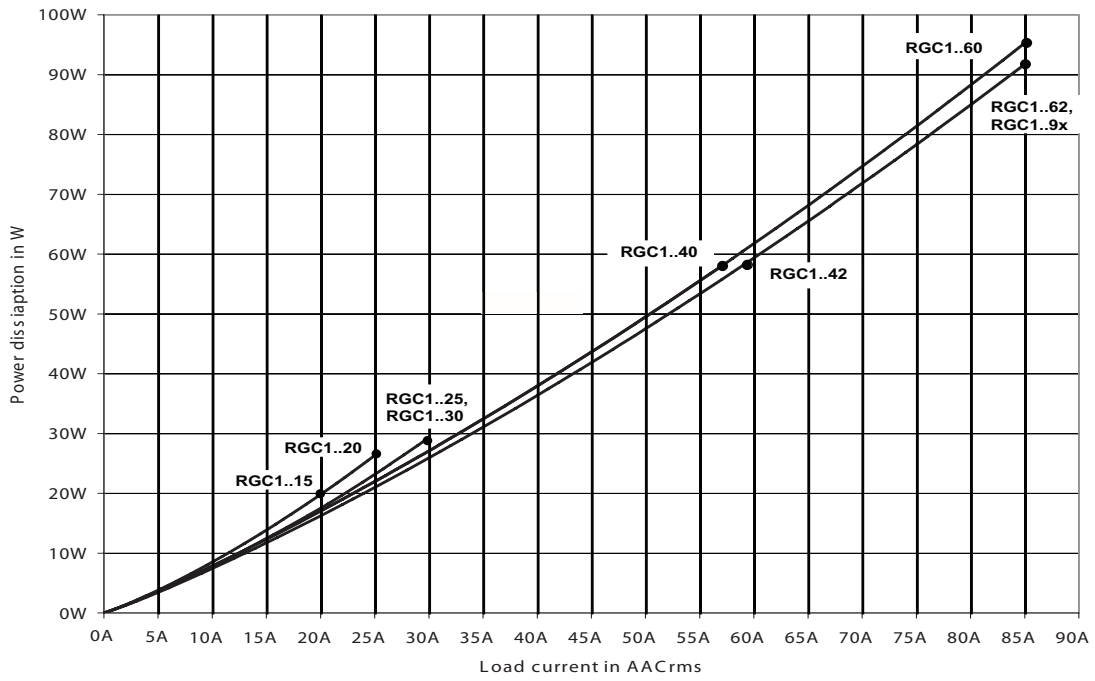


CAUTION

- Alarm condition resets whenever the voltage signal is removed from terminal A1 (+)
- In the case of RGC...D9xGGEP, 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 RGC1A60A9xGGEP it is necessary to supply IN2 and IN3 with 24VDC for fan operation.
- Alarm procedure for RGC1A60A9xGGEP 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.

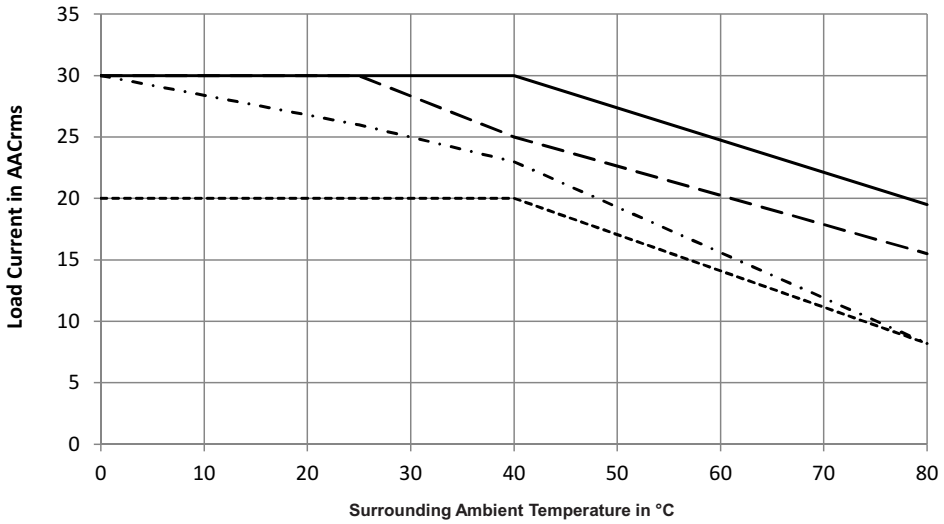
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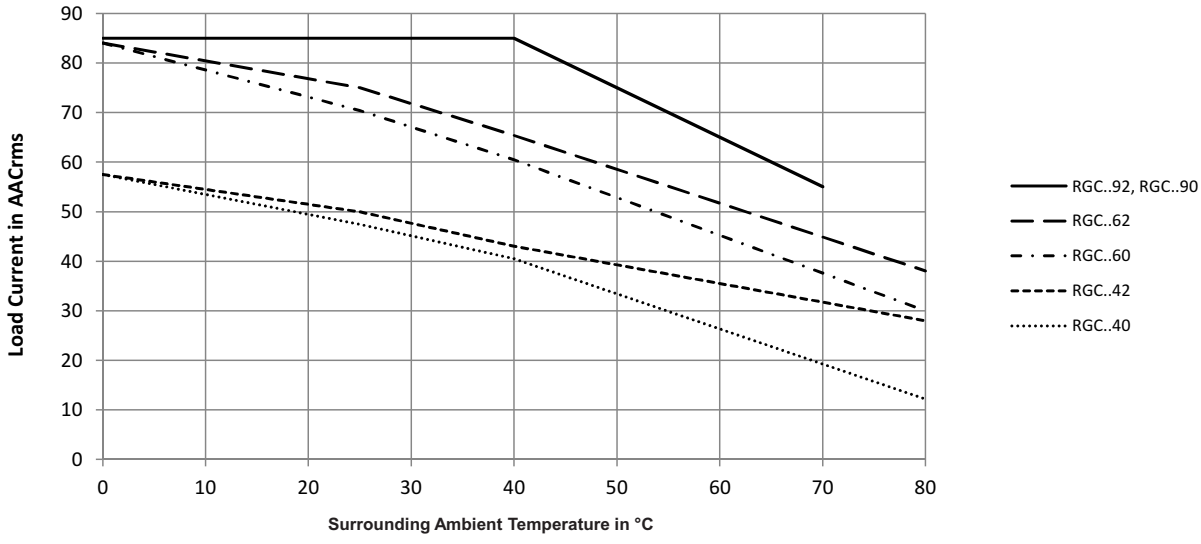
Output Power Dissipation



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Current Derating (UL508)



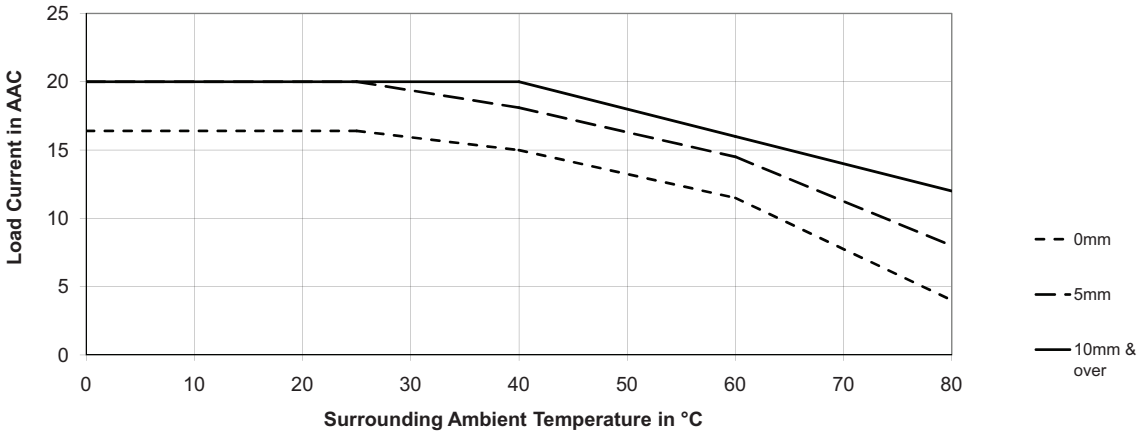


RGC...P models max. operating temperature is + 70°C

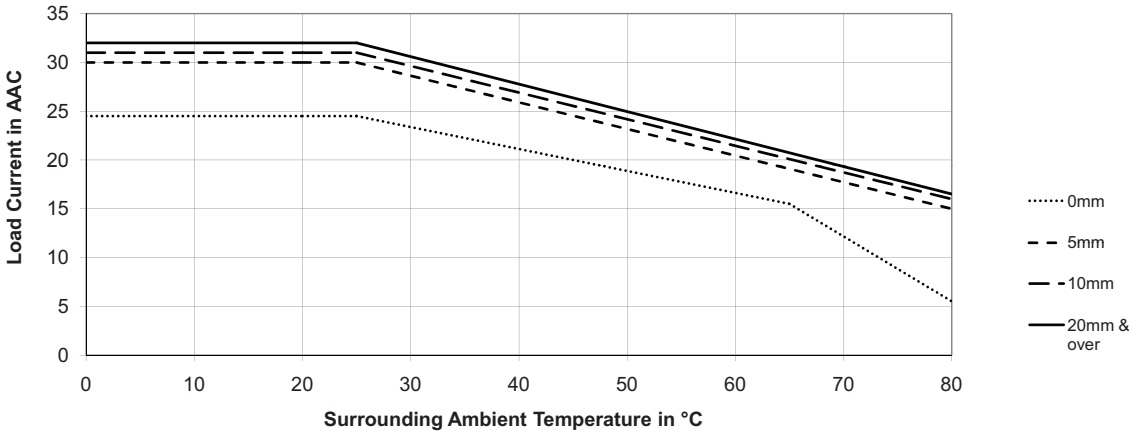
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Derating vs. Spacing Curves

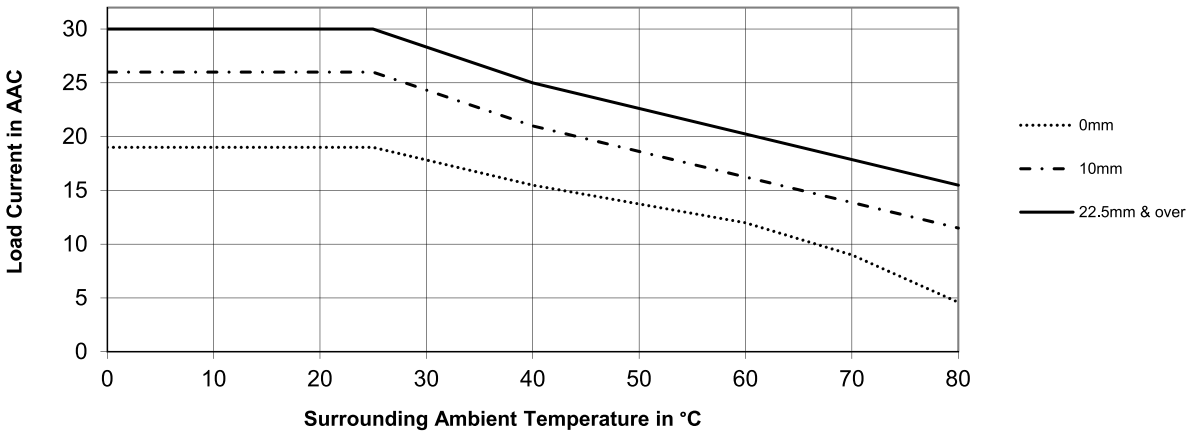
RGC.. 15..



RGC.. 20..



RGC.. 25.

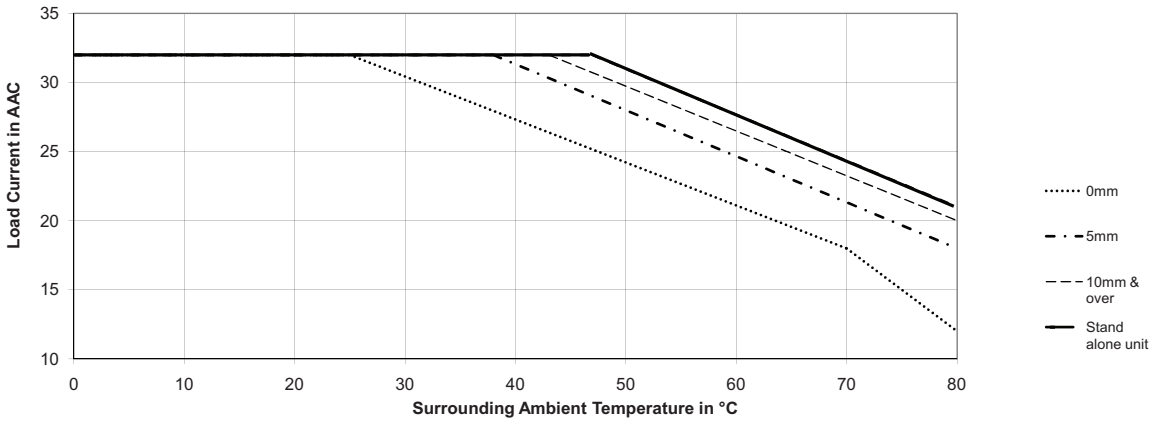


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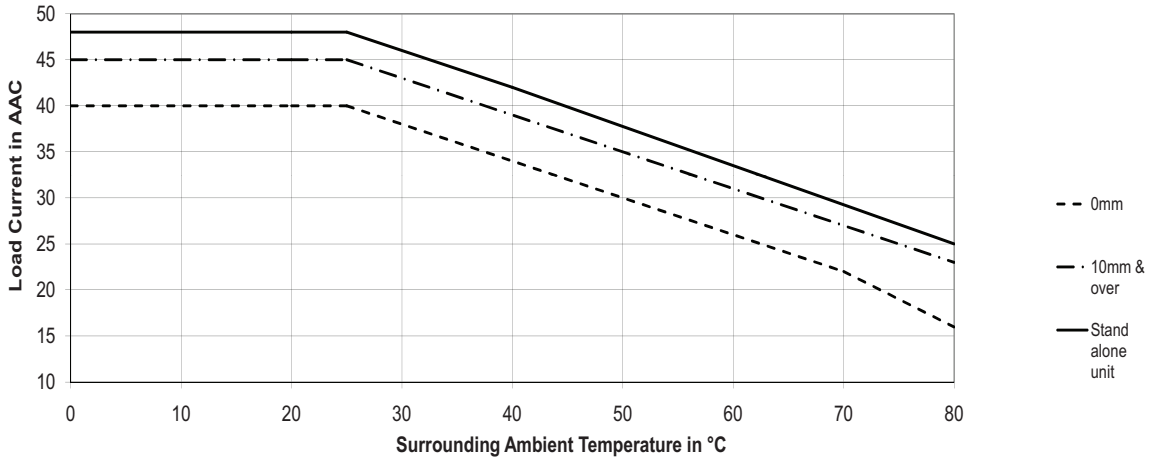
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Derating vs. Spacing Curves

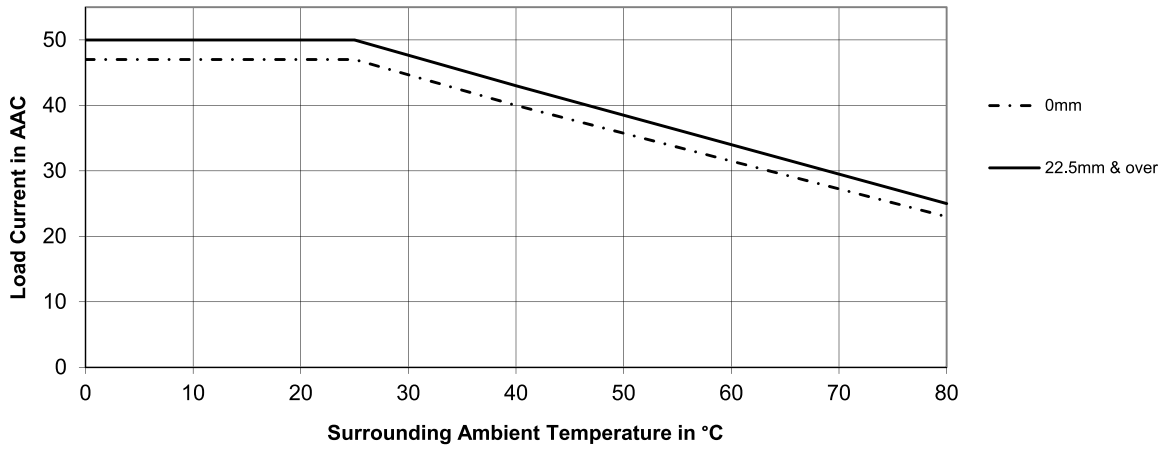
RGC.. 30..



RGC.. 40..



RGC.. 42.

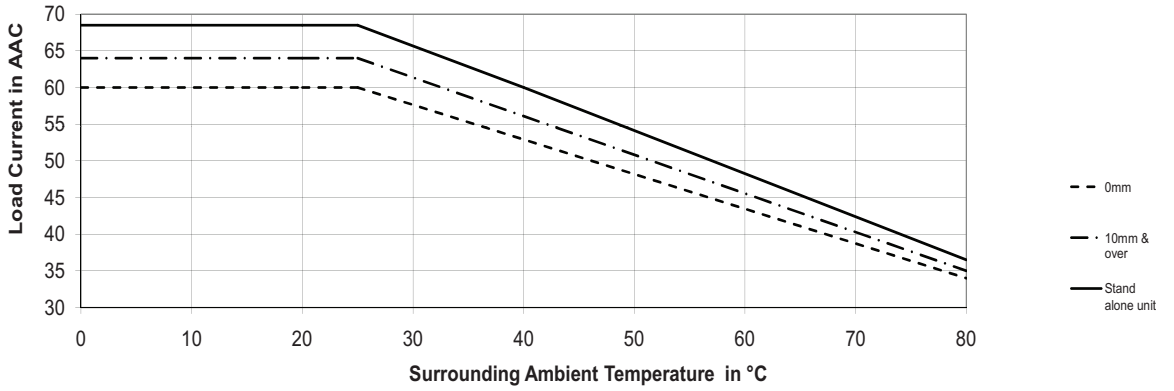


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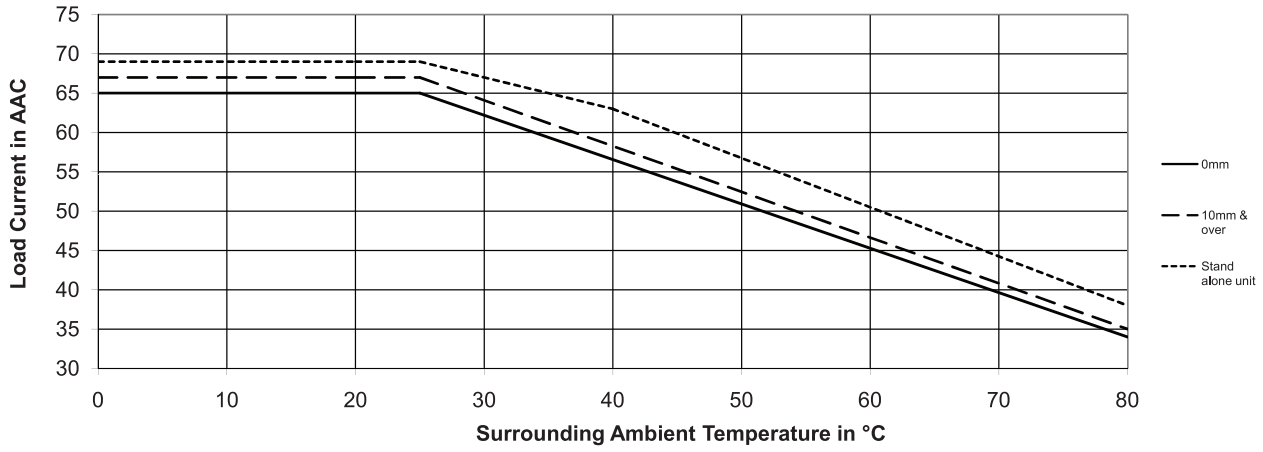
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Derating vs. Spacing Curves

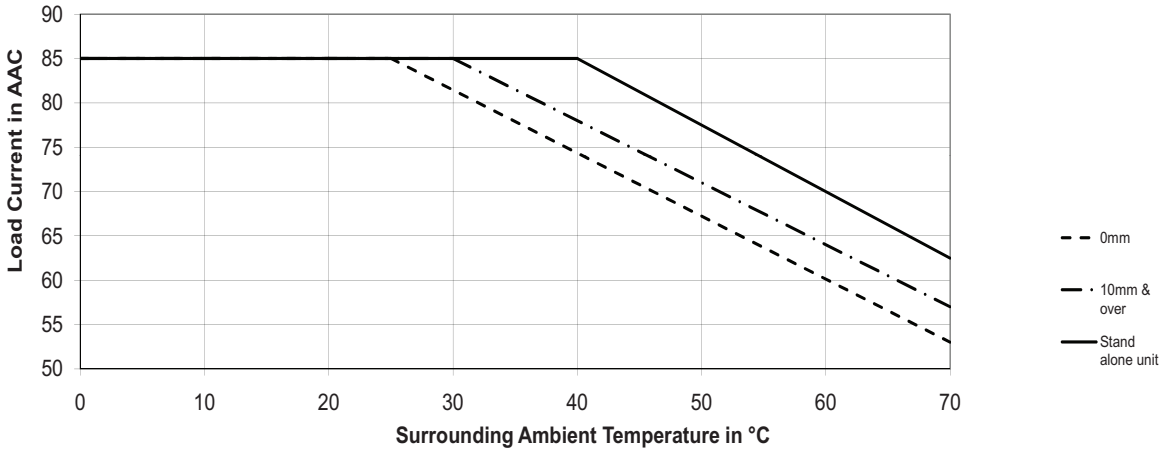
RGC.. 60..



RGC.. 62.



RGC.. 90GGEP, RGC..92GGEP



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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

Weight	
RGC..15	approx. 260g
RGC..20 (P)	approx. 315g (360g)
RGC..25 (P)	approx. 260g (307g)
RGC..30 (P)	approx. 375g (412g)
RGC..4x (P)	approx. 515g (581g)
RGC..6x (P)	approx. 972g (1020g)
RGC..9x (P)	approx. 1100g

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, RGC1..25..KE and RGC1...30.KE

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

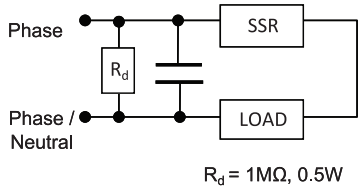
Part Number	Suggested filter for compliance	Maximum Heater current
RGC1A23..15	68nF/ 275 V / X1	20A
RGC1A23..20	68nF/ 275 V / X1	20A
RGC1A23..25, RGC1A23..30	220 nF / 275V / X1	30A
RGC1A23..40	220 nF / 275V / X1 330 nF / 275V / X1	30A 45A
RGC1A23..60	220 nF / 275V / X1 330 nF / 275V / X1	30A 45A
RGC1A23..42, RGC1A23..62, RGC1A23..9x	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..25, 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..42, RGC1A60..62, RGC1A23..9x	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.

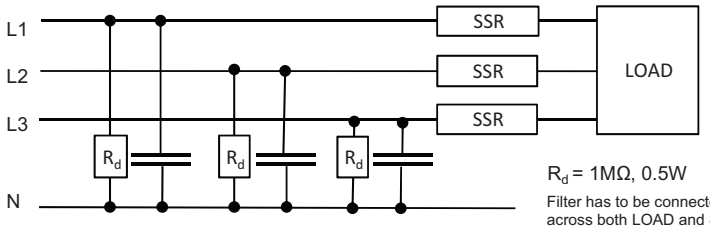
Filter Connection Diagrams

1 Phase



R_d = 1MΩ, 0.5W

3 Phase



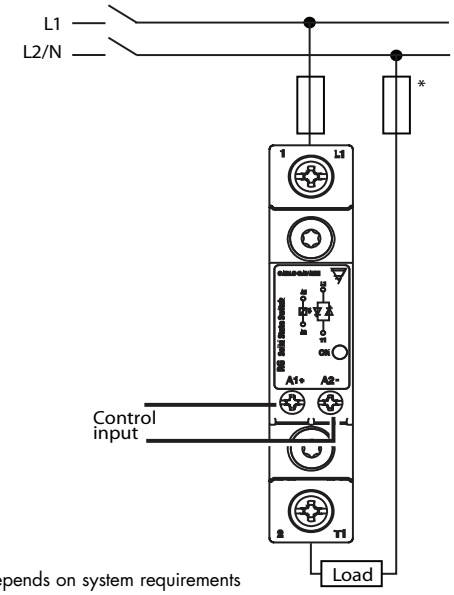
R_d = 1MΩ, 0.5W

Filter has to be connected across both LOAD and SSR

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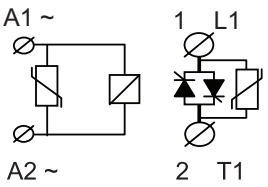
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Connection Diagram (No OTP)



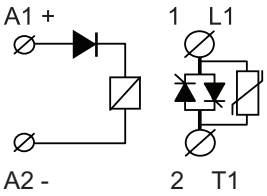
* depends on system requirements

AC Controlled



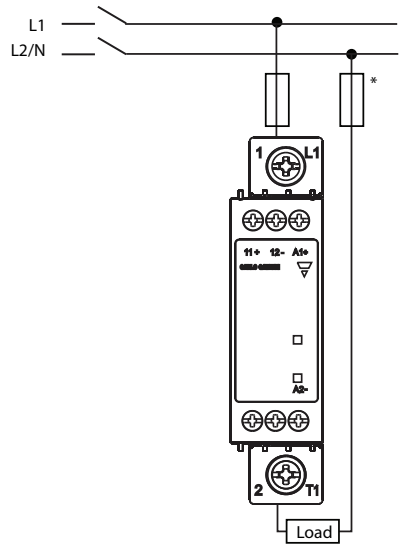
In AC controlled types only (RG..A..) a varistor is placed across A1/A2 terminals.

DC Controlled



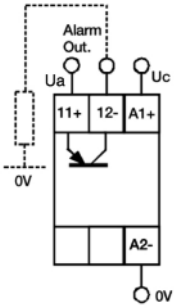
In DC controlled types only (RG..D..) a diode is placed in series with the control circuit for protection against reverse biased connection.

Connection Diagram (with OTP)



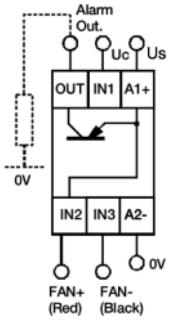
* depends on system requirements

RGC1...D20GKEP, RGC1..D25GKEP, RGC1...D30GKEP, RGC1...D4xGGEP, RGC1...D6xGGEP



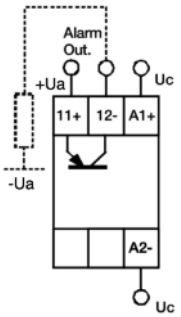
Uc: 5 - 32 VDC
Ua: max 35VDC
Alarm Output: max. 50mA

RGC1...D9xGGEP



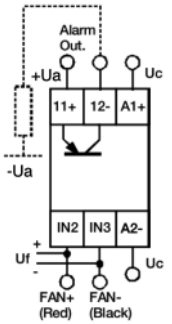
Uc: 5 - 32 VDC
Us: 24 VDC
Alarm Output: max. 50mA

RGC1...A20GKEP, RGC1..A25GKEP, RGC1...A30GKEP, RGC1...A4xGGEP, RGC1...A6xGGEP



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

RGC1...A9xGGEP



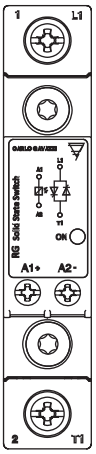
Uc: 24 - 275 VAC
24 - 190 VDC
Ua: max. 35 VDC
Alarm Output: max. 50mA
Uf: 24 VDC

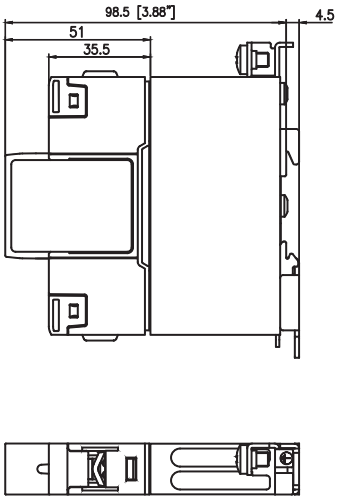
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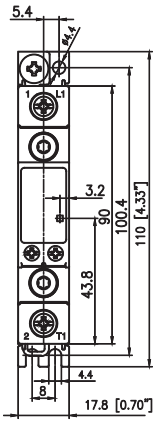
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Terminal Layout and Dimensions

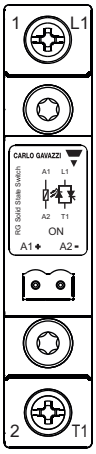
RGC...15KKE, RGC...25KKE

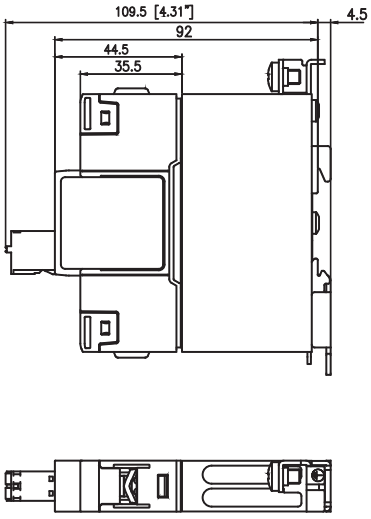


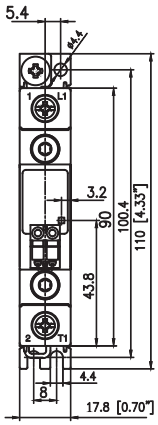




RGC...15MKE, RGC...25MKE







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

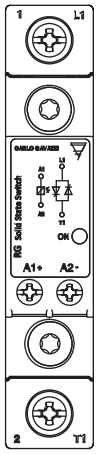
Housing width tolerance +0.5mm, -0mm…as per DIN43880.
All other tolerances ± 0.5mm.
All dimensions in mm.

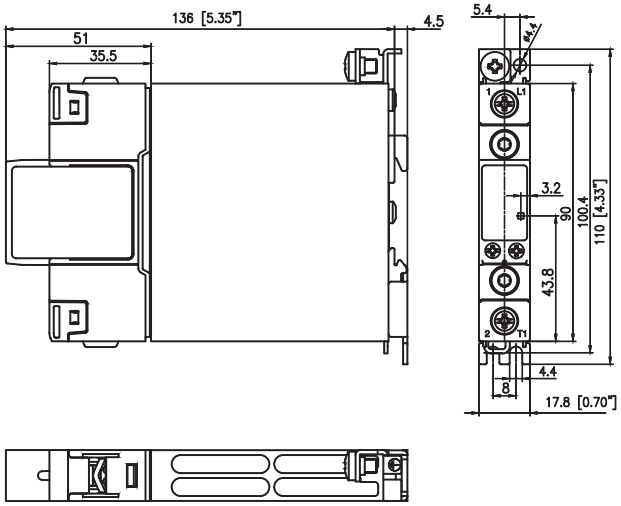
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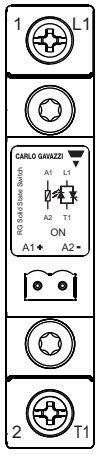
Terminal Layout and Dimensions (cont).

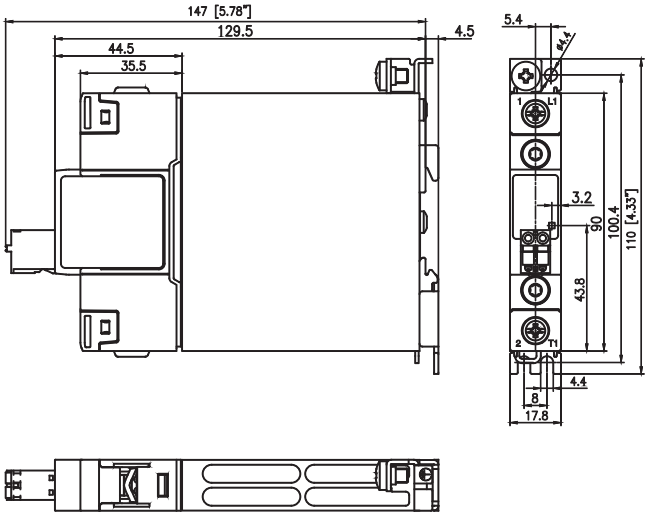
RGC...20KKE



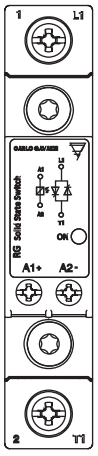


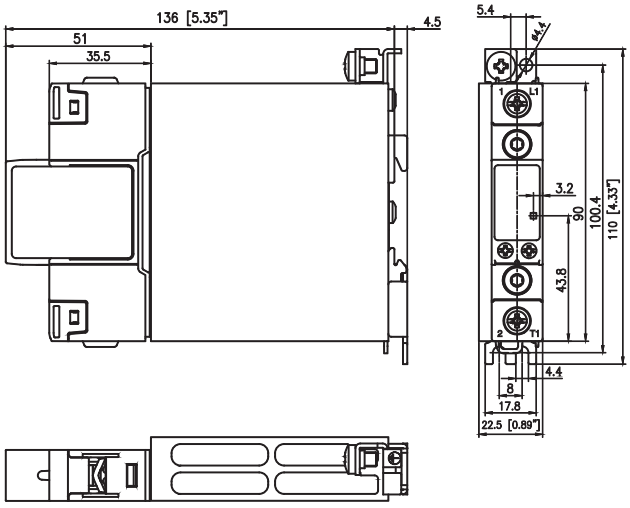
RGC...20MKE





RGC...30KKE





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

Housing width tolerance +0.5mm, -0mm…as per DIN43880.
All other tolerances ± 0.5mm.
All dimensions in mm.

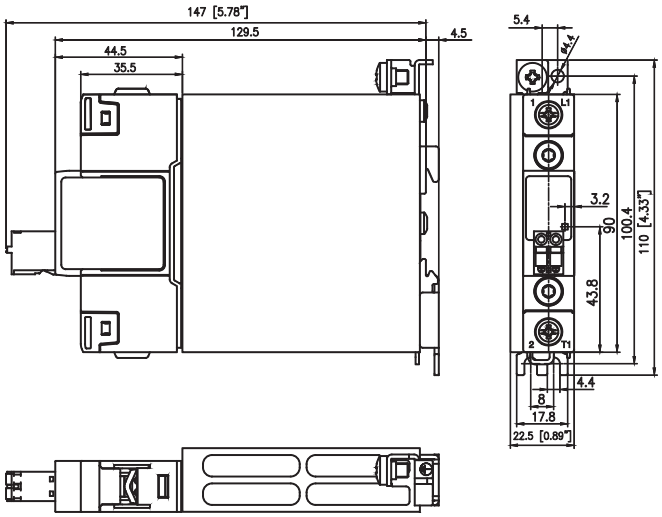
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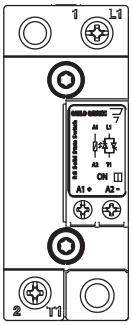
Terminal Layout and Dimensions (cont.)

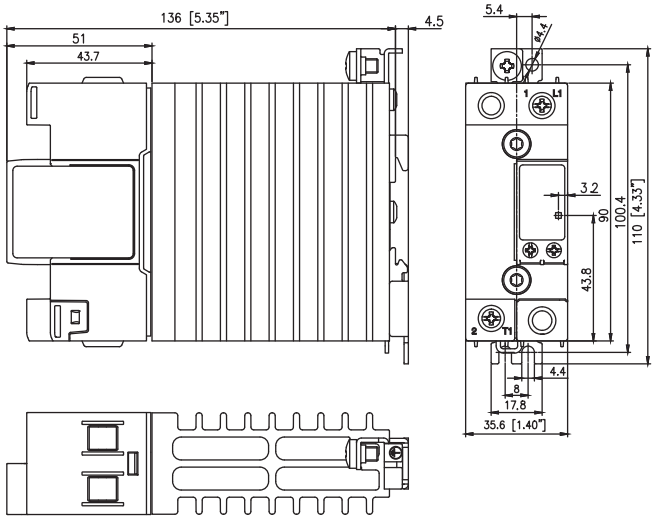
RGC...30MKE



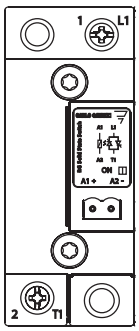


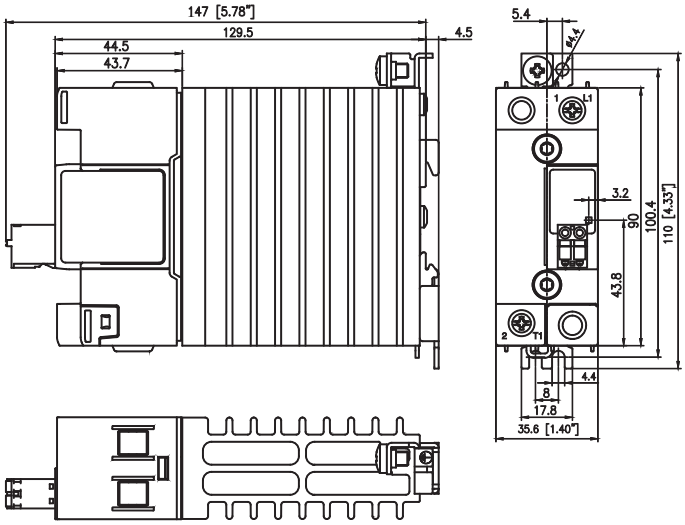
RGC...40KGE, RGC...42KGE





RGC...40MGE, RGC...42MGE





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

Housing width tolerance +0.5mm, -0mm…as per DIN43880.
All other tolerances ± 0.5mm. All dimensions in mm.

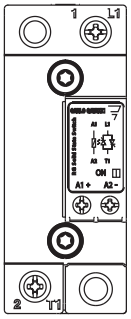
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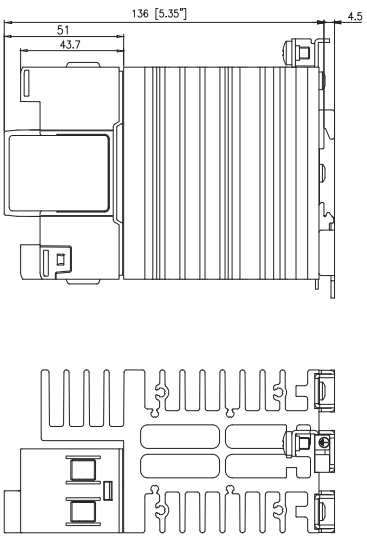
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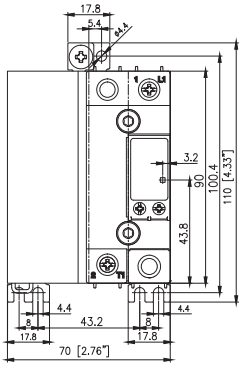
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Terminal Layout and Dimensions (cont.)

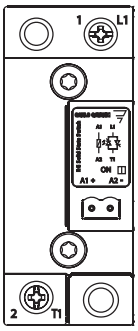
RGC...60KGE, RGC...62KGE

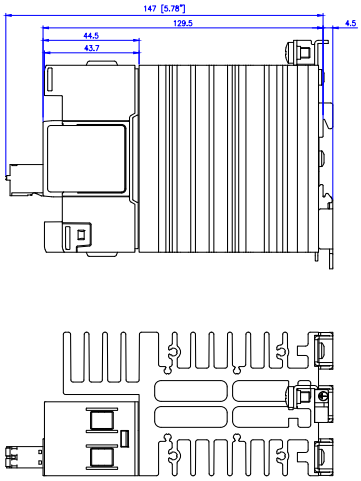


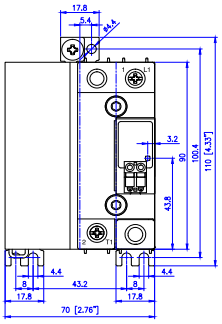




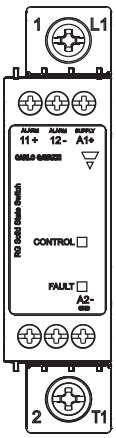
RGC...62MGE

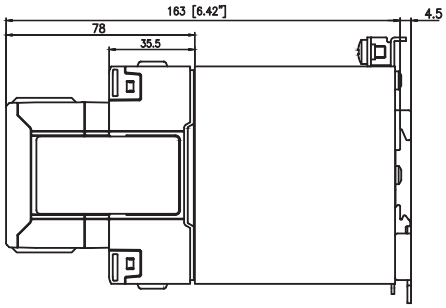


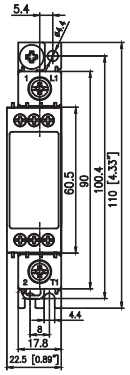




RGC...20GKEP







1/L1: Supply connection
2/T1: Load connection
A1 (+): Positive control signal
(Positive supply in case of RGC1A..D9xGGEP)
A2 (-): Control ground
IN1: Control signal (only for RGC1A.. D 9xGGEP)
IN2: Fan + supply (only for RGC1A60A9xGGEP)
IN3: Fan - supply (only for RGC1A60A9xGGEP)
11 + : Alarm output (+)
OUT, 12 - : Alarm output (-)
⏚ : Protective earth

Housing width tolerance +0.5mm, -0mm...as per DIN43880.
All other tolerances ± 0.5mm.
All dimensions in mm.

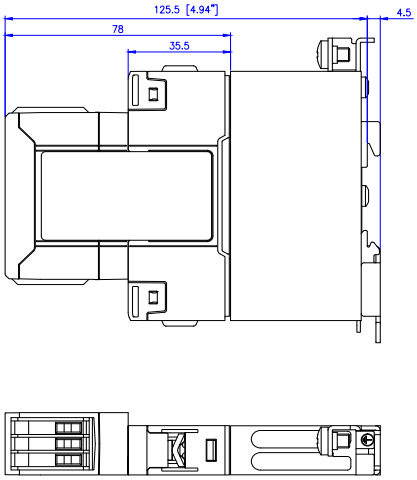
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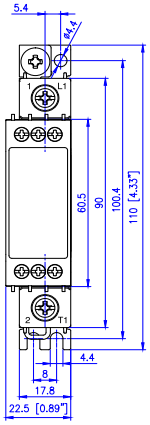
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Terminal Layout and Dimensions (cont.)

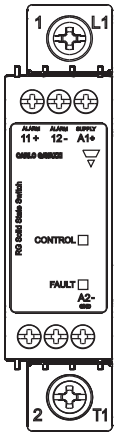
RGC...25GKEP

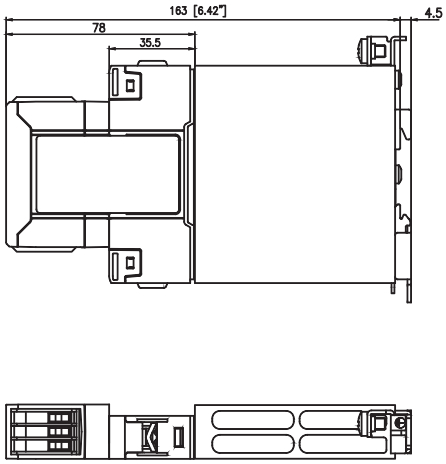


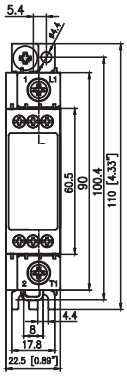




RGC...30GKEP







1/L1: Supply connection
2/T1: Load connection
A1 (+): Positive control signal
(Positive supply in case of RGC1A..D9xGGEP)
A2 (-): Control ground
IN1: Control signal (only for RGC1A.. D 9xGGEP)
IN2: Fan + supply (only for RGC1A60A9xGGEP)
IN3: Fan - supply (only for RGC1A60A9xGGEP)
11 + : Alarm output (+)
OUT, 12 - : Alarm output (-)
⏚ : Protective earth

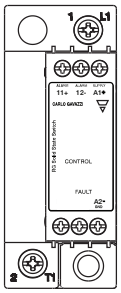
Housing width tolerance +0.5mm, -0mm…as per DIN43880.
All other tolerances ± 0.5mm.
All dimensions in mm.

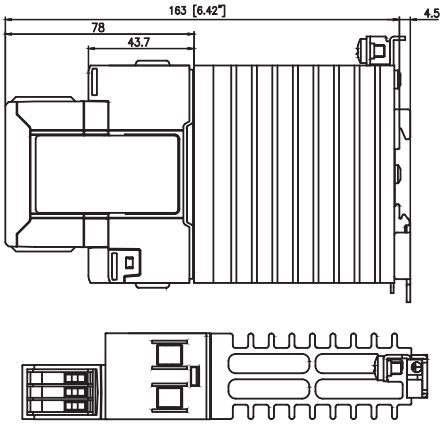
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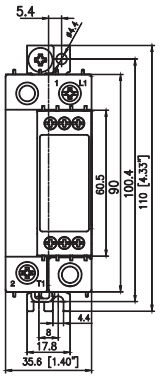
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Terminal Layout and Dimensions (cont.)

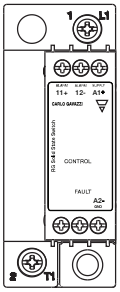
RGC...40GGEP, RGC...42GGEP

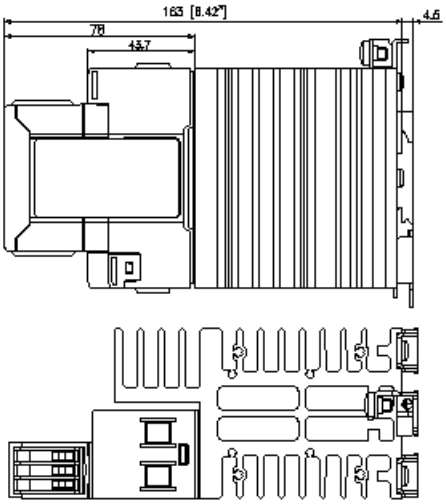


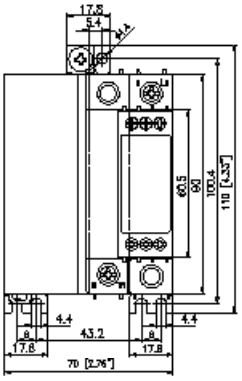




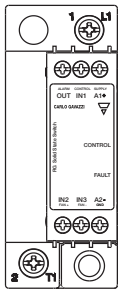
RGC...60GGEP, RGC...62GGEP

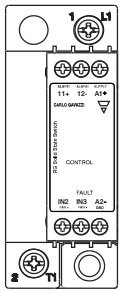




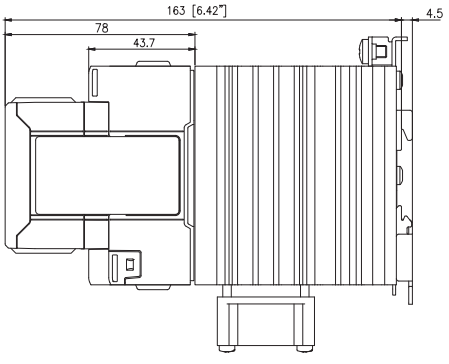


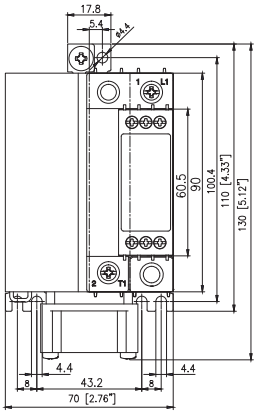
RGC...90GGEP, RGC...92GGEP

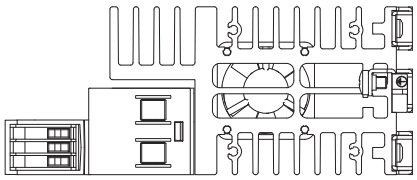




RGC...D9xGGEP **RGC...A9xGGEP**







1/L1: Supply connection
2/T1: Load connection
A1 (+): Positive control signal
(Positive supply in case of RGC1A..D9xGGEP)
A2 (-): Control ground
IN1: Control signal (only for RGC1A.. D9xGGEP)
IN2: Fan + supply (only for RGC1A60A9xGGEP)
IN3: Fan - supply (only for RGC1A60A9xGGEP)
11 + : Alarm output (+)
OUT, 12 - : Alarm output (-)
⏚ : Protective earth

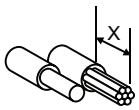
Housing width tolerance +0.5mm, -0mm…as per DIN43880.
All other tolerances ± 0.5mm. All dimensions in mm.

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Connection Specifications

POWER CONNECTIONS: 1/L1, 2 /T1

Use 75°C copper (Cu) conductors	RGC...KKE ; RG..GKEP. ; RG...MKE		RG...KGE ; RG...GGEP ; RG...MGE
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 2.5..25mm² 1 x 14...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 	Pozidriv 2 UL: 2Nm (17.7lb-in) IEC: 1.5 - 2.0Nm (13.3 - 17.7lb-in)		Posidriv 2 UL: 2.5Nm (22lb-in) IEC: 2.5 - 3.0Nm (22-26.6lb-in)
Aperture for termination lug	12.3mm		N/A

Protective Earth (PE) Connection

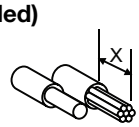


M5, 1.5Nm (13.3 in-lb)

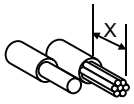
Note: M5 PE screw not provided with SSR. PE connection required when product is intended to be used in Class 1 applications according to EN/IEC 61140.

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

Use 60/75°C copper (Cu) conductors

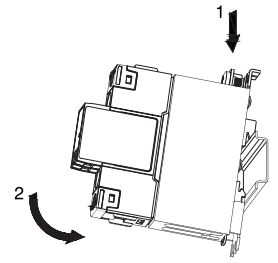
	RG...KKE, RG..KGE	RG....MKE, RG...MGE
Torque specifications 	M3, Pozidriv 1 UL: 0.5Nm (4.4lb-in) IEC: 0.5 - 0.6Nm (4.4 - 5.3lb-in)	
Stripping Length (X)	8mm	12 - 13mm
Rigid (Solid & Stranded) UL/ cUL rated data 	 2 x 0.5..2.5mm² 2 x 18..12 AWG  1 x 0.5..2.5mm² 1 x 18..12 AWG	 1 x 0.2...2.5mm² 1 x 24...12 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

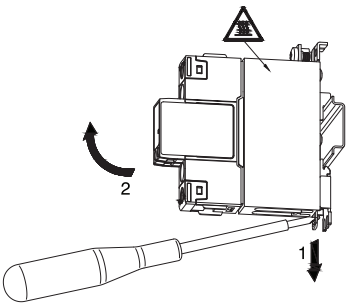
Use 60/75°C copper (Cu) conductors	RG...GGEP	
Torque specifications 	M3, Pozidriv 1 UL: 0.5Nm (4.4lb-in) IEC: 0.4 - 0.5Nm (3.5 - 4.4lb-in)	
Stripping Length (X)	6mm	6mm
Rigid (Solid & Stranded) UL/ cUL rated data 	 2 x 1.0..2.5mm² 2 x 18..14 AWG	 1 x 1.0..2.5mm² 1 x 18..14 AWG
Flexible with end sleeve 	2 x 1.0..2.5mm² 2 x 18..14 AWG	1 x 1.0..2.5mm² 1 x 18..14AWG

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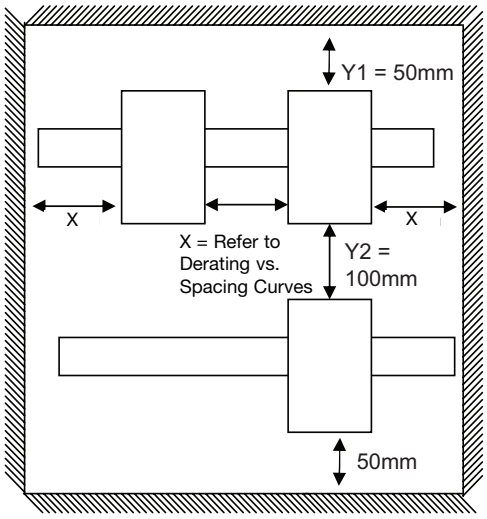
Installation Instructions



Mounting on DIN rail



Dismounting from DIN rail



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.

Tests with Class J fuses are representative of Class CC fuses.

Co-ordination type 1 (UL508)

Part No.	Prospective short circuit current [kArms]	Max. fuse size [A]	Class	Voltage [VAC]
RGC..15	100	30	J or CC	max. 600
RGC..20	100	30	J or CC	max. 600
RGC..25	100	30	J or CC	max. 600
RGC..30	100	30	J or CC	max. 600
RGC..40	100	40	J	max. 600
RGC..42	100	90	J	max. 600
RGC..60	100	40	J	max. 600
RGC..62	100	90	J	max. 600
RGC..90	100	40	J	max. 600
RGC..92	100	90	J	max. 600

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

Part No.	Prospective short circuit current [kArms]	Ferraz Shawmut		Siba		Voltage [VAC]
		Max fuse size [A]	Part number	Max fuse size [A]	Part number	
RGC..15	10	25	6.9xx CP GRC 14x51 /25	32	50 142 06.32	max. 600
	100	25	6.9xx CP GRC 14x51 /25	32	50 142 06.32	max. 600
RGC..20	10	40	6.6xx CP URD 22x58 /40	32	50 142 06.32	max. 600
	100	40	6.6xx CP URD 22x58 /40	32	50 142 06.32	max. 600
RGC..25	10	40	6.9xx CP GRC 22x58 /40	32	50 142 06.32	max. 600
	100	40	6.6xx CP URD 22x58 /40	32	50 142 06.32	max. 600
RGC..30	10	40	6.9xx CP GRC 22x58 /40	32	50 142 06.32	max. 600
	100	40	6.6xx CP URD 22x58 /40	32	50 142 06.32	max. 600
RGC..40	10	63	6.621 CP URGD 27x60 /63	63	50 194 20.63	max. 600
	10	70	A70QS70-4	63	50 194 20.63	max. 600
	100	63	6.621 CP URQ 27x60 /63	63	50 194 20.63	max. 600
RGC..42	10	63	6.9xx CP URC 14x51 /63	80	50 194 20.80	max. 600
	10	70	A70QS70-4	80	50 194 20.80	max. 600
	100	63	6.9xx CP URC 14x51 /63	80	50 194 20.80	max. 600
	100	70	A70QS70-4	80	50 194 20.80	max. 600
RGC..60 up to 65AAC	10	80	6.621 CP URQ 27x60 /80	80	50 194 20.80	max. 600
	100	n/a	n/a	80	50 194 20.80	max. 600
RGC..62	10	100	6.9xx CP GRC 22x58 /100	100	50 194 20.100	max. 600
	10	100	A70QS100-4	100	50 194 20.100	max. 600
	100	100	6.621 CP URGD 27x60 /100	100	50 194 20.100	max. 600
	100	100	A70QS100-4	100	50 194 20.100	max. 600
RGC..90 up to 80AAC	10	100	6.621 CP URQ 27x60 /100	100	50 194 20.100	max. 600
	10	100	A70QS100-4	100	50 194 20.100	max. 600
	100	n/a	n/a	100	50 194 20.100	max. 600
RGC..92	10	125	6.621 CP URQ 27x60 /125	125	50 194 20.125	max. 600
	10	125	A70QS125-4	125	50 194 20.125	max. 600
	100	125	6.621 CP URQ 27x60 /125	125	50 194 20.125	max. 600
	100	125	A70QS125-4	125	50 194 20.125	max. 600

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Type 2 Protection with Miniature Circuit Breakers (M.C.B.s)

Solid State Relay type	ABB Model no. for Z - type M. C. B. (rated current)	ABB 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	**1 pole**			
	S201 - Z4 (4A)	S201 - B2 (2A)	1.0	21.0
	S201 - Z6 UC (6A)	S201 - B2 (2A)	1.0	21.0
			1.5	31.5
RGC..25, RGC..30	**1 pole**			
	S201 - Z10 (10A)	S201-B4 (4A)	1.0	7.6
			1.5	11.4
			2.5	19.0
	S201 - Z16 (16A)	S201-B6 (6A)	1.0	5.2
			1.5	7.8
			2.5	13.0
			4.0	20.8
	S201 - Z20 (20A)	S201-B10 (10A)	1.5	12.6
			2.5	21.0
	S201 - Z25 (25A)	S201-B13 (13A)	2.5	25.0
			4.0	40.0
	2 pole			
	S202 - Z25 (25A)	S202-B13 (13A)	2.5	19.0
			4.0	30.4
RGC..40	**1 pole**			
	S201 - Z25 (25A)	S201-B13 (13A)	2.5	7.0
			4.0	11.2
			6.0	16.8
RGC..60	**1 pole**			
	S201 - Z25 (25A)	S201-B13 (13A)	2.5	7.0
			4.0	11.2
			6.0	16.8
RGC..90GGEP	**1 pole**			
	S201 - Z20 (20A)	S201-B10 (10A)	1.5	4.2
			2.5	7.0
			4.0	11.2
	S201 - Z32 (32A)	S201-B16 (16A)	2.5	13.0
			4.0	20.8
			6.0	31.2
	2 pole			
	S202 - Z20 (20A)	S202-B10 (10A)	1.5	1.8
			2.5	3.0
			4.0	4.8
	S202 - Z32 (32A)	S202-B16 (16A)	2.5	5.0
			4.0	8.0
			6.0	12.0
			10.0	20.0
	S202 - Z50 (50A)	S202-B25 (25A)	4.0	14.8
			6.0	22.2
			10.0	37.0
RGC..42, RGC..62, RGC..92	**1 pole**			
	S201-Z32 (32A)	S201-B16 (16A)	2.5	3.0
			4.0	4.8
			6.0	7.2
	S201-Z50 (50A)	S201-B25 (25A)	4.0	4.8
			6.0	7.2
			10.0	12.0
			16.0	19.2
	S201-Z63 (63A)	S201-B32 (32A)	6.0	7.2
			10.0	12.0
			16.0	19.2

13. Between MCB and Load (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.

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Accessories

Control Plugs



Ordering Key

Pack of 10 spring loaded control plugs	**RGM25**

* Refer to 'Connection Specifications' section for further details.

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