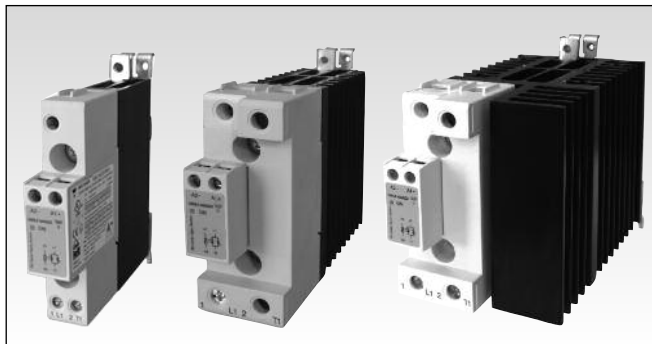


# Solid State Relays

## 1-Phase Integrated Heatsink

## Zero Cross or Instant On Switching

## Types RGC Solid State Contactor 'U' 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 18000A<sup>2</sup>s for I<sup>2</sup>t 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<sup>1</sup>

### 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 terminals 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 RGC...15KGU, RGC...20KGU, RGC...25KGU and RGC...30KGU

### Ordering Key **RGC 1 A 60 A 40 K G U**

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 for available part numbers)

| 1Phase SSR<br>with heatsink  | Rated Voltage,<br>Blocking Voltage | Control Voltage               | Rated<br>Current at 40°C <sup>2</sup>                                                                                                                                                                                                                                                 | Connection<br>Control | Connection<br>Power | Connection<br>Configuration | Option                                                 |
|------------------------------|------------------------------------|-------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|---------------------|-----------------------------|--------------------------------------------------------|
| <b>RGC1A: ZC<sup>4</sup></b> | 23: 230V +10% - 15%, 800Vp         | D: 3 or 4-32VDC               | 15: 20AAC, 525A <sup>2</sup> s                                                                                                                                                                                                                                                        | K: Screw              | G: Box Clamp        | U: SSR                      | P: Overtemperature<br>protection<br>(OTP) <sup>3</sup> |
| <b>RGC1B: IO<sup>4</sup></b> | 60: 600V +10% -15%, 1200Vp         | A: 20 - 275VAC,<br>24-190 VDC | 20: 23AAC, 525A <sup>2</sup> s<br>25: 25AAC, 1800A <sup>2</sup> s<br>30: 30AAC, 1800A <sup>2</sup> s<br>40: 40AAC, 3200A <sup>2</sup> s<br>42: 43AAC, 18000A <sup>2</sup> s<br>60: 60AAC, 3200A <sup>2</sup> s<br>62: 65AAC, 18000A <sup>2</sup> s<br>90: 85AAC, 6600A <sup>2</sup> s | G: Box clamp          |                     |                             |                                                        |

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

RGC...U



## Selection Guide

| Rated voltage,<br>Blocking voltage,<br>Switching mode | Control voltage      | Connection<br>Control/ Power | Rated operational current @ 40°C (I <sub>t</sub> value) |                                        |                                                    |                                         |
|-------------------------------------------------------|----------------------|------------------------------|---------------------------------------------------------|----------------------------------------|----------------------------------------------------|-----------------------------------------|
|                                                       |                      |                              | Product width                                           |                                        |                                                    |                                         |
| 230V, 800Vp<br>ZC                                     | 3-32VDC              | Screw/Box                    | 20 AAC (525A <sup>2</sup> s)<br>17.5mm, low depth       | 23 AAC (525A <sup>2</sup> s)<br>17.5mm | 25 AAC (1800A <sup>2</sup> s)<br>17.5mm, low depth | 30 AAC (1800A <sup>2</sup> s)<br>22.5mm |
|                                                       |                      |                              | RGC1A23D15KGU                                           | RGC1A23D20KGU                          | RGC1A23D25KGU                                      | RGC1A23D30KGU                           |
|                                                       | 20-275VAC, 24-190VDC | Screw/Box                    | RGC1A23A15KGU                                           | RGC1A23A20KGU                          | RGC1A23A25KGU                                      | RGC1A23A30KGU                           |
|                                                       |                      |                              |                                                         |                                        |                                                    |                                         |
|                                                       | 3-32VDC              | Screw/Box                    | 40 AAC (3200A <sup>2</sup> s)<br>35mm                   | 43 AAC (18000A <sup>2</sup> s)<br>35mm | 60 AAC (3200A <sup>2</sup> s)<br>70mm              | 65 AAC (18000A <sup>2</sup> s)<br>70mm  |
|                                                       |                      |                              | RGC1A23D40KGU                                           | RGC1A23D42KGU                          | RGC1A23D60KGU                                      | RGC1A23D62KGU                           |
| 600V, 1200Vp<br>ZC                                    | 4-32VDC              | Screw/Box                    | 20 AAC (525A <sup>2</sup> s)<br>17.5mm, low depth       | 23 AAC (525A <sup>2</sup> s)<br>17.5mm | 25 AAC (1800A <sup>2</sup> s)<br>17.5mm, low depth | 30 AAC (1800A <sup>2</sup> s)<br>22.5mm |
|                                                       |                      |                              | RGC1A60D15KGU                                           | RGC1A60D20KGU                          | RGC1A60D25KGU                                      | RGC1A60D30KGU                           |
|                                                       | 20-275VAC, 24-190VDC | Screw/Box                    | RGC1A60A15KGU                                           | RGC1A60A20KGU                          | RGC1A60A25KGU                                      | RGC1A60A30KGU                           |
|                                                       |                      |                              |                                                         |                                        |                                                    |                                         |
|                                                       | 4-32VDC              | Screw/Box                    | 40 AAC (3200A <sup>2</sup> s)<br>35mm                   | 43 AAC (18000A <sup>2</sup> s)<br>35mm | 60 AAC (3200A <sup>2</sup> s)<br>70mm              | 65 AAC (18000A <sup>2</sup> s)<br>70mm  |
|                                                       |                      |                              | RGC1A60D40KGU                                           | RGC1A60D42KGU                          | RGC1A60D60KGU                                      | RGC1A60D62KGU                           |
| 600V, 1200Vp<br>IO                                    | 4-32VDC              | Screw/Box                    | 20 AAC (525A <sup>2</sup> s)<br>17.5mm, low depth       | 23 AAC (525A <sup>2</sup> s)<br>17.5mm | 25 AAC (1800A <sup>2</sup> s)<br>17.5mm, low depth | 30 AAC (1800A <sup>2</sup> s)<br>22.5mm |
|                                                       |                      |                              | RGC1B60D15KGU                                           | RGC1B60D20KGU                          | RGC1B60D25KGU                                      | RGC1B60D30KGU                           |
|                                                       | 4-32VDC              | Screw/Box                    | 40 AAC (3200A <sup>2</sup> s)<br>35mm                   | 43 AAC (18000A <sup>2</sup> s)<br>35mm | 60 AAC (3200A <sup>2</sup> s)<br>70mm              | 65 AAC (18000A <sup>2</sup> s)<br>70mm  |
|                                                       |                      |                              | RGC1B60D40KGU                                           | RGC1B60D42KGU                          | RGC1B60D60KGU                                      | RGC1B60D62KGU                           |
|                                                       | 4-32VDC              | Screw/Box                    |                                                         |                                        |                                                    |                                         |
|                                                       |                      |                              |                                                         |                                        |                                                    |                                         |

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

| Rated voltage,<br>Blocking voltage,<br>Switching mode | Control voltage | Connection<br>Control/ Power | Rated operational current @ 40°C (I <sub>t</sub> value) |                                       |                                             |
|-------------------------------------------------------|-----------------|------------------------------|---------------------------------------------------------|---------------------------------------|---------------------------------------------|
|                                                       |                 |                              | Product width                                           |                                       |                                             |
| 230V, 800Vp<br>ZC                                     | 5-32VDC         | Box/Box                      | 85AAC (6600A <sup>2</sup> s)<br>70mm + fan              |                                       |                                             |
|                                                       |                 |                              | RGC1A23D90GGUP                                          |                                       |                                             |
|                                                       |                 |                              |                                                         |                                       |                                             |
| 600V, 1200Vp<br>ZC                                    | 5-32VDC         | Box/Box                      | 40 AAC (3200A <sup>2</sup> s)<br>35mm                   | 60 AAC (3200A <sup>2</sup> s)<br>70mm | 85 AAC (3200A <sup>2</sup> s)<br>70mm + fan |
|                                                       |                 |                              | RGC1A60D40GGUP                                          | RGC1A60D60GGUP                        | RGC1A60D90GGUP                              |
|                                                       |                 |                              | RGC1A60A40GGUP                                          | RGC1A60A60GGUP                        | RGC1A60A90GGUP                              |
| 600V, 1200Vp<br>IO                                    | 5-32VDC         | Box/Box                      | 85AAC (6600A <sup>2</sup> s)<br>70mm + fan              |                                       |                                             |
|                                                       |                 |                              | RGC1B60D90GGUP                                          |                                       |                                             |
|                                                       |                 |                              |                                                         |                                       |                                             |

RGC...U



## Output Voltage Specifications

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

## General Specifications

|                                    |                                                                       |                                                             |                                     |
|------------------------------------|-----------------------------------------------------------------------|-------------------------------------------------------------|-------------------------------------|
| Latching voltage<br>(across L1-T1) | ≤20V                                                                  | Over-voltage category                                       | III<br>(fixed installations)        |
| Operational frequency<br>range     | 45 to 65Hz                                                            | Isolation                                                   |                                     |
| Power factor                       | > 0.5 @ Vrated                                                        | Input to Output RGC...                                      | 4000 Vrms                           |
| Touch Protection                   | IP20                                                                  | RGC...D..P                                                  | 2500 Vrms                           |
| Control input status               | continuously ON Green LED,<br>when control input is applied           | RGC...A..P                                                  | 4000 Vrms                           |
| Pollution degree                   | 2<br>(non-conductive pollution with<br>possibilities of condensation) | Input and Output RGC...<br>to case RGC...D..P<br>RGC...A..P | 4000 Vrms<br>4000 Vrms<br>4000 Vrms |
|                                    |                                                                       | Input to Fan/ Alarm Output<br>RGC...A..P                    | 2500 Vrms                           |



## Output Specifications

|                                                                                                                                                   | RGC..15..            | RGC..20..            | RGC..25..             | RGC..30..             |
|---------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|----------------------|-----------------------|-----------------------|
| Rated operational current <sup>6</sup>                                                                                                            |                      |                      |                       |                       |
| 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<br>(x:6, Tx:6s, F:50%) at 40°C <sup>5</sup>                                                                                | 30                   | 30                   | 30                    | 30                    |
| Min. operational current                                                                                                                          | 150 mAAC             | 150 mAAC             | 250 mAAC              | 250 mAAC              |
| Rep. overload current -<br>(Motor Rating) PF = 0.4 - 0.5<br>UL508: T <sub>AMB</sub> =40°C, t <sub>ON</sub> =1s, t <sub>OFF</sub> =9s,<br>50cycles | 51 AAC               | 60 AAC               | 51 AAC                | 84 AAC                |
| Maximum transient surge current (I <sub>TSM</sub> ), t=10ms                                                                                       | 325 Ap               | 325 Ap               | 600 Ap                | 600Ap                 |
| Maximum off-state leakage current<br>at rated voltage                                                                                             | 3 mAAC               | 3 mAAC               | 3 mAAC                | 3 mAAC                |
| I <sup>2</sup> t for fusing (t=10ms) Minimum                                                                                                      | 525 A <sup>2</sup> s | 525 A <sup>2</sup> s | 1800 A <sup>2</sup> s | 1800 A <sup>2</sup> s |
| Critical 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..             |
|---------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|------------------------|-----------------------|------------------------|-----------------------|
| Rated operational current <sup>6</sup>                                                                                                            |                       |                        |                       |                        |                       |
| AC-51 rating @ Ta=25°C                                                                                                                            | 47 AAC                | 50 AAC                 | 70 AAC                | 75 AAC                 | 85 AAC                |
| AC-51 rating @ Ta=40°C                                                                                                                            | 40 AAC                | 43 AAC                 | 60 AAC                | 65 AAC                 | 85 AAC                |
| AC-53a rating @ Ta=40°C                                                                                                                           | 13 AAC                | 16 AAC                 | 14.8 AAC              | 20 AAC                 | 18 AAC                |
| Number of motor starts<br>(x:6, Tx:6s, F:50%) at 40°C <sup>5</sup>                                                                                | 30                    | 30                     | 30                    | 30                     | 30                    |
| Min. operational current                                                                                                                          | 400 mAAC              | 500 mAAC               | 400 mAAC              | 500 mAAC               | 400 mAAC              |
| Rep. overload current -<br>(Motor Rating) PF = 0.4 - 0.5<br>UL508: T <sub>AMB</sub> =40°C, t <sub>ON</sub> =1s, t <sub>OFF</sub> =9s,<br>50cycles | 126 AAC               | 126 AAC                | 144 AAC               | 168 AAC                | 168 ACC               |
| Maximum transient surge current (I <sub>TSM</sub> ), t=10ms                                                                                       | 800 Ap                | 1900 Ap                | 800 Ap                | 1900 Ap                | 1150 Ap               |
| Maximum off-state leakage current<br>at rated voltage                                                                                             | 3 mAAC                | 3 mAAC                 | 3 mAAC                | 3 mAAC                 | 3 mAAC                |
| I <sup>2</sup> t for fusing (t=10ms) Minimum                                                                                                      | 3200 A <sup>2</sup> s | 18000 A <sup>2</sup> s | 3200 A <sup>2</sup> s | 18000 A <sup>2</sup> s | 6600 A <sup>2</sup> s |
| Critical dv/dt (@ Tj init = 40°C)                                                                                                                 | 1000 V/us             | 1000 V/us              | 1000 V/us             | 1000 V/us              | 1000 V/us             |

5. Overload current profile definition, x: multiple of AC53a rating, Tx: duration of current surge, F: duty cycle

6: refer to 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) <sup>7,8</sup> , U <sub>a</sub> | 24VDC -15%, +20%                     | 24VDC -15%, +20%         |
| Rated voltage, U <sub>s</sub>                                   | RGC...D90GGUP<br>24VDC ± 10%         | N/A                      |
| Fan rating, U <sub>r</sub>                                      | RGC...A90GGUP<br>N/A                 | 24VDC ±10%, 50mA nominal |
| Alarm voltage drop                                              | Typical<br>Maximum<br>2.8VDC<br>4VDC | 1.8VDC<br>3.5VDC         |
| Visual Indication                                               | Continuous Red LED                   | Continuous 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- (U<sub>a</sub>) terminals should be 35VDC maximum with reference to A2-

## Input specifications

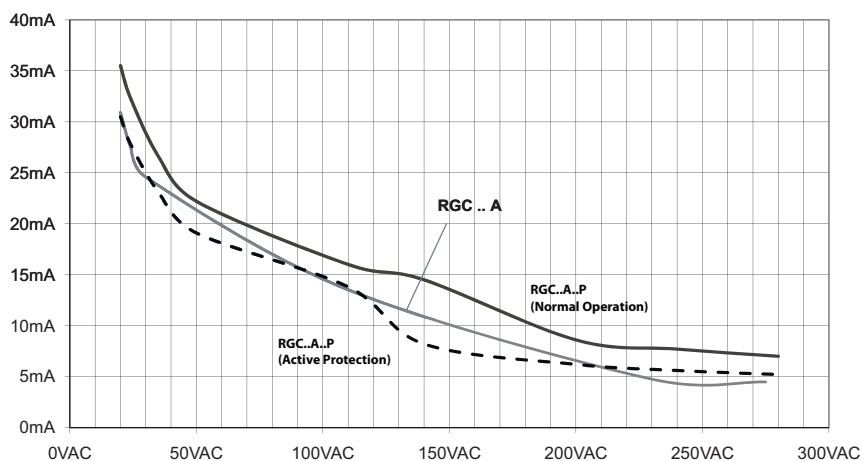
|                                       |              | RGC..D..                  | RGC..A..                             |
|---------------------------------------|--------------|---------------------------|--------------------------------------|
| Control voltage range <sup>9,10</sup> | RGC..23..    | 3 - 32 VDC                | 20 - 275 VAC,<br>24 (-10%) - 190 VDC |
|                                       | RGC..60..    | 4 - 32 VDC                | 20-275 VAC,<br>24 (-10%) - 190 VDC   |
|                                       | RGC...P (Uc) | 5 - 32 VDC                | 20-275 VAC,<br>24 (-10%) - 190 VDC   |
| Pick-up voltage                       | RGC..23..    | 3.0 VDC                   | 20 VAC/DC                            |
|                                       | RGC..60..    | 3.8 VDC                   | 20 VAC/DC                            |
|                                       | RGC...P      | 5 VDC                     | 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<br>@ 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

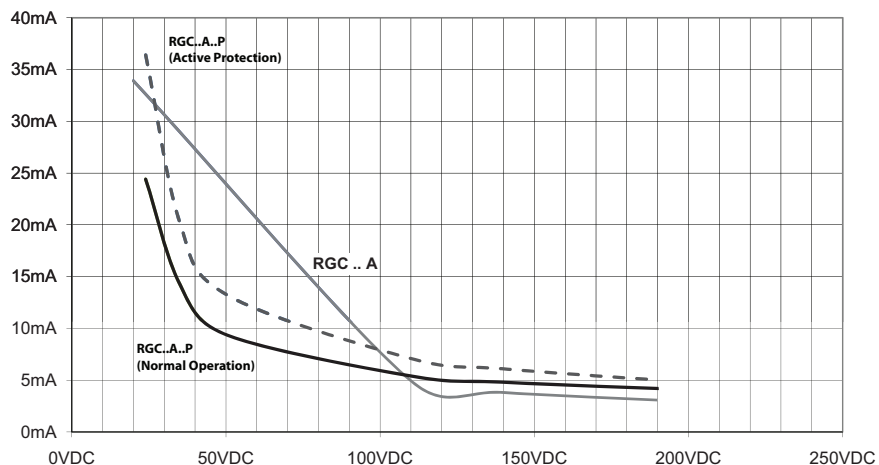
10. For GL approved models control range for RGC1.23... is 4-32VDC and for RGC1.60... 5-32VDC

### RG..A..

RGC1 .. A : input current vs input voltage

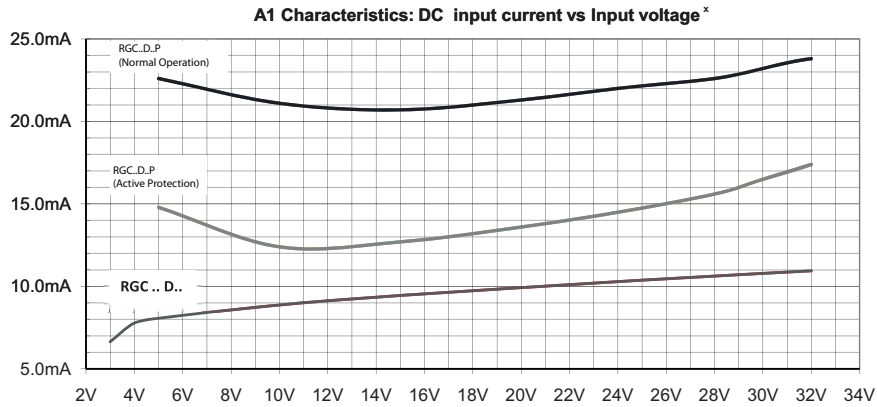


RGC1 .. A : input current vs input voltage

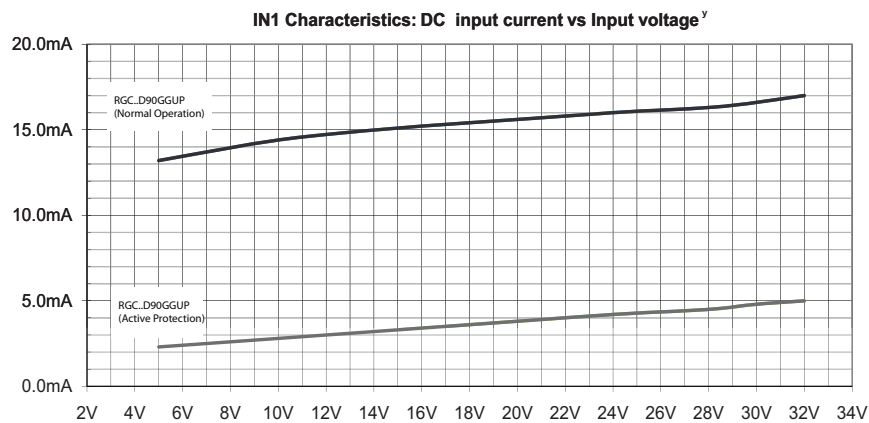


## Input specifications (cont.)

### RG..D..



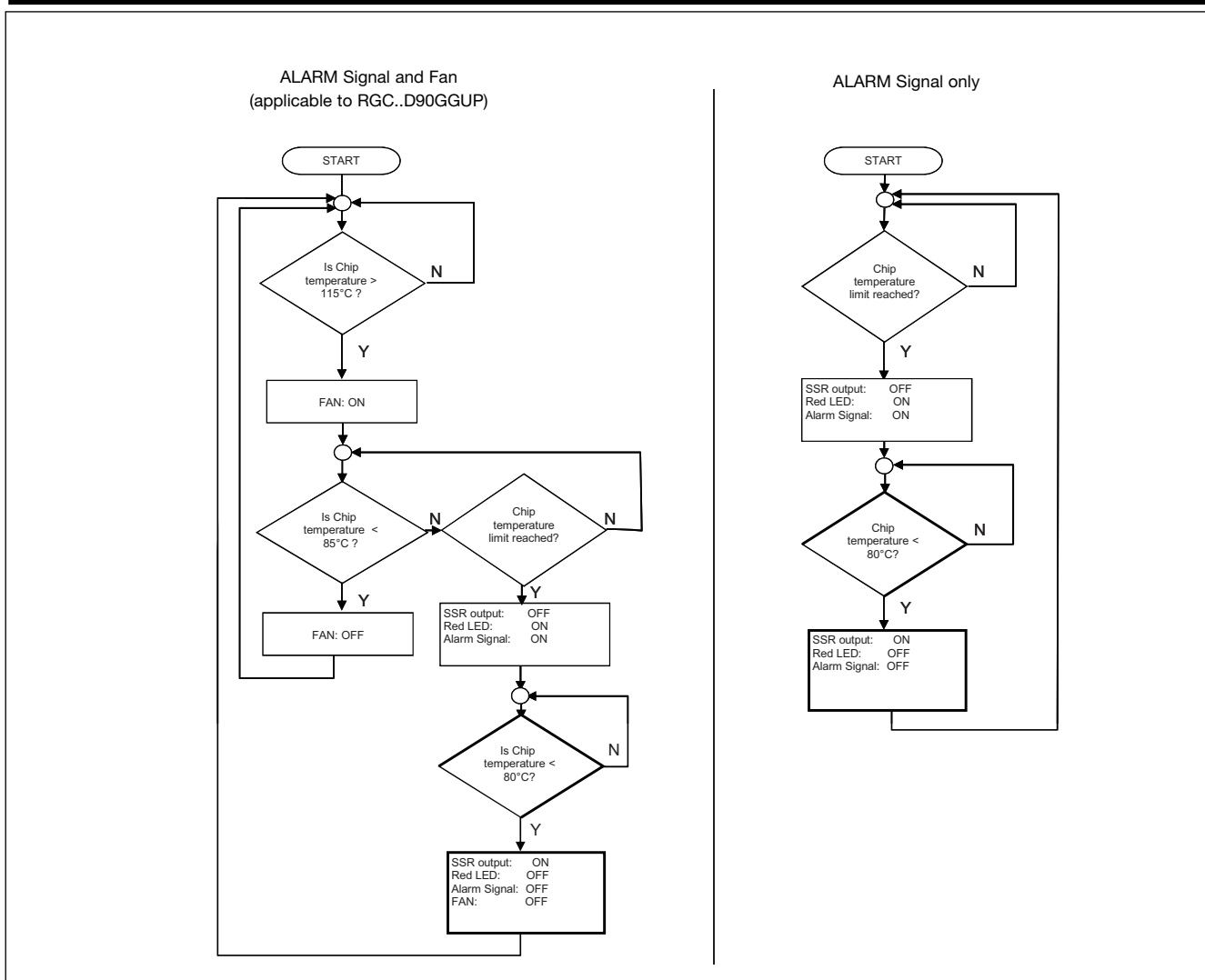
x: Input currents for RGC1..D15, RGC1..D20, RGC1..D25, RGC1..D30, RGC1..D4x, RGC1..D6x



y: input currents valid only for RGC1..D90GGUP

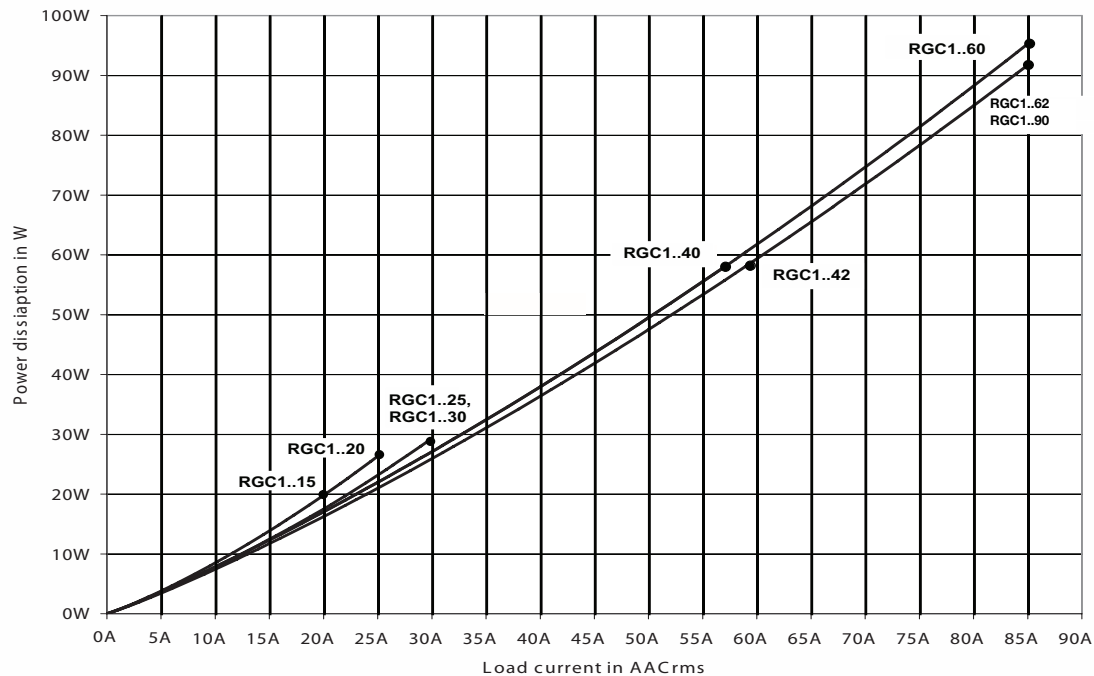

**Motor Ratings: HP (UL508) / kW (EN/IEC60947-4-2) @ 40°C**

|         | 115 VAC          | 230 VAC          | 400 VAC       | 480 VAC         | 600 VAC       |
|---------|------------------|------------------|---------------|-----------------|---------------|
| RGC..15 | 1/3HP / 0.18kW   | 1HP / 0.37kW     | 2HP / 0.75kW  | 3HP / 1.1kW     | 3HP / 1.5kW   |
| RGC..20 | 1/2HP / 0.18kW   | 1 1/2HP / 0.37kW | 2HP / 0.75kW  | 3HP / 1.1kW     | 3HP / 1.5kW   |
| RGC..25 | 1/3HP / 0.18kW   | 1HP / 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 1/2HP / 4kW |
| RGC..42 | 1 1/2HP / 0.56kW | 3HP / 1.5kW      | 5HP / 2.2kW   | 7 1/2HP / 3.7kW | 10HP / 4kW    |
| RGC..60 | 1 1/2HP / 0.56kW | 3HP / 1.5kW      | 5HP / 3kW     | 7 1/2HP / 4kW   | 10HP / 4kW    |
| RGC..62 | 2HP / 0.75kW     | 5HP / 1.5kW      | 7 1/2HP / 4kW | 10HP / 4kW      | 15HP / 5.5kW  |
| RGC..90 | 2HP / 0.75kW     | 5HP / 1.5kW      | 7 1/2HP / 4kW | 10HP / 4kW      | 15HP / 5.5kW  |

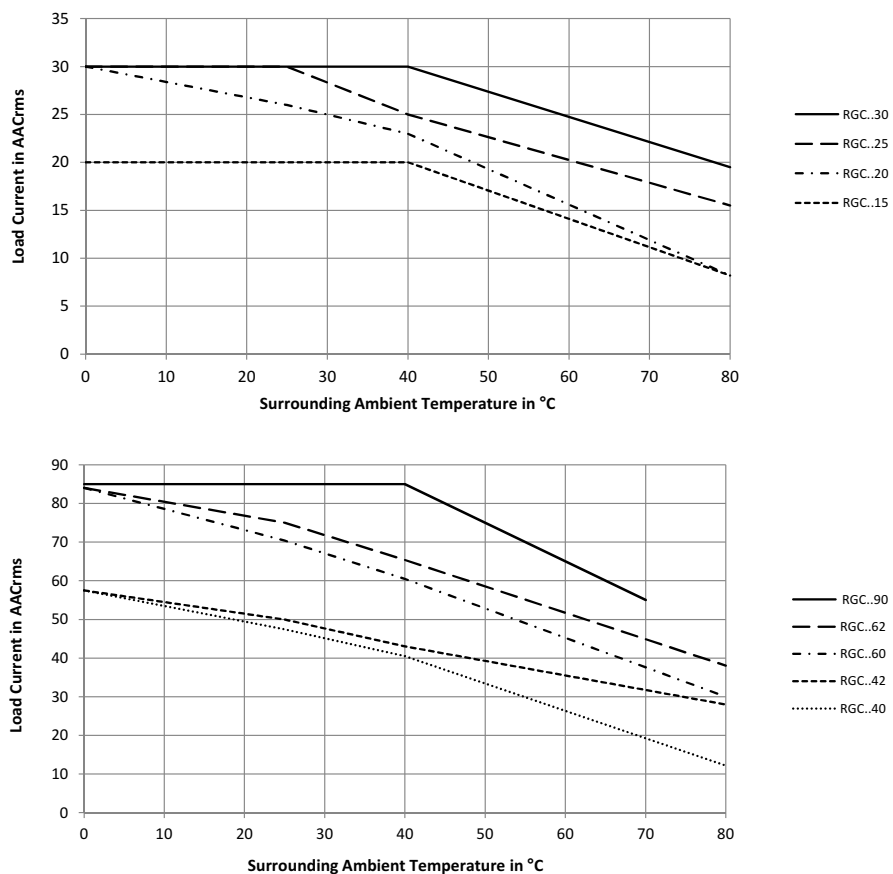
**Detailed Over temperature Alarm Procedure (for RGC...P)**

**CAUTION**

- Alarm condition resets whenever the voltage signal is removed from terminal A1 (+)
- In the case of RGC...D90GGUP, 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 RGC1A60A90GGUP it is necessary to supply IN2 and IN3 with 24VDC for fan operation.
- Alarm procedure for RGC1A60A90GGUP follows 'Alarm signal only' flow since fan is continuously operating.
- Alarm condition automatically resets ONLY when power semiconductor temperature < 80°C
- Temperatures indicated are typical figures.

## Output Power Dissipation



## Current Derating (UL508)

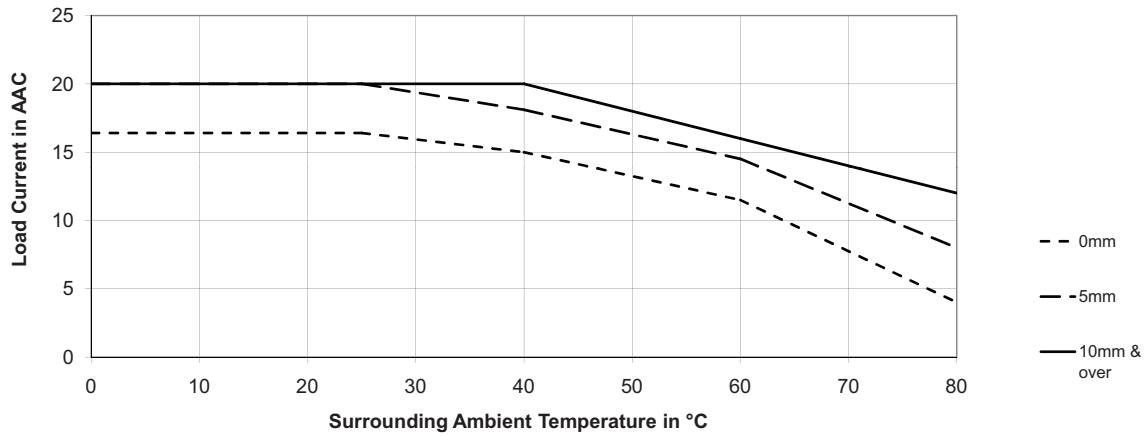


RGC...P models max. operating temperature is + 70°C

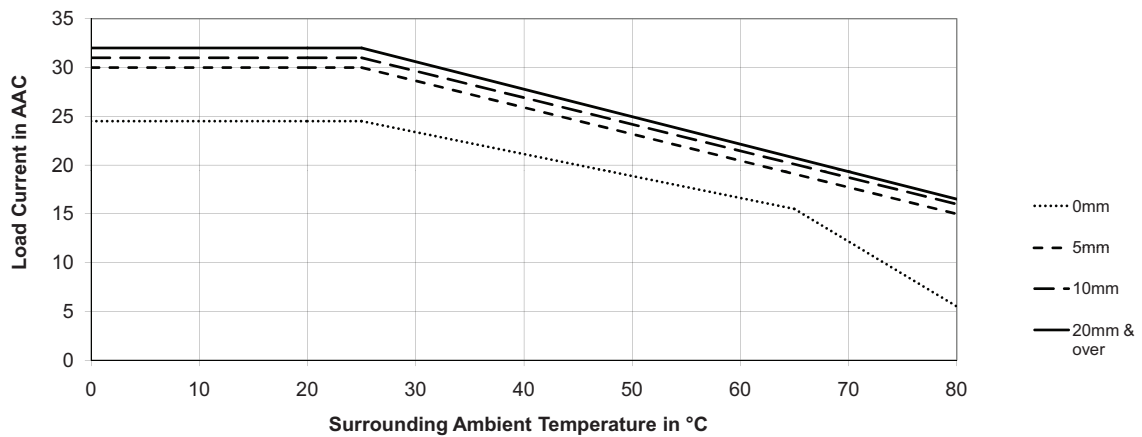


## Derating vs. Spacing Curves

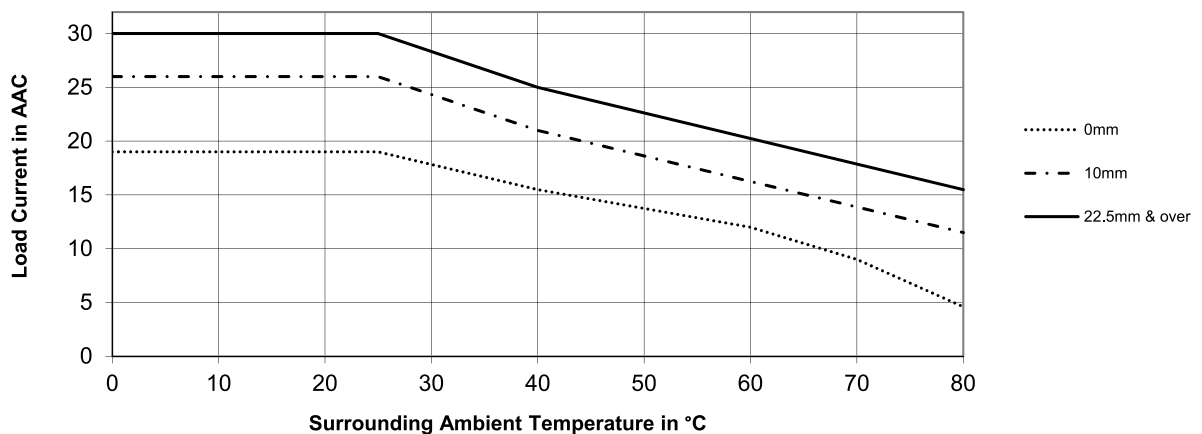
RGC.. 15..



RGC.. 20..

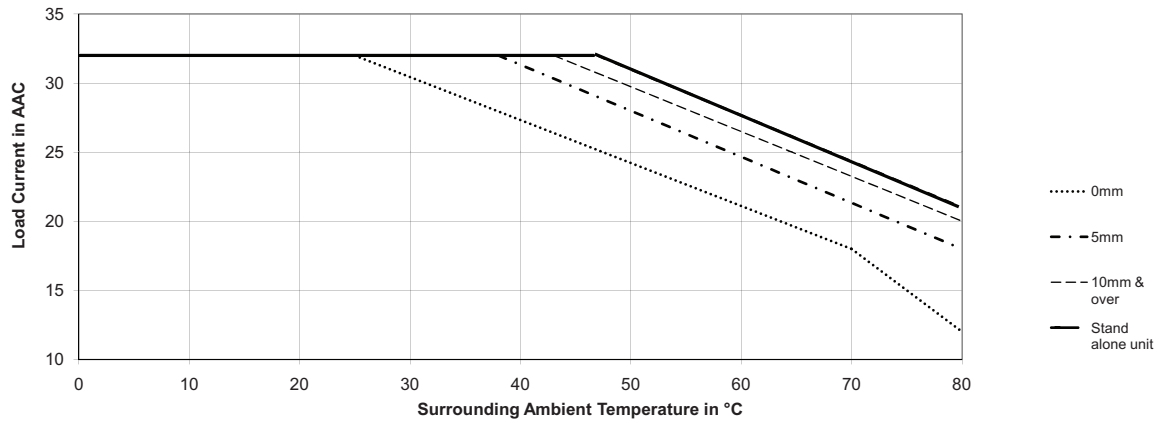


RGC.. 25..

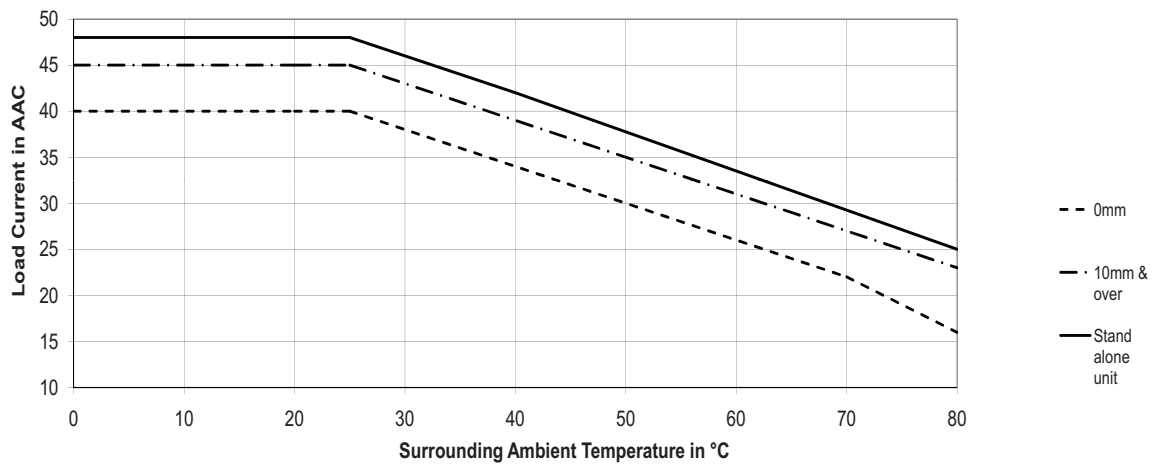


## Derating vs. Spacing Curves (cont.)

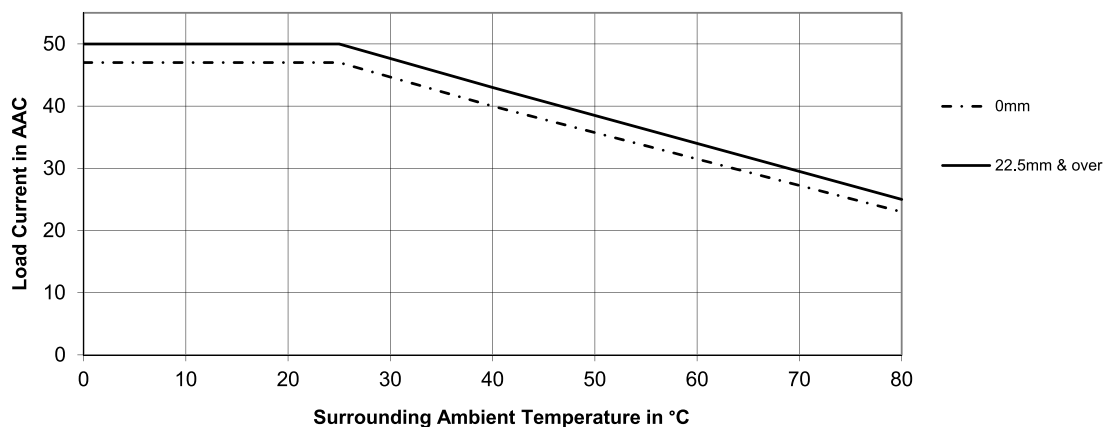
RGC.. 30..



RGC.. 40..



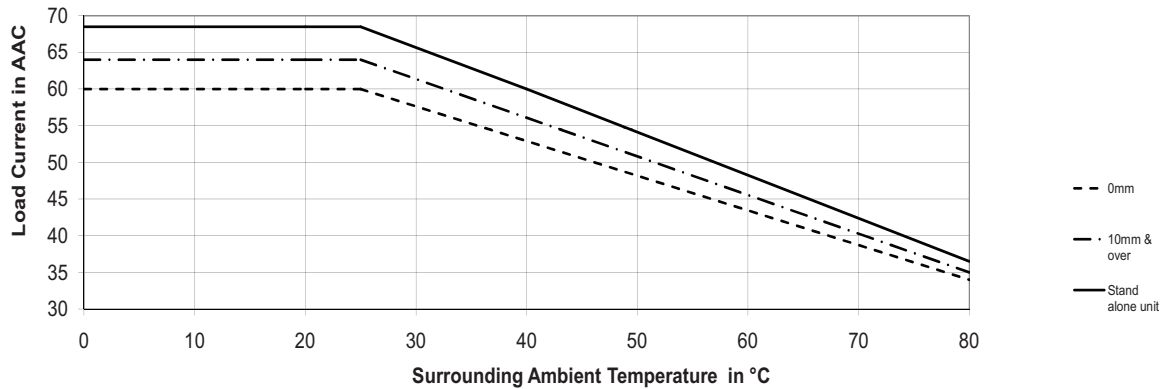
RGC.. 42..



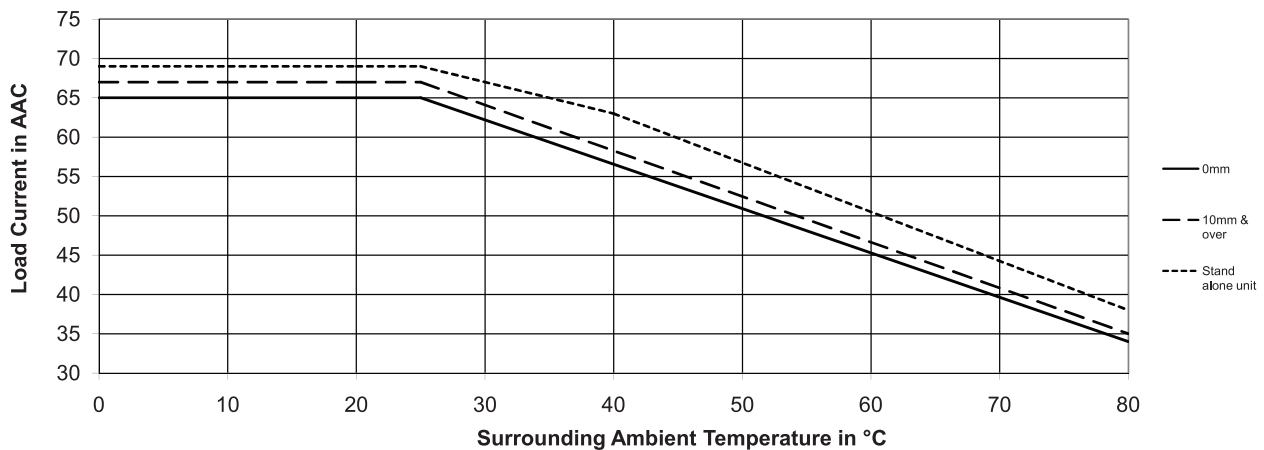


## Derating vs. Spacing Curves (cont.)

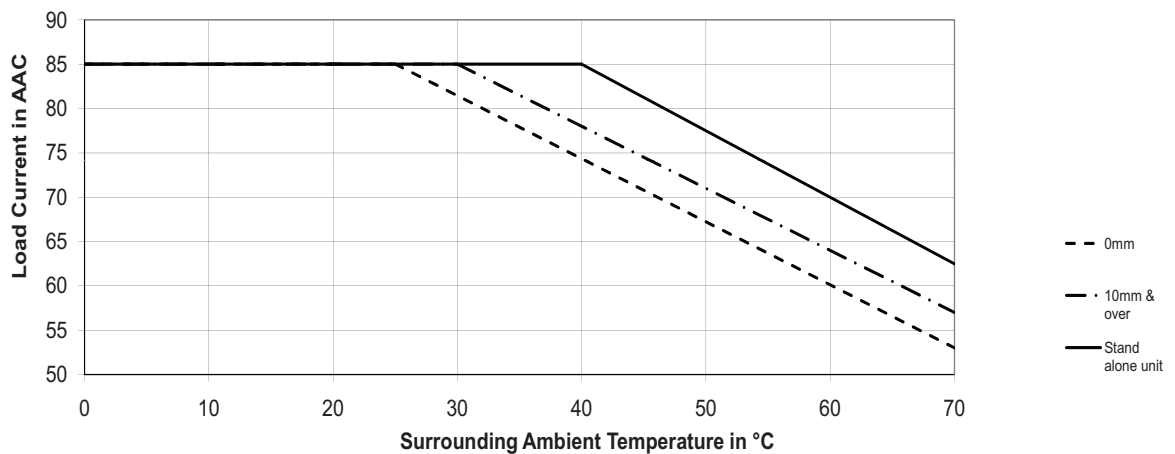
RGC.. 60..



RGC.. 62..



RGC.. 90GGUP





## Agency Approvals and Conformances

|                    |                                                      |                                     |                                                                                      |
|--------------------|------------------------------------------------------|-------------------------------------|--------------------------------------------------------------------------------------|
| <b>Conformance</b> | IEC/EN 62314<br>IEC/EN 60947-4-2<br>IEC/EN 60947-4-3 | <b>Agency Approvals</b>             | UL508 Listed (E172877)<br>cUL Listed (E172877)<br>VDE (0660-109)<br>GL <sup>12</sup> |
|                    |                                                      | <b>Short Circuit Current Rating</b> | 100kA, UL508                                                                         |

## Electromagnetic Compatibility

|                                                   |                                                                                                                               |                                                    |                        |
|---------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|------------------------|
| <b>EMC Immunity</b>                               | IEC/EN 61000-6-2                                                                                                              | <b>Electrical Surge Immunity</b><br>(for RGC...UP) | IEC/EN 61000-4-5       |
| <b>Electrostatic Discharge (ESD)</b>              |                                                                                                                               | Output, line to line, 1kV                          | Performance Criteria 1 |
| <b>Immunity</b>                                   | IEC/EN 61000-4-2                                                                                                              | Output, line to earth, 2kV                         | Performance Criteria 1 |
| Air discharge, 8kV                                | Performance Criteria 1                                                                                                        | DC lines, line to line, 500V                       | Performance Criteria 2 |
| Contact, 4kV                                      | Performance Criteria 1                                                                                                        | DC lines, line to earth, 500V                      | Performance Criteria 2 |
| <b>Electrical Fast Transient</b>                  |                                                                                                                               | Signal lines, line to earth, 1kV                   | Performance Criteria 2 |
| <b>(Burst) Immunity</b>                           | IEC/EN 61000-4-4                                                                                                              | <b>Radiated Radio Frequency Immunity</b>           | IEC/EN 61000-4-3       |
| Output: 2kV, 5kHz                                 | Performance Criteria 1                                                                                                        | 10V/m, 80 - 1000 MHz                               | Performance Criteria 1 |
| Input: 1kV, 5kHz                                  | Performance Criteria 1                                                                                                        | 10V/m, 1.4 - 2 GHz                                 | Performance Criteria 1 |
| <b>Electrical Surge Immunity</b><br>(for RGC...U) | IEC/EN 61000-4-5                                                                                                              | 3V/m, 2 - 2.7 GHz                                  | Performance Criteria 1 |
| Output, line to line, 1kV                         | Performance Criteria 1                                                                                                        | <b>Conducted Radio Frequency Immunity</b>          | IEC/EN 61000-4-6       |
| Output, line to earth, 2kV                        | Performance Criteria 1                                                                                                        | 10V/m, 0.15 - 80 MHz                               | Performance Criteria 1 |
| Input, line to line, 1kV                          | Performance Criteria 2                                                                                                        | <b>Voltage Dips Immunity</b>                       | IEC/EN 61000-4-11      |
| Input, line to earth, 2kV                         | Performance Criteria 2                                                                                                        | 0% for 10ms/20ms                                   | Performance Criteria 2 |
|                                                   |                                                                                                                               | 40% for 200ms                                      | Performance Criteria 2 |
|                                                   |                                                                                                                               | 70% for 500ms                                      | Performance Criteria 2 |
|                                                   |                                                                                                                               | <b>Voltage Interruptions Immunity</b>              | IEC/EN 61000-4-11      |
|                                                   |                                                                                                                               | 0% for 5000ms                                      | Performance Criteria 2 |
| <b>EMC Emission</b>                               | IEC/EN 61000-6-4                                                                                                              | <b>Radio Interference</b>                          |                        |
| <b>Radio Interference</b>                         |                                                                                                                               | <b>Field Emission (Radiated)</b>                   | IEC/EN 55011           |
| <b>Voltage Emission (Conducted)</b>               | IEC/EN 55011                                                                                                                  | <b>30 - 1000MHz</b>                                | Class A (industrial)   |
| <b>0.15 - 30MHz</b>                               | Class A (industrial) with filters<br>- see filter information<br>IEC/EN 60947-4-2, 60947-4-3<br>Class A (no filtering needed) |                                                    |                        |

## Environmental Specifications

|                                         |                                  |                                                                       |                           |
|-----------------------------------------|----------------------------------|-----------------------------------------------------------------------|---------------------------|
| Operating Temperature <sup>11</sup>     | -40°C to 80°C (-40°F to +176°F)  | Vibration resistance<br>(2-100Hz, IEC60068-2-26,<br>EN50155, EN61373) | 2g per axis               |
| Storage Temperature                     | -40°C to 100°C (-40°F to +212°F) | Relative humidity                                                     | 95% non-condensing @ 40°C |
| RoHS (2002/95/EC)                       | Compliant                        | UL flammability rating<br>(housing)                                   | UL 94 V0                  |
| Impact resistance<br>(EN50155, EN61373) | 15/11 g/ms                       |                                                                       |                           |
| <b>Weight</b>                           |                                  | RGC..30 (P)                                                           | approx 375g (412g)        |
| RGC..15                                 | approx 260g                      | RGC..4x (P)                                                           | approx 515g (581g)        |
| RGC..20 (P)                             | approx 315g (360g)               | RGC..6x (P)                                                           | approx 972g (1020g)       |
| RGC..25 (P)                             | approx 260g (307g)               | RGC..90 (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...15KGU, RGC1...20KGU, RGC1...25KGU and RGC1...30KGU



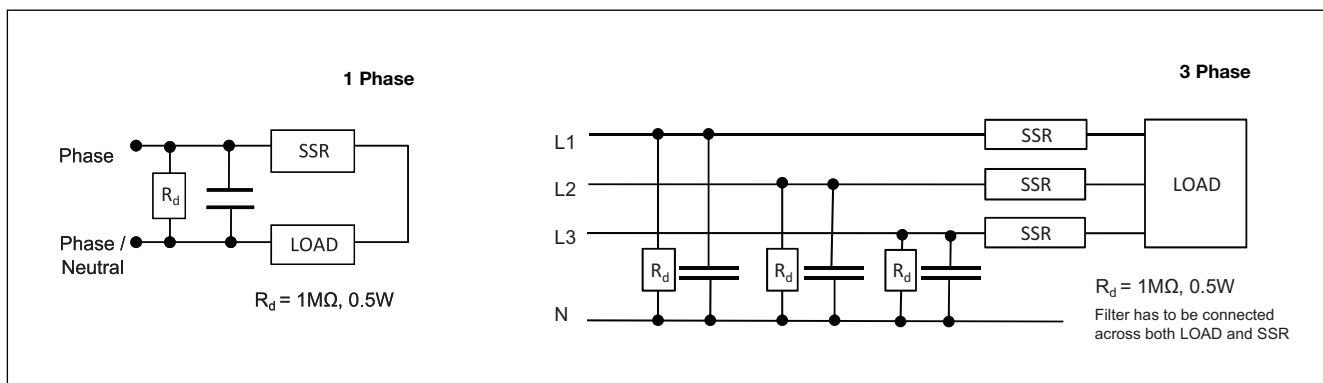
## Filtering - EN / IEC 55011 Class A compliance (for class B compliance contact us)

| Part Number                              | Suggested filter for compliance          | Maximum Heater current |
|------------------------------------------|------------------------------------------|------------------------|
| RGC1A23..15                              | 68 nF / 275V / X1                        | 20A                    |
| RGC1A23..20                              | 68 nF / 275 V / X1                       | 20A                    |
| RGC1A23..25, RGC1A23..30                 | 220 nF / 275V / X1                       | 30A                    |
| RGC1A23..40                              | 220 nF / 275V / X1<br>330 nF / 275V / X1 | 30A<br>45A             |
| RGC1A23..60                              | 220 nF / 275V / X1<br>330 nF / 275V / X1 | 30A<br>45A             |
| RGC1A23..42, RGC1A23..62                 | 330 nF / 275V / X1                       | 35A                    |
| RGC1A23..9x                              | 470 nF / 275V / X1                       | 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<br>330 nF / 760V / X1 | 25A<br>45A             |
| RGC1A60..60                              | 220 nF / 760V / X1<br>330 nF / 760V / X1 | 25A<br>45A             |
| RGC1A60..42, RGC1A....62,<br>RGC1A....9x | 330 nF / 760V / X1<br>470 nF / 760V / X1 | 40A<br>65A             |

### Note:

- Control input lines must be installed together to maintain products' susceptibility 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.

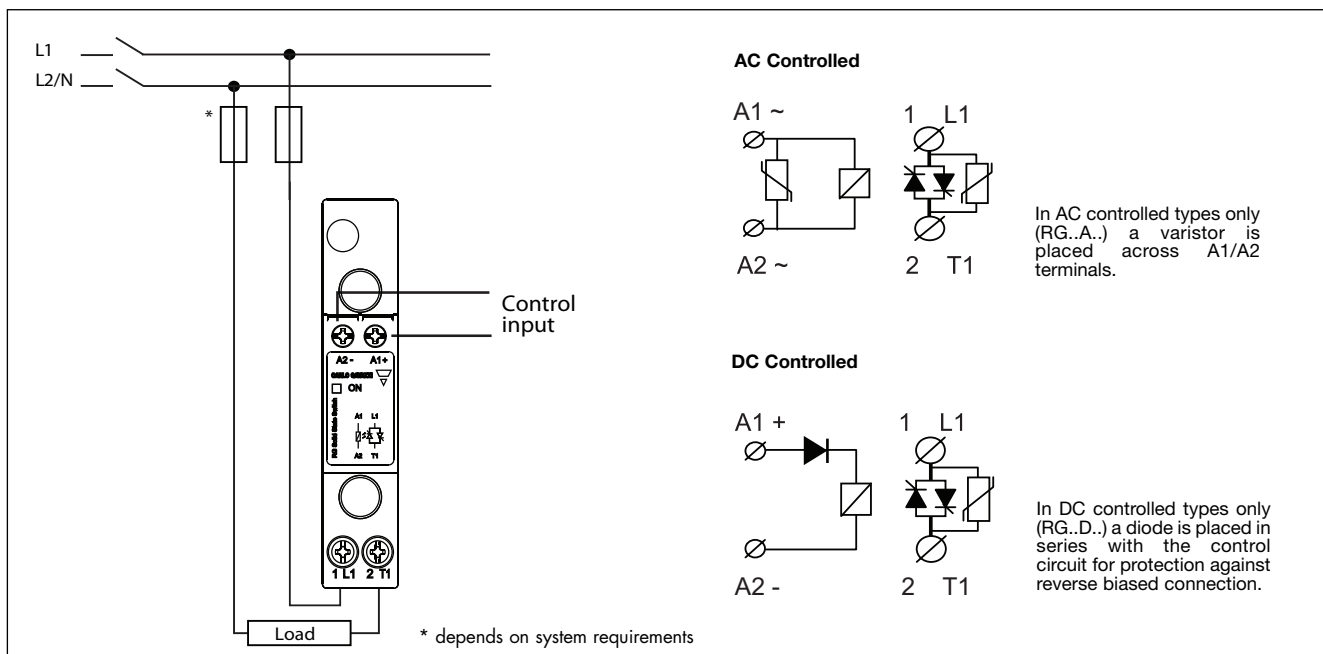
## Filter Connection Diagrams



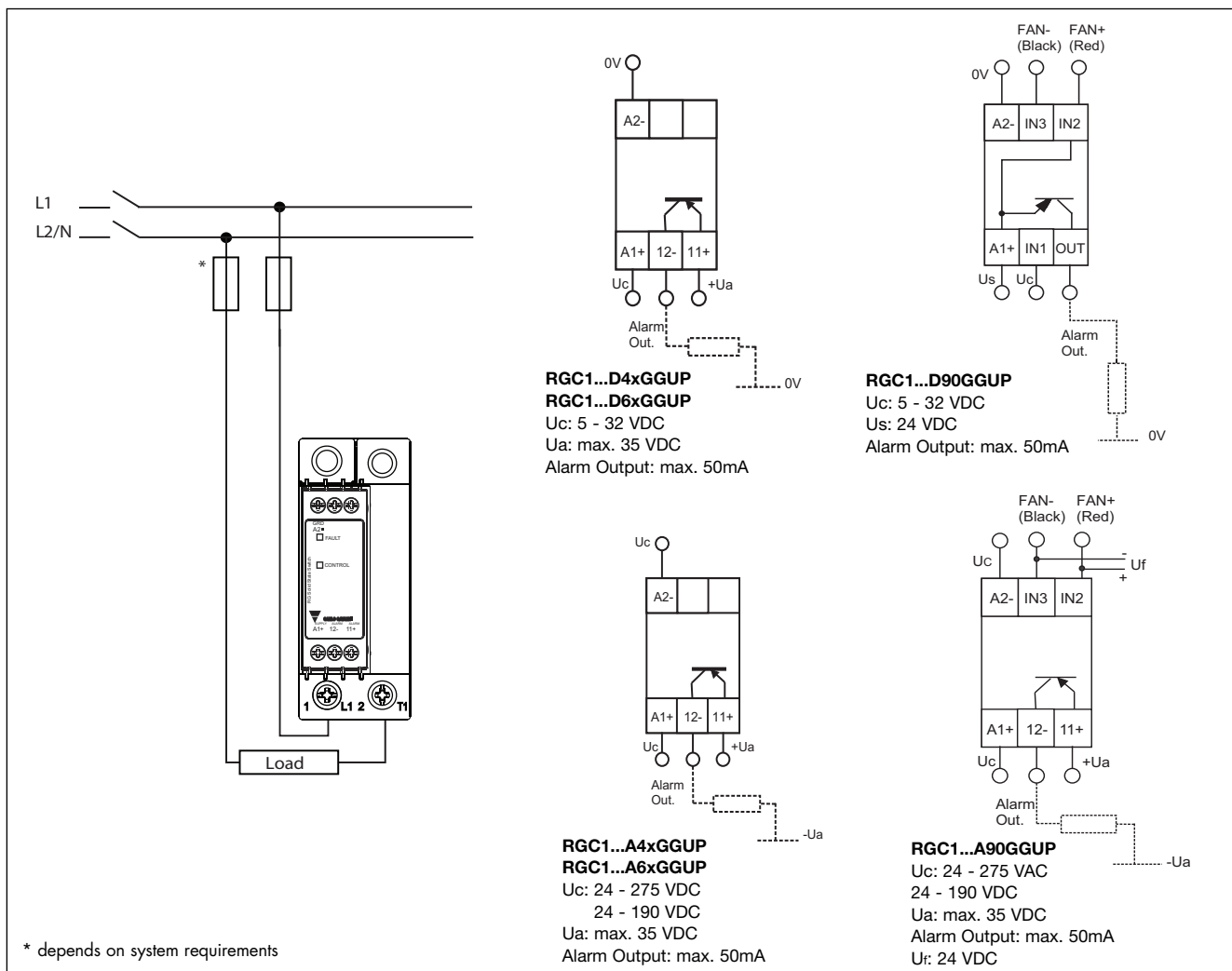
RGC...U

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## Connection Diagram (No OTP)



## Connection Diagram (with OTP)

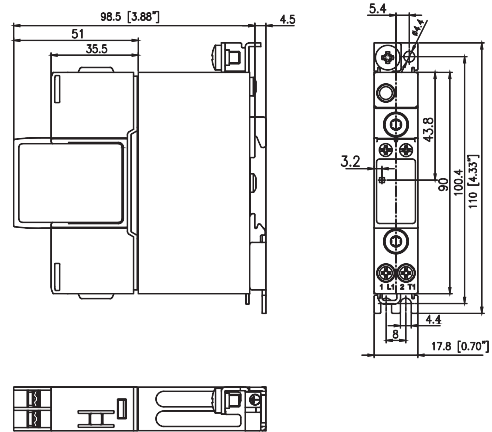
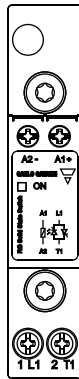


RGC...U

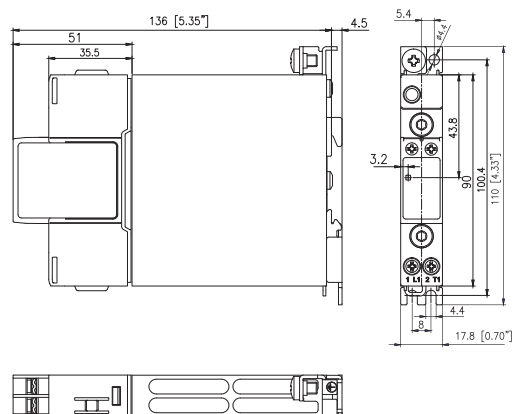
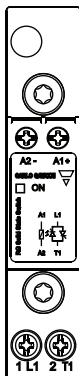
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## Terminal Layout and Dimensions

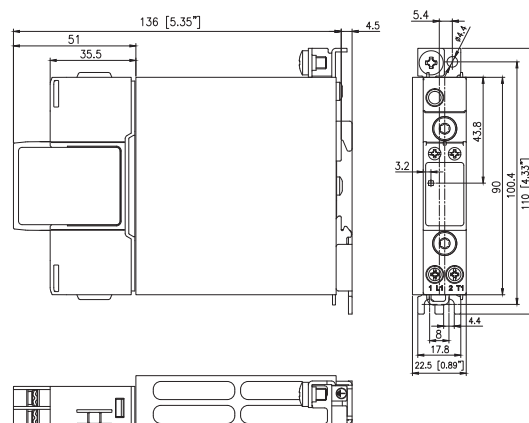
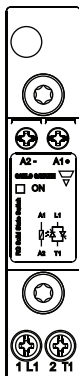
RGC...15KGU, RGC...25KGU



RGC...20KGU



RGC...30KGU



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

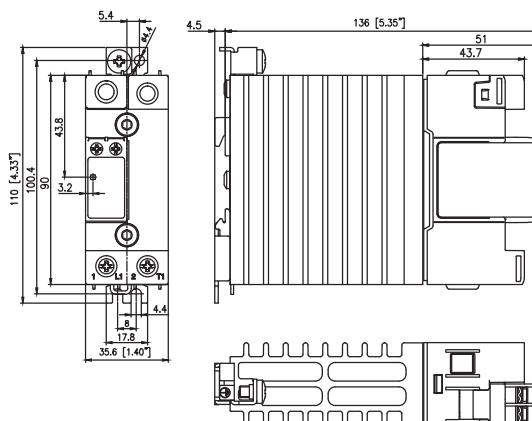
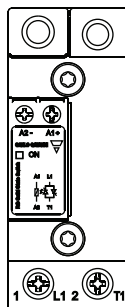
Housing width tolerance +0.5mm, -0mm...as per DIN43880.  
 All other tolerances  $\pm 0.5$ mm. All dimensions in mm.

RGC...U

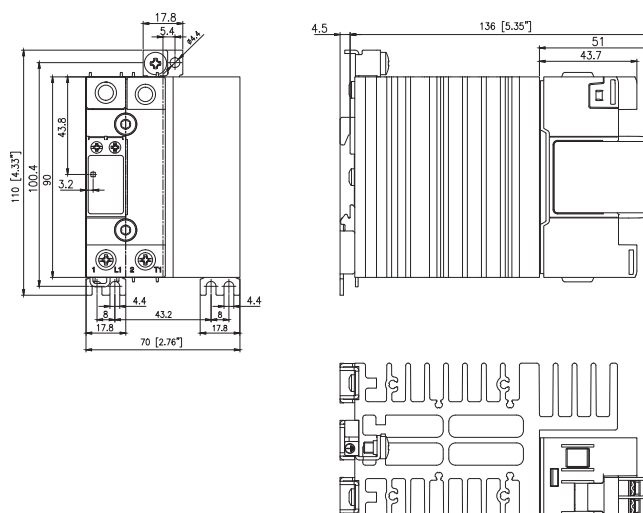
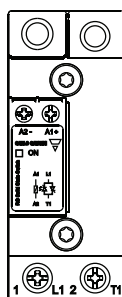
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## Terminal Layout and Dimensions

### RGC...40KGU, RGC...42KGU



### RGC...60KGU, RGC...62KGU



- 1/L1: Supply connection  
 2/T1: Load connection  
 A1 (+): Positive control signal  
 (Positive supply in case of RGC1A..D90GGUP)  
 A2 (-): Control ground  
 IN1: Control signal (only for RGC1A.. D90GGUP)  
 IN2: Fan + supply (only for RGC1A60A90GGUP)  
 IN3: Fan - supply (only for RGC1A60A90GGUP)  
 11 + : Alarm output (+)  
 OUT, 12 - : Alarm output (-)  
 ⚡ : Protective earth

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

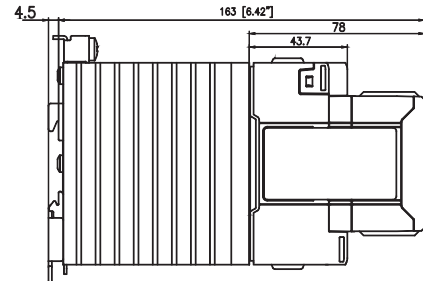
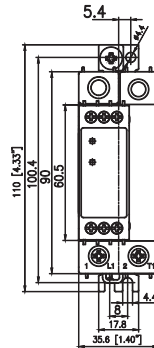
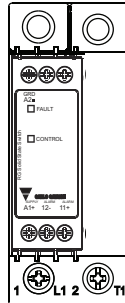


RGC...U

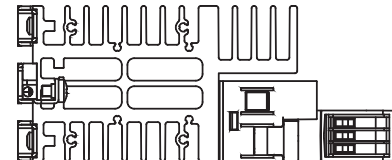
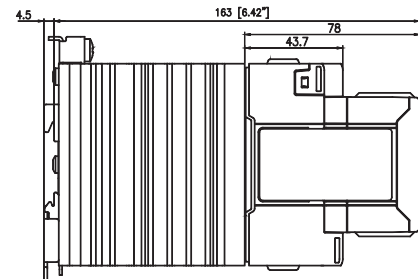
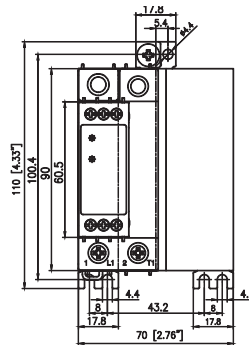
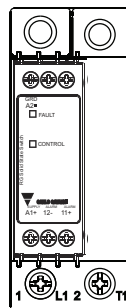
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## Terminal Layout and Dimensions (cont.)

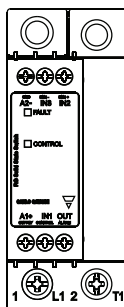
RGC...40GGUP, RGC...42GGUP



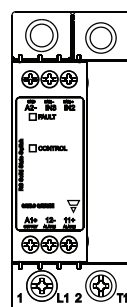
RGC...60GGUP, RGC...62GGUP



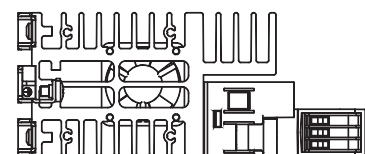
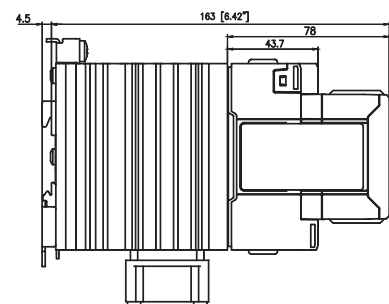
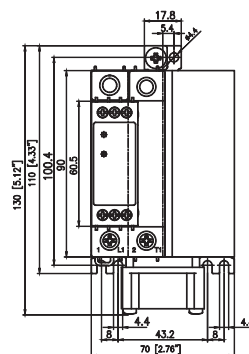
RGC...90GGUP



RGC...D90GGUP



RGC...A90GGUP



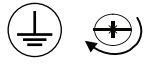
- 1/L1: Supply connection  
 2/T1: Load connection  
 A1 (+): Positive control signal  
 (Positive supply in case of RGC1A..D90GGUP)  
 A2 (-): Control ground  
 IN1: Control signal (only for RGC1A..D90GGUP)  
 IN2: Fan + supply (only for RGC1A60A90GGUP)  
 IN3: Fan - supply (only for RGC1A60A90GGUP)  
 11 + : Alarm output (+)  
 OUT, 12 - : Alarm output (-)  
 ⊕ : Protective earth

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

## Connection Specifications

### POWER CONNECTIONS: 1/L1, 2 /T1

Use 75°C copper (Cu) conductors

|                                                           | RG...KGU                                                                                                                                                    | RG...KGU, RG...GGUP                                                                                                                                         |
|-----------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Stripping Length (X)</b>                               | 12mm                                                                                                                                                        | 11mm                                                                                                                                                        |
| <b>Connection type</b>                                    | M3.5 screw with box clamp                                                                                                                                   | M5 screw with box clamp                                                                                                                                     |
| <b>Rigid (Solid &amp; Stranded)</b><br>UL/ cUL rated data | <br>1 x 1..6 mm <sup>2</sup><br>1 x 18.. 10 AWG                            | <br>1 x 2.5..25mm <sup>2</sup><br>1 x 14...3 AWG                         |
| <b>Flexible with end sleeve</b>                           | <br>1 x 0.5..2.5mm <sup>2</sup><br>1 x 20.. 14 AWG                         | <br>1 x 2.5..16mm <sup>2</sup><br>1 x 14.. 6 AWG                         |
| <b>Flexible without end sleeve</b>                        | <br>1 x 1.. 4mm <sup>2</sup><br>1 x 18.. 12 AWG                            | <br>1 x 4.. 25mm <sup>2</sup><br>1 x 12.. 3 AWG                          |
| <b>Torque specifications</b>                              | <br>Pozidriv 2<br>UL: 2Nm (17.7lb-in)<br>IEC: 1.5-2.0Nm (13.3 - 17.7lb-in) | <br>Pozidriv 2<br>UL: 2.5Nm (22lb-in)<br>IEC: 2.5-3.0Nm (22 - 26.6lb-in) |
| <b>Protective Earth (PE) Connection</b>                   | <br>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.

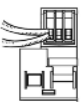
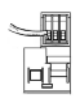
### CONTROL CONNECTIONS: A1(+), A2(-)

Use 60/75°C copper (Cu) conductor

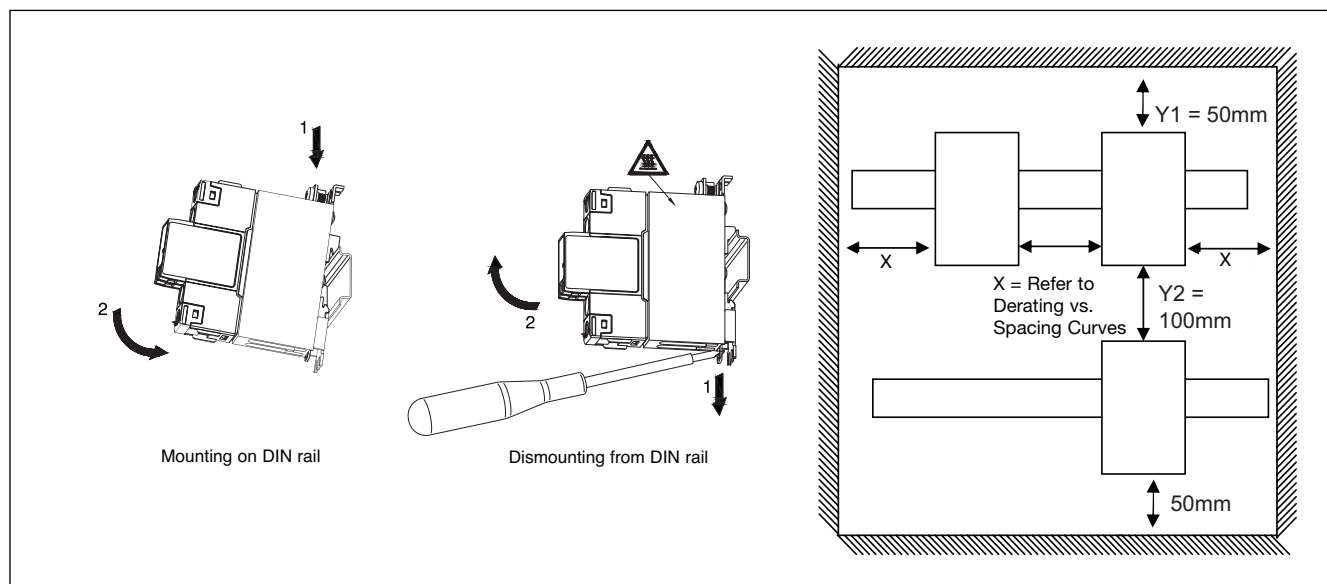
|                                                           | RG...KGU                                                                                                                                                           |                                                                                                                                      |
|-----------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| <b>Torque specifications</b>                              | <br>M3, Pozidriv 1<br>UL: 0.5Nm (4.4lb-in)<br>IEC: 0.5 - 0.6Nm (4.4 - 5.3lb-in) |                                                                                                                                      |
| <b>Stripping Length (X)</b>                               | 8mm                                                                                                                                                                |                                                                                                                                      |
| <b>Rigid (Solid &amp; Stranded)</b><br>UL/ cUL rated data | <br>2 x 0.5..2.5mm <sup>2</sup><br>2 x 18..12 AWG                               | <br>1 x 0.5..2.5mm <sup>2</sup><br>1 x 18..12 AWG |
| <b>Flexible with end sleeve</b>                           | <br>2 x 0.5..2.5mm <sup>2</sup><br>2 x 18..12AWG                                | <br>1 x 0.5..2.5mm <sup>2</sup><br>1 x 18..12AWG  |

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

Use 60/75°C copper (Cu) conductors

|                                                           | RG...GGUP                                                                                                                                                          |                                                                                                                                      |
|-----------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| <b>Torque specifications</b>                              | <br>M3, Pozidriv 1<br>UL: 0.5Nm (4.4lb-in)<br>IEC: 0.4 - 0.5Nm (3.5 - 4.4lb-in) |                                                                                                                                      |
| <b>Stripping Length (X)</b>                               | 6mm                                                                                                                                                                |                                                                                                                                      |
| <b>Rigid (Solid &amp; Stranded)</b><br>UL/ cUL rated data | <br>2 x 1.0..2.5mm <sup>2</sup><br>2 x 18..14 AWG                               | <br>1 x 1.0..2.5mm <sup>2</sup><br>1 x 18..14 AWG |
| <b>Flexible with end sleeve</b>                           | <br>2 x 1.0..2.5mm <sup>2</sup><br>2 x 18..14AWG                                | <br>1 x 1.0..2.5mm <sup>2</sup><br>1 x 18..14AWG  |

## 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 conductors 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.

RGC...U



## Co-ordination type 1 (UL508)

| Part No. | Prospective short circuit current [kArms] | Max. fuse size [A] | Class   | Voltage [VAC] |
|----------|-------------------------------------------|--------------------|---------|---------------|
| RGC..15  | 100                                       | 10                 | J       | max. 600      |
|          | 100                                       | 15                 | CC      | max. 600      |
| RGC..20  | 100                                       | 10                 | J       | max. 600      |
|          | 100                                       | 15                 | 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      |

## 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<br>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<br>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...U



## 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 [mm <sup>2</sup> ] | Minimum length of Cu wire conductor [m] <sup>13</sup> |
|------------------------|------------------------------------------------------|-----------------------------------------------------|----------------------------------------------|-------------------------------------------------------|
| RGC..15, RGC..20       | <b>1 pole</b><br>S201 - Z4 (4A)<br>S201 - Z6 UC (6A) | S201 - B2 (2A)<br>S201 - B2 (2A)                    | 1.0                                          | 21.0                                                  |
|                        |                                                      |                                                     | 1.0                                          | 21.0                                                  |
|                        |                                                      |                                                     | 1.5                                          | 31.5                                                  |
| RGC..25, RGC..30       | <b>1 pole</b><br>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                                                  |
|                        | S201 - Z20 (20A)                                     | S201-B10 (10A)                                      | 4.0                                          | 20.8                                                  |
|                        |                                                      |                                                     | 1.5                                          | 12.6                                                  |
|                        |                                                      |                                                     | 2.5                                          | 21.0                                                  |
|                        | S201 - Z25 (25A)                                     | S201-B13 (13A)                                      | 2.5                                          | 25.0                                                  |
|                        |                                                      |                                                     | 4.0                                          | 40.0                                                  |
|                        |                                                      |                                                     | 2.5                                          | 19.0                                                  |
|                        | <b>2 pole</b><br>S202 - Z25 (25A)                    | S202-B13 (13A)                                      | 4.0                                          | 30.4                                                  |
|                        |                                                      |                                                     | 2.5                                          | 19.0                                                  |
|                        |                                                      |                                                     | 4.0                                          | 30.4                                                  |
| RGC..40                | <b>1 pole</b><br>S201 - Z25 (25A)                    | S201-B13 (13A)                                      | 2.5                                          | 7.0                                                   |
|                        |                                                      |                                                     | 4.0                                          | 11.2                                                  |
|                        |                                                      |                                                     | 6.0                                          | 16.8                                                  |
| RGC..60                | <b>1 pole</b><br>S201 - Z25 (25A)                    | S201-B13 (13A)                                      | 2.5                                          | 7.0                                                   |
|                        |                                                      |                                                     | 4.0                                          | 11.2                                                  |
|                        |                                                      |                                                     | 6.0                                          | 16.8                                                  |
| RGC..90GGUP            | <b>1 pole</b><br>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                                                  |
|                        | <b>2 pole</b><br>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                                                  |
|                        | S202 - Z50 (50A)                                     | S202-B25 (25A)                                      | 10.0                                         | 20.0                                                  |
|                        |                                                      |                                                     | 4.0                                          | 14.8                                                  |
|                        |                                                      |                                                     | 6.0                                          | 22.2                                                  |
|                        | <b>1 pole</b><br>S201-Z32 (32A)                      | S201-B16 (16A)                                      | 10.0                                         | 37.0                                                  |
|                        |                                                      |                                                     | 2.5                                          | 3.0                                                   |
|                        |                                                      |                                                     | 4.0                                          | 4.8                                                   |
| RGC..42, RGC..62       | S201-Z50 (50A)                                       | S201-B25 (25A)                                      | 6.0                                          | 7.2                                                   |
|                        |                                                      |                                                     | 4.0                                          | 4.8                                                   |
|                        |                                                      |                                                     | 6.0                                          | 7.2                                                   |
|                        | S201-Z63 (63A)                                       | S201-B32 (32A)                                      | 10.0                                         | 12.0                                                  |
|                        |                                                      |                                                     | 6.0                                          | 7.2                                                   |
|                        |                                                      |                                                     | 10.0                                         | 12.0                                                  |
|                        | S201-Z32 (32A)                                       | S201-B16 (16A)                                      | 16.0                                         | 19.2                                                  |
|                        |                                                      |                                                     | 4.0                                          | 4.8                                                   |
|                        |                                                      |                                                     | 6.0                                          | 7.2                                                   |

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.