# RGH

## 1-Phase Solid State Contactors, High blocking voltage



## Description

This slimline range of solid state contactors is an evolution of solid state switches for which Carlo Gavazzi is very well known. The RG solid state contactors present a unique opportunity for panel space savings thanks to their very slim footprint.

The **RGH** is the ready-to-use range that is provided with an integrated heatsink and carries a high blocking voltage specification of 1600 Vp. This makes the RGH more suitable for applications where uncontrolled transients may occur frequently. The output is still protected against overvoltages by means of an integrated varistor for sitautions where the uncontrolled transients exceed 1600 Vp.

The smallest footprint occupies a width of only 17.5 mm. Control ON indication is provided through a green LED. The RGH is avaiable in E-type configuration with some variants available also in U-type configuration.

Specifications are at a surrounding temperature of 25°C unless otherwise specified.

## Benefits

- **Suitable for harsh environments.** The RGH has a blocking voltage specification of 1600 Vp making it suitable for applications subject to frequent uncontrolled transients.
- **Panel space savings.** The slimmest product in the range accomodates up to 23 AAC in a width of only 17.5 mm.
- **Less maintenance costs.** Wire bonding technology reduces thermal and mechanical stresses of the output chips resulting in a larger number of operational cycles compared to other assembly technologies.
- **Low machine downtime.** Integrated overvoltage protection prevents the solid state relay from breaking down due to uncontrolled transients exceeding 1600 Vp that may occur on the lines.
- **Ease of use.** The RGH ready-to-use solution is provided with integrated heatsink thus eliminating the need for the user to calculate the size of heatsink needed for adequate thermal dissipation.
- **Cost effective protection co-ordination**. The high $I^2t$ specification permits easy Type 2 protection co-ordination with B-type Minitaure Circuit Breakers.
- **Fast wiring**. Power connections for models rated >30 A are equipped with terminals that can handle cables up to 25 $mm^2$ / AWG3 cables. Spring loaded control terminals are also available that help reduce installation time.
- **Accommodates UL508A requirements for Industrial Control Panels.** The RGH is certified as a listed product. All models carry a 100 kArms Short Circuit Current Rating.

## Applications

Plastic injection machines, extrusion machines, blow moulding machines, thermoformers, dryers, electrical ovens, fryers, shrink tunnels, air handling units, sterilisation equipment, climatic chambers, ovens and furnaces, ambient heating.

## Main features

- Ratings up to 759 VAC, 60 A @ $T_A$ 40°C
- 1600 Vp for blocking voltage with integrated over voltage protection
- 100 kA short circuit current rating according to UL508
- Conformance to Railway standards



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## Order code

RGH1A □□□□□□□

Enter the code option instead of □. Refer to the selection guide section for valid part numbers.

| Code | Option | Description | Comments |
|---|---|---|---|
| R | - | Solid State Relay (RG) | |
| G | - | | |
| H | - | With integrated heatsink | 1600 Vp blocking voltage |
| 1 | - | 1-pole switching | |
| A | A | Zero Cross switching (ZC) | |
| □ | 60 | Rated voltage: 42-660 VAC | |
| | 69 | Rated voltage: 42-759 VAC | |
| □ | D | Control voltage: 4-32 VDC | |
| | A | Control voltage: 20-275 VAC, 24-190 VDC | |
| □ | 15 | Rated current: 23 AAC (6600 A²s) | 17.5 mm wide, low depth |
| | 31 | Rated current: 30 AAC (6600 A²s) | 22.5 mm wide |
| | 41 | Rated current: 40 AAC (6600 A²s) | 35 mm wide |
| | 60 | Rated current: 60 AAC (6600 A²s) | 70 mm wide |
| □ | K | Screw connection for control terminals | |
| | M | Pluggable spring-loaded connection for control terminals | |
| □ | K | Screw connection for power terminals | Applicable only to: RGH..15, 31 |
| | G | Box clamp connection for power terminals | Applicable only to: RGH..41, 60 |
| □ | E | Contactor configuration | |
| | U | SSR configuration | Applicable only to: RGH..41, 60 |
| □ | - | | Single packaging |
| | X20 | Bulk packaging of 20 pcs. | Applicable only to: RGH..15 |



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## Selection guide

For E - type configuration:

| Rated voltage, Blocking voltage, Switching mode | Control voltage | Rated operational current @ 40°C | | | |
|---|---|---|---|---|---|
| | | 23 AAC (6600 A²s) | 30 AAC (6600 A²s) | 40 AAC (6600A²s) | 60 AAC (6600 A²s) |
| | | Product width | | | |
| | | 17.5 mm, low depth | 22.5 mm | 35 mm | 70 mm |
| 600 VAC, 1600 Vp ZC | 4 - 32 VDC | RGH1A60D15KKE<br>RGH1A60D15MKE | RGH1A60D31KKE<br>RGH1A60D31MKE | RGH1A60D41KGE<br>RGH1A60D41MGE | RGH1A60D60KGE<br>- |
| | 20-275 VAC, 24-190 VDC | RGH1A60A15KKE<br>RGH1A60A15MKE | RGH1A60A31KKE<br>RGH1A60A31MKE | RGH1A60A41KGE<br>RGH1A60A41MGE | RGH1A60A60KGE<br>- |
| 690 VAC, 1600 Vp ZC | 4- 32 VDC | - | - | RGH1A69D41KGE | RGH1A69D60KGE |
| | 20-275 VAC, 24-190 VDC | - | - | RGH1A69A41KGE | RGH1A69A60KGE |

For U - type configuration:

| Rated voltage, Blocking voltage, Switching mode | Control voltage | Rated operational current @ 40°C | | | |
|---|---|---|---|---|---|
| | | - | - | 40 AAC (6600A²s) | 60 AAC (6600 A²s) |
| | | Product width | | | |
| | | - | - | 35 mm | 70 mm |
| 600 VAC, 1600 Vp ZC | 4 - 32 VDC | - | - | RGH1A60D41KGU | RGH1A60D60KGU |
| | 20-275 VAC, 24-190 VDC | - | - | RGH1A60A41KGU | RGH1A60A60KGU |

KKE: input terminals = screw output terminals = screw
KGE: input terminals = screw output terminals = box clamp
MKE: input terminals = pluggable spring output terminals = screw
MGE: input terminals = pluggable spring output terminals = box clamp
KGU: input terminals = screw output terminals = box clamp

## Carlo Gavazzi compatible components

| Description | Component code | Notes |
|---|---|---|
| Control Plugs | RGM25 | Pack of 10 spring loaded control plugs |

## Carlo Gavazzi further reading

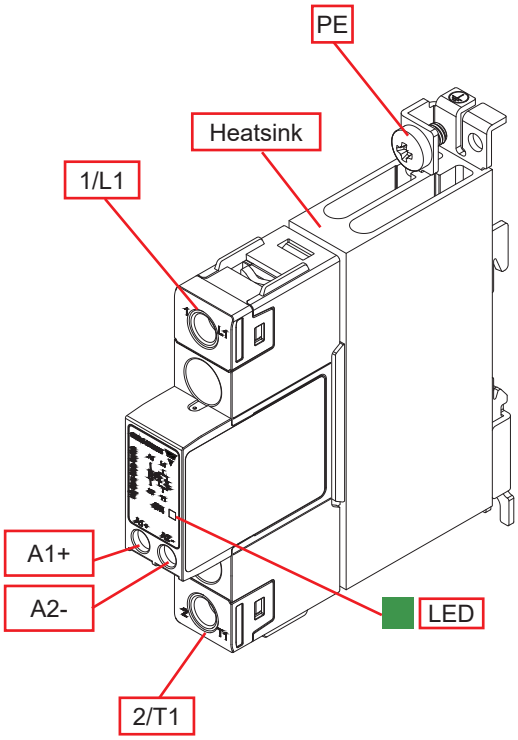
| Information | Where to find it | Notes |
|---|---|---|
| Datasheet | https://gavazziautomation.com/images/PIM/DATASHEET/ENG/rgc.pdf | Solid state contactor, RGC with 'E' - type configuration |
| Datasheet | https://gavazziautomation.com/images/PIM/DATASHEET/ENG/rgc_u.pdf | Solid state contactor, RGC with 'U' - type configuration |



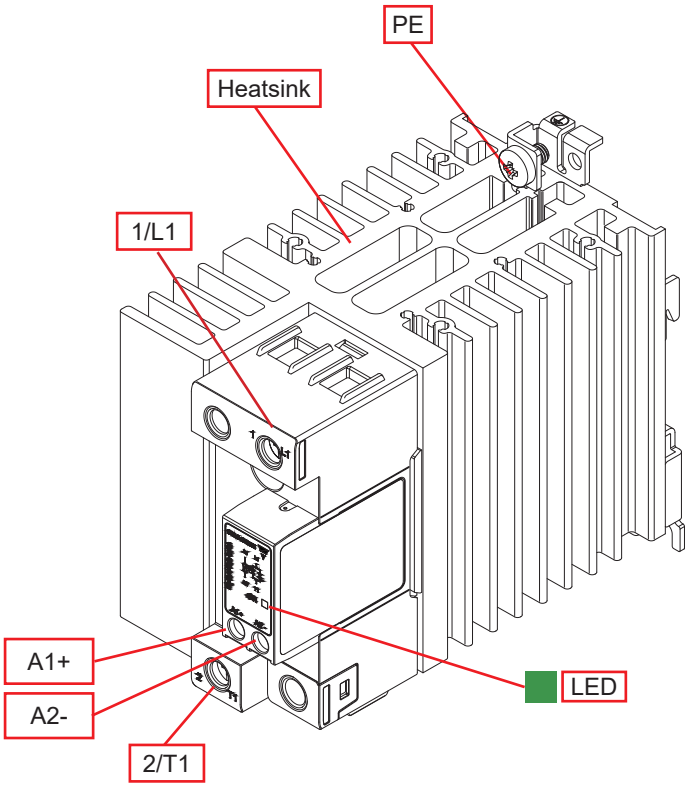
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# Structure

**RGH..KKE**




**RGH..KGE**




| Element | Component | Function |
|---|---|---|
| **1/L1** | Power connection | Mains connection |
| **2/T1** | Power connection | Load connection |
| **A1+, A2-** | Control connection | Terminals for control voltage |
| **LED** | ON indicator | Indicates presence of control voltage |
| **Heatsink** | Integrated heatsink | DIN rail mounting (panel mounting also possible) |
| **PE** | Protective Earth | Connection for Protective Earth, PE screw not provided with RGH |

Note: For U- type configuration please refer to Dimensions and Terminal layout sections.



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# Features

## General data

| | | |
|---|---|---|
| **Material** | PA66 or PA6 (UL94 V0), RAL7035<br>Glow wire ignition temperature and Glow wire flammability index conform to EN 60335-1 requirements | |
| **Mounting** | DIN rail (panel mount also possible) | |
| **Touch Protection** | IP20 | |
| **Overvoltage Category** | III, 6 kV (1.2/50 µs) rated impulse withstand voltage | |
| **Isolation** | Input and Output to Case:<br>Input to Output: | 4000 Vrms<br>4000 Vrms |
| **Weight** | RGH..15:<br>RGH..31:<br>RGH..41:<br>RGH..60: | approx. 260 g<br>approx. 375 g<br>approx. 515 g<br>approx. 972 g |

# Performance

## Output specifications

| | RGH..15 | RGH..31 | RGH..41 | RGH..60 |
|---|---|---|---|---|
| **Max. operational current[1]: AC-51 @ Ta=25°C** | 23 AAC | 30 AAC | 49 AAC | 75 AAC |
| **Max. operational current[1]: AC-51 @ Ta=40°C** | 23 AAC | 30 AAC | 40 AAC | 60 AAC |
| **Max. operational current[1,3]: AC-53a @ Ta=40°C** | 5 AAC | 10 AAC | 13 AAC | 18 AAC |
| **Operational frequency range** | 45 to 65 Hz | | | |
| **Output protection** | Integrated varistor[4] | | | |
| **Leakage current @ rated voltage** | <3 mAAC | | | |
| **Minimum operational current** | 400 mAAC | 400 mAAC | 400 mAAC | 400 mAAC |
| **Repetitive overload current (Motor rating) UL508: Ta=40°C, $t_{ON}$=1 s, $t_{OFF}$=9 s, 50 cycles** | 51 AAC | 84 AAC | 126 AAC | 144 AAC |
| **Non-repetitive surge current ($I_{TSM}$), t=10 ms** | 1150 Ap | 1150 Ap | 1150 Ap | 1150 Ap |
| **$I^2t$ for fusing (t=10 ms), min.** | 6600 $A^2s$ | 6600 $A^2s$ | 6600 $A^2s$ | 6600 $A^2s$ |
| **No. of motor starts per hour[2] (x=6, Tx=6s, F=50%) @ 40°C** | 30 | | | |
| **Power factor** | >0.5 at rated voltage | | | |
| **Critical dV/dt (@Tj init = 40°C)** | 1000 V/µs | | | |

1. Refer to Current derating curves
2. Overload profile for AC-53a;
   Ie: AC-53a: xIe-Tx: F-S, where Ie = nominal current (AC-53a AAC), xIe = overload current factor, Tx = duration of overload current (s), F = duty cycle (%), S =number of starts per hour. Example; 5A: AC-53a: 6 - 6 : 50 - 30 = max. 30 starts for the RGH..15 with an overload profile of 30A for 6 seconds with a duty cycle of 50%
3. The AC53a value depends on the specific overload profile and can change based on the overload characteristics. For example:
   the RGH..15 is rated with an AC53a rating of 16A for an overload profile of: 16A: AC53a: 5-1 : 50-10
   the RGH..31 is rated with an AC53a rating of 16A for an overload profile of: 16A: AC53a: 6-1 : 75-10
4. Varistor on output is not included in the RGH1A69...models



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## Output voltage specifications

| | RGH1A60.. | RGH1A69.. |
|---|---|---|
| **Operational voltage range** | 42-600 VAC,<br>+10% -15% on max | 42-690 VAC[5],<br>+10% -15% on max |
| **Blocking voltage** | 1600 Vp | |
| **Internal varistor** | 680 V | - |

5: 690 VAC refers to the line to line voltage

## Motor ratings: HP (UL508) / kW (EN/IEC 60947-4-2) @ 40°C

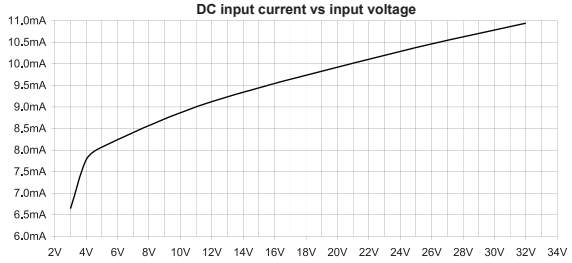
| | 115 VAC | 230 VAC | 400 VAC | 480 VAC | 600 VAC | 690 VAC |
|---|---|---|---|---|---|---|
| **RGH..15** | ⅓HP / 0.18kW | 1HP / 0.37kW | 2HP / 0.75kW | 3HP / 1.1kW | 3HP / 1.5kW | - / 1.5kW |
| **RGH..31** | ¾HP / 0.37kW | 2HP / 1.1kW | 3HP / 1.5kW | 5HP / 2.2kW | 5HP / 3.7kW | - / 3.7kW |
| **RGH..41** | 1½HP / 0.56kW | 3HP / 1.5kW | 5HP / 2.2kW | 7½HP / 3.7kW | 10HP / 4kW | - / 4kW |
| **RGH..60** | 2HP / 0.75kW | 3HP / 1.5kW | 5HP / 4kW | 7½HP / 4kW | 10HP / 5.5kW | - / 5.5kW |

## Inputs

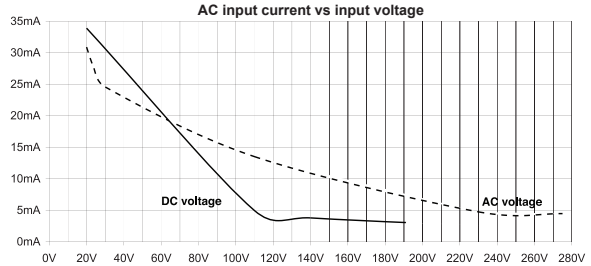
| | RGH..D.. | RGH..A.. |
|---|---|---|
| **Control voltage range** | 4 - 32 VDC | 20-275 VAC,<br>24 (-10%) -190 VDC |
| **Pick-up voltage** | 3.8 VDC | 20 VAC/DC |
| **Drop-out voltage** | 1.0 VDC | 5 VAC/DC |
| **Maximum reverse voltage** | 32 VDC | - |
| **Maximum response time** | 0.5 cycle + 500 µs @ 24 VDC | 2 cycles @ 230 VAC/110 VDC |
| **Response time drop-out** | 0.5 cycle + 500 µs @ 24 VDC | 0.5 cycle + 40 ms<br>@ 230 VAC/110 VDC |
| **Input current @ 40°C** | See diagrams below | |

## Input current vs. input voltage

### RGH..D



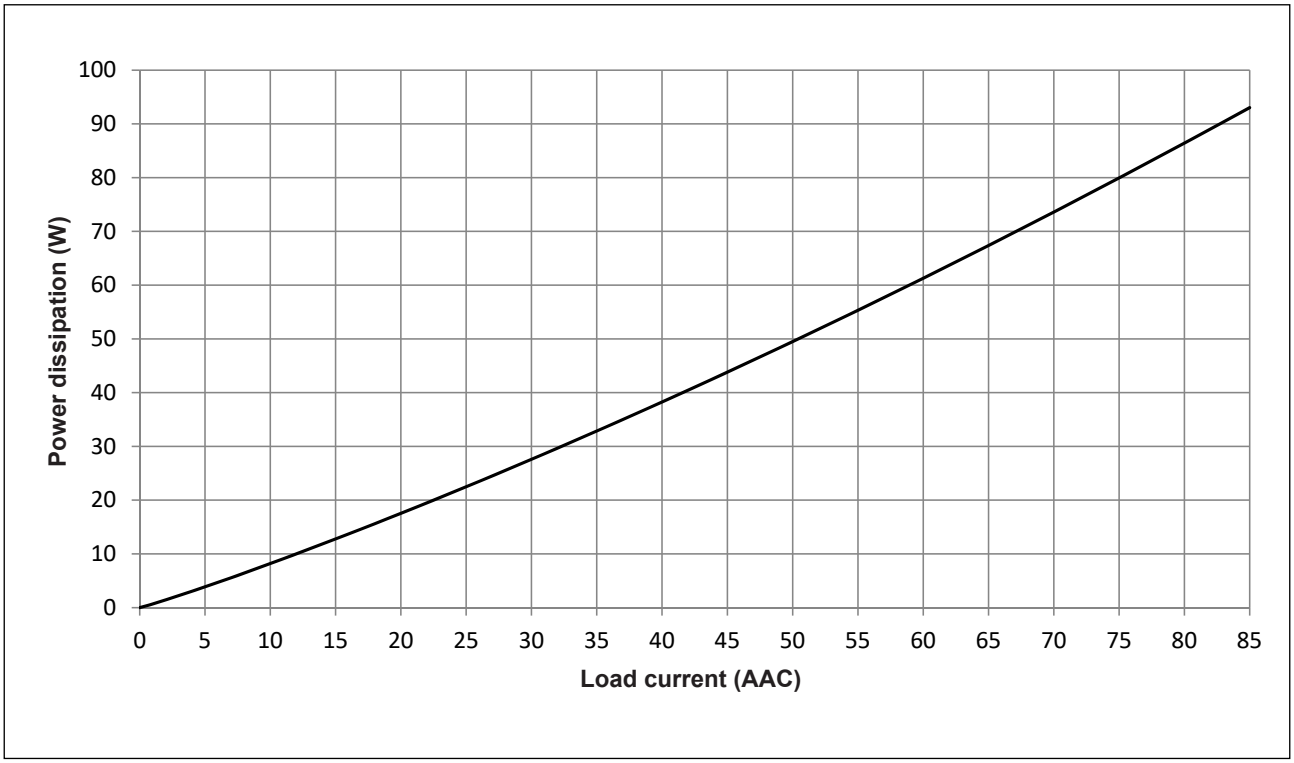

### RGH..A



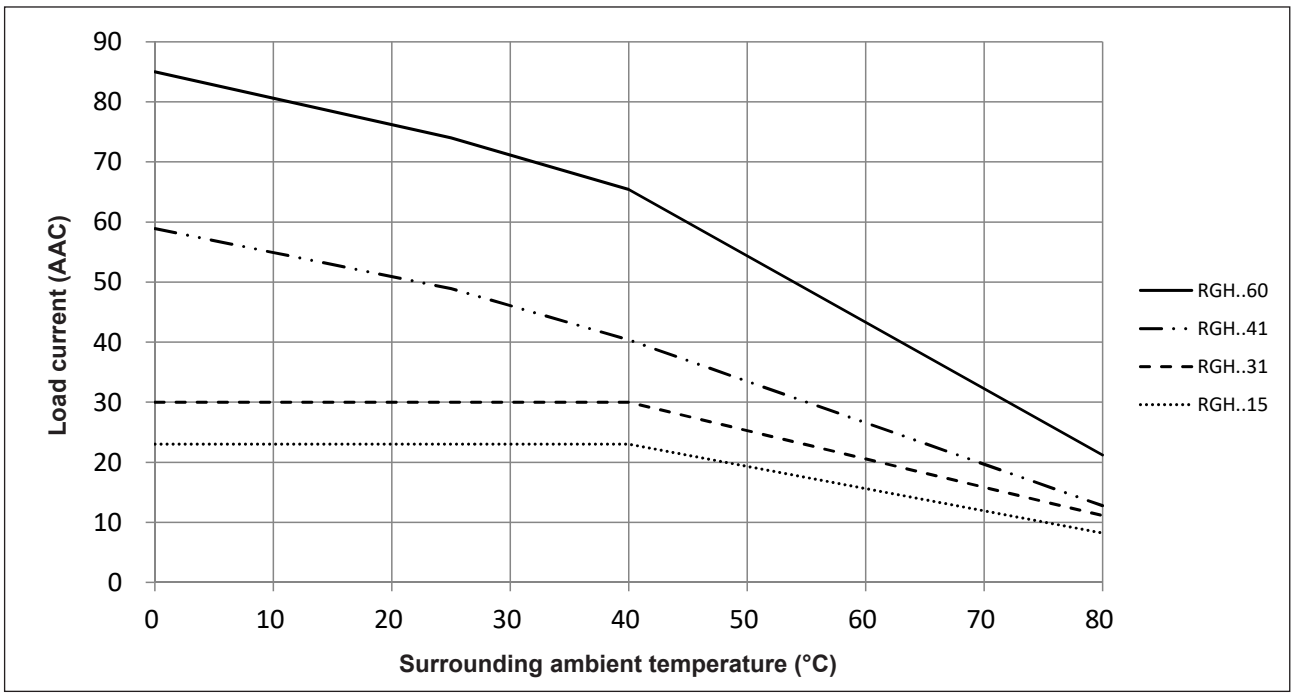



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## Output power dissipation




## Current derating

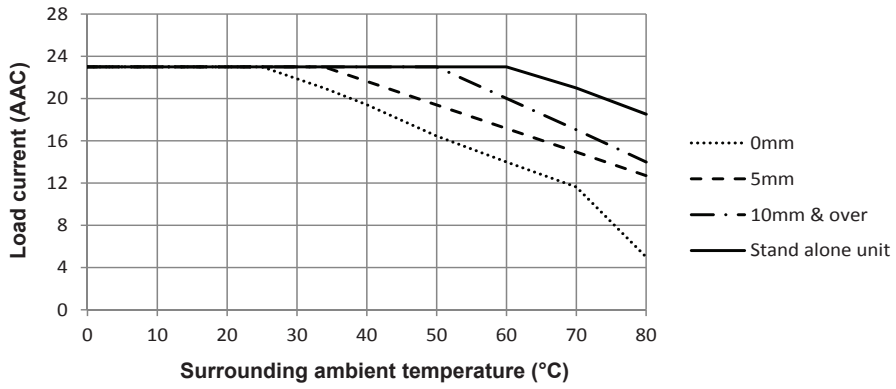




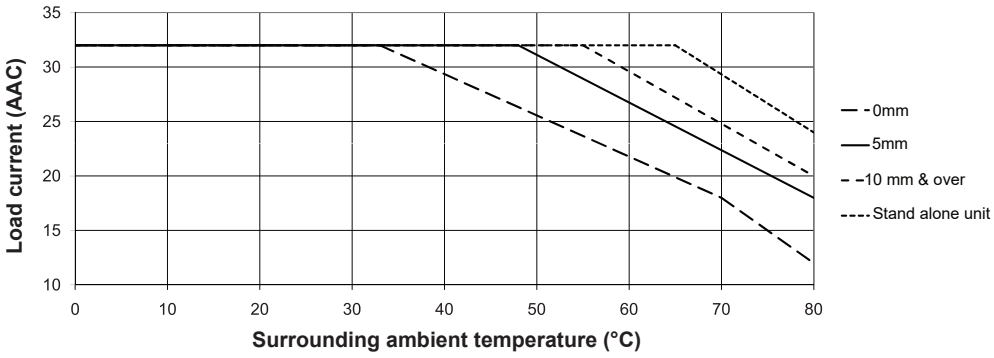

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## Derating vs. spacing curves

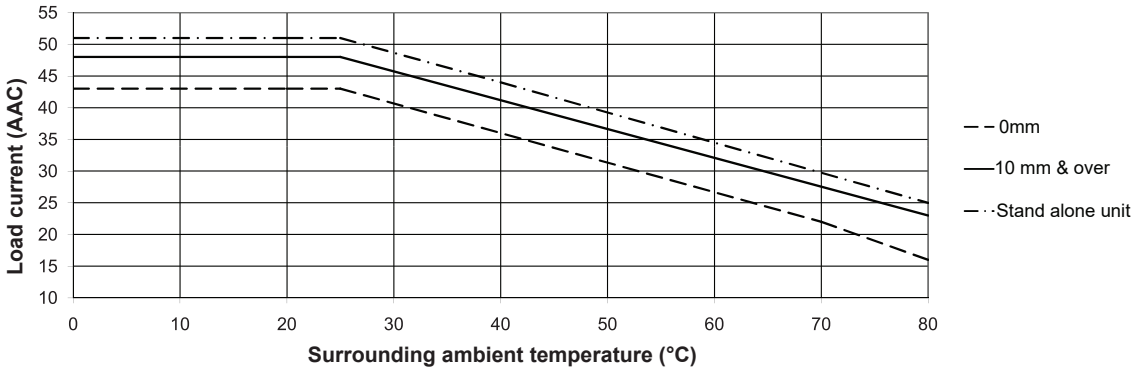
### RGH..15..



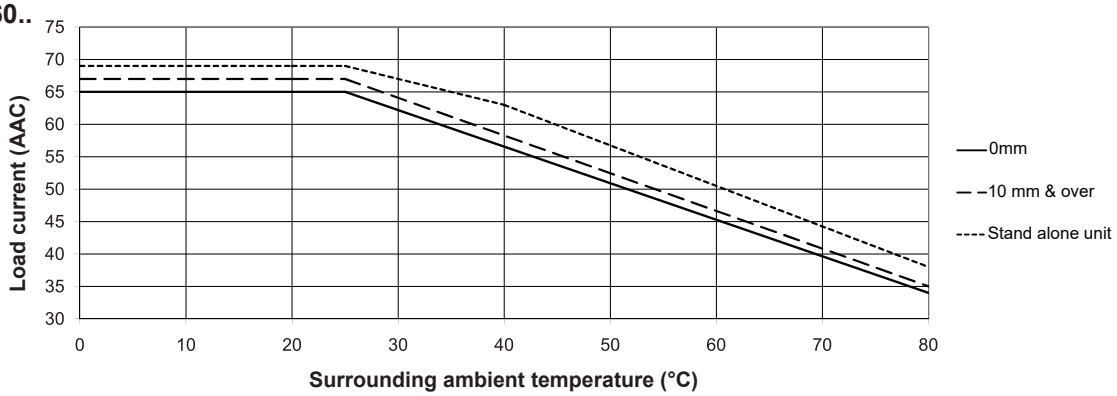

### RGH..31..




### RGH..41..




### RGH..60..






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## Compatibility and conformance

| | |
|---|---|
| **Approvals** | CE[6] cULus LISTED, DVE, EAC, UKCA |
| **Standards compliance** | LVD: EN/IEC 60947-4-2, EN/IEC 60947-4-3<br>EMCD: EN/IEC 60947-4-3<br>EE: EN 60947-4-3<br>EMC: EN 60947-4-3<br>UL: UL508 (E172877), NMFT<br>cUL: C22.2 No. 14 (E172877), NMFT7<br>VDE: VDE 0660-109 |
| **UL short circuit current rating** | 100 kArms (refer to short circuit current section, Type 1 – UL508) |

6: 690 VAC version is CE marked only

| **Electromagnetic compatibility (EMC) - Immunity** | |
|---|---|
| **Electrostatic discharge (ESD)** | EN/IEC 61000-4-2<br>8 kV air discharge, 4 kV contact (PC1) |
| **Radiated radio frequency** | EN/IEC 61000-4-3<br>10 V/m, from 80 MHz to 1 GHz (PC1)<br>10 V/m, from 1.4 to 2 GHz (PC1)<br>10 V/m, from 2 to 2.7 GHz (PC1) |
| **Electrical fast transient (burst)** | EN/IEC 61000-4-4<br>Output: 2 kV, 5 kHz (PC1)<br>Input: 1 kV, 5 kHz (PC1) |
| **Conducted radio frequency** | EN/IEC 61000-4-6<br>10 V/m, from 0.15 to 80 MHz (PC1) |
| **Electrical surge[7]** | EN/IEC 61000-4-5<br>Output, line to line: 1 kV (PC1)<br>Output, line to earth: 2 kV (PC1)<br>Input, line to line, 1kV (PC2)<br>Input, line to earth, 2kV (PC2) |
| **Voltage dips** | EN/IEC 61000-4-11<br>0% for 0.5, 1 cycle (PC2)<br>40% for 10 cycles (PC2)<br>70% for 25 cycles (PC2)<br>80% for 250 cycles (PC2) |
| **Voltage interruptions** | EN/IEC 61000-4-11<br>0% for 5000 ms (PC2) |

7: An external varistor, S20K750, needs to be connected across the mains supply for the RGH1A69.. models

| **Electromagnetic compatibility (EMC) - Emissions** | |
|---|---|
| **Radio interference field emission (radiated)** | EN/IEC 55011<br>Class A: from 30 to 1000 MHz |
| **Radio interference voltage emissions (conducted)** | EN/IEC 55011<br>Class A: from 0.15 to 30 MHz<br>(External filter may be required - refer to Filtering section) |

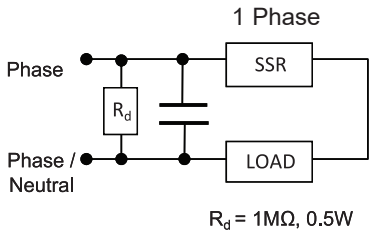


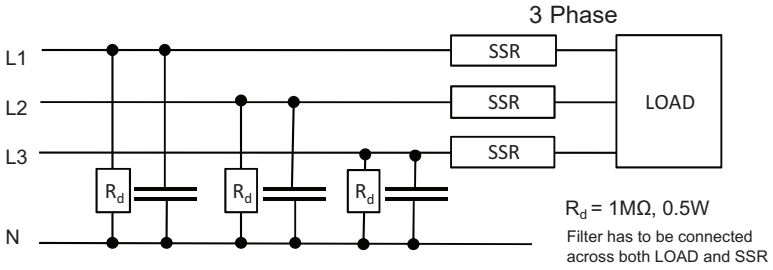
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## Additional conformance to railway standards

| | |
|---|---|
| **Applicable to variants** | RGH |
| **Additional conformance specific to railway applications** | EN 50155<br>EN 45545-2<br>EN 50121-3-2 |
| **Hazardous level conformance according to EN 45545-2** | HL1, HL2 for requirement R23<br>HL1 for requirement R22 |
| **Operating temperature class according to EN 50155** | OT3 (-25 °C to +70 °C ) |
| **Vibration and shock** | EN 61373 Category 1, Class B |
| **Additional EMC conformance** | accoding to EN 50121-3-2 |
| **Radiated radio frequency immunity** | EN/IEC 61000-4-3<br>20 V/m, from 80 MHz to 1 GHz (PC1)<br>10 V/m, from 1.4 to 2 GHz (PC1)<br>5 V/m, from 2 to 2.7 GHz (PC1)<br>3 V/m, 5.1 - 6 GHz (PC1) |
| **Power quality measurement** | EN/IEC 61000-4-30<br>50 Hz - 2 kHz, <8% THD (PASS) |

## Filter connection diagram




## Filtering

| Part number | Suggested filter for EN 55011 Class A compliance | Maximum heater current |
|---|---|---|
| RGH1A60..15 | 220 nF / 760V / X1 | 20 AAC |
| RGH1A60..31 | 220 nF / 760V / X1 | 30 AAC |
| RGH1A60..41 | 330 nF / 760V / X1 | 40 AAC |
| RGH1A60..60 | 330 nF / 760V / X1<br>680 nF / 760V / X1 | 40 AAC<br>65 AAC |

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.
- This product has been designed for Class A equipment. Use of this product in domestic environments may cause radio interference, in which case the user may be required to employ additional mitigation methods.

- Performance Criteria 1 (PC1): No degradation of performance or loss of function is allowed when the product is operated as intended.
- Performance Criteria 2 (PC2): 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 (PC3): Temporary loss of function is allowed, provided the function can be restored by manual operation of the controls.



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## Environmental specifications

| | |
|---|---|
| **Operating temperature** | -40°C to +80°C (-40°F to +176°F) |
| **Storage temperature** | -40°C to +100°C (-40°F to +212 °F) |
| **Relative humidity** | 95% non-condensing @ 40°C |
| **Pollution degree** | 2 |
| **Installation altitude** | 0-1000 m. Above 1000 m derate linearly by 1% of FLC per 100 m up to a maximum of 2000 m |
| **Vibration resistance** | 2g / axis (2-100Hz, IEC 60068-2-6, EN 50155, EN 61373) |
| **Impact resistance** | 15/11 g/ms (EN 50155, EN 61373) |
| **EU RoHS compliant** | Yes |
| **China RoHS** |  |

The declaration in this section is prepared in compliance with People's Republic of China Electronic Industry Standard SJ/T11364-2014: Marking for the Restricted Use of Hazardous Substances in Electronic and Electrical Products.

| **Part Name** | **Toxic or Harardous Substances and Elements** | | | | | |
|---|---|---|---|---|---|---|
| | Lead (Pb) | Mercury (Hg) | Cadmium (Cd) | Hexavalent Chromium (Cr(VI)) | Polybrominated biphenyls (PBB) | Polybrominated diphenyl ethers (PBDE) |
| **Power Unit Assembly** | x | O | O | O | O | O |

O: Indicates that said hazardous substance contained in homogeneous materials fot this part are below the limit requirement of GB/T 26572.

X: Indicates that said hazardous substance contained in one of the homogeneous materials used for this part is above the limit requirement of GB/T 26572.

这份申明根据中华人民共和国电子工业标准
SJ/T11364-2014：标注在电子电气产品中限定使用的有害物质

| 零件名称 | 有毒或有害物质与元素 | | | | | |
|---|---|---|---|---|---|---|
| | 铅 (Pb) | 汞 (Hg) | 镉 (Cd) | 六价铬 (Cr(VI)) | 多溴化联苯 (PBB) | 多溴联苯醚 (PBDE) |
| 功率单元 | x | O | O | O | O | O |

O:此零件所有材料中含有的该有害物低于GB/T 26572的限定。

X: 此零件某种材料中含有的该有害物高于GB/T 26572的限定。



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## 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 100,000 Arms Symmetrical Amperes, 600 Volts maximum when protected by fuses. Tests at 100,000 A 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.

| Protection co-ordination Type 1 according to UL 508 | | | | |
|---|---|---|---|---|
| **Part No.** | **Prospective short circuit current [kArms]** | **Max fuse size [A]** | **Class** | **Voltage [VAC]** |
| RGH1A60..15 | 100 | 30 | J or CC | Max. 600 |
| RGH1A60..31 | | | | |
| RGH1A60..41 | | 40 | J | |
| RGH1A60..60 | | | | |

| Protection co-ordination Type 2 (IEC/EN 60947-4-2/ -4-3) | | | | | | |
|---|---|---|---|---|---|---|
| **Part No.** | **Prospective short circuit current [kArms]** | **Ferraz Shawmut (Mersen)** | | **Siba** | | **Max. voltage [VAC]** |
| | | **Max fuse size [A]** | **Part number** | **Max fuse size [A]** | **Part number** | |
| RGH1A60..15 | 100 | 100 | A70QS100-4 | 100 | 50 194 20.100 | 660 |
| RGH1A60..31 | | | | | | |
| RGH1A60..41 | | | | | | |
| RGH1A60..60 | | | | | | |
| RGH1A69..41 | | | A100P50-4 | | 50 197 20.100 | 759 |
| RGH1A69..60 | | | - | | | |



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| Protection co-ordination Type 2 with Minature 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$^2$]** | **Minimum length of Cu wire conductor [m][8]** |
| RGH..15<br>RGH..31<br>RGH..41<br>RGH..60<br>(6600 A$^2$s) | S201 - Z20 (20A) | S201-B10 (10A) | 1.5<br>2.5<br>4.0 | 4.2<br>7.0<br>11.2 |
| | S201 - Z32 (32A) | S201-B16 (16A) | 2.5<br>4.0<br>6.0 | 13.0<br>20.8<br>31.2 |
| | S202 - Z20 (20A) | S202-B10 (10A) | 1.5<br>2.5<br>4.0 | 1.8<br>3.0<br>4.8 |
| | S202 - Z32 (32A) | S202-B16 (16A) | 2.5<br>4.0<br>6.0<br>10.0 | 5.0<br>8.0<br>12.0<br>20.0 |
| | S202 - Z50 (50A) | S202-B25 (25A) | 4.0<br>6.0<br>10.0 | 14.8<br>22.2<br>37.0 |

8. Between MCB and Load (including return path which goes back to the mains)

Note: A prospective current of 6 kA and a 230/400 V power supply 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.

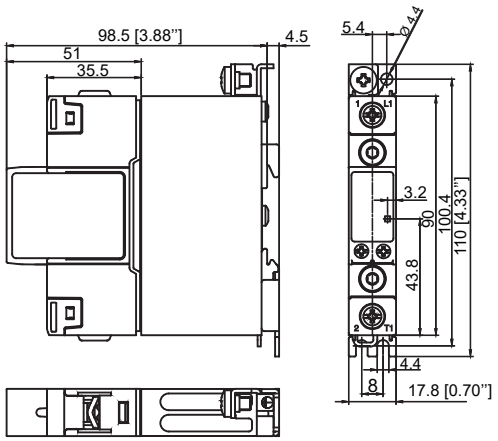
S201 models refer to 1-pole M.C.B., S202 models refer to 2-poles M.C.B.



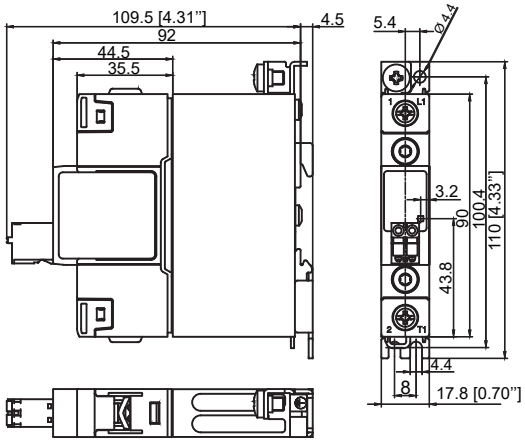
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## Dimensions

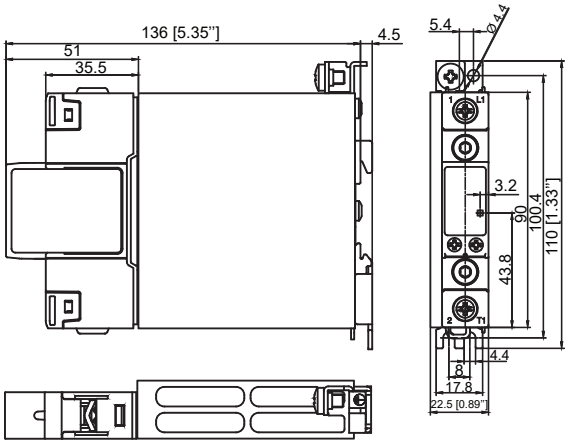
### RGH1A..15KKE



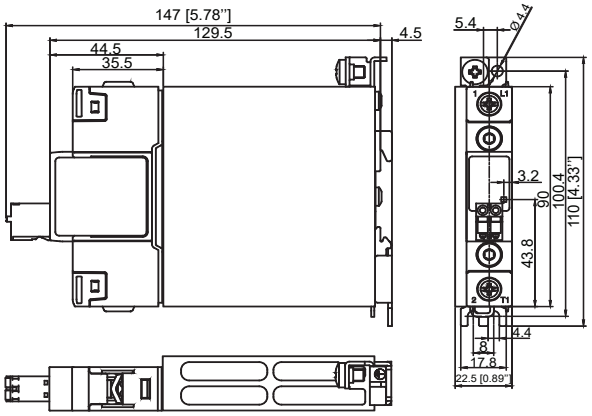

### RGH1A..15MKE



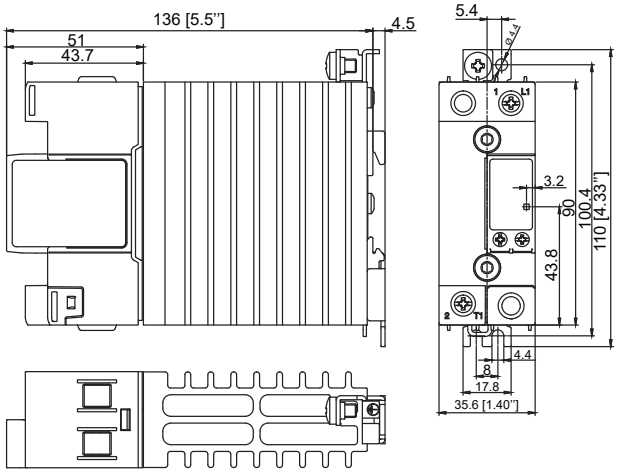

### RGH1A..31KKE



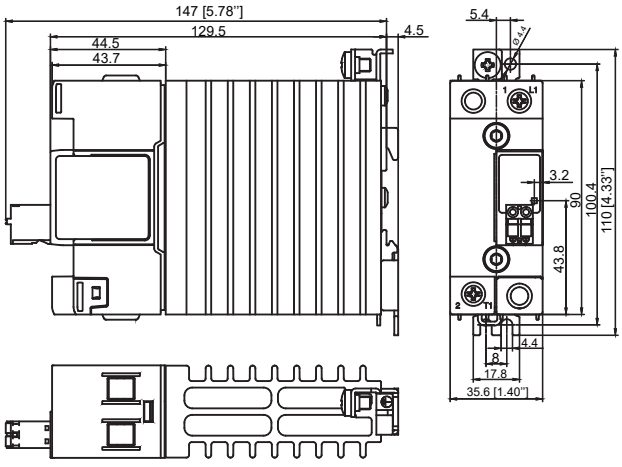

### RGH1A..31MKE




### RGH1A..41KGE




### RGH1A..41MGE



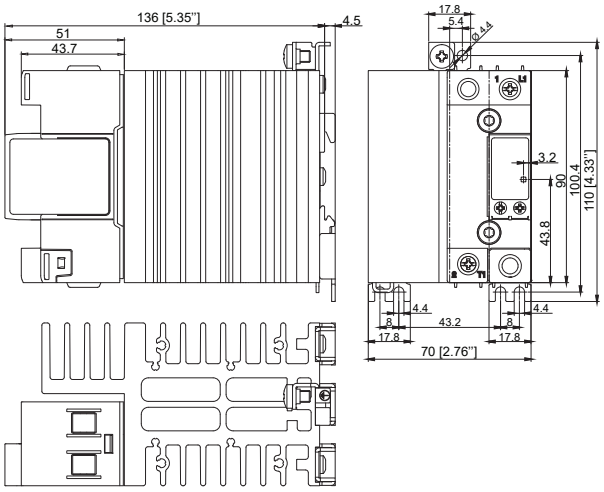

Housing width tolerance +0.5mm, -0mm as per DIN 43880. All other tolerances +/- 0.5mm.
Dimensions in mm.



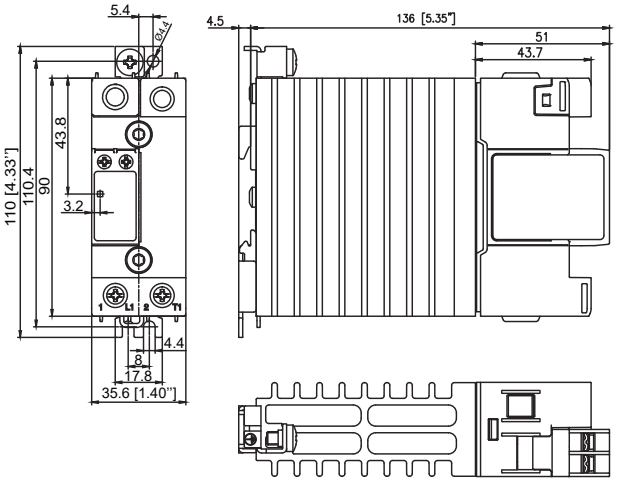
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## Dimensions - continued

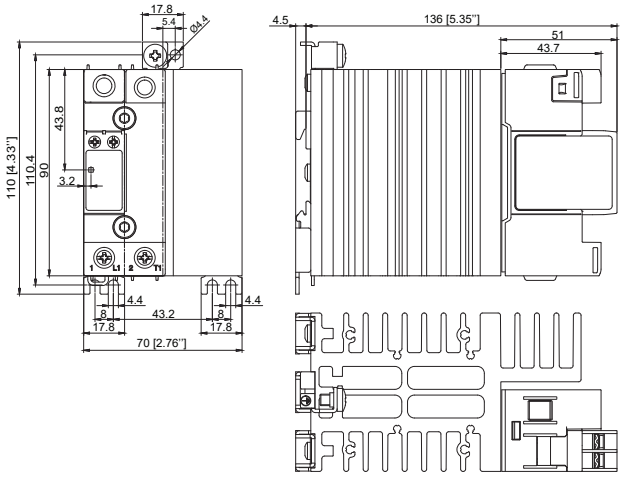
### RGC..60KGE




### RGH1A...41KGU




### RGH1A...60KGU

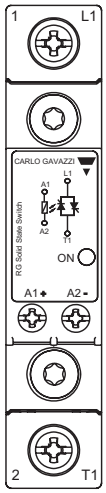



Housing width tolerance +0.5mm, -0mm as per DIN 43880. All other tolerances +/- 0.5mm.
Dimensions in mm.

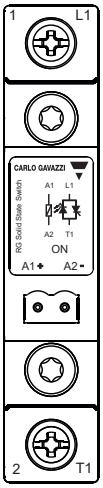


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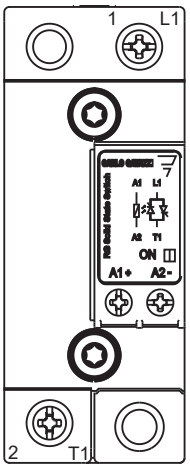
## Terminal layout



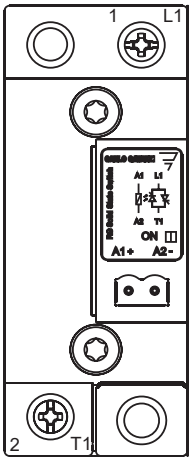

RGH1A..15KKE,
RGH1A..31KKE



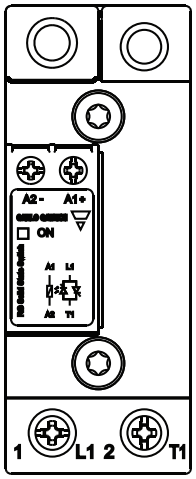

RGH1A..15MKE,
RGH1A..31MKE




RGH1A...41KGE,
RGH1A...60KGE



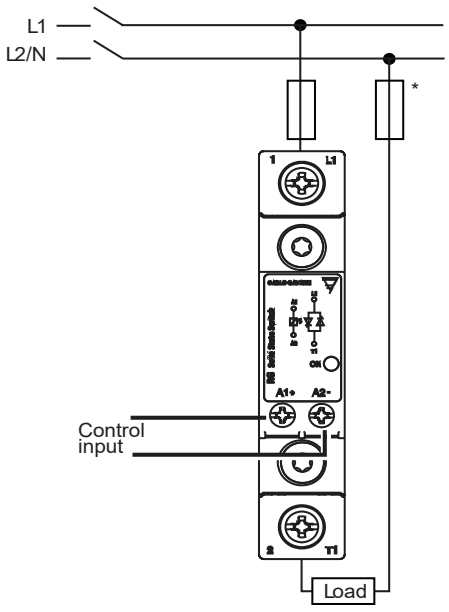

RGH1A...41MGE




RGH1A...41KGU,
RGH1A...60KGU

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

## Connection diagram



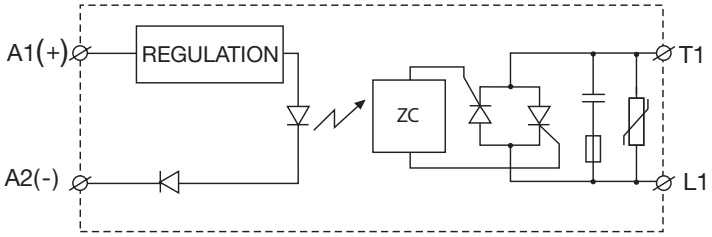

* depends on system requirements

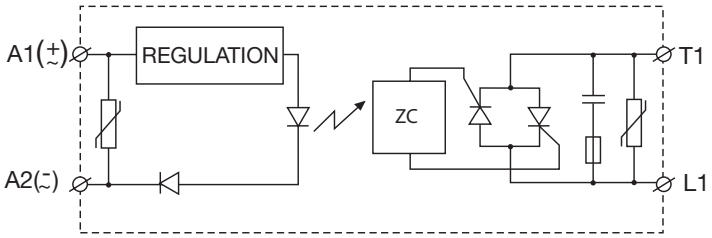


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## Functional diagram

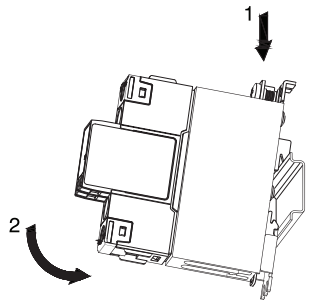
**DC control**



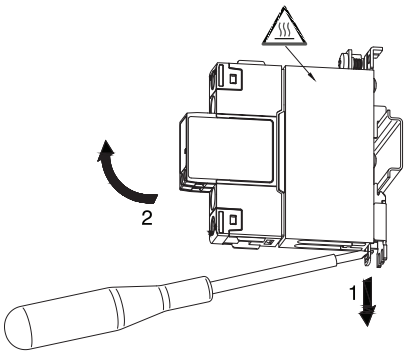




Note: Varistor on output is not included in the RGH1A69...models

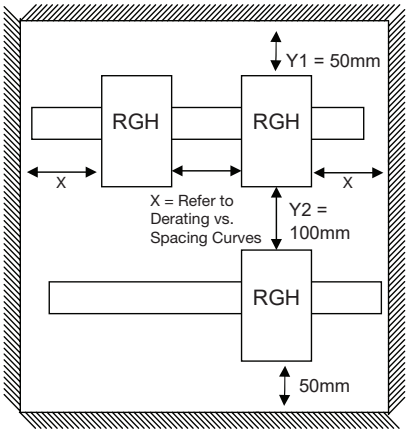
## Installation




Mounting on DIN rail



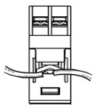
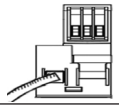

Dismounting from DIN rail

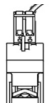





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# Connection Specifications

| Power connections | | | |
|---|---|---|---|
| **Terminals** | 1/L1, 2/T1 | | |
| **Conductors** | Use 75°C copper (Cu) conductors | | |
| | RGH..KKE, RGH..MKE | | RGH..KGE, RGH..MGE, RGH..KGU |
| |  |  |  |
| **Connection type** | M4 screw with captivated washer | | M5 screw with box clamp |
| **Stripping length** | 12 mm | | 11 mm |
| **Rigid (solid & stranded) UL/cUL rated data** | 2x 2.5 – 6.0 mm²<br>2x 14 – 10 AWG | 1x 2.5 – 6.0 mm²<br>1x 14 – 10 AWG | 1x 2.5 – 25.0 mm²<br>1x 14 – 3 AWG |
| **Flexible with end sleeve** | 2x 1.0 – 2.5 mm²<br>2x 2.5 – 4.0 mm²<br>2x 18 – 14 AWG<br>2x 14 – 12 AWG | 1x 1.0 – 4.0 mm²<br>1x 18 – 12 AWG | 1x 2.5 – 16.0 mm²<br>1x 14 – 6 AWG |
| **Flexible without end sleeve** | 2x 1.0 – 2.5 mm²<br>2x 2.5 – 6.0 mm²<br>2x 18 – 14 AWG<br>2x 14 – 10 AWG | 1x 1.0 – 6.0mm²<br>1x 18 –10 AWG | 1x 4.0 – 25.0 mm²<br>1x 12 – 3 AWG |
| **Torque specifications** | Posidrive bit 2<br>UL: 2.0 Nm (17.7 lb-in)<br>IEC: 1.5 – 2.0 Nm (13.3 – 17.7 lb-in) | | Posidrive bit 2<br>UL: 2.0 Nm (17.7 lb-in)<br>IEC: 2.0 – 2.5 Nm (13 – 17.7 lb-in) |
| **Aperture for termination lug (fork or ring)** | 12.3 mm | | n/a |
| **Protective Earth (PE) connection** | M5, 1.5 Nm (13.3 lb-in)<br>M5 PE screw is not provided with the solid state relay. PE connection is required when product is intended to be used in Class 1 applications according to EN/IEC 61140 | | |

| Control connections | | | |
|---|---|---|---|
| **Terminals** | A1+, A2- | | |
| **Conductors** | Use 60/75°C copper (Cu) conductors | | |
| | RGH..KKE, RGH..KGE, RGH..KGU<br>screw control terminal | | RGH..MKE, RGH..MGE<br>spring plug control terminal |
| |  |  |  |
| **Connection type** | M3 screw with captivated washer | | Spring loaded |
| **Stripping length** | 8 mm | | 12-13 mm |
| **Rigid (solid & stranded) UL/cUL rated data** | 2x 0.5 - 2.5 mm²<br>2x 18 - 12 AWG | 1x 0.5 - 2.5 mm²<br>1x 18 - 12 AWG | 1x 0.2 - 2.5 mm²<br>1x 24 - 12 AWG |
| **Flexible with end sleeve** | 2x 0.5 - 2.5 mm²<br>2x 18 - 12 AWG | 1x 0.5 - 2.5 mm²<br>1x 18 - 12 AWG | |
| **Torque specification** | Posidrive 1<br>UL: 0.5 Nm (4.4 lb-in),<br>IEC: 0.4-0.5 Nm (3.5 - 4.4 lb-in) | | |



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## Bulk packaging option



- Packing qty.: 20 pcs.
- Total weight: 4.75 kg

Applicable only to RGH..15



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