

## Solid State Relays GQ and GRSH Series



**GQ-25-24-D-1-3**



**GRSH-25-60-A-5-0**



**GRSH-120-60-A-5-61**

### Features GQ Series

- Alternating current solid state relay
- Zero crossing switching
- In 15, 25, 50, 75, and 90 Arms contact ratings
- Nominal voltage up to 600VAC
- SCCR 100kA
- Isolation (input-output) 4000 Vrms
- Green LED drive active signal
- Thermal pad included
- IP20 finger-safe protection rating

### Main Applications

- Packaging machinery
- Thermoforming
- Plastic extrusion lines
- Industrial ovens and furnaces
- Control application with high switching speed

### Features GRSH Series

- In 15A to 120A contact ratings
- DIN rail and panel mounting
- Zero crossing switching
- Input command from DC/AC logic signal with push-in connectors; signaling LEDs
- Cage clamps for power cables
- Load voltage 480VAC, 600VAC
- SCCR 100kA
- Thermal alarm option with led and alarm output
- Interrupted load option with led and alarm output
- Internal overvoltage protection
- P20 finger-safe protection rating

### Main Applications

- Extrusion, injection, blow molding, thermoforming of plastics
- Vulcanization of rubber
- Synthetic fiber production and polymerization
- Packing and packaging
- Dryers for ceramics and building elements
- Industrial electric ovens
- Food processing plants
- Chemical and pharmaceutical industry

## Overview

A solid state relay is a relay with an isolated input and output, whose functions are achieved by using electronic components without the use of moving parts (vs. electromechanical relays).

## Operation

Solid state relays (SSR) are similar to electromechanical relays, in that both use a control circuit and a separate circuit for switching the load. When voltage is applied to the input of the SSR, the relay is energized by a light-emitting diode. The light from the diode is beamed into a light sensitive semiconductor which, in the case of zero voltage crossover relays, signals the control circuit to turn on the output of the solid state switch at the next zero voltage crossover.

## Solid State Relays GRSH Series 15-40A Models

| Solid State Relays Selection Table GRSH Series 15-40A Models |           |                |              |               |                                 |             |                     |
|--------------------------------------------------------------|-----------|----------------|--------------|---------------|---------------------------------|-------------|---------------------|
| Part Number                                                  | Price     | Contact Rating | Load Voltage | Input Voltage | Alarm Contact                   | Weight (lb) | Drawing Link        |
| <a href="#">GRSH-15-48-D-0-0</a>                             | \$67?o:   | 15A            | 24-480 VAC   | 6-32 VDC      | —                               | 0.22        | <a href="#">PDF</a> |
| <a href="#">GRSH-15-48-A-0-0</a>                             | \$67?p:   | 15A            | 24-480 VAC   | 20-260 VAC    | —                               |             | <a href="#">PDF</a> |
| <a href="#">GRSH-15-48-D-2-0</a>                             | \$67?q:   | 15A            | 24-480 VAC   | 6-32 VDC      | Thermal/load interruption alarm |             | <a href="#">PDF</a> |
| <a href="#">GRSH-15-48-A-5-0</a>                             | \$67?s:   | 15A            | 24-480 VAC   | 20-260 VAC    | Thermal alarm                   |             | <a href="#">PDF</a> |
| <a href="#">GRSH-15-60-D-0-0</a>                             | \$,67?t:  | 15A            | 24-600 VAC   | 6-32 VDC      | —                               |             | <a href="#">PDF</a> |
| <a href="#">GRSH-15-60-A-0-0</a>                             | \$67?u:   | 15A            | 24-600 VAC   | 20-260 VAC    | —                               |             | <a href="#">PDF</a> |
| <a href="#">GRSH-15-60-D-2-0</a>                             | \$67?v:   | 15A            | 24-600 VAC   | 6-32 VDC      | Thermal/load interruption alarm |             | <a href="#">PDF</a> |
| <a href="#">GRSH-15-60-A-5-0</a>                             | \$67?x:   | 15A            | 24-600 VAC   | 20-260 VAC    | Thermal alarm                   |             | <a href="#">PDF</a> |
| <a href="#">GRSH-25-48-D-0-0</a>                             | \$67?y:   | 25A            | 24-480 VAC   | 6-32 VDC      | —                               |             | <a href="#">PDF</a> |
| <a href="#">GRSH-25-48-A-0-0</a>                             | \$67?z:   | 25A            | 24-480 VAC   | 20-260 VAC    | —                               |             | <a href="#">PDF</a> |
| <a href="#">GRSH-25-48-D-2-0</a>                             | ,\$67?]:  | 25A            | 24-480 VAC   | 6-32 VDC      | Thermal/load interruption alarm |             | <a href="#">PDF</a> |
| <a href="#">GRSH-25-48-A-5-0</a>                             | ,\$67?[:  | 25A            | 24-480 VAC   | 20-260 VAC    | Thermal alarm                   |             | <a href="#">PDF</a> |
| <a href="#">GRSH-25-60-D-0-0</a>                             | \$67?_:   | 25A            | 24-600 VAC   | 6-32 VDC      | —                               |             | <a href="#">PDF</a> |
| <a href="#">GRSH-25-60-A-0-0</a>                             | \$67?#:   | 25A            | 24-600 VAC   | 20-260 VAC    | —                               |             | <a href="#">PDF</a> |
| <a href="#">GRSH-25-60-D-2-0</a>                             | ,\$67?!:  | 25A            | 24-600 VAC   | 6-32 VDC      | Thermal/load interruption alarm |             | <a href="#">PDF</a> |
| <a href="#">GRSH-25-60-A-5-0</a>                             | \$067??:  | 25A            | 24-600 VAC   | 20-260 VAC    | Thermal alarm                   | 0.36        | <a href="#">PDF</a> |
| <a href="#">GRSH-30-48-D-0-0</a>                             | ,\$67?,:: | 30A            | 24-480 VAC   | 6-32 VDC      | —                               |             | <a href="#">PDF</a> |
| <a href="#">GRSH-30-48-A-0-0</a>                             | ,\$067,0: | 30A            | 24-480 VAC   | 20-260 VAC    | —                               |             | <a href="#">PDF</a> |
| <a href="#">GRSH-30-48-D-2-0</a>                             | ,\$067,1: | 30A            | 24-480 VAC   | 6-32 VDC      | Thermal/load interruption alarm |             | <a href="#">PDF</a> |
| <a href="#">GRSH-30-48-A-5-0</a>                             | ,\$067,2: | 30A            | 24-480 VAC   | 20-260 VAC    | Thermal alarm                   |             | <a href="#">PDF</a> |
| <a href="#">GRSH-30-60-D-0-0</a>                             | ,\$680!:  | 30A            | 24-600 VAC   | 6-32 VDC      | —                               |             | <a href="#">PDF</a> |
| <a href="#">GRSH-30-60-A-0-0</a>                             | ,\$067,d: | 30A            | 24-600 VAC   | 20-260 VAC    | —                               |             | <a href="#">PDF</a> |
| <a href="#">GRSH-30-60-D-2-0</a>                             | ,\$067,e: | 30A            | 24-600 VAC   | 6-32 VDC      | Thermal/load interruption alarm |             | <a href="#">PDF</a> |
| <a href="#">GRSH-30-60-A-5-0</a>                             | \$0680?:  | 30A            | 24-600 VAC   | 20-260 VAC    | Thermal alarm                   |             | <a href="#">PDF</a> |
| <a href="#">GRSH-40-48-D-0-0</a>                             | ,\$67,g:  | 40A            | 24-480 VAC   | 6-32 VDC      | —                               | 0.42        | <a href="#">PDF</a> |
| <a href="#">GRSH-40-48-A-0-0</a>                             | ,\$067,3: | 40A            | 24-480 VAC   | 20-260 VAC    | —                               |             | <a href="#">PDF</a> |
| <a href="#">GRSH-40-48-D-2-0</a>                             | ,\$067,4: | 40A            | 24-480 VAC   | 6-32 VDC      | Thermal/load interruption alarm |             | <a href="#">PDF</a> |
| <a href="#">GRSH-40-48-A-5-0</a>                             | ,\$067,5: | 40A            | 24-480 VAC   | 20-260 VAC    | Thermal alarm                   |             | <a href="#">PDF</a> |
| <a href="#">GRSH-40-60-D-0-0</a>                             | ,\$067,6: | 40A            | 24-600 VAC   | 6-32 VDC      | —                               |             | <a href="#">PDF</a> |
| <a href="#">GRSH-40-60-A-0-0</a>                             | ,\$067,7: | 40A            | 24-600 VAC   | 20-260 VAC    | —                               |             | <a href="#">PDF</a> |
| <a href="#">GRSH-40-60-D-2-0</a>                             | ,\$067,8: | 40A            | 24-600 VAC   | 6-32 VDC      | Thermal/load interruption alarm |             | <a href="#">PDF</a> |
| <a href="#">GRSH-40-60-A-5-0</a>                             | ,\$067,9: | 40A            | 24-600 VAC   | 20-260 VAC    | Thermal alarm                   |             | <a href="#">PDF</a> |

## Solid State Relays GRSH Series 50-75A Models

| Solid State Relays Selection Table GRSH Series 50-75A Models |           |                |              |               |                                 |             |                     |
|--------------------------------------------------------------|-----------|----------------|--------------|---------------|---------------------------------|-------------|---------------------|
| Part Number                                                  | Price     | Contact Rating | Load Voltage | Input Voltage | Alarm Contact                   | Weight (lb) | Drawing Link        |
| <a href="#">GRSH-50-48-D-0-0</a>                             | \$,067,a: | 50A            | 24-480 VAC   | 6-32 VDC      | —                               | 0.42        | <a href="#">PDF</a> |
| <a href="#">GRSH-50-48-A-0-0</a>                             | \$,067,b: | 50A            | 24-480 VAC   | 20-260 VAC    | —                               |             | <a href="#">PDF</a> |
| <a href="#">GRSH-50-48-D-2-0</a>                             | \$,067,c: | 50A            | 24-480 VAC   | 6-32 VDC      | Thermal/load interruption alarm |             | <a href="#">PDF</a> |
| <a href="#">GRSH-50-48-A-5-0</a>                             | \$,067,f: | 50A            | 24-480 VAC   | 20-260 VAC    | Thermal alarm                   |             | <a href="#">PDF</a> |
| <a href="#">GRSH-50-60-D-0-0</a>                             | \$,067,h: | 50A            | 24-600 VAC   | 6-32 VDC      | —                               |             | <a href="#">PDF</a> |
| <a href="#">GRSH-50-60-A-0-0</a>                             | \$,067,o: | 50A            | 24-600 VAC   | 20-260 VAC    | —                               |             | <a href="#">PDF</a> |
| <a href="#">GRSH-50-60-D-2-0</a>                             | \$,067,p: | 50A            | 24-600 VAC   | 6-32 VDC      | Thermal/load interruption alarm |             | <a href="#">PDF</a> |
| <a href="#">GRSH-50-60-A-5-0</a>                             | \$,0680,: | 50A            | 24-600 VAC   | 20-260 VAC    | Thermal alarm                   |             | <a href="#">PDF</a> |
| <a href="#">GRSH-60-48-D-0-0</a>                             | \$,067,i: | 60A            | 24-480 VAC   | 6-32 VDC      | —                               | 0.70        | <a href="#">PDF</a> |
| <a href="#">GRSH-60-48-A-0-0</a>                             | \$,067,j: | 60A            | 24-480 VAC   | 20-260 VAC    | —                               |             | <a href="#">PDF</a> |
| <a href="#">GRSH-60-48-D-2-0</a>                             | \$,067,k: | 60A            | 24-480 VAC   | 6-32 VDC      | Thermal/load interruption alarm |             | <a href="#">PDF</a> |
| <a href="#">GRSH-60-48-A-5-0</a>                             | \$,067,l: | 60A            | 24-480 VAC   | 20-260 VAC    | Thermal alarm                   |             | <a href="#">PDF</a> |
| <a href="#">GRSH-60-60-D-0-0</a>                             | \$,067,n: | 60A            | 24-600 VAC   | 6-32 VDC      | —                               |             | <a href="#">PDF</a> |
| <a href="#">GRSH-60-60-A-0-0</a>                             | \$,067,q: | 60A            | 24-600 VAC   | 20-260 VAC    | —                               |             | <a href="#">PDF</a> |
| <a href="#">GRSH-60-60-D-2-0</a>                             | \$,067,s: | 60A            | 24-600 VAC   | 6-32 VDC      | Thermal/load interruption alarm |             | <a href="#">PDF</a> |
| <a href="#">GRSH-60-60-A-5-0</a>                             | \$06810:  | 60A            | 24-600 VAC   | 20-260 VAC    | Thermal alarm                   |             | <a href="#">PDF</a> |
| <a href="#">GRSH-75-48-D-0-0</a>                             | \$,067,u: | 75A            | 24-480 VAC   | 6-32 VDC      | —                               |             | <a href="#">PDF</a> |
| <a href="#">GRSH-75-48-A-0-0</a>                             | \$,067,x: | 75A            | 24-480 VAC   | 20-260 VAC    | —                               |             | <a href="#">PDF</a> |
| <a href="#">GRSH-75-48-D-2-0</a>                             | \$,067,t: | 75A            | 24-480 VAC   | 6-32 VDC      | Thermal/load interruption alarm |             | <a href="#">PDF</a> |
| <a href="#">GRSH-75-48-A-5-0</a>                             | \$,067,v: | 75A            | 24-480 VAC   | 20-260 VAC    | Thermal alarm                   |             | <a href="#">PDF</a> |
| <a href="#">GRSH-75-60-D-0-0</a>                             | \$,067,y: | 75A            | 24-600 VAC   | 6-32 VDC      | —                               |             | <a href="#">PDF</a> |
| <a href="#">GRSH-75-60-A-0-0</a>                             | \$06811:  | 75A            | 24-600 VAC   | 20-260 VAC    | —                               |             | <a href="#">PDF</a> |
| <a href="#">GRSH-75-60-D-2-0</a>                             | \$,067,l: | 75A            | 24-600 VAC   | 6-32 VDC      | Thermal/load interruption alarm |             | <a href="#">PDF</a> |
| <a href="#">GRSH-75-60-A-5-0</a>                             | \$,067,z: | 75A            | 24-600 VAC   | 20-260 VAC    | Thermal alarm                   |             | <a href="#">PDF</a> |

## Solid State Relays With Fan GRSH Series 90A Models

| Solid State Relays With Fan Selection Table GRSH Series 90A Models |           |                |              |               |                                 |                               |             |                     |
|--------------------------------------------------------------------|-----------|----------------|--------------|---------------|---------------------------------|-------------------------------|-------------|---------------------|
| Part Number                                                        | Price     | Contact Rating | Load Voltage | Input Voltage | Alarm Contact                   | External Fan Voltage Required | Weight (lb) | Drawing Link        |
| <a href="#">GRSH-90-48-D-0-62</a>                                  | \$,067,]: | 90A            | 24-480 VAC   | 6-32 VDC      | —                               | 24VDC                         | 0.89        | <a href="#">PDF</a> |
| <a href="#">GRSH-90-48-D-0-60</a>                                  | \$,067,[: | 90A            | 24-480 VAC   | 6-32 VDC      | —                               | 230VAC                        | 0.98        | <a href="#">PDF</a> |
| <a href="#">GRSH-90-48-D-0-61</a>                                  | \$,067,]: | 90A            | 24-480 VAC   | 6-32 VDC      | —                               | 115VAC                        | 0.98        | <a href="#">PDF</a> |
| <a href="#">GRSH-90-48-A-0-60</a>                                  | \$,067,#: | 90A            | 24-480 VAC   | 20-260 VAC    | —                               | 230VAC                        | 0.98        | <a href="#">PDF</a> |
| <a href="#">GRSH-90-48-A-0-61</a>                                  | \$,067,?: | 90A            | 24-480 VAC   | 20-260 VAC    | —                               | 115VAC                        | 0.98        | <a href="#">PDF</a> |
| <a href="#">GRSH-90-48-D-2-63</a>                                  | \$,067,,: | 90A            | 24-480 VAC   | 6-32 VDC      | Thermal/load interruption alarm | *                             | 0.89        | <a href="#">PDF</a> |
| <a href="#">GRSH-90-48-D-2-62</a>                                  | \$06800:  | 90A            | 24-480 VAC   | 6-32 VDC      | Thermal/load interruption alarm | 24VDC                         | 0.89        | <a href="#">PDF</a> |
| <a href="#">GRSH-90-48-D-2-60</a>                                  | \$06801:  | 90A            | 24-480 VAC   | 6-32 VDC      | Thermal/load interruption alarm | 230VAC                        | 0.98        | <a href="#">PDF</a> |
| <a href="#">GRSH-90-48-D-2-61</a>                                  | \$06802:  | 90A            | 24-480 VAC   | 6-32 VDC      | Thermal/load interruption alarm | 115VAC                        | 0.98        | <a href="#">PDF</a> |
| <a href="#">GRSH-90-48-A-5-60</a>                                  | \$06808:  | 90A            | 24-480 VAC   | 20-260 VAC    | Thermal alarm                   | 230VAC                        | 0.98        | <a href="#">PDF</a> |
| <a href="#">GRSH-90-48-A-5-61</a>                                  | \$06809:  | 90A            | 24-480 VAC   | 20-260 VAC    | Thermal alarm                   | 115VAC                        | 0.98        | <a href="#">PDF</a> |
| <a href="#">GRSH-90-60-D-0-62</a>                                  | \$0680b:  | 90A            | 24-600 VAC   | 6-32 VDC      | —                               | 24VDC                         | 0.89        | <a href="#">PDF</a> |
| <a href="#">GRSH-90-60-D-0-60</a>                                  | \$0680d:  | 90A            | 24-600 VAC   | 6-32 VDC      | —                               | 230VAC                        | 0.98        | <a href="#">PDF</a> |
| <a href="#">GRSH-90-60-D-0-61</a>                                  | \$,0680f: | 90A            | 24-600 VAC   | 6-32 VDC      | —                               | 115VAC                        | 0.98        | <a href="#">PDF</a> |
| <a href="#">GRSH-90-60-A-0-60</a>                                  | \$06803:  | 90A            | 24-600 VAC   | 20-260 VAC    | —                               | 230VAC                        | 0.98        | <a href="#">PDF</a> |
| <a href="#">GRSH-90-60-A-0-61</a>                                  | \$06804:  | 90A            | 24-600 VAC   | 20-260 VAC    | —                               | 115VAC                        | 0.98        | <a href="#">PDF</a> |
| <a href="#">GRSH-90-60-D-2-63</a>                                  | \$06805:  | 90A            | 24-600 VAC   | 6-32 VDC      | Thermal/load interruption alarm | *                             | 0.89        | <a href="#">PDF</a> |
| <a href="#">GRSH-90-60-D-2-62</a>                                  | \$06806:  | 90A            | 24-600 VAC   | 6-32 VDC      | Thermal/load interruption alarm | 24VDC                         | 0.89        | <a href="#">PDF</a> |
| <a href="#">GRSH-90-60-D-2-60</a>                                  | \$06807:  | 90A            | 24-600 VAC   | 6-32 VDC      | Thermal/load interruption alarm | 230VAC                        | 0.98        | <a href="#">PDF</a> |
| <a href="#">GRSH-90-60-D-2-61</a>                                  | \$06812:  | 90A            | 24-600 VAC   | 6-32 VDC      | Thermal/load interruption alarm | 115VAC                        | 0.98        | <a href="#">PDF</a> |
| <a href="#">GRSH-90-60-A-5-60</a>                                  | \$0680a:  | 90A            | 24-600 VAC   | 20-260 VAC    | Thermal alarm                   | 230VAC                        | 0.98        | <a href="#">PDF</a> |
| <a href="#">GRSH-90-60-A-5-61</a>                                  | \$0680c:  | 90A            | 24-600 VAC   | 20-260 VAC    | Thermal alarm                   | 115VAC                        | 0.98        | <a href="#">PDF</a> |

\* The -63 models are internally powered and do not require external power.

## Solid State Relays With Fan GRSH Series 120A Models

| Solid State Relays With Fan Selection Table GRSH Series 120A Models |           |                |              |               |                                 |                               |             |                     |
|---------------------------------------------------------------------|-----------|----------------|--------------|---------------|---------------------------------|-------------------------------|-------------|---------------------|
| Part Number                                                         | Price     | Contact Rating | Load Voltage | Input Voltage | Alarm Contact                   | External Fan Voltage Required | Weight (lb) | Drawing Link        |
| <a href="#">GRSH-120-48-D-0-62</a>                                  | \$0680e:  | 120A           | 24-480 VAC   | 6-32 VDC      | —                               | 24VDC                         | 1.13        | <a href="#">PDF</a> |
| <a href="#">GRSH-120-48-D-0-60</a>                                  | \$0680g:  | 120A           | 24-480 VAC   | 6-32 VDC      | —                               | 230VAC                        | 1.13        | <a href="#">PDF</a> |
| <a href="#">GRSH-120-48-D-0-61</a>                                  | \$0680h:  | 120A           | 24-480 VAC   | 6-32 VDC      | —                               | 115VAC                        | 1.13        | <a href="#">PDF</a> |
| <a href="#">GRSH-120-48-A-0-60</a>                                  | \$-0680i: | 120A           | 24-480 VAC   | 20-260 VAC    | —                               | 230VAC                        | 1.13        | <a href="#">PDF</a> |
| <a href="#">GRSH-120-48-A-0-61</a>                                  | \$-0680j: | 120A           | 24-480 VAC   | 20-260 VAC    | —                               | 115VAC                        | 1.13        | <a href="#">PDF</a> |
| <a href="#">GRSH-120-48-D-2-63</a>                                  | \$0680k:  | 120A           | 24-480 VAC   | 6-32 VDC      | Thermal/load interruption alarm | *                             | 0.89        | <a href="#">PDF</a> |
| <a href="#">GRSH-120-48-D-2-62</a>                                  | \$-0680l: | 120A           | 24-480 VAC   | 6-32 VDC      | Thermal/load interruption alarm | 24VDC                         | 0.89        | <a href="#">PDF</a> |
| <a href="#">GRSH-120-48-D-2-60</a>                                  | \$0680n:  | 120A           | 24-480 VAC   | 6-32 VDC      | Thermal/load interruption alarm | 230VAC                        | 1.13        | <a href="#">PDF</a> |
| <a href="#">GRSH-120-48-D-2-61</a>                                  | \$0680o:  | 120A           | 24-480 VAC   | 6-32 VDC      | Thermal/load interruption alarm | 115VAC                        | 1.13        | <a href="#">PDF</a> |
| <a href="#">GRSH-120-48-A-5-60</a>                                  | \$0680p:  | 120A           | 24-480 VAC   | 20-260 VAC    | Thermal alarm                   | 230VAC                        | 1.13        | <a href="#">PDF</a> |
| <a href="#">GRSH-120-48-A-5-61</a>                                  | \$0680q:  | 120A           | 24-480 VAC   | 20-260 VAC    | Thermal alarm                   | 115VAC                        | 1.13        | <a href="#">PDF</a> |
| <a href="#">GRSH-120-60-D-0-62</a>                                  | \$0680s:  | 120A           | 24-600 VAC   | 6-32 VDC      | —                               | 24VDC                         | 0.89        | <a href="#">PDF</a> |
| <a href="#">GRSH-120-60-D-0-60</a>                                  | \$;0680t: | 120A           | 24-600 VAC   | 6-32 VDC      | —                               | 230VAC                        | 1.13        | <a href="#">PDF</a> |
| <a href="#">GRSH-120-60-D-0-61</a>                                  | \$0680u:  | 120A           | 24-600 VAC   | 6-32 VDC      | —                               | 115VAC                        | 1.13        | <a href="#">PDF</a> |
| <a href="#">GRSH-120-60-A-0-60</a>                                  | \$0680v:  | 120A           | 24-600 VAC   | 20-260 VAC    | —                               | 230VAC                        | 1.13        | <a href="#">PDF</a> |
| <a href="#">GRSH-120-60-A-0-61</a>                                  | \$0680x:  | 120A           | 24-600 VAC   | 20-260 VAC    | —                               | 115VAC                        | 1.13        | <a href="#">PDF</a> |
| <a href="#">GRSH-120-60-D-2-63</a>                                  | \$0680y:  | 120A           | 24-600 VAC   | 6-32 VDC      | Thermal/load interruption alarm | *                             | 0.89        | <a href="#">PDF</a> |
| <a href="#">GRSH-120-60-D-2-62</a>                                  | \$0680z:  | 120A           | 24-600 VAC   | 6-32 VDC      | Thermal/load interruption alarm | 24VDC                         | 0.89        | <a href="#">PDF</a> |
| <a href="#">GRSH-120-60-D-2-60</a>                                  | \$;0680]: | 120A           | 24-600 VAC   | 6-32 VDC      | Thermal/load interruption alarm | 230VAC                        | 1.13        | <a href="#">PDF</a> |
| <a href="#">GRSH-120-60-D-2-61</a>                                  | \$;0680[: | 120A           | 24-600 VAC   | 6-32 VDC      | Thermal/load interruption alarm | 115VAC                        | 1.13        | <a href="#">PDF</a> |
| <a href="#">GRSH-120-60-A-5-60</a>                                  | \$0680_:  | 120A           | 24-600 VAC   | 20-260 VAC    | Thermal alarm                   | 230VAC                        | 1.13        | <a href="#">PDF</a> |
| <a href="#">GRSH-120-60-A-5-61</a>                                  | \$0680#:  | 120A           | 24-600 VAC   | 20-260 VAC    | Thermal alarm                   | 115VAC                        | 1.13        | <a href="#">PDF</a> |

\* The -63 models are internally powered and do not require external power.

## Solid State Relays GRSH Series 15-120A Models

| Solid State Relays Specifications GRSH Series 15-120A Models |                      |                                                                                                                                                                      |         |         |         |                 |         |                 |         |          |
|--------------------------------------------------------------|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|---------|---------|-----------------|---------|-----------------|---------|----------|
| Part Number Series                                           |                      | GRSH-15                                                                                                                                                              | GRSH-25 | GRSH-30 | GRSH-40 | GRSH-50         | GRSH-60 | GRSH-75         | GRSH-90 | GRSH-120 |
| Rated Working Voltage                                        |                      | 480VAC (max. range 24–530VAC) 600VAC (max range 24–660VAC)                                                                                                           |         |         |         |                 |         |                 |         |          |
| Rated Frequency                                              |                      | 50/60 Hz                                                                                                                                                             |         |         |         |                 |         |                 |         |          |
| Non-Repetitive Voltage                                       |                      | 1200Vp for model with rated voltage 480VAC 1400Vp for model with rated voltage 600VAC                                                                                |         |         |         |                 |         |                 |         |          |
| Switching Voltage for Zero                                   |                      | < 20V                                                                                                                                                                |         |         |         |                 |         |                 |         |          |
| Activation Time                                              |                      | 1/2 cycle                                                                                                                                                            |         |         |         |                 |         |                 |         |          |
| Deactivation Time                                            |                      | 1/2 cycle                                                                                                                                                            |         |         |         |                 |         |                 |         |          |
| Potential Drop At Rated Current                              |                      | < 1.2 Vrms                                                                                                                                                           |         |         |         |                 |         |                 |         |          |
| Power Supply                                                 |                      | GRSH-xx-xx-D-1-x, GRSH-xx-xx-D-2-x, GRSH-xx-xx-D-3-x, GRSH-xx-xx-D-5-x models:<br>range from 6 to 32VDC, I <sub>max</sub> < 14 mA at 32V) Max reverse voltage: 36VDC |         |         |         |                 |         |                 |         |          |
| Rated Current @ 40°C<br>(Continuous Service)                 |                      | 15A                                                                                                                                                                  | 25A     | 30A     | 40A     | 50A             | 60A     | 75A             | 90A     | 120A     |
| DC Input<br>6-32 VDC                                         | Max. Input           | < 9mA                                                                                                                                                                |         |         |         |                 |         |                 |         |          |
|                                                              | Max. Reverse Voltage | 36VDC                                                                                                                                                                |         |         |         |                 |         |                 |         |          |
|                                                              | Control Voltage      | 32VDC                                                                                                                                                                |         |         |         |                 |         |                 |         |          |
|                                                              | Activation Voltage   | > 5.1 VDC                                                                                                                                                            |         |         |         |                 |         |                 |         |          |
|                                                              | Deactivation Voltage | < 5VDC                                                                                                                                                               |         |         |         |                 |         |                 |         |          |
|                                                              | Input Impedance      | 500kΩ                                                                                                                                                                |         |         |         |                 |         |                 |         |          |
| Non-repetitive Overcurrent                                   |                      | t = 20ms: 620A                                                                                                                                                       |         |         |         | t = 20ms: 1600A |         | t = 20ms: 1500A |         |          |
| I²t For Blowout                                              |                      | ≤1800*2s                                                                                                                                                             |         |         |         | ≤12800*2s       |         | ≤11250*2s       |         |          |
| Critical dV/dt With Output Deactivated                       |                      | ≥ 100V/μs                                                                                                                                                            |         |         |         |                 |         |                 |         |          |
| Relay Configuration                                          |                      | SPST                                                                                                                                                                 |         |         |         |                 |         |                 |         |          |
| Output Type                                                  |                      | (1) N.O.SCR                                                                                                                                                          |         |         |         |                 |         |                 |         |          |
| Switching Type                                               |                      | Zero Cross                                                                                                                                                           |         |         |         |                 |         |                 |         |          |
| Operating Temperature Range                                  |                      | 0 to 80°C [0 to 176°F]                                                                                                                                               |         |         |         |                 |         |                 |         |          |
| Storage Temperature Range                                    |                      | -20 to 85°C [-4 to 185°F]                                                                                                                                            |         |         |         |                 |         |                 |         |          |
| Max Relative Humidity                                        |                      | 90% non-condensing at 40°C                                                                                                                                           |         |         |         |                 |         |                 |         |          |
| Protection Level                                             |                      | IP20                                                                                                                                                                 |         |         |         |                 |         |                 |         |          |
| Pollution Level                                              |                      | 2                                                                                                                                                                    |         |         |         |                 |         |                 |         |          |
| Status Indicators                                            |                      | Green LED Control, Yellow LED Temp Alarm, Red LED Fault/Out Alarm                                                                                                    |         |         |         |                 |         |                 |         |          |
| Connector Type                                               |                      | Push-in spring                                                                                                                                                       |         |         |         |                 |         |                 |         |          |
| Mount Type                                                   |                      | 35mm DIN rail                                                                                                                                                        |         |         |         |                 |         |                 |         |          |
| Agency Approvals *                                           |                      | CE, cURus File E243386                                                                                                                                               |         |         |         |                 |         |                 |         |          |

\* To obtain the most current agency approval information, see the Agency Compliance & Certifications Checklist section on the specific part number's web page.

## Solid State Relays GRSH Series 15-120A Models

| Power Terminals                                       |                                                                              |     |     |     |     |     |                                                                         |     |      |
|-------------------------------------------------------|------------------------------------------------------------------------------|-----|-----|-----|-----|-----|-------------------------------------------------------------------------|-----|------|
| Wiring Type                                           | Rigid/Flexible/Ferrule Conductor Cross Section                               |     |     |     |     |     |                                                                         |     |      |
| Nominal Current of the Load                           | 15A                                                                          | 25A | 30A | 40A | 50A | 60A | 75A                                                                     | 90A | 120A |
| Contact Area (WxD) Screw Type                         | 9.2 x 8mm M5                                                                 |     |     |     |     |     | 10.5 x 10.7 mm M5                                                       |     |      |
| Minimum Allowed Section<br>1 Conductor / 2 Conductors | 1 x 0.75 mm <sup>2</sup> / 2 x 0.75 mm <sup>2</sup><br>1 x 18AWG / 2 x 18AWG |     |     |     |     |     |                                                                         |     |      |
| Maximum Allowed Section<br>1 Conductor / 2 Conductors | 1 x 25mm <sup>2</sup> / 2 x 16mm <sup>2</sup><br>1 x 3AWG / 2 x 6AWG         |     |     |     |     |     | 1 x 50mm <sup>2</sup> / 2 x 25mm <sup>2</sup><br>1 x 1/0 AWG / 2 x 3AWG |     |      |
| Stripping Length                                      | 11mm                                                                         |     |     |     |     |     | 13mm                                                                    |     |      |
| Tightening Torque                                     | 2.5-3 N•m<br>[22-26.6 lb-in]                                                 |     |     |     |     |     |                                                                         |     |      |

| Control Signal Terminals                     |                                                                                                   |
|----------------------------------------------|---------------------------------------------------------------------------------------------------|
| Wiring Type                                  | Rigid/Flexible/Cable Lug Conductor Cross Section                                                  |
| 1 Conductor Section<br>2 Conductors Sections | 1 x 0.2 – 0.75 mm <sup>2</sup> / 2 x 0.1 – 0.5 mm <sup>2</sup><br>1 x 24 – 18AWG / 2 x 27 – 20AWG |
| Stripping Length / Cable Lug                 | 1x 8 – 10mm<br>2 x 10 – 12mm                                                                      |

Note: Use 60/75°C (140/167°F) copper (CU), multi-stranded conductors.

| Ground Terminal *                |                                    |
|----------------------------------|------------------------------------|
| Contact Area (WxD)<br>Screw Type | 9x9mm M5                           |
| Tightening Torque                | 1.5 – 2.5 N•m<br>[13.3 – 22 lb•in] |

\*The screw terminals are only suitable for on-site wiring connection when the wire is equipped with a tube terminal with eyelet. It is possible to make ground connection using a copper bar suitably ground connected and fixed to the heatsink of more GRS-H. (WxD) = Width x depth

## Protection Co-ordination (Type 1) According To UL 508

The devices are suitable for use on a circuit capable of delivering not more than 100,000 A rms symmetrical Amperes, 600V maximum when protected by UL listed fuses with size and class as specified in the table below.

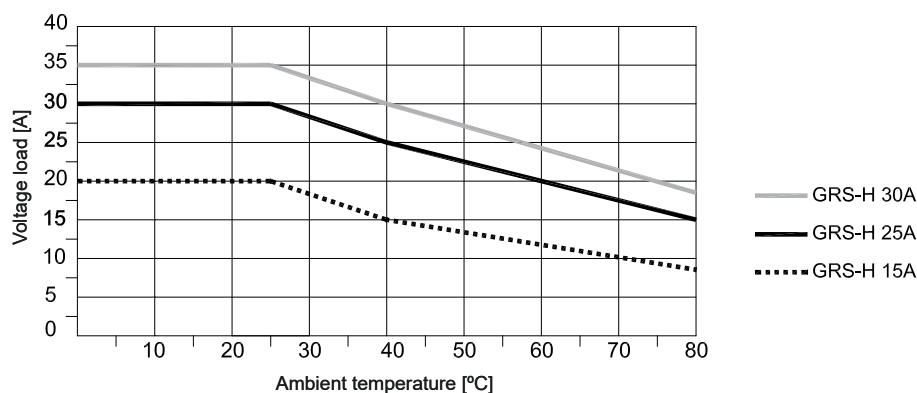
| Protection Co-ordination (Type 1)<br>According To UL 508 |            |                           |                                           |
|----------------------------------------------------------|------------|---------------------------|-------------------------------------------|
| Size Device                                              | Fuse Class | Fuse Current Max Size [A] | Prospective Short Circuit Current [kArms] |
| 15, 25, 30                                               | J          | 40                        | 100                                       |
|                                                          | CC         | 30                        |                                           |
| 40                                                       | J          | 40                        |                                           |
| 50                                                       |            | 80                        |                                           |
| 60                                                       |            | 80                        |                                           |
| 75                                                       |            | 80                        |                                           |
| 90                                                       |            | 125                       |                                           |
| 120                                                      |            | 125                       |                                           |

## Solid State Relays GRSH Series Derating Curves

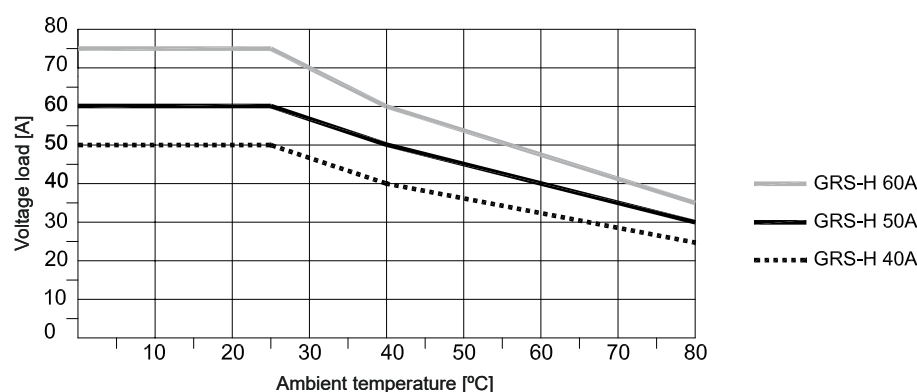
### DERATING CURVES (UL508)

Rated current curves as a function of ambient temperature (minimum distance between GRS-H of 20mm).

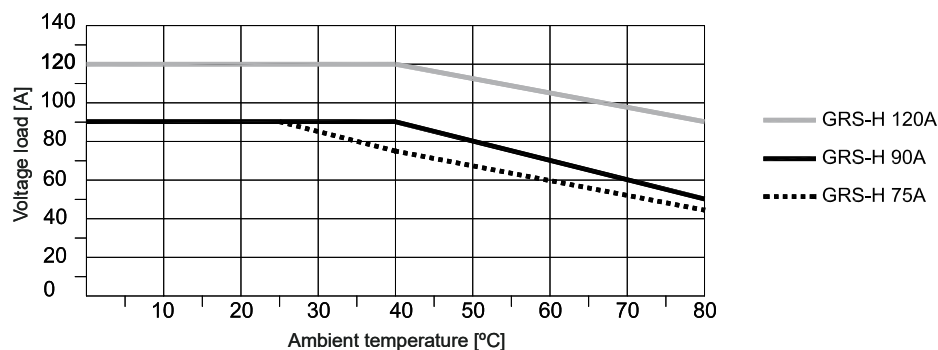
#### DERATING CURVES GRS-H 15 & 30A



#### DERATING CURVES GRS-H 40 & 60A



#### DERATING CURVES GRS-H 75 & 120A



N.B: The curves of the GRS-H 90/120 refer to the device complete with a working specified fan.

# Solid State Relays

