Solid State Relays
Product Guide

www.crouzet-ssr.com
about us

Crouzet Solid State Relays are manufactured by Crydom, Inc. a brand of Custom Sensors & Technologies (CST). Crouzet is committed to providing our customers with reliable quality solid state products. Our state of the art technology and years of expertise in designing and manufacturing solid state switching solutions have resulted in an extensive line of Solid State Relays and Contactors, Assemblies and Accessories.

The company incorporates eco-design into its processes and ensures that we comply with environmental directives, including the RoHS, China RoHS and REACH regulations. Crouzet also complies with global safety and standard agency requirements such as CE, UL, IEC, etc.

Superior Reliability

Our solid state relays and contactors are designed and manufactured by experts to provide many years of continuous reliability in even the most demanding applications. With the emphasis of each new design placed on thermal efficiency and electrical immunity, our objective is to manufacture relays that will outlive the product in which they are used!

Superior Features

With over 40 years experience in solid state design, our engineers understand the issues our customers face on a daily basis. Therefore, we strive to include features in each new design that will meet or exceed their expectations. From EMC compliance & LED status indicators, to IP20 housings & screw terminals that will accept bare wire, to name a few, our goal is to make your job a bit easier by removing unnecessary concerns.

Superior Service

With Crouzet, assistance is always just a phone call away. From calculating thermal dissipation to simply selecting a part number, our technical staff is ready to help. So if you need assistance send our Tech Support staff an e-mail or give us a call!
about this catalog

Products included in this catalog are only part of the Crouzet offer of Solid State Relays and Contactors. To facilitate the use of this catalog, products have been categorized into 4 product groups.

The following conditions are applicable to product families where specifically noted:

A All dimensions in drawings are in inches [millimeters] and are for reference only.

B Dimensional drawings shown are for illustrative purposes only. They do not represent the complete variety of products within each series. For other dimensional drawings visit crouzet-ssr.com.

C Part Number Nomenclature is color coded as follows:
   - Blue: Required for valid part number
   - Red: For options only and not required for valid part number

D Not all part number combinations are available. Contact Crouzet Sales Support for information on the availability of a specific part number.

E Safety agency approvals for SSR/Heat Sink Assemblies may vary depending of selected SSR. Heat sinks do not require safety agency approval.

F The standard Crouzet SSR/Heat Sink Assemblies are either DIN Rail or Panel Mounted depending upon model selected and are available with either one, two or three pre-installed single, dual or 3 phase SSR.

G Listed agency approvals may not apply to all part numbers available within a series. To consult agency approvals for a specific part number contact Crouzet Technical Support.

H Required external heat sink for all ratings.
what is a solid state relay/contactor?

A Solid State Relay or Contactor (SSR or SSC) is an electronic component that switches Power (AC or DC current) to a load circuit and provides electrical isolation between an application’s control circuit and load circuit. It is a competitive technology to Electromechanical Relays (EMRs) and other switching technologies such as Mercury Displacement Relays (MDRs).

Why Use Solid State Switching Technology?

- Long life
- Quiet operation
- Minimum electrical noise
- Low power consumption
- Shock & vibration resistant
- Ideal for harsh environments
- High compatibility with control systems
- Fast switching
- Position insensitive
Although there are literally thousands of individual uses for Solid State Relays and Contactors, most can be categorized into the following applications:

**Heating Control**
This encompasses the largest segment of solid state relay customers. Applications include, but are not limited to: professional food equipment, plastic molding/extrusion machinery, HVAC&R and soldering equipment.

Benefits: Temperature accuracy, long life, no maintenance, safe product & easy to interface. Suitable for heater, fan, blower and valve control.

**Lighting Control**
These applications are usually broken down into three categories: theatrical, warehouse and commercial. Many of the products used in this segment are designed for the specific application.

Benefits: Dimming, silent operation, fast switching, long life, no maintenance, safe product, easy to interface & reduced parts count.

**Motion Control**
Includes elevators, lifts, hoists, exercise equipment, conveyor systems, solar, fans, solenoid and valve control.

Benefits: Endurance, shock & vibration resistance, Soft Start, reversing, no arcing, fast switching, long life, no maintenance, easy to interface & reduced parts count.

For technical assistance in selecting the Crouzet product best suited for your application contact the nearest Crouzet Distributor, Representative, local Crouzet sales office or contact Crouzet Technical Support.
solid state relays versus solid state contactors

Crouzet has been well known for over 40 years as a supplier of Solid State Relays (SSRs). However, Crouzet also designs, manufacturers and markets Solid State Contactors (SSCs). What is the difference between SSRs and SSCs?

Remarkably, there is very little actual difference. They use similar power semiconductors and control circuits, and in some cases, even the same housings. SSRs, being considered as components, are applied in a large variety of applications and uses. SSCs, are generally applied in 3 phase AC heater and motor control applications although the SSCs themselves can be used successfully in almost any load control application. Why then are they viewed and applied differently?

There are two main reasons: Tradition and Ratings.

Tradition is that for most AC power control applications utilizing 3 phase AC power and some DC applications, traditional mechanical contactors are employed. (Note: mechanical contactors rated to switch AC loads are quite different from those rated for DC loads of similar currents due to the arcing and contact degradation associated with making and breaking a DC circuit). Therefore when the need arises to use solid state technology in these type applications rather than EMRs, engineers immediately think of Solid State “Contactors”, not Solid State “Relays”. So they are disposed to consider SSCs rather than SSRs despite the fact that SSRs can perform exactly the same switching function as a Contactor.

Ratings of contactors whether Solid State or Mechanical always include allowed motor load ratings and allowed resistive load ratings. The reason for this is again tradition in that for most mechanical contactors, the switching capabilities and life expectancy vary significantly for each type of load. Further, motor control requires consideration of such aspects as Locked Rotor Rating, Full Load Current Ratings and Horse Power Rating, while resistive load ratings must account for significant inrush current that also degrades mechanical contacts. SSRs and SSCs don’t suffer the same type degradation due to load characteristics as mechanical contacts do and therefore the motor and resistive load ratings are not as widely different. However the one significant differentiator is that to be considered a contactor, the SSR or SSC must be evaluated to and carry ratings appropriate for motor control.

So in summary, the major technical difference between an SSR and SSC has to do with the mandatory motor ratings required to be defined as a “Contactor”.

Crouzet
Panel Mount • AC Output

**GN Series • 10-125 Amps**

- Ratings up to 125 Amps at 660 VAC
- Back-to-back SCR output for heavy industrial loads
- Direct Bond Copper substrate for superior thermal performance
- Epoxy-free design minimizes stress on internal components
- Regulated AC & DC inputs
- EMC compliant (LEVEL 3) for reliable operation in harsh industrial environments
- “Bussed” power lead-frame minimizes solder joints in the load-current path
- LED indicator for easy identification of control status
- No external transient protection required (internal TVS)
- Available with Zero Voltage Turn-On (resistive loads) or Random Turn-On (inductive loads) output
- IP00 or IP20 “touch safe” housing
- 4k VAC Optical Isolation

Notes: A B C D G H

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<td>1: 90-280 VAC</td>
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* 4-32 VDC for 48-660 VAC models

Complete specifications of these & other Crouzet products available at: www.crouzet-ssr.com
Panel Mount ■ AC Output

GNA5 Series ■ 10-25 Amps

- Ratings of 10 or 25 Amps at 240 VAC
- Economic triac output for light industrial loads
- Regulated AC & DC inputs
- EMC compliant (LEVEL 3) for reliable operation
- Internal transient protection
- IP00 or IP20 “touch safe” housing
- 4k VAC Optical Isolation

Notes: A B C D G H

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Complete specifications of these & other Crouzet products available at: www.crouzet-ssr.com
GN3 Series ▪ 25-50 Amps

- Ratings up to 50 Amps per phase at 600 VAC
- Epoxy-free design minimizes internal component stress
- 100k-cycle UL508 Endurance rating for enhanced reliability
- No external transient protection required (Internal TVS)
- Back-to-back SCR output for heavy industrial loads
- Available with Zero Voltage Turn-On (resistive loads) or Random Turn-On (inductive loads) outputs

Notes: A B D G H
GN0 Series Motor Reversing  ■  25-50 Amps

- Ratings up to 50 Amps per phase at 530 VAC
- Epoxy-free design minimizes internal component stress
- 100k-cycle UL508 endurance rating for enhanced reliability
- No external transient protection required (Internal TVS)
- Back-to-back SCR output for heavy industrial loads

Notes: A B D G H

Complete specifications of these & other Crouzet products available at: www.crouzet-ssr.com
Panel Mount • DC Output

GN Series • 10-30 Amps

GF SERIES FET OUTPUT
- 10, 15, or 30 Amps output ratings
- Very low off-state leakage current (<10μA)
- Low on-state impedance minimizes power dissipation
- IP00 or IP20 “touch safe” housing
- LED indicator for easy identification of control status
- 4k VAC Optical Isolation

GT SERIES TRANSISTOR OUTPUT
- 10 Amps load rating at 60 VDC
- LED indicator for easy identification of control status
- 4k VAC Optical Isolation
- IP00 or IP20 “touch safe” housing

Notes: A B C D G H

Specifications are subject to change without prior notice.
GNR Series 22.5 mm ■ 10-30 Amps

- Integral heat sink eliminates the need for complex thermal calculations
- DBC substrate for superior thermal performance
- Epoxy-free design minimizes internal component stress
- Standard ratings up to 30 Amps at 600 Vac
- No external transient protection required (internal TVS)
- LED indicator for easy identification of control status
- IP20 “touch safe” housing
- AC or DC inputs
- 4k VAC Optical Isolation
- Relay or Contactor Configuration

Notes: A B D G

Control Voltage
A: 180-280 VAC
B: 90-140 VAC
D: 4-32 VDC

Switching Type
R: Random Turn-On
Z: Zero Voltage Turn-On

Rated Load Current
10: 10 Amps/24-280 VAC
20: 20 Amps/48-600 VAC
30: 30 Amps/48-600 VAC

Terminal Layout
C: Contactor Configuration
H: Relay Configuration

Series
GNR 10 A H Z

Complete specifications of these & other Crouzet products available at: www.crouzet-ssr.com
DIN Rail Mount • AC Output

GNR Series 45 mm • 35-45 Amps

- Integral heat sink eliminates the need for complex thermal calculations
- DBC substrate for superior thermal performance
- Epoxy-free design minimizes internal component stress
- Standard ratings up to 45 Amps at 600 VAC
- No external transient protection required (internal TVS)
- LED indicator for easy identification of control status
- IP20 “touch safe” housing
- AC or DC inputs
- 4k VAC Optical Isolation
- Relay or Contactor Configuration

Notes: A B D G

Control Voltage
A: 180-280 VAC
B: 90-140 VAC
D: 4-32 VDC

Switching Type
R: Random Turn-On
Z: Zero Voltage Turn-On

Terminal Layout
C: Contactor Configuration
H: Relay Configuration

Rated Load Current
35: 35 Amps
45: 45 Amps

Specifications are subject to change without prior notice
GNR Series 90 mm  ■  25 Amps

- Integral heat sink eliminates the need for complex thermal calculations
- DBC substrate for superior thermal performance
- Epoxy-free design minimizes internal component stress
- Standard ratings 25 Amps at 600 VAC
- No external transient protection required (internal TVS)
- LED indicator for easy identification of control status
- IP20 “touch safe” housing
- AC or DC inputs
- 4k VAC Optical Isolation
- Contactor Configuration

Notes: A B D G

Control Voltage
A: 240 VAC
B: 120 VAC
D: 4-32 VDC

Switching Type
R: Random Turn-On
Z: Zero Voltage Turn-On

Rated Load Current
25: 25 Amps

Terminal Layout
C: Contactor Configuration

Complete specifications of these & other Crouzet products available at: www.crouzet-ssr.com
Crouzet offers optimized thermal performance with 11 panel mounted or DIN rail mounted heat sink versions when combined with an optional DIN rail bracket kit. Designed to accept one, two or three industry standard SSRs, Crouzet offers heat sinks with ratings from 5 °C per watt to 0.5 °C per watt which are suitable for combined loads from 10 to 100 Amps.

**SSR or SSC / Heat Sink Assemblies**

Crouzet also has a variety of ready-to-use assemblies using standard off-the-shelf single, dual and three phase Solid State Relays or Contactors mounted on Heat Sinks. Our expertise in both SSR design and thermal management enables us to offer optimized pre-assembled solutions for SSR or SSC applications from 5 to 80+ Amps.

**Notes:** A B C D E F
Crouzet supports its extensive SSR and SSC product lines with a comprehensive offer of accessories including Heat Sinks, Thermal Pads, Protective Covers, Terminal Lugs, Hardware Kits, Marker Strips and DIN Rail Kits to make it easy to employ Crouzet SSRs and SSCs in any application. Crouzet can also create special configuration SSRs or SSCs that include installed accessories if so desired.

Notes:  A  B  G

- **Cover**
  - KS100

- **DIN Rail Bracket**
  - DRK1

- **Hardware Kits**
  - HK1
  - HK2

- **ID Marker Strips**
  - Unprinted (CNLB)
  - Printed (CNLN, CNL2)

- **Lug Terminals**
  - TRM1
  - TRM6

- **Thermal Pads**
  - Non-Adhesive (HSP-1, HSP-3)
  - Adhesive (HSP-2, HSP-5)

Complete specifications of these & other Crouzet products available at: www.crouzet-ssr.com
### Panel Mount

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