

## 45mm DIN-RAIL SSR



- ▶ Epoxy-Free Design Eliminates Internal Component Stress
- ▶ DIN-RAIL or Panel Mount
- ▶ Relay or Contactor Output Terminal Configuration
- ▶ DBC Substrate for Superior Thermal Pe
- ▶ 100k-cycle UL508 Endurance Rating for Enhanced Reliability
- ▶ Back-to-Back Dual SCR Output
- ▶ No External Transient Protection Required (Internal TVS)
- ▶ Zero-Crossing or Random-Fire Output
- ▶ UL / CSA / TUV Approved, CE Compliant
- ▶ EMC Compliant Level 3
- ▶ RoHS Compliant



"Relay"  
Configuration



"Contactor"  
Configuration

### Output Specifications

|                                                     | 48-600Vac | 48-600Vac |
|-----------------------------------------------------|-----------|-----------|
| Voltage range (Vrms)                                | 48-600Vac | 48-600Vac |
| Output Current (40°C)                               | 35        | 45        |
| Peak Voltage (Vpk, t = 1 min.)                      | 1100      | 1100      |
| Off-state leakage uArms<br>(@ 480V & Ta = 25°C)     | 250       | 250       |
| Minimum Current (mArms)                             | 100       | 100       |
| 1 cycle surge current 50 HZ                         | 665       | 710       |
| 1 cycle surge current 60 HZ                         | 700       | 750       |
| 1 second surge current 50/60 Hz<br>(Apk, Ta = 25°C) | 130       | 150       |
| Forward voltage drop<br>(Vpk @ Imax, Ta = 25°C)     | 1.35      | 1.35      |
| I <sup>2</sup> T (50Hz, ½ cycle)                    | 2230      | 2520      |
| I <sup>2</sup> T (60Hz, ½ cycle)                    | 2020      | 2320      |
| Static off-state dv/dt                              | 500       | 500       |
| HP Ratings at 240V                                  | 2         | 3         |
| HP Ratings at 480V                                  | 3         | 4         |
| Output Type                                         | SCR       | SCR       |
| Min/Max stranded wire                               | 16/8 AWG  | 16/8 AWG  |
| Min/Max solid wire                                  | 16/10 AWG | 16/10 AWG |

### Input Specifications

|                                   | 4-32Vdc           | 90-140VAC | 180-280VAC |
|-----------------------------------|-------------------|-----------|------------|
| Input voltage                     | 4-32Vdc           | 90-140VAC | 180-280VAC |
| Drop out voltage                  | 1Vdc              | 10VAC     | 10VAC      |
| Min. input current (for on-state) |                   |           |            |
| Maximum input current             | 19mA              | 23mA      | 23mA       |
| Input Resistance (Ohms)           | Current Regulated |           |            |
| Turn-on time*                     | 8.33msec          | 20mSec    | 20mSec     |
| Turn-off time                     | 8.33msec          | 30mSec    | 30mSec     |
| Min/Max stranded/solid wire       | 24/16 AWG         | 24/16 AWG | 24/16 AWG  |

\* Random SSR's turn on in less than 100µs

### General Characteristics

|                                  |                              |
|----------------------------------|------------------------------|
| Operating Temperature (°C)**     | -20 to + 80                  |
| Storage Temperature (°C)         | -40 to + 100                 |
| Input to output isolation        | 4000Vrms                     |
| Input/output to ground isolation | 2500Vrms                     |
| Input to output capacitance      | 8pF (typical)                |
| Operating Frequency              | 47 to 63 Hz                  |
| Housing Material                 | UL 94V0 (self extinguishing) |
| Weight (grams)                   | 400                          |
| Input/Output Torque              |                              |

\*\* -20 to +60 for 180-280VAC input

### Standards of Compliance

|                                                                           |                                          |
|---------------------------------------------------------------------------|------------------------------------------|
| CE Compliant with the LVD 73/23/EEC                                       |                                          |
| UL Recognized per UL 508 and CSA C22.2 no. 14-95                          |                                          |
| TUV Certified per EN 60950                                                |                                          |
| IEC 62314                                                                 |                                          |
| IEC 60068-2-6                                                             | 35mm/10-55Hz                             |
| IEC 60068-2-27                                                            | 15G / 11ms                               |
| IEC 61000-4-2 Level 3                                                     | Electrostatic Discharge                  |
| IEC 61000-4-3 Level 3                                                     | Radiated Electromagnetic Noise           |
| IEC 61000-4-4 Level 3                                                     | Immunity to Electrically Fast Transients |
| IEC 61000-4-5 Level 3                                                     | Immunity to Electrical Surges            |
| IEC 61000-4-6 Level 3                                                     | Conducted Electromagnetic Noise          |
| CISPR 11 Class A Conducted and Radiated Noise for Industrial Environments |                                          |

### Part Numbers

#### Zero Crossing Output

| Rating | Output    | Input      | Part Number |
|--------|-----------|------------|-------------|
| 35 Amp | 48-600Vac | 180-280VAC | GNR35AHZ    |
| 35 Amp | 48-600Vac | 90-140VAC  | GNR35BHZ    |
| 35 Amp | 48-600Vac | 4-32Vdc    | GNR35DHz    |
| 45 Amp | 48-600Vac | 180-280VAC | GNR45AHZ    |
| 45 Amp | 48-600Vac | 90-140VAC  | GNR45BHZ    |
| 45 Amp | 48-600Vac | 4-32Vdc    | GNR45DHz    |

#### Random Fire Output

| Rating | Output    | Input   | Part Number |
|--------|-----------|---------|-------------|
| 35 Amp | 48-600Vac | 4-32Vdc | GNR35DHR    |
| 45 Amp | 48-600Vac | 4-32Vdc | GNR45DHR    |

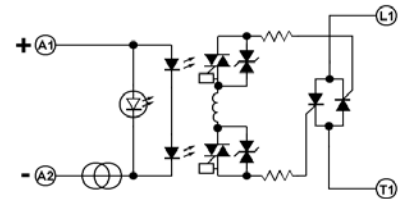
### Part Numbers

#### Zero Crossing Output

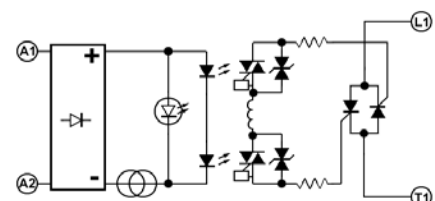
|        |           |            |          |
|--------|-----------|------------|----------|
| 35 Amp | 48-600Vac | 180-280VAC | GNR35ACZ |
| 35 Amp | 48-600Vac | 90-140VAC  | GNR35BCZ |
| 35 Amp | 48-600Vac | 4-32Vdc    | GNR35DCZ |
| 45 Amp | 48-600Vac | 180-280VAC | GNR45ACZ |
| 45 Amp | 48-600Vac | 90-140VAC  | GNR45BCZ |
| 45 Amp | 48-600Vac | 4-32Vdc    | GNR45DCZ |

#### Random Fire Output

| Rating | Output    | Input   | Part Number |
|--------|-----------|---------|-------------|
| 35 Amp | 48-600Vac | 4-32Vdc | GNR35DCR    |
| 45 Amp | 48-600Vac | 4-32Vdc | GNR45DCR    |



DC Input Equivalent Circuit



AC Input Equivalent Circuit

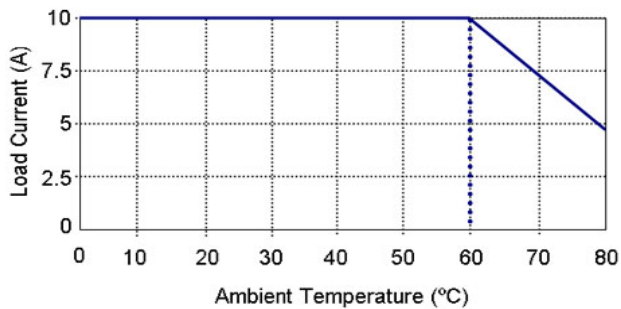
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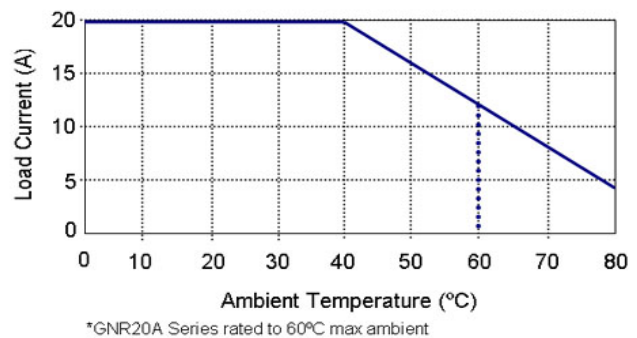
## GNR DIN-Rail SSR Derate Curves



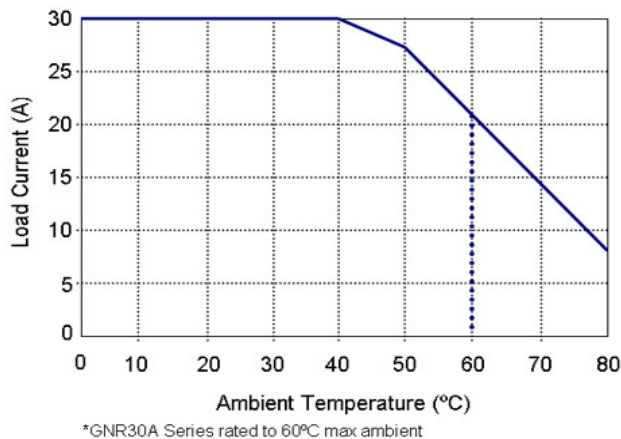
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GNR10xxx 22.5MM SSR**



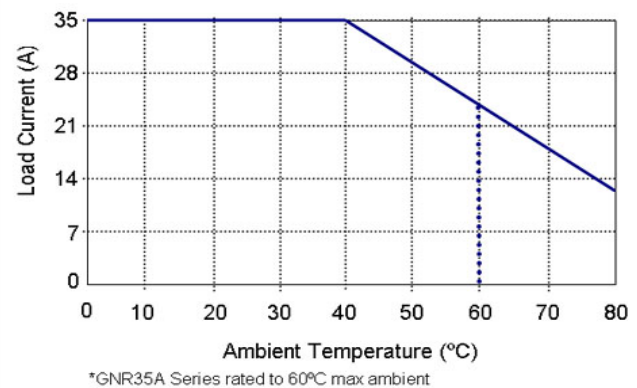
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GNR20xxx 22.5MM SSR**



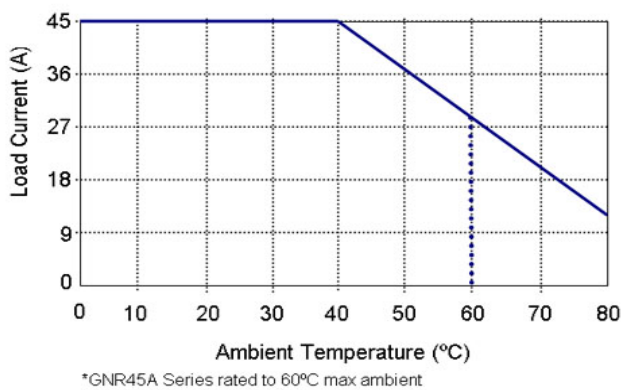
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GNR30xxx 22.5MM SSR**



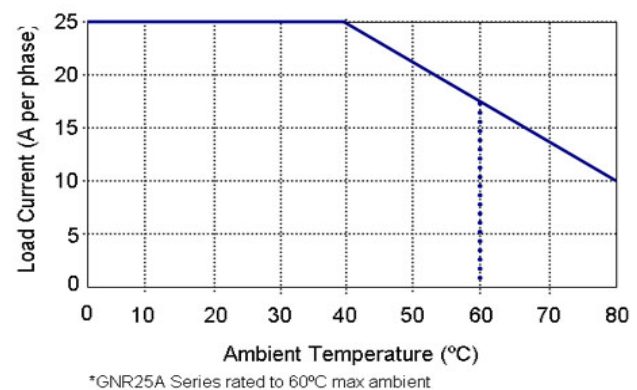
**CURRENT v. TEMP DERATE CURVE  
GNR35xxx 45MM SSR**



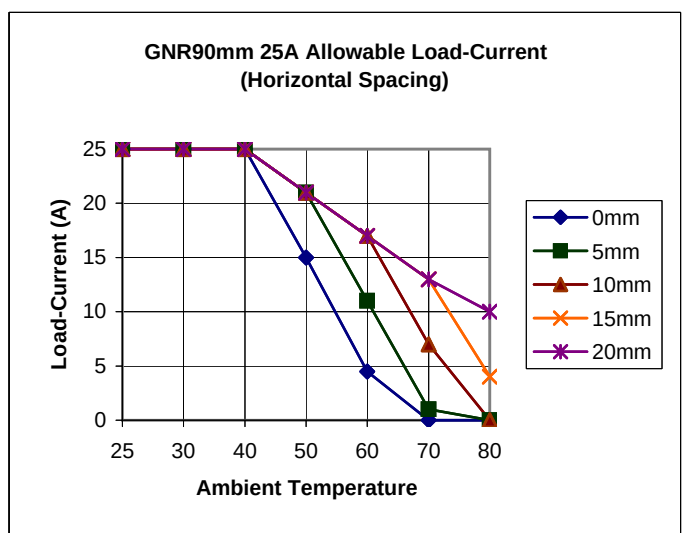
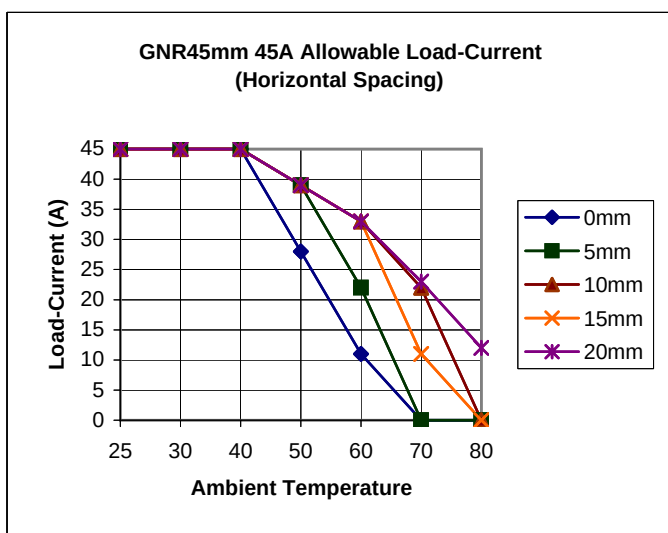
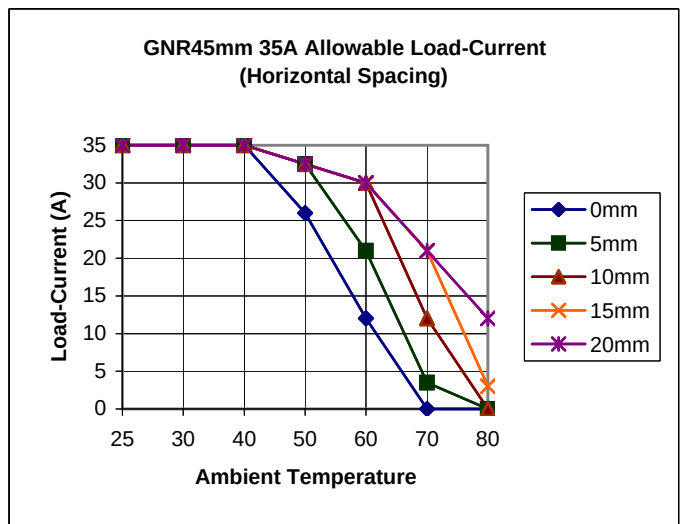
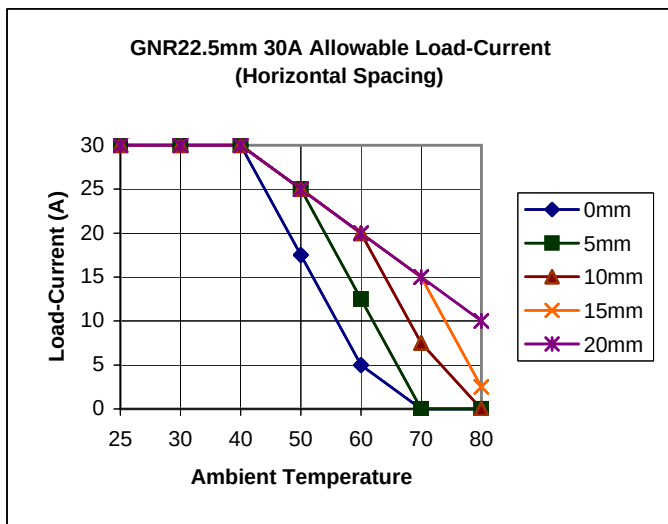
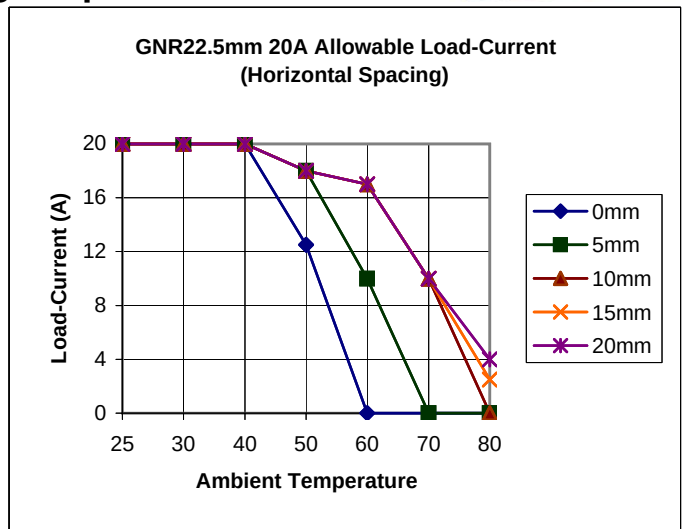
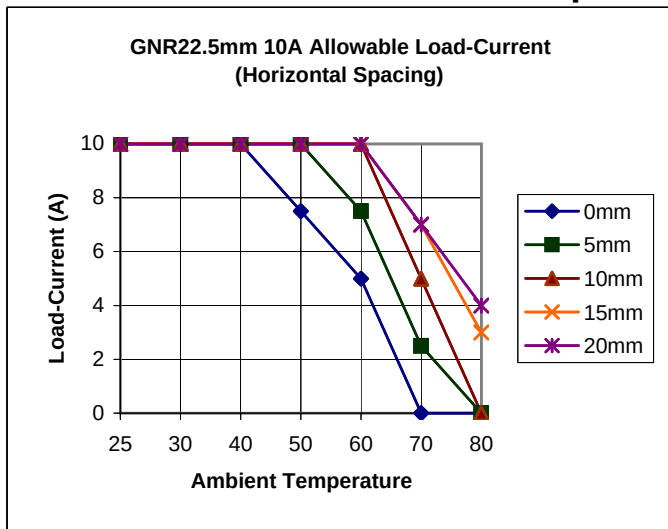
**CURRENT v. TEMP DERATE CURVE  
GNR45xxx 45MM SSR**



**CURRENT v. TEMP DERATE CURVE  
GNR25xxx 90MM THREE-PHASE SSR  
(Load current per phase)**

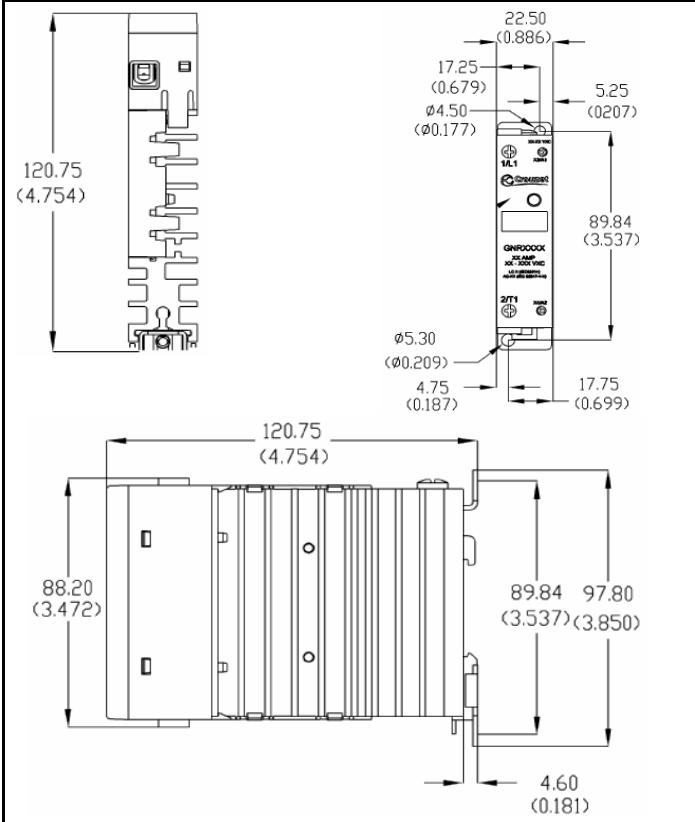


# GNR DIN-Rail SSR Horizontal Spacing Requirements





**22.5MM**



Technical drawings of the GNR000000 AC AMP 20T-200 VAC 2/71. The drawings include a side view, a top view, and a front view. Dimensions are provided in inches and millimeters.

**Side View Dimensions:**

- Overall height: 120.66 (4.750)
- Top section height: 45.00 (1.177)
- Top section width: 35.60 (1.402)
- Top section offset: 9.40 (0.370)
- Top section diameter:  $\varnothing 4.50$  ( $\varnothing 0.177$ )
- Bottom section height: 88.14 (3.470)
- Bottom section offset: 7.10 (0.280)
- Bottom section width: 9.40 (0.370)
- Bottom section diameter:  $\varnothing 4.50$  ( $\varnothing 0.177$ )
- Bottom section width: 35.60 (1.402)

**Top View Dimensions:**

- Overall width: 120.66 (4.750)
- Overall height: 88.20 (3.472)

**Front View Dimensions:**

- Overall height: 97.00 (3.819)
- Top section height: 88.14 (3.470)

Technical drawings of the 300 AMP 150/300 VDC circuit breaker, showing front, top, and side views with dimensions in inches and millimeters.

**Front View Dimensions:**

- Overall Width: 123.40 (4.858)
- Overall Height: 88.14 (3.470)
- Terminal Spacing (Top): 90.00 (3.543)
- Terminal Spacing (Bottom): 82.80 (3.260)
- Terminal Width: 7.20 (0.283)
- Terminal Hole Diameter: Ø4.50 (Ø0.177)

**Top View Dimensions:**

- Overall Width: 123.40 (4.858)
- Overall Height: 88.14 (3.470)
- Terminal Spacing (Top): 90.00 (3.543)
- Terminal Spacing (Bottom): 82.80 (3.260)
- Terminal Width: 7.20 (0.283)
- Terminal Hole Diameter: Ø4.50 (Ø0.177)

**Side View Dimensions:**

- Overall Width: 123.40 (4.858)
- Overall Height: 88.14 (3.470)
- Terminal Spacing (Top): 90.00 (3.543)
- Terminal Spacing (Bottom): 82.80 (3.260)
- Terminal Width: 7.20 (0.283)
- Terminal Hole Diameter: Ø4.50 (Ø0.177)

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