

# › GN3 Series

## Classic Solid State Relays

### Panel Mount – Three phase

- › For frequent start/stop operation of Three-Phase Heaters or Motors
- › A market favorite for many years
- › 25 and 50 Amps
- › 3 legs control
- › Output overvoltage protection
- › Zero Cross Turn-On and Instantaneous (Random)
- › cRUus, CE and UKCA Recognized



Zero Cross Version  
(Marking label 26532004  
sold separately)



Instantaneous Version  
(Marking label 26532004  
sold separately)

| Product Selection - Zero Cross (Resistive Loads) |           |           |
|--------------------------------------------------|-----------|-----------|
| Rated Load Current                               | 25 A      | 50 A      |
| Output Voltage                                   | 24-510 V~ | 24-510 V~ |
| Control Voltage                                  |           |           |
| 4-32 V~                                          | GN325DSZH | GN350DSZH |
| 24-255 V~                                        | GN325ASZH | GN350ASZH |

| Product Selection- Instantaneous (Random) (Inductive Loads) |           |           |
|-------------------------------------------------------------|-----------|-----------|
| Rated Load Current                                          | 25 A      | 50 A      |
| Output Voltage                                              | 24-510 V~ | 24-510 V~ |
| Control Voltage                                             |           |           |
| 4-32 V~                                                     | GN325DSRH | GN350DSRH |

#### Part number system

##### GN3 Triphase

**Series**  
8413: GN3 Series

**Control Voltage**  
A: 24-255 V~  
D: 4-32 V~

**Switching Type**  
R: Instantaneous  
Z: Zero Cross

**GN3**

**25**

**D**

**S**

**R**

**H**

**Output Current**  
25: 25 A  
50: 50 A

**Overvoltage Protection**  
S: Yes

**Output Voltage**  
H: 24-510 V~

Do you need an adapted or customized solution? Contact us on [www.crouzet.com](http://www.crouzet.com)

#### Description:

Crouzet Solid State Relays are designed to be used in almost any application, offering very long life expectancy and are easy to install, easy to use, robust and multipurpose.

For more information about Crouzet's Solid State relays, please visit [www.crouzet.com](http://www.crouzet.com).

| Accessories    |                                      |             |
|----------------|--------------------------------------|-------------|
| Type           | Description                          | Part-Number |
| Heatsink       | 0.9 °C/W Thermal Resistance          | 26532752N   |
| Heatsink       | 1.2 °C/W Thermal Resistance          | 26532754N   |
| Adapter        | For DIN Rail                         | 26532765N   |
| ID Tag         | Marking label 16 x 8 x 1 mm          | 26532004    |
| Thermal Grease | Thermal Grease for Heatsink mounting | 26532003    |
| Screws         | Screw Mounting Kit                   | 26532002    |

| Output Characteristics <sup>(1)</sup>                                                                                            |                          |                          |
|----------------------------------------------------------------------------------------------------------------------------------|--------------------------|--------------------------|
| Description                                                                                                                      | 25 A                     | 50 A                     |
| Operating Voltage (47-440Hz) [Vrms] <sup>(4)</sup>                                                                               | 24-510 V~                |                          |
| Load Current, General Use UL508 /AC51 @ 40 °C [Arms] <sup>(5)</sup>                                                              | 3 x 25 @40°C             | 3 x 50 @40°C             |
| Load Current, AC-53a @ 480 V~ [Arms] <sup>(5)</sup>                                                                              | 5A <sup>(2)</sup>        | 12A <sup>(2)</sup>       |
| Minimum Load Current [mArms]                                                                                                     | 5                        |                          |
| Transient Overvoltage [Vpk]                                                                                                      | 1200 (1100)              | 1200 (950)               |
| Maximum Surge Current (50/60 Hz (typ.@ 50 °C, 1 Cycle) [Apk]                                                                     | 320/_ (min)<br>420 (typ) | 700/_ (min)<br>750 (typ) |
| Maximum I <sup>2</sup> t for Fusing (50/60 Hz 1/2 cycle) [A <sup>2</sup> sec]                                                    | 512 (min)<br>880 (typ)   | 2450 (min)<br>2800 (typ) |
| 1 second surge current (Apeak. Ta = 25 °C) 50/60 Hz                                                                              | 96                       | 230                      |
| Minimum Off-State dv/dt @ Maximum Rated Voltage [V/μsec]                                                                         | 500                      |                          |
| Maximum Off-State Leakage Current @ Rated Voltage [mArms]                                                                        | 1                        |                          |
| Maximum On-State Voltage Drop @ Rated Current [Vpk]                                                                              | 1.375                    |                          |
| Thermal Resistance Junction to Case (Rjc) [°C/W]                                                                                 | 0.7                      | 0.4                      |
| Minimum Heatsink for rated Current @ 40 °C [°C/W] <sup>(5)</sup> AC-51<br>AC-53                                                  | 0.82<br>5.2              | 0.26<br>1.5              |
| Minimum Power Factor (at Maximum load):<br>GN325ASZH / GN350ASZH <sup>(6)</sup> GN325DSZH / GN350DSZH /<br>GN325DSRH / GN350DSRH | 0.8<br>0.5               |                          |
| HP Ratings at 120V / FLC [Arms] <sup>(2)</sup>                                                                                   | 0.75 / 6.4               | 1.5 / 12                 |
| HP Ratings at 240V / FLC [Arms] <sup>(2)</sup>                                                                                   | 1 / 4.2                  | 3 / 9.6                  |
| HP Ratings at 480V / FLC [Arms] <sup>(2)</sup>                                                                                   | 3 / 4.8                  | 7.5 / 11                 |

| Input Characteristics <sup>(1)</sup> |                          |                        |
|--------------------------------------|--------------------------|------------------------|
| Description                          | 4-32 V---                | 24-255 V~              |
| Control Voltage Range                | 4-32 V---                | 24-255 V~              |
| Minimum Turn-On Voltage              | 4 V---                   | 24 V~                  |
| Must Turn-Off Voltage                | 1 V---                   | 2 V~                   |
| Maximum Reverse Voltage              | -32 V---                 | N/A                    |
| Minimum Input Current [mA]           | 20 mA                    | 5 mA (AC)<br>4 mA (DC) |
| Maximum Input Current [mA]           | 25 mA                    | 7 mArms                |
| Nominal Input Impedance [Ohms]       | Current Regulated        |                        |
| Maximum Turn-On Time                 | 1/2 Cycle                | 25 ms                  |
| Maximum Turn-Off Time                | 1/2 Cycle <sup>(3)</sup> | 50 ms                  |

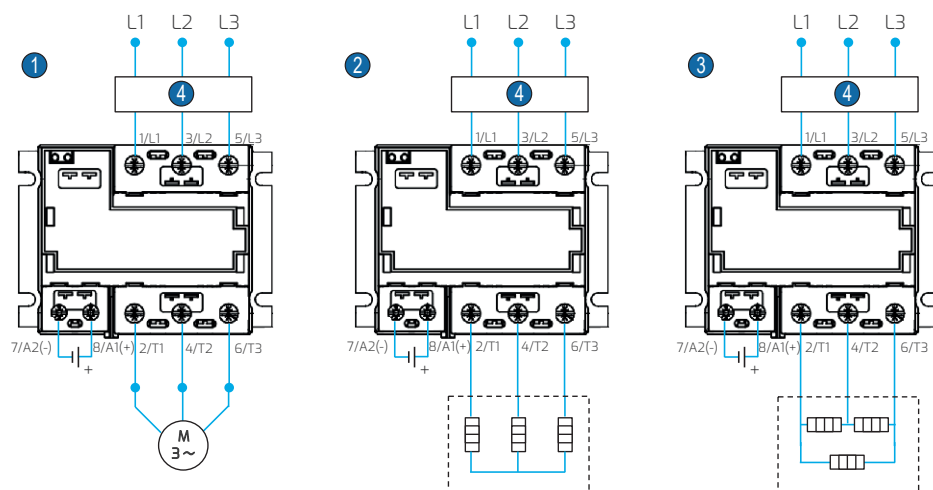
| General Characteristics                                          |                          |      |
|------------------------------------------------------------------|--------------------------|------|
| Description                                                      | 25 A                     | 50 A |
| Dielectric Strength 50/60 Hz (Vrms)                              | 4000 (Input-Output-Case) |      |
| Minimum Insulation Resistance (@ 500 V $\overline{\text{---}}$ ) | 10 $^9\Omega$            |      |
| Maximum Capacitance, Input/Output                                | 0.8 pF                   |      |
| Ambient Operating Temperature Range                              | -40 °C to 80 °C          |      |
| Ambient Storage Temperature Range                                | -40 °C to 100 °C         |      |
| Housing Material                                                 | UL94 V-0                 |      |
| Basplate Material                                                | Aluminium                |      |
| Terminals                                                        | Screw Type               |      |
| Control wiring Screw Torque (in-lb/Nm)                           | 11-18/ 1.2-2             |      |
| Power wiring screws Torque (in-lb/Nm)                            | 18-26/ 2-3               |      |
| Humidity                                                         | 85 % non-condensing      |      |
| Input Status Indicator                                           | LED Green                |      |
| Weight (g)                                                       | 200                      |      |
| MTBF (Mean Time Before Failure)                                  | 63                       |      |

| General Notes                                      |  |
|----------------------------------------------------|--|
| (1) All parameters at 25 °C unless otherwise       |  |
| (2) Only for Instantaneous (Random) Version        |  |
| (3) For Instantaneous (Random) = <0.1              |  |
| (4) For Instantaneous (Random) version, 63 hz max. |  |
| (5) Heatsink required, see derating curves         |  |
| (6) 0.5 with external RC filter                    |  |

## Diagrams

### Wiring

#### GN3



- 1 Wiring to control a 3-phase motor
- 2 Wiring to control heaters connected in star
- 3 Wiring to control heaters connected in delta
- 4 Protection Equipment

## Recommended Wire Size

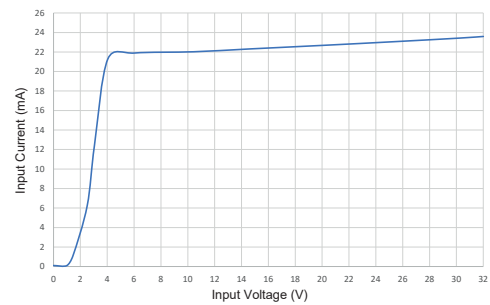
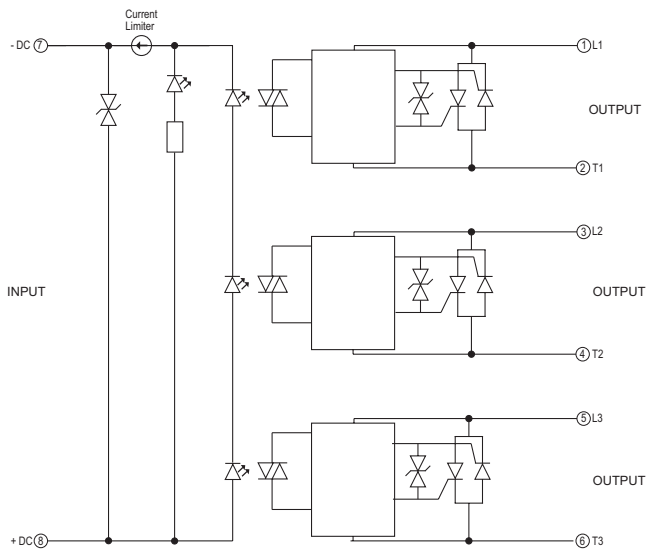
| TERMINALS | WIRE SIZE                                                                              |                                                                                        | Terminal Screw Torque (N.m) |
|-----------|----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|-----------------------------|
|           | SOLID                                                                                  | STRANDED                                                                               |                             |
| Input     | 18..14 AWG (0.75..2.5 mm <sup>2</sup> )<br>2 x 18..14 AWG (0.75..2.5 mm <sup>2</sup> ) | 18..14 AWG (0.75..2.5 mm <sup>2</sup> )<br>2 x 18..14 AWG (0.75..2.5 mm <sup>2</sup> ) | 1.2 - 2                     |
| Output    | 8..16 AWG (1.5..10 mm <sup>2</sup> )<br>2 x 8..16 AWG (1.5..10 mm <sup>2</sup> )       | 10..16 AWG (1.5..6 mm <sup>2</sup> )<br>2 x 10..16 AWG (1.5..6 mm <sup>2</sup> )       | 2 - 3                       |

## Diagrams

## Equivalent Circuit Block

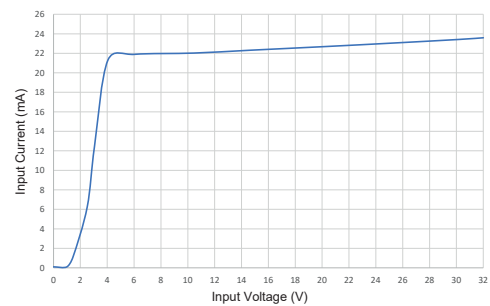
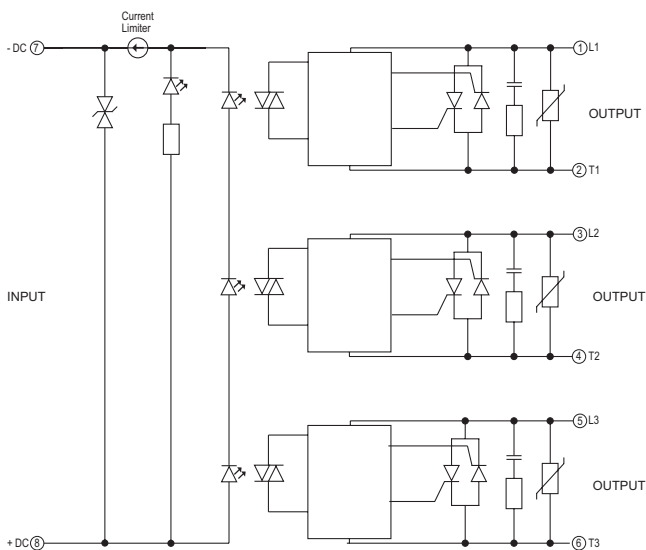
GN3 Series 4-32 V $\overline{\text{V}}$  control Thyristors - 24-510 V $\sim$  - Zero Cross -  
GN325DSZH, GN350DSZH

Input current vs Input Voltage  
Standard Regulated DC inputs



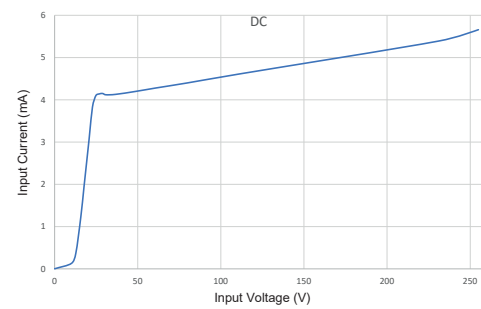
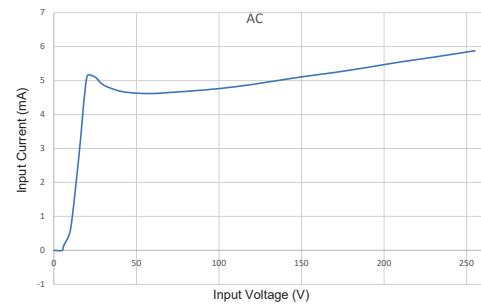
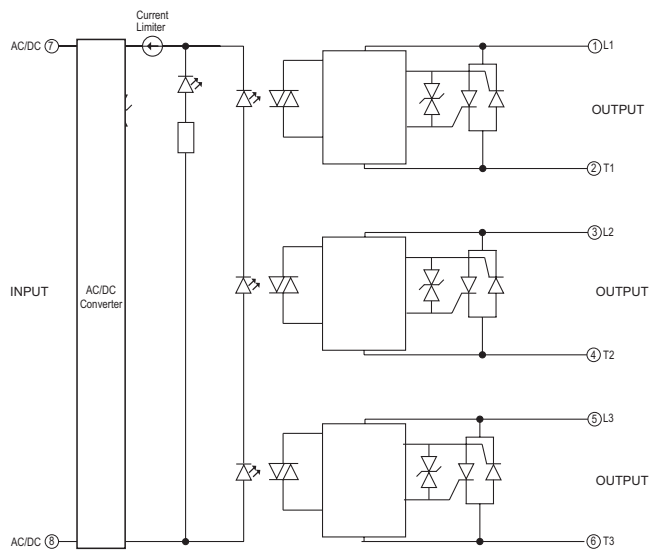
GN3 Series 4-32 V $\overline{\text{V}}$  control Thyristors - 24-510 V $\sim$  - Instantaneous -  
GN325DSRH, GN350DSRH

Input current vs Input Voltage  
Standard Regulated DC inputs



GN3 Series 24-255 V $\sim$  control Thyristors - 24-510 V $\sim$  - Zero Cross -  
GN325ASZH, GN350ASZH

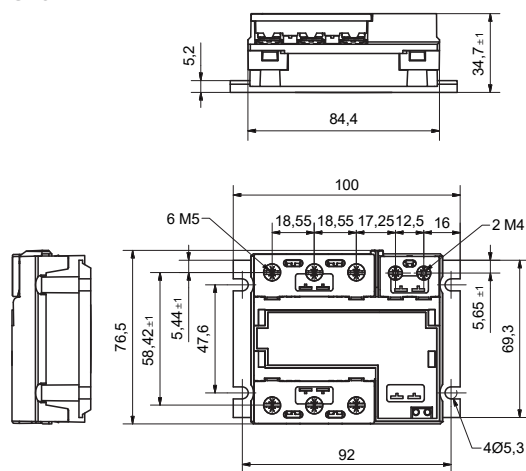
Input current vs Input Voltage  
Standard Regulated DC inputs



## Diagrams

### Dimensions (mm)

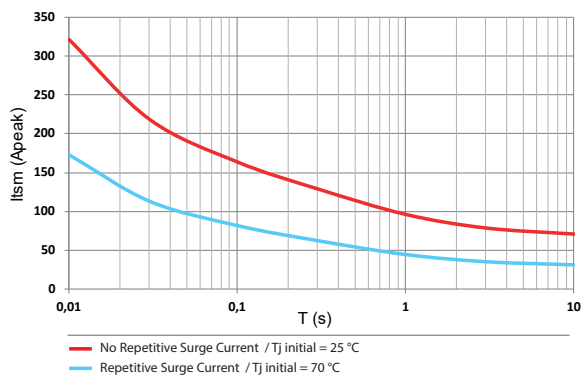
GN3



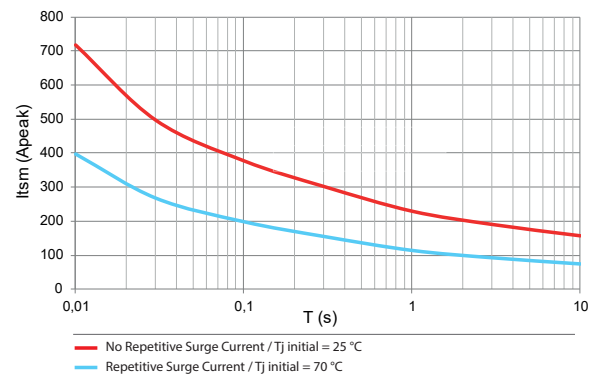
## Curves

### Surge Current Information

GN3 - 25 A



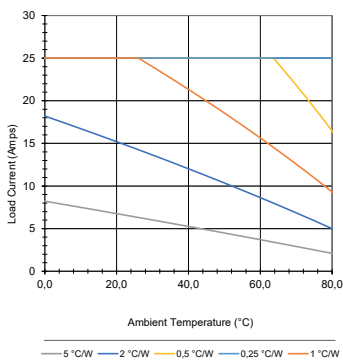
GN3 - 50 A



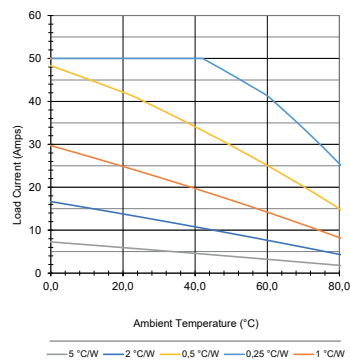
## Curves

### Thermal Derating Curves

GN3 - 25 A



GN3 - 50 A



## Accessories

### Heatsink

0.9 °C/W Thermal Resistance - **26532752N**



1.2 °C/W Thermal Resistance - **26532754N**



## Accessories

### Others

ID Tag - **26532004**



Thermal Grease for Heatsink mounting - **26532003**



Assembly kit 3-phases - **26532002**



## Standards & Electromagnetic Compatibility Specification

IEC 60068-2-6 Vibration 35mm / Amplitude 10-55Hz

IEC 60068-2-27 Shock resistance 15G / 11ms

IEC 61000-4-2: Electrostatic Discharge immunity test 8kV air discharge Criterion A Level 3

IEC 1000-4-3: Radiated Electromagnetic Noise - Level 3

IEC 61000-4-4: Electrical fast transient/burst immunity test 1kV Line to Line Criterion B Level 3

IEC 61000-4-5: Surge immunity test 1kV Line to Line Criterion B Level 3

## Standards



## Warning:

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