

# › GN Smart Series

## Smart Solid State Relays

### GNS Smart Current & Load Detection

- › Output Current of 35 A, 50 A and 75 Amps
- › Zero cross (resistive, inductive, capacitive)
- › Current and Load Detection
- › Normally open/close alarm output
- › LED Input status indicator
- › Load Detection: Removable connector
- › Current Detection: Screw connector



Load Detection



Current Detection

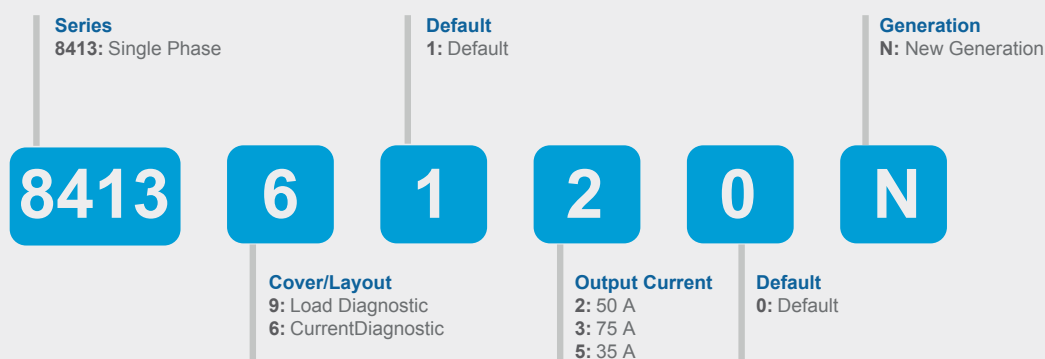
#### Product Selection - Zero Cross (resistive, inductive, capacitive) - Load Detection

Rated Load Current	35A	50A	75A
Output Voltage	50-265 V~	150-510 V~	150-510 V~
Control Voltage			
8-30 V <sub>DC</sub>	<b>84139150N</b>	<b>84139120N</b>	<b>84139130N</b>

#### Product Selection - Zero Cross (resistive, inductive, capacitive) - Current Detection

Rated Load Current	50A
Output Voltage	24-600 V~
Control Voltage	
4-32 V <sub>DC</sub>	<b>84136120N</b>

## PART NUMBERING SYSTEM



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	1.1 °C/W Thermal Resistance	26532753N
Heatsink	1.2 °C/W Thermal Resistance	26532754N
Heatsink	1.75 °C/W Thermal Resistance	26532755N
Heatsink	2.2 °C/W Thermal Resistance	26532756N
Adapter	DIN Rail	26532764N
Thermal Pad	Self-Adhesive Thermal Pad	26532722N
Screws	Screw Mounting Kit	26532001
Thermal Grease	Thermal Grease for Heatsink mounting	26532003

Output Specifications <sup>(1)</sup>				
Description	35A	50A	50A	75A
Maximum Load Current [Arms] <sup>(3)</sup>	35	50		75
Minimum Load Current [mArms]	5			
Operating Voltage (47-63Hz) [Vrms]	50-265	24-600	150-510	
Transient Voltage [Vpeak]	1200	1600	1200	
Maximum Off-State Leakage Current @ Rated Voltage [mArms]	5	1	5	
Minimum Off-State dV/dt @ Maximum Rated Voltage [V/μsec]	500			
1 Second Surge Current (Apk. Ta=25 °C) 50/60 Hz	165	230		347
Maximum 1 Cycle Surge Current (50/60Hz) [Apeak] Typ @ 50 Hz	530/_ (min) 580 (typ)	700/_ (min) 750 (typ)		1100/_ (min) 1200 (typ)
Maximum On-State Voltage Drop @ Rated Current [Vpeak]	1.11	1.38		1.34
Thermal Resistance Junction to Case (Rjc) [°C/W]	0.55	0.4		0.3
Maximum 1/2 Cycle I <sup>2</sup> t for Fusing @ 50 Hz (min. typical) [A <sup>2</sup> sec]	1404/1680	2450/2800		6000/7200
Minimum Heat Sink for Rated Current @ 40 °C [°C/W]	1.8	0.84		0.52

Input Specifications		
Description	8-30 V <sub>DC</sub>	4-32 V <sub>DC</sub>
Control Voltage Range	7-30 V <sub>DC</sub>	3.5-32 V <sub>DC</sub>
Maximum Reverse Voltage	-32 V <sub>DC</sub>	
Minimum Turn-On Voltage	7 V <sub>DC</sub>	3.5 V <sub>DC</sub>
Must Turn-Off Voltage	3 V <sub>DC</sub>	2 V <sub>DC</sub>
Minimum Input Current (for on-state)	4 mA	10 mA
Maximum Input Current [mA]	30 mA	14 mA
Nominal Input Impedance [Ohms]	1 K	Current Limited
Maximum Turn-On Time [msec]	1/2 Cycle <sup>(5)</sup>	
Maximum Turn-Off Time [msec]	1/2 Cycle <sup>(5)</sup>	

General Specifications				
Description	35A	50A	50A	75A
Dielectric Strength, Input/Output to Ground (50/60Hz)	4000 Vrms			
Minimum Insulation Resistance (@ 500 V <sub>DC</sub> )	10 <sup>9</sup> Ω			
Maximum Capacitance, Input/Output	0.8 pF			
Ambient Operating Temperature Range	-40 to 80 °C			
Ambient Storage Temperature Range	-40 to 100 °C			
Weight (typical)	80 g			

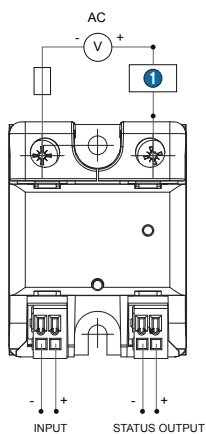
General Specifications				
Description	35A	50A	50A	75A
Housing Material	UL94 V-0			
Baseplate Material	Aluminum			
Input Terminal Screw Torque Range (in-lb/Nm) - 84136120 N	4.4 -5.3 / 0.5-0.6			
Load Terminal Screw Torque Range (in-lb/Nm)	18-26 / 2-3			
SSR Mounting Screw Torque Range (in-lb/Nm)	11-16 / 1.2-1.8			
Humidity per IEC60068-2-78	40-85 %			
LED Input Status Indicator	Green			
MTBF (Mean Time Between Failures) at 40 °C ambient temperature (years)	48			
MTBF (Mean Time Between Failures) at 60 °C ambient temperature (years)	32			

Alarm Specifications		
Description	Load Detection	Current Detection
Max. Output voltage	32 V <sub>DC</sub>	
Max. Output current	0.1 A	
On state drop voltage	0.2 V	1.4 V
Turn-off time	120 ms	70 ms
Turn-on time	20 ms	10 ms
Turn-on current	-	0.9 A
Turn-off current	-	0.74 A
On state resistance	2	-
Open Delay	70 ms	-
Total Open Delay	120 ms	-
Checked Delay (voltage)	20 ms	-
Checked Delay (current)	20 ms	-

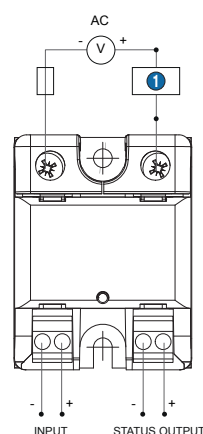
General Notes
<sup>(1)</sup> All parameters at 25 °C unless otherwise specified
<sup>(2)</sup> Heat sinking required, see derating curves.
<sup>(4)</sup> Increase minimum voltage by 1 V for operations from -20 to -40 °C.
<sup>(5)</sup> All parameters at 50 % power rating and 100 % duty cycle (contact tech support for detailed report).

**Diagrams**  
**Wiring**

GNS Smart - Load Detection



GNS Smart - Current Detection



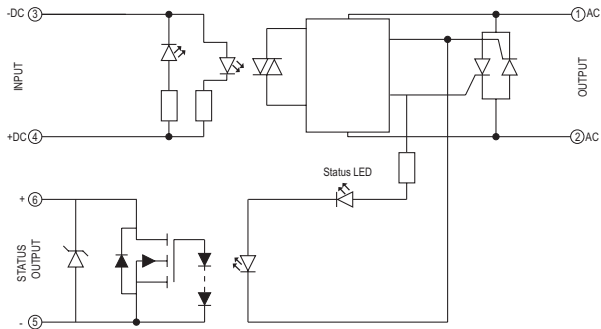
**GNS**

1 Load

Diagrams

Equivalent Circuit Block

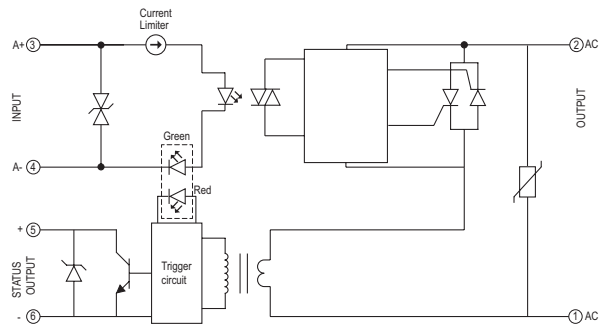
GNS Smart - Load Detection



Status Output

- 5 Normally Closed contact, max 0.1 A 32 V~
- 6 Normally Closed contact, max 0.1 A 32 V~

GNS Smart - Current Detection



Diagrams

Status Chart

LED Status - Load Detection

STATUS	LED control status	Mains	Charge	Thyristor	LED alarm status	Diagnostic OUTPUT
No power	<input type="checkbox"/>	No			<input type="checkbox"/>	OPEN
Open Mains	<input checked="" type="checkbox"/>	No	-	-	<input type="checkbox"/>	OPEN
Normal operation (without control)	<input type="checkbox"/>	Yes	OK	OK	<input checked="" type="checkbox"/>	CLOSED
Normal operation	<input checked="" type="checkbox"/>	Yes	OK	OK	<input checked="" type="checkbox"/>	CLOSED
Open load (without control)	<input type="checkbox"/>	Yes	Open	OK	<input type="checkbox"/>	OPEN
Open load	<input checked="" type="checkbox"/>	Yes	Open	OK	<input type="checkbox"/>	OPEN
Short Circuit SSR (without control)	<input type="checkbox"/>	Yes	OK	Short circuit	<input type="checkbox"/>	OPEN
Short Circuit SSR	<input checked="" type="checkbox"/>	Yes	OK	Short circuit	<input type="checkbox"/>	OPEN

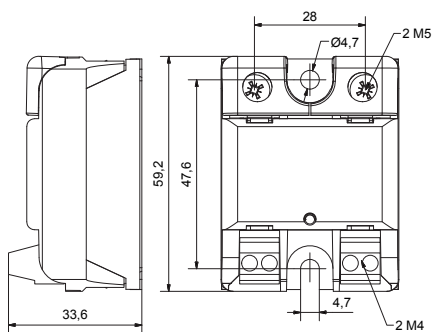
LED Status - Current Detection

STATUS	INPUT	OUTPUT LED status	Diagnostic OUTPUT
Load Current > 4 A	ON	<span style="color: red;">■</span>	CLOSED
0.8 A < Load Current < 4 A	ON	<span style="color: yellow;">■</span>	CLOSED
Load Current < 0.8 A	ON	<span style="color: green;">■</span>	OPEN
Load Current > 0.8 A (Short circuit SSR)	OFF	<span style="color: red;">■</span>	OPEN
Load Current < 0.8 A	OFF	<input type="checkbox"/>	OPEN

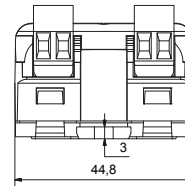
Diagrams

Dimensions (mm)

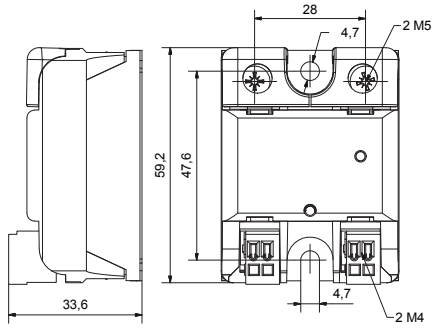
GNS Smart front view - Current Detection



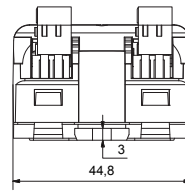
GNS Smart side view - Current Detection



GNS Smart front view - Load Detection



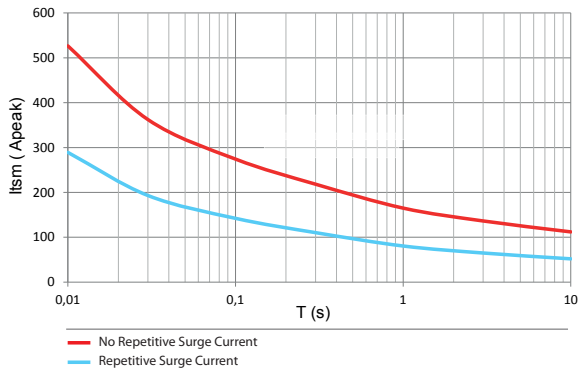
GNS Smart side view - Load Detection



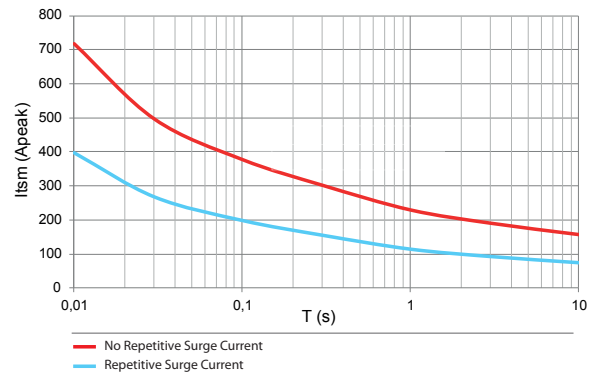
Curves

Surge Current Information

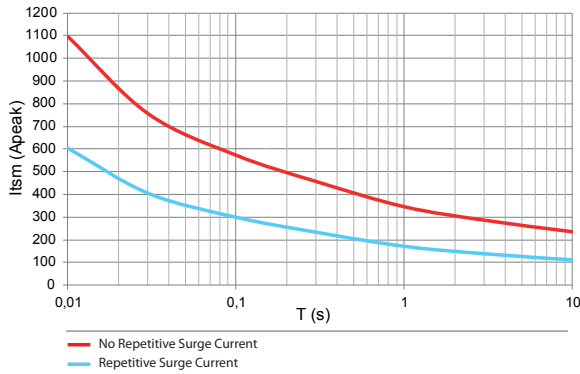
GNS - 35 A



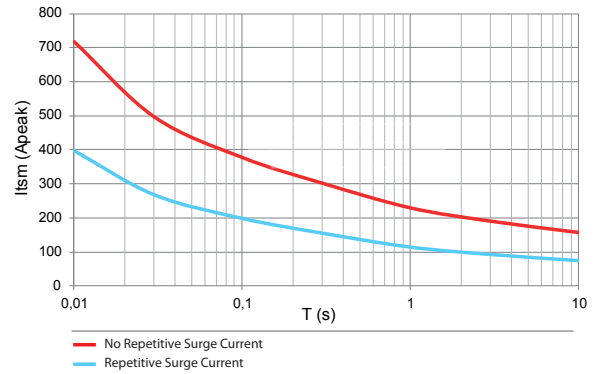
GNS - 50 A



GNS - 75 A



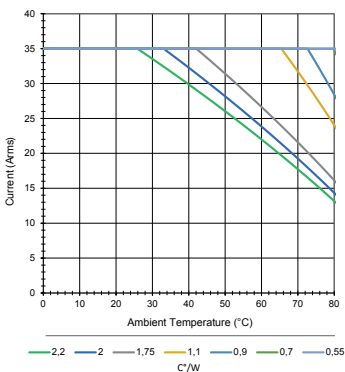
GNS - 50 A Current Detection



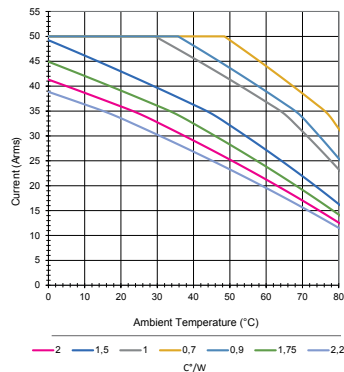
Curves

Thermal Derating Curves

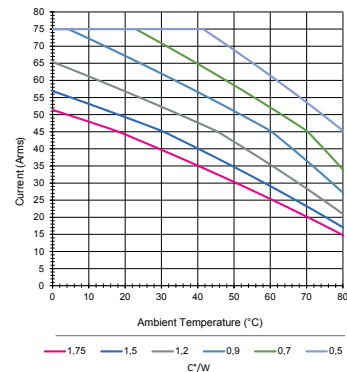
GNS - 84139150N



GNS - 84139120N / 84136120N



GNS - 84139130N



Standard Specifications

84139150N / 84139120N / 84139130N

IEC/EN61000-4-4 (bursts)	2 kv crit A
IEC/EN61000-4-5 (surge)	2 kv crit B
VIBRATION resistance IEC 60068-2-6	10 g
SHOCK resistance IEC 60068-2-27	50 G (11 ms)

84136120N

IEC/EN61000-4-4 (bursts)	2 kv crit A
IEC/EN61000-4-5 (surge)	2 kv crit A
VIBRATION resistance IEC 60068-2-6	10 g
SHOCK resistance IEC 60068-2-27	50 G (11 ms)



\* VDE ONLY 84139150N / 84139120N / 84139130N

Warning:

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