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11/2020

› 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⎓	**84139150N**	**84139120N**	**84139130N**

Product Selection - Zero Cross (resistive, inductive, capacitive) - Current Detection	
Rated Load Current	50A
Output Voltage	24-600 V~
Control Voltage	
4-32 V⎓	**84136120N**

PART NUMBERING SYSTEM

Series
8413: Single Phase

Default
1: Default

Generation
N: New Generation

8413	6	1	2	0	N

Cover/Layout
9: Load Diagnostic
6: CurrentDiagnostic

Output Current
2: 50 A
3: 75 A
5: 35 A

Default
0: Default

Do you need an adapted or customized solution? Contact us on **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**.

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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[1]				
Description	35A	50A	50A	75A
Maximum Load Current [Arms] [3]	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^2t for Fusing @ 50 Hz (min. typical) [A^2 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⎓	4-32 V⎓
Control Voltage Range	7-30 V⎓	3.5-32 V⎓
Maximum Reverse Voltage	-32 V⎓	
Minimum Turn-On Voltage	7 V⎓	3.5 V⎓
Must Turn-Off Voltage	3 V⎓	2 V⎓
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[5]	
Maximum Turn-Off Time [msec]	1/2 Cycle[5]	

General Specifications				
Description	35A	50A	50A	75A
Dielectric Strength, Input/Output to Ground (50/60Hz)	4000 Vrms			
Minimum Insulation Resistance (@ 500 V⎓)	$10^9\Omega$			
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			

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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. Ouput voltage	32 V⎓	
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	-
Cheked Delay (voltage)	20 ms	-
Cheked Delay (current)	20 ms	-

General Notes

(1)All parameters at 25 °C unless otherwise specified

(3)Heat sinking required, see derating curves.

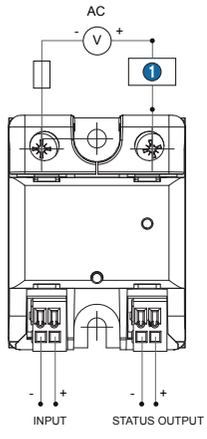
(4)Increase minimum voltage by 1 V for operations from -20 to -40 °C.

(5)All parameters at 50 % power rating and 100 % duty cycle (contact tech support for detailed report).

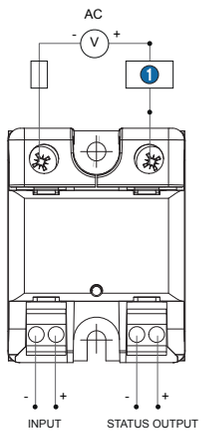
Diagrams

Wiring

GNS Smart - Load Detection



GNS Smart - Current Detection



GNS

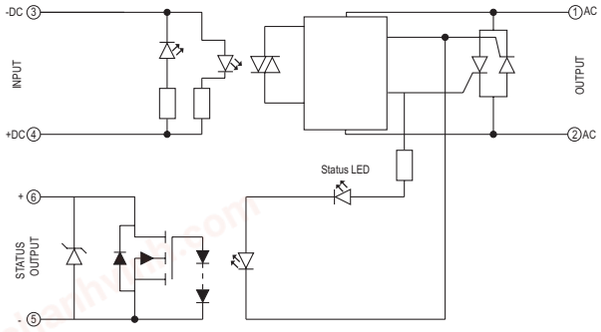
1 *Load*

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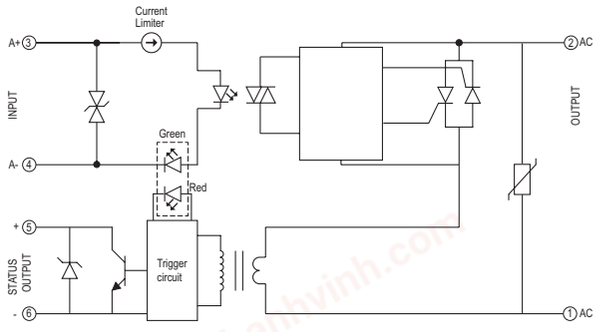
Diagrams

Equivalent Circuit Block

GNS Smart - Load Detection



GNS Smart - Current Detection



Status Output

5 Normaly Closed contact, max 0.1 A 32 V~
6 Normaly Closed contact, max 0.1 A 32 V~

Diagrams

Status Chart

LED Status - Load Detection

STATUS	LED control status	Mains	Charge	Thyristor	LED alarm status	Diagnostic OUTPUT
No power		No				OPEN
Open Mains		No	-	-		OPEN
Normal operation (without control)		Yes	OK	OK		CLOSED
Normal operation		Yes	OK	OK		CLOSED
Open load (without control)		Yes	Open	OK		OPEN
Open load		Yes	Open	OK		OPEN
Short Circuit SSR (without control)		Yes	OK	Short circuit		OPEN
Short Circuit SSR		Yes	OK	Short circuit		OPEN

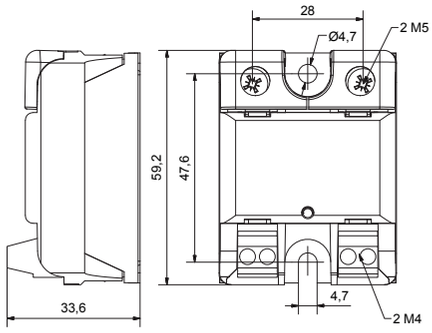
LED Status - Current Detection

STATUS	INPUT	OUTPUT LED status	Diagnostic OUTPUT
Load Current > 4 A	ON		CLOSED
0.8 A < Load Current < 4 A	ON		CLOSED
Load Current < 0.8 A	ON		OPEN
Load Current > 0.8 A (Short circuit SSR)	OFF		OPEN
Load Current < 0.8 A	OFF		OPEN

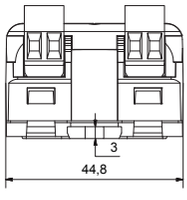
Diagrams

Dimensions (mm)

GNS Smart front view - Current Detection

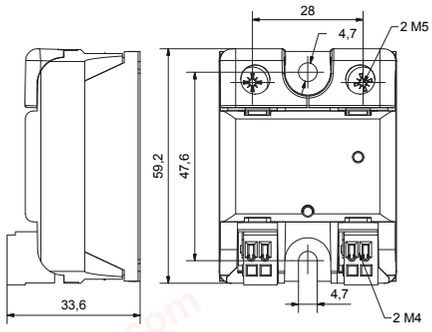


GNS Smart side view - Current Detection

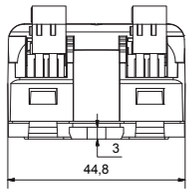


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GNS Smart front view - Load Detection



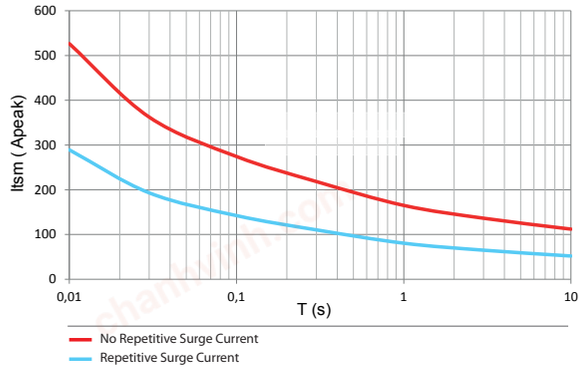
GNS Smart side view - Load Detection



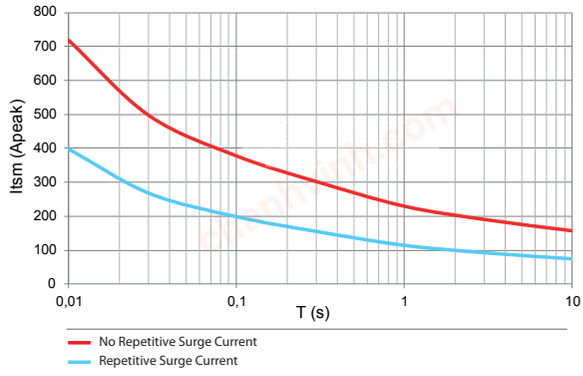
Curves

Surge Current Information

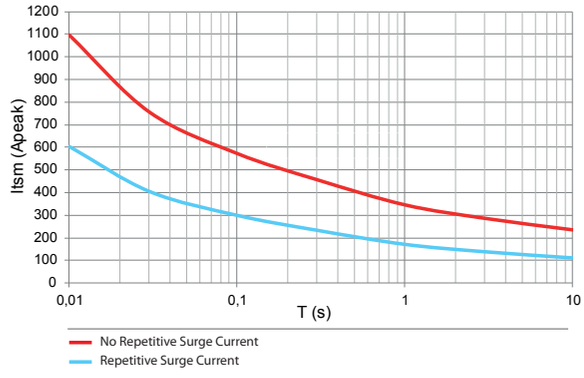
GNS - 35 A



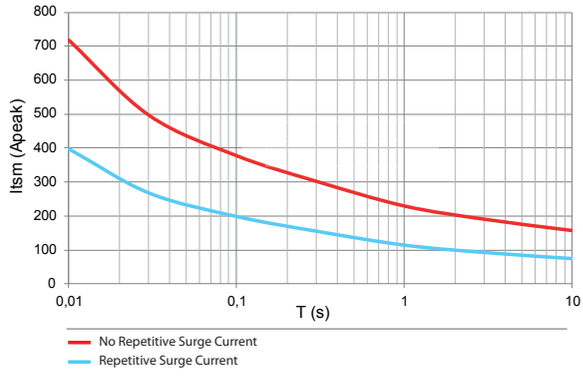
GNS - 50 A



GNS - 75 A



GNS - 50 A Current Detection

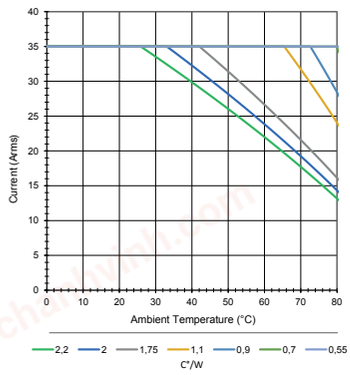


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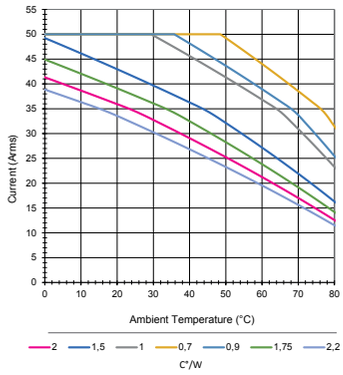
Curves

Thermal Derating Curves

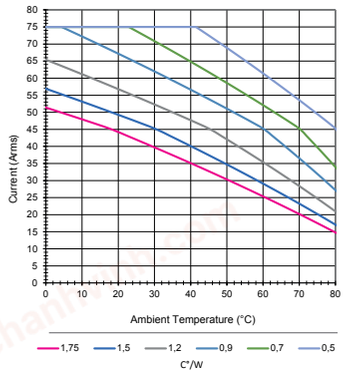
GNS - 84139150N



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)

c US ES16951 VDE REG 10102* CE

* VDE ONLY 84139150N / 84139120N / 84139130N

Warning:
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