



## GN SERIES | AC OUTPUT

PANEL MOUNT SOLID STATE RELAYS



### Features

- Current ratings from 10 to 125 Amps
- Output voltage 24-280 VAC and 48-660 VAC
- Available with or without IP20 touch-safe cover
- LED Input Status Indicator
- UL, CSA and TUV Approved, CE Compliant to EN60950-1
- Improved SEMS screw and washer
- Redesigned housing with anti-rotation barriers
- EMC Compliant to level 3

### PRODUCT SELECTION

Control Voltage	10 A	25 A	50 A	75 A	100 A	125 A
<b>3-32 VDC</b>	84134000	84134010	84134020	84134030	84134040	84134080
<b>18-36 VAC</b>	84134002	84134012	84134022	84134032	84134042	84134082
<b>90-280 VAC</b>	84134001	84134011	84134021	84134031	84134041	84134081

### SPECIFICATIONS

Output <sup>(1)</sup>

Description	280 VAC	660 VAC
<b>Operating Voltage (47-440 Hz) [Vrms]</b>	24-280	48-600
<b>Transient Voltage [Vpk] <sup>(2)</sup></b>	600	1200
<b>Maximum Off-State Leakage Current @ Rated Voltage [mArms]</b>	0.1	0.25
<b>Minimum Off-State dv/dt @ Maximum Rated Voltage [V/μsec]</b>	500	500

## Output <sup>(1)</sup>

Description	10 A	25 A	50 A	75 A	100 A	125 A
Maximum Load Current [Arms] <sup>(3)</sup>	10	25	50	75	100	125
Minimum Load Current [mArms]	50	50	100	100	100	100
Maximum 1 Cycle Surge Current (50/60 Hz) [Apk]	150/175	275/300	710/750	1050/1100	1120/1200	1600/1700
1 Second surge current (Apk. Ta=25°C) 50/60 Hz	50	85	150	225	300	375
Maximum On-State Voltage Drop @ Rated Current [Vpk]	1.35	1.35	1.35	1.3	1.3	1.25
Thermal Resistance Junction to Case (Rjc) [°C/W]	0.4	0.4	0.25	0.16	0.16	0.11
Maximum 1/2 Cycle I <sup>2</sup> t for Fusing (50/60Hz) [A <sup>2</sup> sec]	110/120	380/370	2520/2320	5500/5000	6270/6000	12800/12050
Minimum Heat Sink for Rated Current @ 40°C [°C/W]	5	2	1	0.7	0.5	0.5

## Input <sup>(1)</sup>

Description	8413xxx0	8413xxx2	8413xxx1
Control Voltage Range	3-32 VDC <sup>(4)</sup>	18-36 VAC	90-280 VAC <sup>(5)</sup>
Maximum Reverse Voltage	-32 VDC	-	-
Minimum Turn-On Voltage	3 VDC <sup>(4)</sup>	18 VAC	90 VAC
Must Turn-Off Voltage	1 VDC	4 VAC	10 VAC
Minimum Input Current (for on-state) [mA]	10	13	6
Maximum Input Current [mA]	15	15	10
Nominal Input Impedance [Ohm]	Current Regulated		
Maximum Turn-On Time [µsec]	1/2 Cycle <sup>(6)</sup>	20	20
Maximum Turn-Off Time [µsec]	1/2 Cycle	30	30

## General <sup>(1)</sup>

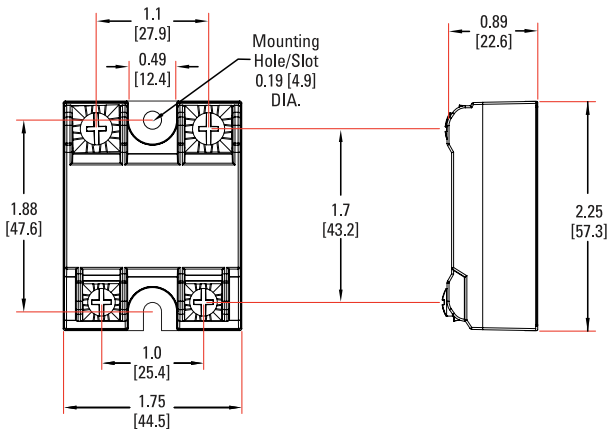
Description	Parameters
Dielectric Strength, Input/Output/Base (50/60 Hz)	4000 Vrms
Minimum Insulation Resistance (@ 500 VDC)	10 <sup>9</sup> Ohms
Maximum Capacitance, Input/Output	8 pF
Ambient Operating Temperature Range <sup>(7)</sup>	-40 to 80 °C
Ambient Storage Temperature Range	-40 to 125 °C
Weight (typical)	2.53 oz (72 g)
Housing Material	UL94 V-0
Baseplate Material	Aluminum
Input Terminal Screw Torque Range (lb-in/Nm)	13-15 / 1.5-1.7
Load Terminal Screw Torque Range (lb-in/Nm)	18-20 / 2-2.2
SSR Mounting Screw Torque Range (lb-in/Nm)	18-20 / 2-2.2
Humidity per IEC60068-2-78	93% non-condensing
LED Input Status Indicator	Green
MTBF (Mean Time Between Failures) at 40°C ambient temperature <sup>(8)</sup>	11,641,553 hours (1,328 years)
MTBF (Mean Time Between Failures) at 60°C ambient temperature <sup>(8)</sup>	7,210,376 hours (823 years)

## MECHANICAL SPECIFICATIONS (1)

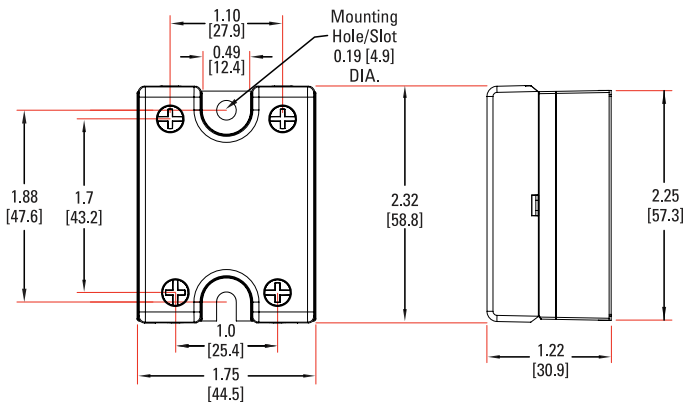
Tolerance:  $\pm 0.02$  in / 0.5 mm

All dimensions are in: inches [millimeters]

### Screw Termination, IP00

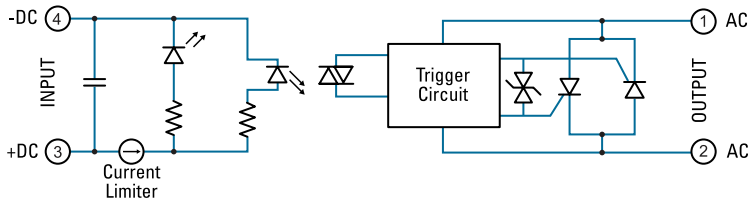


### Screw Termination, IP20

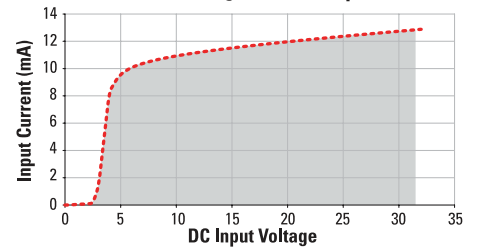


## EQUIVALENT CIRCUIT BLOCK DIAGRAMS

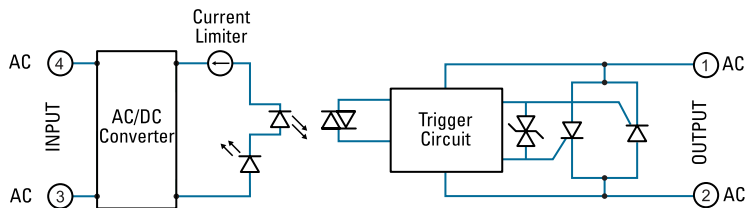
### GN Series DC Control



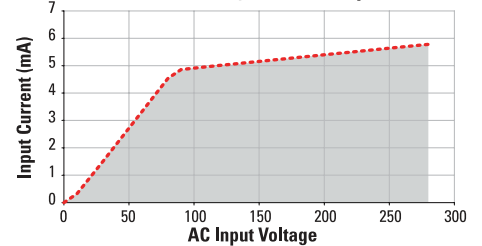
### Input Current vs Input Voltage Standard Regulated DC Input



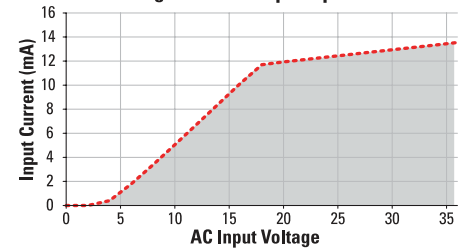
### GN Series AC Control



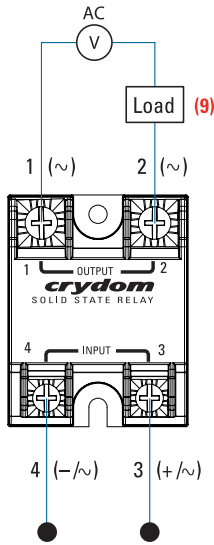
### Input Current vs Input Voltage Standard Regulated AC Input



### Input Current vs Input Voltage Regulated AC Input Option E



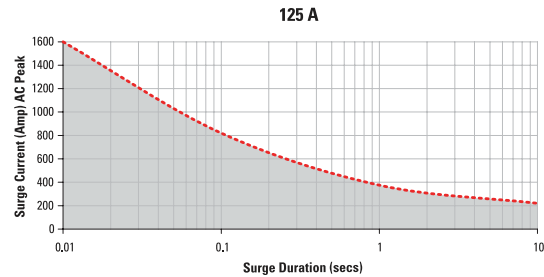
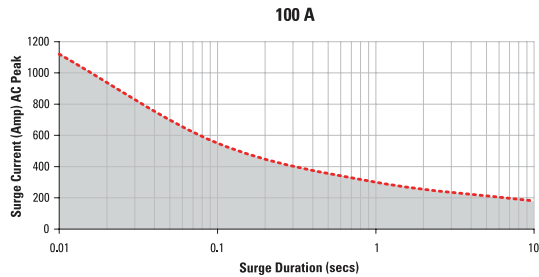
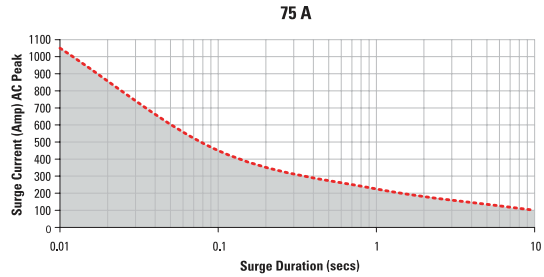
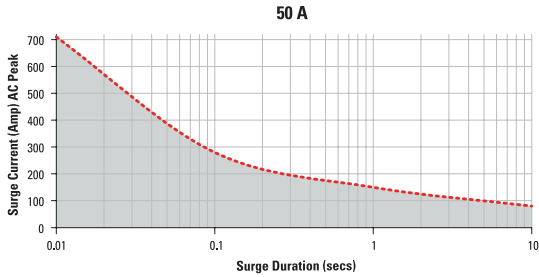
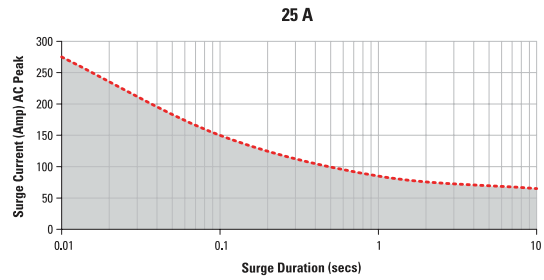
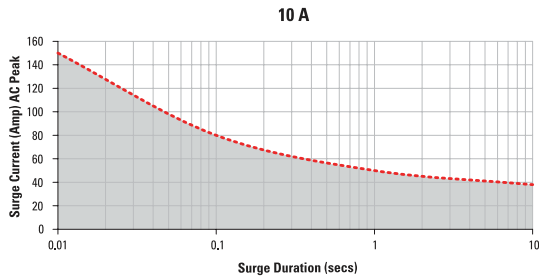
# WIRING DIAGRAM



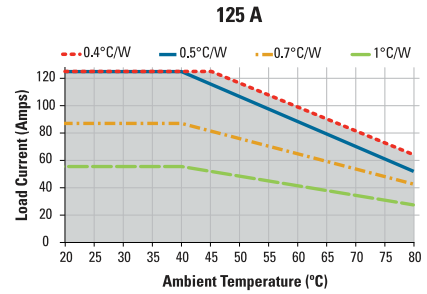
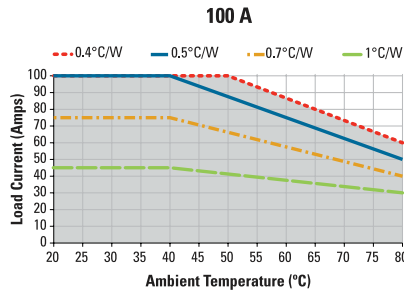
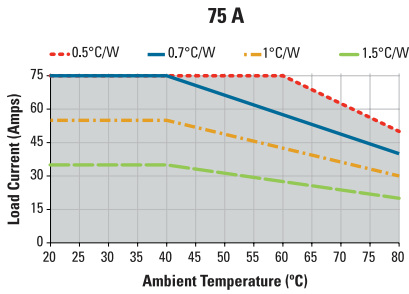
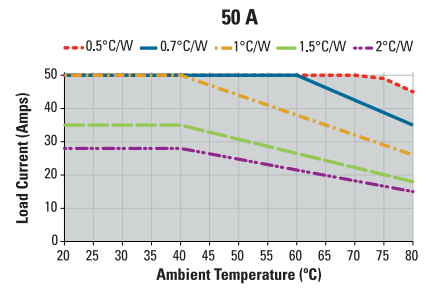
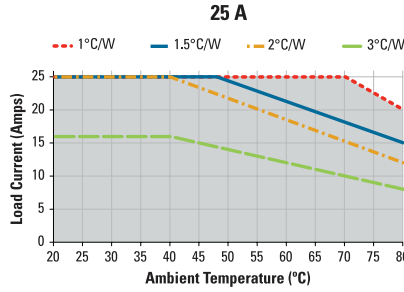
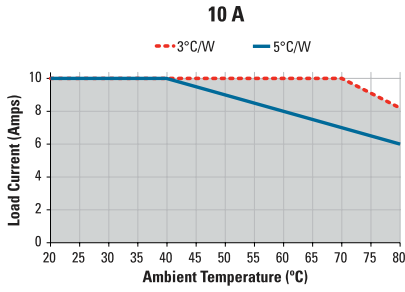
Recommended Wire Sizes		
Terminals	Wire Size (Solid / Stranded)	Wire Pull-Out Strength (lb)[N]
Input	24 AWG (0.2 mm <sup>2</sup> ) / 0.2 [minimum]	10 [44.5]
	2 x 12 AWG (3.3 mm <sup>2</sup> ) / 3.3 [maximum]	90 [400]
Output	20 AWG (0.5 mm <sup>2</sup> ) / 0.518 [minimum]	30 [133]
	2 x 10 AWG (5.3 mm <sup>2</sup> ) / 5.3	110 [490]
	2 x 8 AWG (8.4 mm <sup>2</sup> ) / 8.4 [maximum]	90 [400]

# SURGE CURRENT INFORMATION






--- Single Pulse (10)



# THERMAL DERATE INFORMATION



# ACCESSORIES

Recommended Accessories					
					
Cover	Hardware Kit	Heat Sink Part No.	Thermal Resistance [°C/W]	Lug Terminal	Thermal Pad
KS101	HK1	HS501DR	5.0	TRM1	HSP-1
		HS301 / HS301DR	3.0	TRM6	HSP-2
	HS251	2.5			
	HS201 / HS201DR	2.0			
	HS202 / HS202DR	2.0			
	HS172	1.7			
	HS151 / HS151DR	1.5			
	HS122 / HS122DR	1.2			
	HS103 / HS103DR	1.0			
	HS101	1.0			
	HS073	0.7			
	HS072	0.7			
	HS053	0.5			
	HS033	0.36			
HS023	0.25				

## ORDERING OPTIONS

Example : 84134010H

	8413	4	0	1	0	H
<b>Series</b>						
8413						
<b>Touch Safe Cover</b>						
4 : Not included (IP00) 7 : Included (IP20)						
<b>Operating Voltage</b>						
0 : 24-280 VAC/Zero Voltage Turn-On 1 : 48-660 VAC/Zero Voltage Turn-On 2 : 24-280 VAC/Instantaneous Turn-On 3 : 48-660 VAC/Instantaneous Turn-On						
<b>Rated Load Current</b>						
0 : 10 Amps 1 : 25 Amps 2 : 50 Amps 3 : 75 Amps 4 : 100 Amps 8 : 125 Amps						
<b>Control Voltage</b>						
0 : 3-32 VDC 1 : 90-280 VAC 2 : 18-36 VAC						
<b>Thermal Pad</b>						
Blank : Not Included H : Included						

— Required for valid part number  
□ For options only and not required for valid part number

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

## GENERAL NOTES

- (1) All parameters at 25°C unless otherwise specified.
- (2) Output will self trigger between 450-600 Vpk / 900-1200 Vpk for 280 VAC/660 VAC models not suitable for capacitive loads.
- (3) Heat sinking required, see derating curves.
- (4) 14-32 VDC for 48-660 VAC models.
- (5) For ambient temperatures above 40°C the maximum control voltage must not exceed 250 VAC.
- (6) Turn-on time for Instantaneous turn-on versions is 0.1 msec.
- (7) AC models operating range is -20 to 80°C.
- (8) All parameters at 50% power rating and 100% duty cycle (contact Crydom tech support for detailed report).
- (9) Load can be wired to either SSR output terminal 1 or 2.
- (10) For single surge pulse Tc=25°C; Tj=125°C. For AC Output SSRs, AC Rms value of surge current equals the peak value divided by  $\sqrt{2}$  (1.414).

For additional information or specific questions, contact Technical Support.

## AGENCY APPROVALS & CERTIFICATIONS



EN60950-1: Meets the requirements of sections 1.5: 1.7: 2.9: 2.10.5.3: 4.2: 4.5: 4.7:

Certified according to EN 62314:2006

IEC 61000-4-2 Electrostatic Discharge Level 3

IEC 61000-4-4 Electrically Fast Transients Level 3

IEC 61000-4-5 Electrical Surges Level 3

## WARNINGS



### RISK OF MATERIAL DAMAGE AND HOT ENCLOSURE

- The product's side panels may be hot, allow the product to cool before touching
- Follow proper mounting instructions including torque values
- Do not allow liquids or foreign objects to enter this product

**Failure to follow these instructions can result in serious injury, or equipment damage.**



### HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

- Disconnect all power before installing or working with this equipment
- Verify all connections and replace all covers before turning on power

**Failure to follow these instructions will result in death or serious injury.**

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Mailing Address: Sensata Technologies, Inc., 529 Pleasant Street, Attleboro, MA 02703, USA

## CONTACT US

### Americas

+1 (877) 502 5500  
[sales.crydom@sensata.com](mailto:sales.crydom@sensata.com)

### Europe, Middle East & Africa

+44 (1202) 416170  
[ssr-info.eu@sensata.com](mailto:ssr-info.eu@sensata.com)

### Asia Pacific

[sales.isasia@list.sensata.com](mailto:sales.isasia@list.sensata.com)  
China +86 (21) 2306 1500  
Japan +81 (45) 277 7117  
Korea +82 (31) 601 2004  
India +91 (80) 67920890  
Rest of Asia +886 (2) 27602006  
ext 2808