

# › GNR Series

## Classic Solid State Relays

### DIN Rail - AC Output Single Phase

- › Output current of 20 and 30 Amps
- › Output voltage of 24-280 V $\sim$ , 25-500 V $\sim$  and 48-660 V $\sim$
- › Control voltage of 4-32 V $\text{---}$ , 80-140 V $\sim$  and 180-280 V $\sim$
- › Zero cross or instantaneous (resistive or inductive loads)
- › Integrated IP20 touch-safe removable covers
- › Built-in overvoltage protection
- › LED input status indicator



Zero Cross  
Version 22.5 mm

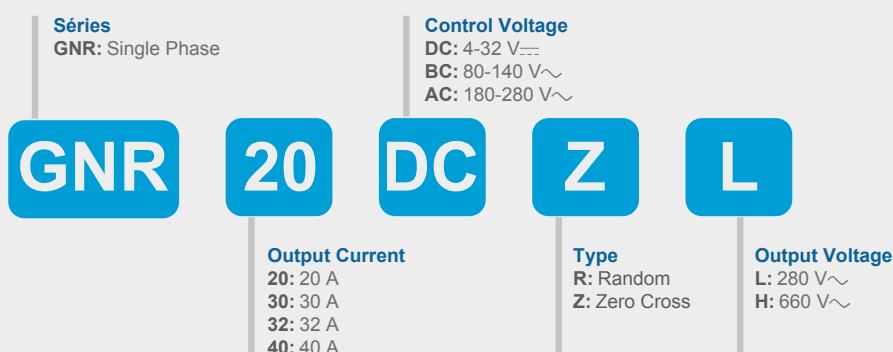


Instantaneous  
Version 22.5 mm

Product Selection - Zero Cross (Resistive loads)			
Rated Load Current	20A		30A
Operating Voltage	24-280 V $\sim$	48-660 V $\sim$	48-660 V $\sim$
Control Voltage			
4-32 V $\text{---}$	<b>GNR20DCZL</b>	<b>GNR20DCZH</b>	<b>GNR30DCZH</b>
80-140 V $\sim$		<b>GNR20BCZH</b>	<b>GNR30BCZH</b>
180-280 V $\sim$		<b>GNR20ACZH</b>	<b>GNR30ACZH</b>

Product Selection - Instantaneous (Inductive Loads)	
Rated Load Current	30A
Operating Voltage	24-500 V $\sim$
Control Voltage	
4-32 V $\text{---}$	<b>GNR25DCRH</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
Label	Label for SSR identification	26532004

Output Specifications <sup>(1)</sup>				
Description	20A		30A	30A
Maximum Load Current [Arms]	20		30	
Minimum Load Current [mArms]	5			
Operating Voltage	24-280 V $\sim$	48-660 V $\sim$	24-500 V $\sim$	48-660 V $\sim$
Transient Voltage [Vpk] <sup>(2)</sup>	600 (550)	1200 (1100)	1200 (950)	1200 (1100)
Maximum Off-State Leakage Current @ Rated Voltage [mArms]	1			
Minimum Off-State dV/dt @ Maximum Rated Voltage [V/ $\mu$ sec]	500			
1 Second Surge Current (Apk. Ta=25 °C) 50/60 Hz	95	96	165	
Maximum 1 Cycle Surge Current (50/60 Hz) [Apeak] Typ @ 50 Hz	270/284 (min) 340 (typ)	320/_ (min) 420 (typ)	530/_ (min) 580 (typ)	
Maximum On-State Voltage Drop @ Rated Current [Vpeak]	1.17	1.04	1.07	
Thermal Resistance Junction to Case (Rjc) [°C/W]	1.8	0.7	0.55	
Maximum 1/2 Cycle I <sup>2</sup> t for Fusing @ 50 Hz (min. / typical) [A <sup>2</sup> sec]	340/600	512/882	1404/1680	
Minimum Heat Sink for Rated Current @ 40 °C [°C/W]	N/A (SSR with heatsink)			

Input Specifications			
Description	4-32 V $\text{---}$	80-140 V $\sim$	180-280 V $\sim$
Control Voltage Range	4-32 V $\text{---}$ <sup>(4)</sup>	80-140 V $\sim$	180-280 V $\sim$
Maximum Reverse Voltage	-32 V VDC	N/A	
Minimum Turn-On Voltage	3 V $\text{---}$	80 V $\sim$	180 V $\sim$
Must Turn-Off Voltage	1 V $\text{---}$	5 V $\sim$	
Minimum Input Current (for on-state)	10 mA	4 mA	
Maximum Input Current [mA]	14 mA	10 mA	8 mA
Nominal Input Impedance [Ohms]	Current Limited	15 K $\Omega$	47 K $\Omega$
Maximum Turn-On Time [msec]	1/2 Cycle <sup>(5)</sup> (<0.1 for Random)		
Maximum Turn-Off Time [msec]	1/2 Cycle <sup>(5)</sup>		

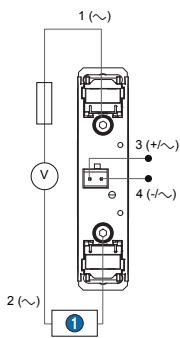
General Specifications			
Description	20A	30A	30A
Dielectric Strength, Input to Output (50/60 Hz)	4000 Vrms		
Dielectric Strength, Input/Output to Ground (50/60 Hz)	2500 Vrms	4000 Vrms	
Minimum Insulation Resistance (@ 500 V $\text{---}$ )	10 <sup>9</sup> $\Omega$		
Maximum Capacitance, Input/Output	0.8 pF		
Ambient Operating Temperature Range <sup>(7)</sup>	-40 to 80 °C		
Ambient Storage Temperature Range	-40 to 100 °C		
Weight (typical)	250 g		
Housing Material	UL94 V-0		
Baseplate Material	Aluminum		
Input Terminal Screw Torque Range (in-lb/Nm)	3.5-4.4 / 0.4-0.5		
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	Yellow		

General Specifications			
Description	20A	30A	30A
MTBF (Mean Time Between Failures) at 40 °C ambient temperature (years) <sup>(5)</sup>	85		
MTBF (Mean Time Between Failures) at 60 °C ambient temperature (years) <sup>(5)</sup>	56		

General Notes	
<sup>(1)</sup> All parameters at 25 °C unless otherwise specified	
<sup>(2)</sup> Output will self trigger between 450-600 Vpk not suitable for capacitive loads	
<sup>(3)</sup> Heat sinking required, see derating curves	
<sup>(4)</sup> Increase minimum voltage by 1V 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**

GNR



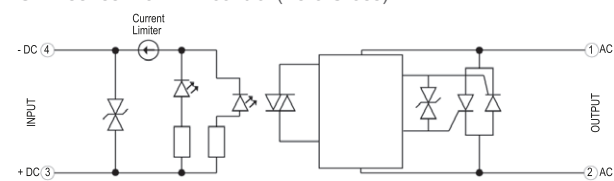
TERMINALS	WIRE SIZE		Terminal Screw Torque (N.m)
	SOLID	STRANDED	
<b>Input</b>	18..14 AWG (0.75..2.5 mm <sup>2</sup> ) 2 x 18..14 AWG (0.75..2.5 mm <sup>2</sup> )	26..12 AWG (0.2..2.5 mm <sup>2</sup> ) 2 x 26..12 AWG (0.2..2.5 mm <sup>2</sup> )	0.4 - 0.5
<b>Output</b>	16..8 AWG (1.5..10 mm <sup>2</sup> ) 2 x 16..8 AWG (1.5..10 mm <sup>2</sup> )	16..8 AWG (1.5..6 mm <sup>2</sup> ) 2 x 16..10 AWG (1.5..6 mm <sup>2</sup> )	2 - 3

GNR

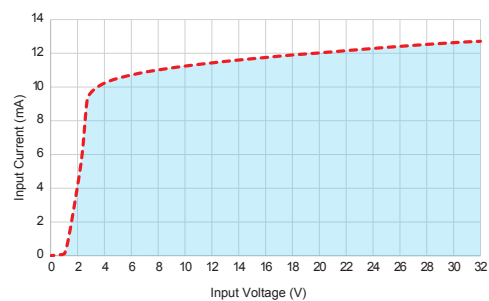


**Diagrams**  
**Equivalent Circuit Block**

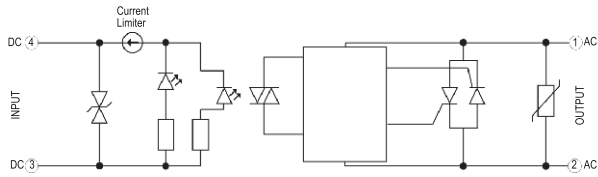
GNR series 4-32 V<sub>AC</sub> control (Zero Cross)



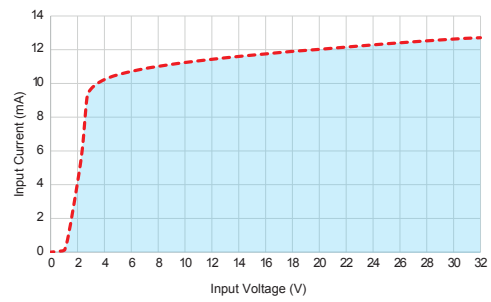
Input current vs Input Voltage  
Standard Regulated AC inputs



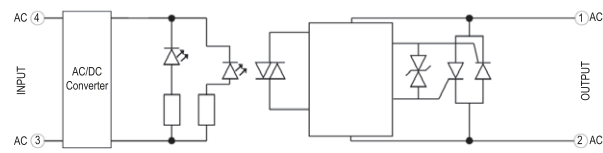
GNR series 4-32 V<sub>DC</sub> control (Random)



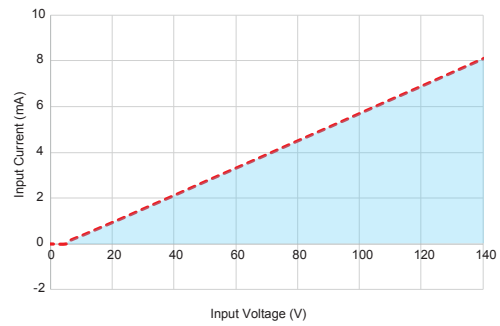
Input current vs Input Voltage  
Standard Regulated AC inputs



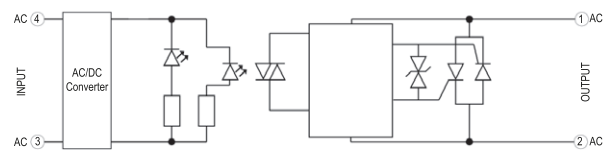
GNR series 80-140 V<sub>AC</sub> control



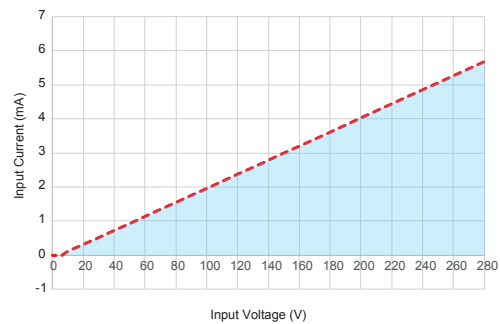
Input current vs Input Voltage  
Standard Regulated DC inputs



GNR series 180-280 V<sub>AC</sub> control



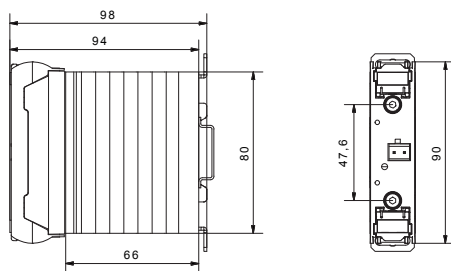
Input current vs Input Voltage  
Standard Regulated DC inputs



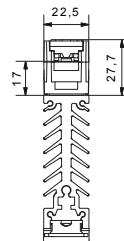
Diagrams

Dimensions (mm)

GNR front view



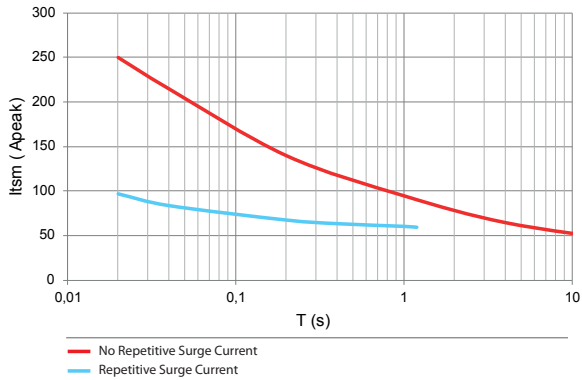
GNR Side view



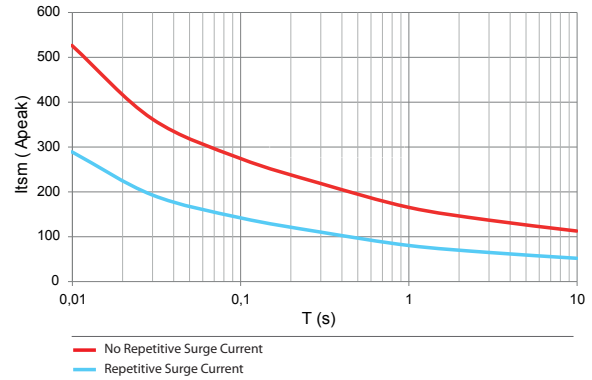
Curves

Surge Current Information

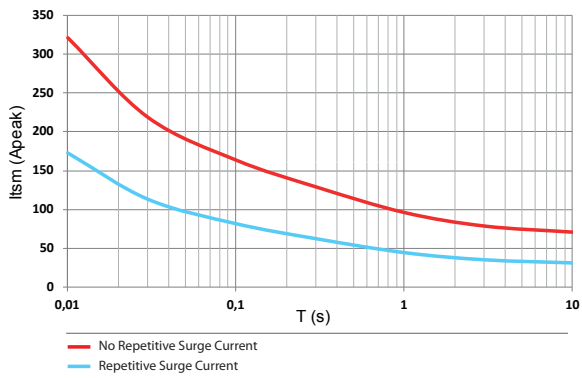
GNR - 20 A - 280 V~



GNR - 30 A



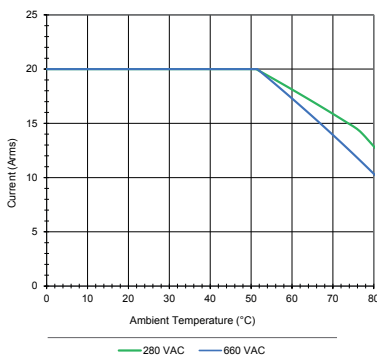
GNR - 20 A - 660 V~



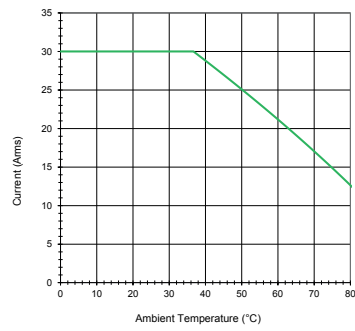
Curves

Thermal Derating Curves

GNR - 20 A



GNR - 30 A



**Standards Specifications**ZERO CROSS

IEC/EN61000-4-4 (bursts)	2 kv crit B
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)

RANDOM

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 GNR25DCRH

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