

## | DR22C SERIES

### DIN RAIL MOUNT SSR ASSEMBLIES

Nova22 DR22C Series are last generation DIN Rail mount Solid State Relays in a 22.5mm wide industrial package. These SSRs come with an integral low depth heat sink and a robust back-to-back SCR output rated for up to 32 Amps at 600 VAC. This provides users with a compact solution to switch small and medium AC loads, allowing to reduce cabinet space without sacrificing performance. These powerful and ready to use SSRs are perfect for applications where the depth of the control panel is limited, and they are UL and TUV approved and CE compliant.



**NOVA22**

### Features

- Output ratings up to 32 Amps at 600 VAC
- Built-in overvoltage protection
- Contactor configuration
- Integral heat sink eliminates the need for complex thermal calculations
- DBC substrate for superior thermal performance
- IP20 touch-safe housing
- AC or DC control
- Relays are C-UL-US and TUV approved (see TABLE 3)

### Applications

- Industrial ovens
- Plastic injection molding equipment
- Packaging equipment
- Professional cooking equipment
- Lighting control
- HVAC&R

## PRODUCT SELECTION

Control Voltage	27 A	32 A
90-280 VAC/VDC	DR22C60A27VJ	DR22C60A32VJ
4-32 VDC	DR22C60D27VJ	DR22C60D32VJ

## SPECIFICATIONS

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

Description	27 A	32 A
Operating Voltage (47-440 Hz) [Vrms]	48-600	48-600
Transient Overvoltage [Vpk] <sup>(2)</sup>	1200	1200
Maximum Off-State Leakage Current @ Rated Voltage [mArms]	1	1
Minimum Off-State dv/dt @ Maximum Rated Voltage [V/sec]	500	500
Load Current, General Use UL508/LC A IEC 62314 @ 40°C [Arms]	30	35
Minimum Load Current [mArms]	100	150
Maximum 1 Cycle Surge Current (50/60 Hz) [Apk]	716/750	1290/1350
Maximum On-State Voltage Drop @ Rated Current [Vpk]	1.35	1.30
Maximum 1/2 Cycle I <sup>2</sup> t for Fusing (50/60 Hz) [A <sup>2</sup> sec]	2563/2343	8320/7593
Minimum Power Factor (at Maximum Load) <sup>(4)</sup>	0.5	0.5

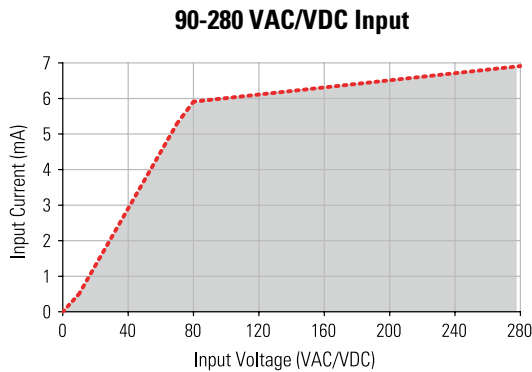
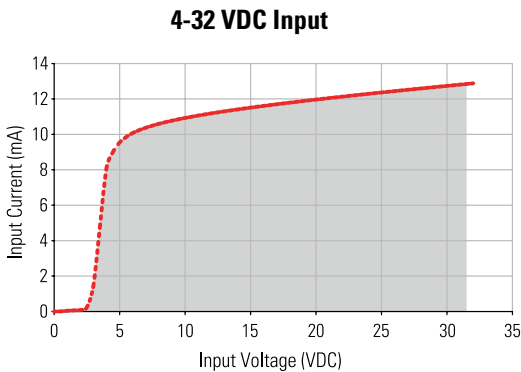
Input<sup>(1)</sup>

Description	DR22C60DxxJ	DR22C60AxxJ
Control Voltage Range [VDC]	4-32 VDC <sup>(4)</sup>	90-280 VAC/VDC <sup>(4)</sup>
Maximum Reverse Voltage	-32 VDC	-
Minimum Turn-On Voltage	4 VDC	90 VAC/VDC
Must Turn-Off Voltage	1 VDC	5 VAC/VDC
Minimum Input Current (for on-state)	7 mA	6 mA
Maximum Input Current	15 mA	10 mA
Nominal Input Impedance	Current Regulated	Current Limited
Maximum Turn-On Time [msec]	1/2 Cycle <sup>(6)</sup>	20
Maximum Turn-Off Time [msec]	1/2 Cycle	30

General<sup>(2)</sup>

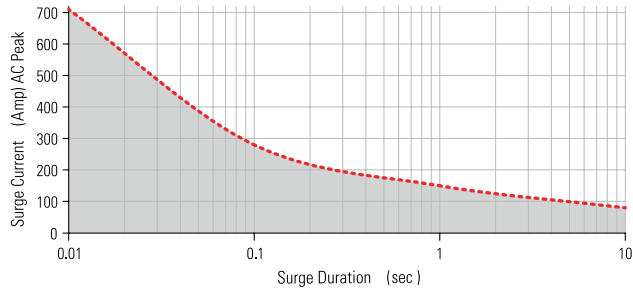
Description	Parameters
Dielectric Strength, Input to Output (50/60 Hz)	4000 Vrms
Dielectric Strength, Input/Output to Case (50/60 Hz)	4000 Vrms
Minimum Insulation Resistance (@ 500 VDC)	10 <sup>9</sup> Ohms
Maximum Capacitance, Input/Output	8 pF
Ambient Operating Temperature Range <sup>(7)</sup>	-40 to 80 °C
Ambient Storage Temperature Range	-40 to 100 °C
Weight (typical)	9.17 oz (260 g)
Housing Material	UL94 V-0
Heat Sink Material	Aluminum
DIN Rail Clip Material	Zink Plated Steel
Hardware Finish	Nickel Plating
Load Terminal Screw Torque Range (lb-in/Nm)	18-20 / 2-2.2
Humidity	95% non-condensing
LED Input Status Indicator	Green

INPUT CURRENT INFORMATION

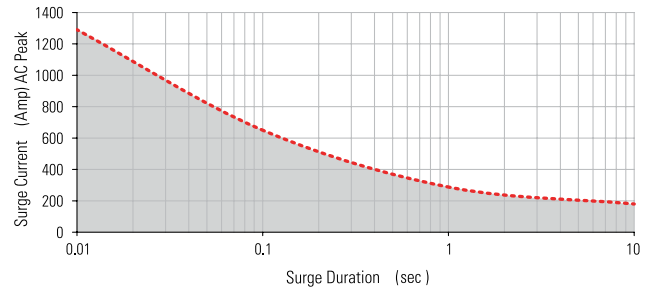


## SURGE CURRENT INFORMATION

DR22C60x27J



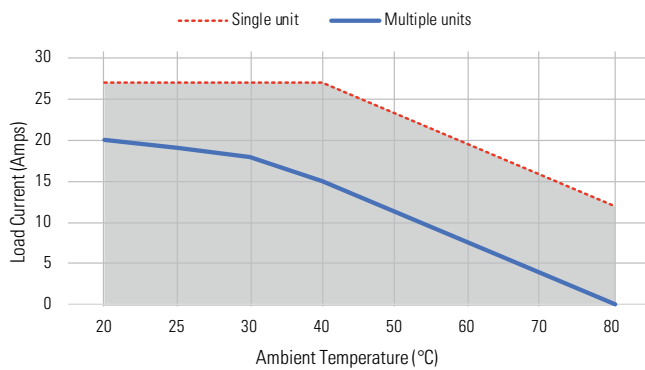
DR22C60x32J



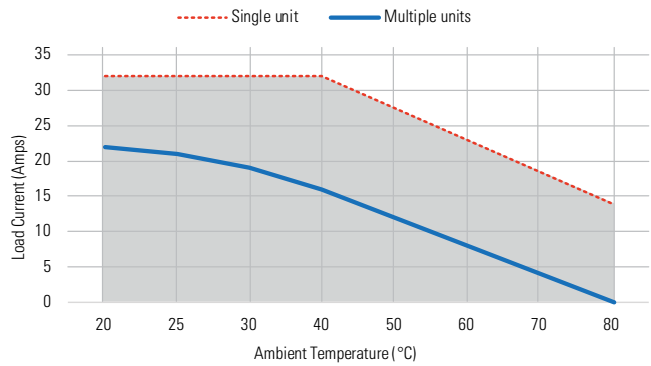
--- Single Pulse (8)

## THERMAL DERATE INFORMATION (7)

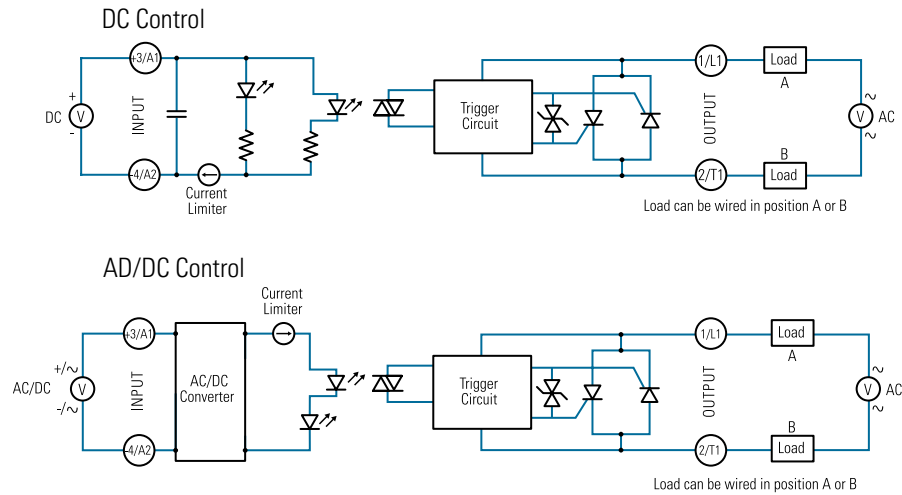
DR22C60x27J



DR22C60x32J



## EQUIVALENT CIRCUIT BLOCK DIAGRAMS/WIRING DIAGRAM



# INSTALLATION INSTRUCTIONS

Please read all installation instructions before using your DR22C Series Solid State Relay (SSR).

- Install the relay on the DIN Rail (as shown in fig. 1)
- Maximum recommended terminal screw torque load terminal: 18-20 lb-in (2.0-2.2 Nm)
- If multiple units are installed be sure to follow derating curves
- To achieve maximum ratings, there must be a minimum spacing of 0.89 in (22.5 mm) between the devices in free air (as shown in fig. 2)
- Recommended wire sizes as shown in TABLE 1

**WARNING!** Removing product from 35 mm rail incorrectly by not using the appropriate tool would damage the latching system.

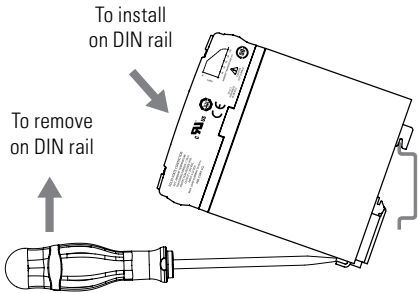


fig.1 SSR mounted on DIN rail

TABLE 1. Recommended Wire Sizes		
Terminal Configuration	Wire Size (Solid / Stranded)	Wire Pull-Out Strength (lb)[N]
Output	2 x 20 AWG (0.75 mm²) [minimum]	25 [111]
	2 x 10 AWG (6 mm²)	80 [355]
	2 x 8 AWG (10 mm²) [maximum]	90 [400]
Input (Spring)	26 AWG (0.13 mm²) [minimum]	5 [22]
	12 AWG (3.3 mm²) [maximum]	5 [22]

0.89in [22.5 mm] Minimum

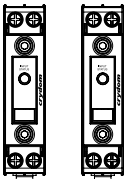


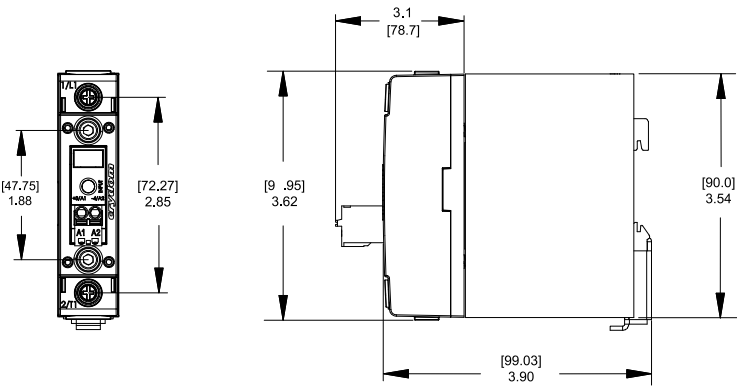
fig.2 Multiple units mounting for maximum ratings

Protective Earth Connection	
	<p>Protective Earth (PE) screw type recommended is 10-32 UNC standard not provided with SSR.</p> <p>Through the use of a DIN rail ground (protective conductor) terminal block, the DIN rail itself can be used as the grounding bus bar. In this case, the zinc plated steel material used for the DIN rail clip of DR22C models, permits a secure path to ground and avoid the need of a further PE connection.</p>

TABLE 2. Compatible Terminals	
Terminal	<p><b>Fork Lug</b></p>
Width [W] in (mm)	0.45 (11.4)
Stud Size Dia [D] (in)	#8 (0.168)

# MECHANICAL SPECIFICATIONS

Tolerances: +/- 0.02 in / 0.5mm  
 All dimensions are in inches [millimeters]



Input Connector	
Spring Terminal	

# AVAILABLE OPTIONS

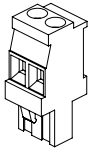
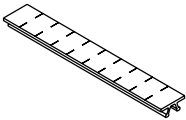
Example : DR22C60D27VRJ

	DR22C	60	D	27	V	R	J
Series							
DR22C							
Operating Voltage							
60: 48-600 VAC							
Control Voltage							
A: 90-280 VAC/VDC D: 4-32 VDC							
Rated Load Current							
27: 27 Amps 32: 32 Amps [High I²t]							
Terminal Layout							
V: Contactor Configuration							
Switching Type							
Blank: Zero Voltage Turn-On R: Instantaneous Turn-On							
Input Connector							
J: Spring Terminal							

☐ Required for valid part number  
☒ For options only and not required for valid part number

TABLE 3. Assemblies Detail	
Assembly Part Number	SSR Included
DR22C60D27VJ	PM2260D50VJ
DR22C60D27VRJ	PM2260D50VRJ
DR22C60D32VJ	PM2260D95VJ
DR22C60D32VRJ	PM2260D95VRJ
DR22C60A27VJ	PM2260A50VJ
DR22C60A27VRJ	PM2260A50VRJ

## ACCESSORIES

Recommended Accessories	
 <p><b>Connectors</b></p> <p>CP201 CP202</p>	 <p><b>ID Marker</b></p> <p>CNLB CNLN CNL2</p>

## AGENCY APPROVALS & CERTIFICATIONS

Certification in accordance with:  
 United States Standard for Industrial Control Equipment - UL 508 and Canadian  
 Standard Association for Industrial Control Equipment – C22.2 No. 14.  
 TUV Certified in accordance to EN62314

Agency certifications are for relay only (not for complete assembly)

Vibration Resistance: <sup>(10)</sup>  
 IEC 60068-2-6: Amplitude Range 10-500 Hz, Displacement 0.75 mm

Shock Resistance: <sup>(10)</sup>  
 IEC 60068-2-27: Peak Acceleration 50g, Duration 11 ms.



Electromagnetic Compatibility				
Generic Standard	Immunity Tests	Test Specification Level		Performance
IEC 61000-6-2 Immunity for Industrial Environments	Electrostatic Discharge IEC 61000-4-2	8 kV air discharge		Criterion B
		6 kV contact discharge		Criterion A
	Fast transients (burst) IEC 61000-4-4	Output	2 kV, 5 kHz, 100 kHz	Criterion B
		Input	1 kV, 5 kHz, 100 kHz	Criterion B
	Surge IEC 61000-4-5	Output	1 kV Line to Earth	Criterion B
			2 kV Line to Earth	Criterion B
		AC Input Option	1 kV Line to Earth	Criterion B
			2 kV Line to Earth	Criterion B

## GENERAL NOTES

- (1) All parameters at 25°C unless otherwise specified.
- (2) Output will self trigger between 900-1200 Vpk, not suitable for capacitive loads.
- (3) High inductive loads requires nominal control voltage; AC input models only.
- (4) Increase minimum voltage by 1 V for operations from -20 to -40°C.
- (5) For ambient temperatures above 40°C the maximum control voltage must not exceed 220 VAC/VDC.
- (6) Turn-on time for Instantaneous turn-on versions is 0.1 msec.
- (7) AC input models operating range is -20 to 60 °C.
- (8) For single surge pulse  $T_c=25^\circ\text{C}$ ;  $T_j=125^\circ\text{C}$ . For AC Output SSRs, AC RMS value of surge current equals the peak value divided by  $\sqrt{2}$  (1.414).
- (9) Minimum spacing to obtain max. current is 22.5 mm between adjacent units.
- (10) Test made with a unit fixed between DIN RAIL Stoppers. Multiple devices mounted close each other, results may vary.

## 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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