DR22 SERIES | AC OUTPUT LOW-PROFILE

DIN RAIL MOUNT SOLID STATE RELAYS

Nova22 DR22 Series are last generation DIN Rail mount Solid State Relays in a 22.5mm wide industrial package. “Low-profile” versions come with an integral low-profile heat sink and a TRIAC output rated for up to 30 Amps at 280 VAC. This provides users with a cost-effective solution to switch small and medium AC loads that allows to reduce manufacturing cost and cabinet space without sacrificing performance, and to optimize equipment operation time.
These powerful and ready to use SSRs are perfect for applications where the depth of the control panel is limited, and they are UL approved and CE compliant.

NOVA22

Features

- Output ratings up to 30 Amps at 280 VAC
- Relay configuration
- Compact 22.5 mm wide package
- Snubber circuit
- Built-in overvoltage protection
- IP20 touch-safe housing
- Wide 3-32 VDC control input
- Integrated low-profile heatsink
- C-UL-US approved

Applications

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

PRODUCT SELECTION

Control Voltage	20 A	30 A
3-32 VDC	DR2224D20Ux	DR2224D30Ux

SPECIFICATIONS

Output [1]

Description	20 A	30 A
Operating Voltage (47-63 Hz) [Vrms]	24-280	24-280
Transient Overvoltage [Vpk] [2]	600	600
Minimum Off-State dV/dt @ Maximum Rated Voltage [V/µsec]	500	500
Maximum Off-State Leakage Current @ Rated Voltage [mArms]	3	3
Load Current, General Use UL508 @40°C [Arms]	20	30
Load Current, Motor Starting UL508 FLA @40°C [Arms]	9.8	13.8
Minimum Load Current [mArms]	100	100
Maximum 1 Cycle Surge Current (50/60 Hz) [Apk]	400/440	
Maximum On-State Voltage Drop @ Rated Current [Vpk]	1.2	1.3

Maximum 1/2 Cycle I^2t for Fusing (50/60Hz) [A^2sec]	800/806	
Motor Rating UL 508 [HP (kW)]: 120 VAC	0.5 (0.37)	0.75 (0.55)
Motor Rating UL 508 [HP (kW)]: 240 VAC	1.5 (1.1)	2 (1.5)

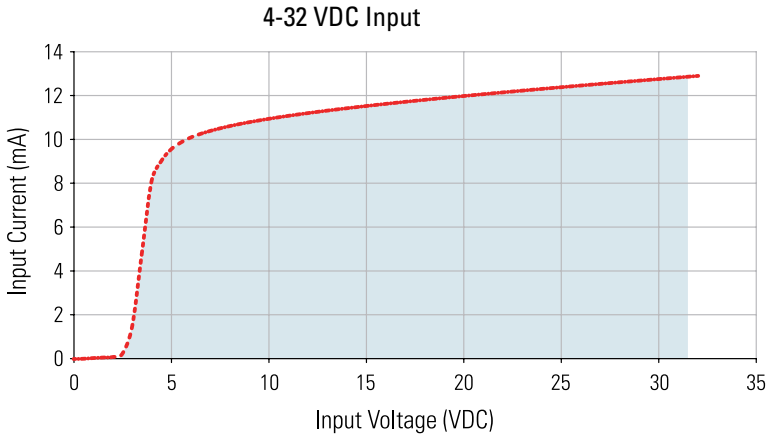
Input [(1)]

Description	DR2224Dxxxx
Control Voltage Range [VDC] [(3)]	3-32
Minimum Turn-On Voltage [VDC]	3
Must Turn-Off Voltage [VDC]	1
Minimum Input Current (for on-state) [mA]	8
Maximum Input Current [mA]	15
Nominal Input Impedance	Current Regulated
Maximum Turn-On Time [(4)]	1/2 Cycle
Maximum Turn-Off Time	1/2 Cycle
Maximum Turn-Off Time [µsec]	100

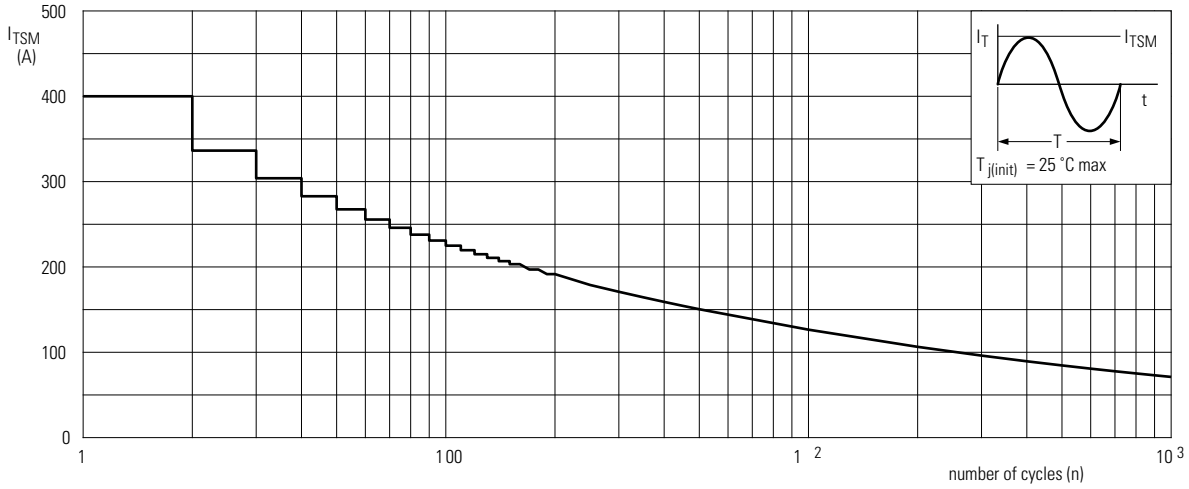
General [(1)]

Description	Parameters
Dielectric Strength, Input to Output (50/60 Hz)	3750 Vrms
Dielectric Strength, Input/Output to Case (50/60 Hz)	2500 Vrms
Minimum Insulation Resistance (@ 500 VDC)	10^9 Ohms
Maximum Capacitance, Input/Output	8 pF
Ambient Operating Temperature Range	-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
Humidity	95% non-condensing
Input and Output Terminal Screw Torque Range (lb-in/Nm)	13-15 / 1.5-1.7
LED Input Status Indicator	Green

INPUT CURRENT INFORMATION



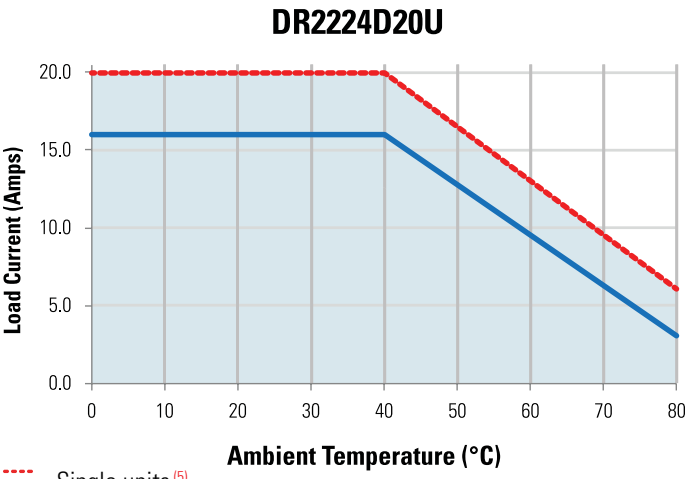
SURGE CURRENT INFORMATION

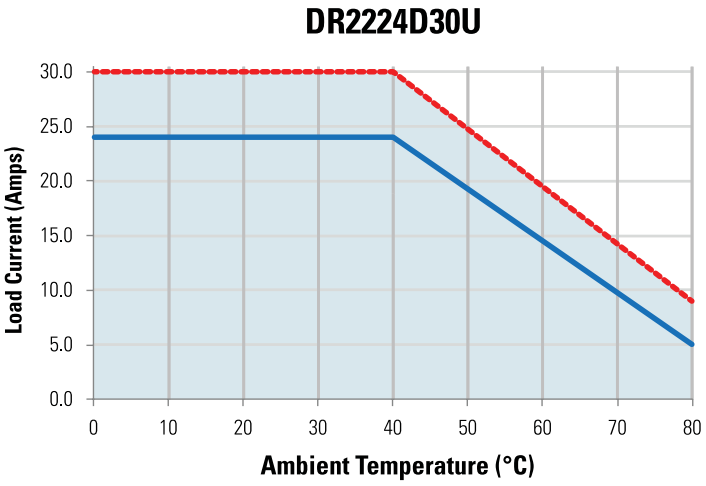


f = 50 Hz

Non-repetitive peak on-state current as a function of the number of sinusoidal current cycles; maximum values.

THERMAL DERATE INFORMATION



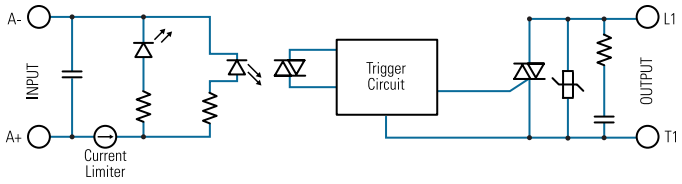


Single units [5]

Multiple units, no minimum spacing between components

EQUIVALENT CIRCUIT BLOCK DIAGRAMS/WIRING DIAGRAM

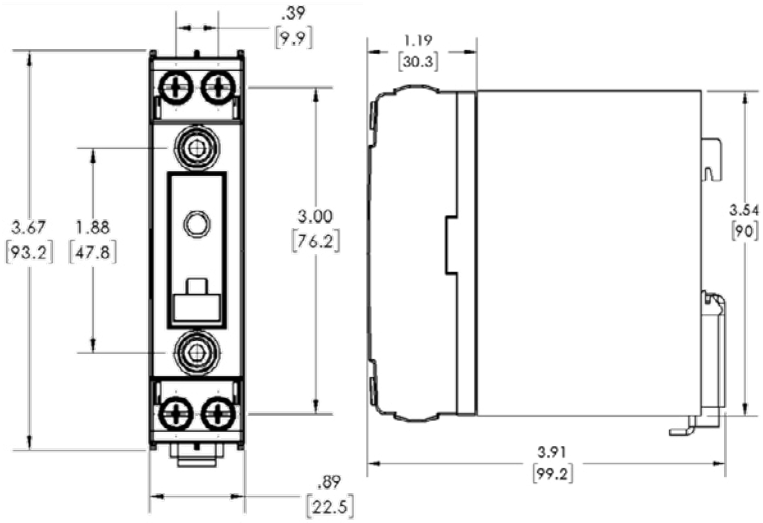
Load can be wired to either terminal 1 or terminal 2.

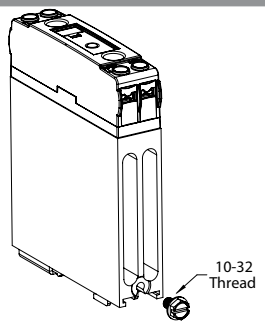


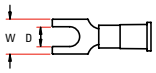
Recommended Wire Sizes		
Terminal Configuration	**Wire Size (Solid / Stranded)**	**Wire Pull-Out Strength (lb)[N]**
Output Relay "U" suffix	2 x 18 AWG (1 mm²) Stranded	20 [88]
	2 x 10 AWG (6 mm²) Stranded	60 [266]
Input Relay "U" suffix	2 x 18 AWG (1 mm²) Stranded	20 [88]
	2 x 12 AWG (4 mm²) Stranded	40 [177]

MECHANICAL SPECIFICATIONS

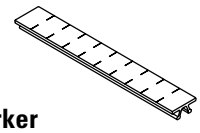
*Tolerances: ±0.02 in / 0.5 mm All dimensions are in: inches [millimeters]



Protective Earth Connection

Protective Earth (PE) Screw Type recommended is 10-32 UNC standard not provided With SSR. Through the use if a DIN rail ground (protective conductor_ Therminal block, the DIN rail clip of DR22 models, permits as secure path to ground and avoid the need of further PE protection.

Compatible Terminal	
Terminal	 **Fork Lug**
Width [W] in (mm)	0.45 (11.4)
Stud Size Dia [D] (in)	#8 (0.168)

ACCESSORIES

Recommended Accessories
 **ID Marker**
CNLB CNLN CNL2

AVAILABLE OPTIONS

Example : DR2224D20UR

DR22	24	D	20	U	R

Series

DR22

Operating Voltage

24: 24-280 VAC

Control Voltage

D: 3-32 VDC

Rated Load Current

20: 20 Amps
30: 30 Amps

Terminal Layout

U: Relay Configuration

Switching Type

Blank: Zero Voltage Turn-On
R: Instantaneous Turn-On (Motor Rating Certified)

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

GENERAL NOTES

(1) **All parameters at 25°C unless otherwise specified.**
(2) **Internal protection will activate between 440-540 Vpk, intended to protect power semiconductor for high frequency transient only. Internal damage can occur if device is operated beyond voltage limits.**
(3) **Increase minimum voltage by 1 V for operations from -20 to -40°C.**
(4) **Turn-on time for instantaneous turn-on versions is 0.1 msec.**
(5) **Minimum spacing to obtain maximum current is 22.5mm between adjacent units.**

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.

c UL us E116949 CE RoHS IEC emc 50

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

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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