DR22 SERIES | DC OUTPUT

DIN RAIL MOUNT SOLID STATE RELAYS

Features

- Output ratings up to 30 Amps at 200 VDC
- Integral heat sink eliminates the need for complex thermal calculations
- DBC substrate for superior thermal performance
- LED input status indicator
- IP20 touch-safe housing
- 1kHz Maximum PWM Frequency
- 3750 VAC optical isolation
- C-UL-US approved

PRODUCT SELECTION

Control Voltage	20 A	30 A
4-32 VDC	DR2220D20U	DR2220D30U

SPECIFICATIONS

Output (1)

Description	20 A	30 A
Absolute Maximum Rating [VDC]	200	200
Recommended Operating Voltage [VDC]	1-150	1-150
Maximum Off-State Leakage Current @ Rated Voltage [mArms]	0.1	0.2
Load Current, DC General Use UL508 @ 40°C [ADC]	20	30
Load Current, DC Motor Starting UL508 FLA @ 40°C [ADC]	4.1	5.4
Minimum Load Current [mA] (2)	5	5
Maximum Surge Current [ADC] (10ms)	58	86
Maximum On-State Voltage Drop @ Rated Current [VDC]	0.680	0.535
Maximum On-State Resistance [RDS-ON][Ohms]	0.034	0.016
Maximum Pulse Width Modulation Frequency [Hz] (3)	1000	900
Motor Rating UL 508 [HP (kW)]: 120 VDC	1/3 (0.25)	1/2 (0.37)

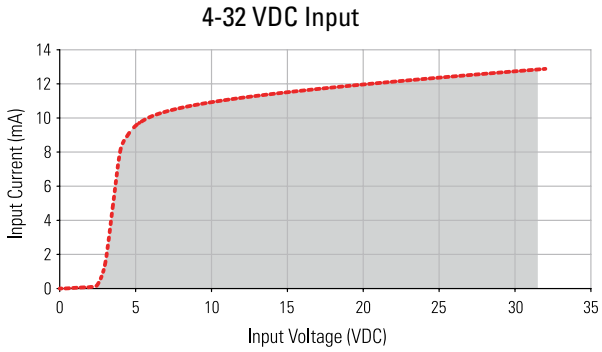
Input [1]

Description	DC Control
Control Voltage Range	4-32 VDC
Maximum Reverse Voltage	-32 VDC
Minimum Turn-On Voltage [4]	4 VDC
Must Turn-Off Voltage	1 VDC
Minimum Input Current (for on-state)	11 mA
Maximum Input Current	15 mA
Nominal Input Impedance	Current Regulated
Maximum Turn-On Time [µsec]	75
Maximum Turn-Off Time [µsec]	100

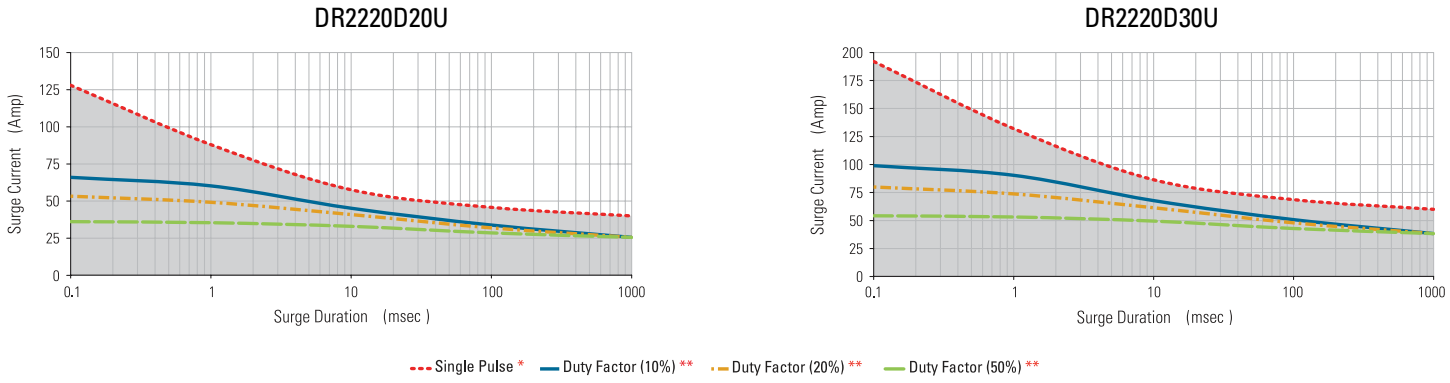
General [1]

Description	Parameters
Dielectric Strength, Input to Output (50/60Hz)	3750 Vrms
Dielectric Strength, Input/Output to Case (50/60Hz)	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)	10.5 oz (298 g)
Housing Material	UL94 V-0
Heat Sink Material	Aluminum
Din Rail Clip Material	Zinc Plated Steel
Hardware Finish	Nickel Plating
Input Terminal Screw Torque Range (lb-in/Nm)	13-15/1.5-1.7
Load Terminal Screw Torque Range (lb-in/Nm)	13-15/1.5-1.7
Humidity	95% non-condensing
LED Input Status Indicator	Green

INPUT CURRENT INFORMATION

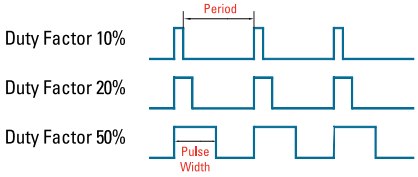


SURGE CURRENT INFORMATION



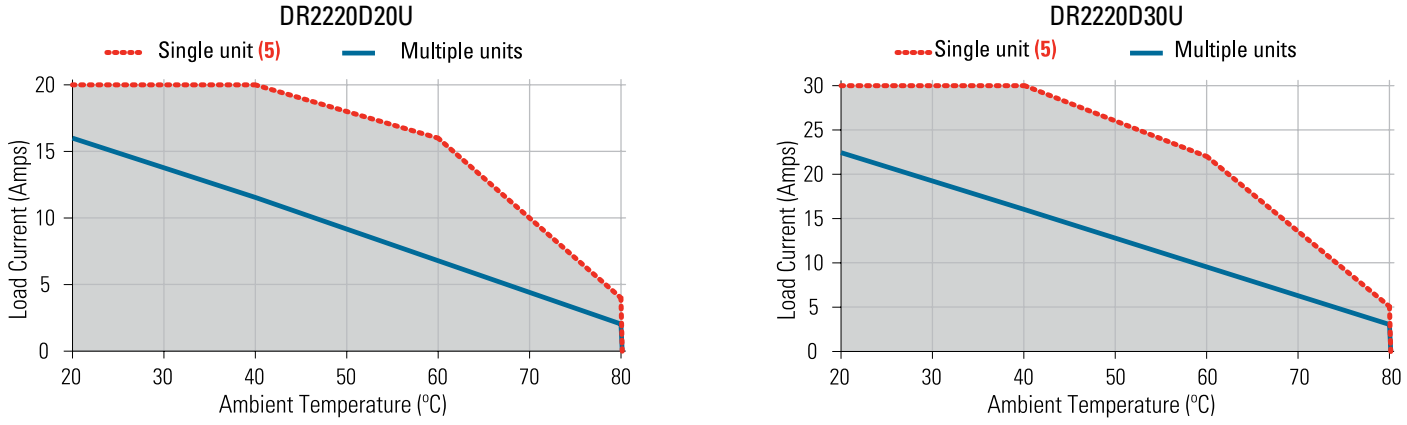
For Pulse Width Modulation applications select
the curve according to the duty factor and pulse duration as follows:

$$\text{Duty Factor} = \frac{\text{Pulse Width}}{\text{Period}} \times 100\ (\%)$$



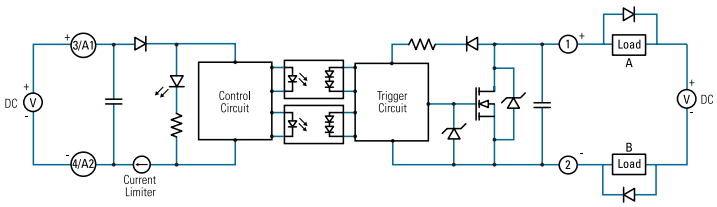
* for Single Surge Pulse Tc=40°C ;Tj=175°C
** for Repetitive Surge Pulse Tc=40°C ;Tj=130°C

THERMAL DERATE INFORMATION



EQUIVALENT CIRCUIT BLOCK DIAGRAMS/WIRING DIAGRAM

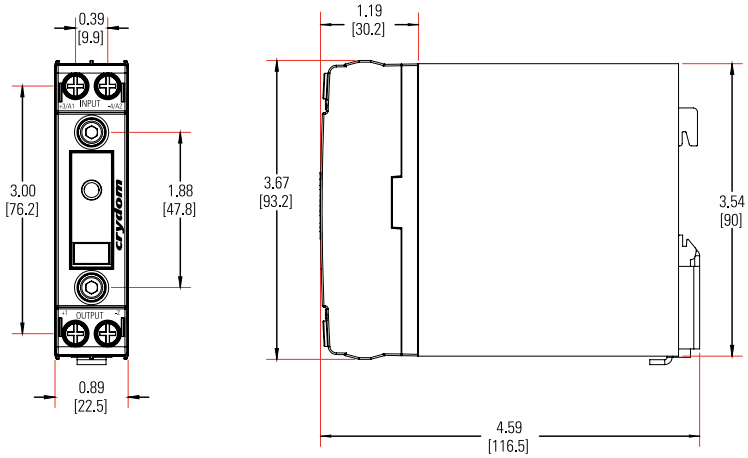
Load can be wired in position A or B inductive loads must be diode suppressed.



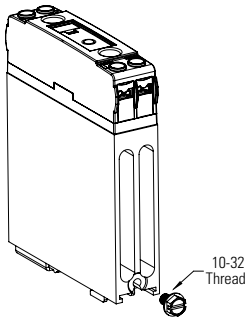
Recommended Wire Sizes		
Terminal Configuration	**Wire Size (Solid / Stranded)**	**Wire Pull-Out Strength (lb)[N]**
Output Relay "U" suffix	2 x 18 AWG (1 mm2) Stranded	20 [88]
	2 x 10 AWG (6 mm2) Stranded	60 [266]
Input Relay "U" suffix	2 x 18 AWG (1 mm2) Stranded	20 [88]
	2 x 12 AWG (4 mm2) Stranded	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 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 DR22 models, permits a secure path to ground and avoid the need of a further PE connection.

ORDERING OPTIONS

Example : DR2220D20U

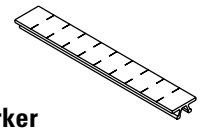
DR22	20	D	20	U
Series				
DR22				
	Operating Voltage			
	20: 1-200 VDC			
		Control Voltage		
		D: 4-32 VDC		
			Rated Load Current	
			20: 20 Amps **30:** 30 Amps	
				Terminal Layout
				U: Relay Configuration

— 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) Low current loads and high ambient temperature can affect turn-on time.
(3) 8 VDC Minimum control voltage. Resistive loads only. Consider switching losses; at maximum frequency reduce to 75% output current. Recommended suppressor diode connected at load side, see wiring diagram.
(4) Increase minimum voltage by 1 V for operations from -20 to -40°C.
(5) Minimum spacing to obtain max. current is 22.5mm between adjacent units.

ACCESSORIES

Recommended Accessories
 **ID Marker**
CNLB CNLN CNL2

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

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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