# NOVA22 SERIES AC OUTPUT

DR2260D20W
SSR 20A 4-32VDC:48-660VAC

Sensata Technologies
Crydom

- Load current 20, 30 and 35 A
- Operating voltage 48-600 VAC
- Control voltage 4-32 VDC and 90-280 VAC/VDC
- Relay or contactor configurations
- Load Monitoring Module available for contactor configuration


## PRODUCT DESCRIPTION

NOVA22 solid state relays were developed combining technology and innovation to offer high performing solid state relays in a 22.5mm industrial package. The advanced design and technology used in NOVA22 products provide greater power density than any other 22.5 mm wide SSR in the market: 35 A in DIN rail mount and 95 A in Panel Mount package.

Wide and innovative range of connection
The unique range of terminal options and configurations makes NOVA22 the most versatile solution.

- Relay or contactor terminal configurations
- Screw or spring cage plug-in input terminals
- Standard or elevator screws, allowing the use of ring terminals

Diverse range of applications
NOVA22 solid State Relays can be used in a wide range of ac and dc applications. Ideal for heating applications, NOVA22s are also suitable for motion, power and lighting applications; especially for demanding applications that require higher levels of reliability including:

- Industrial OEMs: Plastic machinery, packaging and material handling equipment, industrial ovens, pumps
- Food & Beverage: Baking ovens, refrigeration, food processing equipment
- Building Equipment: HVAC&R, lighting, access control
- Energy & Infrastructure: Renewable Energy, water and waste water treatments
- Transportation: Railway vehicles, agricultural machinery

## Power & Versatility in a 22.5mm Package!


# TECHNICAL DATA

Output Specifications (2)

| Description | 20A | 30A | 35A |
|---|---|---|---|
| Operating Voltage (47-440Hz) [VRMS] | 48-600 | 48-600 | 48-600 |
| Transient Overvoltage [Vpk] (3) | 1200 | 1200 | 1200 |
| Maximum Off-State Leakage Current @ Rated Voltage [mARMS] | 1 | 1 | 1 |
| Minimum Off-State dV/dt @ Maximum Rated Voltage [V/_sec] | 500 | 500 | 500 |
| Load Current, General Use UL508/LC A IEC62314 @ 40°C [ARMS] | 20 | 30 | 35 |
| Load Current, Motor Starting UL508 FLA/LC B IEC62314 @ 40°C [ARMS] | 8.5/4.8 | 14/7.6 | 26/14 |
| Minimum Load Current [mARMS] | 100 | 100 | 150 |
| Maximum 1 Cycle Surge Current (50/60Hz) [Apk] | 286/300 | 716/750 | 1290/1350 |
| Maximum On-State Voltage Drop @ Rated Current [Vpk] | 1.35 | 1.35 | 1.3 |
| Maximum 1/2 Cycle I² t for Fusing (50/60Hz) [A² sec] | 409/375 | 2563/2343 | 8320/7593 |
| Minimum Power Factor (at Maximum Load) (4) | 0.5 | 0.5 | 0.5 |
| Motor Rating UL 508/IEC62314 [HP (kW)]: 120 VAC | 0.5 (0.37) | 1 (0.74) | 2 (1.5) |
| Motor Rating UL 508/IEC62314 [HP (kW)]: 240 VAC | 1.5 (1.1) | 3 (2.2) | 5 (3.73) |
| Motor Rating UL 508/IEC62314 [HP (kW)]: 480 VAC | 3 (2.24) | 5 (3.7) | 10 (7.4) |

Input Specifications (2)

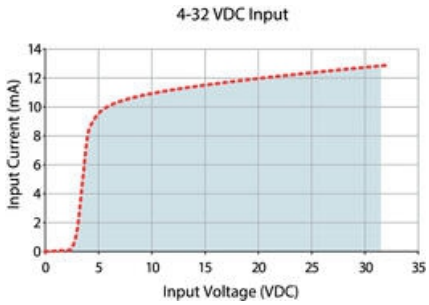
| Description | DR2260Dxxx | DR2260Axxx |
|---|---|---|
| Control Voltage Range | 4-32 VDC (5) | 90-280 VAC/VAC (6) |
| Maximum Reverse Voltage | -32 VDC | - |
| Minimum Turn-On Voltage | 4 VDC | 90 VAC/VDC |

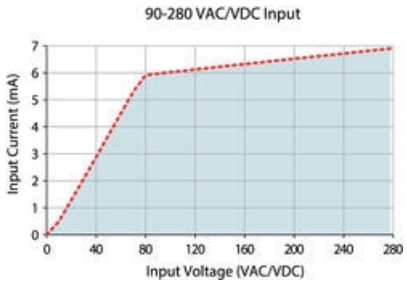
| | | |
|---|---|---|
| Must Turn-Off Voltage | 1 VDC | 5 VAC/VDC |
| Minimum Input Current (for on-state) | 10 mA | 6 mA |
| Maximum Input Current | 15 mA | 10 mA |
| Nominal Input Impedance | Current Limited | Current Limited |
| Maximum Turn-On Time [msec] | ½ Cycle (7) | 20 |
| Maximum Turn-Off Time [msec] | ½ Cycle | 30 |

General Specifications (2)

| Description | Parameters |
|---|---|
| Dielectric Strength, Input to Output (50/60Hz) | 4000 Vrms |
| Dielectric Strength, Input/Output to Case (50/60Hz) | 4000 Vrms |
| Minimum Insulation Resistance (@ 500 VDC) | $10^9$ Ohm |
| Maximum Capacitance, Input/Output | 8 pF |
| Ambient Operating Temperature Range (8) | -40 to 80°C |
| Ambient Storage Temperature Range | -40 to 100°C |
| Short Circuit Current Rating (9) | 100kA |
| Weight (typical) | Option “U” 10.5 oz (298 g), Option “V”,“W” 10.6 oz (301 g) |
| Housing Material | UL94 V-0 |
| Heat Sink Material | Aluminum |
| Din Rail Clip Material | Zink Plated Steel |
| Hardware Finish | Nickel Plating |
| Input Terminal Screw Torque Range (in-lb/Nm) | Option “U” 13-15/1.5-1.7, Option “V”,“W” 5/0.5 (10) |
| Load Terminal Screw Torque Range (in-lb/Nm) | Option “U” 13-15/1.5-1.7, Option “V”,“W” 18-20/2-2.2 |
| Humidity | 95% non-condensing |
| LED Input Status Indicator | Green |

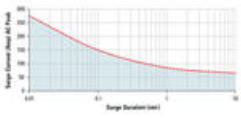
Input Current Information

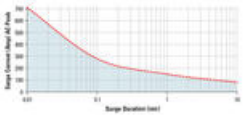


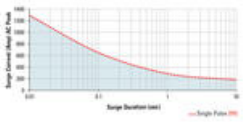




Surge Current Information

| | | |
|---|---|---|
| DR2260x20x | DR2260x30x | DR2260x35x |

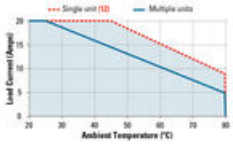


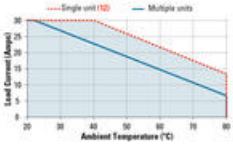


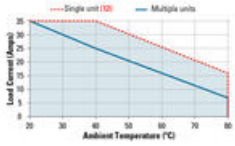


Thermal Derate Information

| DR2260x20x | DR2260x30x | DR2260x35x |
|---|---|---|

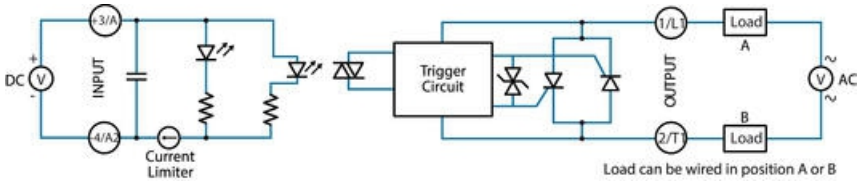


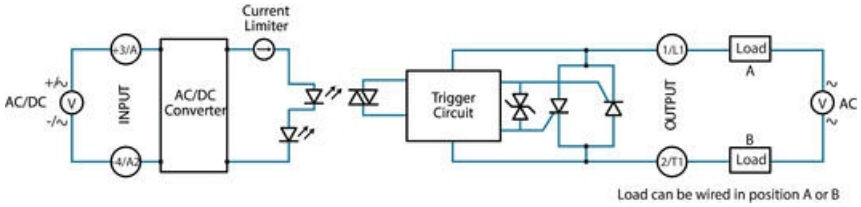




Equivalent Circuit Block Diagrams/Wiring Diagram

DC Control



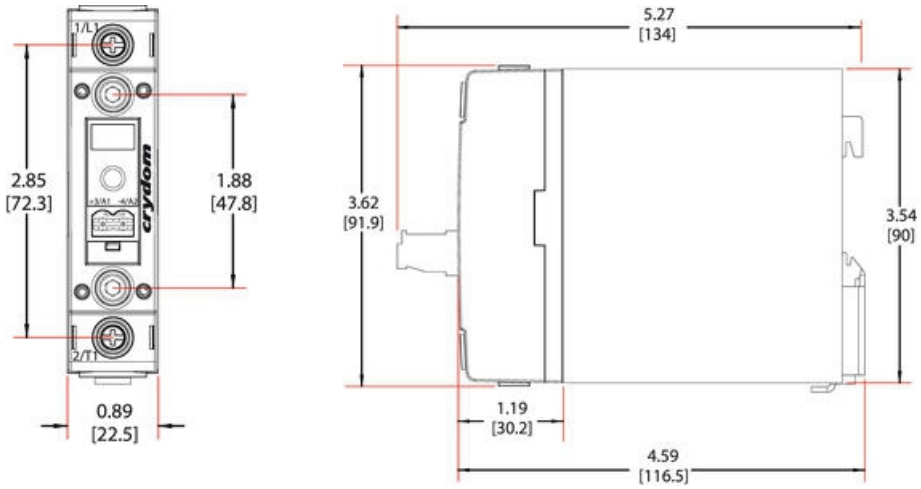

AC/DC Control



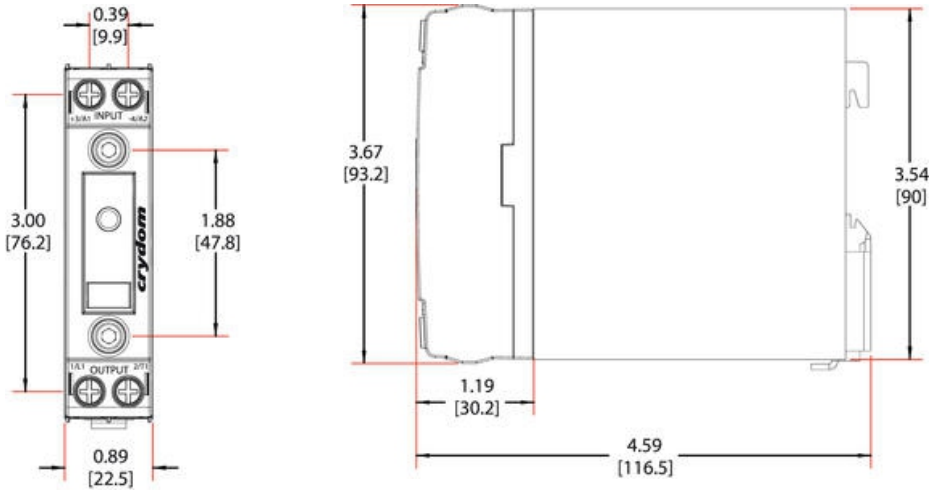

| Recommended Wire Sizes | | | |
|---|---|---|---|
| Terminal Configuration | | Wire Size (Solid / Stranded) | Wire Pull-Out Strength (lb)[N] |
| Output (13) Relay "U" suffix | | 2 x 18 AWG (1 mm²) Stranded | 20 [88] |
| | | 2 x 10 AWG (6 mm²) Stranded | 60 [266] |
| Input Relay "U" suffix | | 2 x 18 AWG (1 mm²) Stranded | 20 [88] |
| | | 2 x 12 AWG (4 mm²) Stranded | 40 [177] |
| Output Contactor "V" & "W" suffixes | | 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 Contactor "V" & "W" suffixes | Screw | 30 AWG (0.05 mm²) [minimum] | 4.5 [20] |
| | | 12 AWG (3.3 mm²) [maximum] | 30 [133] |
| | Spring | 26 AWG (0.13 mm²) [minimum] | 5 [22] |
| | | 12 AWG (3.3 mm²) [maximum] | 5 [22] |

Mechanical Specifications
Tolerances ±0.02 in / 0.5 mm
All dimensions are in : inches (milimeters)

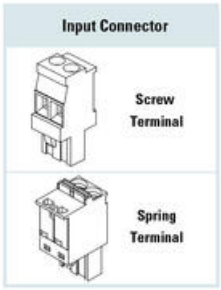
## Contactor Configuration




## Relay Configuration

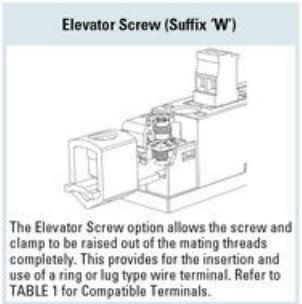



## Input Connector



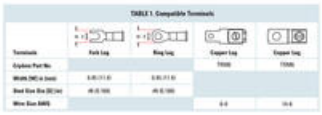

## Protective Earth Connection

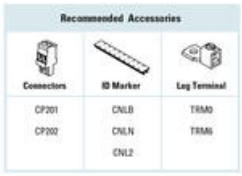

## Elevator Screw (Suffix 'W')




## Compatible Terminals

## Recommended Accessories







General Notes
(1) Control voltage 18-52 VAC/VDC is available upon request.
(2) All parameters at 25°C unless otherwise specified.
(3) Output will self trigger between 900-1200 Vpk, not suitable for capacitive loads.
(4) High inductive loads requires nominal control voltage; AC input models only.
(5) Increase minimum voltage by 1 V for operations from -20 to -40°C.
(6) For ambient temperatures above 40°C the maximum control voltage must not exceed 250 VAC/VDC.
(7) Turn-on time for Instantaneous turn-on versions is 0.1 msec.
(8) AC input models operating range is -20 to 60 °C.
(9) When protected with the appropriate class and rated fuse. For detailed info please contact Crydom Technical Support.
(10) Input torque only for contactor (V,W) with screw terminals Connector.
(11) 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 _2 (1.414).
(12) Minimum spacing to obtain max. current is 22.5mm between adjacent units.
(13) For 35 Amp Relay (”U”) layout models, use Pin Terminals (L 0.410 in x Ø 0.102 in) to install 8 AWG wire.
(14) Applicable to Relay (”U”) option.

Agency approvals, Conformances and EMC
cUL US E116949 cRU US (14) E116949 TDV IEC CE RoSH emc
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
Vibration Resistance:
IEC 60068-2-6: Amplitude Range 10-500 Hz, Displacement 0.75mm
Shock Resistance:
IEC 60068-2-27: Peak Acceleration 50g, Duration11ms.

**Electromagnetic Compatibility**

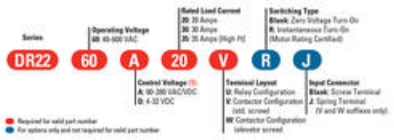
| Generic Standard | Immunity Tests | Test Specification Level | | Performance |
|---|---|---|---|---|
| IEC 61000-6-2 Immunity for Industrial Environments | Electrostatic Discharge | 4kV air discharge | | Criterion A |
| | IEC 61000-4-2 | 4kV contact discharge | | Criterion A |
| | Fast transients (burst)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

# PART NUMBERS

Product Selection

| Control Voltage | 20A | 30A | 35A |
|---|---|---|---|
| 90-280 VAC/VDC | DR2260A20x | DR2260A30x | DR2260A35x |
| 4-32 VDC | DR2260D20x | DR2260D30x | DR2260D35x |

Available Options




## SPECIFICATIONS

| | |
|---|---|
| **Approvals** | CE, CSA, EMC, UL |
| **Connection Thread** | Screw terminal |
| **Control voltage** | 4-32V dc |
| **Control voltage DC max** | 32 V |
| **Control voltage DC min** | 4 V |
| **Height** | 91.9 mm |
| **I2t Value** | 409 $A^2s$ |
| **Insulation voltage in/out** | 4000 V |
| **IP Class** | IP20 |
| **Leakage Current At V Max, T = 25 ° C Max** | 1 mA |
| **Load Current Min** | 100 mA |
| **Load Voltage** | ac |
| **Number of poles** | 1 |
| **Output current** | 20 A |
| **Output voltage (String)** | 48-600V ac |

| | |
|---|---|
| **Peak current** | 286 |
| **Peak Voltage** | 1200 V |
| **Power Consumption max** | 15 mA |
| **Power Consumption min** | 10 mA |
| **Temperature range bearing, from** | -40 °C |
| **Temperature range bearing, to** | 100 °C |
| **Temperature range from** | -40 °C |
| **Temperature range to** | 80 °C |
| **Tripping voltage** | 1 V |
| **Weight** | 301 g |
| **Width** | 22.5 mm |
| **Voltage Drop Over The Semi-Conductor at Imax** | 1.35 V |