

# › CNR Series

## AC Output DIN Rail Mount SSRs

### 48 to 600 VAC

- › Output rating 20 and 30 Amps
- › Output voltage 48-600 VAC
- › Integral heat sink eliminates the need for complex thermal calculations
- › LED input status Indicator
- › DBC substrate for superior thermal performance
- › Epoxy-free design minimizes internal component stress
- › AC or DC control
- › IP20 touch-safe housing
- › Relay or Contactor Configuration
- › Built-in overvoltage protection
- › C-UL-US Listed and TUV approved

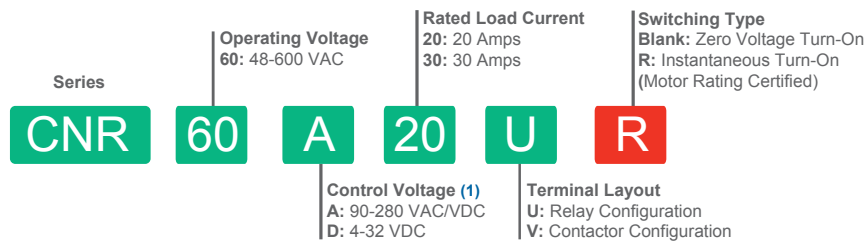


Relay Configuration



Contactor Configuration

Product Selection		
Control Voltage	20 Amps	30 Amps
4-32 VDC	CNR60D20x	CNR60D30x
90-280 VAC	CNR60A20x	CNR60A30x



- Required for valid part number
- For options only and not required for valid part number

Output Specifications (2)		
Description	20A	30A
Operating Voltage (47-440Hz) [VRMS]	48-600	48-600
Transient Overvoltage [Vpk](3)	1200	1200
Maximum Off-State Leakage Current @ Rated Voltage [mARMS]	1	1
Minimum Off-State dV/dt @ Maximum Rated Voltage [V/μsec]	500	500

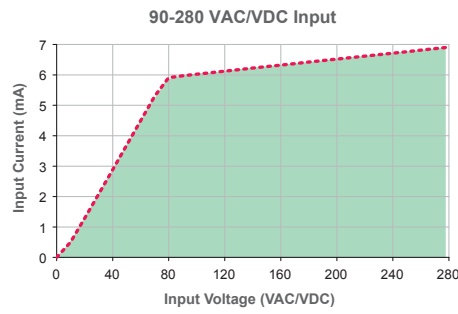
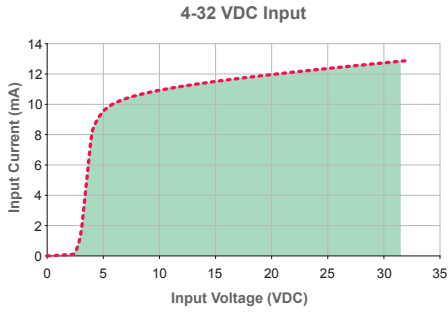
Output Specifications (2)		
Description	20A	30A
Load Current, General Use UL508/LC A IEC62314 @ 40°C [ARMS]	20	30
Load Current, Motor Starting UL508 FLA/LC B IEC62314 @ 40°C [ARMS]	8.5/4.8	14/7.6
Minimum Load Current [mARMS]	100	100
Maximum 1 Cycle Surge Current (50/60Hz) [A <sub>pk</sub> ]	286/300	716/750
Maximum On-State Voltage Drop @ Rated Current [V <sub>pk</sub> ]	1.35	1.35
Maximum 1/2 Cycle I <sup>2</sup> t for Fusing (50/60Hz) [A <sup>2</sup> sec]	409/375	2563/2343
Minimum Power Factor (at Maximum Load)	0.5	0.5
Motor Rating UL 508/IEC62314 [HP (kW)]: 120 VAC	0.5 (0.37)	1 (0.74)
Motor Rating UL 508/IEC62314 [HP (kW)]: 240 VAC	1.5 (1.1)	3 (2.2)
Motor Rating UL 508/IEC62314 [HP (kW)]: 480 VAC	3 (2.24)	5 (3.7)

Input Specifications (2)		
Description	CNR60Dxxx	CNR60Axxx
Control Voltage Range	4-32 VDC (4)	90-280 VAC/VDC (5)
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) [mA]	10	6
Maximum Input Current [mA]	15	10
Nominal Input Impedance [Ohms]	Current Limited	Current Limited
Maximum Turn-On Time [msec]	1/2 Cycle (6)	20
Maximum Turn-Off Time [msec]	1/2 Cycle	30

General Specifications (1)	
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 <sup>9</sup> Ohms
Maximum Capacitance, Input/Output	8 pF
Ambient Operating Temperature Range (7)	-40 to +80 °C
Ambient Storage Temperature Range	-40 to +100 °C
Short Circuit Current Rating (8)	100 kA
Weight (typical)	Option "U" 10.5 oz (298 g), Option "V" 10.6 oz (301 g)
Housing Material	UL94 V-0
Heat Sink Material	Aluminum
Hardware Finish	Nickel Plating
Input Terminal Screw Torque Range (in-lb/Nm)	Option "U" 13-15/1.5-1.7, Option "V" 5/0.5
Load Terminal Screw Torque Range (in-lb/Nm)	Option "U" 13-15/1.5-1.7, Option "V" 18-20/2-2.2
Humidity	85% non-condensing
LED Input Status Indicator	Green

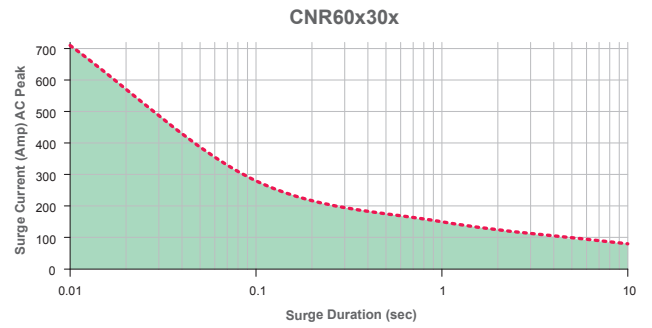
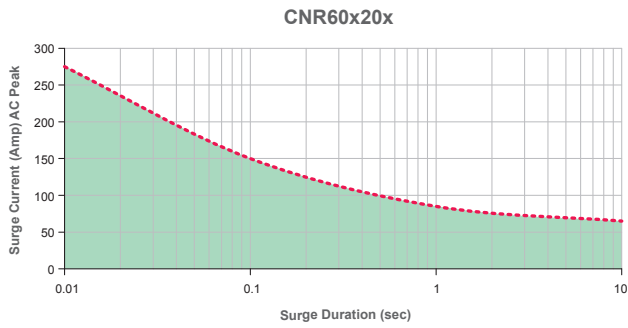
Diagrams

Input Current Information

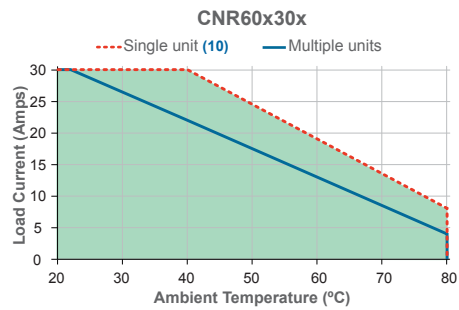
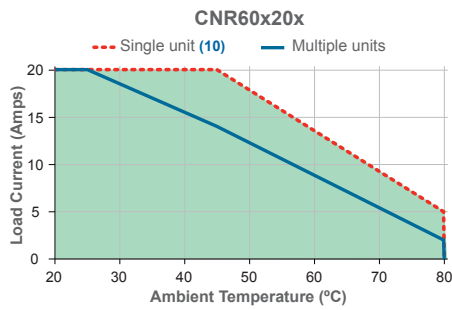


Surge Current Information

--- Single Pulse (9)

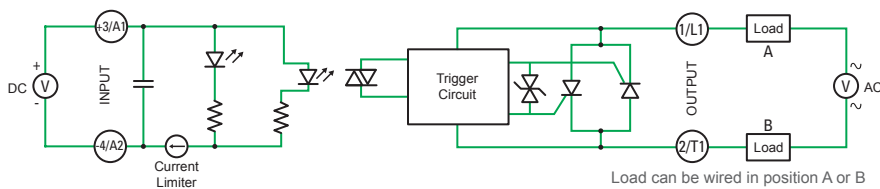


Thermal Derate Information (7)



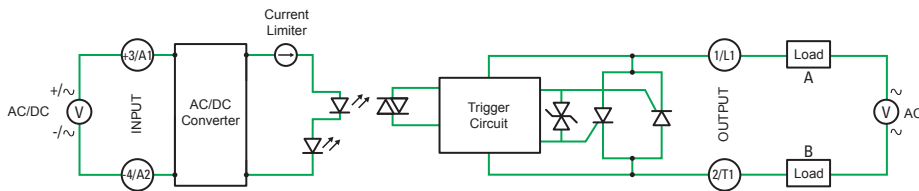
Block Diagrams / Wiring Diagrams

DC Control



Load can be wired in position A or B

AC/DC Control



Load can be wired in position A or B

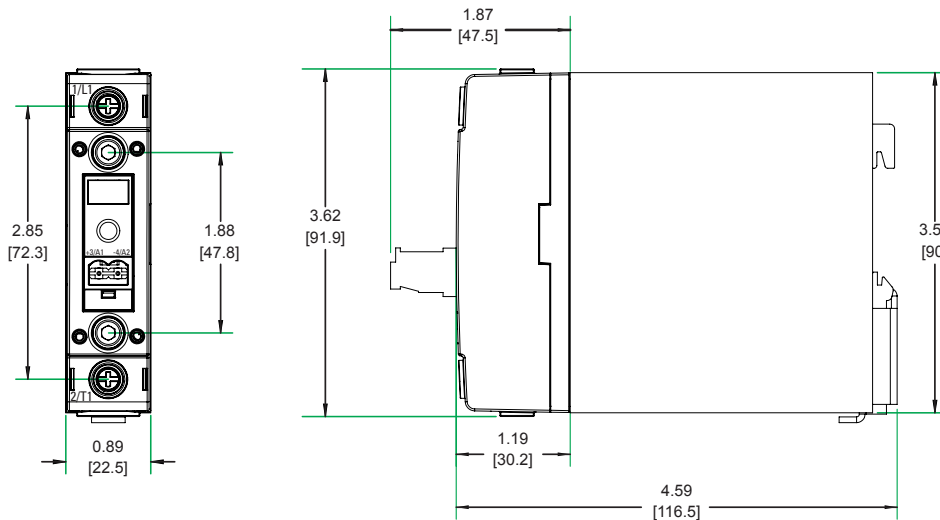
Wire Sizes

Recommended Wire Sizes		
Terminal Configuration	Wire Size (Solid / Stranded)	Wire Pull-Out Strength (lb)[N]
Output/Input Relay "U" suffix	18 AWG (1 mm <sup>2</sup> ) Stranded	20 [88]
	10 AWG (6 mm <sup>2</sup> ) Stranded	60 [266]
Output Contactor "V" suffix	20 AWG (0.5 mm <sup>2</sup> ) [minimum]	25 [111]
	2 x 10 AWG (5.3 mm <sup>2</sup> )	110 [490]
	2 x 8 AWG (8.4 mm <sup>2</sup> ) [maximum]	90 [400]
Input Contactor "V" suffix	30 AWG (0.2 mm <sup>2</sup> ) [minimum]	4.5 [20]
	12 AWG (2.5 mm <sup>2</sup> ) [maximum]	55 [245]

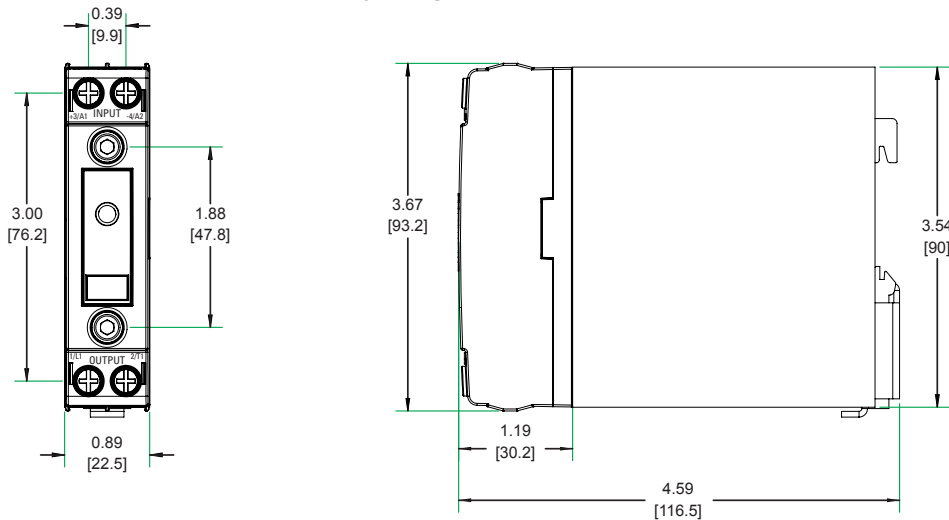
Dimensions in[mm]

Contactor Configuration

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

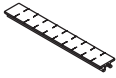


Relay Configuration



## Accessories

### Recommended Accessories



ID Marker

CNLB

CNLN

CNL2

## Agency Approvals

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

Electromagnetic Compatibility:

IEC 61000-4-2 : Electrostatic Discharge – Level 3

IEC 61000-4-4 : Electrically Fast Transients – Level 3

IEC 61000-4-5 : Electrical Surges – Level 3

Vibration Resistance:

IEC 60068-2-6: Amplitude Range 10-55 Hz, Displacement 0.75mm

Shock Resistance:


IEC 60068-2-27: Peak Acceleration 15g, Duration 11ms.



CNR series has Environmental Product declarations type III conforming to ISO 14025.

## 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) Increase minimum voltage by 1V for operations from -20 to -40°C.
- 5) For ambient temperatures above 40°C the maximum control voltage must not exceed 250 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) When protected with the appropriate class and rated fuse. For detailed info please contact Technical Support.
- 9) 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  $\sqrt{2}$  (1.414).
- 10) Minimum spacing to obtain max. current is 22.5mm between adjacent units.

 <b>DANGER / PELIGRO / DANGER /GEFAHR / PERICOLO / 危险</b>					
<p><b>HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH.</b></p> <ul style="list-style-type: none"> <li>Disconnect all power before installing or working with this equipment.</li> <li>Verify all connections and replace all covers before turning on power.</li> </ul> <p><b>Failure to follow these instructions will result in death or serious injury.</b></p>	<p><b>RIESGO DE DESCARGA ELECTRICA O EXPLOSION.</b></p> <ul style="list-style-type: none"> <li>Desconectar todos los suministros de energia a este equipo antes de trabajar con este equipo.</li> <li>Verificar todas las conexiones y colocar todas las tapas antes de energizar el equipo.</li> </ul> <p><b>El incumplimiento de estas instrucciones puede provocar la muerte o lesiones serias.</b></p>	<p><b>RISQUE DE DESCARGE ELECTRIQUE OU EXPLOSION</b></p> <ul style="list-style-type: none"> <li>Eteindre toutes les sources d'énergie de cet appareil avant de travailler dessus de cet appareil</li> <li>Vérifier tous connections, et remettre tous couverts en place avant de mettre sous</li> </ul> <p><b>De non-suivi de ces instructions provoquera la mort ou des lésions sérieuses.</b></p>	<p><b>GEFAHR EINES ELEKTRISCHE N SCHLAGES ODER EINER EXPLOSION.</b></p> <ul style="list-style-type: none"> <li>Stellen Sie jeglichen Strom ab, der dieses Gerät versorgt, bevor Sie an dem Gerät Arbeiten durchführen</li> <li>Vor dem Drehen auf Energie alle Anschlüsse überprüfen und alle Abdeckungen ersetzen.</li> </ul> <p><b>Unterlassung dieser Anweisungen können zum Tode oder zu schweren Verletzungen führen.</b></p>	<p><b>RISCHIO DI SCOSSA ELETTRICA O DELL'ESPLOSIONE.</b></p> <ul style="list-style-type: none"> <li>Spenga tutta l'alimentazione che fornisce questa apparecchiatura prima di lavorare a questa apparecchiatura</li> <li>Verificare tutti i collegamenti e sostituire tutte le coperture prima dell'accensione</li> </ul> <p><b>L'omissione di queste istruzioni provocherà la morte o lesioni serie</b></p>	<p><b>存在电击、爆炸或电弧闪烁危险</b></p> <ul style="list-style-type: none"> <li>在操作此设备之前请先关闭电源。</li> </ul> <p><b>若不遵守这些说明，可能会导致严重的人身伤害甚至死亡。</b></p>

 <b>WARNING / AVERTISSEMENT / WARNUNG / ADVERTENCIA / AVVERTENZA / 警告</b>		
<p><b>RISK OF MATERIAL DAMAGE AND HOT ENCLOSURE</b></p> <ul style="list-style-type: none"> <li>The product's side panels may be hot, allow the product to cool before touching.</li> <li>Follow proper mounting instructions including torque values.</li> <li>Do not allow liquids or foreign objects to enter this product.</li> </ul> <p><b>Failure to follow these instructions can result in serious injury, or equipment damage.</b></p>	<p><b>RISQUE DE DOMMAGE MATERIEL ET DE SURCHAUFFE DU BOITIER</b></p> <ul style="list-style-type: none"> <li>Les panneaux latéraux du produit peuvent être chauds. Laisser le produit refroidir avant de le toucher.</li> <li>Respecter les consignes de montage, et notamment les couples de serrage.</li> <li>Ne pas laisser pénétrer de liquide ni de corps étrangers à l'intérieur du produit.</li> </ul> <p><b>Le non-respect de cette directive peut entraîner, des lésions corporelles graves ou des dommages matériels.</b></p>	<p><b>GEFAHR VON MATERIALSCHÄDEN UND GEHÄUSEERHITZUNG</b></p> <ul style="list-style-type: none"> <li>Die Seitenwände können heiß sein. Lassen Sie das Produkt abkühlen, bevor Sie es berühren.</li> <li>Beachten Sie die Montageanweisungen,</li> <li>Führen Sie keine Flüssigkeiten oder Fremdkörper in das Produkt ein.</li> </ul> <p><b>Die Nichtbeachtung dieser Anweisung kann Körperverletzung oder Materialschäden zur Folge haben.</b></p>
<p><b>RIESGO DE DAÑOS MATERIALES Y DE SOBRECIENTAMIENTO DE LA UNIDAD</b></p> <ul style="list-style-type: none"> <li>Los paneles laterales del producto pueden estar calientes. Esperar que el producto se enfríe antes de tocarlo.</li> <li>Respetar las instrucciones de montaje, y en particular los pares de apretado.</li> <li>No dejar que penetren líquidos o cuerpos extraños en el producto.</li> </ul> <p><b>Si no se respetan estas precauciones pueden producirse graves lesiones, daños materiales.</b></p>	<p><b>RISCHIO DI DANNI MATERIALI E D'INVOLUCRO CALDO</b></p> <ul style="list-style-type: none"> <li>I pannelli laterali dell'apparecchio possono scottare; lasciar quindi raffreddare il prodotto prima di toccarlo.</li> <li>Seguire le istruzioni di montaggio corrette.</li> <li>Non far entrare liquidi o oggetti estranei in questo apparecchio.</li> </ul> <p><b>La mancata osservanza di questa precauzione può causare gravi rischi per l'incolumità personale o danni alle apparecchiature.</b></p>	<p><b>材料损坏和高温外壳的危险性</b></p> <ul style="list-style-type: none"> <li>产品的一侧面板可能很热，在其冷却前请不要触碰。</li> <li>遵照正确的安装说明，包括扭矩值。</li> <li>请勿让液体及其他异物进入本产品。</li> </ul> <p><b>如不能正确执行这些操作说明，极有可能造成严重人体伤害或者设备的损坏。</b></p>

## ANNEX - ENVIROMENTAL INFORMATION

The environmental information disclosed in this annex including the EIP Pollution logo are in compliance with People's Republic of China Electronic Industry Standard SJ/T11364 – 2006, Marking for Control of Pollution Caused by Electronic Information Products.

Part Name	Toxic or hazardous Substance and Elements					
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent Chromium (Cr (VI))	Polybrominated biphenyls (PBB)	Polybrominated diphenyl ethers (PBDE)
Semiconductor die	X	O	O	O	O	O
Solder	X	O	O	O	O	O

### 附件 - 环保信息

此附件所标示的包括电子信息产品污染图标的环保信息符合中华人民共和国电子行业标准 SJ/T11364 - 2006, 电子信息产品污染控制标识要求。

部件名称	有毒有害物质或元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr (VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
半导体芯片	X	O	O	O	O	O
焊接点	X	O	O	O	O	O



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