Description
Ideal for safely disconnecting DC energy sources in 48V applications that require continuous run time, the DCNLR Series 60V DC Max Contactor Relay features an IP67 rating for protection against water and dust common in harsh environmental conditions. The remote-operated contactor has a space-saving design and can be easily installed in any orientation, making it simple to incorporate into battery electric vehicles (BEV), hybrid electric vehicles (HEV), material handling equipment, telecom power supplies, battery energy storage systems, construction machinery, heavy-duty trucks, buses, and more. Configurations of the DCNLR Series remote DC contactor come with a continuous current rating of either 100A or 200A. The 200A DCNLR Series contactor models feature a 12V, 24V, 48V, or 60V coil, while the 100A models are available with a 12V, 24V, or 48V coil.

Web Resources
Download 2D print, installation guide and technical resources at: littelfuse.com/DCNLR

Features and Benefits
• Available with a continuous current rating of 100A or 200A
• Thermoplastic housing and an IP67 rating enable use in harsh automotive environments and heavy equipment applications
• Remote-operated, space-saving design can be easily mounted in any orientation
• Main contacts are rated for 48V (typical) and 60V (max)
• Common coil voltage options of 12V, 24V, 48V, and 60V
• Non-polarized copper alloy main contacts
• Integral coil suppression

Applications
• Battery Electric Vehicles
• Hybrid Electric Vehicles
• Material Handling Equipment
• Telecom Power Supplies
• Battery Energy Storage Systems
• Construction Machinery
• Heavy-Duty Trucks
• Buses

Specifications
Max Voltage Rating (V DC): 60
Current Rating Continuous (A): 100, 200
Coil Voltage Rating (V DC): 12, 24, 48, 60
Ingress Protection: IP67
Operating Temperature (°C): -40 to +85
## Ordering Information

<table>
<thead>
<tr>
<th>PART NUMBER</th>
<th>CONTINUOUS CURRENT (A)</th>
<th>VOLTAGE RATING</th>
<th>MOUNTING</th>
<th>COIL VOLTAGE (V DC)</th>
<th>COIL TYPE</th>
<th>AUX CONTACT</th>
<th>POLARIZED</th>
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<td>DCNLR100NB12</td>
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</table>

## Performance Data

### MAIN CONTACT
- Contact Arrangement: SPST NO
- Rated Operating Voltage: 48V DC
- Max Short Circuit Current:
  - DCNLR100: 400A @ 48V DC
  - DCNLR200: 800A @ 48V DC
- Dielectric Withstand Voltage:
  - DCNLR100: 2000V AC
  - DCNLR200: 2200V AC
- Insulation Resistance: ≥ 100MΩ @ 500V DC
- Max Voltage Drop:
  - DCNLR100: ≤ 50mV @ 100A
  - DCNLR200: ≤ 80mV @ 200A

### COIL DATA
- Voltage Rating (V DC): 12 24 48 60
- Pickup Voltage @ 25°C (V DC MAX): 9 18 36 45
- Dropout Voltage @ 25°C (V DC MIN): 1 2 4 5
- Hold Current (A):
  - DCNLR100: 0.48 0.24 0.12 -
  - DCNLR200: 0.78 0.39 0.2 0.16
- Coil Watts @ 25°C (W):
  - DCNLR100: 8
  - DCNLR200: 9.5

### LIFE
- Electrical Life: 30,000
- Mechanical Life: 200,000

### OPERATE / RELEASE TIME
- Close (ms): 25
- Release (ms): 12

### ENVIRONMENTAL DATA
- Shock: Shock, 11ms ½ Sine, Peak, Operating 20G
- Vibration: Vibration, Sine, 80-2000Hz., Peak 20G
- Operating Ambient Temperature: -40°C~+85°C
- Weight (g):
  - DCNLR100: 193
  - DCNLR200: 350

Note: Estimated Make Break Charts and Time Current Curves Coming Soon
Part Number System

DCNLR SERIES
60V DC MAX CONTACTOR RELAY

DCNLR 200 N B 24 -01

Series Current
Main Contacts Polarization and Aux Contact
Main Contacts Voltage
Coil Voltage
(Optional) Special Code

MAIN CONTACTS POLARIZATION AND AUX CONTACT

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<th>POLARIZED?</th>
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MAIN CONTACTS VOLTAGE RATING

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COIL VOLTAGE

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<td>48</td>
</tr>
<tr>
<td>60</td>
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Application Notes & Definitions

- Be sure to use a washer to prevent screws from loosening. Tighten the screw so that the torque is in the range specified below. Exceeding the maximum torque can lead to product rupture.
  
  Contact torque (M8): 80 - 100 lb.in (8.8 - 11 N.m)
  Mounting torque: 15 - 30 lb.in (1.7 - 3.3 N.m)

- Please refer to the drawing for connection polarity.

- Do not use dropped products.

- Avoid installing the product in a strong magnetic field (Close to the transformer or magnet), or near an object with heat radiation.

- Electrical life
  Please use under load capability and life cycle so as not to cause a function failure. (Please also treat the contactor as a product with specified life and replace it when necessary). It is possible to make parts burn around the contactor once operating failure happens. So it is necessary to take layout into account to make sure power shall be cut off within 1 second.

- Lifetime of internal gas diffusion
  The contactor is sealed and filled with gas, lifetime of gas diffusion is determined by temperature in contact chamber (Ambient temperature + Temperature rising by contact energizing). Therefore environment temperature should be from -40 to +85˚C.

- Do not let particle and oil stain on the main terminal with which the load shall make a reliable contact or it will cause a lot of heat.

<table>
<thead>
<tr>
<th>PRODUCT SERIES</th>
<th>PRODUCT MODEL</th>
<th>CONTACT TERMINAL</th>
<th>COIL TERMINAL</th>
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