

DCNHR SERIES

900V DC MAX CONTACTOR RELAY



Specifications

| | |
|---------------------------------------|---|
| Max Voltage Rating (V DC): | 900 |
| Current Rating Continuous (A): | 100, 250, and 300 |
| Coil Voltage Rating (V DC): | 12, 24, 48, 9-36 |
| Ingress Protection: | 100: IP 67 250-300 Contact Part Can Meet IP67 Protection Level |
| Operating Temperature (°C): | -40 to +85 |

Applications

- Battery electric vehicles
- Hybrid electric vehicles
- Electric maintenance vehicles
- Industrial applications

Description

The DCNHR Series 450V High-Current High-Voltage DC Contactor Relay is a normally open (also known as monostable) relay with a resin body for corrosion resistance in harsh automotive environments. Versions are available with a PWM coil to reduce power for keeping the contacts closed. Sealed contacts help ensure there is no leakage of electrical arc for safety. The high-current relay's permanent magnet blows the magnetic field horizontally to achieve a high-voltage DC cutoff.

The DCNHR Series contactor relay is available for 100A, 250A, and 300A contact switching.

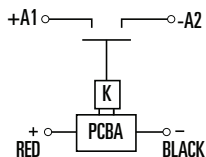
Features and Benefits

- Available with 100A, 250A, and 300A contact switching capability
- Normally open relay design
- Resin housing provides corrosion resistance in harsh automotive environments
- Sealed contacts with no leakage of electrical arc for maximum safety
- Built-in energy-saving coil to reduce the coil holding power
- RoHS compliant

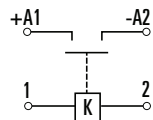
Web Resources

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

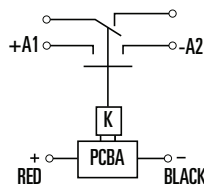
Electrical Diagram



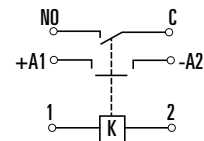
DCNHRXXXPFPA



DCNHRXXXPFXX



DCNHRXXXQFA



DCNHRXXXQFXX

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Ordering Information

| PART NUMBER | CONTINUOUS CURRENT (A) | VOLTAGE RATING | | MOUNTING | COIL VOLTAGE (V DC) | COIL TYPE | AUX CONTACT | POLARIZED |
|--------------|------------------------|-----------------------|--------------------|----------|---------------------|-----------|-------------|-----------|
| | | SYSTEM NOMINAL (V DC) | MAX VOLTAGE (V DC) | | | | | |
| DCNHR100PF12 | 100 | 450 | 900 | BOTTOM | 12 | Single | No | Yes |
| DCNHR100PF24 | 100 | 450 | 900 | BOTTOM | 24 | Single | No | Yes |
| DCNHR100PF48 | 100 | 450 | 900 | BOTTOM | 48 | Single | No | Yes |
| DCNHR100QF12 | 100 | 450 | 900 | BOTTOM | 12 | Single | Yes | Yes |
| DCNHR100QF24 | 100 | 450 | 900 | BOTTOM | 24 | Single | Yes | Yes |
| DCNHR100QF48 | 100 | 450 | 900 | BOTTOM | 48 | Single | Yes | Yes |
| DCNHR250PFA | 250 | 450 | 900 | BOTTOM | 9~36 | PWM | No | Yes |
| DCNHR250QFA | 250 | 450 | 900 | BOTTOM | 9~36 | PWM | Yes | Yes |
| DCNHR300PFA | 300 | 450 | 900 | BOTTOM | 9~36 | PWM | No | Yes |
| DCNHR300QFA | 300 | 450 | 900 | BOTTOM | 9~36 | PWM | Yes | Yes |

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Performance Data

| MAIN CONTACT | | |
|------------------------------|-------------------|-----------------|
| Contact Arrangement | SPST NO | |
| Max Short Circuit Current | DCNHR100 | 400A @ 48V DC |
| | DCNHR250 | 2000A @ 320V DC |
| | DCNHR300 | 2000A @ 320V DC |
| Dielectric Withstand Voltage | 2200V AC | |
| Insulation Resistance | ≥ 100MΩ @ 500V DC | |

| COIL DATA | | | | | |
|-----------------------------------|---------------------|------|------|------|-------------|
| Voltage Rating (V DC) | | 12 | 24 | 48 | 9-36 |
| Pickup Voltage @ 25°C (V DC MAX) | DCNHR100 | 8.4 | 16.8 | 33.6 | |
| | DCNHR250, DCNHR300, | | | | 9 |
| Dropout Voltage @ 25°C (V DC MIN) | DCNHR100 | 1.2 | 2.4 | 4.8 | |
| | DCNHR250, DCNHR300 | | | | 6 |
| Hold Current (A) | DCNHR100 | 0.51 | 0.26 | 0.13 | |
| | DCNHR250, DCNHR300 | | | | 0.15@12V DC |
| Coil Watts @ 25°C (W) | DCNHR100 | 6.5 | 6.5 | 6.5 | |
| | DCNHR250, DCNHR300 | | | | 45/3 |

| LIFE | | |
|-----------------|----------|-------|
| Electrical Life | DCNHR100 | 3,000 |
| | DCNHR250 | 1,500 |
| | DCNHR300 | 600 |
| Mechanical Life | 200,000 | |

Note: rated at continuous current rating and system nominal voltage

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

| ENVIRONMENTAL DATA | | |
|-------------------------------|---|---------------------------------------|
| Shock | Shock, 11ms ½ Sine, Peak, Operating 20G | |
| Vibration | DCNHR100 | 4.4G, 10-200Hz (10µs) |
| | DCNHR250, DCNHR300 | Vibration, Sine, 80-2000Hz., Peak 20G |
| Operating Ambient Temperature | -40°C--+85°C | |
| Weight (g) | DCNHR100 | 198 |
| | DCNHR250, DCNHR300 | 398 |

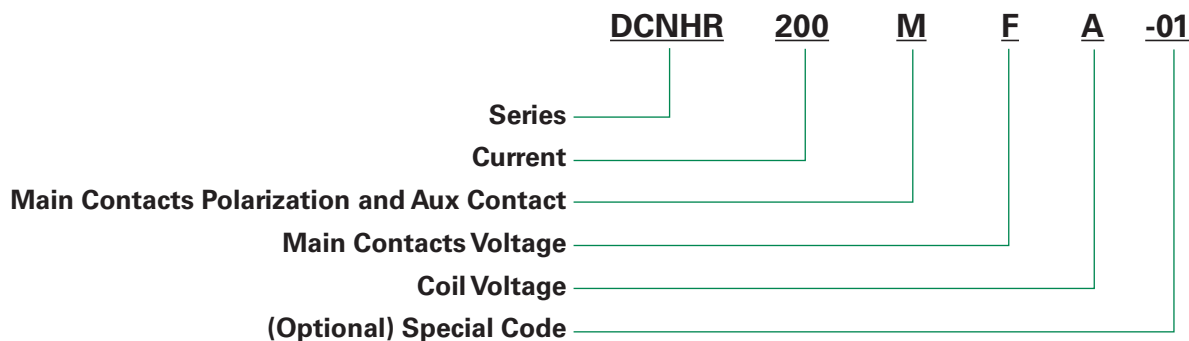
| AUX CONTACTS | |
|---------------------|--------------|
| Contact Arrangement | Normal Open |
| Max. Rating | 2A @ 24V DC |
| Min. Rating | 0.1A @ 5V DC |
| Max. Resistance | ≤500mΩ |

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

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Part Number System



| MAIN CONTACTS POLARIZATION AND AUX CONTACT | | |
|--|------------|----------------------|
| | POLARIZED? | INCLUDE AUX CONTACT? |
| M: | No | Yes |
| N: | No | No |
| P: | Yes | No |
| Q: | Yes | Yes |

| MAIN CONTACTS VOLTAGE RATING | | |
|------------------------------|-----|------|
| F: | 450 | V DC |

| COIL VOLTAGE | | |
|--------------|--------|------|
| 12: | 12 | V DC |
| 24: | 24 | V DC |
| 48: | 48 | V DC |
| A: | 9 - 36 | V DC |