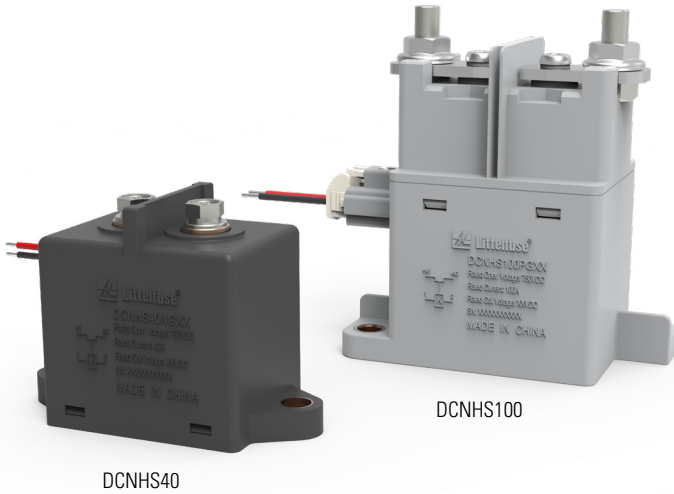


DCNHS Series

1000V DC Max Contactor Relay



Specifications

| | |
|---------------------------------------|------------------------------|
| Max Voltage Rating (V DC): | 1000 |
| Current Rating Continuous (A): | 40, 100 |
| Coil Voltage Rating (V DC): | 12, 24, 48 |
| Ingress Protection: | IP40 |
| Operating Temperature (°C): | -40 to +85 |
| Housing Material: | Glass Filled Nylon 6/6 |
| Flammability Rating: | UL 94 V-0 |
| Terminals: | |
| DCNHS40: | Female - M4 - Copper |
| DCNHS100: | Male - M6 - Ni Plated Copper |

Description

The DCNHS Series, A 750V DC Contactor Relay is a normally open (also known as monostable) relay with a resin body for corrosion resistance in harsh automotive environments. Ceramic brazing sealed contacts help ensure there is no leakage of electrical arc for safety. The contactor includes a magnetic blow out to achieve a rapid extinguishing of the DC arc.

The DCNHS Series Contactors Relays are available in a non-polarized 40A rated version and a 100A rated polarized version.

Web Resources

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

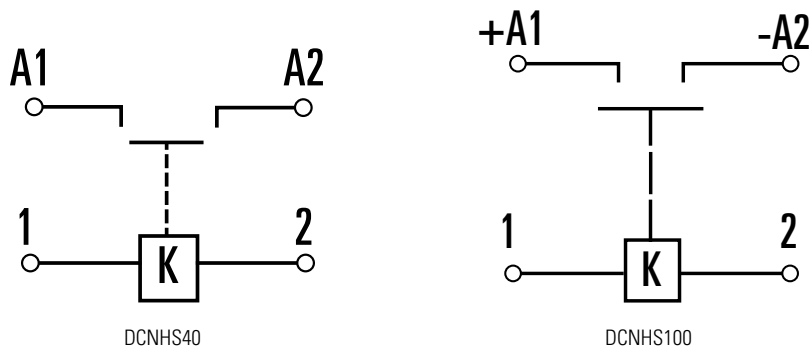
Applications

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

Features and Benefits

- Available with 40A to 100A contact switching capability
- Normally open relay design
- Housing provides corrosion resistance in harsh automotive environments
- Ceramic brazing sealed contacts with no leakage of electrical arc for maximum safety
- RoHS compliant
- No mounting orientation restrictions

Electrical Diagram



DCNHS Series

1000V DC Max Contactor Relay

Ordering Information

| PART NUMBER | CONTINUOUS CURRENT (A) | VOLTAGE RATING | | MOUNTING | COIL VOLTAGE (V DC) | COIL TYPE | AUX CONTACT | POLARIZED | 2D PRINT |
|--------------|------------------------|-----------------------|--------------------|----------|---------------------|-----------|-------------|-----------|----------|
| | | SYSTEM NOMINAL (V DC) | MAX VOLTAGE (V DC) | | | | | | |
| DCNHS40NG12 | 40 | 750 | 1000 | BOTTOM | 12 | Single | No | No | ↓ |
| DCNHS40NG24 | 40 | 750 | 1000 | BOTTOM | 24 | Single | No | No | ↓ |
| DCNHS40NG48 | 40 | 750 | 1000 | BOTTOM | 48 | Single | No | No | ↓ |
| DCNHS100PG12 | 100 | 750 | 1000 | BOTTOM | 12 | Single | No | Yes | ↓ |
| DCNHS100PG24 | 100 | 750 | 1000 | BOTTOM | 24 | Single | No | Yes | ↓ |
| DCNHS100PG48 | 100 | 750 | 1000 | BOTTOM | 48 | Single | No | Yes | ↓ |

Performance Data

| MAIN CONTACT | | |
|------------------------------|--|----------------|
| Contact Arrangement | SPST NO | |
| Max Short Circuit Current | DCNHS40NG12 DCNHS40NG24 DCNHS40NG48 | 160A @ 750V DC |
| | DCNHS100PG12 DCNHS100PG24 DCNHS100PG48 | 400A @ 750V DC |
| Dielectric Withstand Voltage | 2500 VAC | |
| Insulation Resistance | ≥ 100MΩ @ 500V DC | |

| COIL DATA | | | | |
|-----------------------------------|----------|------|------|-------|
| Voltage Rating (V DC) | | 12 | 24 | 48 |
| Pickup Voltage @ 25°C (V DC MAX) | DCNHS40 | 8.4 | 16.8 | 33.6 |
| | DCNHS100 | 8.4 | 16.8 | 33.6 |
| Dropout Voltage @ 25°C (V DC MIN) | DCNHS40 | 1 | 1.9 | 3.8 |
| | DCNHS100 | 1 | 1.9 | 3.8 |
| Hold Current (A) | DCNHS40 | 0.25 | 0.13 | 0.063 |
| | DCNHS100 | 0.55 | 0.27 | 0.15 |
| Coil Watts @ 25°C (W) | DCNHS40 | 3 | 3 | 3 |
| | DCNHS100 | 6.6 | 6.6 | 6.6 |

| LIFE | | |
|-----------------|---|-----------------------------|
| Electrical Life | DCNHS40NG12, DCNHS40NG24, DCNHS40NG48 DCNHS100PG12, DCNHS100PG24, DCNHS100PG48 | Please see make break chart |
| Mechanical Life | | 200,000 |

Note: rated at continuous current rating and system nominal voltage

| OPERATE / RELEASE TIME | |
|------------------------|----|
| Close (ms) | 30 |
| Release (ms) | 30 |

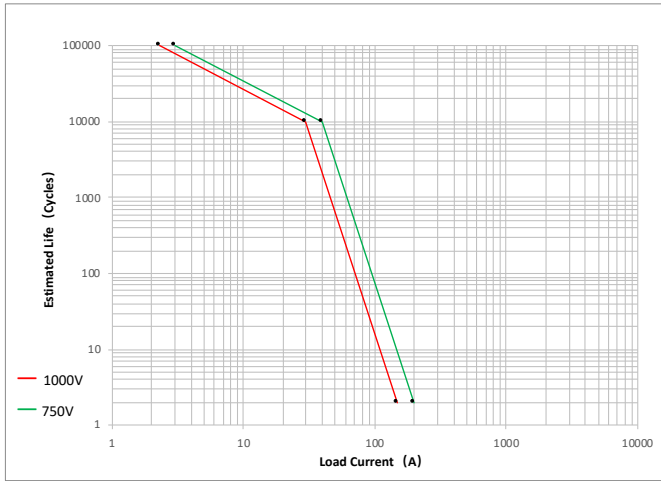
| ENVIRONMENTAL DATA | | |
|-------------------------------|-----------------|-----|
| Shock | 50G, 6ms | |
| Vibration | 10~2000Hz, 5.6G | |
| Operating Ambient Temperature | -40°C~+85°C | |
| Weight (g) | DCNHS40 | 155 |
| | DCNHS100 | 340 |

DCNHS Series

1000V DC Max Contactor Relay

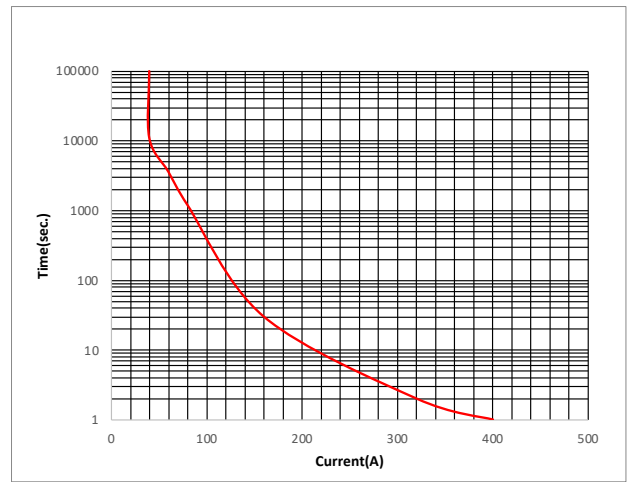
Estimated Make Break Chart

DCNHS40

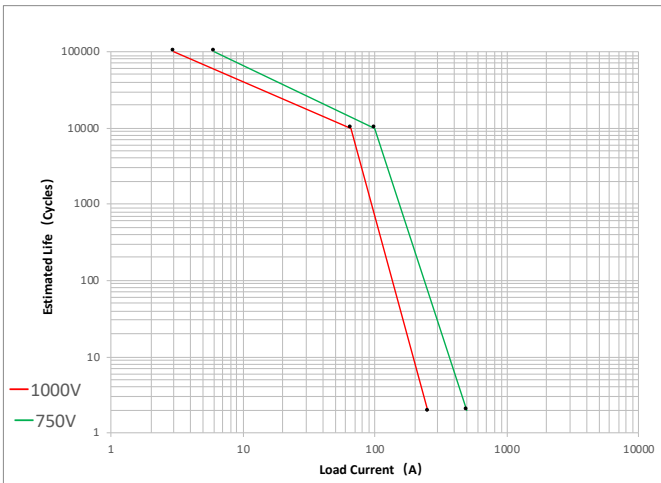


Carry Current vs Time at 65°C Chart

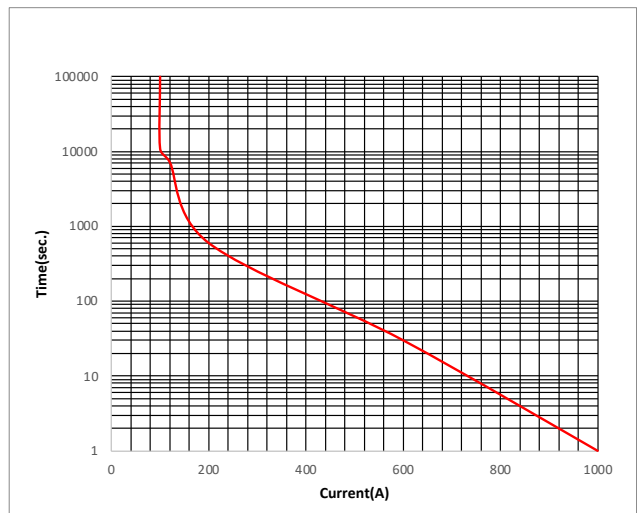
DCNHS40



DCNHS100



DCNHS100



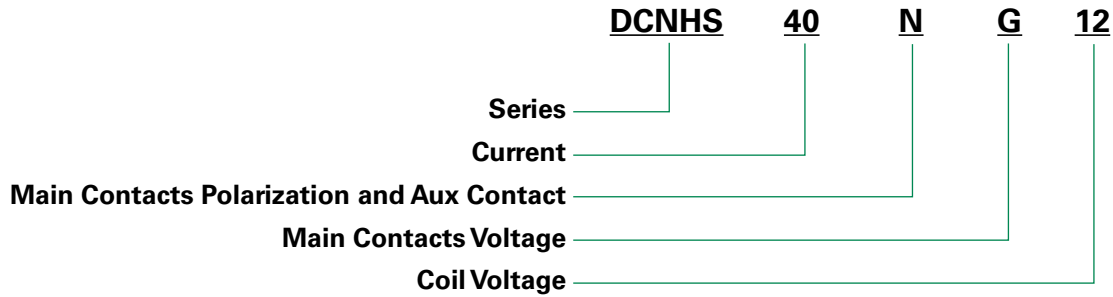
Note:

- 1 Applications with capacitors will require a pre-charge circuit.
- 2 Electrical life rating is based on resistive load with 27μH maximum inductance in circuit.

DCNHS Series

1000V DC Max Contactor Relay

Part Number System



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

| MAIN CONTACT TEST VOLTAGE | | |
|---------------------------|-----|------|
| G | 750 | V DC |

| COIL VOLTAGE | | |
|--------------|----|------|
| 12: | 12 | V DC |
| 24: | 24 | V DC |
| 48: | 48 | V DC |

Application Notes & Definitions

- Be sure to use a lock 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. See the chart below.
- Please refer to the drawing for connection polarity.
- Do not use dropped products.
- Improper assembly of a polarized contactor can reduce life.
- 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 contaminants sit on the main terminals. It will compromise the quality and resistance of the connection causing the product to overheat.

| PRODUCT SERIES | PRODUCT MODEL | CONTACT TERMINAL | | COIL TERMINAL | MOUNTING | |
|----------------|---------------|------------------|------------------|-------------------------|---------------------|------------------|
| | | HOLE OR BOLT | REFERENCE TORQUE | HOLE/BOLT/WIRE/TERMINAL | REFERENCE BOLT SIZE | REFERENCE TORQUE |
| DCNHS40 | DCNHS40NG12 | Hole: Female M4 | 1.7-2.5 N.m | Wire: UL3266 20 AWG | M6 | 4-6 N.m |
| | DCNHS40NG24 | | | | | |
| | DCNHS40NG48 | | | | | |
| DCNHS100 | DCNHS100PG12 | Bolt: Male M6 | 4-6 N.m | Wire: UL3266 20 AWG | M6 | 4-6 N.m |
| | DCNHS100PG24 | | | | | |
| | DCNHS100PG48 | | | | | |

Web Resources

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