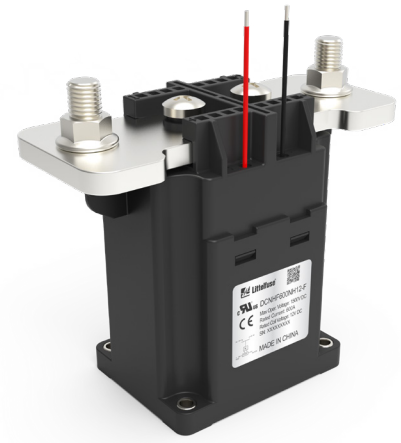
DCNHF800NH Series
1500V DC Max Contactor Relays



Description

The DCNHF800NH Series high-voltage DC contactor relay is engineered for demanding electric vehicle and industrial high-power DC applications that require high current capacity and reliable high-voltage switching. Rated for 800A continuous current and up to 1500V DC contact voltage, it is well suited for use in battery power supply systems, charging piles, motor control, circuit isolation, circuit protection, and safety devices for industrial machinery.

Featuring SPST normally open (NO) circuitry with non-polarized contacts, the DCNHF800NH Series contactor supports bidirectional current switching to accommodate a wide range of electrical systems. A double-coil design enhances operational stability in high-power applications, while the bottom-mounting configuration supports secure installation in EV and industrial systems.

The DCNHF800NH Series contactor is equipped with stud terminals for high-current load connections and wire leads for the control circuit, enabling flexible integration into control systems. It is available with 12V DC or 24V DC coil voltage options to support common EV and industrial control requirements.

Web Resources

Download 2D print, installation guide and technical resources at: **littelfuse.com/DCNHF800NH**

Specifications

Rating Continous Current	800A
Contact Max. Voltage	1500V DC
Contact Circuitry	SPST NO
Ingress Protection	Contact IP67
Contacts Material	Copper Alloy
Terminals	M10 Copper
Contact Torque	M10 Nut: 20~25N·m
Housing	Nylon UL 94-V0
Coil Connector	Wire Leads for Control Circuit
Coil Type	Double
Mounting Method	M5 Bolt
Mounting Torque	M5 Bolt: 3~4N·m
Normal Position	Any Mounting Position
Approvals:	
UL File Number:	E47258 Recognized
CE:	EN 60947-4-1,2018

Applications

- Battery Electric Vehicles
- Hybrid Electric Vehicles
- Material Handling
- Electric Maintenance and Transport Vehicles
- Industrial Applications

Features and Benefits

- High voltage (1500V) contactor for EV applications
- Compact structure, helping reduce noise when turned on
- Resin housing provides corrosion resistance in harsh automotive environments
- Sealed contacts with no leakage of electrical arc for maximum safety
- No mounting orientation restrictions
- RoHS and REACH compliant

Ordering Information

PART NUMBER	RATED CURRENT(A)	POLARIZED	AUX. CONTACT	COIL VOLTAGE(V DC)	MOUNTING	POWER CONNECTION
DCNHF800NH12-B	800	No	No	12	Bottom	Stud Terminal
DCNHF800NH24-B	800	No	No	24	Bottom	Stud Terminal

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Performance Data

MAIN CONTACT	
Contact Arrangement	1 Form, SPST-NO
Operating Voltage	12~1500V DC
Continous Current	800A
Max Short Circuit	8000A, 10ms
Max Breaking Limit	3000A@800V DC, 1cycle
Dielectric Withstanding Voltage	Between open contacts: 3000V AC, ≤1mA,1min Between contact and coil: 4000V AC, ≤1mA,1min
Insulation Resistance	Min. 1000 MΩ@1500V DC
Contact Voltage Drop	≤160mV@800A

COIL DATA		
Rating Voltage	12V DC	24V DC
Voltage (Max.)	16V DC	28V DC
Pickup Voltage (25°)	≤9V DC	≤18V DC
Release Voltage (25°)	≥1V DC	≥2V DC
Starting Current (25°)	≤4.62A	≤2.31A
Starting Power (25°)	50W	50W
Holding Current (25°)	≤0.825A	≤0.4125A
Holding Power (25°)	9W	9W

Note: This product is a double-coil, and the coil control voltage must be a step voltage. A slowly rising voltage can not make the contactor work.

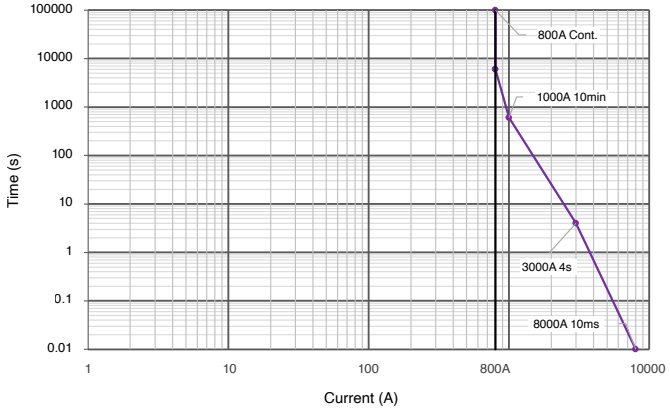
LIFE	
Electrical Life (Resistive)	600 cycles, 600A@750V DC 6000 cycles, 100A@1000 V DC 50 cycles, 300A@1500V DC
Mechanical Life	200,000 cycles

Note: Electrical life rating is based on resistive load with 27μH maximum inductance in circuit. Because your application may be different, we suggest you test the contactor in your circuit to verify life is as required.

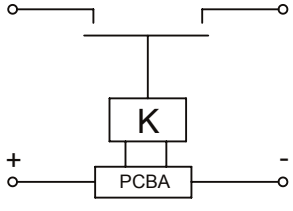
OPERATE / RELEASE TIME	
Pickup Time (includes bounce)	≤50ms
Release Time	≤30ms

ENVIRONMENTAL DATA	
Shock, 11ms ½ Sine, Operating	20g, Peak
Vibration, Sine	80~2000Hz, 20g, Peak
Operating Temperature	-40°C~+85°C
Humidity	5%~85%RH
Weight	1800g

Carry Current vs Time at 65°C Chart



Electrical Diagrams



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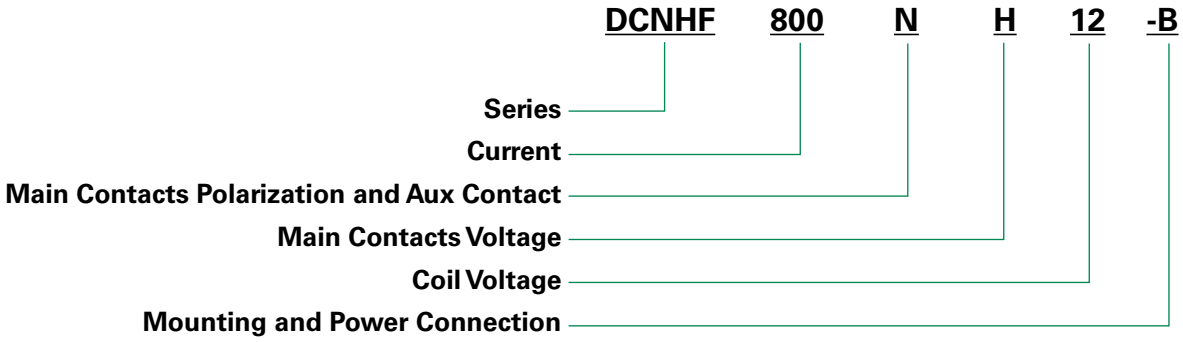
Part Number System



MAIN CONTACTS POLARIZATION AND AUX CONTACT		
	POLARIZED?	INCLUDE AUX CONTACT?
N:	No	No

MAIN CONTACT TEST VOLTAGE		
H:	1000	V DC

COIL VOLTAGE		
12:	12	V DC
24:	24	V DC

	MOUNTING	POWER CONNECTION
B:	Bottom	Stud Terminal

- Be sure to use washer to prevent screws from loosening, all the terminals or copper bar must be in direct contact with the contactor's terminals. Screw tightening torque is specified below. Exceeding the maximum torque can lead to product failure.
  - Contact torque: in (20 ~25) N.m.
  - Mounting torque: in (3~4) N.m.
- Contact terminals are polarized, Coil terminals are non-polarized, so refer to drawing during connecting. We suggest using a varistor rather than diode as a surge protector.
- Do not use if dropped.
- Avoid installing in a strong magnetic field (close to a transformer or magnet), or near a heat source.
- Electrical life
  Use per load capability and life cycle limits so as not to cause a function failure (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 occurs. It is necessary to take layout into account and 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 generated by contact operation). Operate only in an ambient temperature from -40°C to +85˚C.
- Drive power must be greater than coil power or it will reduce performance capability.
- Avoid debris or oil contamination on the main terminals to optimize contact and avoid excess heat generation.
- Applications with capacitors will require a pre-charge circuit.