DCNHE150 Series
1000V DC Max Contactor Relays


DCNHE150MFA-B


DCNHE150NFA-F

Specifications

Rating Continous Current:	150A
Contact Max. Voltage:	1000V DC
Contact Circuitry:	SPST NO
Ingress Protection:	Main contacts IP67 PCBA circuit IP54
Contacts Material:	Copper Alloy
Terminals:	M8 Silver-Plated Copper or M6 Silver-Plated Copper
Contact Torque:	M8 Nut: 8~10N·m or M6 Bolt:6~8N·m
Housing:	Nylon UL 94 V-0
Coil Connector:	Wire Leads for Control Circuit
Coil Type:	PWM
Mounting Method:	M5 Bolt
Mounting Torque:	M5 Bolt: 1.7~3.5N·m
Normal Position:	Any Mounting Position
Approvals:	
UL File Number:	E47258 Recognized
CE:	EN 60947-4-1,2018

Description

The DCNHE150 Series contactor is a high-current (150A continuous), high-voltage (1000V DC max) relay designed for electric vehicle and energy storage applications requiring reliable DC power control and protection. Typical uses include battery power supply, DC power distribution, charging systems, uninterruptible power supply, and other electronic control circuits.

Featuring a compact structure and resin housing, the DCNHE150 contactor features corrosion resistance and reduced operational noise. Its sealed contact design prevents arc leakage for maximum safety, while the attached Coil Economizer, once energized, minimizes coil power consumption and heating through Pulse Width Modulation (PWM) control.

Available in both polarized and non-polarized versions to suit system polarity requirements, the DCNHE150 contactor offers flexibility in design and installation with no mounting orientation restrictions. Mechanically linked auxiliary contact options are also available.

Web Resources

Download 2D print, installation guide and technical resources at: **littelfuse.com/DCNHE150**

Applications

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

Features and Benefits

- High current (150A) and high voltage (1000V) contactor for EV applications
- Compact structure, helping reduce noise when turned on
- Coil Economizer greatly reduces coil power and heating
- Resin housing provides corrosion resistance in harsh automotive environments
- Sealed contacts with no leakage of electrical arc for maximum safety
- No mounting orientation restrictions
- Complies with EU RoHS & REACH.
- Available with mechanically linked auxiliary contacts

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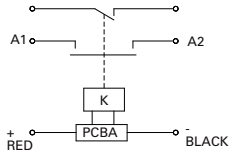
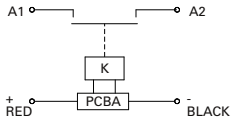
Ordering Information

PART NUMBER	RATED CURRENT(A)	POLARIZED	AUX. CONTACT	COIL VOLTAGE(VDC)	MOUNTING	POWER CONNECTION
DCNHE150NFA-B	150	No	No	12~36	Bottom	Stud Terminal
DCNHE150NFA-F	150	No	No	12~36	Bottom	Internal Thread
DCNHE150MFA-B	150	No	SPST-NO	12~36	Bottom	Stud Terminal
DCNHE150MFA-F	150	No	SPST-NO	12~36	Bottom	Internal Thread
DCNHE150PFA-B	150	Yes	No	12~36	Bottom	Stud Terminal
DCNHE150PFA-F	150	Yes	No	12~36	Bottom	Internal Thread
DCNHE150QFA-B	150	Yes	SPST-NO	12~36	Bottom	Stud Terminal
DCNHE150QFA-F	150	Yes	SPST-NO	12~36	Bottom	Internal Thread

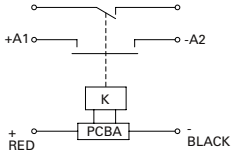
Electrical Diagrams



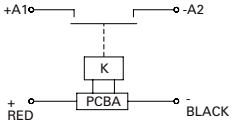
DCNHE150MF SERIES



DCNHE150NF SERIES



DCNHE150QF SERIES



DCNHE150PF SERIES

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Performance Data

MAIN CONTACT	
Contact Arrangement	1 Form, SPST-NO
Operating Voltage	12~1000VDC
Continous Current	150A
Max Short Circuit	2000A, 1sec
Max Breaking Limit	2000A@320VDC, 1cycle
Dielectric Withstanding Voltage	Between open contacts and coil: 4,000VAC, ≤1mA,1min Between contacts and coil: 2,200VAC, ≤1mA,1min Between Aux. contacts: 1,000VAC, ≤1mA,1min
Insulation Resistance	Min. 100 MΩ@1000VDC
Contact Voltage Drop	≤80mV@150A

COIL DATA	
Rating Voltage	12~36VDC
Voltage (Max.)	36VDC
Pickup Voltage (25°C)	8~9VDC
Release Voltage (25°C)	5~7VDC
Starting Current (25°C)	2.4A@12VDC 2A@24VDC
Wattage (25°C)	Approx. 2.5W

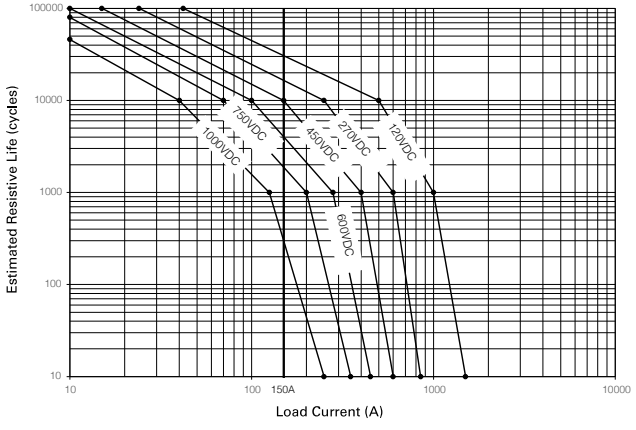
LIFE	
Electrical Life	Please See Estimated Make Break Chart
Mechanical Life	300,000 cycles

OPERATE / RELEASE TIME	
Pickup Time (includes bounce)	≤25ms
Release Time	≤10ms

ENVIRONMENTAL DATA	
Shock, 11ms ½ Sine, Operating	20g, Peak
Vibration, Sine	80~2,000Hz, 10g, Peak
Operating Temperature	-40°C~+85°C
Humidity	20%~90%RH
Weight	About 450g

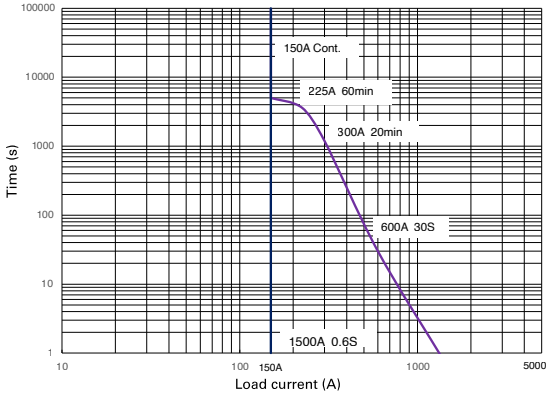
AUX. CONTACT	
Aux.Contact Arrangement	1 Form A
Aux.Contact Current Max.	2A@24VDC
Aux.Contact Current Min.	100mA@8VDC
Max. Contact Resistance	0.3Ω

Estimated Make Break Chart



Note: Electrical life rating is based on resistive load with 27μH maximum inductance in circuit. Since every application can vary, we recommend evaluating the contactor in your system to ensure it meets your expected performance and lifetime needs.

Carry Current vs Time at 65°C Chart



Note: The abpve data was tested at 65°C, cross-sectional area of the wire≥70mm^2.

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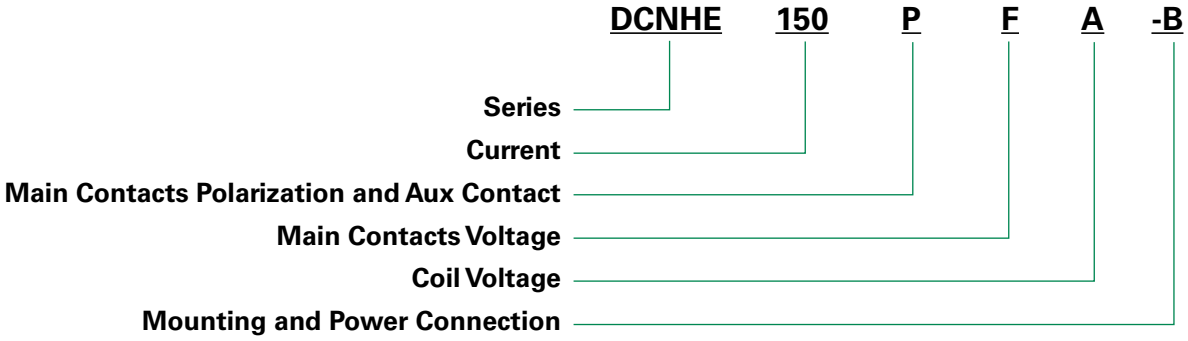
Part Number System



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

MAIN CONTACT TEST VOLTAGE		
F:	450	V DC

COIL VOLTAGE		
A:	12~36	V DC

	MOUNTING	POWER CONNECTION
B:	Bottom	Stud Terminal
F:	Bottom	Internal Thread

- Be sure to use washer to prevent screws from loosening. Tighten the screw torque range is specified as below. Exceeding the maximum torque can lead to product rupture.
  - Contact torque (M8): 8 - 10 N.m; (M6): 6 - 8 N.m
  - Mounting torque: 1.7 - 3.5 N.m
- Do not use dropped products.
- Avoid to install 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.
- The coil wires are polarized and the contact terminals are available in polarized and non-polarized variants. For correct wiring, please refer to the provided schematic diagram.
- Applications with capacitors will require a pre-charge circuit