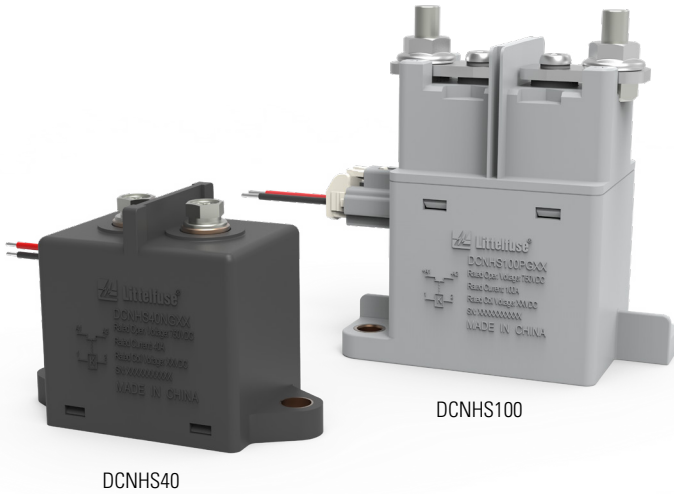


DCNHS Series

1000V DC Max Contactor Relay



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

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

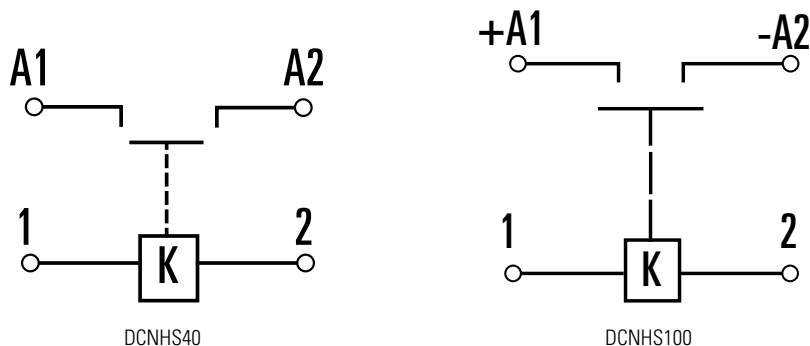
Applications

- 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

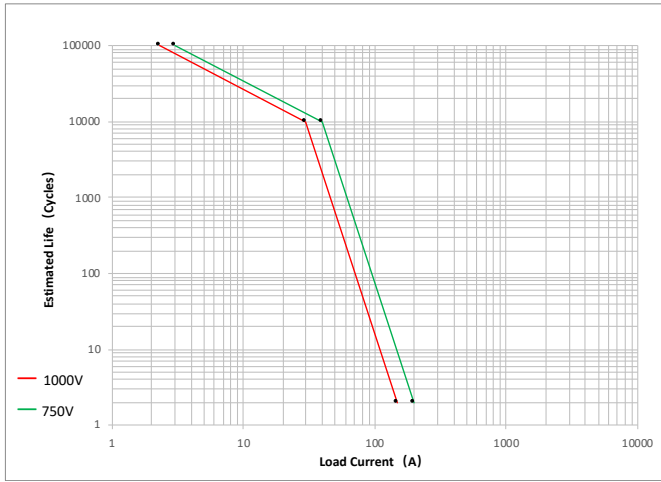
ENVIRONMENTAL DATA		
Shock	50G, 6ms	
Vibration	10~2000Hz, 5.6G	
Operating Ambient Temperature	-40°C~+85°C	
Weight (g)	DCNHS40	155
	DCNHS100	340

DCNHS Series

1000V DC Max Contactor Relay

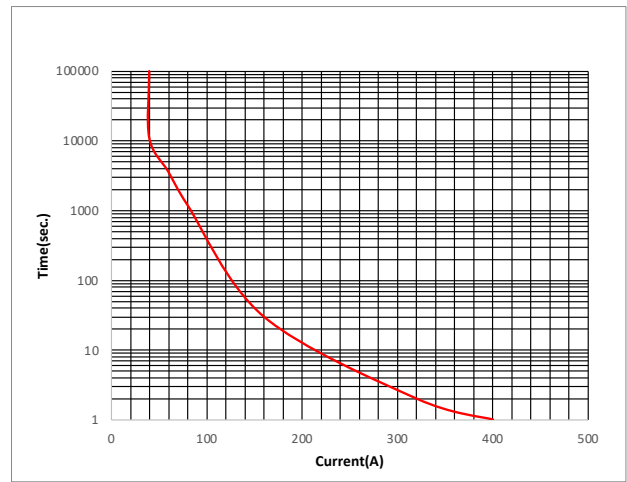
Estimated Make Break Chart

DCNHS40

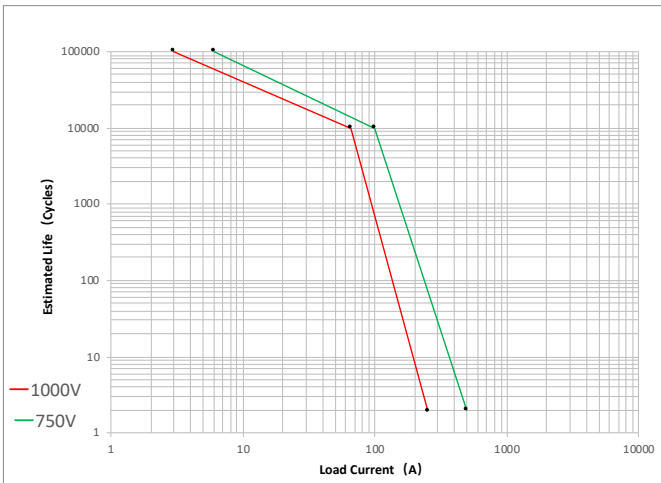


Carry Current vs Time at 65°C Chart

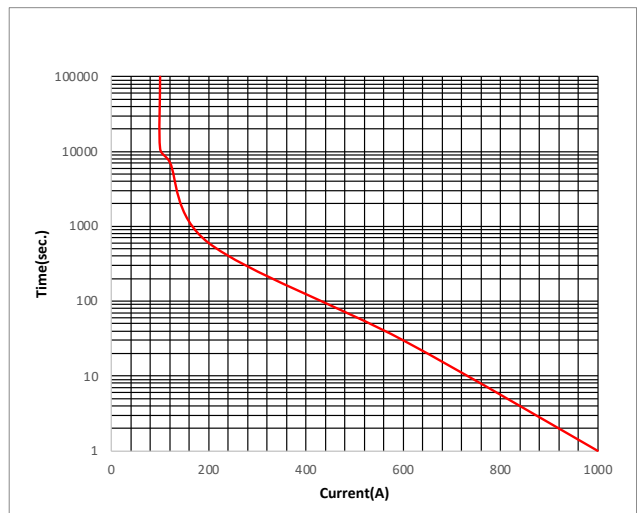
DCNHS40



DCNHS100



DCNHS100



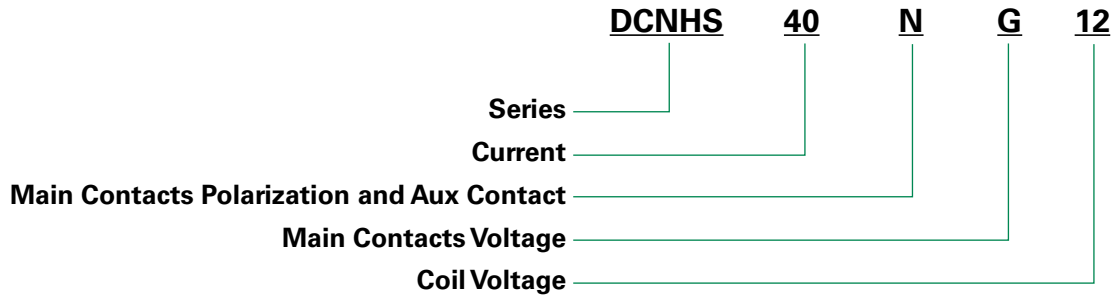
Note:

- 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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