

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.

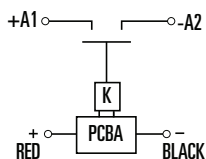
Features and Benefits

- 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

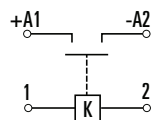
Web Resources

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

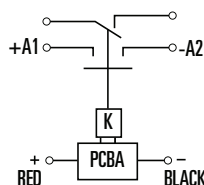
Electrical Diagram



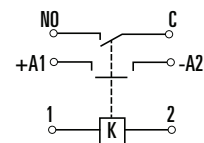
DCNHRXXXPF A



DCNHRXXXPF X



DCNHRXXXQF A



DCNHRXXXQF X

DCNHR SERIES

900V DC MAX CONTACTOR RELAY

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

DCNHR SERIES

900V DC MAX CONTACTOR RELAY

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

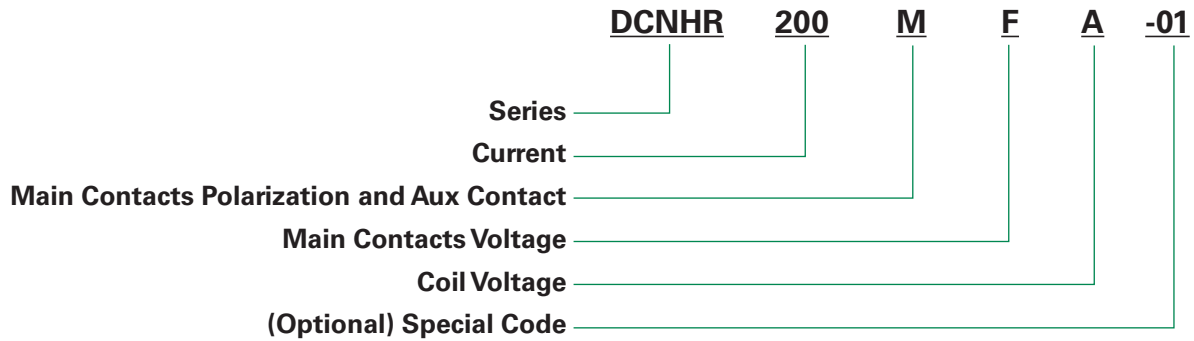
AUX CONTACTS	
Contact Arrangement	Normal Open
Max. Rating	2A @ 24V DC
Min. Rating	0.1A @ 5V DC
Max. Resistance	≤500mΩ

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

DCNHR SERIES

900V DC MAX CONTACTOR RELAY

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

DCNHR SERIES

900V DC MAX CONTACTOR RELAY

Application Notes & Definitions

- Be sure to use a 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.
- 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 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.

PRODUCT SERIES	PRODUCT MODEL	CONTACT TERMINAL		COIL TERMINAL		MOUNTING
		HOLE OR BOLT	REFERENCE TORQUE	HOLE/BOLT/WIRE/TERMINAL	REFERENCE TORQUE	REFERENCE TORQUE
DCNHR100	DCNHR50QF12	Hole: M5	3-4N.m	Wire: UL1332 22 AWG	/	1.7-2.5N.m
	DCNHR50QF24					
	DCNHR50QF48					
	DCNHR50PF12					
	DCNHR50PF24					
	DCNHR50PF48					
	DCNHR100QF12					
	DCNHR100QF24					
	DCNHR100QF48					
	DCNHR100PF12					
	DCNHR100PF24					
DCNHR100PF48						
DCNHR300	DCNHR300PFA	Bolt : M8	8-12N.m	Wire: UL3321 22 AWG	/	1.8-3.5N.m
	DCNHR300QFA					
	DCNHR300NFA					
	DCNHR300MFA					