

DCNHE30 Series

1000V DC Max Contactor Relays



Description

Ideal for electric vehicle and industrial applications, including battery power supply, charging pile, motor control, circuit insulation, circuit protection, and industrial safety devices, the DCNHE30 Series high-voltage DC contactor relay is engineered for long-term durability with polarized contacts.

Its compact, bottom-mounting design reduces noise and allows flexible installation, while durable resin housing provides corrosion resistance. Sealed contacts prevent electrical arc leakage, and internal-thread M4 terminals ensure secure connections. IP67-rated, the DCNHE30 Series contactor is suitable for BEVs, HEVs, material handling, and electric transport vehicles.

Web Resources

Download 2D print, installation guide and technical resources at: littelfuse.com/DCNHE30

Ordering Information

PART NUMBER	RATED CURRENT(A)	POLARIZED	AUX. CONTACT	COIL VOLTAGE(V DC)	MOUNTING	POWER CONNECTION
DCNHE30PF12-F	30	Yes	No	12	Bottom	Internal Thread
DCNHE30PF24-F	30	Yes	No	24	Bottom	Internal Thread
DCNHE30PF48-F	30	Yes	No	48	Bottom	Internal Thread

Specifications

Rating Continous Current:	30A
Contact Max. Voltage:	1000V DC
Contact Circuitry:	SPST NO
Ingress Protection:	IP67
Contacts Material:	Copper Alloy
Terminals:	M4 internal thread Silver-Plated Copper
Contact Torque:	M4 Bolt: 1.5~2N·m
Housing:	Nylon UL 94 V-0
Coil Connector:	Wire Leads for Control Circuit
Coil Type:	Single
Mounting Method:	M4 Bolt
Mounting Torque:	M4 Bolt: 1.8~ 2.3N·m
Normal Position:	Any Mounting Position
Approvals:	E47258 Recognized 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 current (30A) and high voltage (1000V) 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
- Complies with EU RoHS & REACH

DCNHE30 Series

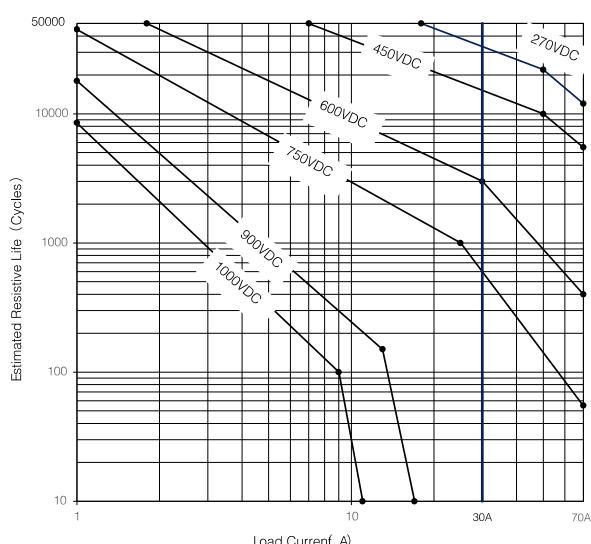
1000V DC Max Contactor Relays

Performance Data

MAIN CONTACT			
Contact Arrangement	1 Form, SPST-NO		
Operating Voltage	12~1,000V DC		
Continuous Current	30A		
Max Short Circuit	500A, 0.6sec		
Max Breaking Limit	300A@320V DC, 1cycle		
Dielectric Withstanding Voltage	Between contacts: 4,000VAC, \leq 1mA,1min Between contacts and coil: 2,200VAC, \leq 1mA,1min		
Insulation Resistance	Min. 100 M Ω @500V DC		
Contact Voltage Drop	\leq 60mV@30A		
COIL DATA			
Rating Voltage	12V DC	24V DC	48V DC
Voltage (Max.)	14.4V DC	28.8V DC	57.6V DC
Pickup Voltage (25°C)	\leq 9V DC	\leq 18V DC	\leq 36V DC
Release Voltage (25°C)	0.6~3.6V DC	1.2~7.2V DC	2.4~14.4V DC
Holding Current (25°C)	\leq 0.5A	\leq 0.25A	\leq 0.13A
Wattage (25°C)	5~6W	5~6W	5~6W

Note: The coil of the product may operate at maximum voltage for a maximum duration of 30 minutes.

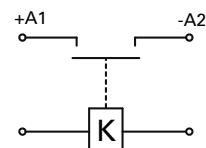
Estimated Make Break Chart



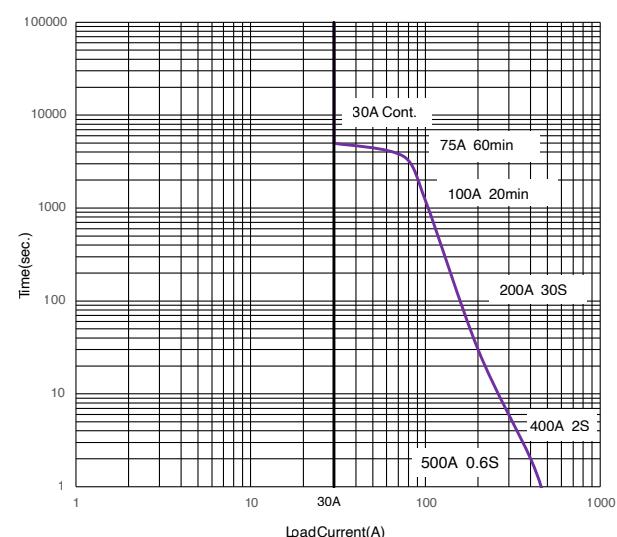
Note: Electrical life rating is based on resistive load with 27 μ H maximum inductance in circuit. Because your application may be different, we suggest you test the contactor in your circuit to verify life is as required.

LIFE	
Electrical Life	Please See Make Break Chart
Mechanical Life	300,000 cycles
OPERATE / RELEASE TIME	
Pickup Time (includes bounce)	\leq 25ms
Release Time	\leq 10ms
ENVIRONMENTAL DATA	
Shock, 11ms $\frac{1}{2}$ Sine, Operating	20g, Peak
Vibration, Sine	55-2000Hz, 20g, Peak
Operating Temperature	-40°C~+85°C
Humidity	5%~85%RH (No ice or condensation)
Weight	about 115g

Electrical Diagrams



Carry Current vs Time at 65°C Chart

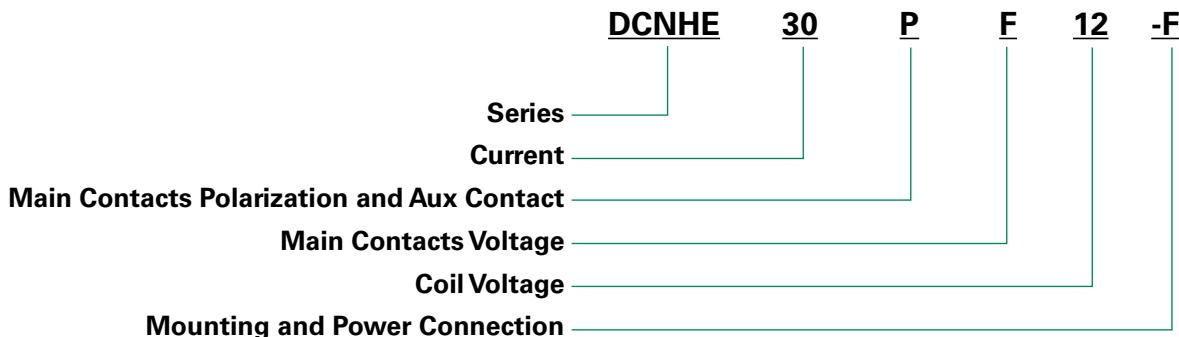


Note: The above data was tested at 65°C, cross-sectional area of the wire \geq 10mm 2 .

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Part Number System



MAIN CONTACTS POLARIZATION AND AUX CONTACT		MAIN CONTACT TEST VOLTAGE			COIL VOLTAGE			MOUNTING		POWER CONNECTION	
POLARIZED?	INCLUDE AUX CONTACT?	F:	450	V DC	12:	12	V DC	F:	Bottom	Internal Thread	
P:	Yes				24:	24	V DC				
					48:	48	V DC				

- 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 (1.5 ~2) N.m.
 - Mounting torque: 1.8~ 2.3N·m.
- Contact terminals are 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 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.
- After continuous rated voltage / current has been applied to the coil and contacts, turning off the coil and immediately re-energizing the coil will result in a higher pick-up voltage than the rated value. This is due to increased coil resistance (coil temperature rise) of the device.
- Applications with capacitors will require a pre-charge circuit.