

REC45 SERIES

High Voltage Contactors

500A CONTINUOUS
DUTY

1000VDC SYSTEM
VOLTAGE



DESCRIPTION

The REC45 Series are epoxy-sealed high voltage DC contactors designed to provide reliable, cost-effective DC power switching for higher-current applications. Rated for continuous currents up to 500A and system voltages up to 1000VDC, the REC45 Series delivers enhanced electrical performance while maintaining the proven, industry-standard cylindrical contactor form factor.

The epoxy-sealed construction with gas fill provides hermetic protection suitable for standard operating environments, while available integrated PWM coil options help reduce holding power and improve system efficiency. Optional auxiliary contacts provide main position feedback and multiple mounting configurations are available. The REC45 Series is widely used across electric vehicle subsystems, humanoid robotics platforms, energy storage systems, and industrial DC power control applications.

FEATURES

SPST Normally Open High Voltage DC Contactor

- Epoxy-sealed hermetic construction for reliable DC switching
- Industry-standard cylindrical contactor form factor
- Optional SPST-NO or SPST-NC auxiliary contact for main position feedback
- Bi-directional DC power switching¹
- Multiple coil voltage options available
- RoHS 2011/65/EU and REACH compliant
- CE Certified
- UL 60947-4-1 recognized component (File E536262)

TYPICAL APPLICATIONS

- Electric vehicle battery pack and power subsystems
- Humanoid robotics power distribution
- Battery energy storage systems (BESS)
- DC charging infrastructure subsystems
- Industrial equipment and machinery
- Auxiliary DC power switching
- Renewable energy and power conversion systems
- AGV Automated Guided Vehicles

For factory-direct technical support and application assistance:

Call +1 805 456 6424

Email info@rinconpower.com

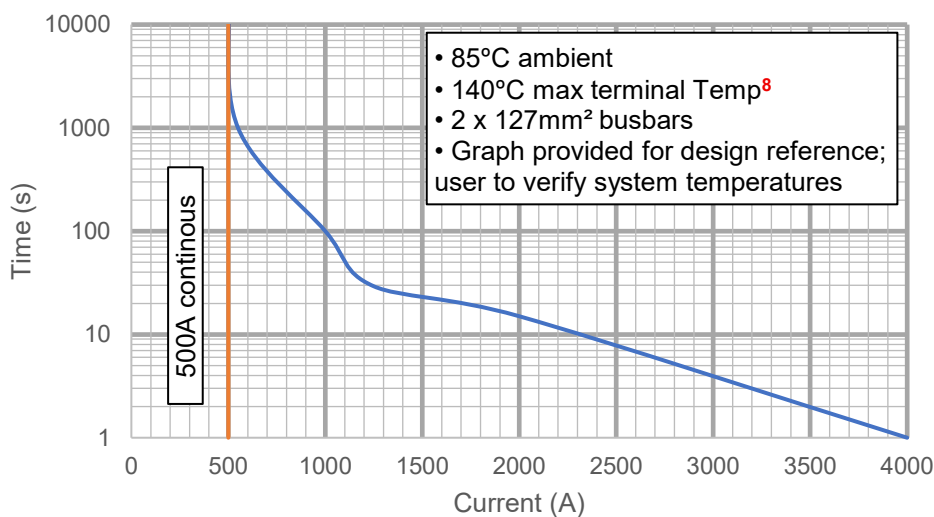
Visit <https://www.rinconpower.com/contact-us>

PERFORMANCE

TABLE 1. SPECIFICATIONS

CHARACTERISTIC	MEASURE			
Contact Arrangement	Form X, SPST NO			
Max Switching Voltage ²	1,000 VDC			
Dielectric Withstand Voltage Contacts to Coil	4,300 VDC, 1 minute			
Dielectric Withstand Voltage Across Open Contacts	4,300 VDC, 1 minute			
Continuous Current (2 x 127mm ² conductor) ^{3,9}	500A			
Overload Current	1,000A			
	5 Minutes			
Make and Break	See Table 2			
Max Short Circuit Current	7,000A @ 3ms, 3,000A @ 1s			
Min Insulation Resistance	1,000 MΩ @ 1,000 VDC			
Contact Resistance	0.25mΩ (max) / 0.15mohm (typical) at 300A			
Operate Time (Max, incl bounce)	30ms			
Release Time (Max)	10ms (max) / 5ms (typical)			
Shock - Functional, 1/2 Sine, 11ms	20G			
Shock – Destructive, 1/2 Sine, 11ms	50G			
Operating Temperature ⁸	-40°C to 85°C			
Ingress Protection	Exceeds IP69, (Hermetically sealed)			
Mechanical life	500,000			
AUXILIARY CONTACTS	MEASURE			
Contact Arrangement	SPST			
Continuous Current	2A			
Minimum Current	1mA @ 12V			
COIL (all data at 20°C ambient)	J	M	A ⁹	B ⁹
Coil Type	PWM (economized)	PWM (economized)	Single (continuous duty)	Single (continuous duty)
Nominal Voltage ^{4,5}	9-36 VDC	36-95 VDC	12 VDC	24 VDC
Pick-up Voltage (Max) ⁶	9 VDC	28 VDC	9 VDC	18 VDC
Drop-out Voltage (Min) ⁶	6 VDC	16 VDC	1.2 VDC	2.4 VDC
Inrush Current (Max), 130ms max duration, @ nominal voltage	3.8A (@ 12 VDC)	1.2A (@ 48 VDC)	0.5A	0.25A
Coil Resistance ⁵	3.2 Ω	40 Ω	24 Ω +/- 7%	96 Ω +/- 7%
Holding Current ⁷	0.17A @ 12 VDC 0.09A @ 24 VDC	0.046A @ 48 VDC 0.031A @ 72 VDC	0.50A @ 12 VDC	0.25A @ 24 VDC
Coil Back EMF	0 VDC	0 VDC	55 VDC	55 VDC

Current Carry


TABLE 2. RESISTIVE LOAD SWITCHING (MAKE / BREAK DATA)

BI-DIRECTIONAL VERSION ¹		CYCLES 1 cycle = 1 make + 1 break
VOLTAGE	CURRENT	
450V	250A	10,000
600V	400A	5,500 (BREAK ONLY)
800V	300A	4,000 (BREAK ONLY)
800V	200A	10,000
800V	1000A	1 cycle (BREAK ONLY)
1000V	100A	10,000

OPTIONS

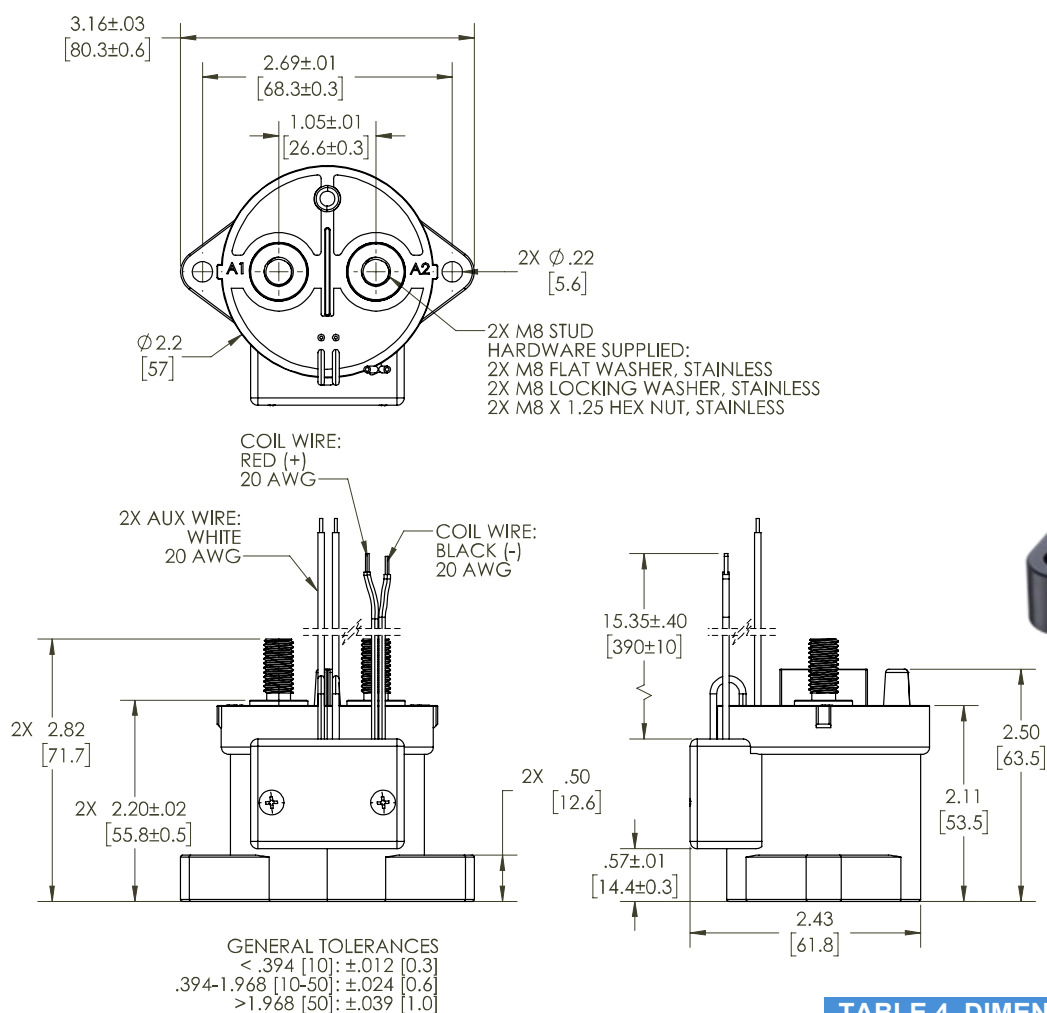
TABLE 3. PART NUMBER CONFIGURATION

SERIES	CONTACT POLARITY	MOUNTING	COIL	AUXILIARY CONTACTS
REC45	B Bi-directional ¹	1 Bottom mount, M8 external	J 9-36V integrated PWM	X None
		5 Bottom, M8 internal	M 36-95V integrated PWM	A Normally Open
			A 12V single coil ⁹	B Normally Closed
			B 24V single coil ⁹	

Available Part Numbers: REC45B1JX, REC45B1JA, REC45B1JB, REC45B1MX, REC45B1MA, REC45B1MB, REC45B1AX, REC45B1AA, REC45B1AB, REC45B1BX, REC45B1BA, REC45B1BB, REC45B5JX, REC45B5JA, REC45B5JB, REC45B5MX, REC45B5MA, REC45B5MB, REC45B5AX, REC45B5AA, REC45B5AB, REC45B5BX, REC45B5BA, REC45B5BB

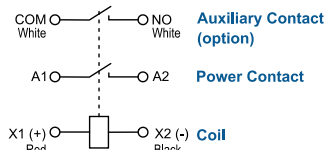
PRODUCT DIMENSIONS [mm]

Bottom Mount With M8 External Threading (REC45B1)

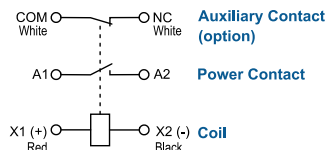


3D model available upon request

A Normally Open



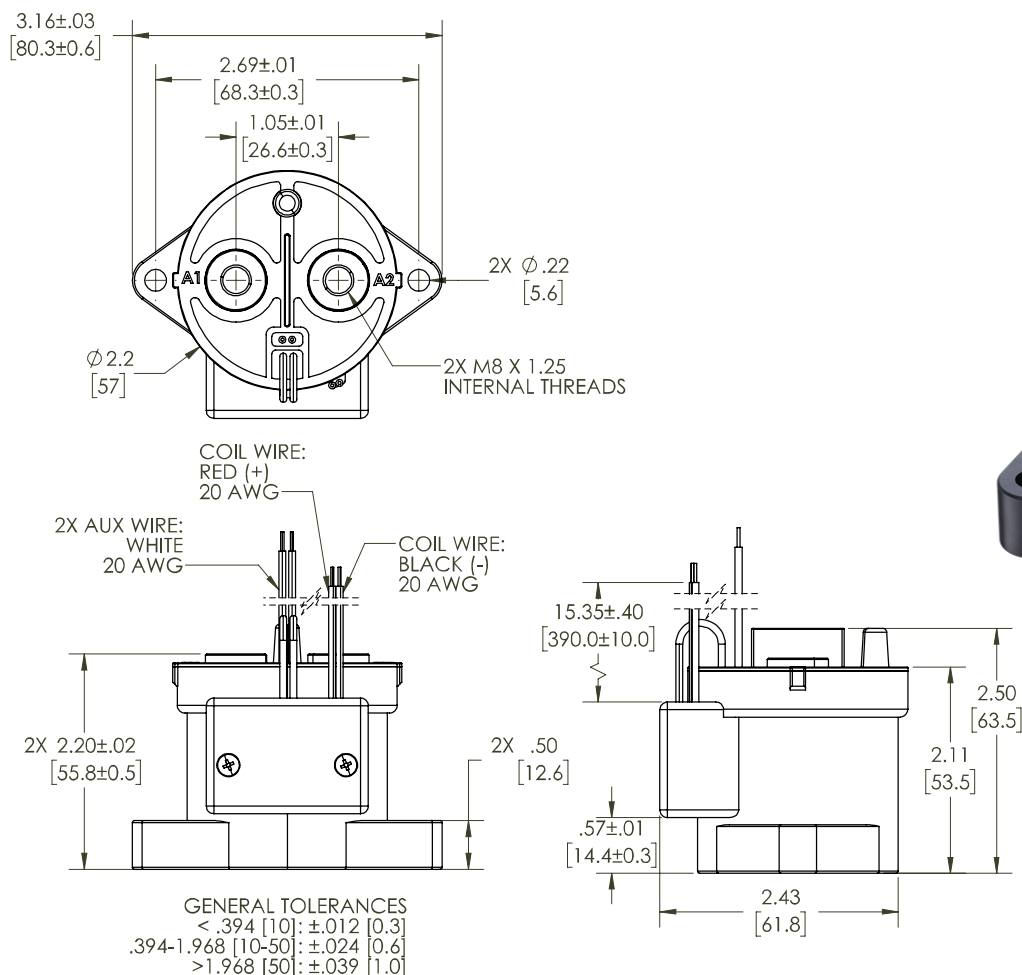
B Normally Closed


TABLE 4. DIMENSIONAL AND INSTALLATION

CHARACTERISTIC	MEASURE
Weight	≈ 385g (0.85 lb)
Mounting Position	Any / Not Position Sensitive
Package Quantity	30 pieces
Install Torque	9-11Nm (80-97 in-lb)
M8 Main Terminals ³	2-4 Nm (17-35 in-lb)
M5 Mounting Inserts	

PRODUCT DIMENSIONS [mm]

Bottom Mount With M8 Internal Threading (REC45B5)



3D model available upon request

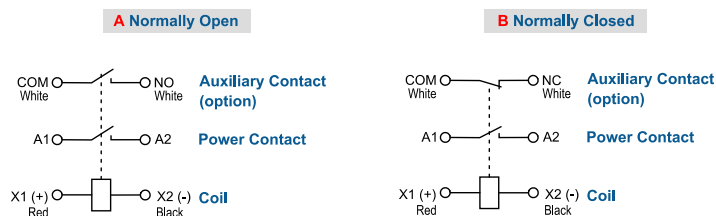


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Install Torque	9-11Nm (80-97 in-lb)
M8 Main Terminals ³	
M5 Mounting Inserts	2-4 Nm (17-35 in-lb)

NOTES

1. Product is designed for bi-directional switching. There is no benefit for polarity sensitive version, so this option is not offered.
2. Contactor may be used above Max Switching Voltage if the application does not require significant load breaking. Please contact Rincon Power to discuss in more detail.
3. Attached cables and busbars directly to the main terminal pad using the recommended install torque. Do not use washers or other materials between the contactor and the conductor. This will ensure the lowest possible contact resistance.
4. Avoid excessive coil voltages. Exceeding the ratings on the datasheet may result in high coil temperature and coil failure.
5. Contactor is operated by a coil that changes resistance with temperature: Maximum coil voltage will be lower than indicated at temperatures above 20°C, and higher than indicated at temperatures below 20°C.
6. Pick-up Voltage and Drop Out Voltage will be lower than indicated at temperatures below 20°C and higher than indicated at temperatures above 20°C.
7. Pick-up Current, Coil Current and Coil Power are specified at Nominal Coil Voltage. Current/Wattage will be lower than indicated at temperatures above 20°C and higher than indicated at temperatures below 20°C.
8. Contactor can operate above 85°C ambient as long as terminal temperature is limited to 140°C
9. Current carry rating for single coil version will be slightly lower because the single coil generates more internal heat than the economized coil. Customer should ensure terminal temperature is limited to 140°C

Legal notice: This datasheet is subject to Rincon Power's Product Datasheet Legal Disclaimer.

<https://tcs.rinconpower.com/product-datasheet-legal-disclaimer.pdf>