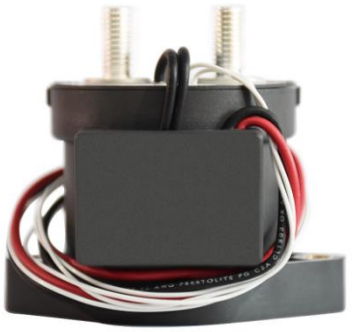
AREV250 Series DC Contactor Specification 400Amp/900 VDC

ALTRAN MAGNETICS

Application

AREV250 is designed for High Current DC applications The “AREV250” version adds the option for Normally Closed power contacts as well as the Latching version. It can meet the application requirements of DC current transmission and control for different types of photovoltaic/wind power generation systems, new Energy Vehicles and charging facilities.



Certification Information

Product complies with RoHS standard (2011/65/EU)

Nomenclature

AREV250	-	M	-	AN

"AREV250" = AREV250 Series

Type Code:
Blank = Main Contacts (NO)
"NC " = Main Contacts (NC)
" L" = Latching

Coil Voltage Code:
Standard Coils (w/Economizer):
"M" = 12 - 24 VDC
"E" = 48 VDC
"G" = 48 - 72 VDC

Latching Coils:
"B " = 12 VDC
"C " = 24 VDC
"E " = 48 VDC

Latching Coil Wiring Options:
Blank = Non-latching
"E " = 48 VDC
"2 " = 2 Wire, Single Coil
"3 H" = 3 Wire, Dual Coil (High side drive)
"3 L " = 3 Wire, Dual Coil (Low side drive)
"4 " = 4 Wire, Dual Coil

Options (applied in this order)
Blank = Std. Options (Bottom Mount, Without Aux. Contact :Polarized Load Terminals)
“S” = Side Mount
"A" = With Aux. Contact (SPST-NO)
"B" = With Aux. Contact (SPST-NC)
"C " = With Aux. Contact (SPDT)
"N" = Non-Polar Load Terminals

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Performance Data：

Main Contact		Expected Life	
Contact Arrangement	1 Form X (SPST-NO DM)	Load Life (Resistor Load) 250A/450VDC	10,000 Cycles
Load Connection	M8 Thread Male		
Rated Load Voltage	12-900VDC		
Max Breaking Limit	2,000A @320VDC, 1 Cycle	Mechanical Life	>200,000 cycles
Dielectric Withstanding Voltage	Between Open Contacts: 4000Vms, 1 min., < 1mA Between Contacts to Coil: 2200Vms, 1 min., < 1mA	**AUX Contact**	
Insulation Resistance @ 500VDC	New: 100M Ω End of Life: 50M Ω	Aux Contact Arrangement	1 From A
Voltage Drop (200A)	≤60mV	Aux Contact Current Max	2A @30VDC/ 3A @125VAC
Short Time Overload Current 70mm2		Aux Contact Current Min	100mA@8V
250A @85°C	Continuous	Aux. Contact Resistance Max.	0.417ohms@30Vdc 0.150ohms@125Vac
400A @40°C	5 Minutes		
500A @40°C	2 Minutes		
600A @40°C	10 Seconds		

Environmental Data		Operate Time @ 25°C	
Shock 11ms 1/2 sine, peak Operating	20G	Close (includes bounce)	30ms, Max.
Vibration, sine, 80-2000 Hz. Peak	20G	Bounce (after close only)	5ms, Max.
Operating Ambient Temperature	-40 to +85°C	Release (include arcing)	10ms, Max.
Altitude	<4000m		
Weight, Nominal	0.95 Lb. (0.43 kg)		

Coil Data (Cont.):

Coil Data			
Coil Code:	M	E	G
Rated Voltage*	12-24 Vdc	48 Vdc	48-72 Vdc
Max Operate Voltage	36Vdc	72Vdc	80Vdc
Pick-Up Voltage (20°C) Max.	9Vdc	36Vdc	36Vdc
Pick-Up Voltage (20°C) Min.	6Vdc	18Vdc	18Vdc
Coil Current (20°C @ Rated Voltage)	Inrush: 3.8A Holding: 0.13A	Inrush: 1.3A Holding: 0.03A	Inrush: 1.3A Holding: 0.03A
Coil Power (20°C @ Rated Voltage)	2W	2W	2W
Max Pick-Up Voltage (85°C)	9.6Vdc	38.4Vdc	38.4Vdc
Coil Resistance + 5% (20°C)	3.1 Ω	40 Ω	40 Ω
Latching Single Coil (2 Wire)			
Coil Code:	B2	C2	E2
Rated Voltage:	12 Vdc	24 Vdc	48 Vdc
Max Operate Voltage	16 Vdc	28 Vdc	52 Vdc
Must Set and Reset Voltage (20°C) Max.	9 Vdc	18 Vdc	36 Vdc
Coil Current (20°C@Rated Voltage)	4.0 A	2.4 A	1.2 A
Max Pick-Up Voltage (85°C)	11.1 Vdc	19.2 Vdc	38.4 Vdc
Coil Resistance ± 5% (20°C)	3Ω	10Ω	40Ω

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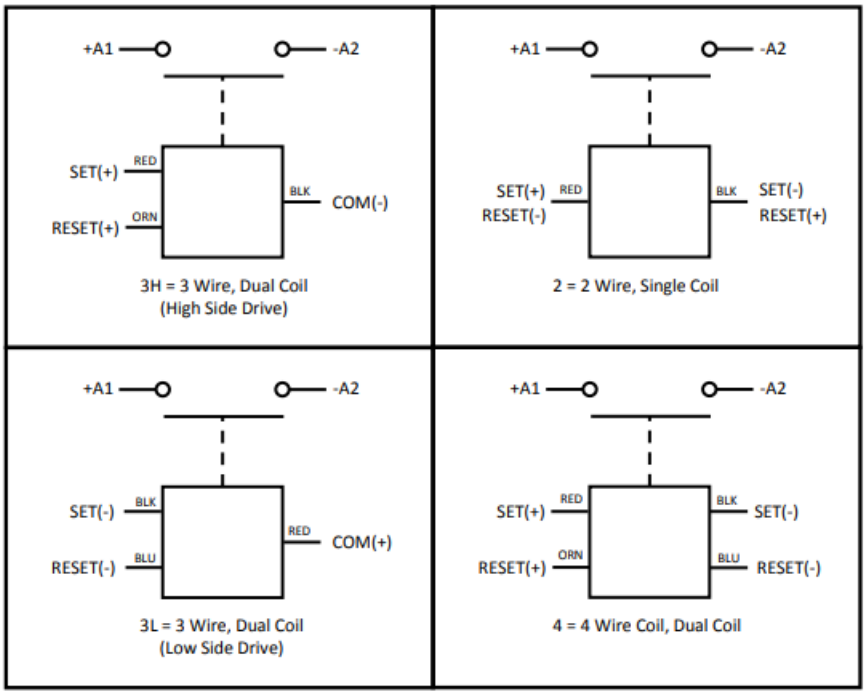
Latching Dual Coil (3 & 4 Wire)				
Coil Code:		B3H, B3L, B4	C3H, C3L, C4	4 E3H, E3L, E4
Rated Voltage:		12 Vdc	24 Vdc	48 Vdc
Set Coil (20°C)	Max. Voltage	16 Vdc	28 Vdc	52 Vdc
	Must Set Voltage (Max.)	9 Vdc	18 Vdc	36 Vdc
	Rated Current	6 A	2.7 A	1.7 A
	Coil Resistance ± 5%	2 Ω	8.8 Ω	28 Ω
Reset Coil (20°C)	Max. Voltage	16 Vdc	28 Vdc	52 Vdc
	Must Set Voltage (Max.)	9 Vdc	18 Vdc	36 Vdc
	Rated Current	4 A	2.5 A	1.2 A
	Coil Resistance ± 5%	3 Ω	9.6 Ω	40 Ω

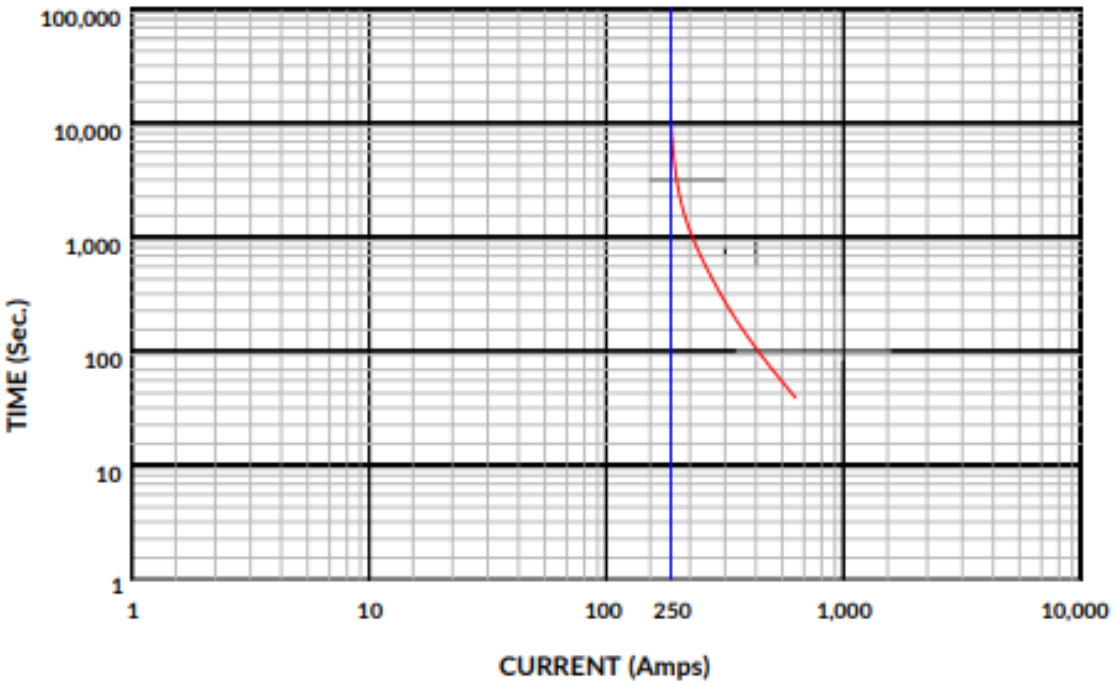
Note: Minimum 100 ms Set and Reset pulse required.

Latching Coil Wiring

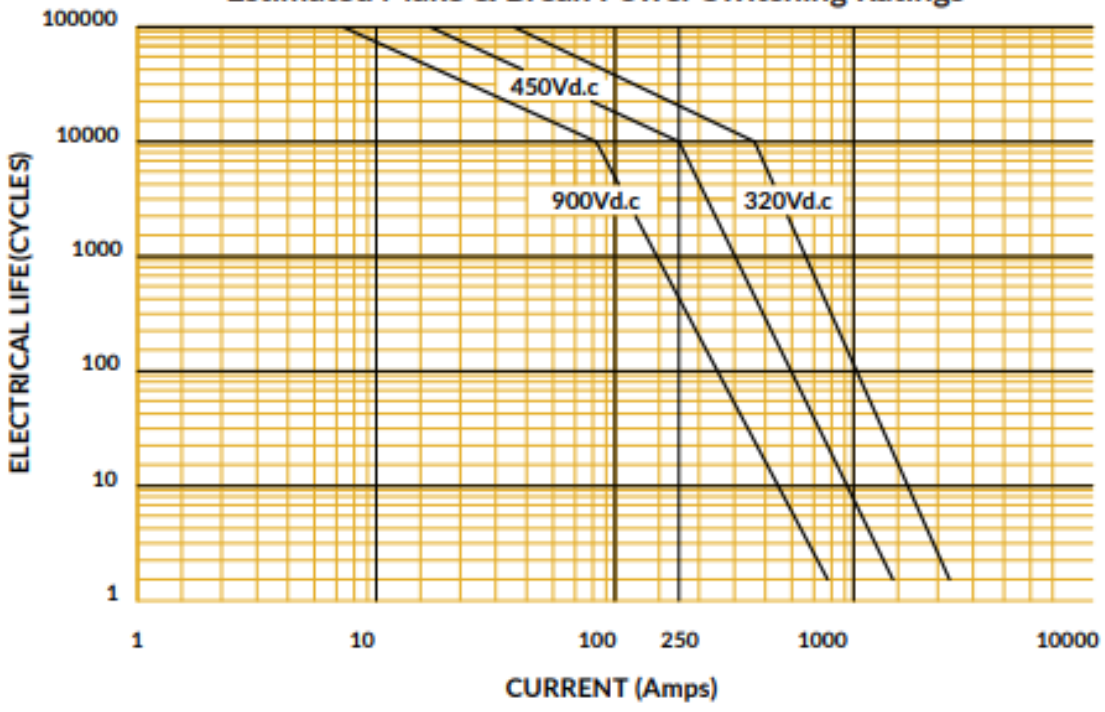


Performance Data:

Carry Current vs. Time (40°C) (Copper Conductor 70mm²)



Estimated Make & Break Power Switching Ratings



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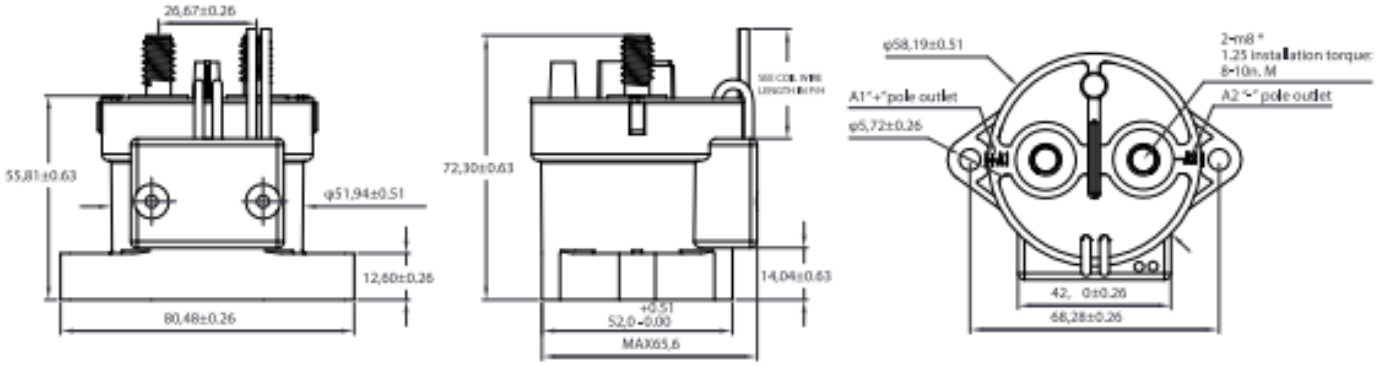
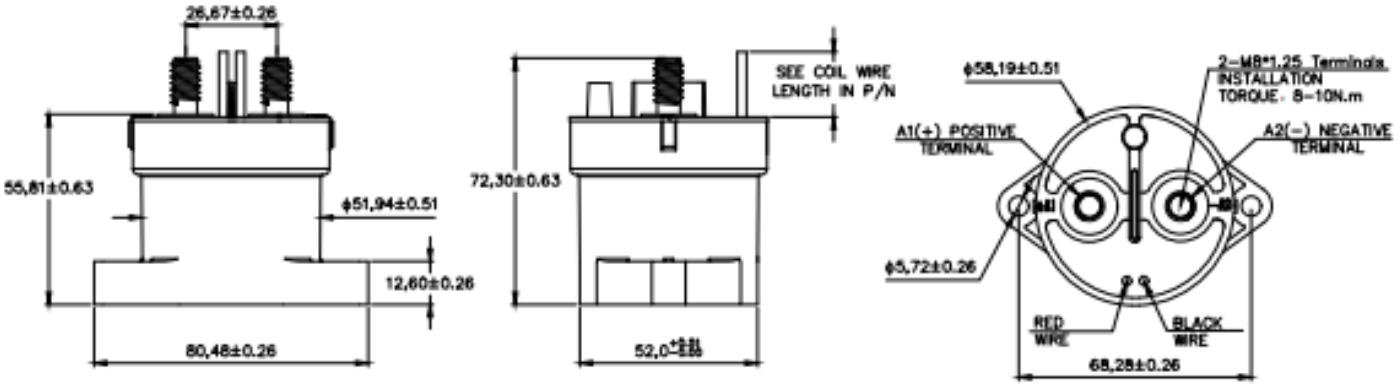
Outline Dimensions (mm)

Standard Contactor:



Latching Contactor:



APPLICATION NOTES:

1. To prevent loosening, washers should be used whenever the contactor is installed. All terminals or copper bar must be in direct contact with the contactor's main terminals. Please control the screw tightening torque of each part within the specified range in the table below. If the torque exceeds the recommended range, it may cause damage to the sealed cavity and thread damage.
   - Contact torque: 70-90 lb. in. (8-10 N.m)
   - Mounting torque: 15-30 lb. in. (1.7-3.3 N.m)

2. Products with polarity marked on the load end must be used correctly according to the product label. When the load connection polarity is reversed, the electrical characteristics promised in this manual cannot be guaranteed.

3. Products with a coil economizer are already equipped with back EMF circuits, so there is no need to use surge protectors.

4. Avoid installing the contactor in a strong magnetic field environment (near transformers or magnets) and avoid placing the contactor near objects with heat radiation.

5. When continuous current is applied to the contacts of the relay, and the Coil is turned on immediately after the power is cut off. At this time, as the temperature of the coil increases, the resistance of the coil will also increase, which will increase the pull-in voltage of the product, which may result in exceeding the rated Pull-in voltage. In this case, the following measures should be taken to reduce the load current; limit the continuous power-on time or use a coil voltage higher than the rated pull-in voltage.

6. When the voltage applied to the coil exceeds the maximum allowable applied voltage, the coil temperature may rise and lead to coil damage and inter-layer short circuit.

7. The rated values in the contact parameters are values for resistive load. When using an inductive load with L/R>1ms, please connect a surge current protection device to the inductive load in parallel. If no measures are taken, the electrical life may be reduced and the continuity may be poor. Please consider sufficient margin space in the design.

8. Supply power must be greater than coil power or it will reduce performance capability.

9. Please do not allow debris and oil to adhere to the main terminals; Make sure that the main terminals are in reliable contact with the load conductor, otherwise the temperature rise of the terminal / conductor connection may be too high due to the excessive contact resistance.

10. The load conductor must have the corresponding current load capacity and heat dissipation capacity (it is recommended to use a copper bar with a min 50mm2), to prevent overheating and affecting the life of the contactor.

11. Is impossible to determine all the performance parameters of contactors in each specific application, therefore, customers should choose the products matching them according to their own conditions of use. If in doubt, contact Altran, however, the customer will be responsible for validating that the products meet their application.

12. Do not use if dropped.

13. Altran reserves the right to make changes as needed. Customers should reconfirm the contents of the specification or ask for us to supply a new specification if necessary.