

# AES500 Series DC Contactor Specification 500 Amp / 1000 VDC



## Application

The AES500 contactor is designed for stationary power applications, such as energy storage systems, UPS and charging station

## Certification Information

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



UL US CE  
UL FILE NUMBER E501749

## Nomenclature

AES500

M

AN

Series code:

"AES500" = AES500 Series

Coil Voltage:

"M" = 12 - 24VDC

Options:

"A" = With Aux. Contact (SPST-NO)

"N" = Non-Polarized Load Terminals

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## Performance Data:

Main Contact			Expected Life		
Contact Arrangement	1 Form X (SPST-NO DM)		Electrical Endurance	500A@750VDC, 1000 Cycles 100A@1500VDC, 6000 Cycles	
Max. Switching Voltage	1500 Vdc				
Rated Current	500A				
Contact resistance	50mV@100A		Mechanical life	200,000 Cycles	
Max Short Circuit Current	2500A (20s)				
Short Term Current	1000A (1min.) 2000A (0.5min.)		AUX Contact		
Dielectric Withstanding Voltage (Initial)	Between Open Contacts	4500 VAC/5mA/60s	Aux. Contact arrangement	1 Form A	
	Between Contacts to Coil	4500 VAC/5mA/60s	Aux. Contact Current Max.	3A@24VDC/ 3A@125VAC	
Insulation Resistance (Initial)	Terminal to Terminal	Min. 1000 MΩ@500Vdc	Aux. Contact Current Min.	100mA@8v	
	Terminals to Coil	Min. 1000 MΩ@500Vdc			
Contact Voltage Drop (initial)	Max. 0.5 mΩ (Max. 50mV/100A)				
			Operate Time @ 25°C		
Shock	Functional	196m/s <sup>2</sup> Sine half-wave pulse	Operate Time	40ms, Max. @20°C	
	Destructive	90m/s <sup>2</sup> Sine half-wave pulse	Release Time	10ms, Max. @20°C	
Operating Temperature		-40 to +85°C			
Humidity		5% to 85%RH			
Weight		1.32 Lb. (600g)			

Note:

1. Do not meet dielectric & IR after the test.
2. ON:OFF = 1s:9s.
3. The ambient environment of application should not cause any dewing or icing inside the relay. Otherwise, the relay may fail to work consequently.

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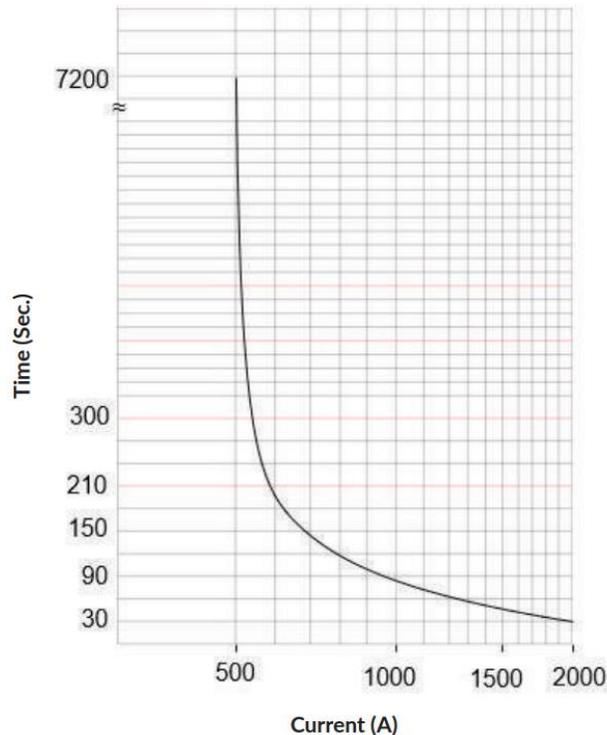
## Coil Data (Cont.):

Coil Data	
Nominal Voltage	12-24 Vdc
Pick-up Voltage (20C)	8-9 Vdc
Drop-out Voltage (20 C)	5-7 Vdc
Max Inrush Current (20 C)	3.8A
Avg. Holding Current (20 C)	0.34A@12Vdc 0.16A@24Vdc 0.1A@36Vdc

## Performance Data

### Carry Current Performance

Carry current performance (@ 20°C). The cross-section area of copper Bus is  $\geq 300\text{mm}^2$ , the charted data is for reference only

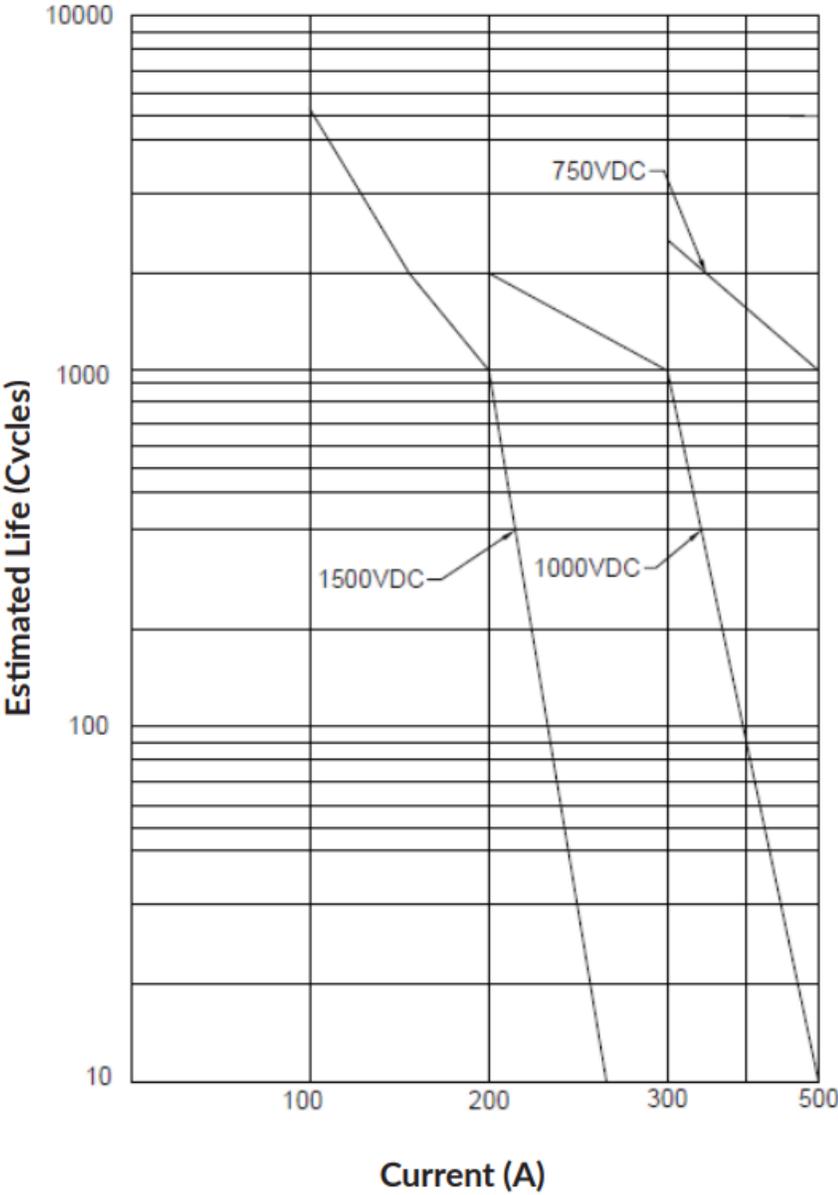


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### Electrical Life

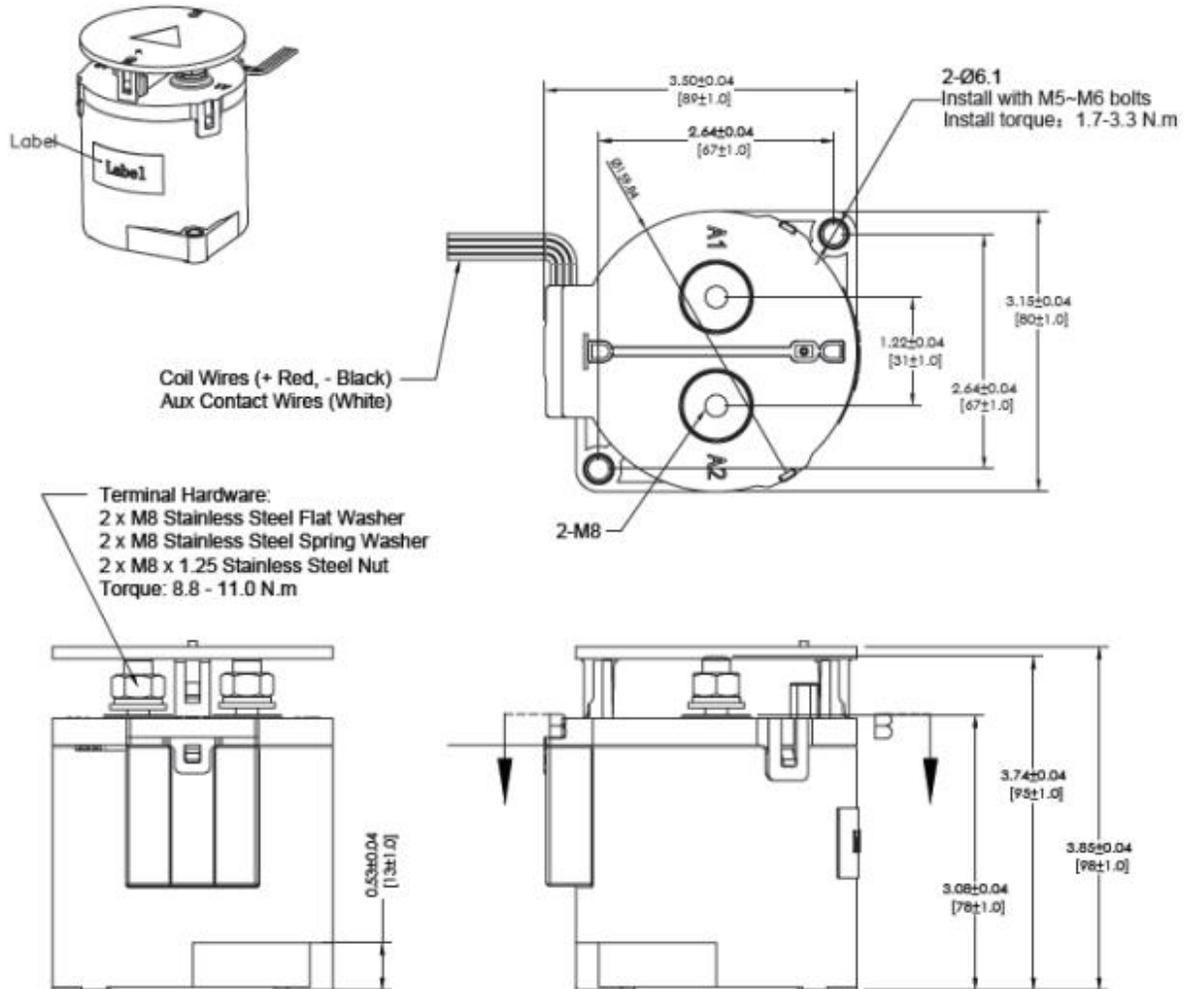
Estimated Make and Break Resistive Load Ratings



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## Outline Dimension: Inches (mm)



# AES500 Series DC

## Contactors Specification

### 500 Amp / 1000 VDC



#### 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: 6.0-8.0 N.m (Max depth, 12 threads)
  - Mounting torque: 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  $L/R > 1\text{ms}$ , 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. 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.
11. The load conductor must have the corresponding current load capacity and heat dissipation capacity (it is recommended to use a copper bar with min 325mm<sup>2</sup>), to prevent overheating and affecting the life of the contactor.
12. 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.
13. Do not use if dropped.
14. 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.