

# AES500 Series DC Contactor Specification 500 Amp / 1500 VDC



## Certification Information

Meets RoHS (2011.65/EU)

## Nomenclature:

Typical Part Number

AES500 – M AN

Series code:

"AES500" = AES500 Series

Coil Voltage:

"M" = 12 - 24VDC

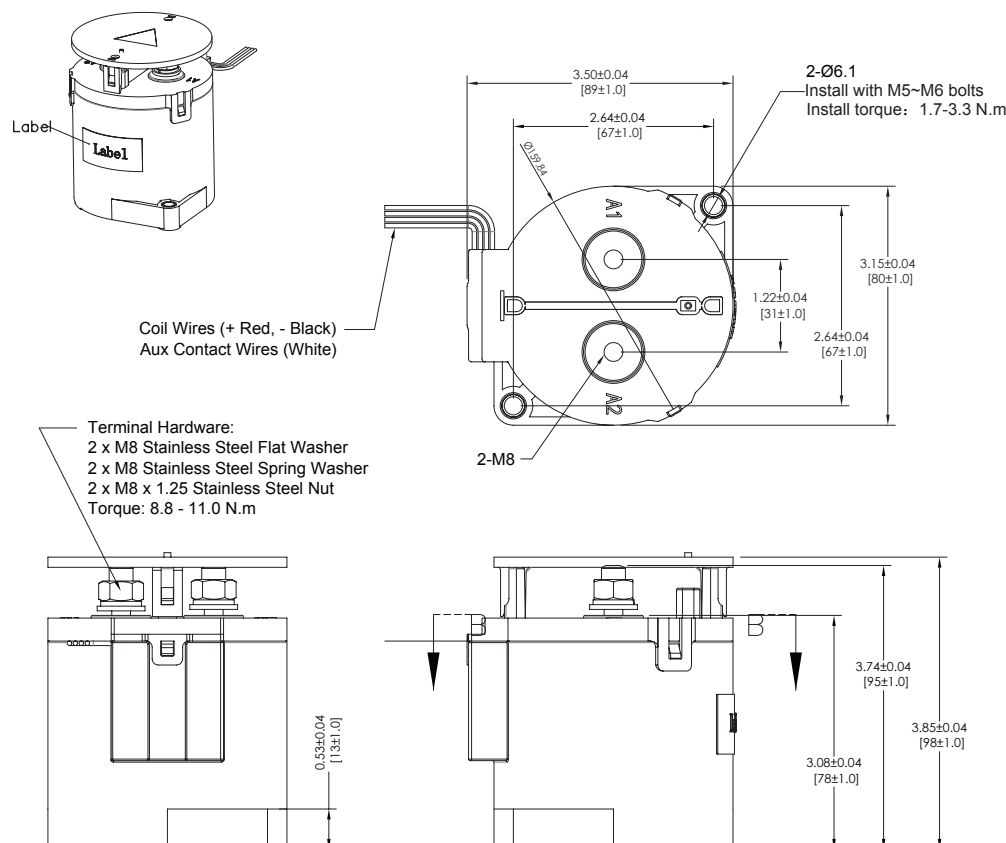
Options (Std. Options, Bottom Mount)

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

"N" = Non-Polarized Load Terminals



## Outline Dimensions: Inches (mm)



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## Performance Data

MAIN CONTACTS DATA		EXPECTED LIFE	
Contact arrangement	1 Form X (SPST-NO DM)	Electrical Endurance	500A@750VDC, 1000 Cycles 100A@1500VDC, 6000 Cycles
Max. Switching Voltage	1500VDC	Mechanical life	200,000 Cycles
Rated Current	500A	<b>AUX. CONTACT</b>	
Max Short Circuit Current	2500A (20s)	Aux. Contact arrangement	1 Form A
Short Term Current	1000A (1min.) 2000A (0.5min.)	Aux. Contact Current Max.	3A@24VDC/ 3A@125VAC
Dielectric Withstanding Voltage (Initial)	Between Open Contacts	Aux. Contact Current Min.	100mA@8v
	Between Contacts To Coil		
Insulation Resistance (Initial)	Terminal to Terminal		
	Terminals to Coil		
Contact Voltage Drop (initial)			
Max. 0.5 mΩ (Max. 50mV/100A)			
ENVIRONMENTAL DATA			
Shock	Functional	196m/s <sup>2</sup> Sine half-wave pulse	Operate Time 40ms, Max. @20°C
	Destructive	490m/s <sup>2</sup> Sine half-wave pulse	
Operating Temperature		-40 to +85°C	Release Time 10ms, Max. @20°C
Humidity		5% to 85%RH	
Weight		2.60 Lbs (1.180 kg)	

## Characteristics

COIL DATA	
Nominal Voltage	12-24 Vdc
Pick-up Voltage (20°C)	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

### 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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## Application Note:

**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: 8.8 - 11 N.m
- Mounting torque: 1.7 - 3.3 N.m Max.

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

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

**4.** 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.

**5.** When voltage is applied to products with a coil economizer, the circuit will automatically switch to the holding voltage about 100ms later. Please do not repeat the on-off operation during this time period, or the coil economizer of the contactor may be damaged.

**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 a 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.** 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.

**11.** Do not use if dropped.

**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.** 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.