

EVC500 Relay

- 500+A continuous carry
- Hermetically Sealed
- Form X



Performance Data

Parameter	Units	Values
Contact Arrangement, power contacts		1 Form X (SPST-NO-DM)
Rated Operating Voltage	VDC	100-450 (450-900) ₁
Continuous (Carry) Current ₄	A	500 @ 85°C, 400 mcm conductors
Make/Break Current at Various Voltages	A	See page 3
Break Current at 450VDC	A	1,560, 1 cycle
Contact Resistance (@200A / 30 sec.)	mΩ	<0.5 (Beginning of Life)
Load Life	Cycles	See page 3
Mechanical Life	Cycles	500,000
Operate Time @ 23°C, Max.	ms	20 ₃
Close (includes bounce), Typ.	ms	15
Bounce (after close only), Max.	ms	7
Release (includes arcing), Max @ 2000A	ms	12
Dielectric Withstand Voltage ₂	Vdc	2,920 (leakage <1mA)
Insulation Resistance ₂ @ 500VDC	GΩ	≥1
Shock, peak, Coil Energized	g	50
Vibration, sine, 80-2000Hz, peak	g	20
Operating Ambient Temperature	°C	-40 to +85
Weight, Nominal	lb. (kg)	.95 (.43)

₁ Voltages between 450 to 900VDC are capable but are load dependent and require TE Engineering approval.

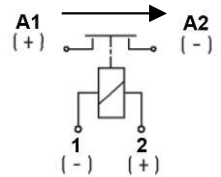
₂ Meet dielectric strength & IR requirements according to ISO 6469-3, conformity to IEC60664-1 in preparation.

₃ 20ms (max.) at rated 12 voltage. Please consult TE engineering for operating time not done at rated voltage.

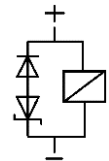
₄ Maximum allowed terminal temperatures for the products are as follows: 150°C continuous / 175°C for 2 hours / 200°C for 2 minutes.



Forward load current direction



Recommended Circuit for Coil Suppression



Coil Operating Voltages for Economized Coil (valid over temp range of -40°C to 85°C) [With TE Econ. Circuit]

	12V Timer Based Econ. ₄	24V Timer Based Econ. ₄	Micro-Controller Econ. (i.e. P/N 2098190-1)
Voltage (will operate)	8.5 - 16 Vdc	12 - 36 Vdc	9 - 36 Vdc
Pull-in Voltage Max.	8.5 Vdc	12 Vdc	9.0 Vdc
Inrush Current (Max.)	3.8 A	3.8 A	3.8 A
Inrush Time (Max.)	150ms	170ms	130ms
Frequency & Duty Cycle (nom.)	19.5 kHz / 30%	19.0 kHz / 25%	19.9 kHz / 20%

₄ Preliminary for New Timer Based Economizer (Specification Subject To Change)

Coil Operating Voltage Using Voltage Reduction after Initial Pull-in [Un-Economized Coils₅] (i.e. P/N 2098372-1)

Coil Resistance @ 23°C	3.14 ohm +10%/-5%
Pull-in Voltage @ 23°C	4.2 Vdc (min) to 6.5 Vdc (max)
Drop-out Voltage @ 23°C	0.5 Vdc (min) to 1.5Vdc (max)
Minimum Hold Current at Temperature (Must operate @ 12V for 100ms. before reducing to minimum holding current)	650 mA

₅ Un-Economized coil must be economized by the customer to avoid overheating

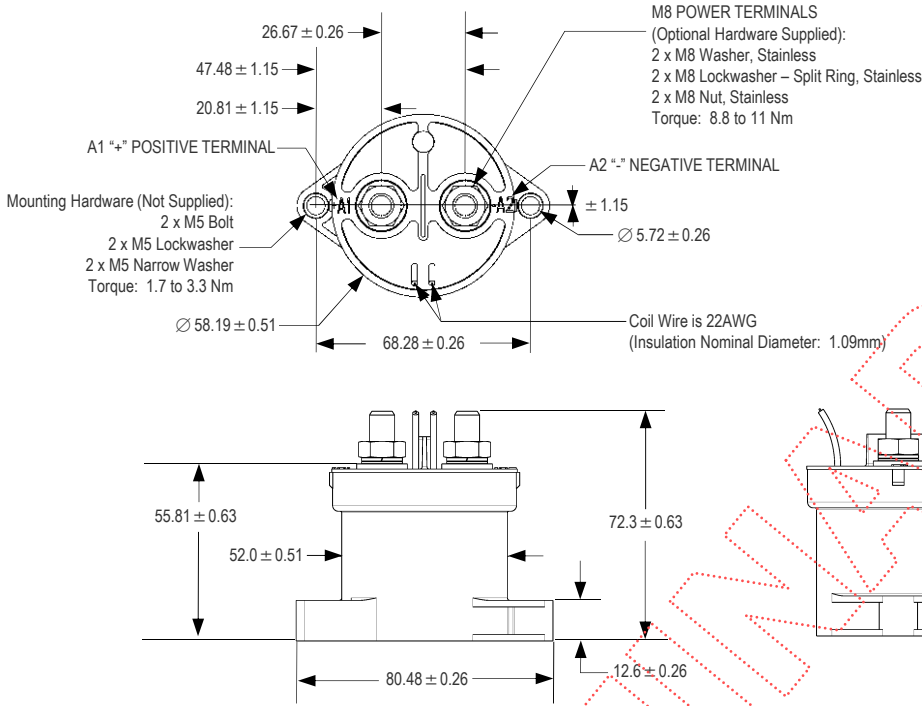
Recommended PWM Parameters for Customer Supplied Economizer Circuit (valid over temp range of -40°C to 85°C)

Frequency	16kHz to 20kHz
Operating Voltage Range	8.5 Vdc to 16 Vdc
Coil Current (minimum recommended RMS)	650mA
Duty Cycle	20% to 30%
Inrush Time (Max.)	200ms

EVC500 Relay

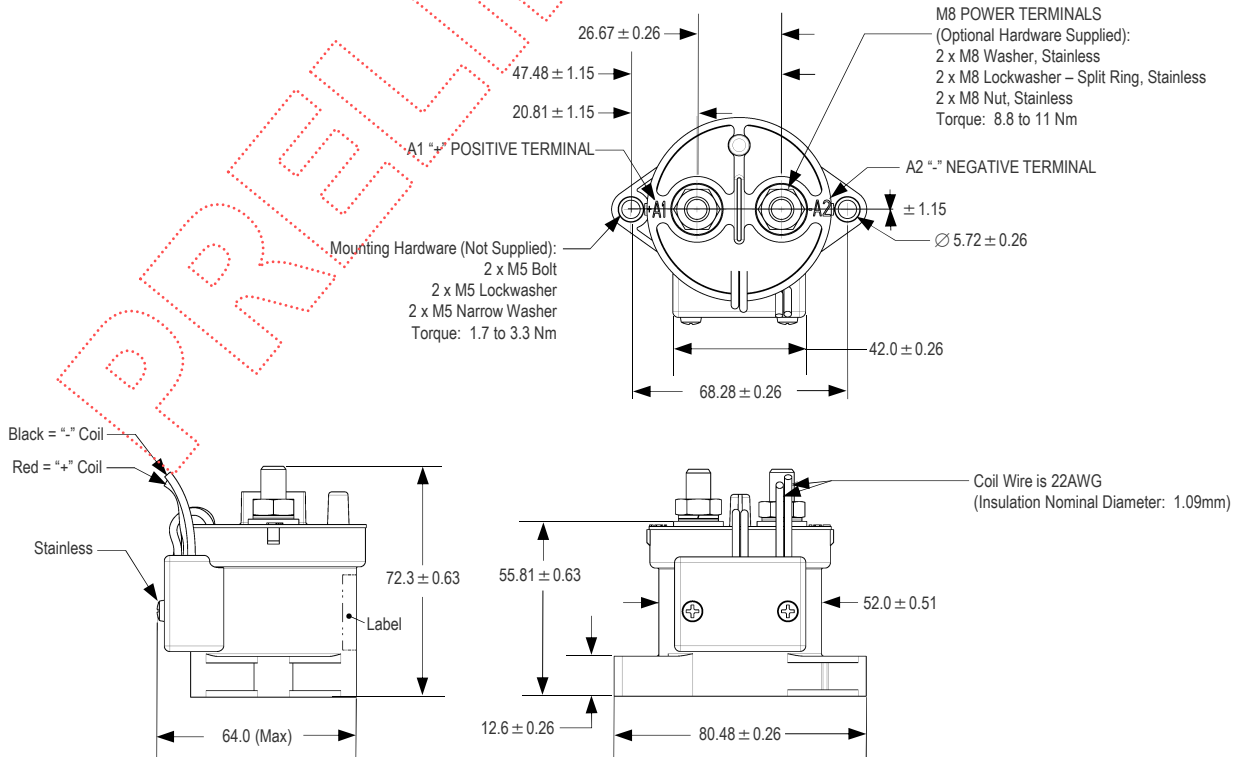
Outline Dimensions

EVC500 without Coil Economizer



UNITS IN MILLIMETERS

EVC500 with Coil Economizer

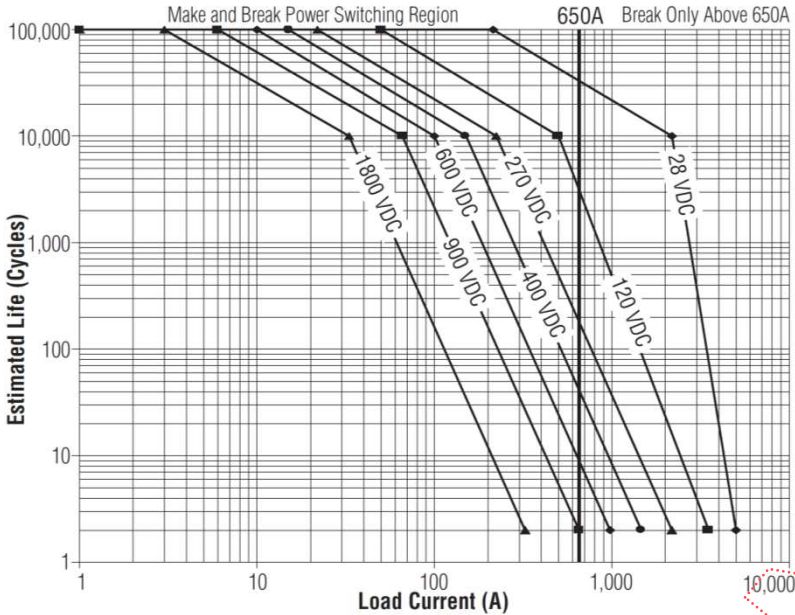


UNITS IN MILLIMETERS

EVC500 Relay

Contact Performance

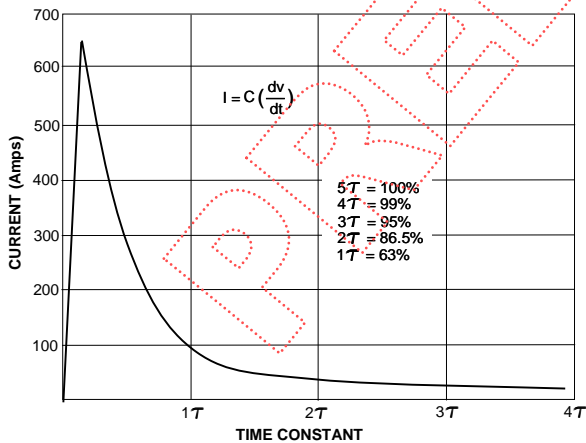
Estimated Make & Break Power Switching Ratings



NOTES:

- 1) Maximum of 300μH for resistive load. Consult TE Engineering for inductive loads.
- 2) Estimates based on extrapolated data. Consult TE Engineering to confirm performance in application.
- 3) End of life when "Insulation Resistance" between terminals falls below 50 megaohms @ 500VDC.
- 4) The maximum make current is 650A to avoid contact welding.
- 5) Curves for voltages above maximum rated voltage for information purpose only.
- 6) For reverse current, the performance of the contactor will roughly be reduced by 50% of the cycle life in the forward direction.

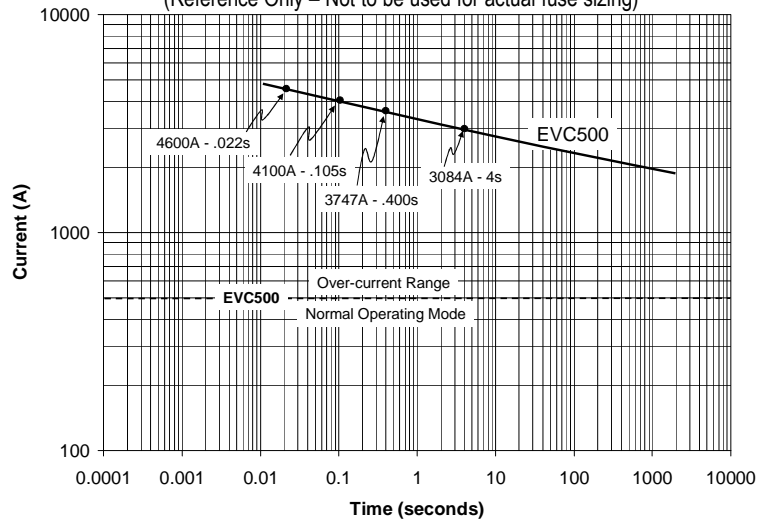
CONTACTS CLOSED INTO CAPACITOR PRECHARGE SEQUENCE AT VARIOUS TIME CONSTANTS



- (1) Because higher current cause more damage to contact surface, at least 95% Pre-charge recommended.
- (2) Inrush current dependent upon RC time constant and pre-charge timing sequence.

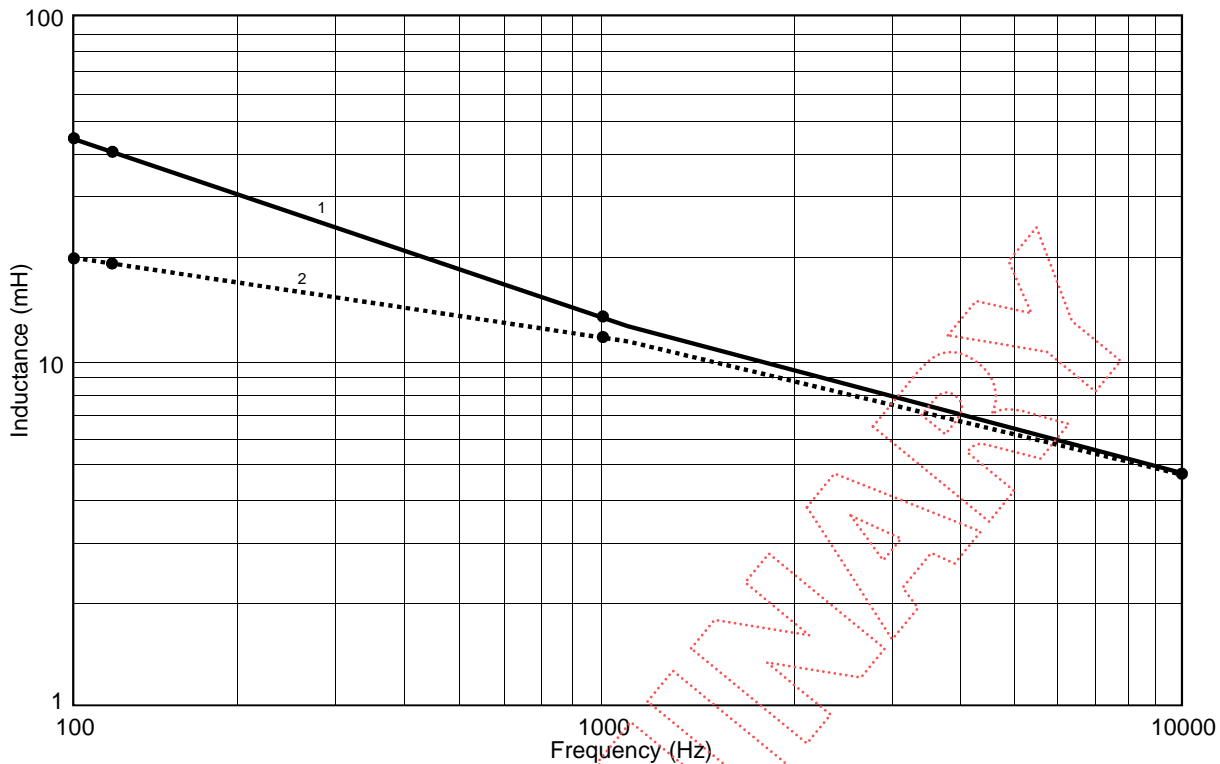
ESTIMATED FUSE GUIDE FOR EVC500 CONTACTORS

(Reference Only – Not to be used for actual fuse sizing)



EVC500 Relay

Coil Inductance



- 1 Solid Line: EVC500 without Economizer (Contacts Closed)
2 Dotted Line: EVC500 without Economizer (Contacts Open)

Note: Data Points above were measured using Quadtech 1715 LCR Bridge set 10 ohm range, 1V output, measured at 100Hz, 120Hz, 1kHz and 10kHz.

Product Code: EVC500 -A 1 A N A M -XX

Series: EVC500 = 500A Continuous Current Contactor. 1 Form X (SPST-NO-DM)

Coil Form: -A = Normally Open -B = Normally Open with Auxillary Switch

Coil Voltage: 1 = 12VDC (Requires external coil economizer) A = 12VDC (Micro-controller economizer) B = 12VDC (Timer-based economizer)

Coil Wire Length: A = 15.3 inches (390 mm)

Coil Termination: N = None - Stripped Wires C = Customer Specified Connector

Mounting and Power Terminals: A = None - Bottom mount & male 10mm x M8 Terminals

Connection Hardware (Power Terminals): M = Connection Hardware Included N = None - No connection hardware included

Special: -XX Special Order