

# ENGINEERING DATA SHEET

# SERIES ZC, ZCD

CONTACTOR, CENTER-OFF  
100 AMP



**APPLICATION NOTES:**

- [101](#)
- [102](#)
- [007](#)

Balanced-Force Design  
Hermetically sealed  
Designed to the performance standards of **MIL-PRF-6106**

**PRINCIPLE TECHNICAL CHARACTERISTICS**

Contacts rated at **28 Vdc and 115 Vac, 400 Hz, 1Ø and 115/200 Vac 400Hz, 3Ø**  
Weight **See Mounting**  
Auxiliary contact models available.  
Special units available upon request.

**CONTACT ELECTRICAL CHARACTERISTICS**

Contact rating per pole and load type	Load current in Amps				
	28 Vdc	115 Vac 400 Hz	115/200 Vac 400 Hz, 3Ø	28 Vdc [2]	DELTA 115/200 Vac 60 Hz
Resistive	50	100	100	120	60
Inductive [1]	30	100	100	80	60
Motor	30	60	60	80	40
Load transfer, resistive[7]	-	-	50	-	-



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Data sheets are for initial product selection and comparison. Contact Esterline Power Systems prior to choosing a component.

**COIL CHARACTERISTICS (Vdc)****SERIES ZC, ZCD**

CODE	A	B	C	F Vac 400 Hz	N Suppressed[6]	Y [8]	YN [6]
Nominal operating voltage	28	12	6	115	28	28	28
Maximum operating voltage	29	14.5	7.2	124	29	29	29
Pick-up voltage maximum							
- Nominal	18	9	4.5	90	18	18	18
- High temp test	20	10	5	95	20	20	20
- Continuous current test	22.5	11	5.7	100	22.5	22.5	22.5
Drop-out voltage, maximum	7	4.5	2.5	30	7	7	7
Coil resistance in Ohms $\pm 20\%$ at $+25^{\circ}\text{C}$	150	38	9.3	-	150	xx/xxx	xx/xxx
Coil current Amp max. @ Nom. Volt. and $+25^{\circ}\text{C}$	-	-	-	0.09	-	-	-

**GENERAL CHARACTERISTICS**

Temperature range	-55°C to 71°C
Minimum operating cycles (life) at rated load	50,000
Minimum operating cycles (life) at 25% rated load	100,000
Dielectric strength at sea level	
- All circuits to ground and circuit to circuit	1500 Vrms
- Coil to ground and Aux. contacts	1250 Vrms
Dielectric strength at altitude	700 Vrms (Main contacts) 500 Vrms (Coil and Auxiliary contacts)
Insulation resistance	
- Initial (500 Vdc)	100 M $\Omega$ min
- After environmental tests (500 Vdc)	50 M $\Omega$ min
Sinusoidal vibration (70 to 500 Hz)	5 G
Shock (6 ms duration)	15 G
Maximum contact opening time under vibration and shock	10 $\mu\text{s}$
Operate time at nominal voltage (Including bounce)	60 ms max 25 ms max (Economizer coil)
Release time at nominal voltage (Including bounce)	
-DC	40 ms max
-AC	80 ms max
Release time at nominal voltage (Including bounce) : Economizer coil	
-DC	25 ms max
-AC	35 ms max

**GENERAL CHARACTERISTICS CONTINUED**

**SERIES ZC, ZCD**

Contact bounce at nominal voltage	4 ms max
Weight	Noted
Overload	600 Amp @ 115/200 Vac, 400 Hz
Rupture	800 Amp @ 115/200 Vac, 400 Hz
Altitude	50,000 Feet

**NUMBERING SYSTEM**

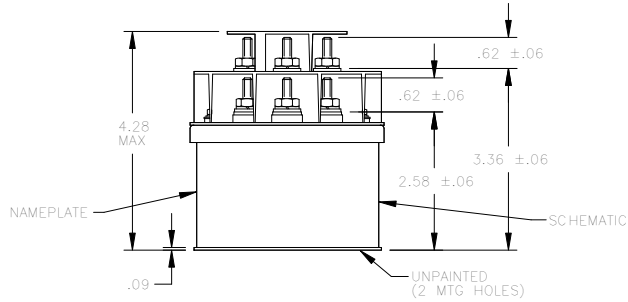
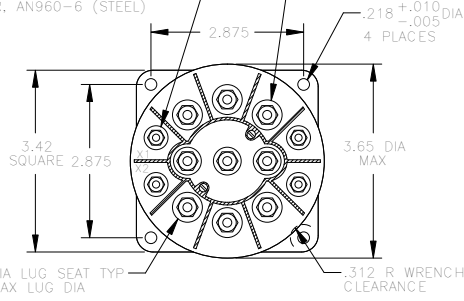
	ZC	-	X	O	X
	[9]ZCD	-	X	O	X
Relay family_____					
1-Mounting Style(A,B,Etc.)_____					
2-Terminal & Circuit_____					
3-Coil Voltage(A,B,C,F & N)_____					

**NOTES**

- [1] Inductive load life, 20,000 cycles.
- [2] Ratings are for double make terminal type 2, 4 & 6.
- 3. Alternate contact configurations and other special models available upon request. Please contact factory.
- [4] Greater values for suppressed coils.
- 5. Terminal strength per para. 3,4,8,2,1 of MIL-R-6106.
- [6] Suppressed "N & NY" coils have back EMF suppression to 62 Volts max.
- [7] Suitable for transfer between unsynchronized power sources at rating shown.
- [8] Economizer coils have a lower resistance primary coil for faster operate time. Once relay operates, the coil switches to a higher resistance for lower power drain. Do not ramp up voltage on these coils.
- [9] Non hermetic gasket sealed version.
- 10. This series drawing is for general use only. Please consult factory for special requirements.

COIL & AUXILIARY TERMINALS  
 .138-32 UNC-2A, STUD  
 NUT, .138-32 UNC-2B X 1/4 X 3/32  
 STEEL CAD PLATE  
 LOCKWASHER, MS35338-41  
 (STEEL)  
 FLATWASHER, AN960-6 (STEEL)

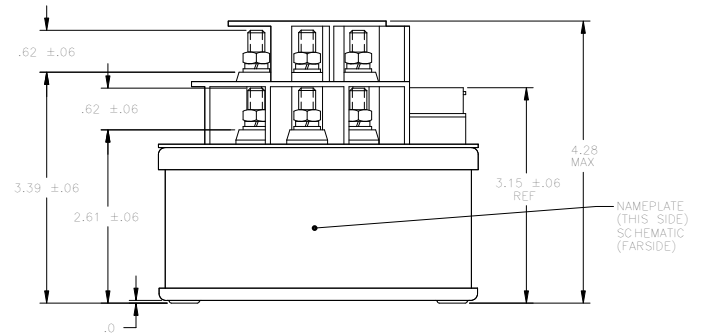
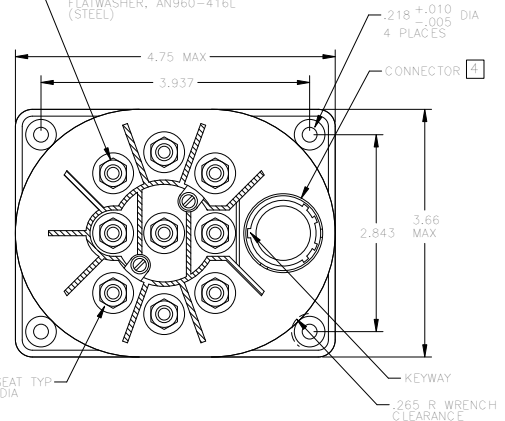
POWER TERMINALS  
 .250-28 UNF-2A, STUD  
 NUT, .250-28 UNF-2B X 3/8 X 3/16  
 STEEL CAD PLATE  
 LOCKWASHER, MS35338-44  
 (STEEL)  
 FLATWASHER, AN960-416L  
 (STEEL)



MOUNTING STYLE A

WEIGHT: 2 LB MAXIMUM  
 WEIGHT IS DEPENDENT UPON CONFIGURATION REQUIRED.  
 PLEASE CONSULT FACTORY.

POWER TERMINALS  
 .250-28 UNF-2A, STUD  
 NUT, .250-28 UNF-2B X 3/8 X 3/16  
 STEEL CAD PLATE  
 LOCKWASHER, MS35338-44  
 (STEEL)  
 FLATWASHER, AN960-416L  
 (STEEL)

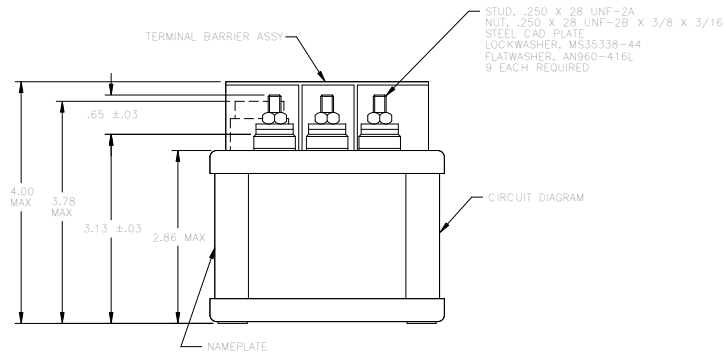
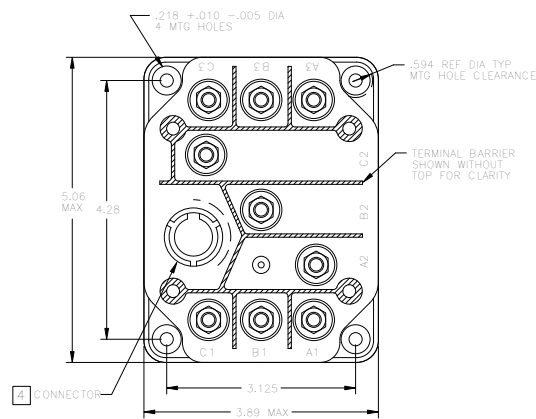


MOUNTING STYLE B

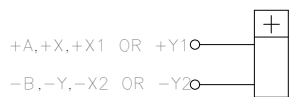
WEIGHT: 2 LB 6 OZ MAXIMUM  
 WEIGHT IS DEPENDENT UPON CONFIGURATION REQUIRED.  
 PLEASE CONSULT FACTORY.

MOUNTING STYLE K

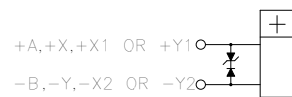
WEIGHT: 2 LB 13 OZ MAXIMUM



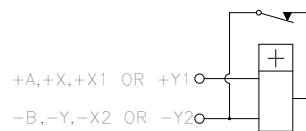
COIL CIRCUIT CONFIGURATION 3



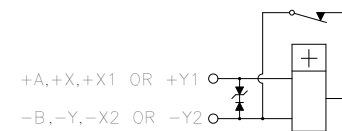
STANDARD "A, B, C & F" COIL



STANDARD WITH COIL SUPPRESSION "N" COIL

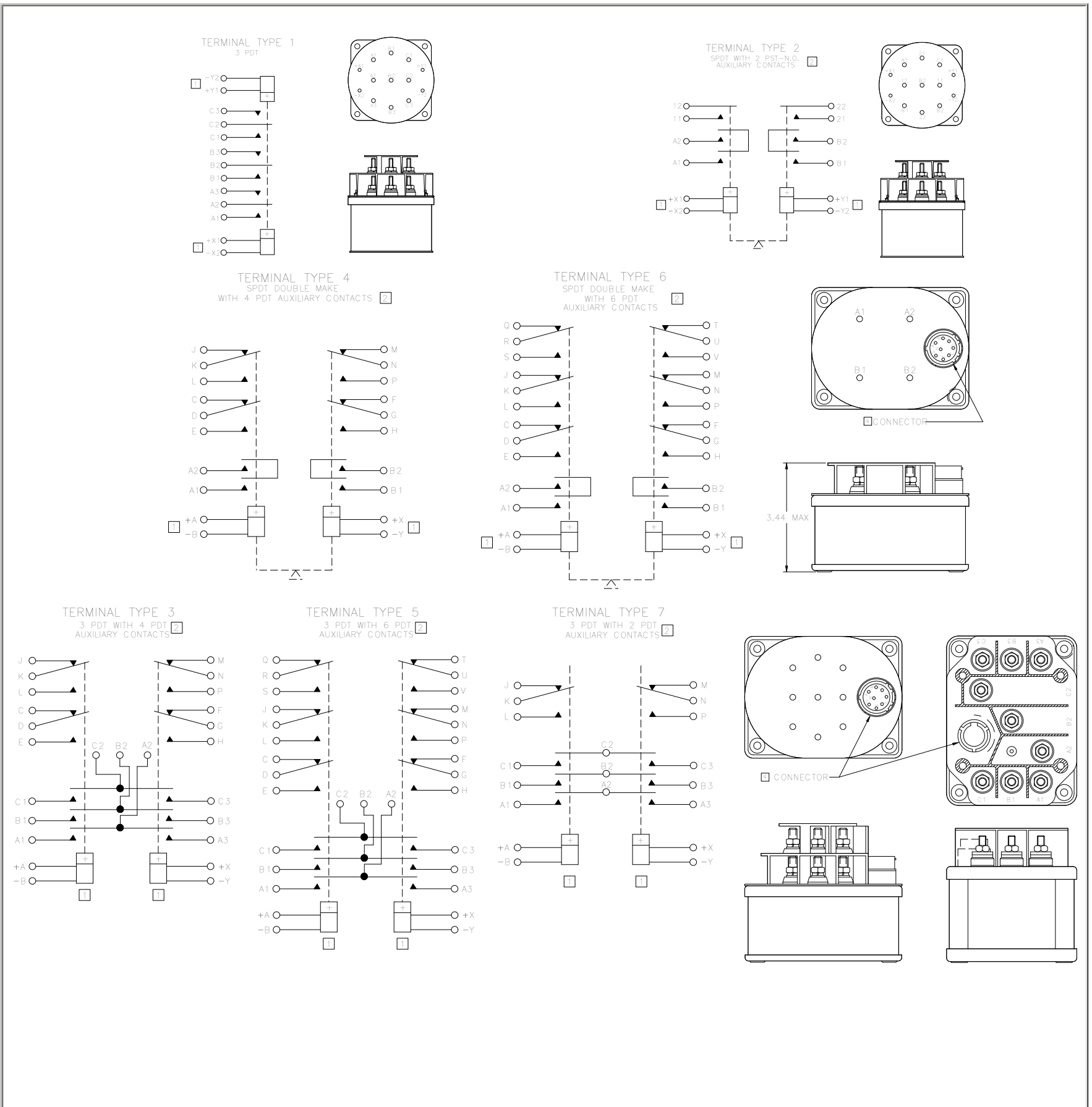


ECONOMIZER COIL "Y" COIL



ECONOMIZER COIL WITH COIL SUPPRESSION "YN" COIL

Standard Tolerance: .XX ±.03, .XXX ±.010



**TERMINAL TYPE 9**  
 IS A GENERAL CATEGORY USED  
 FOR ALL TERMINAL TYPES NOT  
 ILLUSTRATED. FOR OTHER  
 VARIATIONS OF TERMINAL  
 CONFIGURATIONS—PLEASE  
 CONTACT FACTORY.

- 1 POLARITY INDICATION APPLIES TO D.C. COILS ONLY
- 2 AUXILIARY CONTACT RATING 28 VDC OR 115 VAC  
 RESISTIVE 5 AMP  
 INDUCTIVE 3 AMP  
 LAMP 1 AMP  
 BOUNCE AT NOMINAL VOLTAGE .004 SEC MAX
- 3 COIL TERMINALS MAY BE IDENTIFIED AS  
 A-B, X1-X2, Y1-Y2 OR X-Y.  
 OTHER AUXILIARY CONTACT FORMS AVAILABLE,  
 PLEASE CONTACT FACTORY.
- 4 CIRCULAR CONNECTOR MS-STYLE OR EQUIVALENT

NOTE: Although all configuration and/or terminal type options are available, some combinations may require a setup charge and be subject to minimum order size.