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

PRINCIPAL 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

<table>
<thead>
<tr>
<th>Contact rating per pole and load type</th>
<th>Load current in Amps</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>28 Vdc</td>
</tr>
<tr>
<td>Resistive</td>
<td>50</td>
</tr>
<tr>
<td>Inductive [1]</td>
<td>30</td>
</tr>
<tr>
<td>Motor</td>
<td>30</td>
</tr>
<tr>
<td>Load transfer, resistive[7]</td>
<td>-</td>
</tr>
</tbody>
</table>

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

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## Coil Characteristics (Vdc) Series ZC, ZCD

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal operating voltage</td>
<td>28</td>
<td>12</td>
<td>6</td>
<td>115</td>
<td>28</td>
<td>28</td>
<td>28</td>
</tr>
<tr>
<td>Maximum operating voltage</td>
<td>29</td>
<td>14.5</td>
<td>7.2</td>
<td>124</td>
<td>29</td>
<td>29</td>
<td>29</td>
</tr>
<tr>
<td>Pick-up voltage maximum</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Nominal voltage</td>
<td>18</td>
<td>9</td>
<td>4.5</td>
<td>90</td>
<td>18</td>
<td>18</td>
<td>18</td>
</tr>
<tr>
<td>- High temp test</td>
<td>20</td>
<td>10</td>
<td>5</td>
<td>95</td>
<td>20</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>- Continuous current test</td>
<td>22.5</td>
<td>11</td>
<td>5.7</td>
<td>100</td>
<td>22.5</td>
<td>22.5</td>
<td>22.5</td>
</tr>
<tr>
<td>Drop-out voltage, maximum</td>
<td>7</td>
<td>4.5</td>
<td>2.5</td>
<td>30</td>
<td>7</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>Coil resistance in Ohms ±20% at +25°C</td>
<td>150</td>
<td>38</td>
<td>9.3</td>
<td>-</td>
<td>150</td>
<td>xx/xxx</td>
<td>xx/xxx</td>
</tr>
<tr>
<td>Coil current Amp max. @ Nom. Volt. and +25°C</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0.09</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

### 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:**
  - Main contacts: 700 Vrms
  - Coil and Auxiliary contacts: 500 Vrms
- **Insulation resistance:**
  - Initial (500 Vdc): 100 MΩ min
  - After environmental tests (500 Vdc): 50 MΩ min
- **Sinusoidal vibration (70 to 500 Hz):** 5 G
- **Shock (6 ms duration):** 15 G
- **Maximum contact opening time under vibration and shock:** 10 µs
- **Operate time at nominal voltage (Including bounce):**
  - DC: 60 ms max
  - AC: 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

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contact bounce at nominal voltage</td>
<td>4 ms max</td>
</tr>
<tr>
<td>Weight</td>
<td>Noted</td>
</tr>
<tr>
<td>Overload</td>
<td>600 Amp @ 115/200 Vac, 400 Hz</td>
</tr>
<tr>
<td>Rupture</td>
<td>800 Amp @ 115/200 Vac, 400 Hz</td>
</tr>
<tr>
<td>Altitude</td>
<td>50,000 Feet</td>
</tr>
</tbody>
</table>

### NUMBERING SYSTEM

<table>
<thead>
<tr>
<th>Relay family</th>
<th>X</th>
<th>O</th>
<th>X</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>[9]ZCD</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. Mounting Style (A, B, Etc.)
2. Terminal & Circuit

### 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.
10. This series drawing is for general use only. Please consult factory for special requirements.
CONFIGURATION STYLES

SERIES ZC, ZCD

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

Date of issue: 06/10
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.

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

TERMINAL TYPE 1
3 PDT

TERMINAL TYPE 2
SPDT WITH 3 PDT Auxiliary Contacts

TERMINAL TYPE 3
3 PDT WITH 6 PDT AUXILIARY CONTACTS

TERMINAL TYPE 4
SPDT DOUBLE MAKE WITH 4 PDT AUXILIARY CONTACTS

TERMINAL TYPE 5
3 PDT WITH 6 PDT AUXILIARY CONTACTS

TERMINAL TYPE 6
SPDT DOUBLE MAKE WITH 6 PDT AUXILIARY CONTACTS

TERMINAL TYPE 7
3 PDT WITH 2 PDT AUXILIARY CONTACTS

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

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.