Balanced-Force design
Hermetically sealed
Contact arrangement 3 PDT
Designed to the performance standards of MIL-PRF-6106

PRINCIPLE TECHNICAL CHARACTERISTICS

Contact ratings at 28 Vdc and
115 Vac, 400 Hz, 1Ø and
115/200 Vac, 400 Hz, 3Ø

Weight See Mounting

Special units available upon request, including models with auxiliary contacts.

APPLICATION NOTES:

101
102
104
007

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[6]</td>
<td>-</td>
</tr>
</tbody>
</table>

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

Date of issue: 01/07
**COIL CHARACTERISTICS (Vdc)**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<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>7.3</td>
<td>124</td>
<td>29</td>
<td>29</td>
<td>29</td>
</tr>
<tr>
<td>Set &amp; reset voltage, maximum</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Nominal</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>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>90</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Coil resistance in Ohms ±20% at +25°C</td>
<td>163</td>
<td>40</td>
<td>10</td>
<td>-</td>
<td>163</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>0.085</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 resistive load**: 50,000
- **Minimum operating cycles (life) at 25% rated resistive load**: 100,000
- **Dielectric strength at sea level**
  - All circuits to ground: 1500 Vrms
  - Coil to ground and Aux. contacts: 1250 Vrms
- **Dielectric strength at altitude: 70,000 feet**: 500 Vrms
- **Insulation resistance**
  - Initial (500 Vdc): 100 MΩ min
  - After environmental tests (500 Vdc): 50 MΩ min
- **Sinusoidal vibration (55 to 500 Hz)**: 10 G
- **Shock (10-12 ms duration)**: 15 G
- **Maximum contact opening time under vibration and shock**: 10 µs
- **Operate time at nominal voltage (Including bounce)**
  - 60 ms max
  - 25 ms max (Economizer coil)
- **Contact bounce at nominal voltage**: 4 ms max
- **Weight**: Noted
- **Overload**: 800 Amperes
- **Rupture**: 1000 Amperes
- **Altitude**: 50,000 Feet
### NUMBERING SYSTEM SERIES ZL, ZLD

<table>
<thead>
<tr>
<th>ZL - X 0 X</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZLD - X 0 X</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Relay family</th>
<th>1-Mounting Style(A,B,Etc.)</th>
<th>2-Terminal &amp; Circuit</th>
<th>3-Coil Voltage(A,B,C,F &amp; N)</th>
</tr>
</thead>
</table>

### NOTES

1. Inductive load life, 20,000 cycles.
2. Terminal strength per para. 3,4,8,2,1 of MIL-R-6106.
3. Alternate contact configurations and other special models available upon request; Please contact factory.
4. Ratings are for double break/make terminal type 6.
5. Back EMF suppression to 62 Volts max. Consult factory.
6. Suitable for transfer between unsynchronized AC power sources at rating shown.
7. 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.
8. Non hermetic gasket sealed version.
CONFIGURATION STYLES

SERIES ZL, ZLD

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

Date of issue: 01/07
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.