# Modulator Bias Controller Specification

Mini-MBC-1 (Ver_1.0)

<table>
<thead>
<tr>
<th>PARAMETERS</th>
<th>MIN</th>
<th>TYP</th>
<th>MAX</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Optical Performance</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Detector Input Power(^1)</td>
<td>-30</td>
<td>-10</td>
<td>dBm</td>
<td></td>
</tr>
<tr>
<td>Optical wavelength</td>
<td>1000</td>
<td>1650</td>
<td>nm</td>
<td></td>
</tr>
<tr>
<td><strong>Electrical Performance</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bias voltage</td>
<td>-10</td>
<td>10</td>
<td>V</td>
<td></td>
</tr>
<tr>
<td>Null Mode Extinction Ratio(^2)</td>
<td>25</td>
<td>40</td>
<td>dB</td>
<td></td>
</tr>
<tr>
<td>Locking Slope</td>
<td>Positive or Negative</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Locking Mode</td>
<td>Quad+ (Quad-) or Null (Peak)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Pilot tone</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Modulation Depth (QUAD)(^3)</td>
<td>1</td>
<td>2</td>
<td>%</td>
<td></td>
</tr>
<tr>
<td>Modulation Depth (Null)</td>
<td>0.1</td>
<td>%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pilot Tone Frequency (QUAD)</td>
<td>1K</td>
<td>Hz</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pilot Tone Frequency (NULL)</td>
<td>2K</td>
<td>Hz</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Power Supplies</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive Power Voltage</td>
<td>11.5</td>
<td>12</td>
<td>12.5</td>
<td>V(DC)</td>
</tr>
<tr>
<td>Negative Power Voltage</td>
<td>-12.5</td>
<td>-12</td>
<td>-11.5</td>
<td>V(DC)</td>
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<tr>
<td>Positive Power Current</td>
<td>60</td>
<td>mA(DC)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Negative Power Current</td>
<td>40</td>
<td>mA(DC)</td>
<td></td>
<td></td>
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<tr>
<td><strong>General</strong></td>
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<td></td>
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</tr>
<tr>
<td>Operating temperature</td>
<td>0</td>
<td>70</td>
<td>Degree C</td>
<td></td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>-40</td>
<td>+85</td>
<td>Degree C</td>
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</tr>
<tr>
<td>Dimension</td>
<td>1.6x2.7x0.65 inch</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>0.2 lb</td>
<td></td>
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</tbody>
</table>

1. For a given input, detection power refers to the coupled optical power to the photodiode of Mini-MBC-1 when the modulator output is at its minimum attenuation (The detection power does not describe the detected power at locking status).
2. In this case, the modulator output power was greater than 0 dBm. 1% coupler was used. The distinction ratio will be close but not exceed the distinction ratio of the modulator.

3. Optical Modulation Index = amplitude of modulation/$V_\pi$.

**Typical Analog Applications**

![Configuration for Mini-MBC-1](image-url)