The Chromation Spec is a compact spectrometer based on Chromation’s proprietary photonic crystal technology.

**Features:**
- Small size
- Low mass
- Optics internal to unit
- Flexible mounting options
- Outstanding stray light rejection

**Applications:**
- Handheld and portable instruments
- Color analysis
- White point determination
- Chemical analysis

**Spectral resolution**
- 14nm FWHM

**Spectral range**
- 350-950nm

**Measurable light level**
- 172nW-300uW

**Responsivity**
- $3 \times 10^9$ counts/J peak

**Typical response, power normalized at select pixels**
- Pixel 1 to 126 in steps of 5 pixels

Visible light chart with data on responsivity (relative, counts/W) and fundamental peak wavelengths.
### Absolute maximum ratings

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Parameter</th>
<th>Min</th>
<th>Max</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>$V_{dd}$</td>
<td>Supply voltage</td>
<td>-3</td>
<td>6</td>
<td>V</td>
</tr>
<tr>
<td>$T_A$</td>
<td>Operating free temperature range</td>
<td>-25</td>
<td>80</td>
<td>°C</td>
</tr>
<tr>
<td>$T_S$</td>
<td>Storage free temperature range</td>
<td>-25</td>
<td>80</td>
<td>°C</td>
</tr>
<tr>
<td>$ESD_{HBM}$</td>
<td>ESD resistance, human body model</td>
<td>+/-</td>
<td>2000</td>
<td>V</td>
</tr>
<tr>
<td>$I_{DD}$</td>
<td>Supply current (max)</td>
<td>4.5</td>
<td></td>
<td>mA</td>
</tr>
</tbody>
</table>

### Recommended operating parameters

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Parameter</th>
<th>Min</th>
<th>Nominal</th>
<th>Max</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>$f_{clk}$</td>
<td>Clock frequency</td>
<td>5</td>
<td></td>
<td>8000</td>
<td>kHz</td>
</tr>
<tr>
<td>$t_{int}$</td>
<td>Sensor integration time</td>
<td>0.0035</td>
<td></td>
<td>100</td>
<td>ms</td>
</tr>
<tr>
<td>$V_{dd}$</td>
<td>Supply voltage</td>
<td>3</td>
<td>5</td>
<td>5.5</td>
<td>V</td>
</tr>
</tbody>
</table>

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**Recommended connector:**
Hirose FH12-8S-0.5SH

**Pinout:**
- 8 VDD Supply voltage
- 7 VDD Supply voltage
- 6 AO Analog out
- 5 GND Ground
- 4 CLK Clock
- 3 GND Ground
- 2 SI Serial clock in
- 1 GND Ground

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Each channel in the photodetector is buffered by an operational amplifier through a multiplexer, and outputs a 0-5V signal reflecting the integrated photodetector charge.

Capture of the signal is triggered by the first 18 clock cycles for the next readout phase; the integration time is adjusted by modulating the clock frequency to adjust the duration of the first 18 clock cycles. A readout cycle on power-up is recommended to clear the buffer and reset to a known state.