The most rugged high-performance embedded parallel optics.

Key advantages
- **Small**: Less than 6 mm high (module and interposer)
- **Rugged**: MIL-STD 883 shock and vibration qualified
- **Sealed**: Moisture and thermal shock resistant
- **Storage temperature**: –57°C to 125°C
- **Performance**: up to 12.5 Gbps/lane from –40°C to 100°C
- **Sensitivity**: –12 dBm or –9 dBm versions available for BER 10⁻¹²
- **Proven**: Thousands used in aerospace and defense applications
- **Low power consumption**: 100 mW/lane

Configurations
- 4TRX (50G, full duplex)
- 12TX or 12RX (150G)
- 12TRX (150G, full duplex)
- 24TX or 24RX (300G), in development

Applications
- All digital AESA radars
- High I/O density, high BW communication links
- ISR embedded systems

*LightABLE LL product summary*

The low profile LightABLE™ LL screw-in module (4.5 mm) mounts to the board via an LGA connector. It is offered as a (4+4)-lane transceiver, a 12-lane transmitter, or a 12-lane receiver, and a (12+12)-lane transceiver. All modules operate at 12.5 Gbps per lane from –40°C to 100°C at ultra-low bit error rates of 10⁻¹². The optical module includes equalizers and pre-emphasis to compensate long traces; these features can be turned off for short traces (less than 10 cm) to reduce power consumption.
**LightABLE LL 50G (full duplex), 150G, 150G (full duplex) and 300G features**

- 4 TRX (4+4)-lane per device (50G, full duplex)
- 12 TX or 12 RX lane per device (150G)
- 12 TRX (12+12)-lane per device (150G, full duplex)
- 24 TX or 24 RX lane per device (300G)
- Multimode 850 nm wavelength laser
- Over 100 m reach on OM3 ribbon fiber
- Standard MT parallel fiber connector

- RoHS
- Equalizer, pre-emphasis, adjustable output
- Monitoring: LOS, RSSI, temperature, etc.
- Integrated microcontroller
- Available in extended industrial grade temperature range (−40 ºC to 100 ºC)

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**LightABLE LL ordering information**

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Product Description</th>
<th>Lanes</th>
<th>Bandwidth* (Gbps/lane)</th>
<th>Sensitivity (dBm)</th>
<th>Mounting</th>
<th>Operating Temperature (ºC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LLX04P418532101</td>
<td>LightABLE LL 4TRX transmit/receive</td>
<td>4+4</td>
<td>12.5</td>
<td>−9</td>
<td>LGA</td>
<td>−40 to 100</td>
</tr>
<tr>
<td>LLX04P418532301</td>
<td>LightABLE LL 4TRX transmit/receive</td>
<td>4+4</td>
<td>12.5</td>
<td>−12</td>
<td>LGA</td>
<td>−40 to 100</td>
</tr>
<tr>
<td>LLT12P418533001</td>
<td>LightABLE LL 12TX transmitter</td>
<td>12</td>
<td>12.5</td>
<td>n.a.</td>
<td>LGA</td>
<td>−40 to 100</td>
</tr>
<tr>
<td>LLR12P418530101</td>
<td>LightABLE LL 12RX receiver</td>
<td>12</td>
<td>12.5</td>
<td>−9</td>
<td>LGA</td>
<td>−40 to 100</td>
</tr>
<tr>
<td>LLR12P418530301</td>
<td>LightABLE LL 12RX receiver</td>
<td>12</td>
<td>12.5</td>
<td>−12</td>
<td>LGA</td>
<td>−40 to 100</td>
</tr>
<tr>
<td>LLX12P418532101</td>
<td>LightABLE LL 12TRX transmit/receive</td>
<td>12+12</td>
<td>12.5</td>
<td>−9</td>
<td>LGA</td>
<td>−40 to 100</td>
</tr>
<tr>
<td>LLX12P418532301</td>
<td>LightABLE LL 12TRX transmit/receive</td>
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<td>12.5</td>
<td>−12</td>
<td>LGA</td>
<td>−40 to 100</td>
</tr>
</tbody>
</table>

*Operation over 10.3125 Gbps requires custom register settings in order to meet all the optical specifications.*

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**THE Light on Board® Company**

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Reflex Photonics is certified to ISO 9001

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