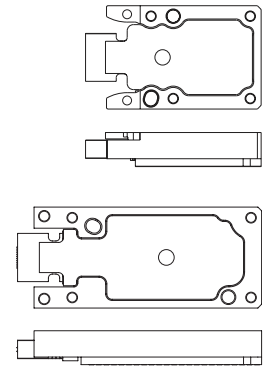


The most rugged high-performance embedded parallel optics.



Real size for  
*LightABLE LL 50G (full duplex)*  
and *LightABLE LL 150G (top)* and  
*LightABLE LL 150G (full duplex)*  
and *LightABLE LL 300G (bottom)*.

## LightABLE LL 50G, 150G, and 300G

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-channel transmitter, or a 12-channel receiver, and a (12+12)-lane transceiver. All modules operate at 12.5 Gbps per channel from  $-40^{\circ}\text{C}$  to  $100^{\circ}\text{C}$  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.

### 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:**  $-57^{\circ}\text{C}$  to  $125^{\circ}\text{C}$
- **Performance:** up to 12.5 Gbps/channel from  $-40^{\circ}\text{C}$  to  $100^{\circ}\text{C}$
- **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/channel

### Configurations

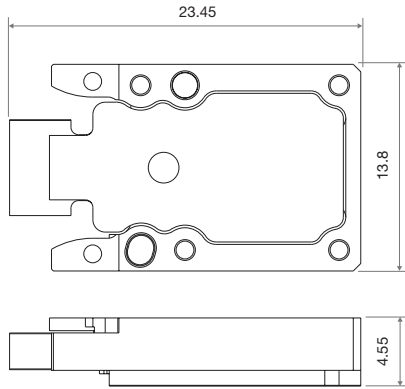
- 4TRX (50G, full duplex)
- 12TX or 12RX (150G)
- 12TRX (150G, full duplex)
- 24TX or 24RX (300G), in development

### Applications

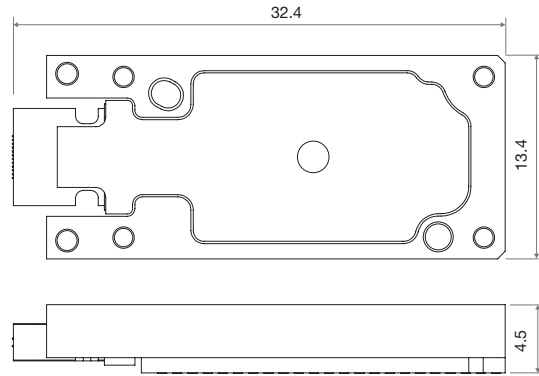
- All-digital AESA radars
- High I/O density, high BW communication links
- ISR embedded systems

# LightABLE LL 50G (full duplex), 150G, 150G (full duplex) and 300G features

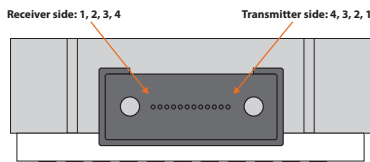
- 4 TRX (4+4)-lane per device (50G, full duplex)
- 12 TX or 12 RX channel per device (150G)
- 12 TRX (12+12)-lane per device (150G, full duplex)
- Multimode 850 nm wavelength laser
- Over 100 m reach on OM3 ribbon fiber
- Standard MT parallel fiber connector
- RoHS
- Equalizer, pre-emphasis, adjustable output
- Monitoring: LOS, RSSI, temperature, etc.
- Integrated microcontroller
- Available in extended industrial grade temperature range (−40 °C to 100 °C)



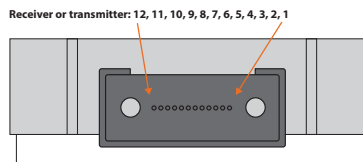
Drawing of LightABLE LL 50G (full duplex) and 150G



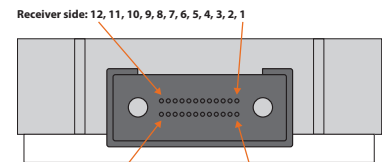
Drawing of LightABLE LL 150G (full duplex) and 300G



Fiber assignment of LightABLE LL 50G (full duplex)



Fiber assignment of LightABLE LL 150G



Fiber assignment of LightABLE LL 150G (full duplex) and 300G

## LightABLE LL ordering information

Part Number	Product Description	Channels	Bandwidth* (Gbps/channel)	Sensitivity (dBm)	Mounting	Operating Temperature (°C)
LLX04P418532101	LightABLE LL 4TRX transmit/receive	4+4	12.5	−9	LGA	−40 to 100
LLX04P418532301	LightABLE LL 4TRX transmit/receive	4+4	12.5	−12	LGA	−40 to 100
LLT12P418533001	LightABLE LL 12TX transmitter	12	12.5	n.a.	LGA	−40 to 100
LLR12P418530101	LightABLE LL 12RX receiver	12	12.5	−9	LGA	−40 to 100
LLR12P418530301	LightABLE LL 12RX receiver	12	12.5	−12	LGA	−40 to 100
LLX12P418532101	LightABLE LL 12TRX transmit/receive	12+12	12.5	−9	LGA	−40 to 100
LLX12P418532301	LightABLE LL 12TRX transmit/receive	12+12	12.5	−12	LGA	−40 to 100

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

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