Optimal beam combining for LaserCom and LiDARs

Features

- **Optimal beam combining** (coherent or non-coherent combining)
- **Large number of sources** combined
- **Low transmission losses**
- **High power** handling

Applications

- Long-range **free space optical communication:**
  Aircraft-aircraft & ground-aircraft links
  Ground-Satellite links
- **LiDAR sensors**
- Remote sensing & active imaging

Description

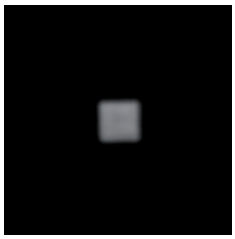
Intended for free space optical communications and LiDAR applications, **TILBA-T** optimally combines and shapes several sources in a coherent or non-coherent manner. **TILBA-T increases the range and accuracy** of laser sources without the need of expensive and complex high-power lasers.

Able to support up to **10 inputs in a coherent combination or 45 inputs in an incoherent one, TILBA-T** can also optimize the properties of the beam such as its M2, variance or intensity, and even generate annular, self-healing beams.

Use cases

- **Beam shaping**

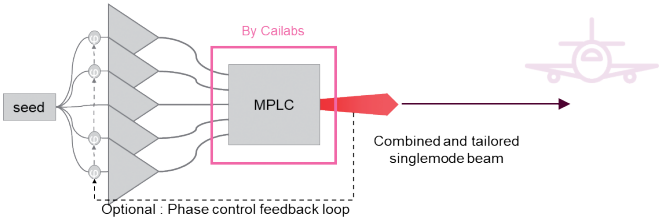
Square flat-top illumination is often preferred for 3D imaging, typically in LiDARs. A high-quality beam shape enables to improve the efficiency and field of view of the active remote sensing.



Far field square flat-top illumination

- **Beam combining**

Combining multiple beams is a convenient technique to **increase the output power** without the use of expensive and complex laser sources.

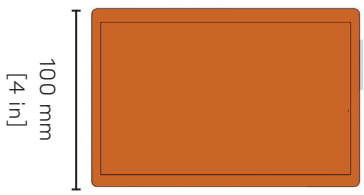


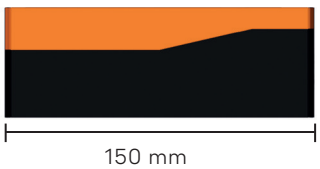
Implementation example

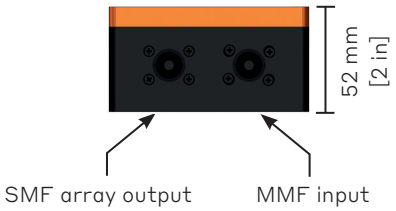
General specifications

OPTICAL PARAMETERS			
Parameter	Coherent	Non-coherent	Comment
Wavelength of operation	C-Band (1530-1570 nm)		Other wavelengths available
Number of combined beams	Up to 10	Up to 45	
Signal input beam	Single mode fiber		
Signal output beam	MMF or free space output		Collimated free space & large range of fiber available
Insertion loss	< 3 dB		

	Mechanical and environment
Package dimensions	150 x 100 x 52 mm^3
Weight	950 g
Operating temperature	-5°C to +45°C (EN 300 019-1-3 Class 3.2)







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