

FIBER COUPLED COLLIMATOR

Transmitters and Receivers for optical communications

The EM4 fiber-optic collimator module is designed for harsh environment applications requiring both single and dual fiber coupling to free space. It features a large clear aperture and diffraction-limited wavefront error.

The module contains a single/dual fiber assembly with precision aligned lens to efficiently collimate light into free space from fiber coupled systems. The dual fiber allows for communication systems utilizing wavelength division multiplexing, transmitting and receiving in a single package, or redundancy in connecting for added levels of system-level reliability. The device meets performance requirements in vacuum conditions and utilizes low outgassing materials for space applications.

Applications

- Satellite laser communications
- Aerospace & Defense
- Free space optics (FSO) links



Key Characteristics

- 1550 nm systems
- Watt-level power levels
- Single or dual fiber design

Features

- High reliability/ durability
- 2W power handling capacity
- High coupling efficiency
- High polarization extinction ratio
- Near-Gaussian output beam

Performance Characteristics*

T_c=25°C, continuous wave and beginning of life unless otherwise specified

Optical characteristics	Symbol	Min	Typical	Max	Unit
Wavelength range ²	λ		1550		nm
Optical input power ²	P _{in}	n/a	.5	2	W
Coupling efficiency	CE	70	75	78	%
Polarization extinction ratio	PER		21	25	dB
Wavefront error (measured @ 1550nm &25°C)	WFE		.025	.03	waves
Beam Waist*	ω		10	11	mm
Lens focal length ²	f		50		mm
Return loss ²	RL	-55	-60		dB
Dual fiber field angle separation	θ		2.6	3	mrad
Survival temperature	T _{sv}	-40		85	°C
Operating temperature	T _{op}		25		°C
Weight	w		.25		lbs

1- Specification represents bare fiber or FC/APC connector types. Other configurations may vary.

2- Customization available upon request

Performance data

Fiber Characteristics

Fiber type	SM or PM single mode fiber
Jacket material	Acrylate
Core / outer / buffer diameter	10.4 μ m / 125 μ m / 250 μ m
Minimum bend radius	3 in
Proof strength	100 kPSI
Connector, output polarization (PM)	FC/APC, polarization parallel to slow axis

SINGLE/DUAL FIBER OPTIC COLLIMATORS

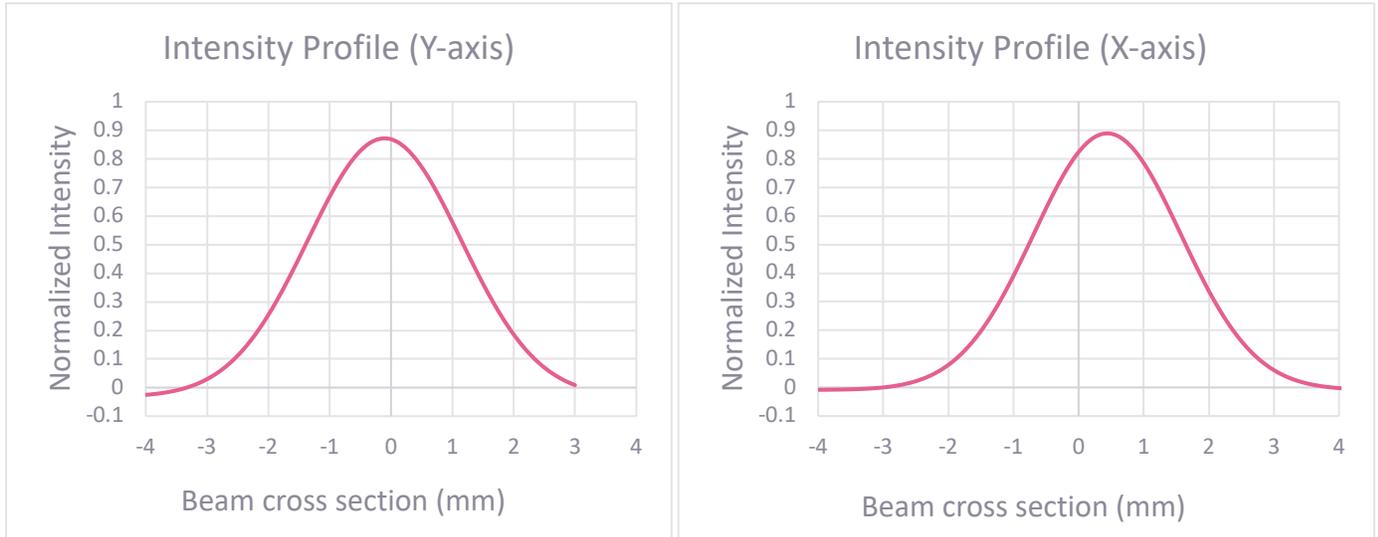
Preliminary data sheet ref:

As part of our policy of continuous product improvement, we reserve the right to change specifications at any time.

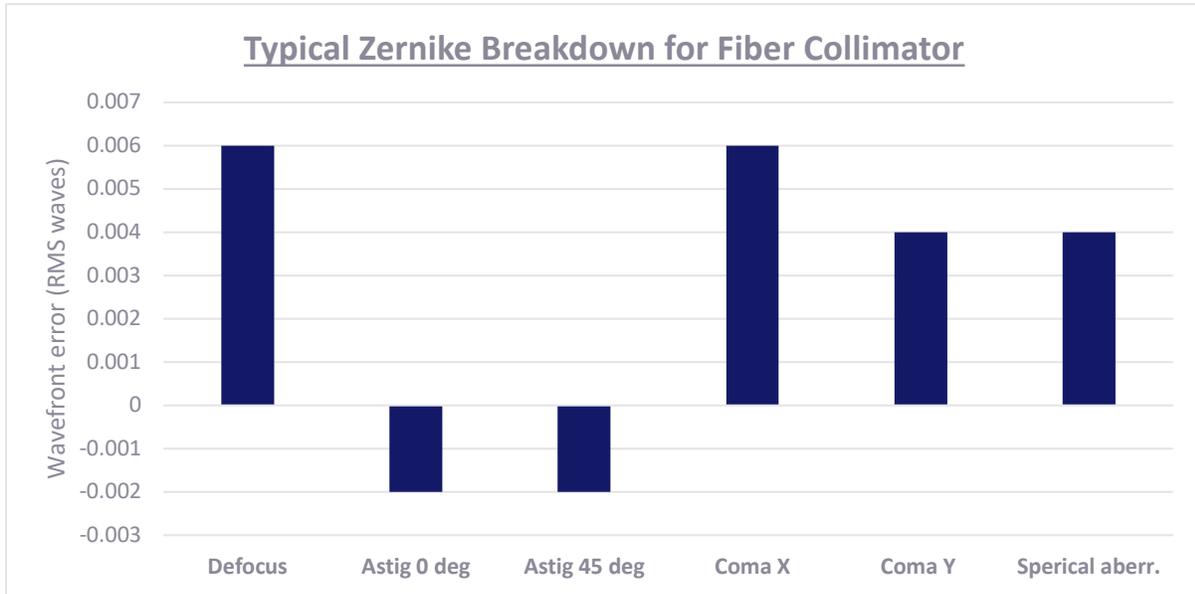
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Beam profile at output of collimator:



Zernike aberration breakdown:



Ordering information

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Example part number: CL1000-21-1550-10-0-FCA

Order code		①	②	③	④	⑤	⑥	⑦														
C	L	1	0	0	0	-	2	1	-	1	5	5	0	-	1	0	-	0	-	F	C	A
①	Model	Standard																				
	Code	1000																				
②	Fiber count	Single fiber										Dual Fiber										
	Code	1										2										
③	Fiber type	SM										PM										
	Code	0										1										
④	Wavelength	1550nm																				
	Code	1550																				
⑤	Fiber Length	1 meter min																				
	Code	10																				
⑥	Boot	Boot included										No boot included										
	Code	0										1										
⑦	Connector	FC/APC																				
	Code	FCA																				

For further information

EM4
T: +1 781-275-7501
E: em4-sales@luminarsemi.com

EM4photonics.com

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