

Key Features & Benefits

- High optical quality collimation of laser beam emerging from a fiber tip
- Automatic fast stabilization of the transmitted beam optical axis in harsh operating conditions
- Fine and rapid programmable pointing and steering of the transmitted beam with piezo-actuators
- Single compact module with x-y-z, two angular and one rotational coarse alignments of a fiber tip
- Customizable system parameters including wavelength, fiber type and output beam characteristics
- Controlled with the INFOCO CU

Applications

- Free-space laser communications
- Confocal scanning microscopy
- Active illumination
- Laser tracking
- Remote sensing
- Adaptive optics
- Beam control
- Education

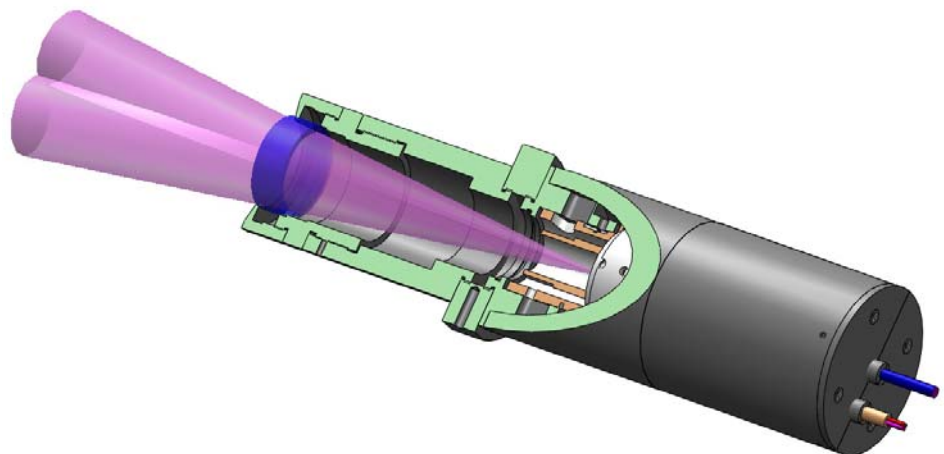
INFOCO Tx

Intelligent Fiber-Optics Collimator Transmitter

Optical beam collimation, pointing, steering, automatic stabilization and adaptive tip and tilt control – all in a single compact module

The INFOCO Tx is a smart optical fiber-collimator transmitter with integrated piezo-actuators providing high-precision and high-speed fiber-tip position control.

The INFOCO Tx offers unique capabilities for fine and rapid laser beam pointing and steering. Using a proprietary feedback control unit INFOCO CU, the INFOCO Tx provides automatic fast stabilization of the transmitted beam optical axis, compensation of mechanical and/or acoustical jitter and adaptive pre-compensation of random wavefront tip and tilt aberrations induced by refractive-index fluctuations. The INFOCO Tx is uniquely suited to hazardous environments, e.g. vibration, acoustic noise, thermal deformation, or atmospheric turbulence.



A compact intelligent fiber-optics ultra-high performance device, the INFOCO Tx is an optimal replacement of bulky, heavy and expensive conventional beam steering and adaptive tip and tilt phase aberration compensation systems.

INFOCO Tx Technical Specifications

Optical

- Optical input: through a single-mode (PM or non-PM) or multi-mode fiber with FC/APC or FC/UPC connector or fiber pigtail.
- Wavelength: 1.06 μm or 1.55 μm for standard products, or customer specified.
- Clear aperture diameter of the collimating lens: 5.5 mm (INFOCO Tx-05); 8.0 mm (INFOCO Tx-08), 25 mm (INFOCO Tx-25), or customer specified.
- Output beam intensity profile: truncated Gaussian beam with waist diameter w_0 (1/e-intensity level) and energy loss due to truncation P_{loss} .*

Model	INFOCO Tx-05	INFOCO Tx-08	INFOCO Tx-25
w_0 (mm)	3.0	4.9	20.6
P_{loss} (%)	0.12	0.44	5.2

- Output beam steering ranges (mrad):*

Model	Steering frequency range (kHz)			
	< 0.5	0.5–1.0	1.0–2.5	2.5–5.0
	Operational voltage range (V)			
	± 70	± 55	± 35	± 20
INFOCO Tx-05	> ± 3.0	> ± 2.0	> ± 1.5	> ± 0.50
INFOCO Tx-08	> ± 2.0	> ± 1.5	> ± 1.0	> ± 0.35
INFOCO Tx-25	> ± 0.5	> ± 0.35	> ± 0.3	> ± 0.10

* The data are obtained for the INFOCO Tx product with a single-mode PM fiber with mode field diameter (MFD) 6.7 μm .

Mechanical

Model	Length w/o cables	Diameter	Weight	Interface / Adapter			
				2" holder	SM1 thread	1/2" post	C-mount
INFOCO Tx-05	110 mm (4 1/2")	45 mm (1 3/4")	250 g	✓	✓	✓	optional
INFOCO Tx-08	110 mm (4 1/2")	45 mm (1 3/4")	250 g	✓	✓	✓	optional
INFOCO Tx-25	210 mm (8 1/2")	51 mm (2")	500 g	✓	–	✓	–

Electrical

- Maximum control input voltages: ± 70 V
- Tip/tilt control bandwidth: DC–5.0 kHz
- Control voltage input connector: DB9M