

# TERA15-Antennas

## Fiber Coupled THz Antennas for 1560 nm

**MenloSystems**



Introducing our groundbreaking TERA15 antenna modules, specifically designed for 1560 nm laser wavelength in all-fiber THz-TDS systems. These modules boast an exceptional blend of flexibility and robustness, making them the unparalleled choice in the market.

The high-power antenna technology employed in these modules relies on InGaAs/InAlAs multilayered mesa structures with the added advantage of high-voltage biasing of the emitter. This unique approach ensures unparalleled efficiency and performance (up to 3-fold THz electric field amplitude).

To achieve the highest THz bandwidth possible, the structures for both the emitter and detector components have been carefully optimized. Moreover, our polarization-maintaining (PM) coupling fiber enables reliable and stable operation, even when faced with harsh environmental conditions.

We currently offer standard emitters (TERA15-TX-FC) and receivers (TERA15-RX-FC) as well as new high power emitters (TERA15-HP-TX).

In summary, our fiber-coupled TERA15 antenna modules represent a new era in THz-TDS systems, setting the standard for performance, flexibility, and durability in the industry.

### KEY SPECIFICATIONS

- >6 THz Bandwidth
- >100 dB Dynamic Range
- Linearly Polarized THz Output
- PM Fiber Coupling
- High Power Emitter
  - Up to 3 Folds of THz E-field
  - Up to (110 dB, 300  $\mu$ W)

### APPLICATIONS

- THz Generation & THz Detection
- THz Imaging and Spectroscopy
- OEM Supplies

### FEATURES

- Optimized for Lasers around 1560 nm and Pulse Width <100 fs at 100 MHz Repetition Rate
- Higher Bias Voltage with Unipolar Modulation
- Specific Antenna Design for Emitter / Receiver Applications
- Flexible Fiber Coupled Modules
- Two Perpendicular Mounting Possibilities (M4 Thread)

### RECOMMENDED LASER SOURCES

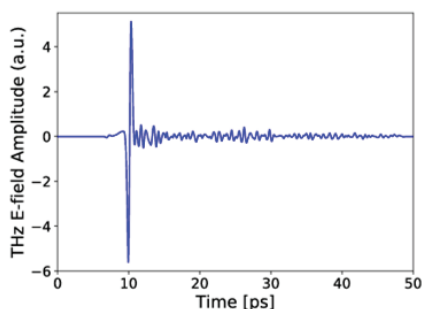
- ELMO HP
- C-Fiber

### OPTIONS

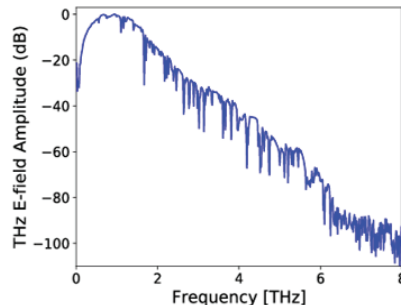
- **Reflection Head**  
Compact Sensor Unit with Integrated THz Optics

### PERFORMANCE DATA

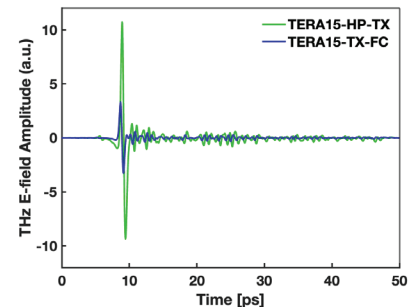
Time domain data: TERA15-TX-FC



Frequency domain data: TERA15-TX-FC



New! Comparison of our emitters



TERA15-TX-FC measurement settings: 100 V bias with 25 mW optical powers at 24 Hz scan speed to achieve >6 THz and >95 dB in 60 sec  
TERA15-HP-TX measurement settings: 200 V bias with 50 mW optical powers at 24 Hz scan speed to achieve >6 THz and up to 110 dB in 60 sec  
All measurements were conducted under ambient conditions without purging.

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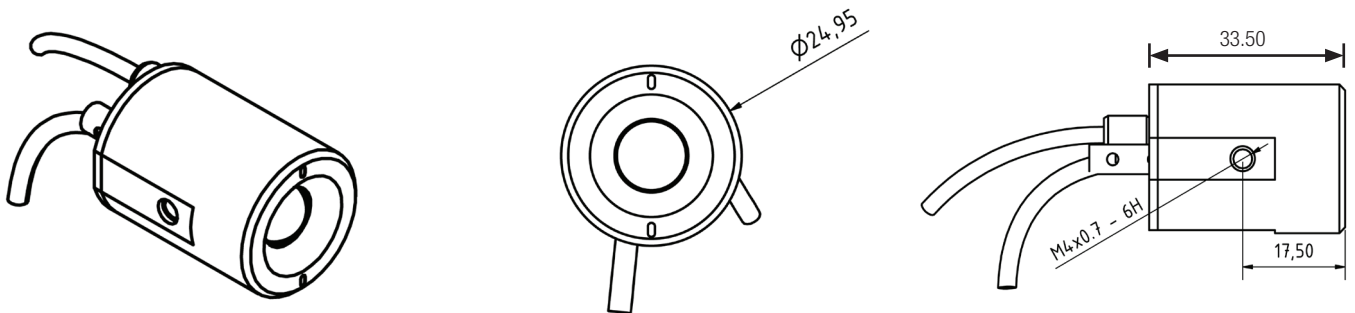
SPECIFICATIONS	TERA15-TX-FC	NEW: TERA15-HP-TX	TERA15-RX-FC
Antenna	Standard Power (SP) Emitter	High Power (HP) Emitter	Standard Power (SP) Receiver
THz Power	Up to 100 $\mu$ W	Up to <b>300 <math>\mu</math>W</b>	n.a.
Spectral and Dynamic Range	>6 THz , >100 dB	<b>&gt;6 THz, up to 110 dB</b>	n.a.
Antenna material	Fe:InGaAs/InAlAs	Fe:InGaAs/InAlAs	LT InGaAs/InAlAs
Photosensitivity	up to 1.57 $\mu$ m	up to 1.57 $\mu$ m	up to 1.57 $\mu$ m
Fiber connection	PM-PANDA, l=100 cm, FC/APC connector, SMF 28 fiber on request	PM-PANDA, l=100 cm, FC/APC connector, SMF 28 fiber on request	PM-PANDA, l=100 cm, FC/APC connector, SMF 28 fiber on request
Antenna electrical connection	1 m connector cable, LEMO 0S	1 m connector cable, LEMO 0S	1 m SMB connector cable, BNC adapter
Housing diameter	24.95 mm	24.95 mm	24.95 mm

### OPERATION CONDITIONS

Average Optical Power	<30 mW	<b>&lt;50 mW</b>	<30 mW
Pulse Duration	<100 fs	<100 fs	<100 fs
Repetition Rate	100 MHz (80...250 MHz)	100 MHz (80...250 MHz)	100 MHz (80...250 MHz)
Bias Voltage	100 V (unipolar), 0 - 100 V modulation	200 V (unipolar), 0 - 200 V modulation	n.a.
Modulation Frequency	up to 75 kHz (unipolar)	up to 75 kHz (unipolar)	n.a.

Please refer to the recommended laser parameters and bias voltage. Improper use or experimental conditions are excluded from warranty.

### ANTENNA



### ORDERING INFORMATION

Product Code	TERA15-TX-FC	TERA15-HP-TX	TERA15-RX-FC
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Please call for pricing. Specifications are subject to change without notice. Custom modifications are available, please inquire.

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