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THORLABS

TERA8-1 - JUL 15, 2020

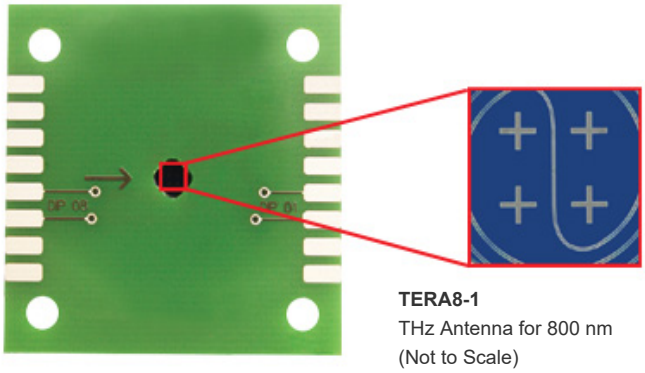
Item # TERA8-1 was discontinued on JUL 15, 2020. For informational purposes, this is a copy of the website content at that time and is valid only for the stated product.

TERAHERTZ ANTENNAS

- **THz Antennas for 800 nm or 1560 nm**
- **Optimized Structures for High Signal-to-Noise Ratios and Improved Bandwidth**
- **Individually Tested, Includes Test Report**

T8-H2
THz Antenna Mount

TERA15-RX-FC
THz Receiver for 1560 nm



TERA8-1
THz Antenna for 800 nm
(Not to Scale)

OVERVIEW

Features

- Optimized for Femtosecond Lasers Around 800 nm or 1560 nm
  - Pulse Widths < 100 fs
  - 100 MHz Repetition Rate
- High Conversion Efficiency
- Mount Available for 800 nm Antenna Module
- Robust Design without Bonded Wires
- Individual Test Report Included

Applications

- THz Generation and Detection
- THz Imaging

Menlo Systems offers photoconductive antennas made for excitation wavelengths of 800 nm and 1560 nm. An optomechanical antenna mount for the TERA8-1, which features XY adjustment and is compatible with Thorlabs' cage systems, is also available.

To view lenses designed for the terahertz regime, see Menlo Systems' THz lenses.

For complete terahertz solutions that include a laser source and data acquisition hardware and software, see the TERA-K15-SYNC, TERA-SMART, and TERA-ASOPS spectrometer systems.

Simon Kocur
Menlo Systems

Feedback? Questions? Need a Quote?

Contact Us

Please note that these terahertz antennas are available directly from Menlo Systems, Inc. within the United States and from Menlo Systems GmbH outside the United States.

United States
Phone: +1-973-300-4490
Email: ussales@menlosystems.com

Outside United States
Phone: +49-89-189166-0
Email: sales@menlosystems.com

SPECS

Item #	TERA8-1
Photoconductive Material	LT-GaAs
Bandwidth	>4 THz
Dipole Structures	20 µm[a]
Gap Size	5 µm
Substrate Size	5 mm x 5 mm x 0.35 mm
Electrical Connection	Bonded Structure on PCB (40 mm x 40 mm)
Operating Conditions	
Average Optical Power	<10 mW[b]
Pulse Duration	<100 fs
Repetition Rate Range	80 - 250 MHz; Optimized for 100 MHz
Bias Voltage	Recommended: ±35 V Max: ±40 V
Recommended Laser Source	C-FIBER-780

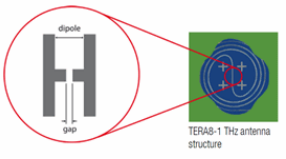
a. Menlo Systems' Standard Length for High Bandwidth and High Sensitivity
b. Caution: Maximum Optical Power 10 mW at 100 MHz Laser Repetition Rate

Item #	TERA15-TX-FC (Emitter)	TERA15-RX-FC (Receiver)
Photoconductive Material	InGaAs/InAlAs	LT-InGaAs/InAlAs
Spectral Photosensitivity	Up to 1.57 µm	
Antenna Type	Strip Line: 100 µm	Dipole: 25 µm Gap: 10 µm
THz Beam Divergence	±12.5° FWHM[a]	±12.5° FWHM[a]
THz Power	Up to 60 µW[b]	N/A
Electrical Connection	LEMO 0S Connector Cable, 1 m Long	SMB Connector Cable with BNC Adapter, 1 m Long
Fiber Patch Cable	PM PANDA Fiber, FC/APC, 1 m Long[c]	
Operating Conditions		
Average Optical Power[d]	<30 mW	<40 mW
Optical Pulse Duration	<100 fs	<100 fs
Repetition Rate Range	80 - 250 MHz; Optimized for 100 MHz	
Bias Voltage	100 V (Unipolar) 0 - 100 V Modulation	N/A
Modulation Frequency	Up to 75 kHz (Unipolar)	N/A
Recommended Laser Sources	ELMO C-FIBER	

a. Measured with Golay Cell
b. Measured with Calibrated Pyrodetector
c. SMF-28 Fiber Available on Request
d. Caution: Maximum Optical Power is 30 mW for Emitter and 40 mW for Receiver at 100 MHz Laser Repetition Rate

Terahertz Antennas for 800 nm

- Optimized for Lasers Around 800 nm
  - Pulse Widths <100 fs
  - 100 MHz Repetition Rate
- Chip Mounted on PCB
- >4 THz Bandwidth
- High Conversion Efficiency



Click to Enlarge
Detail of the wrapped dipole structure of the TERA8-1.

The TERA8-1 antenna is a single dipole structure based on low temperature (LT)-grown GaAs. The chip is mounted on a PCB, and the structure is robust without bonded wires. The antenna can be used both as an emitter and as a detector. The antenna is a ready-to-use unit that comes mounted and connected. Its performance has been tested and verified for use in a wide range of THz experiments.

To obtain the best performance of the TERA8-1 antenna, Menlo Systems offers the T8-H2 mount, which includes a focusing lens for the input beam and a collimating Si lens for the THz radiation. The T8-H2 mount features XY position adjustment of the Si lens relative to the TERA8-1 antenna, as well as XY adjustment of the TERA8-1 position using differential screws for precisely aligning the antenna to the focus of the input beam. The beam height is 85 mm.

Part Number	Description	Price	Availability
TERA8-1	**Terahertz Antenna for 800 nm, Free-Space Input**	**$0.00**	**Menlo Lead Time**
T8-H2	**Mount for TERA8-1 THz Antenna**	**$0.00**	**Menlo Lead Time**

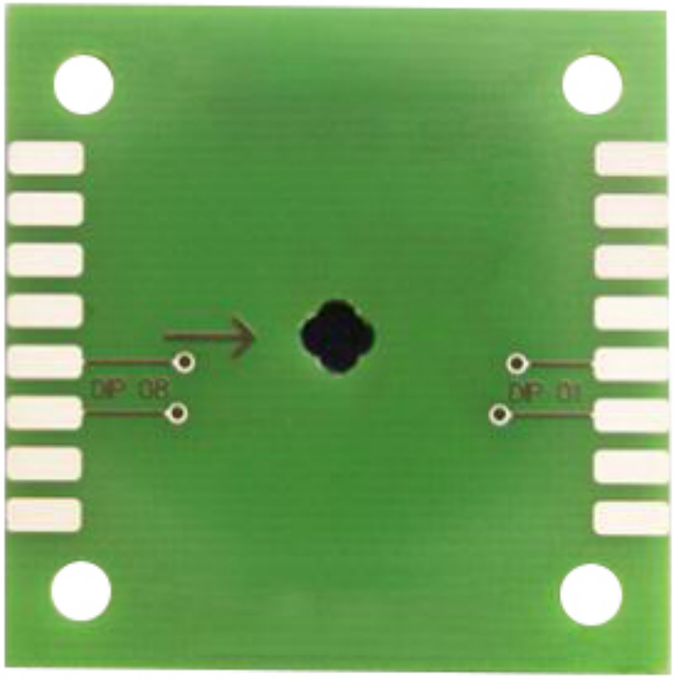
Terahertz Antennas for 1560 nm

- Optimized for Lasers Around 1560 nm
  - Pulse Widths <100 fs
  - 100 MHz Repetition Rate
- >4.5 THz Bandwidth
- >80 dB Dynamic Range
- PM Fiber Coupling
- Lock-In Free Operation Possible
- High Conversion Efficiency

Menlo Systems' flexible, fiber-coupled TERA15-TX-FC and TERA15-RX-FC antenna modules for 1560 nm lasers are the unique solution for flexible, robust, all-fiber terahertz time domain spectroscopy systems. The high-power antenna technology is based on InGaAs/InAlAs multilayered mesa structures for the emitter and the receiver. For maximum THz bandwidth, Menlo Systems offers separate units optimized to act as the emitter and the detector. The polarization-maintaining (PM) coupling fiber ensures reliable and stable operation, even under harsh environmental conditions.

Part Number	Description	Price	Availability
TERA15-TX-FC	**Terahertz Emitter for 1560 nm, Fiber-Coupled Input**	**$0.00**	**Menlo Lead Time**
TERA15-RX-FC	**Terahertz Receiver for 1560 nm, Fiber-Coupled Input**	**$0.00**	**Menlo Lead Time**

Visit the *Terahertz Antennas* page for pricing and availability information:
https://www.thorlabs.com/newgrouppage9.cfm?objectgroup_id=4716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