

# THZ-D

THz Detectors for use with our universal displays & PC interfaces



## KEY FEATURES

- **COVERS THE ENTIRE THZ SPECTRUM**  
Get the best precision across the entire wavelength range and relative measurements from 30 THz to 0.1 THz.
- **ROOM TEMPERATURE OPERATION**  
Easier to use and less expensive than a Golay cell.
- **CALIBRATED AT 10.6  $\mu\text{m}$**   
THZ-D detectors are calibrated at a single wavelength 10.6  $\mu\text{m}$  (30 THz) and at 10 Hz chopping frequency for the THZ9D. Both include typical wavelength correction data from 10.6 to 440  $\mu\text{m}$ . They are used for relative measurements outside that range.
- **LARGE AREA**  
Models range from 9 mm  $\varnothing$  for the THZ9D and 12 mm  $\varnothing$  for the THZ12D.
- **WIDE RANGE OF MEASUREMENTS**  
Measure from 100  $\mu\text{W}$  to 3 W of continuous power with the THZ12D model, the highest in our terahertz range of products, and down to 5  $\mu\text{W}$  to 25 mW with the THZ9D model.
- **USE WITH A UNIVERSAL DISPLAYS & PC INTERFACE**  
No need for an exclusive monitor. These unique THz detectors work with our display & PC interface.
- **SDC-500 OPTICAL CHOPPER**  
The THZ9D model requires the use of an optical chopper, like our SDC-500, running at 10 Hz.

## OUTPUT OPTIONS

- **SMART DB15 CONNECTOR**  
Contains all the calibration data
- **ANALOG OUTPUT**  
When used with APM analog power supply module
- **integra ALL-IN-ONE-METER** (for THZ12D only)  
Connects directly to a PC  
Two models available:
  - USB output (-INT)
  - RS-232 output (-IDR)

## COMPATIBLE DISPLAYS & PC INTERFACES



MIRO ALTITUDE



MAESTRO



U-LINK



M-LINK



APM  
analog power module  
(for THZ9D)

## ACCESSORIES



Stand with steel post  
(for THZ12D)



Stand with delrin  
(for THZ9D)



SDC-500 digital  
optical chopper



Pelican carrying case



Extension cables  
(4, 15, 20 or 25 m)

# THZ-D

## Specifications



CE NIST\*  
Traceable

 NIST\*  
Traceable

 NRC-CNRC

\*Also traceable to NRC-CNRC



	THZ9D-20mS-BL	THZ12D-3S-VP
<b>MAX AVERAGE POWER</b>	25 mW	3 W
<b>EFFECTIVE APERTURE</b>	9 mm $\phi$	12 mm $\phi$
<b>COMPATIBLE DISPLAYS &amp; PC INTERFACES</b>	MIRO ALTITUDE, MAESTRO, U-LINK, M-LINK & APM	MIRO ALTITUDE, MAESTRO, U-LINK & M-LINK
<b>MEASUREMENT CAPABILITY</b>		
<b>Spectral range <sup>a</sup></b>		
<b>Frequency</b>	0.1 - 30 THz	0.1 - 30 THz
<b>Wavelength</b>	3000 - 10 $\mu$ m	3000 - 10 $\mu$ m
<b>Maximum average power</b>		
with MAESTRO	20 mW	3 W
with U-LINK, M-LINK or MIRO ALTITUDE	25 mW	3 W
<b>Noise equivalent power <sup>b</sup></b>	300 nW	0.5 $\mu$ W
<b>Minimum measurable power <sup>c</sup></b>	N/A	50 - 100 $\mu$ W
<b>Thermal drift</b>	N/A	12 $\mu$ W/ $^{\circ}$ C
<b>Rise time (nominal) <sup>d</sup></b>	< 0.2 s	3 s
<b>Minimum repetition rate <sup>f</sup></b>	1000 Hz	7 Hz
<b>Chopping frequency</b>	10 Hz (required)	N/A
<b>Calibration uncertainty <sup>g</sup></b>	$\pm$ 5.0% at 10.6 $\mu$ m; $\pm$ 15% at 10.6 - 440 $\mu$ m <sup>h</sup>	$\pm$ 3.0% at 10.6 $\mu$ m $\pm$ 8.0% at 10.6 - 300 $\mu$ m $\pm$ 15% at 300 - 440 $\mu$ m
<b>Repeatability</b>	$\pm$ 0.5%	$\pm$ 0.5%
<b>DAMAGE THRESHOLDS</b>		
<b>Maximum average power density <sup>h</sup></b>	50 mW/cm <sup>2</sup>	30 W/cm <sup>2</sup>
<b>Maximum energy density</b>	< 0.1 J/cm <sup>2</sup>	< 1 J/cm <sup>2</sup>
<b>PHYSICAL CHARACTERISTICS</b>		
<b>Effective aperture</b>	9 mm $\phi$	12 mm $\phi$
<b>Absorber</b>	BL (Black Absorber)	VP (Volume Absorber)
<b>Dimensions</b>	38.1 $\phi$ x 26.2 mm	73H x 73W x 28D mm (80D mm with tube)
<b>Weight (head only)</b>	91 g	320 g
<b>ORDERING INFORMATION</b>		
<b>Compatible stand</b>	STAND-D-233	STAND-D-233
<b>Product page</b>		

- a. From 10 to 440  $\mu$ m, spectrometer measurement with multiple laser references validation.  
From 440 to 600  $\mu$ m, spectrometer measurement only.  
From 600 to 3000  $\mu$ m, relative measurement only.  
This spectral range is subject to change.
- b. Nominal value, actual value depends on electrical noise in the measurement system.
- c. Actual value depends on ambient conditions and the measurement system.
- d. With anticipation
- e. Maximum output voltage = sensitivity x maximum power.
- f. Minimum repetition rate for stable average power measurements.
- g. Including linearity with power.
- h. At 1064 nm, 1 W CW.

Specifications are subject to change without notice