

T-Ray® 5000 HRS4001 Receiver

The HRS4001 Receiver for the T-Ray® 5000 provides high spectral bandwidth when coupled with any of the HTS400n transmitters. The HRS4001 provides bandwidth over 3.5 THz and signal to noise ratio above 70 dB. By embedding amplification close to the signal source, the receiver is able to produce high signal to noise, and eliminate the need for a lock-in amplifier.



Operating in reflection or transmission mode, the fiber coupled sensor heads deliver a picosecond duration time-domain

terahertz pulse, allowing time domain spectroscopy and high speed, scanned images. Coupled with an HTS400n transmitter, the HRS4001 has been shown to produce bandwidth over 4.5 THz and signal to noise ratio above 100 dB. By balancing speed and responsivity, the HRS5001 is ideal for applications where both high resolution imaging and broad spectral range are desired.

APPLICATIONS

- Terahertz Time Domain Spectroscopy; solid, liquid, gas phase; polymorph discrimination; explosive detection
- Terahertz Imaging: high resolution (150 microns); high speed (800 pixels per second); THz CT imaging
- Art Conservation: identify construction; image through pottery; view previous repairs; non-destructive
- Security Research: baggage screening; personnel screening; shoe screening; anomaly detection

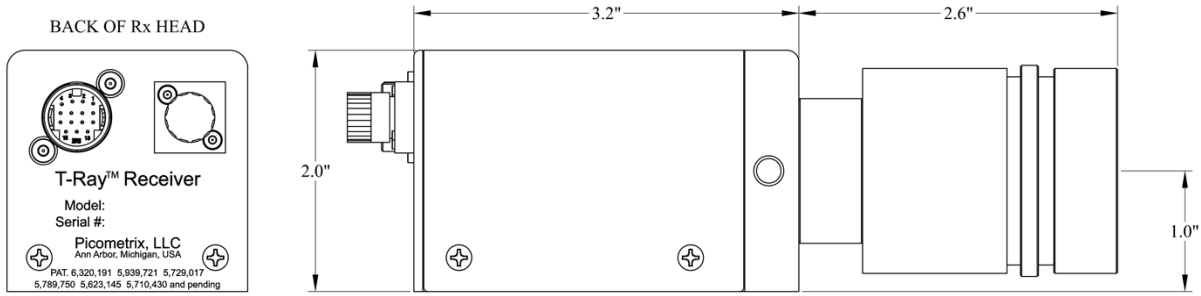
FEATURES

- Fiber coupled to allow movement
- Ultra-broadband measurement
- Transmitted or reflected data collection
- Use with collinear adapter (AXA4001)
- High signal to noise ratio
- Hot swappable
- Low noise to enable rapid data collection
- Adjustable lens tube for focusing
- Multiple lens configurations available

BENEFITS

- Quickly shift from transmission to reflection
- Perform THz spectroscopy or examine thin layers
- Multipurpose receiver minimizes system cost
- Compatible with multiple transmitters
- Minimize data acquisition time
- No risk of electrical damage
- Observe time dependent phenomena
- Optimum signal response
- Adjust spot size to measurement requirements

T-Ray[®] 5000 HRS4001 Receiver



Frequency	Signal/Noise	Units	Comments
0.10 THz	94.5	dB	
0.5 THz	89	dB	
1.0	75	dB	
2.0	56	dB	
3.0	37	dB	

INCLUDED	TYPICAL CONFIGURATION
1.5 in diameter lens (1, 3, or 6 in working distance)	Terahertz Controller
Adjustable lens tube	Umbilical pair (2, 5, 10, 30 m)
	Transmitter and Receiver

SPECIFICATIONS			
Polarization Extinction Ratio	>20:1		Horizontal
Standard Lens	25, 75, 150	mm	Collimating lens also available
Beam Diameter	38	mm	
Mounting configuration	1/4-20		threaded mounting hole
Size	7.5 x 7.5 x 15	cm	
Weight	275	gm	

QUALITY VISION

As a leader in terahertz instrumentation, Advanced Photonix, Inc is committed to providing the highest quality ultrafast products on the market. This quality vision commits us to continually improving our product designs and manufacturing processes in order to ensure the highest level of customer satisfaction. The company maintains a stringent quality control program to ensure that all products meet or surpass customer requirements