

# **Complete THz Offer**





Our Microxcam-384i-THz camera allows you to see through materials such as fabric, ceramics, plastic, leather, and cardboard.

- 384 x 288 pixels, uncooled microbolometer detector
- 35 µm pixel pitch
- 50 Hz, real time imaging
- Broadband sensitivity, 90 GHz to 10 THz
- Active area of detector 10 x 13 mm

# **Camera Options**

## **AR Coating**

- Is applied to the external detector window and optics
- Highly recommended to increase transmitted power to the detector
- Can achieve up to 67% transmission at specific wavelengths
- Reduces potential interference of the reflected beams with the transmitted signal beams



## Microshutter

- Performs the offset correction to compensate background
- Recommended if you use the camera in an environment where the temperature could vary or if the camera is not readily accessible

## **IR Filters**

- Used to directly block IR signal that is within the field of view that would otherwise be picked up by the detector
- Long-pass filter; 30 µm cut-off

# **Camera Features**

#### Software

- Microxcam Control Software is included with the camera
- The camera can communicate to the software via GigE

Allows users to:

- Set camera parameters
- Correct image data (gain and offset)
- Calibrate the camera (gain correction factor and bad pixel replacement)
- Save an image snapshot to disk
- Record a video in AVI format (8 bits)

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#### Beam Profiling



A set of features are available for beam profiling applications showing characteristics such as center position, radii, width, height, tilt angle. Furthermore we can add a gaussian fit to the image.

#### Software Development Kit (SDK)

- Included with the camera
- Create your own application
- Compatible to Labview programs

#### **External Trigger**

For customers wishing to initiate the capture of an image via an external signal, our camera has an SMA input gold-coated connector at the back of the unit.

### Noise Equivalent Power (NEP)

The NEP is a measure of the sensitivity of the uncooled microbolometer detector. The typical NEP for specific wavelengths is given below:

4.25 THz\*: 70pW
2.5 THz\*: 50pW
1.39 THz\*: 80pW
0.45 THz\*: 88pW
0.396 THz\*: 60pW
0.198 THz\*: 66pW
0.100 THz\*: 3nW

\*Measured with Golay Cell detector from Tydex

\*\*Measured with pyro detector TPR-D-69-THz from Gentec

The values above are for a detector with an optimized AR coated window. For windows without the AR coating, NEP values are 10-20% higher.

#### System Requirements

**OS**: Windows XP service pack 2 or more recent **Display Monitor**: Minimum resolution of 1280x1024 pixels is recommended to use the Software **GigE Ethernet card** 

#### **Two Modes of Operation**

- Transmission: the object under test is placed between the THz illumination system and the camera
- Reflection: the THz illumination system is located on the same side as the camera with respect to the object under test



# Ultrafast Optics F/#0.7

- High Resistivity Float Zone Silicon (HRFZ-Si)
- Images objects from 60 cm to infinity
- 44 mm focal length
- Field of View:

H-FOV: 17.36 degrees V-FOV: 13.06 degrees

D-FOV: 21.61 degrees

Illumination System



- 282 GHz ≈4 mW, 515 GHz ≈1.25 mW, Custom
- 4.5 x 6 inches, near flat-top illumination
- Matches aspect ratio of the FPA
- Compatible with reflection & transmission modes
- Alignment & calibration procedure

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