

## Transmission-type THz Microscope

# IR/V-TM100C-Q28

The THz microscope is composed of uncooled palm-size THz imager and high-power compact quantum cascade laser (QCL).

### Advantages

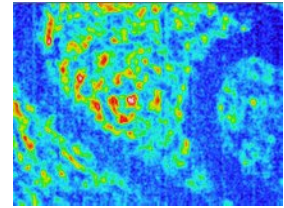
- **THz imager**
  - Uncooled microbolometer
  - QVGA format
  - High sensitivity
  - Real-time imaging
- **High-power QCL**
- **“Lock In” for SNR improvement**

### Applications

- **Biomedical Imaging**
- **Food inspection**  
(Detection of foreign substances)
- **Non-destructive testing**

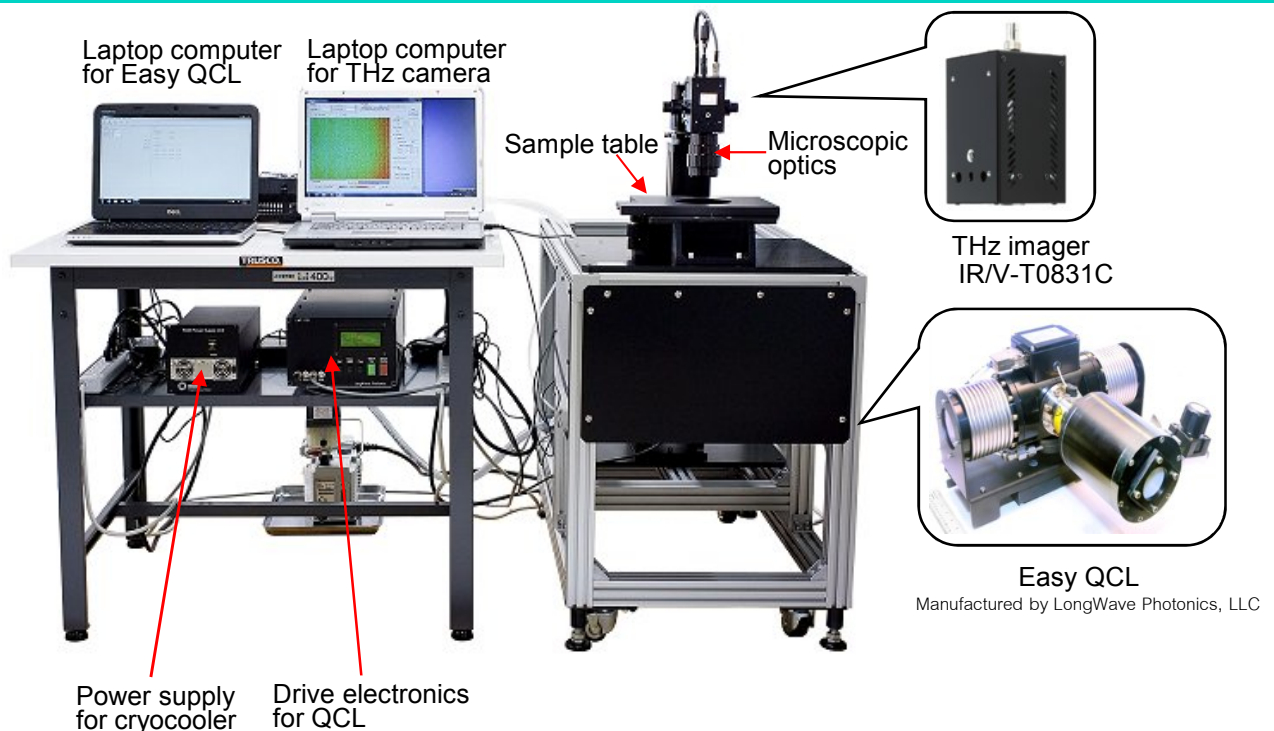


Clip in flour (Visible image)



Clip in flour (THz image)

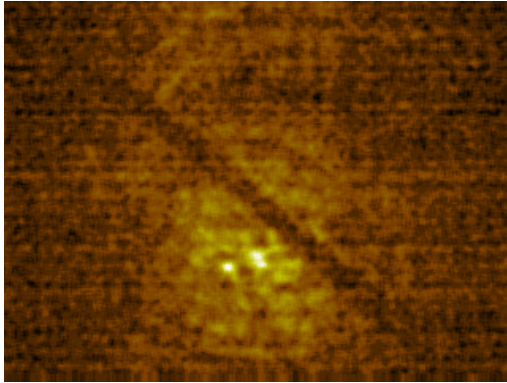
### System outlook



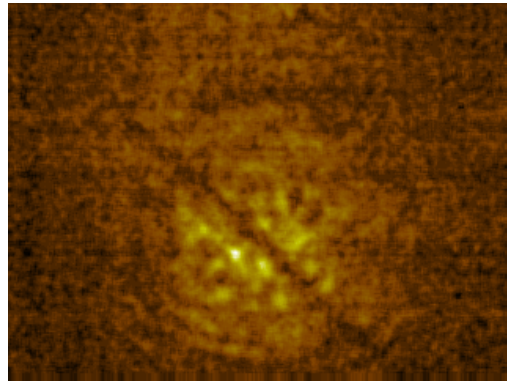
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### THz image examples

#### Foreign substances of similar densities in flour



Nylon String ( $\phi 300\mu\text{m}$ )



Human hair ( $\phi 70\mu\text{m}$ )

### Specifications

THz imager IR/V-T0831C	<b>Detector</b> <b>Frame rate</b> <b>Integration functions</b> <b>Lock-in imaging function</b>	Uncooled microbolometer, 320x240 pixels 8.5 Hz Frame integration, Spatial filter Synchronizing signal: 4.29Hz, 2.14Hz, 1.43Hz, 1.07Hz
THz Microscopic optics	<b>Magnification ratio</b> <b>Numerical aperture</b> <b>Working distance</b> <b>Infrared blocking filter</b>	e.g., 1 e.g., 0.5 e.g., 30 mm Cut-on wavelength : ca. 30 $\mu\text{m}$
THz illumination optics	<b>Illumination area</b>	e.g., From ca. 3 to 10 mm in diameter
THz radiation source	<b>THz source</b> <b>Frequency</b>	QCL (manufactured by LongWave Photonics, LLC) 2.83THz

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For further information, please contact:

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- Performances described herein are based on the NEC test condition.
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