

RIGI Camera

uncooled real-time THz imager



Equipped with IR-blocking THz filter



Beam profiling
 Non-destructive testing
 Industrial process control
 Sensitive to Toptica AG

Specifications of the RIGI Series

- **Detector:**Uncooled FPA micro-bolometer array
- **Pitch:**Varies starting from 15 μ m
- **Array size:**Varies from 80 \times 80 pixels to 1920 \times 1080 pixels
- **NEP per pixel:**< 1.5 pW/Hz at 4.6THz
- **Sensitivity:**< 1THz:18THz
- **Frame rate:**10Hz,30Hz,60Hz
- **Power supply:**USB-powered
- **Signal Output:**Digital:USB3.0
- **Weight:**<200g(small models)
- **Dimensions:**Approx,W3cm \times H3cm \times D4cm

Specifications of the THz filter(by QMC Inc,UK)

- **Cut-off Freq :**1;2;3;6;9;18THz
- **Average power transmission :**> 80%
- **Out-of-band transmission :**<0.1%

Image using QCL THz source

- **Frequency :**4.6THz
- **Power :**0.6 Erreur W
- **Integration time :**50s
- **Acquisition :**Single shot

World-record features(different models)

- **Pixel size:**Down to 15 μ m(smallest)
- **Camera size:**Coin size(smallest)
- **Active area:**> 29 \times 16mm (largest)
- **Array size:** > 1M Pixel (largest)

Image of concealed chopper wheel

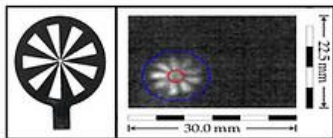
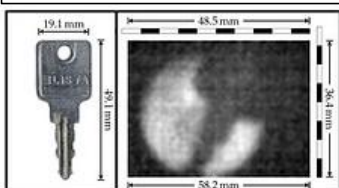
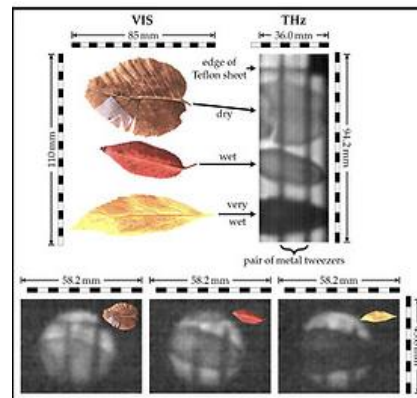


Image of concealed key in an envelope



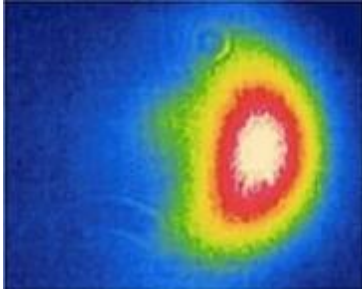
Detection of water contents in a leaves



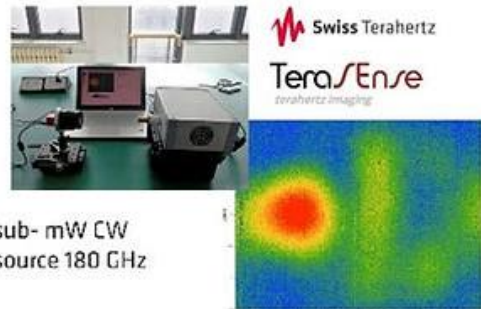
S:Series Beam profiling and focusing

Weak sources

- Ti:Sa Oscillator



- Terasense CW source



sub- mW CW
source 180 GHz

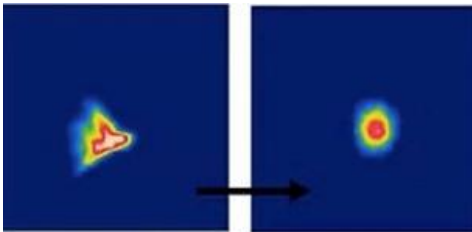
- Commercial Fiber Coupled HIHI PCA Sold by Toptica and Menlo



Swiss Terahertz

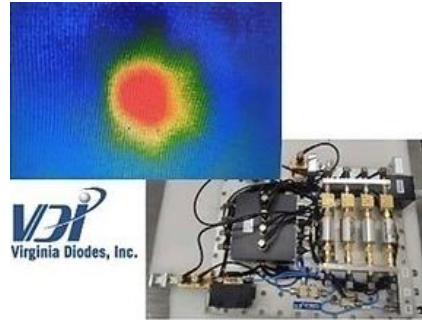
Compatible with Toptica Photonics Standrad PCA TDS System

- ZnTe



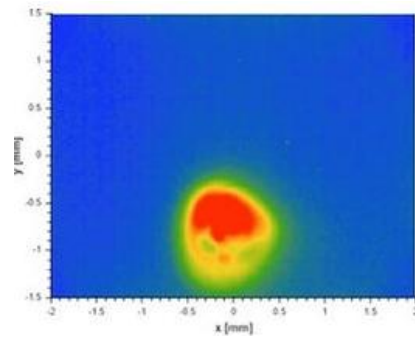
Using 200 μ J 800nm, small ZnTe

- VDI CW source



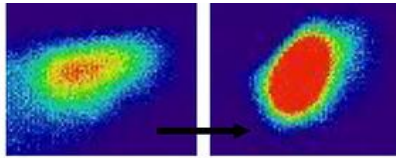
Sub-mW 480 GHz

- Air plasma



S:Series Beam profiling and focusing

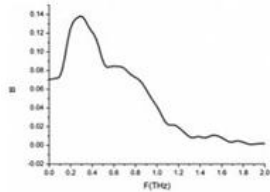
Weak sources



Tedious job becomes easy!

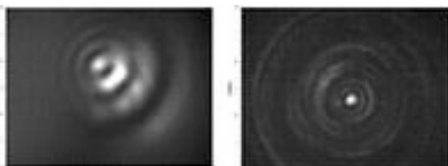


Crystal Camera



S:Series:
Sensitivity

QCL:Very sensitive:diffraction rings from the source

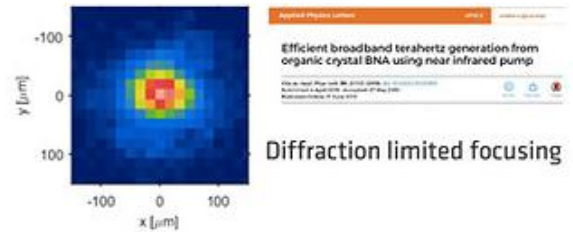


S:Series:
Demonstration of imaging
Image with QCL form Lytid using
small low contrast plastic



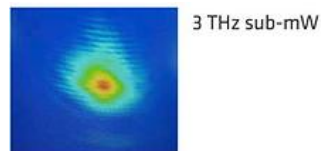
Lytid

- Lithium Niobate
- Organic crystal BNA



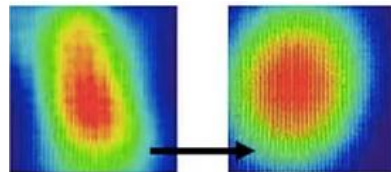
Diffraction limited focusing

- QCL sources



2.High overage power sources

- CO2-based THz system



Low power vs High power cameras



Image using CW THz source Frequency:0.76THz
Acquisition:Single frame(EMPA)