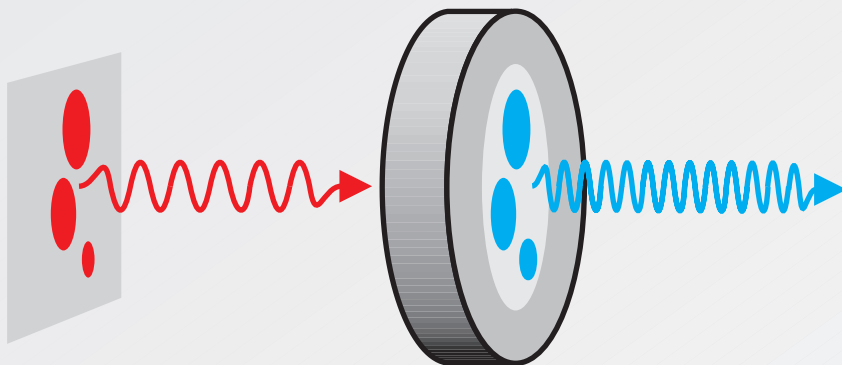


Presentation

AeroSense Orlando 13-17 April 98
IAP Münster
supported by
AIM Heilbronn

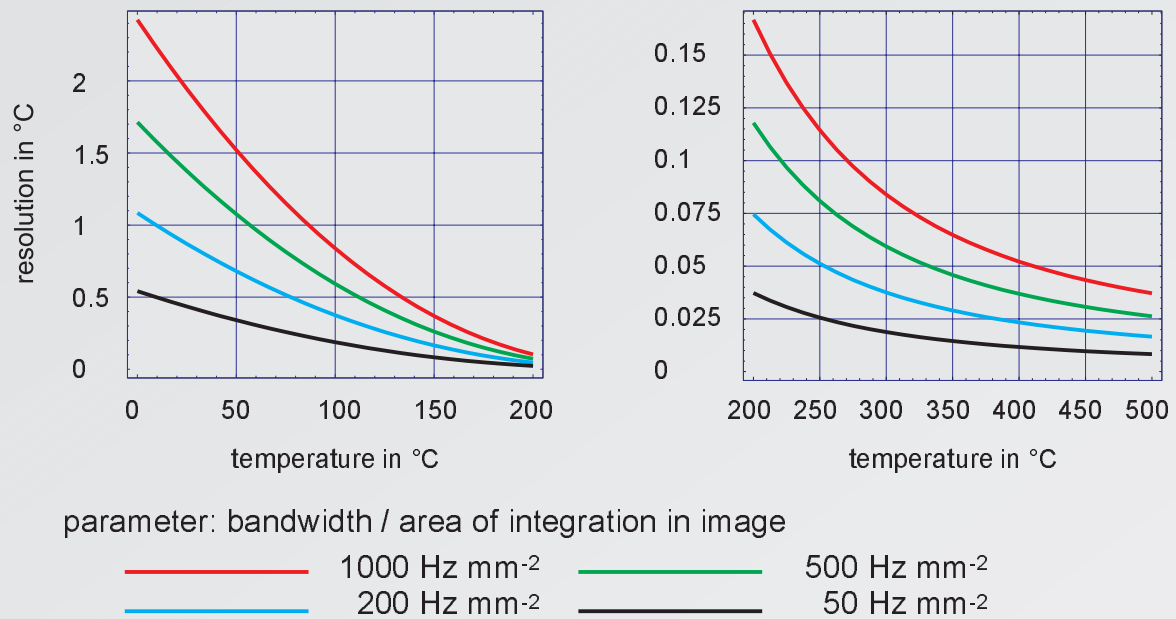
New Ultra Fast Direct IR to Visible Image Converter



Institute of Applied Physics
c/o Prof. Purwins
Münster University, Germany
FAX: +49 251 83 33513

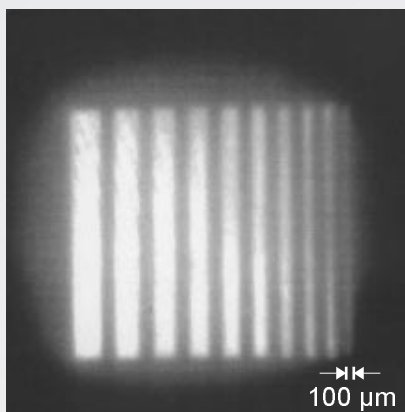
AIM
AEG INFRAROT-MODULE
c/o Dr. Cabanski
FAX +49 7131 6212 33

Temperature Resolution



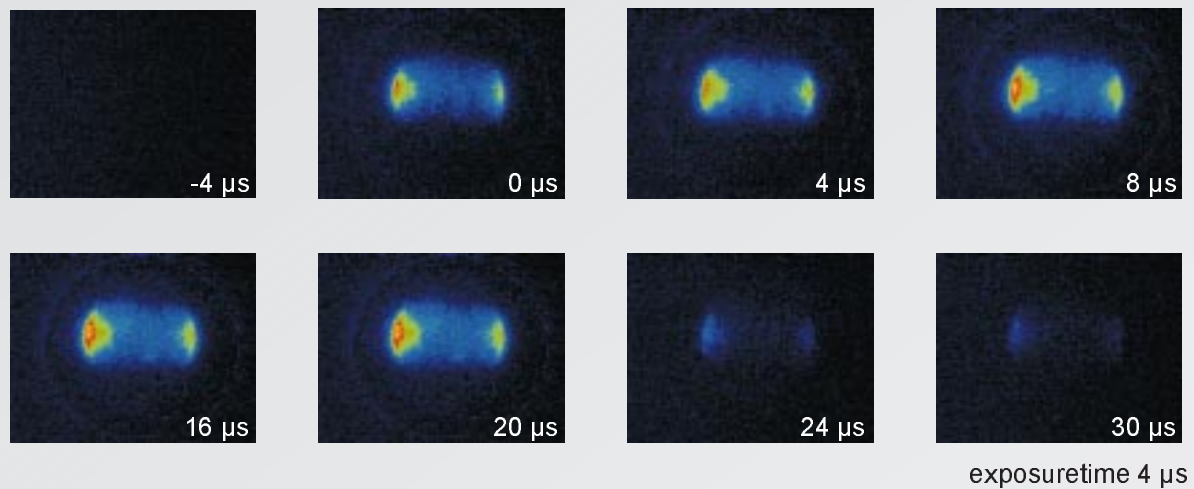
... better than 1 K at 30 °C

Spatial Resolution

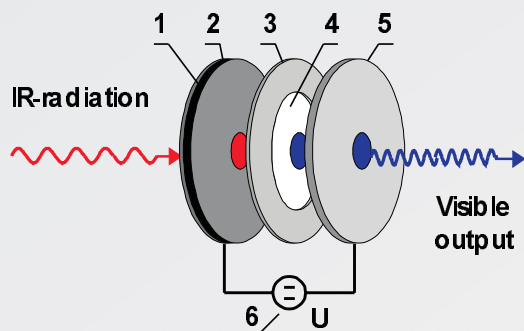


... order of 100 μm

Spatiotemporal Resolution

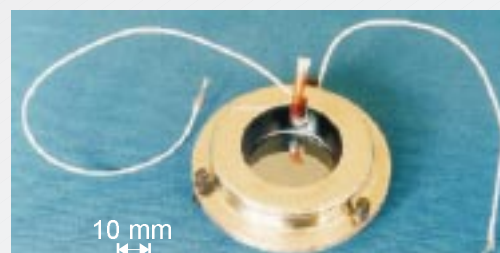


Operation and Converter Module



- 1 transparent cathode
- 2 photosensitive semiconductor
- 3 dielectric spacer
- 4 discharge gap
- 5 transparent anode
- 6 high voltage power supply

the cryogenic gas discharge converter module



Applications

Scientific and industrial

- ▶ laser profiling
- ▶ combustion
- ▶ high speed thermography
- ▶ laser and electron beam welding
- ▶ nondestructive testing
- ▶ high temperature manufacturing processes

Military

- ▶ threat warning

Technical Information

Principle

- ▶ quantum detector
- ▶ cooled detector technology (90 K)
- ▶ requested cooling power ≤ 1 W

Special features

- ▲ IR image acquisition with technology for the visible
- ▲ ultra fast response / recovery time
- ▲ 30 mm active area
- ▲ effective frame rate up to 10^6 fps¹⁾
- ▲ no need for pixel individual nonuniformity corrections
- ▲ NETD²⁾ < 1 K for target at room temperature

Limitations

- ▼ cooled (90 K)

¹⁾ frames per second

²⁾ noise equivalent temperature difference