



# SELECTED LINE

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INFRARED DETECTION  
MODULES



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# SELECTED LINE

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Products selected on the basis of high functionality and intended for many applications such as leak detection, gas analysis, temperature control for fast moving objects. Additional advantages of integration are improved high-frequency (HF) performance, output signal standardization and miniaturization. Selected Product Line guarantees a short order fulfillment date and an effective price.

# ABOUT US

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VIGO System supplies a wide range of products for photonics. Our offer includes both epitaxial semiconductor materials as well as infrared detectors and modules. All products are based on our own unique technology. VIGO System delivers off the shelf, OEM and non-standard solutions which allow you to develop products dedicated to your applications. Our company has a complete production line for infrared semiconductors and photonic devices.



SELECTED LINE

# UM SERIES

Integration of detector, preamplifier and TEC controller in compact, package has important advantages: miniaturization, better high-frequency performance, immunity to electromagnetic interferences (EMI), improved reliability, ease of use and reduced costs.



## APPLICATIONS

### UM-I-6

- **MWIR gas detection, monitoring and analysis**
- **Flue gas denitrification**
- **Fuel combustion monitoring at power plants and other industrial facilities**
- **Contactless temperature measurements**



### UM-10.6, UM-I-10.6

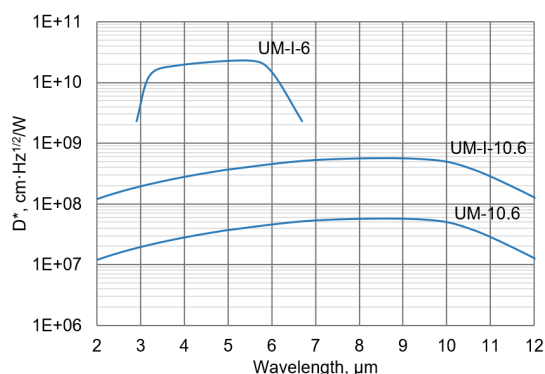
- **Gas detection, monitoring and analysis**
- **CO<sub>2</sub> laser (10.6 μm) measurements**
- **Laser power monitoring and control**
- **Laser beam profiling and positioning**
- **Laser calibration**



## FEATURES

- **Integrated TEC controller and fan**
- **Single power supply**
- **DC monitor**
- **Optimized for effective heat dissipation**
- **Compatible with optical accessories**
- **Cost effective OEM version available**
- **Universal and flexible**
- **Quantity discounted price**
- **Fast delivery**

## SPECTRAL RESPONSE

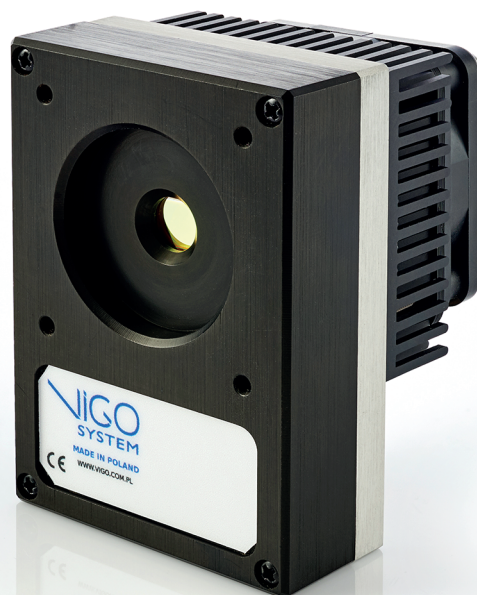


Model	Optimal wavelength $\lambda_{opt}$ , μm	Optical area $A_o$ , mm×mm	Detectivity $D^*(\lambda_{opt})$ , cm·Hz <sup>1/2</sup> /W	Output voltage responsivity $R_v(\lambda_{opt}, R_L=50\Omega)$ , V/W	-3dB Bandwidth
<b>UM-I-6</b>	6.0	1×1*	$\geq 1.5 \times 10^{10}$	$\geq 3.6 \times 10^4$	DC to $\geq 1$ MHz
<b>UM-10.6</b>	10.6	1×1	$\geq 4.0 \times 10^7$	$\geq 1.0 \times 10^2$	DC to $\geq 70$ MHz
<b>UM-I-10.6</b>	10.6	1×1*	$\geq 3.7 \times 10^8$	$\geq 6.5 \times 10^2$	DC to $\geq 100$ MHz

\* Hyperhemispherical microlens

# UHSM SERIES

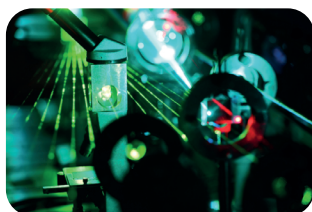
Many applications require high-time resolution or, equivalently, high frequency-bandwidth optical detection. For these applications, VIGO developed ultra-high-speed detection modules series. It was necessary to apply a special design, both in terms of electronics and mechanics. The system was designed to support the propagation of high-speed signals, mounting of the detector to the enclosure being as close as possible to a PCB board and input circuits. The manufacturing process requires fine tuning of the circuit with a specific detector.



## APPLICATIONS

It is a very convenient and user-friendly module series and can be used in many applications like:

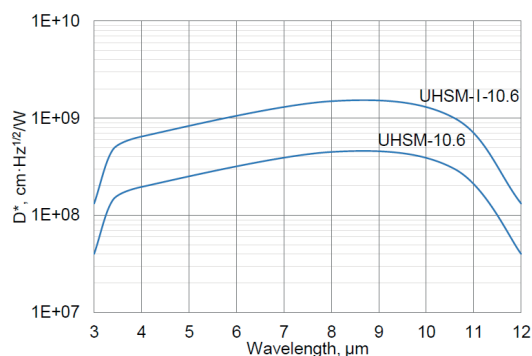
- Dual-comb spectroscopy
- Heterodyne detection
- Characterization of pulsed laser sources
- Time-resolved fluorescence spectroscopy systems
- LIDAR
- Object scanners
- Free-space optical communication
- Telemetry



## FEATURES

- High S/N ratio
- Wide frequency bandwidth over 1 GHz
- Integrated TEC controller and fan
- Single power supply
- DC monitor
- Optimized for effective heat dissipation
- Compatible with optical accessories
- Fast delivery

## SPECTRAL RESPONSE



Model	Optimal wavelength $\lambda_{opt}$ , $\mu\text{m}$	Optical area $A_0$ , mm $\times$ mm	Detectivity $D^*$ ( $\lambda_{opt}$ ), cm $\cdot$ Hz $^{1/2}$ /W	Output voltage responsivity $R_v$ ( $\lambda_{opt}$ , $R_L=50\Omega$ ), V/W	-3dB Bandwidth
UHSM-10.6	10.6	0.05 $\times$ 0.05	$\geq 3.0 \times 10^8$	$\geq 3.0 \times 10^3$	300 Hz to $\geq 1.0$ GHz
UHSM-I-10.6	10.6	1 $\times$ 1*	$\geq 1.0 \times 10^9$	$\geq 7.0 \times 10^2$	300 Hz to $\geq 700$ MHz

\* Hyperhemispherical microlens



SELECTED LINE

# LABM SERIES

Programmable detection modules enable control of many parameters, such as bandwidth and gain, even during normal operation. This opens up completely new possibilities to designers of measuring systems. In a fully analogue input circuit, many switching elements are used, even with a variable, digitally-controlled capacitance to compensate the transimpedance input stage.



## APPLICATIONS

### LABM-I-6

- **MWIR gas detection, monitoring and analysis**
- **Flue gas denitrification**
- **Fuel combustion monitoring at power plants and other industrial facilities**
- **Breath analysis**
- **Explosion prevention**
- **Emission control (exhaust fumes, greenhouse gases)**
- **Contactless temperature measurements**



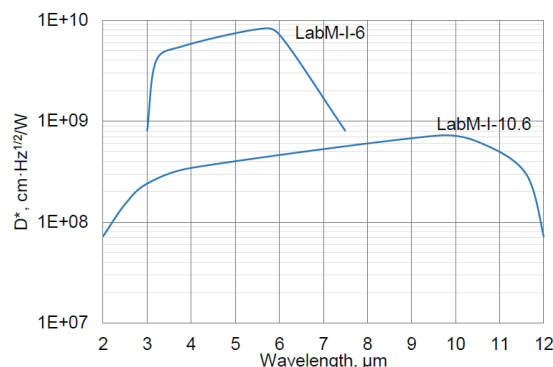
### LABM-I-10.6

- **Gas detection, monitoring and analysis**
- **CO<sub>2</sub> laser (10.6 μm) measurements**
- **Laser power monitoring and control**
- **Laser beam profiling and positioning**
- **Laser calibration**
- **Semiconductor manufacturing**
- **Glucose monitoring**
- **Dentistry**

## FEATURES

- **Very high performance and reliability**
- **DC offset compensation**
- **Configurable bandwidth**
- **Coupling AC/DC**
- **Compatible with optical accessories**
- **Versatility and flexibility**
- **Quantity discounted price**
- **Fast delivery**

## SPECTRAL RESPONSE



Model	Optimal wavelength $\lambda_{opt}$ , μm	Optical area $A_0$ , mm×mm	Detectivity $D^*(\lambda_{opt})$ , cm·Hz <sup>1/2</sup> /W	Output voltage responsivity $R_V(\lambda_{opt}, R_L=50\Omega)$ , V/W	-3dB Bandwidth
LabM-I-6	6.0	1×1*	≥ 7.2×10 <sup>9</sup>	≥ 2.0×10 <sup>4</sup>	10 Hz to ≥ 200 MHz adjustable
LabM-I-10.6	10.6	1×1*	≥ 6.0×10 <sup>8</sup>	≥ 2.0×10 <sup>3</sup>	DC to ≥ 100 MHz adjustable

\* Hyperhemispherical microlens



# MICROM SERIES

MicroM is a micro-size detection module with uncooled photovoltaic multiple junction detector. It is optimized for operation in the spectral range from 2  $\mu\text{m}$  to 12  $\mu\text{m}$  and frequency bandwidth from DC to 10 MHz. It is easy to assemble in space-limited measuring systems for long wavelength infrared applications.



## APPLICATIONS

It is a very convenient and user-friendly module series and can be used in many applications like:

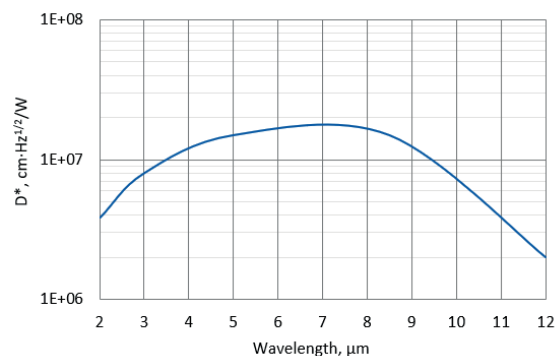
- Gas detection, monitoring and analysis
- CO<sub>2</sub> laser (10.6  $\mu\text{m}$ ) measurements
- Laser power monitoring and control
- Laser beam profiling and positioning
- Laser calibration



## FEATURES

- Very small size
- Convenient to use
- Versatility
- Cost effective OEM version available
- Quantity discounted price
- Fast delivery

## SPECTRAL RESPONSE



Model	Optimum wavelength $\lambda_{\text{opt}}, \mu\text{m}$	Optical area $A_0, \text{mm}\times\text{mm}$	Detectivity $D^*(\lambda_{\text{opt}}), \text{cm}\cdot\text{Hz}^{1/2}/\text{W}$	Output voltage responsivity $R_V(\lambda_{\text{opt}}, R_L=50\Omega), \text{V/W}$	-3dB Bandwidth
microM-10.6	10.6	1×1	$\geq 5.0\times 10^6$	$\geq 5.0\times 10^1$	DC to $\geq 10$ MHz



# WHY VIGO SYSTEM?

UNIQUE  
TECHNOLOGY

1

HIGH  
RELIABILITY

2

ACCURACY OF  
MEASUREMENT

3

CUSTOM-FIT  
SOLUTIONS

4

10,000  
CAPACITY OF  
EPI-WAFERS/  
YEAR

5

10,000  
CAPACITY OF  
DETECTORS/  
YEAR

6



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