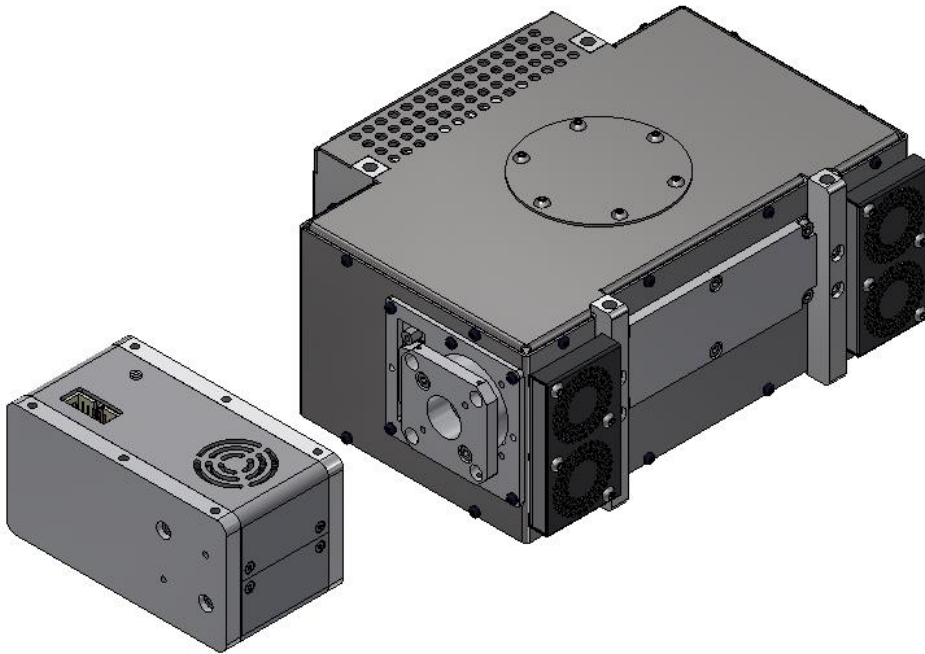


## DATASHEET : FTIR-OEM010

# FTIR-OEM010 & FTIR-OEM100

Interferometers with integrated IR source  
& detector modules for modular and OEM applications



The ARCOptix FTIR OEM modules have been developed for system integrators and customers looking for a custom FTIR measurement system. The modular solution consists of essentially of 2 elements:

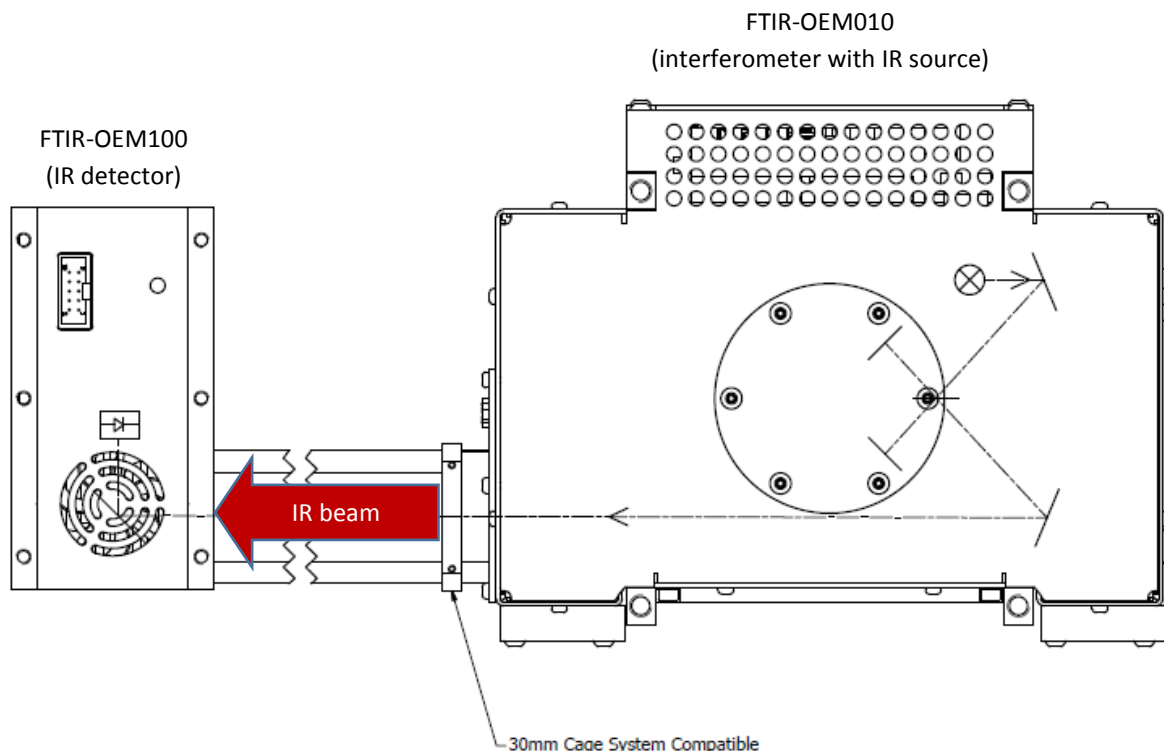
- Interferometer module with integrated IR source (FTIR-OEM010)
- Detector module (FTIR-OEM100)

## DATASHEET : FTIR-OEM010

### ▪ OEM system layout

The FTIR-OEM modules are meant for integration in advanced measurement configurations, where a sampling system (such as a short pass or a White multi-pass gas cell for example) is included in the optical path of FTIR system between the interferometer and the detector. The modules are easily fixed on a breadboard for prototyping (appropriate accessories for fixing the modules on a standard 25mm pitch M6 breadboards are available as an option).

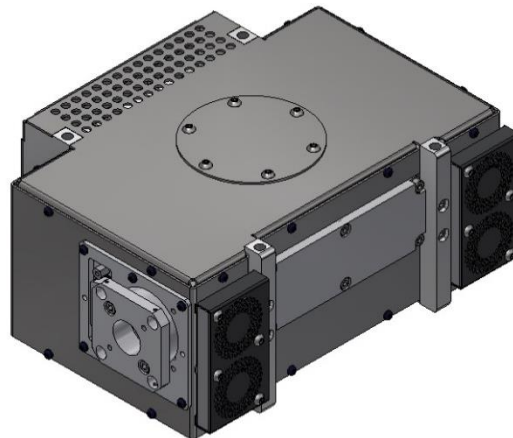
A schematic illustration of the beam path is given below. The IR beam exiting the interferometer module is collimated with a diameter of 12.7mm and a divergence of approx. 28mrad (half angle). The detector module includes an off-axis parabola that focuses the light onto the IR detector. Your sampling system is to be placed between the FTIR-OEM010 interferometer module that FTIR-OEM100 IR detector module, that can both accommodate 30mm cage system rods for rapid prototyping.



## DATASHEET : FTIR-OEM010

### ▪ Interferometer module: FTIR-OEM010

The Arcoptix FTIR-OEM010 is a compact and rugged interferometer module based on a permanently aligned, double-retro-reflector interferometer design. The balanced swinging arm of the interferometer rotates on wear-free flexure system, driven contactless by a magnetic actuator. The system uses a solid-state laser as internal reference, kept at constant temperature to keep the wavelength scale constant. The FTIR-OEM010 includes an internal high-brightness IR source glowing at approx. 1550K.



### General specifications

<b>Interferometer type</b>	Permanently aligned, double-retro-reflector design
<b>Interferometer mirror diameter</b>	12.7mm
<b>Beamsplitter material</b>	ZnSe (Spectral range 2-16 $\mu$ m / 5000-650 $\text{cm}^{-1}$ ) or CaF <sub>2</sub> (Spectral range 0.9-8.5 $\mu$ m / 11'000-1200 $\text{cm}^{-1}$ )
<b>Reference laser</b>	Temperature-stabilized solid-state, 850nm
<b>A/D Converter</b>	24 bits
<b>Resolution</b>	4 $\text{cm}^{-1}$ (unapodized)
<b>Wavenumber repeatability</b>	<10 PPM
<b>Scan frequency</b>	1 spectrum / second
<b>Absorbants</b>	User- replaceable molecular sieves
<b>Infrared source</b>	Integrated SiC emitter (20W), T~1550 K, user replaceable
<b>Software interface</b>	Windows 7/10 software and API for controlling the instrument via custom software included
<b>Operating ambient temperature</b>	5 °C to 40 °C
<b>Storage temperature</b>	-20°C to 60 °C
<b>Dimensions</b>	165mm x 145mm x 82mm
<b>Weight</b>	2.2kg
<b>Power consumption</b>	30W (without detector)

### Ordering Information

Product code	FTIR-OEM010-ZNSE-SIC	FTIR-OEM000-CAF2-SIC
<b>Description</b>	Interferometer module with ZnSe beamsplitter and integrated IR source	Interferometer module with CaF <sub>2</sub> beamsplitter and integrated IR source

## DATASHEET : FTIR-OEM010

### ▪ Detector module: FTIR-OEM100

The FTIR-OEM100 is an infrared detector module designed to operate in conjunction with the FTIR-OEM000 interferometer module. The detector module has internal optics to focus a collimated beam onto the detector active element. The 4-stage cooling of the MCT detector is driven by a TEC controller and 4 different gain levels can be adjusted on the detector amplifier. Detectors with spectral ranges up to 12 microns are available.



### General specifications

<b>Detector type</b>	Photovoltaic MCT (Mercury-Cadmium-Telluride)
<b>Detector active size</b>	1mm x 1mm
<b>Focusing optics</b>	Off-axis parabola, f=18mm
<b>Input aperture diameter (optical)</b>	12.7mm
<b>FOV (half angle)</b>	28 mrad
<b>Cooling</b>	TE-cooled, 4 stages
<b>Amplifier</b>	Transimpedance amplifier, 4 gain levels selectable via I2C bus.
<b>Preamplifier bandwidth</b>	0-60kHz
<b>Power supply</b>	12V / 10W
<b>Dimensions</b>	93mm x 75mm x 66mm
<b>Weight</b>	250g

### Detector spectral ranges & sensitivity

Detectors with different spectral ranges are available. When choosing, please consider that shorter cut-off detectors offer a better sensitivity (Peak D\*). Note that detectors with different spectral ranges or a different number of cooling stages are available on request.

Product code	FTIR-OEM100-060-2TE	FTIR-OEM100-090-4TE	FTIR-OEM100-120-4TE
<b>Detector range [μm]</b>	2-6	1.5-9	2-12
<b>Detector range [cm-1]</b>	5000-1700	5000-1100	5000-830
<b>Peak D* [cm Hz<sup>1/2</sup>W<sup>-1</sup>]</b>	>1.0x10 <sup>11</sup>	>8x10 <sup>9</sup>	>2.5x10 <sup>9</sup>