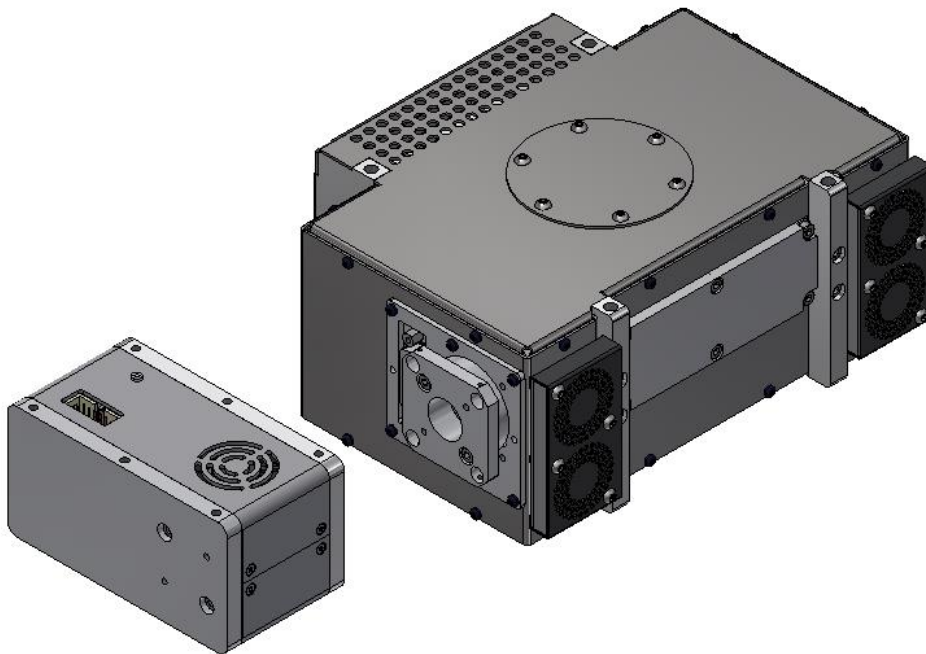


DATASHEET : FTIR-OEM010

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:

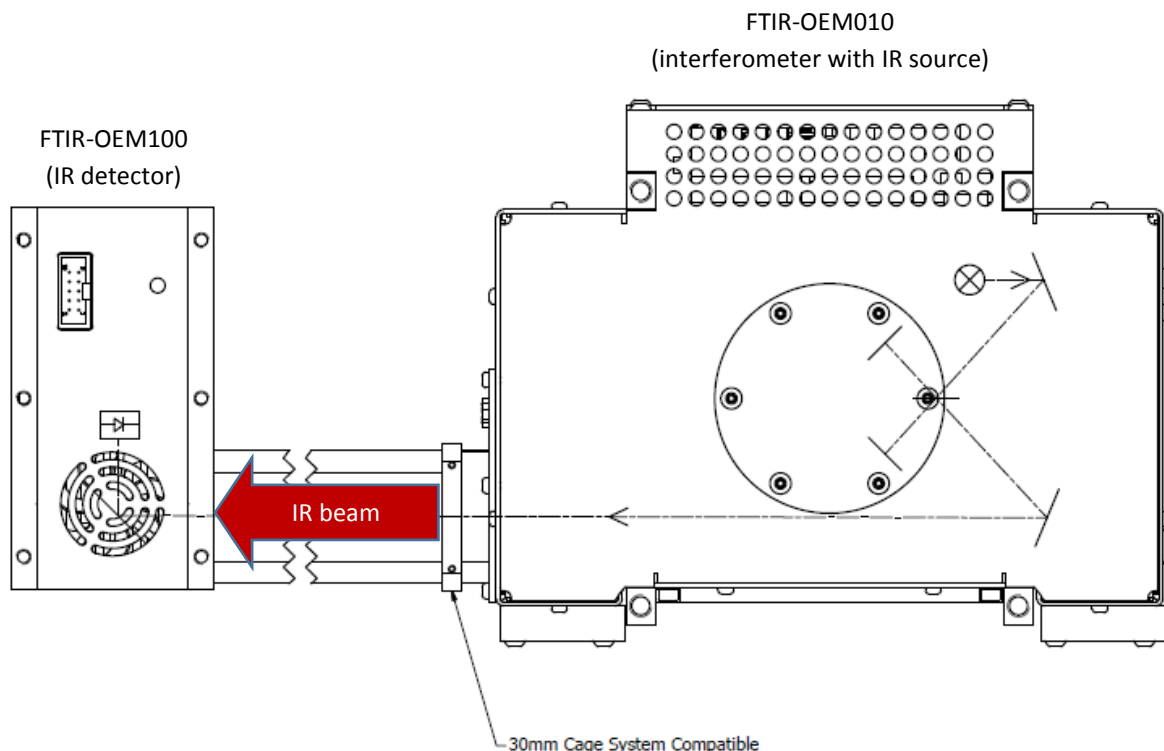
- Interferometer module with integrated IR source (FTIR-OEM010)
- Detector module (FTIR-OEM100)

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).

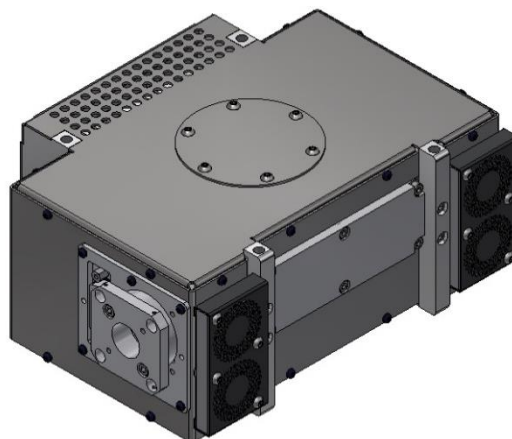
A schematic illustration of the beam path is given below. The IR beam exiting the interferometer module is collimated with a diameter of 12.7mm and a divergence of approx. 28mrad (half angle). The detector module includes an off-axis parabola that focuses the light onto the IR detector. Your sampling 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.



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■ 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

Interferometer type	Permanently aligned, double-retro-reflector design
Interferometer mirror diameter	12.7mm
Beamsplitter material	ZnSe (Spectral range 2-16 μ m / 5000-650 cm^{-1}) or CaF ₂ (Spectral range 0.9-8.5 μ m / 11'000-1200 cm^{-1})
Reference laser	Temperature-stabilized solid-state, 850nm
A/D Converter	24 bits
Resolution	4 cm^{-1} (unapodized)
Wavenumber repeatability	<10 PPM
Scan frequency	1 spectrum / second
Absorbants	User- replaceable molecular sieves
Infrared source	Integrated SiC emitter (20W), T~1550 K, user replaceable
Software interface	Windows XP/Vista/7/8 software and API for controlling the instrument via custom software included
Operating ambient temperature	5 °C to 40 °C
Storage temperature	-20°C to 60 °C
Dimensions	165mm x 145mm x 82mm
Weight	2.2kg
Power consumption	30W (without detector)

Ordering Information

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

Detector type	Photovoltaic MCT (Mercury-Cadmium-Telluride)
Detector active size	1mm x 1mm
Focusing optics	Off-axis parabola, f=18mm
Input aperture diameter (optical)	12.7mm
FOV (half angle)	28 mrad
Cooling	TE-cooled, 4 stages
Amplifier	Transimpedance amplifier, 4 gain levels selectable via I2C bus.
Preamplifier bandwidth	0-60kHz
Power supply	12V / 10W
Dimensions	93mm x 75mm x 66mm
Weight	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
Detector range [μm]	2-6	1.5-9	2-12
Detector range [cm-1]	5000-1700	5000-1100	5000-830
Peak D* [cm Hz^{1/2}W⁻¹]	>1.0x10 ¹¹	>8x10 ⁹	>2.5x10 ⁹