

NLIR

Nonlinear Infrared Sensors

Mid-Infrared Spectrometers

Fast – Sensitive – Rugged



The NLIR mid-infrared Fiber Spectrometer brings a novel approach to infrared light sensing that has unprecedented combinations of sensitivity, speed, resolution and measurement versatility as its foremost advantages.

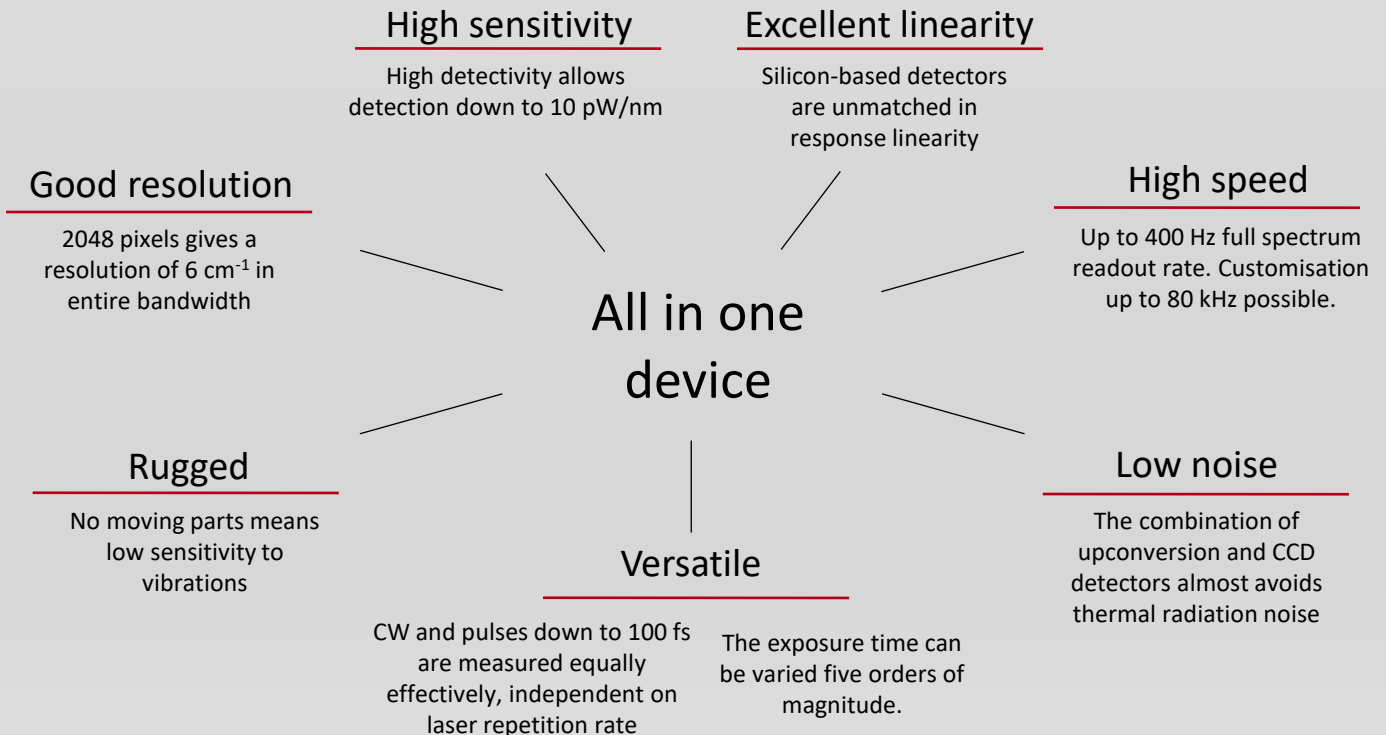
Basic specifications

Bandwidth	2.0 μm – 5.3 μm
Resolution	6 cm^{-1}
Exposure time	11 μs – 1 s
Max. spectrum readout rate	400 Hz
Optical input	100-500 μm multimode fibre

See the following page for full specifications

NLIR Mid-Infrared Fiber Spectrometer

– a new paradigm in mid-infrared light detection



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Mid-infrared (MIR) spectroscopy is used in both industry and research for non-invasive characterisation of gasses, liquids and solids as well as characterisation of light sources. The NLIR MIR Fibre Spectrometer is based on a novel measurement scheme that upconverts the MIR light to near-visible light. Silicon-based near-visible light detectors, for example CCDs, are far superior to MIR light detectors in terms of detectivity, speed and noise. The NLIR upconversion technology therefore brings these attractive features, and the advantages that follow, to the MIR regime.

NLIR MIR Fibre Spectrometer	
Bandwidth	2.0 μm – 5.3 μm
Resolution ^a	6 cm^{-1}
Exposure time	11 μs – 1 s
Sensitivity at 3.7 μm ^b	35 Counts/(ms·(nW/nm))
Minimum input power at 3.7 μm at 1 s	10 pW/nm (–80 dBm/nm)
Saturation input power at 3.7 μm at 11 μs	0.2 mW/nm (–7 dBm/nm)
Bit depth	16 bit
Maximum full spectrum readout rate	400 Hz
Optical input ^c	100-500 μm multimode fiber (Free space optional)
Connection	USB
Physical dimensions (h × l × w)	110 mm × 200 mm × 310 mm

^a Resolution down to 6 cm^{-1} with 100 μm fiber; for larger fibers, the resolution is 8 cm^{-1}

^b 3.7 μm represents an average value of the sensitivity

^c Input fiber can be dismantled to use free-space input but the spectral response might be inaccurate