

## DATASHEET

# ARCOptix FT-NIR *Rocket* 0.9-2.6 $\mu$ m

## Fibered near-infrared Fourier-transform spectrometer



If you are looking for high performance, compact and affordable NIR spectrometer, the ARCOptix FT-NIR Rocket is the instrument that you need. Thanks to its permanently aligned interferometer and temperature-stabilized, solid-state reference laser, the FT-NIR Rocket offers excellent stability in both intensity and wavelength scales. The FT-NIR Rocket fibered spectrometer is compatible with light sources and sampling accessories typically used with array-detector based NIR spectrometers.

### ■ Benefits

- Broad wavelength range 0.9-2.6 $\mu$ m
- High resolution of 4cm<sup>-1</sup> (<1nm@1 $\mu$ m to <5nm@2.5  $\mu$ m)
- Excellent stability in intensity and wavelength
- Very good sensitivity, available with 2TE cooled InGaAs
- Very compact and rugged, easy to use

### ■ Applications

- Transmission, diffuse reflectance
- Light source measurement (NIR Lasers, LED, Solar,...)
- Material identification and quantification in various fields such as geology, food and beverage industry, drug & medical diagnostics

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### ■ Specifications

Product code	FTNIR-L1-026-0TE	FTNIR-L1-025-2TE
Detector	Extended type InGaAs (uncooled)	Extended type InGaAs 2-stage TE-cooled
Spectral range	0.9–2.6µm (11000–3850cm <sup>-1</sup> )	0.9–2.5µm (11000–4000cm <sup>-1</sup> )
Interferometer type	Permanently aligned with dual retro-reflector	
Internal reference laser	Solid-state 795nm	
Resolution	4 or 8 cm <sup>-1</sup> (user selectable)	
Minimum measurement cycle time	1 sec	
Signal-to-noise ratio (SNR)	>30'000:1 <sup>i</sup>	
Wave-number repeatability	<20 PPM	
Optical fiber input	SMA 905 connector, up to 1mm fiber core diameter, NA=0.25	
Communication interface	USB 2.0	
Power requirements	7.5-12V (1-6W depending on versions)	
Software interface	Windows 7/10 software	
Operating temperature / humidity	5 to 35°C / non condensing	
Storage temperature	-10 to 60°C	
Dimensions	180mm x 126mm x 78mm	
Weight	1.7 KG	

<sup>i</sup> Measured with a 20W halogen lamp in transmission mode, 5s measurement, around peak sensitivity wavelength, Norton-Beer weak apodization, linearly corrected baseline, resolution setting 8 cm<sup>-1</sup>

SPECIFICATIONS ARE SUBJECT TO CHANGES WITHOUT NOTICE.

Please contact [info@arcoptix.com](mailto:info@arcoptix.com)

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# ArcLight NIR & IR lamps

## Stabilized Broadband Light Sources for VIS-NIR and IR

The ArcOptix ArcLight NIR & IR are versatile lamps optimized for the VIS-NIR (400 nm – 4,000 nm) or MIR (1-25 $\mu$ m) spectral ranges. The lamps feature an electronically stabilized power supply, a variable mechanical attenuator, and are supplied with a removable fiber coupler enabling free-space or fiber-coupled operation.



### ■ Features

- Near- and Mid-infrared versions available (0.4-4 $\mu$ m or 1-25 $\mu$ m)
- Electronically stabilized
- Brightest available lamps
- With mechanical intensity attenuator
- Free-space or fiber-coupled operation (removable fiber coupler)

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### Specifications

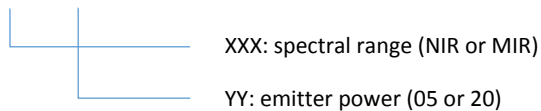
Models	ArcLight NIR	ArcLight MIR
Lamp type	QTH (halogen)	SiC globar
Spectral Range [ $\mu\text{m}$ ]	0.4-4	1-25
Spectral Range [ $\text{cm}^{-1}$ ]	25,000-2,500	10,000 - 400
Temperature [K]	$\sim 2,850$	$\sim 1,400$
Rated Lifetime [hours]	4,000	10,000
Lamp power [W]	5 or 20	20
Removable fiber-optic coupler	NA = 0.25 BK7 lens	NA = 0.3 gold-coated off-axis parabolic mirror
Output beam diameter [mm]	12.7mm	
Operational temperature range [ $^{\circ}\text{C}$ ]	5-40	
Attenuator	Manual iris diaphragm	
Power requirement	12V via OD2.5mm/ID2.1mm power jack (100-240V AC to 12V DC converter included)	
Dimensions	92mm x 92mm x 43mm (without fiber coupler) 140mm x 92mm x 43mm (with fiber coupler)	
Weight	390 g	

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### Ordering Information

The ArcLight is available in different versions:

ARCLIGHT-XXX-YY



ARCLIGHT -NIR-05: near-infrared lamp with 5W QTH bulb

ARCLIGHT -MIR-20: mid-infrared lamp with 20W emitter

Please contact [info@arcoptix.com](mailto:info@arcoptix.com) for more information.

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# NIR and IR optical fibers



Our FT Rocket fibered spectrometers can be used with the following NIR and IR fiber cables that Arcoptix can provide. Standard fiber connectors are SMA-905 on both sides, and the fibers are protected by a polymer jacket. Other connectors or protections are available on request.

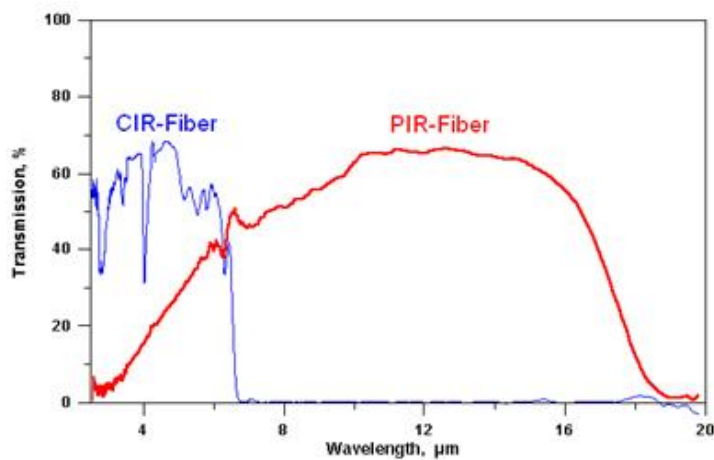
### ■ Specifications

	NIR	CIR	PIR
<b>Transmission spectral range</b>	0.4-2.6 $\mu\text{m}$ (25'000-3'800 $\text{cm}^{-1}$ )	1-6 $\mu\text{m}$ (10'000-1'600 $\text{cm}^{-1}$ )	3-18 $\mu\text{m}$ (3'300-550 $\text{cm}^{-1}$ )
<b>Material</b>	Low-OH fused silica	Chalcogenide glass	Polycrystalline glass
<b>NA</b>	0.22	0.3	0.3
<b>Core diameter [<math>\mu\text{m}</math>]</b>	600, 1000	500	900
<b>Core refractive index</b>	1.44	2.4	2.15
<b>Max operating temperature</b>	125	100	140
<b>Minimal bending radius [mm]</b>	100, 120	100	130
<b>Standard lengths [m]</b>	0.25, 0.5, 1.0	1.0	1.0

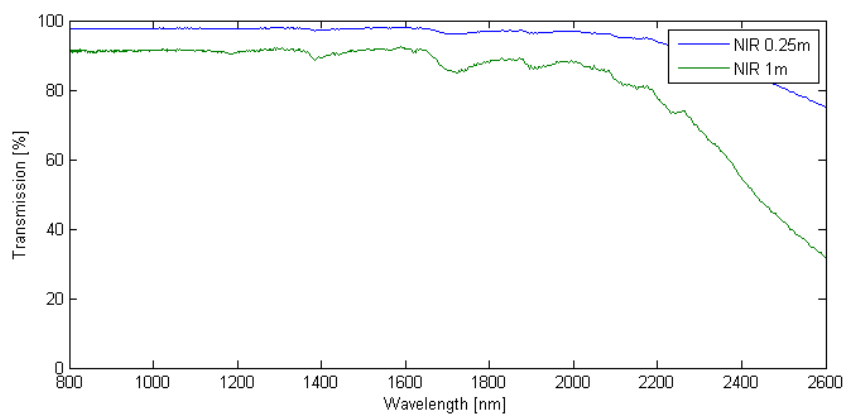
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### ■ Spectral transmission graphs

Spectral transmission of 1m long CIR and PIR fibers:

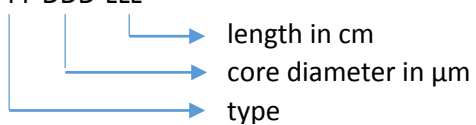


NIR fiber, 0.25m and 1m long:



### ■ Ordering Information

FIB-TTT-DDD-LLL



Example: FIB-CIR-500-100: Chalcogenide infrared fiber, 500  $\mu\text{m}$  core diameter, length 100cm

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# ArcSphere-50-Hal

## Integrating sphere with internal halogen light source



The ArcSphere-50-Hal is an integrating sphere with internal halogen light source for diffuse reflection VIS/NIR measurements. It has an internal diameter of 50mm, a sample port of 10mm with a sapphire window, and an SMA fiber connector to connect to the spectrometer

The internally illuminated design provides a much stronger signal (at least 50 times more) than spheres illuminated via fiber optic coupled light sources.

### ■ Specifications

<b>Sphere internal diameter</b>	<b>50 mm</b>
<b>Sample port diameter</b>	10 mm
<b>Sample port window material</b>	Sapphire
<b>Spectral range</b>	360-2500nm
<b>Measurement port</b>	SMA-905
<b>Light source type</b>	Halogen 5W
<b>Bulb temperature</b>	2700 K
<b>Bulb life-time</b>	4000 hours
<b>Power supply</b>	12V / 1A
<b>External dimensions</b>	70mm x 70mm x 90mm

### ■ Ordering Information

<b>Integrating sphere with internal light source</b>	ARCSphere-50-HAL
<b>Replacement bulb</b>	QTH-12-5