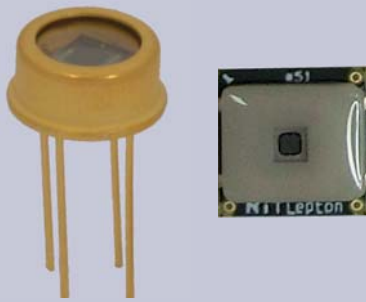


# LEPTON SERIES

Single element MWIR detectors with different geometries, packaging solutions and preamplifier boards

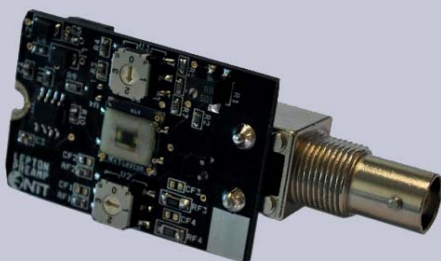
Uncooled, high-speed operation at room temperature  
(1- / 2- / 3-TEC cooled options also available)



LEPTON DETECTOR  
Uncooled, TO-5 / SMD packages



LEPTON DETECTOR  
n-TEC cooled, TO-8 package

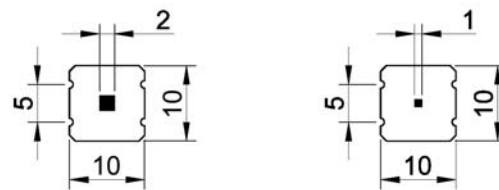


LEPTON ANALOG PREAMPLIFIER

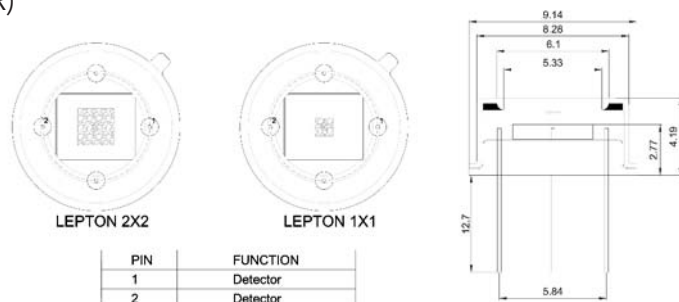


LEPTON PREAMPLIFIER  
WITH USB OUTPUT

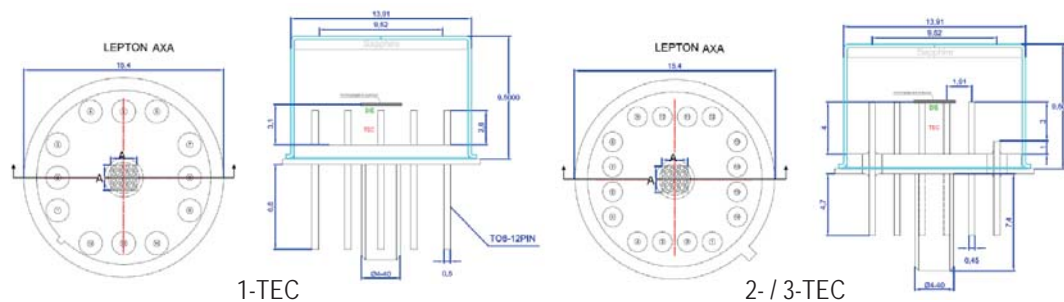
- ▶ Detector geometries: 1x1 mm<sup>2</sup>, 2x2 mm<sup>2</sup>  
(ask us for custom designs or other geometries)
- ▶ Spectral response: 1 - 5 microns (peak response @ 3.7 microns)
- ▶ D\*(λ<sub>peak</sub>) (typ): 2x10<sup>9</sup> Jones
- ▶ Biasing voltage (typ): 10 V
- ▶ Pixel resistance (typ): 0.8 - 1.0 MΩ
- ▶ Responsivity (@V<sub>b</sub>=10 V):
  - ▶ 1x1 mm<sup>2</sup>: 9x10<sup>3</sup> V/W
  - ▶ 2x2 mm<sup>2</sup>: 4.5x10<sup>3</sup> V/W
- ▶ Packaging options:
  - ▶ Uncooled: SMD (non-hermetic) / TO-5 (hermetic)
  - ▶ n-TEC cooled: TO-8 (hermetic)
- ▶ Operating temperature:
  - ▶ SMD package (non-hermetic): 5 °C - 70 °C
  - ▶ TO-5 & TO-8 (hermetic): -40 °C - 85 °C
- ▶ Response time (room temperature) (typ): < 2 us
- ▶ Readout electronics: not included (see preamp modules)
- ▶ Device dimensions and footprint:
  - ▶ SMD packaging: 10 mm x10 mm, 2 connections (replicated on each side), with sapphire window (AR)



- ▶ TO-5 hermetic packaging: 9.14 mm (0.360") diameter, 4 connections (only 2 in use), separation between leads 5.84 mm (0.230"), cap with sapphire window (AR)



- ▶ TO-8 hermetic packaging: 15.24 mm (0.600") diameter, 12 connections (1-TEC, only 6 in use) / 16 connections (2- / 3-TEC, only 6 in use), separation between leads 10.16 mm (0.400"), cap with sapphire window (AR)



# LEPTON PREAMPLIFIER MODULES

## LEPTON ANALOG PREAMP

Parameter	Value	Unit
Channels	1	
Detector included	LEPTON SERIES 1x1 mm <sup>2</sup> or 2x2 mm <sup>2</sup>	
Band of IR detection	1.0 - 5.0 microns (MWIR)	
Sensor biasing V <sub>b</sub>	Rotary switch, selectable, 4 values	
Values	1.25, 2.50, 5.00, 10.00	V
Gain G	Rotary switch, selectable, 4 values	
Values	10 <sup>4</sup> , 10 <sup>5</sup> , 10 <sup>6</sup> , 10 <sup>7</sup>	V/A
Analog bandwidth	Gain dependant (see chart below)	kHz
R <sub>Dark</sub> cancellation	Cermet trimmer (11 turns)	
Min. value	10	kΩ
Max. value	1.01	MΩ
Output	Analog voltage	
Coupling	DC, BNC connector	
Range	±10	V
Current	±10	mA
Noise	5 pA @ 1,000 Hz and max. gain	
Power supply	5 (min. 4.5, max. 5.5)	V
Max. current	60	mA
Connector	USB mini B	
Isolation voltage	1,000	VDC
Dimensions (L x W x H)	75.80 x 35.10 x 28.70	mm

## LEPTON PREAMP WITH USB OUTPUT

Parameter	Value	Unit
Channels	1	
Detector included	LEPTON SERIES 1x1 mm <sup>2</sup> or 2x2 mm <sup>2</sup>	
Band of IR detection	1.0 - 5.0 microns (MWIR)	
Sensor biasing V <sub>b</sub>	Digitally selectable, 4 values	
V <sub>b</sub> 1	1.25	V
V <sub>b</sub> 2	2.5	V
V <sub>b</sub> 3	5	V
V <sub>b</sub> 4	10	V
Gain G	Digitally selectable, 4 values	
Values	10 <sup>4</sup> , 10 <sup>5</sup> , 10 <sup>6</sup> , 10 <sup>7</sup>	V/A
Analog bandwidth	Gain dependant (see chart below)	kHz
R <sub>Dark</sub> cancellation	Cermet trimmer (11 turns)	
Min. value	10	kΩ
Max. value	1.01	MΩ
Digital output	USB 2.0 mini B connection	
ADC resolution	14 bits	
Sampling rate	20k samples per second (max)	
Analog output	Preamplifier stage	
Coupling	DC	
Connector	SMB or BNC	
Range	±10	V
Current	±10	mA
Noise	5 pA @ 1,000 Hz and max. gain	
Power supply	5 (min. 4.5, max. 5.5)	V
Max. current	100	mA
Connector	USB mini B	
Isolation voltage	1,000	VDC
Operation Software	LEPTON DIGITAL AMPLIFIER SW (provided)	
Dimensions (L x W x H)	89.30 x 35.10 x 26.30	mm

