



## HIGH RESOLUTION MICRO THERMAL CAMERA

# FLIR LEPTON<sup>®</sup> 3 & 3.5

FLIR's highest resolution LWIR micro thermal imaging module now includes LEPTON 3.5. LEPTON 3.5 offers the same 160x120, 12 micron, uncooled FPA found in the Lepton 3.0 but now provides calibrated radiometric output across the entire 19,200 pixel array. Lepton 3.5 also increases the scene dynamic range to +400 degrees C providing even greater flexibility for demanding applications. Incorporating the same form and fit as the other most popular Lepton products, the Lepton 3.5 allows for a fast and easy upgrade path with little effort. The revolutionary Lepton was the first complete longwave infrared sensor small enough to be used in smartphones and other mobile platforms. The new radiometric Lepton 3.5 offers users more advanced capability where temperature values and high temperature scenes are required. Smaller than a dime, low power consumption, unmatched image quality, and simple integration coupled with the lowest cost of any FPA based thermal sensor on the market today provides users the tool for innovative product development efforts.

[www.flir.com/lepton](http://www.flir.com/lepton)



### ENHANCED IR SENSOR

Greater resolution & sensitivity than common thermopile arrays

- 160 x 120 active pixels
- Thermal sensitivity <50 mK
- Low operating power – 140 mW typical, 650 mW during shutter event
- Low power standby mode



### MICRO THERMAL IMAGER

Uncooled thermal imaging for small electronics

- 56° lens
- Integrated digital thermal image processing
- Integrated shutter
- Fast time to image (<0.5 seconds)

#### For Lepton 3.5

- Optional radiometry for temperature values of every pixel
- Increased scene dynamic range: +400° C (450° C typical)



### EASE OF INTEGRATION

Simplifies development & manufacturing of thermal-enabled devices

- Small 11.8 x 12.7 x 7.2 mm package
- SPI video interfaces
- Uses standard cell phone-compatible power supplies
- Two-wire serial control interface
- 32-pin socket interface to connector

## SPECIFICATIONS

Overview	Lepton 3	Lepton 3.5
Sensor technology	Uncooled VOx microbolometer	Uncooled VOx microbolometer
Spectral range	Longwave infrared, 8 μm to 14 μm	Longwave infrared, 8 μm to 14 μm
Array format	160 x 120, progressive scan	160 x 120, progressive scan
Pixel size	12 μm	12 μm
Effective frame rate	8.7 Hz (commercial application exportable)	8.7 Hz (commercial application exportable)
Thermal sensitivity	<50 mK (0.050° C)	<50 mK (0.050° C)
Temperature compensation	Automatic. Output image independent of camera temperature.	Automatic. Output image independent of camera temperature.
Radiometric Accuracy		High gain Mode: Greater of +/- 5° C or 5% (typical) Low Gain Mode: Greater of +/- 10° C or 10% (typical)
Non-uniformity corrections	Integral Shutter	Integral Shutter
Scene dynamic range	0° to 120° C	High Gain Mode: -10° to +140° C Low Gain Mode: -10° to +400° C (at room temperature) -10° to +450° C (typical)
Image optimization	Factory configured and fully automated	Factory configured and fully automated
FOV - horizontal	57°	57°
FOV - diagonal	71°	71°
Lens Type	f/1.1	f/1.1
Output format	User-selectable 14-bit, 8-bit (AGC applied), or 24-bit RGB (AGC and colorization applied)	User-selectable 14-bit, 8-bit (AGC applied), or 24-bit RGB (AGC and colorization applied)
Solar protection	Integral	Integral
<b>Electrical</b>		
Input clock	25-MHz nominal, CMOS IO Voltage Levels	25-MHz nominal, CMOS IO Voltage Levels
Video data interface	Video over SPI	Video over SPI
Control port	CCI (I2C-like), CMOS IO Voltage Levels	CCI (I2C-like), CMOS IO Voltage Levels
Input supply voltage (nominal)	2.8 V, 1.2 V, 2.5 V to 3.1 V IO	2.8 V, 1.2 V, 2.5 V to 3.1 V IO
Power dissipation (Typical, room temp)	Nominally 150 mW (operating), 650 mW (during shutter event), 5 mW (standby)	Nominally 150 mW (operating), 650 mW (during shutter event), 5 mW (standby)
<b>Mechanical</b>		
Package dimensions – socket version (w x l x h)	10.50 x 12.70 x 7.14	10.50 x 12.70 x 7.14
Weight	0.9 grams	0.9 grams
<b>Environmental</b>		
Optimum operating temperature range	-10°C to +65°C	-10°C to +80°C
Non-operating temperature range	-40 °C to +80 °C	-40 °C to +80 °C
Shock	1500 G @ 0.4 ms	1500 G @ 0.4 ms
<b>Ordering</b>		
Part Numbers	500-0726-01	500-0771-01

Specifications are subject to change without notice. For the most up-to-date specs, go to [www.flir.com](http://www.flir.com)

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