

Uncooled microbolometer camera designed for infrared imaging applications that demand absolute minimum size, weight, and power consumption.



- > Compact Design
- > Wide Operating Temperature
- > High Shock Rating
- > Analog and Digital Outputs
- > Optional Gig-E Output
- > Multiple Focal Lengths
- > Software Developers Kit (SDK)
- > Digital Detail Enhancement (DDE)

### Compact Design

Weighing in at only 97 grams (w/o lens) and with the dimensions of 51.4x49.8x34 mm (2.1x2.0x1.8 in) the Photon is the smallest and lightest 320x256 resolution thermal imager available.

### Robust Design

The Photon is designed to withstand the effects of harsh shock and temperature environments. The Photon will produce reliable results in temperature environments ranging from -40° C up to 80° C and can withstand impacts up to 70g.

Additionally, with the appropriate grounding, cable shielding, power, and optional Photon EMI enclosure assembly the Photon can operate in environments with high EMI emissions.

### Analog Output

Displaying analog output from the Photo camera is as simple as applying an input voltage. The built in Analog Gain Control (AGC) and Flat Field Correction (FFC) ensures the Photon imagery is at its best.

### Digital Output

The Photon camera provides a digital data video output via a Low Voltage Differential Signaling (LVDS) serial connection.

### Optional Gig-E Output

An optional kit allows capture of the Photon digital video output and transfer to a viewing device via a CAT5 cable and Ethernet Protocol. The Ethernet interface allows raw 14-bit digital video data capture of still images and sequences of images.

### Flexible Focal Lengths

The Photon comes standard with a factory calibrated fixed lens. Lens options are as follows:

### Software Developers Kit

The Photon SDK enables camera control using one of several programming languages including VB6, VB.net, C#, and C++ (MFC).

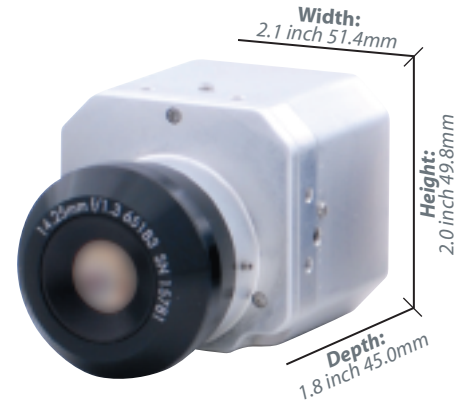
### Digital Detail Enhancement

Digital Detail Enhancement (DDE) is an imaging filter built directly into the Photon camera and is designed to increase image sharpness. Applied to a low thermal contrast scene, DDE will enhance image contrast producing crisp detailed Imagery.

Focal Length	14.5mm Lens	19mm Lens	35mm Lens	50mm Lens
f/ number	1.3	1.4	1.4	1.7
Field of View	50° x 38°	36° x 27°	20° x 15°	14° x 11°
IFoV (milliradians)	2.667	2.000	1.086	0.760
Minimum Focus Distance	0.13 meters	0.3 meters	0.7 meters	1.8 meters
Hyperfocal Distance	5 meters	7.5 meters	26 meters	35 meters
Hyperfocal Depth of Field	2.5 meters	3.8 meters	13 meters	18 meters

# Photon Technical Specifications

System Overview	
<b>System Type</b>	Uncooled LWIR Thermal Imager
<b>Sensor Type</b>	324 x 256 VOx Microbolometer
<b>Pixel Size</b>	38 $\mu$ m
<b>Spectral Band</b>	7.5 to 13.5 $\mu$ m
<b>Performance</b>	< 85mK NE $\Delta$ T at f/1.6
Outputs	
<b>Analog Video</b>	NTSC @ 30 Hz PAL @ 25 Hz (optional) 9 Hz option for export (factory set)
<b>Digital Video</b>	8 or 14-bit serial LVDS
Operation	
<b>Image Control</b>	Invert, revert, 2x digital zoom, digital detail enhancement (DDE)
<b>Camera Control</b>	Autonomous, or manual via GUI or RS-232 serial command
<b>Signal Interface</b>	30-pin SAMTEC connector for power, video, communication, digital data, external sync, direct access to e-zoom & polarity
Power	
<b>Input Voltage</b>	Range 5 — 24 VDC
<b>Power Dissipation</b>	1.6W steady-state
<b>Time to Image</b>	~2 seconds
Environmental	
<b>Operating Temp Range</b>	-40 to +80° C external temp
<b>Storage Temp Range</b>	-50 to +85° C external temp
<b>Scene Temp Range</b>	To 150° C standard
<b>Shock</b>	70 g shock pulse, 11ms half-sine profile
<b>Vibration</b>	4.3 g ms random vibration for 8 hours (three axes)
<b>Humidity</b>	Non-condensing, 5%-95%
Physical Attributes	
<b>Size</b>	51.4 x 49.8 x 34.0 mm (less lens)
<b>Weight</b>	97g (core only, no lens or cover)
<b>Mounting Interface</b>	7 heatsink attach points, M3



For more information call:  
Go To Infrared  
801-393-0808

## Photon OEM Accessory Kit Contents

The Photon OEM Accessory Kit part number is 421-0021-00. These items may also be ordered individually.

Part	Accessory Item
250-0194-00	Wearsaver
261-1273-00	Wearsaver Cover
308-0076-00-02	6' Interface Cable, Photon I/O Module
333-0005-00	I/O Module
206-0001-20 & 208-0004-02	AC/DC Power Supply & Line Cord

## Optional Accessories

Part	Accessory Item
110-0102-46	SDK for Windows & Embedded
110-0102-63	Alternate Lens Cal Software
261-1357-00	Tripod Adapter
308-0013-00 308-0016-00-03	Interface Cable, SIPO to NI PCI-1422 Interface Cable, SIPO to Bit Flow Road Runner
308-0076-00-01 308-0076-00-03	3' Interface Cable to I/O Module 10' Interface Cable to I/O Module
308-0126-00-01 308-0126-00-02 308-0126-00-03	3' Power/Video Cable 6' Power/Video Cable 10' Power/Video Cable
333-0008-00	Serial-In, Parallel-Out Module (SIPO)
421-0008-00	Rechargeable Battery & Cable Kit consisting of: - 206-0002-10 Battery Pack 7.2V, Li-Ion; Charger - 260-0007-10 Battery Cable
421-0025-00	Ethernet Module
500-0312-00	EMI Rear Enclosure Assembly