

NEW!
160 x 120 pixels



Photon™ 160

Low-resolution infrared sensor in a small, light,
and affordable package

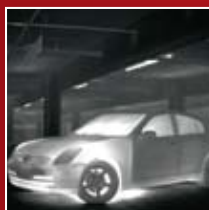
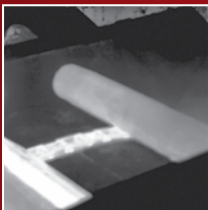
Photon 160 is a high sensitivity, high reliability, uncooled long wave thermal imager. The compact design of Photon makes it well-suited for OEM packaging and integration.

Good image quality

The Photon 160 incorporates an uncooled Vanadium Oxide (VOx) focal plane array consisting of 160 x 120 pixels. This maintenance free system delivers crisp video images which can be displayed on virtually any monitor that accepts composite video. It is well suited for those applications that do not need the high resolution of a 320 x 240 pixels detector.

Accessory Kit

The accessory kit provides an easy way to operate the Photon 160 core until a more direct interface to the 30-pin SAMTEC connector on the back of the unit is developed by the end-user.



Choice of lenses

The Photon 160 is available with a 6.3 mm or 19mm lens. A version without lens is also available.

Compact, easy to integrate

The Photon 160 is a very compact and lightweight package. The core weight is only 97 grams, not including rear cover or lens. It can easily be integrated in small locations.

Advanced video processing

A choice of 8- or 14-bit digital video is output simultaneously with the analog format. The digital data protocol is serial LVDS. Video processing features include multiple automatic, dynamic image optimization algorithms, as well as polarity control (white-hot/black-hot), image orientation control (invert / revert), and freeze-frame capability.

Wide operating temperature range

The Photon 160 surpasses the requirements of the most demanding ambient temperature requirements with an operating temperature range between -40°C to +80°C.

Software Developers Kit (SDK) to create applications for camera control and/or acquiring digital data

The Photon SDK enables customers to create their own applications for camera control as well as data acquisition using one of several interfaces. Languages supported include VB6, VB.net, C#, and C++ (MFC). The Photon SDK also works on Linux.

Advanced image processing

The Photon 160 contains an advanced Digital Detail Enhancement (DDE) video processing algorithm. This is a sharpening filter which aids in making edges and other image details more distinct in both night or daytime conditions.

No Thermo-Electric Cooler (TEC)

The Photon 160 employs a novel combination of on-FPA circuitry and non-uniformity compensation (NUC) processing to eliminate the thermo-electric cooler (TEC). FLIR's patented approach to TEC-less operation enables the camera to operate over a wide temperature range while maintaining excellent dynamic range and image uniformity.

Photon™ 160

Technical specifications

IMAGING PERFORMANCE

Detector type	Focal Plane Array (FPA), uncooled Vanadium Oxide microbolometer
Spectral range	160 x 120 pixels
Field of view	7.5 to 13.5µm
Lens coating	52° (H) x 42° (V) with 6.3 mm lens - 18° (H) x 15° (V) with 19 mm lens
Spatial resolution (IFOV)	Lenses not interchangeable. Lens must be specified at time of order.
Thermal sensitivity	High durability coating
Image frequency*	6 mrad with 6.3 mm lens - 2 mrad with 19 mm lens
Focus	<85 mK at f/1.6
Image processing	7.5 Hz (NTSC) or 8.3 Hz (PAL) *
	Factory-set at infinity focus; lens thread mount allows focus adjustment
	Digital Detail Enhancement (DDE).

IMAGE PRESENTATION

Video output	RS170 EIA/NTSC or CCIR/PAL composite video. Video format must be specified at time of order.
Connector types	14-bit serial LVDS Data stream 30-pin SAMTEC connector for video, power, communications and digital data 15-pin D-Sub connector optionally available

POWER

Requirements	5 - 24 V DC
Consumption	1.6 W Steady State

ENVIRONMENTAL SPECIFICATION

Operating temperature range	-40°C to +80°C
Storage temperature range	-50°C to +85°C
Humidity	Non-condensing humidity in the range 5% to 95%
Shock	70 g shock pulse with a 11 ms half-sine profile
Vibration	4.3 g rms random vibration for 8 hours (three axes)

PHYSICAL CHARACTERISTICS

Camera weight (camera core + lens)	115 grams with 6.3 mm lens - 130 grams with 19 mm lens
Camera size (camera core + lens) L x W x H	42.3 mm x 51.40 mm x 49.72 mm with 6.3 mm lens 53.5 mm x 51.40 mm x 49.72 mm with 19 mm lens

INTERFACES

RS-232	Command and control all functions
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* 30 Hz NTSC or 25 Hz PAL available. Subject to approval of the US Department of Commerce for use outside the USA.



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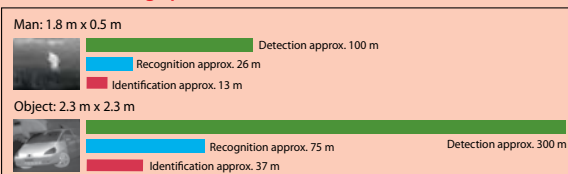
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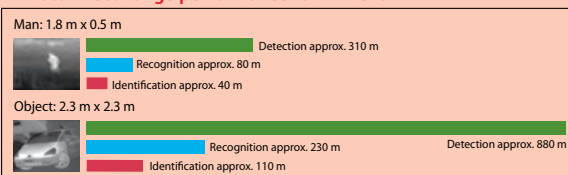
Photon 160: range performance 6.3 mm lens



Actual range may vary depending on camera set-up, environmental conditions, user experience and type of monitor or display used.

Assumptions:
50 % probability of achieving objective at specified distance given 2°C temperature difference and 0.85 / km atmospheric attenuation factor.

Photon 160: range performance 19 mm lens



FLIR Systems:

a full range of infrared cameras for thermal night vision applications

Whatever your application, FLIR Systems offers a solution to make you see clearly at night and in the most diverse weather conditions.

FLIR Systems has more than 50 years of experience in the development and production of infrared cameras for night vision applications. Recent technological developments have made it possible that know-how, which was reserved for military and high-end scientific users only, has made its way to many more applications.

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Cores and components for thermal imaging applications