



PathFindIR™

Thermal imaging camera for driver vision enhancement

The FLIR Systems PathFindIR is a compact thermal imaging camera that significantly reduces the hazards of night time driving. It enables drivers to see much further, with improved clarity, than with standard headlights. Drivers can detect and monitor pedestrians, animals, or objects on or near the road, allowing more time to react to any potential danger. PathFindIR helps to detect and recognize potential hazards in total darkness, smoke, rain and snow.

The PathFindIR module can be integrated into military vehicle designs, or adapted for aftermarket commercial vehicle applications.

Excellent image quality

The PathFindIR incorporates an uncooled 320 x 240 pixels microbolometer. This maintenance free system delivers crisp video images which can be displayed on virtually any display that accepts composite video.

Wide-angle lens

The PathFindIR is equipped with an 19 mm wide angle lens. It give you an extremely wide field of view (36°), resulting in excellent situational awareness.

Designed for use in harsh environments

The PathFindIR is extremely rugged. Its vital core is well protected against humidity and water. The PathFindIR can be cleaned with a hose just like any other equipment. The PathFindIR operates between -40°C and +80°C.

The PathFindIR has a built-in heater to defrost its protective window. This heater is capable of defrosting a 2mm layer of ice frozen to the window within 15 minutes when ambient temperature is -30°C and wind speed against the window is 100 km/hr. The heater is automatically powered when window temperature is less than +4°C and powered down when window temperature is more than +6°C. This ensures a clear lens and perfect infrared images displayed on your monitor even in extremely cold environments.

Compact, easy to install

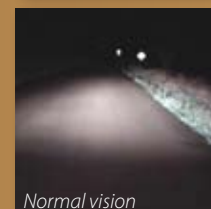
The PathFindIR is extremely compact (5.8 x 5.7 x 7.2 cm) and weighs only 360 grams. This allows for easy integration in any vehicle. The PathFindIR can easily be installed behind a vehicle grill or in any other compact location.



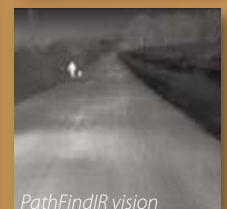
Normal vision



PathFindIR vision



Normal vision



PathFindIR vision

Optional cable

A 6 meter long cable is available for routing the PathFindIR's power and video interface into a passenger compartment. On one side the cable connects to the PathFindIR. On the other end it has 2 wires that can be terminated, as required by the user, for hooking into the vehicle power bus and a video cable that is terminated with a BNC connector. It can be adapted to the video input connections on most standard monitors.

Thermal imaging for driver vision enhancement

Thermal imaging is a powerful driver's vision enhancement system, which significantly reduces the risks of night-time driving and allows you to see up to 5x further than with headlights. It produces clear images in total darkness, smoke, rain and light fog. It needs no light whatsoever to operate.

Thanks to thermal imaging, drivers can more quickly detect and recognize potential hazards and avoid deadly accidents.

Technical specifications

IMAGING PERFORMANCE

Detector type	Focal Plane Array (FPA), uncooled microbolometer
Spectral range	324 x 256 pixels
Field of view	8 to 14µm
Spatial resolution (IFOV)	36° (H) x 27° (V) with 19 mm lens
Thermal sensitivity*	2 mrad
Image frequency	100 mK at +25°C
Focus	8.3 Hz PAL or 7.5 Hz NTSC *
Image processing	Automatic (25 m to infinity)
	Digital Detail Enhancement (DDE)

SYSTEM FEATURES

Time to image	< 2 seconds
Automatic heater	When window temperature is below +4°C

IMAGE PRESENTATION

Video output	RS170 EIA/NTSC or CCIR/PAL composite video, 75Ω
Connector type	Standard 6 meter power/video cable with sealed connector

POWER

Requirements	6 - 16 V DC
Consumption	2 W quiescent, 6 W max (with window heater on)

ENVIRONMENTAL SPECIFICATION

Operating temperature range	-40°C to +80°C
Storage temperature range	-57°C to +105°C (Extended storage time above +40°C is not recommended due to reduction in service life)
Humidity	6,500 hours at 81%rh at +25°C and salt spray per IEC 60068-2-11Ka
Sand / dust	Mil-Std810
Icing	Heater will defrost 2 mm of ice within 15 minutes at -30°C and windspeed of 100 km/h
Encapsulation	Hermetically sealed enclosure
Shock	5 30g shocks in 2 directions on 3 axes (30 total) 11 mSec duration per IEC 60068-2-27Ea
Vibration	IEC 60068-2-64

PHYSICAL CHARACTERISTICS

Camera Weight	360 grams
Camera Size	57.4 mm x 56.1 mm x 71.4 mm excluding connector which protrudes an additional 28.7 mm

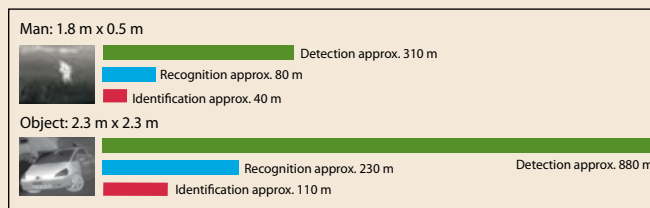
* 30 Hz NTSC or 25 Hz PAL available. Subject to approval of the US Department of Commerce for use outside the USA.



PathFindIR: range performance 19 mm lens



Optional cable to connect the PathFindIR



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.

Legal disclaimer:

FLIR Systems accepts no responsibility and can not be held liable for any error or accident resulting from the use of its thermal imaging systems or errors in the interpretation of the image by the user.

SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE

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The PathFindIR is extremely compact and can easily be integrated behind e.g. a vehicle grill.



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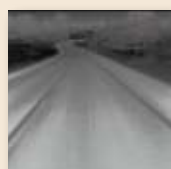
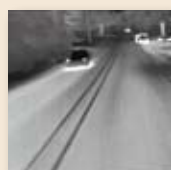
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Your local dealer:





PathFindIR™ installation kit

Complete package for integrating the FLIR Systems PathFindIR in all types of existing vehicles



The PathFindIR is finding its way to more and more enthusiastic users. There is a huge interest for after-market installations. The PathFindIR is being installed in numerous military, mining, emergency and fire fighting vehicles, trucks, busses, passenger cars and other vehicles.

Complete package for mounting the PathFindIR in existing vehicles

As requested by users who want to install the PathFindIR in existing vehicles, FLIR Systems has developed a complete package that provides all the necessary equipment required to install and use thermal imaging technology. This PathFindIR kit is the ideal tool if you want to equip existing vehicles with the power of thermal imaging.

The kit consists of the following components:

- PathFindIR thermal imaging camera
- High resolution 7 Inch LCD monitor which can be mounted either on the dash or on the cab ceiling with included bracket. The monitor has contrast, brightness, and hue adjustments adding flexibility in performance. The monitor kit also includes a protective fuse, quick disconnect from the bracket, and a removable sun shield for daytime operation and glare reduction.
- 6 meter Detachable Pigtail Cable: for routing the

PathFindIR's power and video interface into a passenger compartment. On one side the cable connects to the PathFindIR. On the other end it has 2 wires that can be terminated, as required by the user, for hooking into the vehicle power bus and a video cable that is terminated with a BNC connector

- Universal Mounting Bracket and Mounting Hardware to install the PathFindIR in a vehicle
- PathFindIR Users Guide
- LCD Cable, BNC to S-Video, 8.8 meters

Thanks to this complete kit, it becomes extremely easy to install the PathFindIR in almost any vehicle.

Information on installation is provided in the PathFindIR Users Guide that is included in the kit.

Extremely affordable package

The PathFindIR after-market kit is an extremely affordable package.



High quality

All components have been selected by FLIR Systems so that the entire kit complies with the stringent quality requirements for which FLIR Systems is renowned.

PathFindIR thermal imaging camera

The PathFindIR is available in 4 different versions:

- 25 Hz PAL
- 8.3 Hz PAL
- 30 Hz NTSC
- 7.5 Hz NTSC

The required version needs to be specified when ordering a PathFindIR installation Kit

25 Hz PAL and 30 Hz NTSC versions are subject to approval of the US Department of Commerce for use outside the USA.

PathFindIR™ installation kit



PathFindIR: technical specifications

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Humidity	6,500 hours at 81%rh at +25°C and salt spray per IEC 60068-2-11Ka
Sand / dust	Mil-Std810
Icing	Heater will defrost 2 mm of ice within 15 minutes at -30°C and windspeed of 100 km/h
Encapsulation	Hermetically sealed enclosure - IP67
Shock	5 30g shocks in 2 directions on 3 axes (30 total) 11 mSec duration per IEC 60068-2-27Ea
Vibration	IEC 60068-2-64

PHYSICAL CHARACTERISTICS

Camera Weight	360 grams
Camera Size	57.4 mm x 56.1 mm x 71.4 mm excluding connector which protrudes an additional 28.7 mm
Shipping Weight	680 grams (PathFindIR only) - 816 grams (PathFindIR + pigtail cable)
Shipping Size	228 mm x 228 mm x 228 mm
Shipping Weight : PathFindIR installation kit	3.4 kg
Shipping Size : PathFindIR installation kit	483 mm x 483 mm x 483 mm

* 30 Hz NTSC or 25 Hz PAL available. Subject to approval of the US Department of Commerce for use outside the USA.

Thermal imaging for driver vision enhancement

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By allowing drivers to see thermal images of the road ahead - well beyond what headlights illuminate - drivers are able to detect obstacles, other cars, curves in the road, ... much sooner and have more time to react. Thanks to thermal imaging, drivers can more quickly detect and recognize potential hazards and avoid deadly accidents.

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PathFindIR installation kit:
Part number 421-0029-00
The PathFindIR installation kit consist of the following components:



PathFindIR
Thermal imaging camera



Pigtail cable for routing the PathFindIR's power and video interface into a passenger compartment



Universal mounting bracket + mounting hardware



High resolution 7 Inch LCD monitor



LCD Cable, BNC to S-Video, 8.8 meters

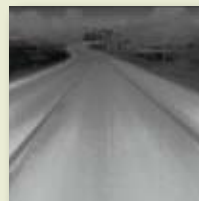
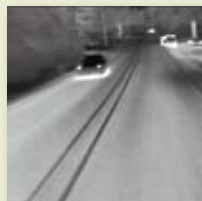


Users Guide

Part numbers PathFindIR:

- 25 Hz PAL	334-0001-00P
- 8.3 Hz PAL	334-0001-00PS
- 30 Hz NTSC	334-0001-00
- 7.5 Hz NTSC	334-0001-00S

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