

Thermal imaging  
for transportation applications



## 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.

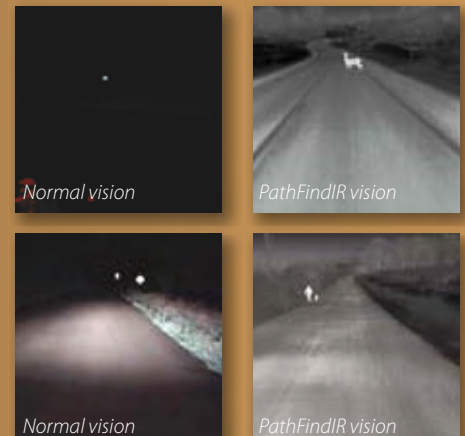
### Designed for use in harsh environments

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.



### 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.

Supplied by :

**Test and Measurement Instruments C.C.**  
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Thanks to thermal imaging, drivers can more quickly detect and recognize potential hazards and avoid deadly accidents.

# PathFindIR™



## 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

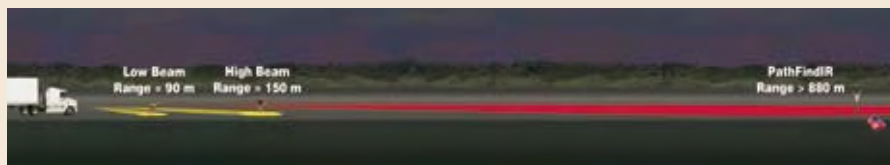
Operating temperature range	-40°C to +80°C
Storage temperature range	-57°C to +105°C (Extended storage time above +40°C is not recommended due to reduction in service life)
Humidity	6,500 hours at 81%rh at +25°C and salt spray per IEC 60068-2-11Ka
Sand / dust	Mil-Std810
Icing	Heater will defrost 2 mm 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.

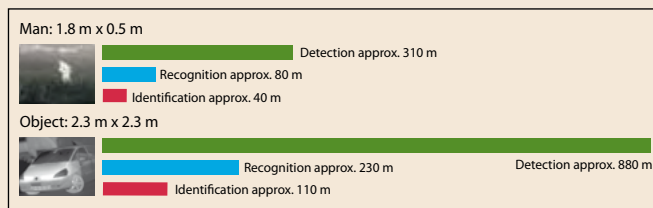
The PathFindIR is extremely compact and can easily be integrated behind e.g. a vehicle grill.



### PathFindIR: range performance 19 mm lens



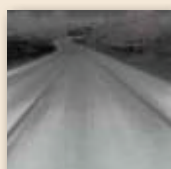
Optional cable to connect the PathfindIR



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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