

Thermal imaging cameras with temperature measurement capabilities for airborne applications

## Kelvin 275

Gyro-Stabilized Remote Sensing System



The Kelvin 275 delivers crisp thermal images on which the smallest of temperature differences can be seen.

The Kelvin 275 is a gimbal containing a radiometric thermal imaging camera. This means that temperature measurements can be read from the image. It also contains a daylight camera. The Kelvin 275 is an ideal instrument for aerial powerline inspections, detecting forest and other fires, and for environmental and wildlife studies.

### Lightweight high stiffness composite body

The gimbal is built from high stiffness composite materials and aluminum inner structure insuring the lowest possible weight: an important issue when mounting the camera underneath an aircraft.

### 4 axis active stabilization

The design is four axis active gyro-stabilized based upon very low drift fiber-optic gyroscopes and a digital servo motor control system and a patented two axis linear isolator. This unique design offers outstanding stability of much less than 35 micro radians, ensuring easy steering and accurate imaging independent of aircraft movements.

### Radiometric infrared camera

The gyro-stabilized gimbal contains the infrared core from the FLIR Systems 660 series of R&D Infrared Camera Systems. The radiometric infrared camera provides accurate non-contact temperature readings.

### High Definition 640x480 detector

The camera's high-definition 640x480 infrared detector delivers exceptional sensitivity, resolution, and image quality for a wide variety of airborne thermal imaging applications. Its 0.04°C sensitivity and  $\pm 1^\circ\text{C}$  accuracy means precise temperature readings. Even from smaller objects, at long distances. The FLIR Systems patented Dynamic Detail Enhancement (DDE) feature further improves thermal image sharpness.

### GPS

GPS data is stored as part of each captured image file thus permitting geo-referencing of fault locations, areas where animals are roaming, ....

### EASA certified installations

FLIR Systems PolyTech AB is a certified Part 21 and Part 145 organization being able to issue release certificates of airworthiness (EASA Form 1) for its products for the most popular helicopter models currently operating worldwide.

### Advanced software

The FireWire interface can transfer 14-bit radiometric data directly into a ruggedized PC for post-flight analysis of captured images. The optional ThermoCAM Reporter software permits retrieval and analysis of IR images and temperature data. It includes temperature display and analysis functions such as isotherms, line profiles, area histograms, and much more. ThermoCAM Reporter features a Microsoft WORD Report Wizard that guides you step-by-step through the process of adding images and text, making report creation quick and easy. The Wizard automatically combines all IR inspection data—thermal and visual images, temperature measurements, and text notes—into crisp, professional, easy-to-interpret maintenance reports.



# Kelvin 275



## Technical specifications

### GIMBAL SPECIFICATIONS

Active Gyro-stabilization	4 axis stabilization
Field of Regard	Elevation: +20° to -120°
Azimuth:	+360° continuous
Maximum Slew Rate	60°/sec.
Maximum Slew Acceleration	>75°/sec./sec.
Diameter	10.8 in. (27.5 cm)
Height	15.4 in. (39 cm)
Weight (w/cameras and lens)	34.2 lbs. (15.5 kg)
Input Voltage	22 to 30 VDC 10 amps
Power Consumption	<150 watts

### ENVIRONMENTAL SPECIFICATIONS

Standards	RTCA DO-160E
Operating Temperature	-20°C to +40°C

### INFRARED CAMERA & LENS\*

Detector Technology	Focal Plane Array, uncooled microbolometer
Detector Size	640 x 480 pixels
Spectral Wavelength	7.5-13µm
Sensitivity	0.045°K @ 30°C
Temperature Ranges	-40°F to 932°F with option to 3632°F (-40°C to 500°C with option to 2000°C)
Accuracy	±1°C or ±1% of reading
Field of view (optical)	Standard lens: 24° (H) x 18° (V), optional lens: 12° (H) x 9° (V) Field of view with 2x Electronic Zoom Standard lens: 12° (H) x 9° (V) , optional lens: 6° (H) x 3° (V) (provides 320 x 240 pixel resolution)
Focus	Manual or automatic

### COLOR TV CAMERA & LENS

Detector Technology	Color CCD EXview HAD
Number of Pixels	Approximately 380 000 (NTSC), 440 000 (PAL)
Signal-to-Noise Ratio	>50 dB
Zoom	18 x optical
Field of view (horizontal)	48° Wide to 2.8° Narrow
Field of view with 2x Electronic Zoom	24° Wide to 1.4° Narrow
Focus	Manual or automatic

\* Other FLIR Systems infrared cameras available



The Kelvin 275 can be used for a wide variety of applications such as animal counting, spotting pollution and urban heat losses, fire mapping and many others.

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