



High Performance Environmentally Sealed Miniature Infrared Camera

MIRICLE KS

Powered by Thermoteknix



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The MIRICLE infrared camera range, created by Thermoteknix, sets a new level of power, performance and flexibility for the full range of infrared applications. Resulting from over 20 years' experience in thermography, MIRICLE cameras deliver *more than just an image*.

Built in the smallest footprint, MIRICLE cameras offer a range of microbolometer detectors in a common electronic package incorporating the very latest micro-electronics and power efficient management.

Thermoteknix MIRICLE KS infrared cameras provide high performance thermal imaging in a highly compact, lightweight, low power, rugged, modular design. Integral micro-shutter, powerful embedded software and a choice of analog video and digital outputs and accessories put MIRICLE KS cameras ahead of the field. Thermoteknix screw mounted lenses provide flexibility in the field with instant lens recognition and automatic calibration file loading for fast effortless operation. MIRICLE KS is available in environmentally sealed (IP65) or hermetically sealed (IP67), inert gas filled models with sealed lenses and optional protective coatings.

MIRICLE 110KS Imaging camera - Based on a state-of-the art 384 x 288, uncooled alpha Silicon 7-14 μ micro-bolometer detector producing 110,592 effective pixels, the MIRICLE 110KS achieves superbly detailed real-time imagery. Delivering 44% more pixels than 320 x 240 detectors and < 50mK sensitivity, MIRICLE 110KS cameras establish a new level of performance, free of US Government export authorization, for delivery to global markets.

From surveillance to online process inspection, MIRICLE cameras fit outstanding features and power into the smallest package. For optimum imaging in varying intensity scenes and targets, MIRICLE 110KS cameras have manual and dual area of intensity auto gain to maximize target and featured background content. Multiple color palettes, smooth multi-level interpolated zoom directly in the camera and auto hot/cold peak tracking throughout the whole image or user defined area of interest. For scientific and R & D imaging, multiple cameras can be gen locked for simultaneous frame mode. Standard frame rates (50/60 Hz) and high speed frame rates (100/120 Hz) address fast processes and dynamic image analysis with windowing modes up to 500 Hz.

MIRICLE 110KS cameras can be mounted in any orientation and integral image flip up, down or across provide correct viewing. A powered track head with environmental enclosure, remote focus and joystick control is available for external installation with options for all weather conditions. Optional portable Lithium ion battery pack and MIRICLE low power mode maximize camera operation under the harshest conditions.

- R & D • Scientific • Surveillance • Border security • Aerospace • Military
- On-line process control

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PERFORMANCE

PERFORMANCE	MIRICLE 110KS
FPA Detector	Alpha Silicon uncooled micro-bolometer
Array size	384 x 288 (110,592 effective pixels)
Spectral band	7 - 14 μ m
Pixel pitch	35 μ m
Optical Fill	> 80 %
NETD	\leq 50 mK @ 30 °C
IFoV (Instantaneous Field of View)	1.09 mrad with standard 32mm f/1.0 lens
Standard Frame Rate	50/60 Hz
Custom Frame Rate	100/120 Hz Window mode up to higher speeds
External Sync	Optional
Dynamic Range	14 bit
Gain/Level Control	Manual Auto: Whole image or 2x User definable regions
Time to image	< 2 seconds
Video Output Format	PAL (CCIR) / NTSC (RS170)
Video Output Display	24 bit color/8 bit monochrome
Video Features - Imaging	Range 1 -20 - 150 °C (-5 - 300°F) Range 2 -30 - 500 °C (-20 - 930°F) Freeze/Live Polarity: White/Black hot Color palettes (10) Interpolative zoom (x2, x4, x8) Image flip: vertical and/or sideways Auto/Manual NUC
Measurement Features	Whole image or region (10): Manual / Auto Hot/Cold Tracker Area of Interest (4): Max / Avg / Min Line (2): Max / Avg / Min Choice of tool color
Digital Video Connectivity	16 bit LVDS (Optional) USB 2 (Optional)
Communications	RS - 232 Ext. Sync/Gen lock (optional)
Connector	19 pin circular connector (video / power/ LVDS / RS 232) 4 x digital output
Construction	Aluminum
Size (L x H x W)	2.2 x 1.9 x 1.7 inch 56 x 48 x 43 mm
Weight (exc. Lens)	4.9 oz (140 g)
Tripod mount	0.25 inches (20 mm) UNC Thread Adaptor

PERFORMANCE

PERFORMANCE	MIRICLE 110KS
Protection	IP 67 - NEMA 6
Impact	25G IEC 68-2-29
Vibration	2G IEC 68-2-6
Operating ambient temperature	-20 - +50°C
Humidity (Operating/Storage)	0 - 100% non
Power - Nominal	< 3.3 W
Power saving mode	< 2.0 W

Multi-element Germanium Lenses

Focal length	Aperture	IFoV	HFoV	VFoV	Diag
75 mm*	f/1.0	0.47 mrad	10.2°	7.7°	12.8°
32 mm	f/1.0	1.09 mrad	24°	18°	29°
15 mm	f/0.9	2.33 mrad	48°	37°	58°

*Electronic Focus

Transmission filters Available

US Government Export License Authorization Not Required

ACCESSORIES

- ThermaGRAM Standard Real time image processing (USB-2)
- ThermaGRAM Scientific Real time image processing (USB-2)
- ThermaGRAM Process Control image processing
- Handheld PDA with Bluetooth & MIRICLE control software



Choice of manual and remote focus lenses available

Not all features present on all models. Specifications subject to change
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