

High Performance Infrared Cameras, Cores & Engines

MIRICLE 110K-25

Powered by Thermoteknix

384 x 288



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MIRICLE 110K-25 Infrared Cameras, Cores & Engines Powered by Thermoteknix

The MIRICLE 110K-25 Camera uses the latest 25µm pitch detector technology to deliver increased imaging performance, lower weight and higher performance. Built in the world's smallest footprint, MIRICLE 110K-25 cameras and cores are driven by Thermoteknix' ultra high performance 384 x 288 7-14 micron long wave uncooled microbolometer detector engine, incorporating the very latest low power micro-electronics technology.

With 44% more pixels than 320 x 240 cameras, MIRICLE 110K-25 products provide the OEM builder with high performance thermal imaging in highly compact, lightweight, low power, rugged, modular designs. Powerful embedded software, a choice of analog video and digital video outputs and accessories put MIRICLE 110K-25 ahead of the field. Available in a range of housings, configurations and options, MIRICLE 110K-25 cameras and cores match flexibility with mechanical and electronic integration on a single platform. MIRICLE 110K-25 camera systems are available for supply to global markets in a range of environmentally sealed housings or with interchangeable lens mounts for rapid lens changes in the field.

MIRICLE 110K-25 Imaging

From surveillance to online process inspection, MIRICLE camera systems fit outstanding features and power into the smallest and most flexible packages. Multiple cameras can be gen locked for simultaneous frame mode and a range of digital interfaces and real time PC image processing software accessories, including LabView integration and Video over IP, offer boundless solutions.

For mission critical applications, MIRICLE camera 'Instant On' technology eliminates the time-to-image delay issue found in other thermal imaging cameras.

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

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PERFORMANCE MIRICLE 110K-25

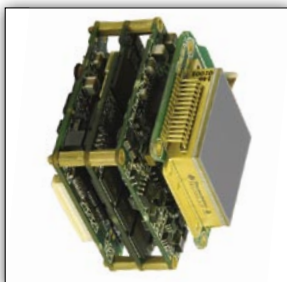
FPA Detector	Alpha Silicon uncooled micro-bolometer
Array size	384 x 288 (110,592 effective pixels)
Spectral band	7 - 14 μ m
Pixel pitch	25 μ m
Optical Fill	> 70 %
NEDT	\leq 50 mK @ 30 $^{\circ}$ C (f/1.0, 60Hz)
IFOV (Instantaneous Field of View)	0.78 mrad with standard 32mm f/1.0 lens
Standard Frame Rate	50/60 Hz
Video Output Format	Monochrome RS170/NTSC or CCIR/PAL
Custom Frame Rate	Up to 240 Hz available
Dynamic Range	14 bit
Gain/Level Control	Auto
Time to image	< 1 second
Shutter	Micro-compact. Auto NUC
Power Input	3.3 - 5 V
Power Consumption - Nominal	< 2.5 W (USB2/LVDS output) < 3.2 W (Analogue video) < 2.0 W
Power saving mode	
Environmental Properties	
Impact	25G IEC 68-2-29
Vibration	2G IEC 68-2-6
Operating ambient temperature	-20 - +50 $^{\circ}$ C
Humidity (Operating/Storage)	5 - 95% non condensing (KS model 100%)
Size KC (dimensions mm/inch)	46 x 45 x 52.5 mm 1.8 x 1.8 x 2.0 inches
Weight KC (inc. detector)	105g / 3.7oz
Connector	Lemo/Miniature USB2/Ribbon cable depending on model
Optional Extras	USB2 Digital / LVDS Digital / External motor drive (focus) / Custom frame rates (up to 240 Hz)

MIRICLE 110K camera systems are available in a choice of configuration and housings:



MIRICLE 110KS-25

A screw flange front mount allows lens interchange whilst offering a choice of environmental sealing and ruggedisation options including IP67 (NEMA 4), hermetic and space compliance



MIRICLE 110KC-25

MIRICLE cameras are available in custom configurations to suit integrator and third party development. Choice of shutter assemblies, mounts, casings, outputs and features

STANDARD SOFTWARE AND OPTIONAL PACKAGES

MIRICLE ESSENTIALS Control Software (RS232 PC) - included with all units
 Functions: Freeze frame/live, Store digital frame (BMP), Black hot/White hot, Flip video: Left/Right, Up/Down

OPTIONAL MIRICLE EXTRAS Control Software

Video Output Format	Black & White / Colour RS170/NTSC or CCIR/PAL
Communication	RS232
Software Control	Black hot/White hot Flip video: Left/Right, Up/Down Manual or Auto configurable NUC Zoom x2 x4 around centre or offset
Gain Modes	Manual Auto with contrast adjustment
Colour Palettes	10

OPTIONAL MIRICLE DEVELOPERS' Control Software

- Engineering development technical support
- Miricle diagnostic and debugging development software
- User configuration profiles to download personality settings
- Reticule overlay - standard and configurable
- Text overlays with choice of fonts, fore and background colours
- Area of interest measurement:
Spots (8), Rectangles (4) with Auto Max/Min tracking,
Line values (2), Profiles (2)
Choice of tool colour
- Real time image filtering:
Edge detection/smoothing, Feature extraction,
3 x 3 discrete convolution filtering
5 x 5 discrete convolution filtering
Median Filter
- Bad Pixel Replacement Tools
- Multiple Autogain modes with 1 or 2 configurable zones:
Peak, Histogram, Standard Deviation, Span or Gamma Compression

OPTIONAL ACCESSORIES

ThermaGRAM USB Digital Image Processing Software
ThermaGRAM PRO USB Real Time Digital Image Capture & Analysis Software

LENSES

Choice of multi-element Germanium lenses with electronic focus and mount options:

Focal Length	Aperture	IFOV	HFOV	VFOV	Diag
14.95mm	f/1.3	1.67 mrad	35.6 $^{\circ}$	27.1 $^{\circ}$	43.7 $^{\circ}$
14.25mm	f/1.3	1.75 mrad	37.2 $^{\circ}$	28.4 $^{\circ}$	45.7 $^{\circ}$
32mm	f/1.0	0.78 mrad	17.1 $^{\circ}$	12.8 $^{\circ}$	21.2 $^{\circ}$
50mm	f/1.0	0.50 mrad	11.0 $^{\circ}$	8.2 $^{\circ}$	13.7 $^{\circ}$
75mm	f/1.0	0.33 mrad	7.3 $^{\circ}$	5.5 $^{\circ}$	9.1 $^{\circ}$
60/180mm Lens:					
60mm setting -	f/1.4	0.42 mrad	9.1 $^{\circ}$	6.9 $^{\circ}$	11.4 $^{\circ}$
180mm setting -	f/1.4	0.14 mrad	3.1 $^{\circ}$	2.3 $^{\circ}$	3.8 $^{\circ}$



A range of spectral transmission filters are available

Infrared detectors and cameras are subject to UK BERR export control and may require an export licence

*Not all features present on all models. Specifications subject to change. MIRICLE is a registered trademark of Thermoteknix Systems Ltd.
 Printed on environmentally friendly 100% chlorine free pulp*

