

High Performance Infrared Cameras, Cores & Engines

MIRICLE 110K

Powered by Thermoteknix

384 x 288



The following accessory packages are available to accompany MIRICLE 110 KC and KS cameras for end users and third party developers.

1. MIRICLE 110KS with MIRICLE Essentials Software Package

The MIRICLE camera is supplied with either a PAL or NTSC Monochrome output (RS 170 / CCIR). The MIRICLE Essentials Windows PC software provides an easy to use User interface to set up the basic functions of the camera. Once configured, the settings can be downloaded into the camera for automatic loading on re-start.

- Freeze / Live
- Invert video (Black hot/ White hot)
- Flip picture vertically / horizontally
- Autogain mode (auto contrast)
- NUC button
- Save settings
- Configure RS 232 port
- Color burst is automatically turned off
- MIRICLE User Guide

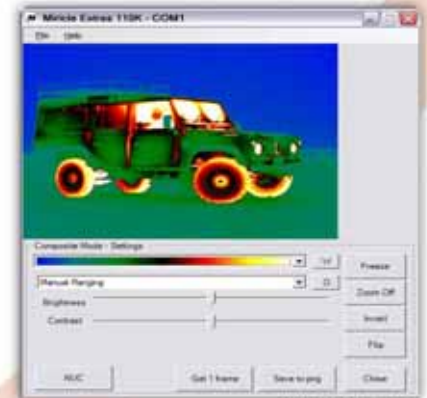


MIRICLE Essentials

2. MIRICLE 110KS with MIRICLE Extras Software Package

This option provides additional features and functions in the MIRICLE 110K camera which can be set up by the RS232 connection and saved into the camera for automatic use on re-start.

- Zoom x2, x4, x8 around center
- Auto/Manual NUC configuration
- Color burst on/off
- 10 Color palettes
- Selectable Manual /Auto gain (histogram) with user configurable single area
- Adjustable contrast slider in Auto histogram mode
- Adjustable manual slider with brightness and contrast slider and Auto threshold
- Save BMP/PNG
- MIRICLE User Guide



MIRICLE Extras

3. MIRICLE SDK Developer Kit (requires purchase of USB or LVDS hardware options)

The MIRICLE SDK Developer kit is available for third party developers that wish to integrate MIRICLE 110K cameras or cores into their own engineered products. The Developer kit provides first level access to Thermoteknix hardware and software engineering team to assist them in providing technical support to ensure that their development is achieved in the shortest time with fullest understanding of the functions and capabilities of Thermoteknix MIRICLE technology.

The Developer kit includes full documentation, sample programs and source code for exploiting and configuring the embedded micro-processor functions of the MIRICLE engine to customise the video output of the camera. Sample programs illustrate interfacing to the 8+bit and 14 bit USB data streams for third party hardware and software development and supporting technical information is supplied for the LVDS data stream output...continued overleaf



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MIRICLE SDK Developer Kit continued...

(i) Technical Support

Preferential access to Thermoteknix Engineering Development Team for technical support during OEM product development. (Customisation or modification to MIRICLE hardware/firmware not included).

(ii) MIRICLE Microsoft UVC USB display & programming tools SDK (Windows XP Platform)

MIRICLE UVC USB display and measurement sample program (written in C++)
 MIRICLE 14 bit USB programming information
 Source code and supporting documentation to MIRICLE UVC USB display and measurement sample program
 Quick start guide



MIRICLE SDK Developer

(iii) MIRICLE Cyprus USB display & programming tools (Other Platforms)

MIRICLE Cyprus USB display and measurement sample program (written in C++)
 MIRICLE 14 bit USB programming information
 Source code and supporting documentation to MIRICLE Cyprus USB display and measurement sample program
 Quick start guide

(iv) LVDS Technical specification and interfacing documentation

(v) RS 170/CCIR/NTSC/PAL display & programming tools with MIRICLE Control PC software:

The MIRICLE Control software is a fully featured executable package which exercise all of the embedded microprocessor functions in the MIRICLE 110K engine and camera. A tabbed interface provides the developer with direct access to the serial command functions set. The developer can quickly exercise and configure the built in powerful functions of the MIRICLE 110K for their own purposes in the minimum time. Interactive debugging screens display messaging and responses to commands.

Integral functions include:

- Multiple Spot, Area, Line, Profile Tools with overlays and configuration of color, position and level units
- Multiple gain modes with configuration of region sizes / Text display with variable font, size, color, background
- Multiple zoom with variable centre / Median & hardware filters
- 3x3 discrete convolution filtering with user specifiable variables for edge detection, feature extraction, smoothing
- 5x5 discrete convolution filtering with user specifiable variables for edge detection, feature extraction, smoothing
- 10 Color/Monochrome Palette with selector control
- Download single digital image frame via RS232 in Windows BMP/ PNG format
- Serial command line to send messages directly to MIRICLE core / User personality profiles
- MIRICLE Control user guide / MIRICLE 110K camera message link format document for MIRICLE Control software

MIRICLE Control CE is available as an additional chargeable option. This version includes all of the above functionality developer for use on a Windows CE platform to enable all functions to be configured and saved in the MIRICLE 110K camera. This is ideal for field or portable use.

NOTE: MIRICLE Control PC and MIRICLE Control CE programs are supplied as executable programs. Source code is not provided.



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4. Thermoteknix ThermaGRAM Standard and Pro software

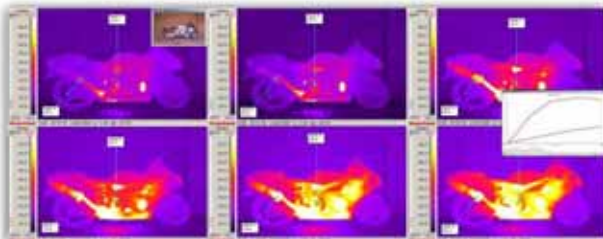
Thermoteknix ThermaGRAM is a highly developed, User-friendly, software package designed for real time display, measurement and manipulation of thermal images via the MIRICLE real time USB or LVDS/Video over IP connections.

It contains a wide variety of tools designed to extract and display information from thermal images, in intensity measurement with Mircle 110K imaging cameras. Data from areas of interest in the thermal image can be copied and pasted directly into Microsoft Windows applications that support Windows clip board transfer (OLE1).



For those applications that support OLE2 with live dynamic linking, live data from Thermoteknix MIRICLE cameras can be linked into third party programs. Thermoteknix ThermaGRAM software also allows images to be dragged directly into third party software and embedded into the application so that all of the ThermaGRAM tools and image manipulations can be directly incorporated into the third party software, making ThermaGRAM a seamless integration.

ThermaGRAM Standard software has been the primary thermal imaging and analysis software for infrared camera users for more than 20 years and has evolved to satisfy the needs of a wide range of scientific, industrial and applications requirements.

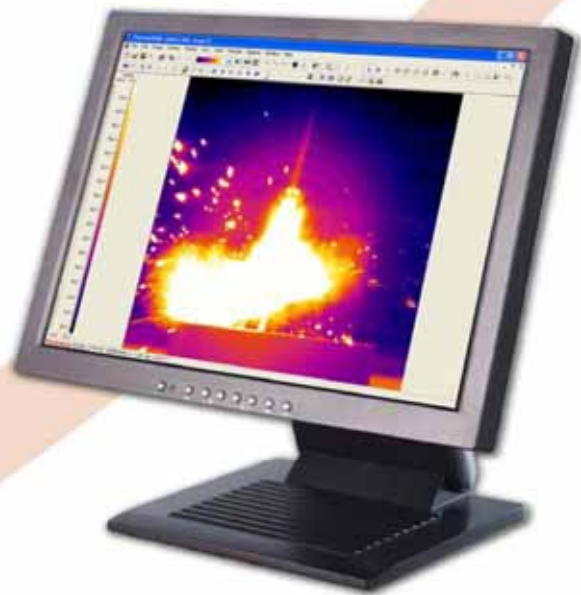


ThermaGRAM Real Time Data Acquisition and Analysis System

ThermaGRAM PRO provides additional tools for image averaging and comparisons, multi-image mosaic combination and its Dynamite, real time video image capture provides multiple sequence capture capabilities.

OPC Option

ThermaGRAM can also act as an OPE server allowing open exchange of both images and tool measurements with other third-party, OPC client compatible software.



ThermaGRAM - a unique IR system capable of capturing and recalling live real time infrared imagery simultaneously from one or more infrared cameras

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5. USB output option available with MIRICLE Extras or MIRICLE Developer

This option includes a USB port on the MIRICLE camera. An 8+ bit palettised output is supplied via Microsoft UVC driver for compatibility with Standard Microsoft Windows video display and capture software (eg Microsoft Moviemaker). A 14 bit signal can be output for use with either ThermoGRAM software or dedicated 3rd party software with 14 bit video capability. Live image display in MIRICLE Extras program with Zoom, Contrast control, Invert, single image save & Save video sequence to AVI.

6. LVDS output option

LVDS (low-voltage differential signaling) is a high-speed digital interface that has become the solution for many applications that demand low power consumption and high noise immunity for high data rates. MIRICLE LVDS output comprises 4 LVDS pairs serially as "nibbles" of data multiplexing 16 bit pixel data onto a 4 bit per pixel LVDS bus.

7. MIRICLE LVDS De-Multiplexer

This Thermoteknix external unit converts MIRICLE 4 bit multiplexed 'nibbles' into 14 bit parallel LVDS data for compatibility with third party hardware and software. The Thermoteknix De-Multiplexer board provides both video output connector and a 36 way LVDS connector.

Thermoteknix offer two interfacing cables:

- (1) National Instruments PCI frame grabber cards for access to LabView software or
- (2) Pleora video over IP cards.
Thermoteknix ThermoGRAM Standard and Pro are also available for use with Pleora Video over IP (Gigabit Ethernet).

MIRICLE KS Lens options

Choice of multi-element Germanium lenses with electronic focus, shutter and mount options including AutoID sensing. The lenses featured below are offered as standard - other lenses are available on request - please enquire.



Focal Length 18mm	Aperture f/1.0	IFoV 1.94 mrad	HFoV 40.9°	VFoV 31.3°	Diag 50.0°
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Focal Length 32mm	Aperture f/1.0	IFoV 1.09 mrad	HFoV 23.7°	VFoV 17.9°	Diag 29.4°
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Focal Length 50mm	Aperture f/1.0	IFoV 0.70 mrad	HFoV 15.3°	VFoV 11.5°	Diag 19.1°
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Focal Length 75mm	Aperture f/1.0	IFoV 0.47 mrad	HFoV 10.2°	VFoV 7.7°	Diag 12.8°
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60/180mm Lens:					
60mm setting -	f/1.4	0.58 mrad	12.8°	9.6°	15.9°
180mm setting -	f/1.4	0.19 mrad	4.3°	3.2°	5.3°



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