AIRS Nucleus^{TM} MW Module

1280 x 1024 / 12 micron pixel

- The high-resolution, high-sensitivity, low-noise infrared module is ideal for demanding defense, surveillance, and scientific applications.

- The AIRS Nucleus™ Mid Wave module is lightweight and low-power, designed for both portable field use and easy system integration.

- Available in a rugged aluminum chassis, this compact module can be configured with or without a handle.

- A bayonet mount allows for quick lens swaps, supporting various focal lengths for both field and lab settings.

- Nyx Connect™ software streamlines setup and provides reliable control of essential sensor settings and digital video via CameraLink or USB3 connection with a suite of video processing options.

- Onboard video processing provides real-time, 16-bit corrected video output.

- Four programmable non-uniformity correction (NUC) tables and pixel correction maps are stored on the camera for optimal performance in any scene.

- A long life, low noise, low vibration, dual piston linear cryocooler enables high performance and 15,000 hrs. MTTF.

AIRS Nucleus™ MW Module

Sensor	
Type	HOT SLS MWIR
Response	3 - 5µm or 1 - 5µm
Resolution	1280 x 1024 / 12 micron pixel
NEDT	<25mk
Operability	>99.5%

Electronics	
Frame Rate	60Hz
Integration Time	<1µs to 99% full frame
Integration Type	ITR or IWR
A/D Resolution	16-bit
Video Output	CameraLink Base or USB3 Vision
Windowing	Yes, programable
Internal NUC Paddle	Yes, optional
External Sync / Trigger	Yes, dedicated BNC connector
HDR output	Yes, configurable with multiple integration times

Optics	
Lens Type	25mm, 50mm, 100mm, other options
F Number	f/2.5
Warm Filter	Yes, exchangeable in lens slot
Lens Mounting	Bayonet standard, M80 optional

Mechanical	
Size Without Lens	L x W x H (6 x 3.5 x 4 in)
Weight Without Lens	Approximately 4 lbs.
Cool Down Time	4 minutes typical
Cooler Type	Linear cooler
MTTF	>15,000 hours
Camera Mount	1/4"-20 standard tripod and X4 8-32 tapped threads

Environmental	
Operating Temp	-20°C to + 50°C
Storage Temp	-50°C to + 70°C
Shock / Vibration	50 g, 11 msec 1/2 sine pulse 4.5 g random vibration, 3 axes

Electrical	
Input Voltage	24V DC
Steady State Power	22W @ 23°C typical
Max Power	35W, during cooldown

Control	

Nyx Connect™ software simplifies set-up and control of critical sensor settings and digital video through a reliable CameraLink or USB3 Vision connection.
See our Nyx Connect™ data sheet.

AIRS
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Nyx

Specifications subject to change   www.GO-AIRS.Com   11-13-2024

1280 x 1024 Nucleus LW Module

- High resolution, high sensitivity, and low noise infrared module is well suited to demanding defense, surveillance, and scientific applications.

- AIRS Nucleus™ LW module design is light weight and low power enabling both portable field use and easy system integration.

- Extremely small compact package, available with or without a handle in a rugged aluminum chassis.

- Bayonet mount enables easy lens swapping between various lens focal lengths in the field or laboratory setting.

- Nyx Connect™ software simplifies set-up and control of critical sensor settings and digital video through a reliable CameraLink or USB3 connection.

- On board video processing enables real time 16-bit corrected video output.

- 4 programable non uniformity (NUC) correction tables and pixel correction maps stored on camera, for maximum performance in any scene.

- Built for system integrators, scientists, engineers, and OEMs who want to get up and running quickly with high performance LWIR imaging.

AIRS Nucleus™ LW Module

Sensor

Type	SLS
Response	7.5 - 12µm or 3 - 12µm
Resolution	1280 x 1024 / 12 micron pixel
NEDT	<30mk
Operability	>99%

Electronics

Frame Rate	60Hz
Integration Time	480ns to 98% full frame
Integration Type	ITR or IWR
A/D Resolution	16-bit
Video Output	CameraLink Base or USB3 Vision
Windowing	Yes, programable
Internal NUC Paddle	Yes, Optional
External Sync / Trigger	Yes, dedicated BNC connector
HDR output	Yes, configurable with multiple integration times

Optics

Lens Type	25mm, 50mm, 100mm, other options
F Number	f/2.0
Warm Filter	Yes, exchangeable in lens slot
Lens Mounting	Bayonet standard, M80 optional

Mechanical

Size Without Lens	L x W x H (7.5 x 3.5 x 5 in)
Weight Without Lens	Approximately 5 lbs.
Cool Down Time	6 minutes typical
Cooler Type	Linear cooler
MTTF	>20,000 hours
Camera Mount	1/4"-20 standard tripod and X4 8-32 tapped threads

Environmental

Operating Temp	-20°C to + 50°C
Storage Temp	-50°C to + 70°C
Shock / Vibration	50 g, 11 msec 1/2 sine pulse 4.5 g random vibration, 3 axes

Electrical

Input Voltage	24V DC
Steady State Power	25W @ 23°C Typical
Max Power	40W, during cooldown

Control

Nyx Connect™ software simplifies set-up and control of critical sensor settings and digital video through a reliable CameraLink or USB3 Vision connection.
See our video options data sheet.

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Image Processing Options for AIRS Smart IDCA's and Cameras

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American IR Solutions offers a full strata of camera connectivity and control solutions for OEM system integration or stand-alone applications.

Our Nyx Connect™ software simplifies set-up and control of critical sensor settings and digital video through a reliable CameraLink or USB3 Vision connection.
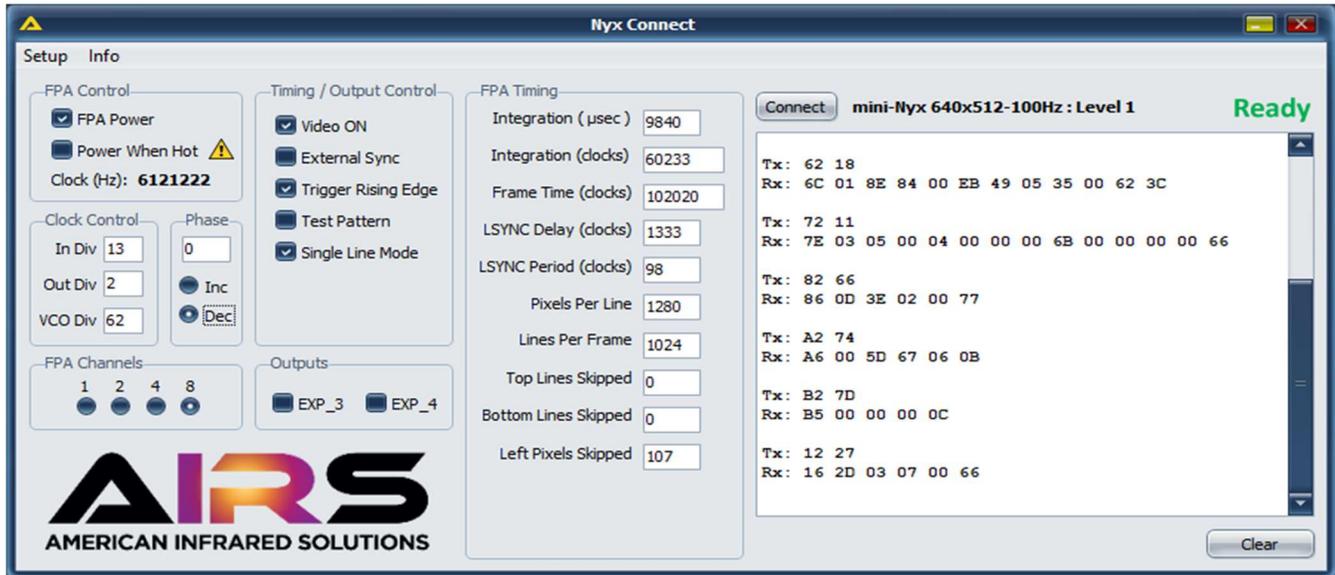
System integrators can experiment with custom integration times, advanced pixel replacement tools and other image optimization settings in a safe environment.

Video options include CameraLink, USB3 Vision, GigE Vision, HDMI and HD-SDI outputs.
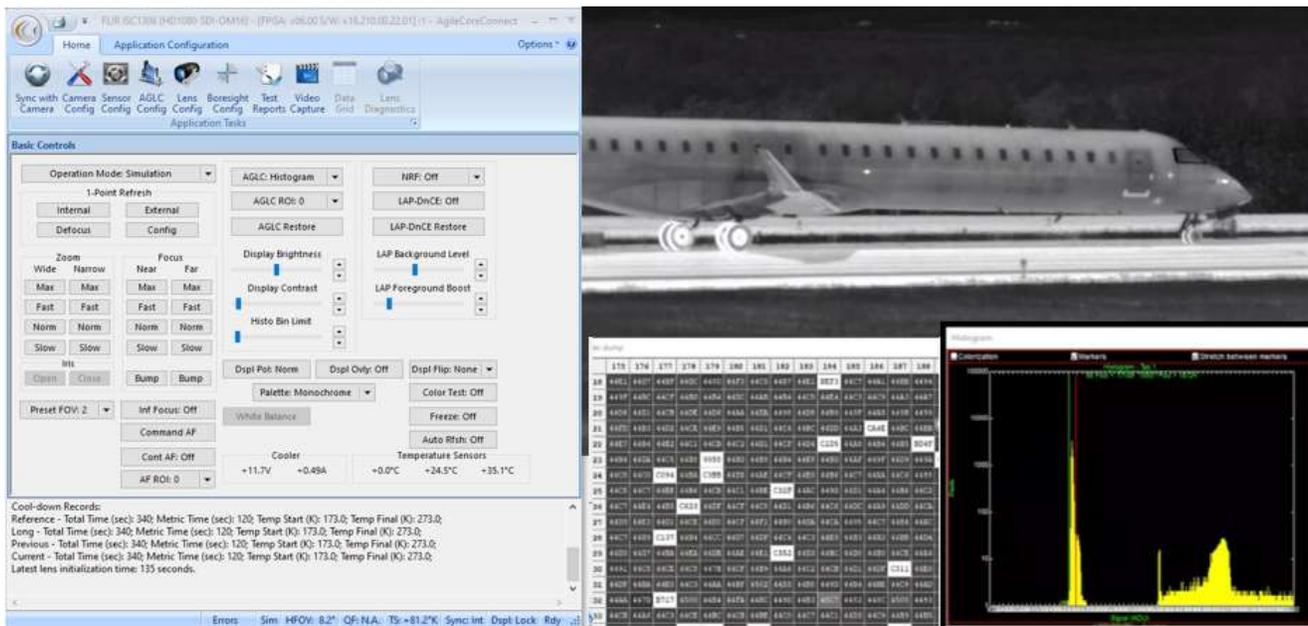
Nyx Connect™ Level 1

Ideally suited for Smart IDCA and Camera integration and enables streamlined development for engineers, systems integrators, and OEMs. The Nyx Connect software provides a user-friendly GUI enabling control over important camera and ROIC settings.
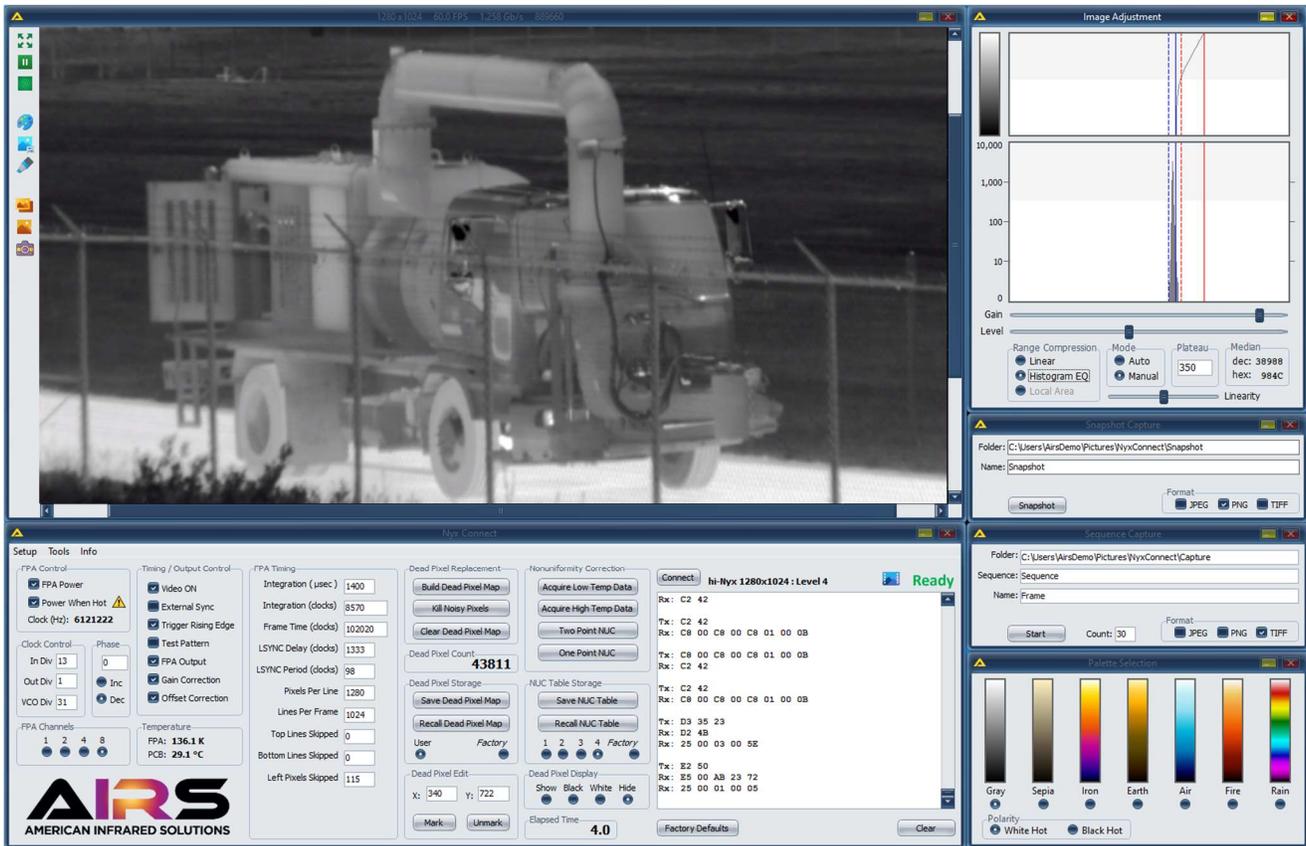
Nyx Connect™ Level 2

Enables a comprehensive set of tools for integrators, OEMs, and end users. This includes non-uniformity correction, dead pixel replacement, and four programmable NUC tables, in addition to the features included in Level 1 dashboard.

Nyx Connect™ Level 3

Provides a full suite of video processing options including lens control. A second video output channel can be configured to support HDSDI, GigE, HDMI, or USB3. Camera Link video is managed through a Imperx frame grabber, enabling live video management, scene ranges, pixel replacement and image enhancements.

Nyx Connect™ Level 4

Offers comprehensive access and control over all system attributes and crucial image management, including proprietary AIRS contrast enhancement and pixel replacement tools. Advanced pixel correction features include intuitive tools that automatically identify and replace dead pixels, along with the capability to manually mark individual pixels. Select any of seven pseudo color palettes. Save snapshots or frame sequences in JPEG, PNG, or TIFF format.

BostonElectronics

IDCA and Camera Connectivity and Control Features

Feature	Level 1	Level 2	Level 3	Level 4
Programmable Integration Time	✓	✓	✓	✓
Uncorrected Data Output	16b	16b	14b	16b
Corrected Data Output	-	16b	14b	16b
Camera Link Base Data Interface	✓	✓	✓	-
USB3 Vision	-	-	-	✓
2nd Video Output Option: HD-SDI, HDMI, GigE or USB3 Vision	-	-	✓	-
Pixel Correction	-	✓	✓	✓
Advanced Pixel Correction	-	-	-	✓
Linear AGC	-	-	✓	✓
Histogram Equalization	-	-	✓	✓
Local Area Processing	-	-	✓	✓
HDR Video Output	-	-	-	✓
Alternating Integration Times Frame by Frame	✓	✓	-	✓
Color Palettes	-	-	✓	✓
User Programmable NUC Tables & Camera States	-	4 Tables	6 Tables	4 Tables
Restore from factory NUC Table	-	✓	-	✓
Store Imagery to PC	-	-	✓	✓
Live Video in GUI	-	-	-	✓
Camera Control – RS232	✓	✓	✓	✓

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