ALRAD Instruments Newsletter December 2023

Welcome to our December 2023 Newsletter. We would like to thank you for your kind custom in 2023 and wish you a very happy and relaxing Christmas and New Year.

In this month's issue we focus on:

- PPMA re-brand puts automation at the heart of UK manufacturing
- Omron Sentech STC-MCA5MUSB3 USB3.0 Mono area scan camera
- Kowa FC24M Series - 1.1" (1.2") 24MP 2.5µm Ultra High Resolution Lens Series - New Focal Lengths of 75mm and 100mm
- The Imaging Source 37U Series Single Board, USB 3.1 Industrial Cameras with the Latest Sony Sensors
- Industrial Zoom & Autofocus Cameras
- C-RED New Space - Space-designed High Speed SWIR Camera Core
- High speed SWIR C-RED Infrared cameras from First Light Imaging
- Light Engines from Innovations in Optics and The Crucial Role of Thermal Management in LED Technology
- Light Engines from Innovations in Optics including: LumiSpectra™, LumiBright™, LumiFiber™, LumiScope™ and LumiFlood™ Ultraviolet & LumiLine™
- Enciris Launches 4K Recording, AI & Processing Board
- New Enciris 4K Remote Head Camera & Camera Control Unit Launched
- 4K Compositing Features added to Entire LT-300 Enciris Family
- Sekonic C-7000 Spectrometer for Industrial Applications.

PPMA re-brand puts automation at the heart of UK manufacturing

automate uk
ppma bara ukiva

The PPMA (Processing & Packaging Machinery Association) Group of Associations is re-branding and is changing its name to Automate UK

to better represent the needs of its membership and their end user customers in the ever-changing manufacturing landscape.

The forward-looking move was announced at the trade associations annual chairman's lunch in London on 1 December and follows the publication of a Manifesto for Automation earlier in the year. This Manifesto set out the organisation's goals and commitment to be the facilitators for change to make UK PLC more productive. It also set out the central role that automation has to play in the UK manufacturing sectors continuing success.

The PPMA was founded in 1987 and was joined by BARA (British Automation and Robot Association) and UK Industrial Vision Association (UKIVA) in 2009 which broadened the range of automation equipment and services represented. As the association matures, the leadership team feels that the time is right for the overall offer to members, and their customers, to benefit from a widening of its already extensive range of services.

As the leading trade association for automation suppliers and end users of technology across processing, packaging, robotics and machine vision, it believes it can make great strides in this crucial area of the UK economy. The three very successful associations – the PPMA, BARA and UKIVA – will continue to operate, but going forward they will come under the Automate UK umbrella.

For more information and to order, please follow the link → or call the ALRAD Sales Team on 01635 937000 , we will be happy to help:

Automate UK

USB 3.0 Monochrome Areas Scan cameras from Omron Sentech - STC-MCA5MUSB3

Available from stock in the UK

- USB 3.0 Area Scan
- 5 MP Resolution
- Color CMOS Sensor (Aptina MT9P031) 1/2.5" format, 2.2 µm pitch
- 14 fps
- Rolling Shutter
- Cased CS or C Mount (With Adaptor)

For more information and to order, please follow the link → or call the ALRAD Sales Team on 01635 937000 , we will be happy to help:

Omron Sentech Cameras

FC24M Series - 1.1” (1.2”) 24MP 2.5µm Ultra High Resolution Lens Series New Focal Lengths of 75mm and 100mm

Kowa are releasing two new models of lenses for the FC24M series, ideally suited to inspection applications:

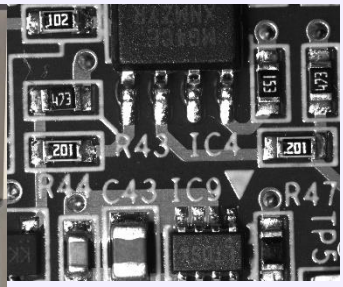
- LM75FC24M: 75mm
- LM100FC24M: 100mm

Samples are available now with volume production early 2024.

Features of the FC24M series include:

- Large image size of Φ17.6mm(C-mount)
- Suitable for Sony sensors: IMX183, IMX530/540, IMX531/541, IMX253/304
- Extensive lineup of focal lengths: 6.5mm, 8.5mm, 12mm, 16mm, 25mm, 35mm, 50mm, 75mm and 100mm
- Floating mechanism system
- Wide-band multi-coating

LM75FC24M at Working Distance of 15cm:

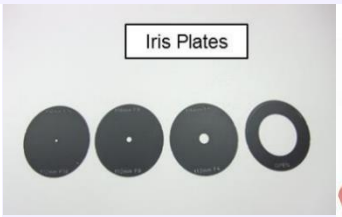


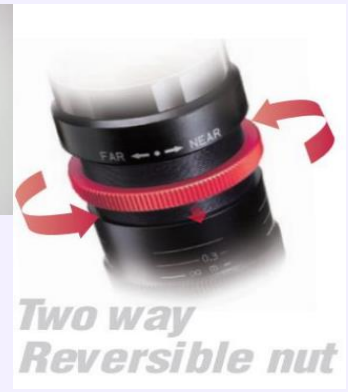
Ruggedised Version: FC24M-WP

The FC24M Series is also available in a ruggedised option FC24M-WP

This version has fixed iris plates which can be easily changed by the user with the two way reversible nut feature.

Samples of 6mm, 8mm and 12mm are available now

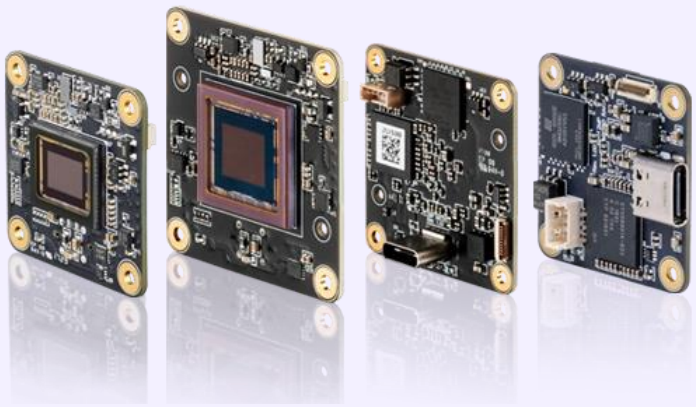




For more information and to order, please follow the link → or call the ALRAD Sales Team on 01635 937000 , we will be happy to help:

Kowa Lens

37U Series Single Board, USB 3.1 Industrial Cameras with the Latest Sony Sensors



Equipped with high-performance Sony Pregius and STARVIS sensors, The Imaging Source's cost optimised, 37U Series offers several form factor variants, providing a flexible customization concept for systems engineers and OEMs. 37 Series industrial cameras offer a compact, cost-optimised imaging solution ideal for ideal for high-speed machine vision tasks such as production automation, quality assurance and inspection.

- Resolutions: 0.4 MP - 12 MP
- Frame rates: 30 FPS - 539 FPS
- USB 3.1 Interface
- STARVIS (Rolling) and Pregius (Global) CMOS image sensors
- Trigger and I/O variants available.
- OEM cameras, applications and co-branding for customer projects
- 3-year Warranty with continuous support
- Software: TIS authors and supports device drivers, software development kits (SDKs), end user software, programming samples, extensions, and tools for Microsoft Windows and Linux.

Industrial Zoom & Autofocus Cameras

Imaging Solutions for Applications With Variable Working Distances or Object Sizes

The Imaging Source's zoom and autofocus cameras offer increased imaging flexibility when dealing with environmental challenges, variable working distances or object sizes.

The Z Series optical zoom cameras from The Imaging Source feature an integrated motorized lens for software-controlled adjustment of focal length, aperture, and focus. Available with a selection of highly-sensitive CMOS sensors (global and rolling shutter), The Imaging Source zoom cameras are perfect for applications where variable working distances, object sizes, and lighting conditions are an issue. These cameras are uniquely suited to tasks such as inspection, sorting, process control, and metrology.

The Imaging Source's autofocus cameras offer increased flexibility over fixed-focus cameras, delivering excellent image quality and optimally sharp images despite fluctuations in working distance. Additional camera features such as binning, windowing and high-speed readout provide increased imaging precision and processing speeds. Learn more about our zoom and autofocus camera families below, or contact one of our machine vision experts to find out more.

USB 3.0 AFU Series

USB 2.0 AFU Series

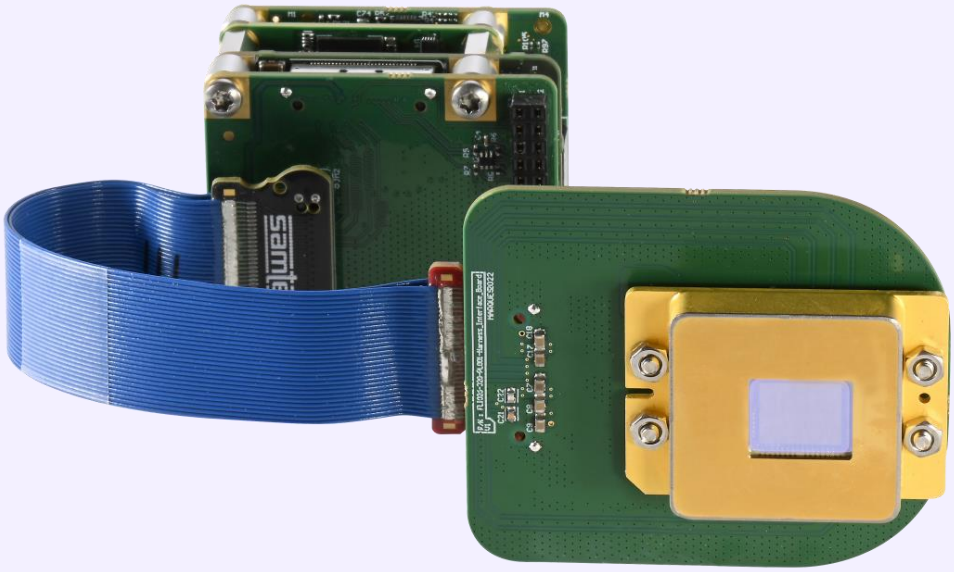
GigE Z Series

For more information and to order, please follow the link → or call the ALRAD Sales Team on 01635 937000 , we will be happy to help:

ALRAD Industrial Cameras

C-RED New Space - Space-designed High Speed SWIR Camera Core

First Light Imaging announces their latest innovation: C-RED New Space, a SWIR camera core specifically designed to uphold optical excellence and withstand the extreme conditions of space operations.



Based on a space-approved sensor and with space-designed electronics, the solutions can address applications ranging from high-speed laser beam detection (Free Space Optical communication, beacon beam tracking) to Earth observation and greenhouse gas detection. First Light Imaging can offer a high level of customisation on both the hardware, the electronic design and the firmware. With multiple on-going projects, C-RED New Space solution has already been successfully integrated into optical payloads.

- Easy integration to satellite optical payloads
- 600 FPS full frame
- 30 electrons read out noise
- VGA InGaAs, 15 µm pixels pitch
- Wavelength from 0.9 to 1.7µm
- Flat QE (1.0 to 1.65µm) 70%
- Data interface: CameraLink™
- Electronic shutter <5 µs
- On-board processing
- Multiple sync configurations
- 93 dB linear dynamic range
- True 16 bits HDR
- ROI for increased speed

- Earth Observation
- Gas Detection
- Data Exchange
- Space Exploration
- Cubesats
- FSO Comms

High speed SWIR C-RED Infrared cameras from First Light Imaging

Why use a C-RED camera?

First Light Imaging offers a full range of cameras based on InGaAs sensors. The sensors are back-illuminated which enables to reach a fill factor of 100% and feature a CTIA (Charge TransImpedance Amplifier) readout technology for a linear response. All cameras feature USB 3.1 and/or CameraLink communication interfaces. Additional key features:

High speed. All C-RED cameras can run at 600 FPS in full frame mode (640 x 512 pixels) and up to 32,000 FPS in a 32 x 4 pixels window, enabling time-resolved laser beam profiling.

Variable integration time. The integration time can be tuned down to 10 µs. For short laser pulse duration, an optimized “short-exposure” mode enables reaching integration times down to 165 ns*.

Flexible synchronization. An externally generated trigger pulse can be used to trigger both the laser and the camera. Alternatively, the camera output synchronization signal can be used to trigger the laser. Such a scheme allows to avoid introducing a jitter.

Easy integration. The cameras can be easily integrated in your system thanks to interface positioning and threaded holes and a C-Mount/CS-Mount optical interface. All cameras are supported by our multi-camera software First Light Vision and versatile SDK (MatLab, LabView, Python, *etc*.)

Small beam size. For Laser Beam Profiling applications, the sensor’s 15 µm pixel pitch allows the profiling of small beams and acquisition of additional beam details (if the laser points directly at the camera**). With a sensor active area of 9.6 mm by 7.68 mm the recommended beam diameter ranges from 150 µm to 6 mm.

Three camera models are especially relevant for applications including laser beam profiling:

C-RED 3: windowless customisation

In the case of direct incidence of the laser beam on the sensor, interference fringes tend to degrade the measurement quality. First Light Imaging can provide the C-RED 3 camera with a window-less detector to avoid interference fringes. It is also possible for the user to place a custom window coated specifically for the wavelength of use.

C-RED 2 Lite: quantitative measurements

The Thermoelectric Cooling (TEC) integrated in the camera ensures perfect stabilization of the camera performance over extended periods of time. Thanks to this feature, the camera can be used for quantitative measurements, such as power monitoring in laser beam profiling. The C-RED 2 Lite camera is provided with a Sapphire window with an anti-reflective coating.

C-RED 2 Extended Range: for 2.05 µm lasers

Standard InGaAs sensors have a cutoff wavelength at 1700 nm. To address the need to profile lasers beyond this wavelength, First Light Imaging has developed the C-RED 2 ER 1.9µm and the C-RED 2 ER 2.2µm, which enable to detect wavelengths up to 1900 nm and 2200 nm, respectively.

For more information and to order, please follow the link → or call the ALRAD Sales Team on 01635 937000 , we will be happy to help:

First Light Imaging Cameras

Light Engines from Innovations in Optics and The Crucial Role of Thermal Management in LED Technology

This month we look at the range of Light Engines from Innovations in Optics. Delivering the highest brightness and optical power available, these light engines provide optimised output solutions for a range of applications such as light guide and fiber optic coupling, fluorescence excitation, and unrivalled uniform near and far field illumination.

Optimizing Performance: The Crucial Role of Thermal Management in LED Technology

Innovations in Optics, Inc. [IOI], emphasises the paramount importance of thermal management in LED technology for optimal performance and product longevity.

LEDs, known for their energy efficiency and versatility, have become a crucial element in various industries. However, unlocking their full potential requires vigilant attention to thermal management. Heat is the nemesis of LEDs, impacting their performance, efficiency, and lifespan. IOI's commitment to delivering industry-leading LED solutions is emphasised by its focus on robust thermal management strategies.

The challenges of heat dissipation are amplified in high-powered LED application. IOI's thermal management technologies are designed to address these challenges comprehensively. By efficiently dissipating the heat from the

LEDs, these solutions enhance the stability and reliability of light engines, crucial for applications ranging from medical devices to industrial processes.

The following devices are part of the extensive light engine range:

LumiSpectra™ Illuminator

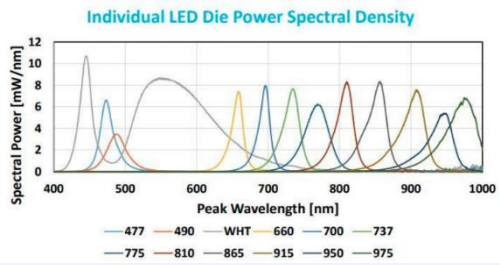
LumiSpectra™ Features

- Two options:
  - Optical fiber for up to 6mm diameter
  - Direct illumination by lens
- Radiant power output > 0.30 mW/(nm-mm2-sr)
- Contiguous Spectrum 430nm ~ 990nm
- Custom wavelength range available (UV ~ NIR)

The LumiSpectraTM Illuminator provides a unique solid state lighting solution with a continuous broadband spectrum in the 400~1000nm region to replace Xenon and Tungsten Halogen lamps.
Two user-friendly options are available in CW or Pulsed modes with external trigger and fast rise time. Wavelengths can be turned on one at a time in quick succession for improved productivity in multispectral applications without the need for a filter wheel. In addition, the LED wavelength distribution can be customised to suit the application. The output of the fiber coupled option is designed to a standard endoscopic NA of 0.66 and can accept up to 6mm diameter fiber bundles. Remote digital control is enabled by RS485 interface with Modbus RTU communication protocol.

Applications:
LumiSpectraTM can be used as a broadband multispectral source in agricultural inspection for crop health and food quality control, and industrial inspection of semiconductor wafers and printed circuit boards. The product provides a contiguous broadband light source for Hyperspectral Imaging and Multispectral Imaging. Its tunability and customisable wavelengths facilitate endoscopy, medical diagnostics, and surgery where viewing differences in tissues and early detection are critical. The spectrum can be extended further into the NIR, and coupled with InGaAs camera technology, comprises a multispectral imaging system. Other areas of interest include forensic science, archaeology, pharmaceutical production, artworks, and waste sorting.

Individual access to the LED die allows various wavelengths to be used simultaneously to mix and match wavelengths. Since the die are controlled individually, the user can adjust the output power of the wavelengths, which is not possible with conventional lamps.



Application Areas:

Medical & Life Sciences:

- Endoscopy and diagnostic imaging
- Xenon or tungsten halogen lamp replacement

Industrial & Commercial:

- Inspection
- Multispectral illumination

LumiBright™

LumiBright™ light engines feature non-imaging optics that direct light from an LED array into a desired cone angle with highly uniform illumination. The two standard far-field half-angles are 20 and 40 degrees. Available LED wavelengths range from UV to NIR, broadband white & multispectral.

The light engines support easy integration into OEM or end-user systems. These compact devices can be operated at tens of watts drive power to emit several watts of output. LumiBright light engines provide intense and stable optical power, short warm-up time, energy efficiency, low maintenance and long life.

Features:

- Optical power up to 35 watts or 5700 lumens
- UV through visible and near infrared
- Thermally controlled for long-life and high brightness
- Uniform near and far fields
- Continuous high current or pulsed operation

LumiFiber™

The versatile and powerful LumiFiber™ devices are ideal for fiber optic applications in industrial, medical, and laboratory equipment. The couplers incorporate LumiBright™ 2400B light engines with interfaces for light guides or fiber bundles; ideal for use in high performance endoscopes and borescopes.

LumiFiber™ fiber coupled devices need no additional optics for coupling light guides and fiber bundles.

Features:

- Multiple wavelengths
- Thermally controlled
- No additional optics needed

LumiScope™

Medical & Life Sciences

Applications:

- Endoscope illumination
- Fluorescence excitation and imaging

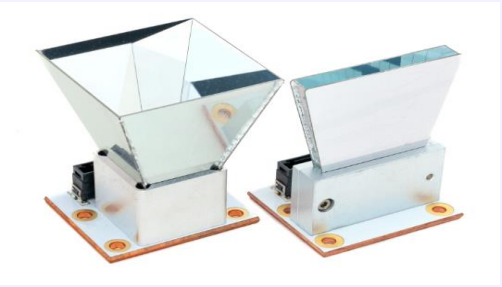
Features:

- High CRI (> 94 @ 5700K and >95 for R9)
- Output exceeds 300W Xenon short arc lamps
- >2500 lumens output into NA 0.66 fiber bundle, 5.2mm diameter aperture
- Adjustable CCT
- Accommodates single or four standard fiber interface
- Multi-channel drive electronics
- Environmental safety with lower operating cost

LumiFlood™ Ultraviolet & LumiLine™

Industrial & Commercial Applications:

- Flood curing
- Document verification
- Flood source illumination



Features:

- LumiFlood:
- Uniformly irradiates 50X50mm area at 27mm working distance
- Power output >20W at 25A
- Reflective metal optics for UV, high power, and high temperature operations
- Continuous high current or pulsed operation
- Choose from 3 UV-LED wavelengths

For more information and to order, please follow the link → or call the ALRAD Sales Team on 01635 937000 , we will be happy to help:

Innovations In Optics

Enciris Launches New 4K Recording AI & Processing Board

Enciris CH-1001 Processor board based on NVIDIA makes integration easy:

Enciris Technologies announced the launch of a new 4K video recording and AI processing board featuring a horizontal PCIe slot to partner with any 4K / HD Enciris capture or frame grabber card. The new board comes with provision for multiple NVIDIA processor options, offering differing RAM and FLASH to provide maximum flexibility for different medical use cases. The small form-factor also facilitates easy integration into a compact enclosure.

The processing board can be used with video capture and camera solutions to form a complete video processing solution and is equipped with all the connectivity a typical medical OEM requires, offering four USB 3.0, Gigabit Ethernet, SD Card slot and 4K HDMI output."

For more information and to order, please follow the link → or call the ALRAD Sales Team on 01635 937000 , we will be happy to help:

CH-1001 4K Recording, AI & Processing Board

New Enciris 4K Remote Head Camera & Camera Control Unit Launched

New compact microscopy camera features large half-inch native 4K CMOS chip for high image quality.

The new 4K remote head camera and camera control unit (CCU) features crystal clear native Ultra HD 4K resolution, 10-bit processing combined with super-fast latency performance.

Full auto-exposure, sharpness controls, advanced de-noise filtering, binning modes and low-light enhancement all work together to provide ultra-clear, ultra-low-noise imagery in almost all possible lighting conditions.

The new camera is compatible with C-Mount lenses or optionally available as a module version for integration into medical equipment such as microscopes and endoscopes. With an ultra-compact low-power design, the camera sensor typically consumes just 1.5W and offers extended temperature operation. The accompanying Camera Control Unit (CCU) features 10-bit video processing, four direct 3G/12G SDI outputs and a HDMI 4K output.

For more information and to order, please follow the link → or call the ALRAD Sales Team on 01635 937000 , we will be happy to help:

4K Remote Head Camera and CCU

4K Compositing Features added to Entire LT-300 Enciris Family

Enciris Technologies has extended the functionality of the 4K-compatible LT-300 series of Capture Cards to include new compositing features, allowing easy arrangement of two, three or four captured video inputs.

Applications for compositing include video wall, 3D and other medical or industrial applications where it is useful to be able to combine multiple incoming video sources into a single output stream.

The LT-300 products includes overlay features for text, shape(s) and image(s) with alpha blending, allowing image-injection of overlays, templates and text onto the incoming video via the direct output.

For more information and to order, please follow the link → or call the ALRAD Sales Team on 01635 937000 , we will be happy to help:

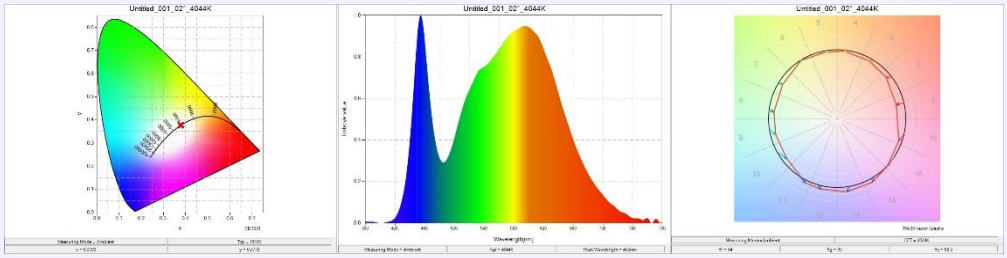
Enciris Family

Sekonic C-7000 Spectrometer for Industrial Applications

The C-7000 is a compact and lightweight spectrometer that can be carried on-site. By adopting a CMOS linear image sensor for the spectral sensor, the C-7000 can accurately measure a variety of light sources such as LED, organic EL, HMI, fluorescent light and natural light, etc. In addition, Sekonic's proprietary technology enables flash light measurement using the spectroscopic method. This single unit can measure various types of light regardless of the sources.

Various display modes:

In addition to the text mode that displays measured values numerically and the spectrum mode that displays the wavelength of the light source, various display modes such as CRI mode, 5 colour rendering evaluation modes, chromaticity diagram mode (CIE1931, CIE1976), chromaticity diagram comparison mode (CIE1931, CIE1976), etc. are available.



For more information and to order, please follow the link → or call the ALRAD Sales Team on 01635 937000 , we will be happy to help:

Spectrometers

ALRAD Instruments - Technology Divisions

ALRAD IMAGING | ALRAD PHOTONICS | ALRAD ELECTRONICS

ALRAD THERMAL | ALRAD MEDICAL | ALRAD VACUUM

ALRAD Instruments has six technology divisions and a wide portfolio of components and products for industrial, scientific, research, medical and academic fields - please check out our divisions below - we will be happy to help with any questions:

ALRAD 50 YEARS 1970 - 2020

ALRAD Instruments Limited celebrated it's 50th Anniversary in 2020. Set up in 1970, ALRAD Instruments has been serving the Industrial, Scientific, Medical and Instrumentation markets for five decades and has a wealth of experience in all aspects of Imaging, Photonics, Thermal and Medical sectors.

+44 (0)1635 30345
sales@alrad.co.uk

© 2023 ALRAD Instruments