

ALRAD Instruments Newsletter

April 2023

Welcome to our April 2023 Newsletter.
In this month's issue we focus on:

- ALRAD JOSCAR Membership
- The Cavitar C400 Welding Camera
- Workswell WIC Industrial - IP67 Thermal Camera
- iRayple line scan - Compact C-Mount Linescan
- Improve Contrast and Resolution with MidOpt® Bandpass Filters
- ELDIM - CubeX-150 for the Angular Spectral Measurement of Electronic Displays
- ELDIM - Optiscope 200 R2 - response time measurements for displays
- Workshop of Photonics - Circular Grating / flat Axicon
- Benchtop and Pocket Spectroscopes

ALRAD Instruments is JOSCAR Registered



Services for Aerospace, Defence & Security Sectors:

JOSCAR is a collaborative tool used by the aerospace, defence and security industry to act as a single repository for pre-qualification and compliance information. Using JOSCAR can determine if a supplier is "fit for business".

The Cavitar C400 Welding Camera



The core of the welding process emits very bright light that "blinds" the eye as well as normal camera systems. Without special visualisation techniques the proper visual monitoring of a welding process is impossible. Cavitar

Welding Cameras enable the clear visualisation of welding processes as if they were cold. Our solutions range from complete, compact, ready-to-use visualisation solutions, including camera, integrated laser illumination and optics, to highly customisable systems to meet specific customer. They are applicable for all major arc welding processes like GMAW (MIG, MAG) and TIG as well as for all major beam welding processes like CO2 laser, fibre laser, diode laser, Nd:YAG laser and electron beam applications.

Applications:



- GMAW welding (MIG, MAG)
- TIG welding
- Hybrid welding (laser and arc welding)
- Laser welding (e.g. CO2, Nd:YAG, fibre and disc lasers)
- Electron beam
- Robot welding
- Semi-automated welding
- Linear welding
- Orbital welding

Benefits:

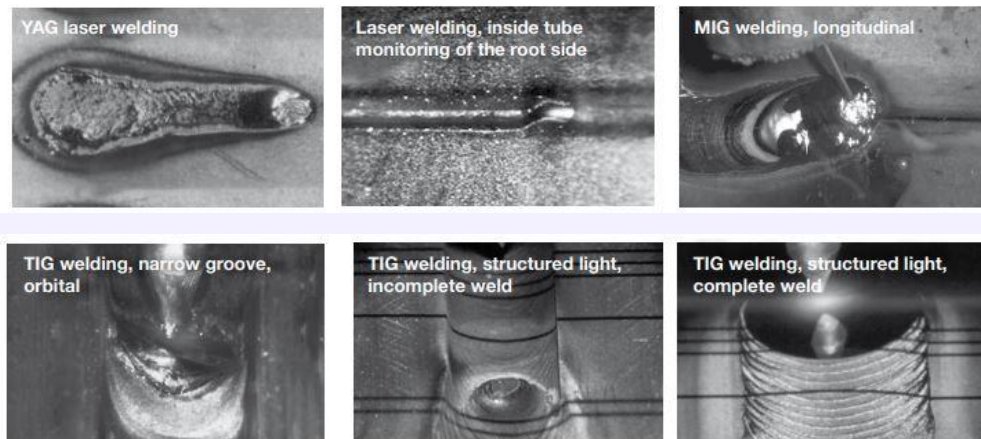
- Welders and operators can adjust the process in real-time based on the images
- Images can be used for image analysis and automation
- Images or videos can be stored for quality documentation
- Fast error detection reduces scrap
- System can be operated from a safe distance to the process
- Improved working ergonomics for the welder
- Reduced risk of inhaling unhealthy welding fumes
- Faster set-up time for welding processes
- High image quality
- Compact system for easy integration
- Plug and play operation
- Robust and suitable for 24/7 industrial use
- Laser class 3R solutions are possible

Small solution for easy integration: Robust, compact and reliable – capable of fulfilling the toughest operational requirements, Easy to use and integrate, Different levels of integration depending on the application.

See through heat and blinding brightness straight to the core of your welding process: Immune to surrounding light and vibrations, Visualisation of weld position with respect to the object gap position (visual seam tracking), Visualisation of the presence of unwanted droplets.

Monitor and adjust in real-time: Monitoring of the melt pool behaviour (boundary, shape, size, stability), Monitoring of filler material inside arc – adjust and optimise the welding device accordingly to get a stable process. Monitoring of the actual length of the free filler wire. Simple real-time measurements with image calibration and adjustable guidelines, High-quality live video that can be saved for documentation purposes.

Far-reaching and safe to operate: Easy process monitoring by operator from a safe distance – avoid exposure to arc and welding fumes, Good ergonomics for the operator, Reaches the process even in difficult places – for welding behind corner, in limited spaces or in dangerous environment.



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:

[Cavitar C400 Welding Camera](#)

WIC Industrial - IP67 Thermal Camera

Designed and manufactured for easy and user-friendly plug & play integration for all process control and quality control applications. Customers can choose from two types of camera resolution, ie. 640x512 or 336x256 pixels, also from several different lenses and can choose temperature range up to 1,500 °C. Internal electronics are protected by a high IP66/IP67 rating enclosure and can be installed in harsh conditions from -50 °C to +200 °C. Also 30mK sensitivity is offered as standard



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:

[Thermal Cameras](#)

Compact C-Mount Linescan Cameras



2K Resolution, 59kHz Line Rate, 7µm Pixel Size

The 2K resolution C-mount Line Scan Camera is highly reliable and cost-effective for industrial use.

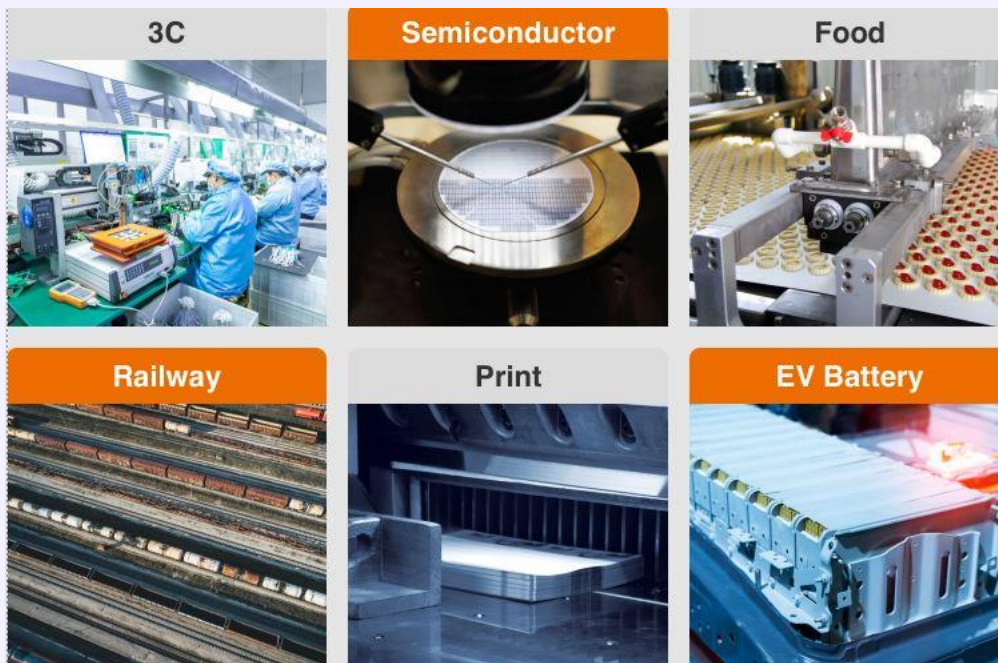
The Camera uses a high-performance image sensor and it supports real-time transmission of image data (up to 1000 Mbps) through a Gigabit Ethernet interface. It is compatible with any application development tools that comply

with GigE Vision and GenICam standards.

Line scan cameras are typically used to inspect materials on fast or continuously moving production lines, such as metals, plastics, paper, and fibres.

Features:

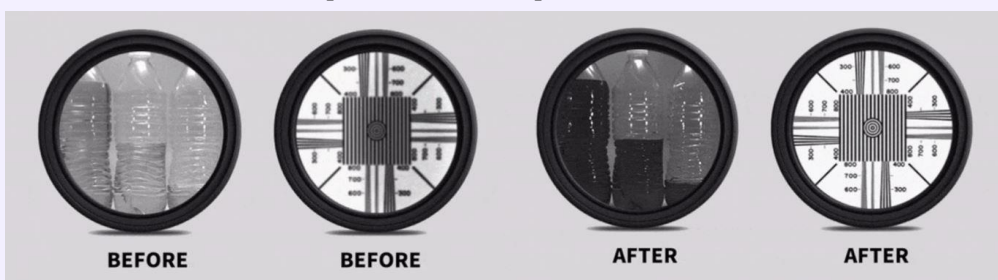
- Simple installation and convenient operation.
- Maximum transmission distance of 100 m. We recommend using CAT 5 cables or above.
- Multiple trigger modes such as external trigger, free-run, multi-frame trigger, and more.
- Supports outputting multiple formats of image data.
- Compatible with GigE Vision protocol and GenICam standard.
- 12–24 VDC wide range voltage.
- Complies with CE and FCC certification standards.



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:

[Industrial Cameras](#)

Improve Contrast and Resolution with MidOpt® Bandpass Filters



Bandpass Filters are one of the simplest ways to improve image quality. They have the unique ability to block unwanted ambient light while passing only the necessary light output – improving contrast and resolution.



Improve Contrast:

Ideal contrast results by passing (highlighting) only relevant wavelengths from the item being inspected and blocking (darkening) the area not needed for inspection. MidOpt® offers a complete line of Bandpass Filters for use in a broad range of applications.

Improve Resolution:

Bandpass Filters improve resolution by reducing the wavelength range of light allowed to pass through the camera, eliminating chromatic aberrations. This is even more apparent in broad spectrum imaging where ultraviolet (UV) and infrared (IR) wavelengths are present.



BP Series filters are less susceptible to short-shifting

MidOpt StablEDGE® filters are uniquely designed to reduce angular dependency while maintaining a stable, high-transmission passband. Traditional interference bandpass filters are highly sensitive to the angle at which light strikes and usually don't perform well at wide or shallow angles of incidence.

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:

[MidOpt Filters](#)

CubeX-150 for the Angular Spectral Measurement of Electronic Displays



CubeX-150

ELDIM's multi-angle spectroradiometer CubeX-150 is ideally suited for both R&D teams and mass production lines due to its speed, accuracy and multi-application use. The CubeX-150 is based on completely new technology patented by ELDIM. To understand this technology, imagine that you are moving a spectrometer around the DUT and taking a measurement every 2.5° in a viewing cone of $\pm 60^\circ$. The CubeX-150 provides emission data, including flicker information, at all these angles. The measurement time of the equipment is less than 2 seconds, and all of the acquired data can be transferred by ethernet cable or WIFI. This equipment operates in the visible wavelength range and is used to measure displays including LED, OLED, uLED and Micro Displays in a wide range of sectors including Automotive, Avionics, General displays, Military and Mobile phone applications.

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:

CubeX-150

ELDIM - Optiscope 200 R2



**Response time measurements for:
Displays, R&D, Standards Compliance Tests, Mass Production**

Display technology is evolving and continually using new driving methods such as overdriving which leads to complex temporal behaviour of the display's emissions. Great care must be taken not only on the measurement itself but also on the measurement analysis.

OPTIScope looks like a conventional camera but includes all the hardware needed for temporal and luminance measurements. The OPTIScope includes a complete and sophisticated solution for measurement analysis and response time extraction. VESA procedure, low pass and stop band filtering can be applied.

The system is provided with automated software that automatically drives the measurement sequences from one level through all levels or from any selected level to level. Direct regression of the temporal behaviours with different mathematical models is used to extract response time values and additional parameters related to the shape of the temporal behaviours (overdrive, underdrive...etc).

The OPTIScope can also measure flicker amplitude accurately down to -75dB well below the level of sensitivity of the human eye. The software can also compute Moving Picture Response Time features and deduce BEW and NBET parameters for any grey level.

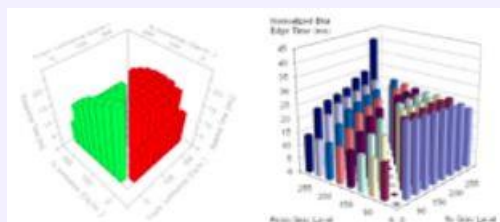
The OPTIScope 200 R2 can be used at various distances from the display down to ~30cm.

Features:

- High Speed measurement
- Sampling step: 1 μ m
- Luminance Meter

Applications:

- Response Time
- Luminance
- Flicker/VCom
- MPRT
- Gamma Curves



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:

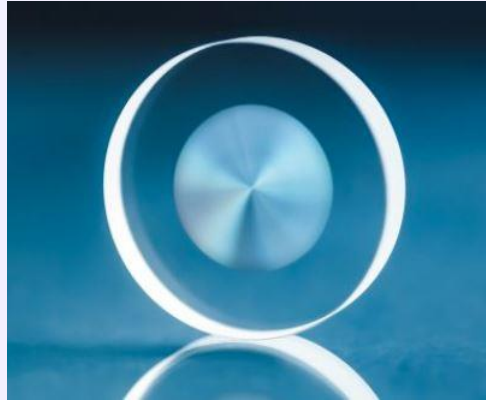


Circular Grating - Flat Axicon Transforms Gaussian beam into a Bessel-Gauss beam

A Circular grating, also known as a flat axicon, is a space-variant retarder that transforms a Gaussian beam into a Bessel-Gauss beam.

Main features:

- Positive and negative Bessel-Gauss zones – 3 in 1 usage possibilities.
- Suitable for high LIDT applications and high-power lasers.
- Flat optics – saves space, easy to handle.
- Reliable and resistant surface – the structure is inside the bulk.



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:

[Circular Gratings](#)

Spectroscopes

Spectroscopy is an interesting visual subject for students. This spectroscope helps teachers to demonstrate simply and clearly. Uses include:

- * FRAUNHOFFER LINES
- * FLAME TEST IN CHEMICAL ANALYSIS
- * ABSORPTION SPECTRA THROUGH LIQUIDS
- * BRIGHT LINE SPECTRA FROM DISCHARGE TUBE

High quality optical components ensure that absorption bands show up clearly - even weak bands that are sometimes difficult to detect.

The spectrum is generated by a particularly bright transmission diffraction grating of 600 lines/mm.

Fixed construction - no need for adjustment. Robust assembly to withstand years of use.



Benchtop Spectroscope:

Features: Large diameter eyepiece aperture facilitates comfortable viewing of the single large and bright spectrum which is centrally placed in the field of view.

Benchtop size: 105mm x 25mm, Boxed weight: 115g, Supplied in protective rigid box.



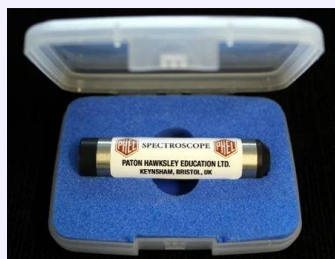
Polarising Eyepiece:

A rotatable linear polarising eyepiece for the TE313 benchtop spectroscope allowing observation of polarisation effects in gemstones and other materials. A handy tool for observation in the field.

Pocket Spectroscope:

This spectroscope model is a small lightweight pocket sized instrument, designed for personal use by gemmologists and scientists working in the field. Uses include:

Gemstone analysis, Flame test in chemical analysis, Absorption spectra through liquids



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:

[Spectroscopes](#)

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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 Instruments Limited celebrated its 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.