

OPTURA

Measure total cell density with OPTURA
bio-reflectance sensors

ABER





The experts in biomass monitoring

Welcome to ABER, where we are dedicated to providing exceptional biomass monitoring solutions to our valued customers worldwide. As an employee-owned business, every member of our team shares ownership and takes pride in their responsibilities.

This unique structure, coupled with our customer-centric approach, fosters transparency, open-mindedness, and a strong sense of unity. It empowers our owners to drive continuous improvements and provide premium solutions to our customers.

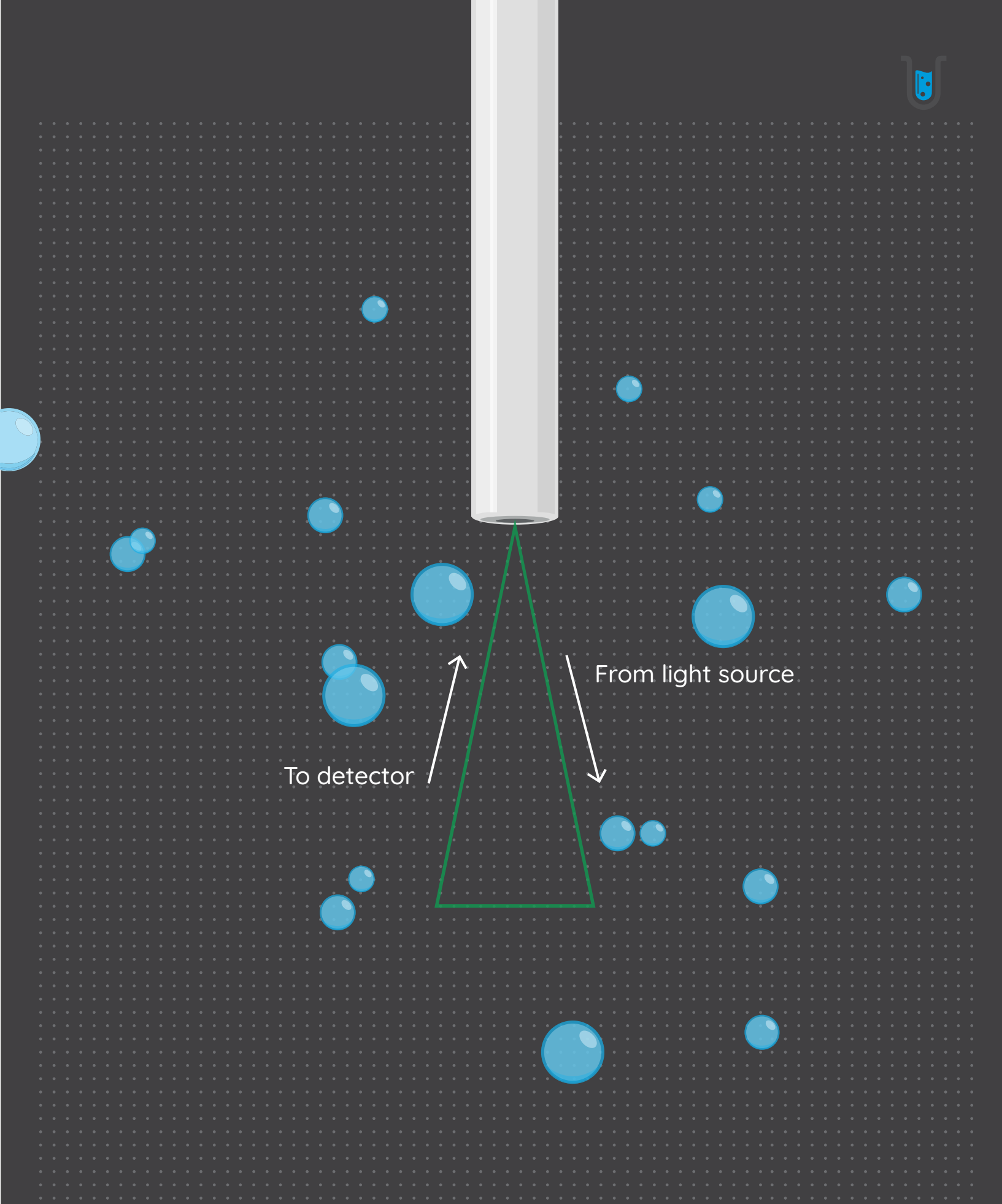
Since its inception in 1988, ABER has been at the forefront of biomass monitoring technology. The company pioneered the development of dielectric spectroscopy for monitoring live biomass. This groundbreaking technology, now known as the FUTURA range of capacitance instruments, has gained global recognition and adoption by the world's leading biotech companies. Today, ABER's innovative solutions have become routine tools within both R&D and cGMP. In addition to dielectric spectroscopy, ABER has expanded its portfolio of biomass solutions to include a new range of bio-reflectance based systems, providing a comprehensive approach to monitoring biomass, including total cell density.

Why OPTURA?

The OPTURA range utilises near Infrared bio-reflectance measurements to deliver rapid insight into your biological processes. The NIR laser is emitted from the sensor face into the media, cells present in the media reflect the laser back into the sensor's measurement face, resulting in a measurement of reflectance where increasing reflectance return corresponds with increasing biomass.

Due to the chosen wavelength, the sensor achieves a small measurement field which is less likely to be impacted by interfering objects within the vessel, coupled with the various sensor types within the OPTURA range, can tackle a wide variety of applications.

Bio-reflectance technology effortlessly accommodates a variety of cell types, including mammalian and microbial cells. By harnessing superior reflectance technology, the sensor achieves a high linear biomass range from seeding to harvest concentrations, all with a single sensor. This eliminates the need for frequent wavelength switching or adjustment of settings, providing a simplified and efficient monitoring experience.



The OPTURA range

OPTURA is available in three product formats:



OPTURAPALM

Provides contact-less biomass measurements right in the palm of your hand. With the **OPTURAPALM**, you can easily monitor biomass growth while maintaining a sterile environment. Simply press the device against your vessel and let ABER's technology do the rest.



OPTURASPY

Contact-less, real-time biomass measurements. This small profile sensor utilises an adhesive vessel adaptor, making it highly adaptable and capable of monitoring biomass in a variety of vessel types. Containing the revolutionary bubble filter algorithm, this small sensor provides big possibilities.

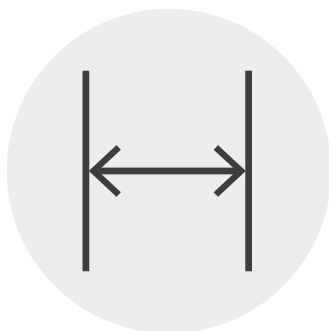


OPTURASCOPE

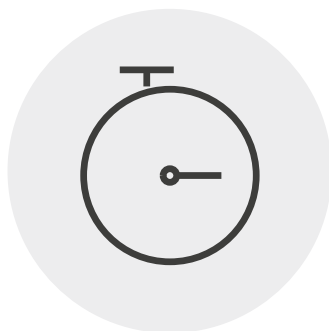
Experience real-time measurement of total biomass with our sensor which is easily inserted into your vessel via a head plate or bioreactor ports, this sensor provides in-line monitoring without the need to manipulate wavelengths or worry about interfering bubbles.



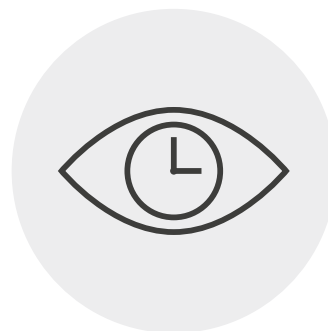
Key benefits



Contact-less
measurement



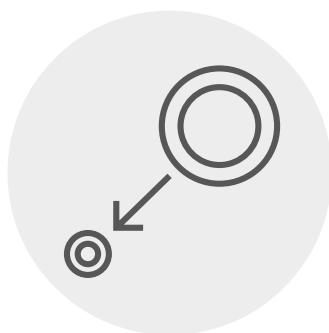
Quick readings



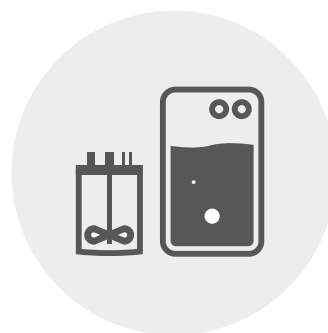
Real-time
readings



Biomass and growth
rate readings



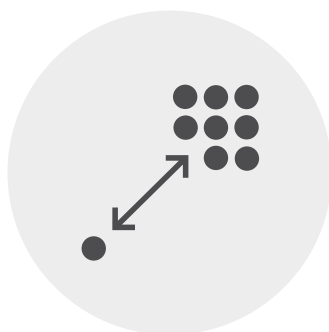
Small sensor profile



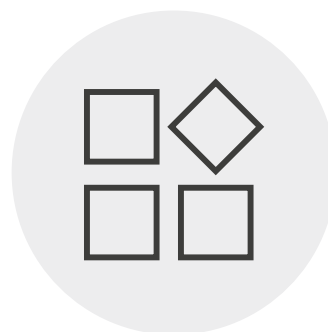
Works in a variety
of vessel types



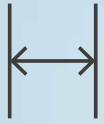
Reduce manual
readings



Wide linear
biomass range



Wide range of
applications



Contact-less
measurement



Reduces risk of
contamination



Quick readings





OPTURAPALM

Designed with convenience in mind, the **OPTURAPALM** sensor is the perfect companion for the lab.

This handheld biomass sensor provides instant real-time readings, allowing you to obtain results on the spot. With its user-friendly design, simply press the **OPTURAPALM** sensor against your shake flask or vessel, and within moments, you'll have the measurement. Streamline your workflow as you swiftly move on to the next task, increasing efficiency and maximising productivity in the lab.

The PALM has the versatility to be used on a variety of vessel types from shake flasks to falcon tubes and can also be used on a variety of cell types. The user can upload up to 16 custom biomass calibrations to the PALM, simply cycle through the calibrations to find the one you need and start taking biomass measurements.

Can be used on a variety of vessel types



Key benefits:

- Contact-less measurement
- Reading in 5 seconds
- Portable
- Re-chargeable
- Customisable read out
- Archive readings and upload calibrations with the PALM Connect Software



Bubble filter algorithm

The disruptive impact of bubbles on biomass readings is a well known challenge and is commonly encountered with traditional biomass sensors.

Historically, bubbles can cause:

- Noisy readings
- Non-representative readings
- High biomass prediction errors

The patented bubble filter algorithm has been rigorously tested and proven effective up to 2 VVM, delivering reliable results in various challenging operating conditions in a range of applications.

Key benefits:

- Distinguishes signal between bubbles and cells
- Provides smooth data representing biomass only
- Works in highly aerated environments
- Works quietly in the background

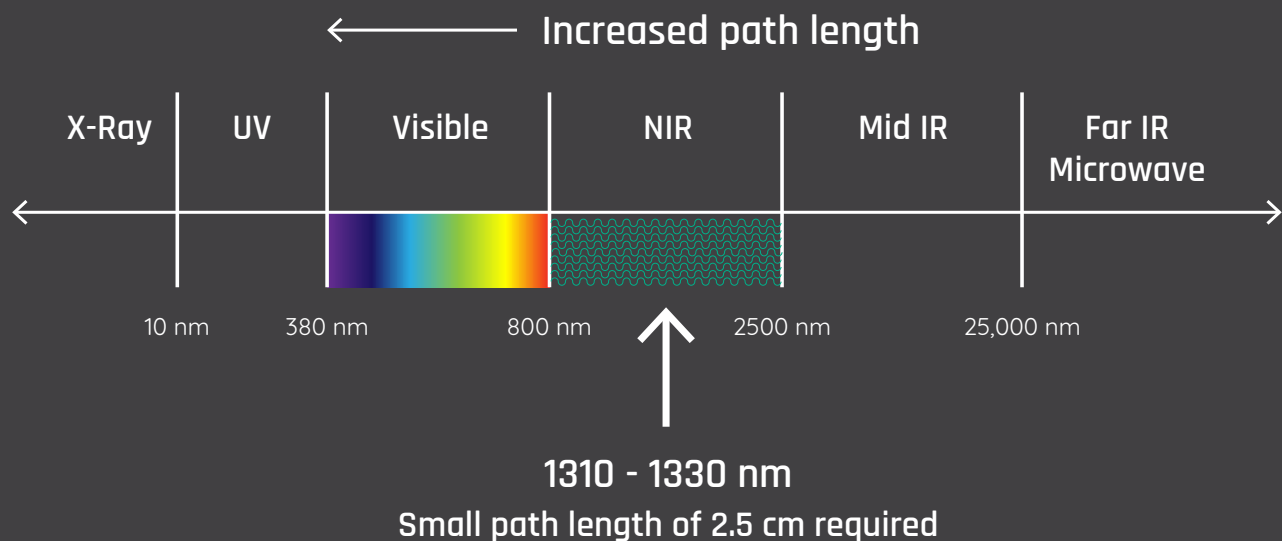




Fixed NIR wavelength

The fixed wavelength between the region of 1310-1330 nm has been selected to maximise sensitivity to changes in biomass from seeding to harvest concentrations, no matter what the application is. This near infrared range minimises loss of signal due to absorbance as it is not affected by coloured media constituents.

Our chosen wavelength enables a narrow measurement field of up to 2.5 cm from the sensor face, ensuring accurate and representative readings while minimising back reflectance from interfering elements associated with shorter wavelengths.



Ambient light removal

When it comes to optical instruments, the influence of ambient light can pose a major obstacle. However, with OPTURA, we have developed a sophisticated data sampling technique that effectively mitigates the effects of ambient light on the instrument

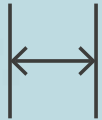




Wide linear
biomass range



Real-time
measurement



Contact-less
measurement





OPTURASPY

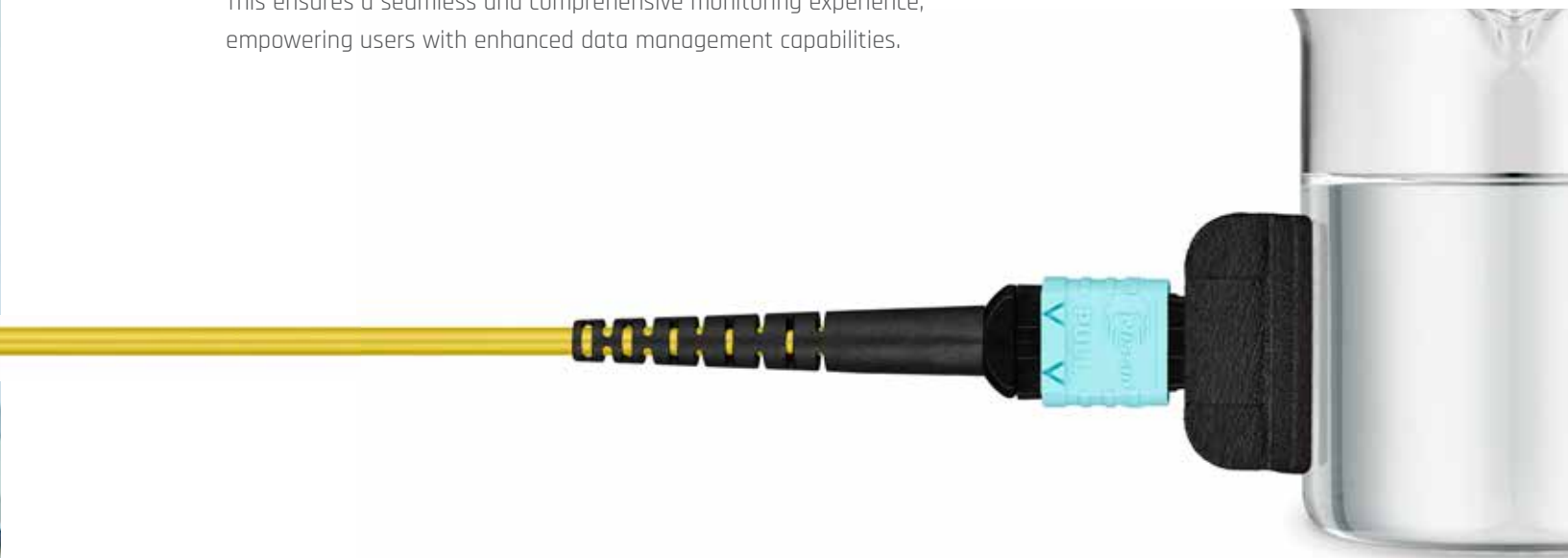
Say goodbye to limitations imposed by bioreactor ports and embrace a new level of flexibility in data collection.

The **OPTURASPY** sensor is designed to provide real-time contact-less measurements. With the use of a single-use adhesive vessel adaptor, you can effortlessly take biomass measurements through vessel walls. Simply affix the vessel adaptor to a suitable location on your vessel, click the sensor into place, and begin measuring.

The **OPTURASPY** sensor's compact profile and adaptability make it compatible with a wide range of optically clear vessel types. From downstream tubing to bioreactors and single-use bags. Experience the freedom to monitor biomass across diverse applications with unmatched convenience. The sensor is connected to the **OPTURASPY** HUB, serving as the primary transmitter. This offers versatile functionality, enabling its integration with the provided OpturaView software or direct integration into existing control systems. This ensures a seamless and comprehensive monitoring experience, empowering users with enhanced data management capabilities.

Key benefits:

- Contact-less, real-time measurements
- Biomass and growth rate readings
- Small sensor profile
- Wide linear biomass range





Wide linear
biomass range



Real-time
readings



Live biomass
trends





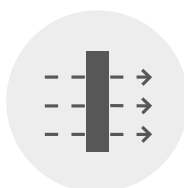
OPTURASCOPE

The **OPTURASCOPE**, an advanced insertion sensor, provides real-time biomass measurements in conjunction with headplate ports and bioreactor fittings.

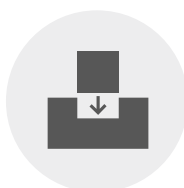
This versatile solution integrates into existing setups, ensuring efficient and seamless monitoring. Designed to meet stringent cGMP and USP Class VI compliance standards, this highly qualified sensor is capable of withstanding rigorous CIP, SIP and autoclave cycles.

Utilising the ViewPort® optical sensor interface from SCHOTT, the hermetically sealed window ensures precise transmission of optical signals, while its remarkable durability maintains optical integrity for reliable measurements over time.

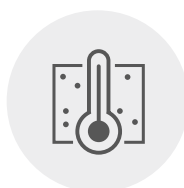
The **OPTURASCOPE HUB** acts as the central transmitter for the sensor, enabling seamless data transmission and integration. It supports both **OPTURAVIEW** software and direct integration into existing control systems, providing flexible monitoring options.



Excellent optical performance



Easy to integrate



Approved sterilisable materials



25mm



12mm

At ABER, our customer-centric approach is at the core of everything we do. We take pride in fostering collaborative partnerships to deliver the best possible solutions. Our dedicated sales and support team, along with our extensive distributor network, ensures world-class support for our valued customers.

Sales enquiries & orders

Feel free to get in touch with our sales team today, and let us demonstrate how ABER can elevate your biomass monitoring capabilities to new heights.

sales@aberinstruments.com

+44 (0)1970 636 300

Technical support

We understand the importance of having access to reliable technical assistance, and our knowledgeable team is committed to sharing their expertise to address any inquiries you may have. Whether you require clarification on product specifications, troubleshooting assistance, or guidance on optimising performance, we are here to help.

support@aberinstruments.com

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Distributor network

At ABER, we have established a global network of hand-picked distributors who have undergone rigorous training to provide exceptional service and support. To locate your nearest distributor, visit our website and navigate to the distributor section.

www.aberinstruments.com/find-a-distributor

For more information regarding ABER Instruments' OPTURA product suite and applications please contact:

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Or visit our website: **www.aberinstruments.com**

The ABER logo is displayed in a bold, teal, sans-serif font. The letters are closely spaced and have a modern, clean appearance. The background behind the logo is a dark grey, which makes the teal color stand out.