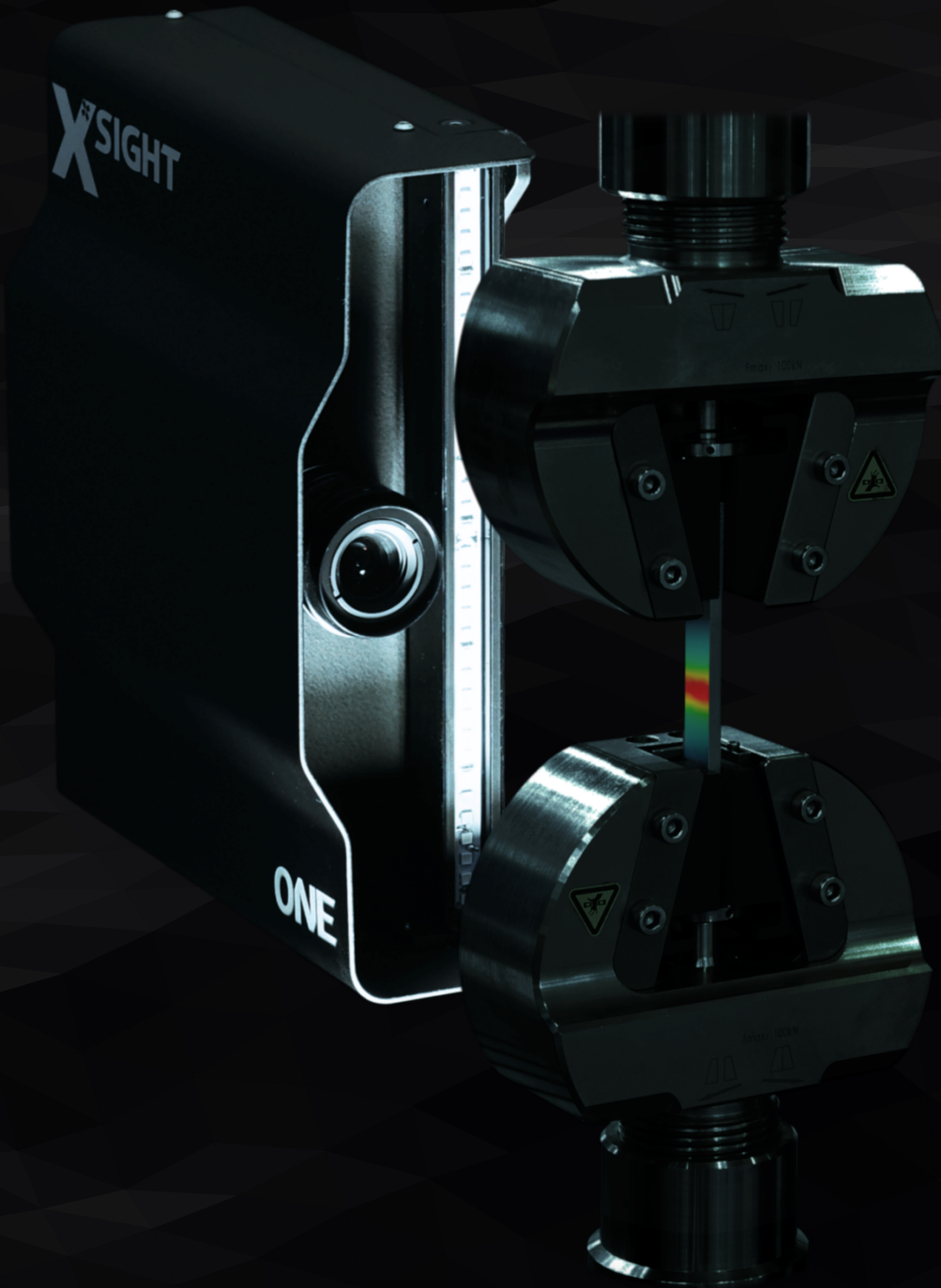




MATERIAL TESTING



OPTICAL EXTENSOMETER & STRAIN ANALYSIS CATALOG



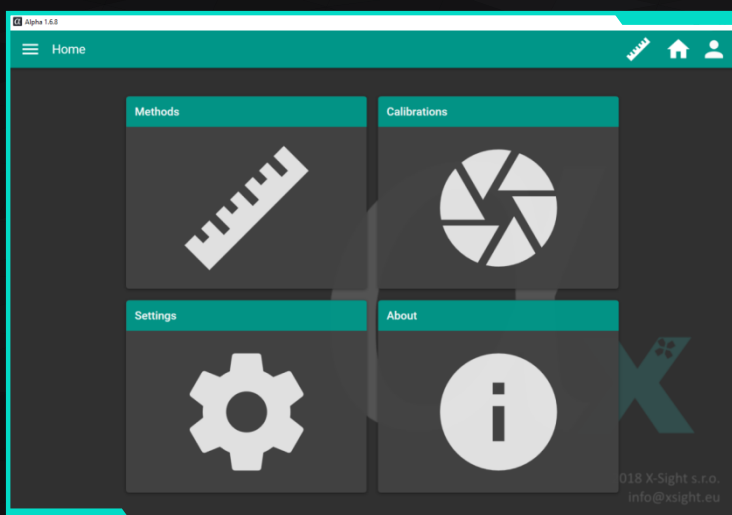
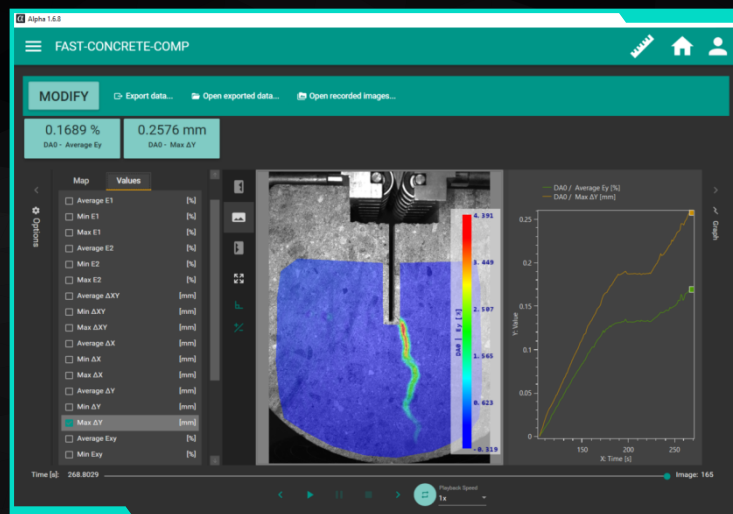
The Alpha strain analysis software is a user interface between the operator and complex digital image correlation (DIC) mathematical operations, which process images acquired by one of our measuring devices.

You will love its simplicity while its advanced features will keep impressing you.

Alpha software is modular, which means that it can serve in any configuration ranging from a lean and uncomplicated uni-axial optical extensometer to an advanced full-field strain mapping analysis post-processor.

Key Features

- Method presets linked with a calibration
- Simultaneous multi-probe measurement
- A wide palette of available outputs
- Lockable administrator account
- Easily manageable calibrations
- Digital image correlation



Unique Functions

- Incline measurement ➤
- Torsion measurement ➤
- Transversal edge detection ➤
- Crack length measurement ➤
- Fragmenting surface measurement ➤
- Position averaging for a smooth reading ➤
- High-sample-rate real-time strain distribution ➤

Extreme Line

An advanced probe for axial neck detection. Provides an improved E-modulus reading and minimizes the occurrence of invalid tests caused by rupturing outside the gauge length area.

Line

An elementary measuring probe for strain and length determination.

Torsion Line

Enables dual position angular twist and strain measurement.

Crack Probe

Measures a crack length during static or dynamic tests.

DIC Area

A full-field probe for strain and displacement distribution mapping. Supports evenly triangulated mesh as well as mesh based on user-defined points.

Trans Line

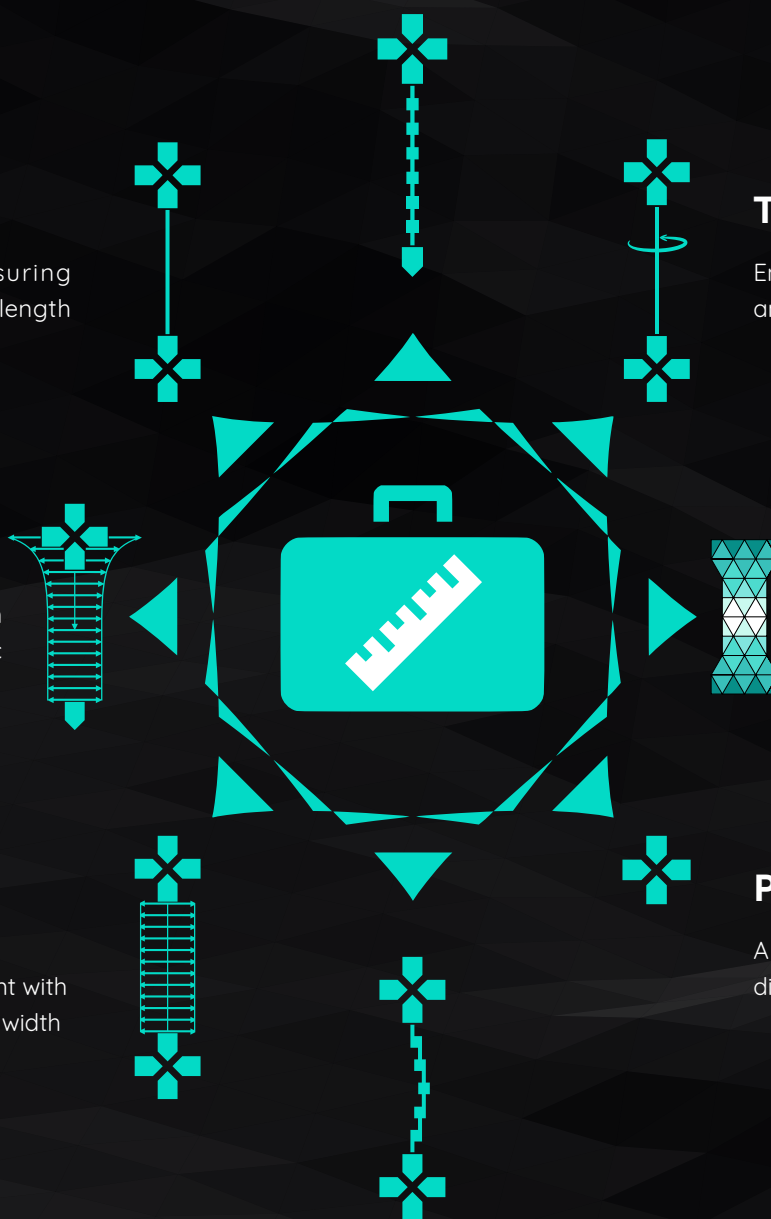
Offers a multi-positional transversal measurement with averaged and max/min width functions.

Point

A basic measuring probe for displacement determination.

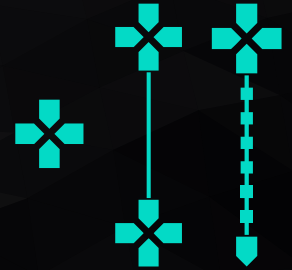
Bend Line

A probe designed to be used during bending tests. Measures strain over a curved shape and enables the visualization of the strain distribution in real-time.



A – Axial Strain

Allows for measurement of axial strain in real-time. In addition to the elementary measuring probes such as Point probe and Line probe, the Alpha Axial Strain measurement module includes the Extreme Line probe that divides the length of the specimen into multiple precisely defined gauge segments and detects the necking area. This function provides an advantage over conventional single-position measurement, wherein a rupture outside the gauge length area causes test invalidity.

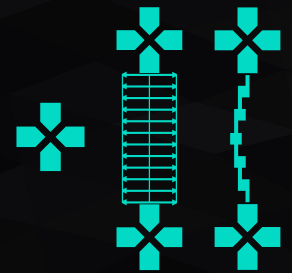


T – Transversal Strain

Allows for measuring of transversal strain in real-time. In addition to the elementary measurement probes such as Point probe and Line probe, the Alpha Transversal Strain measurement module includes the Trans Line probe with the edge detection feature.

The Trans Line offers single or multiple line width measurement. This is an advantage over the conventional single-position measurement. All lines can be averaged for a precise Poisson's ratio reading.

The transversal module does not support axial strain measurement.



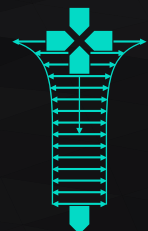
AT – Axial & Transversal Strain

A bundle of Axial and Transversal modules.

CL – Crack Length

This module is designed for crack length measurement of compact tension (CT) or double cantilever beam (DCB) specimens.

Line probe function is included in the CL module. Line probe enables crack opening measurement providing results comparable to conventional devices.



PP – Post Process

This module unlocks a remarkably efficient tool for processing of previously recorded tests with sub-sequent playback and data export. Each real-time measurement method can have multiple offline records with a custom probe layout.

Post-Process is an optimal solution for measurement of unique or expensive specimens and components.



DIC AREA

This module provides a strain or displacement distribution map, thereby enabling to obtain maximum available data from each experiment. This feature surpasses other technologies on the market. It helps users all over the world not just to improve the understanding of their experiments, but thanks to an easily interpretable output, also to sell their results effortlessly.



TR – Torsional

Allows for measurement of angular twist on cylindrical specimens in two positions. Usable in static and dynamic applications.

This module is an extension and works only with the A or T modules.



LSD – Line Strain Distribution

While a full-field strain distribution via DIC Area analysis needs post-processing due to a high number of computational points, the Line Strain Distribution provides a colourful strain visualization feature during real-time measurement.



ITT – Intelligent Tensile Test

An advanced feature for measuring specimens with an outside layer creating fragments that eventually fall off.

A typical application is a tensile test of reinforcing steel bars with a layer of oxide or rust.



DIN – Device Input

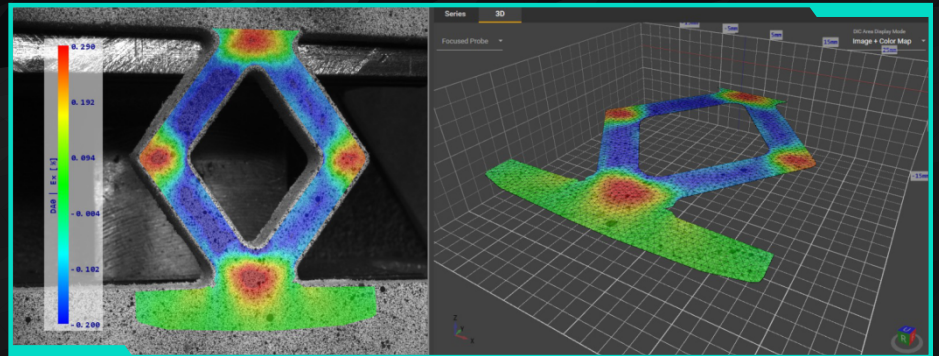
Enables real-time import of external values concerning force, motion, or temperature as an analog or digital signal into Alpha. Useful mainly for post-processing or measurements taking place outdoors.

3D – Stereoscopic DIC

Alpha 3D DIC combining DIC with stereo vision, can measure the 3D displacement field and surface strain field of 3D objects.

Key Features

- Spatial real-time measurement
- Assisted 3D calibration procedure
- Real-time value averaging
- Time to Measured Value charts
- SW optimized for low latency – processing frames at high FPS
- Advanced calibration grid accuracy – easy adjustment for faster calibration
- Multiple stereo camera pair support for extended Field of View
- Stereo camera synchronization supporting multiple camera pairs
- Measurement probes:
 - 3D Point – comparable to 2D Point
 - 3D Line – comparable to 2D Line
 - 3D Area – computation of 3D deformation tensors and their evaluation using statistical functions, surface reconstruction in 3D space
- Data post-processing and playback
- Real-time value output to a multitude of connected A/D devices (D/A converters and other generic binary or digital outputs to 3rd party applications)
- Real-time input of external values (from A/D converters or generic digital inputs transmitting data from testing machine sensors or other devices)
- SW can be fully controlled via API commands and queries
- Post-process features:
 - Computation of recorded data
 - Computed data browsing and evaluation
 - Rendering of color maps showing deformation
- 3D VTK Export (generic export useful for any further data processing and import into CAE (CAD/FEM/CFD) systems such as ANSYS and ParaView)





ONE SERIES

The ONE series optical extensometers are smart and easy-to-use devices for routine testing in both industrial and R&D environments.

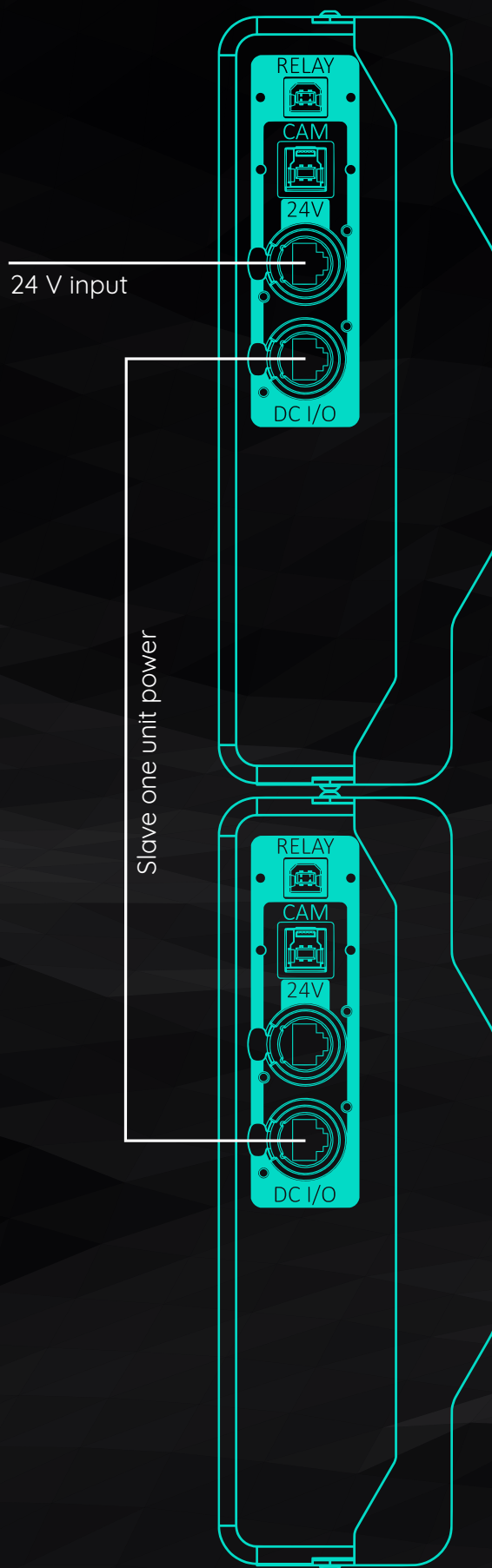
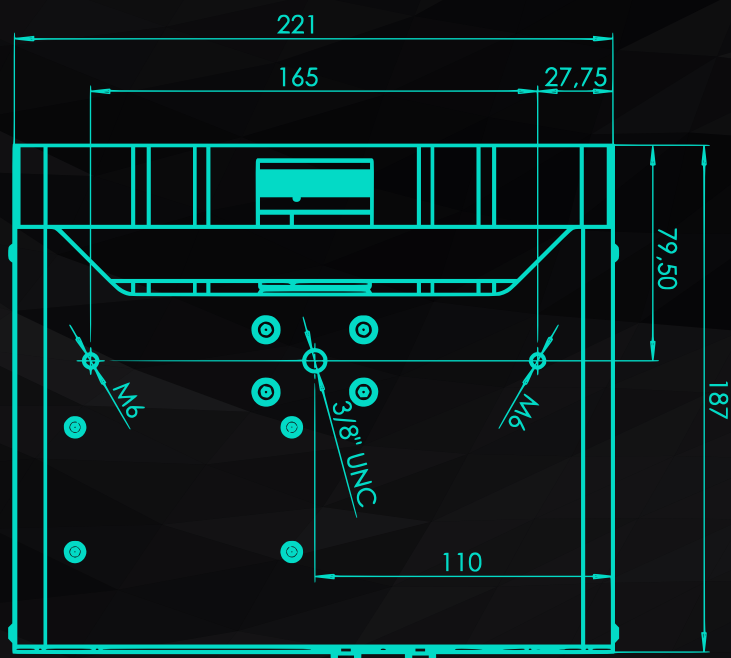
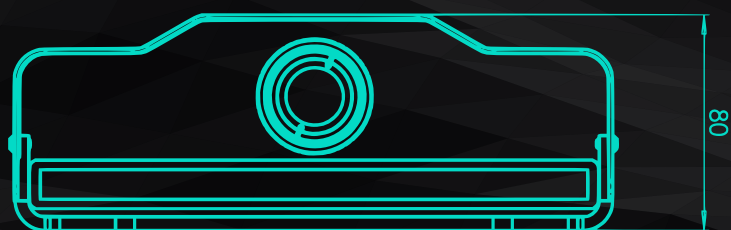
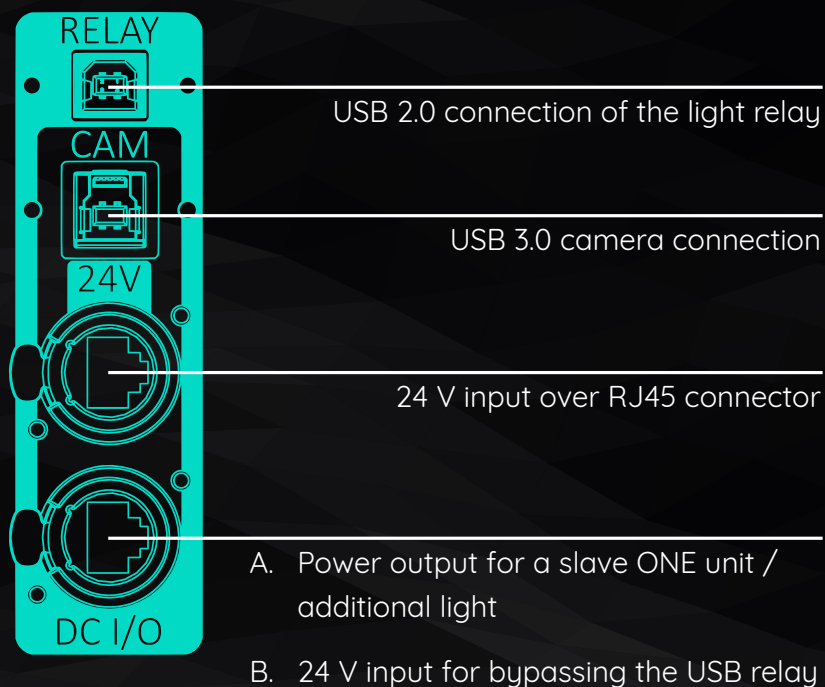
The compact housing includes a monochromatic LED bar light and can be mounted directly to a testing machine frame, creating a lean test setup, or fixed to a tripod using standard screw threads.

The lens is easily accessible and can be changed in a short time to equip the ONE measuring device for diverse applications.

Features

- An all-in-one solution
- Stackable
- Lens and LED light included
- Automatic light ON/OFF
- Axial or Transversal Alpha software license included
- One calibration grid
- All cabling included
- Easy to mount





Single Mode

The most common setup.
Multiple single cameras can
be used simultaneously.



Joined Mode

Identical FoVs where a point
can travel between cameras.



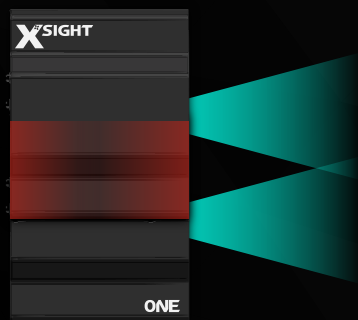
Dual FoV Mode

An uncommon setup with
different resolutions.



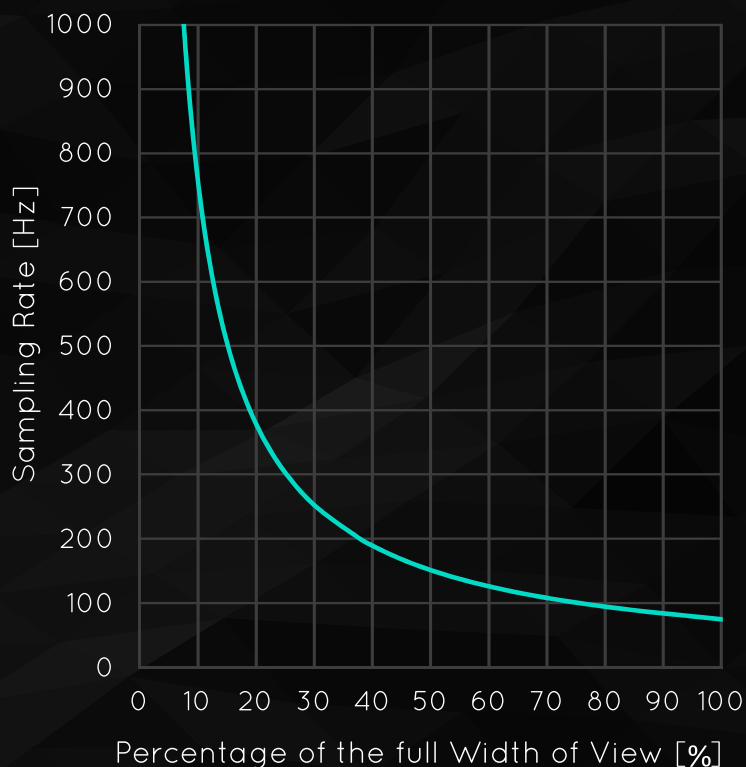
In cases when the field of view of one camera is less than 210 mm, it is not mechanically possible to merge the fields of view. That means the JOINED mode is not applicable.

However, this setup can still be used for multiple standalone views calibrated into one coordinate system. The typical use is measurement of long specimens with a relatively small extension.



Specification

- Single camera resolution: 2.3 MPx
- 1/1.2" sensor size
- CMOS sensor
- 5.86 um pixel size
- USB 3.0 interface
- 43 Hz at full resolution
- C-Mount lens mounting
- S-Series lens recommended



ISO 9513	Field of View [mm]						Working Distance [mm]				
	ONE1-M2		ONE2-M2		ONE3-M2		Lens Focal Length				
	Height	Width	Height	Width	Height	Width	12mm	16mm	25mm	35mm	50mm
Class 0.5	110	70	2x110	70	3x110	70	-	134	237	322	430
Class 1	190	120	360	120	530	120	176	253	416	571	785
Class 2	380	238	720	238	1060	238	379	523	841	1155	1630

Separate Fields of View; for Joined mode check ONE-M9

Additional lighting may be needed

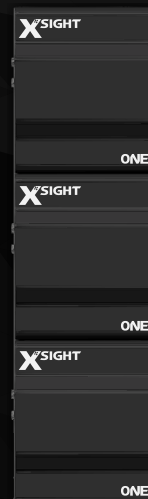
ONE1-M2



ONE2-M2

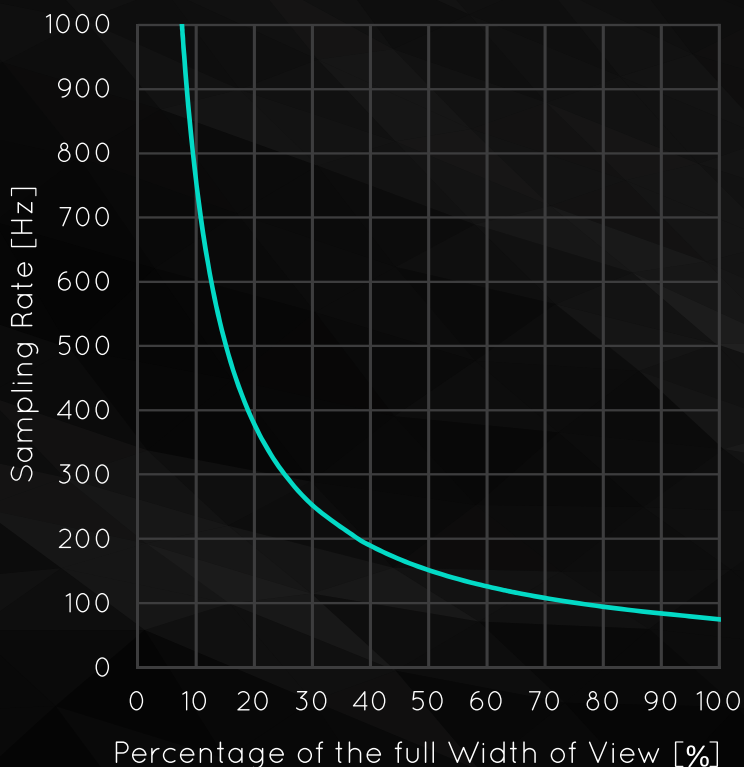


ONE3-M2



Specification

- Single camera resolution: 5 MPx
- 2/3" sensor size
- CMOS sensor
- 3.45 um pixel size
- USB 3.0 interface
- 75 Hz at full resolution
- C-Mount lens mounting
- S-Series lens recommended



ISO 9513	Field of View [mm]						Working Distance [mm]				
	ONE1-M5		ONE2-M5		ONE3-M5		Lens Focal Length				
	Height	Width	Height	Width	Height	Width	12mm	16mm	25mm	35mm	50mm
Class 0.5	130	109	2x130	109	3x130	109	156	213	357	520	710
Class 1	260	218	520	218	760	218	335	459	737	1054	1480
Class 2	520	435	1040	435	1500	435	693	950	1498	2123	3020

Separate Fields of View; for Joined mode check ONE-M9

Additional lighting may be needed

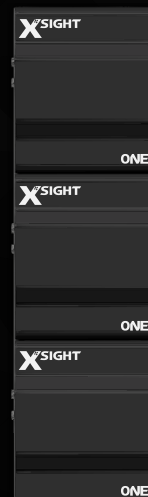
ONE1-M5



ONE2-M5

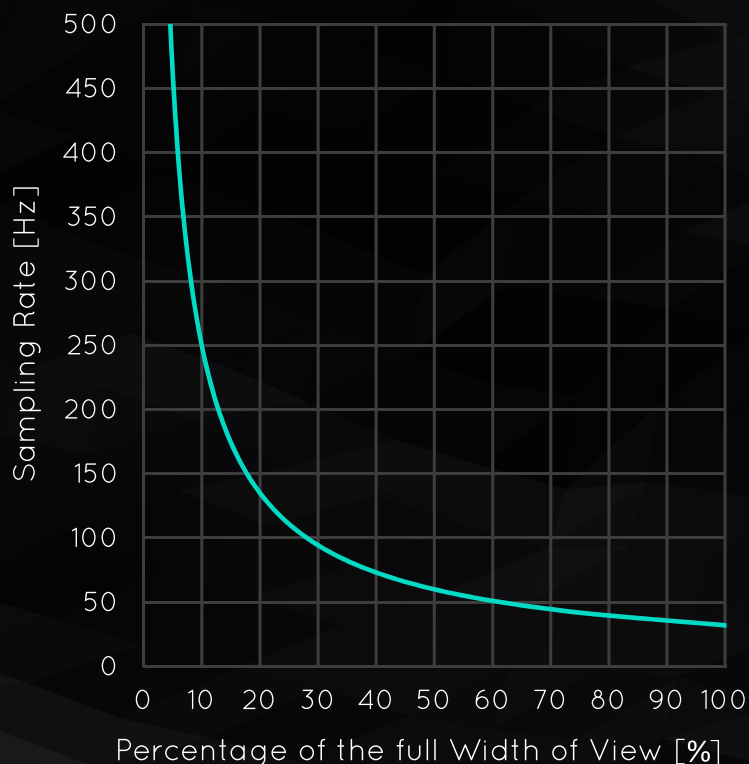


ONE3-M5



Specification

- Single camera resolution: 9 MPx
- 1" sensor size
- CMOS sensor
- 3.45 um pixel size
- USB 3.0 interface
- 32 Hz at full resolution
- C-Mount lens mounting
- H-Series lens recommended



ISO 9513	Field of View [mm]						Working Distance [mm]				
	ONE1-M9		ONE2-M9		ONE3-M9		Lens Focal Length				
	Height	Width	Height	Width	Height	Width	12mm	16mm	25mm	35mm	50mm
Class 0.5	220	116	420	116	620	116	169	233	378	519	720
Class 1	440	232	840	232	1240	232	364	494	758	1063	1485
Class 2	880	464	1680	464	2480	464	748	1017	1519	2152	3055

Additional lighting may be needed

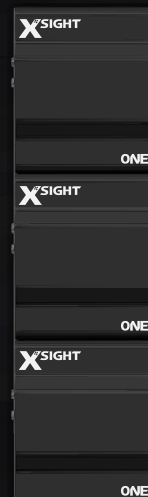
ONE1-M9



ONE2-M9



ONE3-M9





STEREO ONE

A 3D upgrade of X-Sight's top-selling industrial measuring device provides the opportunity to measure specimens with complex geometry or specimens displaying large out-of-plane displacement during testing.

Suitable mainly as an auxiliary sensor for testing machines. As such, it can be fixed and calibrated without re-setting for longer periods of time.

Any couple of standard ONE optical extensometers can be paired and converted into a 3D system by using the dual mode and the appropriate 3D DIC software modules. The result is a flexible and adjustable system suitable for various applications and measurements.



HT is a high-temperature optical extensometer. It uses advanced digital image correlation for precise analysis of thermomechanical and thermophysical properties. The HT hardware device is presently the most Xsighting device for high-temperature strain measurement up to 1400 °C.

HT combines high-precision measurement with a user-friendly graphic interface so that the user can fully focus on the experiment during uniaxial or biaxial tensile, compression, and shear testing.

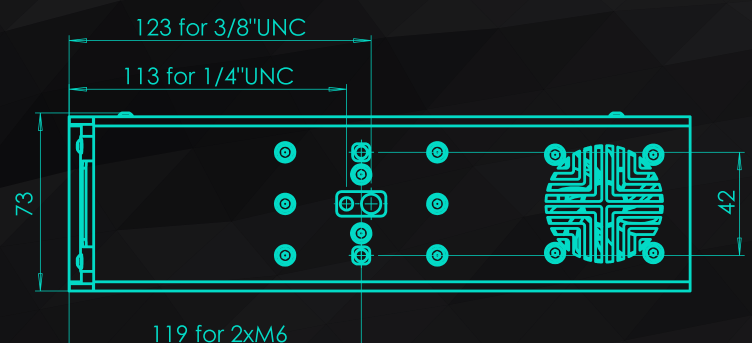
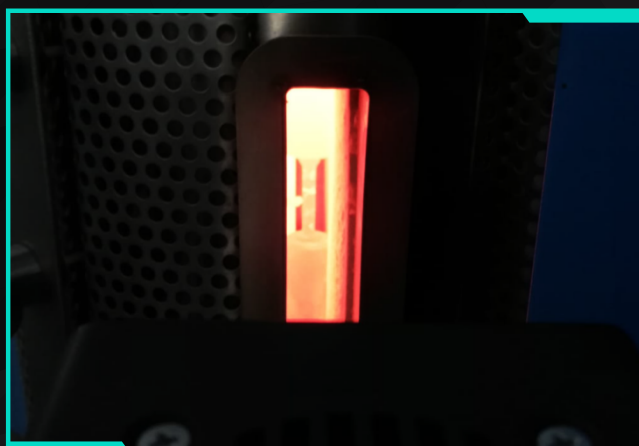
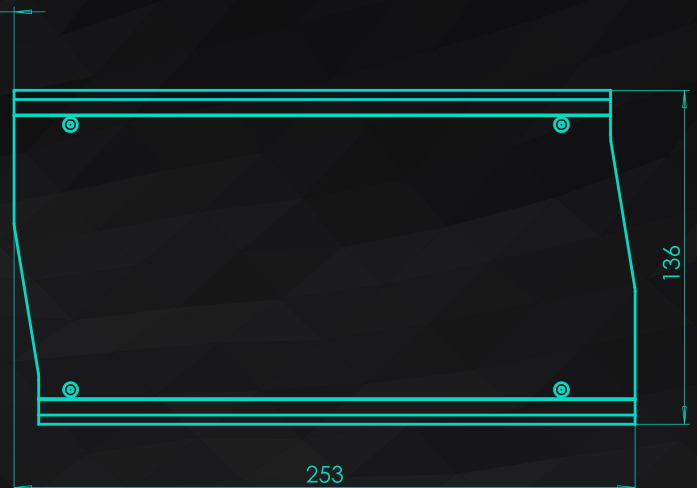
HT is suited not only for measurement using furnaces but for any application which requires high-precision reading over a small field of view.



Specification

- Field of View: 47 × 41 mm
- Resolution ISO 9513: Class 0.5
- ASTME 83: Class A (GL > 15 mm)
- Gauge Length: Selectable single or multiple GLs
- Sampling rate: 75 – 200 Hz
- Axial and radial neck detection
- Lighting: Auto-switching monochromatic light

Working Distance
262mm ± 2%



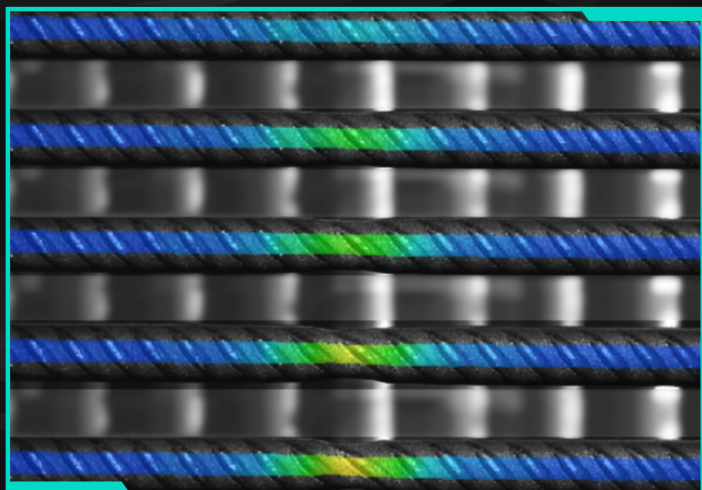
ROD is a rugged and easy-to-use optical extensometer optimized for tensile testing of reinforcing steel.

The unique ITT functionality of the Alpha software allows for measurement of specimen with an oxide or rust layer, falling off significantly, making the use of standard optical extensometers almost impossible.

The ROD measuring system is aimed at being as simple and precise as possible in terms of minimal requirements for specimen preparation and calibration.

Specification

- 2 × 2.3 MPx industrial cameras
- Lighting: 500 mm LED light
- Field of view: 550 × 100 mm
- Sampling rate: > 40 Hz
- USB relay for light control
- Weight: approx. 3.5 kg
- Dimensions: 560 × 210 × 90 mm
- Power supply: 24 V / 1 A – 500 mm
- Dustproof housing
- Fixed working distance (approx. 560 mm)
- Length of USB3 cable: 4.5 m outside the camera box
- Connection: 2 × USB 3.0; 1 × USB 2.0; RJ45
- Alpha software equipped with ITT (Intelligent Tensile Testing feature)
- Complies with ISO 9513: Class 1
- Complies with ASTM E83-10a B1 for L0 > 25 mm





watch our videos at

www.xsight.eu

or contact us at

info@xsight.eu