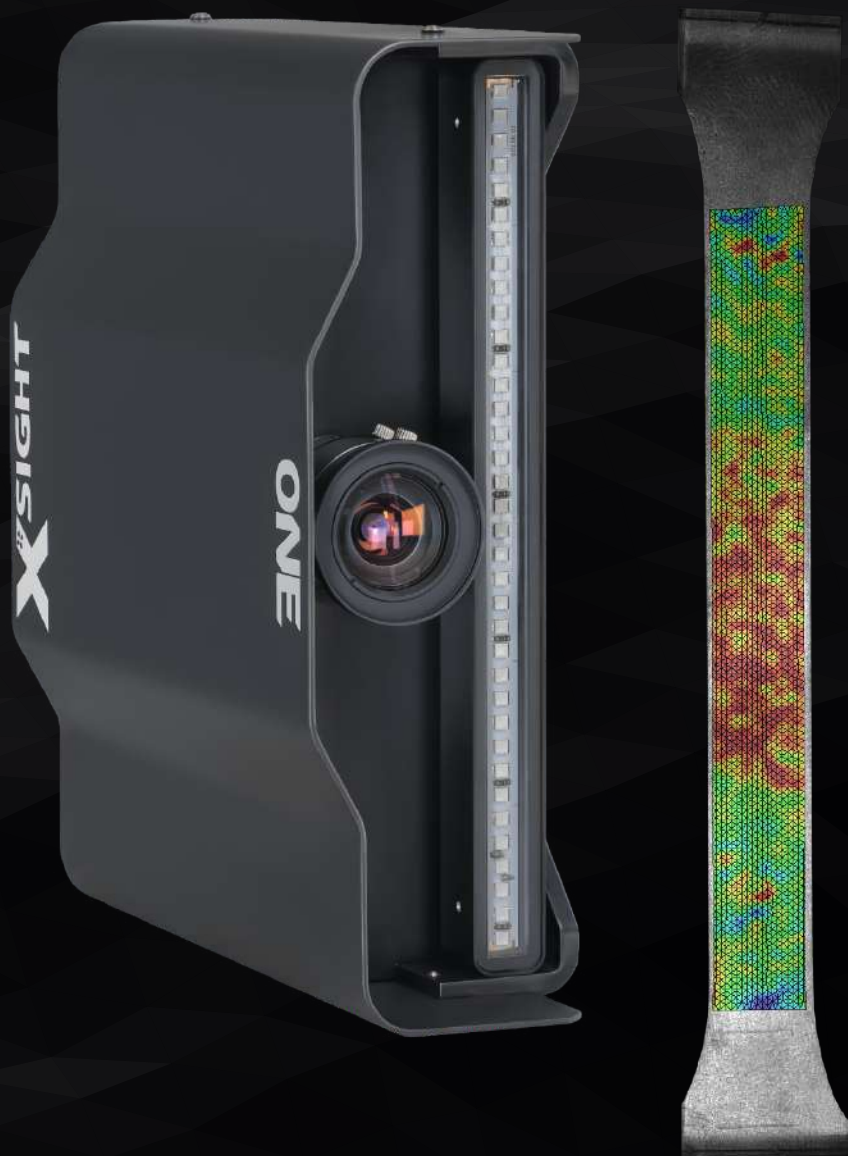




OPTICAL EXTENSOMETERS



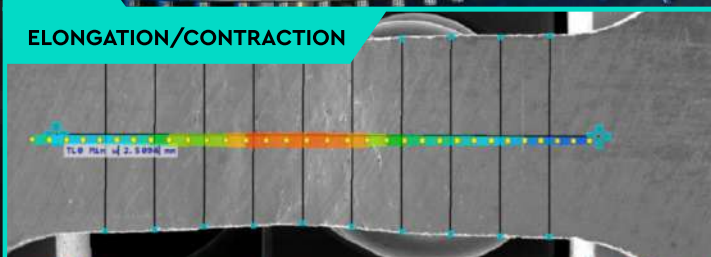
OPTICAL EXTENSOMETRY & STRAIN ANALYSIS



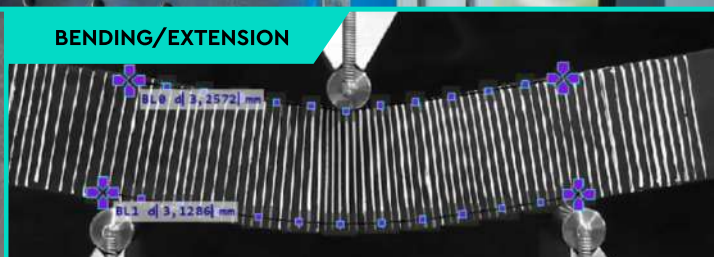
MATERIAL TESTING DEFORMATION MEASUREMENTS



ELONGATION/CONTRACTION



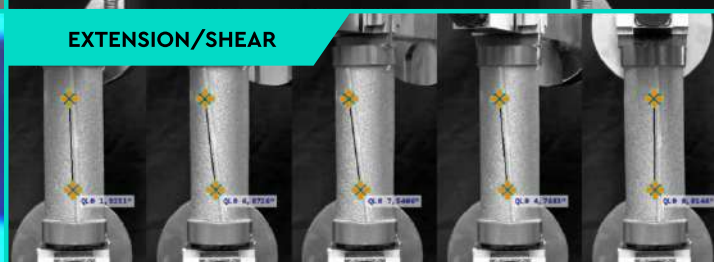
BENDING/EXTENSION



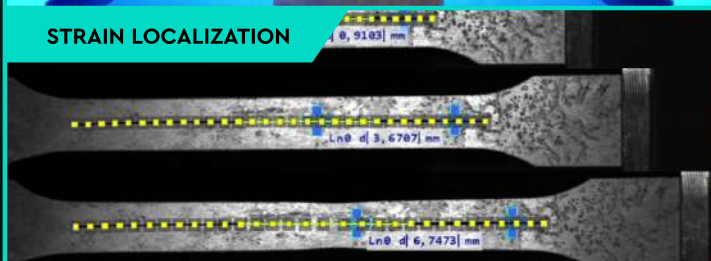
MULTIAXIAL DEFORMATION



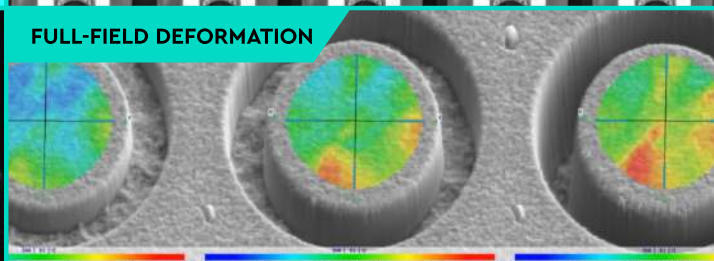
EXTENSION/SHEAR



STRAIN LOCALIZATION



FULL-FIELD DEFORMATION



Extreme Line

Advanced probe for axial neck detection, provides an improved E-modulus reading.

ROD Line

Advanced line measurement probe with axial neck detection feature for samples with oxide or rust layer.

Line Value Distribution

Provides a colorful visualization of different value types when using probes based on segmented lines.

Line

An elementary measuring probe for strain and length determination.



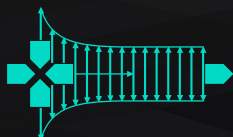
Torsion Line

Enables dual position angular twist and strain measurement.



Crack Probe

Measures a crack length during static or dynamic tests.



Trans Line

Used for multi-positional transversal measurement with averaged and max/min width functions.

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.



Point

A basic measuring probe for displacement determination.



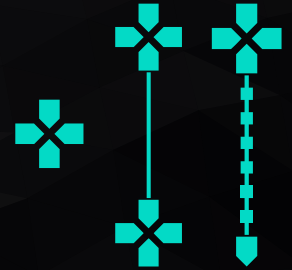
DIC Area

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



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.

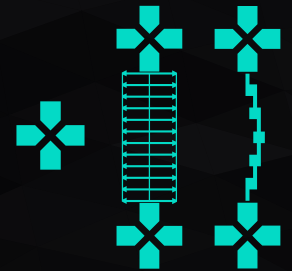


T – Transversal Strain

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.



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.



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.



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.



LVD – Line Value Distribution

While a full-field strain distribution via DIC Area analysis usually requires post-processing due to a high number of computational points, the Line Value Distribution module provides a colourful value visualization feature that is more feasible during real-time measurements. It is supported by most types of probes that are divided to line segments, specifically strain distribution for Extreme, ROD and Bend Lines, including an additional choice of Deflection or Curvature for Bend Lines.



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.



3D – 3D DIC Stereoscopic Module

3D module combining DIC with stereoscopic vision introducing the complex functionality to measure displacement and surface strain fields of 3D objects.



3D VE PLANAR – 3D Planar Stereoscopic Functionality

The 3D VE PLANAR module combines DIC with planar stereoscopic capabilities for use with line-based DIC probes, providing advanced functionality.

3D VE FULL – 3D Functionality for Line-Based Probes

3D VE FULL module combines DIC with stereo vision limited to line-based probes of optical extensometer functionalities.





ONE OPTICAL EXTENSOMETER

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 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 quickly to equip the ONE measuring device for diverse applications.

Features

- Compliance with ISO 9513 and ASTM E83
- Compliance with ISO 6892-1 and ASTM E8 in the strain rate control mode
- Usable with most ISO and ASTM for determination of tensile properties for metallic materials, plastics, elastomers, composites, concretes, and many more
- Applicable to high-temperature and climate chamber measurements
- Simple to use with operator mode
- Axial and radial neck detection and many more features
- Easily implementable into the automatic lines
- Wide palette of measuring tools for advanced deformation analyses



ONE – TECHNICAL SPECIFICATIONS

	Resolution [MPX]	Frame rate @ full res [Hz]	Interface	Measurement length [mm]			Light	Dimensions [mm]	Lens mount
				Class 0.5	Class 1	Class 2			
ONE1-M1	1.3	170	USB 3.0	80	160	320	L200	221 × 187 × 80 per unit	C
ONE1-M2	2.3	43		110	190	380			
ONE1-M5	5.0	75		130	260	520			
ONE1-M9	8.9	32		220	440	880			
ONE1-M16	16.1	23		330	660	1320			

ONE2-M1	2 × 1.3	170	USB 3.0	2 × 80	2 × 160	600	2 × L200	221 × 187 × 80 per unit	C
ONE2-M2	2 × 2.3	43		2 × 110	360	720			
ONE2-M5	2 × 5.0	75		2 × 130	520	1040			
ONE2-M9	2 × 8.9	32		420	840	1680			
ONE2-M16	2 × 16.1	23		640	1280	2600			

ONE3-M1	2 × 1.3	170	USB 3.0	3 × 80	3 × 160	900	3 × L200	221 × 187 × 80 per unit	C
ONE3-M2	2 × 2.3	43		3 × 110	530	1060			
ONE3-M5	2 × 5.0	75		3 × 130	760	1500			
ONE3-M9	2 × 8.9	32		620	1240	2480			
ONE3-M16	2 × 16.1	23		920	1900	3850			

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.





ONE LARGE OPTICAL EXTENSOMETER

The ONE LARGE is a universal optical extensometer suitable for a wide range of material and component testing such as tensile, compression, flexural, shear, and torsional tests.

The ONE LARGE provides a larger illuminated area than model ONE. This makes it a better choice for longer or high-elongating specimens.

The device measures strain, total length, delta length angle, and much more.

Features

- Compliance with ISO 9513 and ASTM E83
- Compliance with ISO 6892-1 and ASTM E8 in the strain rate control mode
- Usable with most ISO and ASTM for determination of tensile properties for metallic materials, plastics, elastomers, composites, concretes, and many more
- Applicable to high-temperature and climate chamber measurements
- Simple to use with operator mode
- Axial and radial neck detection and many more features
- Easily implementable into the automatic lines
- Wide palette of measuring tools for advanced deformation analyses



ONE LARGE – TECHNICAL SPECIFICATIONS

	Resolution [MPX]	Frame rate @ full res [Hz]	Interface	Measurement length [mm]			Light	Dimensions [mm]	Lens mount
				Class 0.5	Class 1	Class 2			
ONE LARGE 1-S-M1	1.3	170	USB 3.0	80 *	160 *	320	L400	421 × 187 × 80	C
ONE LARGE 1-S-M2	2.3	43		110 *	220 *	380			
ONE LARGE 1-S-M5	5.0	75		130 *	260 *	520			
ONE LARGE 1-S-M9	8.9	32		220 *	440	880			
ONE LARGE 1-S-M16	16.1	23		330	660	1320			

ONE LARGE 1-D-M1	2 × 1.3	170	USB 3.0	170 or 2 × 80	300 or 2 × 160	600	L400	421 × 187 × 80	C
ONE LARGE 1-D-M2	2 × 2.3	43		200 or 2 × 110	360	720			
ONE LARGE 1-D-M5	2 × 5.0	75		240 or 2 × 130	520	1040			
ONE LARGE 1-D-M9	2 × 8.9	32		420	840	1680			
ONE LARGE 1-D-M16	2 × 16.1	23		640	1280	2600			

ONE LARGE 2-S-M1	2 × 1.3	170	USB 3.0	2 × 80 *	2 × 160 *	2 × 320	2 × L400	421 × 187 × 80 per unit	C
ONE LARGE 2-S-M2	2 × 2.3	43		2 × 110 *	2 × 220 *	720			
ONE LARGE 2-S-M5	2 × 5.0	75		2 × 130 *	2 × 260 *	1040			
ONE LARGE 2-S-M9	2 × 8.9	32		2 × 220 *	820	1680			
ONE LARGE 2-S-M16	2 × 16.1	23		2 × 330	1280	2600			

* Consider standard ONE as the 400mm LED is not necessary

ONE LARGE 1-S



ONE LARGE 1-D



ONE LARGE 2-S



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 1800 °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.

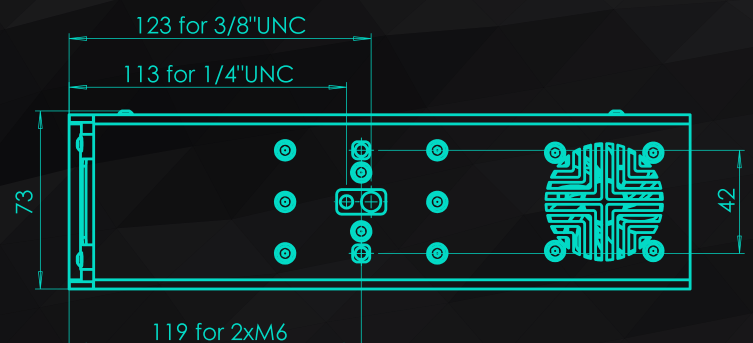
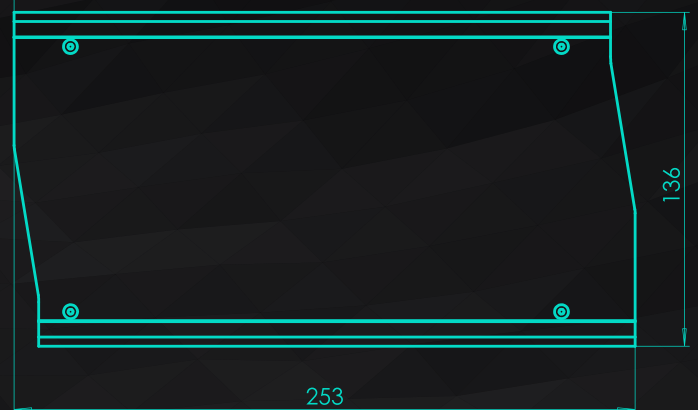
HT is suited not only for measurement using furnaces but for any application which requires high-precision reading over a small field of view.



Specification

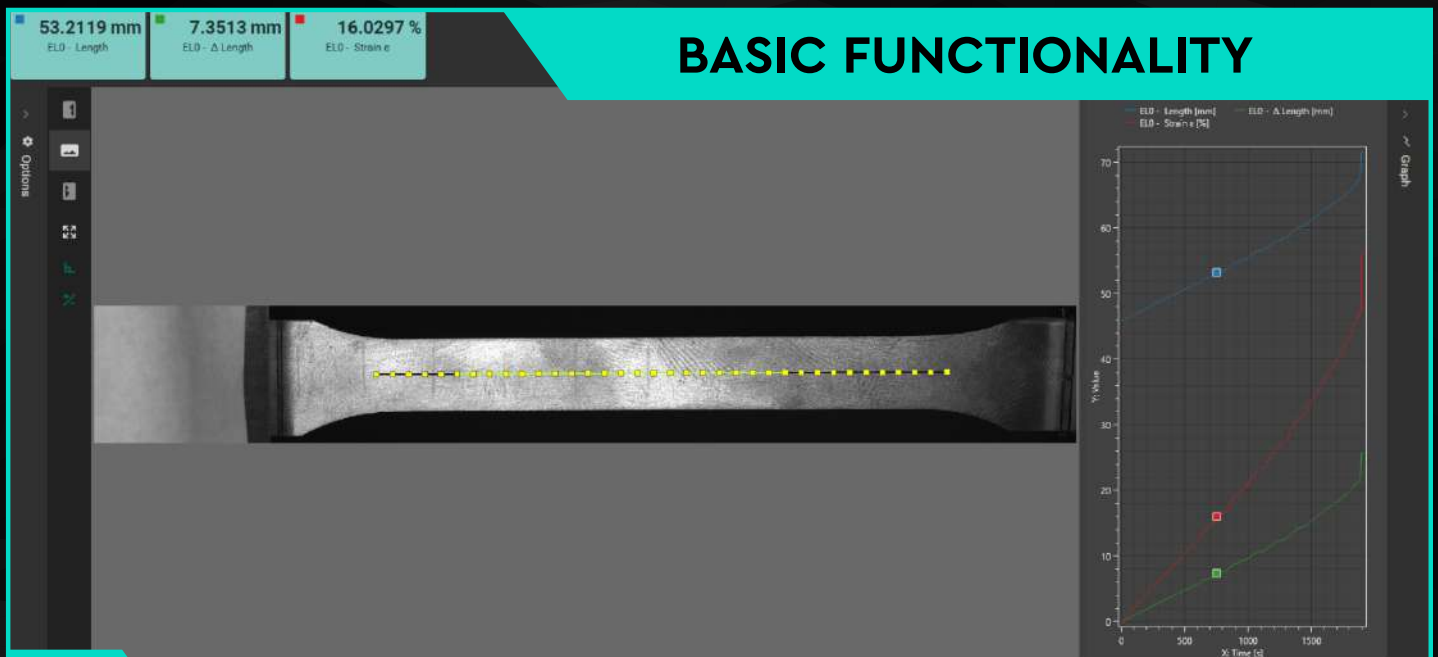
- Field of View: 47 × 41 mm
- Resolution ISO 9513: Class 0.5
- ASTME 83: Class A (GL > 15 mm)
- Gauge Length: Selectable single or multiple GLs
- Sampling rate: 75 – 200 Hz
- Axial and radial neck detection
- Lighting: Auto-switching monochromatic light

Working Distance
262mm ± 2%



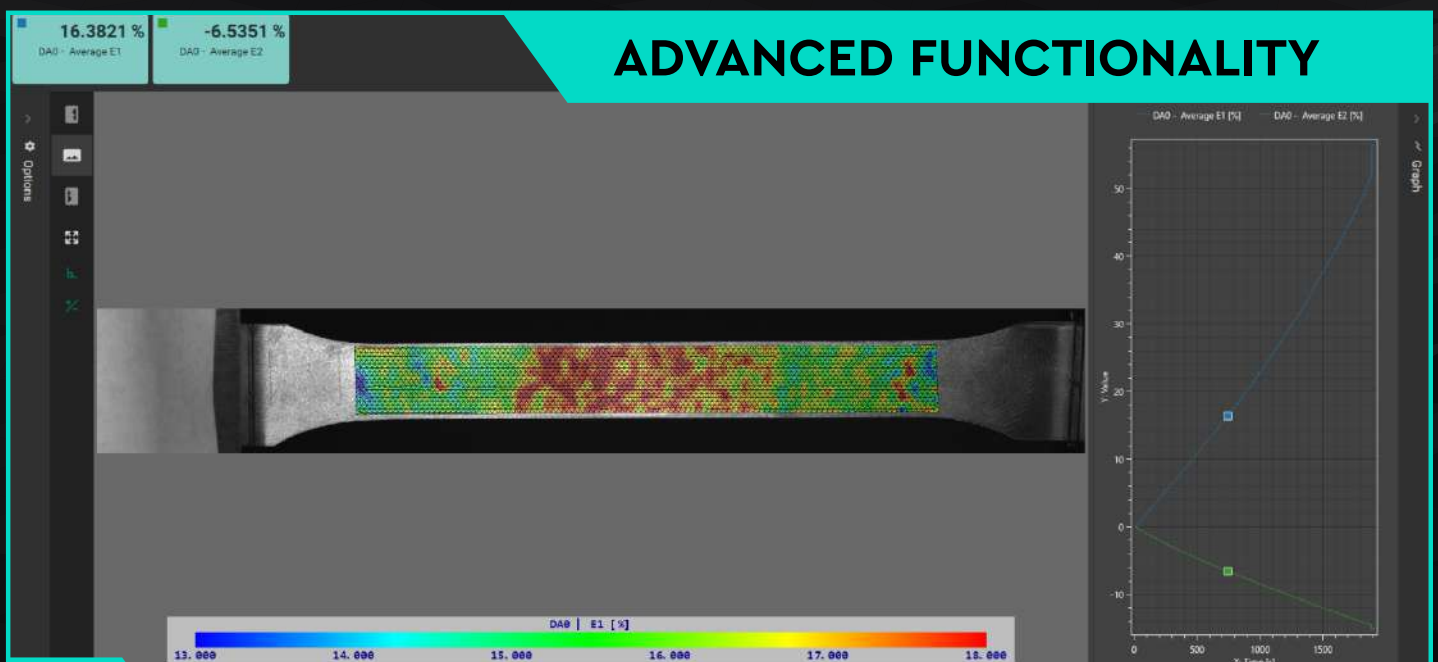
All ONE optical extensometers are equipped with state-of-the-art digital correlation (DIC) technology, ensuring precise and accurate strain measurements in real-time. Our user-friendly DIC software adopts a modular approach, providing intuitive ergonomics suitable for both advanced research and routine measurements. Software operates as a sensor with real-time output of measurement values to various UTM machines and other data acquisition systems.

BASIC FUNCTIONALITY



Get the most with post-process functions that boasts a multitude of industry-leading software features, making it a versatile and exceptional choice for a wide range of applications, such as tensile, compressive, bending, shear, torsional, and fatigue testing.

ADVANCED FUNCTIONALITY





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