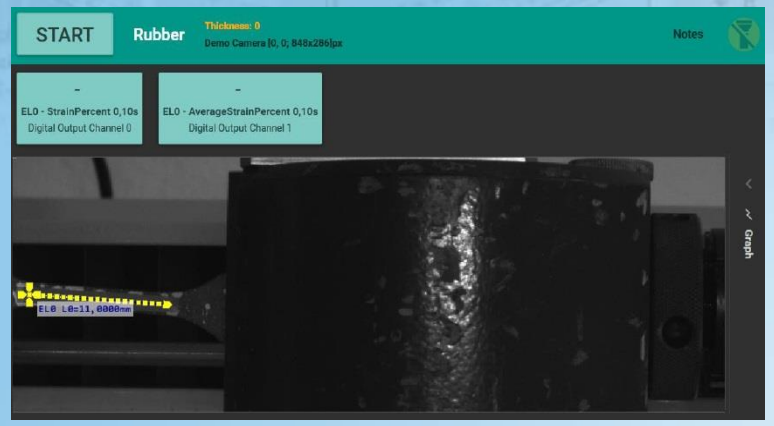
… from development to Implementation

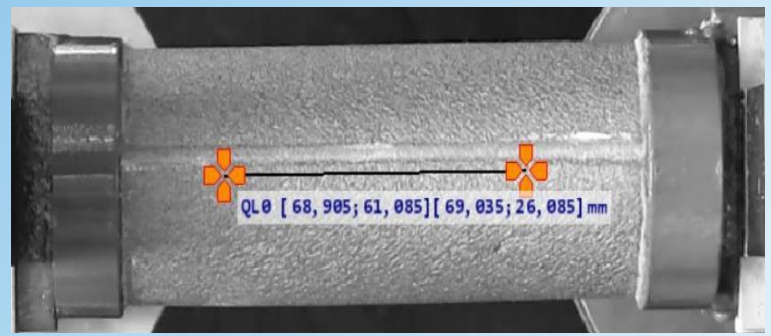
Labor Tech

Production of materials testing equipment and automation

Made in Czech Republic

Optical Extensometer – One
SOFTWARE ALPHA





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Optical Extensometer - One **SOFTWARE**

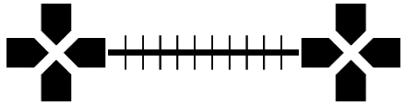
… from development to realization

Software Alpha®

- A very new DIC based video extensometer brings reliability and simplicity to the area of optical measurement of material mechanical properties. Advanced algorithms allows the system to get the best of today's digital cameras as the resolution of the system can get to 0.003px.
- The system is bounded with graphic user interface that is straight forward, wizard based and therefor easy to understand.
- Output of the measured values can be provided as both digital and analogue signal. This gives the user enough options to connect the system to the testing machine control unit and control the Alpha software remotely.

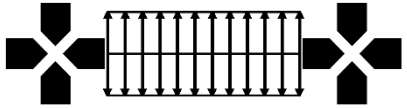
1. A - Axial Strain Module

Axial Strain software module allows to measure axial strain in real time. Besides the elementary measurement probes such as point or line the Alpha axial strain module includes an Extreme Line probe that divides the free length of the specimen into specified number of measured lengths (L_0) and detects the area of necking. The Extreme Line has enhanced resolution during the Young's modulus and minimizes the number of invalid tests at the same time

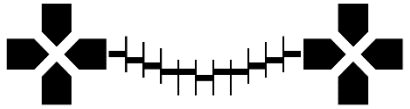


2. T – Transversal Strain Module

- Transversal Strain software module allows to measure transversal strain in real time. Besides the elementary measurement probes such as point or line the Alpha transversal strain module includes a Trans Line with edge detection feature that divides the free length (or gauge length) of the specimen into specified number of cross sections and detects the area of necking. This brings an advantage over mechanical transversal devices as the measurement is taken in multiple positions along the specimen and only the highest negative strain is sent to the output.



- Apart of Trans Line the transversal module comprises a Bend Line, a measurement probe designed for 3 and 4 point bending testing. This probe has measurement point along the main line to track the specimen during the deformation.



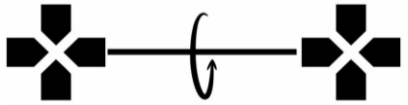
- Transversal module does not limit the user in number of measure

3. AT – Axial & Transversal Strain Module

A bundle of axial and transversal software module providing the wide pallet of measuring probes: Point, Line, Extreme Line, Trans Line and Bend Line.

4. TR – Torsional Module

Torsional software module allows to measure twist angle in real time on cylindrical samples in static or fatigue mode.

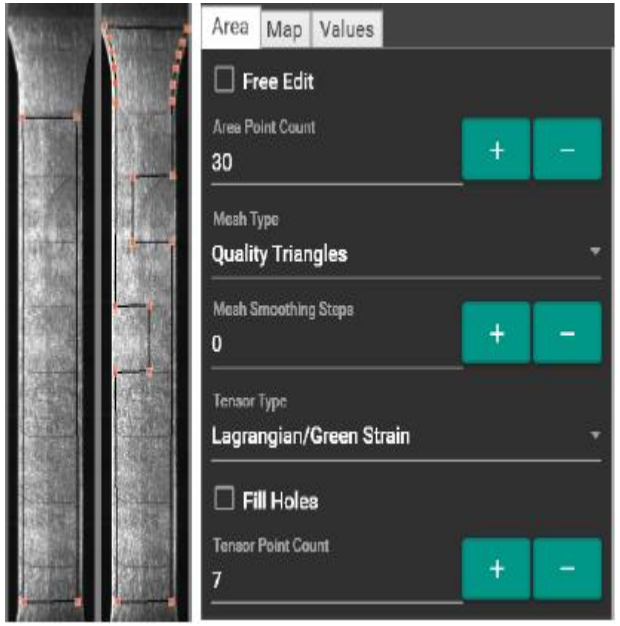


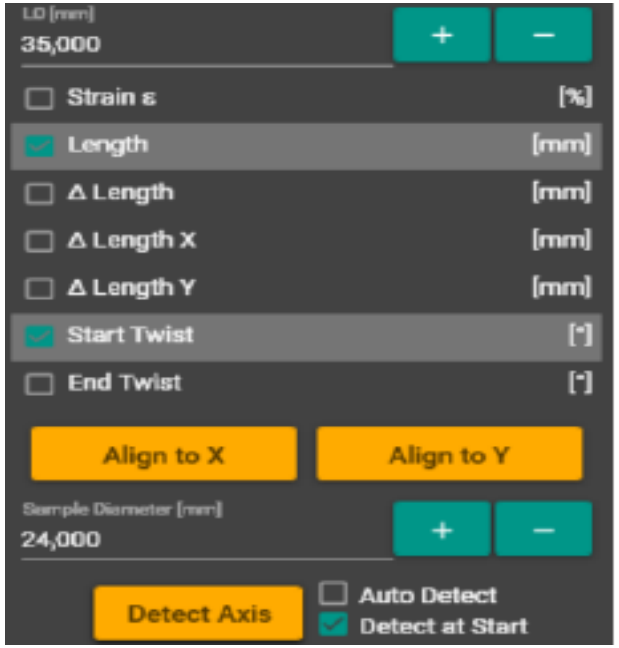
5. MC – Multi Camera

Sometimes one camera is not enough to capture the whole event with sufficient or desired resolution. The answer is use of multiple camera setup. This opens the possibility to keep high resolution while keeping the cost of the system low in comparison with high-resolution cameras based setup.

6. FM – Full field Module

Interpolizes the value for the lost point. It only works for one lost point. It is possible to set multiple mutually independent areas with different map value settings and range of color scale. the choice of the strain tensor type and the triangulation type for each computed area separately; export to ParaView.





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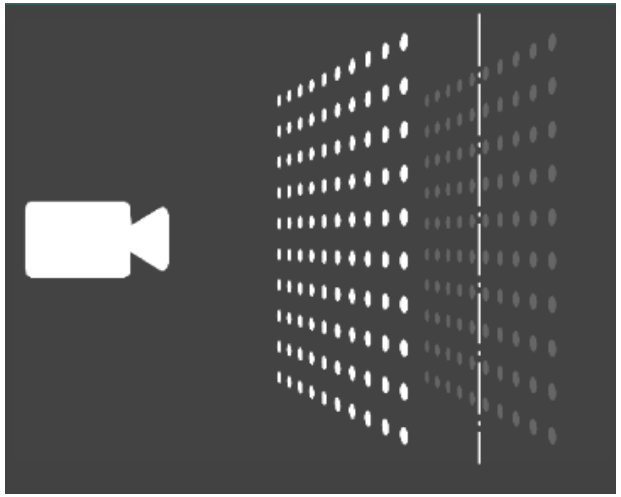
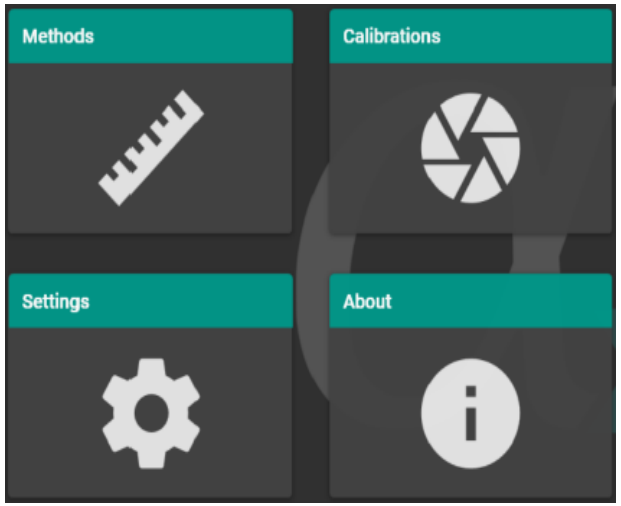
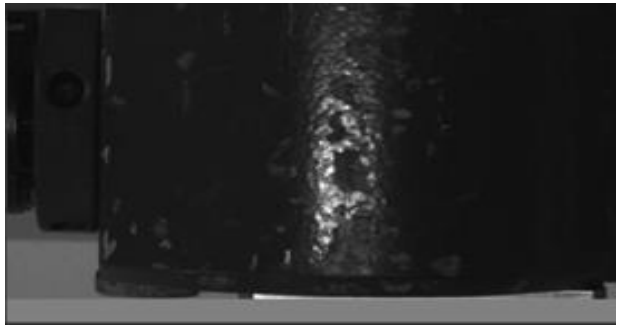
Optical Extensometer - One **TECHNICAL PARAMETERS**

… from development to realization





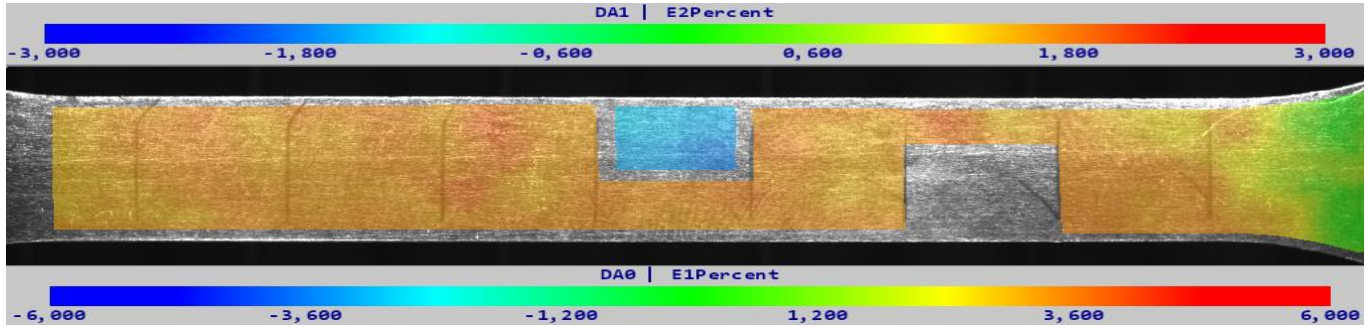


Technical parameteres	Class 0.5	Class 1	Class 2
No. of cameras – effects Measurement lenght (mm)	1 cam. – 110 2 cam. – 210 3 cam. – 310	1 cam. – 220 2 cam. – 420 3 cam. – 620	1 cam. – 440 2 cam. – 840 3 cam. –1240
Software feature pack	A – Axial elongation T – Transversal elongation AT – Axial and Transver. el.	A – Axial elongation T – Transversal elongation AT – Axial and Transver. el.	A – Axial elongation T – Transversal elongation AT – Axial and Transver. el.
Resolution class ISO 9513	0.5 – 0.5um or 0.5% of reading 1 – 1um or 1% of reading 2 – 2um or 2% of reading	0.5 – 0.5um or 0.5% of reading 1 – 1um or 1% of reading 2 – 2um or 2% of reading	0.5 – 0.5um or 0.5% of reading 1 – 1um or 1% of reading 2 – 2um or 2% of reading
LENS – effect working distance	12lens – 140 16lens – 190 25lens – 300 35lens – 430 50lens – 620	12lens – 300 16lens – 400 25lens – 630 35lens – 870 50lens – 1270	12lens – 600 16lens – 800 25lens – 1270 35lens – 1800 50lens – 2560

Main Advantages

Software

- **User comfort:** Easy graphical interface based on "guides"
- **Operator mode:** Easy admin logout
- **Calibration:** For a single calibration it is possible to connect an unlimited number of methods
- **Periodical calibration:** Easy to enter a correction factor
- **Light remote control:** Possibility to connect multiple USB relays
- **Types of measurable deformtions:** Tension, pressure, shear, bending, torsion
- **CPU requirements:** The ability to choose the number of CPU cores used



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