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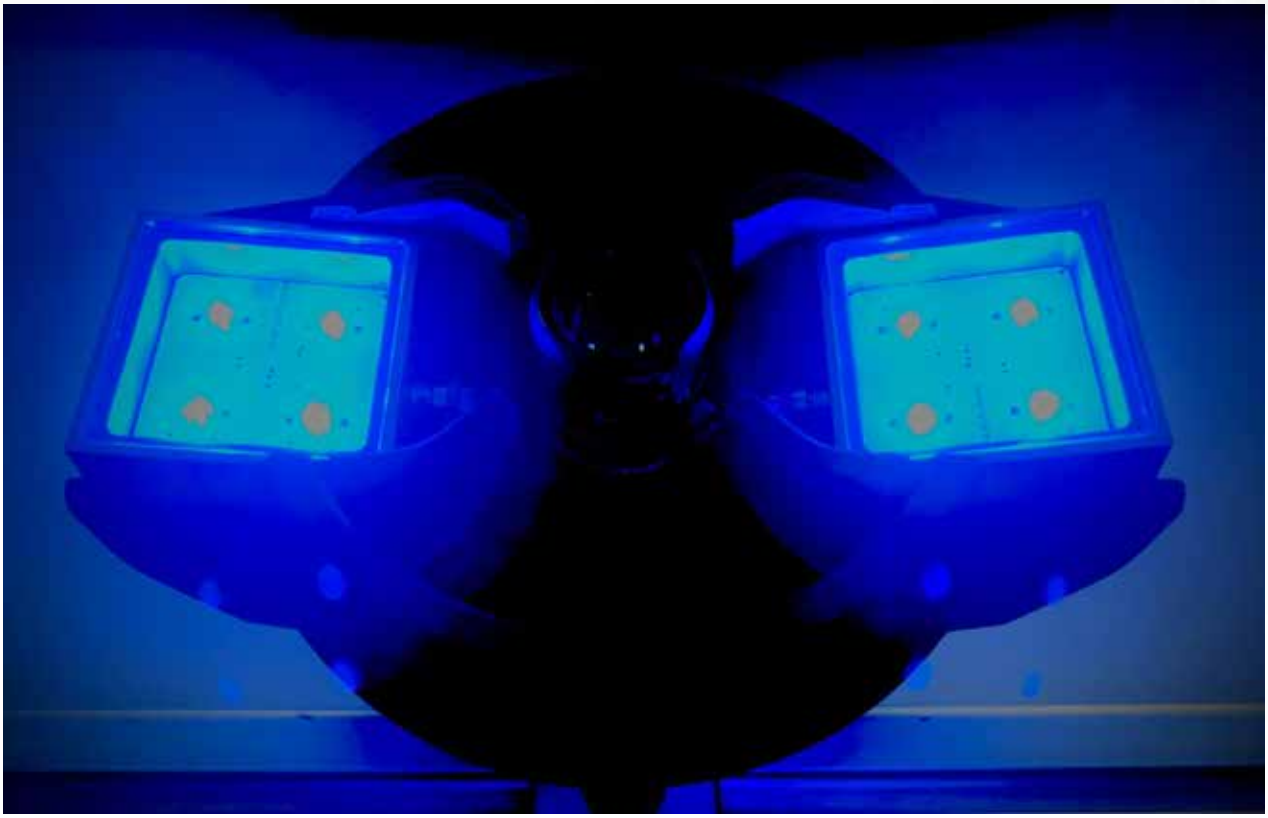

AMEE 2D

Flexible Non-Contact Measurement System for Complex Analysis of Deformation and Displacement of Static and Dynamic Events

AMEE

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OPTICAL MEASURING SYSTEMS FOR DIC MEASUREMENT AND ANALYSIS

Mercury MS, s.r.o., a software company based in the Czech Republic, is bringing you the best solution for non-contact material measurement. Our masterpiece is called Mercury RT®.

Mercury RT® is a software with cutting-edge technology designed & compiled as modules for Flexible non-contacting measurement system for complex 3D analysis of deformation and displacement of static and dynamic events through the DIC (Digital Image Correlation) technique. Measurement of high strain rates, high-speed testing, vibration measurement, FEA analysis, and crack propagation. We build a software technology that delivers the solution to all challenges of your optical measuring requirements and advanced analysis technologies with the current market trends.

AMEE 2D is a software and hardware measurement system that is based on digital image processing designed to process all measurements and automatically compute data for accurate results.

AMEE 2D system is built with online recording and image data acquisition and processing functionality with one camera and one lens. In stitching mode, the number of cameras can be extended based on requirements. The built-in customization functionality of the software makes it possible to record video from different camera types and easily add support for a camera type that is not currently supported.

The AMEE 2D system consists of the following components:

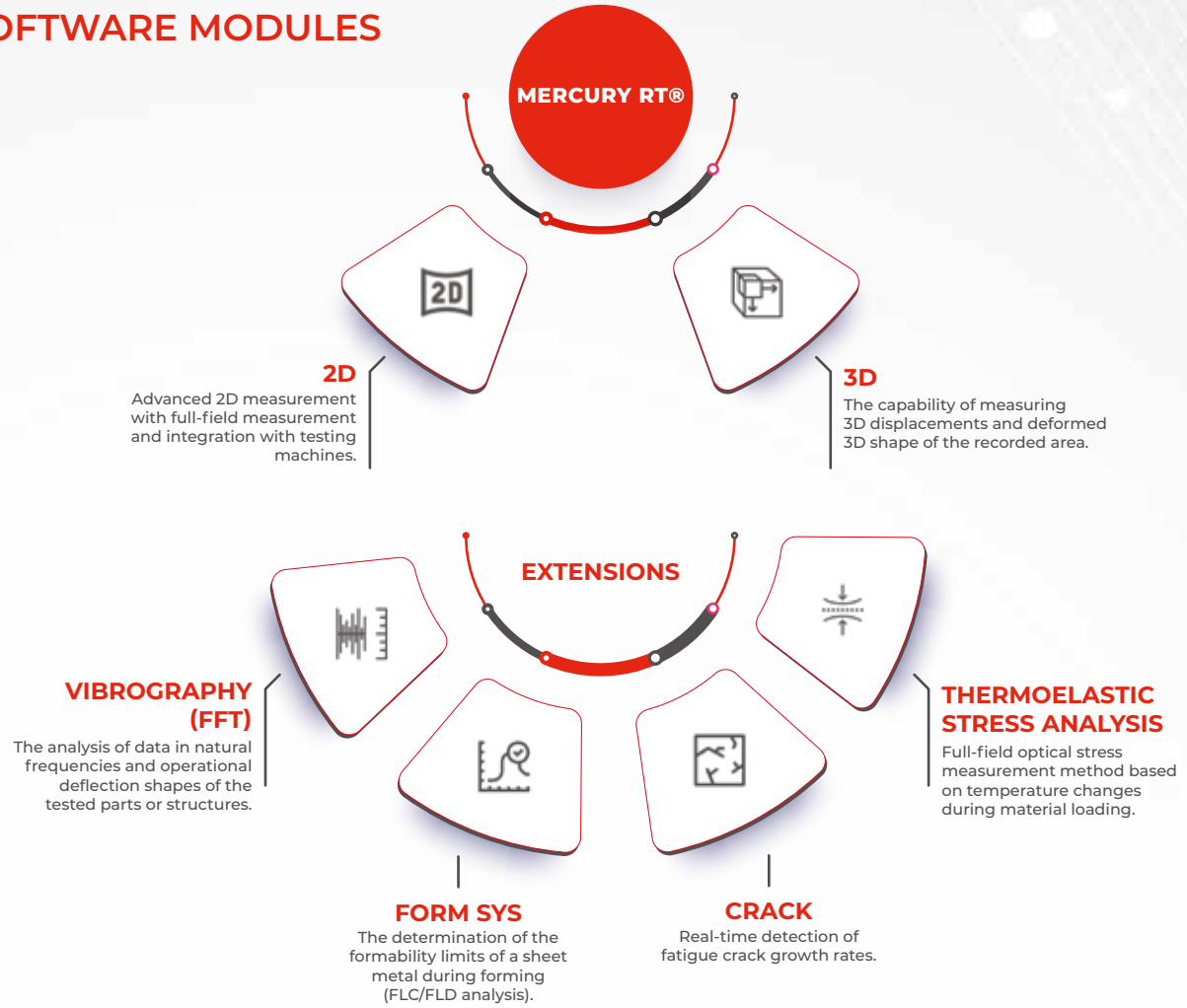
- Mercury RT® 2D Software module
- HW HASP key, USB install disc
- Measuring grid for calibration
- Hard case
- AMEE 2D Head contains:
  - Camera and Lens
  - 2x integrated LED Lights
  - Plate for mounting to tripod

PARAMETERS:

Parameters	Range *	Typical System
Classification to ISO 9513	Class 0.2, 0.5, 1, 2 -	Class 1
Classification to ASTM E 83	Class A, B-1, B-2, C, D, E, -	Class B-1
Field of View (FOV)	2-2000** mm	200 mm
Gauge Range	0.01 - 800 %	0.01-10 %
Resolution	0.1 - 50** µm	1 µm
Analog Output	10-16 Bit	4V/14 Bit
Digital Output	RS232/422/485. TCP/IP	TCP/IP
Test Rig Connectivity	DOLI DoPE. custom	DOLI DoPE
Camera Resolution	0.3-29 MPx	5 MPx
Data Rate	0.1-10 000 Hz	Up to 165 Hz

* The range depends on the configuration
** Could be increased by a different optical system

SOFTWARE MODULES



2D
Advanced 2D measurement with full-field measurement and integration with testing machines.

3D
The capability of measuring 3D displacements and deformed 3D shape of the recorded area.

VIBROGRAPHY (FFT)
The analysis of data in natural frequencies and operational deflection shapes of the tested parts or structures.

THERMOELASTIC STRESS ANALYSIS
Full-field optical stress measurement method based on temperature changes during material loading.

FORM SYS
The determination of the formability limits of a sheet metal during forming (FLC/FLD analysis).

CRACK
Real-time detection of fatigue crack growth rates.

A license for Mercury RT® software can be provided either online (software license) or through a HASP key (hardware license) with easy upgradability of modules and extensions.

Mercury RT® - 2D

Measurements in 2D by real-time recordings with single or multiple cameras to perform measurements using virtual extensometers, probes, and gauges allows the post-processing of captured image. Adjusting the coordinate system with or without the grid and calibration of the distortions of the camera lens.
This option allows 2D measurements with real-time recording with one or more cameras.
Post-processing of the captured images is possible using virtual extensometers, probes and gauges.
The system is prepared for measurement utilizing a calibration grid, which is used to calibrate the camera lens distortion and also allows the adjustment of the coordinate system (which is possible even without a calibration grid).

Advanced measurements in 2D with deformation field (full-field feature), crack detection, Particle Image Velocimetry thereby revealing local extremes, stress concentrations, and direction of significant deformation or deformation due to thermal load. It also supports measurements with high-speed cameras to detect rapid changes. The ability to control test machines provides the ability to evaluate parameters such as yield strength, modulus of strength, ductility, Poisson's ratio, Young's modulus, and other parameters that can be calculated from the measured data and knowledge of the load applied on the sample. Analog and digital inputs for connecting external sensors are also supported.

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ENGINEERING SERVICES

In the field of optical measuring systems, we provide services for the processing of measured data and their interpretation, comparison, and subsequent implementation into simulations and calculation programs. The delivery of systems and services also include **the calibration** of the measuring systems with **a production certificate** or calibration of a measuring system with a certificate from an accredited calibration laboratory.

MATERIAL TESTING

- 2D/3D Video extensometer (VEX).
- Extension and contraction measurement.
- Chain probe tool for rebar measurement.
- Neck gauge detection tool.
- Virtual strain gauge tool.

RESEARCH & DEVELOPMENT

In addition to supplying standard measurement systems, our company can deliver **customized solutions to meet your requirements.** We have extensive experience with process automation of measuring systems, integration of measuring systems into a production line, miniatu- risation of the measuring systems, modification of the systems for use in non-standard environments (e.g. design for outdoor applications).

COMPONENT TESTING

- Static, quasistatic, dynamic measurement.
- Full-field strain distribution measurement.
- Integrated high-speed cameras.
- Point and area measurement of motion.
- Sampling synchronisation with the dynamic and periodic events.

KEY FEATURES

- Both online (real-time) and offline analysis, where the computed values can be transferred as analog or digital outputs.
- Joint resolution of the standard system is within 500 nm and 5 µm, strain resolution can be up to 10 microstrains.
- Unlimited number of virtual measuring tools such as Line probe (extensometer), Point probe (motion sensor), Rigid Plane Probe, Chain Probe, Polyline Probe and Force gauge.
- Flow/motion field measurement applies to motion measurements with changing patterns and shapes, measurement of in-plane particle movement allows measuring displacement, velocity and acceleration, differential motion tracking and vector direction visualization.
- Ability to perform measurements using a natural speckle pattern.
- Camera integration - Mercury RT® supports a wide range of regular cameras, thermal cameras and High speed cameras.

TESS (Technical Support & Services) includes
- a customer portal that facilitates communication between the technical team and the customer
- customer training on new features, new modules explanation
- rapid technical support & quick bug fixes
- a free update to the new version

Why are we unique?

Mercury RT® Software was developed in collaboration with our customers, who inspire us to continually make it better and we understand their needs.

Our Technical team provides up-to-date measurement system with continuous software updates and features.

In addition to providing measurement systems, we can also deliver customizations according to your requirements.

Mercury RT® supports various types of cameras manufacturers.

Local Distributor:

HEAD QUARTERS

https://www.mercury-dic.com

MERCURY RT

Developed in the Czech Republic

Feb 2024