UGC-VE-4109-3D

4000-3D Series · Stereo Camera Pair · 9 MPx

UGC-VE-4109-3D · 400 MM HOUSING

4000-3D SERIES · 3D VIDEO EXTENSOMETER

Stereoscopic 3D Video Extensometer

Stereo pair of 9 MPx cameras in a 400 mm housing that measures in 3D.

OVERVIEW

A universal video extensometer for tensile, compression, flexural, shear and torsion tests. Gauge marks are tracked optically — nothing touches the specimen, so it can stay on through break. Strain, total length, delta length and angle are reported at once. The stereoscopic camera pair captures spatial movement and deformation, making results resilient to out-of-plane specimen motion and improving accuracy.

KEY FEATURES

- Stereo camera pair — 3D capture compensates out-of-plane specimen motion
- All-in-one: camera, C-mount lens, blue LED light and USB light relay
- Non-contact — no knife edges, safe to measure through break
- 75 Hz typical sampling; up to 1 kHz with a narrowed view
- Real-time output to your test machine controller (digital, analog, pulse)

75 Hz TYPICAL SAMPLING RATE

220 mm CLASS 0.5 MEAS. LENGTH

440 mm CLASS 1 MEAS. LENGTH

3D STEREO MEASUREMENT

2 × 9 MPx CAMERAS

TECHNICAL SPECIFICATIONS

Model	UGC-VE-4109-3D · 4000-3D Series, stereoscopic
Cameras	2 × 9 MPx industrial cameras in one housing
Sampling rate	75 Hz typical · 32 Hz at full view · up to 1 kHz with reduced view width
Measuring length (ISO 9513)	Class 0.5: 220 mm · Class 1: 440 mm
3D measurement	Stereo camera pair with 3D line-probe module; resilient to out-of-plane error
Working distance	300–500 mm typical from front cover; extendable on request
Lens	2 × C-mount; 12, 16, 25 or 35 mm focal length selected per application
Light	400 mm blue LED (465 nm, 330 lm, 16 W), USB-switched
PC interface	USB 3.0 per camera (2 total) + USB 2.0 for light relay; 3 m cables standard
Housing dimensions	424 × 187 × 80 mm (L × W × H)
Weight	2.6 kg
Power	24 V DC via RJ45 power cable (802.3af Mode B); 23 W

IN USE

Live strain tracking on a tensile specimen.

WHAT'S INCLUDED

- VE unit with 2 cameras, 2 lenses, 400 mm LED & built-in USB relay
- Mono calibration grid sized to the application
- Cable harness, 24 V power supply
- Software on installation USB + USB license key
- Axial software module + 3D module (perpetual license)
- 1 year software updates & technical support

UGC-VE-4109-3D

FIELDS OF VIEW & WORKING DISTANCES

ISO 9513 Class	Field of View [mm]		Working Distance [mm] by Lens Focal Length			
	Height	Width	12 mm	16 mm	25 mm	35 mm
0.5	220	116	165	230	380	558
1	440	232	360	485	775	–

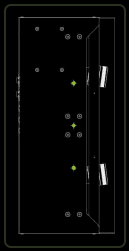
Working distance is measured from the front cover. – = combination not available. Measuring length, lens focal length and working distance are linked — choose two and the third follows.

HOW TO READ THE MODEL NUMBER

UGC-VE-4109-3D

4 — Series (4000 Series, 400 mm housing) · **1** — Number of VE units (1–2) · **09** — Camera resolution code (9 MPx) · **-3D** — stereoscopic camera pair, 3D setup. Resolution codes: 01, 02, 05, 06 (ASTM-focused), 09, 16.

MECHANICAL INTERFACE



Mount to a tripod head through the 1/4"-20 UNC thread in the center of the bottom plate, or fix it to the test frame with two M6 screws on a 165 mm vertical span.

Dimensions	424 × 187 × 80 mm
Weight	2.6 kg per unit
Tripod thread	1/4"-20 UNC (center)
Frame mount	2 × M6, 165 mm span
Environment	Indoor; 5–40 °C, 30–70 % RH

LIGHT & POWER

LED active length	400 mm
Wavelength	465 nm (blue)
Luminous flux	330 lm
Consumption	Cameras 6 W · Relay 1 W · LED 16 W = 23 W
Supply	24 V DC, RJ45 power port; DC I/O port for daisy-chain or aux. light

CONNECTIVITY & DATA OUTPUT

- USB 3.0 camera link per camera (PCIe USB 3.0 card recommended); extendable with active optical cables
- Digital: DOLI Binary, MODBUS, HP Video, TCP/IP, RS232
- API: JSON API and MRT API — remote Start/Stop, method switch, set gauge length
- Analog output via auxiliary D/A converters
- Encoder-style quadrature pulse output with optional pulse generator
- Input of external force, temperature or pressure signals (Device Input module)

SOFTWARE & MEASURING PROBES

Runs on Windows 10/11 64-bit or Windows Server 2019/2022. Line-based probes measure in real time with online data transfer to the test machine; the perpetual license lives on a USB key, so the software can be installed on any PC.

Module	Probes / Function
AX + 3D (incl.)	Point, Line and Extreme Line probes — axial strain & elongation — in 3D
TR	Transverse line & bend line — r-value, Poisson's ratio, deflection
TO / CR	Torsion line / crack-opening probe
ITT	Rebar line for reinforcing-steel testing
DIC / PP	DIC area strain mapping / post-processing of recorded tests
HS / DI / LVD	High-speed recorder / auxiliary signal input / color value distribution

PC REQUIREMENTS

Processor	Min. 2 GHz dual-core · Recommended 4 GHz, 8+ cores · 8 GB free disk min., SSD recommended
Graphics / memory	OpenGL 3.0, 1024×768 min. (1920×1200 rec.) · 4 GB RAM min., 16 GB DDR4 rec.
Ports	1 × USB (license key) + 2 × USB 3.0 + 1 × USB 2.0 (relay); optional Ethernet for MODBUS / TCP/IP

Ordering & configuration: Specify the lens focal length (or your specimen gauge length and preferred working distance), test machine make/model for the data interface, and mounting method. Calibration grids, tripods, polarization kits, PCIe USB 3.0 cards and additional software modules available. 2D 4000 Series and dual-camera 4000-D versions also available.

Specifications are typical and may vary with lens, working distance and configuration; confirm at time of quote. Measuring lengths per ISO 9513 accuracy class. Part ref. UGC-VE-4109-3D