Universal Grip Co.

PRODUCT DATA SHEET

UGC-VE-4105

4000 Series · Single-Camera · 5 MPx

UGC-VE-4105 · 400 MM HOUSING

4000 SERIES · VIDEO EXTENSOMETER

Large-Field Video Extensometer

5 MPx non-contact optical extensometer in a 400 mm housing with a 400 mm LED light.

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 longer housing and 400 mm LED illuminate a larger area than the 2000 Series — the better choice for long or high-elongation specimens.

KEY FEATURES

- All-in-one: camera, C-mount lens, blue LED light and USB light relay
- Non-contact — no knife edges, safe to measure through break
- 175 Hz typical sampling; up to 1 kHz with a narrowed view
- Real-time output to your test machine controller (digital, analog, pulse)
- 400 mm LED for long or high-elongation specimens; stackable for joined fields of view

175 Hz TYPICAL SAMPLING RATE

130 mm CLASS 0.5 MEAS. LENGTH

260 mm CLASS 1 MEAS. LENGTH

520 mm CLASS 2 MEAS. LENGTH

1 × 5 MPx CAMERA UNITS

TECHNICAL SPECIFICATIONS

Model	UGC-VE-4105 · 4000 Series, single-camera
Cameras	1 × 5 MPx industrial camera
Sampling rate	175 Hz typical · 75 Hz at full view · up to 1 kHz with reduced view width
Measuring length (ISO 9513)	Class 0.5: 130 mm · Class 1: 260 mm · Class 2: 520 mm
Working distance	300–500 mm typical from front cover; extendable on request
Lens	C-mount; 12, 16, 25, 35 or 50 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 (1 total) + USB 2.0 for light relay; 3 m cables standard
Housing dimensions	424 × 187 × 80 mm (L × W × H)
Weight	2.5 kg
Power	24 V DC via RJ45 power cable (802.3af Mode B); 20 W

IN USE

Live strain tracking on a tensile specimen.

WHAT'S INCLUDED

- VE unit with lens, 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 (perpetual license)
- 1 year software updates & technical support

UGC-VE-4105

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	50 mm
0.5	130	109	156	213	357	520	710
1	260	218	335	459	737	1,054	1,480
2	520	435	639	950	1,498	2,123	3,020

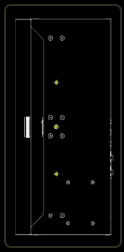
Working distance is measured from the front cover. Measuring length, lens focal length and working distance are linked — choose two and the third follows. Longer distances reduce LED intensity and may require longer shutter times.

HOW TO READ THE MODEL NUMBER

UGC-VE-4105

4 — Series (4000 Series, 400 mm housing) · **1** — Number of VE units (1–2) · **05** — Camera resolution code (5 MPx). 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	2.5 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	Camera 3 W · Relay 1 W · LED 16 W = 20 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 (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 (included)	Point, Line and Extreme Line probes — axial strain & elongation
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) + 1 × 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. Upgrade path to two-unit 4200 configurations.

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-4105