



MTS Vector Optical Extensometer

Accurate and efficient non-contact strain measurement

Includes:

- » Extensometer
- » Power Supply
- » Power / Data Cables
- » Ethernet Cable
- » Specimen Marking Kit
- » Validation Block
- » Calibration File
- » Standard Vector Mounting Kit

The MTS Vector Optical Extensometer integrates seamlessly into testing workflows, providing precise measurements without contacting specimens. It is designed to enhance your material testing processes on all standard MTS materials testing solutions, including MTS Criterion®, Landmark® and other test systems.

With its real-time on-board processing capabilities, the Vector Optical Extensometer minimizes the time and effort spent on setup, easily producing accurate data within minutes of mounting it to any MTS load frame. Its integrated measurement head combines

a stereo camera system and low-glare cross-polarized blue lights for optimal imaging and analysis. This integrated light/camera system also maximizes portability and minimizes setup steps and required training.

Considered a direct replacement for clip-on extensometers in many applications, the Vector Optical Extensometer offers unparalleled accuracy and flexibility, making it incredibly user-friendly and efficient.

This extensometer is available in three models; differing in field of view and biaxial measurement ability.

Ease-of-Use — Five Reasons Labs Choose Vector

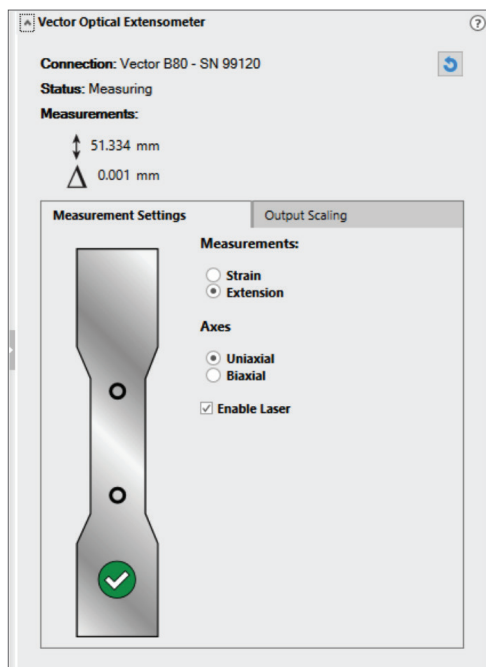
Built for routine testing environments where operator time matters, test throughput is measured, and the whole team — not just the most experienced technician — needs to get reliable data.

Benefit 1: Setup in Seconds

Apply a marker, position the unit, and Vector automatically detects the marks and begins measuring. No manual configuration, no camera calibration procedure. Once mounted, the Vector is ready to test.

Benefit 2: TestSuite™ TW EM Integration — Criterion EM Systems

The Vector setup interface is embedded directly in TestSuite™ TW EM. One software, one operator workflow. No second application to launch, no separate PC, no manual data transfer between systems. All setup, monitoring, and validation happen within the same interface the operator already uses.

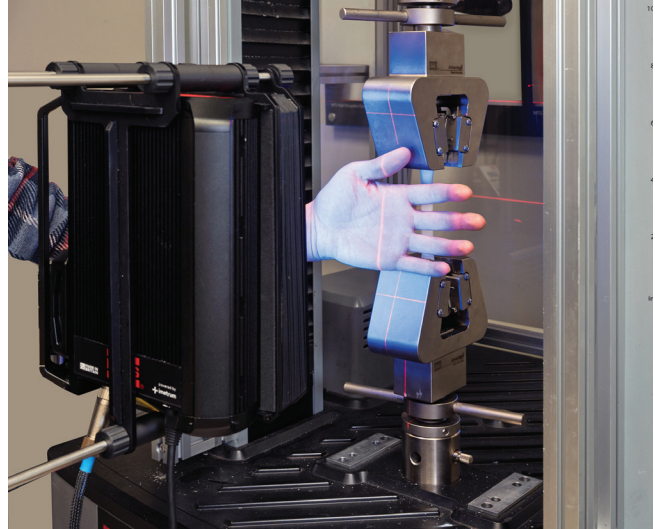


Benefit 5: Built-In Validation Wizard

The built-in Validation Wizard uses the included validation block to check measurement system performance against ASTM E83 and ISO 9513 accuracy classes — a quick pre-test readiness check completed in under a minute. For applications requiring traceable, documented accuracy verification, a certified validation block is available upon request.

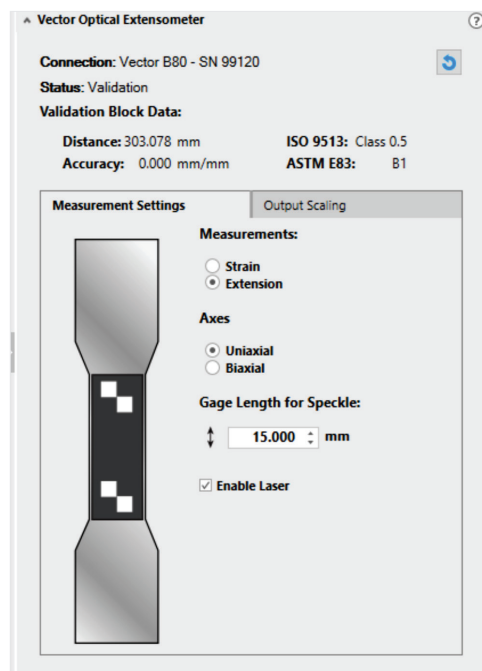
Benefit 3: Built-In Alignment Lasers

Integrated alignment lasers project visible reference lines to guide Vector positioning relative to the specimen. The operator aligns visually in seconds — no measuring tape, no trial-and-error repositioning.



Benefit 4: Automatic Mark Detection

Vector automatically detects and tracks rings, filled circles, and speckle patterns, with no manual gauge length entry required. Mark the specimen with the included kit, position Vector, and begin the test.



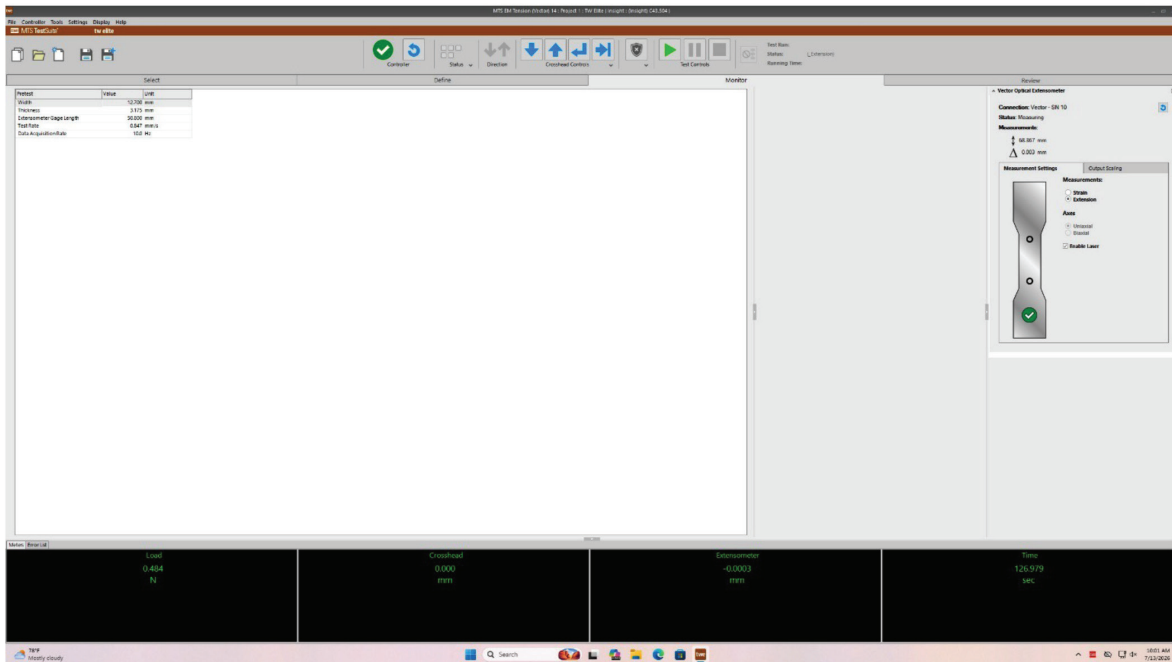
Software Interface — TestSuite™ TW EM

For MTS Criterion® electromechanical systems, the Vector integrates directly into MTS TestSuite™ TW EM — setup lives in the same software used to run the test. The integrated interface provides full setup, monitoring, and validation:

- » Metric / US Customary unit selection
- » Strain or displacement measurement mode
- » Target gauge length for speckle pattern measurement
- » Alignment laser on/off
- » Validation block check with live ISO 9513 / ASTM E83 accuracy class readout

- » Real-time status indicators and setup guidance
- » Ethernet handles GUI setup and gauge length configuration; an analog cable carries real-time strain data — the same connection scheme on both Criterion and Landmark systems, for straightforward installation.

On MTS Landmark® servohydraulic systems, the Vector runs through a dedicated standalone GUI alongside the existing Landmark test software, with the same setup, alignment, and validation functionality.



Vector Protector — Environmental Protection and Signal Noise Reduction

The Vector Protector safeguards the extensometer's optical system from impact, debris, and contamination in demanding lab and production environments — maintaining measurement accuracy and extending service life.

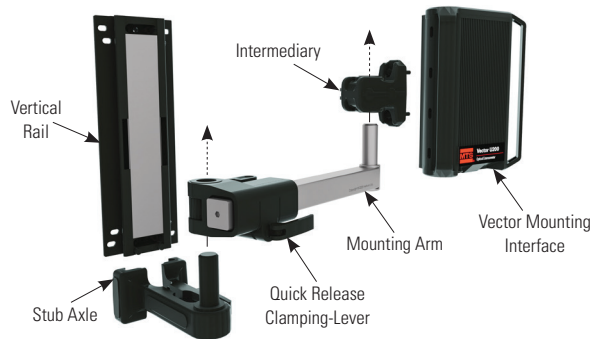
In environments with active HVAC or temperature gradients, it also reduces air turbulence in the optical path for a more stable strain signal — most valuable in long-duration or precision applications where signal consistency matters most.



Frame Mounting Options

Included with every Vector. Consists of a vertical rail, magnetic position block (MagLock), and an adjustable mounting arm. MagLock lets the Vector swing clear for specimen access and snap back to the same position for the next test — no setup disturbance between runs. The arm adjusts vertically to fit different specimen heights and frame configurations.

An Additional Mounting Kit lets multi-frame labs move the Vector between systems while dedicated hardware stays installed on each.



Criterion EM Column Adapter

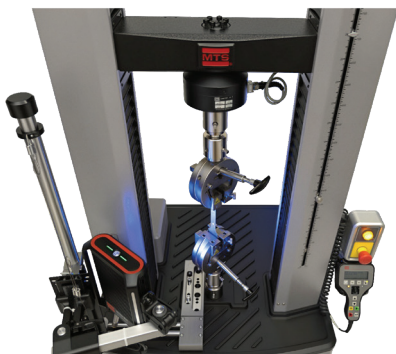
Attaches to the frame column with mounting plates and bolts, accepting the Standard Mounting Kit rail directly. Compatible with the full Criterion EM range (C43–C45 series); no frame modification required.



45° Clevis Adapter — Criterion EM Systems

Angles grips and fixtures 45° to the load axis, so the Vector measures at the same angle — giving unobstructed front access to swap specimens without repositioning the extensometer, hardware, or grips. Built for high-throughput environments where changeover time matters. Three load-rated variants match different Criterion frame and clevis configurations.

NOTE: Not compatible with Landmark systems or AVX 3D.



Landmark® Column Clamps

Mounts the Standard Mounting Kit rail to the Landmark 370 column. Built for quasi-static and monotonic testing—tensile strength, elongation, modulus, and yield behavior.



Portable Mounting — Tripod and Tripod Mounting Kit

For labs running the Vector across multiple frames without installing column hardware on each. The Tripod Mounting Kit connects the Standard Mounting Kit to a laboratory tripod via a dedicated arm, with an integrated counterbalance weight for stability. Same MagLock attachment as the frame-mounted options — one consistent setup experience across every configuration.



Model Overview: Vector U70, U200, B80

MTS Vector U70 Optical Extensometer

The Vector U70 is optimized for small to medium specimens — sub-sized metal coupons, composites, and delicate materials where gauge lengths of 10 to 50 mm are standard. Its compact field of view delivers high-resolution axial strain measurement, making it the preferred choice for tension and compression testing, including setups with limited parallel section length.

Specifications					
Extensometer Measurement Applications	Uniaxial: Tensile, Compressive or Flexural				
Measurement Modes	Strain (%) or Displacement (mm/inches)				
Field of View (Height (H) x Depth (D) x Width (W))	70H x 40D x 25W mm cuboid				
Resolution	<0.5 μ m				
Extensometer Accuracy Class	Meets or exceeds ISO 9513 Class 0.5 and ASTM E83 Class B-1 capable				
Gauge Lengths Supported	10 to 50 mm				
Representative Maximum Strain Range and Extension for Selected Gauge Lengths	GL	10 mm	12.5 mm	25 mm	50 mm
	Strain Range	400%	307%	120%	27%
	Extension Range	40 mm	38 mm	30 mm	13 mm
Real-Time Strain Data Rate	150 Hz				
Minimum Specimen Width	2 mm flat, 2.5 mm diameter round				
Minimum Recommended Specimen Parallel Section	14 mm				
Maximum Tracking Speed	2500 mm/min				
Strain Control	Compliant to ISO 6892 and ASTM E8				
Working Distance	280 to 320 mm				
Strain Signal Interface	Analog $\pm$ 10V BNC				
Supported Mark Types	Rings, filled circles and speckles automatically detected with provided marking kit				
Recommended Specimen Temperature Range	-100 to +370°C				
Dimensions (Height (H) x Depth (D) x Width (W))	252H x 73D x 201W mm				
Weight	3.1 kg				



MTS Vector U200 Optical Extensometer

The Vector U200 covers the broadest gauge length range of the three models — 25 to 180 mm — and is the standard choice for tensile testing of metals, polymers, and composites to applicable ASTM and ISO standards. A single setup captures both modulus in the elastic range and elongation at break, without swapping extensometers.

Specifications						
Extensometer Measurement Applications	Uniaxial: Tensile, Compressive or Flexural					
Measurement Modes	Strain (%) or Displacement (mm/inches)					
Field of View (<i>Height (H) x Depth (D) x Width (W)</i>)	200H x 100D x 40W mm cuboid					
Resolution	<0.5 μ m					
Extensometer Accuracy Class	Meets or exceeds ISO 9513 Class 0.5 and ASTM E83 Class B-1 capable					
Gauge Lengths Supported	25 to 180 mm					
Representative Maximum Strain Range and Extension for Selected Gauge Lengths	GL	25 mm	50 mm	80 mm	100 mm	180 mm
	Strain Range	467%	200%	100%	67%	7%
	Extension Range	117 mm	100 mm	80 mm	67 mm	13 mm
Real-Time Strain Data Rate	150 Hz					
Minimum Specimen Width	5 mm flat, 6 mm diameter round					
Minimum Recommended Specimen Parallel Section	32 mm					
Maximum Tracking Speed	2500 mm/min					
Strain Control	Compliant to ISO 6892 and ASTM E8					
Working Distance	250 to 350 mm					
Strain Signal Interface	Analog $\pm$ 10V BNC					
Supported Mark Types	Rings, filled circles and speckles automatically detected with provided marking kit					
Recommended Specimen Temperature Range	-100 to +370°C					
Dimensions (<i>Height (H) x Depth (D) x Width (W)</i>)	252H x 73D x 201W mm					
Weight	3.1 kg					



MTS Vector B80 Optical Extensometer

The Vector B80 measures axial and transverse strain simultaneously — enabling direct determination of Poisson's ratio and plastic strain ratio (r-value) in a single test without additional instruments. The B80 also provides the highest resolution for uniaxial testing, supporting specimens as narrow as 1.5 mm, including narrow composite strips and wire.

Specifications						
Extensometer Measurement Applications	Uniaxial: Tensile, Compressive or Flexural Biaxial: Axial with Central Transverse					
Measurement Modes	Strain (%) or Displacement (mm/inches)					
Field of View (<i>Height (H) x Depth (D) x Width (W)</i>)	80H x 30D x 30W mm cuboid					
Resolution	<0.5 μ m					
Extensometer Accuracy Class	Meets or exceeds ISO 9513 Class 0.5 and ASTM E83 Class B-1 capable					
Gauge Lengths (GL) Supported	Axial: 7.5 to 70 mm Transverse: 6.0 to 25 mm, gauge length for speckles: 7.5 mm.					
Representative Maximum Strain Range and Extension for Selected Gauge Lengths	GL	8.5 mm	12.5 mm	16 mm	25 mm	50 mm
	Strain Range	561%	360%	267%	147%	40%
	Extension Range	48 mm	45 mm	43 mm	37 mm	20 mm
Real-Time Strain Data Rate	150 Hz					
Minimum Specimen Width	Axial: 1.5 mm flat, 2 mm diameter round Transverse: 10 mm flat, 12.5 mm round					
Minimum Recommended Specimen Parallel Section	10 mm					
Maximum Tracking Speed	2500 mm/min					
Strain Control	Compliant to ISO 6892 and ASTM E8					
Working Distance	285 to 315 mm					
Strain Signal Interface	Analog $\pm$ 10V BNC					
Supported Mark Types	Rings, filled circles and speckles automatically detected with provided marking kit					
Recommended Specimen Temperature Range	-100 to +370°C					
Dimensions (<i>Height (H) x Depth (D) x Width (W)</i>)	252H x 73D x 201W mm					
Weight	3.1 kg					





MTS Systems Corporation
14000 Technology Drive
Eden Prairie, MN 55344-2290 USA
www.mts.com

Telephone: 1.952.937.4000
Toll Free: 1.800.328.2255
E-mail: info@mts.com
ISO 9001 Certified QMS

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