



MTS Advantage™ 3D Video Extensometer

Flexible, efficient and repeatable non-contact strain measurement

Includes:

- » AVX 3D Measurement Module
- » AVX 3D Controller and Software
- » Power Supply
- » Data Cable Set
- » Specimen Marking Kit
- » Validation Block
- » Calibration File
- » Standard Mounting Kit

The Advantage 3D Video Extensometer (AVX) is designed to deliver precise, non-contact strain and displacement measurements across a wide spectrum of materials testing applications. Compatible with MTS Criterion®, Landmark® and other test systems, this versatile 3D measurement solution provides precise data about material properties.

Equipped with a robust optical system that is resistant to glare, ambient light variation, and specimen surface inconsistencies; the AVX 3D provides consistent performance across diverse applications, including those using environmental chambers. Its integrated

measurement head with a stereo camera system and low-glare cross-polarized light optimizes imaging and analysis.

The AVX software works with MTS TestSuite™ software to capture high-fidelity video archives and support both real-time and post-processing analysis. Optional strain mapping features—available during post-processing—provide deeper insights into material behavior, all without physically contacting the specimen.

The Advantage 3D video extensometer is ideal for laboratories and research facilities requiring precise, repeatable and flexible measurement solutions for advanced materials testing.

Ease-of-Use — Key Benefits

The MTS Advantage™ 3D Video Extensometer delivers the measurement power of a full 3D DIC system with a workflow designed for routine use in advanced materials characterization laboratories.

Fast, Repeatable Setup

Position the measurement head, initiate measurement, and begin acquiring data within minutes of installation. The system configures automatically, minimizing preparation time between tests.

MTS System Integration

Real-time strain data delivered directly to your MTS Criterion or Landmark test system for strain control, strain measurement, and data acquisition to support complete material characterization tests.

Built-In Validation Wizard

The AVX 3D includes a dedicated validation block and a built-in Validation Wizard for a structured pre-test accuracy check. The wizard confirms measurement performance within specification before committing a test specimen. Certified calibration to ISO 9513 Class 0.5 and ASTM E83 Class B-1 is available on request.

Multi-Frame Portability

A single AVX 3D system can serve multiple test frames. Disconnect, relocate, and reconnect using the same mounting kit and column adapter — no recalibration required. Additional mounting kits are available for labs requiring the AVX 3D to be instantly ready on a second frame. A tripod option enables fully portable, frame-independent setup.

Video Archiving and Post-Processing Capabilities

Complete high-fidelity video archive captured simultaneously with strain data, to support full post-processing and analysis within the AVX software.

Full-Field Strain Mapping (Optional Add-On)

2D and 3D Digital Image Correlation (DIC) strain mapping available as an optional add-on. Generates complete strain distribution maps across the specimen surface — not included in the standard system.

Software Interface and System Integration

Extensometer Controller and Software

The AVX software provides flexibility to measure practically any physical displacement and allows unlimited drag-and-drop virtual measurements. It integrates with MTS TestSuite™ TW software to provide up to 200 real-time measurements.

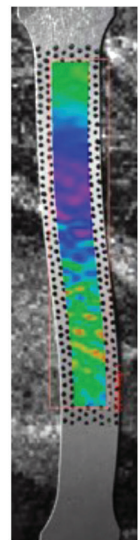
- » Supports up to 32 analog/input/output channels and up to 16 digital input/output channels
- » Includes live mode, review mode, post processing mode, and video archive
- » Designed for applications that require unlimited number of drag-and-drop measurements including position measurement, displacement gages, distance measurements, virtual extensometers, virtual strain gages, dual averaging strain gages, Poisson's ratio, rotation, and shear strain
- » Filtering can be applied to measurements
- » Any number of measurements can be added during post-processing mode. The batch processing tool now automates the processing of tests
- » Quick Extensometry supports adding pre-configured measurement tools automatically
- » Smart measurements adjust settings during the test to optimize results

2D/3D Strain Map Option

The 2D/3D Strain Map Option is a powerful Digital Image Correlation (DIC) tool that generates color contour maps across the test object's surface. These maps reveal detailed strain and displacement patterns, enabling precise identification and measurement of strain concentrations for deeper insight into material behavior. For 3D measurements, its setup time is a fraction of that for traditional 3D non-contacting devices.

Post-Processing

For post-processing and full-field strain mapping applications, the AVX 3D software acquires both the strain signal from the extensometer and the load signal received from the MTS controller. Both signals are processed together within the AVX software — not in TestSuite TW — enabling complete load-strain data sets for DIC analysis, strain map generation, and video archive review.

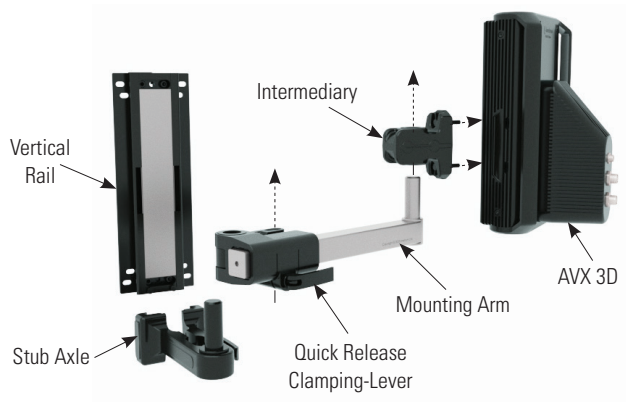


Frame Mounting Options

Every AVX 3D ships with the Standard Mounting Kit. Compatible column adapters and a tripod option let it run on a wide range of MTS Criterion® EM and MTS Landmark® servohydraulic systems. An Additional Mounting Kit is available for labs that need the AVX 3D instantly ready on a second frame.

Standard AVX 3D Mounting Kit

Includes a linear rail with sliding height adjustment and an extension arm with MagLock — letting the AVX 3D swing clear of the specimen and return to the same measurement position repeatably, without realignment.



Criterion® Column Adapter

Mounts to the base or top of the Criterion EM frame via mounting plates and bolts, providing a fixed column for the Standard Mounting Kit. Compatible with the full C43, C44, and C45 series range. An Additional Column Adapter lets multi-frame labs move the AVX 3D between systems without relocating the adapter.



Landmark® Column Clamps

Accommodate the different column configurations of Landmark servohydraulic frames, providing a stable, vibration-resistant mounting interface with no frame modification. Suited to quasi-static and low-cycle fatigue testing, where lower-frequency loading preserves extensometer integrity and measurement quality. An Additional Column Clamp Set is available for multi-frame labs.



Tripod Mounting Kit (Optional)

A portable, frame-independent option for positioning the AVX 3D independently of the test frame — rapid setup on any compatible Criterion or Landmark system, no permanent modification. Connects the Standard Mounting Kit to the tripod via a dedicated arm with integrated counter balance weight. Compatible with both AVX 3D-110 and AVX 3D-220.



MTS Advantage™ 3D Video Extensometer

Specifications				
Extensometer Measurement Applications	Tensile, Compressive, Flexural, Shear, Rotation, Buckling, Multi-point Strain (axial, biaxial, up to 200 measurements) and optional 2D / 3D DIC Strain Map processing capabilities			
Measurement Modes	Strain (%), Extension (mm), Displacement (mm), Positions (mm), Rotation (°), Poisson's ratio, Strain Map.			
Field of view (Height (H) x Depth (D) x Width (W); Width varies with data rate)	Preset Model 110:	120 Hz 110H x 40D x 94W mm	500 Hz 110H x 40D x 23W mm	1000 Hz 110H x 40D x 11W mm
	Preset Model 220:	120 Hz 220H x 40D x 94W mm	500 Hz 220H x 40D x 48W mm	1000 Hz 220H x 40D x 24W mm
Resolution	<0.5 µm			
Working Distance	320 to 360 mm			
Extensometer Accuracy Class	Meets or exceeds ISO 9513 Class 0.5 and ASTM E83 Class B-1 capable			
Frame Capture Rate	Presets at 120, 500, 1000 Hz (1000 Hz measurements in post-processing only)			
Maximum Tracking Speed	2500 mm/min			
Strain Control	Real-time low latency strain data at presets of 120 and 500 Hz. Compliant to ISO 6892 and ASTM E8			
Strain Signal Interface	Ethernet or analog ±10V BNC			
Supported Mark Types	Bullseyes, Dots, Rings, Speckles and Natural Patterns			
Recommended Specimen Temperature Range	-100 to +370°C			

Model Comparison

Model 110: For advanced material testing of smaller gauge lengths and extension ranges; for specimens, or replacing strain gauges on components.

AVX 3D Video Extensometer; Model 110	
Gauge Lengths Supported	10 to 80 mm
Minimal Specimen Width	Axial; 2.1 mm Transverse; 12 mm
Minimal Recommended Specimen Parallel Section	12 mm
Dimensions (Height (H) x Depth (D) x Width (W))	193H x 192D x 210W mm
Weight	3.8 kg

Model 220: For advanced material testing of larger gauge lengths and extension ranges; for specimens, or entire components and sub-assemblies.

AVX 3D Video Extensometer; Model 220	
Gauge Lengths Supported	20 to 200 mm
Minimal Specimen Width	Axial; 4.7 mm Transverse; 25 mm
Minimal Recommended Specimen Parallel Section	24 mm
Dimensions (Height (H) x Depth (D) x Width (W))	255H x 192D x 210W mm
Weight	5 kg



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