

# AVE 2

Dynamic Strain Measurement and Control



## DISCOVER MORE WITH NON-CONTACTING DYNAMIC STRAIN MEASUREMENT

In addition to its excellent performance for static testing, the Instron AVE 2 is now available with an option for cyclic testing and high speed monotonic test measurement. Capable of tracking displacement at up to 500mm/s with cyclic test frequencies up to 20Hz, it offers the speed and flexibility scientists and engineers have been waiting for to study the dynamic behaviour of materials without contacting the specimen.

## A BREAKTHROUGH IN STRAIN MEASUREMENT FOR SENSITIVE SPECIMENS

Many materials are sensitive to the contact force from traditional clip-on devices and there has been no practical solution until now. Whether the application is delicate films or soft tissue samples, wire or polymer matrix composites, AVE 2 Dynamic offers a unique range of functionality for dynamic measurement & control of specimen strain.

## VERSATILITY THAT SOLVES YOUR RESEARCH CHALLENGES

In all research environments the biggest challenge can often be coping with the changing demand of both internal and external customers. This can be problematic when you need to specify the laboratory equipment which needs to accommodate both short-term and long-term application challenges. The AVE 2 offers you the chance to invest in a system which can adapt to your changing demands and bring new capability to your lab today with the confidence that the same technology will be delivering the results you need for many years to come.

## SPECIMEN VARIETY

Measure and control cyclic strain on a wide range of materials and specimen geometries. A single device in your lab now covers test specimens with multiple gauge lengths and varied elongations. If you aren't currently able to use a clip-on extensometer or you are looking for increased flexibility and usability from your strain measurement device, the AVE 2 Dynamic option offers many benefits.

## SYNCHRONOUS AXIAL & TRANSVERSE DYNAMIC MEASUREMENTS

Both axial and transverse measurements are delivered synchronously with other transducer data. This data can be used in live test calculations and included in mixed-mode control tests; Axial displacement can be used for direct test control, with safety features to protect system and operator should the camera view be obscured.

## COMPLIANT SPECIMENS & HIGH STRAIN RATES

The dynamic measurement option is well suited to testing high elongation materials or for studying strain rate behaviour where clip-on devices influence specimen behaviour, have limited travel and require removing before failure.

## SPECIFICATIONS

### Dynamic axial measurements

<b>Lens Focal Length</b>	mm	16
<b>Field of View for Dynamic Systems</b>	mm	240
	in	9.45
<b>Resolution</b>	µm	2.0
<b>Accuracy</b>	µm	2.0
<b>Measurement Increment</b>	µm	0.25
<b>Maximum Following Speed</b>	mm/s	500
	in/s	20
<b>Minimum Displacement</b>	mm	± 0.1
	in	± 0.004
<b>Minimum Gauge Length</b>	mm	6
<b>Data Rate</b>	Hz	490
<b>Data Lag</b>	ms	< 1
<b>Resolution with Chamber</b>	µm	2.0 + 0.5/25°C
<b>Accuracy with Chamber</b>	µm	2.0

### Dynamic transverse measurements

<b>Field of View for Dynamic Systems</b>	mm	33
	in	1.29
<b>Resolution</b>	µm	2.0
<b>Accuracy</b>	µm	2.0
<b>Measurement Increment</b>	µm	0.25
<b>Minimum Gauge Width</b>	mm	6
	in	0.23

### Classification to Standards

<b>ISO 9513:2012</b>	Displacement Range ≤ 0.5 mm	Class 2
	Displacement Range ≥ 0.5 mm	Class 1
<b>ASTM E83-10</b>	Displacement Range ≥ 1 mm	Class 0.5
	Gauge Length ≥ 6 mm	Class C
	Gauge Length ≥ 25 mm	Class B-2
	Gauge Length ≥ 50 mm	Class B-1

Note: Only AVE 2 specifications that differ during dynamic operation are provided above. Refer to the AVE 2 literature for all other specifications.

## FEATURES & BENEFITS



8800 MT



CYCLIC UP TO 20Hz



SEAMLESS WAVEMATRIX™2 INTEGRATION



TRACKING UP TO 500 MM/S



DYNAMIC STRAIN CONTROL

## HARDWARE & SOFTWARE REQUIREMENTS

AVE 2 Dynamic functions are available exclusively on the latest Instron® 8800 Minitower dynamic control system with WaveMatrix test software (requires Firmware V12.15, Console V8.11, WaveMatrix V1.9 or later). AVE 2 will switch seamlessly from dynamic measurement with WaveMatrix to static measurement when in use by BlueHill® software and other non-Instron systems. Compatible with AVE 2 16mm focal length lens and WaveMatrix Calculations and Advanced Control Modules (if required).

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