

**Designed primarily for compressive strength tests on rock, concrete and other large compression samples, this model measures axial strain on opposite sides of the test specimen, and the output is an average of the two readings. Gauge lengths from 25 to 200 mm (1 to 8 inches) and measuring ranges from 1.2 to 6 mm (0.050 to 0.250 inches) are available.**



Model 3542RA1 extensometer



Model 3542RA1 extensometer with 50 mm gauge length



Model 3542RA2 dual averaging rock and concrete extensometer

The Model 3542RA is available in a variety of configurations. All are self-supporting on the specimen and mount very easily. For tests where a single diameter specimen is typically used, the fixed diameter Model 3542RA1 is recommended. For applications where a continuously adjustable diameter extensometer is required, the Model 3542RA2 is available. The standard configuration for this model allows it to work on samples from 50 mm to 150 mm (2 inches to 6 inches). If desired, the two readings can be independent, providing two outputs. Many rock tests are done in tri-axial pressure vessels. Epsilon has versions for use in oil to 1360 bar at 200 °C (20,000 psi at 400 °F). These will fit in unusually small inside diameter vessels. For small diameter specimens, we suggest the Model 3442RA1 averaging axial extensometer.

All Model 3542RA extensometers are designed so they may be used together with the Model 3544 circumferential or Model 3975 diametral extensometer. Epsilon's rock extensometers can withstand the punishment of daily, high volume testing. Some units have been used for several thousand tests without damage. The conical point contacts included with the extensometer are made from tungsten carbide.

The Model 3542RA extensometers are strain gaged devices, making them compatible with any electronics designed for strain gaged transducers. Most often they are connected to a test machine controller. The signal conditioning electronics for the extensometer is typically included with the test machine controller or may often be added. In this case the extensometer is shipped with the proper connector and wiring to plug directly into the electronics. For systems lacking the required electronics, Epsilon can provide a variety of solutions, allowing the extensometer output to be connected to data acquisition boards, chart recorders or other equipment.

*See the electronics section of this catalog for available signal conditioners and strain meters.*

## Features

- Full bridge, 350 ohm strain gaged design for compatibility with nearly any test system.
- High accuracy, averaging output or optional dual independent outputs.
- Standard units meet ASTM class B-1 requirements for accuracy. A test certificate is included. ISO 9513 class 0,5 test certificates are available upon request.
- Rugged, dual flexure design for strength and improved performance.
- Includes high quality foam lined case.
- Easy mounting, attaches with integral springs.
- Self-supporting on the specimen.
- May be used simultaneously with Model 3544 circumferential extensometers or Model 3975 diametral extensometer.
- The 3542RA1 is configured for a single diameter size (customer specified), and the 3542RA2 works on sample diameters from 50 mm to 150 mm (2 inches to 6 inches). Special configurations of the 3542RA2 will allow for smaller diameter sizes.

## SPECIFICATIONS

**Excitation:** 5 to 10 VDC recommended, 12 VDC or VAC max.

**Output:** 2 to 4 mV/V nominal, depending on model

**Linearity:** ≤0.20% of full scale measuring range, depending on model

**Temperature Range:** Standard (-ST) is -40 °C to +100 °C (-40 °F to 210 °F)  
Optional (-LHT) is -270 °C to +200 °C (-454 °F to 400 °F)

**Cable:** Integral, ultra-flexible cable, 2.5 m (8 ft) standard

**Specimen Size:** Wide range of specimen sizes available, including AX, BX, NX and larger, to 200 mm (and 8 inches) diameters standard (larger sizes on special order)

**Operating Force:** <30 g typical per side

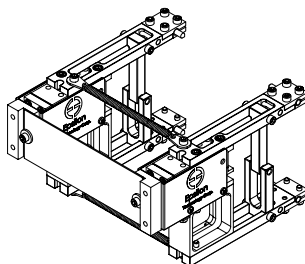
## OPTIONS

Fixed or variable diameter configurations

Dual, independent outputs

Connectors to interface to nearly any brand test equipment

Shunt calibration module (see page 120)



2" or 50 mm gauge length

MODEL 3542RA1 EXAMPLE

## ORDERING INFORMATION

Model 3542RA Available Versions: ANY combination of gauge length, measuring range and temperature range listed below is available, except as noted. Test specimen diameter(s) must be specified at the time of order. Other configurations may be available with special order; please contact Epsilon to discuss your requirements.

Gauge Length		Measuring Range	
METRIC		METRIC	
-025M	25.0 mm	-120M	±1.2 mm
-050M	50.0 mm	-250M	±2.5 mm
-080M	80.0 mm	-600M	±6.0 mm
-100M	100.0 mm		
-150M	150.0 mm		
-200M	200.0 mm		
U.S.A.		U.S.A.	
-0100	1.000"	-050T	±0.050"
-0200	2.000"	-100T	±0.100"
-0300	3.000"	-250T	±0.250"
-0400	4.000"		
-0500	5.000"		
-0600	6.000"		
-0800	8.000"		

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### Diameter Type<sup>1</sup>

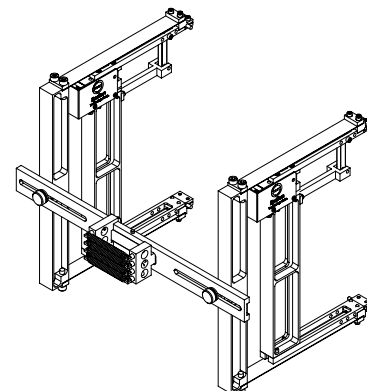
1	Fixed
2	Adjustable

### Temperature Range

-LT	-270 °C to 100 °C (-454 °F to 210 °F)
-ST	-40 °C to 100 °C (-40 °F to 210 °F)
-HT1	-40 °C to 150 °C (-40 °F to 300 °F)
-HT2	-40 °C to 200 °C (-40 °F to 400 °F)
-LHT	-270 °C to 200 °C (-454 °F to 400 °F)

<sup>1</sup> Additional diameter configurations are available with special order.

Example: 3542RA1-100M-600M-ST: Fixed size, 100 mm gauge length, 6.0 mm measuring range, standard temperature option (-40 °C to 100 °C)



6" gauge length, to fit samples from 2" to 6" in diameter

MODEL 3542RA2 EXAMPLE