

Transducer Settings

The analogue scaling for Vector is easily adjusted and it is advantageous to pick a suitable scale to raise the counts/volt of the test frame's Analogue-Digital Converter (ADC). Pick a scale that is close to the limits of the test, with some spare both below and beyond the test limits. For example, if a tensile test will run from 0% to failure at 30%, a suitable scale could be -10V=-10%, +10V=50%.

(Transducer Settings - User - Full Scale: 50%)

(Transducer Settings - User - Offset: 0%)

Just like other extensometers, set the control mode to "Automatic Loop Control" with the default integral gain, velocity filter, and filter poles settings.

(Transducer Settings - Gain - Mode: Use Automatic Loop Control)

Method Settings

As the output rate of Vector is lower than clip-ons, it is recommended to increase the datapoint window for calculating rate beyond the default. 30 points is a good initial value. For slower tests (0.005 mm/mm/min) a higher value between 50-100 may be useful.

(Method - Measurements - [Vector] - Rate - Datapoints: 30)

Similarly, it is worth calculating the rate using a linear regression rather than a chord.

(Method - Measurements - [Vector] - Rate - Linear Regression: ON)

Troubleshooting

If the initial response overshoots, a suitable preload is more effective than adjusting the Integral gain term.

If the initial response is overdamped, a suitable tighter scaling will elicit a quicker response.

If the rate is unstable, a suitable tighter scaling will reduce the influence of the ADC resolution.

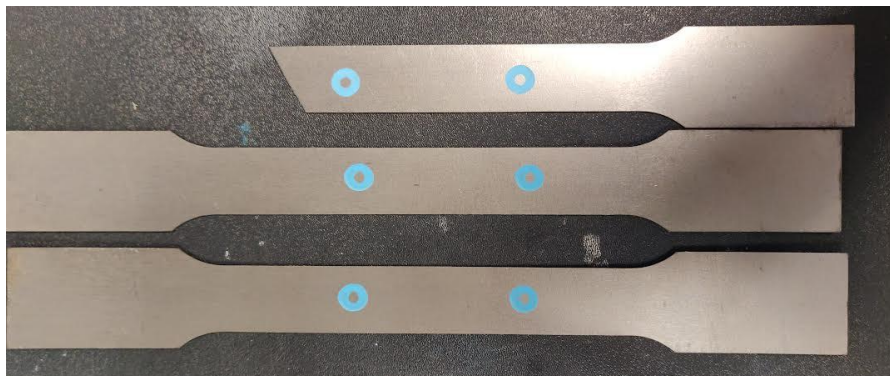
Example

Test Frame: Instron 5969 (2013)
 Test Software: Bluehill Universal 4.47.33247
 Advanced Performance: Yes

Extensometer: Vector U200
 Extensometer FW: vector-u200-a-1.0.18602 [prerelease]

Specimen: sheet steel
 Gauge length: 50mm, specimen suitable for a 100mm gauge length.
 Dimensions: 20mm width, 0.5mm thickness.
 Behaviour: homogenous, fails at 2-4%, $E \sim 200\text{GPa}$.
 Markings: standard U200 rings.

Setup:
 Target Rate: 0.05 mm/mm/min
 Scaling: -1% to +5%
 Control: Automatic Loop Control, default settings
 Rate calculation: 30 datapoints.
 Linear Regression: ON



Behaviour:

