

How to integrate Vector with Shimadzu Trapezium X-V Software

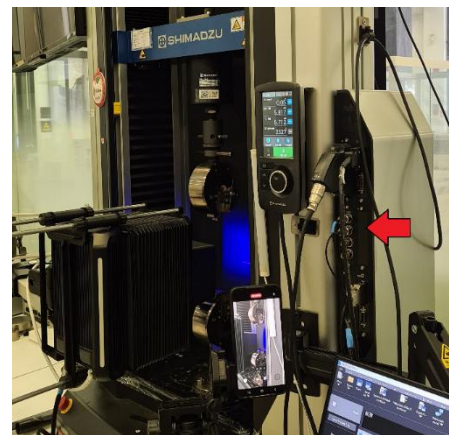
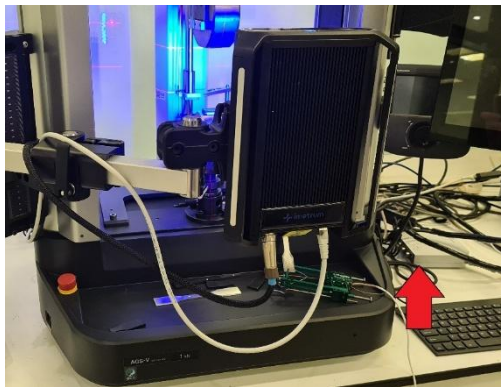


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Step one – Install Vector to the UTM

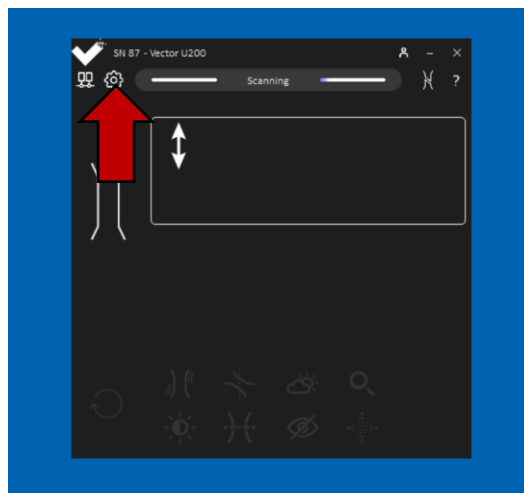
1.1 Following mounting to the Frame:

Connect Vector's BNC output into "Analog1" on the conditioning box. It may be in its own Sensor I/O Extension Box separate from the frame, or as part of the black box on the right-hand side of the frame

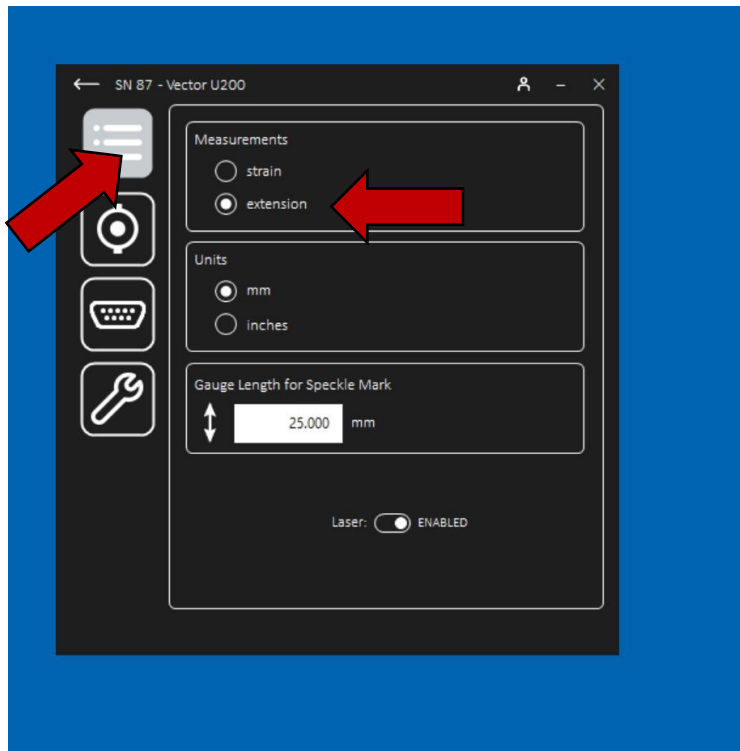


Step two – Change output in Vector Interface

2.1 Before beginning connection, Trapezium is expecting an extension input, so ensure Vector is set to this mode in the User Interface. Manual gauge length input is required to calculate strain.



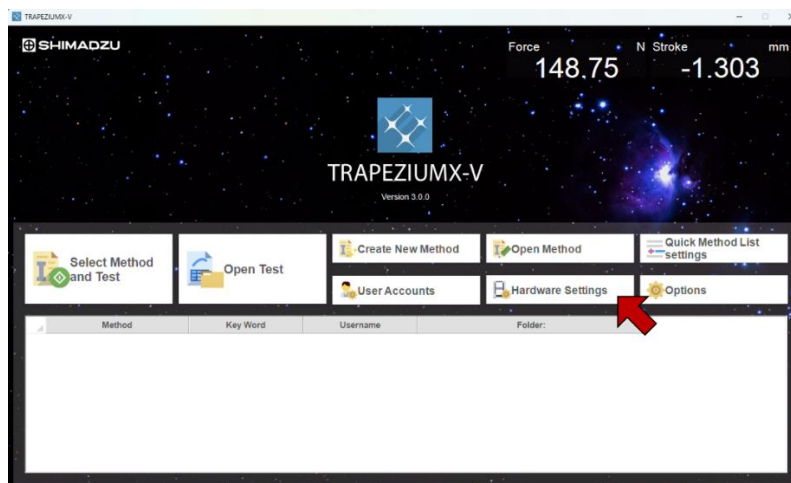
2.1



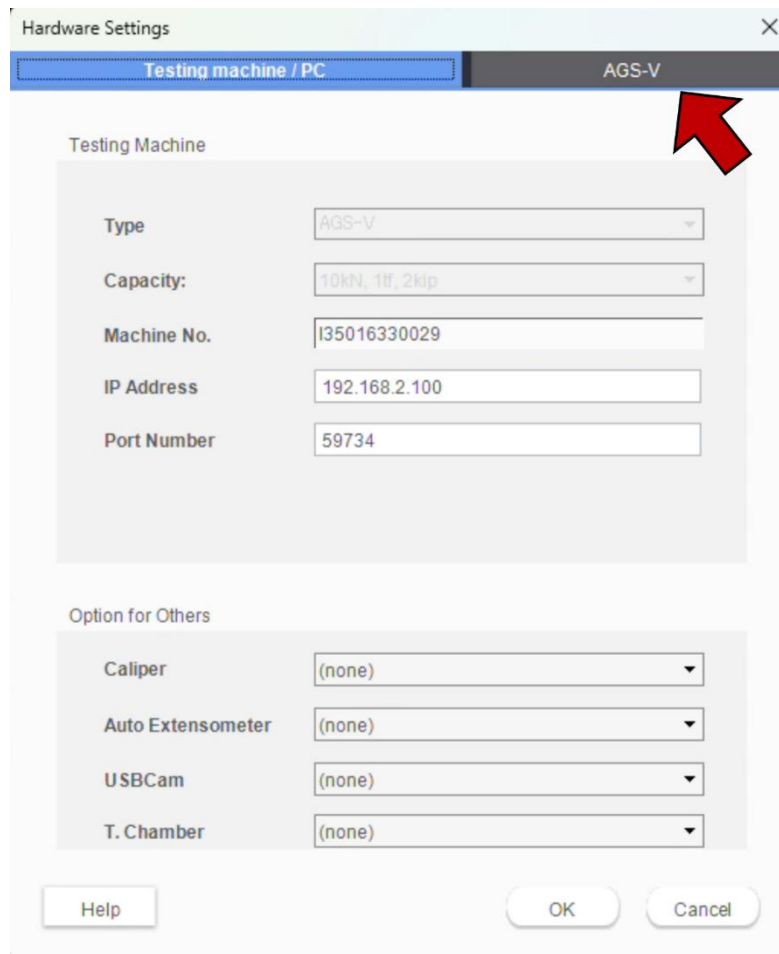
Step Three – Connect Vector to Trapezium X-V

3.1

On TrapeziumX-V startup, this will be the first page. Select Hardware Settings:



3.2 Navigate to the AGX-V tab.



The screenshot shows a 'Hardware Settings' dialog box with two tabs: 'Testing machine / PC' and 'AGS-V'. A red arrow points to the 'AGS-V' tab. The 'AGS-V' tab is active, displaying the 'Testing Machine' section with the following fields:

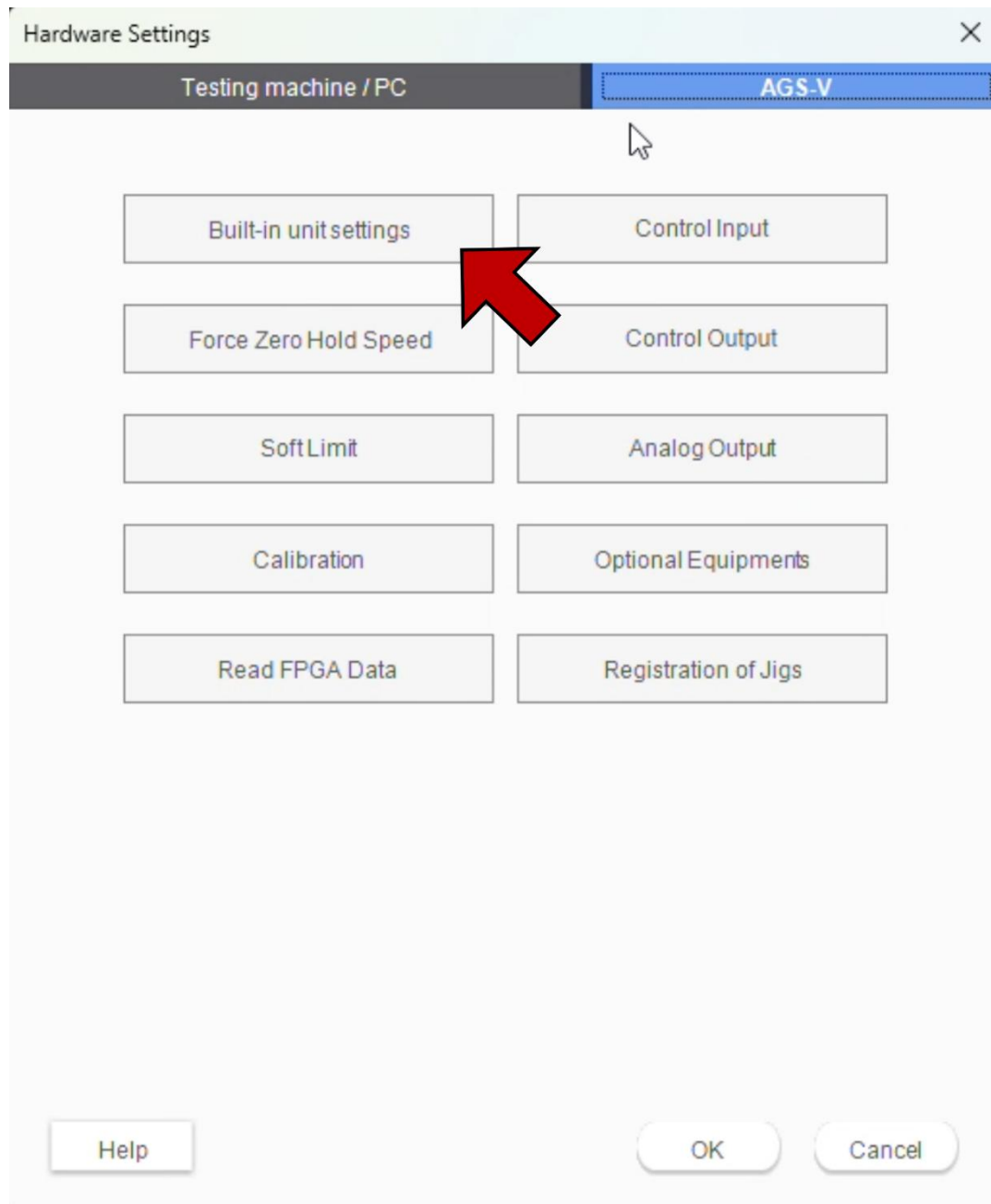
Field	Value
Type	AGS-V
Capacity:	10kN, 1t, 2kip
Machine No.	I35016330029
IP Address	192.168.2.100
Port Number	59734

Below the 'Testing Machine' section is the 'Option for Others' section with the following fields:

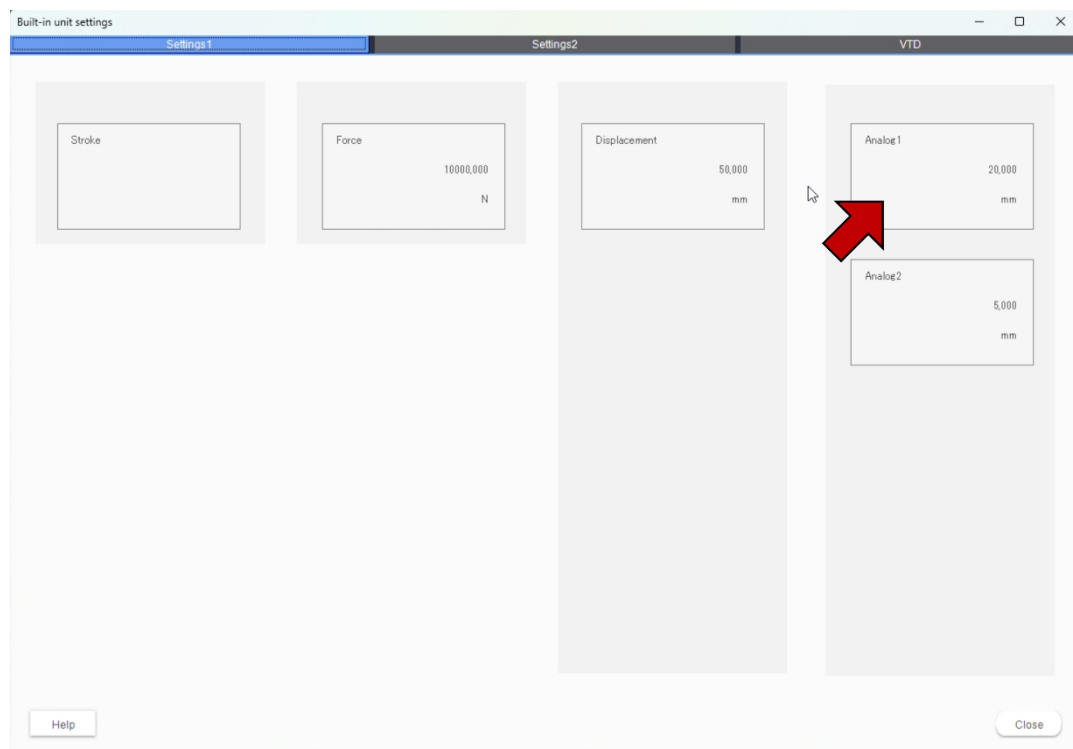
Field	Value
Caliper	(none)
Auto Extensometer	(none)
USBCam	(none)
T. Chamber	(none)

At the bottom of the dialog box are three buttons: 'Help', 'OK', and 'Cancel'.

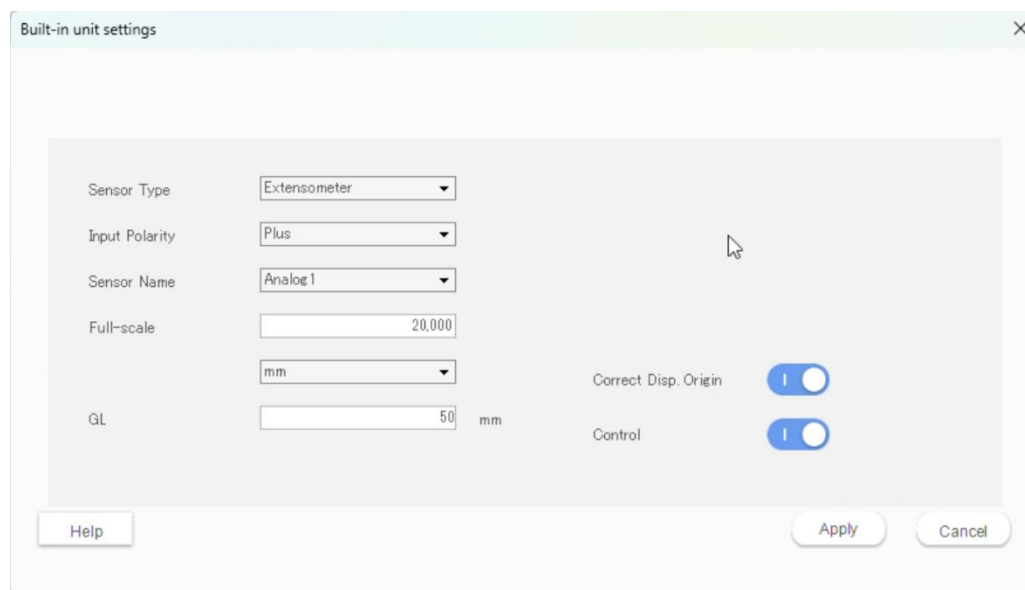
Go to Built-in unit settings.



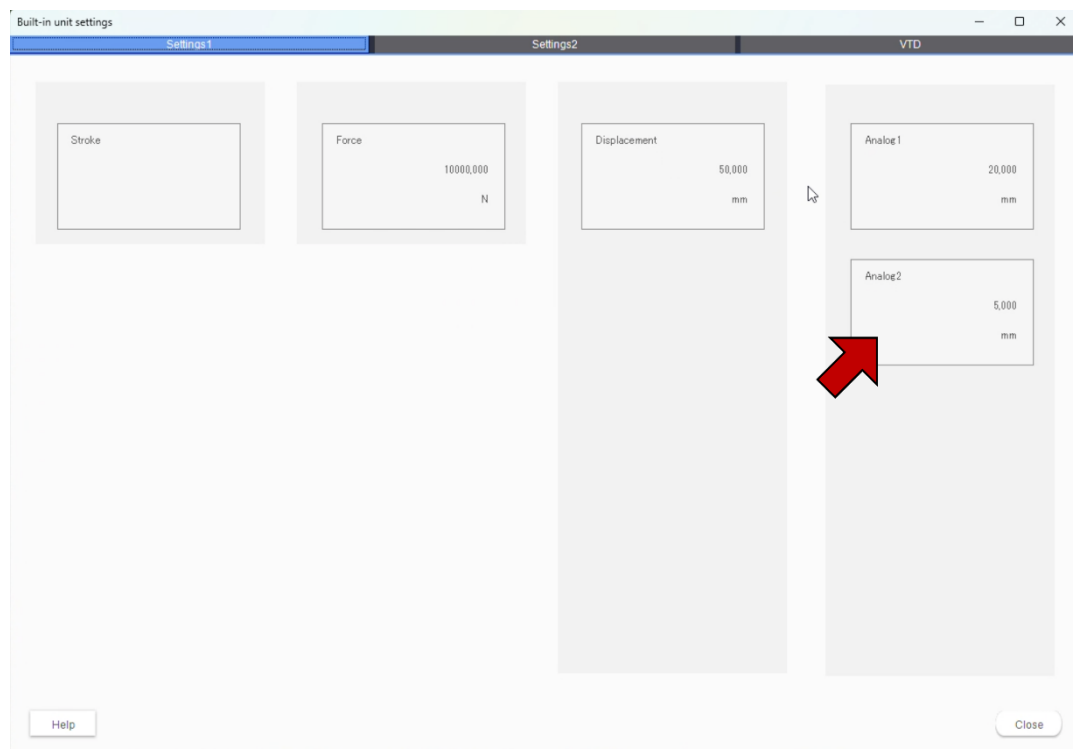
3.3 Select Analog 1.



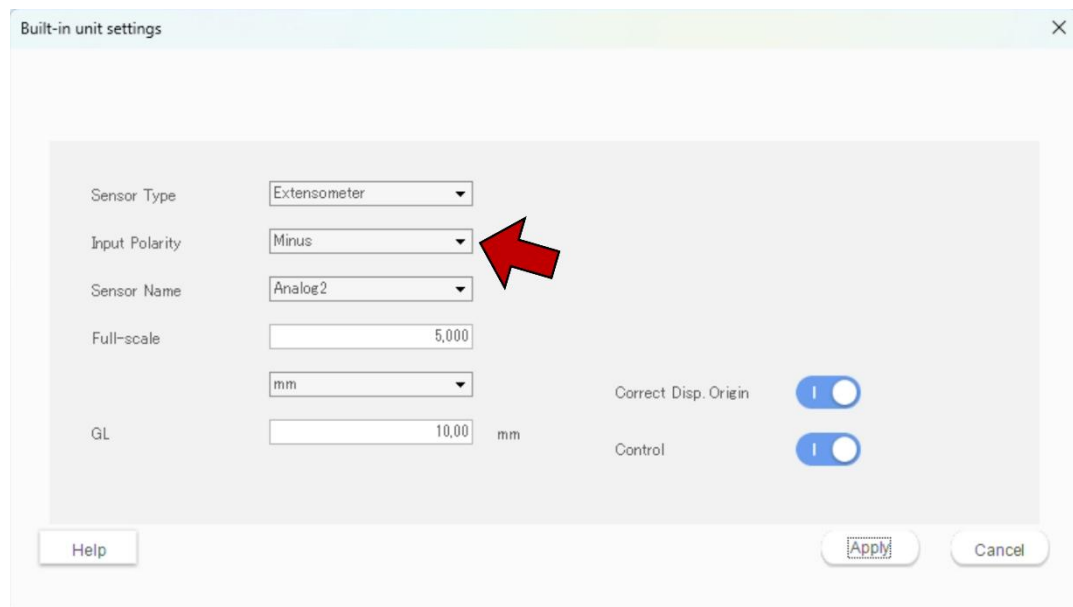
Set the Full-scale and Gauge Length.



3.4 Repeat for transverse measurements.

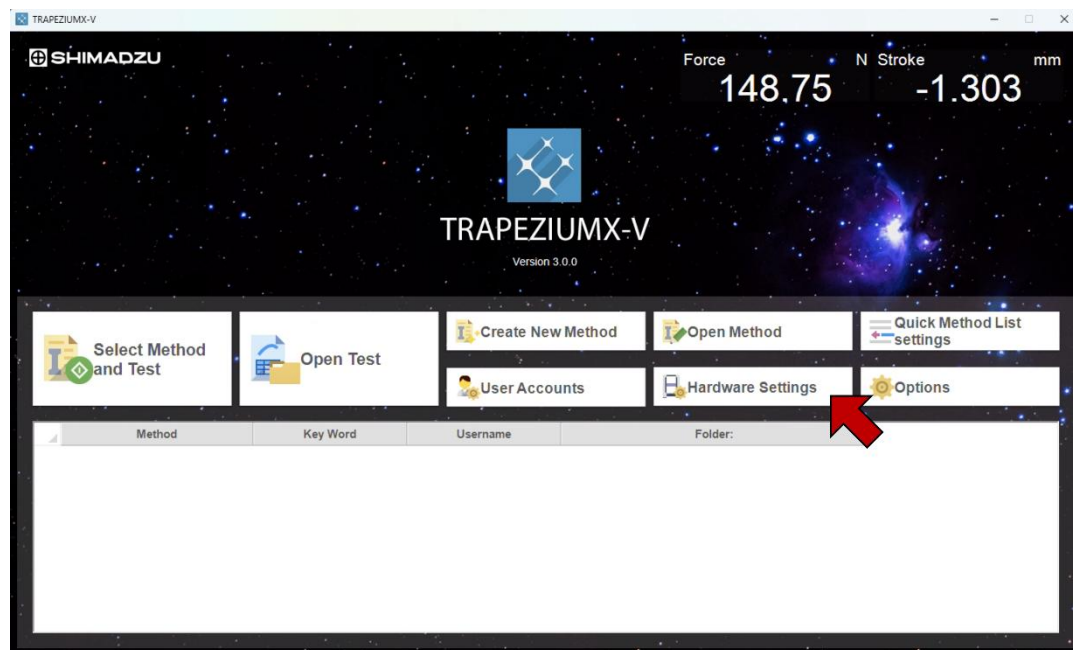


For tensile transverse measurements, it is often useful to inverse the Input Polarity to Minus.

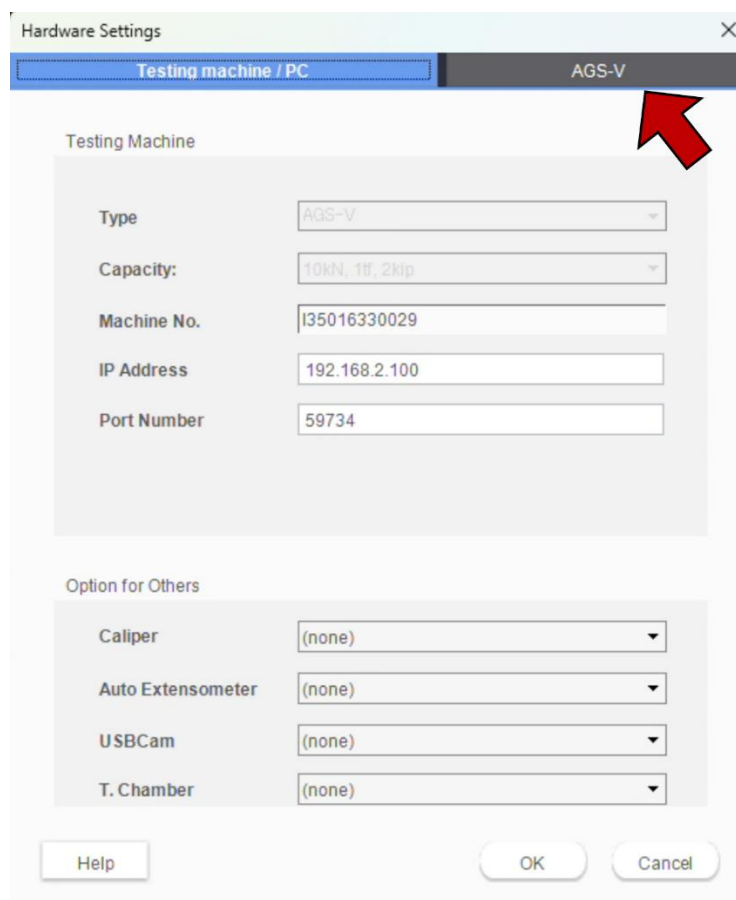


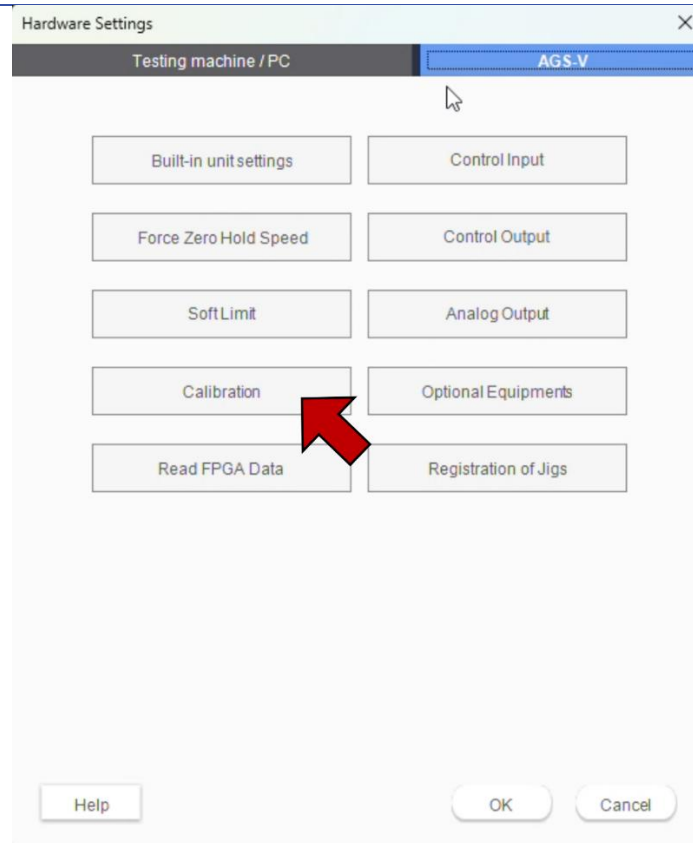
Step four – Calibrating Vector in Trapezium X-V

4.1 From the main screen, select Hardware Settings:

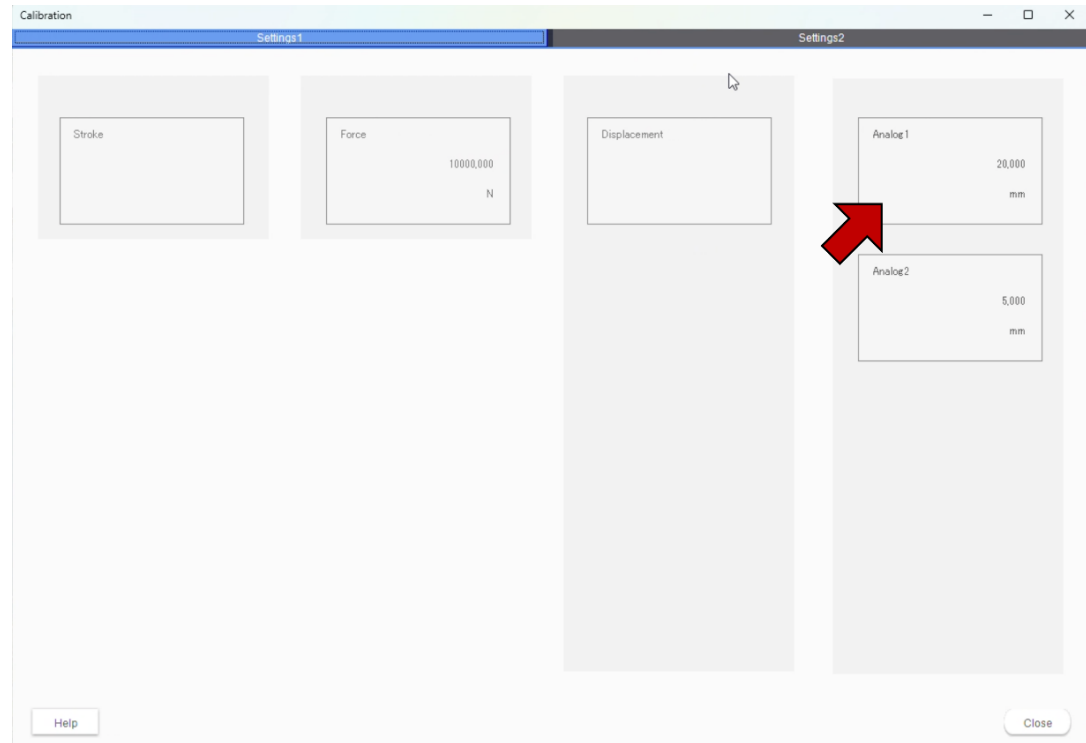


4.2 Navigate to the AGX-V tab and select Calibration:





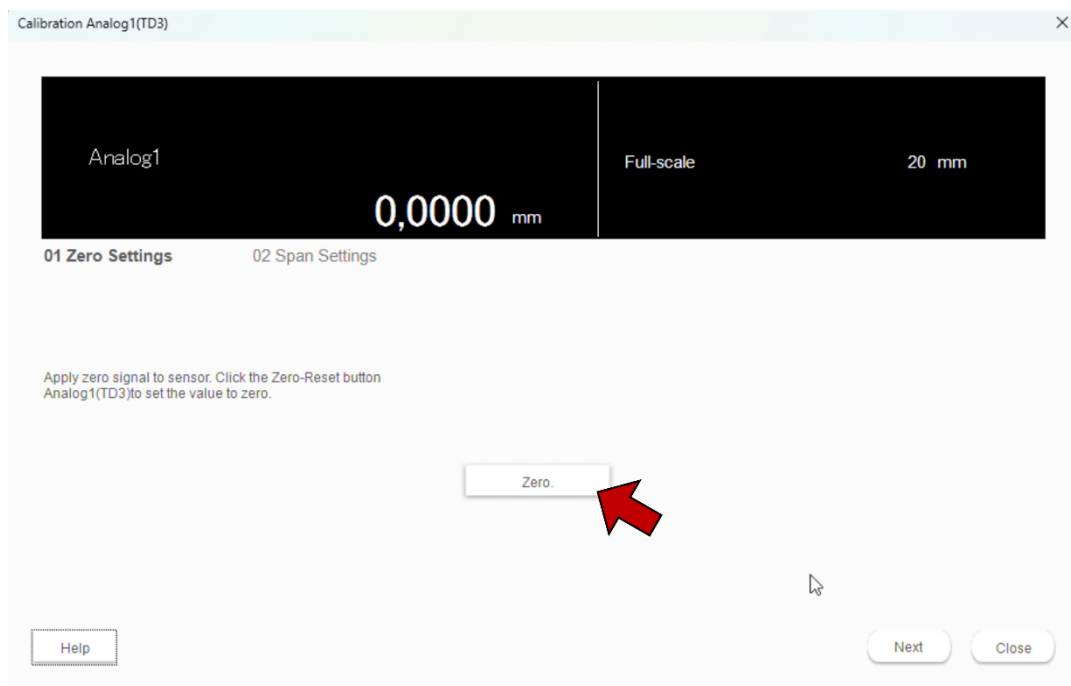
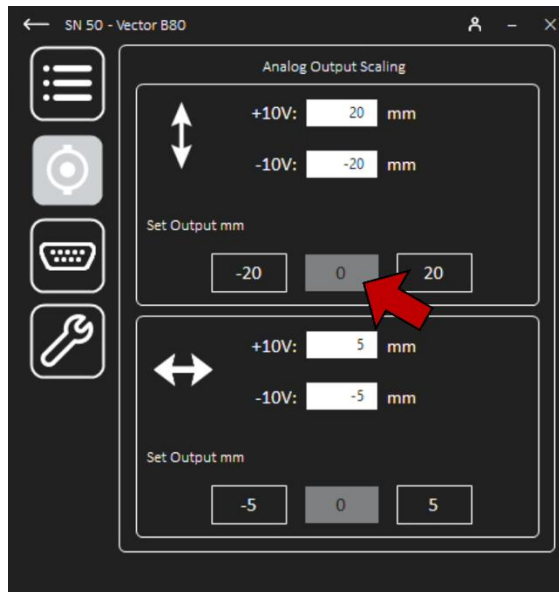
4.3 Select Analog 1.



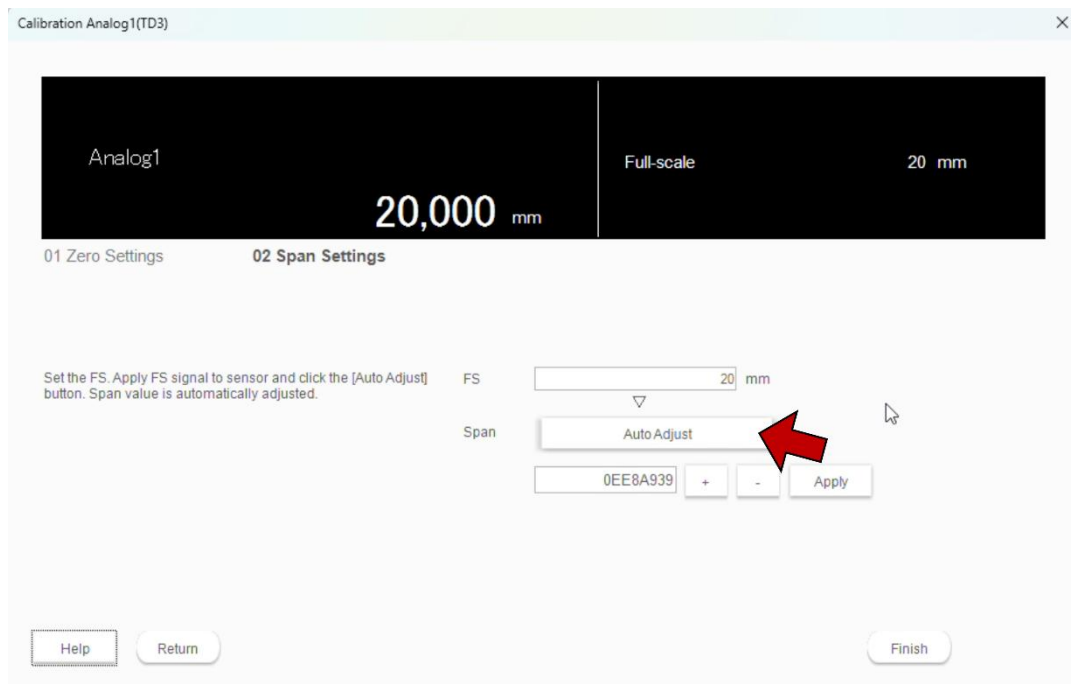
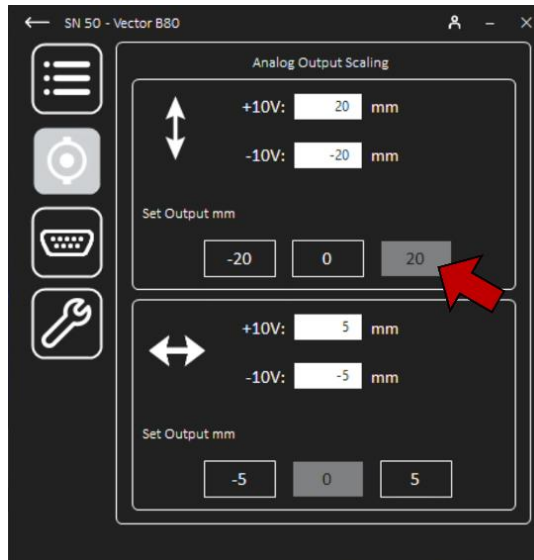
You will now be walked through a simple process of calibration.

Note: Ensure you have both the Trapezium X-V software and Vector Interface software visible to perform calibration.

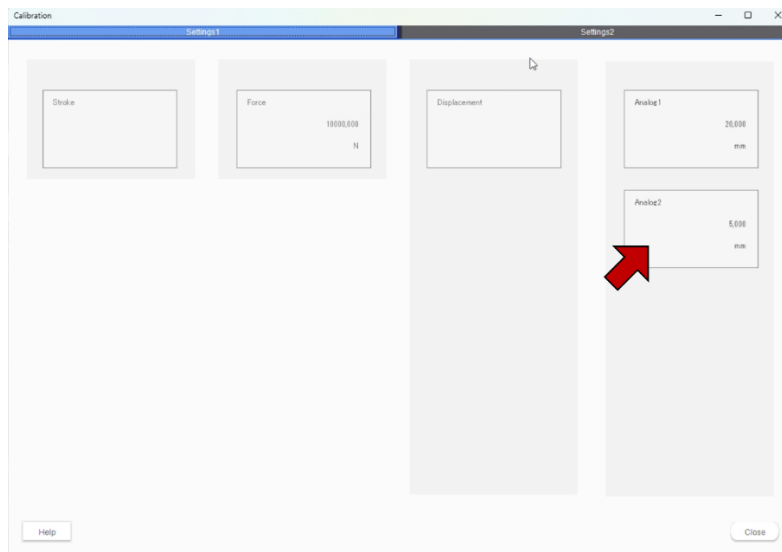
4.4 Set the zero-point by pressing Zero, then press Next.



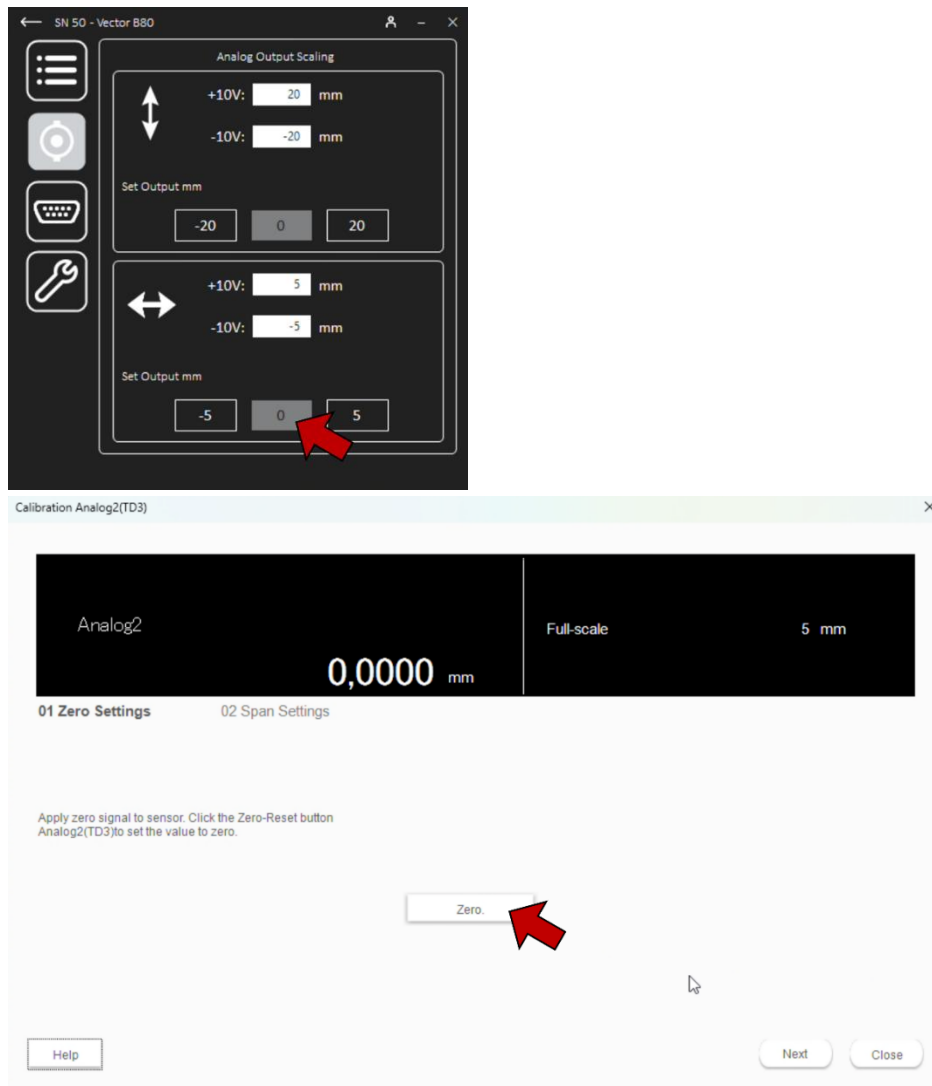
Set the offset by forcing Vector's output via the interface, and then press Auto-Adjust.



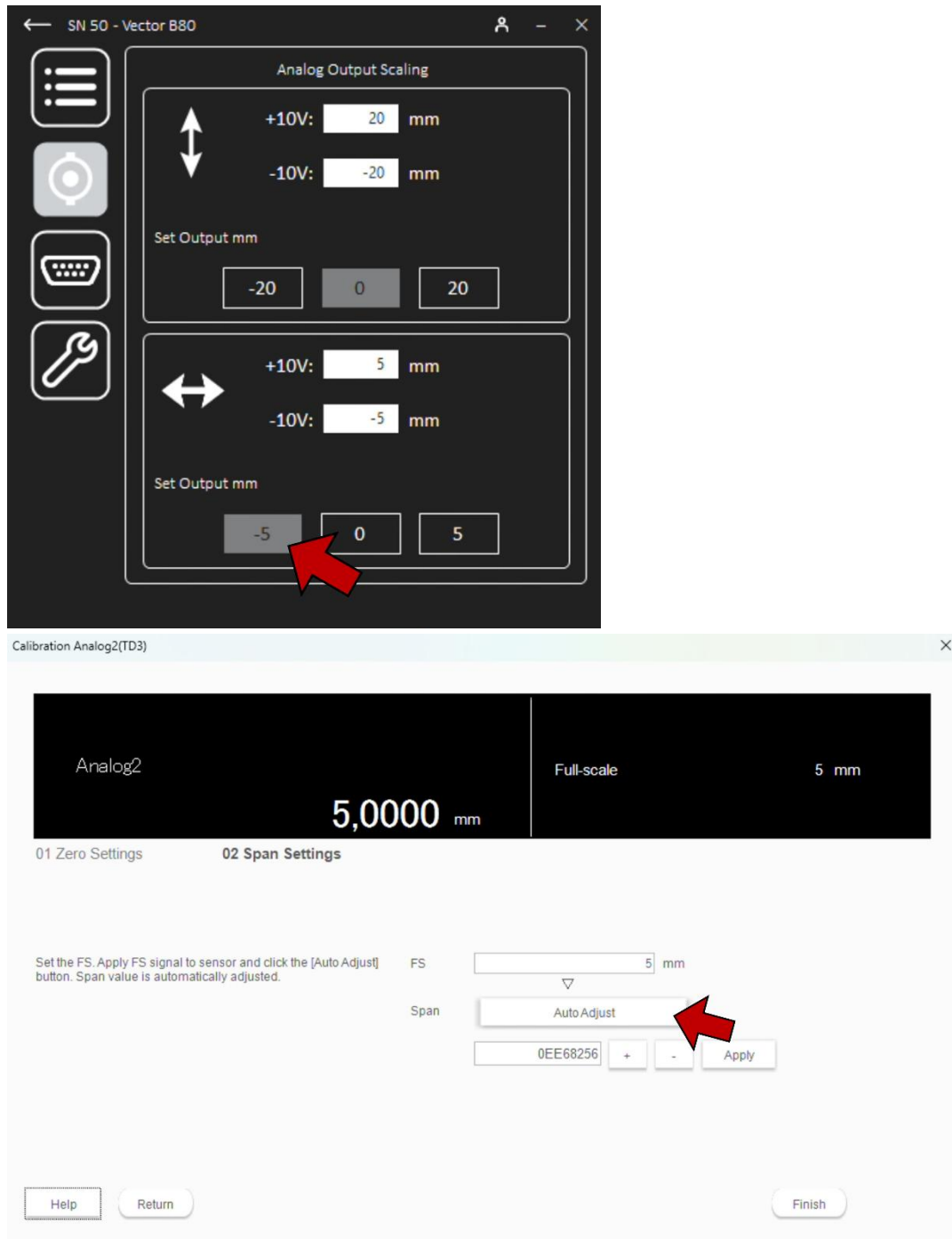
4.5 Repeat for the transverse measurement input.



4.6 Set the zero-point by pressing Zero, then press Next.



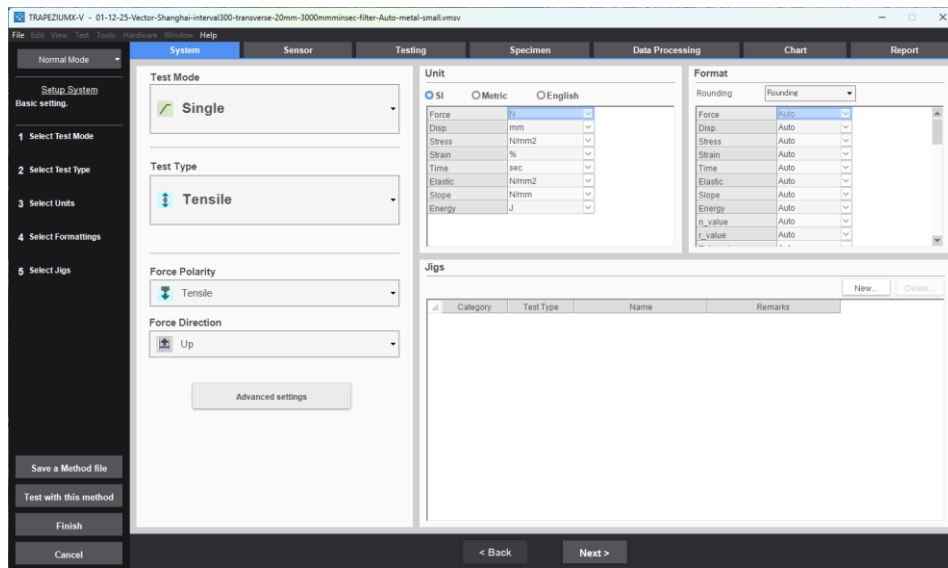
- 4.7 Set the offset by forcing Vector's output via the interface, and then press Auto-Adjust.



- 4.8 Vector is now configured and ready to test.

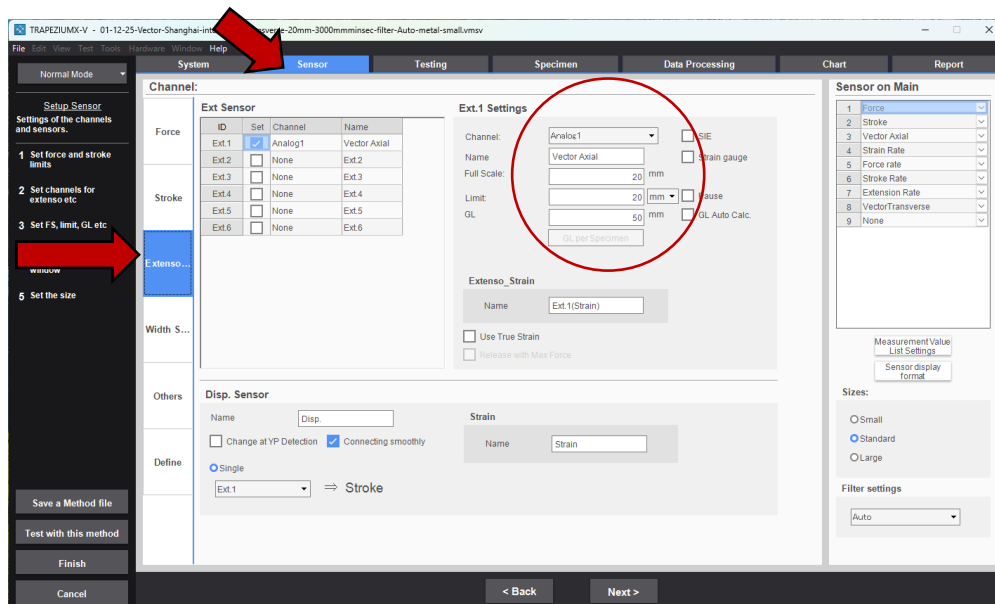
Step five – Using Vector within Trapezium X-V

5.1 When creating a new method/test, this will be the first page.



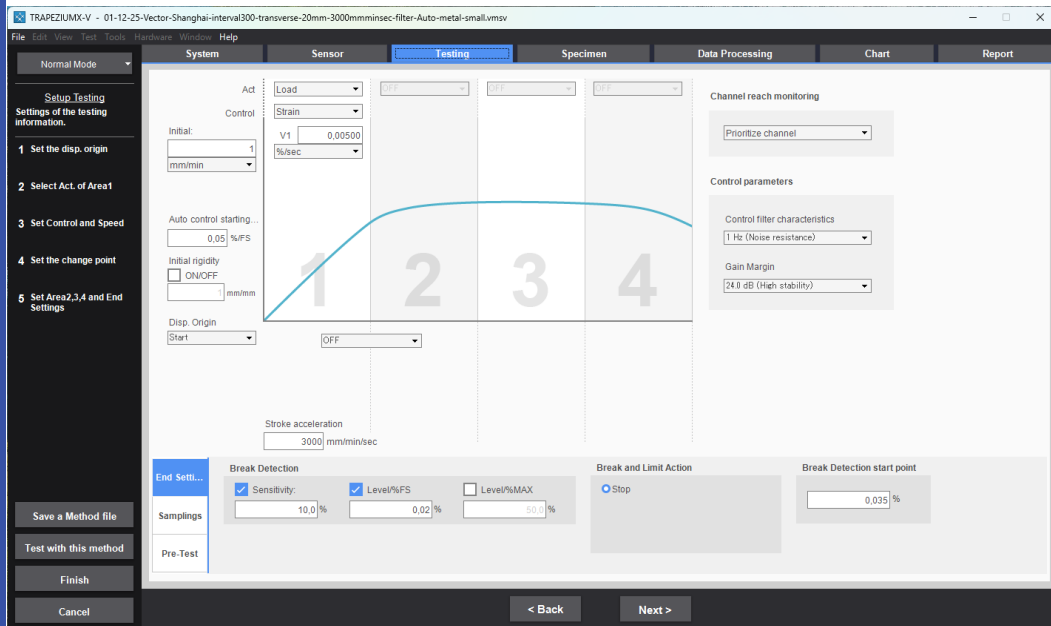
5.2 Navigate to the Sensor tab:

Within the method, take in Vector as a Sensor >> Extensometer. An example config is shown below. This is where the Gauge Length and Full scale is set.



Note: Trapezium is expecting an extension input, so ensure Vector is set to this mode in the User Interface. Manual gauge length input is required to calculate strain.

- 5.3 Once Vector has been added. Navigate to the testing tab and configure the test accordingly to your requirements.



The screenshot displays the 'Testing' tab in the Imetrum software interface. The window title is 'TRAPEZIUMX-V - 01-12-25-Vector-Shanghai-interval300-transverse-20mm-3000mmminsec-filter-Auto-metal-small.lvmsv'. The interface includes a menu bar (File, Edit, View, Test, Tools, Hardware, Window, Help) and a tabbed navigation system with tabs for System, Sensor, Testing (active), Specimen, Data Processing, Chart, and Report.

Left Panel: Setup Testing

- Normal Mode
- Setup Testing: Settings of the testing information.
- 1 Set the disp. origin
- 2 Select Act. of Area1
- 3 Set Control and Speed
- 4 Set the change point
- 5 Set Area2,3,4 and End Settings
- Save a Method file
- Test with this method
- Finish
- Cancel

Main Panel: Testing Configuration

- Act:** Load
- Control:** Strain
- Initial:** 1 mm/min
- V1:** 0.00500 %/sec
- Auto control starting...** 0.05 %/FS
- Initial rigidity:** ON/OFF
- Disp. Origin:** Start
- Stroke acceleration:** 3000 mm/min/sec
- Channel reach monitoring:** Prioritize channel
- Control parameters:**
 - Control filter characteristics: 1 Hz (Noise resistance)
 - Gain Margin: 24.8 dB (High stability)
- Break Detection:**
 - ☒ Sensitivity: 10.0 %
 - ☒ Level/%FS: 0.02 %
 - ☐ Level/%MAX: 50.0 %
- Break and Limit Action:** Stop
- Break Detection start point:** 0.035 %

At the bottom, there are '< Back' and 'Next >' navigation buttons.

Once complete, save the method file and select 'test with this method'.