

DS-3000 series Data Station

Calibration method for the vibration sensor by using the sensitivity
calibrator for accelerometer

Applicable version: DS-0320 Ver 2.2.0.14. (17/09/2013) or later

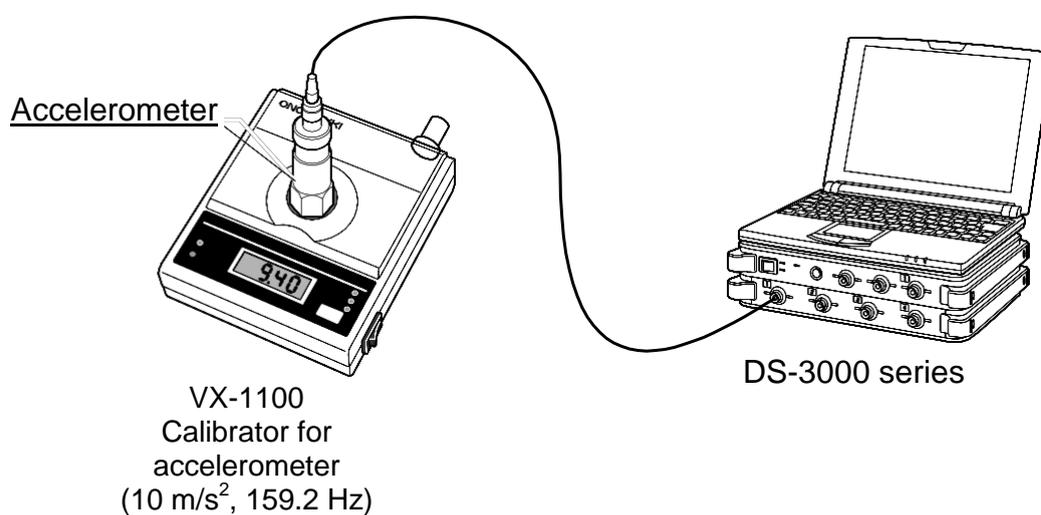
DS-3000 series Operation Manual

Calibration method for the vibration sensor by using the sensitivity calibrator for the accelerometer

■Overview of the function

This manual describes the calibration method of the built-in amplifier piezoelectric type accelerometer by using the vibration calibrator.

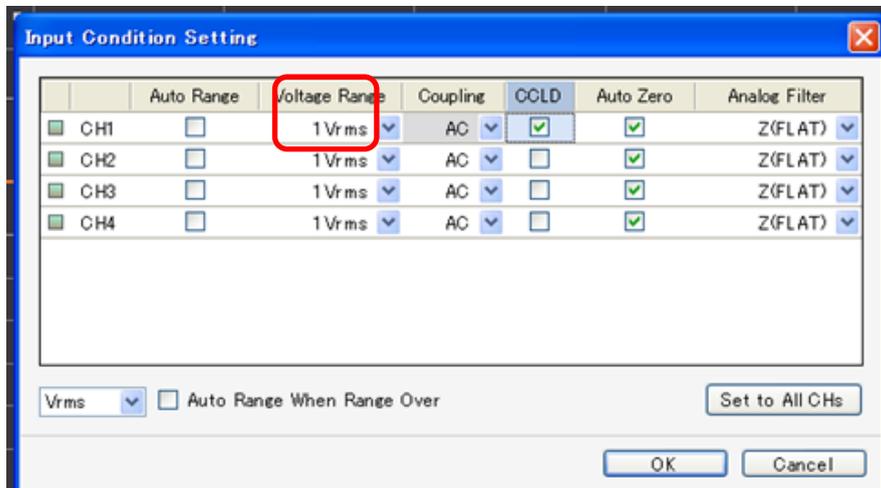
Following figure is the connection example.



The DS-0321 FFT analysis software and CH1 are used in the following explanation.

■ Operation procedure

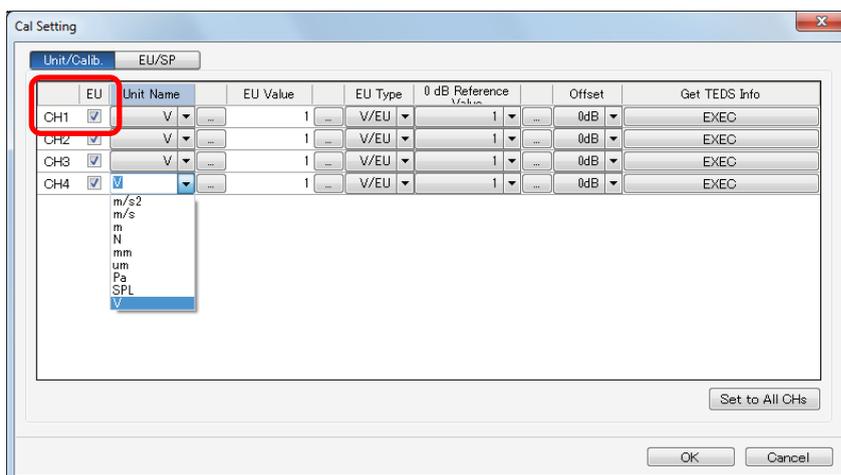
1. Select [Input/ Output Setting] > [Input Condition Setting] in this order from the menu and put a check mark on [CCLD].



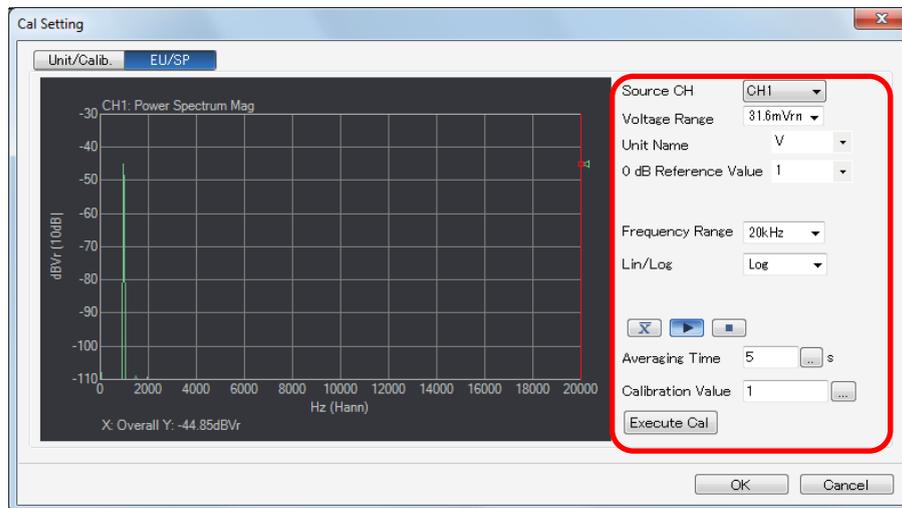
<Note>

CCLD is the function which supplies a power to the built-in amplifier accelerometer. The built-in amplifier accelerometer is used in this example, so put a check mark to CCLD in here.

2. Select [Input/ Output setting] > [Unit/ Cal Setting] in this order from the menu and put a check mark on CH1 to turn on the EU.



3. Select [EU/SP] tab from the calibration setting window and select the settings as follows for example.



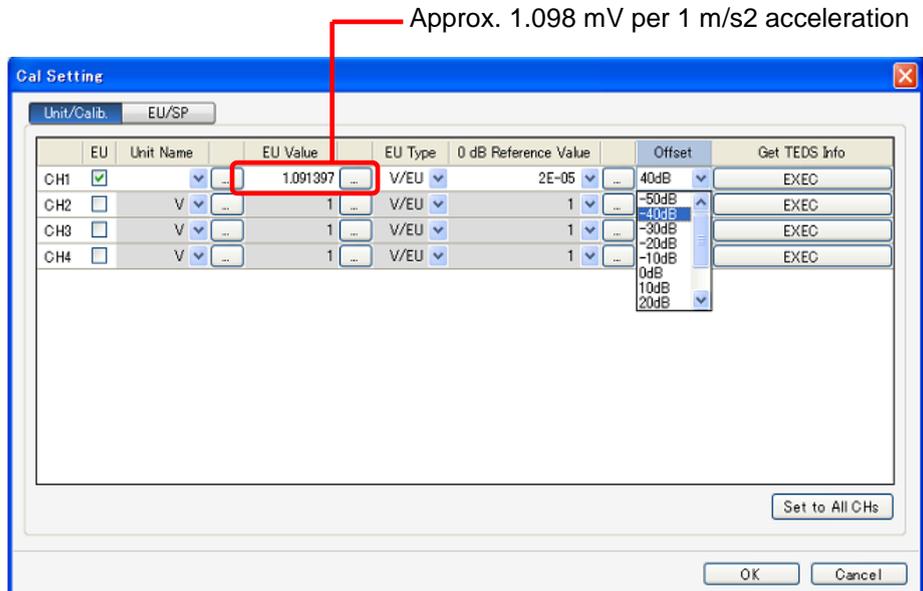
- Source CH : Channel to be set (CH1 in here)
- Voltage range : Approx. 100 mVrms to 0.316 Vrms
- Unit name : m/s² (for acceleration)
- 0dB reference value : 1 (to convert in linear value)
- Frequency range : 1 kHz (Normally calibration signal for vibration is low frequency)
- Lin/Log : Lin (to convert in linear value)
- Averaging time : 5 s (5 seconds in here)
- Calibration value : 10 m/s² (Normally input the effective value)

4. Turn ON the power of calibrator for the accelerometer. When the vibration is stabilized, perform averaging of the calibration signal of the constant frequency (159.2 Hz in here) for 5 seconds. Click X button to change the mode to averaging mode and click ▶ button to execute the averaging for 5 seconds.

5. Click the [Execute] button to obtain the sensitivity value (voltage value per 1m/s² (V/EU)) of the accelerometer from the power spectrum data which is calculated by the input calibration value.

In here, check that the search cursor (red line) is in right end (Search display X: Overall) of the overall value, and the Y axis is displayed as an effective value (m/s²r) on the graph.

6. Check that the sensitivity value of the accelerometer which is displayed appropriately in the EU value when the calibration setting window tab is returned to [Unit/Calibration]. From the above, voltage of approx. 1.098 mV is outputted per 1 m/s² acceleration from this accelerometer.



-End-