FAQ Sensors Tilt Test

1. Introduction

- Accelerometers AC-4x AC-6x and AC-7x can be tested by tilting each axis against earth gravity (±1g). If the output is as expected, it means all axis are connected and working and the settings for LSB and fullscale are correct.

2. Required Tools

- Sensor AC-4x, AX-6x or AC-7x
- Horizontal base (e.g. a solid table)
- Recorder/Datalogger to record sensor output
- Software to read recorded sensor output (GeoDAS is recommended)

3. Check for existing Procedures

- Please check if there is a project-specific procedure for your system to follow instead. Especially if your system is tied to an alarm system as the execution of the tilt test described in this procedure may cause an alarm.
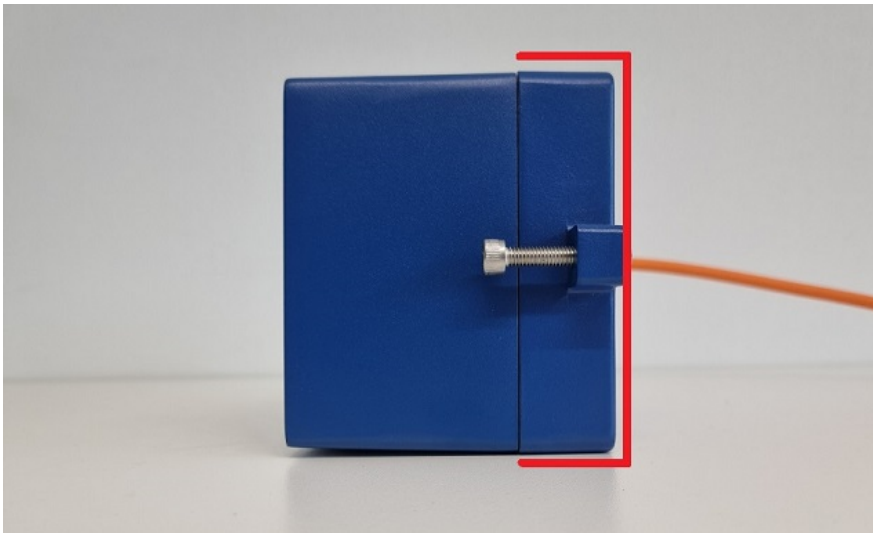
4. Remove Offset

- In GeoDAS window **Stations: General Information**, right-click on the station and choose **Instrument Control... -> Send a Request -> REMOVEDC -> [Send]**
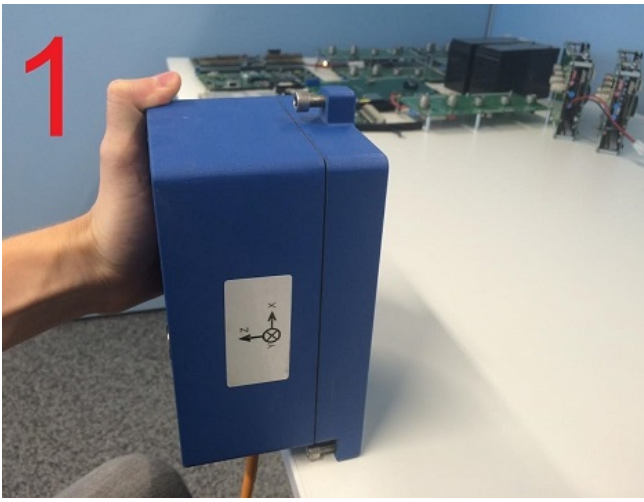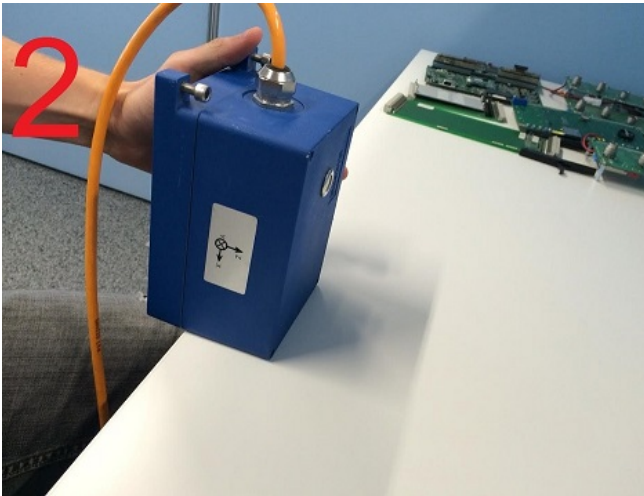

5. Tilt each Sensor Axis

- For better results, use the bottom part of the housing for tilting as it is with 90° angles

- Tilt the sensor with the x-axis pointing up

- Hold the position for 5 seconds
- Tilt the sensor with the x-axis pointing down

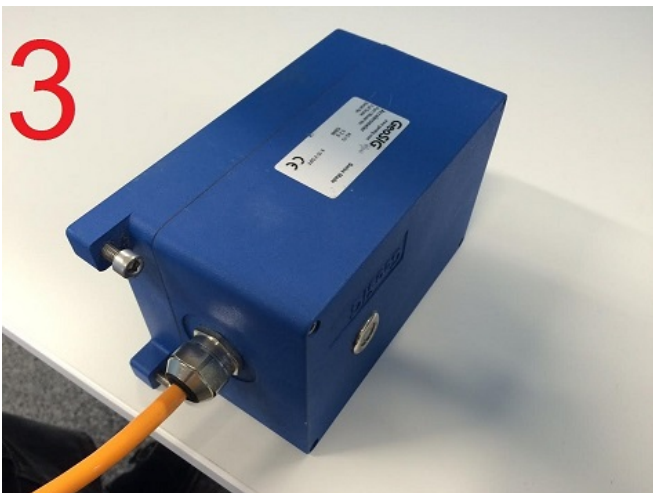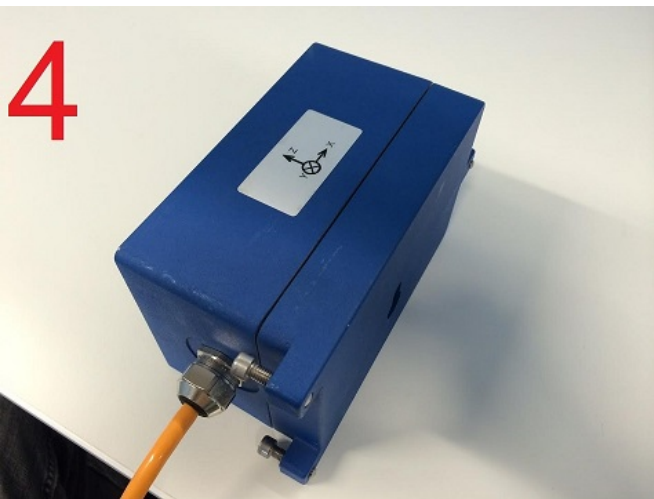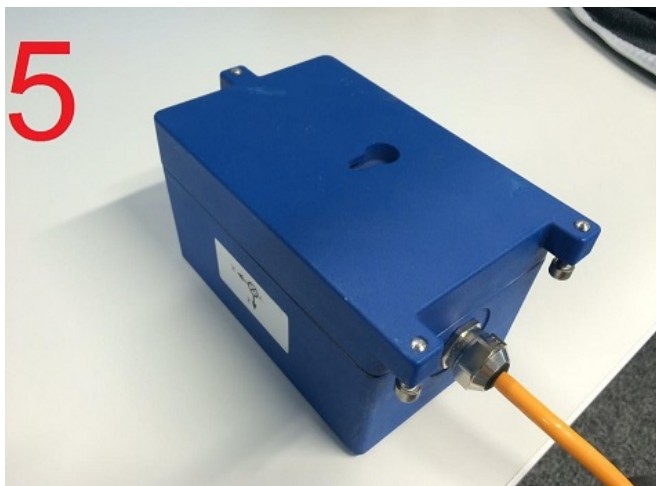- Hold the position for 5 seconds
- Tilt the sensor with the y-axis pointing up

- Hold the position for 5 seconds
- Tilt the sensor with the y-axis pointing down

- Hold the position for 5 seconds
- Tilt the sensor with the z-axis pointing down

- Hold the position for 5 seconds
- Put the sensor back on his horizontal position

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6. Access Tilt Test File

- With default setting, a miniseed file (file prefix TRG_) will be uploaded to the **Data** folder of your station in GeoDAS (C:\GeoDAS_DATA\Data\)
- If continuous recording (ringbuffer) is active, the tilt test will also be visible in the latest ringbuffer (file prefix RBF_) uploaded to the folder **DataStreams** of your station (C:\GeoDAS_DATA\Datastreams\)

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7. Check Tilt Test

- Double-click the file to open it in GeoDAS
- Click into the yellow part of the window to make the cursor appear
- Move the cursor to the flat part of each pulse (see red markings in the picture below)
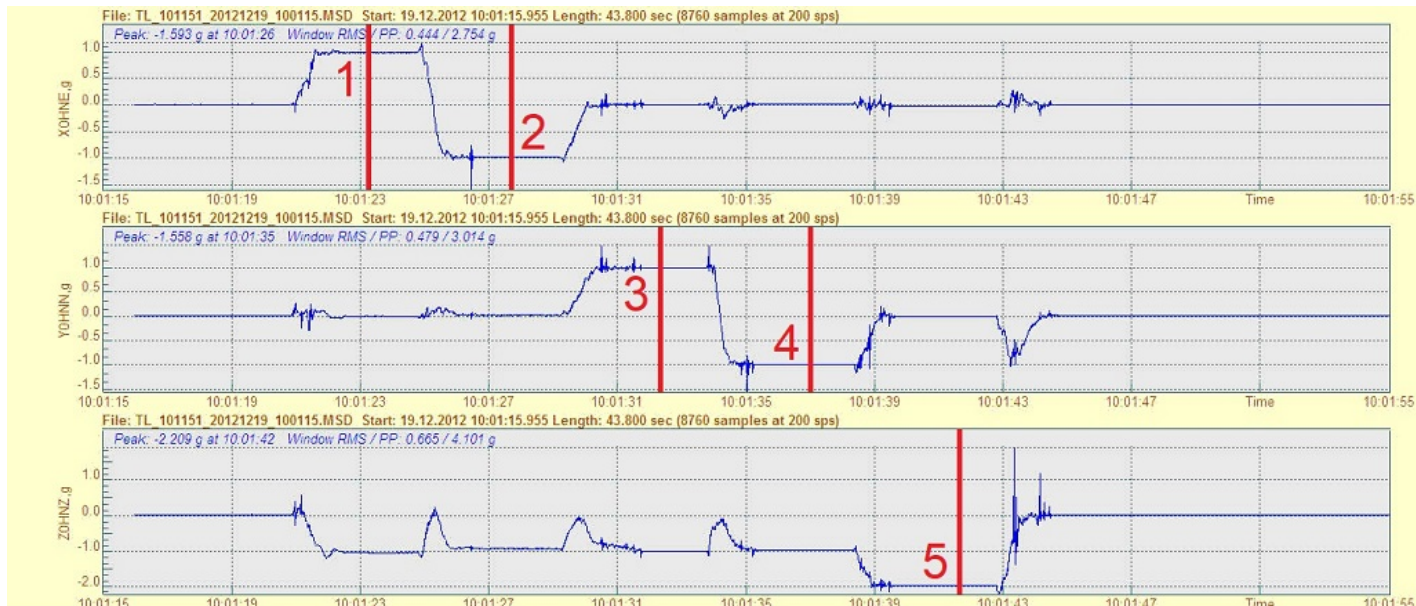
- Check that the value for each pulse is within the range of your sensor (the fullscale is indicated on the sensor label)

Fullscale	Pulse 1 Range [g]	Pulse 2 Range [g]	Pulse 3 Range [g]	Pulse 4 Range [g]	Pulse 5 Range [g]
±0.5 g	Min 0.5	Min -0.5	Min 0.5	Min -0.5	Min -0.5
±1 g	0.985 to 1.015	-0.985 to -1.015	0.985 to 1.015	-0.985 to -1.015	Min -1.0
±2 g	0.975 to 1.025	-0.975 to -1.025	0.975 to 1.025	-0.975 to -1.025	-1.95 to -2.05
±3 g	0.965 to 1.035	-0.965 to -1.035	0.965 to 1.035	-0.965 to -1.035	-1.93 to -2.07
±4 g	0.955 to 1.045	-0.955 to -1.045	0.955 to 1.045	-0.955 to -1.045	-1.91 to -2.09
±5 g	0.945 to 1.055	-0.945 to -1.055	0.945 to 1.055	-0.945 to -1.055	-1.89 to -2.11

Fullscale	Pulse 1 Range [g]	Pulse 2 Range [g]	Pulse 3 Range [g]	Pulse 4 Range [g]	Pulse 5 Range [g]
±0.5 g	Min 0.5	Min -0.5	Min 0.5	Min -0.5	Min -0.5
±1 g	0.985 to 1.015	-0.985 to -1.015	0.985 to 1.015	-0.985 to -1.015	Min -1.0
±2 g	0.975 to 1.025	-0.975 to -1.025	0.975 to 1.025	-0.975 to -1.025	-1.95 to -2.05
±3 g	0.965 to 1.035	-0.965 to -1.035	0.965 to 1.035	-0.965 to -1.035	-1.93 to -2.07
±4 g	0.955 to 1.045	-0.955 to -1.045	0.955 to 1.045	-0.955 to -1.045	-1.91 to -2.09
±5 g	0.945 to 1.055	-0.945 to -1.055	0.945 to 1.055	-0.945 to -1.055	-1.89 to -2.11