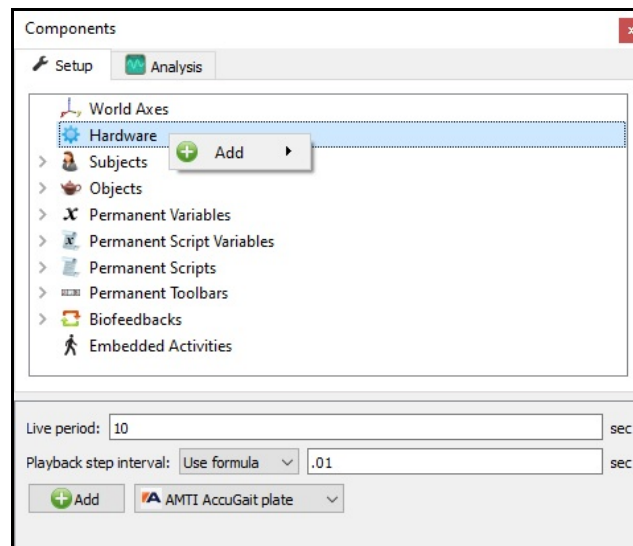


The MotionMonitor xGen Hardware Guide: AMTI AccuGait Analog Configuration

This document reviews the procedures for configuring AccuGait, AccuSway and AccuPower force plates in The MotionMonitor xGen software with analog outputs.

1. Please refer to your AMTI force plate guide for the proper configuration of your force plate device.
2. Start The MotionMonitor xGen and go to the Setup Components Window.
3. From the Hardware node in the Setup Components window add the AMTI AccuGait plate through the Add button at the bottom of the Components window or right-click on the Hardware node to add the device.

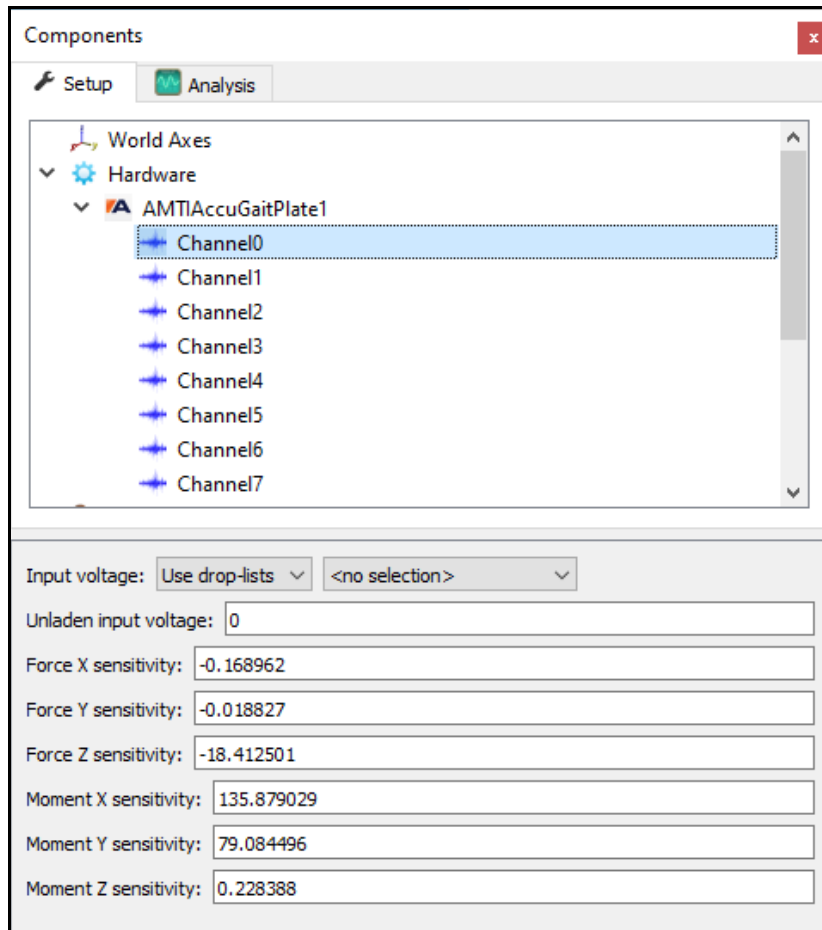


- From the AMTIAccuGaitPlate parameters panel, specify the name for your force plate and the Z0 height from the AMTI calibration sheet (ZOffset). The “Threshold force” sets the minimal allowable force to be used in the software for computing force derived and Center of Pressure data. The “Colocation method” can be selected as either “Digitize with Stylus” or “Use Expressions”. The preferred and recommended method for alignment is the “digitize with Stylus” option. This method requires that a stylus be configured using a kinematic tracking system. Select the stylus from the “Stylus to use” drop-list and specify the number of points to use in the colocation points. The min/max x and y coordinates refers to the dimensions for the plate, relative to its origin. This will control the footprint for the force plate in the animation window. The settings displayed in the image below would be for a 50cm x 50cm force plate. After the remaining steps have been completed the “Calibrate” button performs a software zero of the force plate channels and the “Align” button will begin the procedure for aligning the force plate to the world axes. If an alignment is not performed, the force plate will report relative to its native coordinate system. The Advanced “Track with rigid body” option allows the force plate to be aligned to a rigid body instead of the World axes, so that the alignment of the force plate would translate and rotate with the rigid body axes, such as if the force plate is positioned on a surface that can tilt. This would prevent the force plate from having to be re-aligned whenever the force plate was re-oriented or positioned.

The screenshot shows the 'Components' window with the 'AMTIAccuGaitPlate1' component selected. The 'Setup' tab is active, displaying the following parameters:

- AMTI AccuGait plate name: AMTIAccuGaitPlate1
- Setup
 - Z0 (must be neg.): -0.006 m
 - Threshold force: 0 N
 - Colocation method: Digitize with stylus
 - Stylus to use: <none>
 - Number of colocation points: 3
- Align... button
- Dimensions
 - Minimum local x-coord: -0.25 m
 - Maximum local x-coord: 0.25 m
 - Minimum local y-coord: -0.25 m
 - Maximum local y-coord: 0.25 m
- Advanced
 - Track with rigid body: Use drop-lists <no selection>
- Calibrate... button

- Expanding the AMTIAccuGaitPlate node will bring up the 8 channels that need to be configured (Channels 0,1,2,3,4,5,6,7 which map to Cz, Dz, Az, Bz, YAC, XDC, XAB, YBD, respectively). The “Input voltage” should be configured to specify where the channel is getting its signal from (i.e Measurement Computing Device or other data acquisition device). The “Unladen input voltage” will be automatically updated when the “Calibrate” button is pressed for the force plate.



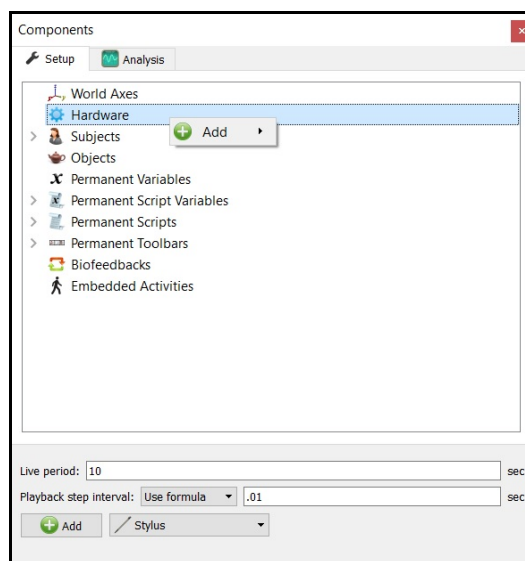
Insert the values from the calibration sheet provided by AMTI from the AXXXXX.acl file. The columns from the calibration sheet (see example below) should be entered for each channel. For example, the column from the table below was entered for Channel 0 (Cz) in the image above. The COEFFROW1, COEFFROW2, COEFFROW3, COEFFROW4, COEFFROW5, COEFFROW6 from the example below correspond to the Force X, Force Y, Force Z, Moment X, Moment Y, Moment Z sensitivity fields in the dialog above, respectively.

COEFFROW1:	-0.1689619	-0.0426391	-0.167282	-0.0356321	-0.0792596	3.5354551	-3.755602	-0.0749028
COEFFROW2:	-0.0188267	-0.0696185	-0.0310983	-0.0755515	3.7894172	-0.0530025	0.0563029	3.5811194
COEFFROW3:	-18.4125005	-18.2167216	-18.6801694	-18.6694007	0	0	0	0
COEFFROW4:	135.8790287	133.3996221	-136.4750063	-137.5016155	0	0	0	0
COEFFROW5:	79.0844962	-77.5413503	81.6294585	-80.1780178	0	0	0	0
COEFFROW6:	0.228388	0.2259596	0.2317082	0.2315746	31.7230221	-29.3828139	-31.212433	-29.979262

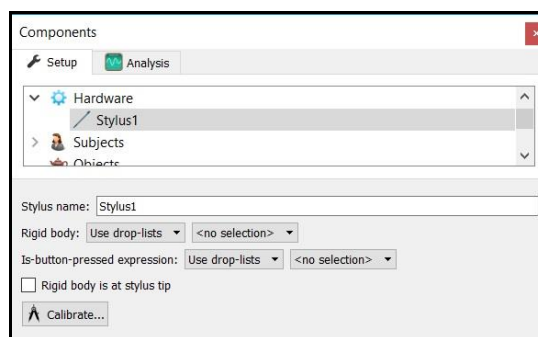
- From the AMTIAccuGaitPlate parameters panel click the “Calibrate” button to perform a software zero and click on the “Align” button to begin the procedure for aligning the force plate to the world axes.

If applicable, be sure to press the hardware zero button before calibrating and proceeding to the alignment process. For the alignment, the colocation points should not be taken in the corners of the force plate, near a load cell or along the midline of two adjacent load cells. A steady strong force should be applied perpendicular to the surface of the force plate using the specified stylus. Stylus tip and CoP position data will then be used from each of the digitized readings to align the coordinate system of the force plate with that of the world. A tutorial video for configuring force plates can be found at <https://themotionmonitor.com/support/>. This process needs to be performed for each force plate.

- If a stylus is not already defined in the current Workspace, go to the Hardware node in the Setup Components window add the Stylus device through Add button at the bottom of the Components window or right-click on the Hardware node to add the device.

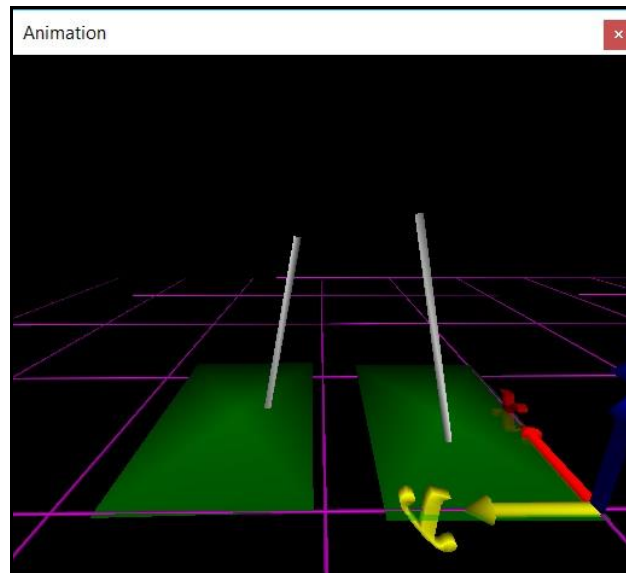


- Before calibration of the stylus can be performed, the rigid body affixed to the object being used as the stylus needs to be selected through the “Rigid body” drop-list menu. If a remote OK button is to be used during the digitizing process, that Boolean expression would need to be defined through the “Is-button-pressed expression” drop-list menu or formula field. If the origin for the rigid body is at the tip of the stylus, as can be the case for certain kinematic tracking systems, the “Rigid body is at stylus tip” check box should be enabled.



Once all parameter fields are completed, click the “Calibrate” button and follow the prompts to calibrate your stylus. A tutorial video for configuring the stylus can be found at <https://themotionmonitor.com/support/>.

9. Once the Calibration and Alignment procedures have been completed, the force plate footprint and force vector should appear in the Animation window.



10. Force plate data can be defined as Analysis Variables and plotted in Graphs as seen in the image below. Tutorial videos for adding variables and graphs can be found at <https://themotionmonitor.com/support/>.

