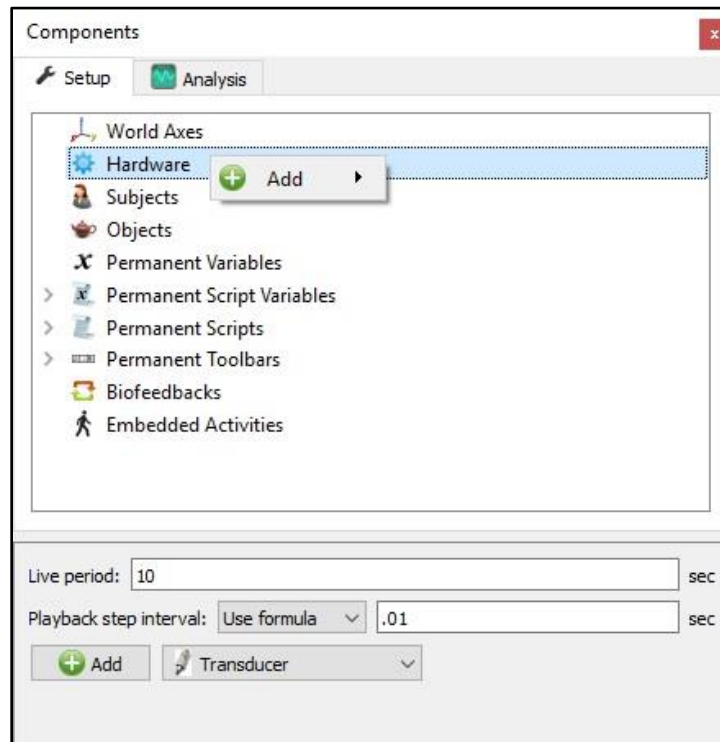


## **The MotionMonitor xGen Hardware Guide: Adding a Transducer Device**

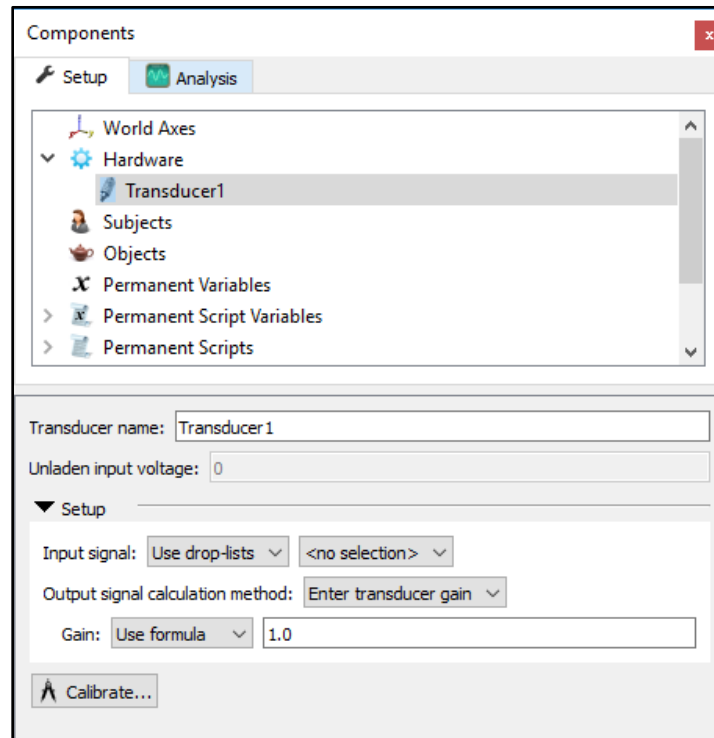
The following document outlines the steps required for configuring and collecting data from a Transducer. A Transducer is a general device in The MotionMonitor xGen used for converting a single channel signal or variable, typically a voltage, into another signal type, such as a Force. Other common usages for the Transducer hardware type are converting analog signals from goniometers, inclinometers, accelerometers, pressure sensors and dynamometers, for instance. Yet another common usage for the Transducer, is to use it in any instance where it is desired to evaluate a signal or variable compared to a previously captured baseline value for that same signal.

1. Start The MotionMonitor xGen and go to the Hardware node in the Setup Components window. Add a Transducer device from the Add button in the parameters panel at the bottom of the Components window or by right clicking the Hardware node and adding the device through the cascading drop list.



- Click on the Transducer device to bring up the Transducer parameters panel. Specify an Input signal for the hardware channel or variable that is being sent to the transducer device. If using an analog device where a raw voltage or voltage can be selected, make sure to select the appropriate setting depending on whether you want smoothing parameters to apply to the transducer's output signal.

Select an Output signal calculation method for computing the transducer's output value. The Output signal calculation method can be selected as "Enter transducer gain" or "Use General Formula".



If selecting "Enter transducer gain" for the Output signal calculation method, the Gain factor can be specified either using a formula or the drop-lists. The calculation of the transducer's output would be calculated as follows:

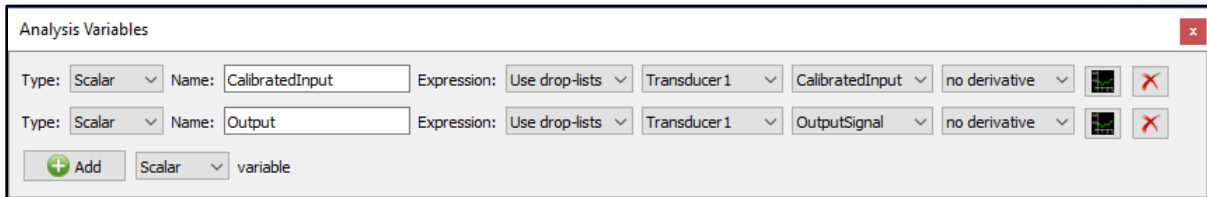
$$\text{Output Signal} = (\text{Calibrated Input Signal})/\text{Gain}$$

If selecting "Use general formula" for the Output signal calculation method, the General formula field can be used to define a customized formula using *Transducer1.CalibratedInput* to compute the Output value.

The Calibrate button will capture the current baseline for the specified Input signal and report this value as the Unladen input voltage. The Output signal for the transducer will subsequently be reported relative to this Unladen input voltage baseline. If a calibration is not performed after adding the Transducer device the Unladen input voltage will remain 0 and the Input signal will be equal to the value reported as the Calibrated Input for the device.

3. Sample data definitions for a Transducer are displayed below.

The following image shows the Calibrated Input (zeroed) and Output Signals for Transducer1.



The graph below shows these variables graphed. For the data displayed in the graph below, "Enter transducer gain" was selected for the Output signal calculation method and a Gain of 0.2 was specified.

