



Ultium™ Motion

Quick Start Guide

On behalf of Noraxon...

Welcome and congratulations on acquiring your new Ultium Motion System!

This guide will provide you with step-by-step instructions on how to install your new hardware and software, adjust device settings, and record your first data set.

Look for the  icon to find video tutorials that walk through the steps outlined in this guide.

Let us begin by walking through how to install your new hardware.

Note: This is not meant to be a complete user manual, but a guide to help you get started with your system. For more detailed operating instructions for the Ultium Motion System, please refer to the Ultium Motion User Manual (P-8708).

 [Watch the Quick Start Guide video](#)

1 System Unboxing

The Ultium Motion System is packed within a reinforced padded box for storage and protection during transport. Upon arrival, carefully remove all contents and verify the following components are present.



Figure 1 – Ultium Receiver (#880)



Figure 2 – Ultium Sensor Charger (#873)



Figure 3 – Motion Sensor (#870 or #876)



Figure 4 – Sensor Charger to Receiver Cable (#CBL34)



Figure 5 – A to B USB Cable (#CBL2)



Figure 6 – Sensor Charger Power Source (#PSU1)

Additional items that may be included with your Ultium Motion System are:

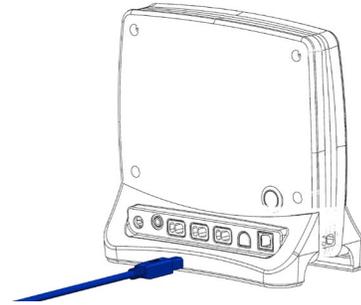
- Ultium Motion Strap Set (#874X, #874Y, or #874Z)
- Double-Sided Sensor & Torso Adapter Tape (#874D & #874E)
- Sensor Body Segment Label Set (#610A)
- Ultium Motion User Manual (#P-870)

2 Installing the Hardware

Step 1

Insert the USB cable (CBL2) into the USB connector on the back of the Ultium Receiver (880).

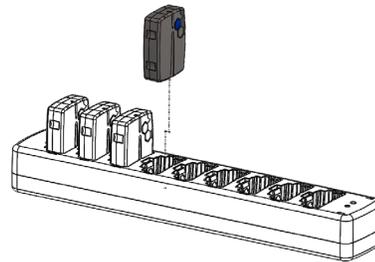
Insert the opposite end of the USB cable into an available USB port on the computer.



Step 2

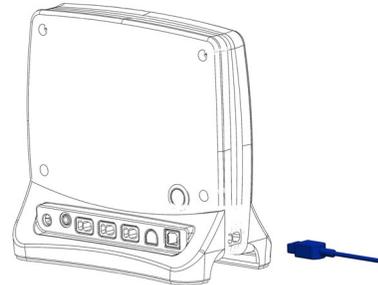
Insert the Motion Sensors (870) into the Sensor Charger (873).

Note: Sensor power button & LED must face the front of the Charger, i.e., toward the charger LEDs.



Step 3

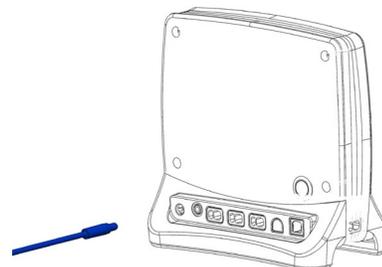
Connect the Receiver to the Sensor Charger (873) using the ports on either side of the Receiver.



Step 4

Insert the power supply (PSU1) barrel connector into the associated receptacle on the back of the Ultium Receiver to charge sensors.

Note: Sensor LED will show solid orange while charging and turn off when fully charged.



3 Installing the Companion Software - myoRESEARCH™ 3

To utilize the full functionality of the Ultium Motion system, and ensure the system has updated drivers, Noraxon's myoRESEARCH 3 (MR3) needs to be installed on the computer.

Note: The Ultium Receiver requires the Noraxon USB device driver which is pre-installed by the MR3 software installation. It is also available in the [Downloads](#) section of the Noraxon website.

3.1 Software Installation

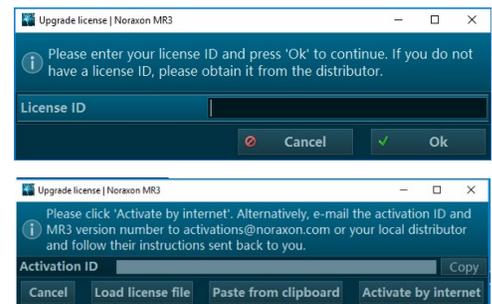
Within the Ultium Motion System shipment, there is a USB flash drive containing the latest *myoRESEARCH 3* software.

1. Insert the MR3 USB flash drive into the PC
2. Open the installer application (e.g., `noraxon.mr.3.18.00`) and follow the instructions
3. After installation, an icon will be created on the desktop

3.2 Companion Software Activation

The companion software must be *activated* before unrestricted use is possible.

1. Open MR3
2. A dialog box will indicate how many more times MR3 can be opened
3. Click "Activate"
4. Enter the License ID provided on your USB flash drive and press "OK"
5. If you have an internet connection, click Activate by Internet for immediate activation.
6. Alternatively, email the provided activation ID to activation@Noraxon.com.
7. Noraxon Support will email or respond by phone with the Activation Code.
8. Enter the provided Activation Code to remove any restrictions on use.

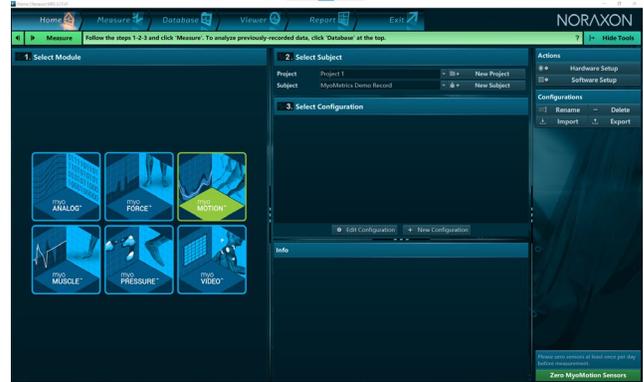


4 Configuring the Hardware

Before the Ultium Motion system can be used, the device software settings must be configured to recognize the different components that make up the system. Follow the instructions below to update the receiver firmware, sensor firmware, and sensor assignment to prepare for a data collection.

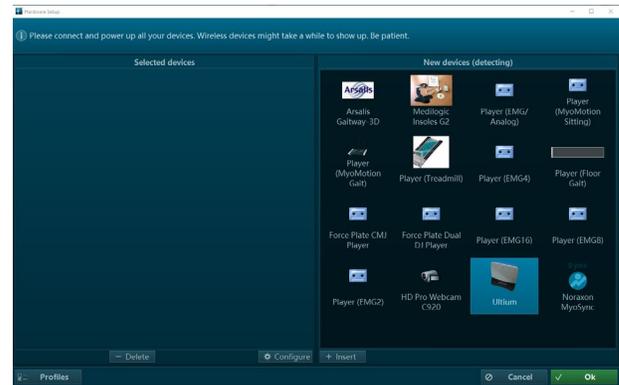
Step 1

Open the MR3 software and click on the **Hardware Setup** button in the upper right-hand corner.



Step 2

After connecting the Ultium Receiver to the USB port on the computer, select the Ultium icon, within the **'New Devices'** area, and click the **Insert** button.



Step 3

The Ultium hardware setup window will appear as shown.

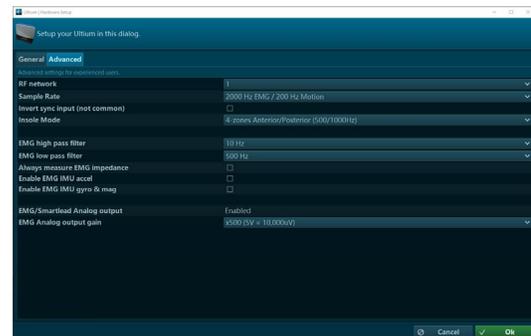
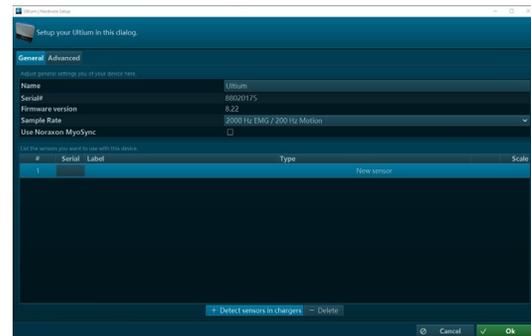
Within the "General" tab, select the desired settings for the system, i.e., name, sample rate.

Note: If available, firmware updates for the Receiver and Sensors will be indicated here.

If using myoSYNC, click the **Use Noraxon myoSYNC** checkbox.

Additional settings are available within the "Advanced" tab.

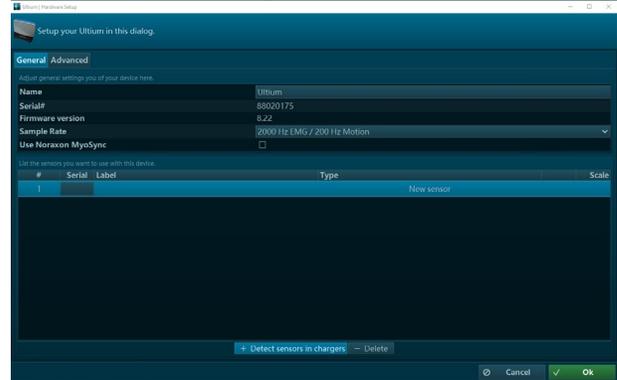
Note: If multiple Ultium systems are in use, separate networks assignments are required for each Receiver.



Step 4

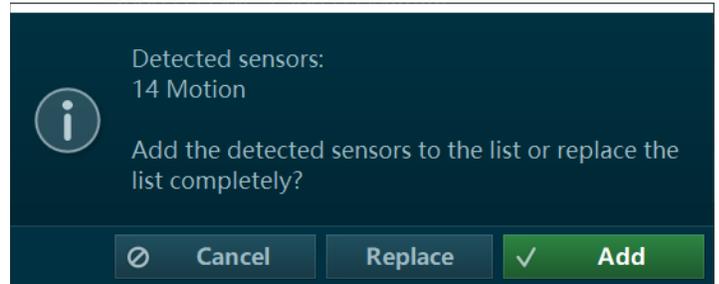
Make sure the Motion Sensors are placed in the Charger(s) and the Charger(s) are connected to the Ultium Receiver, then click **Detect Sensors in Chargers** to load all sensor serial numbers into the MR3 software.

Note: The first serial number in the list is associated with the Sensor closest to the front of the Charger (i.e., toward the Charger LEDs).



Step 5

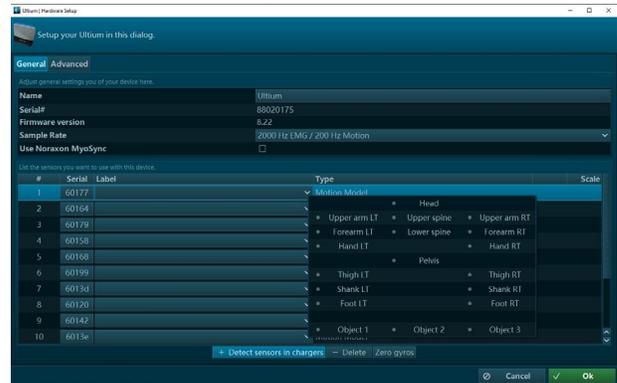
After detection is complete, click **Replace** to replace all existing sensor serial numbers associated with this device or **Add** to append additional sensor serial numbers to an already existing list.



Step 6

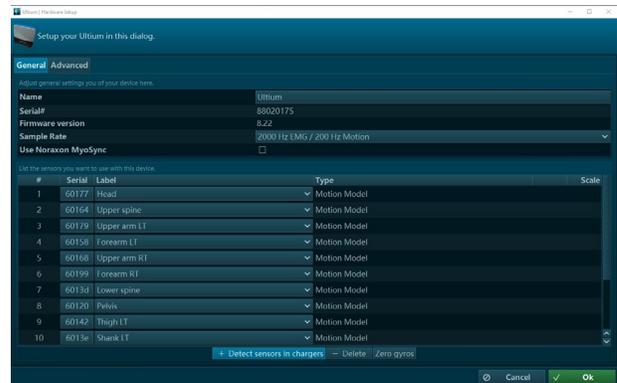
Assign sensors to body segments by clicking the dropdown and selecting the desired location from the pop-up menu.

Note: Segments already assigned to a sensor will display a green dot next to the segment name.



Step 7

Click **OK** (in the bottom right corner of the dialog box) to save the hardware settings.



5 Attaching the Sensors

Before performing a recording, decide which body segments will be included in the recording. The sensors can be attached with the provided fixation straps. For high velocity and heavy impact movements, we recommend additional fixation of the sensors with the use of elastic self-adhesive tape.

Note: Best practices for sensor placement and fixation are explained further in the Ultium Motion User Manual (P-8708).

[▶ Watch the Strap Placement Video](#)

5.1 Sensor Placement Locations

Head	Middle of the back of the head
Upper Thoracic	In line with the spinal column at C7/T1, but high enough to not be affected by upper trapezius muscle movement.
Lower Thoracic	In line with the spinal column at L1/T12.
Pelvic	Body area of sacrum
Upper Arm	Midway between the shoulder and elbow joints, lateral to the bone axis
Forearm	Posterior distal region, where there is a low amount of muscle tissue
Hand	Dorsum of the hand
Thigh	Anterior distal half of the femur body, where there is a lower amount of muscle displacement during motion
Shank	Slightly medial to the anterior border of the tibia
Foot	Dorsal midfoot region

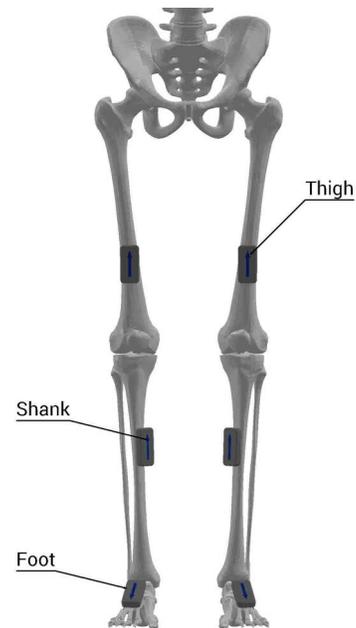


Figure 7: Lower body sensor placement

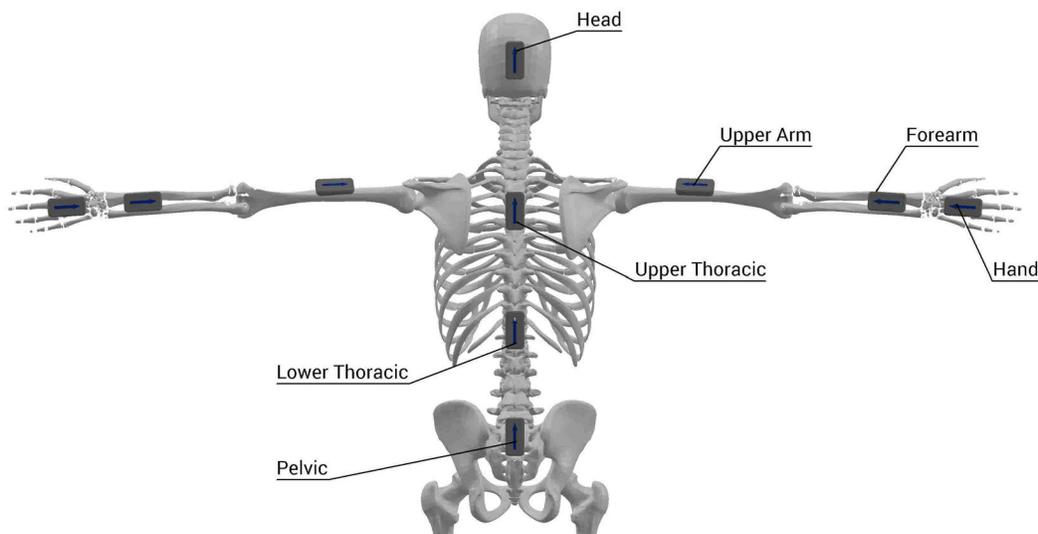


Figure 8: Upper body sensor placement

6 Recording a Measurement

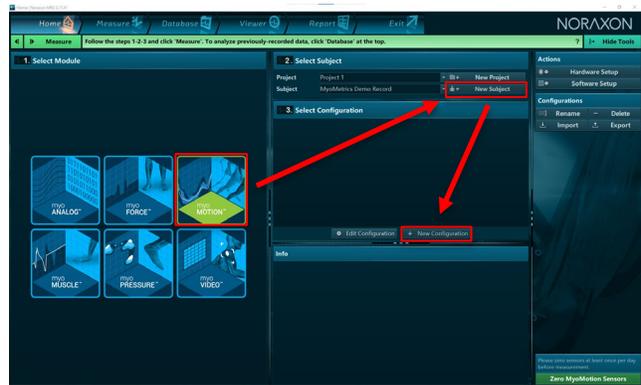
Step 1

On the **Home** screen, click the myoMOTION module icon.

Create a **New Subject**.

Note: Defining the subject's height is required to compute bone lengths and create an accurate skeletal avatar.

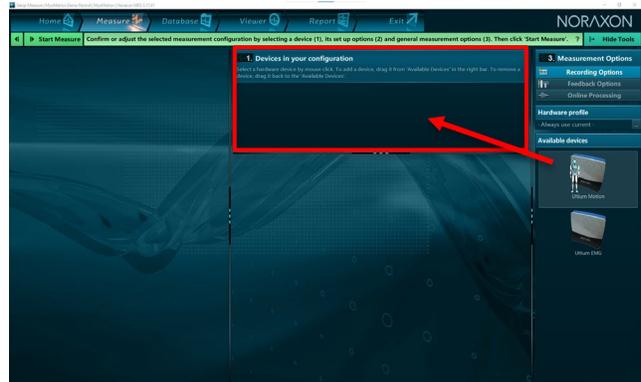
Select **New Configuration**.



Step 2

Insert the Ultium Motion device into the configuration by dragging it from the list of **Available Devices** to the **Devices in Your Configuration** area.

Select the desired body segment sensors and associated data to include in the measurement configuration.



Step 3

Continue to the next step by clicking **Start Measure**.

Activate the hardware by clicking **Activate**.

Note: If operating within a distorted magnetic environment, open the **Motion Calibration** dropdown menu on the right-side toolbar to select a **Functional Calibration**, then click **Activate**.

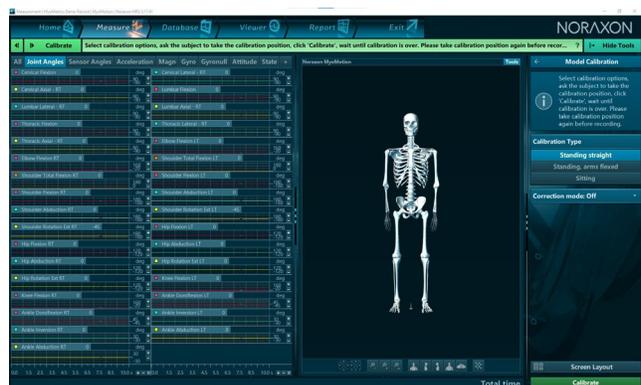


Step 4

In the right-side toolbar, select the desired calibration method.

Note: If desired, select a **Correction Mode** from the right-side toolbar prior to calibrating.

Note: If using a **Functional Calibration**, follow the instructions from the software wizard in the right-side toolbar.



[Watch the Walking Calibration Tutorial](#)
[Watch the Forward Lean Calibration Tutorial](#)

Step 5

Ensure the subject is in the calibration position and prepared to hold this position for 8 seconds during the calibration procedure.

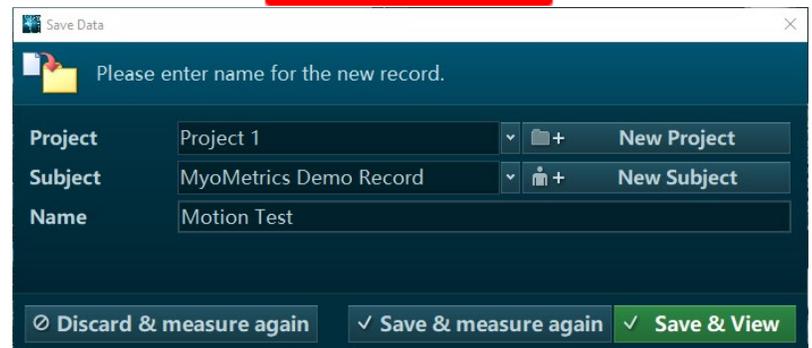
Click **Calibrate** to proceed and monitor the subject to confirm the calibration position was held for the entire calibration process.

**Step 6**

After performing the calibration, click **Record** to begin recording data.

When you are ready to end the recording, click **Stop**.

Save the recording to the database and type in a desired name, then click **Discard & Measure Again** or **Save & Measure Again** to return to the measurement screen or click **Save & View** to visualize the recording.



7 Viewing a Record

To view a previously recorded record, click the **Database** tab. Records are organized by **Project** and **Subject** name. Double-click on the record of interest to open the record in the **Viewer** tab.

8 Further Use Features of MR3

There are many additional features built within MR3. Such as:

- Multi-activity recordings
- Live biofeedback visual displays
- Online and post-measurement signal processing
- Customized reporting
- Exporting (and importing) of data

To learn more about the features available to you through the system(s) you have purchased, refer to the myoRESEARCH User Manual and the corresponding Hardware User Manual for this device (P-8708).