# ottobock.

Myo Plus Quick Guide

Use the following steps to connect the Myo Plus system to an iOS or Android app for training and adjustments. These instructions are intended for Myo Plus qualified Prosthetists. Please see the full course for detailed information on all features and functions.

Step 1: Download App

- Download the Myo Plus App to your smart device (Apple App Store, or Google Play)

- Open the App

- Turn-on the Myo Plus system **by holding down the charging port until 1 beep is heard and green light appears**

## Step 2: Pair Myo Plus to your smart device
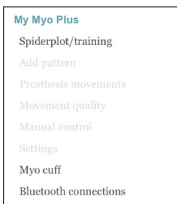
- On the main menu, click on Bluetooth Connections

- Add a new connection by clicking on the ✚ icon. If Bluetooth is deactivated on your device, confirm the Bluetooth request with ALLOW. Select the Serial Number of the system. It is printed on the PIN card that came with the system
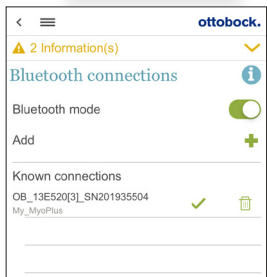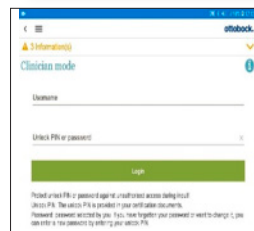
- Enter the unique PIN code found on the card that comes with the system

- If Bluetooth pairing request pops up, confirm with OK

- The app is now successfully connected to the Myo Plus system, and the Spider Plot is displayed
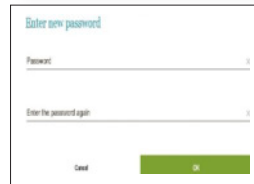
Step 3: Log-in as Clinician
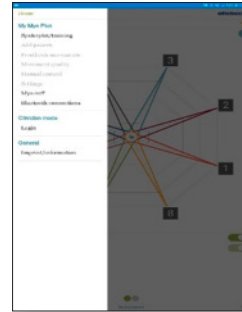
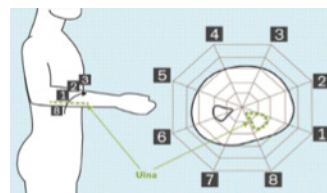- On the main menu, click on "Login" Bluetooth Connections

- Enter Username and Un-lock PIN

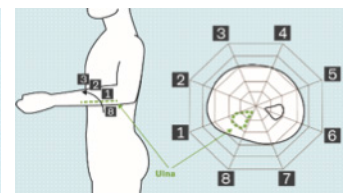 These are provided to you at the time of qualification for Myo Plus

- Now create your own unique password. This will be used in the future to access clinician mode

Step 4: Orientation of Myo Plus Cuff on limb


Right	Left

Orient the electrode pairs evenly around the limb; pairs 1 and 8 should be on either side of the ulna, not directly on it. Put electrode pair **1 to the lateral aspect of the ulna, pair 8 to the medial aspect.**

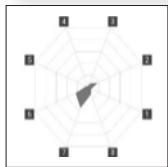## Step 5: Check connectivity of App and pattern function

- To test Bluetooth connectivity to electrodes and confirm all 8 are functioning, tap each set to confirm that patterns are created on the Spider Plot
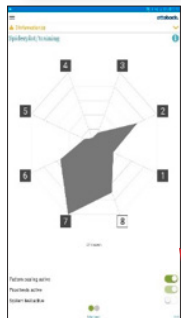
The "Pattern Scaling Active" feature enlarges the size of the patterns for easier viewing.
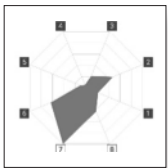
- Pattern Scaling Active

- Pattern Scaling In-Active

- Activate Pattern Scaling using the slider at bottom of Spider Plot screen

Step 6: Input data and create Test Set

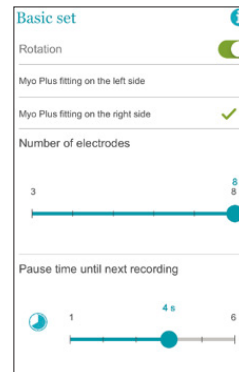Before recording data, the type of hand should be designated:

- In the Main menu, click on **"MyoCuff"**

Choose either bebionic or Myobock hand for the simulation

Click on "Basic Set" in the Main menu

- If training for powered rotation, activate the rotation slider

- Choose left or right limb

- Indicate the number of electrode pairs being used by adjusting the slider; 8 is default

- Select pause time between recording sets; 4 seconds is default

The test set consists of two recordings in the 90 degree bent arm position – by clicking on the green arrow the recording page is displayed.

In each recording, five movement patterns must be performed in order: Relax, open, close, supinate, pronate.

- Press the ▶ button to begin recording

- During the blue phase, the limb should be relaxed

- During the red phase, the limb should be creating the desired motion (except in the first recording of relaxation state)

- The contraction strength should be 0% at the beginning of the red phase and should be continuously increased to 80% of maximum contraction strength towards the end

After both recordings have been performed, make sure that both recordings set are selected (check mark).

By scrolling down and clicking on "Create test set", a test set is created from the two recordings and stored temporarily in the Myo cuff → The test set is lost after switching off the Myo cuff.

Step 7: Test reliability of the patterns

The user can now test the reliability of the control in real time in the menu "Spiderplot / Training"

- Each shape represents a pattern of muscle activity

- Each function in the prosthesis is assigned **a colored box, which can be seen by scrolling down below the plot**

- As the muscle pattern is created, **the corresponding colored shape will fill with gray**

- As the user recreates each recorded pattern, the function activated in the hand is displayed by the hand symbol

- By checking or unchecking individual motions, patterns can be removed or added to the spider plot to ease evaluation when necessary


- By swiping to the left on the Spider Plot, the movement display will appear

- The red bar indicates current relative contraction strength

- The hand symbol indicates the movement pattern currently being detected. **A strong pattern is indicated by a solid appearance…a weak pattern would "flicker" between multiple movement pictures**

Evaluate the prosthetic control together with the user by using the spider plot **and/or** the movement display.

If the prosthesis control is working **reliably**, continue with the basic set. **Reliably** means that the prosthesis generates the desired movements and the user has little or no problems with the execution of the movement patterns. Test all recorded movements using the Spider Plot or Movement Display.

Step 8: Create Basic Set
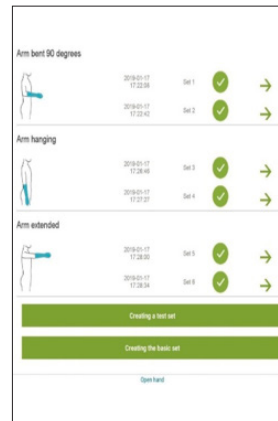
- As before, click on the arrows for the additional 2 arm positions: Arm Hanging, and Arm Extended

- For each arm position, record 2 sets of data. When all 6 sets are checked, click on "Creating the Basic Set"

- A basic set can only be created when all 6 recordings have been made

Troubleshooting basic control

Poor quality of motion or accuracy:
After creating the basic set, if certain motions or arm positions create poor movement quality, you may uncheck those data sets, then click on "Creating a Test Set" to evaluate movement quality without the suspected poor data.

If control has improved, re-record the unchecked data set, and create a new Basic Set. Test function again.

Difficulty creating differentiated patterns:
Make sure the user is trying to create motions in their phantom limb that they can imagine doing. Be sure to have a clear understanding of how their phantom limb feels, and what "motions" they can try to create.

The quality of the Basic Set is of great importance as it creates the foundation for how the system operates and recognizes muscle activity patterns.

Once a reliable Basic Set has been created, additional grip patterns can be added.

Step 9: Additional Grip Patterns
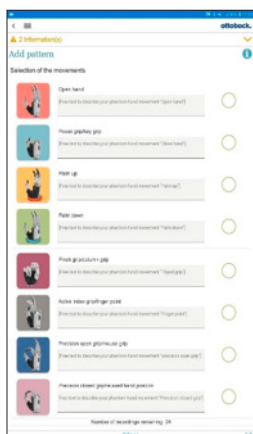
- To add other grip patterns, click on "Add pattern" on the main menu

- 8 grip functions may be added by creating 4 additional muscle patterns

- Each additional pattern will create 2 grips depending on the position of the thumb. These pairs are pre-determined **and cannot be modified**

Click on the grasp(s) to be added, then click on "Continue to recording" at the bottom of the screen.

After recording, the following message will appear:
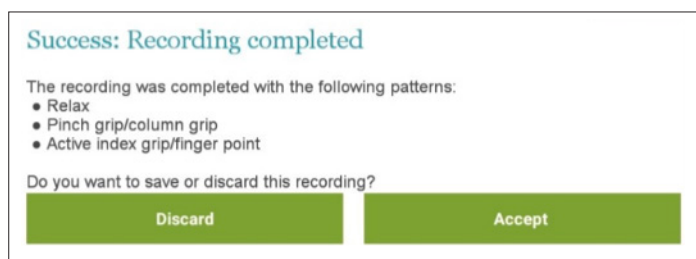
Click "Accept" to keep, "Discard" to re-record. **The recording can be tested while this window is up prior to choosing discard or accept.**


- In the "Add pattern" menu, additional recordings of hand open/close and pronate/supinate may be created

- This may be useful if the user finds that control for a certain function is not adequate in certain arm positions

- Click on the movement, then click "Continue to recording" to add additional layer(s) of data with arm in any chosen position

Tips
Before recording data, be sure to have a conversation with the user to determine what phantom limb motions they feel they can try to create. Have them do the same motion on the contralateral limb if they are a unilateral amputee.

It is important that each pattern be clearly different from other patterns. If they are not, coach the user to try and recruit slightly different muscle activity. For example, consider having them lead pronation or supination with the thumb or small finger to recruit more muscle activity.
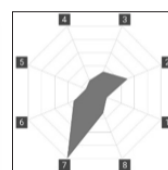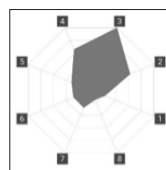
- Good Differentiation
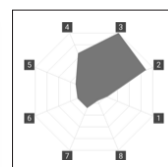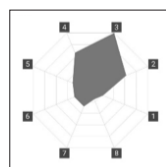
- Poor Differentiation

Set to Default
If using your system to evaluate more than one potential user, be sure to reset the system back to manufacturer's settings before testing a new user.

This is found in the Settings menu, under "Advanced Settings" - "Set to Default". This will close the app and disconnect from the Myo Plus system.

Additional information, including video tutorials, can be found on the Ottobock web site, YouTube, or by calling our technical support team.