Kinemo One
User Manual

Thank you for choosing Kinemo!

Our mission is to make technology more accessible by empowering individuals to interact with the world around them in new ways.

Kinemo One is a wearable device that lets you control devices by turning any body part into input control. Whether it's a head tilt, finger tap, shoulder shrug, or any other body part, your unique gestures will enable you to emulate a tap, click, or a press of a key on your personal devices such as a smartphone, tablet, computer, and Augmented & Alternative Communication devices. Kinemo One is also able to emulate a physical switch for devices that require a jack as input control (e.g., attendant call systems, mode switch on power wheelchairs, etc.).

This manual will guide you through everything you need to get started, customize your experience, and make the most of your Kinemo One. If you ever have questions or need support, please don't hesitate to reach out at **contact@kinemo.io**. We're here to help.

Kinemo, Inc.
1406 Centra Villa Dr SW,
Atlanta, GA 30311

Email: contact@kinemo.io
Website: https://kinemo.io

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Contents

Unboxing

What's in the box

The box includes these components (Figure 1):

- Controller
- Tracer
- Bag of stickers
- Strap to wear the controller
- Power block to charge the controller
- USB-C cable to connect the controller to the power block
- Quick-Start card
- Jack cable (optional)

Figure 1. Contents of a Kinemo One box

Controller

The controller is the wearable device that processes body gestures and generates output actions (Figure 2). The controller sends these actions to a target device using Bluetooth or via a jack cable.

The controller is equipped with a built-in motion sensor to capture gestures of the body part on which it is strapped to. A wired motion sensor can be used instead of the built-in sensor for smaller body parts that the controller cannot be strapped to. More information is available in "Select the Gesture Sensor" on page 13.

Figure 2. Controller with body strap

Tracer

The tracer is a wired motion sensor that can capture gestures for a body part that the controller cannot be easily strapped to (Figure 3). Examples of body parts include the head, eyebrow, cheek, jaw, shoulder, and finger.

The tracer adheres to a body part using a sticker. Refer to "Select the Gesture Sensor" on page 13 for more information about setting up a tracer.

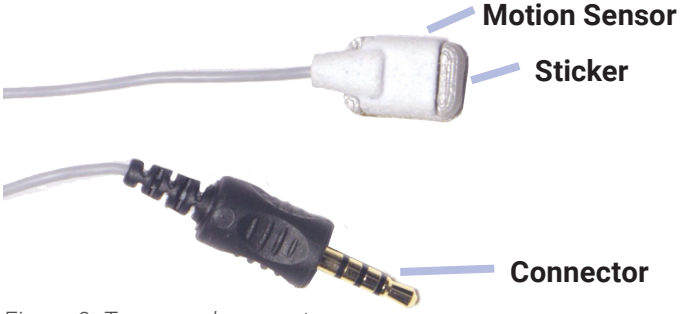


Figure 3. Tracer and connector

Kinemo App

Download "***Kinemo***" on the iOS App Store.

The Kinemo app is needed to configure the detection of gestures and to assign output actions to gestures.

Kinemo app is not yet available on Android

Basic Operations

Controller Interface

Basic operations can be completed using the physical interface of the controller (Figure 4). Below is a quick reference guide of the controller's buttons and indicators.

Figure 4. Physical interface of the controller

Gesture Detected
Flashes green when gesture is detected.

Power
Turns controller on/off.

Bluetooth
Press to change device slot. Hold for Bluetooth pairing.

Device Slot
Shows the active Bluetooth device slot (1-3). Flashes when searching for a target device. Turns solid white when connected.

Sensitivity Adjustment
Increases (+) or decreases (-) the sensitivity level for gesture detection.

Sensitivity Level
Shows the current sensitivity level (1-6)

Battery Status
Turns red when battery is low; white when charging.

Charge the Controller

Use the power block and USB-C cable provided in the box to charge the controller (Figure 5).

While charging, the Battery Status indicator turns solid white. The indicator turns off when the battery is fully charged.

A fully charged controller will run for at least 60 hours of continuous use.

The Battery Status indicator turns red when the battery is low. The controller will have 2 hours of continuous use remaining before the battery dies.

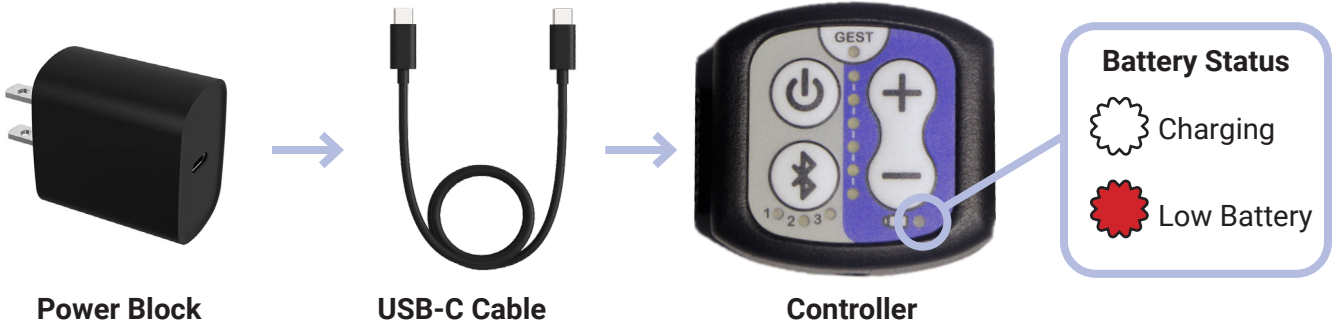


Figure 5. Steps for charging the controller

Strap the Controller

1 **Insert the strap through the bracket attachments**

Velcro should be facing up

2 **Insert Velcro end through the buckle and fasten around body part**

Figure 6. Steps for strapping the controller to a body part

Select the Gesture Sensor

Gestures of a body part are detected by either the controller or the wired tracer (Figure 7).

The controller's built-in motion sensor is used by default to capture gestures of the body part on which it is strapped to.

Use the tracer if the body part is hard to reach such as the head, eyebrow, cheek, jaw, shoulder, hand, finger, foot. Follow the procedure on the next page to set up the tracer.

Figure 7. Controller with a tracer

Setup a tracer

1. Plug tracer into the controller

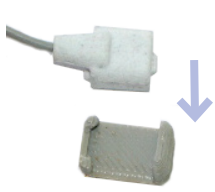
Power off the controller before plugging the tracer. The port for the tracer is located above the ***Gesture Detected*** indicator on the controller.

⚠ If the controller was powered on before plugging the tracer, all indicators will flash. Restart the controller.

ℹ When a tracer is plugged in, the built-in motion sensor of the controller is disabled. Gestures are only detected by the tracer.

2. Snap sensor in the sticker

There are two sets of tabs on the sensor: one large tab on the front, and two smaller tabs on the back. The sticker has matching inserts. First, place the sensor's front tab in the sticker's insert. Then, push on the back of sensor to snap the smaller tabs into the sticker.

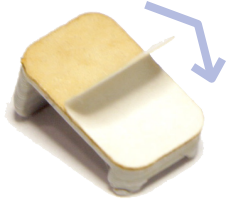


1 Insert large front tab

2 Push on the back tabs

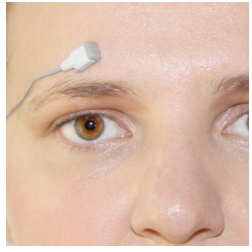
3. Peel off the adhesive liner

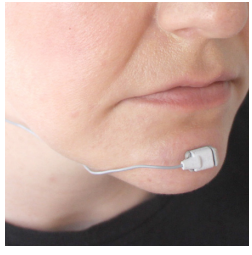
The release liner on the bottom side of the sticker must be peeled off to expose the adhesive. Discard the release liner.



4. Stick tracer to body part

The adhesive is skin safe. The tracer should be adhered directly to the skin for the most optimal performance. If placing the tracer on the skin is not possible, the tracer can adhere to any piece of clothing.





⚠ If adhered to clothing, make sure the tracer's motion is not impeded. Folds or other clothing features may prevent the tracer from moving with body gestures.

Power the Controller

Press the ***Power*** button to turn the controller on or off (Figure 8). Several indicators turn on when the controller is powered on.

Figure 8. Controller power button

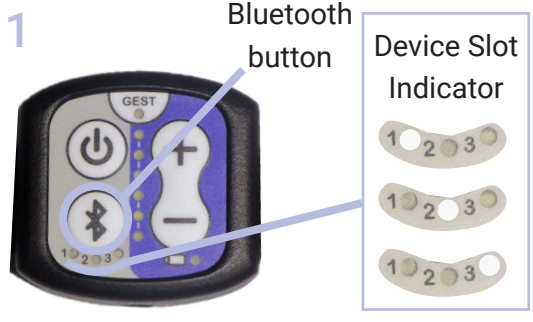
Pair a Bluetooth Device

1. **Select a device slot**

   The controller can be paired with up to three target Bluetooth devices. Press the ***Bluetooth*** button to select a device slot for pairing a target device. The ***Device Slot*** indicator shows the selected device slot (1, 2, or 3). It should be flashing slowly to indicate that no device is connected in that device slot.

2. **Setup the controller for pairing**

   Hold the ***Bluetooth*** button for 3 sec to enter pairing mode. The ***Device Slot*** indicator will flash rapidly when the controller is ready to pair with a device.



⚠ Keep target device < 10 ft from the controller for a reliable Bluetooth connection.

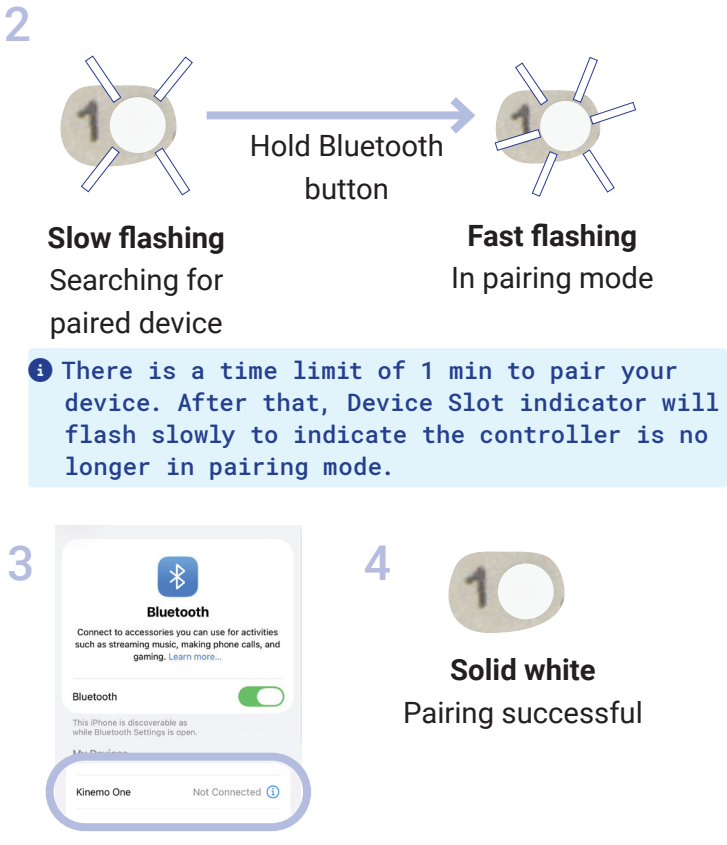
3. Pair a target device to the controller

On the target device, navigate to Bluetooth settings. "Kinemo One" should be visible in the list of Bluetooth devices available for pairing. Follow the Bluetooth pairing procedure on the device.

⚠ If the controller was previously paired with the target device, you must forget the existing Bluetooth connection before re-pairing. Follow the specific instructions of your target device about how to forget a Bluetooth connection.

4. Verify connection status

Device Slot indicator will turn solid white when successfully paired with target device. If you have problems pairing a device, please refer to "Troubleshooting" on page 43.



ℹ There is a time limit of 1 min to pair your device. After that, Device Slot indicator will flash slowly to indicate the controller is no longer in pairing mode.

Figure 9. Steps to pair a target Bluetooth device

Connect App to Controller

To connect the Kinemo app to the controller, the device in which the Kinemo app is installed, referred as the ***setup device***, must be paired with the controller using Bluetooth.

Follow "Pair a Bluetooth Device" on page 15 to pair your setup device with the controller. Your setup device can be paired in any device slot.

To validate that your setup device is successfully connected to the controller, open the Kinemo app. A "Kinemo One" device should be visible in the home screen (Figure 10).

⚠ The device slot associated with the setup device must be selected on the controller when using the Kinemo app.

Figure 10. Home screen of the Kinemo app

Access Device Info

In the Kinemo app, select ***Device Info*** in the main menu to access more information about the system (Figure 11).

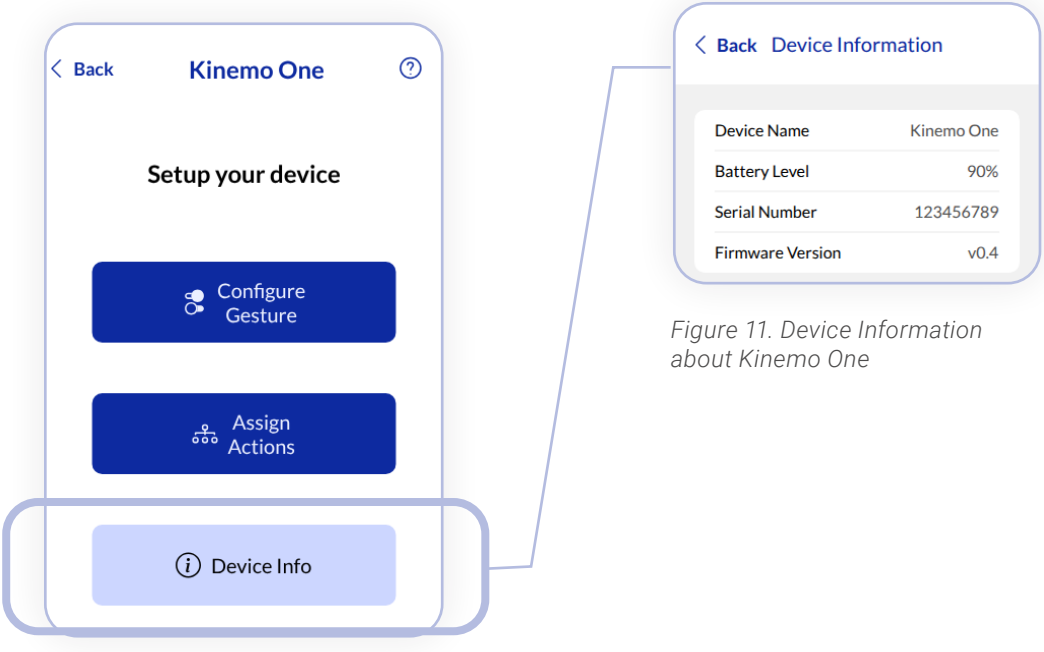


Figure 11. Device Information about Kinemo One

DEVICE NAME

Name of the Kinemo controller that is displayed on the target device when pairing with Bluetooth.

BATTERY LEVEL

Percentage of battery remaining in the Kinemo controller.

SERIAL NUMBER

Serial number of the Kinemo controller.

FIRMWARE VERSION

Firmware version of the Kinemo controller.

Update Controller's Firmware

Firmware updates are periodically released to add new features, improve performance, and resolve technical issues. It is recommended to check for updates regularly.

In the ***Device Info*** menu, select ***Check For Firmware Update***. If a new firmware version is available, a pop-up window will appear. Select ***Update*** to begin the process (Figure 12).

After the update is complete, power off the controller and then turn it back on. Wait until the light indicators stop flashing (~30 seconds). The firmware update is complete and the controller is ready for normal use.

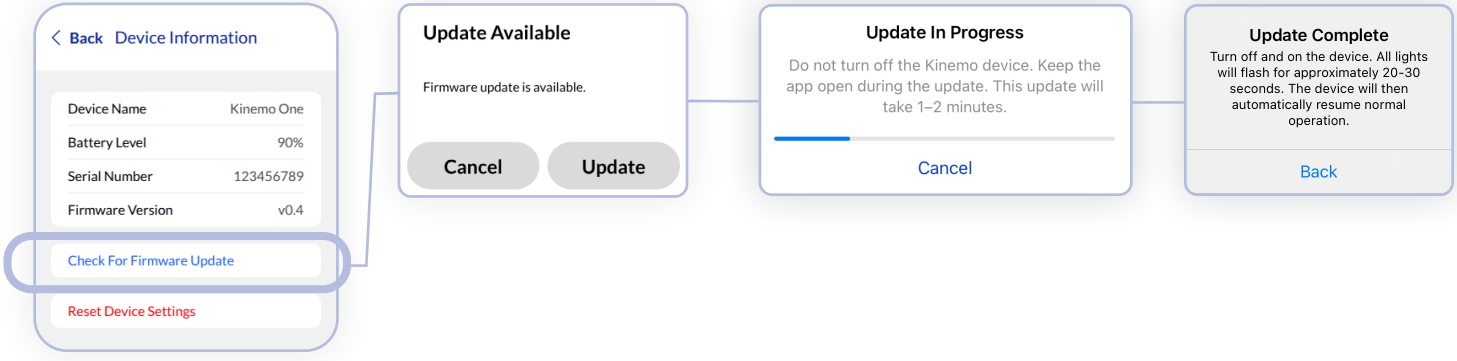


Figure 12. Steps to update the controller's firmware

Reset Kinemo Device

RESET DEVICE SETTINGS

Reset all gesture settings and clear all assigned actions. This step is recommended before starting a new setup.

In the ***Device Info*** menu, select ***Reset Device Settings***, and click ***Reset*** in the pop-up window (Figure 13).

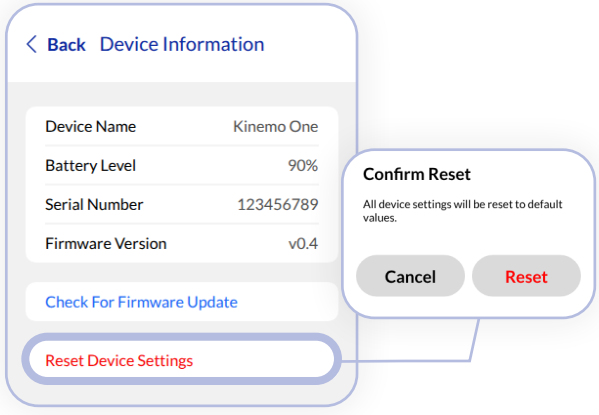


Figure 13. Steps to reset all device settings.

FACTORY RESET

Press and hold the ***Power*** and ***Sensitivity (-)*** buttons at the same time for 10 seconds (Figure 14). When all light indicators turn on, release both buttons.

> To cancel the factory reset at this point, simply press the *Power* button.

To continue with the reset, press simultaneously the ***Power*** and ***Sensitivity (-)*** buttons once. All light indicators will flash three times, then turn off. The device is now reset to factory settings.

Figure 14. Buttons to hold to initiate a factory reset.

Configuration

Configure the Detection of Gestures

On the Kinemo app, select ***Configure Gesture*** to access the settings to configure the detection of gestures (Figure 15).

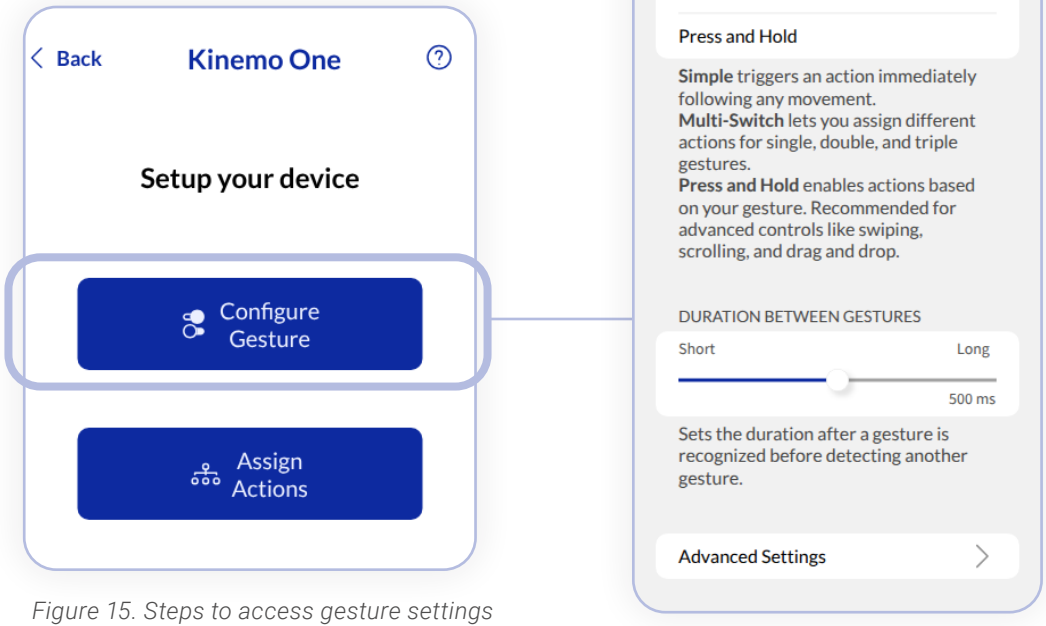


Figure 15. Steps to access gesture settings

Reset Gesture Settings

Before configuring the gestures, it is recommended to reset all gesture settings to make sure that all settings are in their default values.

Select ***Configure Gesture --> Advanced Settings --> Reset Gesture Settings.***

The following settings will be reset to their default values:

- Gesture Behavior = '***Simple***'
- Gesture Duration = Recentered slider
- Motion Type = '***Auto***'
- Sensitivity Range = '***Default***'

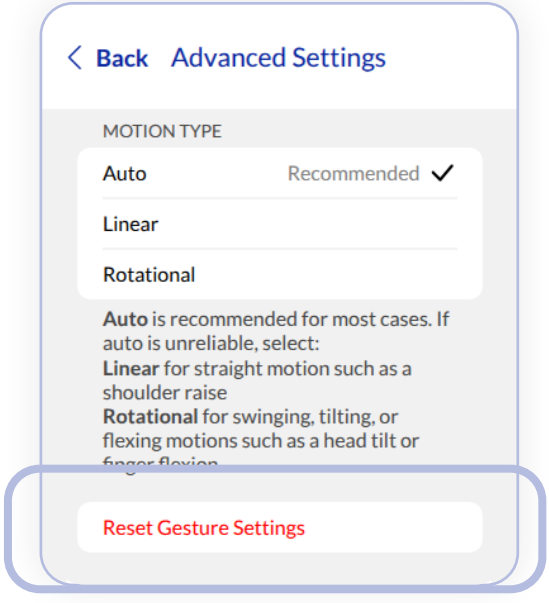


Figure 16. Reset all gesture settings

Select the Gesture Behavior

Kinemo One supports multiple gesture behavior types that define how movements trigger actions. Choosing the right behavior helps match the user's movement abilities with the desired control style.

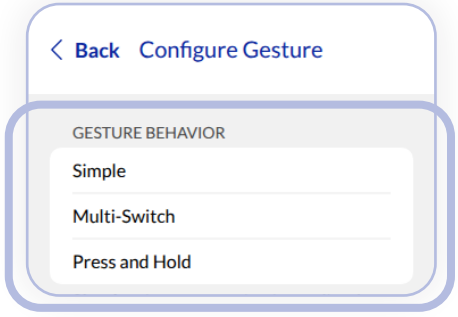


Figure 17. Configure gesture behavior

Simple triggers an action immediately when the body part moves away from its resting position. This option is best for fast, direct activation with minimal effort.

Multi-switch allows different actions to be assigned to single, double, or triple gestures. It requires the user to perform a full gesture by moving the body part away from rest and returning back to the resting position. Recommended for users who can reliably repeat gestures and want multiple actions from one body part.

Press & Hold emulates pressing and holding a virtual button. The button remains pressed while the body part is held away from its resting position and is released when it returns to rest. Recommended for advanced controls such as scrolling, swiping, and drag-and-drop actions.

Adjust Gesture Sensitivity

STANDARD PROCEDURE

Start with the highest sensitivity level by pressing the ***Sensitivity Increase*** button on the controller's physical interface (Figure 18).

Perform the gesture. If the ***Gesture Detected*** indicator flashes, decrease the sensitivity level by pressing the ***Sensitivity Decrease*** button. Repeat this step until you find the lowest sensitivity level that detects all or most of the gestures.

> Each gesture might not always be detected. In this step, find a sensitivity level that reduces missed gestures. There are other settings that may need to be adjusted later.

If you cannot find a suitable sensitivity level, use the following procedure.

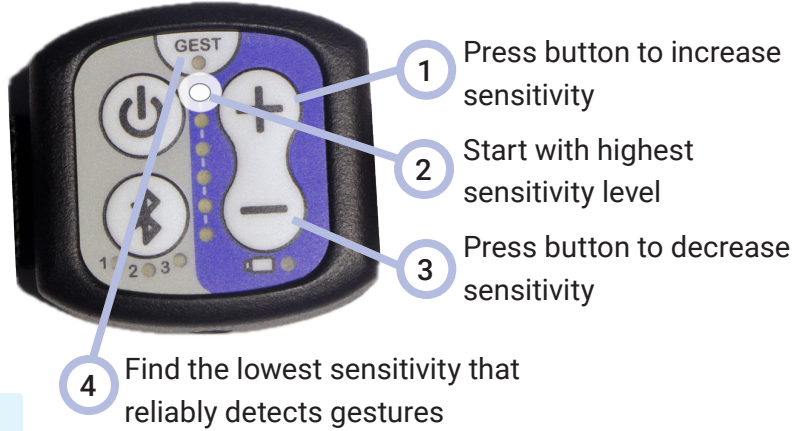


Figure 18. Steps for adjusting gesture sensitivity

> Wait about 1 second between gestures to allow the controller to fully process each gesture.

IF THE SENSITIVITY IS TOO LOW

If the gesture is not detected when the highest sensitivity level is selected, the sensitivity levels are too low. In ***Configure Gesture --> Advanced Settings***, change the sensitivity range to ***High*** (Figure 19). Repeat the standard procedure.

If the gesture is still not detected at the highest sensitivity level, the setting for gesture speed might be too high. Select a slower gesture speed and try again adjusting the sensitivity. Refer to "Adjust Gesture Duration" on page 27.

IF THE SENSITIVITY IS TOO HIGH

If the gesture is consistently detected when the lowest sensitivity level is selected, the sensitivity levels are too high. In ***Configure Gesture --> Advanced Settings***, change the sensitivity range to ***Low*** (Figure 19). Repeat the standard procedure.

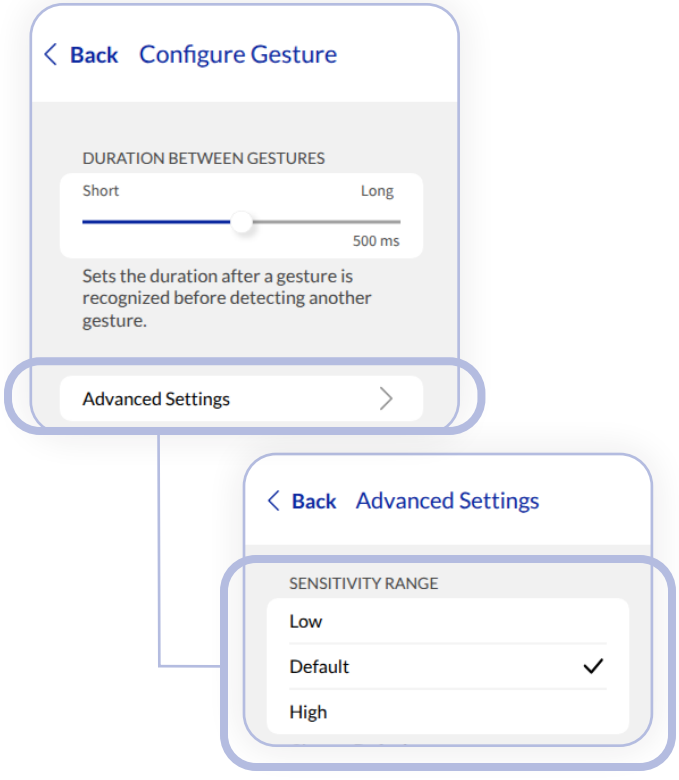


Figure 19. Steps to adjust gesture sensitivity

Adjust Gesture Duration

In the ***Configure Gesture*** menu (Figure 20), adjust the duration between gestures. After a gesture is recognized, this setting is the duration before another gesture can be detected.

Improve responsiveness

Shorten the duration to improve responsiveness to gestures. Make sure that gestures are still being detected reliably.

Improve reliability of gesture detection

If gestures are not detected after adjusting sensitivity, select a longer duration and perform the gesture again. Repeat this procedure until a duration is found that reliably detects gestures.

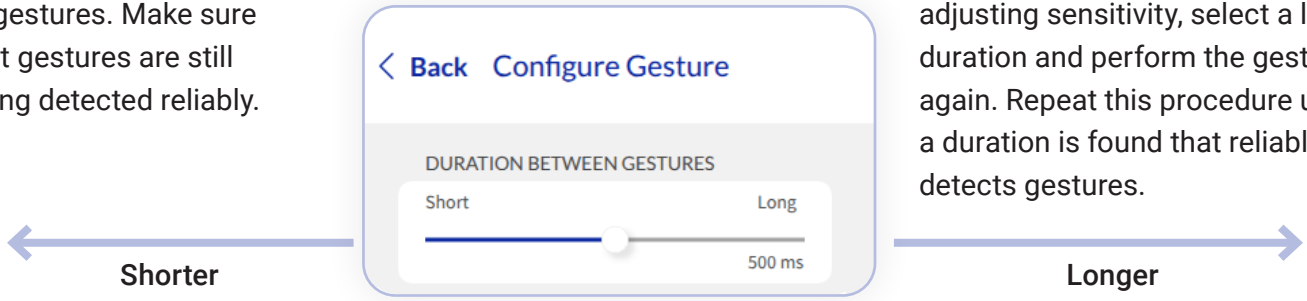


Figure 20. Gesture duration settings

Advanced Configuration

In some environments (e.g., moving wheelchair), the gesture detection might not perform as reliably when ***Auto*** is selected as the motion type. If this is the case, you may try to select a different motion type in ***Configure Gesture --> Advanced Settings*** (Figure 21).

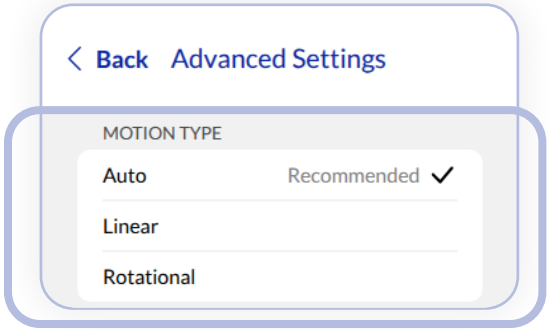
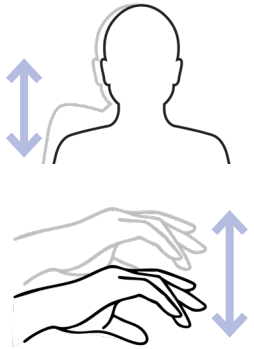


Figure 21. Advanced setting to change the type of gesture motion

Linear

Select for body parts that move in a straight motion.

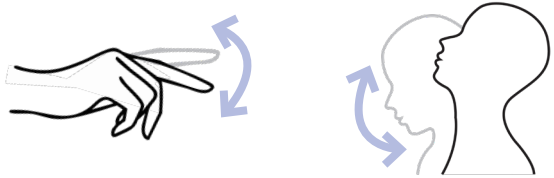
Recommended for an eyebrow raise, jaw opening, shoulder shrug, hand or knee raise.



Rotational

Select for body parts that move with a swing, tilt, flex, or any other type of rotation.

Recommended for a head tilt/nod, cheek twitch, elbow or knee swing, hand or foot flex, finger tap.



Assign Actions to a Bluetooth Device

Select a Bluetooth Device

Up to three Bluetooth devices can be controlled with Kinemo One. Each target Bluetooth device can be configured. From the main menu, click on ***Assign Action*** to select a Bluetooth device (Figure 22).

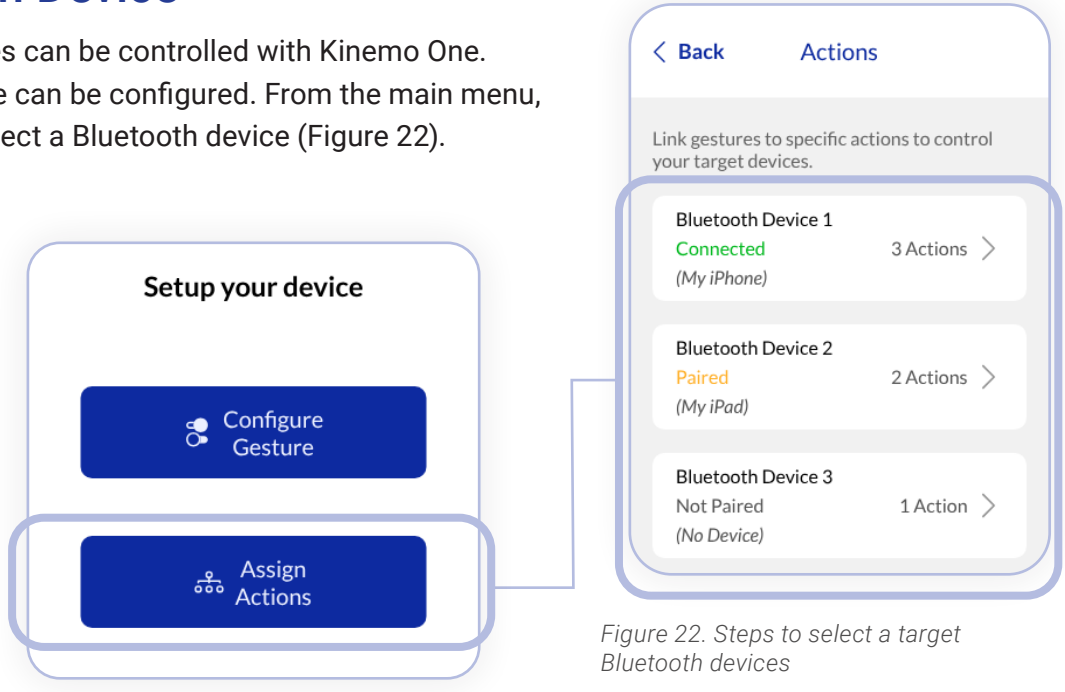


Figure 22. Steps to select a target Bluetooth devices

BLUETOOTH DEVICE INFORMATION

If no device is paired to the selected device slot, ***Not Paired*** is shown as the ***Connection Status*** (Figure 23). Follow the procedure in "Pair a Bluetooth Device" on page 15.

Once the target device is paired, ***Paired*** is indicated as the status and the device name is displayed.

When the target device is paired and connected to the controller, ***Connected*** is shown as the status. The controller's ***Device Slot*** indicator should be solid white (Figure 9).

The number of assigned actions is displayed as a quick reference (Figure 23).

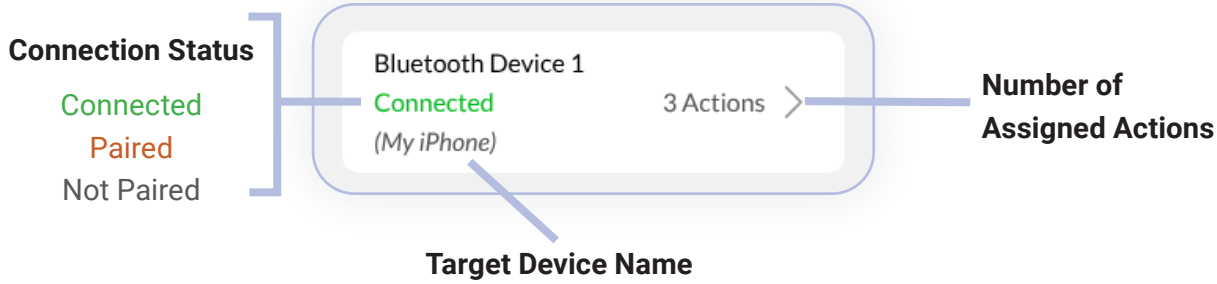


Figure 23. Target Bluetooth device information

Select a Gesture

Select a target Bluetooth device to access the menu to assign an action to a specific gesture (Figure 24).

SINGLE GESTURE

A ***single gesture*** is one movement of the chosen body part. The gesture behavior selected in "***Select the Gesture Behavior***" on page 24 defines how the gesture triggers the action.

MULTI GESTURE

If ***Multi-Switch*** is selected as the gesture behavior, double and triple gestures are available.

Double and triple gestures are consecutive movements of the same body part but performed within a specific time, similar to a double click for a mouse. The ***Gesture Detected*** indicator on the controller (Figure 4) flashes two or three times when a double or triple gesture is detected.

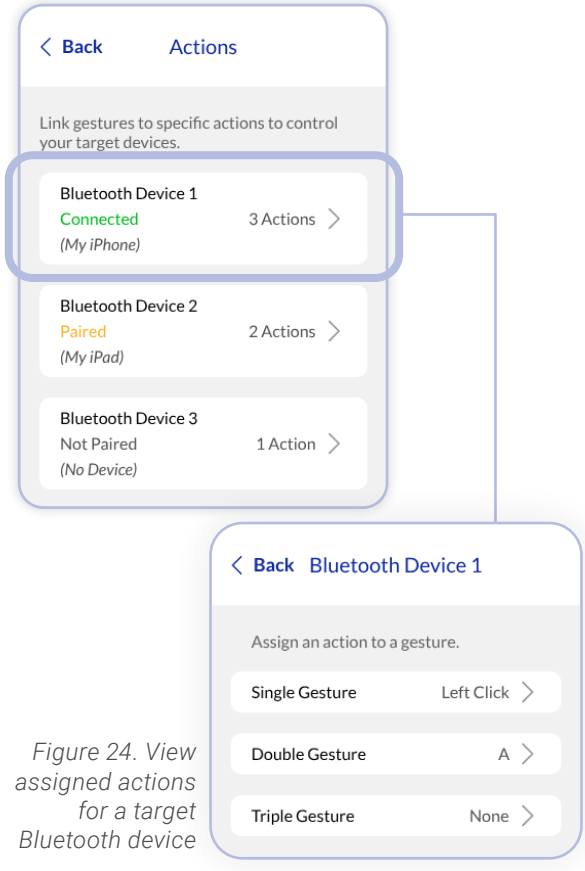


Figure 24. View assigned actions for a target Bluetooth device

Assign an Action for Bluetooth device

Select a gesture to open the list of actions for a Bluetooth device (Figure 25). The menu shows the most common actions. Select ***All Actions*** to access the full list of available actions.

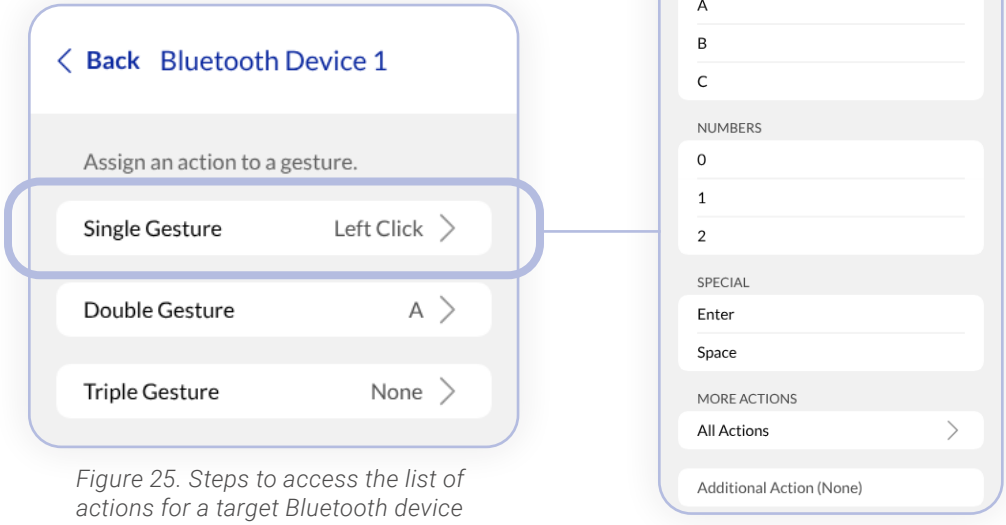


Figure 25. Steps to access the list of actions for a target Bluetooth device

NONE
No assigned action.

MOUSE
Mouse clicks and holds, or double click.

LETTER
Any lower case letter (a-z).

NUMBER
Any one-digit number (0-9).

SPECIAL
"Enter", "Space", function keys. arrow keys, and much more.

MORE ACTIONS
Access the list of all available actions.

Change Action Duration for Bluetooth Devices *(Optional)*

If an action does not register on the target device, the action might be sent too fast to the target device.

In ***Advanced Settings***, increase the action duration in small increments (Figure 26) until the action is registered in the target device. Here is which slider to adjust for a specific action:

- **Mouse Click:** adjust Single Click
- **Mouse Double Click**: adjust Double Click
- **Any other action:** adjust Keystroke

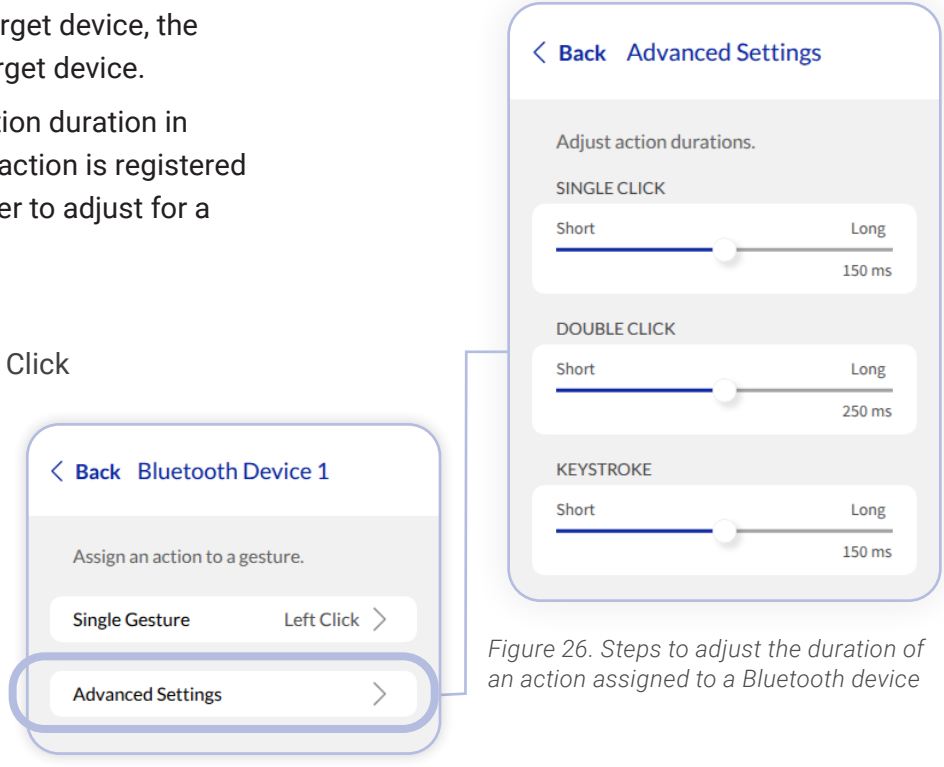


Figure 26. Steps to adjust the duration of an action assigned to a Bluetooth device

Reset Assigned Actions for Bluetooth Device

Reset all action settings for a target Bluetooth device.

In ***Advanced Settings***, select ***Reset Bluetooth Device Settings*** (Figure 27).

The following settings will be reset:

- Single Gesture = '***A***'
- Double/Triple Gesture = '***None***'
- All action durations = Default values

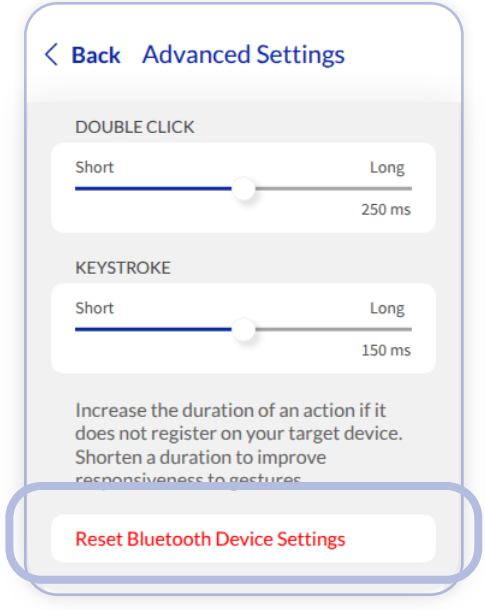


Figure 27. Reset action settings for a Bluetooth target device

Assign Action to Jack Output

Connect Jack Cable

Kinemo One can emulate a physical switch for assitive devices that require a jack as input. Examples of devices include an Augmented & Alternative Communication system, an attendant call system, a mode switch on power wheelchair, a button for an Xbox Adaptive Controller, among others.

Turn off the controller and plug the provided jack cable into the controller's jack port (Figure 28). Once the jack cable is plugged, turn on the controller.

> ⚠ If the controller was turned on before plugging the jack, all indicators will flash and the controller will be inoperational. To resume normal operations, power cycle the controller by turning it off and then on.

Figure 28. Jack cable plugged into controller

Assign an Action for Jack Output

Select a gesture (single, double, or triple) to open the list of actions (Figure 29).

For jack output, an action can be one of the following:

NONE

No action assigned to this gesture.

SHORT PRESS

Recommended as the default switch action. Most jack-enabled devices use a short press as input control.

LONG PRESS

Used in some jack-enabled devices as a second input control. Refer to the device manufacturer's instruction manual about the option for a long press as input control.

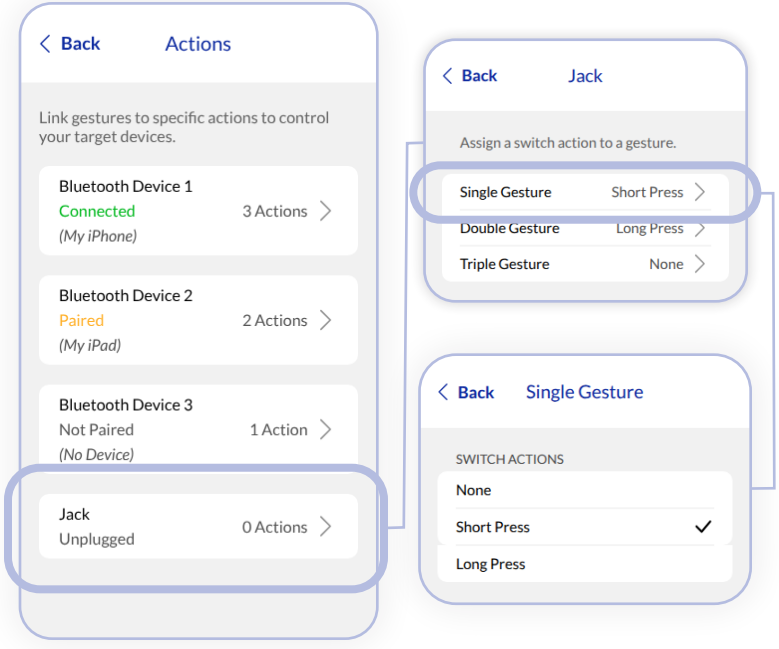


Figure 29. Steps to assign a switch action for the jack output

Change Action Duration for Jack Output *(Optional)*

If a switch action does not register on the target device, switch duration might be too fast for the target device.

Refer to the instructions manual of the device manufacturer to find the recommended switch duration.

In ***Advanced Settings***, adjust the switch duration to match the manufacturer's specifications (Figure 30).

If you cannot find the manufacturer's recommended switch duration, increase to longer durations in small increments until the action is registered in the target device.

If the switch action is still not registering on the target device when set at the longest duration, contact Kinemo customer support.

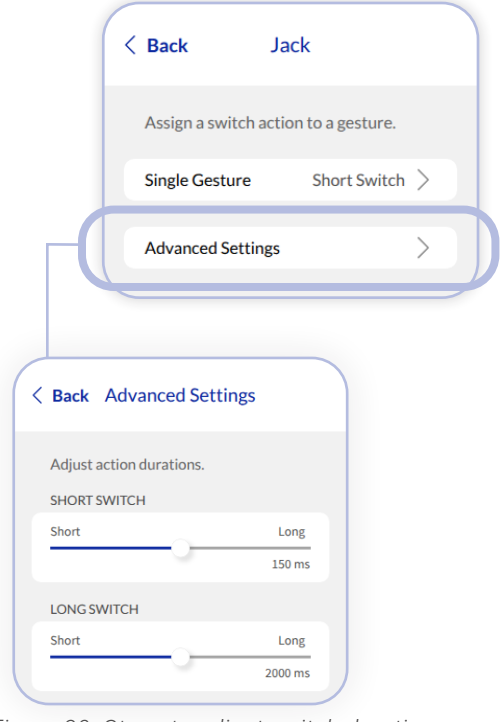


Figure 30. Steps to adjust switch duration for the jack output

Reset Assigned Actions for Jack Output

Reset all action settings for the jack output.

In ***Advanced Settings***, select ***Reset Jack Settings*** (Figure 31).

The following settings will be reset:

- Single Gesture = '***Short Press***'
- Double/Triple Gesture = '***None***'
- All action durations = Default values

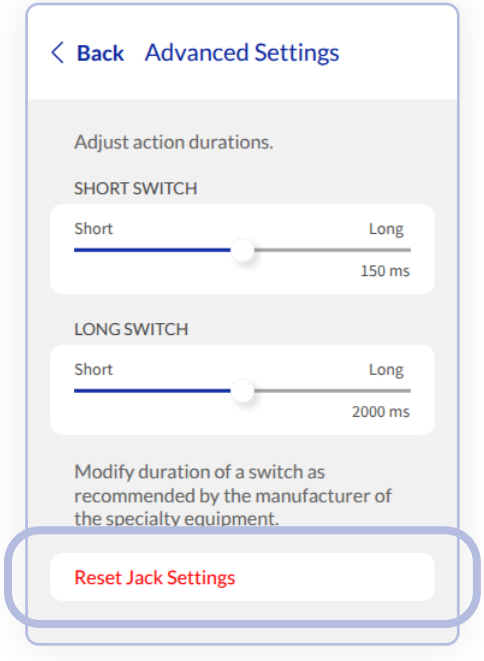


Figure 31. Reset action settings for jack output

Safety and Handling

Battery

The controller contains a Lithium-Polymer battery.

Keep the controller away from anything that can catch fire, and ensure it cannot be damaged by sharp objects.

For charging, only use the power block and USB cable provided in the box.

Avoid storing or using the controller below 35°F and above 110°F. Do not leave the controller in a location hotter than the maximum temperature.

Stop using the controller if you notice these problems: excessive heat, odor, change in color, change in shape, leaking fluid, unexpected noises. If it is safe to do so, relocate the controller away from anything that can catch fire.

Do not attempt to replace the battery. Doing so may damage the battery, which could cause overheating, fire, and injury.

The controller should be disposed of separately from household waste. Follow your local environmental laws and guidelines for lithium-polymer battery disposal.

Storage

The transportation and storage of all components of a Kinemo system should be handled with care to maintain their functionality and longevity.

Storing all components in the original box is recommended for safe transportation and protection against physical damage.

Specifications

Kinemo Device

Battery runtime	60 hours (continuous use)
Power (USB-C)	DC - 5 V - 1.0 A
Temperature	35°F - 110°F
Humidity	30% - 60%
Dimensions	Controller: 1.6 x 1.5 x 0.8 in / 4.1 x 3.9 x 2 cm Tracer (w/ sticker): 0.6 x 0.3 x 0.2 in / 1.5 x 0.8 x 0.6 cm
Weight	Controller: 0.8 oz / 23 g Tracer (w/ sticker): 0.02 oz / 0.4 g

Target Bluetooth Device

Bluetooth version	≥ 4.0
iOS	17 or later
Android	4.3 or later
Windows	10 or later
MacOS	10.12 or later

Jack

Operating mode	Normally Open
Connector	3.5 mm, mono

Troubleshooting

Type	Problem	Possible Cause	Solution
Basic Function	Controller not powering on	Battery is low	Follow the instructions of "Charge the Controller" on page 10.
	Battery not charging	Incompatible power block or USB cable	Use the provided power block and USB cable to charge the controller. Contact Kinemo customer support to purchase a new set if the original components are lost.
Bluetooth Operations	Controller not pairing to a Bluetooth device	Controller not in pairing mode	The Device Slot indicator should be flashing rapidly when the controller is in pairing mode. If the indicator is not flashing rapidly, follow the instructions of "Pair a Bluetooth Device" on page 15 to set the controller in pairing mode.
		Bluetooth must be reset	Power off the Kinemo controller, and turn off Bluetooth on the target device. Then, turn on Bluetooth on the target device, and wait few seconds. Power on the controller and start pairing mode.

Type	Problem	Possible Cause	Solution
Bluetooth Operation	Controller not pairing to a Bluetooth device	Previous pairing still active	If the target device was previously paired with the controller, forget the existing pairing before trying to re-pair. Follow the instructions of your specific target device to forget a paired Bluetooth device. If you cannot find the instructions, contact Kinemo customer support.
	Controller not connecting to a Bluetooth device	Wrong device slot is selected	Press the Bluetooth button until the Device Slot indicator shows the correct slot is selected for the target device.
		Bluetooth is turned off on the target device	Turn on Bluetooth on the target device.
		Bluetooth must be reset	Power off the Kinemo controller, and turn off Bluetooth on the target device. Then, turn on Bluetooth on the target device, and wait few seconds. Power on the controller and start pairing mode.

Type	Problem	Possible Cause	Solution
Bluetooth Operation	Kinemo app cannot find the Kinemo One device	Setup device is not paired with the controller	Follow the instructions of "Pair a Bluetooth Device" on page 15 to pair your setup device.
		Wrong device slot is selected	Press the Bluetooth button until the device correct slot is selected.
Gesture	Tracer not detecting any gesture	Tracer not properly plugged	Make sure the tracer's connector is fully plugged in the controller.
	Gesture not detected	Insufficient pause between gestures	Wait for about 1 second between gestures.
		Wrong motion type for the body part	If a body part was selected instead of Auto in the Configure Gesture menu, make sure the motion type is correct. Follow the instructions of "Select a Motion Type" on page 28 to change the motion type of a gesture.

Type	Problem	Possible Cause	Solution
Gesture	Unintended gestures are detected	Sensitivity is set too high	Press the Sensitivity (-) button to decrease sensitivity until unintended gestures are no longer detected.
Bluetooth Action	Target device not detecting an action	Action duration is too short	Follow the instructions of "Change Action Duration for Bluetooth Devices (Optional)" on page 33 to increase the action duration.
Jack	Target device not detecting switch action	Jack connector not properly plugged	Make sure the jack cable's connectors are fully plugged in the controller and in the target device.
		Incompatible jack cable	Use the provided jack cable. Contact Kinemo customer support to purchase a new cable if the original cable is lost.
		Switch duration is too short	Follow the instructions of "Change Action Duration for Jack Output (Optional)" on page 37 to increase the switch duration.

Type	Problem	Possible Cause	Solution
Firmware Update	Update failed on the app	Connection to controller is lost	Make sure the controller is still connected to the setup device. Turn the controller off and back on. Try to update the firmware again.
		App is not active	The Kinemo app must remain open until the update is completed. Make sure the app is active (not minimized or closed), and the setup device is not locked or in a sleep mode.
	Controller not rebooting	Firmware update malfunction on the controller	If the controller is still updating after 2 minutes (i.e., all light indicators flashing), power cycle the controller by turning it off and then on. This will reset the firmware update on the controller. If the firmware update is still not completing, hard reset the controller by pressing the ***Sensitivity '+'*** button. If that still does not fix this issue, contact Kinemo customer support.