Light-Touch Joystick

Instruction Manual

Low-Force Joystick

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Warnings and Compliance

Skin Safety Assurance

The Light-Touch Joystick topper material was sourced to ensure skin safety during the operation of the device.

Choking Hazard

The removable topper options for the Light-Touch Joystick may pose a choking hazard to small children. To prevent accidents, keep these toppers out of reach of young children and ensure they are used with adult supervision.

Water Compatibility

This product is not water-resistant. To maintain optimal functionality, refrain from exposing the Light-Touch Joystick to water or moisture. Water exposure may lead to irreversible damage and compromise the performance of the device.

Charging

To prevent damage to the Light-Touch Joystick, it is recommended to not operate the device while charging. Additionally, do not use the Light-Touch Joystick if there are damaged cables.

Do Not Open This Device's Case

Do not open this device's case. Like many electronic devices, this device contains a lithium-ion battery, which can rupture, ignite, or explode when exposed to high temperatures.

Short-circuiting a lithium-ion battery can also cause it to ignite or explode. Any attempt to open or modify this device's casing or circuitry is dangerous.

This device should be serviced only by the qualified staff at CanAssist.

FCC + IC Compliance

Model: Light-Touch Joystick

Contains IC ID: 8017A-MDBT50Q

Contains FFC ID: SH6MDBT50Q

This device complies with Industry Canada license-exempt RSS Standard(s). Operation is subject to the following two conditions. (1) This device may not cause harmful interference. (2) This device must accept any interference received, including interference that may cause undesired operation.

Introduction

Product Description

The Light-Touch Joystick enables individuals with physical disabilities to independently access computing devices such as smartphones, tablets, and computers. The joystick has been designed to activate with as little as 10 grams of force to ensure individuals with limited strength and range of motion can operate their devices. The wide range compatibility of the Light-Touch Joystick gives users the freedom to connect with up to three devices through Bluetooth and USB connections. Additionally, users can custom mount the joystick at their workstation depending on their environment to suit their unique needs and surroundings.

Key Features

- Bluetooth and USB connectivity
- Compatibility with Apple and Windows computers, iPad and Android tablets, and iPhone and Android devices
- 10 grams of force to activate the joystick
- 1/8" range of motion from the center
- Up to 5 customizable switch input functions through app configuration
- Adjustable sensitivity of on-screen cursor movement
- Custom mounting options via mounting plate
- 3 interchangeable joystick topper designs

Hardware Diagrams

Figure 1. Front of Joystick

Figure 2. Side of Joystick

Figure 3. Interface Module Front

Figure 4. Interface Module Back

Topper Options

Cylinder Topper	Sphere Topper	Needle Topper

Each topper option is designed with a specific function in mind to provide users with a versatile experience.

Cylinder Topper

This topper has a concaved top with sufficient depth to allow a fingertip to comfortably rest on it. The sides of this topper are also concaved to allow users to easily grab the body of the topper to maneuver it.

Sphere Topper

This topper is a more universal topper as it has a greater surface area to allow for added contact area.

Needle Topper

This topper provides users with a smaller diameter to emulate a shaft feeling with a rounded top.

To switch between toppers, hold the dust cap in place with your pointer and thumb finger, as identified in Figure 2, and rotate the topper counterclockwise to detach from the shaft. Once removed, align the new topper to the shaft while continuing to hold the dust cap and rotate the topper clockwise until it is securely in place.

Users can also source their own custom topper that is compatible with 6-32 threads and 0.17 length of engagement.

Mounting Capabilities

The Light-Touch Joystick is designed to allow users to custom-mount the joystick at their workstation. This feature ensures the stability of the joystick during the operation of computing devices. The joystick's mounting plate features two ¼" - 20 threaded holes, as identified in Figure 1 and Figure 2, allowing it to be easily mounted onto tools like an articulating arm, a clamp mount, or a weighted base plate. The two threaded holes have been implemented for users to mount the joystick either axially or radially. Additionally, the joystick cable that connects to the interface module is 1.4m (55") long. Ensure that the joystick is properly secured to a tool such as an articulating arm and properly adjust the arm to a comfortable position before using. Do not over-tighten the joystick when installing the mounting plate of the joystick as there is a maximum thread depth of 0.35". Over-tightening can result in damage to the joystick.

Connectivity

The Light-Touch Joystick supports connectivity with a multitude of devices providing users with a wide range of options. The device seamlessly integrates via Bluetooth with Apple and Windows computers, iPhones and Android smartphones, as well as iPad and Android tablets. Additionally, to support the functionality of the Light-Touch Joystick, it can also connect to computing devices through USB-C. When pairing devices with the Light-Touch Joystick, the interface module will remember up to three devices to seamlessly transition between them. Further information regarding pairing devices can be found in the Bluetooth section.

Sensitivity

The sensitivity of the joystick refers to how sensitive the movement of the on-screen cursor is relative to the force applied to the topper. Users can configure their preferences through the app depending on how fast or slow they desire the cursor to move relative to the force applied to the shaft. Further information regarding how to adjust the sensitivity of the joystick can be found in the Joystick Configuration section.

Dead Zone

The dead zone of the joystick is the region around the centre position of the shaft where the on-screen cursor will not be activated. This area is designed to prevent unintended movement when the shaft is in a neutral position. Once the shaft is moved outside the dead zone region, the on-screen cursor will begin to move. The dead zone region can be customized in the app to fit user preferences. The shaft has a total range of motion of 1/8" from the centre. Further information regarding how to adjust the dead zone of the joystick can be found in the Joystick Configuration section.
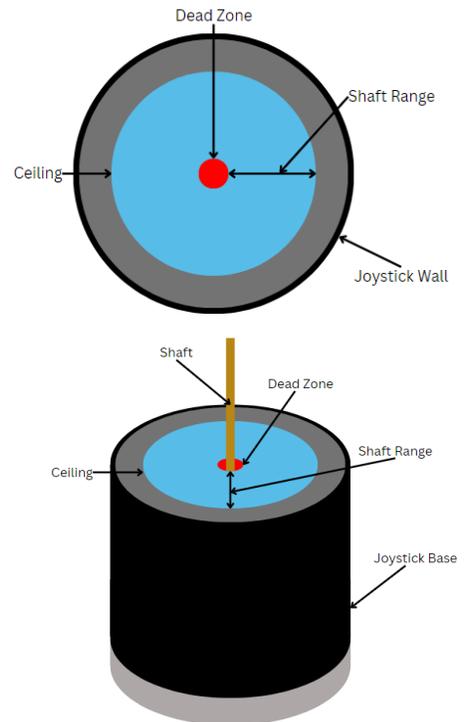
Accessibility Switch

The accessibility switch feature of the Light-Touch Joystick is intended to offer users additional functionality when using the joystick. Up to five accessibility switches can be configured through the app to serve a variety of functions. This feature operates through accessibility switches also called buttons that are connected to the interface module. Before configuring the accessibility switches through the app, ensure that the accessibility switch cables are connected to the interface module. Each accessibility switch can only carry out one function at a time and the function can be changed at any time through the app. For more information regarding how to configure the accessibility switches please see the Keymap and Accessibility Switch Function section.

Status Indicators

The LED light on the front panel of the interface module will emit different colour lights to signify ongoing functions. These descriptions can also be found on the top panel of the interface module.

LED Colour	Description
Blinking Blue	Ready for Bluetooth Pairing
Magenta	Paired to Device #1
Blue	Paired to Device #2
Yellow	Paired to Device #3
Blinking Red	Low Battery
Black	Nothing is Connected

App Setup

App Installation

To start using the Light-Touch Joystick install the ___ app onto your device from the app store. Then, open the app and turn on the interface module. The Light-Touch Joystick should be advertised on the screen right away when connecting to a device for the first time. If it's not, hold down the Bluetooth button on the interface module for three seconds. On the screen, a 'CanAssist Joystick' will appear under the 'Available Joysticks' heading. Select the 'CanAssist Joystick' button and then agree when asked if 'you want to connect to this joystick'. After selecting yes, if prompted by a 'Bluetooth Pairing Request', select pair to finish pairing the device with the Light-Touch Joystick.

(insert QR code)

## Keymap and Accessibility Switch Functions

Once connected to the Light-Touch Joystick, to set up specific features select the connected 'CanAssist Joystick'. Users will have three 'Keymaps' available to choose from for customizing the device features. This allows users to preset different functions to each 'Keymap' to allow users to easily switch between them based on their operational needs.

Users can customize the accessibility switches also referred to as buttons which will manage device commands. Configurations can only be set while the accessibility switches are connected to the interface module. To do so, select 'Manage Keymap 1' under the 'Buttons' heading and then select 'View Buttons in Keymap 1'. The number of

accessibility switches connected to the interface module will be reflected by the number of selections available on the screen. If there are five accessibility switches connected, 'Button 1' to 'Button 5' will appear on the screen. Select which button to customize, and a separate screen will display all the configuration options. The categories the accessibility switches can be mapped to are:

- Keyboard lower-case letters
- Keyboard upper-case letters
- Keyboard numbers
- Keyboard special characters
- Keyboard commands
- Mouse commands

Additionally, users can enable 'Gesture Mode' to act as an additional accessibility switches. When activated, moving the joystick topper up, down, left, and right can be configured to perform different functions just like the accessibility functions would perform. However, this will disable the mouse function of the joystick. To enable 'Gesture Mode' select one of the 'Keymaps' and turn the 'Gesture Mode' on.
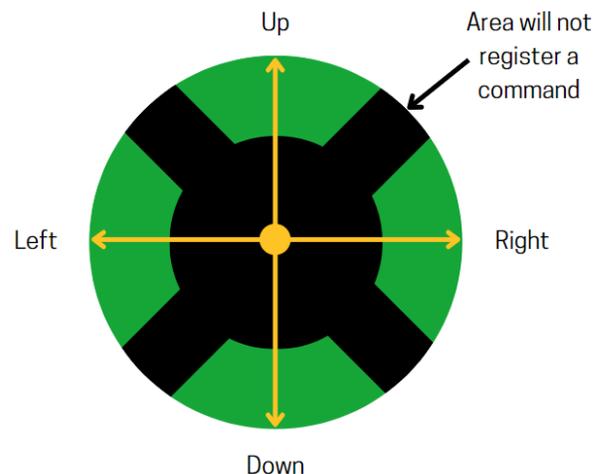
Bluetooth

To customize the Bluetooth settings, select 'Manage Bluetooth Connections' under the 'Bluetooth' heading from the 'Keymap' screen. As users can connect to three devices, on the 'Bluetooth Connections' screen they will be listed with their corresponding colour. Additionally, the device currently paired to the Light-Touch Joystick will be indicated on the screen. The corresponding colours assigned to each device will also be correlated to the status light on the interface module. To change the name of the device, select the device and input a new name. There is an option to unpair a device that is currently paired to the Light-Touch Joystick by selecting the paired device and the selecting 'Unbond'. Additionally, to pair a device, select a device and then select 'Activate' to form the connection to that device.

Switch Between Devices

To switch between devices connected to the Light-Touch Joystick outside of the app, hold the Bluetooth button on the interface module down for one second.

Erase and Replace Connection

To erase a connection to a device and replace it with a new device hold the Bluetooth button on the interface module down for three seconds.

Reset all Connections

For a hard reset of all devices connected to the Light-Touch Joystick hold the Bluetooth button on the interface module down for 20 seconds.

Bluetooth Through Device Settings

Users can also connect their devices to the Light-Touch Joystick through their device settings under 'Bluetooth'.

If you experience difficulties connecting the Light-Touch Joystick to a device, go to 'Bluetooth' in the device settings and under the Light-Touch Joystick select 'forget this device'.

Joystick Configuration

The Joystick Configuration encapsulates the sensitivity and dead zone of the joystick as well as the calibration of the joystick. To do so, from the 'Keymap' screen select the 'Joystick Configuration' button under the 'Configuration' heading. This will open a new screen where users will have the option to adjust the sensitivity, the dead zone, or to calibrate the joystick. If users are experiencing a drift with the joystick cursor or any difficulties with the joystick, calibrate the joystick by selecting 'Calibrate Joystick'.

Technical Information

Dimensions
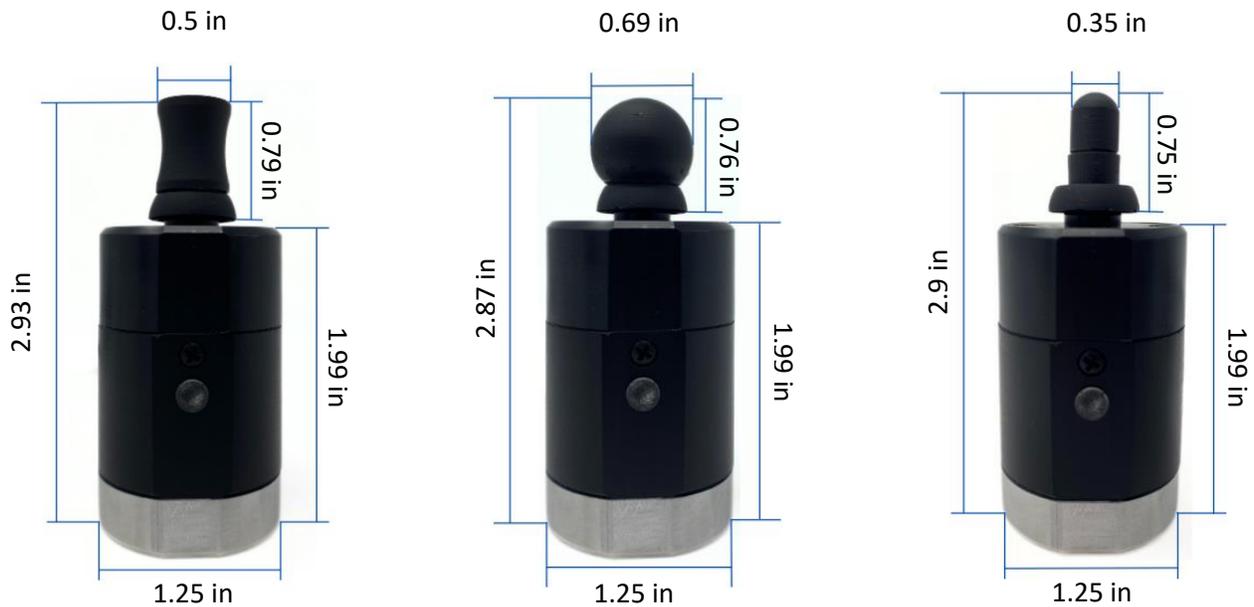
Battery and Charging

The Light-Touch Joystick has a battery life of approximately 24 hours with a margin of variation of +/- 3 hours depending on the usage frequency and intensity. Additionally, the interface module has a charging duration of up to 5 hours. To charge the device, plug the USB-C cable into the USB-C port as depicted in Figure 3 and plug the other end into a power outlet. The USB-C LED light will display an orange light when charging and when fully charged it will turn off. Do not operate the Low-Force Joystick during the charging period.

Maintenance Tips

Should the Light-Touch Joystick need to be cleaned, use a slightly damp cloth to clean the exterior.

Questions? Contact CanAssist at 250-721-7330 or canassist@uvic.ca