A HumanWare Brailliant BI X and an iOS Device

A Productive Combination.

All of Apple's iOS devices, (iPod touch, iPhone and iPad,) have built in braille access when using the VoiceOver screen reader. Utilizing this braille access allows a user to receive braille output on a supported braille display, and if the display has input keys, one can actually control the iOS device without ever touching the device's touch screen. For simplicity, the term iPhone will be used throughout this document to represent the line of Apple's iOS devices. It is important to ensure that you have ios version 14.4 installed. If you are unable to install the update due to an older model, it will not be possible to connect the New Brailliant BI X as a braille display, this is because the New Brailliant BI X is using the latest type of connection.

HumanWare's New Brailliant line of Braille displays brings a sleek, ergonomic, productive and portable design to its user's fingertips. Developed with display lengths of 20 or 40 cells, and with built in Bluetooth connectivity, these displays are the perfect size for mobile productivity with iPhones, while providing enough Braille for tasks requiring a significant amount of reading.

Once the two tools are paired, the Brailliant can be used to produce braille output, along with providing control over the iPhone without using the touch screen. Users have the capability to:

- Wake up the ios device from your braille device
- Navigate applications, home screens, and other elements
- Select items
- Enter text into any editable applications such as text messages, emails, note files, etc, using the Brailliant's ergonomic braille input keys. Text can be entered in contracted or uncontracted braille.
- Read in braille from all accessible applications, including reading books from the iBooks application.
- In short, anything that could be accomplished with VoiceOver via the touch screen can be accomplished using the Brailliant's input keyboard

The Brailliant BI X can be paired with all iPhones running iOS 14.4 + as a Bluetooth Braille display. To connect the two devices, the pairing must be initialized from the Brailliant, just as you would pair with any other keyboard or Bluetooth device.

To make the connection, do the following:

From the Brailliant Menu, press the letter **T**, you will be prompted "Terminal".

Now Press **Enter**.

Use your **Previous** and **Next** thumb keys to move to "Add Bluetooth device"

Then press **Enter**.

You will be prompted "activate your device in your host device's Bluetooth settings", followed by the model and serial number of your device.
Note: The Brailliant will now be in a discovery mode state for 5 minutes. Once it exceeds this time the Brailliant will not be found, so it is recommended to perform the above actions again.

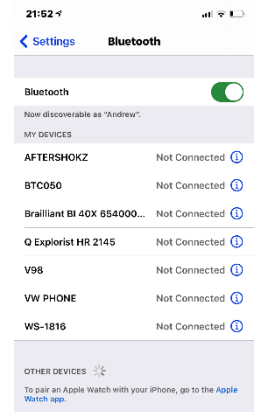On your iPhone, open the Settings application from the home screen.

In settings, move to the Bluetooth Item and **double tap** to open.

Your Brailliant should be listed at the bottom section under "other devices"

Select the "Brailliant xxxxx" by **Double tapping** on the Brailliant Braille display.

The Brailliant will prompt you with "xxx connected", where xx is the name of the iphone.

On the Brailliant you will be positioned in the connected devices. Use your **Previous** and **next** thumb keys to move through the list of connected devices.

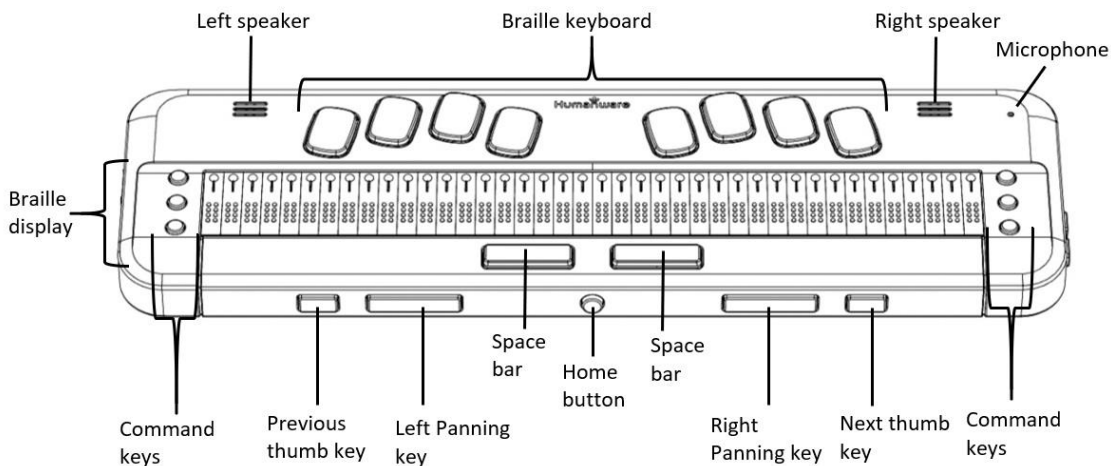Press **Enter** on the device you wish to connect to.

The Brailliant will now be connected as a braille display.

Using Brailliant's keys

Braille keyboard:
Use the 8-dot Perkins Braille keyboard to enter text. The 8 keys of the Braille Keyboard are located above the Braille display. Some commands are also performed using Braille letters in combination with the Space bar. For example Space with the letter h will take you to the home screen.

Command Keys: (Currently not mapped correctly with Apple)
The six command keys are located on each side of the Braille cells, Dots 1-2-3 to the left and Dots 4-5-6 to the right. To do Command T, you have to press on Command keys 2-3-4-5 for the Braille letter T.

Thumb Keys:
The keys facing you are normally operated by your thumbs so we call them "Thumb Keys" to differentiate them from the main keyboard keys. Use the Thumb Keys for Braille navigation.

Home Button:
This key is positioned in the centre amongst the thumb keys and is circler shaped. Once connected to a host device, use this key to exit the connection and return to the list of connected devices. This also is used to return to the main menu.

Brailliant iPhone commands

The below list describes all commands for the Brailliant to effectively control an iPhone.
*Please note some command keys are currently not active and are being investigated by Apple.

Basic navigation commands

Move to previous item   Command key 1 or Space with Dot 1
Move to next item   Command key 4 or Space with Dot 4
Pan Braille to the left   Command key 2 or Space with Dot 2 or Left thumb Key
Pan Braille to the right   Command key 5 or Space with Dot 5 or right thumb key
Double-tap the selected item   Space with Dots 3-6 or Routing cursor
Activate the Home button   Space with H or Command H
Launch the App switcher   Space with H or Command H twice quickly
Move to the first element   Command keys 1-2-3 or Space with Dots 1-2-3
Move to the last element   Command keys 4-5-6 or Space with Dots 4-5-6
Scroll left one page   Command keys 2-4-6 or Space with Dots 2-4-6
Scroll right one page   Command O or Space with O
Activate the Return key   Space with Dot 8 or Command E
Activate a Back button if present   Command B or Space with B

Reading commands

Read page starting at selected item   Command R or Space with R
Read page starting at the top   Command W or Space with W
Scroll down one page   Command keys 1-4-5-6 or Space with Dots 1-4-5-6
Scroll up one page   Command keys 3-4-5-6 or Space with Dots 3-4-5-6
Pause or Continue speech   Command P or Space with P
Speak page number or rows   Space with Dots 3-4

Information commands

Go to the Status bar   Command S or Space with S
Start VoiceOver help   Command K or Space with K
Quit VoiceOver help   Command B or Space with B
Speak page number or
rows being displayed   Command keys 3-4 or Space with Dots 3-4

Rotor commands

Move to previous item using
rotor setting   Command key 3 or Space with Dot 3
Move to next item using rotor setting   Command key 6 or Space with Dot 6
Select previous rotor setting   Command keys 2-3 or Space with Dots 2-3
Select next rotor setting   Command keys 5-6- or Space with Dots 5-6

Edit commands

Select text   Command keys 2-5-6 or Space with Dots 2-5-6
Unselect text   Command keys 2-3-5 or Space with Dots 2-3-5
Select all   Command keys 2-3-5-6 or Space with Dots 2-3-5-6
Cut   Command X or Space with X
Copy   Command C or Space with C

Paste	Command V or Space with V
Activate the Delete key	Command D or Space with D
Activate the Return Key	Space with E
Redo	Command keys 2-3-4-6 or Space with Dots 2-3-4-6
Undo	Command Z or Space with Z
Tab	Space with Dots 2-3-4-5
Shift Tab	Space with Dots 1-2-5-6
Text search	Space with F
Start dictation when in text field	Space with Dots 1-5-6

Miscellaneous commands

Activate the Volume Up button	Command keys 3-4-5 or Space with Dots 3-4-5
Activate the Volume Down button	Command keys 1-2-6 or Space with Dots 1-2-6
Switch between 8 and 6 dot Braille	Command keys 2-3-6 or Space with Dots 2-3-6
Toggle speech on and off	Command M or Space with M
Toggle Screen Curtain on and off	Command keys 1-2-3-4-5-6 or Space with Dots 1-2-3-4-5-6
Toggle QuickNav	Space with Dots 1-2-3-4-5
Change an Item's label	Space with Dots 1-2-3-4-6
Switch between contracted and uncontracted Braille	Command G or Space with G
Toggle expanded status description when Status cells are activated	Status Routing cursors
Activate the Tab key	Command T or Space with T
Activate the Shift with Tab keys	Command keys 1-2-5-6 or Space with Dots 1-2-5-6
Toggle announcement history	Command N or Space with N
Activates the Eject key	Command keys 1-4-6 or Space with Dots 1-4-6
Show/Hide the Keyboard	Space with Dots 3-5-6