Orbit Reader 20™ User Guide Version 01.00.57

Features

These are a few of the features the Orbit Reader has to offer.

- 20 eight-dot refreshable braille cells
- Eight braille input keys and Space bar
- Navigation pad with four directional buttons (Up, Down, Left, Right) and the Select button
- Micro B USB charging port
- SD card slot
- Power button
- Bluetooth® wireless technology

In the Box

Check that all the listed items are in the box you receive. The SD card should already be inserted into the unit.

- Orbit Reader 20
- Standard-A to Micro-B USB cable
- AC adapter
- SD card with User Guide and content (installed in unit)
- Braille Quick-Start Guide
- Print Quick-Start Guide

Introduction

The Orbit Reader 20 is a portable, refreshable braille display and stand-alone reader with the following features:

- a line of 20 braille cells with pins that arrange into the required pattern to accurately represent any six- or eight-dot braille code, in any language, and for any discipline
- reads the contents of files on an SD (Secure Digital) card for Stand Alone mode
- remote connectivity to PCs and mobile devices for use with a screen reader
- simple editing functions
- braille input keys
- contains rechargeable batteries

Documentation Conventions

For consistency and clarity, this documentation uses the following conventions.

Braille keys are indicated by number. For example, if the documentation indicates dot 1, it shows: dot 1.

If multiple braille keys are required, the documentation indicates those keys by showing the numbers separated by a space like this: dots 1 4.

When modifier keys are used, the documentation separates the modifiers from the rest of the keys with a plus (+) sign like this: Space + dot 1. Recall that modifiers, like the Shift key on a regular QWERTY keyboard, are keys you hold down while pressing another key. This modifies the effect of the pressed key. On a braille keyboard, Space is often used as a modifier to alter the effect of the input keys.

Key mnemonics are written in capital letters for emphasis, but are typed in braille lowercase (unless otherwise stated). When one key follows another, the two keys are shown with a comma between them. For example, the command Select, M means to press and release the Select key, then press and release M (dots 1 3 4 simultaneously).

The Up, Down, Right, and Left directional buttons on the navigation pad are interchangeably referred to as arrows, buttons, arrow buttons, and arrow keys.

The words Keys and Buttons are used interchangeably.

In the descriptions of each menu option, this documentation indicates the default setting.

Orientation

Orientation to the positioning of buttons, keys, cells, and slots is important for understanding how the device operates and how you input and receive information on the device.

To begin exploration of the Orbit Reader, place the device on a flat surface in front of you with the row of braille cells closest to you. This is the proper operational orientation.

As you reach around from the front to the back of the device, from left to right, there is the Power button (left), an SD card slot (middle), and a Micro B USB port (right). (Image is reversed in photo.) They are all recessed in an area in the left half of the back edge. The Power button sticks out enough to make it easy to identify. The SD card slot has two small bumps directly below it and the USB port has one bump below it.

The SD card slot is a standard type with spring feedback. The SD card is inserted with the card connector fingers facing down. To release the card, press in and remove your finger to allow the card to pop out.

The battery compartment is located on the bottom of the device.

Key Placement and Use

When properly oriented, the braille cells are closest to you. The Panning keys are at each end of the braille display. See Panning Keys section for more information.

For orientation purposes, there are three slightly raised tick marks located above the braille cells. These orientation marks are spaced by every fifth braille cell. For example, the first tick mark from the left would be between the fifth and sixth braille cell.

Moving toward the top and away from you, find a row of three keys, with a wider one in the middle. The wide key is the Space bar. The dot 7 input key is to the left of the Space Bar, and the dot 8 input key is to the right of the Space Bar.

As you continue toward the top of the face of the display, there is a navigation pad in the middle, between the Braille Input keys and Space bar.

The navigation pad contains the four directional arrow buttons (Up, Down, Left, Right) and the Select button.

The six traditional braille input keys are aligned along the top edge of the face of the display, dots 1 2 3 on the left and dots 4 5 6 on the right.

In Stand Alone mode, the braille input keys are the file navigation controls. For example, dots 3 and 6 serve as Page Up and Page Down to move through a title.

When using the display with a screen reader on a host device, such as an iPhone, the Braille Input keys can be used to input text or control functionality of applications and the device, acting as an input method to your device.

Panning Keys

The Panning keys are two-function rocker keys found at either end of the braille display. These keys control how you read lines of text: either next or previous. Pushing on one end of the key results in one action, while pushing on the opposite end results in the opposite action. To read the next display of text (panning forward), press the bottom part of the key (down) on either Panning key. To read the previous display of text (panning backward), press the top part of the key (up) on either Panning key.

Braille Cells

If you are new to refreshable braille displays, you may not be familiar with eight-dot braille. It is similar to six-dot braille with two additional dots below dot 3 and dot 6. These two additional dots are called dot 7 and dot 8, and they are used to indicate capitalization in the Computer Braille Code (Computer Braille) or to indicate some attributed text or a cursor. Their exact use depends on the software you use with the display. Check the software documentation for exact usage.

Eight-dot Computer Braille is similar to uncontracted braille, except it features a one-to-one correspondence with the plain text (ASCII) characters. Computer Braille does not require an additional cell to show a capitalization indicator. Instead, dot 7 is added to the lowercase version of the letter.

Getting Started

The Orbit Reader 20 has two modes: a Stand Alone mode and a Remote mode. In Stand Alone mode, the device is a book reader that uses an SD card as the reading media. In the Remote mode, the device works like other braille displays and needs to be connected to a computer and a screen reader. This section explains how to charge, turn the device on and off, insert the SD card, and enter and exit the menus. Refer to the following sections for additional support.

Charging the Device

When you receive the Orbit Reader, it may already have a charge; however, it should be charged fully before or during first use. You can use the device and charge it at the same time, so this does not hinder your reading time.

To charge the device, use the provided Standard-A to Micro-B USB cable and the power plug. Insert the small end of the cable into the Orbit Reader's USB port with the bumps facing down. It should slide in without resistance; do not force it. Then insert the large end of the cable into a computer USB connector or the AC adapter provided. Plug the adapter into an AC wall connector.

If the device is on when you connect the charger, the display shows "Charger connected." When you unplug the charger, it shows "Charger unplugged." The charger plug and unplug event indications are briefly displayed even when the unit is off.

If you have charged the device for 4 or more hours, and it does not power on, contact 1-866-659-1843 or email store@cnib.ca.

Powering On and Off

A square Power (on/off) button is found in a recessed area on the back of the device. See Orientation section for more information.

To power on the device, press and hold the Power button for 2 seconds. Orbit Reader flashes the first braille cell to let you know it is coming on.

When you turn the device on, Orbit Reader resumes from the last place of the last file in use. If this is the first time you are using the device, or if this is the first time you are inserting a new SD card, Orbit Reader shows the first file or folder name on the SD card.

If the operating mode of the unit was Bluetooth when last powered off, and the unit was turned off due to automatic power down event, then the device turns back on in Bluetooth mode.

The Orbit Reader displays, "No SD card" when no card is inserted in the SD card slot.

To turn off the device, press and hold the Power button for 2 seconds.

If no keys are pressed for 10 minutes and the device is running on batteries, the unit automatically powers off to conserve power. If the Orbit Reader is

connected using Bluetooth and there is no activity for 60 minutes, the unit powers off.

Inserting and Formatting the SD Card

To insert the SD card, find the large slot on the back.

On one of the short sides of the SD card there are some ridges called *SD fingers* or *teeth*. Situate the SD card with the *teeth* facing down. With the device in the correct orientation for use, insert the short side with the *teeth* into the device. The SD card should go in smoothly until it gets about a quarter of an inch from being fully in the device. At that point, you feel a slight resistance. The card slot works like a toaster. Gently push the SD card in until you hear a click. The card is flush with the rear edge when properly inserted.

To remove the card, power off the Orbit Reader, then press the card in a little until it pops out (most of the way) and gently remove it.

Orbit Reader uses standard full-size SD cards from 4 to 32 GB in capacity. The card must be formatted as Fat32. There is no way to format a card on the device. Most cards come already formatted; however, you can format one as Fat32 on a desktop computer for use with the Orbit Reader.

About Menus and File Names

Orbit Reader shows internal menus and file names in eight-dot Computer Braille. See Braille Cells section for more information about eight-dot Computer Braille.

For a complete reference to the characters comprising Computer Braille, see the Appendix C - Computer Braille Chart.

Entering and Exiting Menus

To…	Do this
open the menu	press Select + Up Arrow (Remote and Stand Alone modes) OR press Space (Stand Alone mode only)
exit the menu	press dot 7
move through the menu choices	press the Up or Down Arrows

see choices within a menu option	use the Right and Left Arrows
select a menu item	press Select

Stand Alone Device Operational Mode

The Orbit Reader 20 has two functional modes. One mode is called Stand Alone mode. The other mode is for use while connected with another device and is called Remote mode.

Stand Alone mode is the default operational mode and allows the user to read, edit, and browse files without being connected to another device. An SD card must be inserted in the Orbit Reader while operating in Stand Alone mode.

In Stand Alone mode, users read content stored on an SD card in one of two ways:

- sent by library
- prepared on computer and copied to the device

In Stand Alone mode, the Orbit Reader displays the content of files stored on an SD card. It does **not** do any translation or interpretation. You prepare the files ahead of time on your computer, then store them on the SD card. For example, if you want to read in UEB, prepare the UEB transcribed title on your computer and then store it on the card.

Remote mode allows you to connect the Orbit Reader to iPhone®, iPad®, and Android™ mobile devices, as well as desktop computers. In Remote mode, Orbit Reader acts as an input and output device for the remotely connected host via USB or Bluetooth. Users connect the device to a computer or portable device with a screen reader and then do one of the following:

- use apps like Kindle, Adobe Digital Editions, or iBooks to read commercially available titles
- employ any accessible technology for browsing, utilities, and education

The screen reader translates the text into the braille code of choice.

To move back and forth between Stand Alone and Remote modes, use the following commands:

To switch to Remote mode: press Select + Right Arrow
To switch to Stand Alone mode: press Select + Left Arrow

Stand Alone mode operates in the following ways:

1. Menu
2. File Manager
3. Reader
4. Editor

1. Menu

Orbit Reader 20 provides a menu for setting options, checking battery, and changing modes of operation.

To open the menu in Stand Alone mode, press Space. The device responds by showing the first menu option as Battery. Some menu items (like Battery) show status. Others let you select among a number of choices. For example, the Arrange Files By item lets you select one of several ways to arrange how files appear in the file manager. The selected option is underlined with dots 7 8.

To scroll through the other possibilities, press either the Right or Left Arrow. To select the option, press Select. Orbit Reader responds by underlining the word with dots 7 8 to indicate the choice.

To close the menu and return to your work, press dot 7.

To move to another menu item, press the Up or Down Arrow. When you get to the end of the list of options and press the Down Arrow again, Orbit Reader moves back to the top menu item. Similarly, when you press the Up Arrow from the first menu item, Orbit Reader moves to the last item in the list. This feature allows quick access to the last few menu items. That is why some options that may be frequently referenced are located near the bottom of the menu list.

Menu Availability

The menu is available for the Remote and Stand Alone modes. Press Select + Up Arrow to open the menu in either mode or press Space for Stand Alone mode only.

To exit the menu and return to the previous mode, press dot 7.

Menu Options

A few of the Menu options have a default setting (indicated in the list below). For most of these options, you can toggle back and forth between the default setting and the alternative by pressing the Right or Left Arrows and then pressing Select. Selected items are underlined with dots 7 8. Refer to the specific section for further information.

Battery Status
Sort (Name)
Split Words (Off)
Filter Dot 7 (On)
Wrapping Text (On)
Compress Spaces (On)
Version
Reset Defaults
Serial
Bluetooth (On)
USB (HID)
Emulate (Off)
Cursor Blink (1)

Battery Status

The Battery Status menu item displays the amount of power left in your battery. It also notes when the unit is charging.

Sort Files

The Sort menu item lets you change the order of the files on the SD card, using Orbit Reader's built-in File Manager. The categories are Name, Date, Size, and Last Read. The default setting for Sort is Name. To return to the File Manager, press dot 7 from Stand Alone mode.

In Remote mode, press Select + Up Arrow. This command takes you to the Menu. Down Arrow to the Sort Files list item.

If in the File Manager or the Reader, press Space to enter the Menu, then Down Arrow to Sort Files.
If in the Editor, exit out (Select, E OR Select, Select) and press Space to enter the Menu. Down Arrow to Sort Files.

Additionally, you may sort the files within the selected category in Ascending or Descending order. After selecting a category, press the Right or Left Arrows until you reach either Ascend or Descend in the list and press the Select button. Orbit Reader arranges the files in the indicated order. The default setting for this menu item is Ascending (A→Z).

Split Words

The default setting for Split Words is Off. In the default setting, the Reader tries to put as much content on the display as possible without splitting a word; however, if you want 20 cells of braille, no matter the content, set Split Words to On. When Split Words is on, the Reader can show partial words. When you pan to the next 20 cells of braille, the remainder of that word appears at the beginning of the line.

Filter Dot 7

The default setting for Filter Dot 7 is On. The Filter Dot 7 menu item lets you turn off the dot 7 that frequently appears in some BRL and BRF files. The dot 7 is filtered by default, but if you wish to write eight-dot braille, turn this setting off.

Wrapping Text

The default setting for Wrapping is On. The Wrapping option is Orbit Reader's way of reflowing files that are already formatted for embossing. Normally, formatted files contain line-end indicators every 38-40 characters, which starts a new line. This option eliminates extra spaces, making it easier to read on a 20-cell display.

Compress Spaces

Carriage returns, blank lines, and tabs represent extra spaces (or white space) in a document. These spaces take up lots of room and therefore slow down reading on a braille display. The Compress Spaces option eliminates blank lines and spaces. This setting is especially useful when reading formatted text files that may contain many blank lines.

When there are multiple spaces, Orbit Reader can filter them so that only one space is shown at most by default. The default setting for Compress Spaces is On.

Software Version

The Version menu item displays the version of the software running on your device.

Reset Defaults

The Reset Defaults menu item resets all user settings to the factory settings. To reset to default settings, press the Select button. This action resets defaults and takes you to the top of the Menu Options list (Battery Status).

Device Serial Number

The Serial Number menu item shows the individualized serial number of the device you are using. This number may be important for warranty purposes.

Set Bluetooth

The default setting for Bluetooth is On. If the Orbit Reader is paired to a Bluetooth device, it automatically connects to it again when the Orbit Reader is next powered on.

Set USB Protocol

The USB menu item selects between the two possible USB protocols: Human Interface Device (HID) or Serial. The default setting for USB is HID.

Set Pairing Scheme for Bluetooth

The Pair menu item selects a Bluetooth pairing scheme. Orbit Reader uses the selected scheme when it responds to a Bluetooth pairing request from a host device.
The appropriate scheme to select depends on your needs.

The three choices are:

1. Just Works
2. Pass Key
3. Confirm Code

- Just Works is the easiest scheme to use. When using this scheme, Orbit Reader automatically pairs to any device that sends the pair request. The Just Works Bluetooth pairing scheme is the default.
- Pass Key requires you to type a number on the host to confirm the pair request. The number Orbit Reader uses is 1234. When you initiate the request to pair with Orbit Reader, the host device shows an edit box where you enter this number to successfully pair the two devices. This scheme is somewhat more secure than Just Works, because the person requesting the pairing must know the Pass Key number.
- Confirm Code is the most secure pairing scheme. With this scheme, Orbit Reader responds to pairing requests by showing a random number on both the Orbit Reader's braille display and on the host device. To confirm the request, ensure the numbers match and press Orbit Reader's Select button.

Set Cursor Behaviour

The Cursor Blink option only works when editing in the Edit Box or Editor mode. The options are determined by the number of seconds between blinks. The default setting for the Cursor Blink option is 1, which is one second between blinks. The setting choices are 1, 5, 15, 30, and 60 seconds, and 0, which sets the cursor to not blink.

2. File Manager

Orbit Reader stores the titles you read on an SD card. Therefore, when using it as a Reader, an SD card containing the content to read must be inserted. No SD card is required when using the device in Remote Mode.

File Manager Commands

The commands for managing files and folders are essentially the same. For example, you can use Space + R to rename either a file or a folder; however, some commands do not apply to both. Be sure to reference the File Manager Commands Table if you are unsure of the appropriate command.

To...	Press	Here's why and/or additional information
Open a file or folder	dot 8	Pressing Select or dot 8 opens the file or folder.
Exit a file or folder	dot 7	Pressing dot 7 in a file or folder backs up one file or folder respectively. When in root folder, dot 7 does nothing.
Go to previous or next file or folder	Up or Down Arrow	Pressing Up or Down Arrow moves to the previous or next file in the list.
Go back one folder	dot 7	Dot 7 acts like a "back" key to exit the current activity. If the user is already in the File Manager, pressing dot 7 moves focus back one level. If you are at the root level, dot 7 does nothing. If you are in one of the columns of information, for example size or date, then pressing dot 7 returns to the filename.
Move through file information	Left or Right Arrow	This command moves you through the file information by headings. See More About Moving Through Files section for more information.
Open the Menu	Space	Pressing Space opens the menu.
Scroll text	Left or Right Panning buttons	If the file name is longer than the display, panning left or right displays more of the file name.
Make a New File	Space + N (dots 1 3 4 5)	The New File command starts the Editor mode with a new file in which to type.
Make a New Folder	Space + O (dots 1 3 5)	The New Folder command opens the Edit Box where you may type the name of the new folder.
Delete a file or folder	Space + D (dots 1 4	This action deletes the currently selected file(s) or folder(s). Only empty folders can be

	5)	deleted.
Rename a file or folder	Space + R (dots 1 2 3 5)	The Rename File command allows you to change the name of a file or folder. To use it, press the Rename command. Orbit Reader responds with an Edit Box containing the original file or folder name. Edit the name or type a new one and press dot 8.
Cut a file	Space + X (dots 1 3 4 6)	This action cuts the currently selected file(s) from their location and places it(them) on the clipboard to be used with the paste command.
Copy a file	Space + C (dots 1 4)	The Copy File command makes a copy of the currently selected file(s) and places it(them) on the clipboard to be used with the paste command.
Paste a file	Space + V (dots 1 2 3 6)	This action pastes the file(s) or folder(s) that are currently on the clipboard into the current location in the File Manager. If no file or folder is on the clipboard, no action is taken.
Mark a file	Space + M (dots 1 3 4)	When moving multiple files, use the Mark File command to mark each individual file before using Cut, Copy, or Delete. To Mark a file, arrow to it and press Space + M. To clear a marked file, press Space + M again. File Manager indicates marked files by raising dots 7 and 8 of the first letter of the file name.
Protect or unprotect a file	Space + P (dots 1 2 3 4)	To protect a file from accidental changes, arrow to the file and press Space + P. To remove the protected status, select the file and press Space + P again. To determine if a file is Protected, arrow Right or Left to the Protected heading.
Edit the current file	Space + E (dots 1 5)	When editing the current file, the Orbit Reader switches to an Edit mode, which is indicated by a cursor at the point of input. The cursor is at the first character shown on the display when you pressed the edit command. As you type, everything is saved to the file.

Go to Last Edit File	Space + dots 1 2 4 6	Using this command reopens the last file you edited and returns the cursor to its last position in that file. The Edit Last File command is useful for taking notes on what you read. Use the command to quickly switch back to the Editor. Then close the Editor to return to the title you are reading. This command has no effect if you are already editing a file.

More About Moving Through Files

When moving through the list of files, Orbit Reader shows the first 20 characters of the file name. The user may scroll to the rest of the information about the file, such as the rest of a long file name, its size, and date, by using the Panning keys to move the display window through the rest of the contents on that line of the list of file names.

Each item on the file list includes the following items:

- File name and extension
- Current position in the file in number of characters
- Size in kb (kilobytes)
- Last modified date
- Protected or Unprotected

Pressing Left or Right Arrow moves to the previous or next column heading (file information). If on Position when entering the file, upon exiting the file the File Manager returns the user to the Position information.

File Movement Commands

To…	Press	Here's why and/or additional information
Move to first file	Press Space + dots 1 2 3	Pressing Space + dots 1 2 3 moves the File Manager selection to the first file in the current folder.
Move to last file	Press Space + dots 4 5 6	Pressing Space + dots 4 5 6 moves the File Manager selection to the last file in the current folder.
Incrementally	Type the	To find a file, quickly type the first few

| search file list | file name quickly | letters of the file's name. File Manager highlights the first file matching the letters you typed. |

File Errors

When copying or pasting a file that results in another file with the same name, File Manager adds an extension to indicate the new file is a copy. For example: if you copy book.brf to a folder that already contains book.brf, the new file becomes book1.brf and the original book.brf remains unchanged.

If the SD card runs out of space before a file operation completes, File Manager shows, "Error copying file xxx" where xxx is the file's name.

File Progress

When copying large numbers of files, or large files that can take some time, File Manager displays progress messages during the copy operation.

If copying a file that takes more than five seconds, File Manager displays, "Copying xxx (yy%)" where xxx is the name of the file and yy is the percentage complete. This percentage is updated at least every 10% of the progress.

File Types

Braille files may contain any kind of braille, either six- or eight-dot, in any language and for any topic. You create these files on a computer with a translation software package, such as Duxbury or LibLouis, or you create them in the Editor on the Orbit Reader.

Supported File Types

EXT	Type	Explanation
BRF	Translated, formatted braille	displays exact representation
BRL	Translated, unformatted braille	displays all text
TXT	Text	displays eight-dot Computer Braille

In addition to the supported file types, Orbit Reader shows the contents of any file. Be aware that some files do not contain readable content. This

feature is useful, however, to examine files that do contain readable text even if it is not a supported file type.

Orbit Reader does not translate or interpret any file. It simply displays the contents of a file in braille. So, if you put a plain text file onto the SD card, Orbit Reader displays that file as it was written. Similarly, if you put a BRF file on the SD card, no matter the language or code, Orbit Reader accurately shows its contents. To use Word or PDF files, you must first translate them on a desktop computer, then send the translated file to the SD card.

Preparing Files

To prepare files for placement on the Orbit Reader, follow these guidelines:

- Determine the translation type
- Translate the file
- Place the file onto the SD card or use Mass Storage Mode to copy from your desktop computer

To copy files to the SD card, remove the card from the Orbit Reader and place into a card reader on your computer, or connect the USB cable from the Orbit Reader to your Computer and activate Mass Storage Mode on the Orbit Reader by either pressing Space + dots 5 7 or selecting Mass Storage Mode from the USB option in the menu. When in Mass Storage Mode, Orbit Reader shows up as a drive on the computer. While in Mass Storage Mode, you cannot use other functions on the Orbit Reader.

3. Reader

The Orbit Reader 20 is designed to be a stand-alone reader. Placing BRF, BRL, or TXT content (see [File Types](#) section) on an inserted SD card turns it into an on-the-go braille book reader. When first powered on, the Orbit Reader displays the contents of the first file on the SD card. To get to the file list, press dot 7. Once a file is selected (Up or Down Arrow and dot 8), the file opens and can be easily read using the Left and Right Panning keys. There are many other functions in reading mode such as Find, Power Move, Bookmarks, and even a menu to set preferences. The following sections describe commands and settings that can be used while reading.

Note: In Stand Alone mode, the Orbit Reader displays the content of files stored on an SD card. It does not do any translation or interpretation.

When you turn the device on, Orbit Reader resumes from the last place of the last file in use. For first-time use, it displays the first file or folder on the SD card. Press dot 7 to close the file and display the File Manager, which

shows a list of the files on the SD card. Press Select or dot 8 to open a file or folder. If there is no SD card inserted, "No SD card" is displayed.

When you reach the end of a file, "End of file" is displayed by the Reader. Similarly, if you are at the beginning of the file, "Start of file" is displayed.

Reader Commands

While in Stand Alone mode, the following commands are available.

To...	Press	Here's why and/or additional information
Go to Previous or Next display	use the Panning buttons	See Panning Keys section for more information.
Go to Previous or Next Character	press Left or Right Arrows	If the user presses Right Arrow, the next letter appears on the right side of the display. To conform to traditional braille display navigation commands, the Reader also supports Space + dot 3 and Space + dot 6.
Go to Previous or Next Word	press Space + Left or Right Arrows	If the user presses Space + Right Arrow, the next word appears on the right side of the display. The Reader also supports Space + dot 2 or 5.
Go to Previous or Next Paragraph	press Up or Down Arrows	Pressing the Previous or Next Paragraph command moves to the previous or next carriage return in the file. Also works with Space + dot 1 or 4.
Go to Start of paragraph	Space + dot 7 + Left Arrow	To place your cursor at the start of a paragraph, press the Space + dot 7 + Left Arrow.
Go to End of the Paragraph	Space + dot 7 + Right Arrow	To place your cursor at the end of a paragraph, press the Space + dot 7 + Right Arrow.
Go to Previous	press dot 3	Pressing dot 3 or dot 6 moves back or

or Next Page	or dot 6	forward in the file to the next page marker (form feed) or 1000 characters, whichever comes first.
Go to Top or Bottom of a file	press dot 1 or dot 4	Pressing dot 1 moves to the top of a file; pressing dot 4 moves to the bottom of a file. (For compatibility with other devices, Space + dots 1 2 3 moves to the top and Space + dots 4 5 6 moves to the bottom of a file.)
Exit File or Menu	press dot 7	If reading a file, pressing dot 7 returns you to the File Manager. If exiting the Menu, Orbit Reader returns you to your previous location.
Open the Menu	press Space bar	Pressing the Space bar opens the Menu.
Set or Clear a Bookmark	press Space + M	In addition to the automatic bookmark placed when you close a file, Orbit Reader lets you set additional bookmarks. Reader displays the message "Bookmark added" or "Bookmark cleared" if there was already a bookmark at that position.
Go to Previous or Next Bookmark	press dot 2 or dot 5	The Reader responds by moving the cursor to the bookmarked position. The bookmarked location appears as the first character on the display. If there are no marks in the indicated direction, "No more bookmarks" is displayed.
Power Move/Search Forward and/or Back	press dots 8 2 or dots 8 5	See Power Move Forward and Back section for more information.
Find Braille	press Space + F (dots 1 2 4)	Pressing Space + F opens a blank input field (Edit Box) with a cursor. This allows the user to perform a search in a specific braille format by typing the text in the same braille format. See Edit Box and Find Braille sections for more information.

Find Braille (Previous or Next)	press dots 8 3 or dots 8 6	Pressing dots 8 3 repeats a previous search backwards from the point in the file where you are. Pressing dots 8 6 searches forward again. If there is no text in the Find Edit buffer, the Reader uses the text at the cursor. For more about finding text, see [Find Braille](#) section for more information.
Edit Last File	Press Space + dots 1 2 4 6	Opens the editor on the last file you had edited.

Power Move Forward and Back

Orbit Reader's power move commands provide a quick means of moving/searching through large sections of a file to find a known location in the document. A power move operates by using boundaries and moving 50% between them with each press of the key command. In essence, by using a power move to search within a file, you are drilling down to the information using a binary command. When you press dots 8 2 or dots 8 5, the Reader moves in the following ways:

On the first press, the cursor moves half way between the current position and the start (dots 8 2) or end (dots 8 5) of the file, which act as the boundaries for the power search.

Subsequent presses treat the moved-from position as the new boundary in that direction. So, if you are at the beginning of the file (or 0%) when you press the dots 8 5, the Reader moves the cursor to half way between 0% and 100%. You are now at 50%, and it becomes one of the boundaries. The initial boundary is at the original position of 0%. Therefore, if you press dots 8 2, you move half way between 50% and 0% to end at 25%. Or, if you press the dots 8 5, you move half way between 50% and 100% to end at 75%.

Each time you press contiguous dots 8 2 or dots 8 5 keys, the Reader shows the percentage in the first few cells of the display line and fills the rest with the text at that position. This continues until you press something other than dots 8 2 or 8 5 or a Panning key. See [Panning Keys](#) section for more information.

Find Braille

To find specific braille text, use the Find command (Space + F). Orbit Reader responds by opening a blank input field (see Edit Box section) with a cursor, which is indicated by dots 7 and 8. Unlike the Power Move (see this section), which searches by known location of text, the Find command searches the entire file for instances of the braille text you enter in the input field. If you had searched for something previously, that text appears in the Edit Box with your cursor at the end.

To perform a search, type the braille text you wish to find, then press dots 8 to start the search. To search forward, towards the end of the file, press dots 8 6. To search backward, towards the beginning of the file, press dots 8 3.

If you are searching for text in a contracted braille file, you must type the text you want to search for in contracted braille.

If you are searching in a plain text file, you must type the text you want to search for in Computer Braille. See Appendix C - Computer Braille Chart for the Computer Braille Chart.

The Reader accepts search terms up to 255 characters long. Searches are generally not case sensitive. A search for the word "animal" results in finding both lowercase and uppercase versions of that word (animal/Animal); however, if you want to find words with upper case letters specifically, type the text you wish to find *with* the capitalization included. For example, a search for the capitalized word "Animal" gives the results for "Animal" (capitalized), but not "animal" (lowercase).

Additionally, searches match both whole and partial words. Searching for "an" finds "an" (whole) and "man" (partial). To restrict searches to whole words, add a space at the beginning and end of the word. The Reader matches the space with any non-printing character such as spaces, tabs, and line feeds.

Read the section on Edit Box for editing commands and navigation functionality.

When you search files, the Reader moves the file reading position to the next occurrence of the searched for text and displays it at the beginning of the display line. If it cannot find the text, the Orbit Reader displays "Not found" and leaves your file reading position where it was before the search. If searching through a larger document, the Orbit Reader displays "Busy" while conducting the search.

To repeat a search moving forward toward the end of the file, press dots 8 6.

To repeat the search moving back toward the beginning of the file, press dots 8 3.

Edit Box

Orbit Reader presents a text dialog or input field called an Edit Box in some instances. These instances include finding text and renaming a file. The Edit Box permits only one line of text.

To open an Edit Box, press Space + F to begin a search or press Space + R to rename a file. Once in the Edit Box, insert text by typing the desired braille text and then use the Edit Box commands to navigate. The Edit Box displays a blinking cursor (dots 7 8) to indicate where you input the text you are searching for or editing.

When Orbit Reader shows an edit box, it often provides default text, such as a file name or a previously entered search term. This text is selected (as indicated by the dot 7 8 combination added to each letter.) To remove the selected text, type a letter or press the Backspace key. To edit the existing text, press one of the arrow keys to remove the selection.

Edit Box Commands

To...	Press	Here's why and/or additional information
Move Left or Right One Letter	Left or Right Arrow	Pressing the letter movement commands moves the cursor in the indicated direction. When the cursor reaches the end of the edit box, it stops-- it can move no further.
Backspace	dot 7	The Backspace key dot 7, deletes the letter immediately left of the cursor. Use Backspace when you make a typing mistake or to remove small amounts of text.
Accept typed text	dot 8	In this instance, pressing dot 8 acts as an Enter/OK key.
Close the Edit Box	Select	To close the edit box, use the Close command. In single line controls, Close throws away what you typed. In multiple line controls, all text is automatically saved.

4. Editor

In addition to serving as a tool for reading braille, Orbit Reader offers the ability to write and edit text.

This feature allows you to create/edit new or existing files on the SD card.

While you are in the Editor mode, the cursor (dots 7 8) notes the current position. The default setting for the cursor is 1 second. The blinking of the cursor can be turned off from the Menu. See [Set Cursor Behaviour](#) section for more information.

Once you exit from the Editor mode (Select, E OR Select, Select), the cursor disappears, returning you to the Reader in the file you were editing.

If you are exiting from a new file, the editor automatically names the file with the first 20 characters in the file. If a file already exists with that name, the Editor appends a number to it until it produces a unique name. To rename a file or to add an extension to the file name, highlight the file name in File Manager, and use the Rename command. If there are Computer Braille characters that cannot be used in a filename, such as a forward slash (/) or an asterisk (*), the characters are replaced with an underscore (_). Once you exit, the new file name in the File Manager is selected. If you wish to rename the file, use the rename command (Space + R). If you want to give the file a specific name, write that name as the first line in the file.

To insert text, type or paste the text at the cursor. The Editor adds the typed or pasted text until it reaches the edit size limit, which is approximately 50,000 characters or about 50K of space. You can insert any text into an open file using the Braille keys (dot 1 to dot 6).

There are three ways to edit a file. Each of these three commands is available both from the Reader and the File Manager.

1. Create New File: Space + N
2. Edit current file: Space + E
3. Switch to last edited file: Space + dots 1 2 4 6

Context Menu

The Context menu is how you control the Editor. It allows you to find text, set marks, or exit.

Press Select to open the Context menu. There are two ways to make a selection from the Context menu after it is open.

1. If you know the braille short cut for the command (the braille letter associated with the function), press that letter.
2. If you do not know the braille short cut, press the Up or Down Arrow key to scroll to your selection and press Select.

Function	Braille Short Cut
Exit	E
Mark	M
Copy	C
Paste	V
Cut	X

You can also press Select twice to quickly exit the Editor. The first press opens the Context menu; the next press selects the first option, Exit, in the menu.

Editor Commands

To …	Press	Here's why and/or additional information
Add a new line (Enter)	dot 8	Pressing dot 8 adds a new line (enters a carriage return) at the end of a paragraph and places the editing cursor in the first cell of the next paragraph.
Delete a character	dot 7	Pressing dot 7 deletes the character to the left of the editing cursor.
Exit Editor	Select, E OR Select, Select	When you close a file, Editor saves and returns back to the Reader or File Manager, depending on your starting location. It automatically saves your work. If you opened the file from File Manager, File Manager makes the new file the current item in the list. If you edited an existing file, Reader moves the reading position to the place where the cursor was.

Editor Navigation Commands

To ...	Press	Here's why and/or additional information
Go to next or previous character	Left or Right Arrow	Pressing Left or Right Arrow moves the cursor to the previous or next character.
Go to next or previous word	Space + Left or Right Arrow	Pressing Space + Left or Right Arrow moves the cursor to the start of the previous or next grouping of letters and digits.
Previous or next display	Pan up or down	Pressing up or down on the Panning rocker keys allows you to move to the previous or next display of braille. If you press the bottom part of the rocker key, the display pans forward. If you press the top of the rocker key, the display pans backward. The editing cursor is placed at the first cell. See Panning Keys section for more information.
Previous or next paragraph	Up or Down Arrow	Pressing the Up or Down Arrow moves the editing cursor to the start of the previous or next paragraph. If the start of the previous or next paragraph is not on the display the display pans the start of the previous or next paragraph to the first cell on the display. The editing cursor is placed at the first cell.
Start or end of paragraph	Space + dot 7 + Left or Right Arrow	Pressing Space + dot 7 + Left or Right Arrow moves the cursor to the start or end of the current paragraph. If the start or end is not on the current display the display pans the start or end to the first cell of the display. The editing cursor is placed at the first cell.
Previous or next page	Space + dot 7 + Up or Down Arrow	Pressing Space + dot 7 + Up or Down Arrow moves the cursor to the previous or next page. If the first character of the previous or next page is not on the current display the display pans the first character of the previous or next page so that it is located in the first cell with the editing cursor.

	Long	
Go to top or end of document	press Up or Down Arrow	Long pressing Up or Down Arrow moves the cursor to the top or bottom of the document.

Editor Block Text Commands

The Editor block operations depend on a selection. The selection is the text between the cursor and the mark.

To ...	Press	Here's why and/or additional information
Set or clear Mark	Select, M	The editor indicates a mark by raising both dots 7 and 8 on the character where the mark occurs. To set or clear a mark in the file, press the Mark command. If there was already a mark at the cursor, the editor shows "Mark cleared" on the display and removes the mark. If there was not a mark, it shows "Mark set" and adds a mark.
Copy	Select, C	The copy command places the selected text onto the clipboard for later use in this or another file.
Paste	Select, V	To paste the contents of the clipboard before the cursor, use the Paste command.
Cut	Select, X	To remove the selected text from the document and place it onto the clipboard, use the Cut command. If you want to put that text somewhere else, move to the desired position, then use the Paste command.

Remote Device Operational Mode

In addition to using Orbit Reader as a portable reading tool and editor, it connects with host devices (i.e., computers, phones, and tablets) to provide braille input and output to that device. The host device must be running software that supports braille.

- For Windows PCs - JAWS®, Window-Eyes, System Access, and NVDA
- For Mac® computers and iOS® devices - VoiceOver
- For Android devices - BrailleBack and TalkBack

When you use Orbit Reader as a display for other hosts, the screen reader on that host device provides the translation and other braille settings. Consult the documentation for your screen reader.

The only hotkeys used with Remote mode that are not sent to the remote device are:

- Pressing Select + Up Arrow opens the Orbit Reader Menus.
- Pressing Select + Left Arrow returns Orbit Reader to Stand Alone mode.
- Pressing Select + Right Arrow returns Orbit Reader to Remote mode.
- Pressing Select + Down Arrow brings up an Edit box where you can type and submit up to 255 characters of text to the remote device. Press dot 8 to send the text and exit the Edit Box.

Bluetooth Connectivity

Command	Keys
Connect via Bluetooth	Space + dots 4 7

Bluetooth is a wireless connection method supported by many devices to allow a similar setup between different kinds of devices including braille displays. In Orbit Reader's default configuration, when the user turns on the device, it is ready to pair or to connect via Bluetooth, if it has already been paired with a host.

If the Orbit Reader is already connected with the USB cable that came with the unit, Orbit Reader uses the connection to the host as the braille interface. This connection also charges the battery and provides a file transfer mechanism.

If the device is paired with a Bluetooth host, and that host is running access software connected to the Orbit Reader, it switches from the USB connection (if one existed) and makes the Bluetooth interface active.

If there is no access software requesting services via the Bluetooth or USB connection, or the user switches to Stand Alone mode, Orbit Reader returns to the last location in Stand Alone mode.

The Orbit Reader has a low-power standby or sleep mode that activates after 10 minutes of no activity. When connected by Bluetooth, Orbit Reader goes into standby mode after 10 minutes and continues to try to reconnect for 1

hour. If the connection is not reestablished after an hour, Orbit Reader powers off.

If you wish to turn the Bluetooth option on or off, open the Menu by pressing Space in Stand Alone mode, or Select + Up button in Remote mode. Once in the Menu, Up or Down Arrow to the Bluetooth option. To toggle the option, press the Right or Left Arrow buttons and then press the Select button. Selected items are underlined with dots 7 and 8.

The only reason to turn the Bluetooth option off is to conserve power when the device is not going to be used to connect to other devices.

The hot key to quickly switch to Bluetooth when the Orbit Reader is connected using the supplied USB cable is Space + dots 4 7. The default is to switch to Bluetooth automatically, but if you choose to switch to USB, the hot key can be used to switch back.

Consult the documentation for the screen reader of choice for details about host connection instructions and which commands to use for that screen reader.

USB Connectivity

Command	Keys
Connect via HID	Space + dots 2 7
Connect via Serial	Space + dots 3 7
Transfer files	Space + dots 5 7

Orbit Reader comes with a USB cable. When connecting with the cable, insert the small end into the Orbit Reader with the bumps facing down, and insert the large end into the remote device. When connected, the Orbit Reader communicates using three possible protocols: Serial, HID. or Mass Storage. When connected to either a computer or wall plug, the Orbit Reader is charged, which makes USB a good way to connect when the battery is low.

In default configuration, if the USB is connected to the remote device, and it also has a Bluetooth connection with another device, the Orbit Reader switches to the Bluetooth connection. To keep this from happening, Bluetooth can be turned off from the Menu or you can switch back to USB mode by pressing one of the hot keys.

Consult the documentation for the screen reader of choice for details about which protocol (Serial or HID) and commands to use for that screen reader.

iOS Devices (Version 10.0 or later) SB Connectivity

Connecting Orbit Reader to an iOS device provides both braille feedback and the ability to type and control the device with the Orbit Reader keyboard and directional buttons.

In default configuration, the Orbit Reader is ready to pair with iOS with Bluetooth. If Bluetooth has been turned off, it can be turned on in the Menu or by pressing Space + dots 4 7 on the Orbit Reader.

Next, on the iOS device go to Settings>General>Accessibility>VoiceOver>Braille and look for the name of the unit in the list of possible braille displays. It shows up as Orbit Reader plus the last four digits of the serial number.

Activate the Orbit Reader 20 device in the list to initiate pairing. iOS shows you a dialog with a security code to confirm you want to pair with the Orbit Reader. Check to make sure that the security code on the display matches the code in the iOS security dialog. If the codes match, confirm this in the dialog on the iOS device.

Once you pair the unit, iOS should start sending braille to the Orbit Reader, and you can use the Orbit Reader input and navigation keys to control your iOS device.

iOS Commands

iOS Navigation Commands	
Function	**Keys**
Move to previous item	Space + dot 1
Move to next item	Space + dot 4
Pan braille left	Space + dot 2
Pan braille right	Space + dot 5
Move to the first element	Space + dots 1 2 3
Move to the last element	Space + dots 4 5 6
Scroll right one page	Space + dots 1 3 5
Scroll left one page	Space + dots 2 4 6
Move to the status bar	Space + S (dots 2 3 4)
Select previous rotor setting	Space + dots 2 3
Select next rotor setting	Space + dots 5 6
Move to previous item using rotor setting	Space + dot 3
Move to next item using rotor setting	Space + dot 6
Launch the Task Switcher	Space + dots 1 2 5 twice quickly
Scroll up one page	Space + dots 3 4 5 6
Scroll down one page	Space + dots 1 4 5 6
Go to Notification Center	Space + dots 4 6
Go to Control Center	Space + dots 2 5

iOS Reading Commands	
Function	**Keys**
Read all starting at selected item	Space + R

Read all, starting from the top	Space + dots 2 4 5 6
Pause or continue speech	Space + P
Announce page number or rows displayed	Space + dots 3 4

iOS General Commands	
Function	**Keys**
Activate the Back button if present	Space + B (dots 1 2)
Activate the Delete key	Space + dot 7 or D
Activate the Return key	Space + E or dot 8
Switch between contracted and uncontracted braille	Space + dots 1 2 4 5
Activate the Home button (twice quickly to launch the task switcher)	Space + H (dots 1 2 5)
Toggle speech on and off	Space + M
Activate the Tab key	Space + T (dots 2 3 4 5)
Select text	Space + dots 3 5 6
Unselect text	Space + dots 2 3 6
Volume up	Space + dots 3 4 5
Volume down	Space + dots 1 2 6
Toggle screen curtain on/off	Space + dots 1 2 3 4 5 6
Select all	Space + dots 2 3 5 6
Cut	Space + X
Copy	Space + C
Paste	Space + V

Undo typing	Space + dots 1 3 5 6
Redo typing	Space + dots 2 3 4 6
Activate Eject key	Space + dots 1 4 6
Toggle announcement history	Space + dots 1 3 4 5

iOS iPad Commands	
Function	**Keys**
Move to previous container	Space + dots 1 7
Move to next container	Space + dots 4 7

Mac Computers

When connecting Orbit Reader to a Mac, there are two possible methods. One is to connect using the USB cable that came in the box. The second is to use Bluetooth for a wireless connection.

Connecting Mac with USB

The simplest way to connect the Orbit Reader to a Mac is to connect using a USB Standard-A to Micro-B cable. First, switch Orbit Reader to Serial mode by picking Serial in the USB option in the menu. Next, run VoiceOver by pressing the Apple CMD key + F5. Then, attach the small end of the USB cable to Orbit Reader 20 with the bumps facing down and the big end to the Mac. VoiceOver automatically recognizes and starts using the display.

Connecting Mac with Bluetooth

In default configuration, the Orbit Reader is ready to pair with Mac through Bluetooth. If Bluetooth has been turned off, it can be turned on in the Menu or by pressing Space + dots 4 7 on the Orbit Reader.

To pair Orbit Reader with a Mac:

1. When VoiceOver is on, open VoiceOver Utility by pressing VO-F8.
2. Click the Braille category, click Displays, and then click the Add (+) button.

3. Select Orbit Reader in the list. VoiceOver filters the devices it detects to list only the Bluetooth braille displays that are within range of your computer and that appear to match a VoiceOver braille display driver.
4. Click the Orbit Reader device in the list to initiate pairing. Mac shows you a dialog with a security code to confirm you want to pair with the Orbit Reader 20.
5. Check that the security code on the Orbit Reader display matches the code shown in the Mac security dialog. If the codes match, confirm this in the dialog on the Mac.

If the Orbit Reader does not work with VoiceOver, it is likely that you are not using the latest Mac OS. Check for updates.

Controlling Orbit Reader from Mac

To control how VoiceOver treats the display, follow these steps:

1. Open the VoiceOver Utility by pressing Command + F8 while VoiceOver is running.
2. Scroll down to the Braille option.
3. Select the Braille Display tab.

To turn on contracted braille, check the Contracted Braille box.

For the Mac documentation on connecting and using braille displays, see Apple's [VoiceOver Info Guide](#).

Android Devices

In default configuration, the Orbit Reader is ready to pair with Android with Bluetooth.

Step 1: Turn on Bluetooth.
If Bluetooth has been turned off, it can be turned on in the Menu or by pressing Space + dots 7 4.

Step 2: Turn on the Android device.
To use the display with Android, turn it on before you unlock the phone. Android and BrailleBack make a connection sound to indicate successful communication.

Step 3: Check for support.
Step 4: Switch to emulation mode if necessary.
Step 5: Set up Android device.

To set up your Android device, follow the [Install and enable BrailleBack](#) instructions found on the Google™ Android Accessibility Help webpage.

Input and Output Text With BrailleBack

To input text with your braille keyboard, first enable the keyboard in your Android settings under Language and Input. If you try to use the keyboard before completing this step, you receive a prompt to change your settings.

To edit a text field, focus and activate the text field. You can then use the Up and Down Arrow keys to move in the text field. When editing text, BrailleBack switches to 8-dot braille known as Computer Braille. (See [Braille Cells](#) section for more information.) Currently, BrailleBack does not support any other braille as input.

By default, Android is set to display English Computer Braille.

To set BrailleBack to display English (UEB) - grade 2 braille, follow the steps below:

1. Press H to open the Home screen.
2. Arrow to, and select Apps>Settings>Accessibility>BrailleBack>Settings.
3. Arrow through this screen of items to "Braille type" and select.
   - Android generates a dialog screen which indicates the type of braille being displayed and provides two choices: Literary braille or Computer Braille.
   - Computer Braille is checked by default.
4. Arrow to "Literary braille" and select to check this item.
   - When you check "Literary braille," you are returned to the BrailleBack Settings screen.
5. Arrow to "Literary braille table" and select.
   - Another dialog screen opens with a selection of output translation tables.
6. Select English (UEB) - grade 2.
   - You are returned to the BrailleBack Settings screen.

BrailleBack Commands

Function	Keys
Back	Space + B
Home	Space + H
BrailleBack help	Space + dots 1 2 3
Notifications	Space + N
Recent Apps	Space + R
Enter (in Edit field)	Space + dot 8
Backspace (in Edit field)	Space + dot 7

Windows PCs

Before connecting Orbit Reader with a PC, you must first decide how you wish to connect: Bluetooth or USB. This is a personal preference. USB charges the device as you use it, so it is a good choice when your battery is low. Bluetooth does not use wires, so it is a good choice when you are on the go.

Connecting Windows with USB

Normally, modern screen readers support the HID protocol, which means you do not have to install any drivers to use Orbit Reader with a PC screen reader. If your screen reader does not support HID, switch to Serial mode on the Orbit Reader with the hot key or selecting Serial from the USB option in the menu.

For Windows versions 7 and up, the serial interface requires the installation of two drivers: one for the USB and one to make the USB port appear like a COM port. The only exception is Windows XP. Because it is Serial only, it can just be plugged in. The second driver is required because many screen reading programs handle braille displays like a serial device. The COM port assignment driver shows the assigned port number used to communicate with the display. Take a note of the COM port number now for later use. If you need to look it up at a later time, go to Device Manager while the display is connected and look in the section for Ports: COM and LPT. One of the COM ports is assigned to Orbit Reader 20. You need to use that number when you set up your screen reader.

Once the display is connected to the device you wish to use, configure the software to use Orbit Reader.

Connecting Windows with Bluetooth

When connecting the Orbit Reader with Bluetooth, follow these steps:

1. On the PC, perform a Bluetooth search.
2. Select the Orbit Reader from the list of Bluetooth devices.
3. Compare the code shown in the Bluetooth dialog on the Windows PC with the code shown on your display. If they are the same, press Yes. If the code does not match, select No and try the next Orbit Reader in the list. The purpose of this procedure is to allow for more than one Orbit Reader device to be paired in the same room at the same time without pairing the wrong device.

The device pairs with the Orbit Reader and an incoming Bluetooth virtual serial port is set up on the PC.

Next, check the Ports list in the Windows Device Manager to find the COM port number assigned to the incoming Bluetooth serial port. Make a note of this number.

In your screen reader on the PC, set the active Braille display COM port to use as the relevant Bluetooth serial port COM number.

NonVisual Desktop Access (NVDA) (Version 2016.3 or later)

If you have NVDA installed on your PC, it may automatically recognize the Orbit Reader, depending on the settings. If NVDA is not recognizing the display, go to the NVDA Preferences menu and select Braille Settings from the list. From the braille display drop-down menu, select "Baum/Humanware/APH/Orbit Displays" and click OK.

If Orbit Reader 20 is not one of the displays shown in the Braille Display list, upgrade NVDA to the newest version and repeat the process.

NVDA turns on braille output when it is configured for the display. To turn off braille support, select No Braille from the Braille Display options in the Braille Settings menu.

NVDA Commands

Function	Keys
Scroll braille display back	Space + dot 2
Scroll braille display forward	Space + dot 5
Move braille display to previous line	Space + dot 1
Move braille display to next line	Space + dot 3

For displays that have a joystick:

Function	Key
Up Arrow key	up
Down Arrow key	down
Left Arrow key	left
Right Arrow key	right
Enter key	select

JAWS

If you use the JAWS screen reader and it is already installed, the Orbit Reader setup program installs drivers to make the braille display and JAWS work together. If you have not already installed JAWS, install it first, then run the Orbit Reader setup program.

Start JAWS, and open its main screen. For JAWS versions 11 or later, select the Braille item in the Options menu. Select Orbit Reader 20 from the braille display list.

JAWS turns on braille output when you configure it for the display. To turn off braille support, select No Display from the Options/Braille menu.

Note: For a longer description of any of the following commands, turn JAWS keyboard Help on by pressing Insert + 1 and type the command. Quickly type the command twice to get an even longer description. Press Insert + 1 again to exit JAWS keyboard Help mode.

Jaws Commands

Jaws Reading Commands	
Function	**Key(s)**
Move display to the left	Left Arrow
Move display to the right	Right Arrow
Move display up one line	Up Arrow
Move display down one line	Down Arrow
Pan left one braille window	Left Advance Bar
Pan right one braille window	Right Advance Bar
Top of active window	Select + dots 1 2 3
Bottom of active window	Select + dots 4 5 6
Route braille to active cursor	R
Say current line	Space + dots 1 4
Say current word	Space + dots 2 5
Say current character	Space + dots 3 6

Jaws Navigation Commands	
Function	**Keys**
Previous document window	Space + dots 1 3
Next document window	Space + dots 4 6
Beginning of file	Space + dots 1 2 3
End of file	Space + dots 4 5 6
Page Up	Space + dots 1 2 3 4 5
Page Down	Space + dots 1 2 4 5 6
Home	Space + dots 1 2 3 4

End	Space + dots 1 4 5 6
Up Arrow	Space + dot 1
Down Arrow	Space + dot 4
Previous word	Space + dot 2
Next word	Space + dot 5
Previous character	Space + dot 3
Next character	Space + dot 6

Jaws Editing Commands	
Function	**Keys**
Backspace (acts as shift key when typing braille characters)	Space + dot 7
Enter	Space + dot 8
Tab	Space + dots 4 5
Shift + Tab	Space + dots 1 2
Delete current character	Space + D
Select all	Space + dots 1 8
Select to top of document	Space + dots 1 2 3 7 8
Select to bottom of document	Space + dots 4 5 6 7 8
Select previous page	Space + dots 1 2 3 4 5 7 8
Select next page	Space + dots 1 2 4 5 6 7 8
Select to beginning of line	Space + dots 1 2 3 4 7 8
Select to end of line	Space + dots 1 4 5 6 7 8

Select previous line	Space + dots 1 7 8
Select next line	Space + dots 4 7 8
Select previous word	Space + dots 2 7 8
Select next word	Space + dots 5 7 8
Select previous character	Space + dots 3 7 8
Select next character	Space + dots 6 7 8
Copy to clipboard	Space + dots 1 4 8
Cut to clipboard	Space + dots 1 3 4 6 8
Paste clipboard	Space + dots 1 2 3 6 8
Undo	Space + dots 1 3 5 6 8

Jaws Windows Commands	
Function	**Keys**
Start menu	Space + dots 1 3 4 7 8
Toggle menu bar	Space + M
Escape	Space + dots 1 3 5 6
Alt Tab	Space + T
Minimize all applications	Space + dots 1 4 5 7 8

Jaws General Commands	
Function	**Keys**
Toggle keyboard help	Space + dots 1 4 5 6
Toggle type keys mode	Space + dots 1 2 3 4 5 6
JAWS cursor	Select + J
PC cursor	Select + P
Route JAWS cursor to PC cursor	Select + dots 1 4

Say all to bottom	Space + dots 1 2 3 4 5 6 7 8
Toggle grade 2 translation	Space + G (dots 1 2 4 5)
Toggle grade 2 translation of current word	Select + W (dots 2 4 5 6)
Display last flash message	Select, F
JAWS find	Space + F
JAWS find next	Space + dots 2 5 7 8
JAWS find previous	Space + dots 2 5 7 8
Toggle active cursor follows braille	Select + dot 1
Toggle braille follows active cursor	Select + dot 4
Cycle through braille modes	Select + M
Display six-dot braille	Select + dots 2 3 5
Display eight-dot braille	Select + dots 2 3 6
Toggle cursor shape	Select + dots 1 4 6
Restrict braille cursor	Select + R
Toggle characters and attributes	Select + dots 1 6
Braille colour marking	Select + dots 1 4
Select attributes to be displayed	Select + dots 1 3
Set 8 characters per space	Space + dots 2 3 6
Set unlimited characters per space	Space + dots 1 3 6
Toggle 8/unlimited characters per space	Select + dots 1 3 4 6
Cycle table reading options	Select + T
Cycle table header options	Select + H
Graphics labeler	Select + G
Adjust braille options	Select + B

Adjust JAWS options	Select + dots 1 2 3 6
JAWS window	Space + J
Run JAWS Manager	Space + dots 2 3 7 8
List of links on page	Space + dots 2 3 5 6 7 8
Show current time	Space + dots 2 3 4 5 7 8
Show script file name	Select + dots 1 2 3 4 5
Quit JAWS	Space + dots 2 5 6 7 8

Jaws Special Key Commands	
Function	**Keys**
Ctrl + A - Ctrl + Z	dot 8 + any letter
F1 - F10	dot 7 + Computer Braille number 1 - 0 (0 = F10)
Ctrl + F1 - Ctrl + F10	dot 8 + Computer Braille number 1 - 0

System Access

To connect Orbit Reader 20 to System Access, the device must be connected by a Standard-A to Micro-B USB cable and set in HID protocol mode.

1. Press Space to open menu.
2. Arrow Down to the USB selection.
3. Arrow Right or Left to select HID.
4. Press select.
5. Press dot 7 to return to the last location.

Another way to quickly switch to HID mode is to use the short cut keys Space + dots 2 7.

After running System Access in HID mode, connect the USB cable and wait up to 30 seconds. System Access announces when Orbit Reader 20 is connected.

Window-Eyes

To connect to Window-Eyes using USB, the Orbit Reader USB protocol must be set to Serial. To set it to Serial, press Space to open the menu and arrow

down to USB. Once on the USB menu item, press the Right or Left Arrow keys to select Serial and then press Select. Pressing dot 7 exits the menu.

To select a display, open the Braille Display option in the Window-Eyes File menu. There is no driver for Window-Eyes for versions prior to 7.1; however, you may use Orbit Reader by selecting any Baum display with input keys. The Vario Connect and the Braille Connect are two that work. Select the display and set the COM port number established when connecting to a Windows PC.

Key Lock Command

The Key Lock command prevents accidental key presses. The command is to hold dots 7 8 for two seconds or more. Pressing and holding these same keys again unlocks the keys. You can also unlock the keys by turning the device off and back on again.

System Alerts

System alerts, such as "Battery low" are indicated by a periodic cycling of the eight dots in the last cell of the device. Any information in that cell is displayed again after the notification.

Alerts are seen by invoking the Menu or the Editor Context Menu. Pressing Select causes the next alert to appear, if there are any more. The alert is removed from the alert list once it has been displayed.

If no more alerts are in the list, the first Menu or Editor Context Menu item appears. Pressing dot 7 clears all pending alerts and puts you back at the first Menu or Editor Context Menu item.

If the alert message length is longer than 20 characters, the user can navigate through the message using the Panning buttons. If you are already in the Menu or Editor Context Menu when an alert happens, you can review the alert by pressing the Space key.

Reboot the Device

The unit can be rebooted by pressing the lower Right Panning key + dot 8. There is no indication of the reset event. The unit is in power off condition after reset and needs to be powered on before it can be used.

Device Upgrade Procedure

There are two parts to the upgrade: 1) downloading the software and 2) upgrading the Orbit Reader 20. Each part of the upgrade is explained in the following two sections of this document. Read each section carefully before proceeding.

Download the Software

To implement this release, you need a PC running Microsoft® Windows XP or later. Click on the Orbit Reader 20 firmware file to download the necessary software.

When download is complete, follow these steps:

1. Open the folder on your computer where the firmware file was downloaded.
2. Right click on the file and choose "Extract all" **OR** select the file by arrowing to it, press the application key and choose "Extract all" from the Context menu.
3. Follow the dialog steps to extract it to a folder of your choice.

When finished, your chosen folder should contain a folder named after the version of the release, for example, OR20_XX.XX.XX. Make a note of the location of this folder for use in the next section of this document.

Install the Software

The following are required to perform the upgrade to the Orbit Reader 20:

- Orbit Reader 20 Unit
- Standard-A to Micro-B USB cable
- A PC running Windows XP or later
- Orbit Reader 20 Upgrade Utility file found in the Orbit Reader 20 folder (see Download the Software section).
- Orbit Reader 20 release bin file found in the Orbit Reader 20 folder (see Download the Software section).

To upgrade the firmware, follow these steps:

1. Make sure the Orbit Reader is turned off.
2. Connect the Orbit Reader to the PC using the USB cable.
3. In the Release folder on your PC, run the Orbit Reader 20 Firmware Upgrade Utility. If you receive an error message, see Troubleshooting section. The utility shows message "Orbit Reader 20 is connected" in device status field. It also shows the message "Do you want to upgrade the device?" in the message field at the bottom of the dialog.

4. Press and hold down the Right Panning forward button + dot 5, then press and hold dot 8.
5. Release dot 8 first, then release the Right Panning button and dot 5. This switches the Orbit reader 20 into Upgrade mode. You should hear a tone on your PC.

6. The utility shows the device serial number and the software version of the device at top right corner of the window. If the serial number is blank, repeat steps 4 and 5.
7. Activate the Browse button found in the dialog.
8. Browse and select the firmware bin file from your PC. The file is in the folder you unzipped previously.
9. Once file is selected, the dialog shows the software version of the selected file.
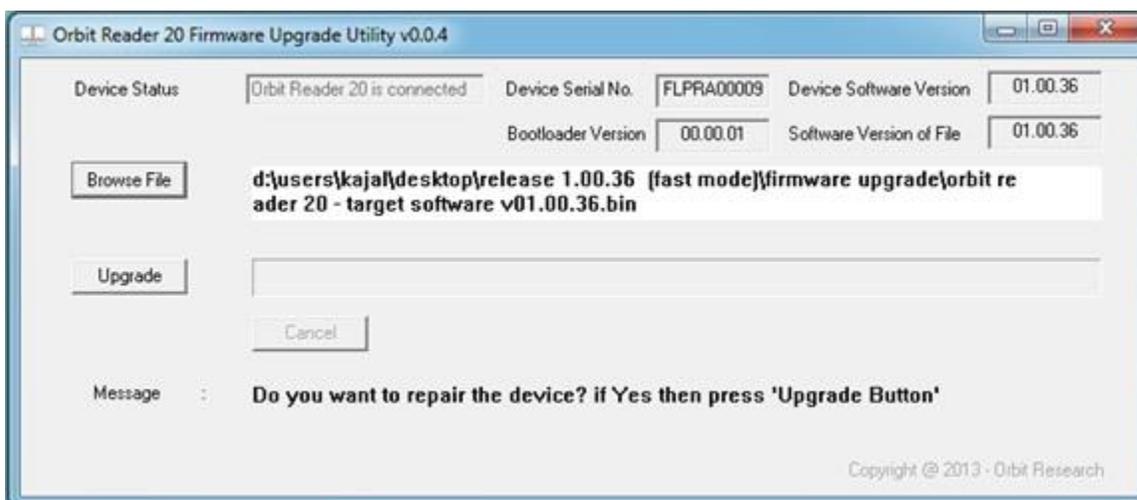
10. Activate the Upgrade button.
11. The utility starts upgrading the device.

12. Do not unplug the cable. Wait for the message "Device upgrade has been completed" on the upgrade utility or until the Orbit Reader reboots and shuts down.
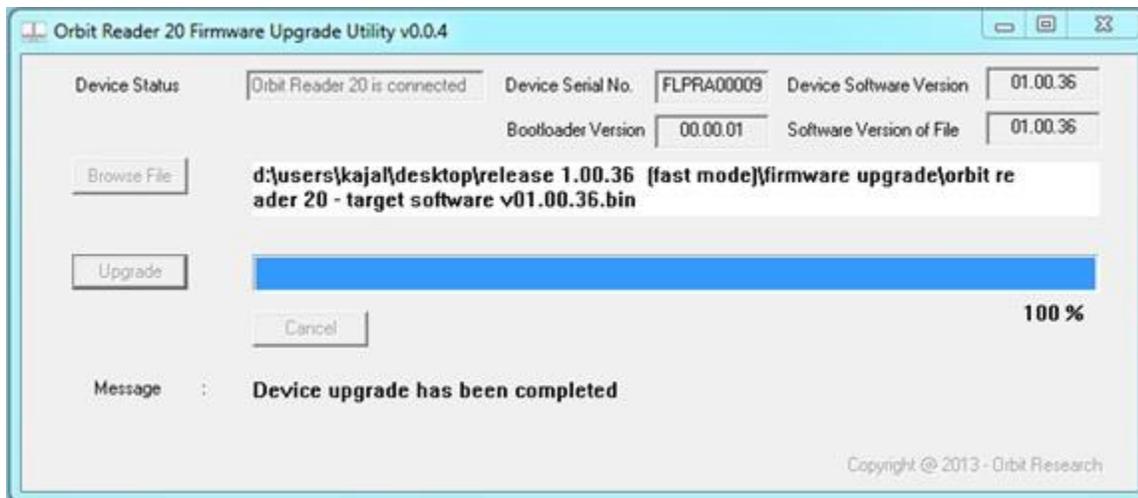
13. The Orbit Reader is upgraded. Turn on to start using the device.

To check for successful upgrade of the device, press Space to open the Orbit Reader Menu and arrow to "Version" in the list. The version number of the firmware release should match the number on the display.

Troubleshooting

If the upgrade utility shows the error message below, please download C++ Redistributable and install on the PC.

Error message: The application has failed to start because its side-by-side configuration is incorrect. Please see the application event log or use the command-line sxstrace.exe tool for more detail.

If Orbit Reader does not come on or seems to freeze, use these steps:

1. Plug in power to ensure the battery is charged. Use the supplied AC wall connector and cable to obtain the most reliable power source. Let the unit charge for at least a few hours.
2. Hold the Power Button for at least two seconds. If the unit is on, it should turn off. If it is off, it should come on.
3. Remove the SD card, then hold the Power button for two seconds. If the card was the cause of the problem, the unit should come on.
4. Unplug Power, then hold the Power Button for at least two seconds.
5. Hold the Power Button for at least 10 seconds.
6. Press the Reset command (press Space + dot 5 + Right Panning key). Try the Power button again.
7. Finally, remove the battery. Leave it out for a few minutes, reconnect it, then try the steps again.

Battery Use and Replacement

Orbit Reader includes a rechargeable Lithium-ion 2200mAh capacity battery. It fully charges in about three hours under optimal conditions. When you plug in the cable, "Battery plugged in" is briefly displayed. Once charged, "Battery charged" is displayed. A full battery charge lasts approximately three days of typical use. Check the battery level in the menu.

The battery in Orbit Reader should last several years. Gradually, the battery begins holding its charge for less and less time. When the amount of time the battery holds a charge becomes inconvenient, it is time for replacement.

To replace the battery, follow these steps:

1. Obtain a replacement battery. Use only the battery designed for Orbit Reader 20.
2. Remove the battery door screws.
3. Remove the battery door.
4. Carefully unplug the connector. Do not pull on the wire. Use the connector instead.
5. Insert the new battery.
6. Replace the cover and screws.

Accessories Information

Orbit Reader 20 has two holes on the lower-back corners of the device, one on each corner. The holes are there to provide a means to attach a strap to the device with the use of key rings. The key rings can be 10-40mm in diameter and up to 3mm in thickness. The strap and key rings are **not included** with the purchase of the Orbit Reader 20.

General Specifications

Dimensions (WxHxD)	6.61 x 1.4 x 4.41 inch (168 x 3.56 x 112 cm)
Weight	0.99 lbs (450 grams)
Braille Cells	20 eight-dot refreshable braille cells; Refresh rate < 1 sec
Braille Input Keys	8-key Perkins style keypad, with space bar High-quality scissors-type keys
Additional Keys	Power on/off button 4-way cursor keys and select key 2 pan keys, rocker type
Supported File Formats	.txt, .brl, .brf (reads other files as well, but output may not be meaningful)
OS Support	Windows: NVDA, JAWS, Windows-Eyes, Supernova Mac OS X: Voiceover iOS: Voiceover Android: Brailleback
Interfaces and Ports	1x Micro B USB port, USB 2.0, for host interface, firmware upgrade and battery charging Bluetooth 2.1, Class 2
Flash Media Slot	1x SD card (4GB to 32GB capacity)
Battery	User-replaceable rechargeable Lithium-Ion battery; 2200mAH
Battery Life	3 days of typical use
Charging Method	PC charger: Charge over USB Port – 5V, 500mA Max Wall charger: Charge over USB Port – 5V, 1000mA Max; USB BC1.2 compliant charger required
Environmental Conditions	Operational: Temperature: 5° C to 45° C Humidity: 10% - 70% relative humidity

	Storage: Temperature: -15° C to 70° C Humidity: 5% - 90% relative humidity

Appendix A - Proper Trademark Notice and Attribution

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Appendix B - Warranty Info

Hardware Limited Warranty

The Orbit Braille Reader 20 is under warranty for a period of one year from the date of purchase by the original purchaser and covers manufacturer's defects under normal use. Product modification, general wear and tear or damage due to negligence are not covered by the warranty.

Appendix C - Computer Braille Chart

ASCII Code	Character	Dot Combination
33	!	2-3-4-6
34	"	5
35	#	3-4-5-6
36	$	1-2-4-6
37	%	1-4-6

38	&	1-2-3-4-6
39	'	3
40	(	1-2-3-5-6
41	)	2-3-4-5-6
42	*	1-6
43	+	3-4-6
44	,	6
45	-	3-6
46	.	4-6
47	/	3-4
48	0	3-5-6
49	1	2
50	2	2-3
51	3	2-5
52	4	2-5-6
53	5	2-6
54	6	2-3-5
55	7	2-3-5-6
56	8	2-3-6
57	9	3-5
58	:	1-5-6
59	;	5-6
60	<	1-2-6
61	=	1-2-3-4-5-6

62	>	3-4-5
63	?	1-4-5-6
64	@	4-7
65	A	1-7
66	B	1-2-7
67	C	1-4-7
68	D	1-4-5-7
69	E	1-5-7
70	F	1-2-4-7
71	G	1-2-4-5-7
72	H	1-2-5-7
73	I	2-4-7
74	J	2-4-5-7
75	K	1-3-7
76	L	1-2-3-7
77	M	1-3-4-7
78	N	1-3-4-5-7
79	O	1-3-5-7
80	P	1-2-3-4-7
81	Q	1-2-3-4-5-7
82	R	1-2-3-5-7
83	S	2-3-4-7
84	T	2-3-4-5-7
85	U	1-3-6-7

86	V	1-2-3-6-7
87	W	2-4-5-6-7
88	X	1-3-4-6-7
89	Y	1-3-4-5-6-7
90	Z	1-3-5-6-7
91	[	2-4-6
92	\	1-2-5-6
93	]	1-2-4-5-6
94	^	4-5
95	_	4-5-6
96	`	4
97	a	1
98	b	1-2
99	c	1-4
100	d	1-4-5
101	e	1-5
102	f	1-2-4
103	g	1-2-4-5
104	h	1-2-5
105	i	2-4
106	j	2-4-5
107	k	1-3
108	l	1-2-3
109	m	1-3-4

110	n	1-3-4-5
111	o	1-3-5
112	p	1-2-3-4
113	q	1-2-3-4-5
114	r	1-2-3-5
115	s	2-3-4
116	t	2-3-4-5
117	u	1-3-6
118	v	1-2-3-6
119	w	2-4-5-6
120	x	1-3-4-6
121	y	1-3-4-5-6
122	z	1-3-5-6
123	{	2-4-6-7
124	|	1-2-5-6-7
125	}	1-2-4-5-6-7
126	~	4-5-7