Orbit Reader 20 Plus™ User Guide

April 07, 2022
Version 1.8

Contents

Note: This user guide is applicable to software version vA1.02.00.09r12 and onwards.

1   Introduction

The Orbit Reader 20 Plus 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 Stand-Alone Mode
- Remote connectivity to PCs and mobile devices for use with a screen reader
- On-board translation from text to braille and from braille to text
- On-board support for contracted braille
- On-board support for over 40 languages, including UEB
- Simple editing functions

- Onboard utilities such as Calculator, Calendar and Alarm
- Signage-quality braille

2   How the Orbit Reader 20 Plus Is Used?

2.1   *Stand-Alone Mode*

Content stored on an SD card is read in one of three ways:

- Sent by library
- Prepared on a computer and copied to the device
- Using onboard translation

In Stand-Alone mode, the Orbit Reader 20 Plus displays the contents of files stored on an SD card. It supports text to braille and braille to text translation on-board for English and over 40 other languages. For English, it supports translation to and from contracted and uncontracted braille. In addition, it can be configured to translate contracted braille in other languages. Please refer to the Localization section in this guide for more details.

2.2   *Remote Mode*

Connect the device to a computer or mobile device with a screen-reader and then do one of the following:

- Read commercially available titles on Kindle™, Adobe® Digital Editions, or Apple Books® application programs.
- Employ any accessible technology for browsing, utilities, and education.

The screen reader translates text into Braille code of choice.

Important: The Orbit Reader 20 Plus is designed to automatically exercise the braille dots if has been idle for more than 24 hours. This helps keep the dots running smoothly and prolongs their life. All dots are raised and lowered three times during the exercise cycle, which takes about 3 seconds to complete. If the device continues to remain idle, the cycle will repeat every 24 hours, approximately."

3   Transcribed Braille

There are multiple sources for files that are transcribed into high-quality braille. Below are some examples:

- National Library Service (NLS) provides professionally transcribed, formatted files through the Web Braille project.
- RNIB Reading Services offers professionally transcribed braille titles.

- National Braille Press (NBP) produces braille books, textbooks, tests, and information for adults and children.
- Louis Database lists titles produced by over 160 organizations.
- American Printing House for the Blind (APH) transcribes textbooks for K-12 students.

4 Automatic Translation

In addition to professionally transcribed titles, you may also use dynamic translation to obtain braille.

Automatically translated braille may be appropriate for some forms of reading.

- Bookshare® dynamically generates braille formatted files from the titles in its library.
- Sugamya Pustakalaya is India's first and largest collection of accessible books. Users can access a collection of over 3,28,900 books, maintain their individual reading shelves online and download books in chosen formats.
- NFB-NEWSLINE® is a free audio information service, providing downloadable Braille files of up-to-the-minute content from over 400 national, international, and state newspapers.
- RNIB Reading Services offers electronic braille books for download to UK customers

5 Translate Braille

- The Orbit Reader 20 Plus features built-in forward and reverse braille translation. This is controlled by the profile selected from the menu
- BrailleBlaster™ is a full-featured transcription software package for creating quality formatted braille.
- DAISY™ Pipeline provides a comprehensive solution for converting text documents into accessible formats.
- Send to Braille is a shortcut that adds braille to the Windows® Send To menu, which can convert files on your computer into unformatted BRF (Braille Ready Format) files.

6 Documentation Conventions

For consistency and clarity, we have used the following conventions in this document.

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. 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 key 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.

All messages from the device are preceded with Dots 2 5, 2 5 and a space. In the documentation, this is indicated by a double hyphen.

The words Keys and Buttons are used interchangeably.

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

Any reference to navigation by "page" while in Stand-Alone mode only means navigation by 1000 characters (page = 1000 characters).

7 In the Box

The Orbit Reader 20 plus package typically includes Orbit Reader 20 Plus and the printed Quick-Start guide, the following items

- The Orbit Reader 20 plus unit
- Standard-A to Micro-B USB cable
- AC adapter
- SD card
- A Quick-Start guide in large-print

Depending on where you have purchased the Orbit Reader 20 Plus from, you may receive a different set of accessories. Check that all purchased items are in the box that you have received.

Note that some distributors may ship the unit with SD card already installed in the machine.

8 Features

The Orbit Reader 20 Plus has the following features:

- 20 refreshable eight-dot braille cells that can display 6-dot as well as 8-dot braille symbols
- Onboard forward and backward braille translation
- Bluetooth® wireless technology
- Clock function also time-stamps files when they are created or edited
- Calculator, calendar and alarm applications
- Eight Braille input keys and space bar
- Navigation keypad with four directional buttons (Up, Down, Left, Right) and the Select button
- Micro-B USB charging and communication port
- Full size SD card slot
- Two rocker keys for panning
- User-replaceable rechargeable battery

9 Orientation

The orientation of buttons, keys, cells, and slots is important for understanding how Orbit Reader operates and how you input and receive information on your braille display.

To begin with, 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). They are all recessed in an area in the left half of the back edge (facing away from the user). 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 (shown in the picture below).

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.

9.1 *Key Location and Use*

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

For orientation purposes, there are three slightly raised tick marks located above the braille cells. These orientation marks are spaced at every fifth braille cell. For example, the first tick mark from the left is 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 horizontally along the top edge of the face of the display, Dots 3 2 1 on the left and Dots 4 5 6 on the right.

In Stand-Alone mode, the braille input keys are used for navigation and editing/writing.

In Remote mode, while using the display with a screen reader on a host device, like an iPhone, the braille input keys can be used to input text or control the functionality of applications on the host device.

9.2   *Panning Keys*

The Panning keys are two-function rocker keys found at either end of the braille display. These keys control how you read the lines of the text: either next or previous. Pressing on one end of the key results in one action, while pressing 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.

9.3   *8-Dot Braille Cells*

The Orbit Reader 20 Plus is a six-dot braille device with two additional dots below Dot 3 and Dot 6. These two additional dots are Dot 7 and Dot 8, which are used to indicate capitalization while reading and editing the file in 8 dot mode. These dots also indicate a selected item in the menu, text with attributes or accent marks or a cursor. Their exact use depends on the application you use with the display.

10 Getting Started

The Orbit Reader 20 Plus has two modes: Stand-Alone mode and Remote mode. In Stand-Alone mode, the device is a book reader that uses an SD card as storage media. In Remote mode, the device works like a braille display and needs to be connected to a computer or other host with 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.

10.1 *Charging the Device*

When you receive the Orbit Reader 20 Plus, it may be already charged; however, we recommend that it should be fully charged before or during first use. You can use the device and charge it at the same time, so it saves reading time. When the battery in Orbit Reader 20 Plus gets to 10% of its capacity, Dot 8 of the 20th cell on the display starts blinking on and off. This behavior is normal and indicates that the battery is low.

To charge the device, use the Standard-A to Micro-B USB cable and the charger power plug provided with the unit. Insert the small end of the cable into the Orbit Reader 20 Plus's USB port. It should slide in without resistance; do not force it. Now insert the large end of the cable into a computer's 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 plugged and unplugged indications are displayed briefly even when the unit is off. The language of the message depends on the language you select for

system messages from the menu. By default, the language will be UEB Grade 1 (uncontracted).

For more information, see the Battery section under the Menu.
If you have charged the device for 4 hours or longer, and it does not power on, contact Customer Service at techsupport@orbitresearch.com

10.2 *Power On and Off*

A square Power (on/off) button is located 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. If for some reason the powering on process takes more time, the Orbit Reader 20 Plus flashes the braille cells from left to right to let you know that it is powering on.

When you turn the device on, the Orbit Reader 20 Plus resumes from the place you left. If you are using the device or inserting the SD card for the first time, the , Orbit Reader 20 Plus shows the first file or folder name on the SD card.

The Orbit Reader 20 Plus displays, "-- No SD card" when the SD card slot is empty.

To turn off the device, press and hold the Power button for two seconds. The braille cells flash from left to right to indicate the device is powering down.

The Orbit Reader 20 Plus has a low-power standby/sleep mode. Quickly tapping the Power button puts the unit in sleep mode. Tapping the Power button while the device is in sleep mode, wakes the device. While editing or when connected to Bluetooth, if no keys are pressed for an hour, the unit automatically goes into sleep mode. Otherwise, the device goes to sleep after 10 minutes of inactivity. After five hours in sleep mode, the unit shuts off to conserve power.

10.3 *Inserting and Formatting the SD Card*

The device comes with an inserted SD card with translated braille files already on it, so that you can quickly learn to use the device by reading the material.

The Orbit Reader 20 Plus uses standard full-size SD cards from 4GB 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 20 Plus.

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

On one of the short sides of the SD card, there are some ridges called fingers or teeth. Position the SD card with the teeth facing down. Now insert the short side

with 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 this 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 aligned with the rear edge when properly inserted.

To remove the card, press it in a little until it pops out and then gently remove it.

10.4 *About Menus and File Names*
The Orbit Reader 20 Plus shows internal menus and file names according to the language selected from the menu.

10.5 *Entering and Exiting Menus*

- To Open the menu, press Select + Up Arrow
- To Exit the menu, press Dot 7
- To Move through the menu choices, press the Up or Down Arrows
- To See choices within a menu option, use the Right and Left Arrows
- To Select a menu item, press Select

10.6 *Device Operational Modes*
The Orbit Reader 20 Plus has two functional modes. Stand-Alone mode and Remote mode.

Stand-Alone mode is the default operational mode and allows you to read, edit, and browse files without being connected to another device. An SD card must be inserted in the Orbit Reader 20 Plus while operating in Stand-Alone mode. See the Stand-Alone Mode section of this document for more information.

Remote mode allows you to connect the Orbit Reader 20 Plus to iPhone®, iPad®, and Android™ mobile devices, as well as desktop computers. In Remote mode, Orbit Reader 20 Plus acts as an input and output device for the remotely connected host via USB or Bluetooth. See the Remote Mode section of this document for more information.

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

The Stand-Alone mode provides the following features:

- Menu
- File Manager

- Reader
- Editor

Remote mode connects in the following ways:

- Bluetooth
- USB: HID (Orbit), Braille-HID, Serial, or Mass Storage

10.7 *Languages and Translation*

The Orbit Reader 20 Plus supports multiple languages. The following languages are preloaded on the unit:
- UEB Grade 1 (uncontracted)
- UEB Grade 2 (contracted)
- US computer braille (8 dot)
- US English Grade 1 (EBAE)
- US English Grade 2 (EBAE)

More than 40 other languages can be loaded from the SD card. These include:
- Arabic Grade 1
- Arabic Grade 2
- French 6-dot Braille
- French 8-dot computer braille
- French Grade 2
- German Grade 1
- German 8-dot computer braille
- Hindi
- Spanish Grade 1
- Spanish Grade 2

You can configure the Orbit Reader 20 plus to use the same or different languages for the system messages and to read/write files. For example, you can have the system menu and messages to be in your local language while you work with UEB Grade 1 (uncontracted) files with the reader/editor or vice versa.

For this, there are language profiles that can be selected and configured from the menu. Alternatively, you can switch between different profiles using the hotkeys. Please refer to the section 'Setting up the languages' for more details.

While typing you need to enter the key inputs as per the language selected. For example, if you have selected UEB Grade 1 (uncontracted), you must type in UEB Grade 1 (uncontracted) only. This applies to any key input you provide such as typing for the Find command, or for renaming the file.

11 The Menu

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

To open the menu, press the Select +Up Arrow keys. Battery Status is the first menu option displayed.

Some menu options let you select among several choices. For example, the Sort option allows you to choose one of the various options for arranging files in the file manager. Other menu options provide information about the device, such as serial number and version. The selected option is underlined with Dots 7 8.

To scroll through the other possibilities, press the Right Arrow key. To select the option, press Select. The Orbit Reader 20 Plus responds by underlining the word with Dots 7 and 8 to indicate the choice.

To move to another menu item, press the Up or Down Arrow key. When you get to the end of the list of options and press the Down Arrow key, the Orbit Reader 20 Plus moves back to the top menu item. Similarly, when you press the Up Arrow from the first menu item, The Orbit Reader 20 Plus moves to the last item in the list. This feature allows quick access to the last few menu items and so some options that may be used frequently are located at the bottom of the menu list.

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

11.1 *Setting up Languages*

The Orbit Reader 20 Plus comes configured to support UEB Grade 1 (uncontracted), UEB Grade 2 (contracted), US English Grade 1 (EBAE), US English Grade 2(EBAE), Computer Braille (8 dot). Additional language files can be loaded from the SD card. Please refer to the Localization section in this guide for more details.

Note: BRF cannot be configured as the system language.

You can also configure the encoding type of the text file.

To allow easy configuration of languages and switching between languages, four language profiles (Profile 1,2,3, and 4) are provided. Each profile has options to choose the System Language, Read/Edit Language and Editor Encoding.

11.1.1 **System Language**

The System Language setting allows you to set the language of the system messages and menu options.

11.1.2 **Read/Edit Language**

The Read/edit Language setting allows you to read or edit the content in the desired language. Following is the list of languages that can be set as System language and/or Read/Edit language

  a. eng_uncontracted (US English Grade 1)
  b. eng_contracted (US English Grade 2)
  c. eng_8-dot-computer (US Computer Braille (8 dot))
  d. brf (BRF format files)
  e. UEB Grade 1 (uncontracted)
  f. UEB Grade 2 (contracted)
  g. < Additionally loaded Languages from SD card>

11.1.3 **Editor Encoding**

The Editor Encoding setting applies to new files only and allows you to save the file in the desired encoding format. The Editor Encoding setting applies to new files only and allows you to save the file in the desired encoding format. Encoding is how the data is stored internally in the text file. There are pros and cons to each of the encoding systems. If you are not sure which encoding to use, we recommend using UTF-8. More details on encoding can be found at https://en.wikipedia.org/wiki/Character_encoding

It has the following options:

  a. UTF-8
  b. Unicode-16LE
  c. Unicode-16BE
  d. ANSI

The hotkeys for switching between profiles are Select + 1, Select + 2, Select + 3, and Select + 4 for profiles 1, 2, 3, and 4 respectively.

If you accidentally select an unfamiliar language, pressing Select + 1 2 3 restores the default profile.

11.2 *Menu Availability*

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

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

11.3 *Menu Options*

Some of the Menu options have a default setting (indicated in the list below). For most of these options, you can move among alternatives 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
- Cursor Blink (1)
- Sort (Name: Ascend)
- Split Words (Off)
- Filter Dot 7 (On)
- Wrapping (On)
- Compress Spaces (On)
- Indents (On)
- Scroll rate (4)
- Profile 1
- Profile 2
- Profile 3
- Profile 4
- Add language
- Remove language
- Ver.
- BVer.
- Sr.
- Reset Defaults
- Dateform dd-mm-yyyy
- Time format (12 hours)
- Clock Settings
- Alarm 1
- Alarm 2
- USB (HID)
- Bluetooth (Auto)
- Pair (Just Works)
- Emulate (Off)
- Mode (Stand-Alone)

11.3.1 **Battery**

The Battery status menu item displays the amount of energy remaining in the battery as a percentage of the total capacity of the battery. When the battery in

the Orbit Reader 20 Plus gets to 10%, Dot 8 of the 20th cell on the display blinks on and off. This behavior is normal, indicating that the battery is low.

When the unit is plugged in for charging, the message "-- Charging XX%" is displayed, where XX is the percentage of remaining energy

11.3.2 **Cursor Blink (1)**

The Cursor Blink option works only while editing in the Edit Box or Editor mode. This option allows selecting the number of seconds between blinks. The default setting for the Cursor Blink option is one second between blinks. The setting choices are 1, 5, 15, 30, and 60 seconds, and 0 where the cursor does not blink. To make a selection, press Select.

11.3.3 **Sort (Name: Ascend)**

The Sort menu item lets you change the order in which files on the SD card, using The Orbit Reader 20 Plus's built-in File Manager. The sorting categories are - Name, Date, Size, and Last Read.

Additionally, you may sort files within the selected category in ascending or descending order. After selecting a category, press the Right Arrow until you reach either Ascend or Descend in the list and press the Select button. The Orbit Reader 20 Plus displays the files in the selected order. The default setting for this menu item is Ascending (A to Z). To return to the File Manager, press Dot 7 from Stand Alone mode.

11.3.4 **Split Words (Off)**

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 shows partial words. When you pan to the next 20 cells of braille, the remainder of that word appears at the beginning of the line. To make a selection, press Select.

11.3.5 **Filter Dot 7 (On)**

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 want to make a BRL or BRF file that uses eight-dot braille, turn this setting off. To make a selection, press Select.

11.3.6 **Wrapping (On)**

The default setting for Wrapping is On. The Wrapping option is The Orbit Reader 20 Plus'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. To make a selection, press Select.

11.3.7 **Compress Spaces (On)**

Carriage returns, blank lines, and tabs represent extra spaces (or white space) in a document. These spaces take up a lot of room and therefore slow down reading on a braille display. The Compress Spaces option eliminates superfluous blank lines and spaces. If multiple blank lines or spaces appear in the file, they are compressed to a single space. This setting is especially useful when reading formatted text files that contain many blank lines.

The default setting for Compress Spaces is On. To make a selection, press Select.

11.3.8 **Indents (On)**

Paragraph Wrapping lets you choose if the Compress Spaces setting should be applied to the leading spaces of paragraphs or not. If Paragraph Wrapping is set to off, the paragraph is displayed with leading spaces if present, regardless of the Compress Spaces setting.

If Paragraph Wrapping is set to on, the Compress Spaces setting is applied to the leading spaces of the paragraph. The default setting for Paragraph Wrapping is On.

11.3.9 **Scroll rate (4)**

Displays the current scroll rate time in seconds and lets you adjust. T the same.

11.3.10 **Profile 1**

The Profile 1 settings are configured by default for using the device with UEB Grade 1. However, it can be configured to select any of the available languages and encoding schemes. The default configurations are as follows

- System Language: UEB Grade 1 (uncontracted)
- Read/Edit Language: UEB Grade 1 (uncontracted)
- Editor Encoding: ANSI

11.3.11 **Profile 2**

The profile 2 default settings are configured for using the device with the UEB Grade 2. However, it can be configured to select any of the available languages and encoding schemes. The default configurations are as follows

- System Language: UEB Grade 2 (contracted)
- Read/Edit Language: UEB Grade 2 (contracted)
- Editor Encoding: ANSI

11.3.12   **Profile 3**

The profile 3 default settings are configured mainly for using the device with the Computer Braille. However, it can be configured to select any of the available languages and encoding schemes. The default configurations are as follows

- System Language: US Computer Braille (8 dot)
- Read/Edit Language: BRF
- Editor Encoding: ANSI

11.3.13   **Profile 4**

The profile 4 default settings are configured mainly for using the device with the language loaded from the SD card. However, it can be configured to select any of the available languages. The default configurations are as follows.

- System Language: <Languages from SD card>
- Read/Edit Language: <Languages from SD card>
- Editor Encoding: UTF-8

The default settings of Profile 1,2,3, and 4 can be changed with Right/Left Arrow keys, under the System Language, Read/Edit Language and Editor Encoding options.

For example, if you wish to have the system language as UEB Grade 1 (uncontracted) and work with BRF files, you can select Profile 3 that has the following default settings.

- System Language: UEB Grade 1 (uncontracted)
- Read/Edit Language: BRF
- Editor Encoding: ANSI

Likewise, all profiles can be configured as per your requirements.

Please refer to the Localization section in this guide for additional information.

11.3.14   **Add Language**

The Add Language menu option lets you load language files from the SD card to the internal memory of your Orbit Reader 20. It lets you load as many languages as the available memory permits. If the memory is insufficient, the unit will display a "memory full" message. If you encounter this, you will need to remove some languages from the memory before you can load new languages.

You can scroll through the available language files on your SD card by pressing the Right or Left Arrow keys and press Select to add a language.

It may take some time for the file to be loaded. The unit shows a busy indication by displaying "busy" on the display.

11.3.15   Remove Language

The Remove Language menu option lets you remove language files from the internal memory of your unit so that you can make space for loading other languages.

You can scroll through the loaded languages using the Right or Left Arrow keys and press Select to remove a file.

You can also use the "remove all" option that appears as the first item to remove all the loaded languages at once. Note that if you use this option, it removes the pre-loaded UEB Grade 1 (uncontracted) and UEB Grade 2 (contracted) languages as well. It does not remove the US English Grade 1 (EBAE), English Grade 2 (EBAE) and the US computer braille (8-dot).

If you remove a language that is currently assigned in a profile, English 8-dot computer Braille is assigned to the profile by default.

It may take some time for the file to be removed. The unit shows a busy indication by displaying "busy" on the display.

11.3.16   Ver.

The Version item in the menu displays the version number of the software on your device. You may need the version number when talking to Customer Service. For the latest version of software, refer to the website.

Note: The software version is shown in US computer braille (8 dot) only.

11.3.17   BVer.

The Bver menu item displays the version number of the bootloader software installed on your device. You may need the bootloader version number when talking to Customer Service.

Note: The software version will be shown in computer braille only.

11.3.18   Sr.

The Serial Number item in the menu shows the serial number of the device you are using. This number is useful for service and warranty purposes.

11.3.19   Reset Defaults

The Reset Defaults item in the menu resets all your menu settings to the factory default settings. To reset to the default settings, press the Select button. This

action resets defaults and takes you to the top of the Menu options list (Battery Status).

11.3.20   Dateform dd-mm-yyyy
The Orbit Reader 20 Plus support the following date formats
- dd-mm-yyyy
- mm-dd-yyyy
- yyyy-mm-dd

The default date format is "dd-mm-yyyy". You can change the date format using left and right arrow keys and set the date format by pressing the Select key.

11.3.21   Time format (12 hours)
The Orbit Reader 40 supports the 12/24-hour time formats. The default Time format is 12-hour format. You can change the time format using left and right arrow keys and set by pressing the Select key.

11.3.22   Clock Settings
The Orbit Reader 20 Plus has a clock. You can check the date and time by pressing SPACE + Dots 2 3 4 5. The date and time are also used when creating, editing and saving a file or folder.

The default format for time and date is HH:MM DD-MM-YYYY (where, HH is Hours, MM is Minutes, DD is Date, MM is Month and YYYY is Year). You can scroll through these fields with the Left and Right navigation keys. The active field (where the cursor is currently) will be underlined. Press the Select key to modify the current field.

Press the Up Arrow key to increase and the Down Arrow key to decrease the value in the date and time fields. For instance, if the current date is 01-08-2020 and you want to change it to 01-08-2021, use the Left/Right navigation keys to move the cursor to the year field (YYYY) of the date. Press the Up Arrow key to change the year from 2020 to 2021 and the Select key to save the changes. Press Dot 7 to exit from the Menu. The value in a field wraps once you reach the last valid value. For instance, minutes ranges from 00 to 59. So, if you press the Up Arrow key when the time is 09:59, it increments the time to 10:00

11.3.23   Alarm 1
The Orbit Reader 20 Plus provides two alarms. The first alarm can be configured from this menu item.

There are six fields to configure the alarm. You can navigate through different fields by pressing the Left and Right arrow keys and Press the Up and Down arrow keys to navigate through different choices in the field. The current field

(where the cursor is placed) is underlined. Press Dot 7 once to save all the changes you have made in the alarm settings.

Alarm Status (OFF): Press the Right arrow key to go to Alarm status. Press Select to enable the editing cursor. You can toggle the Alarm status between ON and OFF by pressing the Up and Down arrow keys.

Time (HH:MM): Next to the alarm status item is the time setting. Press the Right arrow key to go the time field. The format for time is HH:MM in either 12 or 24 hours format depending on the set configurations of the menu item Time format (12 hours). Press the Up and Down arrow keys to set the values of the field and Press the Right arrow key to switch between the fields.

Repeat (Mon): Press the Right arrow key to go the repeat field and set the desired days by pressing the Up/Down arrow key. You can choose any day from Monday to Sunday and there are two additional options: All and Once. When you set "All" the alarm rings every day and when you set "Once" it rings only once at the next occurrence of the set event. Default is "once".

Snooze time (1 to 59): Press the Right arrow key to set the Snooze time. The range of the snooze time is 1 to 59 minutes. The default is 5 minutes.

The alarm flashes dots up and down for 5 seconds at the time and day it has been set for, even if the device is in sleep mode or completely shut off.

Press Dot 7 to cancel the alarm or press Space to Snooze. The alarm automatically snoozes after the flash duration if not acknowledged. It repeats this cycle 5 times and then turns off automatically.

11.3.24   **Alarm 2**

The second alarm can be configured from this menu item. It has similar settings to Alarm 1.

11.3.25   **USB (HID)**

The USB menu selects between the four possible USB protocols: Human Interface Device (HID) (Orbit), HID Braille, Serial, or Mass Storage. The default setting for USB is HID (Orbit). To select the option, press Select or Dot 8.

For more information, see the USB Connectivity section under Remote Mode.

11.3.26   **Bluetooth (Auto)**

There are three choices under this menu option.
- Bluetooth Auto
- Bluetooth manual
- Bluetooth OFF

The default setting for Bluetooth is Auto. If there is any screen reader activity running on the paired device, the Orbit Reader 20 Plus automatically switches to Bluetooth Remote mode. If you do not want an automatic Bluetooth connection, switch to manual option. To disable Bluetooth completely, select OFF. To select another option, press select or Dot 8.

For more information, see the Using the Bluetooth Connection section under Remote Mode.

11.3.27   Pair (Just Works)

The Pair menu item selects a Bluetooth pairing scheme. The Orbit Reader 20 Plus uses the selected scheme when it responds to a Bluetooth pairing request from a host device. To select the option, press Select or Dot 8.

The two choices are:

Just Works – This is the default Bluetooth pairing scheme. When using this scheme, the Orbit Reader 20 Plus automatically pairs to any device that sends a pairing request.

Confirm code – This is the most secure pairing scheme. With this scheme, the Orbit Reader 20 Plus responds to pairing requests by showing a random number on both the Orbit Reader 20 Plus's braille display and on the host device. To confirm the request, ensure that the numbers match and press Dot 8 on the Orbit Reader 20 Plus. To reject the pairing request, press Dot 7.

11.3.28   Emulate (Off)

The Emulation option allows you to choose how the device appears to the Host screen reader applications while operating in Remote mode. If RB18 (Refreshabraille 18™) Emulation mode is selected, the Orbit Reader 20 Plus appears as a Refreshabraille 18 and only the first 18 cells are used. If Emulation mode is Off, it appears as Orbit Reader 20 Plus. To select the option, press Select or Dot 8.

The default setting for Emulation mode is Off.

11.3.29   Mode (Stand-Alone)

By default, the Orbit Reader 20 Plus operates in Stand-Alone mode where you read and write files stored on the SD card. To specifically set the unit to another mode, select among Remote, BT (for Bluetooth,) or USB. the Orbit Reader 20 Plus tries to automatically switch to Bluetooth or USB depending on screen reader activity, but if you want to, for instance, specifically switch back to Stand-Alone mode from Remote mode, or switch the interface from Bluetooth to USB, use this option. To select the option, press Select.

12 Stand-Alone Mode

Stand-Alone mode is the default operational mode and allows you to read, edit, and browse files without being connected to another device. A formatted SD card must be inserted in the Orbit Reader 20 Plus while operating in Stand-Alone mode. This card must contain the files you wish to read.

Stand-Alone mode operates in the following ways:

- File Manager
- Menu
- Reader
- Editor

13 File Manager

The File Manager is where you select a file stored on the SD card to read on the Orbit Reader 20 Plus. You can also create new files and folders, view the properties (such as the file size and current reading position) and copy, rename, and delete files.

When moving through the list of files, the Orbit Reader 20 Plus shows the first 20 characters of the file name. You 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. You can change the way files are sorted in the file list using related menu options.

Each item on the file list includes the following items:

- Filename and extension
- The current reading position in the file as a count of characters
- Size in KB (kilobytes)
- Last modified time
- Protected or Unprotected

Only one column is displayed per line (with panning as necessary). Pressing Left or Right Arrow moves to the previous or next column heading (file information). Upon exiting the Reader (Dot 7), you are returned to the same place and column in the File Manager.

The language of the file name is displayed according to the system language. For instance, if the file is in UEB Grade 1 (uncontracted) and the default language is also UEB Grade 1 (uncontracted) , it will be displayed in UEB Grade 1 (uncontracted) . But If the system language is set to a different language, and the file name is in UEB Grade 1 (uncontracted) , the file name may appear

unrecognizable . However, you can quickly change the profile using a hotkey to read the file name in the appropriate language.

13.1 *File Manager Commands*

The following are the commands which you can use in the File Manager. Most of the commands for files also work for folders.

To open a file or folder, press select or Dot 8. Pressing Select or Dot 8 opens the file or folder.

To go to previous or next file or folder, press Up or Down Arrow. Pressing Up or Down Arrow moves to the previous or next file in the list.

To go back one folder level, press Dot 7. Dot 7 acts like a "back" key to exit the current activity. If you are already in File Manager, pressing Dot 7 moves back one level where you have multiple subfolders open. 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 filename.

To move through file information, press Left or Right Arrow. This command moves you through the file information by headings. See File Manager section for more information.

To open the Menu, press select + Up Arrow. Pressing Select + Up Arrow opens the Menu.

To scroll text, press Left or Right Panning keys. If the file name is longer than the display, panning left or right displays more of the file name. When you get to the end of the file name, pressing the panning key moves you to the next item of file information, like position, size, date, and so on.

To 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. To exit the Editor, press Select twice.

To make a New Folder, press Space + O (Dots 1 3 5). The New Folder command opens the Edit Box where you may type the name of the new folder. Pressing Dot 8 saves the new folder name and returns you to the file list with that folder selected. If you do not name the folder, pressing Dot 8 names the folder as New Folder. Press Select to exit without making a new folder.

To delete a file or folder, press Space + D (Dots 1 4 5). This action deletes the currently selected file(s) or folder(s). Only empty folders and unprotected files can be deleted. A confirmation is required before the file or folder is deleted. When the message "-- Confirm action" is displayed, press Dot 8 to confirm or press Dot 7 to cancel.

To rename a file or folder, press 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. The Orbit Reader 40 responds with an Edit Box containing the original file or folder name. Edit the name or type a new one and press Dot 8. Press Select to exit without renaming a file or folder. Note: The key input for the file name should be entered as per the selected system language.

To cut a file, press Space + X (Dots 1 3 4 6). This action cuts the currently selected file(s) or empty folders from their location and places it (them) on the clipboard to be used with the paste command.

To copy a file, press Space + C (Dots 1 4). The Copy File command makes a copy of the currently selected file(s) or empty folders and places it (them) on the clipboard to be used with the paste command.

To paste a file, press 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.

To mark a file, press 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, place arrow on the file 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.

To Protect or unprotect a file, press 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 Unprotected/Protected heading.

To edit the current file, press Space + E (Dots 1 5). When editing the current file, the Orbit Reader 40 switches to 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. To exit, press Select twice. See The Editor section for more information.

To Edit Last Edited File, Space + Dots 1 2 4 6. This command reopens the last file you edited and returns the cursor to its last position in that file. "The Edit Last Edited 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. The device displays the error message "-- File not found" when no previous file has been opened or if the file was deleted. Press Select twice to return to the file you were reading.

13.2 *More about Copying and Pasting Files*

When copying or pasting a file that results in another file with the same name, File Manager adds an extension to indicate that 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 book_1.brf and the original book.brf remains unchanged.

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

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

If copying a file 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 after every 10% of the progress.
For the command keys, go to the File Manager Commands table under the File Manager section.

13.3 *File Movement Commands*

To move to the first file, press Space + Dots 1 2 3. Pressing Space + Dots 1 2 3 moves File Manager selection to the first file in the current folder.

To move to the last file, press Space + Dots 4 5 6. Pressing Space + Dots 4 5 6 moves File Manager selection to the last file in the current folder.

To Incrementally search file list, Type the file name quickly. To find a file quickly, type the first few letters of the file's name. File Manager highlights the first file matching the letters you typed.

13.3.1 **Supported File Types**
- BRF: It is translated, formatted braille. Device displays exact representation
- BRL: It is Translated, unformatted braille. Device displays exact representation
- TXT: It is Text format. Device displays as per the language selected

In addition to the supported file types, the Orbit Reader 20 Plus shows the contents of any file. This feature is useful, however, to examine files that do

contain readable text even if it is not a supported file type. However, some files may not contain readable content.

There are several excellent braille translation systems available in the U.S. If you obtain textbooks from APH or get transcribed titles from NLS or NBP, the braille should be correct and formatted. You may also get braille translation software that produces automatically translated braille using programs like 'Liblouis'. Alternatively, you can have Bookshare automatically generate braille files of the titles available.

13.4 *Preparing Files*

To prepare BRF files for placement on the Orbit Reader 20 Plus, follow these guidelines:

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

To copy files to the SD card, remove the card from the Orbit Reader 20 Plus and place it into a card reader on your computer. Alternatively, you can connect the USB cable from the Orbit Reader 20 Plus to your computer and activate the Mass Storage protocol on the Orbit Reader 20 Plus by either pressing Space + Dots 5 7 or selecting Mass Storage from the USB option in the menu. When using the Mass Storage protocol, the Orbit Reader 20 Plus shows up as a drive on the computer, and here, you cannot use other functions of the Orbit Reader 20 Plus.

14 The Reader

In Stand-Alone mode, the Orbit Reader 20 Plus displays the content of files stored on an SD card. It translates the text into the language that the you selects for the Read/Edit option in the menu section.

The Orbit Reader 20 Plus 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 20 Plus displays the contents of the first file on the SD card. To get to the file list, press Dot 7. Go to the desired file using the Up or Down Arrow key. Press Dot 8 or Select to open the file. Use Left and Right Panning keys to read it. 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 the commands and settings that can be used while reading.

When you turn the device on, the Orbit Reader 20 Plus 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 File Manager, which shows a list of files on the SD card. If there is no SD card inserted, the message "-- No SD card" is displayed.

When you open a text file to read for the first time on Orbit Reader 20 Plus , the file gets translated first as per the language selected for Reading/Editing. For a large file, it may take a few seconds to complete the translation. The translation process is indicated by showing a progress bar on the display where the Dot 6 (6th pin) of the first 6 cells raises in sequence, repeatedly.

The Orbit Reader 20 Plus stores the translated files in the SD card so that it can be used in the future. Latency is observed only when you open the file for the first time or if the translated file is lost for some reason.

While the file translation is in progress, no other operations are allowed and pressing any key will have no effect .

If translation is taking too much time and you wish to abort the operation, you can do so by pressing Dot 7. The system will cancel the file opening operation and will take you back to the file manager.

You can switch the reading language with the help of hotkeys, even if you are in the middle of the file. Please note that if you change the language, the system will translate the file again as per the new language selected.

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

14.1 *Reader Commands*

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

To Go to Previous or Next display, press Panning keys. See Panning Keys section for more information.

To Go to Previous or Next Character, press Left or Right Arrows. If you press Right Arrow key, 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.

To Go to Previous or Next Word, press Space + Left or Right Arrows. If you press Space + Right Arrow, the next word appears on the right side of the display. The Reader also supports Space + Dot 2 and Space + Dot 5.

To Go to Previous or Next Line, press Up or Down Arrows. Pressing the Previous or Next Line command moves to the previous or next carriage return in the file. Also works with Space + Dot 1 and Space + Dot 4.

To Go to Previous or Next Page, press Dot 3 or Dot 6. Pressing Dot 3 or Dot 6 moves the cursor back or forward in the file to the next page marker (form feed) or 1000 characters, whichever comes first.

To 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. Alternatively, long-press Up or long-press Down keys can be used to jump to the top or bottom of a file, respectively. (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.)

To Exit File, press Dot 7. If reading a file, pressing Dot 7 returns you to your previous location.

To Open the Menu, press Select + Up Arrow. Pressing the Select + Up Arrow opens the Menu.

To Set or Clear a Bookmark, press Space + M. In addition to the automatic bookmark placed when you close a file, the Orbit Reader 40 lets you set additional bookmarks. Reader displays the message "-- Bookmark added" or "-- Bookmark cleared" if there was already a bookmark at that position.

To 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.

To Power Move/Search Forward and/or Back, press Dots 8 + Down or Dots 8 + Up. Press Dots 8 + left to move back. Press Dots 8 + right to move forward. See Power Move Forward and Back section for more information.

To Find Braille, press Space + F (Dots 1 2 4). Pressing Space + F opens an input field (Edit Box) with a cursor. By default, it shows the last search string on the display. This allows you to perform a search in a specific braille format by typing the text in the same braille format. Press Dot 8 to begin the search. To exit the Edit Box without performing a search, press Select. See Edit Box and Find Braille sections for more information.

To Find Next Braille, press Dot 8 + Right Arrow. Pressing Dots 8 + Right Arrow repeats a previous search forward from the point in the file where you are. If there is no text in the Find Edit buffer, the Reader uses the text at the cursor. See the Find Braille section for more information.

To Find Previous Braille, press Dots 8 + Left Arrow. Pressing Dots 8 + Left Arrow repeats a previous search backward from the point in the file where you are. If

there is no text in the Find Edit buffer, the Reader uses the text at the cursor. See the Find Braille section for more information.

To Edit Current File, press Space + E. Space + E to edit the file you are currently reading. Press Select twice to exit the Editor and continue reading.

To Open New File, press Space + N. Space + N opens a new file in the Editor for editing/notetaking. Press Select twice to return to the file you were reading.

To Edit Last Edited File, press 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 Edited 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. The device displays the error message "-- File not found" when no previous file has been opened. Press Select twice to return to the file you were reading.

14.2 *Power Move Forward and Back*

The Orbit Reader 20 Plus'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 Dot 8 + Down Arrow or Dot 8 + Up Arrow, the Reader moves in the following ways:

On the first press, the cursor moves halfway between the current position and the start (Dot 8 + Up Arrow) or end (Dot 8 + Down Arrow) of the file, which acts 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 Dot 8 + Down Arrow, the Reader moves the cursor to halfway between 0% and 100%. You are now at 50%, and this becomes the new boundary. The initial boundary is at the original position of 0%. Therefore, if you press Dot 8 + Up Arrow, you move halfway between 50% and 0% to end at 25%. Or, if you press the Dot 8 + Down Arrow, you move halfway between 50% and 100% to end at 75%.

Each time you press Dot 8 + up arrow or Dot 8 + down arrow keys, the Reader shows the percentage in the first few cells of the display line and fills the rest of the cells with text at that position. This continues until you press some other key. See the Panning Keys Section for more information.

14.3 *Find Braille*

To find specific braille text, use the Find command (Space + F). The Orbit Reader 20 Plus responds by opening an input field (see Edit Box section) with a cursor, which is indicated by Dots 7 and 8. By default, it shows the text at the current cursor location in the edit box. Unlike the Power Move, 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 have searched for something previously, that text appears in the Edit Box with your cursor at the end. See the Power Move Forward and Back section for more information.

To find a word, first press Space + F to enter the Edit Box. Type the word you wish to find, in the language selected for the reader/editor and then press Dot 8 to start the search moving forward in the file. To search moving backward in the file, press Dot 8 + Left arrow. The word is shown as the first word on the display. If the word is not found, the message "-- Not found" is displayed. Press Dot 7 to clear the message. To exit the Edit Box without finding the word, press Select.

After the word is found, to continue searching, press Dot 8 + right arrow to find the next occurrence (forward in the file) or Dot 8 + left arrow to find a previous occurrence (towards the beginning of the file).

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

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

You can search for 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 only, type the text you wish to find *with* the braille indicator for capitalization included (in contracted braille, one Dot 6 precedes a capital letter, while two Dot 6s precede an entirely capitalized word. In Computer Braille, capital letters include Dot 7). 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 or 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.

In" search files", the Reader moves from reading files to searched text and displays it at the beginning of the display line. If the text is not found, then the

Reader displays "Not found" and gets back to its previous position. While searching through large documents, the Orbit Reader 20 Plus displays "Busy" while conducting the search.

To repeat a search moving forward towards the end of the file, press Dot 8 + Right Arrow.

To repeat a search moving back towards the beginning of the file, press Dot 8 + Left Arrow.

14.4 *Braille Pacer (Auto-Scroll)*

The Braille Pacer feature is available in the Reader and lets you set a reading pace for the display to automatically advance.

The pace can be adjusted during reading by pressing the space and Up-Arrow key to increase the speed (i.e. a faster advance rate) or the space and Down-Arrow key to decrease the speed (i.e. a slower advance rate). Pressing these keys once increases or decreases the speed in one-second steps. You can set the scrolling speed from 1 to 20 seconds depending upon your reading speed.

Many users might like to have finer control of the speed and this can be achieved by pressing the space bar, dot 7 and up or down arrow keys. The fine control increases or decreases the speed in steps of one-tenth of a second.

The default speed is 4 seconds. You can review the current scroll rate from the menu, but it can be changed only while reading. The current scroll rate is not displayed when auto-scrolling. However, when the auto-scroll is stopped and the scroll rate is changed, the scroll rate will be displayed by the message "xx.y sec scroll rate". You can use all the reading navigation commands during the Braille Pacer mode as well.

To Start/Stop Braille Pacer, press Space. The rate of change is not viewable if the speed is increased or decreased while active.

To Increase/Decrease Speed by 1 Second, press Up or Down Arrow + Space

To Increase/Decrease Speed by 0.1 Second, press Dot 7 + Up or Down Arrow + Space.

15 Edit Box

The Orbit Reader 20 Plus presents a text dialog or input field called an Edit Box when you want to find text or rename a file. The Edit Box permits only one line of text. Press Space + F to begin a search or press Space + R to rename a file.

Once in the Edit Box, insert the text by typing the desired text as per the language selected for the reader/editor and then use the Edit Box commands to navigate. The Edit Box displays a blinking cursor (Dots 7 8) to indicate the beginning of the text that you are searching or editing. When the Orbit Reader 20 Plus shows an edit box, it often provides default text, such as a file name or a previously entered search term. To delete or replace the selected text, type a letter or press the backspace key (Dot 7). To edit the existing text in insert mode, press one of the arrow keys to move the cursor letter by letter to the position where you wish to edit.

15.1 *Edit Box Commands*

To Move Left or Right One Letter, press Left or Right Arrow. Pressing left or right arrow moves the cursor in the desired direction. When the cursor reaches the end of the edit box, it stops--it can move no further.

To Move to Start or End of Text, press Up or Down Arrow. Press Up or Down Arrow to move the cursor to the beginning or end of the text.

To Backspace, press Dot 7. The Backspace key Dot 7 deletes the letter immediately left of the cursor. Use Backspace key in case of a typing mistake or to remove small amounts of text.

To Accept typed text, press Dot 8. Here, pressing Dot 8 acts as an Enter/OK key.

To Close the Edit Box, press Select. To close the edit box, use the Close command. In single line controls, Close removes what you have typed. In multiple line controls, all text is automatically saved in the editor.

16 The Editor

In addition to serving as a tool for reading braille, the Orbit Reader 20 Plus 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 notes the current position by blinking Dots 7 8. The default setting for the cursor is 1 second. The blink of the cursor can be turned off from the Menu.

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

- Edit new file: Space + N
- Edit current file: Space + E
- Switch to last edited file: Space + Dots 1 2 4 6

To insert text, type or paste the text at the cursor. You can insert any text into an open file using the braille keys (Dot 1 to Dot 8). The Editor adds the typed or pasted text.

To exit Editor, press Select, E or Select twice. The cursor disappears, returning you to the Reader in the file you were editing.

When you exit the editor or save the file from the context menu, the back translation from braille to text is performed as per the selected language. The translation process is indicated by showing a progress bar on display where the Dot 6 (6th pin) of the first 6 cells rises in sequence repeatedly. This operation cannot be canceled.

If you are exiting a new file, the editor automatically names the file with the first 20 characters of the translated text 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.

Note: It is recommended that you exit the Editor before you perform a system update, reset the device, or remove the SD card. Exiting the Editor saves your work. Not exiting the Editor first could result in lost work.

16.1 *Editor Commands*

To Edit New File, press Space + N. Creates a new file in the Editor, ready for input.

To Edit Current File, press Space + E. Opens the selected file for editing.

To Switch to Last Edited File, press Space + Dots 1 2 4 6. Opens the last edited file for further editing. The device displays the error message "-- File not found" if the file has been deleted.

To Add a new line (Enter), press 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.

To Delete a character, press Dot 7. Pressing Dot 7 deletes the character to the left of the editing cursor.

To Exit Editor, press Select twice OR Select, E When you close a file, Editor saves and returns to the Reader or File Manager, depending on your earlier location. It automatically saves your work. If you have opened the file from File Manager, File Manager makes the new file the current item in the list. If you edit an existing file, Reader moves the reading position to the place where the cursor was.

To Save current work, press Select, S. The Orbit Reader 40 automatically saves files every 1 KB of data or about 1000 characters, as you edit. However, small file increments could be lost during certain situations such as SD card removal, system updates, or device resets. Pressing Select, S saves the file as you deem necessary.

To Go to next or previous character, press Left or Right Arrow. Pressing Left or Right Arrow moves the cursor to the previous or next character.

To Go to next or previous word, press Space + Left or Right Arrow. Pressing Space + Left or Right Arrow moves the cursor to the start of the previous word or next word. This is also used to navigate between digits.

To Go to Previous or next display, press 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.

To Go to Previous or next paragraph, press 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, then the display pans to the start of the previous or next paragraph to the first cell on the display. The editing cursor is placed in the first cell.

To Go to Start or end of paragraph, press 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, then the display pans to the start or end of the first cell of the display. The editing cursor is placed in the first cell.

To Go to 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 (1000 characters or form feed character).

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

To Find Next Braille, press Dots 8 + Right Arrow. Pressing Dots 8 + Right arrow repeats a previous search forward from the point in the file where you are. If there is no text in the Find Edit buffer, the Editor uses the text at the cursor.

To Find Previous Braille, press Dots 8 + Left Arrow. Pressing Dots 8 + Left arrow repeats a previous search backwards from the point in the file where you are. If there is no text in the Find Edit buffer, the Editor uses the text at the cursor.

16.2 *Editor Block Text Commands*

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

Note: The size limit for a cut/copy/paste operation is 5 KB of data.

Adding a location mark does not change the content. Marks are used for copying/cutting a selection of text. To copy or cut using marks, press Select, M to place a mark. Only one mark can be placed/added at a time. Once the mark is placed, the text between the cursor and the mark can be copied (Select, C) or cut (Select, X). Once text is copied or cut, the mark is cleared.

To Set or clear Location Mark, press 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 no mark, it shows -" Mark set" and adds a mark.

To Copy, press Select, C. The copy command places the selected text onto the clipboard for later use in this file or another file.

To Cut, press Select, X. The cut command removes the selected text from the document and places it onto the clipboard for later use. If you want to put that text somewhere else, move to the desired position, then use the Paste command.

To Paste, press Select, V. To paste the contents of the clipboard before the cursor, use the Paste command.

16.3 *Context Menu*

The Context menu gives you quick access to the functions such as cut, copy, and mark for use in Editor.
While in Editor, 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 do not know the braille shortcuts, press the Up or Down Arrow key to scroll to your selection and press Select or Dot 8.

2. If you know the braille shortcut for the command (the braille letter associated with the function), press that letter.

- E Exit
- M Mark
- C Copy
- V Paste
- X Cut
- F Find
- S Save

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

17 Remote Mode

In addition to using the Orbit Reader 20 Plus as a portable reading tool and editor, it connects with host devices (i.e., computers, phones, tablets), and the Orion TI-84 Talking Graphing Calculator (https://www.orbitresearch.com/product/orion-ti-84-plus/) to provide braille input/output to and from the device. The host device must be running software that supports braille.

- Windows PCs - JAWS®, NVDA, Windows Narrator, System Access, Window-Eyes, Dolphin Screen Reader™,
- Mac® computers and iOS® devices - VoiceOver
- Android devices - BrailleBack, Braille TTY, Amazon VoiceView
- Chromebook - ChromeVox

When you use the Orbit Reader 20 Plus as a display for other hosts, the screen reader on that host device provides translation and other braille settings. Refer to documents for the specific screen reader you are using.

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

- Pressing Select + Up Arrow opens the Orbit Reader 20 Plus Menus.
- Pressing Select + Left Arrow returns the Orbit Reader 20 Plus to Stand-Alone mode.
- Pressing Select + Right Arrow returns the Orbit Reader 20 Plus 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 submit or Select to cancel.

17.1 *Before you Connect*

Before you connect the Orbit Reader 20 Plus to a host, it is important to set the device so that the screen reader(s) you use, recognize it. Newer versions of screen readers recognize the Orbit Reader 20 Plus. The table below shows the first version of the screen reader to directly support Orbit Reader 20 Plus.

- VoiceOver on IOS with version 10.2
- VoiceOver on Mac with version 10.11
- Brailleback with version 0.97.0.205156277
- BRLTTY with version 5.5
- NVDA with version 2017.1
- ChromeVox with version 61.0.3163.120
- Voiceview with version 5.6.0.1
- System Access with version 3.7.85
- Dolphin Screen reader with version 16.05
- Sunshine with version 9.0.5575

If you have an earlier version of a screen reader, or one that does not yet support Orbit Reader 20 Plus, you must set Orbit Reader 20 Plus to emulate Refreshabraille 18.

Note: In Refreshabraille 18 emulation mode, only the first 18 braille cells are used.

To set the device to emulate Refreshabraille 18, select Emulation from the Orbit Reader 20 Plus menu and select RB18. If you plan to connect multiple host devices and any of your preferred screen readers do not support the Orbit Reader 20 Plus, you must use the same emulation setting for each host. Note that if you already have emulation set and you want to change the setting, you must disconnect the device from the host first. Temporarily turn off your screen reader's braille support before altering the setting.

If you have paired the Orbit Reader 20 Plus with Emulation off, unpair it from Bluetooth connections before using it again.

17.2 *Using the Bluetooth Connection*

Bluetooth is a technology that wirelessly connects devices, such as the Orbit Reader 20 Plus, to host devices, such as phones, tablets, and computers. For example, when using an iPhone with VoiceOver, you can control the iPhone with keys and buttons on the Orbit Reader 20 Plus, and you can read the entire interface in braille as you interact with it.

If the Orbit Reader 20 Plus is on, when you turn on the host device, it connects automatically provided the Bluetooth option in the menu is set to Automatic.

When the host device enters sleep mode or is turned off, the Orbit Reader 20 Plus reverts to showing stand-alone content. When connected to another device through the USB port, reconnects to screen reader on the other host device.

There are only two ways to wake up a host device:

- Pressing the Power button
- Receiving a notification

Before you can take advantage of Bluetooth, you must perform the one-time procedure of pairing the Orbit Reader 20 Plus with the host device. With newer devices, the Orbit Reader 20 Plus makes pairing easy by employing a Bluetooth profile named "Just Works." If you use an older host device that does not support this profile, you need to alter this setting in the Orbit Reader 20 Plus's menu.

If you set Emulation to RB18, it shows up in the remote device pair list as Refreshabraille#### (where the # sign represents the last four digits of the serial number of your Orbit Reader 20 Plus).

To pair the Orbit Reader 20 Plus to a host device, see the Bluetooth section for the device type.

- Connecting iOS with Bluetooth
- Connecting Mac with Bluetooth
- Connecting Android with Bluetooth
- Connecting Windows with Bluetooth

17.3 *Manage Connections*

When you use Bluetooth, it is possible to interrupt the Orbit Reader 20 Plus activities with a connected host device. Each time you wake up the host device, it takes over the Orbit Reader 20 Plus. This behavior makes it very convenient to interact with your host in braille, but if you use the Orbit Reader 20 Plus in Stand-Alone mode or connect it to a screen reader with USB, you may not want the interruption when your phone wakes up. To return the Orbit Reader 20 Plus to what you were doing before the interruption, put the host back to sleep by tapping the Power button.

To prevent interruptions from occurring altogether, turn off Bluetooth in the Orbit Reader 20 Plus menu or temporarily turn off notifications on the host device. When you are ready to resume using Bluetooth, either turn it back on from the Orbit Reader 20 Plus menu or use the hotkey Space + Dots 4 7 from Stand-Alone mode on the Orbit Reader 20 Plus. (You can always return to Stand-Alone mode by pressing Select + Left Arrow on the Orbit Reader 20 Plus.)

17.3.1 **Connect to Multiple Hosts**

It is possible to pair the Orbit Reader 20 Plus with more than one device. For example, you can pair it with both your phone and tablet. The device you use must offer a braille interface.

To use Bluetooth with multiple devices, the screen reader on each of the devices should be set to work with the same emulation setting. In other words, if you have an iPad with software version prior to 10.2, it will not recognize the Orbit Reader 20 Plus. Therefore, you should set Emulation mode to be compatible with the older version. If all the hosts you are using support the Orbit Reader 20 Plus directly, turn Emulation mode off. If any of them does not support the Orbit Reader 20 Plus, set the Emulation mode for all to RB18.

While it is possible to pair a device with Emulation off and later pair to a second device with Emulation on, if you set the emulation differently between the devices, commands will fail to work correctly. Therefore, it is important to pay particular attention when the Orbit Reader 20 Plus is set to be used with multiple devices. The first device appears to work, but it does not function correctly, because it still uses the Orbit Reader 20 Plus commands instead of Refreshabraille commands.

When connecting to host devices that do not support the Orbit Reader 20 Plus to ensure the proper functioning of commands between the Orbit Reader 20 Plus and host devices, Set Orbit Reader 20 Plus to emulate RB18.

Note: In Refreshabraille 18 emulation, only the first 18 braille cells are used.

17.4 *USB*

Universal Serial Bus (USB) is a technology that makes connecting devices with hosts easy. It provides some advantages over Bluetooth because it is both faster and charges the Orbit Reader 20 Plus simultaneously.

The Orbit Reader 20 Plus supports three kinds of USB connections (all with the same cable available in the box.)

1. Human Interface Device - Orbit (recommended)
2. Braille - HID
3. Serial
4. Mass Storage (for turning the Orbit Reader 20 Plus's SD card into a drive on your computer)

17.4.1 **Human Interface Device (HID) – Orbit**

When using the Orbit Reader 20 Plus with a screen reader that supports HID Orbit, follow these steps:

1. Turn on the Orbit Reader 20 Plus. Orbit reader 20 Plus displays the last braille you were reading.
2. Connect the USB cable to the host and to the Orbit Reader 20 Plus. "-- Charger connected" is displayed.
3. On the Orbit Reader 20 Plus, press Space + Dots 2 7. "-- HID Orbit" is displayed.
4. Start the screen reader. Orbit responds by displaying what the screen reader is showing. If your screen reader does not support HID, see Serial below.

To switch back to Stand-Alone mode, press Select + Left Arrow.

17.4.2 **Human Interface Device (HID) – Braille**

When using the Orbit Reader 20 Plus with a screen reader that supports HID Braille, follow these steps:

1. Turn on the Orbit Reader 20 Plus. Orbit reader 20 Plus displays the last braille you were reading.
2. Connect the USB cable to the host and to the Orbit Reader 20 Plus. "-- Charger connected" is displayed.
3. On the Orbit Reader 20 Plus, press Space + Dots 6 7. "-- HID Braille" is displayed.

Start the screen reader. Orbit responds by displaying what the screen reader is showing. If your screen reader does not support HID, see Serial below. Switch back to Stand-Alone mode, press Select + Left Arrow.

17.4.3 **Serial**

When using a screen reader that only supports Serial protocol, follow these steps:

1. Turn on the Orbit Reader 20 Plus. It displays the last read material.
2. Connect the USB cable. "-- Charger connected" is displayed.
3. On the Orbit Reader 20 Plus, press Space + Dots 3 7. "-- Serial USB" is displayed.
4. Install any necessary drivers. See the Orbit Reader 20 Plus Resources page or screen reader manufacturer's support webpages.
5. Configure the screen reader. Refer screen reader section in this document or refer to your screen reader documents.

17.4.4 **Mass Storage**

To use an SD card inserted in the Orbit Reader 20 Plus as a drive on your computer, follow these steps:

1. Turn on the Orbit Reader 20 Plus. It responds with braille from your last activity.
2. Connect the Orbit Reader 20 Plus and your computer using USB cable. "-- Charger connected" is displayed.
3. On the Orbit Reader 20 Plus, press Space + Dots 5 7. "-- Mass Storage mode" is displayed. Depending on your settings, the computer also responds with a notification of a new drive that is now available.
4. Use your PC to read and write files on the new drive.

To switch back to Stand-Alone mode, press Select + Left Arrow. Do not switch back to Stand-Alone mode while file transfers are in progress.

Note: If you have hidden files enabled on your device, you may encounter the following files:

- .BKP-FILEHISTORY - This file contains information of the last read position of the last 100 files that were opened on the device.
- .BKP-RECENTHISTORY - This file contains information required for software to generate the recent file list.
- .Logfile - Log file containing software debug information.

Do not delete these files. You will only see them if you have hidden files enabled.

17.5 *Buffering Text Input to Remote Devices*

If you are typing fast on a braille display, there will be times when the remote device lags behind, slowing down your ability to input text quickly. The Orbit Reader 20 Plus has a Buffer mode that allows you to input text up to 255 characters and send them faster to a remote device, avoiding problems with the speed of input of translated braille.

Note: Buffering text works only when connected over Bluetooth.

To open an input field in the Buffer mode, press 'Select + Down Arrow'. Once open, a cursor indicates that you can start entering text. Press Dot 8 to send the entire block of text to an "edit text field" on the remote device. Note that nothing happens when you send a text with no edit box open. Press Select to cancel the action and exit the Buffer mode, without sending any text.

17.6 *iOS Devices*

You can connect to iOS devices using Bluetooth only.

17.6.1 **Connecting iOS with Bluetooth**

Connecting the Orbit Reader 20 Plus to an iOS device provides both braille feedback and the ability to type and control the device with the Orbit Reader 20 Plus keyboard and directional buttons.

You must set the Orbit Reader 20 Plus to emulate RB18 in the menu.

In default configuration (Just Works), the Orbit Reader 20 Plus is ready to pair with iOS via Bluetooth. Follow these steps to pair with Bluetooth:

1. Turn on Bluetooth. Bluetooth can be turned on in the Menu or by pressing Space + Dots 4 7 on the Orbit Reader 20 Plus.
2. On the iOS device, go to Settings > Accessibility > VoiceOver > Braille unless using a version of iOS prior to 13, then go to Settings > General > Accessibility > VoiceOver > Braille, Look for the name of the unit in the list of possible braille displays. It shows up as Orbit Reader 20 Plus or Refreshabraille18 plus the last four digits of the device serial number.
3. Activate the Orbit Reader 20 Plus device in the list to pair.

Confirm code configuration shows a random number on both the Orbit Reader 20 Plus's braille display and on the host device. To confirm the request, ensure that the numbers match and then press Dot 8 on the Orbit Reader 20 Plus. Then press the Pair button on your iOS device.

Once you pair the unit, iOS starts sending braille to the Orbit Reader 20 Plus, and you can use the Orbit Reader 20 Plus input and navigation keys to control your iOS device.

Note: VoiceOver must be on in order to send braille to the Orbit Reader 20 Plus.

For more information about iOS and braille displays, see Braille Displays for iOS on the Apple® Accessibility website.

17.6.2 iOS Resources

- Apple Blind and Visually Impaired User Community
- Andrea's Head Wiki
- TechVision Tutorials
- Youtube Videos on iPad/iPhone and Braille
- Braille Displays for iOS
- Common braille commands for VoiceOver navigation using iPhone, iPad, and iPod® touch

17.6.3 iOS Commands

17.6.3.1 iOS Navigation Commands
- To Move to previous item, press Space + Dot 1 or Left Arrow
- To Move to next item, press Space + Dot 4 or Right Arrow
- To Pan braille left, press Space + Dot 2

- To Pan braille right, press Space + Dot 5
- To Move to the first element, press Space + Dots 1 2 3
- To Move to the last element, press Space + Dots 4 5 6
- To Scroll right one page, press Space + Dots 1 3 5
- To Scroll left one page, press Space + Dots 2 4 6
- To Move to the status bar, press Space + S (Dots 2 3 4)
- To Select previous rotor setting, press Space + Dots 2 3
- To Select next rotor setting, press Space + Dots 5 6
- To Move to previous item using rotor setting, press Space + Dot 3
- To Move to next item using rotor setting, press Space + Dot 6
- To Launch the Task Switcher, press Space + Dots 1 2 5 twice quickly
- To Scroll up one page, press Space + Dots 3 4 5 6
- To Scroll down one page, press Space + Dots 1 4 5 6
- To Go to Notification Center, press Space + Dots 4 6
- To Go to Control Center, press Space + Dots 2 5

17.6.3.2 iOS Reading Commands
- To Read all, starting at the selected item, press Space + R
- To Read all, starting from the top, press Space + Dots 2 4 5 6
- To Pause or continue speech, press Space + P
- To Announce page number OR number of rows displayed, press Space + Dots 3 4

17.6.3.3 iOS General Commands
- To Activate the Back button if present, press Space + B (Dots 1 2)
- To Activate the Delete key, press Space + D OR Space + Dot 7
- To Activate the Return key, press Space + E OR Space + Dot 8
- To Switch between contracted and uncontracted braille, press Space + Dots 1 2 4 5
- To Activate the Home button (twice quickly to launch the task switcher), press Space + H (Dots 1 2 5)
- To Toggle speech on and off, press Space + M
- To Activate the Tab key, press Space + T (Dots 2 3 4 5)
- To Context menu, press Space + Dots 3 5 6
- To Switch braille input, press Space + Dots 2 3 6
- To Volume up, press Space + Dots 3 4 5
- To Volume down, press Space + Dots 1 2 6
- To Toggle screen curtain on/off, press Space + Dots 1 2 3 4 5 6
- To Select all, press Space + Dots 2 3 5 6

- To Cut, press Space + X
- To Copy, press Space + C
- To Paste, press Space + V
- To Undo typing, press Space + Dots 1 3 5 6
- To Redo typing, press Space + Dots 2 3 4 6
- To Activate Eject key, press Space + Dots 1 4 6
- To Toggle announcement history, press Space + Dots 1 3 4 5
- To Keyboard Help, press Space + Dots 1 3

17.6.3.4 iOS iPad Commands

- To Move to previous container, press Space + Dots 1 7
- To Move to next container, press Space + Dots 4 7

17.7 *Mac Computers*

The Orbit Reader 20 Plus can be connected to a Mac in two ways. One is to connect using the USB cable available in the box. The second is to use Bluetooth for a wireless connection.

17.7.1 Connecting to a Mac over USB

The simplest way to connect the Orbit Reader 20 Plus to a Mac is to connect using a USB Standard-A to Micro-B cable. Currently, to use the Orbit Reader 20 Plus with the HID protocol you should pick HID from the USB option on the menu. Next, run VoiceOver by pressing the Apple CMD key + F5. Then, attach the small end of the USB cable to the Orbit Reader 20 Plus with the bumps facing down and the big end to Mac. VoiceOver automatically recognizes and starts using the display.

17.7.2 Connecting to a Mac over Bluetooth

The default configuration for pairing with Mac through Bluetooth is 'just-works'. 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 20 Plus.

If the Orbit Reader 20 Plus is in default connection, follow these steps to pair the device with a Mac:

1. Turn on Bluetooth. Bluetooth can be turned on in the menu or by pressing Space + Dots 4 7 on the Orbit Reader 20 Plus.
2. When VoiceOver is on, open VoiceOver Utility by pressing VO-F8
3. Click the Braille category, click Displays, and then click the Add (+) button
4. Select Orbit Reader 20 Plus 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.

5. Activate the Orbit Reader 20 Plus device in the list to pair.

The Confirm code configuration shows a random number on both the Orbit Reader 20 Plus's braille display and on the host device. Follow steps 1 through 3. The Mac shows you a dialog with a security code. To confirm the request, compare the numbers in the Bluetooth dialog on the Mac with the code shown on your display. If they are the same, select 'Yes' in the dialog on Mac. If the numbers do not match, select 'No' and try the next the Orbit Reader 20 Plus in the list. Pairing requests can be accepted by pressing Dot 8 or rejected by pressing Dot 7 from the Orbit Reader 20 Plus device. The purpose of this procedure is to allow more than one Orbit Reader 20 Plus device to be paired in the same room at the same time without pairing the wrong device.

If the Orbit Reader 20 Plus does not work with VoiceOver, it is possible that you are not using the latest Mac OS. In that case, you have two choices:

1. Put the Orbit Reader 20 Plus in Refreshabraille 18 (RB18) Emulation mode. Then connect it as an RB18
2. Check for updates. We suggest you update to the latest operating system

If the Orbit Reader 20 Plus is not listed, make sure you have turned on Bluetooth in the Menu.

17.7.3 **Controlling the Orbit Reader 20 Plus from a 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.

17.8 *Android Devices*
You can connect Android devices using Bluetooth only.

17.8.1 **Connecting to Android devices over Bluetooth**
In the default configuration, the Orbit Reader 20 Plus is ready to pair with Bluetooth. If Bluetooth has been turned off, it can be turned on in the menu or by pressing Space + Dots 4 7.

1. Turn on Bluetooth. Bluetooth can be turned on in the menu or by pressing Space + Dots 4 7 on the Orbit Reader 20 Plus.

2. Turn on the Android device. Android and BrailleBack produce a tone to indicate successful communication.
3. Set up the Android device.
   To set up your Android device, follow the Install and enable BrailleBack instructions found on the Google™ Android Accessibility Help webpage.

17.8.2 **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 will 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 eight-dot braille known as Computer Braille. 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 Unified English Braille (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. Select "Braille type".
   - 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.

17.8.3 **BrailleBack Commands**

- To Back, press Space + B
- To Home, press Space + H
- To BrailleBack help, press Space + Dots 1 2 3
- To check Notifications, press Space + N
- To open Recent Apps, press Space + R

- To Enter (in Edit field), press Space + Dot 8
- To Backspace (in Edit field), press Space + Dot 7

17.9 *Chromebooks*

Currently, you can only use USB to connect to a braille display from a Chromebook™ notebook computer.

17.9.1 **Connecting Chromebook with USB**

To connect to Chromebook with USB, follow these steps:

1. Press Dots 2 7 + Space to put the Orbit Reader 20 Plus in Remote HID (Orbit) mode. Alternatively, Press Up Arrow + Select in the menu, and then arrow to USB.
2. Plug the Orbit Reader 20 Plus into the Chromebook USB port. After a few seconds, the Chromebook detects the device and turns on ChromeVox.

17.9.2 **ChromeVox Settings/Commands**

To adjust ChromeVox settings or learn commands, go to 'Use a braille device with your Chromebook' (":https://support.google.com/chromebook/answer/7020014?hl=en' webpage at the Chromebook Accessibility Help site

17.10 *Fire Tablets*

To pair the Orbit Reader 20 Plus with VoiceView on your Fire Tablet, follow these steps

1. Swipe down from the top of the screen with two fingers and double tap on Settings.
2. Find the Accessibility settings and double-tap. Then double-tap on VoiceView Screen Reader.
3. Navigate to Braille and double-tap. Then double-tap Pair Bluetooth Braille Display.
4. Make sure your Orbit Reader 20 Plus is on and Bluetooth is on, and then double-tap on Scan.
5. You should see the Orbit Reader 20 Plus followed by the serial number. Double-tap on it to pair.

For additional information, go to the "Use a Braille Display with Your FireTablet":(*https://www.amazon.com/gp/help/customer/display.html?nodeId=20 1829370*) webpage on the Amazon Help and Customer Service site.

17.11 *Windows PCs*

Before connecting the Orbit Reader 20 Plus with a PC, you must first decide how you wish to connect: via Bluetooth or USB. This is a personal choice. 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.

17.11.1   **Connecting to Windows over USB**

If your screen reader does not support HID, switch to the Serial protocol on the Orbit Reader 20 Plus with the hotkey or selecting Serial from the USB option in the menu.

For Windows versions 7 and newer, 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 for later use. If you need to look at it later, 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 the Orbit Reader 20 Plus. 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 the Orbit Reader 20 Plus.

17.11.2   **Connecting to Windows over Bluetooth**

When connecting the Orbit Reader 20 Plus with Bluetooth, you must first choose a pairing configuration.

The default configuration is 'just works'. If the Orbit Reader 20 Plus is in default connection, follow these steps to pair the device:

1. On the PC, perform a Bluetooth search.
2. Select the Orbit Reader 20 Plus from the list of Bluetooth devices.

Confirm code configuration shows a random number on both the Orbit Reader 20 Plus's braille display and on the host device. Follow steps 1 and 2; then, to confirm the request, compare the numbers in the Bluetooth dialog on the Windows PC with the code shown on your display. If they are the same, select 'Yes'. If the numbers do not match, select 'No' and try the next Orbit Reader 20 Plus in the list. Pairing requests can be accepted by pressing Dot 8 or rejected by pressing Dot 7 from the Orbit Reader 20 Plus device. The purpose of this procedure is to allow more than one Orbit Reader 20 Plus device to be paired in the same room at the same time without pairing the wrong device.

The device pairs with the Orbit Reader 20 Plus 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 outgoing 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.

17.11.3   **Non-Visual Desktop Access (NVDA)**

If you have NVDA (version 2017.1 or later) installed on your PC, it automatically recognizes the Orbit Reader 20 Plus. 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.

Note: NVDA works in HID (Orbit) only, not Serial.

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

17.11.3.1 NVDA Commands

- To Move up one line, press Up Arrow
- To Move down one line, press Down Arrow
- To Move left one character, press Left Arrow
- To Move right one character, press Right Arrow
- To Enter, press Select

17.11.4   **Job Access with Speech (JAWS)**

For JAWS version 2018.1803.24 and later no driver installation is required. If you are using older versions, you will need to install driver. The JAWS driver download and instructions are available on the Orbit Research Support webpage. **For JAWS versions older than 17, you must use the RB18 emulation mode on** the Orbit Reader 20 Plus.
When connecting the Orbit Reader 20 Plus to JAWS by USB, it must be set to use the HID (Orbit) protocol by pressing Space + Dots 2 7.

To connect Orbit Reader 20 Plus by USB, follow these steps:

1. Start or restart JAWS.
2. Insert + J to bring up the JAWS menu.
3. Press Enter on Options.

4. Down Arrow to Braille and press Enter.
5. Tab to Add and press Enter.
6. Arrow Up or Down to Orbit Reader 20 Plus and press Space to check the box and select it.
7. Tab to the Next button and press Enter.
8. Select USB.
9. Tab to the Next button and press Enter.
10. Select Orbit Reader 20 Plus as a primary device.
11. Tab to the Finish button and press Enter.
12. Restart JAWS.

Alternative Steps for connecting over Bluetooth:

1. Press Space + Dots 4 7.
2. Follow steps 1-7 of the USB connection.
3. Select the COM port where the Orbit Reader 20 Plus is connected (check device manager for COM port or use COM port you saved from previous steps).
4. Follow steps 9-12 of the USB connection.

To turn off braille support, follow these steps:

1. Insert + J to bring up the JAWS menu.
2. Press Enter on Options.
3. Down Arrow to Braille and press Enter.
4. Up Arrow to No Braille Display.
5. Tab to Ok and press Enter.
6. Restart JAWS.

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 the JAWS keyboard Help mode.

17.11.4.1 Jaws Commands

17.11.4.1.1 Jaws Reading Commands

- To Move display to the left, press Left
- To Move display to the right, press Right
- To Move display up one line, press Up
- To Move display down one line, press Down
- To Pan left one braille window, press Pan Left
- To Pan right one braille window, press Pan Right
- To Top of active window, press Select + Dots 1 2 3

- To Bottom of active window, press Select + Dots 4 5 6
- To Route braille to active cursor, press Select + R
- To Say current line, press Dots 1 4 or Dots 1 4 Chord
- To Say current word, press Dots 2 5 or Dots 2 5 Chord
- To Say current character, press Dots 3 6 or Dots 3 6 Chord

17.11.4.1.2 Jaws Navigation Commands

- To Previous document window, press Dots 1 3 or Dots 1 3 Chord
- To Next document window, press Dots 4 6 or Dots 4 6 Chord
- To Beginning of file, press Dots 1 2 3 or Dots 1 2 3 Chord
- To End of file, press Dots 4 5 6 or Dots 4 5 6 Chord
- To Page Up, press Dots 1 2 3 4 5 or Dots 1 2 3 4 5 Chord
- To Page Down, press Dots 1 2 4 5 6 or Dots 1 2 4 5 6 Chord
- To Home, press Dots 1 2 3 4 Chord
- To End, press Dots 1 4 5 6 Chord
- To Up Arrow, press Space +Dot 1
- To Down Arrow, press Space + Dot 4
- To Previous word, press Space + Dot 2
- To Next word, press Space + Dot 5
- To Previous character, press Space + Dot 3
- To Next character, press Space + Dot 6

17.11.4.1.3 Editor Commands

- To Backspace (acts as shift key when typing braille characters), press Dot 7
- To Enter, press Dot 8
- To Tab, press Dots 4 5 or Dots 4 5 Chord
- To Shift + Tab, press Dots 1 2 or Dots 1 2 Chord
- To Delete current character, press Dots 1 4 5 or Dots 1 4 5 Chord
- To Select all, press Dots 1 8 or Dots 1 8 Chord
- To Select from top of document, press Dots 1 2 3 7 8 or Dots 1 2 3 7 8 Chord
- To Select to bottom of document, press Dots 4 5 6 7 8
- To Select previous page, press Dots 1 2 3 4 5 7 8
- To Select next page, press Dots 1 2 4 5 6 7 8
- To Select to beginning of line, press Dots 1 2 3 4 7 8
- To Select to end of line, press Dots 1 4 5 6 7 8 or Dots 1 4 5 6 7 8 Chord
- To Select previous line, press Dots 1 7 8

- To Select next line, press Dots 4 7 8
- To Select previous word, press Dots 2 7 8
- To Select next word, press Dots 5 7 8
- To Select previous character, press Dots 3 7 8
- To Select next character, press Dots 6 7 8
- To Copy to clipboard, press Dots 1 4 8 or Dots 1 4 8 Chord
- To Cut to clipboard, press Dots 1 3 4 6 8 or Dots 1 3 4 6 8 Chord
- To Paste clipboard, press Dots 1 2 3 6 8 or Dots 1 2 3 6 8 Chord
- To Undo, press Dots 1 3 5 6 8 or Dots 1 3 5 6 8 Chord

17.11.4.1.4 Windows Commands
- To Start menu, press Dots 1 3 4 7 8
- To Toggle menu bar, press Dots 1 3 4 or Dots 1 3 4 Chord
- To Escape, press Dots 1 3 5 6 or Dots 1 3 5 6 Chord
- To Alt Tab, press Dots 2 3 4 5 or Dots 2 3 4 5 Chord
- To Minimize all applications, press Dots 1 4 5 7 8

17.11.4.1.5 General Commands
- To Toggle keyboard help, press Dots 1 4 5 6
- To Toggle type keys mode, press Dots 1 2 3 4 5 6 Chord
- To JAWS cursor, press Select + Dots 2 4 5
- To PC cursor, press Select + Dots 1 2 3 4
- To Route JAWS cursor to PC cursor, press Select + Dots 1 4
- To Say all to bottom, press Dots 1 2 3 4 5 6 7 8
- To Toggle grade 2 translation, press Dots 1 2 4 5 or Dots 1 2 4 5 Chord
- To Toggle grade 2 translation of current word, press Select + Dots 2 4 5 6
- To Display last flash message, press Select + Dots 1 2 4
- To JAWS find, press Dots 1 2 4 Chord
- To JAWS find next, press Dots 2 5 7 8
- To JAWS find previous, press Select + Dots 2 5 7 8
- To Toggle active cursor follows braille, press Select + Dot 1
- To Toggle braille follows active cursor, press Select + Dot 4
- To Cycle through braille modes, press Select + Dots 1 3 4
- To Display 6 dot braille, press Select + Dots 2 3 5
- To Display 8 dot braille, press Select + Dots 2 3 6
- To Toggle cursor shape, press Select + Dots 1 4 6
- To Restrict braille cursor, press Select + Dots 1 2 3 5
- To Toggle characters and attributes, press Select + Dots 1 6
- To Braille color marking, press Select + Dots 3 4

- To Select attributes to be displayed, press Select + Dots 1 3
- To Set 8 characters per space, press Dots 2 3 6 Chord
- To Set unlimited characters per space, press Dots 1 3 6 Chord
- To, Toggle 8/unlimited characters per space, press Select + Dots 1 3 4 6
- To Cycle table reading options, press Select + Dots 2 3 4 5
- To Cycle table header options, press Select + Dots 1 2 5
- To Graphics labeler, press Select + Dots 1 2 4 5
- To Quick Settings, press Select + Dots 1 2
- To Adjust JAWS options, press Select + Dots 1 2 3 6
- To JAWS window, press Dots 2 4 5 or Dots 2 4 5 Chord
- To Run JAWS manager, press Dots 2 3 7 8
- To List of links on page, press Dots 2 3 5 6 7 8
- To Show current time, press Dots 2 3 4 5 7 8
- To Show script file name, press Select + Dots 1 2 3 4 5
- To Quit JAWS, press Dots 2 5 6 7 8

17.11.4.1.6 Special Key Commands

- To simulate CTRL + A – CTRL + Z, press Dot 8 + any letter
- To simulate F1-F10, press Dot 7 + Computer Braille number 1 – 0 (0=F10)
- To simulate CTRL + F1 to CTRL + F10, press Dot 8 + Computer Braille number 1 - 0

17.12 *System Access*

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

1. Press Select + Up Arrow to open menu
2. Down Arrow to the USB selection
3. Right Arrow to select HID (Orbit)
4. Press Select
5. Press Dot 7 to return to the last location

Another way to quickly switch to HID (Orbit) mode is to use the shortcut keys Space + Dots 2 7.

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

17.12.1   **Dolphin Screen Reader**

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

1. Press Select + Up Arrow to open menu
2. Down Arrow to the USB selection or Dot 8
3. Right Arrow to select HID (Orbit)
4. Press Select
5. Press Dot 7 to return to the last location

Dolphin Screen Reader automatically detects Orbit Reader 20 Plus and begins displaying braille.

Another way to quickly switch to HID (Orbit) mode is to use the shortcut keys Space + Dots 2 7.

17.12.2   **Window-Eyes**

Window-Eyes is no longer being updated. For this reason, there is no Orbit Reader 20 Plus driver for Window-Eyes. To use Window-Eyes with Orbit Reader 20 Plus, you must emulate Refreshabraile 18.

To connect to Window-Eyes using USB, the Orbit Reader 20 Plus USB protocol must be set to Serial. To do this, follow these steps:

1. Press Select + Up Arrow to open the menu
2. Down Arrow to USB and press Select or Dot 8
3. Press Right or Left Arrow keys to select Serial
4. Press Select
5. To exit, press Dot 7

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 20 Plus 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.

17.12.3   **Narrator**

Narrator braille support is in beta. To opt-in to the beta, please follow the instructions found in "Chapter 7: Using Narrator with braille" https://support.microsoft.com/en-us/help/4004263/windows-10-narrator-using-with-braille from Microsoft Support. You will need to have your display in emulation mode as a Refreshabraile 18 and select Baum as the manufacturer inside the Narrator braille settings.

Narrator support for the Orbit Reader 20 Plus has been enabled for the release

1903 and onwards. If users are experiencing issues connecting with version 1903, follow these steps to fix the issue.

- Uninstall Narrator:
    - Press the Windows logo key + I to open Settings.
    - Select Apps, choose Apps & features, and then select Optional features.
    - Select Accessibility – Braille support, and then choose Uninstall.
- Reinstall Narrator:
    - Press the Windows logo key + Ctrl + N to open Narrator settings.
    - Under Use braille, select Download and install braille. (This takes some time. Windows also asks if you're sure that you want to allow Windows to make changes to your PC.)
    - When download and installation is complete, select Enable braille.

Note: Narrator assigns "libusb" as the driver to the Orbit Reader 20 Plus. To perform the OR-20 firmware upgrade and to work with screen reader applications other than HID, you must go to the Narrator settings and choose the "Change your braille display driver" setting to be HID.

17.13 *Orion TI-84 Plus*

To connect the Orion TI-84 Plus to the Orbit Reader 20 Plus, you need a cable that converts from USB Micro-A to Micro-B. It can be found at the Digikey® website.

When you plug in the Orbit Reader 20 Plus, the Orion TI-84 Plus announces "Braille display connected."

Follow the steps below to establish a connection between the Orbit Reader 20 Plus and the Orion TI-84 Plus:

1. Turn off the Orion TI-84 Plus if it is already on.
2. Connect the Micro-B end of the cable to the Orbit Reader 20 Plus.
3. Connect the Micro-A end of the cable to the Orion TI-84 Plus's host USB port.
4. Turn on the Orion TI-84 Plus.
5. Turn on the Orbit Reader 20 Plus
6. The Orion TI-84 Plus announces "Braille display connected."
7. Now the expressions you write on the home screen should appear on the Orbit Reader 20 Plus

18 Calculator

The Calculator can perform the four fundamental arithmetic operations.

Press Space + C (Dots 1 4 7) keys from the stand-alone mode to open and close the calculator application. It shows the message "Calculator" for 2 seconds and starts blinking the cursor on the first cell of the display when the calculator is launched.

You can now start typing digits (0 to 9), mathematical operators (+, -, *, /), decimal point, and equals sign. The Calculator gives an error indication in the form of vibration or audio on inserting invalid input.
While entering the expression, you must enter using the language that is set as "read/write language".

When you type any digit or operator, it moves the cursor to the next cell. Press Dot 7 to remove the last digit/operator. Once the entire display is full, you can review the previous display by pressing Left/Right keys or pan keys. (Total number of input digits and operators is limited to 255 entries for a single operation and maximum 15 digits are allowed per operand.)

Press Dot 8 key to perform the calculation and display the answer. It stops blinking when the answer is shown. On pressing Dot 8 key on the answer it repeats the previous operation on the answer

Dot 8 at the last cell indicates the answer is longer than 20 digits. Press Pan keys to review the remaining answer.

To review the last 10 operations, press Space + Panning keys.

Exit the Calculator to go to previous or other modes or preference menu. The calculator application exits automatically when you turn off the device or it goes into sleep mode.

18.1 *Basic calculator functions*

18.1.1 **Addition**
Type any digits, then press '+' sign to add the addition operator and then type digits again For example, 4+2

18.1.2 **Subtraction**
Type any digits, then press '-' sign to add the subtraction operator and then type digits again. For example, 4-2

18.1.3 **Multiplication**
Type any digits, then press '*' sign to add the Multiplication operator and then type digits again. For example, 4*2

18.1.4 **Division**

Type any digits, then press '/' sign to add the division operator and then type digits again. For example, 4/2

Press Dot 8 key to display the answer.

Press Space + Dot 7 to clear the last operand typed into the display (CE – Clear Entry) and press Space + Dot 7 8 to clear the display and any partial calculation (AC – All Clear)

The Calculator shows the following error messages
1. Divide by zero: "Cannot divide by zero"
2. Zero divided by Zero: "Result is undefined"
3. Pressing Select key without entering the second operand: "Syntax error"

18.2 *Memory operations*

The memory operations allow you to store and recall the results of calculations.

The calculator memory is set to 0 until you press M+ (Space + Up) or M- (Space + Down). Each time you press M+ the number on the display is added to the number stored in the calculator memory. Each time you press M- the number on the display is subtracted from the number in the calculator memory. To recall the number in the calculator memory press MR (Space + Left). To clear the memory press MC (Space + Right).

18.3 *Calculator Commands*
- To Open/Close Calculator, press Space + C (Dots 1 4 7)
- To do Addition, press Select + Up arrow / (Dots 3 4 6)
- To do Subtraction, press Select + Down arrow / (Dots 3 6)
- To do Multiplication, press Select + Right arrow / (Dots 1 6)
- To do Division, press Select + Left arrow / (Dots 3 4)
- To Backspace, press Dot 7
- To Clear Entry, press Space + Dot 7
- To All clear, press Space + Dots 7 8
- To enter Decimal point, press Dots 4 6
- To enter Pi key(Displays the value of pi) press Dots 1 2 3 4
- To do M+ (Memory Plus), press Space + Up arrow
- To do M- (Memory minus), press Space + Down arrow
- To do MR (Memory recall), press Space + Left arrow
- To do MC (Memory clear), press Space + Right arrow
- To do History navigation, press Space + Panning key

* shortcut only available when Read/write language is set to Computer Braille

19 Calendar

The Orbit Reader 20 Plus includes a calendar.

Press Space + Dots 1 4 8 to open or close the calendar. The first thing you see is the month and year. For example, Jul 2021.

Now, press the down arrow key once, and you are presented with the seven days of the week as follows:

Su Mo Tu We Th Fr Sa

Now, if you press down arrow once again, you will see the numbers 1, 2, and 3 shown at the right end of the 20-cell braille window. Pressing down arrow again shows July 4 through 10, and continuing to press down arrow will scroll down through the weeks of July and then into August, etc. Similarly, if you can press up arrow to see the previous week.

At this point, as you navigate using the down arrow key today's date is shown highlighted with raised Dot 7 and 8.

Please note that the Letter sign, capital sign and number sign shall not be displayed along with month, year, and weekdays titles if the System language selected is to be other than the English Computer Braille.

19.1 *Appointments*

You can also add and view appointments for a specific day.

19.1.1 **View, Edit, and Create appointments**

You can quickly jump to a specific date using the GoTo Date command (Space + Dots 1-2-4-5 (braille g)). You will jump to the editor with today's date and current time. i.e 06;08;2021 05:42 PM. Now you can set the time and text for the appointment using Up/Down Arrow.

If you wish to do it manually then you first need to scroll to the line where your desired date is shown and then start using the right arrow key to focus on the date for which you want to set up or edit an appointment. Suppose you want to set up an appointment on July 24, 2021. You would arrow down through the month of July until you reach the row where July 18 through 24 is shown. You will see that the cells representing July 23 have dots 7-8 raised to indicate that July 23 is the current date.

Now, press the right arrow. On the cells representing July 18, the first date shown in the braille window, dots 7 and 8 are raised underneath the number 8. So, you would press the right arrow 6 times to focus on July 24, the date on which you wish to add an appointment.

Pressing the Select button Assuming you have no appoints on or later July 24, you receive the following message:

-- No Appointments

If you press dot 7 at this point, you will be returned to the display showing July 18 through 24.

To create the new appointment you want for July 24, press space with dots 1-3-4-5 (a braille n). You should see the date and time displayed with dots 7-8 raised below the first digit. Use the right arrow key to navigate to that part of the display you wish to change, such as the hour or minute. Press the right arrow repeatedly until you pass the time area and type the information about the appointment. You can correct any mistakes here using dot 7 to backspace. Press dot 8 to add the appointment. What you now see is the date, time, and text of the appointment.

Press select if you still want to make changes. If you are done, press dot 7 to get back to the display of July 18 through 24. None of the dates are highlighted.

If you want to see the appointments you might have created for the period July 18 through 24, you must first ensure that one of the dates in the window is highlighted—that is, has dots 7-8 raised beneath the last digit. If no date is highlighted, nothing happens when you press the Select button. With a date highlighted, you either see "No Appointments or you are presented with a list of the appointments you have already created. Use the up or down arrows to move between the appointments in the list. You can press Space with Dots 1-4-5 (a braille d) to delete the appointment or Select to edit the appointment.

19.1.2 **Modify**

You can also modify the existing appointment. Press Select key on any day. It shows the list of existing appointments and press Select key to get the cursor on the first field of that appointment and you can change any field by pressing the Up/Down arrow key.

Dot 8 to confirm the modifications.

19.1.3 **Delete appointment**

You can also delete the existing appointment. Press the Select key on any day. It shows the list of existing appointments and Press Space + Dots 1 4 5 to delete that appointment.

An appointment is displayed at its programmed time and day of the appointment. Press Dot 7 to acknowledge the appointment.

19.2 *Calendar Commands*

The following are the command for the calendar application

- To open/close calendar, press Space + Dots 1 4 8.
- To Go to Previous or Next Week, press Up or Down Arrows You can navigate in the calendar by weeks. Pressing Down arrow key goes the next week and pressing Up arrow key to goes to the previous week.
- To Add a new appointment, press Space + Dots 1 3 4 5.
- To Delete appointment, press Space + Dots 1 4 5.
- To Go to Date, press Space + Dots 1 2 4 5.

20 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 then on again.

21 System Alerts

System alerts, such as — "Battery low" are indicated by periodic cycling of Dot 8 in the last cell of the device.

Alerts are seen by invoking the Menu or the Editor Context Menu. Pressing Select causes the next alert to appear, if there is any. 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 on the first Menu or Editor Context Menu item.

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

22 Reboot the Device

If the Orbit Reader 20 Plus suddenly does not respond to button presses, and you know that the battery is not fully discharged, then you may try rebooting the device 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.

23 Device Upgrade Procedure

New versions of the firmware for the Orbit Reader 20 Plus are released from time to time, containing improvements, bug fixes, and new features. This section describes the procedure for updating the Orbit Reader 20 Plus firmware.

There are two ways to upgrade the firmware of the Orbit Reader 20 Plus: either using a Windows PC and a USB cable or using an SD card containing the update file.

The USB upgrade method requires a Windows PC, but the upgrade process is simple and quicker, but the SD card upgrade method only requires a computer to download the update file and put it on the SD card; then no computer is required to perform the actual upgrade.

There are two parts to either upgrade procedure:
1. Download the firmware package
2. Upgrade the Orbit Reader 20 Plus

The process for downloading the firmware package is common to either upgrade method.

23.1 *Download firmware package*

To download a Firmware Upgrade Package for the Orbit Reader 20 Plus:
1. Go to the Orbit Research Support webpage (http://www.orbitresearch.com/support/orbit-reader-20-plus-support/)
2. For the most current version, select Download Most Recent Firmware. (http://www.orbitresearch.com/support/orbit-reader-20-plus-support/orbit-reader-20-plus-firmware-download/). Alternatively, to download an older firmware version, select Download previous firmware release versions, and select the Upgrade Package of your choice. (http://www.orbitresearch.com/support/orbit-reader-20-plus-support/or-20-plus-old-firmware-release-archive/)
3. Select Orbit Reader 20 Plus Firmware Upgrade Package vA1.00.00.XXrYY.
4. Save the zip file to your PC.

When the download is complete, follow these steps:
1. Open the folder on your computer where the firmware zip file was downloaded. This is usually your Downloads folder.
2. Right-click on the file and choose "Extract all" OR select the file by arrowing to it, pressing the application key and choosing "Extract All" from the Context menu.
3. Follow the dialog steps to extract the zip file 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.

For information about bugs, fixes, and additions to the software, see the latest version's Release Notes on the Orbit Research Firmware. Download the webpage http://www.orbitresearch.com/support/orbit-reader-20-plus-support/orbit-reader-20-plus-firmware-download/

23.2 *Using the Windows PC Upgrade Utility*

The following is required to perform the upgrade to the Orbit Reader 20 Plus with a PC:

1. The Orbit Reader 20 Plus unit
2. Standard-A to Micro-B USB cable
3. A PC running Windows XP or later
4. The Orbit Reader 20 Plus Upgrade Utility file found in the Orbit Reader 20 Plus folder (see Download firmware package).
5. Orbit Reader 20 Plus Release Bin file found in the Orbit Reader 20 Plus folder (see Download firmware package).

To upgrade the firmware, follow these steps:

1. Make sure the Orbit Reader 20 Plus is turned off.
2. Connect the Orbit Reader 20 Plus to the PC using the USB cable.
3. In the Release folder on your PC, run the Orbit Reader 20 Plus Firmware Upgrade Utility. If you receive an error message, see the Troubleshooting section. Assuming no errors, the program displays the message, "Note: Connect the device to the PC and put it into upgrade mode. To enter Firmware Upgrade Mode press and hold the Right Panning forward button + 'Dot 5' key. Then press and release the 'Dot 8' key. The other keys can be released after this.
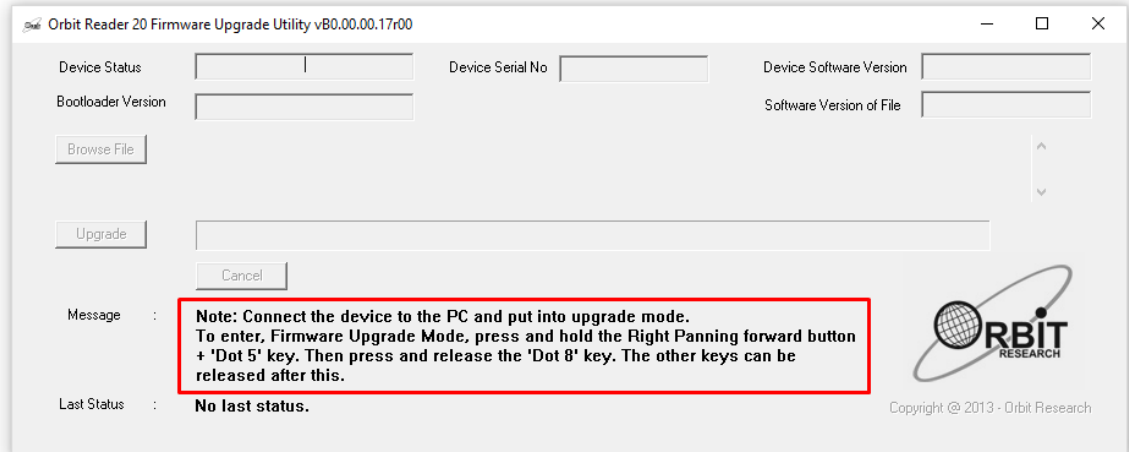
4. Press and hold down the Right Panning forward button + Dot 5, then press Dot 8. The utility shows the message "Orbit Reader 20 Plus is connected" in the Device status field. It shows the message "Do you want to upgrade the device?" in the message field at the bottom of the dialog.
5. Release Dot 8 first, then release the Right Panning key and Dot 5. This switches the Orbit reader 20 Plus to 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 the 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 the 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.
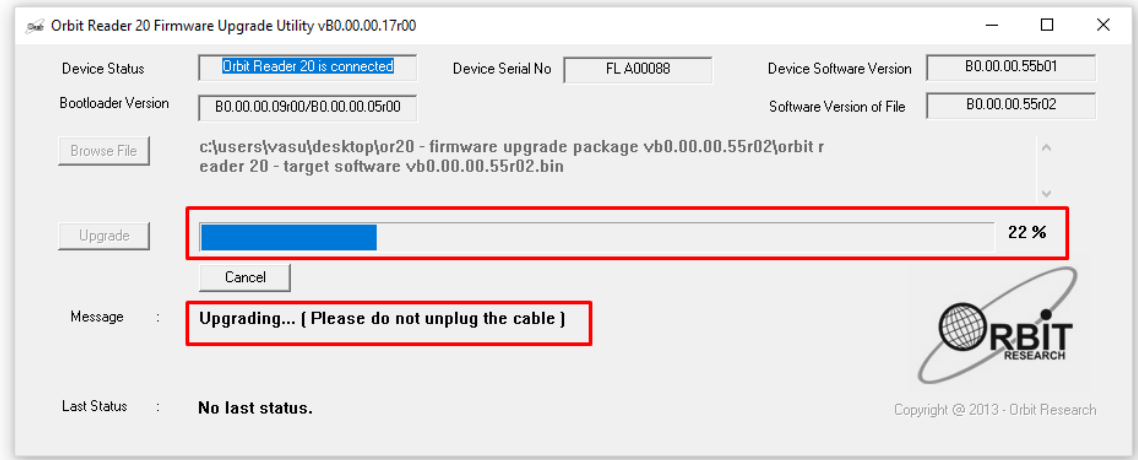
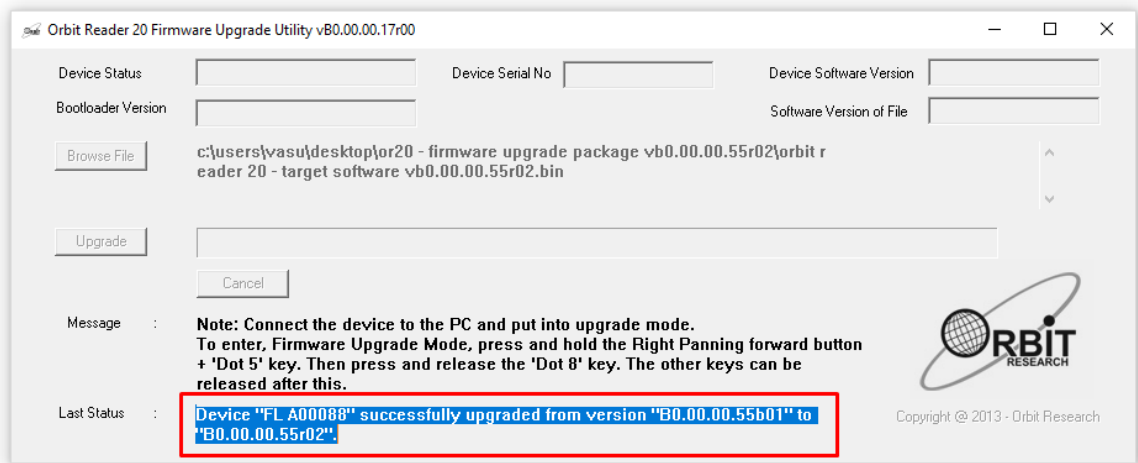12. Do not unplug the cable. Wait for the message "Device upgrade has been completed" on the upgrade utility or until the Orbit Reader 20 Plus reboots and shuts down.

13. The Orbit Reader 20 Plus is upgraded. Turn on the Orbit Reader 20 Plus to start using the device.

To check for a successful upgrade of the Orbit Reader 20 Plus, press Select + Up Arrow to open the Orbit Reader 20 Plus Menu and arrow to "Ver" in the list. The version number of the firmware release should match the number shown in the upgrade utility.

23.3 *Using an SD card to Perform the Upgrade*

The following is required to perform the upgrade to the Orbit Reader 20 Plus from an SD card:

1. Orbit Reader 20 Plus unit
2. Orbit Reader 20 Plus Release Bin file found in the Orbit Reader 20 Plus folder of the download package (see Download the Firmware Package).
3. Your SD card should have a FAT32 file system

To upgrade the firmware, follow these steps:

1. Copy the binary file "Orbit Reader 20 Plus - Target Software vB0.00.00.XXrYY.bin" from the download package to the root folder of the SD card. Use either the Orbit Reader 20 Plus Mass Storage Mode, or remove the SD card and put it in a card reader and connect the same to a PC. When completed, insert the SD card into the Orbit Reader 20 Plus.
2. Turn off the Orbit Reader 20 Plus. The unit should be turned off before the upgrade is started.
3. Press and hold the Right Panning forward button + Dot 4, then turn on the Orbit Reader 20 Plus; it will show the message "Preparing…". Now you can release all the keys. Typically, it will take about 40 to 50 seconds to prepare.
4. Once preparation is complete, the Orbit Reader 20 Plus should show the message "Upgrading….". Progress is shown by blinking dot 6 of 4 cells at the end of the message.
5. Typically, it will take 2.5 to 3 minutes to upgrade the firmware. Do not remove the SD card during the upgrade.
6. When the upgrade has completed, the Orbit Reader 20 Plus will show the message "Upgrade complete" for a few seconds and then the device will automatically reset itself and turned off.
7. After upgrading the firmware, when you turn on the Orbit Reader 20 Plus for the first time, it will show the message "Upgrade successful". It does not show this message if you upgrade the same software version or older one.
8. The Orbit Reader 20 Plus is upgraded. Turn on the Orbit Reader 20 Plus to start using the device.

To check for the successful upgrade of the device, press Select + Up Arrow to open the Orbit Reader 20 Plus Menu and arrow to "Ver" in the list. The version number of the firmware release should match the number in the name of the bin file.

23.3.1 **Troubleshooting**

1. In case the unit freezes up or does not accept any commands at all, you can perform a recovery operation by following the steps suggested below.

    a. Make sure that you have the binary file "Orbit Reader 20 Plus - Target Software vB0.00.00.XXrYY.bin" into the root directory of the SD card.

    b. Press and hold the Right pan lower + Dot 4 keys + the Power button and wait for the message "Preparing…". If you do not get any message within 4 or 5 seconds, press and release the Dot 8 key and then release the other keys.

    c. Wait for about a minute. The Orbit Reader 20 Plus should start upgrading and show the message "Upgrading firmware".

    d. Typically, it will take 2.5 to 3 minutes to upgrade the firmware.

    e. The Orbit Reader 20 Plus shows the "Upgrade complete" message after completion of a successful firmware upgrade for 5 to 8 seconds and then the device will automatically reset/shut down itself.

2. If the Orbit Reader 20 Plus does not show the message "Preparing", make sure you had pressed the keys in the correct sequence. Press and hold the Right pan lower + Dot 4 keys and without releasing them, press the power key to turn on the device.

3. If you don't have firmware version B0.00.00.55r02 or later, you may not see the messages "Preparing…" properly when you start the firmware. Wait for around 1 minute. It will eventually show the message "Upgrading".

4. If you are not sure at what stage of the upgrade process you are, you can always start from the first step. Just reset the Orbit Reader 20 Plus by pressing Dot 8 and the Right pan down key.

5. If you do not get the message "Upgrade successful" after turning on the Orbit Reader 20 Plus for the first time, there could be a chance that you had upgraded the Orbit Reader 20 Plus with the same software version. You can always check the current firmware version from the menu. Press Select + Up Arrow to open the Menu and arrow to "Ver" in the list.

24 **Language Options (Localization)**

The following are the steps to be followed for Configuring file for a local language other than English.

1. Visit our website at http://www.orbitresearch.com/support/orbit-reader-20-plus-support/orbit-reader-20-plus-localization-download/ and download the file for your language

2. If the desired language file is not there, you can request for the same by writing to us at techsupport@orbitresearch.com.
3. Copy the file to the "locale" folder in the root directory of your SD card that you are using with the device. The file can be copied externally through a card reader or putting the device to a mass storage mode.
4. Go to the Preference menu item "Add language" to check the file you copied. If you have multiple language files in the SD card, you can scroll through them using Left/Right Arrow key.
5. Go to the file of your choice and press Select to load file to internal memory.
6. The unit shows busy indication by displaying "busy" on the display. The unit has NO AUDIO!!!!
7. You can load multiple languages following the same process (If you encounter "Memory full" error while adding languages, you need to remove some languages before you can load new languages. Please refer to the "Remove language" section for more details on how to remove languages.)
8. Go to the Profile settings for the profile of your choice among profile 1, 2, 3 or 4 in preference menu.
9. Go to the sub-menu called "system language" and press Select. If you have multiple language files in the internal memory you can scroll through them using Left/Right Arrow key.
10. Go to the file of your choice and press Select. Press dot 7 to exit the system language setting.
11. Now Go to the Read-write menu item which is next to the sys lan
12. Go to the file of your choice and press Select. Press dot 7 to exit the read-write language setting.
13. Press dot 7 to exit the menu.
14. Press Select + Dot 1, Select + Dot 2, Select + Dot 3 or Select + Dot 4 to activate the profile 1, profile 2, profile 3 or profile 4, respectively.

25 Troubleshooting

If the Orbit Reader 20 Plus does not power on or seems to freeze, try these options in the following order:

Option 1: Plug in the device

1. Plugin the unit with the supplied AC wall connector and cable to ensure that the battery is charged. This is the most reliable power source.
2. Let the unit 'charge' for at least an hour or more.
3. 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.

Option 2: Check SD card

1. Remove the SD card.
2. Hold the Power button for two seconds.

Option 3: Unplug the device

1. If the unit is plugged in, unplug the power cord.
2. Hold the Power button for at least two seconds.

Option 4: Reset device

1. Press the Reset command (Dot 8 + right-bottom Panning key). Note: On reset, the unit is unresponsive, and there is no change to the display.
2. Hold the Power button for at least two seconds.

Option 5: Remove the battery

Note: Use this option as the last resort.

1. Call customer service for guidance on safely removing the battery.
2. Leave it out for a few minutes.
3. Reconnect it, then try the options again.

If none of the options works and the device does not come on, contact Customer Service at techsupport@orbitresearch.com.

25.1 *Exercising the Pins*

If you experience issues with the pins, you may exercise the pins following the steps described below

1. Power On the unit.
2. Enter into test mode (Press and hold space key + tap power button 5 times).
3. The unit shows the unit serial number.
4. Press the space key, this will toggle all pins up or down.
5. Make a note of pins that are misbehaving if any
6. Press the Select + down arrow key, this will automatically toggle all the pins up and down. This may also help to recover the pins if they are stuck due to nominal dust in the pin movement path.
7. Allow the exercise to run for 4-5 minutes only and press select to stop the process
8. Restart the device and check if the stuck pins have recovered

25.2 *Generating a debug log*

If you encounter any unexpected behaviour with system software, you can generate log and share it with us to help us diagnose the issue. The debug log can be generated by following the steps described below.

1. Charge the unit till the battery level is above 10%.
2. Power On the unit.
3. Insert the SD card into the SD card slot of the unit.
4. Make sure you are in local mode. Press Select + left to go into the local mode.
5. Press Dot 1 3 4 6 7 8 key.
6. A file named ".Logfile_[Unit serial number].txt" (e.g. .Logfile_SUA00051) will be generated in the SD card.
7. Press Space + Dot 7 + Dot 5 key to switch unit to mass storage/media device mode or simply attach the SD card.
8. Copy ".Logfile_[Unit serial number].txt " to PC and email to us at techsupport@orbitresearch.com.

26 Battery Use and Replacement

The Orbit Reader 20 Plus includes a rechargeable Lithium-ion capacityion battery. It charges fully in about three hours under optimal conditions. A full battery charge lasts about three days of typical use. You can check the battery status in the Menu.

When the battery in Orbit Reader 20 Plus gets to 10% capacity, Dot 8 of the 20th cell on the display starts blinking.

The battery in Orbit Reader 20 Plus should last several years. Gradually, the battery begins discharging faster than usual as its capacity declines. When the duration of time that the battery holds charge becomes inconveniently short, it is time for a replacement.

To replace the battery, follow these steps:

1. Obtain a replacement battery. Use only the battery designed for Orbit Reader 20 Plus. Batteries are available from our website or by calling us:
2. Remove the battery door screws.
3. Remove the battery door.
4. Carefully unplug the connector. Do not pull the wire. Use the connector instead.
5. Insert a new battery.
6. Replace the cover and screws.

To dispose of batteries properly, call the recycling center at 1-800-822-8837.

27 Accessories Information

Orbit Reader 20 Plus has two holes on the lower-front 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 10-40 mm in diameter and up to 3 mm in thickness.

28 Orbit Reader 20 Plus Cleaning Tips

Due to exposure to natural elements such as dust and oils, the Orbit Reader 20 Plus should be cleaned periodically.

The following are some tips to keep your Orbit Reader 20 Plus clean:

- Cleaning should be performed with the unit switched off and with all pins in the down position.
- Use a vacuum cleaner with a soft tip attachment to remove dust from the pin area.
- Use a lint-free cloth to wipe the cells.
- The cloth may be moistened with water.
- Avoid using the following:
    - Paper towels, cotton swabs or materials that can release fibers
    - Alcohol or ammonia based cleaners
    - Canned or compressed air

29 General Specifications

- Dimensions (WxHxD): 6.61 x 1.4 x 4.41 inch (168 x 35.56 x 112 mm)
- Weight: 0.99 lbs. (450 grams)
- Braille Cells: 20 eight-dot braille cells; Refresh rate < .75 sec
- Braille Input Keys: 8-key Perkins style keypad, with space bar
- Additional Keys: Power on/off button, 4-way cursor keys and select key, 2 panning keys, rocker type
- Supported File Formats: .txt, .brl, .brf

- OS Support: Windows - NVDA, JAWS, Dolphin Supernova, System Access, Microsoft Narrator, Mac OS X - Voiceover, iOS - Voiceover, Android - Brailleback, Fire OS - VoiceView, Chrome OS - ChromeVox,
- 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
- Battery Life on a full charge: 3 days of typical use
- Charging Method: PC charger - Charge over USB Port – 5V, 500 mA Max, Wall charger - Charge over USB Port – 5V, 1000 mA Max; USB BC1.2 compliant charger required
- Environmental Conditions: Operating Temperature: 5 °C to 45 °C, Operating Humidity: 10% - 70% relative humidity, Storage Temperature: - 15 °C to 70 °C
- Storage Humidity: 5% - 90% relative humidity

30 Appendices

30.1 *Appendix A - Computer Braille Chart*

- ASCII Code 33: Exclamation mark, Dots 2-3-4-6
- ASCII Code 34: Quotation marks, Dots 5
- ASCII Code 35: Number sign (Hash), Dots 3-4-5-6
- ASCII Code 36: Dollar sign, Dots 1-2-4-6
- ASCII Code 37: Percentage sign, Dots 1-4-6
- ASCII Code 38: Ampersand, Dots 1-2-3-4-6
- ASCII Code 39: Apostrophe, Dots 3
- ASCII Code 40: Opening round bracket, Dots 1-2-3-5-6
- ASCII Code 41: Closing round bracket, Dots 2-3-4-5-6
- ASCII Code 42: asterisk, Dots 1-6
- ASCII Code 43: Plus sign, Dots 3-4-6
- ASCII Code 44: Comma, Dots 6
- ASCII Code 45: Minus sign, Dots 3-6
- ASCII Code 46: Full stop, Dots 4-6
- ASCII Code 47: Forward Slash, Dots 3-4
- ASCII Code 48: 0, Dots 3-5-6
- ASCII Code 49: 1, Dots 2
- ASCII Code 50: 2, Dots 2-3

- ASCII Code 51: 3, Dots 2-5
- ASCII Code 52: 4, Dots 2-5-6
- ASCII Code 53: 5, Dots 2-6
- ASCII Code 54: 6, Dots 2-3-5
- ASCII Code 55: 7, Dots 2-3-5-6
- ASCII Code 56: 8, Dots 2-3-6
- ASCII Code 57: 9, Dots 3-5
- ASCII Code 58: Colon, Dots 1-5-6
- ASCII Code 59: Semicolon, Dots 5-6
- ASCII Code 60: Opening triangular bracket, Dots 1-2-6
- ASCII Code 61: Equal to sign, Dots 1-2-3-4-5-6
- ASCII Code 62: Closing triangle bracket, Dots 3-4-5
- ASCII Code 63: Question mark, Dots 1-4-5-6
- ASCII Code 64: At sign, Dots 4-7
- ASCII Code 65: A, Dots 1-7
- ASCII Code 66: B, Dots 1-2-7
- ASCII Code 67: C, Dots 1-4-7
- ASCII Code 68: D, Dots 1-4-5-7
- ASCII Code 69: E, Dots 1-5-7
- ASCII Code 70: F, Dots 1-2-4-7
- ASCII Code 71: G, Dots 1-2-4-5-7
- ASCII Code 72: H, Dots 1-2-5-7
- ASCII Code 73: I, Dots 2-4-7
- ASCII Code 74: J, Dots 2-4-5-7
- ASCII Code 75: K, Dots 1-3-7
- ASCII Code 76: L, Dots 1-2-3-7
- ASCII Code 77: M, Dots 1-3-4-7
- ASCII Code 78: N, Dots 1-3-4-5-7
- ASCII Code 79: O, Dots 1-3-5-7
- ASCII Code 80: P, Dots 1-2-3-4-7
- ASCII Code 81: Q, Dots 1-2-3-4-5-7
- ASCII Code 82: R, Dots 1-2-3-5-7
- ASCII Code 83: S, Dots 2-3-4-7
- ASCII Code 84: T, Dots 2-3-4-5-7
- ASCII Code 85: U, Dots 1-3-6-7
- ASCII Code 86: V, Dots 1-2-3-6-7
- ASCII Code 87: W, Dots 2-4-5-6-7
- ASCII Code 88: X, Dots 1-3-4-6-7

- ASCII Code 89: Y, Dots 1-3-4-5-6-7
- ASCII Code 90: Z, Dots 1-3-5-6-7
- ASCII Code 91: Opening square bracket, Dots 2-4-6-7
- ASCII Code 92: Backward slash, Dots 1-2-5-6-7
- ASCII Code 93: Closing square bracket, Dots 1-2-4-5-6-7
- ASCII Code 94: Caret, Dots 4-5-7
- ASCII Code 95: dash, Dots 4-5-6
- ASCII Code 96: backtick sign, Dots 4
- ASCII Code 97: a, Dots 1
- ASCII Code 98: b, Dots 1-2
- ASCII Code 99: c, Dots 1-4
- ASCII Code 100: d, Dots 1-4-5
- ASCII Code 101: e, Dots 1-5
- ASCII Code 102: f, Dots 1-2-4
- ASCII Code 103: g, Dots 1-2-4-5
- ASCII Code 104: h, Dots 1-2-5
- ASCII Code 105: I, Dots 2-4
- ASCII Code 106: j, Dots 2-4-5
- ASCII Code 107: k, Dots 1-3
- ASCII Code 108: l, Dots 1-2-3
- ASCII Code 109: m, Dots 1-3-4
- ASCII Code 110: n, Dots 1-3-4-5
- ASCII Code 111: o, Dots 1-3-5
- ASCII Code 112: p, Dots 1-2-3-4
- ASCII Code 113: q, Dots 1-2-3-4-5
- ASCII Code 114: r, Dots 1-2-3-5
- ASCII Code 115: s, Dots 2-3-4
- ASCII Code 116: t, Dots 2-3-4-5
- ASCII Code 117: u, Dots 1-3-6
- ASCII Code 118: v, Dots 1-2-3-6
- ASCII Code 119: w, Dots 2-4-5-6
- ASCII Code 120: x, Dots 1-3-4-6
- ASCII Code 121: y, Dots 1-3-4-5-6
- ASCII Code 122: z, Dots 1-3-5-6
- ASCII Code 123: Opening curly bracket, Dots 2-4-6
- ASCII Code 124: Vertical bar, Dots 1-2-5-6
- ASCII Code 125: Closing curly bracket, Dots 1-2-4-5-6
- ASCII Code 126: Tilde, Dots 4-5

- ASCII Code 127: NULL, Dots 4-5-6

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30.2.1 **Hardware Limited Warranty**

Warranty obligations for the Orbit Reader 20 Plus are limited to the terms set forth below:

Orbit Research warrants this hardware product against defects in materials and workmanship under normal use for a period of ONE (1) YEAR from the purchase by the original purchaser ("Warranty Period"). If a hardware defect arises and a valid claim is received by Orbit Research LLC within the Warranty Period, at its option and to the extent permitted by law, Orbit Research will either:

Repair the product free of charge (or) replace it with a product that is manufactured from new or serviceable used parts and is at least functionally equivalent to the original product.

A replacement product or part assumes the remaining warranty of the original product or thirty (30) days from the date of replacement or repair, whichever provides longer coverage. Parts provided in fulfillment of its warranty obligation must be used in products for which warranty service is claimed.

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This Limited Warranty applies only to the hardware product manufactured by Orbit Research LLC that can be identified by the "Orbit Research" trademark, trade name, or logo affixed to it. Orbit Research is not responsible for damage arising from failure to follow instructions relating to the product's use.

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2. Damage caused by operating the product outside the permitted or intended uses described by Orbit Research LLC
3. Damage caused by service (including upgrades and expansions) performed by anyone who is not a representative of Orbit Research
4. A product or part that has been modified to alter functionality or capability without the written permission of Orbit Research
5. The serial number has been removed or defaced

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OBTAINING WARRANTY SERVICE

Please access and review the online help resources referred to in the documentation accompanying this hardware product before seeking warranty service. If the product is still not functioning properly after making use of these resources, please send an e-mail to: techsupport@orbitresearch.com, for instructions on how to obtain warranty service. You must follow ORBIT RESEARCH warranty procedures.

ORBIT RESEARCH will maintain and use customer information in accordance with its Customer Privacy Policy.

If your product is capable of storing software programs, data, and other information, you should make periodic backup copies of the information contained on the product's hard drive or other storage media to protect the contents and as a precaution against possible operational failures. Before you deliver your product for warranty service, it is your responsibility to keep a separate backup copy of the contents and disable any security passwords. IT IS POSSIBLE THAT THE CONTENTS ON THE DEVICE BEING SERVICED WILL BE LOST OR REFORMATTED IN THE COURSE OF WARRANTY SERVICE, AND ORBIT RESEARCH IS NOT RESPONSIBLE FOR ANY DAMAGE TO OR LOSS OF PROGRAMS, DATA, OR OTHER INFORMATION CONTAINED ON THE MEDIA OR ANY PART OF THE PRODUCT SERVICED.

Your product will be returned to you configured as originally purchased, subject to applicable updates. You will be responsible for reinstalling all other software programs, data, and passwords. Recovery and reinstallation of software programs and user data are not covered under this Limited Warranty.

30.3 *Appendix C - FCC Information*

FCC Notice
This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the   receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) This device may not cause harmful interference, and

(2) This device must accept any interference received, including interference that may cause undesired operation.

FCC Caution
To ensure continued compliance follow the installation instructions and this device must be installed with a computer or peripheral device certified to comply with Part 15 of the FCC rules for the Class B limits. Use shielded interface cables only. Use the power adapter that is supplied with the device to charge its internal battery pack.
Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

31 Further Information

For the latest information, specifications, troubleshooting tips, software upgrade instructions, care and use information, warranty information, and more detailed instructions, visit the Orbit Reader 20 Plus website at www.orbitresearch.com/or20.

For further questions or concerns not covered in this User Guide, please contact the distributor from where you purchased your Orbit Reader 20 Plus.