Braille On Display 2024 Edition

By Jackie Brown

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Dedication

For Louis Braille, without whom, the last 200 years of Braille would not have been possible.

Acknowledgements

I would like to thank all those who have helped me in producing and publishing this book, particularly Jonathan Mosen in the days of Mosen Consulting, for his advice and support. Most suppliers have been extremely accommodating in lending me Braille devices to give me some hands-on experience. I am very grateful for those opportunities, especially to Sight and Sound Technology, HumanWare Europe, Visionaid Technologies, and RNIB, all in the UK. Most of all though, I would like to thank everyone who purchased a copy of the2016 and 2020 editions of the book. But I am now delighted to announce that, due to its world-wide popularity, *Braille On Display 2024* is free to anyone who would like a copy. Please do let me have your feedback so that I can make any future editions better and even more useful.

A bit about me

I was born blind. I started to learn Braille at the tender age of four. I fell in love with Braille right away, and have used it on a daily basis ever since. When I was growing up, I used to carry a Perkins Brailler around school, a heavy, noisy machine on which my education was crafted. I was also taught to touch-type, another really useful string to my bow.

But computers, screen readers and electronic Braille have since become game-changers. And while my trusted Perkins Brailler of over half a century languishes silently in the corner, I am just as excited and motivated to use Braille today as I have ever been.

Every time I read Braille, I enjoy it. This may sound strange to some, but as much as speech synthesis on my computer and Smart devices is essential, there is nothing to beat Braille for me. This is why I have a display linked to my PC and laptop, why I own a Braille embosser, and why I still love my trusty old Perkins.

I live with my husband and retired German Shepherd guide dog in Northern Ireland. I have a grown-up son and two adorable grandsons. It would be wonderful to teach my grandchildren some basic Braille in years to come! I love using Access Technology, and try to embrace the many changes and frustrations it throws up. Using assistive kit has enabled me to do so many things in my life that would have been impossible to achieve without it. I have made lots of friends, and shared a fountain of knowledge with fellow users around the world. Many people argue that technology can make you lonely and isolated. For me, it has been the complete opposite as this book demonstrates.

In October 2022, I began working for the RNIB as the Technology For Life Coordinator for Northern Ireland. Bringing my knowledge and lived experiences to the role as a blind person has put me at the heart of my passion for Braille and Assistive Technology. In June 2023, I graduated from the Open University with a Masters Degree in Creative Writing, something that would have been incredibly challenging to complete without the raft of Assistive Technology I use every day.

We live in challenging times, but technology plays a very important role, especially for those who have a disability. Since I first started writing this book, so many exciting Braille devices have emerged to contradict the theory that Braille is on the way out due to the increased use of speech synthesis on Smart devices. In my view, there has never been a better time to be blind or, for that matter, to make the most of our wonderful code.

My contact information is at the end of this book. Do feel free to get in touch with your comments and views.

Introduction

The purpose of writing and updating this book is to provide a comprehensive round-up of portable Braille displays and note-takers that are currently available. It may surprise you to know that there are actually quite a few. I have not included any prices due to fluctuations with the pound against the dollar in these turbulent times, but it doesn't take a genius to work out that they are not cheap, and that any purchase is a considered one. Since the first iteration of *Braille On Display*, published by Mosen Consulting in 2016, we have said goodbye to some Braille technology, but a very warm welcome to several new pieces of kit described in these pages. However, I haven't removed those displays that are now no longer available to purchase because they are still attainable in the second-hand market, and deserve some coverage below. Given this is a world-wide publication, some countries may differ in Braille equipment availability. But I have tried to indicate in the book where a display or note-taker is no longer being manufactured by including the words 'Legacy Device' in the heading to indicate that it is either no longer available, or no longer being supported. Similarly, I have added the words 'New Device' in the heading where a unit has been added to the book since its last iteration in 2020. Finally, the words 'Current Device' in the heading indicates that the manufacturer or dealer is still selling that product.

The book has now been divided into five sections: fully-fledged note-takers with all the bells and whistles; basic note-taking devices with only a few extras; displays that simply work with your screen reader to facilitate navigation on your computer or Smart device; a section dedicated to Braille input only devices; and the exciting world of multi-line readers and tablets. I have also added a third appendix containing useful resources pertaining to Braille: useful websites for Braille translation programs, podcasts, and Email lists exclusively discussing Braille.

Braille displays tend to fall into several categories these days: those which have a Braille or qwerty keyboard for inputting data in conjunction with a word processor or notepad, and include lots of extra features and applications, with speech as well as Braille output. Then there are devices that don't carry TTS, an Internet browser or WiFi, but which have Braille input keys to make basic notes, and offer a simple alarm function or stopwatch. There are also those which serve as purely a Braille display when paired with your Smart device or computer for reading purposes. Finally, there are some multi-line devices emerging which, particularly in education, offer several lines of Braille that are capable of producing tactile graphs as well as Braille text. This book describes as many of them as I have been able to research and try out from my perspective as a totally blind Braillist.

Whether you are new to the world of portable Braille devices, or a power user looking for something more advanced, this guide takes you through all the options that are available. It aims to answer many questions that people ask me time and again: what is out there? Where to get it? How to use it? And why do people like me love using Braille? Two appendices at the end of the book provide a comprehensive comparison of every display discussed so you can see at a glance what features each device offers. There are measurements, weight, battery life, and other statistics, plus company names and website addresses. For all Braille users

everywhere, old and new, *Braille On Display* is a reference you will want to dip into as its content is updated.

Remember that what I have written are my own experiences, both in terms of the devices discussed, and customer support and satisfaction. I haven't been able to evaluate all the Braille devices discussed in this book for logistical reasons, so have relied on user guides and general comments from our community.

These are very defining times for Braille hardware, in my view, especially with a surge in new and more affordable products arriving in recent years. With the demand for mobile computing comes the emphasis on smaller and cheaper devices that can be carried alongside tablets and phones. Whatever you are looking for, there is probably something within these pages that might appeal and keep the Braille phenomenon alive!

Chapter One: Why would you choose to buy a Braille display?

There are several reasons why you might want a Braille display:

- To make notes during meetings, lectures, at court proceedings, and for personal use.
- Read books from Amazon Kindle and Apple's Books when paired with your Smart device.
- Access electronic files such as PDF, Epub and Word documents.
- Proofread important information for spelling and grammar inaccuracies.

So once you decide that you would like a portable Braille display, consider the following points:

- How much do you have to spend?
- What sort of machine do you go for?
- Do you want a fully-fledged note-taker with lots of added bells and whistles, or simply a small display you can pair with your Smart device for reading and writing Braille?
- How many Braille cells would you be able to manage with, bearing in mind that the more cells you have, the more the device will cost?
- What aftersales support are you likely to receive once you get your shiny new unit home and set up?
- Would you need training to use it?
- If the machine developed a fault, how long would it take to repair it?

Some of these questions might appear insignificant, but Braille displays tend to be very considered purchases, so you need to think quite carefully about the above points.

Your next task is to contact as many dealers as possible to request a demonstration of their equipment. You could also go to any convention or exhibition taking place close to where you live, but this is not always the best solution. By nature, conventions and exhibitions can be noisy, crowded environments with people all queuing up at a stand to see what is on offer. You have a limited time to examine the device and really try it out, therefore. So if you are serious about purchasing a portable display, explain to the company what you are looking for. If they are genuine and have you the customer in mind, they will try to accommodate you by bringing their product to your home, or to a mutually convenient venue. Some companies have a generous policy of loaning equipment for a few days so you can have some hands-on at your leisure, all the better if that is the case. By contacting a company for a home or local venue demonstration, it allows you an opportunity to see how serious that company is about looking after you the customer and, more importantly, how much knowledge the representative has about the product they are trying to sell you. So do afford yourself the time required to really put a Braille device through its paces if you are in the hunt for one, you should be rewarded for your legwork if you research your potential purchase first. And please don't be apologetic for taking that required time either, it's your money, your investment.

So you have a budget, you know what length of Braille display you want, and you know where to purchase it. But with so much choice, and with so many bells and whistles, which one do you end up with?

Let’s commence our tour with Braille displays that have lots of added functionality built-in. These are often referred to as a Personal Digital Assistant (PDA) or simply a Braille organiser. They feature a word processor where you can open a variety of document types. They also carry speech synthesis so you can listen to what you are doing as well as read from the Braille display. These units also offer a raft of other features such as calendar, address book, Bluetooth, Internet Radio, Media Player, and Internet browser.

Section One: Fully-Fledged Note-Takers

Chapter Two: The Hims range

Hims, or Selvas Healthcare as they are called these days, entered the arena with the BrailleSense range more than a decade ago. The company, from South Korea, not only incorporated a solid word processor into its units, but a host of Social Media features too as Facebook and Twitter began to really take off. As you will see, the Hims line of products is not just about Braille displays you can pair with your Smart devices. These note-takers offer so much more. The suite of applications on the Sense products was originally written to work within the confines of the Windows CE operating system. In other words, Hims used proprietary software which was periodically updated with bug fixes and enhancements. So while you could use Email, Twitter, Facebook and the Internet, there were limitations due to the older operating system it sat on. That said, however, these are really nice devices, and are still available to purchase in the second-hand market, as you are about to discover…

U2 and U2 MINI (Legacy Devices)

The U2 comes in either Braille or qwerty keyboard flavours. The U2 (Braille keyboard) measures 25.00cm wide, by 12.80cm high, by 3.90cm deep, and weighs 0.92kgs. The U2 (qwerty keyboard version) measures 25.00cm wide, by 13.10cm high, by 3.90cm deep, and weighs 926.00kgs. The U2 Mini (Braille keyboard only) measures 17.20cm wide, by 9.00cm high, by 2.70cm deep, and weighs 0.43kgs.

The U2 has 32 Braille cells, and the Mini 18. Each has a corresponding number of cursor routing buttons above the Braille cells for editing purposes. They both support WiFi and Bluetooth, and each has 32gb of internal storage. The U2 also has extra USB functionality and a tiny LCD screen embedded on its top side. The U2 has an RJ45 Ethernet port in addition to WiFi as well.

Both flavours carry Eloquence speech synthesis, and the U2 has stereo speakers, whereas the Mini has just a small mono speaker.

Since the Mini is smaller than the U2, it has two interchangeable batteries that can be charged separately. Both units support SD cards up to 32gb.

When either of these units is powered up, you are presented with a friendly user interface. The list of items on the main menu comprises:

- File Manager
- Word Processor
- Document Reader
- Email
- Media
- Organizer
- Web Tools
- Social Networking
- Extras
- Games
- Utilities
- Settings
- Help.

Most of these items will take you into sub-menus which have been conveniently grouped into related categories. For example, Social Networking contains Twitter, Facebook, and Sense Chat applications, while Utilities offers a calculator, stopwatch, an alarm feature, and a terminal for using your screen reader.

The Braille display on either the U2 or U2 Mini is good, but there are better and more reliable cells out there. Once you get used to working with a Braille display, you will come to realise that one display is not like another. The dots on the Hims displays are not too sharp, making it a comfortable reading experience. But my knowledge testifies that the dots have a habit of fading after a while. This has to be factored into your decision when purchasing a display of any description. You need to check how much the company you opt for will charge you to repair or replace any Braille cells. Any Braille display is an investment, so bear this in mind before you hand over your

credit card. And take time to think about how comfortable the display is to read on for long periods.

The current software release for the Sense U2 range of note-takers is version 8.5. Updates are fairly few and far between, and tend to contain bug fixes and slight enhancements rather than come packed with new features. The UK firmware releases have historically lagged behind the rest of the world. Hims says this is because there are more users Everywhere else, and states that by the time an update is released in the UK, many of the bugs in the firmware have been ironed out. In my experience, this is highly contentious; the UK firmware should be released at the same time as the rest of the world, and more rigorous beta testing of the firmware on the whole needs to be done ahead of release. The good news for users, however, is that firmware releases are always free; I have never known a new release to be paid for. But there hasn't been an update for several years now, and I doubt there ever will be given the presence of Polaris.

The Hims note-takers are very ergonomically designed with comfortable Perkins-style keys. Using them to write on during meetings or lectures is a discreet experience. Indeed, I believe they are the quietest of all Braille devices on the market. You can silence speech at any time, including audible beeps or chimes.

The word processor on Hims note-takers is pretty powerful. It opens a range of file types including TXT, RTF, DOC, DOCX, Epub, PDF, BRL, BRF, and its own Sense format. You have the ability to edit documents you are compiling, and apply attributes such as bold or italics. A separate document reader allows you to open files in read-only mode, and there is an Excel Viewer to handle spreadsheets. The beauty of using a dedicated note-taker is that when you have been reading or writing a document, you can turn off the machine knowing that you will be returned to the same place in your document when you turn it on again. There is no hanging around waiting for the machine to boot up like a regular computer or laptop. Simply turn on your Hims note-taker and start reading or writing. It is possible to open up to eight programs at a time on these units.

Sending and receiving Email on the Hims devices is one of its main features. You can set up your account using POP or IMAP, and use multiple mailboxes as well.

A Media Player gives you access to a variety of music formats, but also allows you to read and navigate DAISY content, and stream stations from the neat little Web Radio application. The popular YouTube channel works very well, allowing you to search for and play content. And you can record notes or meetings using a built-in microphone or an external accessory of your choice.

WiFi on these note-takers is rather flaky and often slow. It will store multiple network protocols, and supposedly appear in a list when you are in range of any of them. But I have been frequently frustrated by a nearby network at a hotel not appearing in the available list, meaning I have had to abandon the device and use my iPhone instead. Bluetooth is an older version, and does not allow you to connect multiple devices simultaneously. I also find it rather sluggish when paired with my iPhone running the latest iOS release.

A very basic database is available for use in the Organizer menu, as is a calendar and address book. A Schedule Manager can be set to check whether you have appointments each day, and notify you accordingly.

Within File Manager, the device's FlashDisk is visible. Here, you may move files and folders around in the same way you would using Windows Explorer on a regular computer. If you have an SD card slotted into the machine, or USB pen drive connected to the unit, these are shown within File Manager.

Help is at hand wherever you are on these note-takers. You can either go into the Help menu to read a chapter on each feature that opens in the word processor, or you can receive more immediate context sensitive help by pressing space with dots one-two-five.

It has to be said that, for me, the Web Browser on these devices is probably the weakest feature. On Windows CE, the Internet is equivalent to Internet Explorer 6. This makes navigation a slow, cumbersome experience, and many websites don't work because they contain Flash, or use Java. Wherever possible, it is best to use a mobile website, but even some of these don't work well on the Hims note-takers. Given there is so much demand these days for Internet use, the Web Browser on the U2 and U2 Mini is a huge disappointment. You are unable to press enter on links in the Email client, for example, that would open the browser on a regular computer. And navigation within web pages leaves a lot to be desired!

Popular Social Networking tools like Facebook and Twitter have been adapted to run on the Hims note-takers. Both are basic clients, but I have found myself preferring to use them to my Smart devices or computer due to their simplicity. And the popular Dropbox facility also works well on these devices.

The Hims range is extremely customisable within the Settings menu. As well as turning speech synthesis and musical alerts on or off, you can change the grade of Braille, adjust the level of punctuation, and even put the machine in one-handed mode if you prefer. An auto scroll function allows the display to refresh itself automatically as you read, particularly useful when reading a long document or book. You can adjust the speed of auto scrolling to suit yourself.

There are a couple of games built into these note-takers which feel a lot like a waste of time and effort to me. You can also buy a Collins English Dictionary and Thesaurus that is located in the Extras menu. It is a fairly basic program, but definitely well worth having if you are a student or writer. And there is a built-in GPS receiver on the U2 Mini. The note-takers come with Google Maps installed, but you can buy a program written by Sendero which offers much more specific turn-by-turn navigation. It is expensive though, running into hundreds of dollars/pounds! There is even a bible program which can be freely downloaded as an extra for these note-takers that can be read in separate chapters.

The U2 clearly has some extra facilities on it over the U2 Mini, but it is obviously more expensive and bulkier to carry around. They both come with a carry case, but not of superior quality. If you can, purchase the strong, good quality leather case

specifically designed for the U2 and U2 Mini by Executive Products Incorporated. Visit their website for further information:

The battery life on these units depends, of course, on how much you use your note-taker, and whether Bluetooth is turned on, or speech is enabled. But you can expect to get around nine hours of battery usage on a U2 Mini, and approximately 17 hours on a U2.

These note-takers can be paired with your Smart device, or used as a Braille display on your computer or laptop. They are compatible with all known screen readers. I have found using one of these units paired to my iPhone quite sluggish with a distinctive lag when inputting text using the Braille keyboard. Perhaps this has something to do with an older Bluetooth version on the Hims products, or the interface between the Sense and iOS device. One work-around is to turn off contracted input under Braille in VoiceOver. It is not ideal, but does make things less sluggish. That said, it works really well as a terminal for your screen reader on a computer or laptop.

Documentation comes on a CD in the box contents, and is also available within the Help menu, as described above. The manual has, I believe, lost some clarity in translation, but is certainly more than adequate to get you up and running.

pros and cons

In summary, the Hims Braille Sense U2 and U2 Mini note-takers are packed with useful, modern features in one portable box. The U2 has more features than its baby sibling, the Mini, but it costs more, and is available in qwerty or Braille keyboard flavours.

The advantage of owning such a device as this is that you have a complete solution for taking notes, reading documents, using a host of features as described above, and pairing it with your Smart device, computer or laptop. You can use Braille, speech or a combination of both, and enjoy reasonable battery life.

The disadvantage is that the software lives on the Windows CE operating system which causes limitations with its shelf life. The very nature of making proprietary software easy to use has the drawback of how long term it can be, and how much development the company is willing to invest in its future. Firmware updates are slow to appear, and while they are free, the wait can often be disappointing. A lot of people do argue that given what you pay for, you are buying a box of old technology that is attempting to perform modern tasks.

Nevertheless, the Hims Braille Sense note-takers are quiet, quick and efficient to use, and have grown in popularity and functionality in recent years. While Polaris and its smaller sibling the Polaris Mini are now the current trend from Hims, you can still purchase the U2 or U2 Mini from some local dealers if you prefer something that has been well tried and tested over the years, and isn’t as intensive as Android. My understanding, however, is that technical support for these devices is being withdrawn.

Hims Polaris and Polaris Mini (Legacy Devices)

Following the success of the Hims BrailleSense, then the U2 series, the South Korean company released Polaris in June 2017 and its smaller sibling, the Polaris Mini, a year later. These new note-takers combine all the regular Hims applications you might be used to, but with added functionality on the Android platform. So what do they offer, and how good are they?

They both provide the same functionality and rich feature set. The Polaris has 32 Braille cells and equivalent number of cursor routing buttons, whereas its smaller sibling has 20 Braille cells and the same number of cursor routing buttons.

Box contents

Polaris or the Mini is well packaged in a box containing battery, charger, earbuds, USB 2.0 cable, Braille quick start documentation and very nice carry case which is a vast improvement on anything that has gone before it.

Overview

Both Polaris and the Mini are lightweight and ergonomically comfortable to carry around and use. They both come with the beautiful Braille input keyboard Hims is renowned for with its Perkins-style keys and intuitive menu structure. Polaris retains the tiny LCD screen in the middle of its top surface, sandwiched between Braille dots one and four. Due to its size, the Mini doesn't have this facility. There are two additional keys, control and alt, left and right of the space-bar respectively, as well as the four function keys found on earlier devices. The front panel on both units is also similar, with key lock switch, media selector, five media buttons to control its functions, and a power button. There are two standard USB 3.0 ports for peripherals and data transfer on Polaris, while the Mini has just a USB C port for both charging and data transfer. Polaris has an SD card slot that takes up to 256gb of storage, while the Mini has a Micro SD card slot housed in the battery compartment underneath the unit. Both devices have a 13MP camera, an HDMI port, 3.5mm headphone and microphone sockets, and individual volume buttons. Bluetooth, wireless charging, WiFi and NFC are all available, and the battery is user-replaceable. The Polaris has two stereo speakers, situated on the left and right corners of the top face of the unit. The Mini, meanwhile, has a mono speaker positioned underneath the device. But listening to the Mini through headphones offers stereo sound like its larger sibling.

Hims has gone down the same path as HumanWare with the BrailleNote Touch in layering its proprietary suite of applications over the Android platform. But where HumanWare originally built the Touch on 4.4.2 KitKat, Hims has gone up one level and used 5.1.1 Lollipop. Hims says it will endeavour to make Polaris run the latest Android release in time. But, from what I have seen thus far, I would suggest that might be some way off!

Polaris measures 9.64 inches wide, by 5.66 inches deep, by 0.39 inches high, and weighs under 1.76 pounds, or 750g. It runs on a Samsung Oxynos 7420 2.1ghz Octa-core processor with 3gb of RAM and 64gb of internal storage (53gb available to the user.) So, realistically, plenty to offer under the hood.

The Mini's size is really appealing. It is small, lightweight and sleek. It measures approximately 18.7cm wide, by 11.4cm deep, by 2.2cm thick, and weighs approximately 423g. It runs on the same Samsung Oxynos 7420 2.1ghz Octa-core processor, and the same amount of internal storage as its larger sibling.

On either unit, once the battery is inserted, press and hold the recessed power button at the front right edge for a few seconds until you hear a beep and feel accompanying vibration. When the machine first boots, it takes longer to load, at least one minute. Simply tap the same power button in future to put the device in standby or deep sleep mode. To power it down altogether, press and hold the power button for a few seconds until you are presented with the prompt to turn off. Polaris may be charged using the supplied AC adaptor, via USB, or wirelessly. The Mini is charged using the USB C to USB 2.0 standard cable, or wirelessly. Polaris has an estimated battery life of approximately 16 hours, and takes around four hours to charge. The Mini's battery purports to last for up to 12 hours.

Polaris comes with 3gb of RAM, 64gb of on-board storage, with the ability to increase this to 256gb with an SDHC slot or 3.0 USB port for external media. The Mini also has 3gb of RAM, 64gb built-in storage, and Micro SD slot for up to 256gb of memory.

Both units support DOC, DOCX, RTF, TXT, EPUB, PDF, PPT, BRF and BRL formats, with an Excel Viewer. Once you enter the world of Android, you may download accessible apps from the Play Store, or tap into Google Drive, Sheets, Docs, Slides, or browse the Internet using Google Chrome. Do be aware though that there are only a limited number of fully accessible apps that you can purchase or freely download from the Play Store despite what you read or may wish to try. Lots of them simply don't work. But some that do include KNFB Reader, Kindle, various apps from the BBC, Dropbox, Facebook and Twitter.

Main Menu

When you boot either machine for the first time, you will be presented with a menu containing the following items:

- File Manager: (access the Polaris FlashDisk or external memory you have inserted)
- Word Processor: (create, save and open a raft of document types)
- Notepad: (an alternative addition to the word processor)
- Email: (supports IMAP or POP)
- Exchange Email: (allows you to connect to Microsoft Exchange in a corporate setting)
- Media: (gives access to the media player, an FM radio and DAISY Player)
- Organiser: (provides address and calendar Managers)
- Web Tools: (offers access to the web browser)
- Extras: (Excel Viewer, an Online DAISY and optional Sense Dictionary are found here)
- Utilities: (provides a calculator, Terminal for Screen reader, alarms, stopwatch, sleep timer, format facility, and firmware upgrade feature)

- Settings: (controls how you want to customise your device and much more)
- Help: (provides chapters on each section of the machine)
- Play Store: (lets you download apps, books and games for your device)
- All Apps: (presents a menu of all the apps that are installed on your device)
- Information About The BrailleSense Polaris: (offers useful stuff about your unit)

Using Polaris and the Mini

When using your device for the first time, you are best to give the machine a good charge. Next, put in your WiFi credentials. Then, if you have one, enter your Google account details if you plan to use Android. Having done this, you are now free to explore Polaris or the Mini more extensively. A good tip is to use the tab or shift tab keys to navigate Android more efficiently.

One of the really useful features of Polaris or the Mini is the ability to use it in conjunction with your computer or Smart device as a Braille display. It works with JAWS, NVDA, Supernova, iOS, and Android. You can also connect your Polaris or Mini to your computer for transferring data. If you have external memory installed on either device, you will see these drives listed on BrailleSense Polaris or the Mini in File Explorer. But download the Hims USB driver for this purpose beforehand, then the machine's internal storage and any external memory will be shown.

As well as the on-board chapters which detail the various functions and operations of the unit, there is additional context sensitive help available, plus a Quick Start Guide. When you boot up Polaris or the Mini for the first time, there is a helpful Getting Started tutorial that you can walk through or exit at any time.

As a Hims beta tester, updating my machine has been straightforward. You can use the Online feature to upgrade over WiFi, or Offline with a pen or card, and all updates are free.

There are several settings you can choose from to customise your machine including a number of different voices, languages and Braille tables. You can bring up the Polaris Global Options menu at any time by using chord O, dots one-three-five with space. From Settings, you can also venture into those offered in Android. Regular Android phone users will be fully familiar with Google's TalkBack screen reader. But this has been removed from Android on Polaris and the Mini by default. It is now possible to download and install any TTS engine of your choice from the Play Store, so if you are a fan of Google, for example, you can choose to use its male or female voices. Similarly, if you prefer Eloquence, you can purchase and download it to run on your device.

It is also possible to use Google Assistant on Polaris and the Mini, though I personally don't think it is as responsive on Polaris and the Mini as it is on native Android phones and the Google Home family of products. My experience is that it is incredibly cumbersome.

Pros and cons

On the face of it, Polaris or the Mini is a beautiful machine with a lot to offer. The keyboard is lovely for inputting Braille. Connection to WiFi is also quick and

consistent. And it is so much more lightweight than any of its predecessors. Its new design carry case is a huge improvement, and snugly protects Polaris or the Mini in preparation for travel.

I still think the software, particularly when using Android, is a little sluggish, something I have consistently reported to Hims. Because the Android version is Lollipop, not all Google certified apps work well. But software updates are making Polaris and the Mini extremely worthy options for note-taking fans out there, and the hardware is hugely improved on previous machine builds. I still have some concerns about support for the unit when it needs to be returned to Hims for several weeks at a time, particularly if you are a UK customer, and I don't think the quality of Braille cells is as rugged as those found on HumanWare displays, for example. Nevertheless, these devices can still be had in the second-hand market as they have now been superseded by another Hims product, the BrailleSense 6 and BrailleSense 6 Mini.

BrailleSense 6 and BrailleSense 6 Mini (New Devices)

When news broke that Hims was going to release another device, my hope was that the software would be more robust and reliable than the previous disappointment of the Polaris and Polaris Mini. For the Polaris really struggled in truth, and I very quickly became disillusioned with few updates and improvements. So when I read that the BrailleSense 6 - which I shall refer to from now on in these pages as the BS6 - was going to run on Android 10 and include some substantive hardware, I was intrigued.

In the summer of 2021, amid the doom and gloom of the Covid-19 pandemic, the BS6 was launched. At that time, I was mid-way through a Masters degree in Creative Writing, and was in the market for a decent and reliable note-taker. As I was already so familiar with the Hims range, and HumanWare was showing no signs of adding to its BrailleNote Touch Plus device, I decided to apply for one through the Disabled Students Allowance scheme. In all honesty, I am so glad I did!

The BS6 and BS6 Mini have shown great promise in the note-taker arena to date. Firstly, at the time of writing, both units have moved from Android 10 at release, to Android 12. This is the first note-taker of its kind to enjoy a substantial make-over and move from one version of Android to another. Secondly, the BS6 and BS6 Mini have offered more stability than its predecessor, the Polaris, with up-to-date hardware and additional apps.

There are also some hardware differences between the units covered below that should help you choose which of the two devices is right for you.

Hims has stuck with 32 or 20 Braille cells on the BS6 and BS6 Mini. Both units maintain the quiet, responsive Braille input keyboard and menu structure that users are familiar with.

BrailleSense 6

The BS6 32-cell unit measures 245mm or 9.64 inches wide, 144mm or 5.66 inches deep, and 22mm or 0.86 inches high, and weighs 705g or 1.55lbs.

It runs on an Octa-core (4 x 2.0 GHz A73, 4 x 2.0 GHz CPU with 6gb of RAM, Bluetooth 5.1, WiFi, and a 13mp camera. Internal storage is 128gb, and a full-size SD card offers plenty of expandable memory. Two stereo speakers and small LCD screen accompany the USB Type-C charging port, two USB A ports, one HDMI port, and two 3.5mm sockets, one for an external microphone, and one for headphones. Five media buttons, key lock and media switches, and power button, occupy the front edge of the machine with nine Perkins-style keys, four function keys, control and alt keys, 32 Braille cells, equivalent number of cursor routing buttons, and panning text controls on the top face.

A user-replaceable Lithium Polymer battery powers the unit with approximately 10 hours of use. Carry case and strap come with USB C to USB C power cable and wall adaptor together with USB adaptor cable, earbuds and Braille command summary in the box.

BrailleSense 6 Mini

The BS6 Mini measures 7.08 wide, by 4.06 deep, by 0.91 inches high, and weighs 0.95lbs. It boasts 20 Braille cells with equivalent number of cursor routing buttons. The Perkins-style keys, four function buttons and control and alt keys are slightly smaller, but have the same functionality as its larger sibling. It comes with a user replaceable battery with approximately eight hours use, and 100gb internal storage. A 13mp camera, Bluetooth 5.1, WiFi, mono speaker, micro SD card slot (inside the battery compartment,) one USB C charging port, one USB C OTG port, micro HDMI port, and two 3.5mm sockets, one for an external microphone, and the other for headphones. Five media keys with lock and mode switches, and power button, offer the same functionality as its larger sibling. Carry case and strap come with USB C to USB C power cable and wall adaptor together with USB adaptor cable, earbuds and Braille command summary in the box.

Both units offer exactly the same software menu structure comprising:

- File Manager
- Word Processor
- Notepad
- Email
- Media
- Books
- Organiser
- Web Tools
- Extras
- Programs, (only appears on the menu if the Sense Bible is installed
- Utilities
- Settings
- Help
- Play Store
- All Apps
- Information About The BrailleSense
- Optional Add-Ons

Using The BS6 And BS6 Mini

Having used Hims products for a number of years now, both these devices feel familiar and comfortable to work with. The upgrade to Android 12 is a significant step forward, even though it is still three versions behind the curve at the time of writing. When in Android mode, the experience is now a lot smoother and therefore more reliable. Users will be familiar with the BrailleSense menu structure with some nice extras now added such as a free dictionary and thesaurus in several languages, Ggoogle Drive, Dropbox and OneDrive icons added to the File Manager where only your account credentials need to be entered. The Sense Bible is much easier to download directly to the machine too. I understand a new web browser revamp is on the cards - not before time - as this aspect of the BrailleSense has been found wanting for too long.

Like its predecessors, the BS6 and BS6 Mini support a raft of file formats in the Media Player, Word Processor, Notepad and Document Reader. You may have up to eight applications open at a time, and be able to skip between them as you would on a regular PC.

I have found using the camera a little tricky because both units are larger than a standard phone, and are therefore heavier when positioning the camera over an item I want to scan. There is no native BrailleSense application that allows you to take pictures of text, you need to go into the Play Store to download an app such as Envision AI, Be My Eyes or Seeing AI to achieve this.

As with previous versions, there is plenty of context sensitive help and a comprehensive manual onboard, as well as a raft of useful video tutorials online.

The case that comes with these machines is quite nice, but I wouldn't recommend it if you are going out with the unit because it doesn't protect the ports at either end. I would suggest buying one of the specifically designed leather cases that exist if you plan to be out and about with it a lot.

There is much to like about the BS6 and BS6 Mini. I do still have reservations about technical support when the unit needs to be sent to Hims for repair because you could find yourself without your device for several weeks. Stability was a big issue for me on the Polaris, but I am pleased to see that Hims has made real progress when it comes to using the Android aspect of the software. My understanding is that the Hims web browser is currently undergoing a long overdue revamp, and is purported to be more robust and user-friendly in keeping with the demands of modern browsing.

In terms of choosing which of the two units to go for, I like both. The BS6 has 32 Braille cells as opposed to 20 on the Mini; stereo speakers instead of a mono speaker on the Mini situated underneath the device; an extra USB port; a full-size SD card slot which is easily accessed rather than the micro SD card slot on the Mini which is inconveniently placed inside the battery compartment; and the LCD display on the top surface of the BS6. And, of course, there is roughly a thousand dollars in price difference between the two devices.

The debate about using a dedicated all-in-one note-taker versus a regular Braille display paired with a phone or tablet continues to rage on. Many of the Smartphone and tablet apps are now so accessible with screen readers such as VoiceOver and TalkBack that some feel there is no longer any need to splash out on a bespoke device costing around four-thousand dollars plus. The feeling among many is that purchasing a Smartphone or tablet and pairing it with a Braille display offers much better value because the phone or tablet can be replaced and upgraded to take account of the latest software enhancements. But there are others who like the convenience and structured applications an all-in-one note-taker offers. I like a mixture of both: my BS6 is convenient when I just want to open it to read or make some quick notes, rather like having a pad and pen beside me. And my BS6 Mini is so dinky to carry in my handbag when I go out and want that pad and pen analogy. But I also enjoy being on the level playing field where accessibility has brought so much to Smart devices over the years. There is no right or wrong, it is about choice,

and what method works for one isn’t necessarily going to work the same for someone else.

Pros and Cons

The BS6 and BS6 Mini are quiet, lightweight and portable to use. They connect to multiple Bluetooth devices such as iOS, Android and Windows. They support a range of file formats, and provide an Excel Viewer. Both devices offer a raft of apps and features you would expect from a good note-taker.

But the downside is that they only run on Android 12 where 15 is already available on mainstream phones and tablets. They also have a heavy price tag like all bespoke devices. You might have to be prepared for a lengthy delay if the unit has to be returned to South Korea for repair.

Unless HumanWare has something in the works that we are unaware of at the time of writing, the Hims BrailleSense products are leading the way in bespoke, fully-fledged note-taking devices. The case is adequate but not weather or shock proof, and I believe that Hims should be more open with its customer base when it comes to upgrades, improvement suggestions and implementation time-scales.

Chapter Three: The HumanWare range

HumanWare note-takers have been around in various guises for many years, from BrailleNote Classic, BrailleNote MPower, BrailleNote PK, and Apex, to the current BrailleNote Touch Plus range. They are sturdy and reliable units that students and those in the employment sector have come to trust. HumanWare technical support is also first-class, and the company has a team of dedicated and extremely knowledgeable staff to assist in the use of Braille.

BrailleNote Apex (Legacy Device)

The BrailleNote Apex was released in 2008 and, like its predecessors, is now being slowly phased out of the HumanWare portfolio. Yet there are still a lot of Apex customers using this device, and it can still be purchased. In many ways, it is very similar to the Hims U2 in size, weight and performance. The Apex with 32 cells and Braille or qwerty keyboard measures 244mm wide, by 19mm high, by 143mm deep, and weighs approximately 812g.

Like the Hims U2, BrailleNote Apex runs under Windows CE, and has a proprietary suite of applications layered over it known as KeySoft. At the time of writing, the latest KeySoft release is 9.5.

This range of note-takers comes in both 18 and 32 Braille cell flavours. They have a corresponding number of cursor routing buttons, and a Braille or qwerty keyboard, with or without Braille display. But since this book focuses on Braille devices, we will concentrate only on those machines with a Braille display.

BrailleNote Apex comes with 8gb of internal storage, and supports SD cards with a capacity of up to 32gb. Apex also has both WiFi and Bluetooth built-in.

These note-takers are equipped with Eloquence speech synthesis, and fitted with a user replaceable battery.

Main Menu

When you power up the Apex, you are presented with a simple menu containing several items. Some menus have sub-menus where items are grouped into similar categories, for example, the Media Center contains a Media Player, FM Radio, and audio recording options. The Apex main menu comprises:

- Word Processor
- Planner
- Address List
- Email
- Internet
- Chat
- Media Center
- Book Reader
- Scientific Calculator
- Database Manager
- Games
- File Manager
- Utilities
- Terminal for Screen Reader
- Keyboard Learn

You may ascertain information about your Apex at any time by pressing space with dots two-four. Information such as unit serial number and software version are obtained in this way.

The Apex Word Processor now supports several file formats including DOC, DOCX, RTF, TXT, BRF, and BRL. It will also open PDF and Epub files.

Indeed, Apex offers a similar rich feature list to the U2 and U2 Mini, give or take subtle differences in the proprietary software written for each family of note-takers. For example, both word processor applications on these families is excellent and powerful, while the Internet browser on them leaves a lot to be desired.

The Apex has a Perkins-style Braille keyboard, but the keys sound slightly more clicky than they do on the U2 family. Apex also contains the very popular thumb keys for which HumanWare is renowned, making your reading experience and navigation process comfortable and convenient.

This device comes complete with suitable carry case, cables and documentation CD. Upgrades are generally free, but are released simultaneously worldwide. An optional Oxford dictionary is also available for purchase, as is a leather carry case from Executive Products Incorporated.

Pros and cons

BrailleNote Apex is very similar in size, weight and productivity to the Hims family of note-takers. I personally think HumanWare technical support is excellent, and software releases are issued worldwide at the same time.

Apex does not have some of the Social Media facilities offered by the Hims range, and given its already limited Internet browsing capability, it is rather disappointing that HumanWare did not write any specific applications for such features into KeySoft.

The memory on Apex is less than on the Hims products, but the Braille display is very good. I dislike immensely, the BrailleNote family file structure. It feels incredibly cumbersome and not in keeping with the way you would browse File Explorer on a regular Windows PC. Apex is more expensive as well which is undoubtedly a consideration for many. And given the fact the BrailleNote Touch has arrived, HumanWare will now only support the existing Apex machine, not develop the software further to run on it.

So, in summary, given the introduction of BrailleNote Touch, and BrailleNote Touch Plus, BrailleNote Apex is still a good, reliable machine despite the fact it has really come to the end of its development. It offers an extremely functional set of applications in KeySoft, and has a proven track record. With 18 or 32 Braille cells, user replaceable battery and an excellent help system, my guess is that it will still be around for some time to come.

BrailleNote Touch and BrailleNote Touch Plus (Current Devices)

BrailleNote Touch was HumanWare's eagerly awaited 2016 Braille tablet, one of the first of its kind in the world, certified by Google. It was joined in 2019 by the BrailleNote Touch Plus, an even more powerful tablet built on the popularity and success of its predecessor. The Touch and Plus are so much more than simply a portable Braille display, so I make no apology for spending some time in this chapter looking at their functionality.

Both come in 18 or 32-cell flavours, and boast a host of modern features that we have all come to know and expect from a current Smart device.

I will start with the Touch first which is still available to purchase from HumanWare at the time of writing. But it is likely to be phased out in favour of the more sophisticated BrailleNote Touch Plus models.

Meet BrailleNote Touch

BrailleNote Touch runs on the Android operating system, KitKat version 4.4.2, so no more of the rather antiquated Windows CE. Users of previous HumanWare products such as BrailleNote Apex, BrailleNote MPower and BrailleNote Classic will be familiar with the KeySoft suite of applications which have all been re-written to cope with the demands of modern Smart device usage.

The BrailleNote Touch measures 2.06cm high, by 24.4cm wide, by 16.2cm deep, and weighs 900g. Although there is a choice of 18 or 32 Braille cells, with equivalent number of cursor routing buttons, measurements and weight of both devices are roughly the same; it is the cost that is the major factor in deciding which unit to go for. All features and descriptions of use below apply to either device.

BrailleNote Touch comes with 16gb of internal storage, and will support any FAT32 formatted SD card or USB memory. It has a user replaceable battery, and can be connected to a PC or laptop for transferring files to its internal memory. For students working with their sighted peers, the Touch has a visual screen just like any tablet, which may be turned off to conserve battery life and maintain privacy.

With WiFi, Bluetooth, built-in microphone and stereo speakers, BrailleNote Touch is an all-in-one portable device you can take anywhere. And with an approximate battery life of eight hours, you should have enough power to last most of the day.

What makes the Touch so unique from any other portable Braille product is its ability to allow you to input Braille on the glass surface of the tablet. This makes typing fast and silent, ideal for classroom or meeting situations. But if you would prefer to input Braille on a traditional keyboard, the Touch comes with a fully functional Braille keyboard that is incorporated into its case.

So how does typing on the glass surface of a tablet work? Well, when you first use the Touch, simply place all 10 fingers on the glass. When you feel a short vibration, this indicates that your BrailleNote Touch has been calibrated, and you can begin inputting Braille as you would on a regular, physical keyboard. It might take a little time to get used to this method, and if you find it just isn't for you, then pull the cover over your tablet and begin using the BrailleNote keyboard in the normal way. Using

whichever method you prefer, any Braille you input can be read on the display below the touchscreen area, with 18 or 32 cursor routing buttons to allow the manipulation of text being entered.

Users of HumanWare note-takers will be familiar with four thumb keys which have been incorporated into BrailleNote Touch. These allow you to move around the tablet, and, more specifically, the KeySoft environment. An additional three tactile keys on the front of the unit offer Back, Home and Context Menu options to make navigation even more straightforward.

Physical description

With its Braille display nearest you, place the Touch on a flat surface. On the left side of the unit, from back to front, are a micro USB port for charging the unit, or connecting it to a PC, an indented oval power/standby button, and oblong up and down volume buttons.

At the rear of the unit, from left to right, is a standard USB port for connecting memory or an external keyboard; SD card slot; and HDMI port for connecting the Touch to a TV monitor.

The right side of the unit, from back to front, offers 3.5mm microphone and headphone sockets, and a button with a dot on it that has become active for the camera and other features.

At the front of the Touch are four thumb keys, two short and two long, with three small keys between them in the middle. The left of these three keys is a triangular-shaped button pointing to the left which is the Back key. To the right is a circular button which is the Home key. And the square button next to it takes you to the Context menu when tapped, or the App Switcher when long pressed.

A regular Apex nine-key Braille input keyboard occupies most of the top surface of the unit, with the Braille display and cursor routing buttons in front of it. At each end of the display is a stereo speaker.

Underneath the tablet itself are two latches and a window for the camera lens. You may replace the battery by sliding up the latches. The internal SD memory of the Touch is housed underneath the battery.

The BrailleNote Touch case

The case in which the Touch is housed is, for me, a truly brilliant innovation. When you remove the Touch from its packaging when it arrives, you will feel a cover that goes over the entire machine with magnets at the front and side closures. There is a pocket on the top of the cover where you can store small cables and SD or USB memory.

When you lift the cover, however, you find the tactile Braille keyboard below it. On the front left edge of the keyboard area, just above the leftmost speaker, is a lip. Hook your finger under this to lift the entire Braille keyboard away from the tablet to reveal its glass surface underneath. Effectively, your tactile Braille keyboard is an overlay so you can choose whether or not to use it. This overlay is hinged to the

case, a really clever idea that not only offers an option of how you input Braille, but also affords extra protection for your glass screen.

If you flip the Touch over so that the tablet is lying face down, you will feel two thumb grip latches. Slide these apart, and the entire back of the case will come away. It is a hard plastic backing that reveals the underneath of your tablet. You can now feel the camera lens, and two further latches that release the battery when they are pushed up. The battery goes across the middle portion of the tablet. Underneath it is where the machine's internal memory is stored. This may be removed, but you must not do it while the unit is turned on.

Finally, in relation to the case, there are two metal rings, one on either side of the machine at the front. You can attached the supplied strap to these for carrying your BrailleNote Touch around.

Powering up and conserving battery

When you turn on BrailleNote Touch for the first time, or when you have shut it down completely after use, press and hold the power button for a few seconds until you feel a vibration. Your display should say "Starting KeySoft." It takes at least a couple of minutes for your Touch to reach the main menu. When you want to place your Touch in standby mode, tap the power button, and your Touch will lock. Tap it again to wake it up, then either scroll to the Unlock button and enter, or press space with U to unlock it straight away. If you have no need for the display, this can be turned off to conserve battery life. Similarly, if you are not going to use your Touch for a while, power it down altogether to conserve its battery. This is a rather power hungry machine, in my view, so do be mindful to charge it regularly or you just might find it has run out of juice when you least want it to!

KeySoft Main Menu

At the heart of BrailleNote Touch is its suite of reliable applications called KeySoft. These have been re-written from the ground up to give the user the best possible experience of working with a Smart device. When you turn on BrailleNote Touch, its menu comprises the following items:

- Word Processor (KeyWord)
- Email (KeyMail)
- Internet (KeyWeb)
- Contacts (KeyList)
- Planner (KeyPlan)
- File Manager (KeyFiles)
- Calculator (KeyCalc)
- Victor Reader
- Play Store
- K-NFB Reader
- Braille Terminal
- All Applications

As you can gather from this list of features, KeySoft is layered over the Android operating system, but offers the user an opportunity to download apps from the Play

Store that can then be accessed from the KeySoft menu by going to All Applications. And since you can use first letter navigation, it is possible to quickly find the app you wish to download in the Play Store to begin using on your Touch. Bear in mind that not all third party apps will work on the Touch, so it is recommended that you stick to those which have been accessibly certified by Google. You also need to have a Google account in order to use the Play Store. If you have one, all your Emails, contacts and calendar entries will be synchronised to the Touch.

One important aspect of KeySoft that has changed since its move to Android is the way you can browse for files and folders. This, for me, was always an extremely cumbersome process on previous HumanWare note-takers, and now bears similarities to File Explorer on Windows. You can connect your Touch to a computer or laptop to transfer data, but you can also use an SD card or USB memory.

Another special feature that excited me immensely when I heard about what BrailleNote Touch could do is the Victor Reader facility. This is like having a Victor Reader Stream on your BrailleNote Touch; it has all the same features and folder structure that you would find on a Stream. If you have a Stream, you can transfer the SD card from it to your Touch, and its bookshelf structure will remain the same.

BrailleNote Touch carries a TTS engine, which means you have the addition of synthetic speech. The very nice feature of being able to tap into the Play Store on your Touch is that you can choose a different voice if you don't like the default Acapella engine it comes with. You can also select primary and secondary profiles which give you the option to choose different voices, grades of Braille, language, as well as speed and pitch.

On a traditional tablet, you have to slide your fingers over the screen and tap on an icon you wish to activate. It is still possible to do this using BrailleNote Touch if you prefer by using Explore By Touch mode as opposed to Braille Touch mode.

BrailleNote Touch also has an 8mp camera. Thanks to a collaboration between HumanWare and K-NFB, the popular OCR app K-NFB Reader now comes with the Touch. So just imagine scanning a document with the camera on your Touch, and reading it back in Braille. I found this an awesome prospect until I tried it! I could not align the Touch over a picture I wanted to take of text because the flap of the case hung down and got in my way. Also, I found the Touch heavy and awkward to hold several inches above the text in landscape mode. Consequently, I got very little from the app, particularly as it crashed on me almost every time I opened it.

There is so much more that the BrailleNote Touch allows you to do: word processing; keeping an appointments diary; setting reminders; listening to your favourite books; connecting to Bluetooth speakers; using an external keyboard; sending and receiving Emails; browsing the web; managing your files and folders; downloading your favourite apps from the Play Store; customising your Touch … the possibilities are endless, all with Braille at your disposal in an all-in-one, easily configurable, modern unit.

Pros and cons

BrailleNote Touch and the Plus are exactly what the Braille industry has been crying out for. Those of us who use all-in-one devices like Hims U2 or BrailleNote Apex, for example, prefer the ability to do everything on one device when on the move, rather than carry two or more gadgets around with the added hassle of cables and chargers. The difficulty, up till now, has been that Windows CE could not be developed to cope with today's demands. Therefore, we have been relying on an old operating system to get our tasks completed, which has been tedious and frustrating at times. One of the main problems of the Windows CE operating system is the inability to enjoy efficient browsing, the web browser on Windows CE-based products just doesn't cut it. Now, with Firefox the browser of choice on BrailleNote Touch, you can hopefully enjoy a better and more efficient browsing experience.

I had hoped that the BrailleNote Touch 2.0 update would offer more stability and allow pairing of my iPhone in Braille Terminal. Sadly, for me at least, this did not prove fruitful. No matter what I did, I was unable to pair the Touch with my iOS device. As the days went by, I became more and more frustrated with app crashes and general instability of the machine. On paper, it all sounded good, but it just wasn't standing up to the rigours of modern life from a power user in my experience. And it has since transpired that the 18-cell model is unable to pair with a Smartphone anyway.

I had hoped that, for me at least, BrailleNote Touch would tick all the boxes: refreshable Braille at my fingertips with a choice of an on-screen or physical Braille keyboard; a lightweight device on which I could properly surf the web; a fully functional word processor that would allow me to read and write documents; an up-to-date file manager with a sensible folder structure; a fantastic way to access my books in Victor Reader; and the ability to download apps like Twitter, Facebook, Dropbox and much, much more. Sadly, however, it didn't live up to the hype for me.

The battery is user-replaceable, as is the internal memory. And the ability to emboss direct using an Index V5 printer is possible by saving your DOCX file to USB. It even comes with a two-year guarantee.

I feel BrailleNote Touch should have come with at least 32gb of internal storage. Given all it can do, this was frankly a pretty poor oversight on HumanWare's part for such a feature-rich device. And while HumanWare uses the argument that you can store as much as you like in the Cloud, there is still nothing as good for me as being able to store your files and folders within the confines of a machine's memory, hence my desire to see this increase in the future. And when you have no Internet connection to tap into the Cloud, what then?

It does take some time for the Touch to boot up from scratch, something that is a bit irritating if you need to access it quickly. So keeping it in standby mode is probably best if you are going to use it daily, but will compromise your battery somewhat.

It is also worth mentioning that BrailleNote Touch comes with a full day's training from an experienced HumanWare employee as part of the package if you are purchasing from your own funds. Even if you think you can manage with the machine

on your own without training though, you cannot swap the price of that day's training for a lower price on your machine. I think personally that HumanWare should look at this option. Some people just won't find a day's training particularly helpful if they are experienced users, and ought to be able to choose whether they want training, or the equivalent amount knocked off the price of a unit instead.

The whole help system on BrailleNote Touch is very well written and comprehensive, and there is plenty of assistance at hand when you need it. When you turn on your Touch for the first time, you are taken through a "Getting Started" wizard that helps you customise your unit. After that, you can get help by using the Context Menu in any application, context sensitive help that offers you commands wherever you are on the Touch, and there is both a user guide and tutorial on the machine itself, so there really is an easy and convenient way to learn how to get the best out of your BrailleNote Touch.

There is also an excellent audio tutorial from Mystic Access, which offers very comprehensive chapters on how to use your BrailleNote Touch and get the most from its features. The tutorial can be freely downloaded, in MP3 or DAISY format, from

www.mysticaccess.com/braillenote-touch-tutorial.

But, hey presto! Along came the Touch's successor, the BrailleNote Touch Plus, in the first quarter of 2019. Compared to the first iteration, the Plus is a breath of fresh air as you will see below.

BrailleNote Touch Plus (Current device)

When HumanWare's BrailleNote Touch was first released in 2016, it received mixed reviews. This was largely because it couldn't accomplish some of the tasks expected of it. And even with some software updates, the hardware was letting its target audience down significantly.

But the BrailleNote Touch Plus was released in the first quarter of 2019, and it is now a whole new ball game. I had wanted the first iteration I purchased to work so much, I loved its physical design and concept. The Plus, as it shall be known throughout this chapter, retains all the good things that were part of the first model, but with more up-to-date hardware and software that really does make this device one to want.

What makes the Plus so unique from any other portable Braille product is its ability to allow you to input Braille on the glass surface of the tablet. This makes typing fast and silent, ideal for classroom or meeting situations. But if you would prefer to input Braille on a traditional keyboard, the Plus comes with a fully functional Braille keyboard that is incorporated into its case.

So how does typing on the glass surface of a tablet work? Well, when you first use the Plus, simply place all 10 fingers on the glass. When you feel a short vibration, this indicates that your BrailleNote Touch Plus has been calibrated, and you can begin inputting Braille as you would on a regular, physical keyboard. It might take a little time to get used to this method, and if you find it just isn't for you, then pull the cover over your tablet and begin using the BrailleNote keyboard in the normal way. Using whichever method you prefer, any Braille you input can be read on the display below the touchscreen area, with 18 or 32 cursor routing buttons to allow the manipulation of text being entered.

Users of HumanWare note-takers will be familiar with four thumb keys which have been incorporated into the Plus. These allow you to move around the tablet, and, more specifically, the KeySoft environment. An additional three tactile keys on the front of the unit offer Back, Home and Context Menu options to make navigation even more straightforward.

Physical description

With its Braille display nearest you, place the Plus on a flat surface. On the left side of the unit, from back to front, are a USB C port for charging the unit, or connecting it to a PC, an indented oval power/standby button, and oblong up and down volume buttons.

At the rear of the unit, from left to right, is a standard USB port for connecting memory or an external keyboard; SD card slot; and HDMI port for connecting the Plus to a TV monitor.

The right side of the unit, from back to front, offers 3.5mm microphone and headphone sockets, and a button with a dot on it that has become active for the camera and other features.

At the front of the Plus are four thumb keys, two short and two long, with three small keys between them in the middle. The left of these three keys is a triangular-shaped button pointing to the left which is the Back key. To the right is a circular button which is the Home key. And the square button next to it takes you to the Context menu when tapped, or the App Switcher when long pressed.

A regular Apex nine-key Braille input keyboard occupies most of the top surface of the unit, with the Braille display and cursor routing buttons in front of it. At each end of the display is a stereo speaker.

Underneath the tablet itself are two latches and a window for the camera lens. You may replace the battery by sliding up the latches.

The BrailleNote Touch Plus case

The case in which the Plus is housed is, for me, a truly brilliant innovation. When you remove the Plus from its packaging when it arrives, you will feel a cover that goes over the entire machine with magnets at the front and side closures. There is a pocket on the top of the cover where you can store small cables and SD or USB memory.

When you lift the cover, however, you find the tactile Braille keyboard below it. On the front left edge of the keyboard area, just above the leftmost speaker, is a lip. Hook your finger under this to lift the entire Braille keyboard away from the tablet to reveal its glass surface underneath. Effectively, your tactile Braille keyboard is an overlay so you can choose whether or not to use it. This overlay is hinged to the case, a really clever idea that not only offers an option of how you input Braille, but also affords extra protection for your glass screen.

If you flip the Plus over so that the tablet is lying face down, you will feel two thumb grip latches. Slide these apart, and the entire back of the case will come away. It is a hard plastic backing that reveals the underneath of your tablet. You can now feel the camera lens, and two further latches that release the battery when they are pushed up. The battery goes across the middle portion of the tablet. Finally, in relation to the case, there are two metal rings, one on either side of the machine at the front. You can attached the supplied strap to these for carrying your BrailleNote Touch Plus around.

The Plus has roughly the same measurements and weight as the Touch: 24.4cm (9.5 inches) wide, by 2.06cm (0.8 inches) high, by 16.2cm (6.3 inches) deep, weighing 920g, (2,03lbs).

The Plus has the same lovely Braille display with equivalent number of cursor routing buttons in either 18 or 32 flavours found on the first generation. In fact, if you lifted the Touch and Plus, you might confuse them at a cursory glance. But there is oh so much more under the hood of the Plus that makes this new model so exciting. It comes with 64gb of internal storage, 4gb of RAM, and sports a Snapdragon 820, quad-core Kryo 2.2Ghz 64-bit processor. With WiFi 802.11 b/g/n/ac, 2.4ghz and 5ghz, and Bluetooth 4.2, there is plenty of connectivity available.

The battery is a Li-Polymer 3.7V nominal, 5100mAh replaceable cell, which can be charged in under four hours, (with the unit turned off).

The familiar HumanWare signature thumb keys, detachable case and physical keyboard are the same as before. But in addition to all the updated hardware, the Touch comes with the familiar KeySoft suite of applications layered over more up-to-date Android software. Yes, the Plus is running Android Oreo as opposed to KitKat, and this means that the Android experience is more secure and smooth because a greater number of apps downloaded from the Play Store actually work.

The Plus still houses an SD card, but if you want to use one with a higher capacity than 32gb, you will need to format it to FAT32 so that the Plus will recognise it. I've done this and have a 256gb card installed.

The Main Menu

Items on the Main Menu of the Plus are similar, with KeySoft proprietary software very much the order of the day here. Choose from

- Contacts: KeyList
- Email: KeyMail
- Internet: Chrome
- Word Processor: KeyWord
- Planner: KeyPlan
- File Manager: KeyFiles
- Calculator: KeyCalc
- EasyReader +
- Play Store
- KNFB Reader
- Braille Terminal
- All Applications

As you can see, Dolphin's EasyReader has been included on the Plus which allows you to navigate several libraries including Bookshare, Overdrive and Project Gutenberg. You will note that the Dolphin EasyReader + app has replaced the Victor Reader app found on the Touch. EasyReader + offers more flexibility and greater choice.

KNFB Reader has also been included on the Plus, and works much better than it did on the Touch, now using a 21mp camera.

The Plus has a USB C port for charging the device, giving the machine a much more modern feel. The fact that the processor and memory have been beefed up makes for a pleasing user experience.

Using The Plus

When you boot the Plus for the first time, you are invited to enter your WiFi and Google account details, and customise the Plus to your liking with a Getting Started wizard. I noticed immediately that the Plus is much faster to load from cold, and that battery life is hugely superior to the first iteration.

With updated hardware and a later version of Android, using the Plus is now a very viable experience. If you enter on All Applications from the Main Menu, you are brought to a list of every app you have installed on the Plus, along with the proprietary applications written for KeySoft. I downloaded several apps from the Play Store which work really well with the Plus including Tweetings for Twitter, Google Keep, the VLC media player, Kindle, Dropbox and ETI Eloquence. I was also really impressed with both the BBC iPlayer and ITV Hub for listening to audio described content. To highlight an example of why the later software is so significant here, I downloaded several of the above apps for the Polaris Mini which runs Lollipop 5.1.1. While most of them work, the experience is much slower, and you need to download earlier versions of some apps on the Polaris in order for them to work with the older operating system.

You can naturally pair the Plus with your Smartphone, and use it with your regular screen reader in Braille Terminal mode on a PC or laptop. You can create several language profiles on the Plus, and download and install different voices such as Acapela, Eloquence and Google's own TTS. You can also set up the Google Assistant to work on the Plus which, once again, tends to work rather better on the Plus than it does using Polaris.

One feature I really like is being able to choose which Internet browser to use. I have downloaded Firefox and Kiwi browsers on the Plus, just to offer some alternatives and variety to Chrome. When you launch something that requires a browser, you are then asked which of those installed you want to use. The same applies to listening to music too, you are always asked which music player you want to use such as Google Music, VLC, Amazon, etc. This is the beauty of having an all-in-one tablet because you have so many options at your disposal.

For those with some sight, and particularly for those in a teaching environment, the Plus has a seven-inch display with 1024 by 600 resolution. As with the Touch, the display on the Plus can be turned off which preserves battery life and privacy.

Pros and Cons

The BrailleNote Touch Plus is a vastly improved machine compared to the first model. It retains all the excellent features we have come to know from HumanWare such as beautiful Braille display, Thumb Keys and efficient KeySoft. The ability to write on the physical keyboard that forms part of the case or on the glass screen beneath it has been retained on the Plus, but the whole concept of moving in and around Android is so much better. HumanWare offers a day's training included in the price of the Plus, but I had the machine up and running before anyone contacted me to arrange training, so this needs improving. If you are going to purchase a new machine and wait weeks for someone to show you how to use it, it kind of defeats the purpose! And if you don't require the training, perhaps HumanWare could consider knocking something off the cost of the machine?

My main concern with these note-takers generally is that they cost so much to purchase - especially if you don't receive funding and have to find the money from your own pocket - that it becomes a perpetuating experience. The BrailleNote Touch, for example, has lasted little more than three years. At the crazy prices they cost,

you need to keep your savings topped up in readiness to receive the next kid on the block!

The Plus is a lovely piece of kit though and offers an all-in-one experience of proprietary software comprising several useful applications to get your jobs done, layered over Android Oreo. It is vastly superior in every way over the first model, retaining some of the best components and features of the Touch.

Chapter Four: Baum Pronto! (Legacy Devices)

Just when you thought the note-taker choice couldn't get any better with Hims' and HumanWare's offerings, BAUM added its baby, Pronto! to the list.

Meet Pronto!

Pronto! was manufactured in 18 or 40-cell flavours. And the exciting feature of the 40-cell model is that it has an interchangeable keyboard. So if you prefer qwerty to Braille input, the Pronto! 40-cell version allows you to swap keyboards in a neat, ergonomic way.

Like its Hims and HumanWare counterparts, Pronto! runs under Windows CE. And also like the others, it comprises a proprietary suite of applications to choose from once the machine boots up.

The Pronto! 18-cell note-taker measures 174mm wide, by 92mm deep, by 32mm high, weighing approximately 450g.

Its 40-cell sibling measures 297mm wide, by 152mm deep, by 27mm high, weighing approximately 1250g.

Each machine, when turned on, comprises the following menu items, some of which have sub-menus:

- Word Processor
- PDF Document Viewer
- Planner
- Address Book
- File Manager
- Braille Display Mode
- Timers (has a sub-menu)
- Calculator
- Spreadsheet Viewer (Excel)
- DAISY Reader
- MP3 Player
- Voice Recorder
- Email Client
- Web Browser
- Internet Radio
- Pronto! Translator
- Look Up Word
- Settings (has sub-menu)
- Help (has sub-menu)

Pronto! is constructed from brushed aluminium, so it is a sturdy unit built to withstand prolonged use. It comes with WiFi, USB and Bluetooth connectivity, the latter allowing you to connect up to four devices simultaneously. It has 32gb of internal storage, and the capacity to support SDHC cards and USB pen sticks. A 4gb SD card is provided with either machine.

Both versions have an eight-key Perkins-Style keyboard with a nice quiet action. The dots one and four keys are slightly further forward to the others, as on VarioUltra, but it would not deter me from using this product on a regular basis.

There are lots of other buttons and a four-way NaviStick to let you jump around menus, files and documents. And if you prefer to use the qwerty keyboard on the 40-cell unit, it is a pleasant experience for typing on the spacious keyboard. The qwerty keyboard also has raised dots on many of the keys to help you navigate your way around the keyboard. I personally found this rather offputting, but can understand why BAUM chose to mark them in this way.

As well as Braille display in 18 or 40-cell options with corresponding cursor routing buttons, Pronto! comes with text-to-speech. This allows you to choose between Eloquence or Nuance voices in a variety of languages. The 40-cell unit has stereo speakers, whereas the 18-cell model has a mono speaker. While this is subjective, I found the speakers on both Pronto! models very tinny, I didn't like the sound at all.

The Lithium Ion battery on either unit provides approximately 20 hours, depending on use. Sadly, however, the battery is not user replaceable, so Pronto! would need to be shipped to your dealer for it to be exchanged.

You can either power down Pronto! with just a quick press of a button to put it into suspension mode, or you can turn it off completely. The latter is not recommended unless you are not going to be using the product for some time. When turning Pronto! off completely, it takes longer to boot the next time you want to use it, whereas placing the device in sleep mode is quicker to wake it up again. Bear in mind though that leaving Pronto! in suspension or sleep mode will cause quicker drainage of the battery.

Using Pronto

Using Pronto! Word Processor, you can create and edit documents in RTF, BRF and TXT formats. You can edit DOC and DOCX documents, and save these in RTF format. But given a machine of this calibre, I think this is incredibly limited!

Despite its limited file extension options, you can create, edit and manipulate documents comfortably on Pronto! with all the attributes you would expect from a solid word processor application.

Both units come with a durable case. With the 40-cell version, you simply slide Pronto! into a leather bag for carrying, while the 18-cell version can be used in its carry case.

I was not overly impressed with the documentation for this device. A full manual, split into parts, is available from the Help menu on the machine. Perhaps some translation has been lost in explanations on how to carry out certain tasks though. I found it rather confusing sometimes where a straightforward description would suffice.

There are some nice features on Pronto! that are not readily present on similar devices. For example, Look Up Word offers direct access to a Wikipedia site, and

Pronto! Translator lets you translate words or phrases into multiple languages. I must admit that I had great fun with this feature!

I found Internet Radio on Pronto! to be rather disappointing. It did not seem to find most of the stations I searched for, even though it allows you to do this by name or genre.

The web browser on Pronto! is limited due to the constraints of the Windows CE operating system. I have never had a pleasant surfing experience on any of the note-takers because they are using an older version of Internet Explorer with proprietary software layered over it.

An Excel Viewer is a welcome addition on Pronto!, as is the ability to open text-based PDF files. And Pronto! has a nice DAISY reader where books can be sped up to suit the listener, and navigated in the ways you would expect from a DAISY player.

From the Timers menu, select from a countdown timer, stopwatch, and four alarm clocks. The latter lets you set different alarms which you are able to name and use independently of each other.

There is a built-in voice recorder on Pronto! which has a dedicated button to start and stop recording. To make a recording in MP3 format, you simply press and hold the record button and wait for two beeps before speaking. To stop, simply let go of the same button!

The Email facility is what you would expect to find in a simple client. It supports POP and IMAP, and is straightforward to set up.

Pronto! can be used as a Braille display with your laptop or computer, or when paired with a Smart device. Follow the instructions that come with your device or screen reader. Like VarioUltra, Pronto! will let you connect to both computer and Smart devices at the same time which makes opting between them very easy.

Pros and cons

The Pronto! 18 and 40-cell units are exceptionally well built and ought to withstand many years of wear and tear. You will see that Pronto! does not greatly differ from the concept of either the Hims U2 or HumanWare Apex note-taker families. It offers some nice touches such as Excel Viewer, multiple alarms, and simultaneous Bluetooth connectivity. And if you get hold of the 40-cell version, it has a unique feature of letting you interchange the Braille and qwerty keyboards simply and efficiently that come as part of the package. This is tremendous for those who enjoy the experience of typing as well as inputting Braille. The Braille on either 18 or 40-cell display feels lovely to the touch, and would make reading long documents very comfortable. Bear in mind though that the Pronto! 40-cell machine is quite heavy for carrying around.

Remember that you would need to find someone who could replace the battery in your Pronto!

I also found sound quality extremely disappointing on both units, and I was not overly impressed with Internet radio either.

Chapter Five: EuroBraille Esytime (Legacy Device)

In addition to its range of Braille displays which we will discuss further on, EuroBraille has added a Windows laptop to its portfolio. Given its rich list of features and connections, we will look at Esytime in more depth.

Meet Esytime

Esytime is a fully-fledged Asus Windows 7 laptop that has been adapted with a 10-key Braille keyboard and display of 32 cells. There is no screen, but the ability to attach one is present. You can install your favourite screen reader on Esytime, or take advantage of EuroBraille's suite of self-voiced applications. Esytime comes in two flavours: 32 cursor routing keys, (Esytime Standard,) or Navigation with Optical Sensors (Optical version.)

Measuring 26cm, by 18cm, by 2.5cm, Esytime weighs 1.2kg. Esytime is white in colour with black display and side panels. It comes with an Intel Atom N2600 dual Core processor, with Windows 7 Home Premium installed. It has 2gb of RAM, a 320gb hard drive, three USB ports and one Micro USB port, an Ethernet port, , built-in stereo speakers, and microphone. It comes with Bluetooth 3.0, and is WiFi ready. Esytime also boasts a user replaceable battery that lasts approximately eight hours, and comes with a two-year warranty.

Exploring Esytime

The top face of Esytime comprises a well spaced eight-key Braille keyboard with space bar and back space keys below it. The 32-cell Braille display is situated above the keyboard, complete with 32 cursor routing buttons (if you have the Esytime Standard version.)

At each end of the Braille area is a series of round buttons in a vertical line. On the left side, these comprise, from top to bottom, previous 32 characters, escape, tab, and shift. On the right side, the order is next 32 characters, insert, alt, and control.

Above these round buttons on either end of the Braille area is a smaller five-way joystick navigation control which moves four ways, and can be pressed in the middle.

The power button is a rectangular key that is situated at the top right corner on the front of the machine. Press and hold for a couple of seconds before releasing to turn on Esytime.

A microphone can be located above the Braille display at the top of the unit, while four LED lights are positioned towards the right of the front edge. This completes the top panel of Esytime.

The left side of the machine, from top to bottom, comprises a round power socket, VGA monitor connection, one USB 2.0 port, a ventilation fan, and a 1.0 USB port for connecting Esytime to another computer.

On the right side, from top to bottom, is an RJ45 Ethernet port, a Kensington® security port, two USB 2.0 ports, a microphone input socket, a headphone input socket, and an SD/SDHC/MMC slot.

The battery housing is on the rear of the device, and must normally be removed when the unit is turned off.

Using Esytime

As already stated, Esytime can be used as a normal Windows laptop with a screen reader of your choice. It may also be used as a Braille display when connected to another computer, and it becomes a note-taker when used in conjunction with the Esysuite software. Esysuite features several applications including Esynote for word processing, Esyweb for browsing the Internet, Esyplay for listening to music, Esyfile for manipulating your data,Esycalc for mathematical tasks, Esydico for accessing a suite of bilingual dictionaries, and some games. Esysuite uses the Ivona voices Amy or Brian, the parameters for which can be accessed in a Settings menu within the software.

If you opt to use Esytime with a screen reader, then the unit is operated as one would navigate Windows, except with the added benefit of Braille input. It is possible, of course, to attach a regular external qwerty keyboard to Esytime using one of the USB ports if you prefer.

This unit has a very ergonomic Braille keyboard which comprises full-size keys that are responsive and well spaced out. The display has a nice feel too, and would be comfortable to use for long periods of reading.

I customised NVDA and JAWS that were both installed on the unit when it arrived. Esysuite was also installed. I personally preferred using a regular screen reader to navigate the Windows environment as opposed to the more proprietary Esysuite approach. I found Esysuite rather basic and a little sluggish for my liking, but understand that someone with less general computer experience might appreciate the option.

The manual for Esysuite is contained within a Help menu of the software, but I felt it could have provided more explanation. Perhaps some translation has been lost between French and English here!

Pros and cons

While Esytime is not the smallest or lightest Braille device on the market, it certainly offers a variety of uses: computing in a Windows 7 environment, inputting Braille with display built-in, connecting it to another device as a display, and using the Esysuite tools for taking notes etc.

The computer specification, I feel, prevents this machine from being a real power house, though my understanding is that it can be upgraded to something more immediate. Most laptops today come with at least 4gb of RAM, larger hard drives, and higher processor speeds. It is the Braille workings that beef up the cost of Esytime, but there isn’t much to inspire under the bonnet apart from the convenience of Braille. It is possible to add extra RAM, or update the operating system to today’s Windows 10, but that will then bump up an already hefty price tag considerably. The other point to bear in mind is that the Braille display is not detachable, so you couldn’t ditch the rest of the laptop and use the display on its own elsewhere.

If I were running Esytime myself on a daily basis, I would be using the JAWS or Window-Eyes screen reader without using Esysuite. Because I am a Windows power user, the proprietary suite of applications would not offer me anything extra that I don’t already have. But Esysuite would be relevant for a person who is neither confident nor interested in the wider Windows environment, and for whom basic word processing or web navigation is ample. And, for Braille music lovers, Esysuite has some nice features.

All that said, however, when comparing the price of Esytime to one of the current regular Braille note-takers on the market, you are buying a substantial piece of kit for your money. You get a Windows laptop experience, Braille display and note-taker, all in one convenient package. The accompanying soft carry case should also offer enough protection for Esytime when travelling.

The Esysuite software is included in the package. But if you wish to run Esysuite on another computer, an additional copy can be purchased.

B.Book (New Device)

The B.Book PC from EuroBraille is the latest device to offer a combination of Braille input and output on the Windows operating system, and replaces the above described Easytime.

With 32 Braille cells and equivalent number of cursor routing buttons, Perkins-style keyboard and additional navigation and function keys, the B.Book offers up-to-date hardware and software combined to facilitate today's productivity and efficiency.

The B.Book measures 270mm, by 197mm, by 26.5mm, and weighs 1.1kg. The box contains the B.Book and protective carry case.

B.Book Description

Placing the B.Book in front of you, the top face comprises stereo speakers; a Perkins-style 10-key Braille keyboard; two four-way joysticks; 32 Braille cells and equivalent number of cursor routing buttons, and navigation buttons at each end of the display.

On the left side of the machine, from front to back, are two USB 3 ports; one Ethernet port; one micro HDMI port; one USB C port (for charging) and one anti-theft port.

The right side comprises one audio socket; two USB 2 type A ports; one mini USB port (for connecting a Braille device); SD card reader slot; and one switch button.

The B.Book comes with Windows 11, NVDA screen reader and Libre Office all preinstalled, and the optional Esysuite software. Under the hood, the B.Book offers a SMARC Adilink Pentium N4200/1.1gh/205gh/4 cores processor with 8gb Go RAM; 120 Go SSD; WiFi; and Bluetooth 4.0.

The following additional applications are included on the B.Book:

- MP3 Reader (Esyplay and EsyDAISY)
- Esysuite software

Treat your B.Book PC as a regular Windows machine with the added value of the Braille display and all that brings. You can, at any time, connect a regular qwerty keyboard to the B.Book if you prefer as Braille input on such a versatile device can be a steep learning curve.

Pros and Cons

An all-in-one Windows device offers the advantage of an integrated form factor of computer and Braille display together on a regular PC. But the disadvantage is that if anything untoward goes wrong with the internal workings of the B.Book, you would be unable to connect the Braille display part of it to any other device. It is also a rather expensive way of enjoying an all-in-one computer and Braille display just because of the very nature of its specific design.

I have not been able to enjoy any hands-on experience with this device other than what I have gleaned from the website blurb and user manual.

For further details, including access to the user guide, you can contact EuroBraille by visiting their website

https://eurobraille.com

Chapter Six: Inside Vision's InsideOne (Current Device)

French outfit Inside Vision is the latest company to offer a fully functional Windows 10 tablet/laptop with Braille keyboard and 32 Braille cells. Unlike EuroBraille's EasyTime, however, its offering, InsideOne, is a high-end device that combines the best in power computing with refreshable Braille in one ergonomic unit.

InsideOne

InsideOne measures 29.5 wide, by 20.2 deep, by 1.9cm high, weighing 1.380kg. It is equipped with an INTEL Quad Core Z3775 2,4 Ghz processor, 4gb of RAM, and a 128gb Solid State Drive (SSD.) Running Windows Home 64-bit, and Bluetooth 4.0, this is a reasonably good spec for a tablet/laptop supporting Braille. It has stereo speakers, supports WiFi IEEE 802.11 a/b/g/n/ - 5G, and has integrated front and rear-facing cameras. A Micro SD card will support up to 256gb of external storage, comes with one Mini USB, USB 3, Mini HDMI, and 3.5mm audio jack. Physical controls include power, and up and down volume buttons. An Li-Ion 8000mAh battery offers approximately eight hours of use, and up to 200 hours standby time.

Exploring InsideOne

The top face of InsideOne, with the 32 Braille cells nearest you, is an extremely interesting concept. Above the Braille display, where you would perhaps expect cursor routing buttons to be positioned, is an indented horrizontal line which is an area for carrying out specific commands on the machine. Above these is an eight-dot Braille keyboard with two space-bars. Like the horrizontal line below it, the Braille keyboard is indented so that it is moulded into the Gorilla Glass surface of the unit. At either end of the Braille keyboard are two vertical indented areas where more commands are executed. Above the Braille keyboard is the remainder of the glass surface of the tablet reserved for the visual screen. In the top left-hand corner on the face of the tablet/laptop is an indented circle where other gestures can be used.

As InsideOne has USB connectivity, it is possible to attach a standard qwerty keyboard if you find you need to use this until you become familiar with the tablet's many gestures. This is what I did to get me up and running with the unit kindly loaned for evaluation.

InsideOne is shipped with Windows 10 Home ready to go, and the NVDA screen reader pre-installed. But you may use an alternative such as JAWS, Window-Eyes or Supernova if you prefer. InsideOne also comes with a set of its own applications called Home. You can use these if you are a computer beginner, and do not care for some of the more advanced functionality found in Windows. The applications on the Home screen comprise:

- Nav
- Apps
- Settings

Within Apps, the list is:

- Note

- Maths
- Text
- Map
- Dico
- Contact
- Calendar
- Mail
- Web
- Cloud

These are basic functions, but do wet the appetite if you are dipping your toe into the world of tablet gestures for the first time.

Writing Braille on the InsideOne is quiet, but does take a little getting used to because there are no keys to press down on. In essence, your fingers fit neatly into the concave grooves that are aligned exactly like a Perkins-style keyboard but without the clatter! The horrizontal and vertical indents described above are for carrying out gestures such as swipes and taps used on regular tablets.

The unit I sampled was an early demo of what is now available and improved upon. I was able to alt tab between Home and the Windows Desktop using the external USB keyboard I tried, or using a gesture on the tablet itself. It felt very much like a regular Windows laptop to me when in the Microsoft environment. I found it snappy and responsive. I was less enthusiastic with the Home suite of apps, and feel they will probably have more about them when promised regular updates appear.

Pros and cons

InsideOne is in its infancy yet, but has the makings of being a worthy contender in the assistive technology arena. In its favour is the Windows 10 operating system with reasonable hardware at its core. The Braille display too is very crisp, and while NVDA is the screen reader pre-installed, you can use whichever one you feel most comfortable with. At the time of writing, however, InsideOne does not appear to have a Braille driver within JAWS, but I am sure this will be added as it emerges.

There is a fairly steep learning curve if you want to use the assigned gestures on InsideOne. I found it much quicker to attach a keyboard and cheat my way round the system. But if I was someone wishing to purchase an InsideOne, I would think it necessary to really learn how to explore it with the combination of Braille, swipes and taps.

This machine is not cheap to purchase, running into thousands of dollars as with most Braille devices. The manual frankly needs to be re-written, primarily due to translation discrepancies. And remember that the display is not detachable, meaning that upgrading could be very expensive and difficult.

In summary, InsideOne is an interesting concept built from solid materials and with much consideration. It addresses the issue of using an older, outdated operating system for the much more modern Windows 10, and builds some proprietary applications into the software that might be more suitable for some people. But at the rate such devices historically outdate, be mindful that the display might possibly outlast the other ingredients under the bonnet.

Chapter Seven: Elita Group and Freedom Scientific's ElBraille (Legacy Device)

What I have wanted to see for a long time now is a portable Braille device that runs the latest version of Windows with my preferred screen reader, giving me the ability to perform many of the tasks available on a regular PC or laptop. Well it's finally arrived … meet ElBraille.

What Is ElBraille?

This device is no longer being manufactured for a variety of political and practical reasons, but I have included it in this edition of *Braille On Display* because there is a community of users around the world, so it may still be possible to pick up one in the second-hand market.

ElBraille is a portable Windows 10 device that comes in two parts: a docking station and the Focus 14 Blue Braille display. Connect the two to look like one unit and you have the latest operating system running the latest release of JAWS in the palm of your hand. With a battery life of around 20 hours and full control of your applications using JAWS and the Focus 14 Blue display, this really has to be a contender in the Braille arena.

A Little Background

The Elita Group from Russia and Freedom Scientific joined forces to produce ElBraille in 2016. For a variety of reasons, the first iteration of ElBraille didn't come to fruition. But, with technical issues resolved, ElBraille was launched in March 2017.

The ElBraille docking station measures 189mm wide, by 118mm deep, by 38mm high, and weighs 750g including battery. Specifications and key description of the Focus 14 Blue Braille display can be found in the chapter on Focus Blue displays elsewhere in this book.

The docking station has a large space at the front into which the Focus Blue fits snugly. With this facing you, on the right side, from back to front, are the following items:

- Power socket
- USB3 port
- SD card slot
- 3.5mm headphone socket
- Right latch

On the left side, from back to front, are the following items:

- HDMI port
- Micro SIM slot
- Left latch

The power button is a vertically recessed button that is positioned on the top left of the docking station towards the front edge.

Just above the power button is a small three-colour indicator light.

Above this is a magnetic flap that can be removed to reveal the power button of the Focus Blue Braille display. When the display is placed in the docking station, it has to be connected to the ElBraille via a micro USB connection.

On top of the docking station, directly behind where the Focus Blue sits, are six tactile buttons which are programmed as follows:

- El menu (when tapped once, and El recovery menu when long pressed)
- Battery status (when pressed once, and WiFi status when pressed twice quickly)
- Volume down
- Volume up
- Time (when pressed once, and date when pressed twice quickly)
- El Notes (a quick way to access your written notes.)

Two stereo speakers are situated behind the above keys with ElBraille written in Braille between them, and a built-in microphone. An additional small speaker provides system sounds and vibration to assist deaf-blind users.

ElBraille is powered by a rechargeable 10,400 mAh battery. Even with WiFi turned on, battery life is approximately 20 hours.

This machine runs on an Intel® Atom™ x5-Z8300, Quad-Core, 1.84 GHz CPU. It supports Bluetooth 4.2, and Wireless WLAN802.11 a/b/g/n/ac networking (2,4GHz and 5GHz.)

It comes with an internal 160gb of memory which is split between two SSD drives. There is also 2gb of RAM. SD card capacity is up to 256gb. A built-in modem allows you to add a Micro SIM card if you have an appropriate data plan to use with ElBraille on the go.

ElBraille comes with a Braille Quick Start guide, leather carry case, cables and backup configuration on internal SD card. If you purchase the Focus 14 Blue Braille display, you will receive a CD containing drivers, Braille manual, carry case and cables for your Focus Blue as well.

If you want to purchase ElBraille on its own because you already have a Focus 14 Blue or JAWS For Windows, you may do so. A demonstration copy of JAWS is preinstalled on ElBraille, so all you have to do is authorise it to run in full mode.

Using ElBraille For The First Time

Whether you already own a Focus 14 Blue, or have purchased it to work with ElBraille, you will need to connect it to the docking station before booting the machine. Follow the instructions in the ElBraille Quick Start guide. I would urge you to be careful when attaching the display to the ElBraille docking station as you don’t want to force the display into the cradle incorrectly. Take some time to familiarise yourself with the area into which the display goes. Once it clicks into place, you should be ready to begin.

When you power ElBraille, you will hear and feel various sounds and vibrations that indicate your machine is booting. The operating system will load to the DeskTop. At

this juncture, you will be invited to authorise JAWS with one of your existing licences, or with the new copy you bought to work with ElBraille.

The ElBraille Menu

If you press the El button - which is the leftmost of the six on top of the machine in front of the Braille inscription - you are taken into a very useful menu containing the following items:

- Instant Messenger
- Skype
- Calculator
- ElBraille Utilities (has a submenu)
- My Files
- Text Editor
- Notes
- Audio Player
- Books
- Internet Browser
- Email
- (Microsoft Office would also be included in this menu if you install it)

The ElBraille Utilities menu comprises:

- Keyboard Editor
- Settings
- Check For Updates
- Help
- About ElBraille

Nearly all the items in the ElBraille menu can be found elsewhere in Windows, but have been grouped into one place to resemble a menu you might find on a dedicated note-taker such as BrailleNote Apex or Hims U2.

Using ElBraille

Now it’s time to have some fun. I cheated somewhat when I first started to navigate ElBraille because I didn’t know many of the shortcuts required for use with the Focus 14 Blue display. I am very much a qwerty keyboard user when working with my PC or laptop, and use the Braille display to complement speech output from JAWS. So I decided to attach a USB qwerty keyboard to ElBraille to get me started. In this way, I was quickly able to customise the Desktop, add my WiFi credentials, and install additional programs. Once I had done all those things, I was then able to start learning the many commands required to navigate the world of Windows with the Focus 14 Blue.

As you can imagine, there are lots of keyboard commands you need to know in order to navigate Windows with the Focus Blue. Both user guides offer good command summaries, but it does take time to get to where you want to be when using Braille as your input method. But writing in applications such as Word or Notepad in

contracted Braille, surfing the web, using Skype, Windows Media Player and other favourite programs, is possible.

This unit is also moderately priced alongside its competitors. Remember you are getting a Windows 10-based device, not the Windows CE platform or an older version of Android. You can also remove the Focus 14 Blue and use it with your Smartphone if you wish. The big advantage, of course, is that ElBraille is modular: you can purchase it with or without a JAWS licence or Focus Blue display. I ran NVDA on the unit, and had it working beautifully with the Focus 14 Blue, though there are obvious limitations because NVDA does not support the JAWS command structure required for navigation. So using NVDA is best achieved with an external keyboard. . It comes in handy though to have an extra screen reader on your computer or laptop in those situations where JAWS doesn't play ball.

Pros And Cons

Windows enthusiasts like myself are delighted to see a portable device with full screen reader and Braille support finally emerge. In my view, it is what the industry needed to offer a strong alternative to dedicated note-takers running proprietary software. But while it runs Windows 10 and JAWS, plus a plethora of programs you would expect to use in Windows 10, it is also fair to say that 2gb of RAM feels really mean to me. Running several programs such as Microsoft Office becomes a compromise with an Atom processor and 2gb of RAM. It isn't the first time that I've heard JAWS say: "Outlook" or "Skype is not responding," due to insufficient memory. I would also like to have seen one larger SSD drive. There are two rather small drives, so that files you want to save all go on drive D, leaving software installations and program files on drive C. This can be tricky when you format or restore the drives, particularly when ensuring you have enough space to perform Windows 10 updates. But you can supplement storage with an SD card with up to 256gb of memory should you need it for data files.

If you are used to Windows, but working with it using a qwerty keyboard, then you will find navigation and the execution of programs a steep learning curve using a Braille display. But you can overcome this problem by using an external USB or Bluetooth qwerty keyboard if it hinders you significantly. I did this to start with, but it became less of a deal-breaker after a while.

It is important to remember that ElBraille isn't a desktop, it's a Compute Stick with all the versatility of Windows 10 jammed into an adapted box. You may install Microsoft Office 365, and use mainstream applications in one portable unit offering both Braille and speech with a regular screen reader. But the big minus for me is its lack of memory which puts the machine under a lot of pressure if you want to use regular programs like Office that tend to be very memory hungry.

I have concerns that these two pieces of kit are built separately by different companies, yet can be sold as a complete package by one of them. The advantage is that if your Focus 14 or 40 Blue incurs a problem, you do not need to send the ElBraille component back to your dealer. But the disadvantage is that if your ElBraille component develops a fault, it goes back to Freedom Scientific or its dealers who then liaise with the Elita Group to have it fixed or replaced. Essentially then, there

are two companies at work here collaborating on one solution. As an end user, my concern, of course, is that any collaboration delivers a smooth experience for the customer.

Given that there are so many layered keystrokes to remember, using a Braille display to completely control your Windows environment is daunting and a steep learning curve. Do be aware of this if you therefore opt for the ElBraille concept. Even at the time of writing, it is also fair to point out that Elita Group and Freedom Scientific or their dealers still don’t have everything ironed out in terms of the Compute Stick configuration and which Focus display to pair with it, so do keep this in mind before parting with your money!

Chapter Eight: A general comment about note-takers Old and New

The big disadvantage of owning one of the dedicated note-takers discussed in this book is the fact that some of them run under Windows CE, making them so out-of-date before you put your hands on one. This limits development of the proprietary software written to run on Windows CE, and often offers the user a frustrating experience. That said, if all you want is a simple device with an easy-to-use suite of applications that should get your work done efficiently, then any of the described dedicated note-takers ought to suffice.

My advice, particularly on specialist note-takers, is to really consider what you want your device to do. If you feel that you need a unit with a proprietary software environment, then think about the options already discussed very carefully. But if you feel you can work with a Smart device and separate Braille display paired via Bluetooth, then read on for some slightly cheaper alternatives.

We have also seen a couple of computer-based alternatives incorporating Braille emerging. I have reservations about these, however, given that the Braille display is not detachable, and will probably outlast the rest of the hardware.

Section Two: Basic Note-Takers

Chapter Nine: Hims Braille Edge (Legacy Device)

Hims has decided to withdraw Braille Edge from its portfolio due to the introduction of a more modern display with added functionality which we will come to later in this chapter. But because Braille Edge is still in circulation and supported, it feels right to leave it in the plethora of Braille products still on the market. Braille Edge is a cut down version of the Sense note-takers, but has 40 Braille cells, the same number of corresponding cursor routing buttons, and the same ergonomic Perkins-style Braille keyboard. It is not equipped with speech synthesis, but can either be connected via USB to a computer or laptop, or paired under Bluetooth with your Smart device. It runs under Windows CE, and has a battery life of up to 20 hours. It measures 310mm wide, by 101.5mm deep, by 22.5mm high, and weighs 0.79kgs.

Braille Edge has an SD card slot, but you can only open Notepad when an SD card is inserted. Notepad supports the creation and editing of TXT and Braille files, and “read only” support is available for RTF, DOC, and DOCX files. You can also edit and read contracted and uncontracted RTF, TXT, DOC, and DOCX files. But you cannot create files in RTF, DOC, or DOCX formats. Like the U2 and U2 Mini, you can return to an open document when turning the unit back on.

When the unit is powered, a simple menu allows you to choose from:

- Notepad
- Terminal For Screen Reader
- Applications
- Options
- Information.

The Terminal For Screen Reader feature puts Braille Edge into Terminal Mode when paired with your Smart device, or connected to your computer or laptop. A slide switch on the left side of Braille Edge skips between USB and Bluetooth modes, so it is important to have the switch in the right position for the connection you want to use. You can exit Terminal For Screen Reader at any time if you want to use any of the other functions of Braille Edge, for example, open Notepad to take down a telephone number.

The Applications menu has the following six items:

- Calculator
- Alarm
- Date And Time
- Stopwatch
- Countdown
- Scheduler.

These are all basic but self-explanatory items.

The Options menu provides customisable settings relating to Braille Edge, including Braille grade, Braille table, sound alert and other parameters.

An Information menu provides details of the firmware version, build number, battery status, and Bluetooth name. If you have an SD card inserted, you are also given its remaining space and total capacity.

Context sensitive help is available throughout Braille Edge by pressing space with dots one-two-five wherever you happen to be. A documentation CD is included with Braille Edge in the box.

In addition to the Perkins-style keyboard, Braille Edge has further buttons for document navigation, but dedicated keys you would expect to find on a regular qwerty computer keyboard. This means that if you prefer inputting Braille, you could use a Braille Edge to converse with your computer or laptop instead.

Like the Sense note-takers, there is an auto scroll facility on Braille Edge which makes reading longer documents more comfortable. You can also adjust the speed of auto scrolling to suit yourself.

Braille Edge comes with soft carry case and relevant cables. For extra protection, Executive Products Incorporated sells a leather case which is more substantial if you do a lot of travelling.

The Braille display is identical to that used on U2 and U2 Mini, so rigorous use might cause some dots to start fading after a while.

This display is compatible with all screen readers, and can be paired with iOS and Android using Bluetooth. But only one Bluetooth connection can be obtained at a time.

Pros and cons

Braille Edge has a lovely, ergonomic keyboard for which Hims is now renowned. It is a great device for reading documents because of the longer 40-cell display. It is lightweight, has some basic but useful functions, and boasts a good battery life.

I have not found its Find feature particularly accurate when searching through a document, and it also has a tendency to be sluggish when paired with an iOS device. The battery is not user replaceable, and would need to be returned to your dealer for this process. It does seem to take some persuading for Braille Edge to work with the JAWS screen reader at times, particularly when there is a new update.

In summary, Braille Edge is a worthy contender if you want basic note-taking features on a unit with 40 cells that can be connected through USB or Bluetooth. It also supports multiple languages. And there is the option of connecting it to your computer or laptop as a Braille keyboard. Braille Edge 40 will not connect to multiple devices simultaneously, however. In essence, Braille Edge fits somewhere between having a dedicated note-taker like the U2 family described above, and using a portable Braille display you can connect to your Smart device or laptop.

For more information, visit

www.himsintl.com.

Chapter Ten: Hims QBraille XL (Current Device)

In 2019, Hims, or Selvas Healthcare as they tend to be called these days, replaced their Braille Edge display with a new device called QBraille XL which we will simply refer to as XL from now on. But this machine is not just a like-for-like replacement, XL offers a different concept in how one navigates a computer using a Braille display. XL offers both qwerty and Braille navigation thanks to its hybrid capabilities. The regular Perkins-style Braille keyboard we've all come to know and enjoy from Selvas Healthcare is present, as are the 40 Braille cells and equivalent number of cursor routing buttons. But XL also offers several keys found on a regular qwerty keyboard which Selvas Healthcare hopes will avoid the necessity for complex layered navigation keystrokes familiar to screen reader users. For example, all qwerty keyboard function keys are available, as are regular control, shift, alt, delete and tab keys.

Like Braille Edge, XL has a notepad, scheduler and several clock functions, so it isn't just a Braille display you can use on your computer or Smart device.

Box Contents

The box contains a QBraille XL, USB C cable and wall charger, carry case, and Braille Quick Start guide. QBraille XL runs under Windows CE 6.0 and has 256mb of RAM, Bluetooth 2.0 and supports SD memory of up to 32gb. The device has a rechargeable Lithium Polymer battery with an estimated running time of 20 hours, and a mono speaker. Context sensitive help is available at all times.

QBraille XL measures 31cm, by 11.9cm, by 1.8cm and weighs 825g, (1.82lbs).

Physical Description

With the XL in front of you, the top face of the machine comprises 40 Braille cells and corresponding cursor routing keys above them, and two oval-shaped buttons at each end for panning text back and forth. Above the cursor routing buttons is a row of keys you would expect to find on a regular qwerty keyboard. From left to right, these are Control, Function, Windows, Alt, Braille space-bar, Alt, Context, and Control. The arrow keys are in an upside down T shape at the right end of the unit.

In the middle of the top face is a familiar Perkins-style Braille keyboard. Above the keyboard is a row of function keys you would find on a regular qwerty keyboard, with Escape at the top left corner, followed by 12 function keys with raised markings at every fourth key.

At the left end of the top face, below the Escape key, are two further vertical buttons with tactile markings. The top one of these is the Pair button, and the one below it is the Mode button. Immediately to the right of these two buttons, and adjacent to the dot seven key on the Braille keyboard, is a vertical row of three buttons which are Tab, Caps Lock, and Shift.

At the right end of the top face of the unit, situated above the arrow keys and next to dot eight on the Braille keyboard, are two rows of three buttons arranged vertically. The left column, from top to bottom, comprises Insert, Home, and End. The right column comprises Delete, Page Up, and Page Down.

The right edge of XL, from back to front, houses an SD card slot, and USB C port for charging the machine or connecting it to a computer.

On the left edge of XL is a rectangular button marked with a dot that is the power button. On the rear edge, near the right end of the machine, is a tiny reset hole. If you need to reset XL in the event of it locking up or not responding, insert the end of a paper-clip into the hole. It goes without saying that you should be careful about doing this so as not to cause internal damage to the unit which would invalidate any warranty. LED lights on the machine indicate charging and Bluetooth connectivity.

QBraille XL Menu

When you power up the machine, you are presented with a menu containing the following items:

- Notepad
- Connectivity
- DAISY Reader
- Applications
- Options
- Information

As with Braille Edge, XL will only allow you to open Notepad if an SD card is inserted in the machine. At this point, opening Notepad allows you to see the list of files or folders that the SD card contains. The XL user manual has full details of how to use Notepad.

Connectivity offers access to either Bluetooth or USB to your computer or Smart device. If you are going to use XL as a Braille display and keyboard with your Windows screen reader, you will need to ensure that the Mode button is set to Microsoft. Similarly, if you intend using XL with a Mac or iOS device, you need to ensure the Mode button is set to Apple. XL supports one USB connection and six Bluetooth hybrid connections.

In the Applications menu, choose from:

- Calculator
- Alarm
- Date and Time
- Stopwatch
- Countdown Timer
- Calendar

The Options menu gives you different choices in how you would like to customise your XL, such as Braille grade, length of time a message is displayed, and how you want to start your machine etc.

Using QBraille XL

As you would expect from a Selvas Healthcare product, this is a lovely unit to work with for inputting Braille. The concept of having a hybrid machine that saves you having to grapple with lots of keystrokes has been very well thought through. You

can read documents in RTF, DOC, DOCX, and text-based PDF formats, and save files you create as TXT and BRL formats.

The added DAISY Reader function allows you to read text-based DAISY supported books, but not DAISY audio. The machine also offers the option to auto-scroll to read at your leisure.

When XL is connected to a PC or Mac, you may control your machine perfectly well using the XL keyboard to input text and navigate menus. Similarly, XL allows you to use its Bluetooth feature to pair it with your iOS or Android Smart device.

The carry case that comes with XL is the same as the one provided with Polaris and Polaris Mini, a silicone clamshell design that will protect your unit while using it on the move.

Pros and Cons

QBraille XL is a welcome improvement to the already popular Braille Edge that is now being phased out by Selvas Healthcare. XL's thinner body and firm carry case makes it a comfortable size to carry around. I think there is a lot to be said for the hybrid concept of retaining a lovely Braille keyboard with additional qwerty function keys, making it easier than remembering lots of layered keystrokes on a PC or Mac. The top face of XL is quite busy with keys everywhere, but it is easy to identify them once you have become familiar with their location and use.

There is, however, one major issue that I would have to point out here, that being the position of the space-bar. It is located above the Braille display, meaning you need to tuck your thumb under each time you want to press it. This is not only ergonomically horrendous, but quite unacceptable over a long period since it could cause repetitive strain injury to your hands.

Connecting XL using USB or Bluetooth is slightly more complicated than doing this on some other devices covered in this book. This is partly down to the explanation on how to achieve it in the documentation, but partly because you need to bear in mind that XL plays at being a Braille and qwerty keyboard in one hybrid package, meaning the protocols have to accommodate both scenarios at the same time.

I am slightly disappointed that XL has not got rid of the Windows CE operating system, and only has 256mb of RAM and Bluetooth 2.0. All that feels a little archaic for the modern power user. That said, it is a reasonably priced machine given the number of Braille cells, and offers some useful features that makes it a welcome addition to the Braille portfolio. The battery is not user replaceable, but offers 20 or so hours on a full charge.

XL offers something a little different with a blend of Braille input and qwerty keys. The fact that XL is also thinner than Braille Edge makes it ergonomically suited to those who want to write in Braille, while retaining those all important function keys found on Windows and Mac machines.

For more information, visit

www.himsintl.com

Chapter Eleven: Braille eMotion 40 (New Device)

Hims, or Selvas Healthcare, have just released a brand new addition to their portfolio, the Braille eMotion. It appears to fall somewhere between their popular, fully-fledged note-taker, the BrailleSense 6, and HumanWare's Brailliant BI X 20 and 40-cell devices.

What is Braille eMotion?

It is a 40-cell Braille display and note-taker with several features that allow you to input Braille on its ergonomic keyboard, connect to multiple Smart devices and computer, record or make notes, and listen to or read books.

Box Contents

- Braille eMotion
- Carry case
- AC Adaptor
- USB C to USB A cable
- Braille Getting Started guide

Physical Description

On the top face of the unit is a familiar eight-key Perkins-style keyboard that includes dots seven and eight that act as the backspace and enter keys respectively.

Next to dot seven on the left are three buttons marked W for WiFi, B for Bluetooth, and C for Connectivity.

On the right of dot eight is a square power button which you tap to put the unit into Standby mode, or long press to bring up a power menu.

Between dots one and four is a horizontal button which allows you to switch the grade of Braille you are using, and combines with other keys to deliver different functions.

The stereo speaker grilles are positioned at the top left and right corners of the unit.

Below the keyboard is a 40-cell Braille display with equivalent number of cursor routing buttons above it for manipulating the cursor and other functions on the device.

There are two capsule keys at each end of the Braille display for moving text up and down, or to scroll through menus.

At the sloping front edge of the top surface of the eMotion are three keys, Control, spacebar, and Alt.

The front of the Braille eMotion contains several items. From left to right, they are

- Left cursor button
- Function 1
- Function 2
- Left stereo microphone
- Home button

- Right stereo microphone
- Function 3
- Function 4
- Right cursor button
- Micro SD card slot

The right side of the unit comprises the USB C charging port, 3.5mm headphone socket, and voice control and volume buttons.

On the left side of the unit are the USB A host port, and the Recorder button.

The Braille eMotion comes with 64gb of internal storage, 4gb of RAM, and supports both FAT32 and X-FAT on an external micro SD card. The Li-ion 5000mAh built-in battery offers around 20 hours usage.

The device runs Android 12 under the hood, and supports WiFi and Bluetooth with HID protocol.

Its dimensions are 320mm, by 90mm, by 21mm, or 12.6 inches, by 3.5 inches, by 0.8 inches. It weighs 740g, or 1.6lbs.

The Program Menu

Similar to other Selvas devices, the eMotion has a Program Menu which you meet when the unit is powered up:

- My eMotion
- File Manager
- Notepad
- Connectivity
- Document Reader
- DAISY Player
- Media Player

There are then four submenus:

- Library Services
- Utilities
- Settings
- Help

The Document Reader, Notepad and Media Player all support the file formats one would expect to see on a modern note-taker, and works with all screen readers such as JAWS, NVDA, Narrator, VoiceOver and TalkBack.

Pros and Cons

This unit is in its infancy as it was only released in 2024. Compared to the BrailleSense 6 and BrailleSense 6 Mini, it has a reasonable price tag, but I am wondering why Selvas opted to design and develop another display with some of the bells and whistles found on their flagship BrailleSense range. Having looked at the HumanWare Brailliant BI X series, I can only assume that the eMotion has been

released to compete with these products. Nevertheless, it is a welcome addition to the ever-growing Braille display family for which there is clearly still room.

I believe the eMotion will suit many students with its range of features packed in one ergonomic, portable unit.

For more information, contact

https://himsintl.com

Chapter Twelve: HumanWare Brailliant BI14 (Legacy Device)

Those who have owned or used a HumanWare Brailliant BI display will be familiar with their lovely Braille cells, signature thumb keys, and ease of connectivity. But perhaps the BI14 stands out from the rest in this range because of an exciting new feature that allows you to sync notes between your BI14 and iOS device in addition to its regular offerings. So as well as connecting to up to five Bluetooth devices and one USB peripheral, the BI14 comes with 8gb of internal storage so that you can not only sync notes between it and your iOS device, but also keep private or useful notes in a folder on the unit that won't synchronise with your Apple product.

BI14 Description

The BI 14 measures 166, by 100, by 23mm, and weighs 285g. Housed in a protective, smart leather case with a long lanyard so it can be hung round your neck, the BI14 is rugged and ideal for using on the move.

With the unit facing you, the top surface houses a traditional Perkins-style keyboard ergonomically arranged to include dots seven and eight and space-bar. Just behind dots one and four is a five-way joystick that can be moved up, down, left, right, and pressed down to accept commands. Closest to the front edge of the top face is a 14-cell Braille display with equivalent number of touch sensors. These sensors do the same job as cursor routing keys, but have the advantage of less wear and tear.

On the rear of the unit, close to the left end, is a two-way switch. Move this left to put the unit into Application mode, and to the right to place the machine in Terminal mode. In Application mode, all items in the menu allow you to use the BI14 as a completely stand-alone device. When placed in Terminal mode, the BI14 needs to be connected to or paired with a screen reader of your choice.

On the left side of the BI14 are a square power button with a tactile dot on it, and a micro USB port for charging the unit, and connecting it to a laptop or PC.

The front of the BI14 comprises HumanWare's four signature thumb keys which make reading and panning such a comfortable experience. Those who are familiar with HumanWare thumb keys will know that, from left to right, the thumb key order is Previous, Left, Right and Next.

The BI14 has a battery life of between 15 and 20 hours depending on use. It comes with USB cable, wall charger, leather case and documentation that includes print and Braille Quick Start pamphlets.

The Brailliant Sync App

What sets this device apart from others is the facility to write notes on the BI14 and exchange them with your iOS device's Notes app. So, for example, you could write some notes at college or on the way home using the Brailliant BI14, then sync them with your iOS device later on, you don't need to have your unit in the vicinity when you do this. You download the Brailliant Sync app from the Apple App Store on your iPhone or iPad, make sure your Brailliant BI14 and iOS device are paired, and that you have an Email account which you must grant Brailliant Sync permission to access in order for this feature to work. Once done, you can open the Notes application on your BI14 and create a new note that you can sync with your iOS

device. Similarly, you can do likewise on your iOS product and then sync it to read on your Brailliant BI14. You can delete and share notes in your Email account which will sync with your computer or laptop. It is also possible to carry out basic editing functions in the Notes application on your BI14 using the cursor sensors.

Brailliant Sync has two folders in its app, one called Local, and the other one named according to your Email account, for example, Gmail or iCloud. The Local folder does not sync, it is simply where you can write and store notes containing perhaps passwords, telephone numbers or card digits on your BI14 to keep for private use. The Email account folder is where all your notes are synchronised. In both cases, it is recommended that you give each note a name that you want it to be known by in the edit field when you create it. Notes are arranged in folders alphabetically, and use the first few words in each note to determine its name. So if you open a blank note and give it a name, that note will be saved as such. For example, if you open the Notes application on your BI14 and write Class Notes, or Shopping List, or Birthday Message, then when you save your note, it will take those words as the name of your note, thus making it easier for you to find the one you want. This is especially helpful if you end up with lots of notes in your folders.

One tip to pass on here: make sure that Notes is turned on in your iOS device settings to grant access to certain information. The way to do this is:

- Open Settings on your iOS device.
- Swipe to Accounts and Passwords, then double-tap.
- Swipe to Mail, Contacts, Calendar, Notes and double-tap.
- You will see a series of items here that will say on or off. Make sure you double-tap to turn Notes on. If it is turned off, you won't be able to sync with your account.
- Finally, make sure you leave Brailliant Sync running in the background in the App Switcher so that your information is synchronised between your iOS device and your BI14.

When you sync, ensure that the switch on the rear of your BI14 is pushed to the right.

Using the Brailliant BI14

Perhaps the first thing to say is that all menu items are in grade one Braille, but you can choose what grade of Braille to read and write notes in from the Settings menu.

When you power up your BI14, the following menu items are available in Application mode:

- Watch
- Notes
- Battery
- Stopwatch
- Connections
- Settings
- About

If you power up the BI14 and flick the switch right to Terminal mode, the above menu items are available by pressing the power button quickly in here as well. But the exception here is that the Notes application is not available, you can only access it in Application mode.

In addition to the exciting Brailliant Sync feature, the BI14 has a clock, stopwatch facility, and the ability to be used in one-handed mode. In Terminal mode, you can use it on a PC or laptop with your regular screen reader, and on a Mac. You can pair it with your iOS device such as iPhone or iPad, and with BrailleBack on Android. Quite honestly, pairing and connecting the BI14 with your iOS device is as seamless as it gets, and the quickest. The BI14 allows you to choose your computer table and grade for inputting and reading Braille text. This device is especially suitable for deaf-blind people due to vibrations that you can adjust and turn on or off in the unit's Settings menu. There are also multiple ways of navigating in and out of menus, for example, using the thumb keys, touching one of the cursor sensors, moving the joystick, and using dots seven and eight for backspace and enter, respectively. And, of course, you can use first letter navigation to reach menu items.

Pros and Cons

This is a beautiful little unit which is perfect for taking around with you. Its lightweight and compact size enables you to put it in a bag or deep pocket, and it can be used in its own right with the notes you create and wish to keep private in the Local folder, or for syncing with your iOS device in the Email account folder. It connects seamlessly and immediately with up to five Bluetooth devices, so even if you have no wish to download and use the Brailliant Sync app, you still have superb connectivity to use it with your laptop or Smart device as a display in Terminal mode. At the time of writing, I understand a version of the Brailliant Sync app for Android has been released which gives users of that OS an opportunity to sync notes as well.

Mystic Access have again been weaving their magic with an excellent tutorial that discusses the BI14 and how to use the Brailliant Sync app. You can download the tutorial, which is in DAISY format with explanatory notes in DOCX format, from the HumanWare Support page on their website.

Personally, I would have preferred the space-bar to be closer to the regular Perkins-style keys and have the display closest to the front edge as opposed to where it is, but this is just my view.

If you have absolutely no interest in using the Notes and Brailliant Sync apps on your iOS device, and only want the BI14 for using it as a display with your screen reader, then there are definitely cheaper options out there such as Orbit Reader and BrailleMe. But the BI14 has to be my favourite in this bracket because the display offers lovely Braille, the signature thumb keys are ideally placed, the case is smart, and I love the simplicity of the Brailliant Sync app!

Chapter Thirteen: Brailliant BI X 20 and 40 (New Devices)

HumanWare rolled out its new Braille displays in 2020 in 20 and 40-cell flavours. Where before they were simply devices that would connect to a computer, pair with a phone or tablet, and serve the user with 20 or 40 cells, the BI X series offers so much more than an already rich experience of Braille input.

Brailliant BI X 20

The BI X 20 measures 93mm, by 182mm, by 23mm, and weighs 400g. With a battery life of up to 20 hours, 20 Braille cells and equivalent number of cursor routing buttons, this device is a portable companion worthy of serious consideration to carry on the go.

Box Contents

The box contains the Brailliant BI X 20; USB C to USB A charging cable; wall plug with a number of different adapters to work with the voltage in your region; nylon carry case with lanyard; print Getting Started guide; and Braille insert on how to access the user guide on the device.

Placing the BI X 20 on a flat surface or your lap, the top face of the device comprises a regular Perkins-style keyboard with dots seven and eight at the left and right ends of the keyboard, respectively. There are two spacebars on this unit, and four thumb keys at the front for navigation, with a circular Home button in the middle of these. The Braille display itself and cursor routing buttons occupy the remainder of the top face.

The left side of the BI X 20, from back to front, consists of the USB C charging port, power button, and USB A port for inserting a pen or external drive.

The rear of the device houses a standard SD card slot, while the right side, from back to front, contains a 3.5mm headphone socket; and up and down volume buttons.

Those who are familiar with HumanWare devices will be accustomed to the four thumb keys at the front of the device for navigation, with a round Home button in the centre that will take you out of any application and back to the main menu.

Finally, underneath the BI X 20, you will find a battery compartment which is held by two Philips screws, and the unit’s serial number in both print and Braille.

Brailliant BI X 20 Main Menu

To turn on the unit, press and hold the power button until you feel a vibration. The device will indicate it is starting on the Braille display. Once the BI X 20 has started, you will be presented with the following items on its main menu:

- Terminal - for connecting the BI X 20 to a PC or pairing with a Smartphone
- Editor - for writing notes and longer documents
- Braille Editor - for reading and editing BRF files
- Victor Reader - for listening to DAISY books and other audio file formats
- File Manager - accessing the contents of an SD card, USB pen, or external drive
- Calculator

- Date and Time
- Options - for customising language profiles, user settings, TTS settings, WiFi, Bluetooth, and the Main Menu
- Online Services - for linking to Bookshare, NLS Newsline, and Bard. (Note that some of these services are not available outside of the United States and Canada.)
- User Guide
- Power Off

Note that the Main Menu can be customised to show only the items you wish to access.

Using The BI X 20

This is a lovely, lightweight unit to use and connect to peripherals such as Windows and iOS. It has a mono speaker through which you can hear the Will or Sharona English voices, in addition to several languages. Or you can plug in a set of headphones and listen in private. You can pair with up to five Bluetooth devices and one USB device, and connecting to your WiFi network allows you to be notified of updates you can download directly to the unit.

For those who are familiar with HumanWare's KeySoft suite of applications on the BrailleNote family of products, the BI X series uses the KeySoft Lite or cut-down version. So you can read, edit and move documents around on the BI X 20 as you would with any of the other note-takers described in this book.

When opened, the Victor Reader application supports the following file formats:

- .brf
- .pef
- .txt
- .html
- .docx
- DAISY 2
- DAISY 2.02
- Niso
- .rtf
- .ban
- .bra
- Pdf
- .FB2

Pros and Cons

The BI X 20 is portable, lightweight, and straightforward to use. It allows you to read and edit several file formats, or connect to Windows, iOS and Android. Like all

HumanWare devices, the BI X 20 is equipped with a very nice Braille keyboard and display. Documentation is well structured and easy to follow, with plenty of tutorial material and support available from the HumanWare website.

For students, the BI X series contains an Exam Mode which disables some of the unit's functionality when this feature is activated.

Speech output has been a welcome recent addition to the BI X series. I am not particularly keen on the voices and sound on these devices, but appreciate that this is very subjective. But if you want a note-taker with Braille and speech output, the ability to connect it to your computer or Smart device, battery life of around 20 hours, and a selection of supported file formats, then this unit is well worth considering.

Brailliant BI X 40

The Brailliant BI X 40 contains all the features of its baby sibling, plus the addition of some extra keys. It measures 305mm, by 90mm, by 21.8mm, and weighs 720g.

Box Contents

The box contains the Brailliant BI X 40; USB C to USB A charging cable; wall plug with a number of different adapters to work with the voltage in your region; leather carry case with shoulder strap; print Getting Started guide; and Braille insert on how to access the user guide on the device.

Placing the BI X 40 on a flat surface or your lap, the top face of the device comprises a regular Perkins-style keyboard with dots seven and eight at the left and right ends of the keyboard, respectively. There are two spacebars on this unit, and four thumb keys at the front for navigation, with a circular Home button in the middle of these.

Six additional command keys can be found on the BI X 40, three at each end of the display itself. From back to front, these are known as C1, C2, and C3 at the left end, and C4, C5, and C6 at the right end.

The 40-cell Braille display itself and equivalent number of cursor routing buttons occupy the remainder of the top face.

The left side of the BI X 40, from back to front, consists of the USB C charging port, power button, and USB A port for inserting a pen or external drive.

the right side, from back to front, contains a 3.5mm headphone socket; and up and down volume buttons. Unlike its baby sibling, the BI X 40 does not support an SD card, but there is 32gb of internal storage.

Those who are familiar with HumanWare devices will be accustomed to the four thumb keys at the front of the device for navigation, with a round Home button in the centre that will take you out of any application and back to the main menu.

Finally, underneath the BI X 40, you will find the unit's serial number in both print and Braille. It is not possible to replace the battery on this unit without returning it to HumanWare.

Brailliant BI X 40 Main Menu

To turn on the unit, press and hold the power button until you feel a vibration. The device will indicate it is starting on the Braille display. Once the BI X 40 has started, you will be presented with the following items on its main menu:

- Terminal - for connecting the BI X 40 to a PC or pairing with a Smartphone
- Editor - for writing notes and longer documents
- Braille Editor - for reading and editing BRF files
- Victor Reader - for listening to DAISY books and other audio file formats
- File Manager - accessing the contents of a USB pen or external drive
- Calculator
- Date and Time

- Options - for customising language profiles, user settings, TTS settings, WiFi, Bluetooth, and the Main Menu
- Online Services - for linking to Bookshare, NLS Newsline, and Bard. (Note that some of these services are not available outside of the United States and Canada.)
- User Guide
- Power Off

Note that the Main Menu can be customised to show only the items you wish to access.

Using The BI X 40

This is a lovely, lightweight unit to use and connect to peripherals such as Windows and iOS. It has stereo speakers through which you can hear the Will or Sharona English voices, in addition to several languages. Or you can plug in a set of headphones and listen in private. You can pair with up to five Bluetooth devices and one USB device, and connecting to your WiFi network allows you to be notified of updates you can download directly to the unit.

For those who are familiar with HumanWare's KeySoft suite of applications on the BrailleNote family of products, the BI X series uses the KeySoft Lite or cut-down version. So you can read, edit and move documents around on the BI X 40 as you would with any of the other note-takers described in this book.

When opened, the Victor Reader application supports the following file formats:

- .brf
- .pef
- .txt
- .html
- .docx
- DAISY 2
- DAISY 2.02
- Niso
- .rtf
- .ban
- .bra
- Pdf
- .FB2

Pros and Cons

The BI X 40 is portable, lightweight, and straightforward to use. It allows you to read and edit several file formats, or connect to Windows, iOS and Android. Like all HumanWare devices, the BI X 40 is equipped with a very nice Braille keyboard and

display. Documentation is well structured and easy to follow, with plenty of tutorial material and support available from the HumanWare website.

For students, the BI X series contains an Exam Mode which disables some of the unit's functionality when this feature is activated.

Speech output has been a welcome recent addition to the BI X series. I am not particularly keen on the voices and sound on these devices, but appreciate that this is very subjective. But if you want a note-taker with Braille and speech output, the ability to connect it to your computer or Smart device, battery life of around 20 hours, and a selection of supported file formats, then this unit is well worth considering.

Chapter Fourteen: Mantis Q40 (New Device)

This book contains lots of information about various input Braille devices. But research conducted by the American Printing House for the Blind, (APH) indicated that many blind and visually impaired users wanted a Braille display and qwerty keyboard combination … enter the Mantis Q40 in 2020.

In conjunction with APH and HumanWare, the Mantis Q40 is, as the name suggests, a 40-cell Braille display with laptop-size qwerty keyboard housed in one ergonomic unit. With the ability to pair it to one USB and up to five Bluetooth devices, the Mantis has already become a popular tool for use with all major screen readers including JAWS, NVDA, iOS and Android. Those familiar to HumanWare displays with their signature thumb keys, KeySoft menu structure and dependable Braille cells, can enjoy the convenience of typing on the qwerty keyboard, or switch its SDF, JKL home row keys into Perkins-style Braille entry mode.

Mantis Q40 Description

The Mantis Q40 measures 29cm, by 17cm, by 2cm, and weighs 786g, (1.7lb.) The user-replaceable battery should offer a minimum of 15 hours use.

With the Mantis Q40 positioned on a flat surface in front of you, the main portion of the top face comprises a qwerty keyboard, with 40 Braille cells and equivalent number of cursor routing buttons nearest its front edge. On the left side, from back to front, there is a USB C port into which a charging cable should be inserted; a round button with a tactile dot to identify it; and a USB A port for adding a pen drive. At the rear of the unit is an SD card slot for adding additional storage of up to 64gb to the 16gb of internal memory already available. Those who know their HumanWare devices will recognise the four horizontal thumb keys and circular Home button at the front of the device for navigation.

Unlike the HumanWare Brailliant BI X series, the Mantis Q40 has no speech output, and no microphone facility to record notes. This is a device for qwerty keyboard input with a simple menu structure that offers the ability to read and write documents, take notes, or store books. Consider the Mantis Q40 as a Bluetooth keyboard with internal attributes.

Underneath the device, along with serial number information in print and Braille, there is a battery compartment that is secured with two Philips screws. Naturally, you are only recommended to replace the battery after contacting your dealer.

Using The Mantis Q40

To turn on the device, press and hold the power button for a few seconds until haptic feedback is felt, and the boot sequence begins. You are then presented with a menu comprising the following items:

- Editor - for reading and editing documents
- Braille Editor - for editing and reading BRF and BRL files
- Terminal - for use when paired with Bluetooth or a USB device
- Library - provides access to your book list, recently read items, and a simple search facility

- File Manager - gives access to internal and external storage (where a pen drive or SD card is inserted)
- Calculator - a self-explanatory simple tool for basic calculations
- Date and Time - shows the date and time, and can be adjusted to include daylight saving
- Settings - for customising the Mantis Q40, including Bluetooth, WiFi and exam mode
- Online Services - contains access to Bookshare, NFB Newsline, and NLS Bard
- User Guide - provides access to the latest Mantis Q40 manual
- Power Off - lets you shut down or restart the Mantis Q40

The Mantis Q40 opens DOC, DOCX, TXT, RTF, BRF, BRL and PDF files. Note, however, that any file you edit or save will be in TXT format.

Other features the Mantis Q40 offers are:

- Power button configuration
- Starting the device from Terminal mode
- Using bookmarks
- File and folder searching
- Forward and backward onboard Braille translation
- Auto-scrolling
- Switching between connected devices
- Adding language profiles
- Using Sticky Keys
- Exam mode
- Updating the Mantis

For many, the Mantis Q40 has been a long time coming to those who prefer qwerty input while enjoying all the advantages of a 40-cell Braille display and intuitive navigation. A plastic bumper case is provided in the box, but a leather case with zip compartment, detachable strap, and non-slip bottom is available as an accessory that is well worth considering if you intend to move around with your device. In fact, I would see this as a necessity as the bumper case that comes with it offers no resistance whatsoever to the elements.

Pros and Cons

This has become a hugely popular device since its arrival. The HID protocol for iOS means it connects to an Apple device like a regular Bluetooth keyboard with all the advantages of Braille. This protocol has also been implemented in the latest Android 15 release.

It is important to stress that you can only save new or edited documents in TXT format which some may feel is a disadvantage if you want to use all the formatting attributes found in Microsoft Word, for example. You must remember that the editor is not a fully-fledged word processor. You can open DOC or DOCX files, but any modifications will be saved as a TXT file. The maximum size of file you can open is 100mb which, to be fair, is a considerable chunk.

As someone who writes as well in qwerty as I do in Braille, I feel the Mantis Q40 is a fantastic addition to the range of Braille devices on the market. The keyboard has lovely travel when typing; it is appropriately marked with tactile indications; you can switch between qwerty and Perkins-style input, and it has the luxury of a great Braille display from which to read. It isn’t coming down with lots of bells and whistles either, so really serves the purpose for which it is intended.

Documentation is available on the machine itself, or can be downloaded from both the HumanWare and APH websites, and is pretty self-explanatory. If you are a typist, and you love your Braille, then there is a lot to like about the Mantis Q40.

Chapter Fifteen: VisioBraille VarioUltra (Current Devices)

BAUM Braille displays have been around for some time in various guises, and the company made a warm welcome entry to the note-taker arena with the VarioUltra and Pronto! Machines. Sadly, however, the company has since ceased trading, which was a great loss to the blindness community because the Braille fans among us want to see as many products competing with one another as possible. All is not lost, however, as the company has now been taken over by VisioBraille. Their devices are now sold in the UK by Computer Room Services where you can obtain technical support and repairs if need be.

German company BAUM was renowned for its exceptional construction of Braille devices with more than 35 years experience. Little wonder then that the arrival of VarioUltra was received with great anticipation, and is still alive and well today under a different brand name.

VarioUltra is manufactured in 20 or 40-cell flavours, a Braille display and basic note-taker all in one light, ergonomic unit. At the flick of a switch, you can jump between taking notes on an eight-key Braille keyboard, or use the VarioUltra with your computer, iOS or Android device. In addition, number crunch with the sophisticated scientific calculator, or set alerts and timers to keep you organised.

The 20 cell version of VarioUltra measures 7.4 inches wide, by 3.5 inches deep, and 0.7 inches high, weighing 320g (approximately 12 ounces.) The 40-cell version measures 12.4 inches wide, by 3.5 inches deep, and 0.7 inches high, weighing 500g (approximately one pound.)

VarioUltra comprises an eight-key Braille keyboard with its display and cursor routing buttons in front of it. The dot one and dot four keys are positioned slightly further forward so that you need to turn your palms outward a little to use them comfortably. This is slightly different to a regular Perkins-style straight line of Braille input keys, but something you quickly get used to on VarioUltra.

Using VarioUltra

When you turn on the device to use in note-taker mode, you are presented with a menu containing the following items:

- Word Processor
- PDF Document Viewer
- Spreadsheet Viewer
- PowerPoint Viewer
- Timers And Alarms
- Calculator
- File Manager
- Settings
- Help
- Command Menu

VarioUltra comes with leather case and strap, USB charging cable and plug, an assortment of international plug adaptors, and a hard copy Braille quick reference guide. The user manual is contained within the Help section on the unit.

The Lithium Ion battery on VarioUltra is not user replaceable, but offers between eight and 12 hours power, depending on use.

VarioUltra supports a number of file formats: DOC, DOCX, RTF, TXT, BRF, BRL, and reads text from PPT files opened in the word processor. There is also access to excellent Excel and PDF viewers.

Running Windows CE, the unit has 32gb of internal storage, and you can add a pen or an SD card via USB to SD converter if you want to. When connecting VarioUltra to your PC, it comes up as an external storage device in Windows Explorer, allowing you to move data around in the normal way.

Once I had familiarised myself with the layout of VarioUltra, I found it a nice note-taker to both input Braille and read on. The Braille display has a lovely feel, making it comfortable and ergonomic for long reading sessions.

I connected it easily to my iPhone, and tried using it as a Braille display on my laptop running the latest version of JAWS under Windows. For me, the really easy and useful feature of VarioUltra is being able to jump between note-taker and display mode at the flick of a switch, quite literally, something a person requiring the use of both options will relish.

The unit is sturdy and well constructed from brushed aluminium. It sits snugly in a leather case provided, and is so beautifully lightweight that I could easily keep it in my handbag without being inconvenienced. It is a traveller’s dream, because just tapping the power button in the middle of note-taking or reading a document puts VarioUltra into standby mode. Waking it up again with the same simple tap is instantaneous, really useful when you have reached your destination and need to be quickly on the move again.

VarioUltra also connects to four simultaneous Bluetooth devices in addition to a USB connection. This means that if you have an iOS device, a laptop, and an Android device, all running at the same time, for example, you are able to pair VarioUltra with them all without having to unpair one to use another. And you can still connect the unit via USB if you prefer. Remember though that there is no WiFi on this machine, and consequently no Internet browser.

The unit offers comprehensive help in the form of the full user manual, plus context sensitive help from just about anywhere on the machine. VarioUltra also comes with a generous two-year guarantee.

Pros and cons

VarioUltra continues to be such a welcome, refreshing addition to the note-taker market. It does exactly what it says on the box: you can take notes, set timers and alarms, make calculations, manage your files, create personal Braille profiles, and use the machine as a Braille display with your PC or Smart device. The Braille display itself has a very nice feel, the unit is extremely responsive to key presses,

and its lightweight construction makes it a most companionable tool to carry anywhere.

It does take some time to adjust to dots one and four being slightly further forward, I don’t like the BAUM approach in this regard. Why change the habit of a lifetime that works for so many Braillists? It is also a pity that the battery is not user replaceable. At the time of writing, my understanding is that the Braille tables on these devices has still not been updated to take account of any recent changes.

Chapter Sixteen: Seika Mini (Legacy Device)

This unit was sold by the Royal National Institute of Blind People in the United Kingdom, and was only available from this organisation while stocks lasted. But as there are still people using it who may have purchased fairly recently, I am including a chapter about it in this text. You can still purchase, however, from

www.seikamini.com.

Seika Mini is a 16-cell Braille display and basic note-taker. It connects to a computer via USB, and works in conjunction with all screen readers. It connects seamlessly to Smart devices, but is also a stand-alone unit that can be used to take notes and read Braille documents.

The Seika Mini measures 16CM wide, by 9.6CM deep, by 2.3CM high, and weighs 300G.

Seika Mini comes with a pre-installed 4gb micro SD card for storing your documents, a USB memory stick, Bluetooth dongle for PC connection, relevant cables, leather carry case and strap, and CD documentation. It has an average battery life of 10 hours, and a modest price tag for a Braille device of this calibre. It is recommended that you return the unit to your dealer to have its Lithium battery replaced.

When you turn on Seika Mini, the following items appear on its menu:

- Notepad
- FileManage
- Read
- USBConnect
- Bluetooth
- Clock
- Calculator
- Tools

The unit has an eight-key Braille keyboard arranged on the top in a semi-circle. There are 16 Braille cells and equivalent cursor routing buttons below. At each end of the display is an oblong button used to navigate your document. Two five-way joysticks are placed below the display, one at each end, to navigate menus.

Within FileManage, you may create a new folder, delete and rename files. The Read facility offers you the choice of accessing items from the Micro SD card or the USB stick. The clock facility lets you set the time and date, and choose between 12 hour or 24 hour formats. Tools allows you to choose power sleep options, update the machine's firmware, run tests on its keys, and ascertain the current version of the Seika Mini. It is also possible to allow the Seika to advance the text at your comfortable reading speed without having to move the keys yourself. This is a particularly useful feature for experienced Braillists scrolling through long documents.

Other useful features include the ability to switch between grade one and grade two Braille. To do this, press space with dots 1-2-4-5, (G for grade.) You can also alter the Braille language on the device between US, UK, Italian and French. To do this,

simply use space with dots 1-2-3, (L for language). You must do this at the root menu in order for any change to take effect. So far, however, it seems to default to US, and I have unfortunately not been able to make it remain on the UK table.

As well as being able to read or write notes in TXT, BSE, BRF and BRL formats on the Seika, it is also possible to connect the unit to your laptop, PC, Apple or Android device. A companion CD that is shipped with the Seika Mini contains drivers for JAWS, Window-Eyes, and Supernova. So when you want a portable Braille display to use in conjunction with your Smart device, the manual offers full instructions on how to achieve this, also providing some useful key commands once you have paired your device using Bluetooth.

Pros and cons

This is a very nice little display that is lightweight and straightforward to operate. It has very basic note-taking functionality, and not the sort of machine on which I would choose to write a novel! Its price tag makes it an “affordable” option, at least in the UK while stocks last. Since it comes in a protective case, it also makes using the unit on the go very comfortable.

I have some concerns about setting the language table because it seemed to default to US no matter how many times I tried using an alternative. The space-bar on the Seika was very far forward for me too, which made writing quickly rather difficult because my thumb constantly missed it! I also found it was fussy on what USB pen drives it read, so bear this in mind.

Since this device is only available to purchase second-hand, I would be concerned at the available support for this item, especially as the battery is not user-replaceable.

Chapter Seventeen: The Eurobraille range

French company, Eurobraille, has emerged to become a real powerhouse with its range of Braille displays over the last decade. They offer a display to suit just about every need, from 12 cells you can pair with a Smart device, to 80 cells that can be used in a fixed workplace environment, plus plenty in between. In this book, however, we will concentrate on Esys 12, 24, and 40 cell units for their portability.

Esys 12 (Legacy Device)

It may sound a small number of Braille cells to use, but you would be surprised just how quickly you could get used to a pocket-size display like Esys 12. With 12 Braille cells, equivalent number of cursor routing buttons, 10 Braille keys, and navigation joysticks, you are able to move around apps, files, and documents with this dinky little display from EuroBraille.

The 12 cell version measures 14.5cm, by 8.6cm, by 2cm, weighing 200g. It comes with a 2gb Micro SD card, and has an average battery life of up to 20 hours. Esys displays have a stand-by mode rather than an on/off switch, and stand-by time is up to 10 days.

When you turn on Esys 12, a press of the left joystick opens the main menu to reveal the following items:

- Bluetooth
- USB
- Notepad
- Diary
- Calculator
- Alarm-Clock
- Tools

The quickest way to open any of these items is to move the cursor to one of the functions listed and press an appropriate routing button above the Braille display. Within each function is a sub-menu that allows manipulation of the features within it. For example, opening Notepad presents a list of items to choose from within that sub-menu.

Charging Esys is done through your computer, or with a power adaptor supplied. The Esys 12 allows you to pair with your Smart device using Bluetooth, but only one unit at a time. Switching between using the items on Esys and your computer or Smart device, however, is seamless.

And Esys works with all screen readers.

Esys 24 (Current Device)

Esys 24 measures 23cm, by 9,4cm, by 2,3cm, and weighs 550g. It has 40 Braille cells, equivalent cursor routing buttons, and two joysticks for navigation. It also has an 10 Braille key input keyboard, with the same feature list and menu structure described above.

Like Esys 12, the 24-cell version connects seamlessly with your computer or Smart device using Bluetooth, one at a time. And you can switch quickly between using it as a screen reader on your computer and Braille tool on a Smart device.

Esys 40 (Current Device)

The 40-cell version does not compromise on the functionality and features of its smaller siblings. With 40 Braille cells, equivalent number of cursor routing buttons, 10 Braille keys, and Bluetooth or USB connectivity, the Esys 40-cell model represents a true companion if you want something a little bigger to work with on a laptop or equivalent Apple device. It measures 32.5cm, by 8.6cm, by 2cm, weighing a modest 500g.

Note that a version known as EsysLight is available on 24 and 40 models which does not have the Braille input keyboard.

Compatible file formats for all Esys models are DOCX, BRF, BRL, DTB, RTF, TXT, and BNFA library files.

A version of the EsyBraille applications that come with EuroBraille displays may be bought separately to install on a Windows PC for translation and synchronisation purposes.

Pros and cons

EuroBraille offers something for everyone with its Esys range of Braille displays and basic note-taking facilities. I like the fact that there is a choice of display lengths between 12, 24 and 40 for portable use, and I love the sturdy build and modern look of these devices.

Again, the internal battery has to be replaced by returning the unit to EuroBraille, and I personally don’t think the manual translates terribly well into English in some instances. I am also not wild about the clicking feel of the Braille keys when they are pressed.

But with modern, stylish products to choose from, the Esys range makes a comparable choice whichever version you opt for.

EuroBraille B.Note Displays (New Devices)

It has been some time since we have heard from French company EuroBraille, but 2024 welcomed some new devices that were added to their existing portfolio of Braille offerings.

B.Note 20 and 40

The B.Note comes in 20 or 40-cell flavours with a raft of features that you would expect of a modern note-taker and display:

- 20 or 40 Braille cells with cursor routing buttons
- 10-key Braille keyboard
- Two keypads of four-way buttons
- Quad Core Arm 1.4ghz processor
- 512mb LPDDR2 RAM
- WiFi 2.4ghz
- Bluetooth 4.2
- 6000mAh rechargeable battery with over 14 hours use
- 64gb internal SD card
- 3.5mm headphone socket
- USB C and USB A ports
- File Manager (with Bluetooth transfer)
- Ability to open ODT, DOCX, PDF, BRF, TXT, and EPUB formats
- Read documents by voice synthesis or Braille with configurable keys to use left or right-handed
- Editing features such as cut, copy, paste, undo, and redo
- Bookmark facility
- Audio Player supporting MP3, WMA etc
- Podcast and web radio player
- Diary
- Reader for the EOLE library
- Wikipedia (direct access)
- Minesweeper and Mastermind games
- B.Note is compatible with Esysuite software

The B.Note 20-cell measures 235mm, by 105mm, by 27mm, and weighs 500g.

The B.Note 40-cell measures 365mm, by 105mm, by 27mm, and weighs 600g.

It has not been possible for me to have some hands-on of these devices so I cannot offer any first-hand user evaluation. But, for more information including documentation, go to

https://eurobraille.com

Chapter Eighteen: Alva Displays From Optelec (Legacy Devices)

Alva displays were sold by a renowned Dutch company called Optelec, known for its outstanding quality of Braille displays and seamless connectivity. Sadly, however, their displays, the BC680 (designed for a static environment such as work, education or home environment,) BC640 Comfort, and EasyLink 12, are no longer being sold by Optelec. However, you can still see them on their website. There are though, plenty of these lovely devices in the second-hand arena to be had, so I have retained the two latter products in this text.

Alva BC640 Comfort

The Comfort measures 33.8, by 7.5, by 1.8cm, weighing 550g. It has an internal battery life of up to 10 hours use.

This device is an outstanding tool which connects via USB to a computer, or paired using Bluetooth to a Smart device or laptop. With 40 Braille cells and equivalent cursor routing buttons, plus internal storage of 8gb, it makes an ideal companion.

Using Alva BC640 Comfort

When connected to your computer for use with a screen reader, the Comfort can show up in Windows Explorer as an external drive for moving files, but it is possible to turn off the machine's System Drive if you don't want it to do that. You need to connect the Comfort to a laptop or desktop computer to charge its internal battery.

There are 13 keys along the top of the Comfort: eight Perkins-style keys for Braille input, spacebar, and extras that you would find essential when using the unit instead of a qwerty keyboard in Windows or OSX.

As with every display, there are navigation keys to move about your documents, and an accessible internal menu that lets you set parameters for the Comfort itself such as Braille table.

The display itself is beautiful to read on. With 40 Braille cells, equivalent cursor routing buttons and tactile keys at either end to move the document around, it really is a joy to use. You can open the internal Notes program and write in contracted Braille. You save your files as TXT, and you can import TXT files from elsewhere which will also read in contracted Braille. Essentially, Notes is a basic place to jot down numbers and addresses while the display is in operation on your laptop or computer. You may have to unload your screen reader to access Notes, but that is straightforward.

As with some of the displays discussed in this book, you can use your Comfort to read Braille on your Smart device, even when it is connected to your laptop via USB. Once paired with your Smart device, you simply unlock the phone or tablet, and Comfort knows you have activated Bluetooth. When you have finished reading on your Smart device, lock the unit, and Comfort jumps back to screen reader mode on your laptop. I personally think Comfort is great for this, and does it seamlessly.

The Alva BC640 Comfort comes with carry bag and strap, USB cable, and documentation with drivers on CD.

Pros and cons

For me, this is a beautiful display that has a lovely feel when reading long documents. It works seamlessly with a paired Smart device while still providing access to your screen reader.

Sadly, it was always one of the more expensive displays, but probably worthwhile if you want to consider looking for one in the second-hand market. The battery is not user replaceable, so you would need to send the machine to the Netherlands to have it changed.

Chapter Nineteen: Help Tech Note Takers

Please note that Handy Tech has changed its name to Help Tech, and we now come to what I personally consider to be the best displays around in terms of reading comfort, manufactured by German company Help Tech. There is just something very special about owning a Help Tech product, a bit like driving a Mercedes or Rolls Royce if you like. I had the pleasure of having a Help Tech Bookworm back in the day, an eight-cell device where you could read text files transferred between it and your PC. The beauty of reading on a Help Tech display was very evident to me, the concave Braille cells were just gorgeous, with a nice firmness of Braille that did not make prolonged reading uncomfortable or too sore on my fingers.

I then used an 80-cell Help Tech display at work, again such a comfortable and pleasurable experience. So I make no apology for the praise I lavish on these displays here, I just wish I owned one!

Help Tech displays have been around for many years, and come in various lengths. For the purposes of this text, however, we will concentrate on those which have 40 cells or less. Some Help Tech displays also have added functionality such as basic note-taker, clock, and calendar, and some are quite dated now, so have serial connectivity for older peripherals. I have not included Braille Star, Braille Wave and Braillino in this book as they are now quite outdated despite the superior quality of their Braille cells and reliability.

Active Braille (Current Device)

The Active Braille is a Braille display and note-taking facility, courtesy of its eight regular Braille keys, two space bars, and triple action keys at each end of the display for navigation. With 40 Braille cells, equivalent cursor routing buttons, and the ability to pair with Bluetooth or run simultaneously on USB, this is a thoroughly gorgeous piece of kit. It measures 31.9cm wide, by 12.4cm deep, by 2.9cm high, and weighs 930g.

Active Braille comes with carry case, USB stick containing software drivers and the HTCom software for transferring files between a laptop or computer and the Active Braille. Mains adaptor, USB cables and a 2.5mm to 3.5mm lead are included. The batteries are user replaceable, and can be exchanged for non-rechargeable cells. Remember though not to charge the display if you are using ordinary alkaline batteries as this would cause significant damage! A full charge of its supplied batteries should give up to 20 hours of use.

A 4gb Micro SD card is supplied, and should not be removed from the device while it is switched on. Files are transferred between your PC and Active Braille by using the HTCom software supplied, or via USB as a familiar copy and paste method. But HTCom is equipped with backward compatible grade two translation, thereby allowing you to open and edit files written on your Active Braille that you might want to transfer to your PC. HTCom supports the transfer of DOC, DOCX, TXT, RTF, and HTML files. Note, however, that using HTCom to transfer files takes longer than doing so with a USB stick, especially if the files are large.

A simple menu with sub-menu items, is presented on Active Braille. It is intelligent enough to only display the items that are currently available. It comprises:

- File
- Editor
- Calculator
- Scheduler
- Clock
- MusikBraille
- Games
- PC Mode
- Braille Character Sets
- Info
- Options

Apart from the features you would expect to find included on a note-taker of this calibre, Help Tech’s Active Braille includes a music facility for composers, and some games to help with learning Braille. Make no mistake about it, this is a highly sophisticated piece of equipment that, once learned, should serve you for many years.

Help is at hand with a comprehensive user manual, and onboard searchable topics contained in read-only files.

Pros and cons

I have two concerns. Firstly, everything displayed on the menu of all Help Tech machines is in computer Braille, which means you need the HTCom software to translate files into the grade of your choice. The software comes on a Start Stick which you plug into a USB port on your computer or laptop to execute the software. So why on Earth didn't Help Tech build some Braille translation software like Duxbury into all their note-takers? The second big drawback with this display is its price; Help Tech displays are very expensive and prohibitive for many would-be users. But they are well built, offer a top quality reading experience, and include some features not available from other manufacturers. It can be connected to USB and Bluetooth simultaneously, and even the carry case can accommodate a small notebook in addition to the display itself to make portability even more convenient.

Active Star (Current Device)

And just when you thought there was nothing more mouth-watering to read about Help Tech devices, along comes Active Star!

This is the very top of the range in Braille display portability, usability and features, in my view. The Active Star is a 40-cell Braille display with equivalent cursor routing buttons, triple action keys at each end, simultaneous USB and Bluetooth connectivity, a user replaceable Lithium Ion battery boasting up to 40 hours of use, quick charge circuitry of six hours, Micro SD card with 16gb of memory, eight Braille key-keyboard with two space keys, a separate compact qwerty keyboard, Polyfonic Sound Chip, mini loud speaker, carry case that can also accommodate a notebook, and relevant cables.

Active Star also comes with the now familiar HTCom software for transferring files between the computer and Active Star with backward compatible grade two Braille translation. You can also transfer files to and from Active Star in the more conventional way with a USB stick. While HTCom is a slower transfer, it does preserve all characteristics of the file being copied across.

It measures 32.2cm wide, by 21.9cm deep, by 2.2cm high, and weighs 1090g, (1430g with keyboard.)

The main menu comprises the following items and sub-items:

- File
- Editor
- Calculator
- Scheduler
- Clock
- MusikBraille
- Games
- PC Mode
- Braille Character Sets
- Info
- Options

One of the very sophisticated features of Active Star is its Active Tactile Control (ATC) technology. This allows the unit to determine your touch sensitivity and reading behaviour such as reading position on a line, or reading speed when interacting with your screen reader. You can also adjust your preferred reading sensitivity with dot firmness.

Apart from the features you would expect to find included on a display and all-in-one note-taker of this calibre, Help Tech’s Active Star includes a music facility for composers, and some games to help with learning Braille. Make no mistake about it, this is a highly sophisticated piece of equipment that, once learned, should serve you for many years.

Help is at hand with a comprehensive user manual, and onboard searchable topics contained in read-only files. Active Star will even charge your mobile phone if its own battery life is more than 40%.

Pros and cons

The concave cells on this device make it one of the best machines to read on for long periods. With a three-year warranty, you can use this with your laptop or PC, and Smart device. It has a great battery life with a user-replaceable cell. There are lots of features to make this an all-in-one Braille display and note-taker, and even the ability to switch keyboards from Braille input to qwerty. The Active Star also lets you charge your mobile phone if its own battery is sufficiently charged. I have two concerns though. Firstly, everything displayed on the menu of all Help Tech machines is in computer Braille, which means you need the HTCom software to translate files into the grade of your choice. The software comes on a Start Stick which you plug into a USB port on your computer or laptop to execute the software. So why on Earth didn't Help Tech build some Braille translation software like Duxbury into all their note-takers? My other slight concern is its price; all that fantastic technology in one gorgeous unit for a sum most can only dream of. Nevertheless, it really is a Star!

Actilino (Current Device)

Help Tech bolstered its portfolio when it released Actilino in 2017. It is a Braille display and basic note-taker with 16 concave Braille cells and equivalent cursor routing buttons. Users of the German company's devices will be familiar with the beautifully arranged Braille keyboard and Active Tactile Control (ATC) feature, more on which shortly.

Actilino measures 16.6cm wide, by 10.9cm deep, by 2.9cm high, (6.5 inches wide, by 4.3 inches deep, by 1.1 inches high), weighing 420g, (0.92lbs).

The box contents comprises Actilino, Lithium Ion battery (already inserted), a 16gb Micro SD card (already inserted), USB C charging cable and wall adaptor, soft carry case, Quick Start Braille guide, and HTCom Start-Stick containing screen reader drivers, user guide and HTCom utility. HTCom is extremely important because it is the method by which all document files must be exchanged and translated in order for Actilino to read them in your preferred Braille grade.

Actilino Description

With the unit facing you, the front has a sloped front edge with a four-way joystick and space-bar on either side. Used in conjunction with other keys, each space-bar can have multiple functions. Above this area is the 16-cell Braille display with a triple key at each end for moving around the text on the Braille display and menu items. There are the same number of cursor routing buttons above the concave display. An eight-key Perkins-style keyboard occupies the remainder of the top face of the machine.

On the right side of the unit, a small round power button and a standard USB port can be found. On the left side of the unit, a 3.5mm headphone socket and power outlet are here. A Micro SD card slot is situated at the left front edge of Actilino. The unit has a removable battery housed in a compartment underneath the device.

Like other Help Tech displays, Actilino supports an ATC feature. This means that as you read Braille on the display, it will automatically refresh when your fingers reach the end of the line of text. So you don't have to physically advance the display to the next line, ATC does it for you!

Actilino Menu

When you power on Actilino, you are presented with a menu containing the following items. Some menus have submenus as well.

- File
- Calculator
- Scheduler
- Clock
- MusikBraille
- Player
- Games
- PC Mode
- Braille Sets

- Info
- Options

You can press dot eight on the Braille keyboard to choose an item from the menu, and dot seven to backspace out of it.

Various sounds are emitted from a mono speaker which is situated on the top of the device above dots one and four on the keyboard.

Actilino's battery lasts approximately 30 hours after a full charge, obviously depending on use, and takes approximately six hours to charge. The battery is user replaceable, but should never be removed while the machine is turned on.

Using HTCom

As mentioned above, all Help Tech devices come with a Start-Stick containing, among other things, the HTCom software. This allows you to transfer files to and from Actilino using your Windows PC. You may also transfer files between your computer and Actilino by using the machine as a mass storage device under Windows. The HTCom software enables you to translate and back translate files. All menu items are written in computer Braille on Actilino though. The HTCom software runs under several versions of Windows, and a copy for Linux is available upon request. It supports several file formats as well including DOCX, RTF and BRF.

Using Actilino

This machine has a lovely Braille display and quiet keyboard on which to input Braille. Once you familiarise yourself with the HTCom software, it is feasible to transfer and translate documents you wish to read and write on the device. Some bells and whistles such as clock, scheduler and games offer extra functionality, but most people will probably want the machine to use as a Braille terminal on their computer, or to pair under Bluetooth with a Smartphone or tablet. It is worth emphasising at this point that Actilino does not have a WiFi facility or browser, it is an efficient note-taker and Braille display. Paired with iOS or Android, you can carry out all regular functions on your Smart device using Actilino. It also has some nice touches such as ATC, and the ability to customise certain aspects of the machine. Music lovers will also enjoy the BrailleMusik component.

It is also possible to connect any external keyboard to Actilino using the USB port on the right side of the machine if you prefer.

Pros and Cons

I have always been a fan of the Help Tech range of products, primarily for their lovely concave Braille cells. But while they are well constructed and perfect to read Braille on, I don't like the way you need HTCom to translate and transfer files, and the fact that all menu items are written in computer Braille. Given the price point of a Help Tech machine, I think relying on HTCom software to translate files, instead of having something built into the unit, is frankly a rather large sticking point for me, and doesn't make the machine self-contained. It is fair to say that there are a number of devices discussed in this book that offer a lot more relevant features for less money. Nevertheless, Actilino is compact, lightweight and comfortable to work with. Its carry

case is soft and protective, and the machine may be used in the case while out and about.

Actilino runs on the Windows CE 6.0 operating system which, of course, is now very much out-of-date. But given the unit has no Internet browser, this isn't a major issue in my view because you don't need to access the OS itself. Had Actilino come with a browser and WiFi, then I would have been very concerned.

I would always urge potential customers to check out the level of technical support and training being offered before you part with your credit card details. As with everything, some companies go the extra mile, and some don't!

Activator (New Device)

I am always excited to hear about new products from Help Tech, and the Activator is no exception.

NB: Due to its technical nature, I wish to acknowledge that I have taken the liberty of reproducing the following text from a dealer website.

What is Activator?

The Activator is the first fully integrated iPhone Braille Solution. It is an ultra thin 40-cell display with a two-in-one Perkins-style keyboard that flips open into a full qwerty keyboard. This gives total control over your input method in every situation. Plus, with the included iPhone SmartDock, and the new Help Tech+ app, you can:

•Launch iOS apps directly from the Activator

•Mirror the Activator's output on your iPhone screen

•Transfer files between Activator, iPhone or a USB memory stick

•Enjoy text-to-speech on your Activator

•Communicate with deaf-blind friends and family with instantaneous speech-to-Braille translation.

•Curved ergonomic cells minimise hand fatigue

•ATC, Touch-sensitive Braille technology responds to reading gestures

•Seamless switching between multiple connected Bluetooth devices

•HID-Compliant Drivers

•Compatibility with all major screen readers

The Activator is a new kind of Braille display concept: it extends the proven features of Help Tech Braille displays - such as the concave Braille cells and the patented ATC technology for automatic switching - with forward-looking innovations from unprecedented hardware and software solutions in a modern design. Combining the potential of the iPhone, the Activator offers a next-generation Braille experience.

The advantages at a glance

•40 concave Braille elements with cursor routing and adjustable pen thickness

•Integrated shorthand translation and reverse translation (RTFC)

•two-in-one folding keyboard with Braille and text input

•SmartDock with charging function and integrated USB-A port

•Free Help Tech+ app (available in the App Store) with the following functions:

- Braille monitor
- Voice input
- Voice output
- Weight: 970 g (Activator), 100 g (SmartDock)

- Dimensions in cm, folded: 32, by 2.6, by 12.6
- Dimensions in cm, unfolded: 32, by 1.8, by 18.8
- Battery life: over 30 hours
- Connections Activator: USB C, Bluetooth
- Connections SmartDock: USB-A, Lightning

Two keyboards in one

A special highlight of the Activator is the patent-pending multifunctional folding keyboard with Braille input. With just one flick of the wrist, the ergonomically designed Braille keyboard becomes a fully-fledged qwerty computer keyboard with a great tactile feel. The Activator offers the perfect input mode for every application, whether Braille or text input. Perfect for school, university or work.

The folding keyboard is made of high-quality aluminium, is impressively flat with a height of only eight millimetres and sets new standards in design.

The smart Braille display

The SmartDock, which can be magnetically connected to the Activator, creates a groundbreaking symbiosis of Braille display and iPhone that offers completely new possibilities. With the SmartDock, the Activator becomes a mobile workstation in no time at all.

Many possibilities thanks to USB

The SmartDock features a USB port allowing you to open and edit files from a USB stick via the iPhone. Many of the common file formats are already supported by the iPhone. For all other file formats, you only need the appropriate app from the App Store. You can also connect other devices such as headphones, microphones or SD card readers to the iPhone via the USB port.

Shared charging

If the Activator is connected to a power adaptor, the iPhone connected to the SmartDock also charges automatically. You only need to take one charger with you.

Integrated translation for contracted Braille

The translation and back-translation of Braille Grade Two into contracted Braille Grade Two is directly integrated into the Activator. RTFC is the world's leading translation tool for English, German and French. The Activator also effortlessly handles translation and back-translation into Unified English Braille (UEB.)

Launch iOS apps directly

The Activator makes it easier than ever to open your favourite apps on your iPhone. You can customise the Activator's internal menu and add your own app favourites.

SmartServices

The connection with the iPhone expands the internal functions of the Activator by SmartServices. The first feature is a news feed service, optimised for use with Braille displays, which you can put together according to your personal interests.

The perfect complement: iOS-App HelpTech+

The iOS-App HelpTech+, available free of charge for your iPhone, adds many new features to the Activator, making it a next-generation Braille experience once and for all. We are continuously developing HelpTech+. Additional new functions are provided via the App Store. As a result, we will continue to offer you a first-class experience in the future. The additional space bar is especially well placed for small hands, making it easier to type notes.

Braille Monitor

The integrated Braille monitor allows a sighted person to follow the information output on the Braille display directly on the iPhone screen, including the indication of the reading position, marked text and cursor position.

Dictation function

With speech input, you can easily dictate texts instead of typing them yourself. The recognized text is then either saved in a new file on the Activator, or inserted into an existing file at the desired position.

Voice output

The speech output function allows you to have texts on the Activator read aloud through the iPhone's speakers.

File manager

With HelpTech+, you can copy files back and forth between the Activator and your iPhone.

Send texts

Send texts from the iPhone clipboard directly to the Activator.

Pros and Cons

This is a cleverly thought out product that is clearly designed for iPhone users. But it does appear that Android users are locked out of this particular ecosystem which is a shame.

The cost is also prohibitive for many, but that can be said of most products you have read about in this book.

I also have reservations about Help Tech support. They offer a good warranty on all their products, but it could become expensive if an item needed to be returned to Germany for repair.

All that said, however, I would love to get my hands on one of these!

Chapter Twenty: The Orbit Reader Family (Current Devices)

Orbit Reader 20 and 20 Plus

After years of careful research and a collaboration with several partner organisations, the low-cost Orbit Reader 20 finally landed in 2018, followed by the Orbit Reader 20 Plus soon after. So what is the Orbit Reader, and is it worth all the hype?

Orbit Reader 20 is a 20-cell Braille display, book reader and editor. Orbit Reader 20 Plus is very similar, but with some added features. It lets you read books and other documents when formatted to TXT, BRL and BRF formats when material is placed on an SD card which comes with the device. Or you can pair it with your favourite screen reader on a computer, Smartphone or tablet. But the big talking point about Orbit Reader is its comparatively low price tag which puts Braille in the hands of many more people than would otherwise be possible due to the very high cost of Braille displays currently in circulation and discussed in this book.

Meet Orbit Reader 20 And 20 Plus

Placed on a table or your lap with the keys furthest away from you, Orbit Reader 20 and 20 Plus are chunky, compact little devices measuring 6.61 inches wide, by 1.4 inches high, by 4.41 inches deep, (168 by 35.56 by 112mm,) weighing 0.99 pounds, (450g.) They are black in colour with contrasting grey keys.

With a 20-cell Braille display nearest you, the rear panel, from left to right, comprises a square power button which you press and hold for a couple of seconds to boot the unit. To the right of this is an SD card slot where anything from 4gb to 32gb capacity may be inserted. Finally, to the right of this is a micro USB socket for charging the machine, or connecting it to a computer.

The top face of the unit consists of six oval-shaped Perkins-style keys that run horizontally across the back edge for inputting Braille text.

In the middle of the top face of the machine is a four-way joypad with arrow keys going up, down, left and right, and a Confirm or OK button in the centre. Each of the arrow keys has a lip on the outside edge for ease of navigation.

Below these four-way navigation keys is a space-bar, with keys representing dots seven and eight to the left and right, respectively. The keys have different functions depending on which mode Orbit Reader is in.

Finally, below the space-bar and dots seven and eight keys is a 20-cell Braille display. At each end are up and down panning buttons for refreshing text as you read. Above the display area are three tiny dots, spaced at five character intervals, for easy navigation.

What's In The Box?

The box contents comprises the Orbit Reader, USB cable with a standard fitting at one end and a micro fitting at the other. (Use this to charge Orbit Reader with the provided plug, or connect to a PC.) There are also additional plug fittings for other countries. There are Braille and print Quick Start guides, and documentation is

provided on the accompanying SD card. But you may choose large print or Braille instructions when placing your order with RNIB in the UK.

The supplied SD card includes a wide range of classic titles in BRF format to get you up and running. Place the SD card in the slot on the rear of the machine with the fingers of the card facing down. Gently slide the card in all the way until you feel it click into place. When you wish to remove it, press gently on the card and it will release. Please bear in mind that an SD card needs to be inserted in order to write and edit notes. When you receive Orbit Reader, the SD card will already be inserted.

Orbit Reader has a replaceable Lithium-Ion rechargeable battery with approximately three days of typical use. The battery cover is underneath the machine, as are ventilation holes. When inserting the USB cable to charge the battery, or connect it to your computer, bear in mind that the two prongs on one side of the smaller end of the USB cable should be face down. Do not force the cable into the unit. When you insert the USB cable, Orbit Reader will display the charging capacity of the unit.

The device supports Bluetooth 2.0. Please note that there is no WiFi, this machine has been designed solely as a reading and connection peripheral to support the use of Braille with your favourite screen reader.

Orbit Reader operates in two modes: Stand-Alone Mode and Remote Mode. In Stand-Alone Mode, Orbit Reader allows you to read text that has been prepared on your computer before storing it on the supplied SD card. In other words, Orbit Reader has no translation, files need to be prepared using a Braille translation program on a PC beforehand in BRF or BRL formats. Remote Mode lets you use Orbit Reader as a Braille display when paired with your screen reader on a PC, or Smart device. You can pair it with JAWS, NVDA, or Supernova on a computer, and iOS or BrailleBack using Apple or Android, as well as Chrome OS.

Unlike traditional Braille displays, Orbit Reader 20 and 20 Plus have no cursor routing buttons above the display, so editing functionality is carried out differently when making basic notes on the unit by putting Orbit Reader into Edit mode.

Navigating Orbit Reader 20 and 20 Plus

To turn on Orbit Reader, press and hold the power button at the rear of the machine for a couple of seconds. You will hear what I can only describe as a rattling sound as the refreshable display kicks in. Simply tap the power button to place Orbit Reader in Standby Mode. Tap the same button again to wake up Orbit Reader. When in Remote Mode, the machine will go into Sleep Mode after one hour of non-use.

The unit will always remember the mode you were last using. To switch between modes, use the select and right arrow to jump to Remote Mode, and select with left arrow to move to Stand-Alone Mode.

To navigate through menus, use the up and down arrows, and right and left arrows to move in and out of those menus that have more than one item. Press the select button to accept a menu item you want. Press dot seven, (left of the space-bar) to leave the menu system. When using Orbit Reader as a Braille display paired with a

screen reader on your PC or Smart device, follow the instructions that came with your software to ascertain the various keystrokes required.

Using Orbit Reader 20 and 20 Plus

Firstly, I paired Orbit Reader with my iPhone. This was as seamless as it gets, and writing in grade two Braille in an app such as Notes was really comfortable. Similarly, using apps like Kindle or Books was a joy.

I also connected Orbit Reader to my PC running Windows 10 and the latest releases of both JAWS and NVDA.

It is possible to have Orbit Reader connect to your computer as a mass storage drive so you can copy formatted books or documents to the unit without removing the SD card. When I did this, I was able to see all the books that the SD card came with and add my own.

Documentation for Orbit Reader is thorough and easy to read. Both the Quick Start Guide and user manual are available on the accompanying SD card.

Managing files and folders is straightforward to achieve. You can create, rename and delete files and folders on the device, as well as use copy, cut, paste and mark options. You can also find text and files by performing a search on Orbit Reader, and you can ascertain a file or folder's attributes such as its size.

I am personally more familiar and comfortable with cursor routing buttons above each Braille cell on all displays I have used over the years. But it is possible to manipulate text you have entered on Orbit Reader on the 20 and 20 Plus models without cursor routing buttons. I am advised that this feature has helped keep costs of producing Orbit Reader to an acceptable minimum.

Additional Features of the Orbit Reader 20 Plus

The major software differences between the Orbit Reader 20 and 20 Plus are:

- On-board forward and backward Braille translation, with support for 40 plus languages
- Onboard apps for a clock and alarm, calendar and calculator

Pros and Cons

For all those who have long coveted the desire to use electronic Braille on their computer or Smart device, but not be able to afford a refreshable display, your dream has probably come true. Of course several hundred pounds or dollars isn't cheap in anyone's language, but it is a good deal more realistic when you compare what Orbit Reader offers to the current crop of big names. Orbit Reader is small, lightweight and sturdy. Braille is crisp, and while the refreshing rate is slightly slower than on most displays, not to mention slightly noisier, it's still slick enough when reading a book, or working with your screen reader or Smart device. In fact, for the latter, I was most impressed with the way it paired and worked seamlessly with iOS.

Given the time it has taken for Orbit Reader to land, I would consider the wait to be worthwhile. Spare batteries are available to purchase separately, as is a padded carry case.

In all, Orbit Reader is an affordable piece of technology with good, strong Braille dots, ergonomic keys, and is certainly an excellent companion, particularly if you enjoy Braille on a Smart device. A recent software release now allows you to update your unit using an SD card as opposed to connecting it to a computer for this purpose. In my book, this is a welcome addition!

Its two big drawbacks for me, when compared to something similar like BrailleMe, is that there are no native cursor routing buttons, and no on-board Braille translator on the 20 model, which means having to convert files on a PC beforehand. But if you can live without either feature, then it has to be worth considering, no question!

Finally, it is also worth pointing out that sites like Project Gutenberg,

www.gutenberg.org

and Bookshare,

https://bookshare.org

offer a variety of books in BRF, BRL and TXT formats that are available to download.

Translation programs for converting files into Braille formats such as Braille Maker and Duxbury are fairly costly, so if you don't have such software, or you want something without a lot of bells and whistles, try one of the free options for converting texts listed in Appendix Three of this book.

Orbit Reader 40 (New Device)

When each of the above devices was released, I yearned for the day that a new iteration of the Orbit Reader would emerge with cursor routing buttons, contain all the features of its existing models, and perhaps have 40 Braille cells. Enter Orbit Reader 40 in 2022.

Continuing with its robust outer casing, Orbit Reader 40 comes with its familiar Perkins-style keys, the welcome addition of 40 cursor routing keys above 40 Braille cells, an SD card now crammed full of books in BRF format you can access straight away, on-board back and forward Braille translation, and all the features of the Orbit 20 and 20 Plus. Like the two models described above, the Orbit Reader 40 allows you to read files in stand-alone mode, or when connected to a Smart device such as an iPhone, tablet or your computer when in remote mode. Orbit Reader 40 measures 3.78 inches wide, by 1.28 inches high, by 11.61 inches deep, or 96, by 32.5, by 295mm, and weighs 1.65 pounds, or 750g.

Box Contents

Your box should contain an Orbit Reader 40, USB C to USB standard cable and wall plug, SD card, and large print quick start instructions. An electronic copy of the manual is contained on the accompanying SD card, and is also available from the Orbit Research website,

Orbit Research

Orbit Reader 40 Orientation

The space bar and Braille display of the Orbit Reader 40 should be nearest you when placed on a table or your lap. The familiar panning keys can be found at each end of the display, with a cursor routing button above each Braille cell. A lovely eight-key Perkins-style keyboard is furthest away from you, with a four-way navigation pad surrounding the middle OK button situated between dots one and four.

The right side of the Orbit Reader 40, from back to front, comprises a 3.5mm audio jack, USB C charging port, and power button. The USB C to USB standard cable that comes with Orbit Reader 40 also doubles as the connection cable to your PC. The SD card slot is in roughly the centre of the rear of the unit, while the left side of the unit houses a standard USB port for attaching a pen stick. Like its predecessors, Orbit Reader 40 has a user-replaceable battery which can be removed by unscrewing a plate underneath the device.

Like the Orbit Reader 20 and 20 Plus, the 40-cell model has a menu that can be accessed by pressing a combination of the centre OK key with the up arrow. It consists of the following items:

- Battery level
- Cursor Blink
- Sort
- Split Words
- Filter Dot 7

- Wrapping
- Compress Spaces
- Indents
- Scroll Rate
- System Sounds
- Navigation Sounds
- Error Sounds
- Volume
- Vibration
- Profile 1
- Profile 2
- Profile 3
- Profile 4
- Add Language
- Remove Language
- Version
- Audio Version
- Serial Number
- Reset Defaults
- Date Format
- Time Format
- Clock Settings
- Alarm 1
- Alarm 2
- USB HID
- Bluetooth Mode
- Pair
- Emulate
- Mode
- Bluetooth Scan
- Manage Connections

Some of the menu items offer various options, so arrow right to change that option, and press OK to confirm. Press dot seven to return to your book or list of files.

Orbit Reader, like its smaller siblings, allows you to connect to up to four Bluetooth devices, or to a computer running your preferred screen reader. You can set the speed of scrolling so that you do not have to pan when reading a book. You can forward and back translate files, and edit notes you make comfortably using the cursor routing buttons its counterparts did not have.

While Orbit Reader 40 is still expensive, it isn't anywhere near the cost of a comparable 40-cell display you may read about in these pages.

Pros and Cons

The Orbit Reader 40 comes with a raft of features you can customise to suit your preference. It is quite a chunky device, but sturdy and robust. I love the ability to

use the cursor routing buttons above its Braille cells, that really was a deal-breaker for me with the smaller versions. The keyboard is beautiful and quiet to write on with what I would describe as proper Perkins-style keys. It is also very welcome that the Orbit Reader 40 offers Braille translation, and now uses a USB C cable for charging and connecting it to a computer. As you will have noticed, the menu offers the ability to turn on system and navigation sounds which you can hear through its built-in speaker or 3.5mm jack connected to headphones.

I think the noise level when panning and navigation menus has dropped slightly compared to previous models, but it is still slower at refreshing than any other display I have used. Nevertheless, it is important to recognise that the Orbit family of products are still more affordable than most devices with similar features, and therefore puts Braille in the hands of more people which can only be a positive thing!

Finally, for those who like a case for their display, the Orbit Reader is no exception with one that can be purchased separately from your Orbit dealer.

Orbit Reader Q20 And Q40 (New Devices)

In addition to the Orbit Reader 20, 20+ and Orbit 40, Orbit Research has listened to demand for qwerty versions of their popular range, and they have finally landed!

NB: Due to the fact that these units have only just been released, I wish to acknowledge that I have taken the liberty of reproducing the following text from the Orbit Research website.

Orbit Q20

The Orbit Reader Q20 is a groundbreaking addition to Orbit Research's line of Braille products. It is an all-in-one Braille device that couples a multi-function refreshable Braille display with a qwerty keyboard for input. The device is designed to enhance accessibility, convenience, and independence for individuals who are blind.

The Orbit Reader Q20 offers Orbit's unparalleled signage-quality TrueBraille technology with 20 eight-dot refreshable Braille cells. It is designed for seamless standalone or connected use with computers and mobile devices. The device enables users to read books, take notes, and manage daily tasks with built-in applications for productivity such as a clock, calendar, calculator and Braille translator.

The full-sized, high-quality, laptop-style qwerty keyboard can be independently connected via Bluetooth or USB to a computer or mobile device, and allows users the convenience of touch-typing while using Braille for reading.

When used as a standalone reader, the Orbit Reader Q20 enables the user to read any file from the SD card or a USB Flash drive. These could be BRF and BRL formatted books, text files, or files in any format. The reader has features for easy navigation, inserting and editing bookmarks, browsing through folders, scrolling horizontally and vertically, etc.

As a Braille display, the Orbit Reader Q20 connects to PCs and Macs, iOS devices and Android devices. It provides Bluetooth and USB connectivity, and can connect simultaneously to six devices. Using the screen reading capability on the computing device, such as VoiceOver, TalkBack or popular PC screen readers, the user can control the functions of their computer or Smartphone, use their favourite apps, read and send text messages and Email and browse the Internet.

As a note-taker, the Orbit Reader Q20 offers all essential file creation and editing functions. A user can create new files, save them on an SD card, and edit existing files. The device also includes file management features, allowing the user to rename, delete, copy, and create folders and files.

The device supports over 70 languages, and prompts and menus can be easily localised for different geographies.

While it offers a host of features, the Orbit Reader Q20 is extremely easy to use and allows seamless and instantaneous switching between reader, note-taker and Braille display modes, as well as selection between connected devices such as a computer or phone.

The Orbit Reader Q20 is very compact, measuring a little over an inch in height and about 11 inches by 7 inches, weighing less than two pounds. Its full-sized qwerty keyboard has finely sculpted keys and offers the high-quality tactile feedback expected from a premium product. The 78-key keyboard includes the full complement of 12 function keys, arrow keys in the popular inverted “T” configuration, and keys for use with Windows and Mac computers. To accommodate a full-size keyboard in a compact form-factor, a separate numeric keypad is not included. Cursor routing buttons allow the cursor to be moved to any location on the display instantly.

The Orbit Reader Q20 features a full-sized SD-card slot and a USB host port for loading books and files for reading and editing. When connected to a computer or Smartphone, the Orbit Reader Q20 leverages the extensive screen reader ecosystem developed for the Orbit Reader family of Braille displays to provide instant access to Windows, Mac OS, iOS, Android, Chrome OS, Fire OS and Linux systems. Its integration with all popular platforms means that users have countless ways of interacting with their favourite apps and software.

Common use cases for the Orbit Reader Q20 span a wide range, catering to students and professionals alike. For students, these devices are instrumental for accessing textbooks, taking notes in class, and managing academic schedules. In a professional setting, they enable efficient Email correspondence, report writing, and participation in meetings with real-time notes and references.

The Orbit Reader Q20 is designed for robustness, being lightweight, compact, and dust and fluid-resistant, ensuring durability in everyday use. The device comes with a USB C port for charging and connecting to computers or Smartphones. The Orbit Reader Q20 also works with Orbit Research’s unique Orbit Teacher and Orbit Chat systems for inclusive education and communication.

Orbit Q20 offers

- The convenience of **QWERTY** and **Braille** in one device
- Unique **signage-quality** TrueBraille cells
- **20 eight-dot** refreshable Braille cells
- Full-size, high-quality qwerty **keyboard** with sculpted keys
- Full Set of 78 keys
- Twelve Function keys
- Arrow keys in an inverted-T configuration
- Keys for use with Windows and Mac computers
- Cursor Routing buttons
- Configurable Thumb Keys for easy navigation
- Use **stand-alone** or **connected** to a computer or mobile device
- **Book-reader** mode - read your favorite books and files from SD Card or USB Flash Drive
- **Note-taker** mode - take notes and edit files
- **Braille display** mode connects to **six** computers and mobile devices over **USB** and **Bluetooth**

- Works with **all popular screen readers** on Windows, Mac OS, iOS, Android, Fire OS, Chrome OS and Linux
- Read and send messages and emails
- Browse the Internet and social media
- Control your smartphone or computer
- Onboard forward and backward translation with support for 70+ languages
- Onboard Apps: Clock and alarm; Calendar; and Calculator
- Audio and Haptic output
- Panning control **rocker keys** at each end of display
- **USB A Host** port for connecting Flash drives and other peripherals
- **USB C** port for charging and connectivity
- Fast-charging **long-life** battery
- Compact, lightweight and portable
- Measures: 29.6cm, by 19.0cm, by 3.3cm, or 11.7 inches, by 7.5 inches, by 1.3 inches
- Weighs: 870g, or 1.9 lbs
- **Solid, durable** construction, resistant to fluids and dust

Orbit Reader Q40

The Orbit Reader Q40 is a groundbreaking addition to Orbit Research's line of Braille products. It is an all-in-one Braille device that couples a multi-function refreshable Braille display with a qwerty keyboard for input. The device is designed to enhance accessibility, convenience, and independence for individuals who are blind.

The Orbit Reader Q40 offers Orbit's unparalleled signage-quality TrueBraille technology with 40 eight-dot refreshable Braille cells. It is designed for seamless standalone or connected use with computers and mobile devices. The device enables users to read books, take notes, and manage daily tasks with built-in applications for productivity such as a clock, calendar, calculator and Braille translator.

The full-sized, high-quality, laptop-style qwerty keyboard can be independently connected via Bluetooth or USB to a computer or mobile device and allows users the convenience of touch-typing while using Braille for reading.

When used as a standalone reader, the Orbit Reader Q40 enables the user to read any file from the SD card or a USB Flash drive. These could be BRF and BRL formatted books, text files or files in any format. The reader has features for easy navigation, inserting and editing bookmarks, browsing through folders, scrolling horizontally and vertically, etc.

As a Braille display, the Orbit Reader Q40 connects to PCs and Macs, iOS devices and Android devices. It provides Bluetooth and USB connectivity, and can connect simultaneously to six devices. Using the screen reading capability on the computing device, such as VoiceOver, TalkBack or popular PC screen readers, the user can control the functions of their computer or smartphone, use their favourite apps, read and send text messages, and Email and browse the Internet.

As a note-taker, the Orbit Reader Q40 offers all essential file creation and editing functions. A user can create new files, save them on an SD card and, edit existing files. The device also includes file management features, allowing the user to rename, delete, copy, and create folders and files.

The device supports over 70 languages, and prompts and menus can be easily localised for different geographies.

While it offers a host of features, the Orbit Reader Q40 is extremely easy to use, and allows seamless and instantaneous switching between reader, note-taker and Braille display modes, as well as selection between connected devices such as a computer or phone.

The Orbit Reader Q40 is very compact, measuring a little over an inch in height and about 11 inches by 7 inches, and weighing 2.5lbs. Its full-sized qwerty keyboard has finely sculpted keys, and offers the high-quality tactile feedback expected from a premium product. The 78-key keyboard includes the full complement of twelve function keys, arrow keys in the popular inverted “T” configuration, and keys for use with Windows and Mac computers. To accommodate a full-size keyboard in a compact form-factor, a separate numeric keypad is not included. Cursor routing buttons allow the cursor to be moved to any location on the display instantly.

The Orbit Reader Q40 features a full-sized SD card slot, and a USB host port for loading books and files for reading and editing. When connected to a computer or Smartphone, the Orbit Reader Q40 leverages the extensive screen reader ecosystem developed for the Orbit Reader family of Braille displays to provide instant access to Windows, Mac OS, iOS, Android, Chrome OS, Fire OS, and Linux systems. Its integration with all popular platforms means that users have countless ways of interacting with their favourite apps and software.

Common use cases for the Orbit Reader Q40 span a wide range, catering to students and professionals alike. For students, these devices are instrumental for accessing textbooks, taking notes in class, and managing academic schedules. In a professional setting, they enable efficient Email correspondence, report writing, and participation in meetings with real-time notes and references.

The Orbit Reader Q40 is designed for robustness, being lightweight, compact, and dust and fluid-resistant, ensuring durability in everyday use. The device comes with a USB C port for charging and connecting to computers or Smartphones. The Orbit Reader Q40 also works with Orbit Research’s unique Orbit Teacher and Orbit Chat systems for inclusive education and communication.

- The convenience of **QWERTY** and **Braille** in one device
- Unique **signage-quality** TrueBraille™ cells
- **40 eight-dot** refreshable Braille cells
- Full-size, high-quality qwerty **keyboard** with sculpted keys
- Full Set of 78 keys
- Twelve Function keys
- Arrow keys in an inverted-T configuration

- Keys for use with Windows and Mac computers
- Cursor Routing buttons
- Configurable Thumb Keys for easy navigation
- Use **stand-alone** or **connected** to a computer or mobile device
- **Book-reader** mode - read your favorite books and files from SD Card or USB Flash Drive
- **Note-taker** mode - take notes and edit files
- **Braille display** mode connects to **six** computers and mobile devices over **USB** and **Bluetooth**
- Works with **all popular screen readers** on Windows, Mac OS, iOS, Android, Fire OS, Chrome OS and Linux
- Read and send messages and emails
- Browse the Internet and social media
- Control your Smartphone or computer
- Onboard forward and backward translation with support for 70+ languages
- Onboard Apps: clock and alarm; calendar; and calculator
- Audio and Haptic output
- Panning control **rocker keys** at each end of display
- **USB A Host** port for connecting Flash drives and other peripherals
- **USB C** port for charging and connectivity
- Fast-charging **long-life** battery
- Compact, lightweight and portable
- Measures: 29.6cm, by 19.0cm, by 3.3cm, or 11.7 inches, by 7.5 inches, by 1.3 inches
- Weighs: 1150g, or 2.5lbs,
- **Solid, durable** construction, resistant to fluids and dust

I am so pleased to see a choice of qwerty-driven devices emerging as, while I love Braille input, I am a touch-typist by nature, and actually prefer qwerty input. So congratulations to Orbit Research for delivering such a variety of products.

Chapter Twenty-One: BrailleMe (Legacy Device)

I don't think there is any doubt that we all want to see more affordable Braille devices on the market that puts our beloved format into the hands of many who would otherwise be excluded from accessing electronic Braille. And so, as well as the much anticipated Orbit Reader, we now have a similar product to choose from, meet BrailleMe from Indian company Innovision.

BrailleMe Overview

BrailleMe is a small, lightweight and affordable device with 20 Braille cells, equivalent number of cursor routing buttons, that connects to computers and Smart devices using USB or Bluetooth. It also has note-taking and editing capabilities with built-in Braille translation.

BrailleMe measures 18.8cm wide, by 13.8cm deep, by 2.9cm high, and weighs 580g. It comes with a standard USB 2.0 to micro USB cable, AC adapter, carry case, and 8gb SD card (supporting up to 32gb), which contains the user manual. It supports TXT, BRL and BRF file formats. BrailleMe's six Perkins-style keys allows the input of grade one and two Braille in approximately 40 languages. But it doesn't support eight-dot Braille. The device can be used in either Stand-Alone or Remote Mode. In Stand-Alone Mode, you can use BrailleMe to access files stored on the SD card, where you can browse, read, edit, delete and rename files. Remote Mode lets you connect your BrailleMe to a computer or Smart device in conjunction with screen readers like NVDA, iOS, and Android BrailleBack for reading or navigating your device. BrailleMe has a user replaceable rechargeable battery lasting approximately 10 hours, 1.5 hours charge time.

BrailleMe Orientation

Placed in front of you, the 20 Braille cells are furthest away from you. On the left side of BrailleMe is an SD card slot with a spring-loaded mechanism. When inserting an SD card, its fingers should be facing up, and gently pushed in until you feel a click. Push on the card to release it again before removing it.

The right side of BrailleMe comprises a power button nearest you, followed by a dedicated power socket, then a micro USB port for connecting your unit to a computer.

On the top face of BrailleMe is a 20-cell Braille display with equivalent cursor routing buttons below it. The first cursor routing button may also be pressed to update the unit's firmware when switched off. Panning buttons to move the display back and forth are positioned at each end of the display for ergonomic convenience.

Six Braille keys and a space-bar in the middle occupy the front portion of the top face of BrailleMe, with an enter key to the right of space, and a backspace key to the left.

Using BrailleMe

This is a compact little device to use, either with NVDA under Windows using a USB connection, or paired with Bluetooth on your Smart device. Connectivity using the latter method is seamless, but only allows you to pair with one Bluetooth device at a time. That is to say, you can pair BrailleMe with an iPhone, for example, then

disconnect it to pair with another Smart device, you can't pair two devices simultaneously.

Like Orbit Reader, BrailleMe can be slightly noisy as the Braille display refreshes, but unless you require absolute quiet, it isn't a deal-breaker in my view. The documentation is pretty comprehensive, and can be read as a Word file on your computer as well as in Braille on the SD card that ships with the unit.

BrailleMe Menu

Like all devices that contain several features, BrailleMe has a simple menu structure which comprises:

- File Manager
- Bluetooth
- USB
- Settings
- Battery Level
- Command Guide
- System Shutdown

Items in the above menu are self-explanatory: File Manager comprises Notepad, search facility, and all the usual features for marking text, deleting, renaming and creating new files. Bluetooth and USB functions allow you to connect BrailleMe to your screen reader. Settings offers a plethora of options that include the speed of auto-scrolling, and even testing the cells of the BrailleMe display.

Some commands don't follow standard protocol, for example, moving through a menu with space and dot one or space and dot four. On BrailleMe don't work. Seasoned note-taker users like myself will find some BrailleMe conventions slightly different and, quite frankly, rather annoying. I wish commands were the same across all these devices as it becomes very confusing for new learners.

Pros and Cons

BrailleMe is a very welcome addition to the array of portable Braille devices on the market, not least because of its price. Unlike many displays, BrailleMe's ergonomic design places the display itself furthest away from you, with cursor routing buttons and Braille keyboard closest to you. And because it does not permit the input of eight-dot Braille, the enter and backspace keys are placed on the right and left side of the space-bar, respectively. Once you get used to this layout, however, it is straightforward and comfortable to write Braille. Dots seven and eight are usually reserved for the screen reader cursor, but this is achieved on BrailleMe with the empty Braille cells blinking, for example, the letter Q would see the empty cell six blinking to indicate where the cursor is positioned.

BrailleMe has built-in Braille translation which means you can translate on the device itself rather than having to prepare a file using a Braille translation program. With cursor routing buttons, it also makes editing and navigating files more simple.

You will find BrailleMe has several different commands not found on other devices for some strange reason. I feel it would have made more sense to go with those

most Braillists are used to on other portable displays rather than having to learn a raft of new ones.

I would like to have seen a universal USB charging facility rather than a dedicated plug, it’s just another separate charger you need to carry around! And there is no support for the JAWS screen reader at the time of writing, (autumn 2019).

All in all though, BrailleMe is neat and affordable, and does exactly what it says on the tin! And those who work with languages are bound to find one of the 40 choices extremely accommodating.

A Quick Comparison Of Orbit Reader Versus BrailleMe

It is inevitable that these two devices will be closely compared when deciding which one to purchase. For me, it depends what is more important to you, or necessary in carrying out specific tasks. Orbit Reader has no cursor routing buttons. This doesn't preclude you from editing text, however, you just have to do it differently. Orbit Reader also doesn't have a built-in Braille translator, meaning you will be required to prepare BRF documents before loading them onto an SD card using software listed elsewhere in this book. But Orbit Reader's battery life is better than BrailleMe's, and Orbit Reader allows you to charge the unit using a 2.0 standard to micro USB cable whereas you have to use the AC adapter provided with BrailleMe at all times. Orbit Reader supports the input of eight-dot Braille which is not possible on BrailleMe. But BrailleMe offers 40 or so languages. Orbit Reader works with all screen readers, including Mac OS, but BrailleMe currently only works with NVDA, iOS and Android BrailleBack. The noise level and refresh rate of the display on each device is very similar, as is the firmness and quality of Braille dots. I have heard that both machines have a tendency for dots to stick on occasions as well, and if this happens to you with either Orbit Reader or BrailleMe, then you should consult your dealer if the problem persists. BrailleMe also comes with a carry case, but you can buy one for Orbit Reader separately.

Finally, in terms of cost, they are both similarly priced, so it does come down to what features are more important to you. My advice, as ever, is to check them out before making a purchase to see which is right for you.

Chapter Twenty-Two: Focus Blue Fifth Generation Displays (Current Devices)

Since the first version of this book was written, the Focus Blue series of Braille displays has received a welcome makeover. The same features and button layout is present, but the new displays are of a much higher construction quality. An aluminium and steel body replaces the plastic chassis found on previous Focus Blue displays, with rubber absorption bumpers at each end to protect the machine. Focus Blue fifth generation displays are also charged using USB C, and come with a micro SD card slot. This addition is to accommodate what is known as the Scratchpad application which allows you to 'scribble' Braille notes while you work, or read BRF books, provided you have a micro SD card of up to 32gb inserted. You access the Scratchpad menu by pressing a small button which sits between dots one and four on the Braille keyboard. Other items such as a clock and Bluetooth options can be accessed in this menu as well.

Freedom Scientific's range of portable displays is ergonomically designed and lightweight enough to carry around. The Focus Blue displays come in 14 and 40-cell flavours, and connect via USB and up to five Bluetooth devices. They connect easily to your Smart device, and have a nice Perkins-style keyboard on which to input text into your favourite applications. An 80-cell version is also available, but is probably more appropriate to use in a fixed environment such as a classroom or the workplace.

The 14-cell version is dinky, lightweight, and pairs seamlessly with your Smart device without removing it from your pocket or belt clip. The 40-cell version is also lightweight and portable enough to carry around when you want more Braille under your fingertips to get your jobs done!

These displays have lots of navigation controls, making it easy to jump around your apps and documents, and a menu button for seamlessly changing functions. It is also feasible to hop between connected devices by tapping the power button and dots one-two-three. So, as an example, you can jump from using your laptop on USB, to Bluetooth when paired with your Smart device, to read a text message. This is an excellent feature retained on the fifth generation Focus displays that so many find productive. The Braille cells on the Focus range are nice and crisp, and you can expect to get 20 hours from typical battery use.

And due to their aluminium and steel construction, weight has not been compromised. The Focus 14 Blue-cell fifth generation Braille display measures 16cm, by 8.2cm, by 1.9cm, and weighs just 230g. It comes in a sturdy little carry case that may be hung round your neck for convenient use.

Its larger sibling, the Focus 40 Blue, is ideal for laptop use, or when you simply want more Braille on the move. It measures 33.70cm, by 1.90cm, by 8.20cm, weighing 0.65kgs. Again, the 40-cell version has numerous navigation controls, and a superb 20 hours typical battery life. Again it may be connected via USB or Bluetooth, and has a comfortable, ergonomic design.

Pairing the Focus Blue with a Smart device is simplicity itself. I found writing text messages or other information reasonably quick. Once the Focus and a Smart

device are paired, it is simply a matter of unlocking the Smart device, and a connection is made every time.

Pros and Cons

The new Focus Blue displays have a lovely feel with their new shiny aluminium body as opposed to the rather cheap feel of the fourth generation. They work well across all screen readers, and have the same button layout we are used to. The addition of Scratchpad is useful but limited, but then these displays were never designed to be dedicated note-takers described elsewhere in this book. The really useful feature is that you can use these new displays to read books on the go without a connection to your Smart device or computer provided that, of course, your Focus Blue is charged! And having a multiple Bluetooth connection for up to five devices meets that modern-day requirement.

A huge advantage of using a device like the Focus Blue is being able to have Braille at your fingertips as and when you want it. If you don't want to carry Focus Blue with you, you simply take your Smart device and listen to it with speech synthesis. But when you want to write text messages, notes, Facebook posts or tweets in Braille, you can just connect the two and away you go. And remember that you can use Focus Blue with your chosen screen reader on a laptop, PC, or Mac. The added advantage with the JAWS screen reader is that you can use your Focus Blue to write in grade two Braille in Windows, another powerful consideration in its favour.

The cost of owning a straightforward portable display to achieve these tasks is much cheaper than buying a dedicated bespoke note-taker, and the Freedom Scientific displays are competitively priced.

Focus Blue displays do not have user replaceable batteries, unfortunately, so would need to be returned to your local dealer. Documentation is comprehensive and comes with the machine.

You can still buy the fourth generation series, but it is my guess these will be phased out so concentration may be given solely to the new kid on the block. So, if you are in the market for a solid, reliable display with plenty of navigation features and nice Braille, then the Focus Blue fifth generation of displays is definitely worth attention.

Chapter Twenty-Three: BraillePen 24 (New Device)

Polish company Harpo has made a very welcome return to the Braille display arena with their new BraillePen 24 device.

The manufacturer states that BraillePen24 is not just a device, it is a tactile revolution housed in a sturdy aluminium case, combining durability with sleek aesthetics. With thumb keys and a joystick for effortless navigation, this compact tool opens up a world of possibilities. The 24 Braille cells and accompanying 24 cursor routing keys provide a comprehensive reading and writing experience, including a silence switch for muting sounds and a mode switch that enhances user control, ensuring a personalised interaction. The ergonomic eight-dot Perkins Braille input keys and a double-space feature with extra functions contribute to a user-friendly design. The interchangeable Braille protective film provides an additional layer of protection.

Features

- Super-slim mobile Braille note-taker
- Thumb keys and joystick for navigation
- Comfortable typing experience
- Built-in intelligence allows for increased productivity anywhere
- HID interface
- Ergonomic traditional eight-dot Braille input keys
- Double-space with extra features
- Additional sensor set for scrolling and refreshing
- Bluetooth: Classic and Bluetooth Low Energy connectivity; five simultaneous connections
- USB-C connection and charging
- Micro SD card socket for memory without limits
- Advanced refresh schemes with 24 high-quality Braille cells and unique touch sensor routers
- Pair up to five Bluetooth devices at once plus one USB connection
- 15 – 20 hours of battery life

What makes BraillePen 24 unique?

Unique thin design - The BraillePen24 boasts a real pocket-size experience with a skinny profile of just 14mm, making it a portable companion for mobile users.

Connectivity - With seamless connectivity to iOS, Android, Mac, and Windows (HID), BraillePen24 breaks down barriers, ensuring compatibility across various platforms.

Embedded apps for Email and Contacts streamline your experience, providing accessibility at your fingertips. The refresh sensor and Micro SD card slot for books add to the uniqueness.

It measures 154mm, by 97mm, by 14mm, or 6 inches, by 3.8 inches, by 0.5 inches, and weighs 230g, or 0.5lbs.

Section Three: Displays Solely Controlled By A Screen Reader

We now turn to dedicated portable Braille displays. These are units that allow you to input Braille once connected to your laptop, or paired with your Smart devices in order to read and write text messages and social media posts, or let you sit back and enjoy reading titles from Kindle and iBooks. They come in sizes from 12 to 40 Braille cells, depending on what you classify as portable. These devices have become very popular in recent years, and there are now several on the market to choose from.

Chapter Twenty-Four: Focus Blue Fourth Generation Displays (Legacy Devices)

Freedom Scientific's range of portable displays is ergonomically designed and lightweight enough to carry around. The Focus Blue fourth generation displays come in 14 and 40 cell flavours, and connect via USB and Bluetooth. They connect easily to your Smart device, and have a nice Perkins-style keyboard on which to input text into your favourite applications. An 80-cell version is also available, but is probably more appropriate to use in a fixed environment such as a classroom or the workplace.

The 14-cell version is dinky, lightweight, and pairs seamlessly with your Smart device without removing it from your pocket or belt clip. The 40-cell version is also lightweight and portable enough to carry around when you want more Braille to get your jobs done!

These displays have lots of navigation controls, making it easy to jump around your apps and documents, and a menu button for seamlessly changing functions. It is also feasible to hop between connected devices by tapping the power button and dots one-two-three. So, as an example, you can jump from using your laptop on USB, to Bluetooth when paired with your Smart device, to read a text message. This is an excellent feature on the Focus displays that so many find productive. The Braille cells on the Focus range are nice and crisp, and you can expect to get 20 hours from typical battery use.

The Focus Blue 14 fourth generation Braille display measures 16cm, by 8.2cm, by 1.9cm, and weighs just 230g. It comes in a sturdy little carry case that may be hung round your neck for convenient use.

Its larger sibling, the Focus Blue 40 fourth generation, is ideal for laptop use, or when you simply want more Braille on the move. It measures 33.70cm, by 1.90cm, by 8.20cm, weighing 0.65kgs. Again, the 40-cell version has numerous navigation controls, and a superb 20 hours typical battery life. Again it may be connected via USB or Bluetooth, and has a comfortable, ergonomic design.

Pairing the Focus Blue with a Smart device is simplicity itself. I found writing text messages or other information reasonably quick. Once the Focus and a Smart device are paired, it is simply a matter of unlocking the Smart device, and a connection is made every time.

Pros and cons

A huge advantage of using a device like the Focus Blue is being able to have Braille at your fingertips as and when you want it. If you don't want to carry Focus Blue with you, you simply take your Smart device and listen to it with speech synthesis. But when you want to write text messages, notes, Facebook posts or tweets in Braille, you can just connect the two and away you go. And remember that you can use Focus Blue with your chosen screen reader on a laptop, PC, or Mac. The added advantage with the JAWS screen reader is that you can use your Focus Blue to write in grade two Braille in Windows, another powerful consideration in its favour.

The cost of owning a straightforward portable display to achieve these tasks is much cheaper than buying a dedicated bespoke note-taker, and the Freedom Scientific displays are competitively priced.

Focus Blue displays do not have user replaceable batteries, unfortunately, so would need to be returned to your local dealer. Documentation is comprehensive and comes with the machine.

If you want a sturdy, ergonomic little display to carry around and have Braille on the go, you can’t ignore the Focus Blue range from Freedom Scientific.

Chapter Twenty-Five: Hims Smart Beetle (Legacy Device)

The other portable Braille device from Hims is a dedicated display. Smart Beetle has 14 cells, and a corresponding number of cursor routing buttons. But it has the added bonus of being able to connect to up to five Bluetooth devices, as well as supporting USB. A simple, intuitive menu allows you to jump between devices and connections.

Like Focus Blue, Smart Beetle has a lovely Perkins-style keyboard for inputting Braille, and some neat little navigation controls for skipping around your apps and documents. And just like Focus Blue, Smart Beetle boasts a superb battery life of more than 20 hours, depending on use.

Smart Beetle has no additional bells and whistles for you to learn. It simply connects to a Smart device, and works with all screen readers under Windows and OSX. It is a sturdy, ergonomically designed unit that users of the Hims range of products have come to expect. Its leather case also allows you to use the device while keeping it protected.

Pros and cons

Smart Beetle is currently one of the only portable Braille displays that connects to more than one Smart device at a time, making it really useful if you own an iPhone and an Android tablet, for example. Like all Hims Braille keyboards, the one on Smart Beetle is beautiful to use and very quiet.

The Smart Beetle battery is again not user replaceable, which means the unit would need to be returned to your local dealer. And I still think that, like other Hims products when paired with Smart devices, there is a definite lag between inputting characters and reading them back on the display. As already suggested, turning off contracted input under Braille in VoiceOver is a compromise, even if it isn’t ideal. Documentation is comprehensive, and comes with the unit.

There is also a Clipboard feature on Smart Beetle that you can use to transfer text from your U2 or U2 Mini if you have one. But this isn’t particularly reliable, and is incredibly slow.

But it is worth considering Smart Beetle if you want a small, compact Braille display that you can pair with multiple devices and take around with you for Braille on the go.

Chapter Twenty-Six: Harpo BraillePen 12 touch and EasyLink 12 Touch (Legacy Devices)

These two portable displays are made by Polish company Harpo, but distributed by different dealers. They are practically the same, but historically come under different names to enhance their selling points. BraillePen Touch is distributed by BraillePen, while EasyLink 12 Touch is sold by Optelec.

BraillePen 12 Touch

If all you want is a small, lightweight device to pair with a screen reader or Smart device, then the BraillePen 12 Touch is a worthy candidate. It has been around for some time now, so the Bluetooth protocol is older. Yet you can still read and write Braille on this dinky device with no hassle. And its selling point, for me, is the touch cursor routing facility instead of regular cursor routing buttons. This means that you simply put your finger on the touch-sensitive cursor above the display, and the Braille cursor will move to that point automatically.

It measures 150, by 94, by 25mm, and weighs 236g. Its internal battery lasts up to 10 hours, depending on usage, with a good stand-by time. BraillePen has 12 Braille cells, integrated touch cursor routing sensor, six Braille and three function input keys for writing, joystick, and two navigation keys. It comes with leather case and lanyard, USB cable and power charger, and driver software. The accompanying manual, however, leaves a lot to be desired, and does not appear to have been updated for some years.

BraillePen 12 Touch can be worn round your neck using the supplied pouch and lanyard. It is primarily a unit for pairing with a Smart device that enables you to read and input Braille. You can access a simple menu comprising a built-in Clipboard where up to 500 characters can be stored or transferred to your Smart device. You can also turn on audible and vibration alerts, but there are no other functions; it is a small, pocket sized display you can use to read Braille on a Smart device or laptop with a screen reader of your choice. You can only pair it with one Bluetooth device at a time too. The display is comfortable to read on, and portability is really the word here with this unit.

Pros and cons

BraillePen 12 Touch has been around for several years, making it an expensive purchase when you take account of its older technology. I did not find writing on its keyboard to be the most discreet experience, it sounded quite clicky to me. Its internal battery also needs to be replaced by your dealer. But if you want to produce Braille and read documents, then this little display from Harpo is certainly a contender.

EasyLink 12 Touch

The EasyLink 12 Touch has now been discontinued, but since there are many people still using it, I have included the device in this book.

The EasyLink 12 Touch has 12 Braille cells, integrated touch cursor routing sensor, six Braille and three function input keys for writing, joystick, and two navigation keys. And like BraillePen, the EasyLink allows you to put your finger above the Braille display to manipulate the touch cursor.

It measures 15.1 by 9.6 by 2.1 cm, and weighs 260g. It comes with an integrated rechargeable battery that lasts up to 12 hours, has Bluetooth connectivity, and USB for charging. EasyLink 12 Touch will only allow you to pair with one Bluetooth device at a time. But its selling point, for me, is the touch cursor routing facility instead of regular cursor routing buttons. This means that you simply put your finger on the touch-sensitive cursor above the display, and the Braille cursor will move to that point automatically.

The EasyLink can be worn round your neck using the supplied pouch and lanyard. It is primarily a unit for pairing with a Smart device that enables you to read and input Braille. You can access a small menu offering a built-in Clipboard where up to 500 characters can be stored or transferred to your Smart device. And you can turn on audible and vibration alerts. But there are no other functions; it is a small, pocket sized display you can use to read Braille on a Smart device or laptop with a screen reader of your choice. The display is comfortable to read on, and portability is really the word here with this baby.

Pros and cons

This is a nice, compact unit with no frills and fuss to get it up and running. But it has been around for some time now, and the word is that Optelec is considering its withdrawal. EasyLink is more expensive than its competitors, and sadly uses older technology. Its battery needs to be replaced by your dealer, and it can only be paired with one Bluetooth item at a time.

Chapter Twenty-Seven: HumanWare Brailliant Displays (Legacy Devices)

In addition To its range of Braille note-taking devices, HumanWare also offers Brailliant Bi 32, Bi 40 and Bi 80 Braille displays that connect to your Smart devices, laptop or computer. The Bi 80 model is more appropriate for a fixed environment such as the workplace, classroom or home workstation. For the purposes of this book, therefore, we are concentrating on the other two models.

Brailliant Bi 32 and Bi 40

The Bi 32 and Bi 40 come equipped with either 32 or 40 Braille cells, equivalent number of cursor routing buttons, Braille keyboard, three navigation buttons at each end of the display, and four thumb keys situated at the front of the unit. They each connect via USB or Bluetooth. There is an eight-Braille input keyboard with two space bars that are used in the same way.

The Bi 32 display measures 26 x 8.7 x 1.8 cm, and weighs 524g, while the Brailliant Bi 40-cell model measures 31 x 8.7 x 1.8cm, and weighs 650g.

These units have a battery life of 20 hours. Charging is achieved by connecting the micro USB cable supplied between the display and your laptop or computer, or paired using Bluetooth to a Smart device. All commonly used screen readers are supported once drivers are installed.

There is an internal menu on these displays, accessed by tapping the power button once when switched on. The internal menu allows you to configure Bluetooth PIN, check battery status, or ascertain the machine's firmware and serial number.

Pros and cons

The Brailliant range of Braille displays are ergonomically great to work with, producing nice crisp Braille. They are lightweight, compact and easy to use. Like most of the displays discussed in this book, the Bi 32 or Bi 40 needs to be returned to HumanWare to have the internal battery replaced. User documentation that comes with a Brailliant display is clear and comprehensive, and drivers are contained on an accompanying CD. A Brailliant display does not have simultaneous Bluetooth connections, but is a worthy consideration if you want a sturdy, ergonomic display for reading Braille on your Smart device, laptop or computer, and using the Braille keyboard to input data when on the go. Finally, as with its BrailleNote family of machines, HumanWare offers exceptional technical support for the Brailliant range.

Chapter Twenty-Eight: The Papenmeier Range (Current Devices)

Papenmeier is a well established German company known for outstanding quality. In recent years, It has produced a range of excellent displays in the form of the Braillex family. There is a Braillex EL40C, Braillex EL60C, and Braillex EL80C. For the purposes of this text, however, we will concentrate on the 40-cell model because of its portability.

Braillex EL40C

The most striking feature of the Braillex EL40C is its patented Easy Access Bar, situated along the front of the display. This four-way navigation tool allows you to keep one hand on what you are reading at all times while operating the display with the other hand. This means that someone with dexterity issues would probably feel more at home with the ergonomic design of the Braillex EL40C.

The unit measures 298, by 92.5, by 18mm, and weighs 640g. Its power source is via a mini USB cable that connects between the display and a PC or laptop. Battery usage is estimated at approximately 20 hours.

There are four additional keys on the Braillex EL40C, two at each end. Once you connect the display to your laptop or computer, use these four keys, plus the Easy Access Bar, to navigate documents, menus and dialog boxes.

To use Braillex EL40C with your screen reader of choice, you need to install a driver beforehand. As soon as the USB connection is made between your display and computer or laptop, the EL40C is turned on.

As you would expect from a company that produces top quality Braille products, the EL40C has a lovely display with the choice of concave or flat cell caps for reading. This means that your fingers slide effortlessly into a slight dip on the display, making it a pleasure to read longer documents. And with the Easy Access Bar to navigate, you need never lose your place when reading.

Just when you thought your reading experience couldn’t get any better, Braillex EL40C offers double routing functionality in each cell. The lower routing key activates cursor / mouse routing, while the upper routing key activates object-related context menus.

Pros and cons

This is an older device, but still used and loved by many who enjoy the Papenmeier patented Easy Access Bar. The downside to owning a Papenmeier display though is cost which, for many, is prohibitive. Sadly, there is no Bluetooth on the EL40C, so communication with your laptop or computer needs to be done when a driver is installed and a USB cable connected. The battery can be replaced by the user though.

So this is a truly dedicated portable 40-cell Braille display that cannot work with your Smart device. Nevertheless, its build and comfortable reading makes it a great choice if you can afford it.

Braillex Live series

Papenmeier's latest addition to its excellent Braille display range is the Braillex Live family. These come in 20 or 40-cell flavours, and there is also a version with in-built qwerty keyboard as an option to Braille input.

The Braillex Live offers functionality that the EL40C does not, namely: simultaneous Bluetooth and USB connectivity, and qwerty or Braille input keyboard. In addition to the driver which needs to be installed for these devices, you also need to install the supplied BrxCom software which allows communication between your laptop or computer and the Braillex Live device.

Each unit is shipped with documentation and driver CD, along with relevant cable, power supply and case.

Braillex Live 20-Cell

The Braillex Live 20-cell measures 170, by 111, by 18mm, weighing 547g. It comes with 20 Braille cells, equivalent cursor routing keys, patented Easy Access Bar and additional navigation keys, a fully-fledged Braille input keyboard, with an approximate use of 20 hours battery life.

Braillex Live 20 connects to USB and Bluetooth simultaneously, so is ideal when you want to work between your screen reader on a laptop, for example, and a Smartphone.

When connected via USB, it is important to stress that the battery is not charging at this point. A battery switch allows you to turn the unit off when not in use to preserve power.

Braillex Live 40-Cell

This unit measures 298, by 115, by 18mm, and weighs 900g. It comes with 40 Braille cells, equivalent cursor routing buttons, patented Easy Access Bar and additional navigation keys, a fully-fledged Braille input keyboard, and an approximate battery life of 20 hours.

Braillex Live 40 connects to USB and Bluetooth simultaneously, so is ideal when you want to work between your screen reader on a laptop, for example, and a Smartphone.

When connected via USB, it is important to stress that the battery is not charging at this point. A battery switch allows you to turn the unit off when not in use to preserve power.

Braillex Live+

The Braillex Live+ has a fantastic feature of being a 40-cell Braille display with qwerty akin to that on a notebook. It measures 298, by 118, by 18mm, and weighs 1200g.

This unit comes with 40 Braille cells, equivalent cursor routing buttons, qwerty keyboard, patented Easy Access Bar and additional navigation controls, and boasts an average battery life of 20 hours.

Braillex Live+ connects to USB and Bluetooth simultaneously, so is ideal when you want to work between your screen reader on a laptop, for example, and a Smartphone.

When connected via USB, it is important to stress that the battery is not charging at this point. A battery switch allows you to turn the unit off when not in use to preserve power.

Pros and cons

These lovely displays come with either concave or flat cell caps, making it the most pleasant of reading experiences. Using your laptop and Smart device can be done simultaneously with USB and Bluetooth connectivity. The battery needs to be replaced by your dealer, and these displays are very expensive, making them prohibitive for many. Nevertheless, if you want top quality, then some would argue that you get what you pay for with a Papenmeier device.

Chapter Twenty-Nine: HelpTech Displays (Current Devices)

The first thing you will notice here is that Handy Tech have now become HelpTech, so all subsequent references to the company will be made to its new name. Like Papenmeier, HelpTech displays have been around for a long time in one guise or another, but are so well made and beautiful to work with. In my personal view, as indicated above, they stand apart from the rest in terms of quality and reliability.

Easy Braille

The Easy Braille is a 40-cell display that can be used on a laptop or computer, and paired with a Smart device under Bluetooth. There are no additional bells and whistles. It measures 30.5 wide, by 9.0 deep, by 2.9cm high, and weighs 820g.

Easy Braille has an eight-key Braille keyboard for inputting text, two navigation keys, 40 Braille cells with equivalent number of cursor routing buttons, and an approximate battery life of 10 hours. With its concave Braille cells and well constructed design, the Easy Braille really is a straightforward device to use.

Four AAA rechargeable batteries allow you to replace these as and when it is necessary without having to return the unit to your dealer. And a suitable carry bag ensures your device is safe when on the move.

A screen reader driver controls this display, so you simply connect it with the supplied USB cable, and you should be good to go.

Pros and cons

This is probably as cheap as it gets in the HelpTech range. Connection to a laptop or computer should be straightforward, as with Bluetooth pairing to a Smart device. The unit is lightweight, beautiful to work with, and even the rechargeable batteries are user replaceable. Apart from the cost, there is nothing to say against it!

Basic Braille

This display from HelpTech comes in a variety of lengths with 16, 20, 32, 40, 48, 64, and 80 Braille cells. Since the larger 48, 64 and 80-cell displays are designed for static environments such as the classroom, workplace, or at home, we will concentrate only on those with 40 cells or less.

Basic Braille displays come with built-in batteries, so need to be replaced by your dealer. They also come with or without a Bluetooth tie-in. If you choose one with Bluetooth, it can be used at the same time as USB. Each machine has an equivalent number of cursor routing buttons to its Braille cells, and three navigation keys at either end of the display. Battery life depends on usage and number of Braille cells, but you can expect from 15 to 25 hours. Charging time is approximately three hours.

The Basic Braille 16 measures 1.9cm high, by 9.1cm deep, by 19.3cm wide, and weighs 360g (including Bluetooth tie-in.)

The 20-cell version measures 1.9cm high, by 9.1cm deep, by 21.8cm wide, and weighs 420g (including Bluetooth tie-in.)

The 32-cell version measures 1.9cm high, by 9.1cm deep, by 29.5cm wide, and weighs 600g (including Bluetooth tie-in.)

The 40-cell version measures 1.9cm high, by 9.1cm deep, by 34.7cm wide, and weighs 700g (including Bluetooth tie-in.)

Each display comes with dust cover, full user instructions and HelpTech driver software. Before using your Basic Braille, you should install the relevant driver applicable to your screen reader. And pairing with an iOS or Android device is done in the usual way when operating Bluetooth.

Pros and cons

With more variety of Braille cells to choose from on these displays than any others on the market, there is something for every eventuality with the HelpTech Basic Braille. Batteries are not user-replaceable, and these displays are much more expensive than comparable models already discussed. Other than that, you get what you pay for with HelpTech products, and they all come with a three-year warranty.

Section Four: Braille Input Only Devices

As well as the plethora of note-takers and Braille displays discussed in this book, this section looks at Braille input only devices and methods of controlling your equipment without Braille at your fingertips. You may be surprised at just how many there are.

Chapter Thirty: Orbit Writer (New Device)

As well as the numerous Orbit Reader Braille devices described elsewhere in this book, Orbit Research has also produced a small device called the Orbit Writer. The Writer, however, does not contain a Braille display, it is simply a tiny unit with Braille input keys to use in conjunction with your Smart device when paired with Bluetooth.

Box Contents

Your box should contain the Orbit Writer, USB micro to USB standard cable, and large print quick start guide. An electronic version of the user guide is available to download from

Orbit Research

Description and functionality

Building on its portfolio of products, Orbit Research listened to people who wanted an affordable, pocket-size device they could use to operate their Smartphone. The result is a dinky unit that pairs seamlessly with an Apple, Android, Amazon Fire, Chromebook, Linux or Windows device at a fraction of the cost of similar products. Orbit Writer measures 6.3 inches wide, by 2.6 inches high, by 0.3 inches deep, or 160, by 65, by 8mm, weighing 0.198 pounds, or 90g. It features a Perkins-style ergonomic keyboard, navigation keys to use in conjunction with your device, Bluetooth connectivity to up to five devices, one USB connection, and fast-charging long life battery.

With the unit facing you on a flat surface, the top panel comprises a large space-bar near the front with one smaller key on either side, dot seven to the left, and dot eight to the right. Going further away from you is the four-way navigation keys surrounding the OK button in the centre. Behind these navigation keys are the traditional Perkins-style keys. The micro USB port can be found on the left side of the Orbit Writer.

The micro USB cable supplied for charging the unit is also the same cable used on the Orbit Reader 20 and 20 Plus models. The Orbit Writer can last up to three days with continuous use on a single charge.

To power on the Orbit Writer, press and hold down the up and down arrow keys until you feel a short haptic pulse. Using the same key combination to power down the device provides a long haptic pulse. When turned on, Orbit Writer remembers your last Bluetooth channel, that is to say, the last device you were using. If you are turning on the Orbit Writer for the first time, it will default to the first Bluetooth channel where you can pair it with your chosen device.

Pros And Cons

This is an extremely small, affordable device that can be carried in a pocket or bag. It has a long battery life, and supports all platforms. For extra protection, a padded

case can be purchased from an Orbit dealer, and worn round your neck when controlling your devices.

There really isn’t anything negative to point out, this device does exactly as described, and offers a Braille user the convenience of inputting text on a touchscreen device. It offers connectivity to several peripherals where switching between them is quick and straightforward. It would be nice and more convenient to see all Orbit products using USB C connectivity instead of the rather outdated micro USB cables that are easily damaged. That said, Orbit Writer is absolutely worth considering if all you want is a compact unit on which to input Braille when paired with your Smart devices.

Chapter Thirty-One: Hable 1 (New Device)

A rival to the Orbit Writer, described above, Hable 1 emerged at roughly the same time. Meet Hable 1!

This dinky device manufactured in the Netherlands has no Braille output. Like Orbit Writer, it is a useful little tool to input Braille so you can control your Smart devices on iOS or Android. But where Orbit Writer has the familiar Perkins-style keys on its top face, Hable 1 is shaped exactly like a Braille f-o-r sign with two extra keys. You don't even need a table or your lap to rest the device on. You simply hold it in your hands with your fingers placed on the six Braille keys, and your thumbs wrapped round the device to keep it secure as you write.

Hable 1 measures 100mm, by 46mm, by 8mm, or 3.94, by 1.81, by 0.31 inches, and weighs 90g or 3.17 ounces.

When in use, you have full control of your iOS or Android device. No swiping or other gestures need activating because you can control everything via Hable 1 on both platforms once it is paired to your phone. And with its built-in battery, a full charge should give you approximately 50 hours. Hable 1 comes with a USB C cable to charge it, and a detachable wrist strap.

Using Hable 1

Pairing Hable 1 with your device is seamless. Simply open Bluetooth in your device's settings, and make sure the Hable 1 is in pairing mode. Unfortunately, you can only pair Hable 1 to one device at a time. So if you use Android and iOS, you must unpair it from one platform before pairing it with the other. Personally I found this extremely annoying as I use both platforms and would have found a simple switch between them more efficient.

To use Hable 1 comfortably, hold the device in your two hands with your thumbs wrapped round it with your fingers resting on dots 1-2-3-4-5-6. You can put it on a flat surface, but it is designed to be held in your two hands for quick and efficient input.

The online and downloadable manual gives lots of information about Braille codes for the country of your choice, and how to get the best out of your unit. For a device so small, it has incredible functionality for controlling and entering text on your phone.

For further information, contact

https://iamhable.com

Chapter Thirty-Two: BT Speak Pro From Blazie Technologies (New Device)

Many will remember the much loved Braille ‘n’ Speak from the 1980s and 1990s. The Braille Lite and Type ‘n’ Speak joined this popular family of products, and some still cling onto what remains of those working devices today. So dare to dream for a moment of what an up-to-date version of a Braille ‘n’ Speak might be like: a small, Braille input device with a similar chord structure, better voices, more apps, current protocols for WiFi and Bluetooth? Yes, you guessed it, enter the BT Speak from Blazie Technologies, decades of nostalgia converging on the 21st century!

Users said: ‘There will never be a modern Braille ‘n’ Speak, it’s gone forever.’ But here we are in 2024 where the Blazie Technologies company is being inundated with orders for its much-anticipated BT Speak Pro. So what is the big deal, and why are so many people desperate to own one?

BT Speak Pro Overview

Initially, there were two flavours of this device, the BT Speak, and the BT Speak Pro. But so many people wanted to purchase the Pro version that Blazie Technologies decided to concentrate their efforts on the Pro version. The latter comes with a Desktop Mode where you can use the Orca screen reader and various productivity applications.

BT Speak Pro runs on the Linux operating system where its open source platform allows apps to be written and added to the device via updates. BT Speak Pro measures 15.5cm wide, by 7.1cm deep, by 1.9cm high, or 6.1 inches, by 2.8 inches, by 0.75 inches, and weighs 240.9g, or 8.5 ounces.

The device comes with a Raspberry Pi compute module; 32gb Flash8gb RAM; 32gb Flash Memory hard drive; Micro SD card slot supporting unlimited external storage; nine-key Perkins-style input Braille keyboard including two modifier keys; WiFi supporting 2.4ghz and 5.0ghz protocol; Bluetooth 5.0; USB C and Mini HDMI; stereo speakers; and a Lithium Polymer 8200mah rechargeable battery offering up to 10 hours use.

BT Speak Pro Features

BT Speak Pro offers two modes of operation: Traditional and Desktop. You can easily switch between modes with a single keystroke. Each mode has its own applications, features, and advantages: Traditional Mode is a custom menu driven user interface with menus and shortcuts similar to the Braille ’n’ Speak. Though the menu design is built on the Linux operating system, it must be stressed that absolutely no Linux knowledge is required to use BT Speak. The technical operation of the Linux operating system is invisible to the user while in Traditional Mode. However, users who are more adventurous or advanced may access a Linux shell to unlock its vast open source world and command line control. Desktop mode encompasses the combination of the Mate graphical environment and the Orca screen reader. Here, you can access web browsing, Email, word processing, and more.

When using the BT Speak Pro, you can easily convert file formats such as DOC, PDF, TXT and BRL, and there is back and forward Braille translation so you can choose from UEB, EBAE, UK, Spanish, German and French Unified Braille.

The RH voice and classic voice libraries eSpeak, DecTalk or Vocalizer voices come preloaded, so there is plenty to choose from when listening through the stereo speakers or headphones. And don't forget that you can access context sensitive help at any stage with the familiar space h chord.

Applications on the BT Speak Pro are:

- Editor
- Voice Command
- Voice Notes
- Media Player
- Radio Tuner
- Pandora (US only)
- AI (Chat GPT)
- Agenda Calendar
- Scientific Calculator
- Stopwatch and Countdown Timer
- Dictionary
- Weather
- Gregorian Date Calendar
- Morse Code
- LibreOffice Writer (word processor)
- Mozilla Thunderbird (Email client)
- LibreOffice Calc (spreadsheets)
- Chromium and Firefox (web browsers)

The BT Speak Pro firmware is being updated on a regular basis, and new applications are adding to its already rich feature list of tools and utilities.

for more information, documentation, or to purchase the BT Speak, visit

https://www.blazietech.com/

There is also a leather case now available for the BT Speak Pro from

https://www.blazietech.com/product-page/bt-speak-leather-carrying-case-by-turtleback

Chapter Thirty-Three: Orbit Speak (New Device)

As with other products in the Orbit Research family, The Orbit Speak has been designed with convenience and affordability in mind. It is a Braille input only device with speech output and a raft of useful features.

Measuring 16.0cm wide, by 6.5cm deep, by 1.5cm thick, or 6.3 inches wide, by 2.5 inches deep, by 0.6 inches thick, the Orbit Speak weighs 180g or 5 ounces. It comes with a full-size SD card slot, 3.5mm headphone socket, onboard WiFi and Bluetooth, and a Perkins-style Braille input keyboard with a four-way navigation pad. The Orbit Speak has a fast-charging long life battery with USB C connectivity and haptic feedback.

Orbit Speak works with all known screen readers, and pairs seamlessly to a Smart device of your choosing. With high-quality speech, you can easily skip between two modes: stand-alone and connected. In stand-alone mode, you can read books and files from an SD card, or write and edit notes. Connect mode allows you to pair Orbit Speak with your Smart device or computer.

There is onboard forward and backward translation with support for 40 languages plus. The onboard apps comprise:

- Notes
- Clock and Alarm
- Calendar
- Address Book
- Calculator

This product is in its infancy so I haven't been able to try it out at the time of writing. However, with BT Speak Pro already making a big splash in the assistive technology arena, I am sure Orbit Speak will appeal to those who want a simple set of applications at an affordable price.

Chapter Thirty-Four: Braille Screen Input

In the chapter about the BrailleNote Touch and Touch Plus from HumanWare, I described how you can lift the lid of the device to write in Braille on the glass screen underneath. But you can also do this using your iOS or Android device, and control your Smarts using uncontracted or contracted six-dot Braille.

Using Braille Screen Input On iOS

To turn on Braille Screen Input on your iPhone, iPad or iPod Touch, do the following:

- Go to Settings
- Accessibility
- VoiceOver
- Braille

One of the options in this section is to turn on Braille Screen Input by using uncontracted or contracted Braille and adding it to the Rotor. When you add it to the Rotor, you can then use your thumb and first finger to turn the Rotor to BSI so you can begin writing on the screen of your device. You are better doing this with your device in landscape mode to give your fingers more room. You can also organise the Rotor so that BSI is quicker to find when you want to use it.

When using BSI, you may also use first letter navigation when searching for apps, for example, dots 2-3-4 for the letter S for Settings

For further information, visit the Apple Support page.

Using Braille Screen Input On Android

It is now possible to use Braille Screen Input on your Android device. In order to set it up, do the following:

- Open the TalkBack menu
- Select TalkBack Settings
- Choose Braille Keyboard
- Now select Set Up Braille Keyboard
- When you are in an edit field, find the Switch Input Method and activate it

Your options may vary if you are not using the native GBoard keyboard

You are better doing this with your device in landscape mode to give your fingers more room.

You may also use first letter navigation when searching for apps, for example, dots 2-3-4 for the letter S for Settings.

For further information, visit the Android Accessibility Help page.

Section Five: Multi-line Readers And Tablets

Chapter Thirty-Five: Canute 360 (Current Device) And Canute Console Premium (New Device)

Most Braille addicts like myself have always dreamt of a multi-line device that would enable us to read books without having to refresh a display at the end of each line. I am thrilled to say that this is now possible thanks to Bristol Braille Technology who have worked tirelessly as a not-for-profit community interest to produce the world's first multi-line Braille reading device.

Meet Canute 360

This device went on sale in 2019 before the outbreak of Covid-19. During the height of the pandemic, production was halted, but took off again once the world re-opened.

The Canute 360 measures 37cm, by 19cm, by 4cm, (14.5, by 7.5, by 1.5 inches), and weighs 2.8kg, (6lbs). On the top surface of Canute 360 is an area capable of offering nine lines of 40 characters of refreshable electronic Braille. To the left of the start of each line is a triangular shaped button with a corresponding Braille number from one to nine. These buttons are used for choosing a book from your library, and adding or retrieving bookmarks. A button marked H for Help is immediately above the first triangular button on the unit. A further button marked with a Braille 0 is below the last triangular button.

On the top front edge of Canute 360 are three large navigation buttons, which are labelled in Braille as Back, Menu, and Forward. The power socket and small round button are situated towards the right on the rear of the device. Canute 360 also offers an SD card slot, USB port, and HDMI outlet.

File formats supported by Canute 360 are TXT, BRF, and PEF. In order to transfer formatted files to Canute, you will need a Braille translation package such as Duxbury DBT ™, BrailleBlaster ™, or RoboBraille ™. Files need to be formatted to a page of nine lines of Braille with 40 characters per line.

Once you have formatted your files, place them on an SD card or USB memory stick. Do not organise files into folders, just copy them into the root of your SD card or USB memory stick, and insert the card or memory stick into Canute 360.

Using Canute 360

The machine takes approximately 50 seconds to boot up. The first time you turn on Canute 360, the user manual will be displayed.

Once you have formatted and transferred your files to be read on Canute 360, press the Menu button in the centre of the three large controls on the front edge of your machine. The reading surface of your Canute will display the first nine book titles. If you wish to select one, press the corresponding triangular button at the left of that line to open it. If you have more books on your SD card or memory stick, you will need to press the Forward button to advance the list of files to the next page. Note that files are arranged chronologically, then alphabetically on your SD card or memory stick. Use the Back and Forward buttons to move around the library menu if you have lots of files on your SD card or memory stick.

A file takes approximately 10 seconds to load, one line at a time. You may start reading as soon as the top line of Braille appears. When you have read the first page of your file, press the Forward button to advance to the next page. Similarly, press the Back button to reverse the process to read the previous page.

It is possible to insert bookmarks, go to bookmarks, or go to pages within files. When you have finished using your machine, press the power button, and Canute 360 will commence the shutdown process.

There will be updates to Canute 360 from time-to-time, so you should use a clean SD card for this procedure, and follow the instructions that come with your machine.

Pros and Cons

The Braille community has long since waited for a multi-line device to appear on the market, and it is fair to say that Canute 360 has been some while in the making. But, in my view, it couldn't be in better hands than those of UK distributor, Techno-Vision Systems. For some, the price is considerably more than purported, but still far cheaper than some regular displays of 40 Braille cells.

To put Canute 360 into perspective, it is a multi-line Braille reader. It cannot yet connect to a computer and be used with a regular screen reader. There is no Bluetooth, WiFi or battery to worry about. It is also not a note-taker. Canute is larger than a regular display, so therefore requires adequate desk space to house it. Remember too that Canute 360 is the first iteration, a platform if you like on which to build future enhancements that might include screen reader collaboration. For now though, let's embrace the wonderful work Bristol Braille Technology has done in getting this far with the first multi-line Braille reader of its kind.

Canute Console Premium (New Device)

The wonderful folks at Bristol Braille Technology have now released their latest innovation, the Canute Console Premium, and it really is something to behold.

NB: Due to its technical nature, I wish to acknowledge that I have taken the liberty of reproducing the following text from the Bristol Braille Technology website.

Would you like to work on a Braille display that shows a whole page at a time rather than a line at a time?

Would you like to use a high-contrast 13-inch monitor synced to a 360 cell Braille display to collaborate with blind and sighted colleagues, so both tactile and visual readers have exactly the same information, layout and spacing?

Would you like to explore city maps, create diagrams, play classic videogames, watch sports matches and many other spatial applications across nine lines - that's 360 cells - of spatial Braille?

Would you like to use code snippets to whip up your own applications, or work with the manufacturer to have a custom application developed for you?

If so, we are pleased to introduce you to the newest edition to our product range, the Canute Console Premium.

Would your organisation benefit from blind people knowing with confidence what something looks like visually? Or from sighted people being able to structure documents in Braille or tactile graphics without knowing the first thing about Braille?

What it offers

The best way to read and edit documents in Braille:

Download and edit documents, Braille files and tables from the web, company shared drives or USB stick and edit them on the Canute Console.

Type on a Qwerty keyboard which pulls out on a tray under the display and tucks away when you want to read without your wrists pressing keys.

A luxurious 360 cells of Braille that maintains print white-space and centring, and lets you read multiple columns of text or numbers. You can even edit two different documents at the same time, next to each other, on the same Braille display and still have 160 cells per document.

With the Canute Console as your workstation, you can write better, review better, and you can collaborate better …

The Canute Console is the first computer to feature parity of display for touch readers and visual readers. The visual monitor and the Braille display update to show the same information with the same layouts. A blind owner can better check their sighted employee's work; a sighted colleague can develop a tactile document for their blind colleague; or two totally blind students can develop a spatial, visual application without sighted assistance.

With a Braille display that mirrors the visuals, and visuals mirroring the Braille, it unleashes new creativity in the field of tactile applications …

Map, watch, play, explore, create, program, then publish!

The Canute Console has a unique ability to push the boundaries of what can be done with Braille and tactile graphics. Using Braille characters as symbols you can - and we have created - whole tactile worlds and experiences that were previously inaccessible by touch.

Console owners can create their own applications without prior experience by using our system of simple code snippets. But you don't have to , because it comes bundled with programs including:

- A top down city explorer that generates five yards per cell scale maps of any city
- Match replay for broadcast football games with a blow by blow account of the ball moved across the pitch
- The classic arcade game Snake
- Free-hand tactile image and ASCII art drawing … and the developers always working on more!

With the Canute Console Premium, you get development time from Bristol Braille to help you create your own application, or prototype one for you that you can share with others. To date, these collaborations have included graphing, mapping the constellations, drawing early Germanic runes, midi programming, flow diagrams, original videogames, and many computer science projects.

The Console pairs the power of the Linux terminal, the BRLTTY screen reader, and the not-for-profit ethos of Bristol Braille, with the ambitions of touch readers, to build a new future for Braille and tactile graphics …

We've been working hard on the Console and are pleased to announce that the Console is now equally useful for non-technical users as the Canute 360 is. Upgrading means you keep all the reader functionality of the 360, but can switch into Console Mode, which runs in the Linux command line and can do a huge number of things involving diagrams, viewing maps, editing and writing documents, transcription and conversion to and from Braille, and is the world's first and only tactile videogaming platform.

Want to read in comfort as you currently do, but with the addition of a 13-inch high contrast monitor for sharing that with visual readers, and a Qwerty keyboard for doing searches? Then use it in Reader Mode.

Want to get into development, writing, tactile drawing, exploring or playing? Then switch the Console to Console Mode.

Design decisions behind the Canute Console

The Canute Console's Braille display can be switched between Literary Braille for a familiar environment, and Computer Braille for letter-by-letter identical layout in Braille as a sighted person will see on the monitor. Thus the Console can be used by

Braille readers to develop spatial - even graphical - applications for sighted audiences.

The Canute Console runs from the command line of an operating system called Raspbian, based on Debian Linux. Why Linux? The Canute Console can be switched to Console Mode to operate from the Linux command line, a powerful and universal working environment brilliantly suited to Braille. The Console can be used to log into and control servers or a desktop computer running Linux, Windows, Mac OS or embedded IoT devices. It can be used for cross-developing apps for any operating system. SSH into your home Windows PC in refreshable Braille! Don't know what SSH means but curious to find out? Try the Braillists Foundation's Masterclasses on Linux.

https://braillists.org

The Canute Console integrates a Raspberry Pi 400 computer. Why Raspberry Pi? The Pi has fast become the world's most commonly used and supported computer for educational, embedded and IoT development. It is a great choice for students and developers and - as the Console is also designed to be used as a terminal for controlling remote servers - the user is not restricted to ARM7 for more intensive applications.

Canute Console specifications

- Two part hardware: The Braille display docks into the workstation, but can also be detached and used on its own as a stand-alone eBook reader.
- Canute 360 Braille display with 360 cells over nine lines, 40 cells per line
- Desktop workstation (not battery operated): 15 inches, by 8 inches, by 2 inches, weighing 8lbs.
- 13 inch high-contrast monitor
- Stereo speakers
- Runs on Raspian (Debian based), including the BRLTTY screen reader and many custom tools developed by BBT to create and visualise data
- Raspberry Pi 400 computer: features a quad-core 1.5GHz 64-bit ARM7 processor, 4GB of RAM, WiFi and Bluetooth networking, as well as a 40-pin GPIO header and 3 USB-A ports
- Slide-out keyboard
- Custom manufactured case
- Ergonomically designed for Braille readers

Applications for the Canute Console

Here are a number of applications that BBT, with a dedicated community, have either tested, modified, or developed to use on the Canute Console.

Some of these are ready and come with the Canute Console on purchase, some are experimental and they can be loaded onto a customers machine on request.

All of these make maximum use of all 360 cells; every cell of each 40 character line has been eked out to create new and exciting applications in Braille. Fundamentally though, the Console is about using nine-line refreshable Braille to crack open the

world of spatial app development to blind people. The following are some example applications:

- Micro text editor: for programming and word processing. Also available, all the usual Linux text editors, vi, nano, emacs
- Cities Through Braille: top down city exploration map game, where the player can explore real cities by down loading their data from the Internet
- Association Football: where you choose from any country or club league or cup game of (soccer) football and watch it replay across a tactile football pitch in real time, with highlights, rewind, fast forward, and Braille commentary for every single play. Feel every movement of the ball, every yard moved, every shot blocked.
- Snake! That's right, the old Nokia game, re-imagined as a tactile experience, including a pre- and early-Braille learning levels system
- Dynamic Braille Sheets: taking spreadsheets (Excel compatible) and rendering them to the Braille display, including multiple columns and rows, zooming in and out
- Flow: a visualiser for creating and presenting flow diagrams. It works just as well for the Braille user creating them as for their sighted colleagues being shown the graphical version (with exactly the same layout, of course!)
- Dungeon Explorer: very much does what it says on the tin. Not only have we built our own, but you, the user, can modify almost any ascii-based rogue-like, or indeed any other ascii-based game, to run on their Console
- Maths Pretty Print: for viewing Latex maths equations as spatial multi-line formula, as they were meant to be seen
- SVG out: a simple test showing how easy it is to use the Console to turn supposedly visual media, such as Scalable Vector Graphics, into a tactile version of the same
- Free Draw: for drawing diagrams free-hand in Braille ascii. We use it for drawing floor plans, which can be done in a couple of minutes
- Present: a demonstration of how easy it is with a multi-line display to present the same spatial info to both a blind and sighted audience on the Console using just common Linux tools. In this case, Pandoc and LibreOffice to make presentations that show the same data and layout on a PowerPoint compatible slide-show as on the Braille display

All those command line applications that rely on more than one line to really make sense, or output logs over more than one line? Yes, they work much, much better when you can see them over a live, updating Braille page.

Whatever we do we make the sources viewable to the Console user (in refreshable Braille, of course), to help people learn from them, or adjust them to hack them for their own purposes.

I have nothing but admiration for the work that such a small team has managed to achieve, not just with Canute 360 itself, but the Console Premium and how it is already beginning to revolutionise the way blind people and their sighted

counterparts can interact to work together. What a great time in the world of technology to be blind!

Chapter Thirty-Six: Orbit Multi-Line Slate (New Devices)

Elsewhere in this book, you may have read about the Orbit family of Braille devices. But continuing with their great work, Orbit Research has entered the multi-line Braille display arena with the Orbit Slate and Graphiti interactive tactile graphic display.

The Orbit Slate comes in two flavours, three lines of 40 Braille cells, or five lines of 20 Braille cells. They both provide the same exciting rich list of features, and extend the capabilities of all today's Braille offerings.

Orbit Slate 340

The Orbit Slate 340 measures 29.2cm, by 16.5cm, by 3.3cm, or 11.5, by 6.5, by 1.3 inches, and weighs 1400g, or 3lbs.

The Orbit Slate 340 offers the following features and functionality:

- Three lines of real-time, refreshable signage Braille with 40 cells per line, giving you a total of 120 Braille cells
- Use stand-alone or connected to multiple devices
- The ability to read books and other documents from an SD card or external flash drive
- Note-taker mode lets you take notes or edit files
- Braille display mode allows you to connect to five computers or mobile devices over USB or Bluetooth
- Works with all screen readers including Windows, iOS, Android, Fire OS, Chrome OS and Linux
- There is onboard forward and back translation with support for more than 40 languages
- Included apps: clock and alarm; calendar; and calculator
- Haptic output
- Eight-key Perkins-style Braille keyboard
- Four-way joypad and navigation keys
- Navigation keys at each end of the display
- USB C port for charging and connectivity
- Full-size SD card slot
- A fast-charging, long-life Lithium battery

Orbit Slate 520

The Orbit Slate 520 measures 29.2cm, by 16.5cm, by 3.3cm, or 11.5, by 6.5, by 1.3 inches, and weighs 1400g or 3lbs.

The Orbit Slate 520 offers the following features and functionality:

- Five lines of real-time, refreshable signage Braille with 20 cells per line, giving you a total of 100 Braille cells
- Use stand-alone or connected to multiple devices
- The ability to read books and other documents from an SD card or external flash drive
- Note-taker mode lets you take notes or edit files
- Braille display mode allows you to connect to five computers or mobile devices over USB or Bluetooth
- Works with all screen readers including Windows, iOS, Android, Fire OS, Chrome OS and Linux
- There is onboard forward and back translation with support for more than 40 languages
- Included apps: clock and alarm; calendar; and calculator
- Haptic output
- Eight-key Perkins-style Braille keyboard
- Four-way joypad and navigation keys
- Navigation keys at each end of the display
- USB C port for charging and connectivity
- Full-size SD card slot
- A fast-charging, long-life Lithium battery

These devices offer all the functionality found on the regular Orbit family of products discussed in these pages, and much, much more. For me, the exciting feature is the ability to access information in real-time, whenever it is updated. This takes multi-line Braille to a whole new level which can only expand with the passage of time and advances in technology.

Chapter Thirty-Seven: Graphiti Interactive Tactile Graphics Display (New Device)

Thanks to a collaboration between Orbit Research and APH, we are now privileged to see the emergence of the Graphiti Interactive Tactile Graphics Display.

NB: Due to its technical nature, I wish to acknowledge that I have taken the liberty of reproducing the following text from the Orbit Research website.

What is the Graphiti?

Graphiti is an Interactive Tactile Graphics Display based on revolutionary Tactuator technology from Orbit Research. It represents a breakthrough in non-visual access to any form of graphical information such as charts, drawings, flowcharts, floor-plans, images and photographs, through an array of moving pins.

The Tactuator technology provides the ability to set each pin to different heights, which enables the display of topographical maps and other graphical elements such as grey shades and colour represented as varying heights of pins that can be readily sensed by the user's fingers.

Graphiti features a touch interface to enable the user to "draw" on the display; tracing a shape with a fingertip raises the pins along the path traced. The touch interface allows traditional forms of touch commands such as scrolling, multi-touch gestures such as pinch-to-zoom, etc. In addition, it enables novel uses such as "pushing" or "nudging" an object on the display to physically move it.

It is connectable to computers, tablets, smartphones, or the Orion TI-84 Plus Talking Graphing Calculator via a USB port or Bluetooth. Its open API allows developers to create apps to work with Graphiti. Additionally, an HDMI port allows connection to any device with a video display output. This enables any device to connect seamlessly to Graphiti.

Multiple Graphiti units can be interconnected to allow seamless interaction between users - what one user views or draws on their unit is instantly visible on the other connected units. Graphiti can also connect to classroom smart boards and enable blind and visually impaired students to view it in real-time like their peers. Teachers can also view and interact with the Graphiti screen from their computer or tablet.

The Graphiti also includes a Perkins-style eight-key Braille keypad for entering Braille text, a cursor pad for navigation, a standard USB host port, and an SD card slot for loading files for reading and editing in a stand-alone mode.

The proprietary Tactuator technology is fundamentally scalable and enables the development of refreshable graphic displays of any size, at a fraction of the cost of graphic displays in the market today. The first Graphiti model has 2,400 pins in an array of 60 x 40 pins, and can be used in a portrait or landscape orientation. Each pin is independently addressable and can also be made to individually "blink" at configurable rates.

Special Features

- Independently refreshable pins in a 60×40 array
- Independently variable height of each pin provides the ability to present additional information for tactile graphics such as colour or importance, and display pictures in relief
- Pins maintain their state without consuming power and can be made to “blink” at configurable rates
- Touch interface - allows the drawing and erasing and multi-touch gestures such as pan and zoom
- Compact and convenient size (11.6 x 10.6 x 1.6 inches), usable in portrait or landscape orientation
- Connects to any computer or mobile device via USB, Bluetooth or as a monitor through the HDMI port
- View, Create and Edit any image and save to SD Card, USB Flash Drives or connected devices
- Share images with other connected Graphiti units or remote devices
- Stand-alone viewing of files from SD Card
- Perkins-style Braille keypad
- Haptic (vibratory) feedback
- Configurable buttons for navigation and control
- Standard USB host port for connecting Flash Drives and other peripherals
- Fully upgradeable via USB Micro-B device port
- Operates from a user-replaceable rechargeable battery or AC adapter
- Multiple USB ports allow simultaneous charging and connection to hosts and peripherals

Chapter Thirty-Eight: The Monarch Multi-Line Device from HumanWare and APH (New Device)

Thanks to a collaboration between HumanWare and APH, we are now privileged and excited to see the emergence of the Monarch device.

NB: due to its technical nature, I acknowledge that I have taken the liberty of reproducing the text below from the APH website.

Monarch Overview

Monarch measures 15.9, by 10.5, by 1.4 inches, and weighs 4.5lb.

On Monarch, educational resources are readily available, cutting down on the need for specialized materials and additional classroom expenses. Time that would have been spent adapting lesson plans and creating materials is dramatically decreased, allowing educators to focus on what truly matters - teaching. With over 2000 graphics in the TGIL and connection to a variety of online libraries, students can take control of their learning journey, exploring concepts and ideas with newfound freedom.

And the Monarch isn't just a Braille display - it's a graphing calculator, a library, a Brailler, and so much more! It represents a shift towards an inclusive landscape, breaking down barriers and paving the way for a future where every individual can enjoy equal access to information.

Box Contents

- Monarch device
- Monarch case
- A pack of five membranes to protect the tactile display surface
- A USB C charging plug and cable, along with three international power adaptors

Monarch Features

The Monarch comes loaded with applications powered by HumanWare's KeySoft Accessibility suite including:

- KeyWord, a Word processor supporting MathML, .docx, .doc, .txt, and PDF files
- KeyWord allows users to receive a Word document, read and edit in Braille, and then send it back in its original print format without any additional steps. This includes math content created in Microsoft Word's equation editor which Monarch will translate into either Nemeth or UEB Math/Science!
- KeyMath, a graphing calculator created in partnership with Desmos that allows students to graph tactile functions on demand
- Tactile Viewer, a tactile graphic viewing app which connects via WiFi to APH's Tactile Graphics Image Library and can display graphics in JPG, PNG, and PDF formats
- Victor Reader, which connects users to hundreds of literary titles through online libraries including Bookshare and is compatible with Daisy and ePUB files
- A ten line 32-cell refreshable display containing 3,840 pins

- Visual display capabilities - connect your Monarch to a monitor via HDMI to display what the Monarch user is viewing on a screen for sighted peers
- An eight-dot Perkins Braille keyboard
- Customisable line spacing for introductory Braille readers
- Text-to-Speech functionality
- Gesture recognition
- A battery life lasting longer than 24 hours
- WiFi connectivity
- Both USB and Bluetooth connections for keyboards and headsets

Chapter Thirty-Nine: Dot Pad (New Device)

South-Korean company Dot Incorporated, who have produced the Dot Watch over the last decade or so, have now developed Dot Pad, an all-in-one multi-line Braille display and graphics tablet.

NB: due to the technical nature of the device, I wish to acknowledge that I have reproduced the text below from a dealer website.

Several companies producing multi-line displays are claiming that their device is the first of its kind to offer tactile graphics and multiple lines of Braille text in one unit. Dot Incorporated states that their Dot Pad is the first smart tactile graphics display for the visually impaired that enables the user to access visual content from any source.

What can Dot Pad do?

Dot Pad can convert any input on the connected device into a tactile graphic instantly. This opens up a new world of content for users.

You can feel your handwriting, graphs, equations, photos, documents, art, sketches, and more. Dot Pad goes beyond words to make graphics tactile.

Smart tactile graphics display enables real-time access to visual content.

There are two areas for graphics and text, giving users the opportunity to seamlessly switch between different types of content.

It has 2,400 Braille pins, and is able to access visual content from any source.

Dot Pad outputs Braille and tactile graphic information in real-time. Historically, Braille devices could only output text, but Dot Pad outputs Braille and images simultaneously.

Feel and learn about the shapes of app icons, images in photos, drawings created in the Notes app, and other graphics from various apps whenever and wherever you are. Dot Pad can convert any input on the connected device into a tactile graphic instantly, opening up a new world of content for users.

Dot Pad enables you to

- **Learn -** Dot Pad provides access to maps, diagrams, charts, and other illustrations, allowing easy access to content on the Internet.
- **Work -** By making productivity apps accessible, Dot Pad creates whole new career opportunities and a more inclusive workplace.
- **Creativity -** Dot Pad is a powerful tool for creative expression, empowering diverse creators in the fields of graphic design, music production, photography, and more.
- **Entertainment -** Artworks, exhibits, comics, and movies. The possibilities are endless when it comes to the world of content that is now accessible through the Dot Pad.
- **Real-time - u**nlike existing solutions, Dot Pad provides output with real-time refreshing cells, allowing users to consume more dynamic content than ever before.

- **Connectivity -** Dot Pad can be connected to the iPhone or iPad with a simple Bluetooth or USB-C connection. No extra installations are required.
- **Dual Display -** Dot Pad has two areas for graphics and text, giving users the opportunity to seamlessly switch between different types of content.
- **Integration -** Dot Pad works with iOS screenreader VoiceOver to detect and convert graphic assets into tactile output for the cells.
- **Image Explorer - t**he buttons on the Dot Pad allow users to go into the details of the image with options to invert, zoom, and pan.
- **Image Processing - E**dge Detection through VoiceOver is used to convert graphic assets into tactile output for the cells.
- **Dot Actuators -** Dot Pad's cells are powered by the innovative Dot actuator technology: 10 times smaller, lighter, and more energy efficient than conventional devices.
- **Mobility - g**et around independently with tactile maps.
- **Intuitive Control Elements - t**ake control of the content with six freely assignable buttons.
- **Dot Image Explorer -** Explore, zoom, pan, invert, and rotate content directly on the device.
- **Dot Image Processor - a**n AI based processor that renders the most meaningful tactile output.

Dot Pad consists of 2,400 pins in a pixel-like format, which can be set in up or down positions. These form identifiable shapes or Braille letters. The Dot Pad provides for 300 glyphs in Braille, plus 20 more in a traditionally spaced format in the line below.

Dot Pad is compatible with many Apple devices. This enables the ability to integrate with Apple's VoiceOver, providing additional screen reading capabilities.

My only observation to the Dot Pad is that it is rather a shame that there is no reference to use with Android. I am sure the Android die-hards among us would like to see Dot Pad venture to that operating system to give a sense of balance and impartiality.

Chapter Forty: Final Thoughts On Multi-Line Devices

The devices listed in this section are taking the world of Braille and tactile elements to a whole new level, and I think this is only the beginning of the multi-line journey. But what slightly concerns me is that most of the goodies described here are unattainable by your average Braille user. Unless you are in education, or have a very generous employer, most people will only ever dream of getting their hands on such equipment. Orbit Research recognises this in using signage Braille on their products to make them more affordable, but they are nevertheless still out of the reach of the modest income. It is part of the reason why the debate about Braille rages on: ‘It is so unaffordable for most that it is no longer viable.’ No matter how much the cost, I don’t subscribe to that argument. Braille has been in my blood since childhood, and my passion to own and use some kind of display is unwavering.

Through the passage of time, development and innovation, we can only hope the cost of electronic Braille will drop to a more affordable level, and reach the hands of many more would-be users.

Contact Information

You are welcome to contact me to leave feedback, ask questions about my experiences, or request a copy of this book.

You can Email me at

info@striveability.uk

www.striveability.uk

Appendix One: Product Summary Table

The following section provides key information, in alphabetical order of device, about all the products discussed in this book. It means you have all the relevant components to hand in one place for making an informed comparison, as well as whether the device is a legacy, current or new model.

- Name of item
- Dealer
- Legacy, current, or new device
- Number of Braille cells
- Additional features with Braille display
- Battery life
- Simultaneous Bluetooth connection
- Measurements
- Weight
- Operating system/driver
- User replaceable battery
- Auto scroll

Actilino; Help Tech; current device; 16 Braille cells; yes; approximately 30 hours; yes; 16.6cm wide, by 10.9cm deep, by 2.9cm high; 420g; Windows CE; yes; yes.

Active Braille; current device; Help Tech; 40 Braille cells; yes; 20 hours; yes; 31.9cm wide, by 12.4cm deep, by 2.9cm high; 930g; driver; yes; yes.

Active Star; Help Tech; current device; 40 Braille cells; yes; 40 hours; yes; 32.2cm wide, by 21.9cm deep, by 2.2cm high; 1090g (1430g with keyboard); driver; yes; yes.

Alva BC640 Comfort; Optelec; legacy device; 40 Braille cells; yes; approximately 20 hours; yes; 33.8, by 7.5 by 1.8cm; 550g; driver; no; yes.

B.Book; EuroBraille; new device; 32 Braille cells; yes; no approximation; yes; 270mm, by 197mm, by 26.5mm; 1.1kg; Windows 11; yes; yes.

B.Note 20; EuroBraille; new device; 20 Braille cells; yes; approximately 14 hours; yes; 235mm, by 105mm, by 27mm; 500g; driver; yes; yes.

B.Note 40; EuroBraille; new device; 40 Braille cells; yes; approximately 14 hours; yes; 365mm, by 105mm, by 27mm; 600g; driver; yes; yes.

Basic Braille 16; Help Tech; current device; 16 Braille cells; no; 25 hours; yes; 1.9cm high, by 9.1cm deep, by 19.3cm wide; 360g; driver; no; yes.

Basic Braille 20; Help Tech; current device; 20 Braille cells; no; 25 hours; yes; 1.9cm high, by 9.1cm deep, by 21.8cm wide; 420g; driver; no; yes.

Basic Braille 32; Help Tech; current device; 32 Braille cells; no; 20 hours; yes; 1.9cm high, by 9.1cm deep, by 29.5cm wide; 600g; driver; no; yes.

Basic Braille 40; Help Tech; current device; 40 Braille cells; no; 15 hours; yes; 1.9cm high, by 9.1cm deep, by 34.7cm wide; 700g; driver; no; yes.

Braille Edge; Hims; legacy device; 40 Braille cells; yes; approximately 20 hours; no; 310mm wide, by 101.5mm deep, by 22.5mm high; 0.79kgs; Windows CE; no; yes.

Braille eMotion; Hims/Selvas Healthcare; new device; 40 Braille cells; yes; approximately 20 hours; yes; 320mm, by 90mm, by 21mm, or 12.6 inches, by 3.5 inches, by 0.8 inches; 740g, or 1.6lbs; Android 12; no; yes.

BrailleMe; Innovision; legacy device; 20 Braille cells; yes; approximately 10 hours; no; 18.8cm wide, by 13.8cm deep, by 2.9cm high; 580g; driver; yes; yes.

BrailleNote Apex (Braille or qwerty keyboard); HumanWare; legacy devices; 18 Braille cells; yes; approximately 12 hours; no; 244mm wide, by 19mm high, by 143mm deep; 812g; Windows CE; yes; yes.

BrailleNote Apex (Braille or qwerty keyboard); HumanWare; legacy devices; 32 Braille cells; yes; approximately 12 hours; no; 244mm wide, by 19mm high, by 143mm deep; 812g; Windows CE; yes; yes.

BrailleNote Touch; HumanWare; current device; 32 Braille cells; yes; 12 hours; no; 2.06cm high, by 24.4cm wide, by 16.2cm deep; 900g; Android KitKat 4.4.2; yes; yes.

BrailleNote Touch; HumanWare; current device; 18 Braille cells; yes; 12 hours; no; 2.06cm high, by 24.4cm wide, by 16.2cm deep; 900g; Android KitKat 4.4.2; yes; yes.

BrailleNote Touch Plus; HumanWare; current device; 18 Braille cells; yes; approximately 12 hours; yes; 2.06cm high, by 24.4cm wide, by 16.2cm deep; 920g; Android Oreo 8.1; yes; yes.

BrailleNote Touch Plus; HumanWare; current device; 32 Braille cells; yes; approximately 12 hours; yes; 2.06cm high, by 24.4cm wide, by 16.2cm deep; 920g; Android Oreo 8.1; yes; yes.

BrailleSense 6 Mini; Hims/Selvas Healthcare; new device; 20 Braille cells; yes; 7 hours; yes; 7.08 wide, by 4.06 deep, by 0.91 inches high; 0.95lbs; Android 12; yes; yes.

BrailleSense 6; Hims/Selvas Healthcare; new device; 32 Braille cells; yes; 10 hours; yes; 245mm or 9.64 inches wide, 144mm or 5.66 inches deep, and 22mm or 0.86 inches high; 705g or 1.55lbs; Android 12; yes; yes.

BrailleSense Polaris Mini; Hims/Selvas Health Care; legacy device; 18 Braille cells; yes; approximately 12 hours; yes; 18.7cm wide, by 11.4cm deep, by 2.2cm high; 423g; Android Lollipop 5.1; yes; yes.

BrailleSense Polaris; Hims/Selvas Healthcare; legacy device; 32 Braille cells; yes; approximately 16 hours; yes; 9.64 inches wide, by 5.66 inches deep, by 0.39 inches high; 750g; Android Lollipop 5.1; yes; yes.

BrailleSense U2 (Braille keyboard); Hims/Selvas Healthcare; legacy device; 32 Braille cells; yes; up to 17 hours; no; 25.00cm wide, by 12.80cm high, by 3.90cm deep; 0.92kgs; Windows CE; yes; yes.

BrailleSense U2 (qwerty keyboard); Hims/Selvas Healthcare; legacy device; 32 Braille cells; yes; up to 17 hours; no; 25.00cm wide, by 13.10cm high, by 3.90cm deep; 926kgs; Windows CE; yes; yes.

BrailleSense U2 Mini (Braille keyboard only); Hims/Selvas Healthcare; legacy device; 18 Braille cells; yes; up to nine hours (it comes with two interchangeable

batteries); no; 17.20cm wide, by 9.00cm high, by 2.70cm deep; 0.43kgs; Windows CE; yes; yes.

Braillex EL40C; Papenmeier; current device; 40 Braille cells; no; 20 hours; no; 298, by 92.5, by 18mm; 640g; driver; yes; yes.

Braillex Live 20; Papenmeier; current device; 20 Braille cells; no; 20 hours; yes; 170, by 111, by 18mm; 547g; driver; no; yes.

Braillex Live 40; Papenmeier; current device; 40 Braille cells; no; 20 hours; yes; 298, by 115, by 18mm; 900g; driver; no; yes.

Braillex Live+; Papenmeier; current device; 40 Braille cells; no; 20 hours; yes; 298, by 118, by 18mm; 1200g; driver; no; yes.

BraillePen 12 Touch; Harpo; legacy device; 12 Braille cells; no; 10 hours; no; 150, by 94, by 25mm; 236g; driver; no; yes.

BraillePen 24; Harpo; new device; 24 Braille cells; yes; 15 to 20 hours; yes; 154mm, by 97mm, by 14mm, or 6 inches, by 3.8 inches, by 0.5 inches; 230g, or 0.5lbs; driver; no; yes.

Brailliant BI14; HumanWare; legacy device; 14 Braille cells; yes; approximately 20 hours; yes; 166mm wide, by 100m m deep, by 23mm high; 285g; driver; no; no.

Brailliant Bi 32; HumanWare; legacy device; 32 Braille cells; no; 20 hours; no; 26 x 8.7 x 1.8 cm; 524g; driver; no; yes.

Brailliant Bi 40; HumanWare; legacy device; 40 Braille cells; no; 20 hours; no; 31 x 8.7 x 1.8cm; 650g; driver; no; yes.

Brailliant BI X 20; HumanWare; new device; 20 Braille cells; yes; approximately 20 hours; yes; 93mm, by 182mm, by 23mm; 400g; driver; yes; yes.

Brailliant BI X 40; HumanWare; new device; 40 Braille cells; yes; 305mm, by 90mm, by 21.8mm; 720g; driver; yes; yes.

Canute 360; Bristol Braille Technology; current device; 360 Braille cells in nine rows of 40; no; mains only; no; 37cm, by 19cm, by 4cm; 2.8kg; driver; no; no.

Canute Console Premium; Bristol Braille Technology; new device; integrates with Canute 360 Braille cells in nine rows of 40; yes; n/a; no; 15 inches, by 8 inches, by 2 inches; 8lbs; Linux; no; no.

ElBraille docking station; Elita Group/Freedom Scientific; legacy device; (see Focus 14 Blue and 40-cell Braille displays that accompany docking station for statistics); yes; approximately 20 hours; yes; 189mm wide, by 118mm deep, by 38mm high; 750g; Windows 10 Home Edition 32-bit; no; n/a.

Easy Braille; Help Tech; current device; 40 Braille cells; no; 10 hours; yes; 30.5 wide, by 9.0 deep, by 2.9cm high; 820g; driver; yes; yes.

EasyLink 12 Touch; Optelec; legacy device; 12 Braille cells; no; 12 hours; no; 15.1 x 9.6 x 2.1cm; 260g; no; driver; no; yes.

Esys 12; EuroBraille; legacy device; 12 Braille cells; yes; approximately 20 hours; no; 14.5cm, by 8.6cm, by 2cm; 200g; driver; no; yes.

Esys 24; EuroBraille; current device; 24 Braille cells; optional; approximately 20 hours; no; 23cm, by 9,4cm, by 2,3cm; 550g; driver; no; yes.

Esys 40; EuroBraille; current device; 40 Braille Cells; optional; approximately 20 hours; no; 32.5cm, by 8.6cm, by 2cm; 500g; driver; no; yes.

Esytime; EuroBraille; legacy device; 32 Braille cells; yes; approximately eight hours; no; 26cm, by 18cm, by 2.5cm; 1.2kg; Windows 7 Home Premium; yes; no.

Focus 14 Blue 4th generation; Freedom Scientific; legacy device; 14 Braille cells; no; approximately 20 hours; no; 16cm, by 8.2cm, by 1.9cm; 230g; driver; no; yes.

Focus 40 Blue 4th generation; Freedom Scientific; legacy device; 40 Braille cells; no; approximately 20 hours; no; 33.70cm, by 1.90cm, by 8.20cm; 0.65kgs; driver; no; yes.

Focus 14 Blue 5th generation; Freedom Scientific; current device; 14 Braille cells; yes; approximately 20 hours; yes; 16cm wide, by 8.2cm deep, by 1.9cm high; 230g; driver; no; yes.

Focus 40 Blue 5th generation; Freedom Scientific; current device; 40 Braille cells; yes; approximately 20 hours; yes; 33.70cm wide, by 1.90cm high, by 8.20cm deep; 0.65kgs; driver; no; yes.

InsideOne; InsideVision; current device; 32 Braille cells; yes; approximately eight hours; yes; 29.5, by 20.2, by 1.9cm; 1.380kg; Windows 10; no; yes.

Mantis Q40; HumanWare; new device; 40 Braille cells; yes; approximately 15 hours; yes; 29cm, by 17cm, by 2cm; 786g, or 1.7lbs; driver; no; yes.

Orbit Reader 20; Orbit Research; current device; 20 Braille cells; yes; approximately 12 hours; no; 165mm wide, by 35mm high, by 110mm deep; 450g; driver; yes; yes.

Orbit Reader 20+; Orbit Research; current device; 20 Braille cells; yes; approximately 12 hours; no; 165mm wide, by 35mm high, by 110mm deep; 450g; driver; yes; yes.

Orbit Reader 40; Orbit Research; new device; 40 Braille cells; yes; approximately 10 hours; yes; 3.78 inches wide, by 1.28 inches high, by 11.61 inches deep, or 96, by 32.5, by 295mm; 1.65 pounds, or 750g; driver; yes; yes.

Orbit Reader Q20; Orbit Research; new device; 20 Braille cells; yes; 10 hours; yes; 29.6cm, by 19.0cm, by 3.3cm; 870g; or 11.7 inches, by 7.5 inches, by 1.3 inches; 1.9lbs; driver; yes; yes.

Orbit Reader Q40; Orbit Research; new device; 40 Braille cells; yes; approximately 12 hours; yes; 29.6cm, by 19.0cm, by 3.3cm; 1150g; or 11.7 inches, by 7.5 inches, by 1.3 inches; 2.5lbs; driver; yes; yes.

Orbit Slate 340; Orbit Research; new device; 3 lines of 40 Braille cells; yes; no approximation available; yes; 29.2cm, by 16.5cm, by 3.3cm, or 11.5, by 6.5, by 1.3 inches; 1400g, or 3lbs; driver; no; no.

Orbit Slate 520; Orbit Research; new device; 5 lines of 20 Braille cells; yes; no approximation; yes; 29.2cm, by 16.5cm, by 3.3cm, or 11.5, by 6.5, by 1.3 inches; 1400g or 3lbs; driver; no; no.

Pronto! 18; BAUM; legacy device; 18 Braille cells; yes; approximately 20 hours; yes; 174mm wide, by 92mm deep, by 32mm high; 450g; Windows CE; no; yes.

Pronto! 40; BAUM; legacy device; 40 Braille Cells; yes; approximately 20 hours; yes; 297mm wide, by 152mm deep, by 27mm high; 1250g; Windows CE; no; yes.

QBraille XL; Hims; current device; 40 Braille cells; yes; approximately 20 hours; yes; 31cm wide, by 11.9cm deep, by 1.8cm high; 825g; Windows CE; no; yes.

Seika Mini; SeikaBraille; legacy device; 16 Braille cells; yes; 10 hours; no; 16CM wide, by 9.6CM deep, by 2.3CM high; 300G; driver; no; yes.

Smart Beetle; Hims/Selvas Healthcare; legacy device; 14 Braille Cells; no; up to 24 hours; yes; 5.86, by 3.38, by 1.06 inches; 0.6lbs; driver; no; yes.

VarioUltra 20; VisioBraille; current device; 20 Braille cells; yes; up to 20 hours; yes; 7.4 inches wide, by 3.5 inches deep, by 0.7 inches high; 320g; Windows CE; no; yes.

VarioUltra 40; VisioBraille; current device; 40 Braille cells; yes; approximately 8-12 hours; yes; 12.4 inches wide, by 3.5 inches deep, by 0.7 inches high; 500g; Windows CE; no; yes.

Appendix Two: Manufacturer Contact Reference

Below is the website address for each company of the devices discussed in this book, together with the name of the device applicable to that company. This list is presented in alphabetical order. You can check the relevant website for your country's dealer, or visit their support pages for user guides and/or drivers.

American Printing House (APH)

https://aph.org

Chameleon (often known as Brailliant BI x 20 from HumanWare)

Graphiti Interactive Tactile Graphics Display, (see also Orbit Research)

Monarch Multi-Line Device, (see also HumanWare)

BAUM Retec

http://www.baum.de/cms/en/

Pronto! 18

Pronto! 40

BraillePen

www.braillepen.com

BraillePen 12 Touch

BraillePen 24

Bristol Braille Technology

https://bristolbraille.co.uk

Canute 360

Canute 360 Console Premium

Elita Group

www.elitagroup.com

ElBraille docking station

EuroBraille

www.eurobraille.com

B.Book Braille laptop

B.Note 20

B.Note 40

Esys 12

Esys 24

Esys 40

Esytime Braille laptop

Freedom Scientific
www.freedomscientific.com

Focus 14 Blue 4th generation

Focus 40 Blue 4th generation

Focus 14 Blue 5th generation

Focus 40 Blue 5th generation

Help Tech
www.handytech.de

Actilino

Active Braille

Active Star

Activator

Basic Braille

Easy Braille

Hims (Selvas Healthcare)
www.himsintl.com

Braille Edge 40

Braille eMotion

BrailleSense 6

BrailleSense 6 Mini

BrailleSense Polaris

BrailleSense Polaris Mini

BrailleSense U2 32 (Braille or qwerty input)

BrailleSense U2 Mini 18

QBraille XL

HumanWare
www.humanware.com

BrailleNote Apex 18 (Braille or qwerty input)

BrailleNote Apex 32 (Braille or qwerty input)

BrailleNote Touch 18

BrailleNote Touch 32

BrailleNote Touch Plus 18

BrailleNote Touch Plus 32

Brailliant BI14

Brailliant Bi 32

Brailliant Bi 40

Brailliant BI X 20 (often known as Chameleon from APH)

Brailliant BI X 40

Mantis Q40

Monarch Multi-Line Device, (see also APH)

Inside Vision
www.insidevision.fr

InsideOne

National Braille Press, (NBP)
https://www.nbp.org/ic/nbp/technology/brailleme.html?from_search=1

BrailleMe

Optelec
www.optelec.co.uk

Alva BC640 Comfort

EasyLink 12 Touch

Orbit Research
https://www.orbitresearch.com/

Graphiti Interactive Tactile Graphics Display, (see also American Printing House, APH)

Orbit Reader 20

Orbit Reader 20+

Orbit Reader 40

Orbit Reader Q20

Orbit Reader Q40

Orbit Reader Slate 340

Orbit Reader Slate 520

Papenmeier
www.papenmeier.de

Braillex EL40C

Braillex Live 20

Braillex Live 40

Braillex Live+

SeikaBraille
www.seikabraille.com

Seika Mini 16

Visio-Braille
https://www.visiobraille.com/

VarioUltra 20

VarioUltra 40

Appendix Three: Useful Braille And Product Resources

Below is a list of useful Braille Resources where you can obtain software to translate text into Braille for reading on a Braille display, have your text translated into Braille online, listen to a podcast dealing with Braille, or buy Braille display cases. Also remember that there are many companies around the world offering Braille training, Braille translation, Braille greeting cards, Braille jewellery, and other services too numerous to list here.

BrailleBlaster: a free Braille translation program for PC and Mac

www.brailleblaster.org

BrailleCast: a regular podcast and much, much more

www.braillecast.com

Braillists Forum: an Email list and much more dedicated to Braille

https://braillists.org/forum/

Braille Maker: a paid-for and well respected software package

www.braillemaker.com

Braille Translator: a website where you can have Braille translated online free of charge

www.brailletranslator.org

BRLTTY: software that can be used with Braille displays under several operating systems including Windows, Linux and Android

https://brltty.app

Dolphin Easy Converter: paid-for software that allows the conversion of several formats into Braille

https://yourdolphin.com/en-gb/products/organisation/easyconverter

Duxbury Braille Translation: a paid-for and well respected piece of Braille translation software

www.duxburysystems.com

Index Braille: the home of Braille embossers and free translation program

www.indexbraille.com

Liblouis: a free Braille translation program

www.liblouis.org

RoboBraille: a free online service for converting documents into Braille which you receive via Email

http://www.robobraille.org

SendToBraille: a free program that lets you convert a file into “dirty Braille”

https://tech.aph.org/lt/

Turtleback Low Vision Products

https://turtlebacklv.com/