

# Connect Braille



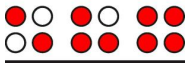
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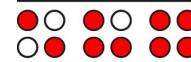
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## Table of Contents

<b>1</b>	<b>GENERAL</b>	<b>5</b>
1.1	Preface	5
1.2	Connect Braille at a Glance	5
1.3	Conventions Used in This Manual	6
<b>2</b>	<b>INSTALLATION</b>	<b>7</b>
2.1	Package Contents	7
2.2	Software Installation	7
2.3	Connecting the Power Supply	8
2.4	Connecting the Interface Cable	9
2.5	Connecting an external USB keyboard	9
2.6	The Carrying Case	10
2.7	Installation of the Bluetooth Tie-In	10
2.7.1	Bluetooth-PC Tie-In	10
2.7.2	Bluetooth Apple iOS Device Tie-In	11
2.7.3	Bluetooth-Android Device Tie-In	11
2.8	Technical Specifications	12
<b>3</b>	<b>START-UP</b>	<b>13</b>
3.1	Version Information	13
3.2	Turning the Power On	13
3.3	Basic Operation	13
3.3.1	Chords	13
3.3.2	Signal Tones	13
3.3.3	System Messages	14
3.3.4	Check Boxes	14
3.3.5	Radio Buttons (1 of x)	15
3.3.6	Energy Saving Features	15
3.3.7	The SAVE Mode	15
<b>4</b>	<b>THE CONNECT BRAILLE AS BRAILLE DISPLAY</b>	<b>16</b>
<b>5</b>	<b>OPERATION OF THE CONNECT BRAILLE</b>	<b>17</b>
5.1	The Menu System	17
5.1.1	PC mode (P)	17
5.1.2	Braille character sets (B)	17
5.1.2.1	Creating a Braille Character Set	17
5.1.2.2	Loading Braille Character Sets	18
5.1.2.3	Selecting and Activating Braille Tables	18
5.1.2.4	Delete selected braille set (D)	19
5.1.3	Info (I)	19
5.1.3.1	Battery statistics (B)	19
5.1.3.2	Keyboard layout (K)	20
5.1.3.3	Serial number (S)	21
5.1.3.4	Versions (V)	21
5.1.4	Options (O)	21
5.1.4.1	6 dots braille (6)	21
5.1.4.2	Hotkeys Activate objects (A)	21
5.1.4.3	Highlight hotkeys (H)	22
5.1.4.4	Tone signals (T)	22



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5.1.4.5	dot firmness (F)	22
5.1.4.6	standby (N)	22
5.1.4.7	Language	23
5.1.4.8	Restore factory defaults (R)	23
<b>5.2</b>	<b>Controlling the PC from the Connect Braille's Keyboard [SPC+1 2 7] (Chord B)</b>	<b>24</b>
5.2.1	Table of Key Commands for Controlling the PC	24
<b>6</b>	<b>EXTERNAL KEYBOARD</b>	<b>27</b>
<b>6.1</b>	<b>General</b>	<b>27</b>
<b>6.2</b>	<b>Keyboard Keys</b>	<b>27</b>
6.2.1	Alphanumerical Character Inputs	28
6.2.2	Numerical Pad	28
6.2.3	Function Keys	28
6.2.4	Navigation Keys	28
6.2.5	Special Keys	28
6.2.6	Status Indicators	28
<b>7</b>	<b>OPERATION OF SCREEN READERS</b>	<b>29</b>
<b>7.1</b>	<b>Screen reader using Windows, Example Window-Eyes</b>	<b>29</b>
7.1.1	Overview	29
<b>7.2</b>	<b>Screen readers using Windows, Example JAWS</b>	<b>30</b>
7.2.1	Overview	31
<b>7.3</b>	<b>Screen reader using Windows, Example Hal/SuperNova</b>	<b>33</b>
7.3.1	Overview	33
<b>7.4</b>	<b>VoiceOver: Screen reader for Apple iOS Devices</b>	<b>35</b>
<b>8</b>	<b>OPERATION SETTINGS FOR HANDY TECH BRAILLE DISPLAYS</b>	<b>37</b>
<b>8.1</b>	<b>Connection</b>	<b>37</b>
<b>8.2</b>	<b>ATC</b>	<b>38</b>
<b>8.3</b>	<b>Status Cells</b>	<b>38</b>
<b>8.4</b>	<b>Key Actions</b>	<b>39</b>
8.4.1	Key Lock	39
8.4.2	Fast Keys	39
8.4.3	Repeat Keys	39
<b>8.5</b>	<b>Miscellaneous</b>	<b>40</b>
<b>8.6</b>	<b>Info</b>	<b>40</b>
<b>9</b>	<b>BATTERY MANAGEMENT</b>	<b>41</b>
<b>9.1</b>	<b>Types of Batteries</b>	<b>41</b>
<b>9.2</b>	<b>Battery Charging</b>	<b>41</b>
<b>9.3</b>	<b>Battery Capacity Display</b>	<b>42</b>
<b>9.4</b>	<b>Automatic Recognition of Low Voltage</b>	<b>42</b>
<b>9.5</b>	<b>Replacing the Batteries</b>	<b>42</b>
<b>10</b>	<b>IMPORTANT INFORMATION</b>	<b>44</b>
<b>10.1</b>	<b>Symbols</b>	<b>44</b>
<b>10.2</b>	<b>Safety Information under the Standards for Medical Devices</b>	<b>44</b>
<b>10.3</b>	<b>General Safety Information</b>	<b>44</b>
<b>10.4</b>	<b>Handling the Connect Braille</b>	<b>45</b>
<b>10.5</b>	<b>Warranty</b>	<b>46</b>
<b>10.6</b>	<b>Technical Support</b>	<b>46</b>
<b>11</b>	<b>LIST OF KEY COMBINATIONS</b>	<b>48</b>
<b>11.1</b>	<b>Navigating the Menu System</b>	<b>48</b>
<b>11.2</b>	<b>Keys in PC Mode</b>	<b>48</b>



<b>12</b>	<b>ERROR MESSAGES</b>	<b>49</b>
<b>12.1</b>	<b>English Language Error Messages</b>	<b>49</b>
12.1.1	Fatal Errors	49
12.1.2	General Errors	50
12.1.3	Warnings and Messages	50
<b>12.2</b>	<b>Error Messages from the Message File</b>	<b>51</b>
12.2.1	General Messages	51
12.2.2	File System Messages	51
<b>13</b>	<b>COPYRIGHT NOTICE</b>	<b>53</b>



## 1 General

Thank you for choosing the Connect Braille. Connect Braille was designed with the focus on easy and intuitive handling. Please take some time to read the Connect Braille user manual. It will help you to get the most out of every feature provided.

### 1.1 Preface

Before starting Connect Braille for the first time it is important to carefully read the safety instructions regarding the appropriate handling. You will find the safety instructions at the end of this manual.

The Connect Braille comes with wireless *Bluetooth* technology allowing you to control up to three Bluetooth devices, like PC or mobile phone.

To use Connect Braille as a Braille display for a PC (Windows or Linux) an output program called screen reader is needed. It is available from your supplier. The screen reader program NVDA will be provided for free if needed.

If you have any ideas or suggestions to improve our product, please do not hesitate to contact your Handy Tech customer service representative or write to [ideas@helptech.de](mailto:ideas@helptech.de). Your opinion is very important to us.

Enjoy using Connect Braille.

### 1.2 Connect Braille at a Glance

This chapter will help you familiarize yourself with your Connect Braille and its control elements. We recommend keeping the Connect Braille handy, so that you can actively follow the instructions in this chapter.

The two space bars are located at the centre front. In the following description the left space bar is called [SPCL] and the right space bar is called [SPCR]. If either the left or right space bar can be used, they will be called [SPC].

Above the Braille display you can find 8 ergonomic function keys. These function keys are also used for Braille input. They correspond to the usual Braille keyboard layout and are, from the left to the right as follows:

7      3      2      1                      4      5      6      8

Located in the middle of the device are 40 ergonomic Braille display elements with integrated cursor routing keys. The cursor routing (CR) keys which are integrated as part of each Braille cell enable you to place the cursor directly at the text position of this Braille cell.

The Triple Action Keys are to the left and right of and flush with the Braille cells. You can activate the Triple Action keys at the top, in the centre, and at the bottom.

The Triple Action Key functions are:



The left or right Triple Action Key's (Up) position also serves as a reading key to move backward within the text and will be referred to as [TLU] or [TRU] in the list below. The left or right Triple Action Key's (Down) position also serves as a reading key to move forward through the text and are referred to as [TLD] or [TRD] in the list below. In the event of the right as well as the left Triple Action Key (Up) can be pressed, it is called [TU]. If alternatively, the Triple Action Key left or right (Down) can be used, this is called [TD].

The centre position of either the left or right Triple Action Key [TLC] and [TRC] can be used for additional functions.

In the list below, you will find an overview of the symbols used in this manual to represent the Triple Action Key settings:

Left Triple Action Key, up: [TLU]  
 Left Triple Action Key, centre: [TLC]  
 Left Triple Action Key, down: [TLD]

Right Triple Action Key, up: [TRU]  
 Right Triple Action Key, centre: [TRC]  
 Right Triple Action Key, down: [TRD]

If you move along the right side of the housing towards the back, you will first feel the main power button. Located behind the power button is a USB type A port to connect a USB keyboard. Behind the USB type A port is the outlet for the power supply.

On the left side of the device are from the front to the back – another USB type A port to connect a USB keyboard, a slot with a microSD card and a USB type B port to connect a PC. The microSD card is used exclusively for the internal software, this means the internal menu and the Bluetooth functionality. Please do not remove the microSD card at any time from the device while it is on. Data on the card can be damaged. Please turn the Connect Braille off, before you insert or remove the microSD card.

Left on the back side you find a round headphone plug (2.5 mm) to connect a headphone or an external loudspeaker. This headphone jack is for internal tones only, that means it cannot be used for screen reader sounds.

### 1.3 Conventions Used in This Manual

In this manual, the following conventions are used for inputs and outputs on the Connect Braille and on the PC:

Single keystrokes on Connect Braille:	[Key1] e.g. [TLU]
Key/dot combination on Connect Braille:	[SPC + 1 2]
Display on the Connect Braille modules:	<b>'Display Text'</b> such as <b>'File'</b>

Single keystrokes on PC:	{Key}, e.g., {ENTER}
Text input on PC:	{input text}, e.g., {HTCOM}
Text output on PC:	"output text" such as "Done"



## 2 Installation

This section contains helpful information about how to install your Connect Braille. Please read it carefully to prevent difficulties while setting up.

### 2.1 Package Contents

Please verify that your package contains all of the parts listed below. If one of the components is missing or damaged, please contact us in order to request the missing part or a replacement.

You should find enclosed the following:

- Connect Braille
- Carrying case
- 2 USB cables (one short, one long)
- Power supply with power cable to be connected to Connect Braille (100 to 240 Volt AC; 9 Volt DC / 1,5 A; FW 7555M/09)
- Set of 4 NiMH batteries (already inserted)
- Software Package with drivers for screen readers (USB StartStick)
- User manual (USB StartStick)
- Quick Reference in Braille

### 2.2 Software Installation

In order to use the Connect Braille as a Braille display for your computer, you need the corresponding Braille display driver for your screen reader.

To install the required software, plug the included USB memory stick with the inscription StartStick into a free USB port on your PC. The StartStick with the HTStart program contains all the relevant drivers and documents that you need to operate your Handy Tech Braille display. In addition, it contains the free NVDA screen reader, so that you can operate the PC immediately, even if no screen reader (Window-Eyes, JAWS or Supernova) is installed.

After plugging the StartStick into your PC, run the start.exe program from the root directory. If a screen reader is already installed, it is available for use. Otherwise, the supplied screen reader NVDA provides access via speech output and Braille support.

HTStart recognizes which Handy Tech display is connected to your PC and automatically makes the pre-selection for the installation of all the necessary drivers and software components. Depending on the security settings of your operating system, you may be prompted to allow the execution of the program HTStart. To enable HTStart to determine and display the installed screen reader, your consent is required. Please allow the execution of HTStart because otherwise the use of the program is not possible.

Once you have selected a screen reader, the HTStart window appears in which all supported Handy Tech products are listed. The national language is pre-selected based



on your Windows settings. However, in the selection list, you can select another language. In the product list you find the manuals in the selected language. If the manual in the selected language is not available, the English manual appears instead. In order to install drivers, choose "Software installation".

You can choose the following components of the software, to be installed:

- Connect Braille Firmware: for updating the internal functions of your Connect Braille.
- Connect Braille user manual: this user manual.
- Window-Eyes driver: latest Braille display driver for Window-Eyes
- JAWS driver: latest Braille display driver for JAWS for Windows
- HAL/Supernova driver: latest Braille display driver for HAL/Supernova

We recommend that you use the default setting for the installation. All required software components will be installed. After completion of the installation program you will find a group named "Handy Tech" in programs in the start menu. Here you find the following subfolders:

- BrailleDriver: here you find the key settings of your Connect Braille for your screen reader and you can change the driver's settings.
- Connect Braille: Here you find this user manual and one or more folders for firmware updates. These folders are named by the software version of the included firmware.

After installing successfully, you can hook on your Connect Braille on to your computer. In the installation folder of your Connect Braille firmware you will find the following subfolders (when installed completely):

- Braille tables: contains the various Braille character sets for different Country versions.
- Firmware: contains four files for the internal programming of your Connect Braille as well as system files.
- Manuals: includes this user manual and important information
- KeyboardLayouts: contains different keyboard files for different countries.
- Uninstall: contains the uninstall program for this software.

## 2.3 Connecting the Power Supply

The power supply included in your package is used to recharge the batteries and for providing power to the Connect Braille. The Connect Braille can be used without restrictions even while the batteries are recharging.

When connecting the power supply, please plug the round, thin plug into the power supply port behind the USB Type A port on the right side of the housing first. You can feel the plug snapping into place. Now you can connect the power supply to an easily accessible wall outlet. When disconnecting the power supply cable, please reverse the order of steps above. When connecting the power supply cable while the device is off, you get the message '**Battery quick charging**' and the Connect Braille turns off again.

If you plug in the power supply while the Connect Braille is switched on, a signal tone indicates that the device runs no longer on Batteries.





### WARNING:

Should you decide to use non-rechargeable batteries in the Connect Braille for any reason, you must remove these from the device before connecting the Connect Braille to a power outlet via the power supply cable. The integrated charging circuitry cannot recognize whether the batteries are rechargeable or not and will try to recharge the batteries. This can result in the batteries bursting, which may not only damage the device, but could also be hazardous to your health.

If you are not sure whether the batteries you are using are rechargeable or not, you can recognize rechargeable batteries by an indentation in the casing near the top button (plus pole).

## 2.4 Connecting the Interface Cable

Your Connect Braille can communicate with the PC via USB interface, or through the wireless Bluetooth interface. If the Connect Braille is used as a medical device, the connected PC needs to comply with the medical device directive or needed to be additional grounded or needs to be connected via a separating transformation.

Please make sure, that you have installed the enclosed software package, as described in chapter 2.2 before you connect the USB cable.

To connect the Braille display to the PC via the USB interface, please identify the enclosed USB interface cable first. The USB interface cable features a small, almost square plug on one end. The other end features a small, flat plug. Now plug the square plug into the leftmost port on the left side of your Connect Braille. The flat plug is then plugged into the PC's USB port.

When both the Braille display and the PC have been turned on, the Braille display will automatically be recognized by USB enabled operating systems. The Connect Braille displays "USB connection selected" which informs the user that it is ready for USB operation. When connecting the USB cable while the device is off, you get the message '**Battery charging**' and the Connect Braille turns off again.

### WARNING:

Should you decide to use non-rechargeable batteries in the Connect Braille for any reason, you must remove these from the device before connecting the Connect Braille to a PC via the USB cable. The integrated charging circuitry cannot recognize whether the batteries are rechargeable or not and will try to recharge the batteries. This can result in the batteries bursting, which may not only damage the device, but could also be hazardous to your health.

If you are not sure whether the batteries you are using are rechargeable or not, you can recognize rechargeable batteries by an indentation in the casing near the top button (plus pole).

## 2.5 Connecting an external USB keyboard

You can also connect a standard USB keyboard to your Connect Braille. Therefore, plug in the USB cable of the USB keyboard in the right or left USB Type A port of the Connect Braille. For more information please refer to chapter 6 External Keyboard.



## 2.6 The Carrying Case

On the right and left side of the case are openings for the power cable, the USB interfaces and the main power button, so that the Connect Braille can be operated inside its case. These outlets are protected by a Velcro fastened cover, which can be flipped upwards. To completely open the carrying case, also open the Velcro fastener on the bottom.

All of the control elements are now accessible. If you open the two Velcro fasteners at the right and left back side, the Connect Braille can be pulled out backwards of the case.

When you replace the Connect Braille in the carrying case, please make sure that the sides of the case fully enclose the Connect Braille, and that the Velcro fasteners are proper closed, because otherwise the Connect Braille could fall out when the case is opened.

## 2.7 Installation of the Bluetooth Tie-In

Because your Connect Braille features a Bluetooth transmission module, you can also establish a wireless connection between the Connect Braille and three different devices at the same time (e.g. computer, smart phone, tablet), if they are equipped with wireless Bluetooth technology. The Connect Braille automatically switches to the currently active data source, i.e. to one of the up to three Bluetooth connections that was last active, or to the USB connection to the PC. When switching, the Bluetooth device name is displayed, if available. Otherwise "Bluetooth device" will be displayed, followed by a number from 1 to 3.

You can manually circle between the USB port and the three Bluetooth ports by pressing [SPC + 4 5 8]. If there is no or only one active connection, you cannot switch. When plug-in an USB cable into a PC, it switches automatically to the USB connection.

Bluetooth is automatically active when you turn on the Connect Braille. If you do not set up a Bluetooth connection within 15 minutes, the Bluetooth interface automatically turns off. When the Connect Braille wakes up from sleep mode, Bluetooth will be on again for 15 minutes. The wireless transmission radius is approximately 10 meters (10 yards or 33 feet).

### 2.7.1 Bluetooth-PC Tie-In

1. Please make sure, that the Connect Braille is switched on and Bluetooth is enabled. For this purpose, it may be necessary to switch the device off and on again.
2. Select "Bluetooth Devices" from the control panel or from your system tray and press the context menu key.
3. Select the "new device/connection" item.
4. "Add Bluetooth Device Wizard" will appear.
5. All detected Bluetooth devices will be listed. Select the Connect Braille named "Active Braille AB4xxx" from the list and press "Next".
6. Normally the PC will create a pairing code which you accept by pressing "Next".
7. Now the pairing will be done, and the needed drivers will be installed. Please wait a moment. Please confirm by pressing "Finish". The Connect Braille is ready to use when all the needed drivers have been successfully installed.

Your Connect Braille now has a wireless connection to the PC, and you can utilize all of its functions, as if it were connected via the USB cable.

Note: If you move the Connect Braille beyond the Bluetooth connection's communications radius (10 meters/yards), the connection to the PC will be interrupted. The connection will automatically be re-established by Handy Tech's Braille device driver once you move back within range. For this you need to have installed the latest Braille display driver (see chapter 2.2).

### 2.7.2 Bluetooth Apple iOS Device Tie-In

Mobile Apple devices, such as the iPhone or iPad, include a screen reader by default, which enables blind people to operate the devices by speech and Braille output. In order to connect the Connect Braille via Bluetooth with an Apple device, you have to activate VoiceOver first. Please follow these steps:

1. Please make sure that the Connect Braille is turned on and Bluetooth is enabled. For this purpose, it may be necessary to switch the device off and on again.
2. Open "Settings" on the home screen of your iOS device.
3. Choose „Accessibility from the „General“ page.
4. Turn VoiceOver on.
5. Choose "Braille" on the Accessibility page.
6. If Bluetooth is off, the iOS device will remind you and you should turn it on now.
7. The iOS device is now searching for Bluetooth Braille displays. Please choose the Connect Braille named "Active Braille AB4xxx" from the list.
8. The iOS device will show a 6-digit pairing code, which must be confirmed.
9. The Bluetooth connection will be established, and you can read the text from the iOS device on the Braille display.

Note: if the Bluetooth connection was interrupted because the Connect Braille or the Apple device was turned off or in sleep mode, please activate the Connect Braille first. The connection will be re-established automatically, when turning on the Apple device.

We recommend setting the Accessibility Shortcut (3 time pressing the home key) to VoiceOver. To define the Accessibility Shortcut, go to settings / general / Accessibility all the way down to Accessibility Shortcut.

### 2.7.3 Bluetooth-Android Device Tie-In

Android devices, such as the Samsung Galaxy Sx, include the screen reader TalkBack by default, which enables blind people to operate the devices by speech. This is pre-installed on most Android devices and can be activated under Settings>Accessibility. For Braille support an additional App, called BrailleBack, is needed which you can download and install via Play Store. In order to connect the Connect Braille via Bluetooth with an Android device, please follow these steps:

1. Please make sure that the Connect Braille is turned on and Bluetooth is enabled. For this purpose, it may be necessary to switch the device off and on again.
2. Activate Bluetooth on the Android device and search for new devices.
3. After some seconds, the Connect Braille will be found and listed in the device list, named as "Active Braille AB4xxx".
4. Start the pairing process by double click on the Connect Braille.
5. The Android device will show a 6-digit pairing code, which must be confirmed.



6. If the pairing was successful, you'll hear the message "device connected".
7. Open BrailleBack on the Android device. You can find it under Settings>Accessibility.
8. The Bluetooth connection will be established and you can read the text from the Android device on the Braille display.
9. In the settings of the BrailleBack menu you can find the keyboard help.

Note: if the connection was interrupted because you have turned off or put to sleep mode the Connect Braille and/or the Android device, please turn on/wake up the Connect Braille first.

## 2.8 Technical Specifications

- 40 concave piezoelectric Braille cells
- 40 cursor routing keys
- 2 Triple Action Keys
- 8 function keys
- 2 space keys
- 2 USB Type A port
- 1 USB Type B port
- 1 plug for loudspeaker 2.5 mm
- Battery duration ca. 20 hours; ca. 14 hours for Bluetooth operation
- Quick charge circuitry (less than 3 hours)
- Power: 9 V / 1.3 A
- Measurements: 31.9 cm width, 12.4 cm depth, 2.9 cm high (12.56" width, 4.88" depth, 1.14" high)
- Weight 930 g (2.05 lbs.)

## 3 Start-Up

### 3.1 Version Information

As of this Section, all common characteristics of the Connect Braille will be described. This information applies to firmware Version 1.0 of your Connect Braille.

### 3.2 Turning the Power On

Press the on/off button to turn the Connect Braille on. You can now work independent of a power source, because the batteries are fully charged. You will hear a short, high-pitched beep, and the following start-up message will be displayed on the Braille display:

**'Handy Tech CONNECT BRAILLE 1.0'**

At the end of this string is the version number of the firmware that you are currently working with.

The high-pitched beep, followed by a second lower beep at start-up, indicates that you are now in work mode. As soon as you hear the lower beep, also called start-up sound, you can begin working. Once the screen reader transmits information to the Connect Braille, the power-on message disappears, and the current data is displayed.

Now, before you can finally get started, we would like to familiarize you with some of the basic concepts pertaining to your Connect Braille.

### 3.3 Basic Operation

#### 3.3.1 Chords

The Connect Braille's keyboard is very easy to use. The keystroke functions are not activated until the key is released. If a character is composed by several keys, it will be created after releasing all keys.

In order to make functions available to you which require their own function keys on standard keyboards, while also providing efficiency of operation, we have introduced the so-called chord functions. Chords are letters or Braille dots that are used in combination with the space bar. For example, you can use Chord m [SPC+1 3 4] to open the menu and Chord p [SPC + 1 2 3 4] to go back into PC mode.

With Chord Commands it is enough to release one key in order to activate the function. When entering characters all keys need to be released.

You will find a list of all available key combinations in chapter 11.

#### 3.3.2 Signal Tones

The Connect Braille utilizes various signal tones to indicate its status or to alert you to prompts or possible errors.



1. Start-up sound: This is a low tone which sounds during start-up. If the start-up sound is preceded by a very short, high tone, followed by a pause, then the Connect Braille is in work mode.
2. Warning signal: This consists of two rapid, consecutive tones and may sound, for example, when you have reached the bottom of the menu and try to go down.
3. Error signal: This is a series of warning signals, which may be emitted, for example, if no microSD card is inserted.

**Note:** You can specify which types of acoustic signals you want the Connect Braille to emit (see chapter 5.1.4 and 5.1.4.4). In this manual, the assumption is that this setting is set to **'action Confirmations'**. This is also the factory default.

### 3.3.3 System Messages

The Connect Braille will display messages to indicate the successful completion of an operation or to alert you to possible operating errors. If the message is an error message or if it is an important message, a beep will also sound. We recommend carefully reviewing these messages before continuing with your work. They frequently contain instructions on how to proceed.

Most error messages will be in your local language however, there are some system messages that are only provided in English. In regard to these messages, all messages beginning with **'fatal'**, **'fer:'**, **'error'** or **'wrn:'** should be attended to.

After you have read the message, you can exit by pressing [TLC], which in most cases will return you to the place from which the message was initiated. If the message text does not fit on the Braille display, you can scroll through it by means of the [TD] and [TU] keys. In chapter 12 you will find a list of the most important messages with explanations.

### 3.3.4 Check Boxes

Check boxes are switches that can be in either an "on" or "off" state. A check box consists of a symbol indicating its state, and a designation. The symbol "[X]" indicates that the check box is "on", or active, whereas "[ ]" is an inactive, or "off" check box.

Toggling the state of the check box between on and off is accomplished by pressing [SPC] or [TRC]: the state is toggled upon each keystroke. Alternatively, you can also press the cursor routing key above the check box to toggle it. As soon as you move on to a new menu item, the last state indicated by the check box remains in force. However, the settings are not permanently saved until the **'Options'** menu is closed.

Check boxes are used for controlling your Connect Braille's functions and are found in the Options menu. For example, you can choose either 6 dot or 8 dot Braille this way.

Note:

If the Connect Braille is turned off without having closed the Options menu, the last changes to be entered will be lost. The new settings are saved only upon exiting the Options menu!



### 3.3.5 Radio Buttons (1 of x)

Radio buttons are similar to incremental dials, e.g., from 0 to 10. They are groups of buttons that can be set to either an on or off state, of which only one can be selected at any given time.

A radio button consists of a symbol indicating its state, and a designation. The symbol "(X)" indicates that the button is active, whereas "( )" represents an inactive, or "off" button. A radio button is selected by pressing [SPC] or [TRC]. Alternatively, you can also press the cursor routing key above the radio button to toggle it. An example is the frequency setting for acoustic alerts, which can be set to one of several levels.

Note:

As noted above, any new settings are saved only upon exiting the Options menu!

### 3.3.6 Energy Saving Features

Since the Connect Braille is battery operated, it is designed specifically for efficiency in energy consumption. Whenever possible, various components of the Connect Braille are deactivated in order to conserve energy.

If no key is pressed on the Connect Braille or the Braille display doesn't change for several minutes, it will enter sleep mode. In sleep mode, the Braille display is turned off and some of the electronic modules are also deactivated. As soon as any key is pressed, the Connect Braille "wakes up" within a fraction of a second and will be fully operational. You will recognize this because the tactile pins will be pushed backup.

Further explanations concerning the set-up of the energy saving features are contained in chapter 5.1.4.6 standby (N)

### 3.3.7 The SAVE Mode

In SAVE Mode, the Connect Braille can only be operated via USB. The SAVE Mode is comparable to the save mode in Windows. To get into SAVE Mode, press the on/off Button for more than 5 seconds or take out the microSD card before turning the unit on. Instead of the start-up sound you will hear a different sound, and on the Braille display you can read:

**'Handy Tech CONNECT BRAILLE Save Mode 1.3'**

The number at the end of the string is the version of the Save Mode. To get back into work mode, just switch the Connect Braille off/on again.



## 4 The Connect Braille as Braille Display

In order to operate the Connect Braille as a Braille display under Windows, you need a special program called a screen reader to control the display, which is not included with the Connect Braille itself. To use the Connect Braille as a Braille display, connect the USB cable to the USB port on your PC or use the wireless Bluetooth connection.

Please make sure that your Connect Braille is properly connected and switched on before starting up the screen reader program, because otherwise the screen reader will not be able to detect it. As a rule, the screen reader will display the selected position within the active window on the Braille display. For example, if you are moving through a menu, the selected menu item is displayed. The reading keys [TD] and [TU] allow you to move through text. In word processing programs such as Microsoft Word, you can also position the cursor with the cursor routing keys. In addition, the [CR] keys will also allow you to activate menu items or functions directly (e.g. when you are prompted for a yes or no answer with 'Y/N', pressing the [CR] key above the "y" has the same effect as entering "y").

The screen reader program converts the text and graphic contents of the Windows screen into speech and Braille. Generally, the computer's built-in sound card is employed for the speech output function. The display of Braille is achieved with the help of your Connect Braille, after the screen display information has been forwarded from the screen reader to the Braille display. All standard screen readers are compatible with Handy Tech's Connect Braille. During the installation of the screen reader software, all you need to do is to select Handy Tech. The Braille display then automatically adjusts correctly to your Connect Braille.

When starting your screen reader the first time, a small start-up window appears which displays the name of the Braille system detected by the program, the interface used for communication, and the country currently selected. The various screen reader program functions are assigned to specific keys on your Connect Braille. How to operate your Connect Braille as a Braille display using Window-Eyes for Windows is described in Section 7.1. A summary of the essential functions of JAWS can be found in Section 7.2 and for Hal/SuperNova in Section 7.3.





## 5 Operation of the Connect Braille

### 5.1 The Menu System

The menu system is structured hierarchically, containing submenus and functions. You can open the menu by pressing [SPC + 1 3 4] (Chord m).

In addition to the keys described in chapter 11, there are also shortcut keys, known as "hotkeys." These permit direct access to menu items within a menu level, without having to navigate clumsily through the entire menu with [TD] and [TU]. A hotkey is one letter of the menu item. It is spelled as a capital letter, but it may also have additional emphasis added. Not only submenus, but functions and check boxes as well may be activated using hotkeys. Furthermore, you can configure your Connect Braille such that these objects are not only selected, but also activated by pressing the hotkey.

In the following sections, the menu items as well as their sub-items are described in detail, with the hotkeys enclosed in round brackets. If there is no letter indicated within brackets, then there is currently no hotkey available for that menu item.

Please note:

The hotkeys permit instant access to items within the same menu level; they do not let you move from one menu level to another. Therefore, you cannot access, e.g., the battery voltage indicator from inside the File menu, instead, you have to return to the main menu first then navigate via hotkeys through the menu levels until you have reached the menu item Voltage.

#### 5.1.1 PC mode (P)

This menu command activates Braille display mode. During the start-up of the screen reader program, the PC mode is activated automatically. Activating PC Mode via the menu is necessary only if you have previously switched from PC Mode into menu mode with [SPC+1 3 4] (Chord m).

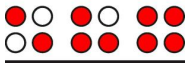
Please note that you must press the (SPC+1 3 4) keys for about one half second in order to return to menu mode from PC mode. A quiet clicking sound will indicate that you have returned to menu mode.

#### 5.1.2 Braille character sets (B)

This section discusses the creation, loading and activation of Braille character sets. In addition to the default character set of the current system language, nine other character sets may be loaded into the Connect Braille.

##### 5.1.2.1 Creating a Braille Character Set

The easiest way to create a custom Braille character set is to modify an existing character set. You will find several Braille character sets on the media delivered with the Connect Braille. For easier orientation, a subdirectory called "Brailletables" is created during installation, which contains the character sets.



For example, if you wanted to edit the `ibm437` character set and store it as a new, customized character set, you would open the text editor supplied with Windows by selecting "Execute" from the Start menu, and then entering "Notepad" followed by {Enter}. Once the text editor is open, you can open an editable version of the `ibm437.asc` file by activating the menu item "Open" from the File menu. More detailed information is contained in your Operating System Manual.

The file `ibm437.asc` will open and can be edited. Please do not modify the file structure, but you may change the Braille characters as desired. The Braille dot combinations are given as their number equivalents on each line, along with the designation of the character. However, the first line in the file contains a description of the character set in that file. The characters are in ASCII character order. You can modify the dot combinations for any character by changing the numbers. For example, if you want to represent the digit 4 with dots 2 3 5 instead of dots 1 4 5 6, you would change the numbers 1 4 5 6 to 2 3 5. Please note that at least one space must be entered between the dot combinations and any comments, because otherwise the conversion of the Braille table while transferring it to the Connect Braille may fail.

When you have finished changing characters, you can save the modifications under a new name.

### 5.1.2.2 Loading Braille Character Sets

As mentioned above, nine additional Braille tables can be loaded into the Connect Braille in addition to the default character set. For example, if you have created a table under the designation `Mytable.asc`, you can load it into the Connect Braille with the HTCom program (StartStick). Start-up HTCom and activate "Load Braille Table." A dialog enables you to specify the character set to be transferred by selecting or entering the name. After pressing the {Enter} key you can specify the Braille table slot where you want the table to be saved. Pressing the {Enter} key again will initiate the file transfer.

### 5.1.2.3 Selecting and Activating Braille Tables

Once you have activated the menu item '**Braille character sets**' on the Connect Braille, you can select a character set and activate it by pressing [TRC]. The Connect Braille contains only the standard character set of the current system language as shipped. Foreign language versions of the Connect Braille (e.g., Swedish, French etc.) also provide character sets for those languages. An X enclosed by square brackets indicates which character set is active. The menu consists of the following items:

[X] Standard character set: The default character set, which is always available.

Character set (1): [empty]

to

Character set (9): [empty]: Positions for the nine additional loadable character sets.

The designation [empty] shows that there is currently no character set stored at this position. If a character set has been downloaded, a name appears instead of [empty], listing the file name under which the character set was loaded into the Connect Braille.

If you attempt to activate an empty slot, the Connect Braille will respond with the message: '**Braille set n is empty**', where n is the number of the currently selected character set.



If the selected character set exists, it will be activated immediately, and you will be returned to the main menu, menu item **'Braille character sets'**. The character set has already been switched.

**Note:**

When using a custom character set, it is possible that messages or menu items suddenly become partially or entirely unreadable. This may be due to one of the following causes:

- The Braille character assignments in the custom character set do not correspond to the assignments in the character set used for generating messages.
- A custom character set contains errors. For example, if you have deleted a line in a character table, the table no longer consists of 256 definitions. This causes all character definitions following the deleted line to be moved up by one character. This could cause the word "info," for example, to turn into "jmen".

If you cannot read the Connect Braille's messages at all, you have the following options:

1. Use the communications program HTCom's Monitor Mode. Under Monitor Mode, the output is not affected by the Braille character set selected on the Connect Braille. With the assistance of a sighted person or your screen reader's speech output, you can monitor the output from the Connect Braille on the PC screen and restore the standard character set. Switching into Monitor Mode is possible only if the screen reader's access to the Braille display has been deactivated.
2. Create a situation where you are back in the main menu, so that you can navigate from there to the menu item **'Braille character sets'** by using the [TD] key. If you are sure that you are somewhere in the menu system, you can simply press the [TLC] key several times, and then [TD] exactly five times. Then press [TRC], which opens the submenu. Pressing [TRC] again will activate the default character set.

### 5.1.2.4 Delete selected braille set (D)

If the loadable character set feature is used extensively, all slots will eventually be filled. In order to delete a given Braille character set, please proceed as described below:

1. Activate the character set to be deleted in the menu item **'Braille character sets'**.
2. Open **'Braille character sets'** again and move through it to the end.

You will arrive at the menu item **'Delete selected braille set'**. Once you have activated this command, you will be asked whether you really want to delete the character set. If you answer "Yes" the character set selected in the previous step will be deleted, and the default character set will be activated.

### 5.1.3 Info (I)

You can check the remaining charge and status of the batteries in the **'Info'** menu. You can also check the firmware version and serial number and determine the configuration of the external keyboard.

#### 5.1.3.1 Battery statistics (B)

This menu provides various data regarding the batteries contained in your Connect Braille. It consists of the three functions described below.



Please note that the values displayed by these functions are not updated dynamically. You should close them by pressing [TLC] and reactivate them with [TRC] in order to display updated information.

### 5.1.3.1.1 Capacity (C)

Here you can check the charging state of the batteries indicated by one of the five following values:

- Fully charged: The batteries are 100% charged.
- High: Much more than 50% battery charge remaining.
- Medium: About 50% battery charge remaining.
- Low: The battery charge is low but still sufficient. We recommend plugging in the charger.
- Empty: The battery charge is almost empty, a warning sound appears. Please plug in the charger immediately.

### 5.1.3.1.2 Voltage (V)

This menu item provides information on the voltage remaining in the batteries. The voltage of fully charged batteries is approximately 5.6 V. If battery voltage falls below ca. 4.0 V, the Connect Braille turns itself off. You can thus use Voltage to estimate your batteries' status. We recommend replacing the rechargeable batteries if you notice the voltage decreasing unusually rapidly after having used them for some time.

### 5.1.3.1.3 Status (S)

This function displays the battery status. This can be one of the following values:

'**Running on battery**': The Connect Braille receives its power from the batteries, which are being discharged.

'**Fast charging**': the batteries are receiving a high recharge voltage for fast charging from the power supply.

'**charging**': the batteries are only receiving a maintenance charge.

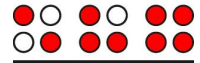
'**On USB power**': Connect Braille is connected via USB with the PC. There is no charging or discharging of the batteries. The power is provided by the USB interface.

'**On power supply**': The power supply is plugged in and connected. There is no charging or discharging of the batteries. The power is provided by the power outlet.

In order to recharge the batteries, simply connect the included power supply to a power outlet. The batteries will recharge in two to three hours. Recharging occurs entirely automatically — it is not possible to overcharge the batteries. The Connect Braille automatically switches from initially high recharging voltage to a very low charge just to maintain a full charge.

### 5.1.3.2 Keyboard layout (K)

This function displays the language currently implemented on the Connect Braille via the keyboard layout table. Keyboard tables are available for several languages, and the included Keyboard Layout Compiler (BKC) can be used to create custom key assignments.



### 5.1.3.3 Serial number (S)

With this function you can check the serial number of your Connect Braille. This can be useful for service purposes.

### 5.1.3.4 Versions (V)

Here you can check the versions of several software modules of the Connect Braille.

#### 5.1.3.4.1 Firmware

You can use this function to display the version number of the firmware. This is the same version number that is displayed when you power up your Connect Braille.

#### 5.1.3.4.2 Braille io

This module handles the Braille input/output.

#### 5.1.3.4.3 USB Host

This module controls the connection of USB devices. At the moment only USB keyboards are supported.

#### 5.1.3.4.4 Bluetooth

This module deals with the wireless communication via Bluetooth.

### 5.1.4 Options (O)

The options described below are used for customizing your Connect Braille's features. The various options are specified by using check boxes or radio buttons contained in the submenus. You can review additional information regarding check boxes and radio buttons in chapter 3.3.4 and 3.3.5. Entries, which lead to a sub menu are marked with an angle bracket at the end.

The Options menu is closed as usual by pressing [TLC]. Closing the menu will automatically save the new settings, so that they will still be in force even when the device is turned off and then on again. The saving process is usually completed in less than one second.

#### 5.1.4.1 6 dots braille (6)

This option allows you to toggle between 8 dot Braille (computer Braille) and 6 dot Braille. The 6 dot representation suppresses dots 7 and 8. Even if you enter text in 8 dot Braille, e.g., for capitalization, your entries will be saved correctly.

#### 5.1.4.2 Hotkeys Activate objects (A)

If this option is enabled, menu items can be activated in the relevant menu level via hotkeys. This means:

- sub menus will be opened immediately
- check boxes change their state
- radio buttons will be activated



#### **5.1.4.3 Highlight hotkeys (H)**

When '**Highlight hotkeys**' is active, the hotkeys are highlighted by being enclosed in round brackets, as in the titles in this section. This is useful while you are working in 6 dot Braille or while you are still learning the hotkeys.

#### **5.1.4.4 Tone signals (T)**

The Connect Braille generates a range of sounds in certain operational conditions in order to alert the user unmistakably to successes, errors, or critical situations. Depending upon the user's experience, or the location in which the Connect Braille is being used (e.g., seminar room, commuter train), these sounds may be inconvenient or even annoying. The Connect Braille therefore features various levels of sound outputs.

The tone signal options are provided in the form of radio buttons. One of the four possible settings described below is always active. These signal tone settings apply only within work mode. In SAVE mode all signal tones are turned on.

The various levels listed below apply only as of the Connect Braille's start-up sound. Any errors or warnings during start-up are generally of a more serious nature and will therefore always be indicated.

##### **5.1.4.4.1 None**

The Connect Braille does not emit sounds.

##### **5.1.4.4.2 Errors (E)**

The Connect Braille generates a tone only if an error has occurred. In addition to internal errors, errors could also result from operator mistakes, but these are usually not supported by any message in Braille.

##### **5.1.4.4.3 Warnings (W)**

The Connect Braille generates a tone only in case of errors or warnings.

##### **5.1.4.4.4 action Confirmations (C)**

All signal sounds are turned on. This is default setting.

#### **5.1.4.5 dot firmness (F)**

While reading text, it can be helpful to adjust the dot pressure of the Braille pins to your individual needs. You can choose between the three settings soft, middle and hard. The default setting is middle.

Experienced Braille readers often read the Braille cells with a light touch. Here we recommend using the setting "soft".

You can also adjust the dot firmness within the setting dialog of the Handy Tech Braille driver (see chapter 8.5). Please be aware, that the settings are saved on the device, not on the PC.

#### **5.1.4.6 standby (N)**

With the option standby you can set the time for the activation of the sleep mode. This will save Battery life and lowers power consumption. If you set it off, the Connect Braille will



not shut down. For activation you can choose between 15, 30, 45 or 60 minutes. If you are not working with the Connect Braille or press any button, the Connect Braille will automatically switch off. When pressing any button, the Connect Braille wakes up and you can continue working. No data will be lost when the sleep mode becomes active. The default setting is 15 minutes.

### 5.1.4.7 Language

Hereby you have the possibility to change quickly between different language variations without having to upload the firmware again. Additionally to the menu language, the keyboard layout and - if available - the Braille table will be converted automatically. For some languages, however, only English is available as menu language (code: English menus).

If you accidentally happen to choose a foreign language, which you cannot understand, you can change the language by pressing and holding a letter for 20 seconds while switching the device on:

d for German, e for English, u for US English, n for Norwegian, s for Swedish and f for French.

### 5.1.4.8 Restore factory defaults (R)

By pressing the [TRC] key for this item, factory defaults will be restored for all Options items without prior confirmation.

The default settings are as follows:

6 Dots Braille: off

Hotkeys Activate Objects: off

Highlight Hotkeys: off

Radio button submenu Tone Signals: Action Confirmations

Dot firmness: middle

Standby: 15 minutes

Language: remains unchanged



## 5.2 Controlling the PC from the Connect Braille's Keyboard [SPC+1 2 7] (Chord B)

It is possible to use the Connect Braille's keyboard for inputs to the PC by utilizing the screen reader. Therefore, it is necessary to install the latest Handy Tech Braille display driver for your screen reader, which you can find on the enclosed CD.

You can also activate and deactivate PC control specifically. This is necessary because the Connect Braille's function keys must be available both as input device for the PC and for initiating screen reader functions. The following functionalities are available to you:

- Turning PC control on and off
- Input of characters
- Use of the control key (Ctrl), including for keyboard shortcuts: One example is the copy function, which is implemented on a standard keyboard as a keyboard shortcut consisting of Ctrl+C
- Use of the ALT key, including for keyboard shortcuts: One example is activating the menu bar under Windows programs, or initiating hotkeys
- Initiating the "Windows" and "Context" keys
- Initiating the Enter key
- Initiating the Escape key
- Initiating the Backspace key
- Initiating the Delete key
- Moving the cursor
- Initiating the Pos1 and End keys
- Initiating the Page Up and Page Down keys
- Initiating the Shift key: One example is entering CTRL+Shift+f
- Caps lock, for example in order to select blocks
- Initiating the function keys, including in combination with CTRL, Shift, and ALT. This means it is possible, for example, to close certain windows or entire applications via function keys.

### 5.2.1 Table of Key Commands for Controlling the PC

The key combinations for controlling the PC are listed below in the form of a table. We have included as many combinations as possible; however, if a combination is not shown, it does not mean that it is not possible. All key combinations with [SPC] can either be pressed by [SPCL] or [SPCR].

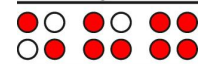
Key combinations are represented by the plus sign (+), e.g., Ctrl+Alt+a. Consecutive key strokes are separated by a comma, e.g., 1, 2 or SPC+2 3 7, z. The cursor routing keys are abbreviated as CR (e.g., CR12 = cursor routing key above Braille module 12).

PC Key(s)	Chord Commands	Emulated on the Connect Braille by
Activate/deactivate PC control	Chord B	SPC + 1 2 7
Backspace	Chord b	SPC + 1 2 or 7
Delete		SPC + 4 5
Paste	Chord i	SPC + 2 4



# Connect Braille

## Operation of the Connect Braille



PC Key(s)	Chord Commands	Emulated on the Connect Braille by
Alt		TRC + SPC
Alt + character		TRC + character
Alt for next character		SPC + 7 8
Activate/deactivate Alt		SPCL + SPCR + 7 8
Enter		8 or TRC
Ctrl + character		TLC + character
Ctrl for next character		SPC + 3 6
Activate/deactivate Ctrl		SPCL + SPCR + 3 6
Tab	Chord t	SPC + 2 3 4 5
Shift + Tab	Chord T	SPC + 2 3 4 5 7
Ctrl + Tab		TLC + SPC + 2 3 4 5
Ctrl + Shift + Tab		TLC + SPC + 2 3 4 5 7
Escape	Chord e	SPC + 1 5 or TLC
Shift + Escape	Chord E	SPC + 1 5 7
Ctrl + Shift + Escape		TLC + SPC + 1 5 7
Shift + character	Chord s	SPC + 2 3 4, character
CapsLock on/off	Chord S	SPC + 2 3 4 7
Cursor keys		Up: SPC + 1, Left: SPC + 7, Down: SPC + 4, Right: SPC + 8
Mark	Chord S	SPC + 2 3 4 7 "holds down" the shift key until SPC + 2 3 4 7 is input again. It is therefore possible to work with all cursor movements, such as Home, End, etc. If you wanted to mark two characters to the right of the cursor, you would enter SPC + 2 3 4 7, SPC+8 (cursor right) twice, and SPC + 2 3 4 7 again
Previous word (Ctrl + Cursor left)		SPC + 3
Next word (Ctrl + Cursor right)		SPC + 6
Page Up		SPC + 2
Page Down		SPC + 5
Ctrl + Page Up		TLC + SPC + 2
Ctrl + Page Down		TLC + SPC + 5
Pos1	Chord k	SPC + 1 3
End		SPC + 4 6
Ctrl + Pos1	Chord l	SPC + 1 2 3
Ctrl + End		SPC + 4 5 6
Function Keys F1 to F12		SPC + CR1 to CR12
Left Windows Key	Chord w	SPC + 2 4 5 6
Context Key	Chord W	SPC + 2 4 5 6 7
Windows Key + character		SPC + 2 4 5 6 8 followed by character
Windows Key blocked/released		SPCL + SPCR + 2 4 5 6 8
PAUSE key	Chord p	SPC + 1 2 3 4



<b>PC Key(s)</b>	<b>Chord Commands</b>	<b>Emulated on the Connect Braille by</b>
Windows key + PAUSE key		SPC + 2 4 5 6 8 followed by SPC + 1 2 3 4
Space		SPCL or SPCR
Screen Reader Key + character		SPC + 2 3 4 8 followed by character
Screen Reader Key blocked/released		SPCL + SPCR + 2 3 4 8



## 6 External Keyboard

An external keyboard may be connected directly to the Connect Braille. Keyboards of any make or model may be used, provided they comply with the following requirements:

- USB connection
- low current consumption (recommended 30 mA with LEDs turned off)

The external keyboard transmits your key strokes to the Connect Braille in the same way as the internal Braille keyboard. You can therefore operate both an external and the internal keyboard in parallel. Please refer to Chapter "Installation" for the procedure for connecting an external keyboard.

Please remember that all the information described in this section applies only to an external keyboard, not to the built-in Braille keyboard.

### 6.1 General

Any keyboard transmits encoded data indicating which key has been pressed or released. These data do not in themselves contain any information about what this key stroke means, i.e., which character it should generate. That information is assigned by the so-called keyboard driver and depends on the desired language. This means, for example, that if a U.S. English keyboard layout has been selected, the character ":" is realized by pressing "Shift ö" on a German keyboard.

Depending on the language (which means on the keyboard layout currently in force), the Connect Braille's keyboard driver needs further information indicating how it is to implement the encoded key stroke information. Therefore, a table for assigning key strokes to characters must be present in the Connect Braille, the keyboard layout table.

When shipped, the Connect Braille contains keyboard layouts for all available system languages. This means, the matching layout of the selected language is automatically used. You can find the keyboard layout files on the SD card in the HTSYS/Language folder. The filename contains the name of the belonging language. For English it is for example "English\_KDBLYOUT.HSF".

If the keyboard layout file for the current language is not found or cannot be loaded, an internal keyboard layout is used, corresponding to the German. In this case, the following warning message is displayed after switching on the Connect Braille:

**'Warning: No keyboard layout file found. Using standard layout.'**

This message appears regardless of whether a keyboard was connected during switch on or not, because you can connect a keyboard even if the Connect Braille is on.

### 6.2 Keyboard Keys

In this section, you will find comments on some characteristics of using an external keyboard. They are generally caused by the fact that there are keys on a keyboard that make no sense when used in conjunction with the Connect Braille.



### 6.2.1 Alphanumerical Character Inputs

There are no special characteristics regarding the input of alphanumerical characters on the central keyboard area.

### 6.2.2 Numerical Pad

The keys on the numerical pad function just like the alphanumerical keys. The NUM key has no function. All keys except Enter can be assigned your desired characters. In the factory provided keyboard layout tables, these keys are assigned numerical meanings.

Alternatively, any desired characters can be implemented by means of the ALT+x function (where x can be any number between 0 and 256). This ALT function is used for generating characters that are not directly accessible on the keyboard layout.

### 6.2.3 Function Keys

The function keys have no function in conjunction with the Connect Braille.

### 6.2.4 Navigation Keys

The term navigation keys refer to the 6-key block as well as the cursor keys located between the main keyboard section and the numerical pad. These keys retain their functions without any restrictions. You should note, however, that the key "POS1" implements the chord command [SPC+1 3], and the key "End" the chord command [SPC+4 6]. If pressed at the same time as the control key (Ctrl), "POS1" executes the command [SPC+1 2 3], while the "End" key executes [SPC+4 5 6].

### 6.2.5 Special Keys

There are several special keys on many keyboards, which are described in detail below. It should be noted that on some keyboards, the right shift key does not work in conjunction with the right Alt key. The left Shift key can be used for these combinations instead.

Shift	Activates the secondary function until the key is released.
ShiftLock / CapsLock	After pressing this key, the secondary functions remain active until the Shift or ShiftLock key is pressed again. All keys are switched to their secondary function, not only the letter keys.
ALT / ALT left	No function. If the key is held down continuously, ASCII codes may be entered via the numerical pad.
ALT Gr / ALT right	Activates the tertiary function until the key is released.
Ctrl	Only remains active until the key is released.
WINDOWS and context menu keys, print, scroll, pause	These keys are not supported and cannot be assigned any functions.

### 6.2.6 Status Indicators

LED status indicators are not used. This circumstance should be pointed out to sighted assistants. If the keyboard reacts in an unfamiliar manner, press the Shift and Control keys to ensure that no undesirable state has been activated.

## 7 Operation of Screen Readers

The Connect Braille is supported by various screen output programs that include drivers for the device, e. g.:

- WINDOW EYES
- JAWS
- HAL (Dolphin Systems)
- NVDA
- VoiceOver
- Blinux (SuSE LINUX)

If these programs are used, all of the Connect Braille's functionality is assured. The current driver for your screen reader can be found on the supplied StartStick.

### 7.1 Screen reader using Windows, Example Window-Eyes

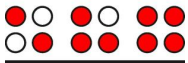
Window-Eyes enables access to all kinds of different applications, without complicated scripts. Window-Eyes is highly customizable, so you can control how to display the monitor information.

When you use Window-Eyes with a Braille display, you can track both the focus as well as the mouse cursor. In addition, there is also an invisible cursor, the so-called WE-cursor. If you bind the Braille display to the WE-cursor, you can move the position of the Braille display relative to the screen without changing the position of either the focus or the mouse cursor.

#### 7.1.1 Overview

Your Connect Braille, just like all the other Handy Tech Braille displays, is supported by Window-Eyes. The following table provides an overview of Window-Eyes commands that can be entered with the control keys on the Braille display. We have not included an exhaustive description of each of the functions, because they are already contained in the Window-Eyes manual.

Control Key/Braille Dot	Function
[7]	Go to focus
[3]	Go to the active window's title bar
[2]	Toggle Braille tracking on/off
[1]	Move Braille display section one line up
[SPCL] or [TU]	Braille display section to the left
[SPCR] or [TD]	Braille display section to the right
[4]	Move Braille display section one line down
[5]	Toggle between Window-Eyes-cursor and mouse cursor
[6]	Go to the active window's status line
[8]	Drag mouse to focus
[7 8]	Specifies whether type of control element will be indicated or not
[3 8]	Toggle Browser Mode on/off
[2 8]	Toggle between 6/8 dot Braille



Control Key/Braille Dot	Function
[1 8]	Handy Tech configuration dialog
[4 8]	Toggle blank spaces
[5 8]	Drag cursor to mouse
[2 3]	Beginning of line
[5 6]	End of line
[6 8]	Toggle Show Attributes on/off
[1 2 3]	Top of file
[4 5 6]	End of file
[5 6 8]	Run through attributes
[TLC]	Tab
[TRC]	Shift +Tab
[SPC + 1 2 7]	Toggle Braille input on/off

By entering letters in Braille, you can in addition input the so-called mnemonic commands that are listed below:

w	[2 4 5 6]	Activate the Window-Eyes settings menu
%	[1 2 3 4 5 6]	Activate the screen reader settings menu (Window-Eyes)
d	[1 4 5]	Desktop minimizes all applications
h	[1 2 5]	Activate Window-Eyes Help
\$	[4 6]	Tab
k	[1 3]	Shift Tab
g	[1 2 4 5]	Grade 2 on/off
m	[1 3 4]	Alternative for activating the menu bar
s	[2 3 4]	Windows Start menu
+	[2 3 5]	Toggle 6/8 dot Braille
=	[2 3 5 6]	System Tray
z	[1 3 5 6]	Announce date and time
c	[1 4]	Ctrl + Tab
C	[1 4 7]	Shift + Ctrl + Tab
e	[1 5]	ESC
?	[2 6]	Enter
v	[1 2 3 6]	Set level of Braille contractions

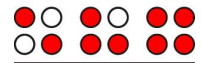
The cursor routing keys (CR) are used to directly place the cursor at that text position.

## 7.2 Screen readers using Windows, Example JAWS

The functionality of JAWS for Windows is so extensive that only the basic functions for operating the Braille display can be described in brief in this section.

The status modules of a Braille display contain important data regarding screen positioning. Since your Connect Braille does not include status modules, you can use [SPCL+SPCR] to toggle between displaying the contents of the screen and the status module display. The first three status elements indicate the cursor's pixel position within the line. The fourth status element indicates which mode is currently active, as follows:

- p for PC cursor



- j for JAWS cursor
- s for structured mode

Dots 7 and 8 of the status elements show the Braille display's position in a window line. Dots 7 and 8 in the status element have the following meanings:

- 1+2+3+4: The entire window line is shown on the Braille display
- 1+2: Left half of the window line
- 3+4: Right half of the window line
- 2+3: There is more text on the left and right in the window line

### 7.2.1 Overview

This table lists all functions associated with the Braille dots and control keys on the Connect Braille. We have not included an exhaustive description of each of the functions, because these are contained in the JAWS for Windows manual.

Control Key/Braille Dot	Function
[7]	Activate PC cursor tracking.
[3]	Display the first line in the window (title).
[2]	Move the Braille display to the left.
[1]	Move the Braille display section one line up without changing the horizontal position.
[SPCL]	If there is any text to the left of the Braille display section, it moves to the left, if not, it moves one line up and moves the cursor.
[SPCR]	If there is any text to the right of the Braille display section, it moves to the right, if not, it moves one line down and moves the cursor.
[4]	Move the Braille display section one line down without changing the horizontal position.
[5]	Move the Braille display to the right.
[6]	Display the last line in the window.
[8]	Drag the JAWS cursor to the PC cursor and activate the JAWS cursor.
[TU]	If there is any text to the left of the Braille display section, it moves to the left, if not, it moves one line up.
[TD]	If there is any text to the right of the Braille display section, it moves to the right, if not, it moves one line down.
[SPCL + SPCR]	Toggle status modules on and off.
[7 8]	Switch between structured mode, section output and speech output.
[3 8]	Change cursor representation (dots 7 and 8, all 8 dots, blinking and non-blinking).
[2 8]	Toggle between 6/8 dot Braille.
[1 8]	Handy Tech configuration dialog (as of Handy Tech JAWS Driver version 3.x)
[4 8]	Toggle between focused text on Braille display/same text as on screen.
[5 8]	Activate the JAWS cursor.



Control Key/Braille Dot	Function
[2 3]	Beginning of line
[5 6]	End of line
[1 2 3]	Top of file
[4 5 6]	End of file
[3 6 7]	Speech interruption on/off
[3 6 7 8]	Output task bar
[TLC]	Tab
[TRC]	Shift + Tab
[TLC + TRC]	Enter
[SPC + 1 2 7]	Toggle Braille input on/off
[SPCL + 1 2 3 7]	If there is any text to the left of the Braille display section, it moves to the left, if not, it moves one line up.
[SPCR + 4 5 6 8]	If there is any text to the right of the Braille display section, it moves to the right, if not, it moves one line down.
[SPCL + SPCR + 1 2 3 7]	Move the Braille display section one line up.
[SPCL + SPCR + 4 5 6 8]	Move the Braille display section one line down.

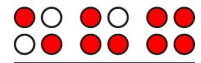
By entering letters in Braille, you can in addition input the so-called mnemonic commands that are listed below:

j	[2 4 5]	Activate the JAWS settings menu
%	[1 2 3 4 5 6]	Activate the screen reader settings menu (JAWS)
d	[1 4 5]	Desktop minimizes all applications
h	[1 2 5]	Activate JAWS Help (paste + F1)
\$	[4 6]	Tab
k	[1 3]	Shift Tab
g	[1 2 4 5]	Grade 2 on/off
m	[1 3 4]	Alternative for activating the menu bar
s	[2 3 4]	Start menu
+	[2 3 5]	Toggle 6/8 dot Braille
=	[2 3 5 6]	System Tray
z	[1 3 5 6]	Announce time
	[3 4]	Status cells on/off
c	[1 4]	Ctrl+Tab
C	[1 4 7]	Shift Ctrl+Tab
e	[1 5]	ESC
?	[2 6]	Enter
b	[1 2]	Braille cursor tracking on/off
f	[1 2 4]	Active cursor tracking on/off
v	[1 2 3 6]	Set level of Braille contractions

The cursor routing keys (CR) are used to directly place the cursor at that text position. In addition, the following functions can be initiated by activating cursor routing keys in combination with certain control keys.

[CR + 1] or [CR + 4]	Mark a text block (beginning and end of block)
[CR + 6]	Describe object at the CR position





[CR + 8]	Right mouse click at the CR position
[CR + TU] or [CR + TD]	Describe the font

If the four status modules are in use on the Braille display, the CR keys above the status elements (S1 through S4) have the following functions:

[S1]	Toggle attribute / text mode
[S2]	Change attribute representation, underline with dots 7+8
[S3]	Toggle unconditional / conditional cursor tracking
[S4]	Toggle active cursor tracking on/off

### 7.3 Screen reader using Windows, Example Hal/SuperNova

Hal converts the information on the PC screen into speech and into Braille output, while SuperNova offers the additional option of displaying the screen information enlarged for seeing-impaired users. The functionality of Hal and SuperNova for Windows is so extensive that only the basic functions for operating the Braille display can be described in brief in this section.

In addition to navigating, the most important keys for operating Hal/SuperNova with the Connect Braille are [7] and [3]. [7] switches into Live-Focus, and [3] activates the virtual focus. The virtual focus can be used to explore the contents of the screen, while also providing an opportunity to activate the Windows-elements displayed on the Connect Braille. In contrast, Live-Focus tracks whichever Windows-element is the most relevant at the moment. For example, when entering text, if a cursor routing key is pressed at one of the Braille modules, this result in a mouse click at that text position, which means the cursor is now at this location.

#### 7.3.1 Overview

This table lists all functions associated with the keys on the Connect Braille. We have not included an exhaustive description of each of the functions, because they are already contained in the manuals for Hal and SuperNova.

Control Key/Braille Dot	Function
[7]	Use Live-Focus
[3]	Top
[2]	Left by one width
[1]	One line up
[SPCL] or [TU]	Back
[SPCR] or [TD]	Forward
[4]	One line down
[5]	Right by one width
[6]	Braille down
[8]	Go to Live-Focus
[SPCL + SPCR]	Toggle status modules on/off
[7 8]	Physical / logical mode
[3 8]	Braille cursor style
[2 8]	Eight dot / six dot Braille
[1 8]	Handy Tech configuration dialog



Control Key/Braille Dot	Function
[4 8]	Expand gap on/off
[5 8]	Use virtual focus
[2 3]	Beginning of line
[5 6]	End of line
[1 2 3]	Top of file
[4 5 6]	End of file
[5 6 8]	Run through attributes
[TLC]	Tab
[TRC]	Shift + Tab
[TLC + TRC]	Enter
[SPC + 1 2 7]	Toggle Braille input on/off
[SPCL + 1 2 3 7]	Back
[SPCR + 4 5 6 8]	Forward
[SPCL + SPCR + 1 2 3 7]	One line up
[SPCL + SPCR + 4 5 6 8]	One line down

By entering letters in Braille, you can in addition input the so-called mnemonic commands that are listed below:

%	[1 2 3 4 5 6]	Activate system control
h	[1 2 5]	Help
\$	[4 6]	Tab
k	[1 3]	Shift Tab
g	[1 2 4 5]	Literary Braille on/off
m	[1 3 4]	Alternative for activating the menu bar
s	[2 3 4]	Start menu
+	[2 3 5]	Eight dot / six dot Braille
=	[2 3 5 6]	System Tray
z	[1 3 5 6]	Announce date and time
c	[1 4]	Ctrl + Tab
C	[1 4 7]	Shift Ctrl + Tab
e	[1 5]	ESC
?	[2 6]	Enter
f	[1 2 4]	Tracking on/off
v	[1 2 3 6]	Set level of Braille contractions

The cursor routing keys (CR) are used to directly place the cursor at that text position. In addition, the following functions can be initiated by activating cursor routing keys in combination with certain control keys. If the four status modules are in use on the Braille display, the CR keys above the status elements (S1 through S4) have the following functions:

[S1]	Run through attributes
[S2]	Set level of Braille contractions
[S3]	Tracking on/off
[S4]	Physical / logical mode

### 7.4 VoiceOver: Screen reader for Apple iOS Devices

The Connect Braille is directly supported by the Screen reader VoiceOver included in iPhone, iPod, iPad or Mac. How to connect the Connect Braille to an iPhone is described in chapter 2.7.2 Bluetooth Apple iOS Device Tie-In.

After starting VoiceOver, the first icon on the home screen is highlighted and the name of the icon is displayed on the Braille display. Use [SPC+4] to jump to the next icon, with [SPC+1] you jump back. You can activate an icon and open an application by pressing one CR-Key above the name. For example, if you open “Notes” you can start entering text using the Braille keyboard at the current cursor position. Press [SPC + 125] (Chord h) to return to the Home screen from anywhere.

In the following table, you find the key commands for controlling your iOS device with the Connect Braille using VoiceOver:

Control Key/Braille Dot	Function
[SPC + 1]	Move to previous item
[SPC + 4]	Move to next item
[SPC + 3]	Move to previous item using rotor setting
[SPC + 6]	Move to next item using rotor setting
[SPC + 2 3]	Select previous rotor setting
[SPC + 5 6]	Select next rotor setting
[SPC + 3 6]	Activates the selected object
[SPC + 1 2 5]	Activates the Home button
[SPC + 1 3 5]	Scroll right one page
[SPC + 2 4 6]	Scroll left one page
[SPC + 1 4 5 6]	Page down
[SPC + 1 2]	Activates the Back button if present
[SPC + 1 2 3]	Move to the first element
[SPC + 4 5 6]	Move to the last element
[SPC + 2 4 5 6]	Read page starting at the top
[SPC + 1 2 3 5]	Read page starting at selected item
[SPC + 2 3 4]	Goes to the status bar
[SPC + 3 4]	Speak page number or rows being displayed
[SPC + 4 7] iPad only	Move to next container
[SPC + 1 7] iPad only	Move to previous container
[SPC + 4 or 5]	Moves through the list
[SPC + 2]	Pan Braille to the left
[SPC + 5]	Pan Braille to the right
[SPC + 1 2 3 4]	Pause or continue speech
[SPC + 1 3 4]	Toggle speech on and off
[SPC + 1 2 3 4 5 6]	Toggle Screen Curtain on and off
[SPC + 2 3 6]	Toggle between 6-dot and 8-dot Braille
[SPC + 1 2 4 5]	Switch between contracted and uncontracted braille
[SPC + 3 4 5]	Activates the Volume Up button
[SPC + 1 2 6]	Activates the Volume Down button
[SPC + 1 2 3 4 6]	Set label
[SPC + 1 3]	Keyboard help
[SPC + 2 3 4 5]	Activates the Tab key



Control Key/Braille Dot	Function
[SPC + 1 2 5 6]	Activates Shift Tab
[SPC + 1 5]	Activates the Return key
[SPC + 8]	Activates the Return key
[SPC + 1 4 5]	Activates the Delete key
[SPC + 7]	Activates the Delete key
[SPC + 2 5 6]	Select text
[SPC + 2 3 5]	Deselect text
[SPC + 1 4]	Copy
[SPC + 1 3 4 6]	Cut
[SPC + 1 2 3 6]	Paste
[SPC + 1 3 5 6]	Undo typing
[SPC + 1 4 6]	Activates the Eject key
[SPC + 3 4 5 6]	Scroll up one page
[SPC + 1 4 5 6]	Scroll down one page

You can find the complete list of Braille commands for VoiceOver at <https://support.apple.com/en-en/HT202132> .



## 8 Operation Settings for Handy Tech Braille Displays

The universal Handy Tech Braille display driver features several optional settings for operating your Connect Braille with your PC and screen reader. In order to open the Settings window, activate the [1 8] keys simultaneously. The Settings window can also be started up from the Start menu, under "Programs – Handy Tech – Configure Braille display driver." The Braille display driver does not need to be running.

There are the following six tabs in the Settings window:

- Connection
- ATC
- Status Cells
- Key Actions
- Miscellaneous
- Info

Your changes in the settings of the different tab sheets will be saved by pressing the OK or Apply Button. If you choose the OK Button, the dialog will be closed.

The following sections provide more details about the settings that are available under these six tabs.

### 8.1 Connection

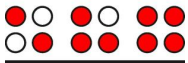
The check box "Activate Driver" is checked to enable your Connect Braille to be driven by the screen reader. If you uncheck this box, the driver will be deactivated, and you will not be able to drive any Handy Tech Braille display.

The field "Device Detection" provides two options: "Automatic" means that your screen reader will detect the Braille display regardless of the interface through which it is connected to your PC. The second option is to specify a fixed interface at which the screen reader should look for the Braille display. In the corresponding combo box, you can choose one of the existing COM interfaces. The type of the interface (e.g. USB or Bluetooth) will also be shown.

The field "Show Pop-Up Braille Display Information" allows you to specify whether you want to be informed which Braille display system is connected to which of your PC's interfaces at the start-up of the screen reader. If this setting is activated, there will be a small pop-up box during start-up containing the Braille display driver's version number, any detected Braille displays, and the interface designation.

You have the following three options:

- When changing device or interface: The pop-up box appears only if you have connected a different Handy Tech Braille display to the PC, or if you have connected the same Braille display to a different interface on your PC.
- Never: The pop-up box will not be displayed during start-up.
- Always at start: Every time your screen reader starts up, the pop-up box will be displayed.



If the check box "Connect Braille display even when switched on after start up" is checked, the Braille display may be connected to the computer while the screen reader is already running, and the Braille display will be recognized. The default setting is for this check box to be unchecked.

Checking the check box "Reconnect Braille display automatically when disconnect" instructs the screen reader to search for the Braille display in brief intervals if there has been a disconnection. For example, if you turned off the Braille display in order to remove the keyboard or to install the power cable, the screen reader will continuously search for a Braille display until you turn the power back on. By checking the check box "Notify when searching for connection" you can cause the screen reader to inform you of this process. If you do, you will receive the message e.g. "Searching Connect Braille" in short intervals.

## 8.2 ATC

With the ATC technology, currently available for the Actilino, Active Braille, Active Star and Modular Evolution only, your reading position on the Braille display can be determined. This opens new possibilities for operating and controlling the PC. This tab only appears if your screen reader supports the ATC features through the Handy Tech Braille display driver.

## 8.3 Status Cells

The so-called status modules on your Braille display are used to indicate where your current position is on the screen, for example, within a menu or within a text field. Exactly what information is shown on the status modules depends on the screen reader. Under the "Status Cells" tab, you can specify some of the options for these status modules yourself.

The field "Device" allows you to specify which Handy Tech Connect Braille or Braille display you are using. By default, the currently connected device is recognized and becomes the default setting here. However, this setting provides you with the option of configuring other Handy Tech Braille displays, even though they are not currently connected to the computer.

In the next field, you may specify the size of the status display section. As a default, four Braille elements are used as status modules. There is automatically one blank position inserted between the status modules and the remaining positions on the Braille line. The blank element has no function.

The field "Position of status cells" allows you to determine whether the status modules should be displayed on the left or right side of the Braille line. As a default, they are displayed on the left.

The check box called "Display status cells" lets you enable and disable the status display. The status information is not displayed by default. There is a quicker method for enabling and disabling the status display: pressing [SPCL + SPCR] simultaneously. When you use this method you don't need to open the Settings menu.



### 8.4 Key Actions

This tab sheet allows you to adjust the behaviour of the single key strokes of your Connect Braille in the following three different ways:

- Key Lock: Keys, defined as locked, will be ignored when pressed.
- Fast Keys: Keys, defined as fast keys, performs their action already when pressed and not – as usual – when released.
- Repeat Keys: Keys, defined as repeat keys, will repeat their action continually while be pressed.

#### 8.4.1 Key Lock

Single keys of the Connect Braille can be locked to prevent unintentional functions by pressing a key by mistake. This is helpful when starting to learn how to use the Connect Braille.

With the checkbox "Use Key Lock", you can activate this function. The button "Locked Keys..." will open the dialog "Define locked keys for device". In the list box "Device" the connected Braille display is already preselected. In the list box "Available keys" you choose the keys to be locked. With the "Add" button you move the selected key into the list box "Locked keys". The "Remove" button removes the key back to the available keys. By default, no keys are locked.

#### 8.4.2 Fast Keys

Fast keys, also known as hot keys, refer to keys that implement the function associated with that key as soon as the key is pressed, instead of when the key is released. If one of the keys to be used in a key combination is a fast key, the fast key must therefore be pressed last.

The check box "Use Fast Keys" is used for enabling this function. The button "Fast Keys..." will open the dialog "Define Fast Keys for device". In the list box "Device" the connected Braille display is already preselected. In this dialog you can then select the keys you want to define as fast keys from the list box "Available keys" and move them by pressing the "Add" button into the list box "Fast Keys". By default, no keys are defined as fast keys. There are no fast keys available for Braille input.

#### 8.4.3 Repeat Keys

With the settings under "Repeat Keys" you can specify the repeat interval at which a function initiated by a key is repeated when that key is continually pressed. This feature makes it easier, for example, while you are trying to navigate through a list, because you do not need to keep pressing the forward or backward key for each item in the list, but keep holding down that key until the cursor is at the desired item.

The check box "Use Repeat Keys" is used for enabling this function. The default setting is that key repeats are disabled. The button "Repeat Keys..." will open the dialog "Settings for repeat keys". In the list box "Device" the connected Braille display is already preselected. In this dialog you can then select the keys you want to define as repeat keys from the list box "Available keys" and move them by pressing the "Add" button into the list box "Repeat Keys". For the Connect Braille, the keys [1], [4], [TLU], [TLD], [TRU] and



[TRD] are implemented with a default repeat interval of 500 milliseconds if you activate key repeats. There is no key repeat available for Braille input.

## **8.5 Miscellaneous**

Under the tab "Miscellaneous", you can adjust the dot firmness and specify whether your actions should be tracked in a protocol file. Protocol function is available in case you enlist Technical Support. Please check this box only when asked to do so by your customer service representative. You will then also be able to specify where this protocol file should be saved, in the field called "Protocol file".

The check box "Quick Entry in PC mode by Dot 7 as Back Space and Dot 8 as Enter" results in the [7] key functioning like a Backspace key during Braille input, and the [8] key as Enter. If you want to disable this option, you can do so by unchecking this box, which is checked by default.

## **8.6 Info**

In the "Info" tab sheet you find important information about your Connect Braille and the driver software, you are using.

In the field "Connect Braille display" you find the type of Braille display, you are using, as well as the interface it is connected to and the serial number of your Braille display. In addition you find a reference when the next recommended maintenance of your Braille display is due.

In the field "Driver properties" the type of screen reader, you are using is listed, as well as the version of your driver.

At "Your dealer" you get the contact details of your Handy Tech dealer with postal address, telephone number and E-mail.





## 9 Battery Management

Your Connect Braille features four rechargeable NiMH round cell batteries. The Connect Braille will operate for about 20 hours with new, fully charged batteries. This maximum run time decreases as the batteries get older. The average useful life of a battery is approximately 2 years with constant recharging and discharging.

Batteries are subject to aging, which can be aggravated under adverse conditions. This situation prevails if seemingly fully charged batteries operate for only a short time period before they need to be recharged. You can do a few things to reduce this effect:

- Try to always let your batteries discharge completely before recharging them again.
- Always use the recharging device integrated into the Connect Braille.

### 9.1 Types of Batteries

The Connect Braille utilizes four batteries with the following technical specifications:

Type	NiMH (nickel-metal-hydride)
Size	round cell (AA)
Rated Voltage	1.2 V
Rated Capacity	2700 mAh

These batteries are regular, commercial rechargeable batteries, which can be purchased at any appliance store or from Help Tech. However, please make sure that you are purchasing batteries with this exact designation. The only permissible deviation from the above specifications is in the rated capacity. It is best to always replace all four batteries at once. The rated capacity of the four batteries must be the same.

It is possible to install non-rechargeable batteries of the same ratings in the Connect Braille instead of the rechargeable batteries. However, it is very important that there be no attempt to charge these batteries, i.e. the power supply or USB cable must not be connected. This could cause the batteries to burst and destroy the recharging circuitry.

### 9.2 Battery Charging

The Connect Braille contains integrated, intelligent recharging circuitry for charging the batteries. Recharging starts automatically when the power supply delivered with your Connect Braille is connected to a wall outlet.

Recharging lasts approximately three hours if the batteries were empty. The Connect Braille features electronic recognition and interpretation of the end of recharging, as well as of the permissible discharge. This way, the batteries can neither be overcharged nor excessively discharged. The power supply may therefore remain connected for longer periods of time.



### **9.3 Battery Capacity Display**

The device monitors battery status in every operating mode. It is therefore possible to display current battery status at any time. There are two options for displaying battery status: display of battery voltage and display of available remaining battery capacity.

Battery voltage is an indirect measure of battery status. The end of discharge has been defined as 4.3 V. The device turns itself off at a battery voltage of 4.3 V and can only be turned on again when it has been connected to the power supply or USB for recharging. With fully charged batteries, the voltage may increase to 5.6 V, or even exceed 6 V during charging.

If you require information about the batteries, you can display all the important data in the Info menu, submenu Battery Statistics (see chapter 5.1.3.1).

### **9.4 Automatic Recognition of Low Voltage**

The Connect Braille includes battery voltage recognition in two steps. When the voltage falls to approximately less than 4.6 V, a warning signal sounds every minute. This indicates that battery capacity is nearing its end, and that the batteries should be recharged. You can turn the warning signal off or on in the option menu (see chapter 5.1.4.4 Tone signals (T)).

When the lowest limit of battery voltage has been reached, at about 4.3 V, your Connect Braille turns itself off. However, even in this state it uses up a small amount of electricity. You should therefore never leave the Connect Braille in this state for longer than one day. It would be best if you begin to recharge the batteries immediately, but you should at least turn off the Connect Braille.

If you expect not to use your Connect Braille for several weeks, either recharge the batteries first, or remove the batteries completely from the device.

### **9.5 Replacing the Batteries**

The Connect Braille contains four rechargeable batteries, which enable you to work for about 20 hours independent of a power source. The batteries are fully charged prior to shipment, so that you can begin working independent of any power source. The power supply included in the package allows you to recharge the empty batteries.

Due to aging of the batteries, or if you have been using non-rechargeable batteries, the batteries must be replaced periodically. Please proceed as follows to replace the batteries:

1. Turn off the Connect Braille and disconnect the power supply and USB cable.
2. If the Connect Braille is inside of its carrying case, disconnect all cables connected to the device and take it out of the case.
3. Turn the device over horizontally, so that the control keys are underneath.
4. The battery compartments on the bottom of the housing are secured by snap catches, which should be pushed towards the batteries in order to open the cover. Please note that the Connect Braille features two compartments for 2 batteries each.



5. Now you can remove the batteries by lifting them out by the plus side, which has the indent.
6. When inserting the new batteries, make sure that the buttons on the top, which includes an indent (plus pole), point away from the springs contained in the battery compartments.
7. You lock the covers again by inserting their pins into the appropriate recesses on the housing and then pushing down lightly on the catches. The catches snap audibly into place.
8. You may now return the Connect Braille to its carrying case and close the Velcro fasteners.

### Important Notes:

1. Please use only NiMH batteries, as the Connect Braille's recharging circuitry has been designed for that type of battery only.
2. If you replace the rechargeable batteries with standard non-rechargeable batteries, you must make sure that you remove these before connecting the Connect Braille to a power outlet or via USB to your PC, because the recharging circuitry cannot discern the difference. The batteries would therefore be overcharged (danger of explosion), which may cause damage to your Connect Braille, and in certain cases may be hazardous to your health.
3. We do not recommend replacing only some of the batteries. If batteries are only replaced partially, the new cells will be used up more rapidly and cells with a lower capacity may be damaged. The same applies if you are using non-rechargeable batteries.
4. Please refer to the applying environmental law for disposal of batteries.



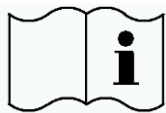
## 10 Important Information

This section contains important safety and warranty information. Please make sure you have read this information before starting up your Connect Braille.

The Braille device's selection circuitry uses a high voltage of 200 V for the operation of the Braille modules. Danger of electric shock exists when the housing is opened, or the device is handled improperly.

### 10.1 Symbols

The symbols located on the underside of the unit have the following meanings:



Please read the information in the manual!



Applied Part, Type B

### 10.2 Safety Information under the Standards for Medical Devices

Medical electric devices are subject to special precautions in regard to electromagnetic compatibility and must be installed and taken into operation according to the directions contained in this manual. Please review also the general safety information in Section 10.3 below.

Portable mobile HF communications facilities may affect electrical devices.

### 10.3 General Safety Information

Avoid contact between your Connect Braille and any fluids (rain, coffee...). If fluids enter into the housing, you may be exposed to the danger of hazardous electric shock. In addition, the Braille elements may sustain damage, which can only be remedied by costly repairs.

Only representatives of Help Tech GmbH or its authorized dealers have permission to open the Connect Braille. The device contains no user-serviceable parts. In the event of a defect, please contact your dealer, or Help Tech directly. Only an authorized Handy Tech dealer has permission to service the device.

Avoid switching your Connect Braille on immediately after moving it from a cold room into a warm environment. Under unfavourable conditions, condensation might ruin the device. Wait until the device has warmed to room temperature before turning it on.



Do not expose your Connect Braille to extreme temperature fluctuations or high humidity during operation. The operating temperature should be between +10°C (= 50°F) and +40°C (= 100°F) and relative humidity may not exceed 80%.

The Connect Braille must not be operated in moist rooms, for example, bathrooms, because the device generates voltages up to 200 V.

All cables (interface cable, power cable) must be installed such that they do not pose any hazards (tripping hazard).

Whenever you want to connect or disconnect the interface cable to or from the Connect Braille, always avoid any direct touching of the wire contacts in the plug. Touching the contacts could damage your computer interface through static electricity overload.

Before disconnecting the interface cable from the Connect Braille, we recommend first disconnecting the cable from the PC.

Please use only the power supply unit (type FW7555M/09) and cable supplied with your Connect Braille for connecting it to utility power and for recharging the batteries. Never use the included power supply if the Connect Braille contains commercial non-rechargeable or nickel cadmium-batteries.

When cleaning the device, always disconnect both the power cable and the interface cable.

If the Connect Braille was dropped, the housing has become damaged, or the Connect Braille is malfunctioning, turn the unit off immediately. It needs to be serviced by authorized service personnel.

The power supply should be disconnected if the unit will not be used for an extended period of time.

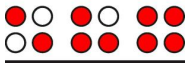
Always finish what you are working on before disconnecting the power supply cable from the Connect Braille. Switching over from the power supply to battery power takes some time, during which fluctuations in voltage can occur.

This device must be disposed of at the end of its useful life in compliance with applicable guidelines for electronic devices.

## 10.4 Handling the Connect Braille

The Connect Braille's Braille modules utilize the highly reliable and maintenance-free piezo technology. If handled properly, you will enjoy many years of trouble-free operation.

Always operate your Connect Braille at normal room temperature and protect it from humidity. Avoid exposing the Connect Braille to extreme changes in temperature.



Always transport your Connect Braille in the included carrying case, which provides impact protection.

Do not drop your Connect Braille and avoid exposing the device to strong vibrations.

Your Connect Braille will be the better for it if you take care to operate it with clean hands, because otherwise the tactile pins can become sticky and may release only if prodded.

Please ensure that no fluids enter into the Braille display. The Braille elements are especially sensitive to humidity, because humidity could destroy the high-voltage piezo elements.

We recommend covering the Braille display whenever it is turned off, to prevent unnecessary contamination with dust.

Clean your Connect Braille with a damp cloth. Do not use any cleaners. The Braille elements must be cleaned with a dry, lint free cloth only.

The Braille elements should be cleaned and serviced thoroughly every two years in average operating conditions. In general, during servicing of the Braille elements, all tactile pins and key heads will be replaced, and all input elements checked. An endurance test will then be performed. We can provide you with a replacement device during the maintenance period.

## **10.5 Warranty**

If you open the Connect Braille housing, which is sealed, within the warranty period, the warranty becomes void. The same applies to improper handling or use.

In the unlikely event that your Connect Braille does become defective, our repair service will be available for repairs.

## **10.6 Technical Support**

Your Connect Braille is a highly complex product. Although the Connect Braille has been optimized to be as easy to use and as self-explanatory as possible, errors in understanding or operation, which may impede your use of the device, may occur.

We therefore recommend that you consult this manual first if you encounter difficulties. All procedures as well as error messages are described here. If this does not solve your problem, you have the option of reviewing possible solutions in the download area on Help Tech's web page, located at [www.helptech.de](http://www.helptech.de).

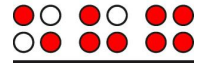
As an alternative, you can also contact your dealer or local customer service representative. These agents receive ongoing training and information about the product, beyond what can be included in any manual.

# Connect Braille

## Important Information

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*Handy Tech*



If this does not result in the desired solution of your problem, do not hesitate to contact Help Tech GmbH in Horb directly. You have the following options:

Mail: Help Tech GmbH, Brunnenstr. 10, D-72160 Horb a. N., Germany  
Phone: +49 7451 5546 55  
Fax: +49 7451 5546 67  
E-Mail: [help@helptech.de](mailto:help@helptech.de)



## 11 List of Key Combinations

The following list contains all important functions with their key combinations. The digits in the right column refer to Braille dots.

### 11.1 Navigating the Menu System

Function	Keys
One menu item to the left	TU or SPC+7 or SPC+1
One menu item to the right	TD or SPC+8 or SPC+4
First menu item within one level	SPC+1 2 3
Last menu item within one level	SPC+4 5 6
Move up one menu level	TLC
Select or move down one menu level	TRC
Toggle check box	SPC or TRC or CR keys
Select menu item directly	Hotkeys

### 11.2 Keys in PC Mode

Function	Keys
Return to menu	Hold down SPC+1 3 4 about half a second
Switch between Braille display and status module display	SPCL+SPCR





## 12 Error Messages

This section contains the error messages that can be displayed on the Connect Braille. Some messages are always in English, because they are not part of the message file. They come directly out of firmware, because they have to be always available.

### 12.1 English Language Error Messages

These messages contain abbreviations, which indicate the error status. Their meanings are:

- FER (Fatal Error): A serious error has occurred.
- ERR (Error): An error has occurred.
- WRN (Warning): The system is notifying you about something that may require your attention.

#### 12.1.1 Fatal Errors

Please do not panic — the Connect Braille cannot take any action without your authorization!

##### **"FER: No message file found."**

Cause: The message file could not be opened.

Remedy: The message file must be reloaded.

##### **"FER: Could not read MSG security header."**

Cause: In order to be able to unequivocally identify a message file, the file includes a security header at the beginning which provides various information. This header could not be read correctly.

Remedy: The message file must be reloaded.

##### **"FER: Invalid MsgId."**

Cause: A message was requested which is not contained in this message file.

Remedy: Please load the message file that matches the currently used firmware version.

##### **"FER: Invalid header ID in MSG file."**

Cause: The message file's security header contained invalid data.

Remedy: The message file must be reloaded.

##### **"FER: Invalid size of message file header."**

Cause: The security header's size does not correspond to the size expected by the firmware.

Remedy: The message file must be reloaded.

##### **"FER: Invalid maximum length of messages."**

Cause: The maximum message length does not correspond to the maximum length expected by the firmware.

Remedy: The message file must be reloaded.

##### **"FER: Expected MSG version xx, found yy."**

Cause: The message file version does not correspond to the firmware version. You may receive this message when you have updated only the firmware code but have not yet loaded the new message file.

Remedy: Load the message file that matches the current firmware.



**"FER in file system: Flash disk must be formatted."**

- Cause: A serious error occurred while checking the file system.
1. You have updated the firmware and the file system's version number has changed.
  2. It is possible that no system sectors could be found, which would indicate that the file system is defective.
- Remedy: The file system can only be restored by reformatting the medium.
- Note: In the first case, you can turn off your Connect Braille and reload the old firmware. In the second case you have no remedy other than reformatting the flash disk.

**12.1.2 General Errors**

**"ERR reading KBD security structure."**

- Cause: The structure of the keyboard layout table found during start-up of the Connect Braille contains errors. The table's structure is compromised.
- Result: The default internal German table will be used.
- Remedy: Download a valid keyboard layout table.

**"ERR: Invalid ID in KBD header."**

- Cause: The structure of the keyboard layout table found during start-up of the Connect Braille contains errors. The table's ID is invalid.
- Result: The default internal German table will be used.
- Remedy: Download a valid keyboard layout table.

**"ERR: Invalid size of KBD header."**

- Cause: The structure of the keyboard layout table found during start-up of the Connect Braille contains errors. The size of the security header is incorrect.
- Result: The default internal German table will be used.
- Remedy: Download a valid keyboard layout table.

**"ERR: Expected KBD version x, found y."**

- Cause: A keyboard layout table was found which does not match the current firmware version. This can occur following a firmware update, because the firmware expects a different table structure.
- Remedy: Compile the layout table with the BKC matching the new firmware version.

**"ERR: Invalid KBD table format."**

- Cause: The structure of the keyboard layout table found during start-up of the Connect Braille contains errors. The format of the table is incorrect.
- Result: The default internal German table will be used.
- Remedy: Download a valid keyboard layout table.

**"ERR reading KBD table."**

- Cause: Errors occurred while reading the keyboard layout table found during the Connect Braille start-up procedure.
- Result: The default internal German table will be used.
- Remedy: Download a valid keyboard layout table.

**12.1.3 Warnings and Messages**

**"WRN when initializing file system, Backup recommended!"**

- Cause: Errors were detected while testing the file system, but they do not indicate a defective disk medium.
- Remedy: Not necessary

**"FsVersion x.y, ERR: n: t."**



Cause: This message appears following any error message relating to the file system. It provides information regarding the current version of the file system (x.y), the number of the error (n), and an error description (t).

### **"Formatting, please wait!!!"**

Cause: This message appears while the disk medium is being reformatted subsequent to a fatal error detected by the file system test.

Note: When formatting has finished, you must reload the message file.

### **"Change Lithiumbattery"**

Cause: The internal lithium battery (not the four user accessible rechargeable batteries) has lost voltage due to aging.

Remedy: Only manufacturer authorized personnel may change the internal battery, because the housing must be opened for this purpose. Please send your Connect Braille to an authorized dealer, or directly to Help Tech.

### **"WRN: No kbd layout found. Using standard layout."**

Cause: During the Connect Braille's start-up procedure no valid keyboard layout table was found.

Result: The default internal German table will be used.

Remedy: Download a valid keyboard layout table.

## **12.2 Error Messages from the Message File**

The messages listed below come from the reloadable message file. They include messages of a general nature and system messages.

### **12.2.1 General Messages**

#### **"Please wait!!!"**

Cause: This message appears while the system is executing a task requiring some time.

#### **"Cannot execute this function"**

Cause: A function cannot be executed.

#### **"Deactivating function keys!"**

Cause: A reminder that function keys have been deactivated. After turning the unit off and back on, the function keys will again be active.

### **12.2.2 File System Messages**

#### **"Error creating braille character set file"**

Cause: There is not enough memory in the file system to generate the Braille character sets.

#### **"New braille set file created! Please reload needed sets!"**

Cause: The Braille character set file was recreated, because it was either missing or its size was incorrect. You will have to reload the required character sets into the Connect Braille.

#### **"Braille set x is empty"**

Cause: You are attempting to activate a Braille character set numbered x, but that character set slot is empty.

#### **"Error writing configuration file"**

Cause: An error occurred while saving the configuration.

#### **"Saving configuration, please wait!"**

Cause: This message is displayed while the configuration file is being written.



**"New configuration file created. Please check your settings!"**

Cause: The configuration file was recreated, because it was either missing or its data were incorrect. The settings have now reverted to factory defaults. You should therefore check the settings and customize them to your liking.

**"Fatal: Invalid MSGID! Please upload appropriate msg file!"**

Cause: A message was requested that is not present in the currently loaded message file. Loading the message file matching the current firmware will resolve the problem.

## **13 Copyright Notice**

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