Focus 40 Blue

Refreshable Braille Display
User's Guide

Freedom Scientific Inc.

440447-001 Rev E

PUBLISHED BY
Freedom Scientific Inc.
11800 31st Court North
St. Petersburg, Florida 33716-1805
USA
http://www.FreedomScientific.com

Contains transmitter module FCC ID: ED9LMX9838

Contains transmitter module IC:1520A-LMX9838

USA-Federal Communications Commission (FCC) Notice

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

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

- Consult the dealer or an experienced radio /TV technician for help.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Caution: Exposure to Radio Frequency Radiation.

This device must not be co-located or operating in conjunction with any other antenna or transmitter.

Canada – Industry Canada (IC) Notice

This device complies with RSS 210 of Industry Canada. Operation is subject to the following two conditions:

(1) this device may not cause interference, and

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

L ' utilisation de ce dispositif est autorisée seulement aux conditions suivantes :

(1) il ne doit pas produire d'interference et

(2) l' utilisateur du dispositif doit étre pr?t ? accepter toute interference radioélectrique reçu, m?me si celle-ci est susceptible de compromettre le fonctionnement du dispositif.

Caution: Exposure to Radio Frequency Radiation.

The installer of this radio equipment must ensure that the antenna is located or pointed such that it does not emit RF field in excess of Health Canada limits for the general population; consult Safety Code 6, obtainable from Health Canada's website www.hc-sc.gc.ca.

Attention

This unit has been shipped with cables that allow compliance with FCC Regulations. If replacement cables are needed in the future, contact Freedom Scientific to obtain the appropriately shielded cable.

Important Notice

This device has no user-serviceable components. Any unauthorized attempt to service or replace internal components by opening the case will void the product warranty.

Table of Contents

Features

The Focus 40 Blue refreshable braille display provides a compact and tactile interface to your computer. Used together with screen access software such as JAWS® for Windows, the Focus 40 Blue can enhance your computing experience.

The Focus 40 Blue includes the following features:

- 40 refreshable braille cells
- A cursor routing button above each braille cell
- A Navrow button above each cursor routing key
- 8-key Perkins-style braille keyboard, with the addition of two SHIFT keys
- Two panning buttons, two rocker bars, and two selector buttons
- Two WHIZWHEELS®, one at each end of the display, for quick navigation of files, lists, and menus
- VariBraille adjustable braille dot firmness
- Status cells configurable to either end of the display
- Rapid Reading mode for quick review of files
- USB connection to computer
- Bluetooth® wireless connectivity with battery power
- Support for select cell phones and PDAs via third party applications

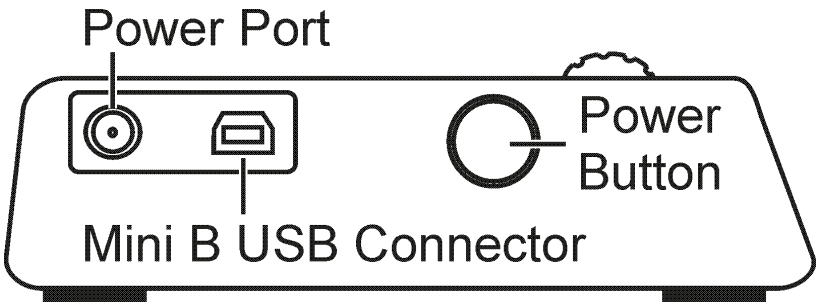
What's in the Box?

The Focus package includes the following items. If you find that you are missing any of the components listed below, please call Customer Service at (800) 444-4443.

- Focus 40 Blue braille display
- AC adapter
- USB Cable, 6-foot
- Carrying Case
- Manual in Print and braille
- Companion CD
- Warranty registration cards
- Product support insert

Physical Layout

On the left side of the display, going from front to back, you will find a round Power button, a standard mini B USB port, and the power jack for connecting the AC adapter. If the Focus 40 Blue is connected to USB, it does not require an external power source.



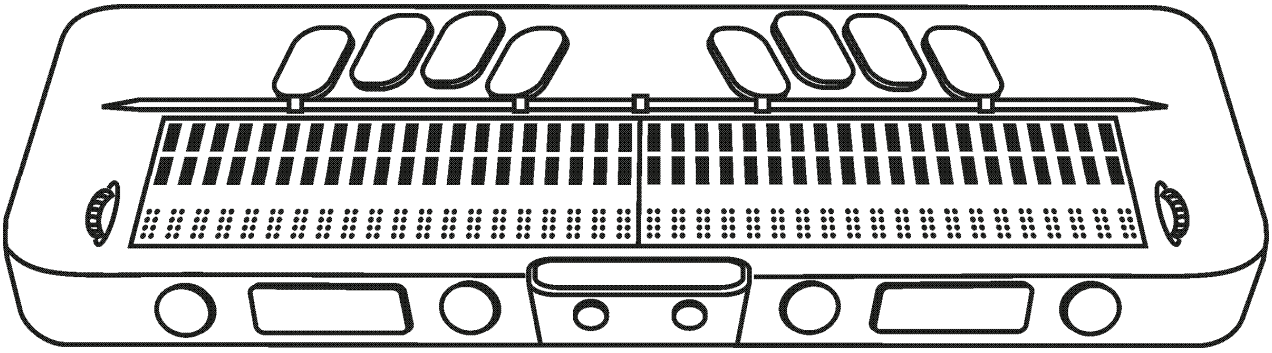
The refreshable braille cells are located toward the front of the unit. There is a cursor routing button above each braille cell and a Navrow button immediately above each cursor routing button. At each end of the display's surface are WHIZWHEELS used for easy navigation.

Positioned directly above the Navrow buttons, there are eight keys similar to those on a Perkins-style braille keyboard. The eight braille keys from left to right are: 7, 3, 2, 1, 4, 5, 6, and 8. These keys are used to enter commands. On the front edge, directly under and in the center of the display is a **SPACEBAR**. This key is used together with the braille keys when entering commands.

On the front edge of the display are the following controls, located from left to right:

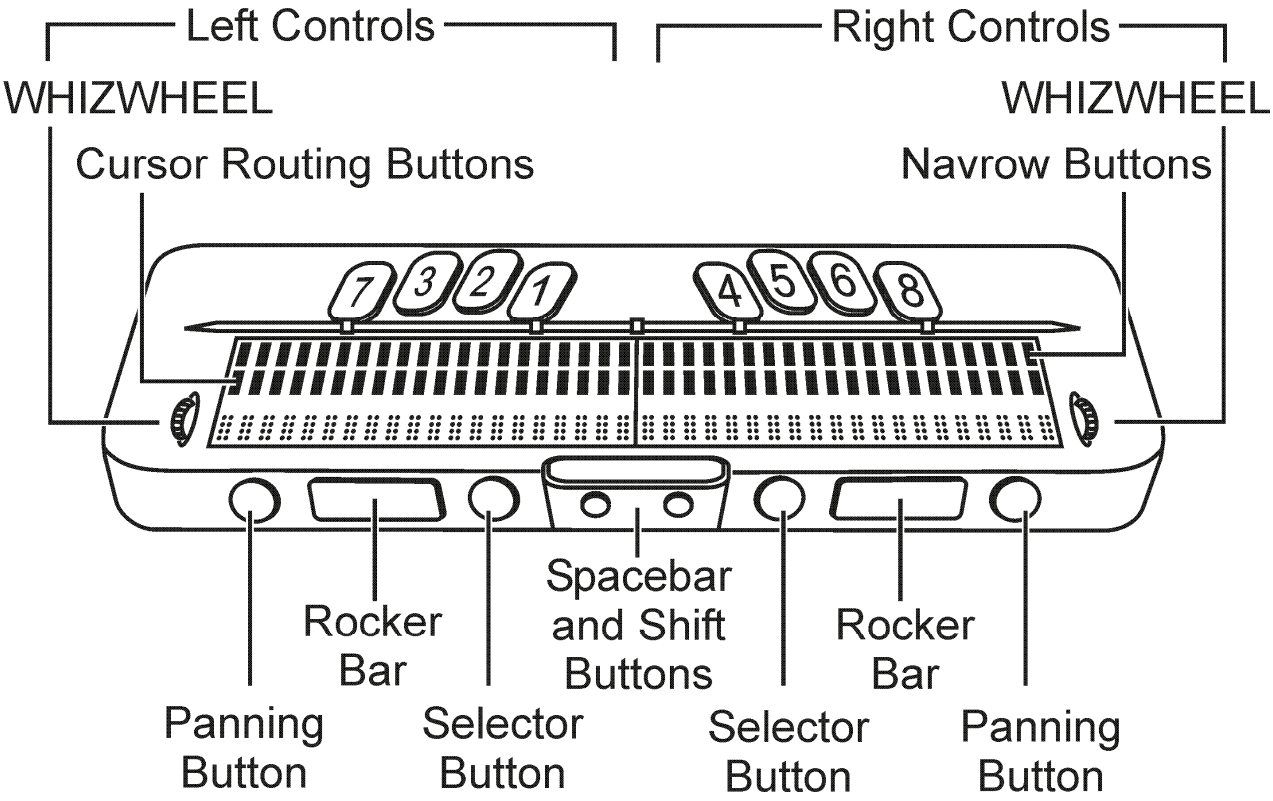
- **Left panning button**
- **Left rocker bar**
- **Left selector button**
- **Left SHIFT key** (used in conjunction with the **SPACEBAR** and braille keys to enter commands)
- **Right SHIFT key** (used in conjunction with the **SPACEBAR** and braille keys to enter commands)

- **Right selector button**
- **Right rocker bar**
- **Right panning button**



Controls

The Focus 40 Blue display provides two WHIZWHEELS, two panning buttons, two rocker bars, two selector buttons, and cursor routing buttons and Navrow buttons above each braille cell. See the chart following the Navrow section for a full listing of all multiple-control functions.



WHIZWHEELS

The Focus WHIZWHEELS allow you to move quickly through files, dialog boxes, lists, and menus. In a file, you can move by line, sentence, paragraph, or pan backward and forward. In a dialog box, you can move between the available controls, and even interact with them. In a menu, you can move up and down through the menu items.

Panning Buttons

The Focus panning buttons pan left or right one display width (40 cells) each time they are pressed. Press the panning button on the left front edge of the Focus to pan left; press the panning button on the right front edge of the Focus to pan right. The functions of the panning buttons can be reversed so that pressing the left panning button causes the Focus display to pan right and pressing the right panning button causes it to pan left. Please refer to help for the JAWS Keyboard Manager for details on modifying these and other control assignments.

Rocker Bars

The rocker bars provide movement up or down by line. Press the top of the rocker bar to move up one line; press the bottom of the rocker bar to move down one line. The rocker bars, in combination with the panning buttons, move to the beginning or end of the line on which the cursor is positioned. Press a panning button and the top of a rocker bar to move to the start of the line. Press a panning button and the bottom of a rocker bar to move to the end of the line.

Selector Buttons

Used by themselves, the selector buttons control Auto Advance. When pressed in combination with other controls, the selector buttons perform multiple functions.

Cursor Routing Buttons

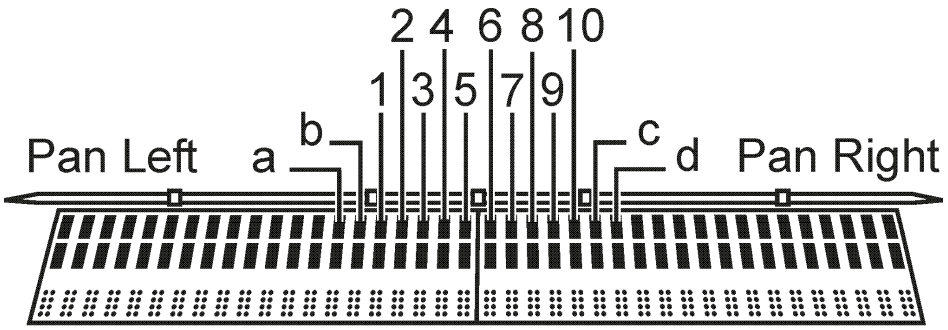
There is a Cursor routing button located above each braille cell. Press a cursor routing button to move the cursor to that point, or to select a link in a Web page or e-mail message. In line mode, press a cursor routing button to open a menu or select menu items.

Press and hold the **RIGHT SELECTOR BUTTON** while simultaneously pressing a **CURSOR ROUTING BUTTON** to simulate a right mouse click at that location.

Navrow Buttons

Located immediately behind the cursor routing buttons are the Navrow buttons. The number of Navrow buttons is the same as the number of braille cells on the Focus display. The Navrow buttons have two functions–ten serve as hot keys, providing quick access to functions or settings; and the rest serve as extra panning buttons.

Just behind the Navrow buttons are five raised marks to aid in quick orientation to both the Navrow and cursor routing buttons: one each above and to the left of the fifth Navrow button, before the first hot key, in the middle of the row, above and to the right of the tenth hot key, and to the right of the fifth panning button from the right end of the row. The ten Navrow buttons immediately below the center mark are the hot keys and are numbered, to the left of the center mark, 1 through 5; the five buttons to the right of this mark are numbered, left to right, 6 through 10. The remaining buttons serve the same function as the panning buttons; those to the left pan backward and those to the right pan forward.



1: Route Braille Cursor to PC Cursor
2: Active Cursor Follows Braille Cursor
3: Braille Cursor Follows Active Cursor
4: Top of Window
5: SHIFT+TAB
6: TAB
7: Bottom of Window
8: Toggle Contracted Braille Translation
9: Expand Current Word
10: Route Braille Cursor to Active Cursor
a: Toggle Auto Advance Mode
b: Repeat Last Flash Message
c: Decrease Auto Advance Speed
d: Increase Auto Advance Speed

The Navrow hot keys and their functions are shown in the following table.

Function	Hot Key
Route Braille Cursor to PC Cursor	1
Active Cursor Follows Braille Cursor	2
Braille Cursor Follows Active Cursor	3
Top of Window	4
SHIFT+TAB	5

Function	Hot Key
TAB	6
Bottom of Window	7
Toggle Contracted Braille (Grade 2) Translation	8
Expand Current Word	9
Route Braille Cursor to Active Cursor	10

In addition, the two Navrow buttons immediately to the left of the first hot key and the two to the right of the tenth hot key are assigned the following special functions.

Function	Navrow
Toggle Auto Advance Mode	Second button to the left of first hot key
Repeat Last Flash Message	First button to the left of first hot key
Decrease Auto Advance Speed	First button to the right of tenth hot key
Increase Auto Advance Speed	Second button to the right of tenth hot key

Table of Multi-Control Functions

Functions	Panning Buttons
Toggle Auto Advance Mode	**LEFT SELECT+RIGHT SELECT**
Decrease Auto Advance Speed	**LEFT SELECT**

Functions	Panning Buttons
Increase Auto Advance Speed	**RIGHT SELECT**
Left Mouse Click	**PANNING BUTTON+CURSOR ROUTING BUTTON** or **PANNING ROCKER UP+CURSOR ROUTING BUTTON** or **PANNING ROCKER DOWN+CURSOR ROUTING BUTTON**
Control + Left Mouse Click	**ROUTING BUTTON CHORD**
Page Down	**LEFT** or **RIGHT SELECT+ROCKER DOWN**
Page Up	**LEFT** or **RIGHT SELECT+ROCKER UP**
Top of File	**LEFT PANNING BUTTON+SELECT BUTTON** or **SELECT BUTTON+PANNING ROCKER UP**
Bottom of File	**RIGHT PANNING BUTTON+SELECT BUTTON** or **SELECT BUTTON+PANNING ROCKER DOWN**
End	**PANNING BUTTON+ROCKER BAR DOWN**

Functions	Panning Buttons
Home	**PANNING BUTTON+ROCKER BAR UP**
Next Line	**ROCKER BAR DOWN**
Prior Line	**ROCKER BAR UP**
Pan Left	**LEFT PANNING BUTTON** or **LEFT PANNING ROCKER UP**
Pan Right	**RIGHT PANNING BUTTON** or **RIGHT PANNING ROCKER UP**
Select Text	**RIGHT SELECT BUTTON +CURSOR ROUTING BUTTON**
Select Block	**SELECT BUTTON+CURSOR ROUTING BUTTON** at beginning of block; repeat at end of block
Toggle WHIZWHEELS On/Off	**LEFT** or **RIGHT WHIZWHEEL CHORD**

Power Button

The power button turns the Focus on or off when not connected to USB. Press it once to turn the display on and press and hold it for three seconds to turn the display off.

Internal Battery

The Focus 40 Blue contains an internal battery for Bluetooth operation. While using the Focus over a Bluetooth connection, you will get approximately 20 hours for typical usage. To check the battery status while the display is in use, press the power button to display the percentage of battery charge used. Press a cursor router or Navrow button to return to normal operation.

When the battery is at 20 percent, 10 percent, and 5 percent respectively, a low battery warning is displayed indicating it is time to plug in the AC adapter. You can dismiss this message by pressing a cursor router or Navrow button. In addition, once the battery drops below 10 percent, dots seven and eight in the last five cells will show each percentage drop. For example, when the battery is at one percent, **DOT 8** in cell 40 will be raised.

When charging the Focus, you must use the AC adapter supplied with your unit. You can continue using the Focus while it is charging.

Caution: No user serviceable parts. Risk of High Voltage shock.

Carrying Case

The water-resistant neoprene carrying case fits snugly over the braille display. Whenever you transport the Focus, you should use the carrying case to protect it from environmental debris and damage.

Connecting the Focus

You can connect the Focus braille display to your computer using either the USB port or Bluetooth. If you connect using USB, the display is powered from the computer through the USB connection cable. This also charges the internal battery.

As soon as you connect the USB cable to the computer, the Focus immediately powers up. When the USB cable is removed, the Focus turns off. Pressing the power button while connected to USB causes the focus to display the model, firmware version, battery status, and the connection type, USB, in the last three cells. Pressing a cursor router or Navrow button returns the display to normal operation.

Bluetooth is a short-range wireless communications technology. Devices with Bluetooth capabilities can communicate with each other over a distance of about 10 meters (30 feet) without requiring a physical connection. Using the Focus wirelessly over Bluetooth means you do not have any cables to worry about and you can relax on your couch and use the Focus as both a braille display and keyboard to access your computer from across the room.

In order to use Bluetooth, you must establish a partnership with a Bluetooth enabled computer. The majority of modern notebook computers as well as some models of desktop computers offer built-in Bluetooth support. However, not all computers offer this. If your computer does not have built-in Bluetooth, you will need to purchase an external USB Bluetooth adapter and install the appropriate drivers on your system to enable this functionality. Refer to the documentation that came with your Bluetooth hardware to ensure Bluetooth is properly configured on your computer.

Adding JAWS Support to the Focus Display

If you are using the Focus 40 Blue with JAWS 10 or earlier, you will need to first install the driver included on the Companion CD that came with your display before connecting it to your computer. JAWS 11 and later automatically installs the files necessary to use the Focus 40 Blue.

Note: If you choose to use the Focus display with a third-party screen reading application, you must still install the driver from the Companion CD. However, once installed, refer to the documentation that came with the software for information on configuring and using the Focus with the particular application as certain commands may be different.

Installing the Focus Display in JAWS 11 or Later

To configure the Focus 40 Blue braille display to operate with JAWS 11 or later, do the following:

1. Perform the JAWS installation and restart your computer when prompted.

2. After the computer restarts and JAWS loads, establish a USB connection between the Focus and computer.

3. Windows will detect the display and install the appropriate drivers.

Note: Windows XP will display a Found New Hardware Wizard, prompting you to locate the driver. Choose the option to automatically install the software then select Finish to complete the installation.

4. Once the drivers have been installed, you must close and restart JAWS in order to begin using your Focus 40 Blue.

Installing the Focus Display in JAWS 10 or Earlier

To add support for the Focus 40 Blue in JAWS 10 or earlier, do the following:

Note: Disconnect the Focus display from your computer when performing the following steps. Having the display connected during this process results in improper installation and failure of the display to operate properly.

1. Insert the Focus 40 Blue Companion CD. When the Freedom Scientific Focus Setup dialog box opens, choose Install Windows driver. You will hear a series of clicks as the driver is installed.

2. When the installation completes, choose the OK button to restart your computer.

3. After the computer restarts and JAWS loads, establish a USB connection between the Focus and computer.

4. Windows will detect the display and install the appropriate drivers.

Note: Windows XP will display a Found New Hardware Wizard, prompting you to locate the driver. Choose the option to automatically install the software then select Finish to complete the installation.

5. Quit and then restart JAWS. Your new Focus 40 Blue braille display operates properly.

Configuring the Bluetooth Connection

In order to use the Focus 40 Blue with JAWS wirelessly over Bluetooth, you must configure a Bluetooth partnership between the Focus and computer and configure JAWS to use the Bluetooth COM port.

To set up a Bluetooth connection between the Focus display and JAWS, do the following:

1. Make sure that Bluetooth is enabled on the computer running JAWS. If you are using an external USB Bluetooth adapter, insert it and ensure it is detected properly.

2. Power on the focus. The firmware version and battery status information is displayed.

3. On the computer, go to the Control Panel and select Bluetooth Devices.

4. When the Bluetooth Devices dialog box opens, press **TAB** to move to the Add button and press **ENTER**.

5. Use the **SPACEBAR** to check the My device is set up and ready to be found check box then choose Next to begin searching for Bluetooth devices. This may take several seconds. You are placed in the list of devices when the search is complete.

6. Use the **ARROW** keys to select Focus 40 BT from the list then choose Next. If the Focus display was not found, make sure it is turned on then select the Search Again button.

7. Select the Use the passkey found in the documentation radio button, press **TAB** to Move to the Passkey edit field, type 0000, and choose Next.

8. After a few seconds, you will receive a message informing you that the Bluetooth device was successfully connected and the outgoing and incoming COM port assignments are displayed. Make a note of the outgoing port number as this is the port JAWS will use to communicate with the Focus.

9. Choose Finish to close the wizard, and then OK to close the Bluetooth Devices dialog box and save your settings.

Note: Your settings will not be saved if you do not exit both the wizard and Bluetooth Devices dialog box as described in step 9.

You must now configure JAWS to use the COM port that was added when you paired the Focus. To configure JAWS, do the following:

1. Press **INSERT+J** to open the JAWS window.

2. Press **ALT+O** to open the Options menu and select Braille to open the Braille Basic Settings dialog box.

3. In the Default Braille Display combo box, make sure Focus is selected then choose Modify Settings.

4. If you are using JAWS 13 or later, in the Select the output port edit combo box, choose Bluetooth. Otherwise, select the port that corresponds to the outgoing COM port number that was displayed after you finished pairing the Focus.

5. Select OK and you are instructed to restart JAWS in order for these changes to take affect. Select OK to close this message and once more to close the Braille Basic Settings dialog box.

6. Quit and restart JAWS and your Focus 40 Blue is now communicating with JAWS over Bluetooth. If you are using JAWS 13 or later, JAWS automatically detects the correct Bluetooth serial port.

To check the battery status, press the power button to display the percentage of battery power remaining. The letters “BT” are also displayed in cells 38 and 39 to indicate the Bluetooth connection is active. Press a cursor router or Navrow button to return to normal operation.

BrailleIn

The BrailleIn™ feature allows you to use only the Perkins-style braille keyboard on your Focus display to control your computer using both Windows and application specific commands. In addition, you can also enter both contracted and uncontracted braille input from your braille display's keyboard. The advantage is that you no longer have to switch between your computer's keyboard and your display's keyboard, or enter a special typing mode in order to use contracted braille to run your computer or programs. For a list of keystrokes, refer to the Focus Keyboard Commands Overview section of this manual.

Typing with Contracted Braille

With BrailleIn, as you type in contracted braille using the Perkins-style keyboard, your input is immediately translated back as normal text in the current e-mail, document, or form. If an application or specific edit box does not support contracted braille, JAWS announces "Computer Braille" when tutor messages are enabled.

Contracted braille input is off by default. To turn it on, do the following:

1. Press **INSERT+F2**, and select Settings Center.

2. In the Search edit box, type "Contracted Braille Translation" without the quotes.

3. Press **DOWN ARROW** to move to Contracted Braille Translation in the filtered search results in the tree view.

4. Next, press **SPACEBAR** to cycle through the different settings in the Contracted Braille Translation combo box.

Available settings are Off, Output Only, and Input and Output. When set to Off, you cannot read or type in contracted braille using your braille display. When set to Output Only, you can read contracted braille on your braille display, but you can only type in computer braille using the Perkins-style keyboard on your braille display. When set to Input and Output, you can both read and type in contracted braille using your braille display. The default setting is Off.

Note: Contracted Braille Translation can also be turned on or off using the Translation Options (**INSERT+V**) in those applications where it is available.

Braille Study Mode

Available in JAWS 9.0.2169 or later, Braille Study Mode is a training tool for teaching and learning braille. When Braille Study Mode is on, JAWS will announce the current braille character in a display cell when you press the Cursor Routing button immediately above that cell. When you press the Navrow button (located behind the Cursor Routing button), JAWS will announce and spell the braille word. To enable Braille Study Mode, do the following:

1. Make sure that the Focus display is attached to your computer.

2. Do one of the following:

   - Press **CTRL+INSERT+B** to open the Adjust Braille Options dialog box (JAWS 12 or earlier), or
   - Press **INSERT+V** to open Quick Settings (JAWS 13 or later) or the Adjust JAWS Options dialog box (JAWS 12 or earlier).

3. Begin typing the word “study” until Study Mode appears, and then press **SPACEBAR** to toggle Study Mode on. If using Quick Settings in JAWS 13, first press **TAB** to move to the list of search results, then press **SPACEBAR**. Braille Study Mode remains on until toggled off or until JAWS is restarted.

In addition, when Braille Study Mode is disabled, you can always press the braille display's left or right WHIZWHEEL together with either a Cursor Routing or Navrow button to briefly use Braille Study Mode functionality. This is useful when you need a quick reminder, but you do not want to go through the process of turning on Braille Study Mode as previously described. To use Braille Study Mode on the fly, do one of the following:

- Press **WHIZWHEEL+CURSOR ROUTING** to make JAWS announce the braille character in the display cell, or
- Press **WHIZWHEEL+NAVROW** to make JAWS announce and spell the braille word.

Note: JAWS returns to normal operation after announcing the braille character or word.

Configuring the Focus Display

The Focus braille display provides several features that you can customize to suit your needs. You can adjust the location of the status cells, define the start and end positions of the reading line, vary the firmness of the braille dots, and enable a Rapid Reading mode.

These settings are all adjusted by means of the JAWS Configuration Manager, Set Options, Braille Options, Advanced Braille Display Options. Open Default.jcf to adjust these settings for all applications, or open an application-specific .jcf file to adjust settings for that application. For more information, refer to the help for JAWS Configuration Manager.

Placement of Status Cells

You can specify if the informational Status Cells are to be located on the left or right end of the display, or choose to not display them at all. The status cells are located at the left end of the display by default.

Reading Line

Specify the start and end cell for display of information. Use the Reading Line edit spin boxes to display information only within the portion of the display you want to use. The default settings are determined by the location of the Status Cells and the display length.

Variable Braille Dot Firmness

Specify the firmness of the braille dots on the Focus display. There are five levels of firmness. Adjust the display to the level of firmness most suited to the sensitivity of your fingers.

Rapid Reading

Set the Focus display to use only 20 braille cells. Limiting the braille display to 20 cells may increase your reading speed. When the Rapid Reading check box is checked in the Focus Braille Options dialog, the Placement of Status Cells radio buttons and Reading Line edit spin boxes are disabled.

Focus Keyboard Commands Overview

This section describes the keyboard command assignments for JAWS and the Focus braille display. The commands are separated into modifier Keys, function keys, special keys, navigation commands, Microsoft Word navigation quick keys, text selection commands, Braille commands, Windows commands, selection commands, JAWS commands, cursor functions, and utility functions. Focus commands are consistently based on JAWS and Windows commands. If you are familiar with JAWS and Windows keyboard commands, Focus commands are very easy to learn. If you become familiar with Focus commands, JAWS and Windows keyboard commands are also easy to learn.

The keystrokes listed here are for JAWS 12 and later. To view Focus keystrokes for earlier versions of JAWS, visit the Freedom Scientific Braille Displays documentation page at http://www.freedomscientific.com/documentation/displays.asp.

Note: Some of these commands duplicate functions of the panning buttons, rocker bars, and selector buttons, detailed earlier in this manual.

Modifier Keys

Use the modifier keys to simulate key combinations (keystrokes) that include **CTRL**, **ALT**, **WINDOWS Key**, **SHIFT**, or the JAWS Key (**INSERT**). To use these modifiers when typing a keystroke, do the following:

1. Hold down **DOT 8 CHORD** and then press the corresponding modifier keys in the keystroke. Modifier keystrokes are listed in the following table.

2. After you create the modifier portion of the keystroke, release the keys and press the remaining part of the keystroke. For example, to perform the keystroke **CTRL+SHIFT+V**, you press **DOTS 3-7-8 CHORD**, release the keys, and then press **V** (**DOTS 1-2-3-6**).

Key Name	Keystroke
Function Keys (F1 through F12) For more information, see the Function Keys description.	**DOT 1**
INSERT	**DOT 2**
CTRL	**DOT 3**
WINDOWS Key	**DOT 4**
JAWS Key	**DOT 5**
ALT	**DOT 6**
SHIFT	**DOT 7**

Function Keys

To simulate the function keys (**F1** through **F12**), press **DOTS 1-8 CHORD** followed by **A** through **L** (which correspond to 1 through 12). For example, to simulate the **F6** key, press **DOTS 1-8 CHORD**, then **F** (**DOTS 1-2-4**). If the function key is part of a key combination, add the appropriate modifiers while holding down **DOTS 1-8 CHORD**. For example, to simulate the keystroke **INSERT+F2**, press **DOTS 1-2-8 CHORD**, then **B** (**DOTS 1-2**).

Special Keys

Use these keystrokes to simulate certain keys that are not available on the Focus braille keyboard. These keys can be combined with the modifier keys described previously. Punctuation and other symbols will be entered using their contracted braille equivalents if Contracted Braille Translation is set to Input and Output. For your convenience, both keystrokes and braille dot patterns are provided. If no dot pattern equivalent is available, a dash appears in the table cell.

Key Name	Keystroke	DOTS Pattern
ESC	**RIGHT SHIFT+DOT 1 or Z CHORD**	**RIGHT SHIFT+DOT 1 or DOTS 1-3-5-6 CHORD**
ALT	**RIGHT SHIFT+DOT 2**	**-**
APPLICATION Key	**RIGHT SHIFT+DOT 2 CHORD**	**-**
NUM PAD ASTERISK	**RIGHT SHIFT+DOT 3**	**-**
WINDOWS Key	**RIGHT SHIFT+DOT 4**	**-**
NUM PAD SLASH	**RIGHT SHIFT+DOT 7**	**RIGHT SHIFT+DOT 7**

Key Name	Keystroke	DOTS Pattern
CAPS LOCK	**RIGHT SHIFT+DOT 7 CHORD or RIGHT SHIFT+K**	**RIGHT SHIFT+DOT 7 CHORD or RIGHT SHIFT+DOTS 1-3**
NUM PAD PLUS	**RIGHT SHIFT+DOT 8**	**-**
BACKSPACE	**DOT 7**	**-**
ENTER	**DOT 8**	**-**
CTRL+BACKSPACE	**DOTS 1-2-3-4-5-6-7 CHORD**	**-**
TAB	**DOTS 4-5 CHORD**	**-**
SHIFT+TAB	**B CHORD**	**DOTS 1-2 CHORD**
HOME	**K CHORD**	**DOTS 1-3 CHORD**
END	**DOTS 4-6 CHORD**	**-**

Key Name	Keystroke	DOTS Pattern
PAGE UP	**LEFT SHIFT+ROCKER BAR UP or RIGHT SHIFT+ROCKER BAR UP or DOTS 2-3-7 CHORD**	**-**
PAGE DOWN	**LEFT SHIFT+ROCKER BAR DOWN or RIGHT SHIFT+ROCKER BAR DOWN or DOTS 5-6-7 CHORD**	**-**
DELETE	**FOR CHORD**	**DOTS 1-2-3-4-5-6 CHORD**
EQUALS	**DOTS 1-2-3-4-5-6**	**-**
RIGHT BRACKET	**DOTS 1-2-4-5-6-7**	**-**
LEFT BRACKET	**DOTS 2-4-6-7**	**-**

Key Name	Keystroke	DOTS Pattern
BACKSLASH	**DOTS 1-2-5-6-7**	**-**
SLASH	**DOTS 3-4**	**-**
RIGHT PARENTHESIS	**DOTS 2-3-4-5-6**	**-**
APOSTROPHE	**DOT 3**	**-**
DASH	**DOTS 3-6**	**-**
GRÀVE	**DOT 4**	**-**
PERIOD	**DOTS 4-6**	**-**
SEMICOLON	**DOTS 5-6**	**-**
COMMA	**DOT 6**	**-**

Navigation Commands

Use these keystrokes to perform various JAWS navigation commands. Both keystrokes and braille dot patterns are provided in the table. If no dot pattern equivalent is available, a dash appears in the table cell.

Description	Keystroke	DOTS Pattern
Say Prior Character	**DOT 3 CHORD**	**-**

Description	Keystroke	DOTS Pattern
Say Next Character	**DOT 6 CHORD**	**-**
Say Character	**DOTS 3-6 CHORD**	**-**
Say Prior Word	**DOT 2 CHORD**	**-**
Say Next Word	**DOT 5 CHORD**	**-**
Say Word	**DOTS 2-5 CHORD**	**-**
Say Prior Line	**DOT 1 CHORD or LEFT ROCKER BAR UP**	**-**
Say Next Line	**DOT 4 CHORD or LEFT ROCKER BAR DOWN**	**-**
Say Line	**C CHORD**	**DOTS 1-4 CHORD**
Say Prior Sentence	**LEFT SHIFT+RIGHT ROCKER BAR UP**	**-**

Description	Keystroke	DOTS Pattern
Say Next Sentence	**LEFT SHIFT+RIGHT ROCKER BAR DOWN**	**-**
Say Sentence	**LEFT SHIFT+RIGHT SHIFT+C**	**LEFT SHIFT+RIGHT SHIFT+DOTS 1-4**
Say Prior Paragraph	**RIGHT SHIFT+LEFT ROCKER BAR UP**	**-**
Say Next Paragraph	**RIGHT SHIFT+LEFT ROCKER BAR DOWN**	**-**
Say Paragraph	**LEFT SHIFT+RIGHT SHIFT+DOTS 2-3-5-6-7-8**	**-**
Move to Top of File	**L CHORD**	**DOTS 1-2-3 CHORD**
Move to Bottom of File	**DOTS 4-5-6 CHORD**	**-**

Description	Keystroke	DOTS Pattern
Say to Cursor	**RIGHT SHIFT+DOTS 3-7**	**-**
Say from Cursor	**RIGHT SHIFT+DOTS 6-8**	**-**
Say All	**DOTS 1-2-4-5-6 CHORD**	**-**
Say Top of Line of Active Window	**LEFT ROCKER BAR UP+RIGHT ROCKER BAR UP**	**-**
Say Bottom of Line of Active Window	**LEFT ROCKER BAR DOWN+RIGHT ROCKER BAR DOWN**	**-**
Previous Document Window	**DOTS 2-3 CHORD**	**-**
Next Document Window	**DOTS 5-6 CHORD**	**-**
Open List Box	**LEFT SHIFT+RIGHT ROCKER BAR DOWN**	**-**

Description	Keystroke	DOTS Pattern
Close List Box	**LEFT SHIFT+RIGHT ROCKER BAR UP**	**-**
Exit Forms Mode	**X CHORD**	**DOTS 1-3-4-6 CHORD**
Say Window Prompt and Text	**G CHORD**	**DOTS 1-2-4-5 CHORD**

Microsoft Word Navigation Quick Keys

Use these keystrokes to navigate Microsoft Word documents. Navigation Quick Keys must be enabled in order for these commands to function (**DOT 8 CHORD, DOT 2** followed by **DOTS 1-3-5-6**). Note that you can add **DOT 7** to most of the keystrokes in the table below to move to the previous element of that type in the document. Both keystrokes and braille dot patterns are provided in the table. If no dot pattern equivalent is available, a dash appears in the table cell.

Description	Keystroke	DOTS Pattern
Next Bookmark	**B**	**DOTS 1-2**
Next Comment	**C**	**DOTS 1-4**
Next Endnote	**E**	**DOTS 1-5**

Description	Keystroke	DOTS Pattern
Next Form Field	**F**	**DOTS 1-2-4**
Next Graphic	**G**	**DOTS 1-2-4-5**
Next Heading	**H**	**DOTS 1-2-5**
Next Footnote	**O**	**DOTS 1-3-5**
Next Paragraph	**P+DOT 8**	**DOTS 1-2-3-4-8**
Previous Paragraph	**P+DOT 7**	**DOTS 1-2-3-4-7**
Next Section	**S**	**DOTS 2-3-4**
Next Table	**T**	**DOTS 2-3-4-5**
Next Page	**SPACEBAR**	**-**
Previous Page	**BACKSPACE**	**DOT 7**

Text Selection Commands

Use these keystrokes to perform various text selection commands. Both keystrokes and braille dot patterns are provided in the table. If no dot pattern equivalent is available, a dash appears in the table cell.

Description	Keystroke	DOTS Pattern
Select Prior Character	**DOTS 3-7 CHORD**	**-**

Description	Keystroke	DOTS Pattern
Select Next Character	**DOTS 6-7 CHORD**	**-**
Select Prior Word	**DOTS 2-7 CHORD**	**-**
Select Next Word	**DOTS 5-7 CHORD**	**-**
Select Prior Line	**DOTS 1-7 CHORD**	**-**
Select Next Line	**DOTS 4-7 CHORD**	**-**
Select Prior Screen	**LEFT SHIFT+K**	**LEFT SHIFT+DOTS 1-3**
Select Next Screen	**LEFT SHIFT+DOTS 4-6**	**-**
Select from Start of Line	**K+DOT 7 CHORD**	**DOTS 1-3-7 CHORD**
Select to End of Line	**DOTS 4-6-7 CHORD**	**--**
Select from Top	**L+DOTS 7 CHORD**	**DOTS 1-2-3-7 CHORD**

Description	Keystroke	DOTS Pattern
Select to Bottom	**DOTS 4-5-6-7 CHORD**	**-**
Move To Beginning Of Line	**ROCKER BAR UP+PANNING BUTTON**	**-**
Move To End Of Line	**ROCKER BAR DOWN+PANNING BUTTON**	**-**

Selecting with the Cursor Routing Buttons

To select with the cursor routing buttons, press and hold down the **LEFT SHIFT**, then press the cursor routing button above the text where you want to begin the selection. Release both keys. Move to where you want to end the selection, and press the **LEFT SHIFT** plus the cursor routing button at that location. Use any navigation commands to move from the beginning point to the end point of the text you are selecting, even the WHIZWHEELS, but if the window containing the text scrolls, this affects the information that is selected.

Braille Commands

Use these keystrokes to configure various braille functions. Both keystrokes and braille dot patterns are provided in the table.

Description	Keystroke	DOTS Pattern
Top of Document	**L CHORD**	**DOTS 1-2-3 CHORD**
Bottom of Document	**DOTS 4-5-6 CHORD**	**DOTS 4-5-6 CHORD**

Description	Keystroke	DOTS Pattern
Adjust Braille Verbosity (JAWS 12 and earlier)	**DOTS 2-3-8 CHORD** followed by **DOTS 1-2**	**DOTS 2-3-8 CHORD** followed by **DOTS 1-2**
Grade 2 Expand Current Word	**T CHORD**	**DOTS 2-3-4-5 CHORD**
Grade 2 Translation	**DOTS 1-2-4-5-7 CHORD**	**DOTS 1-2-4-5-7 CHORD**
Toggle Characters and Attributes	**CH Sign CHORD**	**DOTS 1-6 CHORD**
Cycle Among Line, Structured, Attributes, and Speech History Modes	**M CHORD**	**DOTS 1-3-4 CHORD**
Toggle 8/6 DOTS Braille	**8 CHORD**	**DOTS 2-3-6 CHORD**
Change Cursor Shape	**SH Sign CHORD**	**DOTS 1-4-6 CHORD**
Restrict Braille Cursor	**R CHORD**	**DOTS 1-2-3-5 CHORD**

Windows Commands

Use these keystrokes for basic editing functions in Windows.

Description	Braille Sign	DOTS Pattern
ALT+TAB	**LEFT SHIFT+DOTS 4-5**	**LEFT SHIFT+DOTS 4-5**
Paste from Clipboard	**LEFT SHIFT+V**	**LEFT SHIFT+DOTS 1-2-3-6**
Copy to Clipboard	**LEFT SHIFT+C**	**LEFT SHIFT+DOTS 1-4**
Cut to Clipboard	**LEFT SHIFT+X**	**LEFT SHIFT+DOTS 1-3-4-6**
Undo	**LEFT SHIFT+Z**	**LEFT SHIFT+DOTS 1-3-5-6**
Delete	**LEFT SHIFT+D**	**LEFT SHIFT+DOTS 1-4-5**

Selection Commands

Use these keystrokes to select characters, lines, and other page elements.

Description	Braille Sign	DOTS Pattern
Select Next Character	**LEFT SHIFT+DOT 6**	**LEFT SHIFT+DOT 6**
Select Prior Character	**LEFT SHIFT+DOT 3**	**LEFT SHIFT+DOT 3**
Select Next Line	**LEFT SHIFT+DOT 4**	**LEFT SHIFT+DOT 4**
Select Prior Line	**LEFT SHIFT+DOT 1**	**LEFT SHIFT+DOT 1**
Select to End of Line	**LEFT SHIFT+DOT 5**	**LEFT SHIFT+DOT 5**
Select from Start of Line	**LEFT SHIFT+DOT 2**	**LEFT SHIFT+DOT 2**
Select from Top	**LEFT SHIFT+L**	**LEFT SHIFT+DOTS 1-2-3**
Select to Bottom	**LEFT SHIFT+DOTS 4-5-6**	**LEFT SHIFT+DOTS 4-5-6**
Select Next Screen	**LEFT SHIFT+DOTS 4-6**	**LEFT SHIFT+DOTS 4-6**

Description	Braille Sign	DOTS Pattern
Select Prior Screen	**LEFT SHIFT+K**	**LEFT SHIFT+DOTS 1-3**
Select All	**LEFT SHIFT+FOR Sign**	**LEFT SHIFT+DOTS 1-2-3-4-5-6**
Select a Frame	**RIGHT SHIFT+9**	**RIGHT SHIFT+DOTS 3-5**
Select a Heading	**RIGHT SHIFT+6**	**RIGHT SHIFT+DOTS 2-3-5**
Select a Link	**RIGHT SHIFT+7**	**RIGHT SHIFT+DOTS 2-3-5-6**

JAWS Commands

Use these keystrokes to perform some of the more common JAWS functions.

Description	Braille Sign	DOTS Pattern
JAWS Window	**RIGHT SHIFT+J**	**RIGHT SHIFT+DOTS 2-4-5**

Description	Braille Sign	DOTS Pattern
Quick Settings (JAWS 13 or later) or Adjust JAWS Verbosity (JAWS 12 or earlier)	**RIGHT SHIFT+V**	**RIGHT SHIFT+DOTS 1-2-3-6**
Open Task List	**RIGHT SHIFT+DOTS 3-5-6**	**RIGHT SHIFT+DOTS 3-5-6**
List System Tray Icons	**RIGHT SHIFT+K**	**RIGHT SHIFT+DOTS 1-3**
Say System Time	**RIGHT SHIFT DOTS 1-2-3**	**RIGHT SHIFT DOTS 1-2-3**
Drag and Drop	**RIGHT SHIFT+DOTS 3-7 CHORD**	**-**
Refresh Screen	**RIGHT SHIFT+Z**	**RIGHT SHIFT+DOTS 1-3-5-6**
Say Font	**RIGHT SHIFT+F**	**RIGHT SHIFT+DOTS 1-2-4**

Description	Braille Sign	DOTS Pattern
Windows Keys Help	**RIGHT SHIFT+W**	**RIGHT SHIFT+DOTS 2-4-5-6**
Read Current Window	**RIGHT SHIFT+B**	**RIGHT SHIFT+DOTS 1-2**
Default Button in Dialog	**RIGHT SHIFT+E**	**RIGHT SHIFT+DOTS 1-5**
Shut DOWN JAWS	**RIGHT SHIFT+4**	**RIGHT SHIFT+DOTS 2-5-6**
Select a Voice Profile	**RIGHT SHIFT+S**	**RIGHT SHIFT+DOTS 2-3-4**

Cursor Functions

Use these keystrokes to select a cursor for navigating JAWS.

Description	Braille Sign	DOTS Pattern
JAWS Cursor	**J CHORD**	**DOTS 2-4-5 CHORD**
PC Cursor	**P CHORD**	**DOTS 1-2-3-4 CHORD**

Description	Braille Sign	DOTS Pattern
Route JAWS to PC	**RIGHT SHIFT+DOTS 3-6 (MINUS Sign)**	**RIGHT SHIFT+DOTS 3-6**
Route PC to JAWS	**RIGHT SHIFT+ING Sign (PLUS Sign)**	**RIGHT SHIFT+DOTS 3-4-6**

Utility Functions

Use these keystrokes for general utility functions.

Description	Braille Sign	DOTS Pattern
Run JAWS Manager	**RIGHT SHIFT+2**	**RIGHT SHIFT+DOTS 2-3**
Set Frame Top LEFT	**RIGHT SHIFT+OW Sign**	**RIGHT SHIFT+DOTS 2-4-6**
Set Frame Bottom RIGHT	**RIGHT SHIFT+ER Sign**	**RIGHT SHIFT+DOTS 1-2-4-5-6**
Graphics Labeler	**RIGHT SHIFT+G**	**RIGHT SHIFT+DOTS 1-2-4-5**

Description	Braille Sign	DOTS Pattern
JAWS Find	**RIGHT SHIFT+F CHORD**	**RIGHT SHIFT+DOTS 1-2-4 CHORD**
JAWS Find Next	**RIGHT SHIFT+DOTS 2-5**	**RIGHT SHIFT+DOTS 2-5**

Environmental Considerations

Storage

Temperature: 0° to 60° C (0 to 140 F)

Humidity: 80% RH

Operating

Temperature: 5° to 40° C (41 to 104 F)

Humidity: 60% RH non-condensing

Diagnostics Mode

The Focus braille display has built-in diagnostic tests for the cursor routing buttons, braille display, WHIZWHEELS, braille keys, panning buttons, rocker bars, and selector buttons.

Before entering Diagnostics Mode, disconnect the Focus from your computer and make sure it is powered off.

Entering and Exiting Diagnostics Mode

Simultaneously, press the cursor routing and Navrow buttons farthest to the left (above cell one) while pressing the power button. The text, "press cr key/wheel/panel keys," is displayed to indicate that Diagnostics Mode has been entered.

Press the power button again by itself to exit Diagnostics Mode.

Routing and Navrow Button Test

The routing and Navrow button test ensures that each of the cursor routing and Navrow buttons on the braille display work properly. Press any cursor routing button to activate **DOTS 5-6-7-8** in the cell below the button. Press any Navrow button to activate **DOTS 1-2-3-4** of the corresponding braille cell.

Display Test/Clean

It is necessary to disconnect the Focus 40 Blue from your computer and make sure it is powered off before beginning this test. The display test is used to ensure that each pin on the braille display can be activated. The display test also allows you to clean the braille display. Press the power button while pressing the rightmost cursor routing and Navrow buttons (above cell 40) simultaneously. This action causes all cells to be activated for cleaning. Use a soft cloth moistened with isopropyl alcohol. Do not use any other substance to clean the cells.

While the Focus is in this mode, pressing the rightmost cursor routing button deactivates all of the cells. Pressing the rightmost Navrow button reactivates all cells.

Pressing the Navrow button immediately to the left of the rightmost Navrow button causes the cells to toggle up and down. To stop this action, press either the rightmost cursor routing or Navrow button.

Pressing the cursor routing button immediately to the left of the rightmost cursor routing button results in a different pattern of cell activation. As above, press either the rightmost cursor routing or Navrow button to stop this action.

Key and Controls Test

The key and controls test ensures that each of the keys, controls, and WHIZWHEELS operate properly. You can begin the key test after entering Diagnostics Mode by pressing any of the keys or controls listed in the table below. The braille display reflects each key that is pressed. Refer to the following table for the exact dot position for each of the keys. Press each of the keys and controls and verify that the appropriate response is displayed.

Keys	Displays
DOT 1	1
DOT 2	2
DOT 3	3
DOT 4	4
DOT 5	5
DOT 6	6
DOT 7	7
DOT 8	8
LEFT SHIFT	kls

Keys	Displays
RIGHT SHIFT	krs
SPACEBAR	ksp
LEFT PANNING BUTTON	pl
RIGHT PANNING BUTTON	pr
LEFT SELECTOR BUTTON	sl
RIGHT SELECTOR BUTTON	sr
LEFT WHIZWHEEL SWITCH	wls
LEFT WHIZWHEEL UP	wlu
RIGHT WHIZWHEEL SWITCH	wrs
RIGHT WHIZWHEEL UP	wru
RIGHT WHIZWHEEL DOWN	wrd
LEFT ROCKER SWITCH UP	rlu
LEFT ROCKER SWITCH DOWN	rld
RIGHT ROCKER SWITCH UP	rru
RIGHT ROCKER SWITCH DOWN	rrd

Battery Info Mode

Before entering this mode, disconnect the Focus from your computer and make sure it is powered off. Press the power button while simultaneously pressing the cursor router and Navrow buttons above cell two. The Focus displays additional information about the internal battery.