



DASHBOARD USER GUIDE

AN-SW-003

PRODUCT FAMILY DESCRIPTION

This document describes features that are found in the Baanto™ ShadowSense™ family of open frame and large format products. The Dashboard Software supports all Baanto SKUs, regardless of size.

COMPUTER REQUIREMENTS

The Baanto Dashboard software has the following requirements for the PC:

- OS: Windows 7®, Windows 8®, Windows 10®
- Plug-ins: Requires Microsoft .NET 4.5 Framework® (download from Microsoft and included as an executable file in the \Redist directory)
- Dashboard requires Visual Studio 10® x64/x86 (can be downloaded from Microsoft is also included in the ZIP file in the \Redist directory)
- HD Space: 15MB Minimum
- Processor: Celeron® class or better
- RAM: 500MB or above

Note:

Windows XP® is not supported.

INSTALLATION INSTRUCTIONS

The Baanto Dashboard can be installed on platforms running Microsoft Windows 7/8/10 OS. The Baanto Dashboard application also requires: Microsoft .Net 4.5 Framework and the Microsoft Visual C++ Service Pack.

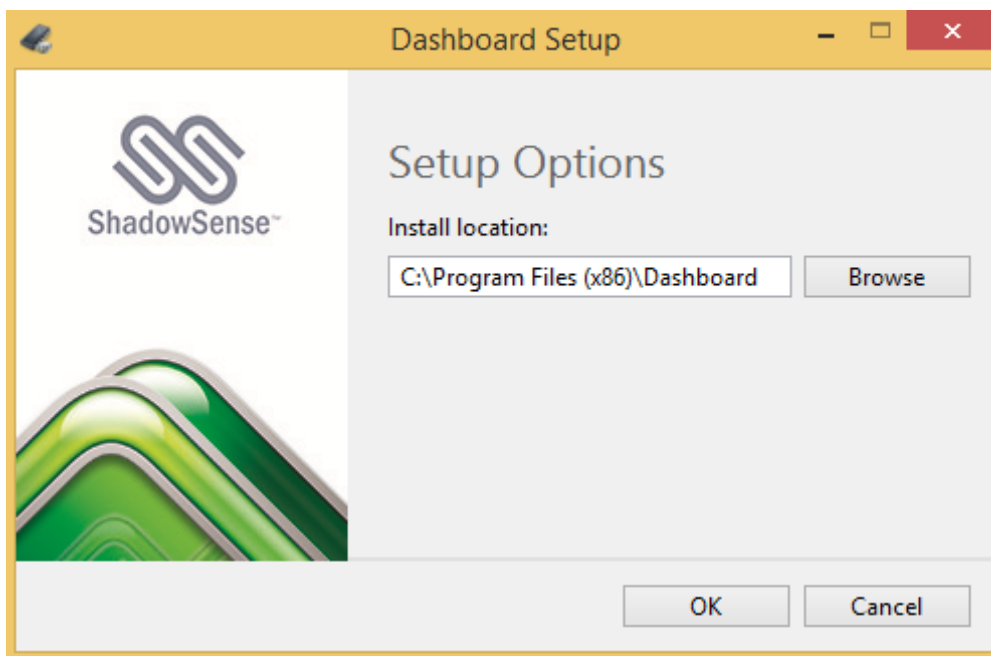
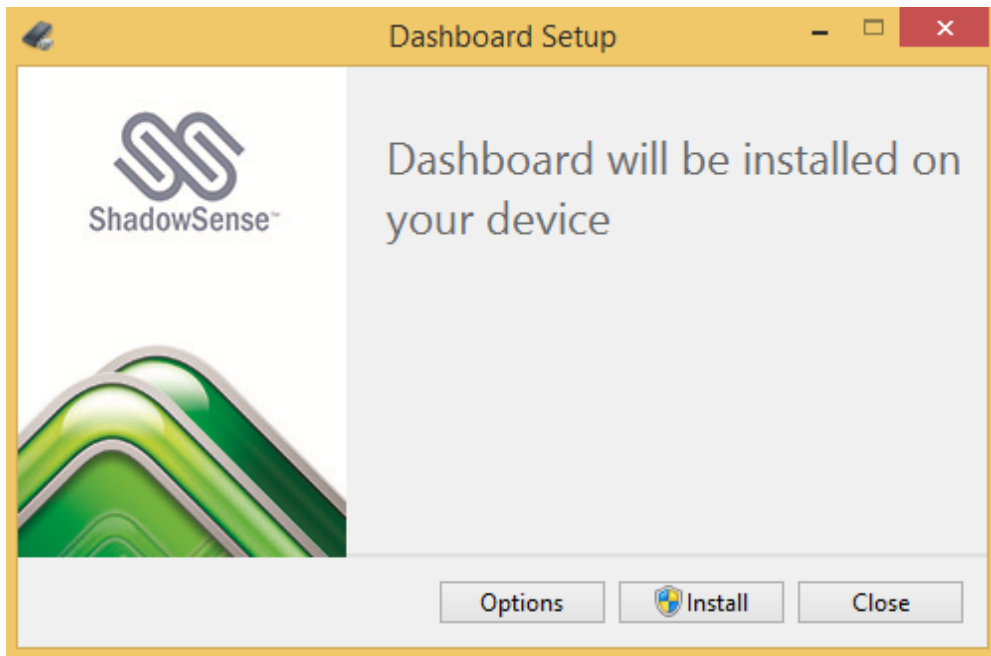
The various Microsoft add-ons can be installed by downloading them from Microsoft directly; the required add-ons are also included in the Dashboard zip file and are located in the \Redist folder.

Manual Installation Procedure is as follows:

- Install .NET Framework if needed. Either via download, or \Redist\dotNetFx45_Full_x86_x64.exe file
- Install Visual C++ 2010 if needed. Either via download or \Redist\vc_redist_x86.exe
- Install 64 bit version \Redist\vc_redist_x64.exe if your OS
- Run Dashboard.exe file to start the program

Auto Installation Procedure is as follows:

- Click on DashboardSetup.exe file and select the install location
- Click "OK" for install



1.0 INTRODUCTION

ShadowSense

Baanto ShadowSense™ touch technology is an innovative and patented position sensing technology. ShadowSense designs use high performance sensors operating in the analog domain to provide unprecedented performance, stability, and accuracy.

The best analogy for ShadowSense technology lies in the 6,000 year old sundial. The shadow cast by a sundial instantly and accurately corresponds to the position of a light source without the use of lenses, with an infinite depth of field and without the need for exposure control. ShadowSense technology exploits the same characteristics for touch applications, resulting in one of the highest performance, most robust position sensing solutions available.

Dashboard

ShadowSense algorithms offer a variety of parameters that can be used to customize the touch screen's performance. The Dashboard software tool provides customers with the ability to easily modify the behavior of the touchscreen based on various use cases. It allows the user to adjust the performance and touch characteristics of the touchscreen such as to provide spurious touch and palm rejection, debris and static object recognition, rain and fluid cancellation and to enable/disable various features.

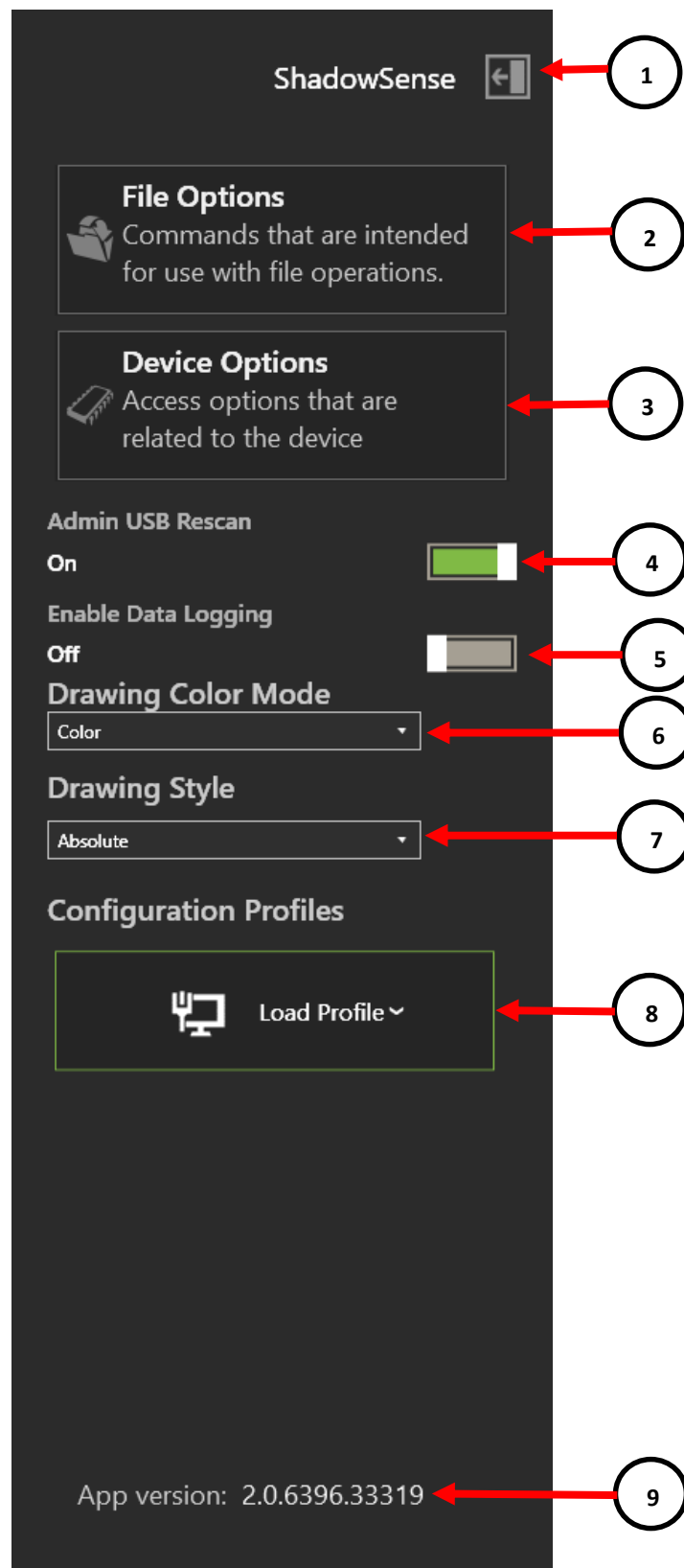


The Dashboard software utility offers the following top level views:

- Main Menu
- Diagnostic View – Displays LED and sensor information
- Configuration View – Allows the user to configure the various touch screen parameters
- Upgrade View – Allows the user to upgrade the firmware of the touch screen

2.0 MAIN MENU

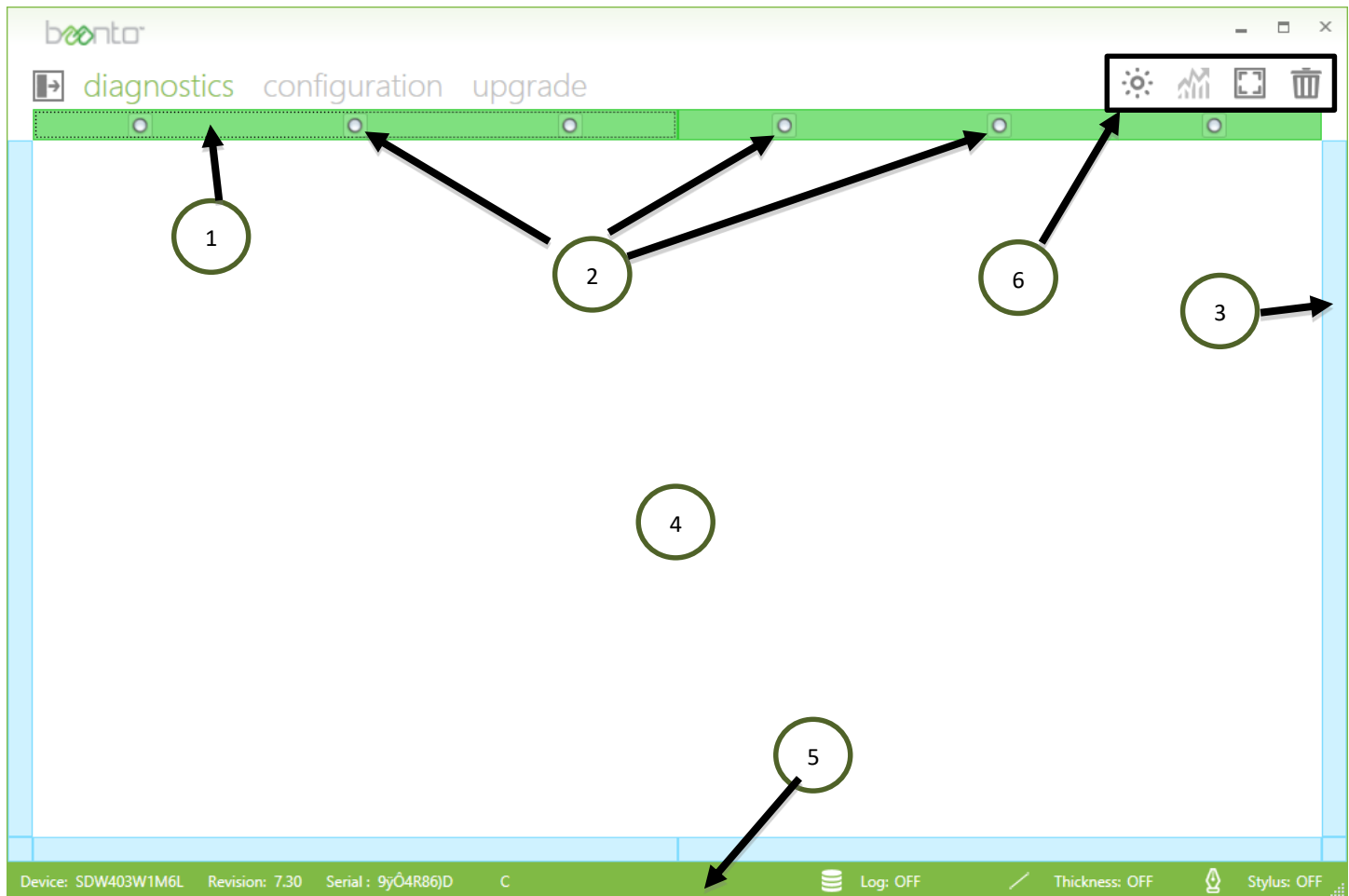
The main menu is accessible from any of the views by clicking the left arrow beside the Diagnostics tab. Some of the features that are available in this view are highlighted in the diagram below



1. ACCESS BUTTON:
 - Opens and close the Main Menu that opens up on screen and collapses from the left side in Dashboard.
2. FILE OPTIONS:
 - EXPORT LED VIEW: Saves all LED visibility data to an XML file for further analysis.
 - IMPORT LED VIEW: Allows the user to open an existing XML LED visibility data file so that it can be reviewed in graphical chart form. This feature can be used even if the touch screen is not connected to the computer.
 - IMPORT CSV FILE: Internal use only.
 - LOAD CONFIGURATION FILE: Allows the user to select and open an external XML file from which all the settings in the configuration view can be loaded.
 - SAVE CONFIGURATION FILE: Saves the current settings in the configuration view to an external XML file.
3. DEVICE OPTIONS:
 - LOAD CONFIGURATION FROM HARDWARE: Downloads the configuration parameters from EEPROM.
 - SAVE CONFIGURATION TO HARDWARE: Saves the user configuration parameters to EEPROM.
 - DEFAULT CONFIGURATION: Resets the configuration parameters back to the factory defaults.
 - OPTIMIZE LEDS: This triggers a re-calibration process of the touchscreen.
 - REFRESH LED DATA: Downloads the latest LED visibility data. Usually the LED data is only downloaded once on touchscreen boot up.
 - READ LED DATA FROM HARDWARE: Internal use
 - WRITE LED DATA TO HARDWARE: Internal use
 - RESCAN SHADOWSENSE USB DEVICES: Re-enumerates the USB entries in the Device Manager for a particular USB port on the PC. Selection is used when a Shadow Sense device's USB pipe has been modified and is no longer detected by Windows or Dashboard. Refer to section 8 for more details.
 - LOG DATA: All USB traffic is logged into a TXT file, located in the \Logs subdirectory of the Dashboard software.
4. ADMIN USB RESCAN: When enabled this will do a deep removal and rescan of the touch device from the device manager. User has to enable this setting and select RESCAN SHADOWSENSE USB DEVICE from DEVICE OPTIONS to initiate the deep rescan. By default this setting is enabled.
5. ENABLE DATA LOGGING: Same as the Log Data under Device Options, this is just a short-cut.
6. DRAWING COLOR MODE: By default, each touch is represented by the color BLACK. The user can choose COLOR from the drop down menu and this will register each touch with a different color within the diagnostic and the full screen view.
7. DRAWING STYLE:
 - ABSOLUTE: Drawing on screen will be squished into the canvas and touch position will not match the drawn position in the canvas.
 - WINDOWED: The drawing canvas will show the position of the touch point correctly. Drawing inside the canvas will be displayed.
8. CONFIGURATION PROFILES: allows the user to set the device with a pre-defined configuration profile from the drop down menu. The user can switch a profile anytime as long as the device is active. The profile is stored in the device memory, so it only requires a single update.
 - DEFAULT: resets the device into the default values (manufacturer settings)
 - WHITEBOARD: this profile configures the device to operate as an interactive white board
 - DIGITALSIGNAGE: this profile configures the device to operate as an interactive digital signage
9. APP VERSION: Dashboard software application revision number.

3.0 DIAGNOSTICS VIEW

The ShadowSense technology utilizes a number of unique shadow sensors located along the top of the touchscreen. LEDs are placed along the remaining 3 edges and these LEDs are used to cast light across the surface of the glass. When a finger or other object, touches the screen, the shadow sensors are able to detect the angle of the shadow cast by that object. The Diagnostic View allows the user to view, debug and diagnose any potential problems with the Baanto ShadowSense touchscreen. The various elements of this view are described below.

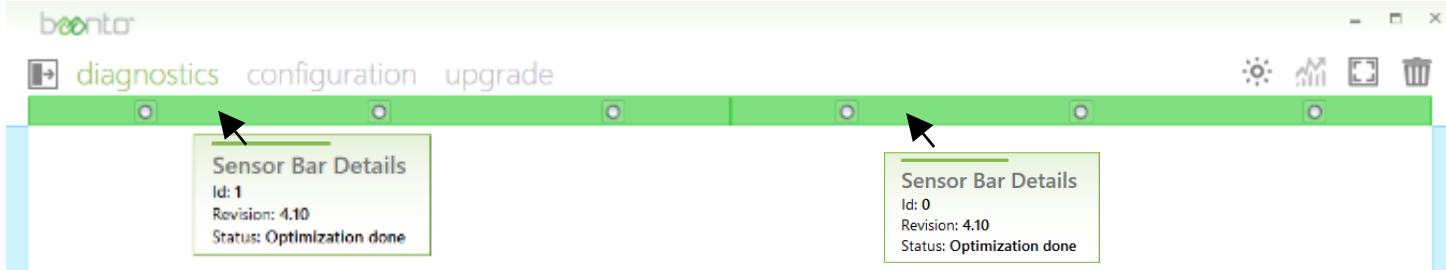


Some of the features available in this view are highlighted in the diagram above and described below:

1. CALIBRATION BAR:

- The calibration state of the touchscreen is shown in this bar. The touchscreen goes through a calibration process at boot up and at various times during operation if it detects that calibration has changed due to environmental conditions. There are four states of calibration that the touchscreen undergoes, which are described below:
 - NO COMMUNICATION (RED) – Cannot communicate with the sensor bar
 - UNCONFIGURED (GREY) – Device has not started calibration
 - OPTIMIZATION STARTED (YELLOW) – Device is undergoing calibration. For optimal calibration it should not be touched or handled while in this state.
 - OPTIMIZATION POST DELAY (LIGHT GREEN) – device has completed calibration and is waiting for post processing to be completed.
 - OPTIMIZATION DONE (GREEN) – device has successfully completed calibration and is ready for normal operation.
- Certain Large Format Baanto touchscreens use multiple slave controllers. Each slave controller manages a group of shadow sensors and is shown as a specific 'bar' with a number of shadow sensors. In the example below, a touchscreen with two

slave controllers is shown. The firmware revision of the two slave controllers can be found by clicking the two rectangular calibration bars as shown below. Both of the slave controllers should have the same firmware revision numbers.



2. SHADOW SENSORS:

- The shadow sensors are represented by the white circles located in the Calibration Bar. The user can obtain specific information relating to each of the shadow sensors by selecting the individual sensor. When a sensor is selected, it is highlighted as shown above and the LED data relating to this sensor will be shown in the LED Data Bars.

3. LED DATA BARS:

- The touchscreen is surrounded by LEDs and the bars around the edge of the window represent these LEDs.
- GREEN LED: LED is within operating specifications.
- YELLOW LED: LED is outside of normal operating parameters with respect to the sensor that is highlighted. In this situation, please save the data using the Export LED Button, and forward it to Baanto for further analysis.
- BLUE LED: LED is not visible to the sensor and is intentionally ignored.

4. DRAWING CANVAS:

- This area displays all touch events. By default each touch is represented by the color black. The user can choose to represent each touch using a different color by changing the Drawing Color Mode option from the main menu. If thickness is enabled, the width of the touch is represented by the width of the stroke. It should be noted that the drawing canvas represents the entire LCD screen, regardless of how small the actual window is made to be. In order to match the touch data with the LCD image, hit 'ESC' key or click the Full Screen Icon such that the drawing canvas will maximize to fill the LCD image.

5. STATUS BAR:



The status bar provides a very quick overview of the touchscreen that is connected to the host PC. Status Bar includes the following items from left to right

- DEVICE FIELD: Displays the model number of the ShadowSense touchscreen.
- REVISION NUMBER: Displays the version of the firmware loaded on the master control board of the touchscreen.
- SERIAL NUMBER: Displays the Serial Number of the current touch frame connected to the PC.
- ADVISORY MESSAGE: The state of the touchscreen is shown in this section. When the message "Optimization in Progress!" is displayed, do not touch the active area of the screen. When the optimization process has been completed and the screen is ready for use the message will be cleared.
- LOG DATA: The circular disks icon is a button that starts/stops the logging function.
- THICKNESS STATUS: Displays if touch thickness is being registered on the drawing canvas. Display of touch thickness can be toggled by clicking on the LINE icon or via the keyboard shortcut 'Ctrl+T' combination. If thickness display is enabled ON will be displayed here.

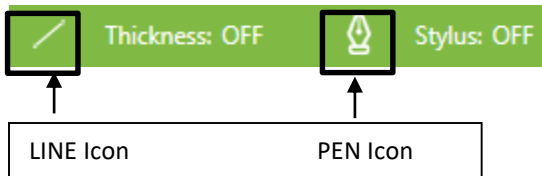
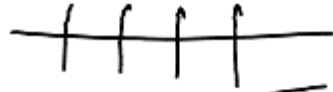
- **STYLUS STATUS:** Displays if stylus mode is active on the drawing canvas. Display of stylus mode can be toggled by clicking on the PEN icon or via the keyboard shortcut 'Ctrl+P' combination. When the stylus mode is activated the drawing canvas will display touches from finger, stylus and eraser separately as:
 - Finger touch events are shown as ghost streaks



- Stylus/Pen events are shown as a solid line of fixed width

Pen

- Eraser events are shown as white streaks that can be used to clear the drawings done by the stylus



Note:

The LINE and PEN icon **do not** activate or deactivate Thickness and Stylus/Eraser modes.

Touch thickness is at all times being reported to the OS via the usb packets. What the LINE button does is it allows one to visualize the thickness on the Dashboard drawing canvas.

Similarly the Stylus/Eraser mode are activated from Enable Features under the configuration view. The PEN Icon here when turned on will draw solid lines in the drawing canvas when pen is detected. For fingers it will draw streaks and the eraser will be able to erase drawing created by the stylus.

6. FUNCTION BUTTONS:

- These buttons allow the user to perform commonly required tasks.



OPTIMIZE LEDs: This button triggers a re-calibration process of the touchscreen. During this process, the touchscreen analyzes signals from every LED to every shadow sensor and optimizes performance.



LED VIEW: This button displays LED visibility data in a new window. To activate and use this button the user has to select one of the radio buttons corresponding to the Shadow Sensors. The data can be used to analyze various failure modes and diagnose problems.



FULL SCREEN TOGGLE: The drawing canvas can be maximized to cover the full screen area of the monitor by clicking on this icon. The 'ESC' key on the keyboard can also be used, as a shortcut, to toggle display from normal view to full view. When the display is not in Full Screen mode, there will be an offset between the display of a touch point and the physical location of the touch point on the screen. This is because the drawing canvas always scales to represent the entire screen, no matter how small the canvas is. So, if the drawing canvas is maximized to the full screen, the display and the touch will map onto one and other. Please note, the Windows task bar located on the bottom of the screen must also be set to 'Auto-Hide' such that the drawing canvas can be maximized properly.



TRASH CAN: Clears the drawing canvas. The 'Ctrl+BACKSPACE' key combination can also be used, as a shortcut, to clear the drawing canvas.

4.0 CONFIGURATION VIEW

The Configuration View allows the user to customize the performance of the touchscreen based on application needs and use models.



1. CUSTOMIZATION BAR:

- **OPERATING SYSTEM**
 - Groups various parameters related to the operating system:
 - Apple Settings
 - Screen Rotation
- **TOUCH PERFORMANCE**
 - These parameters allow the user to configure the performance of the touch screen:
 - New Touch Delay
 - Motion
 - Deadband
 - Shadow

- **ENABLE FEATURES**
 - A user can enable/disable various features such as:
 - Multi Touch
 - Touch Rejection
 - Stylus & Eraser Options
 - Mouse Options
- **SETUP HARDWARE**
 - Changes parameters that control the touch screen hardware
 - USB Boot Delay
 - Calibrate
 - Touch Regions Mask

2. LOAD BUTTON:

- This button reads the configuration parameters that are stored in the EEPROM of the touchscreen.

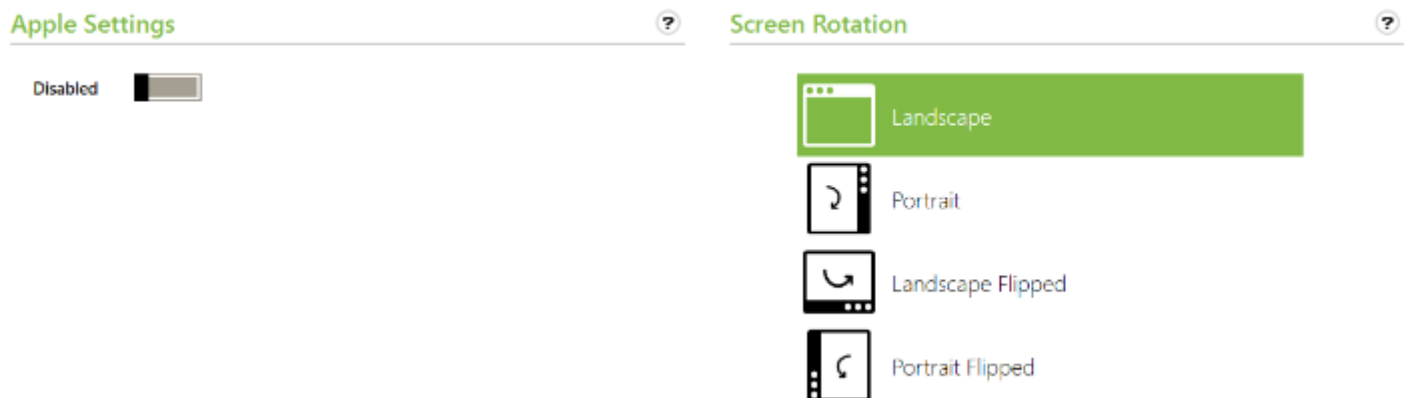
3. APPLY BUTTON:

- This button flashes the configuration parameters being displayed to the EEPROM of the touchscreen.

4. RESET BUTTON:

- This button resets the configuration parameters back to default, factory state for this frame and firmware.

4.1 OPERATING SYSTEM MENU



4.1.1 APPLE SETTINGS

Certain MAC operating systems use a different co-ordinate system versus Windows and Linux systems. This creates a problem with touch registration whereby the user's finger and the operating system pointer do not line up. If this problem is encountered, MAC mode can be enabled. This forces the touch screen to convert the touch data into the MAC co-ordinate system versus Linux or Windows.

4.1.2 SCREEN ROTATION

When the LCD image is set to Portrait versus Landscape, Windows automatically rotates the touch screen data to match the LCD orientation. Unfortunately, not every OS performs this task. Linux and MAC do not rotate the touch screen data to match the LCD orientation. In these situations the user might have to command the touch screen to rotate the data in order to match up with the LCD. The available options are: Landscape, Portrait, Landscape Flipped and Portrait Flipped.

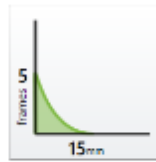
4.2 TOUCH PERFORMANCE

New Touch Delay



0 1 50

Motion



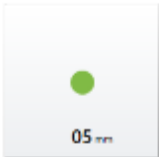
Size

2 20

Depth

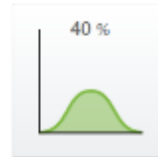
5 150

Deadband



0 25 mm

Shadow



20% 95%

4.2.1 NEW TOUCH DELAY

The New Touch Delay parameter allows the user to control the latency between a new touch event and when the touchscreen reports the data. In other words, it introduces a delay whenever a new touch is detected. As the ShadowSense technology is capable of detecting even the fastest motions, accidental touches could be reported. Setting up the “New Touch Delay” parameter can avoid unintended touches. For example, in a ticketing kiosk it might be useful to only report touches that the user intended and not the accidental brushing of the screen by the cuff of a jacket. Increasing this parameter creates a longer delay and forces the user to touch the screen for a longer period of time before a touch is reported.

4.2.2 MOTION

The Motion parameters smooth the touch data by applying two different averaging filters. Filter Size controls the latency of the touch by adjusting how many frames of data are sampled and filtered together in any given period of time. Filter Depth controls the fall-off and sensitivity of the filter to high speed motions. In general, the larger the values of the filter, the smoother the touch data will be with a corresponding increase in latency. For example, increasing the two parameters will create a smoother line for artists who intend to draw on the screen with a brush. However, the latency will be increased slightly due to the act of filtering.

4.2.3 DEADBAND

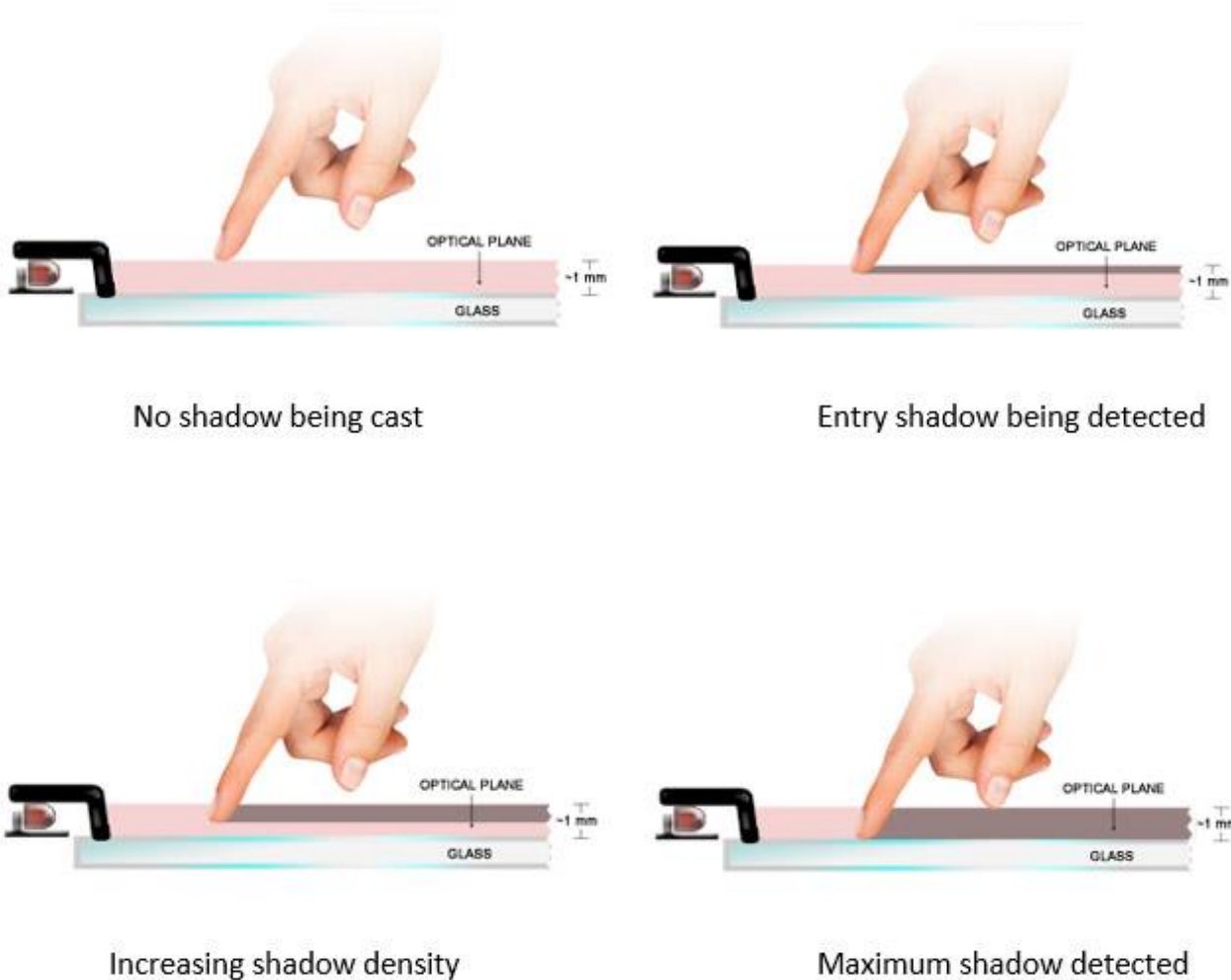
The Deadband parameter helps users correctly identify left and right click selections. Because the ShadowSense technology is capable of detecting touch with an incredibly high resolution, even small jitters of the user’s fingers can be detected. This can make it difficult to process clicks, especially when trying to hold a finger still to generate a right click. Small movements of the finger will register as a mouse move in Windows, causing the intended right-click to be converted to a drag. This parameter sets a radius in millimeters around the first detected touch position, within which other motion will be filtered allowing for easier right-click.

4.2.4 SHADOW

The proprietary shadow sensors detect not just the angle of the shadow, but also the transparency of the shadow. They are capable of detecting how dark a shadow is, which in turn provides additional information about the transparency or hover of a touching object.

Controlling Hover

It is possible to determine the distance of the touching object above the glass and control the hover distance at which touch is activated.



As an example, consider the progression as a finger enters the touch plane of a ShadowSense touchscreen. From a fully illuminated state when the finger is above the optical plane, the shadow continues to represent a larger percentage of the sensor reading until the finger is totally touching the surface of the glass, at which time the finger blocks all the light and casts a very dark shadow onto the sensor.

Increasing the Shadow parameter will configure the touch screen to only process touches that cast a darker shadow, hence reduce hover. However this also will force the touch screen to reject touches caused by a semi-transparent fingernail or the edge of a credit card, for example.

Controlling Transparent Touches

The Shadow parameter can also allow the user to reject touch based on the transparency of an object. This might be useful in situation where the user's finger must generate touch, but not a drop of water, rain or any other transparent fluids. This can be critical in applications such as signage, ticketing, kiosks and medical devices where the screens maybe subject to liquids and must be able to differentiate between liquids and the user's fingers.

A user's finger will cast a much darker shadow compared to a drop of water. Hence increasing the shadow parameter will configure the touch screen to only process touches that cast a dark shadow and reject objects such as water and other fluids.

4.3 ENABLE FEATURES

Multi Touch



Enabled

Touch Reject



Enabled



Minimum

0.0 25.0

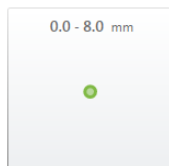
Maximum

0.0 115.0 Fullscreen

Stylus



Enabled



Minimum

0.0 25.0

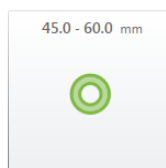
Maximum

0.0 25.0

Eraser



Enabled



Minimum

0.0 115.0

Maximum

0.0 115.0

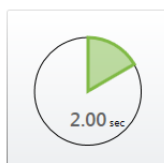
CALIBRATE

Mouse



Right click options

Enabled



Time required to activate right click.

0.0 3.0s

Left click options

Changes how left click is generated.

- ☐ No left click
- ☒ Normal click and drag
- ☐ Clicks on new touch, with no drag
- ☐ Click on touch release, with no drag

Move options

- ☒ Always track newest touch

4.3.1 MULTI TOUCH

This parameter allows the user to enable/disable the multi touch functionality of the screen. When enabled the screen will be detected by the OS as a fully compliant multi-touch digitizer. When disabled the screen will be detected as a simple single touch or mouse device.

This feature is important when backwards compatibility with an existing operating system or application framework is required. A typical example could be when using OS such as Windows CE, custom embedded operating systems or digital signage players that only understand mouse input. This feature will allow the user to force the touch screen to act like a mouse.

4.3.2 TOUCH REJECTION

The Touch Rejection parameter can be used in situations where the touchscreen is required to reject touch events based on the size of the touch. It is useful in situations where palm rejection or environmental debris rejection is required, or in any application where a high level of confidence is required that only a specific class of touch object was used to activate the screen. For example, the

touch size can be adjusted so that touches from small children will be ignored for security reasons in shopping malls installations. Or in a digital signage installation it might be beneficial to ignore touch events due to a user leaning on the screen or a table application where the cup or a cell phone placed on the screen should be ignored.

The minimum and maximum sliders define the size of the object that is allowed to generate a touch event.

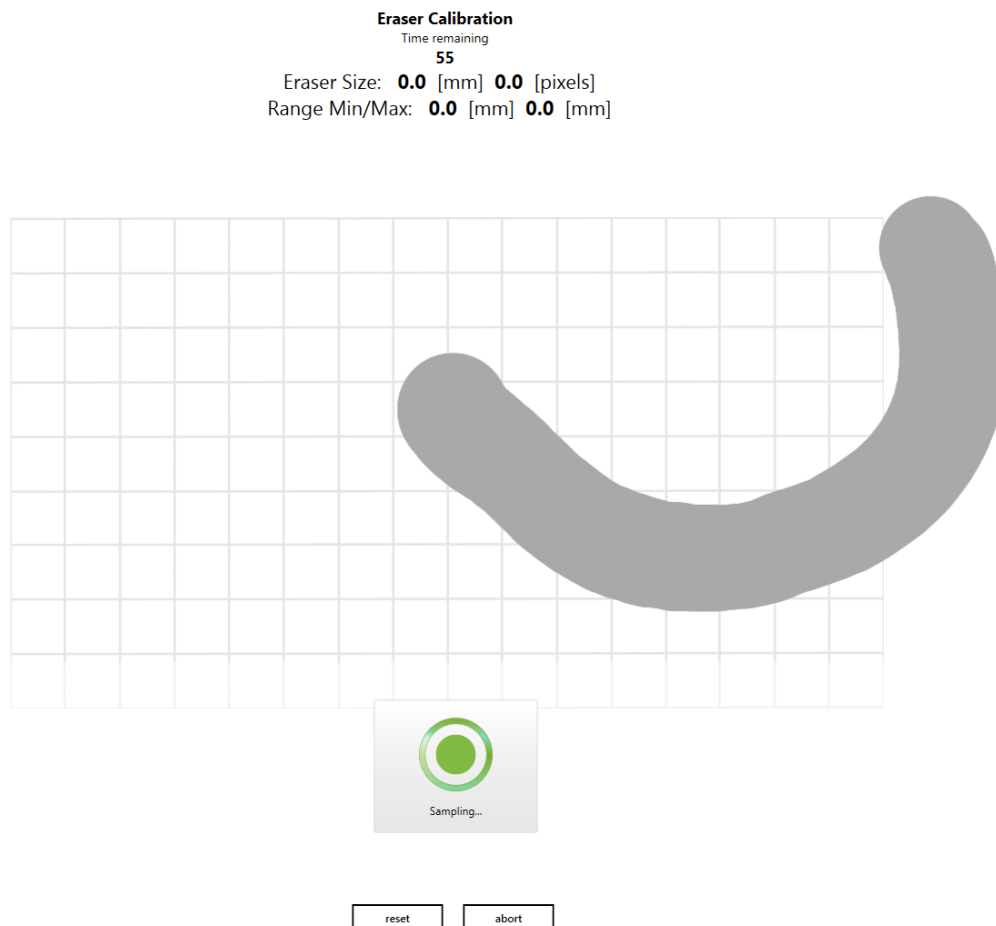
4.3.3 STYLUS & ERASER

Using the size and shape detection capability of the ShadowSense technology, it is possible to configure the touch screen to automatically detect a specific size of object such as a stylus or eraser. This allows the touch screen to report three different types of events: touch, eraser and stylus. This functionality can be used in conjunction with an OS like Windows 8 that supports pen and eraser messages without the need for any drivers.

The user can enable/disable the stylus. If enabled, the user can then configure the minimum and maximum size of the stylus. Under this scenario, if the touch screen detects a touch event that matches the set size, it automatically reports a stylus event.

The user can also enable/disable the eraser. If enabled, the user can then configure the minimum and maximum size of the eraser. Under this scenario, if the touch screen detects a touch event that matches the set size, it automatically reports an eraser event.

The calibrate button allows the user to automatically set the size of the Eraser. During the sampling time use the eraser on the screen and the program will automatically measure the size of the eraser. When the completed message appear remove the eraser and let the program calculate the min and max size numbers for the eraser. Screen shot of the Eraser calibration window is shown below.



4.3.4 MOUSE

The mouse options allow the user to configure how the touch screen processes mouse events.

Right Click Options: The touchscreen processes a right click event if the user holds a finger on the screen for a period of time without moving it. The user can set the time period by changing the right click option parameter.

Left Click Options: This parameter allows the user to specify how the left click is processed.

- **No Left Click:** Disables left clicks. Mouse pointer will be tracked, but clicks will not be generated.
- **Normal Click and Click:** Left Click Down is generated when the user touches the screen, and a Click Up event is generated with the user lifting the finger off the screen. Click is held down during the entire duration of touch.
- **Click on New Touch, No Drag:** Left Click Down and Left Click Up are generated back to back when a new touch event is detected. Click is not held down as the user moves the finger.
- **Click on Touch Release, No Drag:** Left Click Down and Left Click Up are generated back to back when a touch is removed. Click is not held down as the user moves the finger.

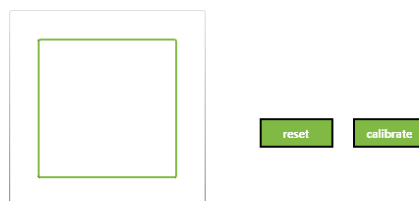
MOVE OPTIONS: In a multi touch situation, allows the user to configure what touch to report as a mouse event.

4.4 SETUP HARDWARE

USB Boot Delay



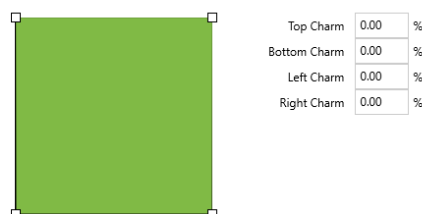
Calibrate



Touch Regions Mask



Charms



Top Charm	0.00	%
Bottom Charm	0.00	%
Left Charm	0.00	%
Right Charm	0.00	%

4.4.1 USB BOOT DELAY

The USB Boot Delay controls the time that the touchscreen waits for USB enumeration to occur when plugged in, or when the touchscreen is rebooted.

This parameter can be used in specific situations where it is desirable to have the touch screen boot up after the computer has booted up. For example the BIOS might not support a multi touch device on boot up, or in a situation where the boot up sequences of various USB devices needs to be staggered.

4.4.2 CALIBRATE

The calibration process allows the user to perfectly align the touch screen data to the LCD image. Due to manufacturing variations, the LCD image might not line up with the touch location exactly. The user has the ability to measure the error and calibrate the screen as follows:

- Click on Calibrate. If prompted for confirmation, click OK.
- Touch and hold your finger on the center of the cross hair shown below. Hold finger on glass for 5 sec.

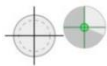


- After 5 sec the circle will disappear and you will see a green dot. Move to the next circle. Do this for the four circles.
- If for any reason you make a mistake click the back button using the mouse and redo the specific touch point.



Align touch with markers and hold until complete

Time remaining
58



back

abort

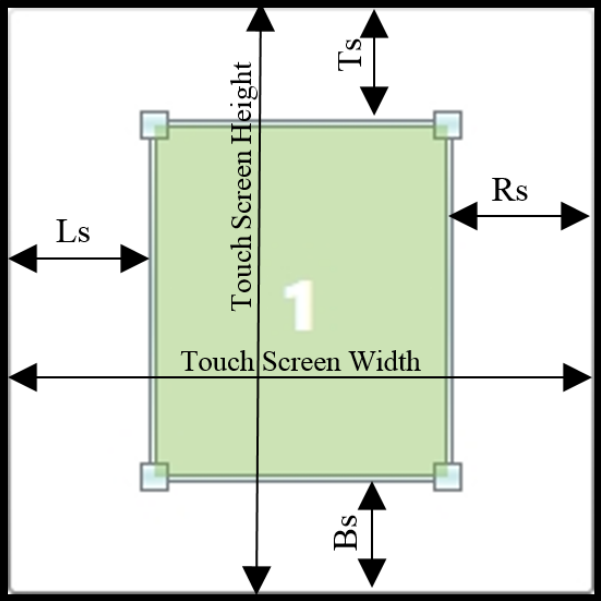
Note: It is normal for the green dots to not be aligned up with the cross hair shown on the circle, Dashboard will measure this offset and use it to calibrate the screen.

Refer to the Application Note **AN-FW-008 Calibration Process** for detail instructions on how to calibrate the screen with the new GUI.

4.4.3 TOUCH REGIONS MASK

This settings allows the user to define up to four different zones where the touch is active. Each individual zone can be turned on and off. The touch screen will not report touch data in any spot that is outside of these zones. Touch will be active in the area where two or more regions are being overlapped.

The zone parameters can be calculated using a ruler or any measurement device. Simply measure the Top Side (Ts), Bottom Side (Bs), Right Side(Rs) and Left side (Ls) of where you want the zone to be in millimeters. Measure the inside width and height of the touchscreen in millimeters and calculate the mask parameter ratio as a percentage.



Calculate the mask values as follows:
Top Mask = (Ts/Touch Screen Height) * 100
Bottom Mask = (Bs/Touch Screen Height) * 100
Left Mask = (Ls/Touch Screen Width) * 100
Right Mask = (Rs/Touch Screen Width) * 100

Zone 1
Enabled

Top Mask	20.00	%
Bottom Mask	20.00	%
Left Mask	25.00	%
Right Mask	25.00	%

4.4.4 TOUCH REGIONS MASK

This parameter allows the user to configure the active touchscreen area around the perimeter so as to assist with edge gestures offered in Windows 8 and 10 from the left, right, top and bottom side. In a situation where the touchscreen inside dimensions are an exact match to the active monitor screen dimentions it might be harder to do the edge swipes offered in Windows. In such cases the parameters for charms can be adjusted to assist with the following actions

- 1) Edge swipe from the right to bring the charms menu (Action Centre) out
- 2) Edge swipe from the left to view all your open apps
- 3) Swipe in from the bottom edge to display the taskbar if autohide taskbar is active

The parameters can be adjusted either by typing in the values in the text boxes or by dragging the edges of the square using a mouse or touchscreen. The charms percentages are calculated using the same formulas described in the touch region mask section.

Once set if the swipe gesture is initiated from outside the green border assistance will be provided. Typical values to use are 1% to 2%.

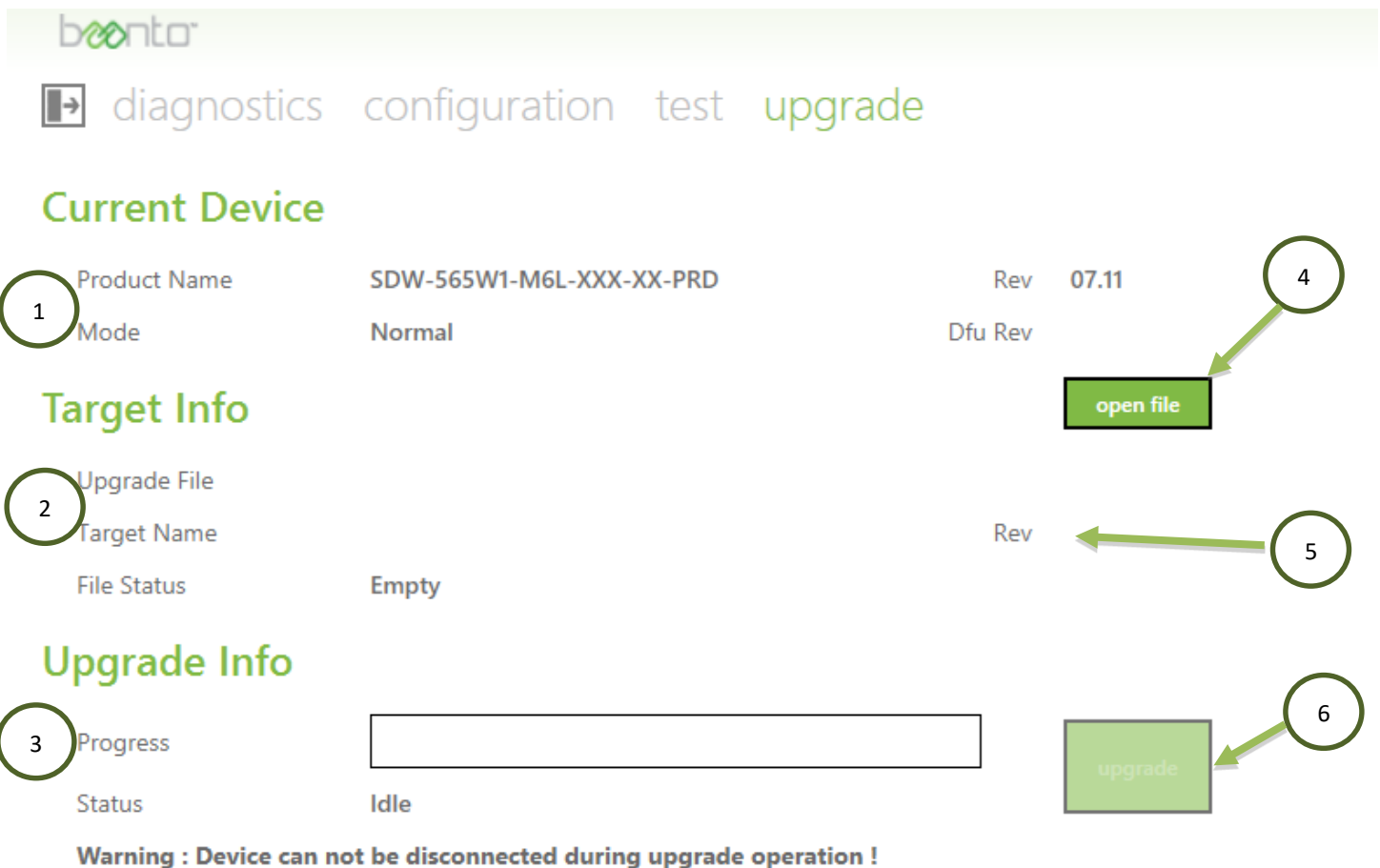
5.0 UPGRADE VIEW

The Upgrade View allows the user to change the firmware of the touchscreen. On occasion, Baanto will provide the user with a specific file that can be used to perform dynamic, in the field upgrade or downgrade. The touchscreen only supports a special firmware file that is custom and proprietary to Baanto. Performing an upgrade with any other file can permanently damage the touchscreen and should be avoided.

Baanto upgrade files have a specific naming convention that is required for a successful upgrade. All firmware files have the following format:

Firmware-SDW-170S1-M5T-XXX-XX-PRD-Ver-0711-RETAIL.EDFU

The filename contains the product SKU, version number and a specific EDFU extension. Only these files will be recognized as valid upgrade files by the system.



Some of the features that are available in this view are highlighted in the diagram above and described below:

1. CURRENT DEVICE INFORMATION:

- Displays SKU, Revision Number and other information about the device connected.

2. TARGET INFORMATION:

- Displays SKU, Revision Number and other information about the upgrade file that was selected by the user.

3. UPGRADE INFO:

- Show the current status and progress of the upgrade process.

4. OPEN FILE BUTTON:

- Allows the user to select the Firmware Upgrade File

5. FILE ERROR:

- Displays any errors encountered. It should be noted that the “Product Name” and “Target Name” strings must match for upgrade to occur. For example, if the user connects a 190S1-M5T touchscreen, they can only flash firmware that is another revision of 190S1-M5T. They CANNOT change firmware from 170S1-M5T to 190S1-M5T.

6. UPGRADE BUTTON:

- Once the correct target file has been selected and no errors have been encountered, this button initiates a device upgrade command.
- It should be noted that the user should never disconnect the touchscreen USB, or POWER cables, or physically touch the screen during a device upgrade.

Certain Baanto touchscreens have multiple microcontrollers referred to as slave controllers and a single master controller. To upgrade these screens the user has to upgrade both the master and the slave controller firmware separately. There are two ways to upgrade these multiple microcontroller touch frames: Manual and batch mode. Manual mode requires the user to upgrade each individual microcontroller separately, whereas the Batch mode allows the user to upgrade all of them at once, automatically and without user intervention.

MANUAL MODE

Manual mode requires the user to select a file with .EDFU extension. In a multi microprocessor situation, two separate files will be given that represent the firmware for slave and master controller. The steps below outline the manual procedure for firmware upgrading.

1. Find out the Device number of the screen being used. Click the Open File Button and load the correct master file (example **Firmware-SDW-424W1-M6L-XXX-XX-PRD-Ver-527-RETAIL.edfu**). Then click the upgrade button.
2. Select the upgrade button again and select the slave firmware file (example **Firmware-SDW-424W1-M6L-XXX-XX-PRD-SLAVE-Ver-221.edfu**). Then click the upgrade button this time a Slave select screen will show up as shown below.



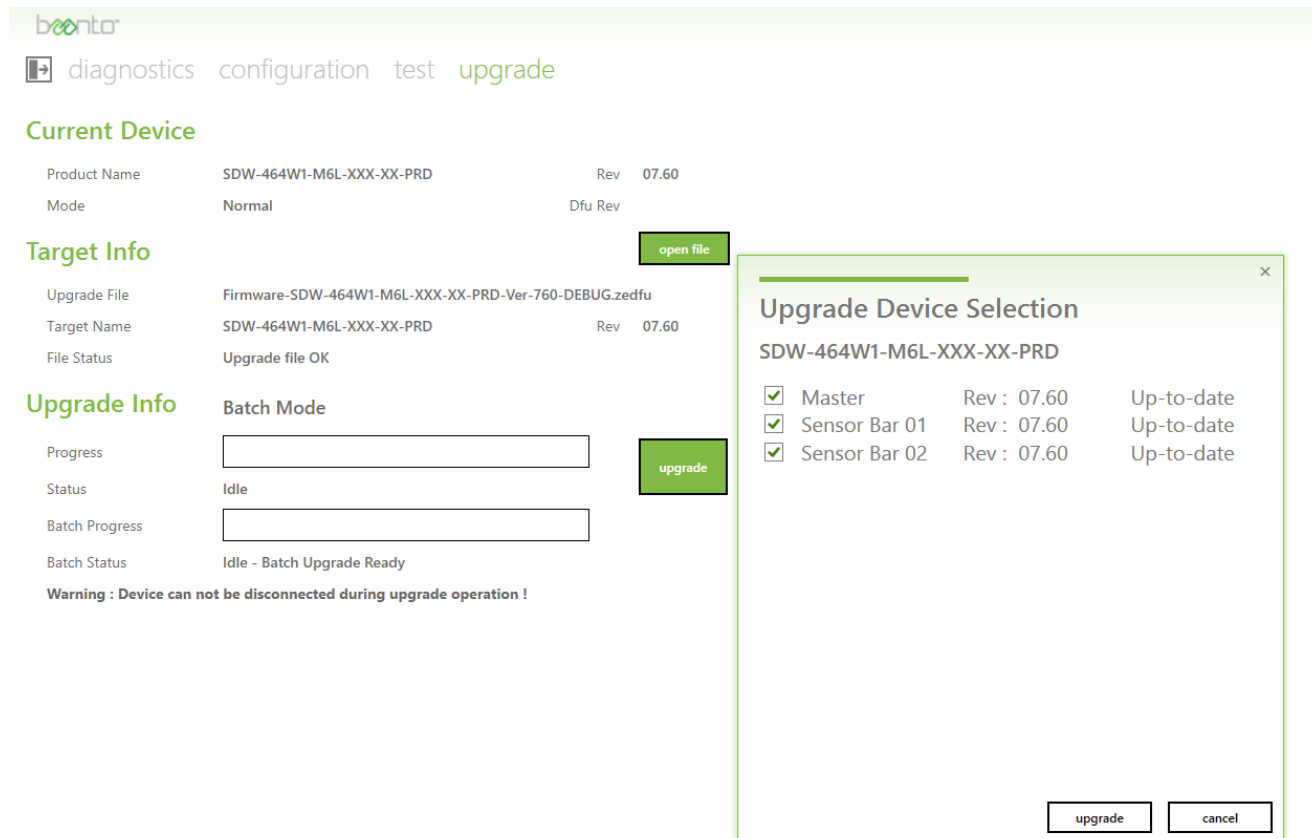
3. Select Sensor Bar 01 and click upgrade button.
4. Perform step 2 again and this time select Sensor Bar 02 and click upgrade button, repeat until all sensor bars are completed.

Verify the upgraded master firmware revision number from the status menu and the slave revision numbers from the left and right calibration bars.

BATCH MODE

Batch mode requires the user to select a file with .ZEDFU extension. The steps below outline the batch firmware upgrade procedure.

1. Find out the Device number of the screen being used. Click the Open File button and load the correct ZEDFU file (example **Firmware-SDW-464W1-M6L-XXX-XX-PRD-Ver-810-Retail.zedfu**). Then click the upgrade button.
2. Select all the microcontrollers that you would like to upgrade (default will upgrade all), and click upgrade.



Current Device

Product Name	SDW-464W1-M6L-XXX-XX-PRD	Rev	07.60
Mode	Normal	Dfu Rev	

Target Info

Upgrade File	Firmware-SDW-464W1-M6L-XXX-XX-PRD-Ver-760-DEBUG.zedfu		
Target Name	SDW-464W1-M6L-XXX-XX-PRD	Rev	07.60
File Status	Upgrade file OK		

Upgrade Info

Batch Mode

Progress:

Status: Idle

Batch Progress:

Batch Status: Idle - Batch Upgrade Ready

Warning : Device can not be disconnected during upgrade operation !

Upgrade Device Selection

SDW-464W1-M6L-XXX-XX-PRD

<input checked="" type="checkbox"/>	Master	Rev : 07.60	Up-to-date
<input checked="" type="checkbox"/>	Sensor Bar 01	Rev : 07.60	Up-to-date
<input checked="" type="checkbox"/>	Sensor Bar 02	Rev : 07.60	Up-to-date

upgrade cancel