

Product Overview

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Product Features

This highly tactile, USB compatible, pointing device is ideal for use in any application requiring X-Y positional control. Four directional keys allow navigation to specific menu items or graphic icons (targets). Functions or options associated with those targets can be selected using the central ‘enter key’. The keypad can also be used to control linear movement of mechanical systems. Integral LED illumination makes this 5 key control pad highly visible and suitable for use in all lighting conditions. Individual keytops feature both tactile and visual delineation to ensure accurate identification of key function. Intuitive functionality and ‘Design for Accessibility’ ensure this keypad is easy to use by those with sensory or mobility impairment. An industry standard USB interface ensures simple connection and compatibility with host systems, requiring no specialised drivers or software applications. The keypad’s robust, weather resistant construction make it ideal for use in both indoor or exposed outdoor conditions. Its space efficient, compact, design ensures a neat, water and dust resistant ‘under-panel’ installation as part of any system control panel.

USB Connection / Features

The keypad is powered via a mini-USB socket. No additional drivers are required

- Device appears as a standard HID keyboard
- Controls LEDs with dimming capabilities via software
- Customise keypad table (using the configuration utility)
- Standard keypad tables supported as default
- Supports a HID-data pipe back channel.
- No additional drivers required
- Supports standard modifiers, i.e. Ctrl, Shift, Alt
- Supports loadable firmware for future upgrades

USB Codes

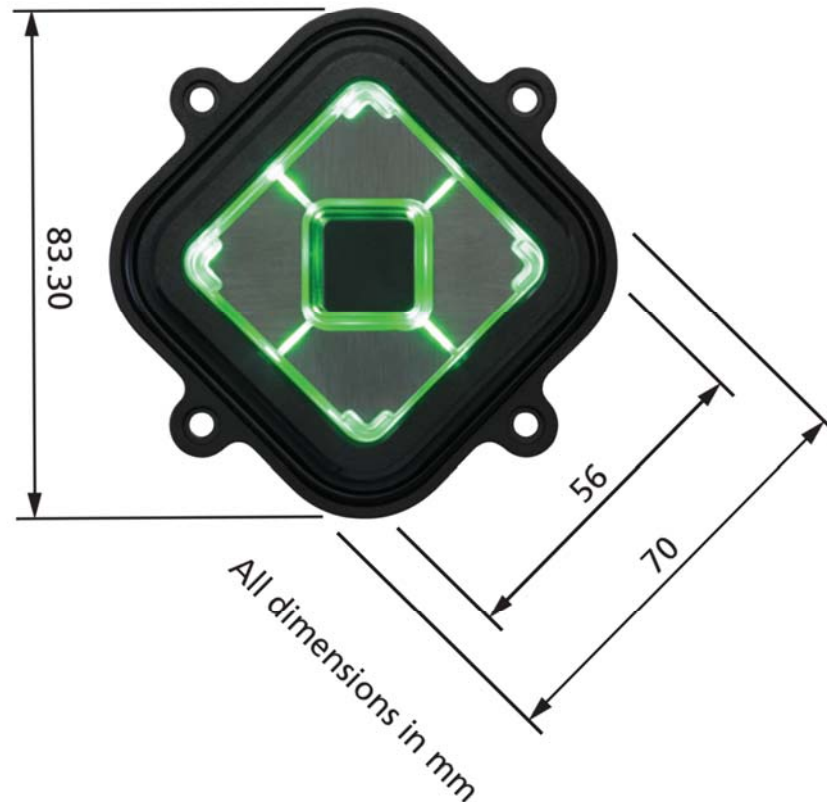
The USB keypress codes can be changed with the Configuration Utility if required (see Appendix 1)

The Configuration Utility can be used to :-

- Control LED On/Off and brightness (0 to 9)
- Customise USB output codes
- Reset to factory default values
- Retrieve serial number
- Update device firmware

OUTPUT CODES (STANDARD TABLE)		
Function	Hex	USB Description
Right	0x4F	Right Arrow
Left	0x50	Left Arrow
Down	0x51	Down Arrow
Up	0x52	Up Arrow
Select	0x28	Enter

FRONT VIEW



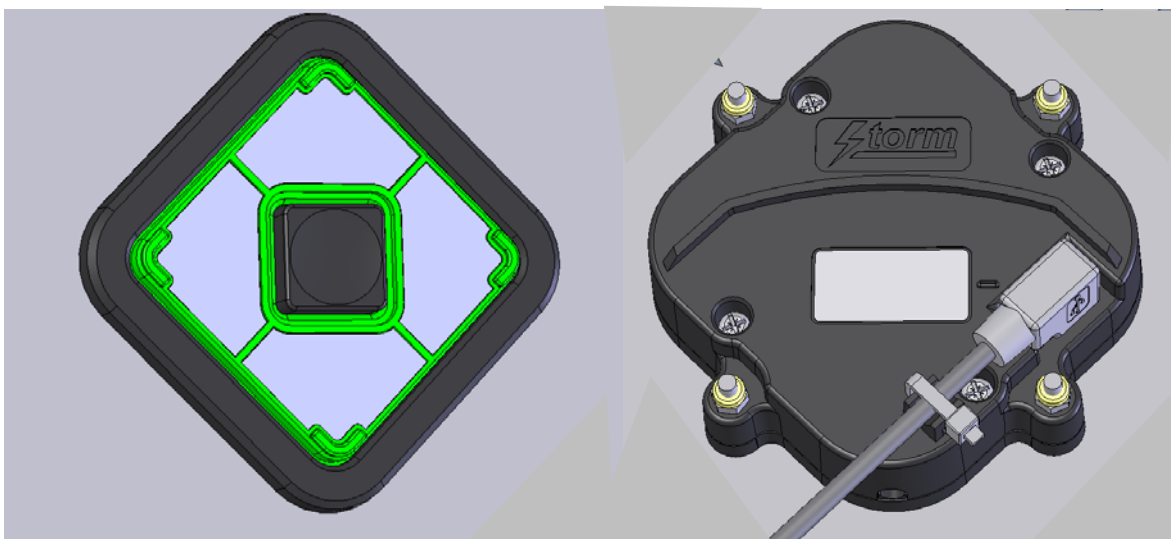
The keypad is designed to be installed from the underside of a host panel; fixed using M3 x 20mm weld studs or appropriate screw fixings.

Download CAD File for panel cutout drawing / dxf file.

It is recommended to use a cable tie as shown, to provide strain relief for the USB cable and connector. (Use 2.5mm nylon cable tie, RS 233-402 or equivalent)

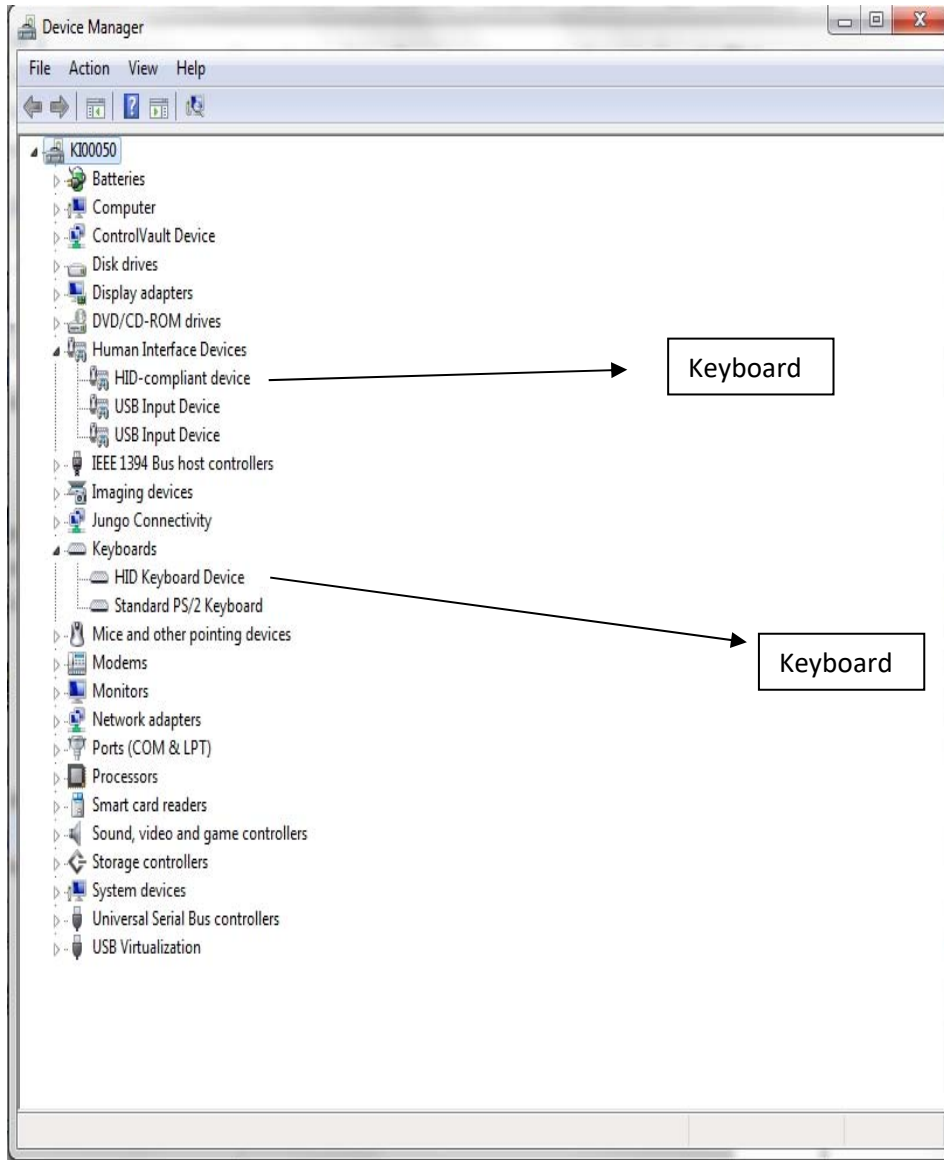
INSTALLED FRONT VIEW

REAR VIEW



Device Manager

When connected to a PC, the keypad should be detected by the operating system and enumerated without installation of additional drivers. Windows shows the following devices in the Device Manager:



Specification

Rating	5V ±0.25V (USB 2.0)
Connection	mini USB B socket
Dimensions	70mm square
Underpanel Depth	25mm
Cable	Not Included

Part Numbers

1605-33001	1600 Series USB Navigation Keypad
4500-01	USB Cable (angled mini-B to USB-A, 0.9m long)

Performance

Operational Temp	-20°C to +70°C
Certification	CE, FCC, UL
Impact Resistance	1K09 (10J)
Shock & Vibration	ETSI 6M3
Sealing	IP65
EMC	EN55022 Class B/55024
ESD Immunity	15kV Contact and Air

Downloads

Panel Cutout, Installation Drawing, CAD Model, Configuration Utility all available from www.storm-interface.com/downloads



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Version Information

Engineering Manual	Date	Version	Details
	04 Jan 16	1.0	Introduced
	12 Apr 17	1.1	Firmware update
	19 Jan 21	1.2	FW and Utility update

Configuration Utility	Date	Version	Details
	4 Dec 16	2.0	Introduced
	19 Jan 21	3.0	Updated to not overwrite sn when loading saved configuration

Product Firmware	Date	Version	Details
	04 Dec 15	1.0	Introduced
	12 Apr 17	2.0	Improve stability
	19 Jan 21	3.0	Reduce debounce to 30ms

Installing & Using The Configuration Utility

The host application requires .NET framework to be installed on the PC and will communicate over the same usb connection via the HID-HID data pipe channel, no special drivers are required.

Windows OS	Compatibility
Windows 8,	Works OK
Windows 7,	Works OK
Windows Vista,	Works OK
Windows XP	Only if you install .NET framework
Windows ME and earlier	Not investigated

The utility can be used to configure the following features:

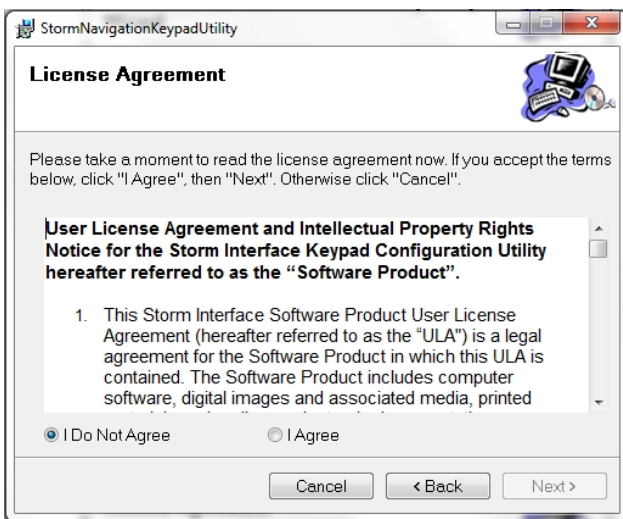
- LED On/Off
- LED brightness (0 to 9)
- Load customised keypad table
- Write default values from volatile memory to flash
- Reset to factory default
- Load Firmware

Appendix 1 – Configuration Utility

To install the utility, download from www.storm-interface.com , click on the setup.exe and follow the instructions as below:

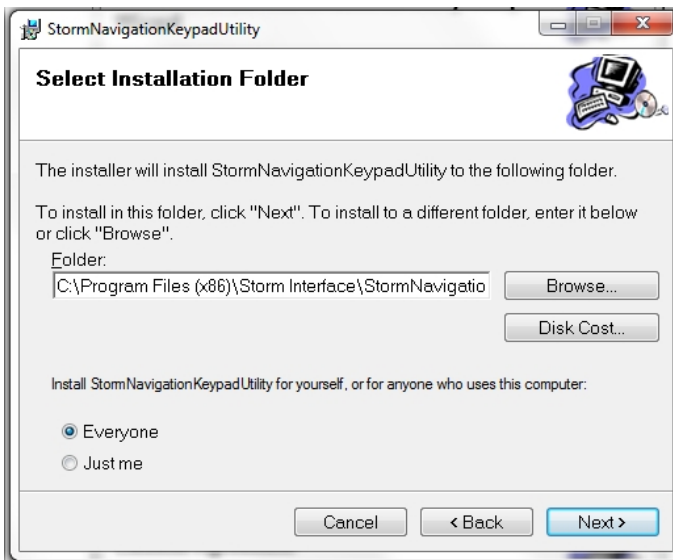


Click on “Next”

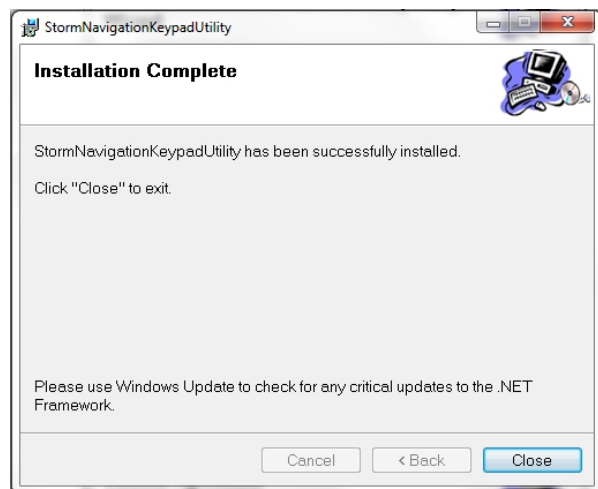
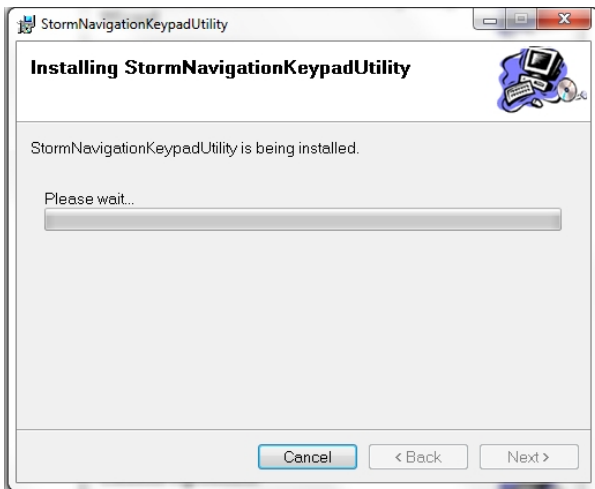


Select “I Agree” and Click on “Next”

Appendix 1 – Configuration Utility

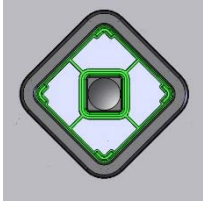


Select if you would like to install for just you or everyone and select location if you do not want to install at default location. Then click on "Next"



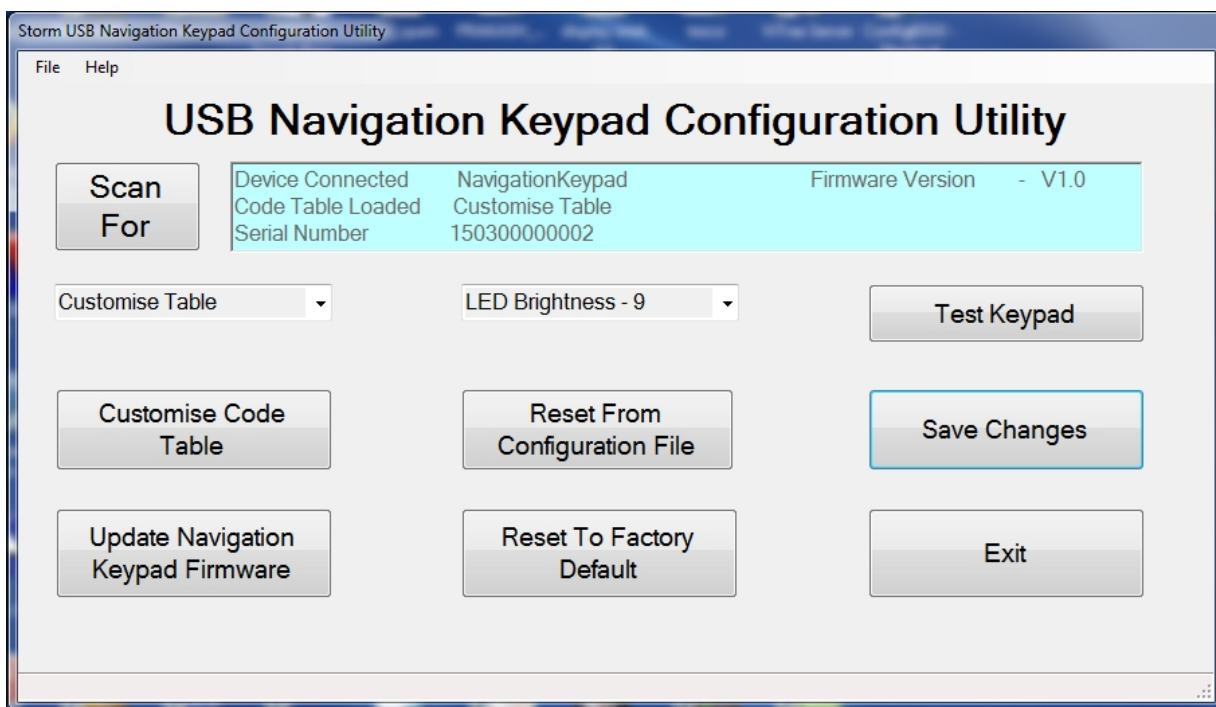
Click on close for successful installation.

A shortcut will be installed on your Desktop



Double-click to launch the application

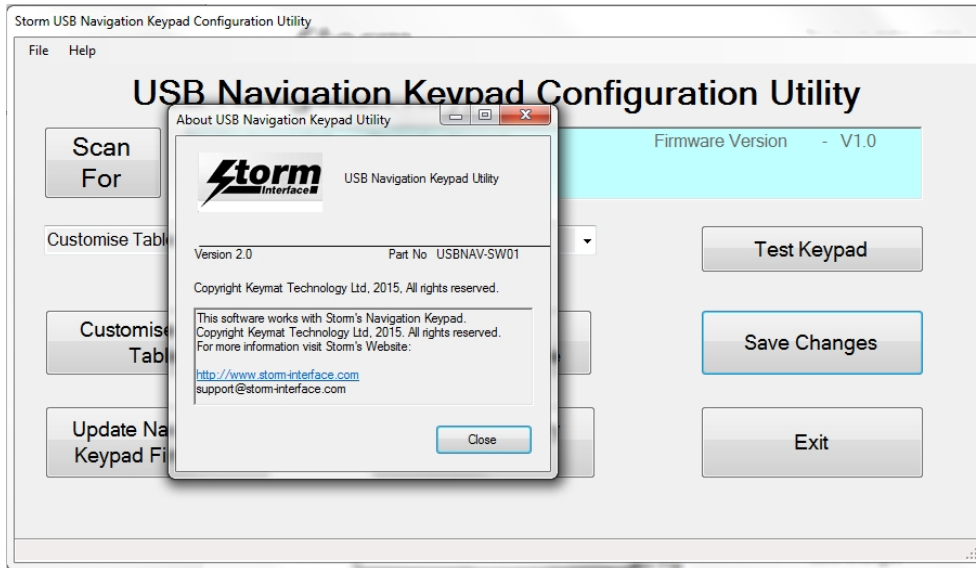
The utility will initially detect the keypad using the VID/PID and if found it sends a device status message. If all successful then all the buttons are enabled. If not then they will all be disabled except for “Scan” and “Exit”.



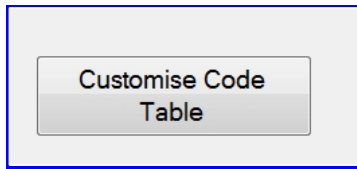
Each of the functions available is described on the following pages.

Help

Clicking on the 'help' button opens a dialogue box. This dialogue box gives information about the version of the Configuration Utility installed.



Customise Keypcode Table



The user can select from three tables:

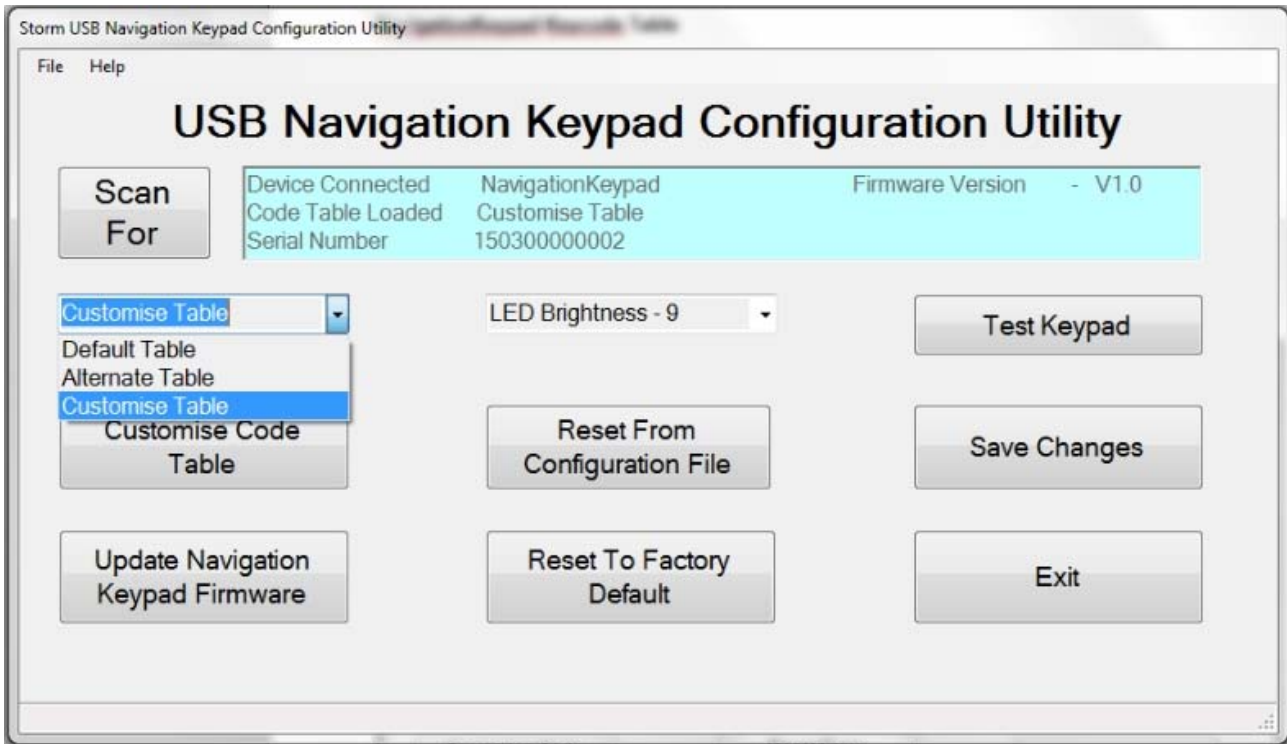
Default Table

Alternate Table

Customise Table

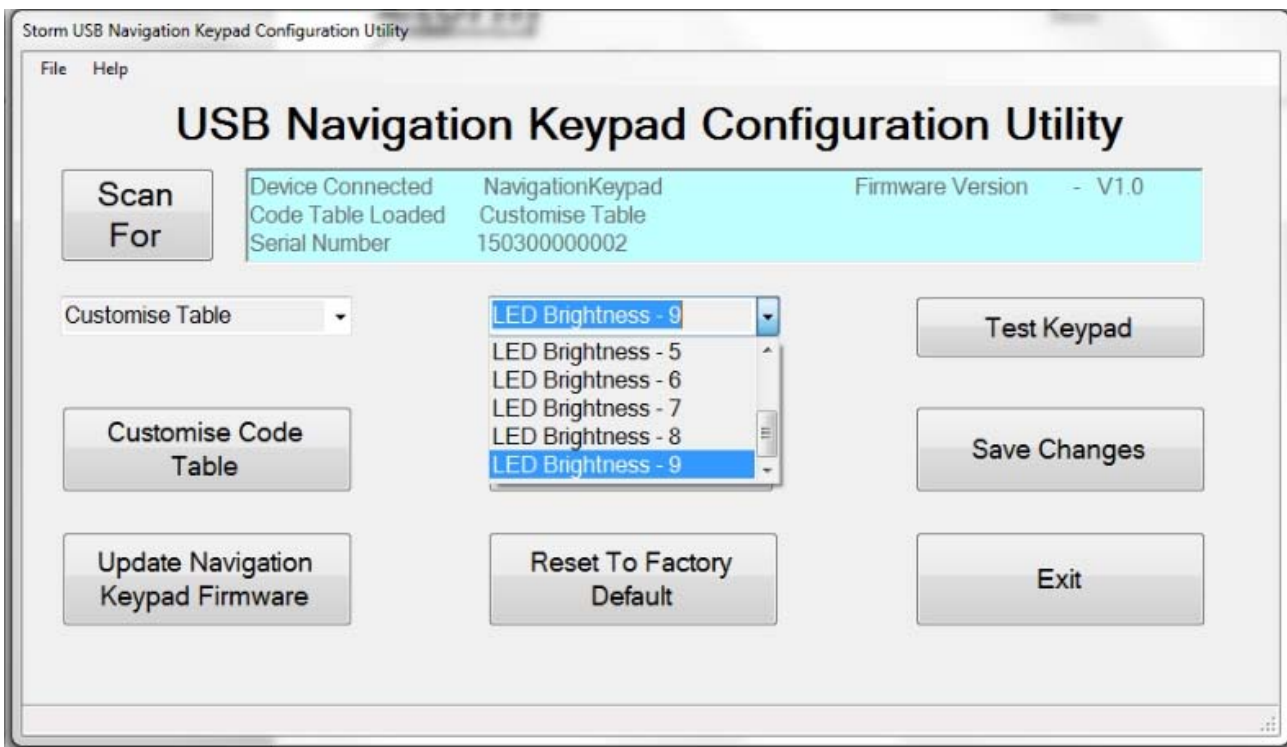
Once a table has been selected then the keypad will hold that configuration until it is powered down. Once the keypad has been disconnected that configuration will be lost. To save the configuration in flash click on "Save Changes"

Appendix 1 – Configuration Utility



LED Brightness

This will set the brightness of the LEDs. The selection is from 0 to 9.



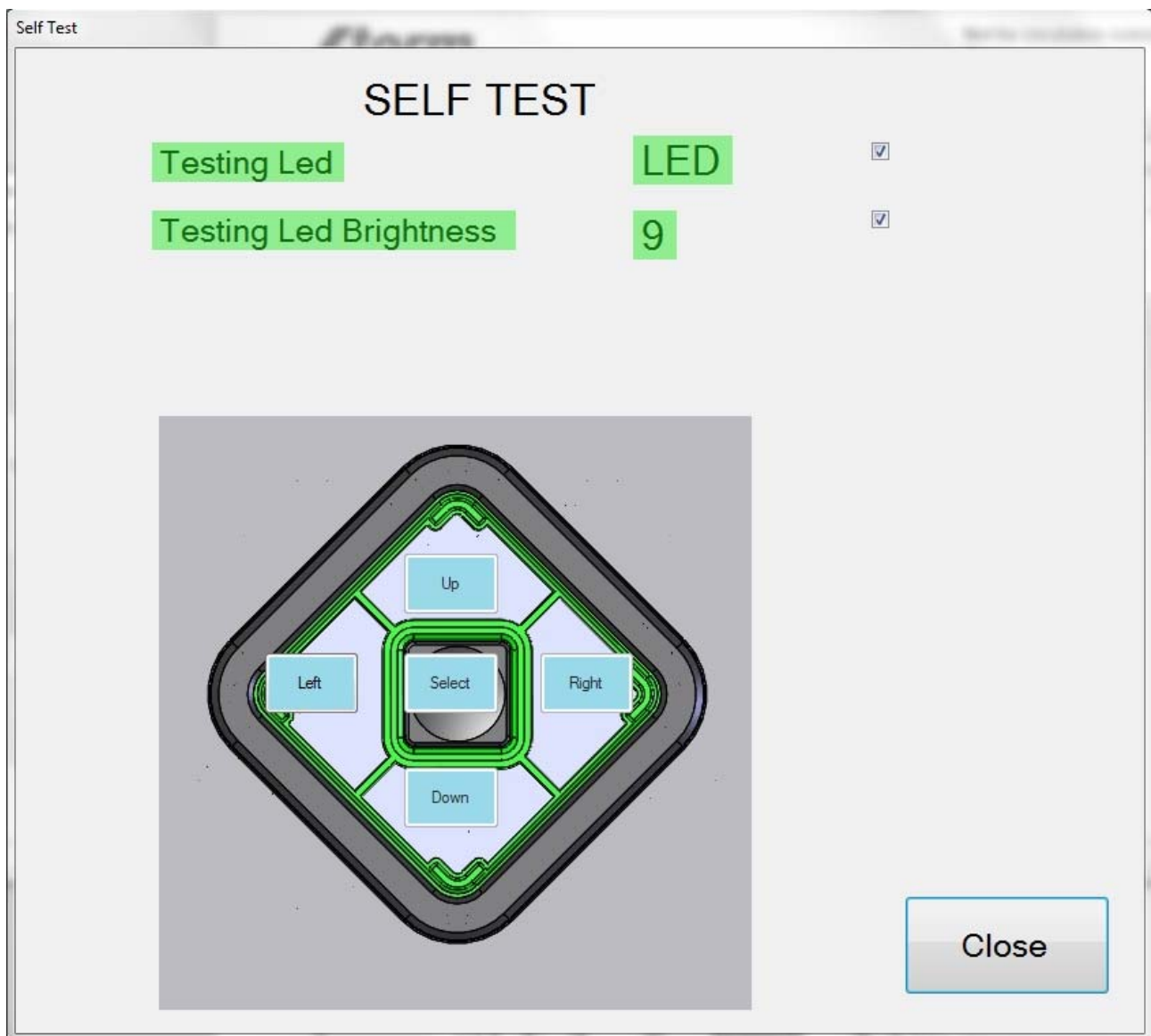
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Test Keypad

This will test all the functionality of keypad.

- Sequence the illumination over all dimming levels
- Key test

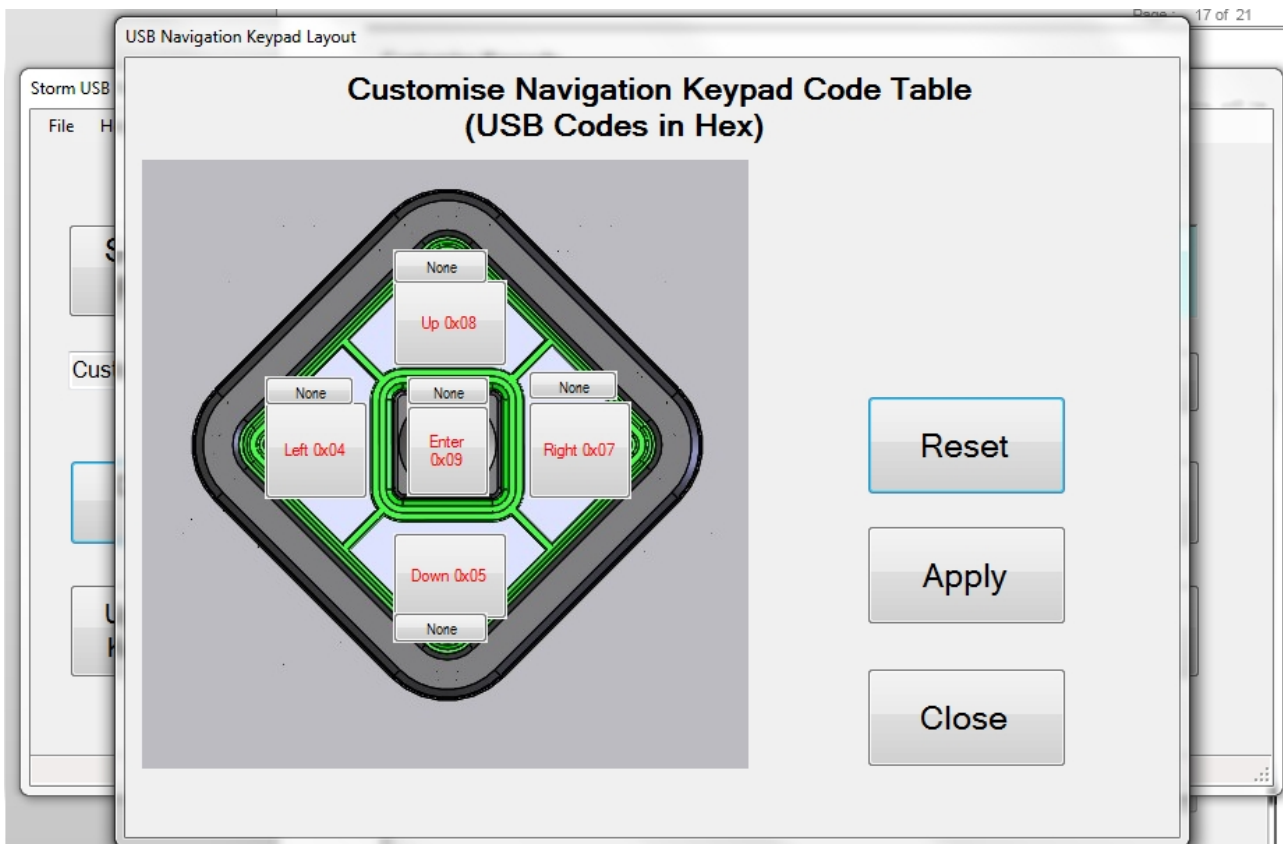
Click On “Test Keypad”



Customise Keycode

The user can only enter into this menu if 'Customise Navigation Keypad Code Table' is selected.

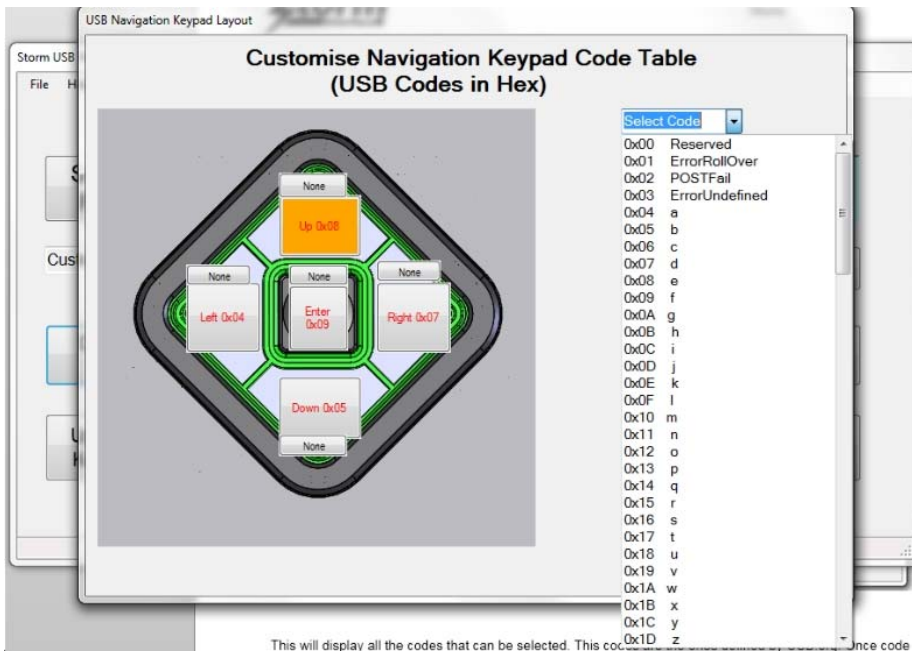
The following will be displayed when “Customise code” is clicked.



The utility will scan the keypad and extract the current customized code and display the key code on the individual keys. Attached to each key is another button (“NONE”), this shows the modifier for each key. To customize a key, click on the key and the Key Code combo box will appear, with “Select Code”.

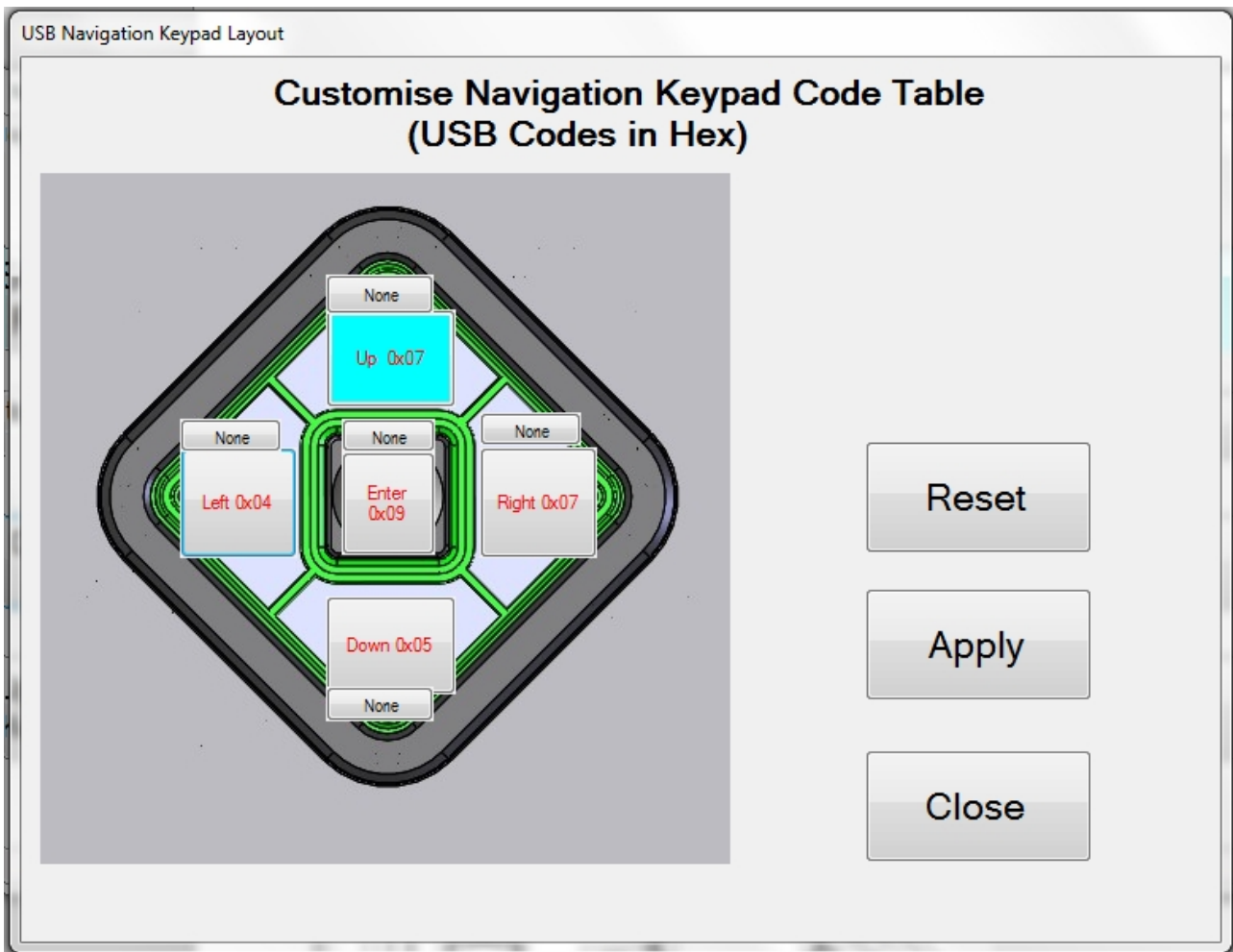
Now press on the down arrow on the combo box:

Appendix 1 – Configuration Utility



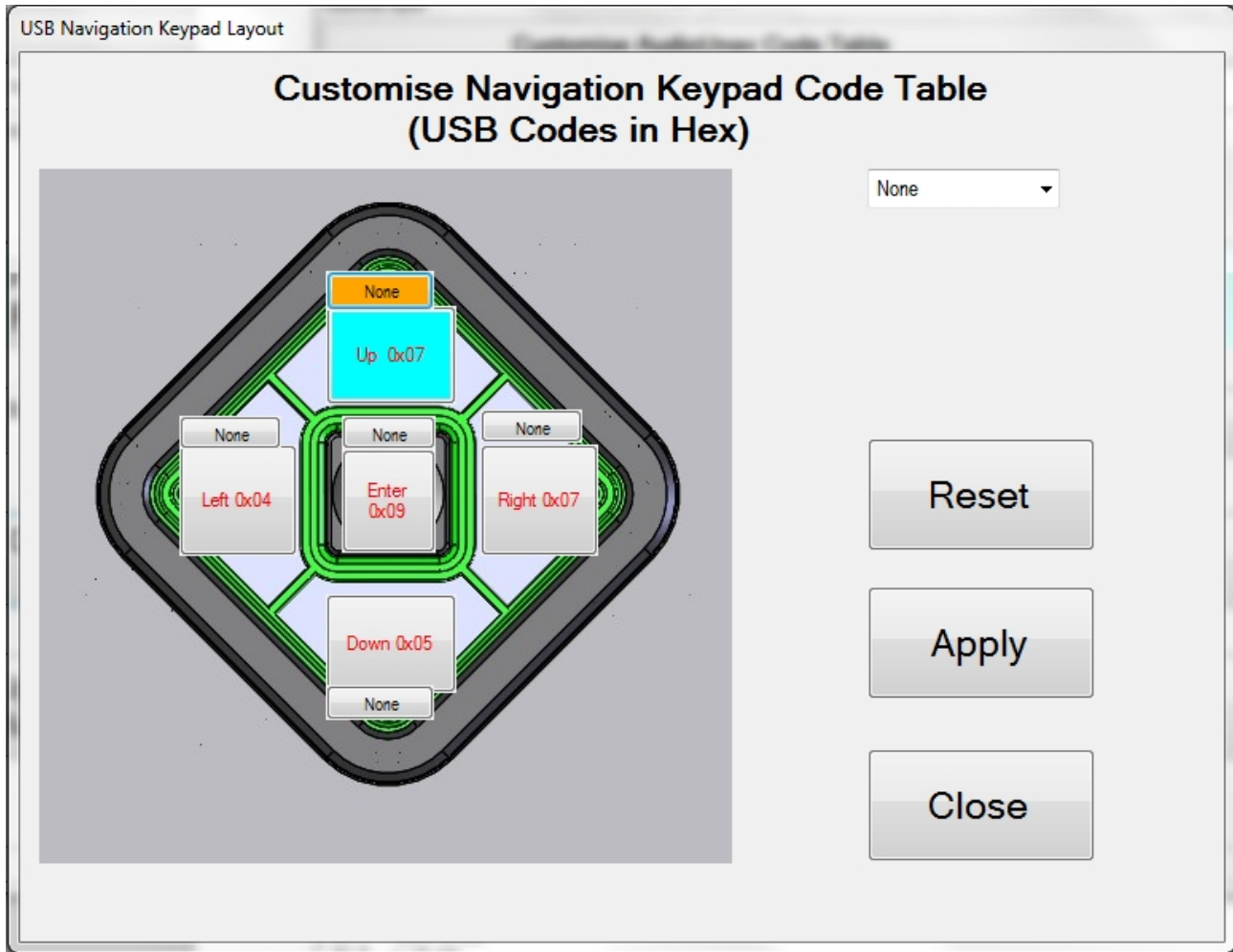
The Customise Keypad Code Table displays the codes that can be selected..

These codes are the ones defined by USB.org. Once a code is selected, it will be displayed on the selected button. In this example I have selected “d” and the code is represented by 0x7.



If the “Apply” button is selected, the code will be sent to the keypad and if you press UP key on keypad “d” should be sent to the relevant application. Now if you wanted a “D” (uppercase) then you need to add a SHIFT modifier for that key. Click on the modifier button for that key.

The background colour for modifier button will change to orange and modifier combo box will appear. Select down arrow key on modifier combo box.



The following selection is available:

NONE

L SHT – Left Shift

L ALT – Left Alt

L CTL – Left Ctrl

L GUI – Left Gui

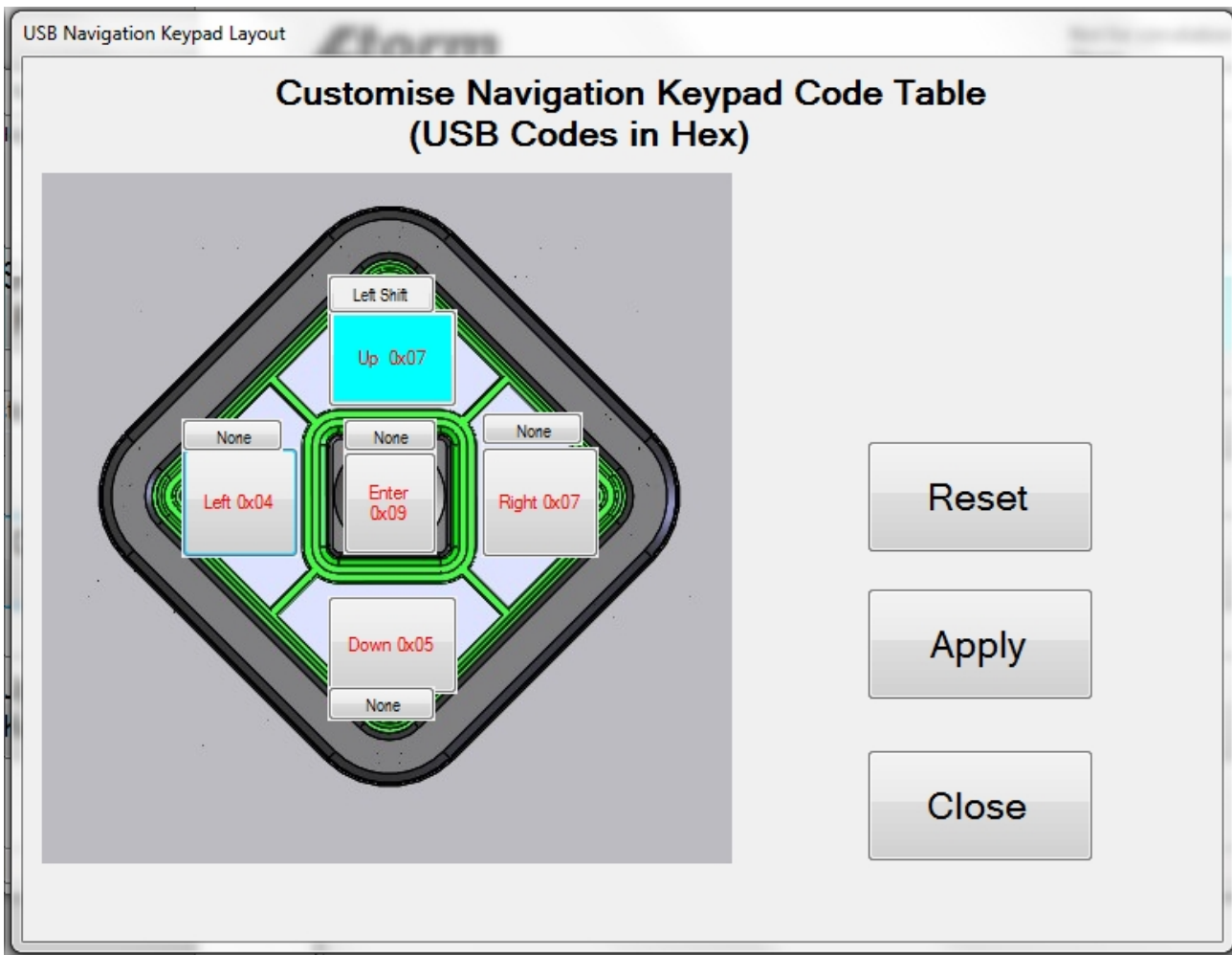
R SHT – Right Shift

R ALT – Right Alt

R CTL – Right Ctrl

R GUI – Right Gui

Select either L SHT or R SHT – I have selected L SHT.



The L SHT modifier is now displayed on button and background colour changed to grey. Now if you click on “Apply” and if successfully transferred then pressing Up on keypad should display “D” (uppercase).

If you did not want the current setting then click on “Reset” then all buttons will revert to original coding and then click on “apply” to send this coding to NavigationKeypad keypad.

“Exit” will exit the customize form and return back to main screen.



Save Changes

All configurations, including the customized table is modified in volatile memory. So if after modifying and the user switches off the keypad then next time the encoder is powered on, it will revert back to previous configuration data. To save the modified data in non volatile memory, click on “Save Changes” button.

Factory Default

Clicking on “Reset To Factory Default” will set the keypad with values that are preset, i.e.

NavigationKeypad – default table

LED brightness – 9

----- END OF DOCUMENT -----