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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





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:

🚔 Device Manager	
File Action View Help	
Imaging devices Imaging devices	Keyboard
 Jungo Connectivity Keyboards HID Keyboard Device Standard PS/2 Keyboard Mice and other pointing devices Modems Monitors Network adapters Ports (COM & LPT) Processors Smart card readers Sound, video and game controllers Storage controllers System devices Universal Serial Bus controllers USB Virtualization 	Keyboard



1600 Series USB Navigation Keypad

Technical Manual

Specification

Rating Connection Dimensions Underpanel Depth Cable

Part Numbers

5V ±0.25V (USB 2.0) 1605-33001 mini USB B socket 4500-01 70mm square 25mm . 1600 Series USB Navigation Keypad USB Cable (angled mini-B to USB-A, 0.9m long)

Performance

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

Not Included

Downloads

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

This product is licensed under NCR's design rights, including NCR U.S. Design Patent D687,783 and European Design Registration 001887290. It incorporates proprietary technology and intellectual property retained by Keymat Technology Ltd. (trading as Storm Interface).

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	<u>Version</u>	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



Appendix 1 – Configuration Utility

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



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Appendix 1 – Configuration Utility

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

B StormNavigationKeypadUtility
Welcome to the StormNavigationKeypadUtility Setup Wizard
The installer will guide you through the steps required to install StormNavigationKeypadUtility on your computer.
WARNING: This computer program is protected by copyright law and international treaties. Unauthorized duplication or distribution of this program, or any portion of it, may result in severe civil or criminal penalties, and will be prosecuted to the maximum extent possible under the law.
Cancel < Back Next>

Click on "Next"

😸 StormNavigationKeypadUtilit	y .	
License Agreement		
Please take a moment to re below, click "I Agree", then '	ad the license agreement now. If y 'Next''. Otherwise click "Cancel".	you accept the terms
User License Agreem Notice for the Storm I hereafter referred to	ent and Intellectual Propert nterface Keypad Configurat as the "Software Product".	y Rights
 This Storm Inter Agreement (her agreement for th contained. The software, digital 	face Software Product User Li eafter referred to as the "ULA") ne Software Product in which t Software Product includes con images and associated media	icense i is a legal his ULA is nputer a, printed -
I Do Not Agree	🗇 l Agree	
	Cancel < Back	Next >

Select "I Agree" and Click on "Next"



闄 StormNavigationKeypadUtility	
Select Installation Folder	
The installer will install StormNavigationKeypadUtility to the foll	owing folder.
To install in this folder, click "Next". To install to a different folde or click "Browse".	er, enter it below
<u>F</u> older:	
C:\Program Files (x86)\Storm Interface\StormNavigatio	Browse
	Disk Cost
Install StormNavigationKeypadUtility for yourself, or for anyone who uses this	s computer:
• Everyone	
⊘ Just me	
Cancel <back< td=""><td>Next ></td></back<>	Next >

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"

B StormNavigationKeypadUtility	
Installing StormNavigationKeypadUtility	
StormNavigationKeypadUtility is being installed.	
Please wait	
Cancel	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".

Storm USB Navigation Keypa	ad Configuration Utility		the loss Constitution
File Help			
US	B Navigati	on Keypad Conf	iguration Utility
Scan For	Device Connected Code Table Loaded Serial Number	NavigationKeypad Customise Table 15030000002	Firmware Version - V1.0
Customise Table	•	LED Brightness - 9 -	Test Keypad
Customise Table	Code	Reset From Configuration File	Save Changes
Update Nav Keypad Firr	igation mware	Reset To Factory Default	Exit

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



Appendix 1 – Configuration Utility

Help

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

00	About USB Navigation Keypad Utility	niiguration Utility
Scan For	USB Navigation Keypad Utility	Firmware Version - V1.0
istomise Tabli	Version 2.0 Part No USBNAV-SW01	• Test Keypad
Customise Tabl	This software works with Stom's Navigation Keypad. Copyright Keymat Technology Ld, 2015 All inghts reserved. For more information visit Stom's Website: <u>http://www.stom-interface.com</u>	Save Changes
Update Na Keypad Fi	Close	Exit

Customise Keycode 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"



can	Device Connected	NavigationKeypad	Firmware Version - V1.0
For	Code Table Loaded Serial Number	Customise Table 15030000002	
omise Table	•	LED Brightness - 9 🗸	Test Keypad
ult Table ate Table			
Istomise Table Customise Code		Reset From	0.01
Table		Configuration File	Save Changes
data Na	vication	Peset To Factory	
Keypad Eirmware		Default	Exit

LED Brightness

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

Seen	Device Connected	NavigationKeypad	Firmware Version - V1.0
For	Code Table Loaded Serial Number	Customise Table 150300000002	
stomise Tab	le -	LED Brightness - 9	Test Keypad
		LED Brightness - 5	
Custania	o Codo	LED Brightness - 7	
Table		LED Brightness - 8	Save Changes
Update N	avigation	Reset To Factory	E.A
Keynad F	irmware	Default	Exit

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Appendix 1 – Configuration Utility

Test Keypad

This will test all the functionality of keypad.

- Sequence the illumination over all dimming levels
- Key test

Click On "Test Keypad"

Self Test	Horm		Section 100	
	SELF TES	T		
	Testing Led	LED	V	
	Testing Led Brightness	9	V	
	Left	Right		
	Down			
1				
			Close	



Appendix 1 – Configuration Utility

Customise Keycode

The uer 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:





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.



Appendix 1 – Configuration Utility

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 ------