Product Overview

Product Features

Kiosks, ATMs, ticketing machines and voting terminals usually present information about available products and services via a visual display or touch screen. NavPad™ is a highly tactile interface that improves accessibility, making audio navigation and selection of screen based menus possible. An audio description of available menu options is transmitted to the user through a headset, handset or cochlea implant. When the desired menu page or menu option is located it can be selected by the press of a distinctive tactile button..

Storm Assistive Technology Products provide improved accessibility for those with impaired vision, restricted mobility or limited fine motor skills.
The Storm NavPad is intended for use as the tactile/audio interface for any ADA or EN301-549 compliant application.

R N I B

Tried and Tested

Coloured and backlit keys make the location of individual keys much easier for those with partial vision. The keytop's distinctive shape and tactile symbols provide the primary means of identifying a key's specific function.

Keypad

- 6 or 8 key versions.
- Option for desktop version or under panel installation to a 1.2mm - 2mm panel only.
- Audio versions have illuminated 3.5mm audio jack socket (illumination under software control)
- Beeper on under panel versions only(duration controlled by software)
- Mini-USB socket for connection to host

Illuminated version has white keys – illumination is switched on when headphones plugged in.

USB 2.0 Interface

- HID keyboard
- Supports standard modifiers, i.e. Ctrl, Shift, Alt
- HID consumer controlled device
- Advanced audio device
- No special drivers required
- Audio Jack Insert / Removal sends USB code to host
- Audio Jack socket is illuminated.
- Versions with microphone support need to be set as the default recording device in the Sound Panel
- Products with microphone support have been tested with the following voice assistants:- Alexa, Cortana, Siri and Google Assistant.

Support Tools

The following support software tools are available for download at www.storm-interface.com

- Windows Utility for changing the USB Code Tables and control of illumination / beeper.
- API for custom integration
- Remote Firmware update tool.

Typical method for audio module volume control using the API

User Action
- Plug in the headphone jack

Host
- Host system detects the connection

- Repeating message generated by the host application software :
" Welcome to the audio menu. Press the select key to begin"

User Action
- Press the select key

Host
- Activate the Volume Control function
- Repeating message :
"Use the up & down keys to change the volume. Press the select key when finished"

User Action
- Adjust the volume
- Press the select key

Host
- De-activate the volume control function

"Thank you. Welcome to the (next menu)"

Alternate method for audio volume control using the API

User Action
- Plug in the headphone jack

Host
- Host system detects the connection
- Sets volume level to initial default
- Repeating message :
"Press the volume key at any time to increase the volume level"

User Action
- Presses the volume key

Host
- Host system changes the volume on each key press (up to a max limit, then revert to default)

Host
- Message stops if volume key is not pressed inside 2 seconds.

Product Range

NavPad™ Keypad
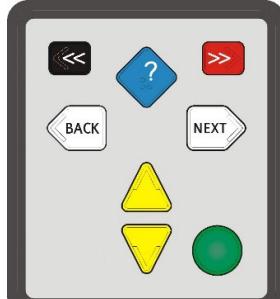
8 Key

    EZ08-22301   NavPad 8-Key Tactile Interface – Underpanel, w/2.0m USB cable
    EZ08-22200   NavPad 8-Key Tactile Interface – Desktop, w/2.5m USB cable

NavPad™ Keypad with integrated audio
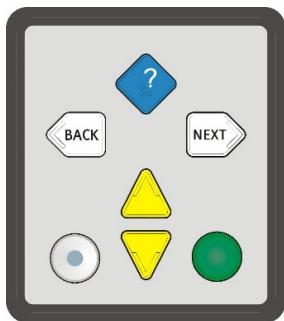
6 Key   8 Key

    EZ06-23001   NavPad 6-Key Tactile Interface & Integrated Audio – Underpanel, no cable

    EZ08-23001   NavPad 8-Key Tactile Interface & Integrated Audio – Underpanel, no cable
    EZ08-23200   NavPad 8-Key Tactile Interface & Integrated Audio – Desktop, w/2.5m USB Cable

NavPad™ Keypad with integrated audio - Illuminated

6 Key   8 Key

    EZ06-43001   NavPad 6-Key Tactile Interface & Integrated Audio – Backlit, Underpanel, no cable

    EZ08-43001   NavPad 8-Key Tactile Interface & Integrated Audio – Backlit, Underpanel, no cable
    EZ08-43200   NavPad 8-Key Tactile Interface & Integrated Audio – Backlit, Desktop, w/2.5m USB Cable

Rear Case

Desktop

Underpanel

REAR VIEW

CONNECT
EARTH WIRE
TO GROUND
FOR ESD
PROTECTION
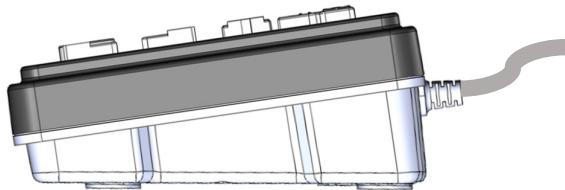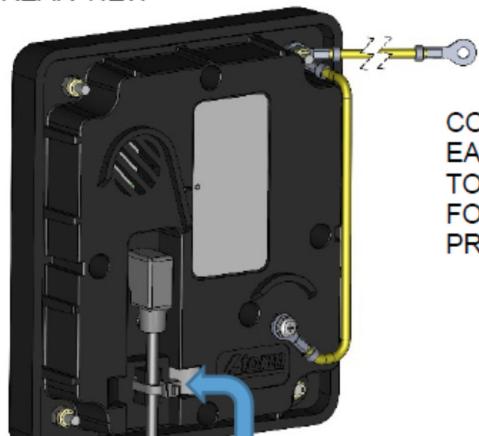
RECOMMEND USE
OF 2.5MM CABLE TIE
TO RETAIN CABLE

Underpanel Illuminated
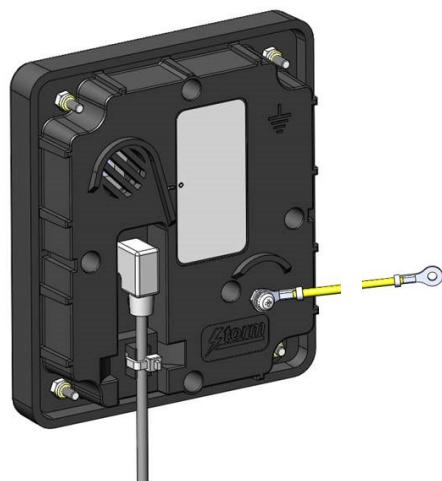
Specifications

Rating	5V ±0.25V (USB 2.0), 190mA (max)
Connection	mini USB B socket (desktop versions have cable fitted)
Audio	3.5mm audio jack socket (illuminated)
	Output level 30mW per channel max into a 32ohm load
Ground	100mm Earth Wire with M3 ring terminal (underpanel versions)
Sealing Gasket	included with underpanel versions
USB Cable	included in some versions, see specific product brochure for more information

The illuminated NavPads also support voice command:-

Microphone input	Mono microphone input with bias voltage
	suitable for headset microphones (CTIA connection)

Dimensions (mm)

Underpanel version	105 x 119 x 29	
Desktop version	105 x 119 x 50	
Packed Dims	150 x 160 x 60 (0.38 kg)	
Panel Cutout	109.5 x 95.5 Rad 5mm corners.	Refer to drawing EZK-00-33
Underpanel Depth	28 mm	1.6 – 2.0mm panel recommended

Mechanical

Operational Life	4 million cycles (min) per key

Accessories

4500-01	USB CABLE MINI-B TO TYPE A, 0.9m
6000-MK00	PANEL FIXING CLIPS (PACK OF 8 CLIPS)
	Use to install into a 1.6 – 2mm steel panel
	Refer to drawing EZK-00-33 for cutout dims

Performance/Regulatory

Operational Temp	-20°C to +70°C
Weather Resistant	IP65 (front)
Impact Resistance	IK09 (10J Rating)
Shock & Vibration	ETSI 5M3
Certification	CE / FCC / UL

Connectivity

The USB interface comprises an internal USB hub with connected keyboard and audio module.
This is a composite USB 2.0 device and no additional drivers are required.

PC based software utility and API are available to set/control: -

• Volume key function
• Illumination on audio jack socket
• Illumination on keys (backlit version only)
• Customise the USB codes

NavPad
Technical Manual

USB Device Information

USB HID

The USB interface comprises a USB HUB with keyboard device and audio device connected.
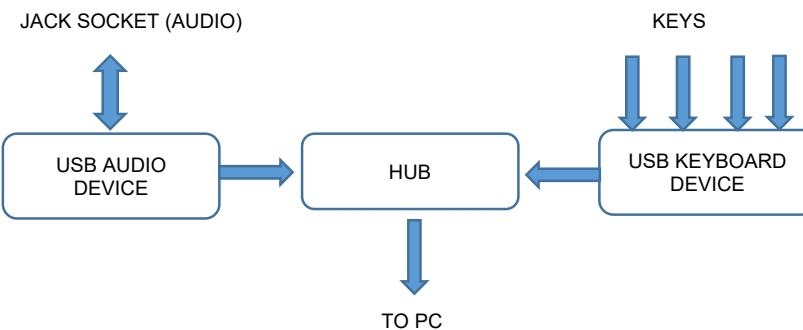
The following VID/PID combinations are used:

For USB HUB:	For Standard Keyboard/Composite HID/ Consumer Controlled device	For USB Audio device
• VID – 0x0424	• VID – 0x2047	• VID – 0x0D8C
• PID – 0x2512	• PID – 0x09D0	• PID – 0x0170

This document will concentrate on the Standard Keyboard/Composite HID/Consumer Controlled device. This interface will enumerate as

- • Standard HID Keyboard
- • Composite HID-datapipe Interface
- • HID Consumer Controlled device

One of the advantages of using this implementation is that no drivers are required.

The data-pipe interface is used to provide the host application to facilitate customisation of the product.

Supported Audio Jack Configurations

The following jack configurations are supported.

Note: Application software should always ensure the same audio is present on both Left and Right Channels for correct mono operation.

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Device Manager

When connected to a PC, the NavPad™ + audio keypad should be detected by the operating system and enumerate without drivers. Windows shows the following devices in the Device Manager:
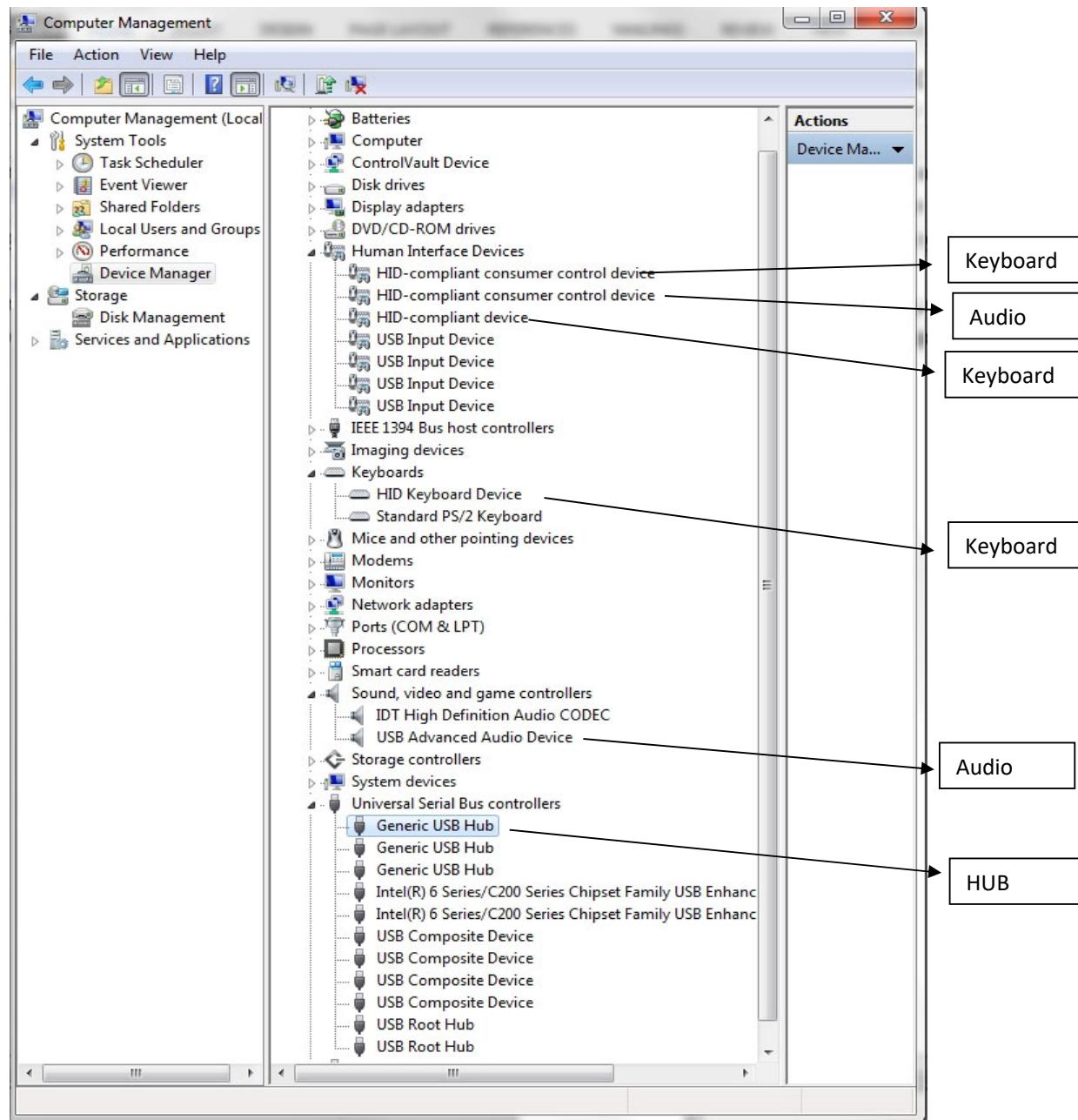
Code Tables

Default Table

Key Description	KEY LEGEND	TACTILE IDENTIFIER	KEY COLOR	USB Keycode
Home/Menu	<<	<	BLACK	F23
Help	?	:.	BLUE	F17
End	>>	>	RED	F24
Back	BACK	<	WHITE	F21
Next	NEXT	>	WHITE	F22
Up		^	YELLOW	F18
Down		v	YELLOW	F19
Action		O	GREEN	F20
Detection of headphone connection				
inserted			WHITE	F15
removed				F16

Alternate Multimedia Table

Key Description	KEY LEGEND	TACTILE IDENTIFIER	KEY COLOR	USB Keycode
Home/Menu	<<	<	BLACK	F23
Help	?	:.	BLUE	F17
End	>>	>	RED	F24
Back	BACK	<	WHITE	F21
Next	NEXT	>	WHITE	F22
Volume Up		^	YELLOW	
Volume Down		v	YELLOW	
Action		O	GREEN	F20
Detection of headphone connection				
inserted			WHITE	F15
removed				F16

For the Volume up/down keys a volume up/down report will be sent to the PC according to the HID descriptor setup for HID consumer controlled device. The following report will be sent:

Volume UP key   <0x01><0x02>
Volume DOWN key <0x01><0x04>

Default - Illuminated

Key Description	KEY LEGEND	TACTILE IDENTIFIER	ILLUMINATION COLOR	USB Keycode
Home/Menu	<<	<	WHITE	F23
Help	?	:.	BLUE	F17
End	>>	>	WHITE	F24
Back	BACK	<	WHITE	F21
Next	NEXT	>	WHITE	F22
Up		^	WHITE	F18
Down		v	WHITE	F19
Action		O	GREEN	F20
Detection of headphone connection				
inserted			WHITE	F15
removed				F16

Key illumination is turned on when headphone jack is inserted.

Using the NavPad Windows Utility to change USB Codes

Note that there are 2 Windows Utility packages available for download:

- Standard NavPad
- Illuminated NavPad

Please ensure you use the correct one as shown below

If any other keypad utility software is installed (e.g EZ-Key Utility) then you should un-install that before you start.

Non illuminated NavPad utility	To be used with the following part numbers: EZ08-22301 EZ08-22200 EZ06-23001 EZ08-23001 EZ08-23200
Illuminated NavPad utility	To be used for the following part numbers: EZ06-43001 EZ08-43001 EZ08-43200

System Requirements

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

Compatability

Windows 11 ✓

Windows 10 ✓

The utility can be used to configure the product for:

- LED On/Off
- LED brightness (0 to 9)
- Buzzer On/Off
- Buzzer Duration (¼ to 2 ¼ seconds)
- Load customised keypad table
- Write default values from volatile memory to flash
- Reset to factory default
- Load Firmware

Note that **non-audio versions** also support multiple key press combinations**.**