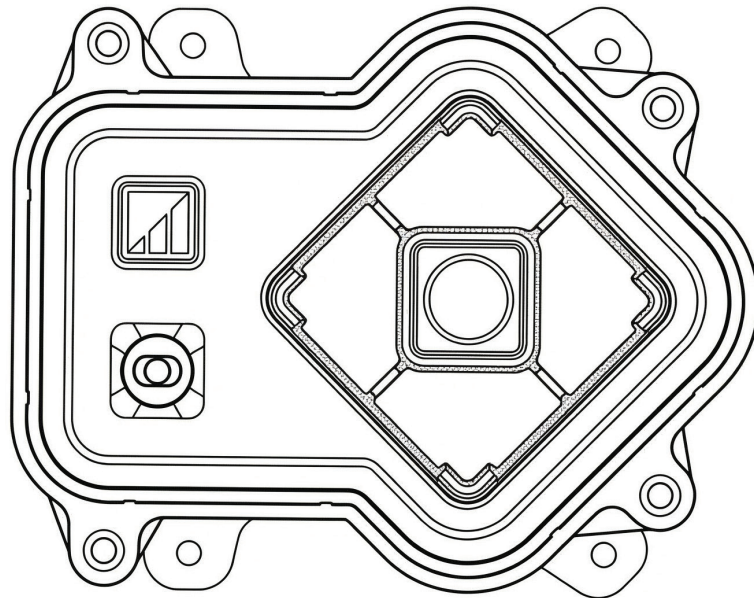


AudioNav™

Technical Manual



The Global Standard In Self-Service Accessibility





1. Introduction

Congratulations on your purchase of the Storm Interface AudioNav.

You have selected the industry's most widely recognised accessibility user interface for self-service applications.

AudioNav has been specifically designed to enable inclusive interaction with self-service kiosks and other unattended terminals. By combining a highly tactile navigation keypad with integrated audio guidance, AudioNav allows users to independently navigate digital menus and on-screen content that would otherwise be accessible only through a visual touch interface.

Since its introduction, AudioNav has become widely regarded as a benchmark for accessibility in self-service environments. Originally developed for travel kiosks and self-checkout systems, it is now deployed across a wide range of public applications including ticketing machines, healthcare terminals, retail kiosks, and information points.

Designed to support users with visual impairments, reading difficulties, or limited dexterity, AudioNav provides intuitive tactile controls and private audio output through a standard headset connection. Screen content can be presented as spoken instructions or summaries, enabling users to navigate and complete transactions confidently and independently.

This technical manual provides the information required to install, configure, and integrate the AudioNav device into your kiosk or interactive terminal system. By following the guidance in this document, system designers and integrators can ensure that their self-service applications deliver an accessible and inclusive user experience for all.

The Storm Interface Team



This device is manufactured to comply with the European Safety Standards.

RNIB

**Tried and
Tested**

This device is compliant with RNIB
Tried and Tested standards.

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This manual refers to:

1406-34001
 1406-34011
 1406-35001
 1406-35011
 1406-35011-MPH
 1406-35011-ALT
 1406-35001-ALT
 1406-34002
 1406-34202
 1409-34011
 1409-34013
 1409-35011
 1409-35013



Indicates additional information for visually impaired people who might be using this manual.



Indicates Information that needs special attention.



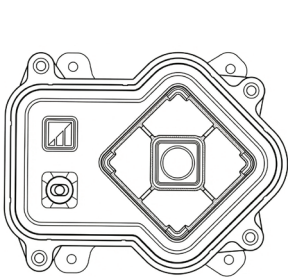
Indicates useful information.



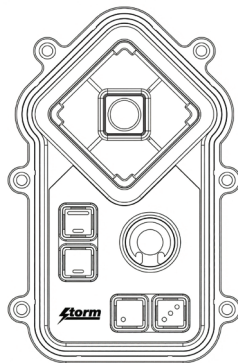
2. Product features

This manual provides information for the following Storm Interface AudioNav models:

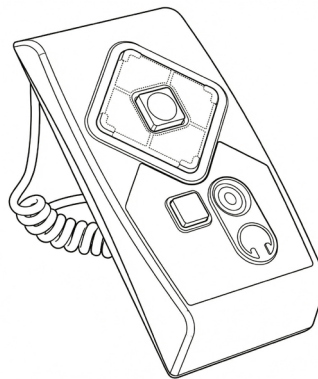
- **AudioNav – 6 Keys**
- **AudioNav EF (Extended Functionality) – 9 Keys (vertical and horizontal)**
- **Externally Mounted AudioNav**
- **Angled AudioNav**



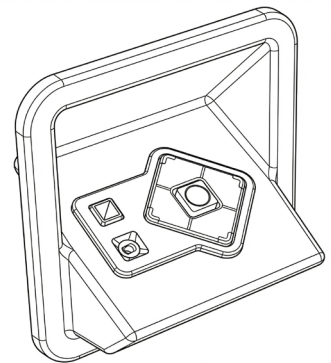
AudioNav 6 Keys



AudioNav EF 9 Keys



External AudioNav



Angled AudioNav

The AudioNav is an ADA and EAA-compliant assistive USB device designed to enable menu navigation through audible content description.

Users with visual impairments, reading difficulties, or impaired fine motor skills can navigate menus or directories that would typically be presented on a visual display or touchscreen. Screen content is represented and summarised through recorded or synthesised speech, delivered through a headset or handset.

The keypad provides a set of tactile menu selection keys, differentiated in shape and layout to make the device easier to use for people with visual impairments. A standard 3.5 mm headphone socket is included, allowing users to connect a headset and receive audio instructions to guide them through the system interface.

AudioNav – 6 Keys

AudioNav - 6 keys provides six tactile keys designed to control and navigate menu-driven interfaces. This allows users to interact with systems that would otherwise rely on visual or touchscreen interfaces.

This model delivers the core AudioNav functionality:

- 5 navigation keys (up, down, left, right and confirm) to navigate menus and directories
- 1 volume loop key
- 1 standard 3.5 mm headphone jack to receive audio feedback through a connected headset.

AudioNav EF – (Extended Functionality) 9 Keys

In addition to the core AudioNav functionality, AudioNav EF (Extended Functionality) 9-Key version features an expanded keypad with three additional keys.

In addition to the standard navigation keys, the AudioNav EF includes:

- 2 volume control keys (+ and -).
- 2 audio playback speed control keys (+ and -)

These additional functions allow users to adjust the audio output (volume and playback speed) to suit their individual preferences, improving usability and accessibility.

Externally Mounted AudioNav

The Externally Mounted AudioNav is designed for installations where the keypad needs to be positioned outside the host terminal enclosure. It features six keys, like the standard model.

This configuration allows manufacturers and operators to permanently mount the device on:

- Adjacent surfaces such as walls or service counters.
- The outer casing of a host terminal.

This solution is particularly useful when existing self-service installations must be upgraded to meet current accessibility requirements.

When used in combination with SpacePole™ mounting solutions, the externally mounted AudioNav can be positioned and adjusted to ensure maximum accessibility and optimal reach for users.



Optional: Quick Release Cradle

An optional Quick Release Cradle allows the externally mounted AudioNav device to be detached from the host system and used as a handheld device.

In this configuration, the AudioNav can be passed directly to users with limited reach or impaired dexterity, enabling them to interact comfortably with the system.

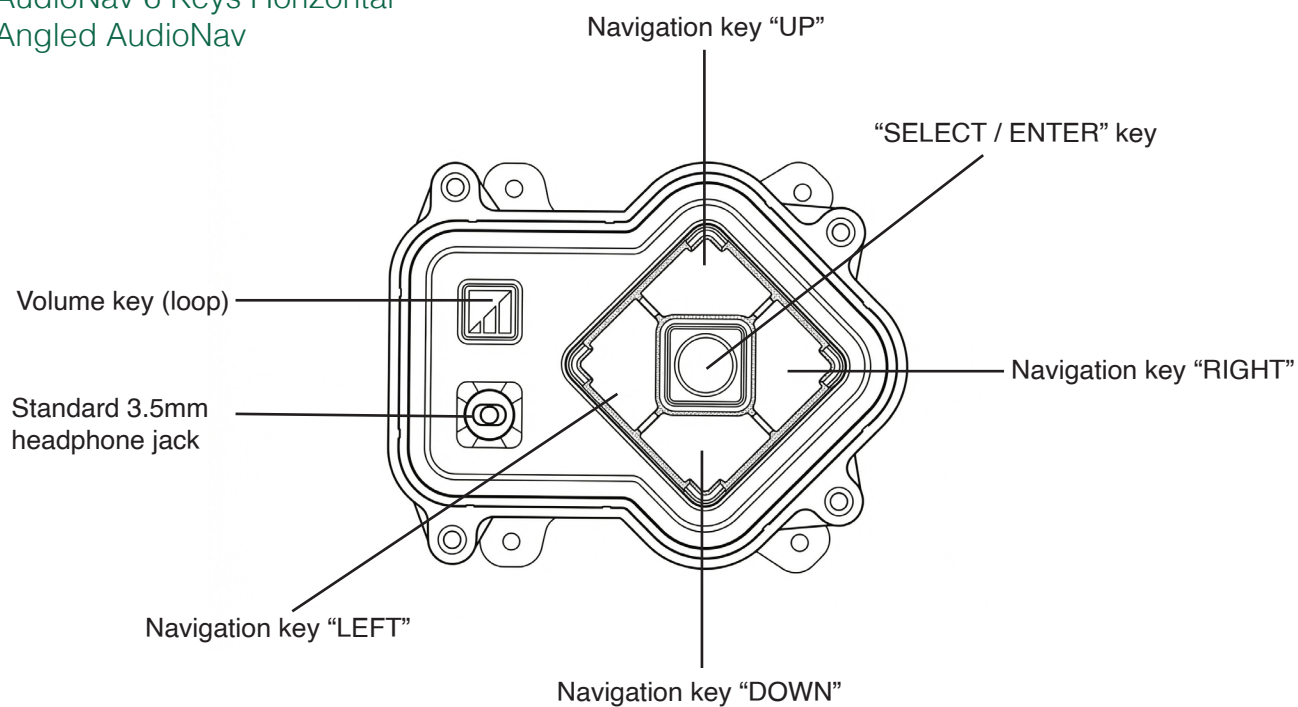
Angled AudioNav

Angled AudioNav is an alternative version of the AudioNav 6-Key device, housed in a highly resistant angled enclosure. It allows installation at a height suitable for both wheelchair and non-wheelchair users. It provides the same features as the 6-Key AudioNav, but in a different housing designed to improve visibility and ease of use.

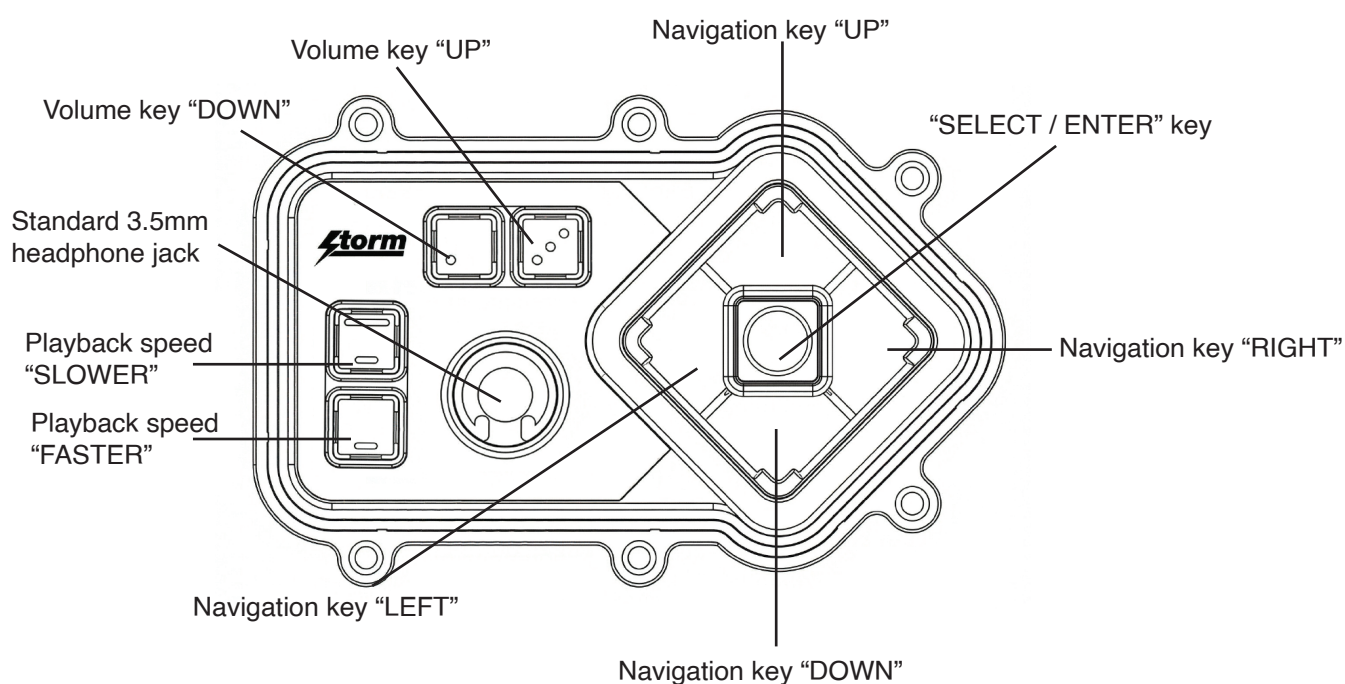
Keys and Functions (default settings)

The AudioNav's keys (all versions) are fully configurable, but the factory default keys are illustrated in the images below.

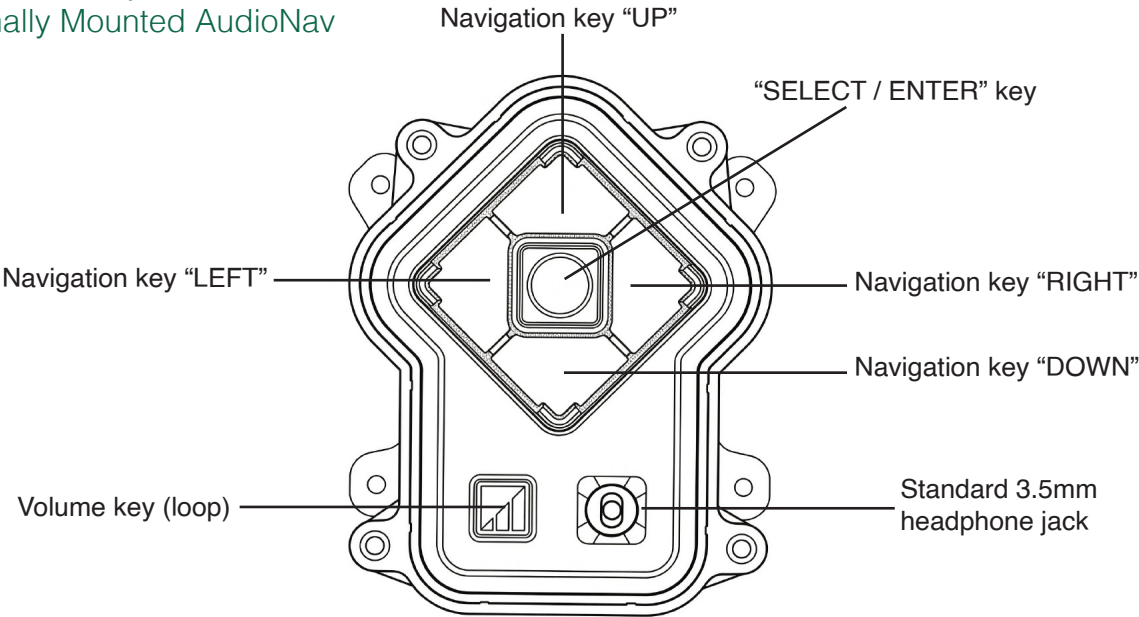
AudioNav 6 Keys Horizontal Angled AudioNav



AudioNav 9 Keys Horizontal

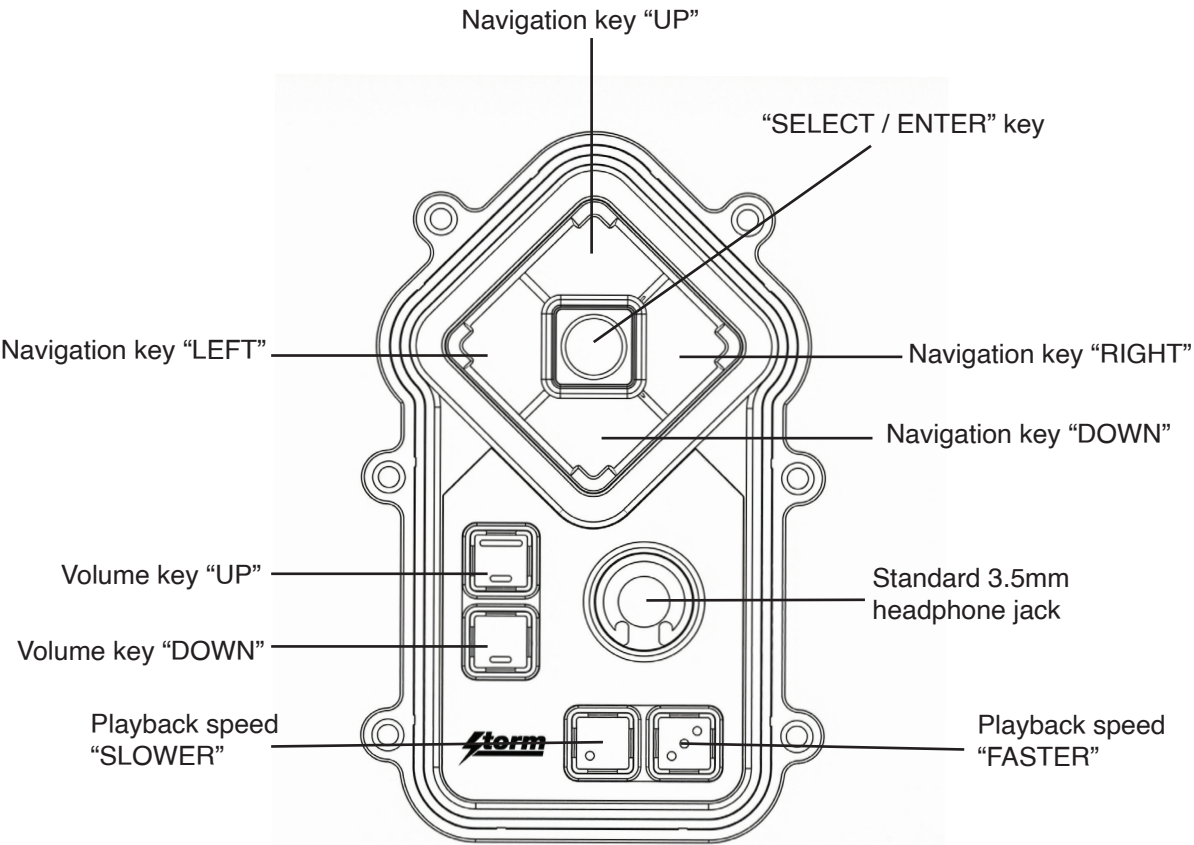


AudioNav 6 Keys Vertical
Externally Mounted AudioNav



NOTE: For use of Standard AudioNav in vertical mode, move the switch on the back of the device to position II. More details on page 15.

AudioNav 9 Keys Vertical



Code Tables

The default and alternate USB code tables are shown below.

The standard AudioNav can be used in either horizontal or vertical mode. The conventional orientation is horizontal. If you move the switch to position II and refit the volume keycap for use in vertical mode (see page 15 for details), the output codes need to be adjusted to suit the new orientation.

AudioNav - 6 Keys

	FACTORY DEFAULT CODE TABLE			
	Horizontal		Vertical	
Function	Hex	USB	Hex	USB
Right	0x4F	Right Arrow	0x4F	Right Arrow
Left	0x50	Left Arrow	0x50	Left Arrow
Down	0x51	Down Arrow	0x51	Down Arrow
Up	0x52	Up Arrow	0x52	Up Arrow
Select	0x28	Enter	0x28	Enter
Jack IN	0x6A	F15	0x6A	F15
Jack OUT	0x6B	F16	0x6B	F16
Volume	0x6C	F17	0x6C	F17



NOTE: For the 6 key version factory default is horizontal.

AudioNav 9 Key Extended Functionality

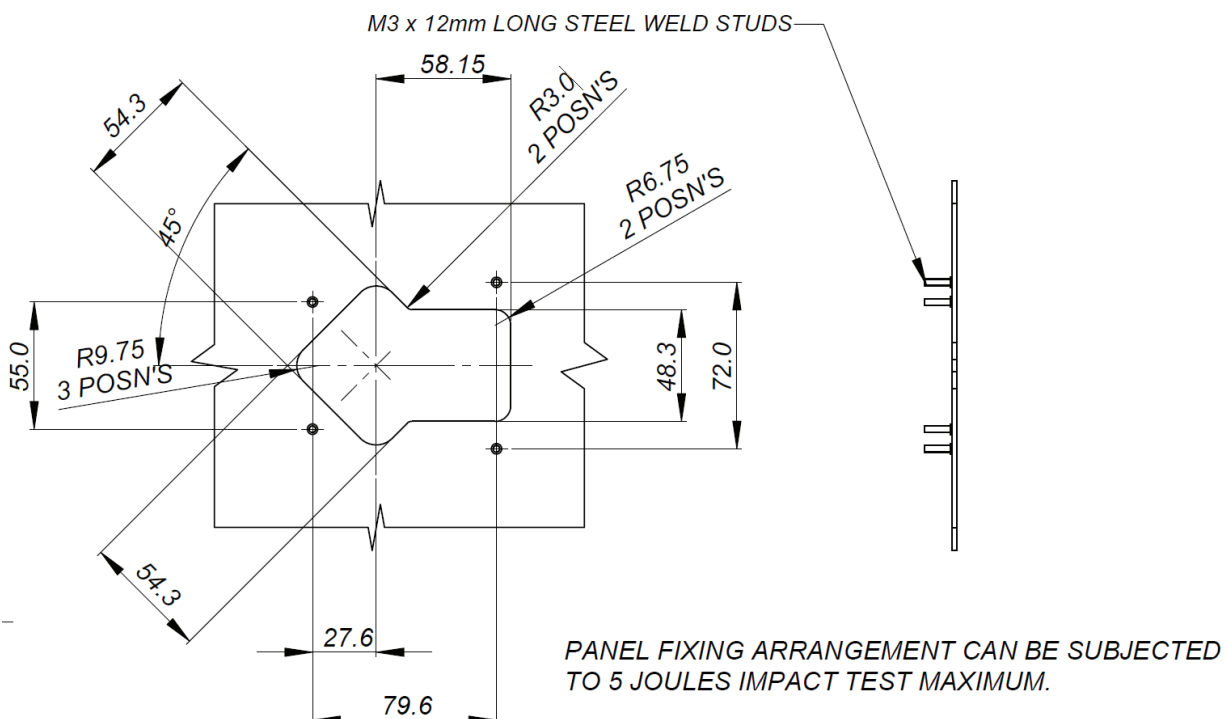
Function	Hex	USB
Right	0x4F	Right Arrow
Left	0x50	Left Arrow
Down	0x51	Down Arrow
Up	0x52	Up Arrow
Select	0x28	Enter
Jack IN	0x6A	F15
Jack OUT	0x6B	F16
Volume Up	01 02	Windows Multi-media Codes
Volume Down	01 04	
+ Speech Rate	0x72	F23
- Speech Rate	0x73	F24

Externally Mounted AudioNav

Function	Hex	USB
Right	0x4F	Right Arrow
Left	0x50	Left Arrow
Down	0x51	Down Arrow
Up	0x52	Up Arrow
Select	0x28	Enter
Jack IN	0x6A	F15
Jack OUT	0x6B	F16
Volume	0x6C	F17



The underside of the panel should be flat, clean, and free of debris to optimise sealing. The torque applied to the locknuts must not exceed 50 cNm.



AudioNav EF – Extended Functionality 9 Keys

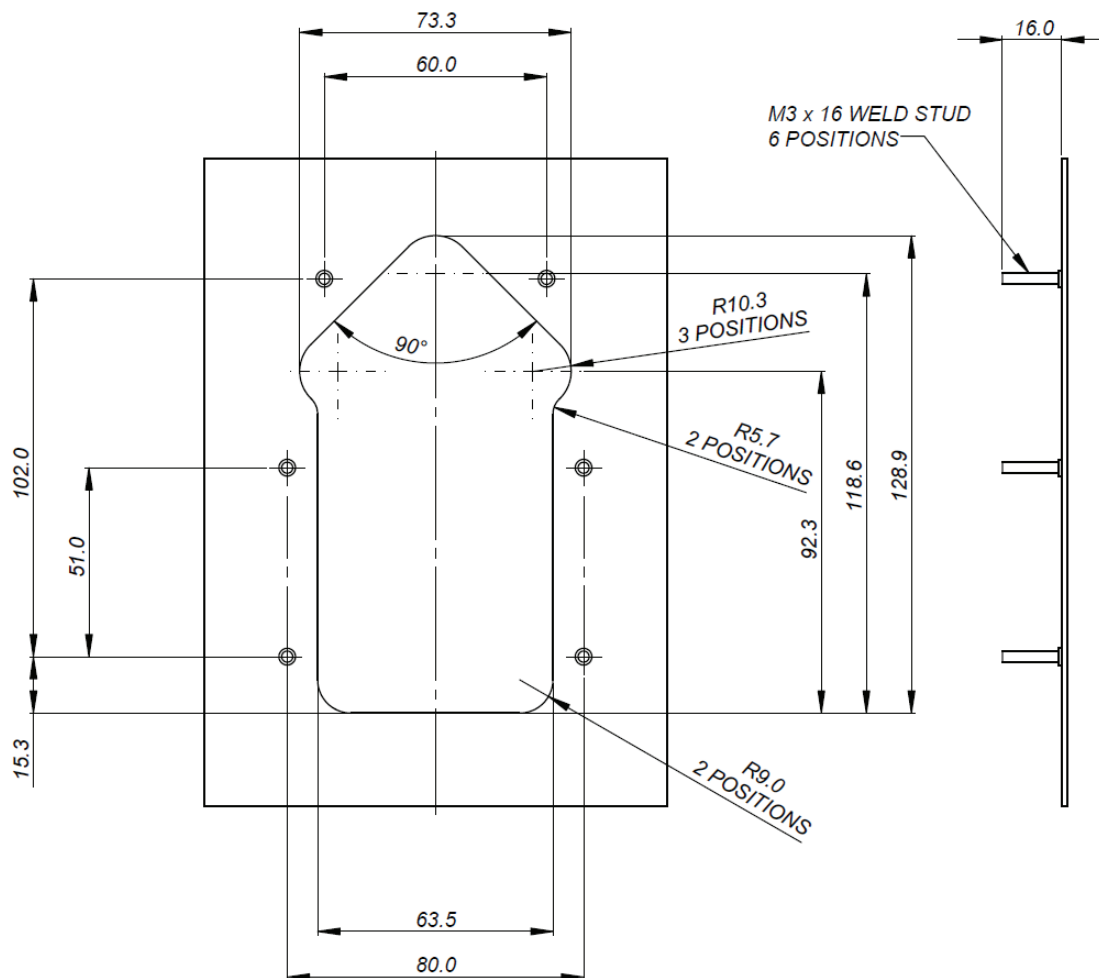
To install the AudioNav EF - Extended Functionality 9 Keys, please refer to the diagram below showing the product size and the position of the mounting screw holes. AudioNav is designed to be installed under panel and have a flush appearance on the kiosk external surface.

Once the cut-out has been made in the kiosk panel, the AudioNav mounting plate can be used to secure the device to the surface. The AudioNav is designed to be fixed to the panel using six locknuts on weld studs.

An O-ring seal is pre-positioned between the device and the fixing panel prior to installation.

The overall size of the fixing panel shown is representative of the end user's product only. Please ensure that a suitable panel material is used to support the ATP unit, providing sufficient rigidity where sealing is required.

The underside of the panel should be flat, clean, and free of debris to optimise sealing. The torque applied to the locknuts must not exceed 50 cNm.



Panel cut-out: 128.9 mm x 73.3 mm
Mounting hole diameter: 4 mm
Horizontal hole spacing: 60 mm
Vertical hole spacing: 51 mm

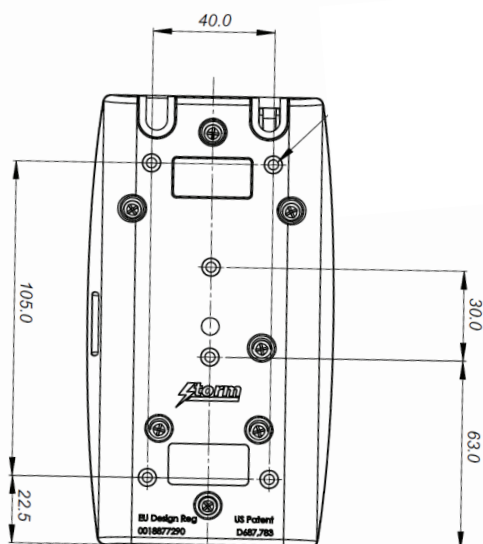


Externally Mounted AudioNav

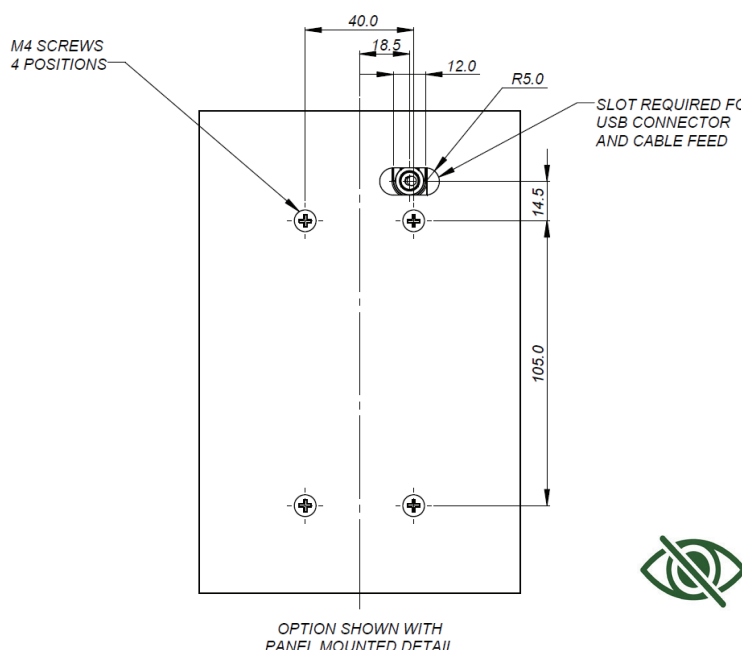
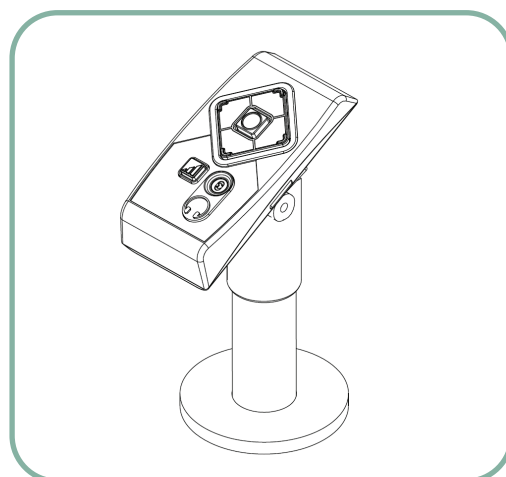
The Externally Mounted AudioNav is a 6 key AudioNav housed in a rigid external enclosure, designed for applications where installation inside a kiosk is not possible. It provides manufacturers and operators with the option to permanently affix an AudioNav device to the outer casing of a host terminal or to adjacent surfaces such as walls or service counters. This is particularly useful when existing self-service installations must be upgraded to meet current accessibility requirements.

The images below show the positions of the mounting holes.

An optional Quick Release Cradle allows the AudioNav to be detached from the host system and used as a handheld device. In this configuration, the AudioNav can, if required, be passed directly to users with limited reach or impaired dexterity. Please refer to the optional cradle diagram for mounting details.



Optional: Quick Release Cradle
Mounting instruction provided separately



Mounting hole diameter: 4 mm
Horizontal hole spacing: 40 mm
Vertical hole spacing: 105 mm

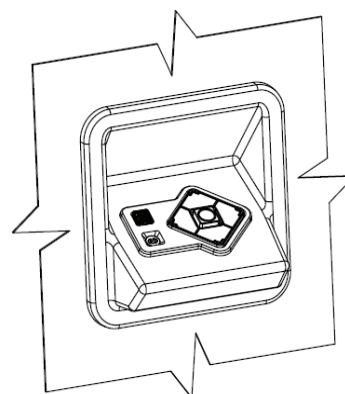
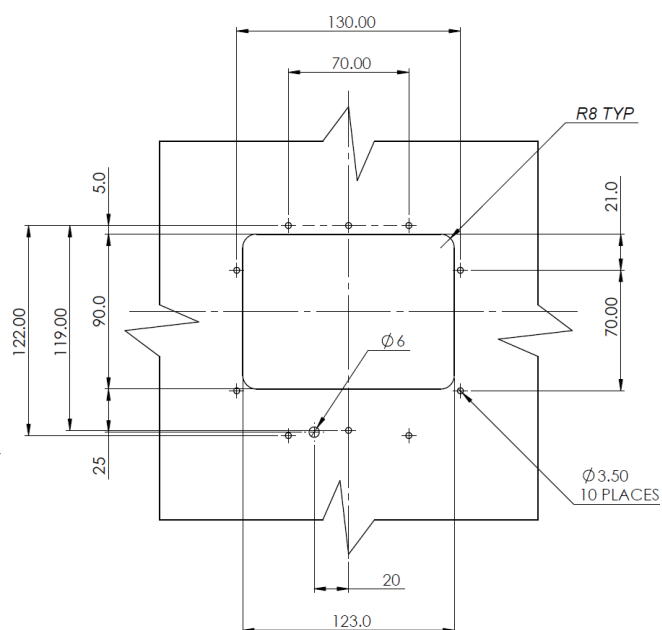
Angled AudioNav

Angled AudioNav is an alternative version of the 6 key AudioNav device, housed in a highly resistant angled enclosure. It allows installation at a height suitable for both wheelchair and non-wheelchair users.

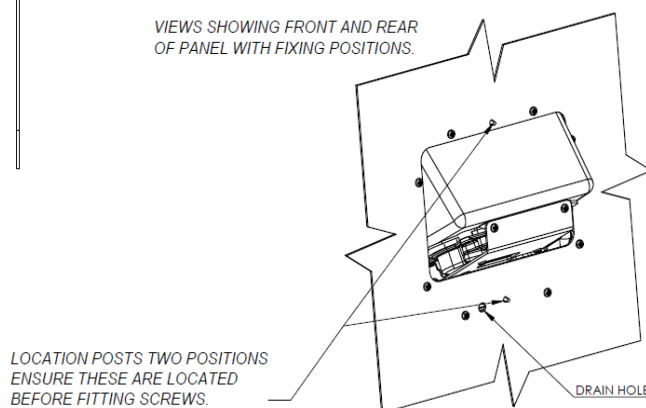
Ensuring that AudioNav can be easily seen and used comfortably by both seated and standing users can be challenging. The innovative angled housing of the Angled AudioNav addresses this by presenting the device at an optimal viewing and operating angle.

To install the Angled AudioNav, please refer to the diagram below, which shows the product dimensions and the position of the mounting screw holes. The Angled AudioNav is designed to be installed directly onto the kiosk panel.

Once the cut-out has been made in the kiosk panel, the mounting plate can be used to securely fix the device to the surface.



VIEWS SHOWING FRONT AND REAR OF PANEL WITH FIXING POSITIONS.



Panel cut-out: 123 mm x 70 mm
Mounting hole diameter: 4 mm
Horizontal hole spacing: 130 mm
Vertical hole spacing: 70 mm

Angled AudioNav housing is designed to be secured with eight m3 self-tapping screws. Please refer to the table below for the correct screw lengths.

Please ensure that a suitable panel material is used to support the keypad. The panel must provide sufficient rigidity where sealing is required (for example, 1.5 mm to 2.0 mm steel).

The underside of the panel should be flat, clean, and free of debris to optimise sealing. The torque applied to the screws should not exceed 50 cNm.

4. Connections

In order to offer the easiest integration with existing kiosks, connection of AudioNav to the host system is achieved through a single USB cable (not included), ensuring straightforward integration with compatible terminals and kiosks.

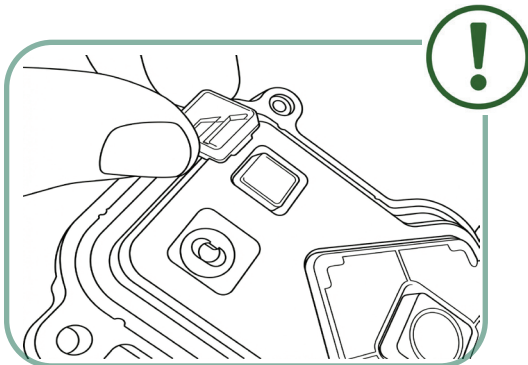
AudioNav - 6 Keys

AudioNav - 6 Keys can be connected to any compatible kiosk via the Micro USB connector on the back of the device as shown in the image below. The USB cable is not included and can be ordered separately.

Depending on the installation, AudioNav - 6 Keys can be configured to operate in horizontal or vertical mode. To select the desired operation mode, use the switch on the back of the device. Use position 1 for horizontal mode and position 2 for vertical mode.

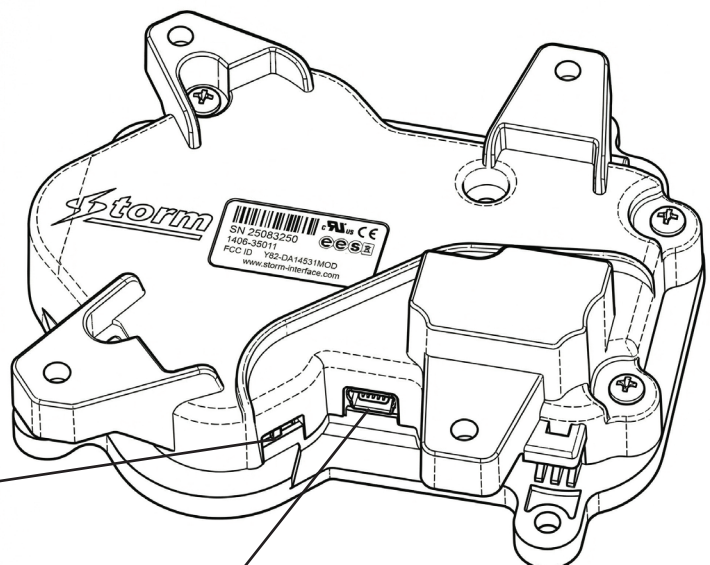
Remove the volume button cover from the plastic bag taped to the keypad. The volume indicator symbol on the printed tile should align with the raised indicator bars on the clear cover. Fit the cover onto the volume button (make sure orientation is correct).

Please refer to the host system instructions for details about the connection to the kiosk.



Note: Change the volume button position according to the device's orientation.

Orientation switch
Position I: Horizontal
Position II: Vertical

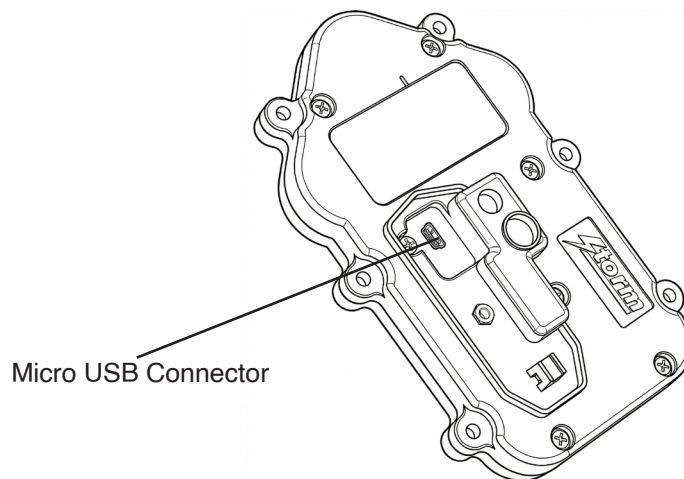


Micro USB Connector

AudioNav EF - (Extended Functionality) 9 Keys

AudioNav EF - (Extended Functionality) 9 Keys can be connected to any compatible kiosk via the Micro USB connector on the back of the device as shown in the image below. The USB cable is not included and can be ordered separately.

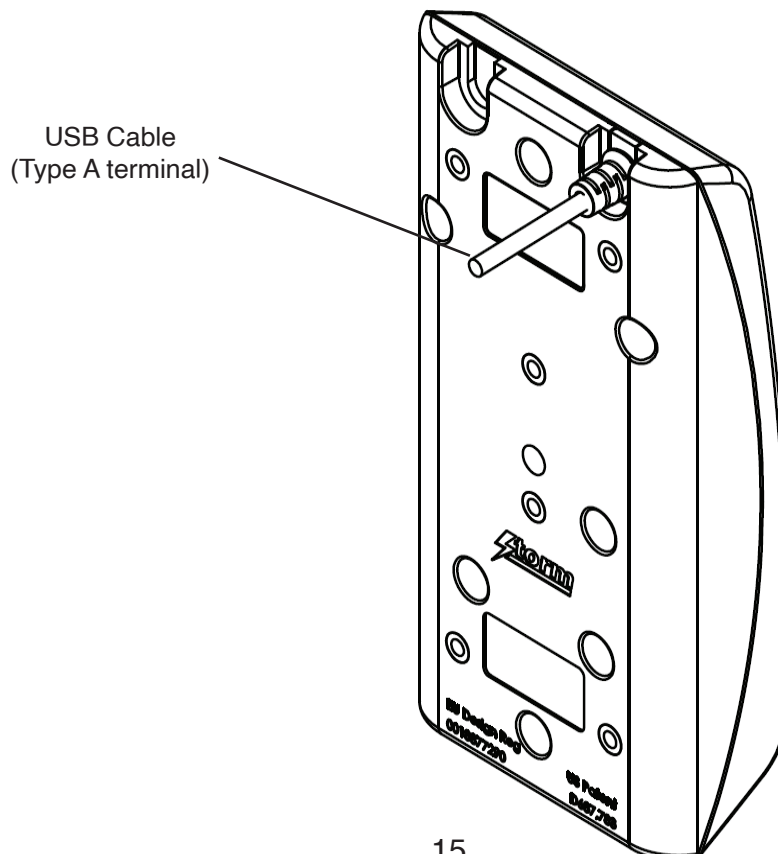
Please refer to the host system instructions for details on the connection to the kiosk.



Externally Mounted AudioNav

Externally Mounted AudioNav can be connected to any compatible kiosk via the USB spiral cable hardwired to the device itself.

Please refer to the host system instructions for details on the connection to the kiosk.



Angled AudioNav - 6 keys

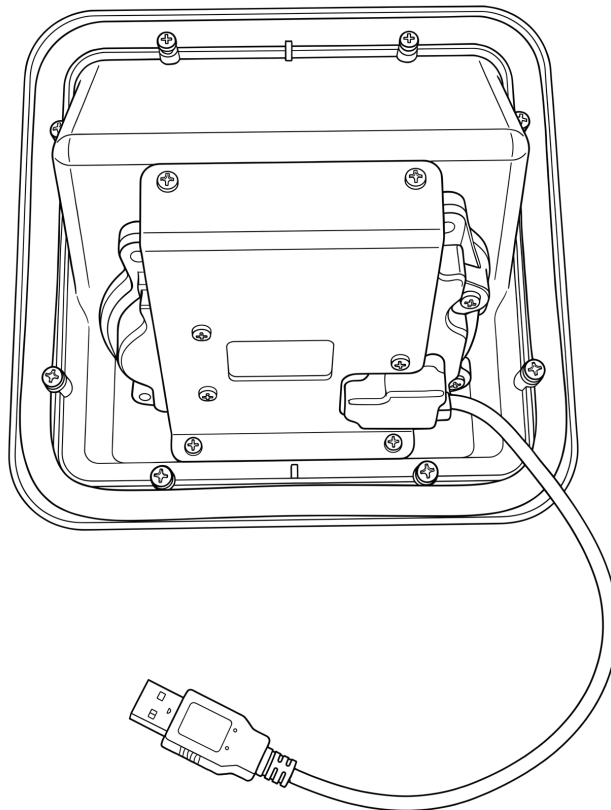
Angled AudioNav can be connected to any compatible kiosk via the USB cable on the back of the device as shown in the picture below.

The USB cable is supplied with this version and it is already prefitted.

Please refer to the host system instructions for details on the connection to the kiosk.



NOTE: Do not attempt to replace the cable. Contact Strom Interface for a replacement unit.





5. Configuration

By using the AudioNav utility software, installers can configure several device parameters, including:

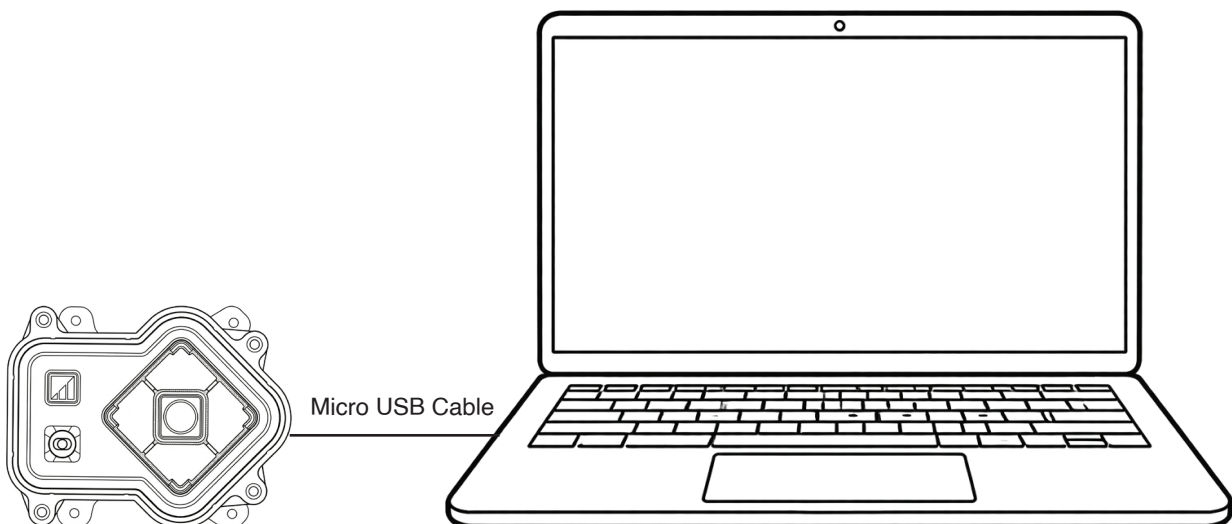
- Select Code Table
- LED brightness (0 to 9)
- Test AudioNav
- Create customised keypad table
- Configure Bluetooth settings
- Reset to factory default
- Load Firmware

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. This utility software is compatible with Windows 10 and 11.

Connect the AudioNav to a PC. The device should be detected by the operating system and enumerated without drivers.

To install the Configuration Utility Software, download from www.storm-interface.com/downloads, double-click on the downloaded .exe file and the Setup Wizard will launch.

For additional details and step by step instructions please refer to the Configuration Utility Tool instruction manual.



Additional bespoke configuration options are available upon request as part of our range of solutions.

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

Under “Human Interface Device”

- HID - Compliant consumer control device, indicates Keyboard
- HID - Compliant consumer control device, indicates Audio
- HID - Compliant device, indicates Keyboard

Under “Keyboards”

- HID - Keyboard device, indicates keyboard



Under “Sound, video and game controllers”

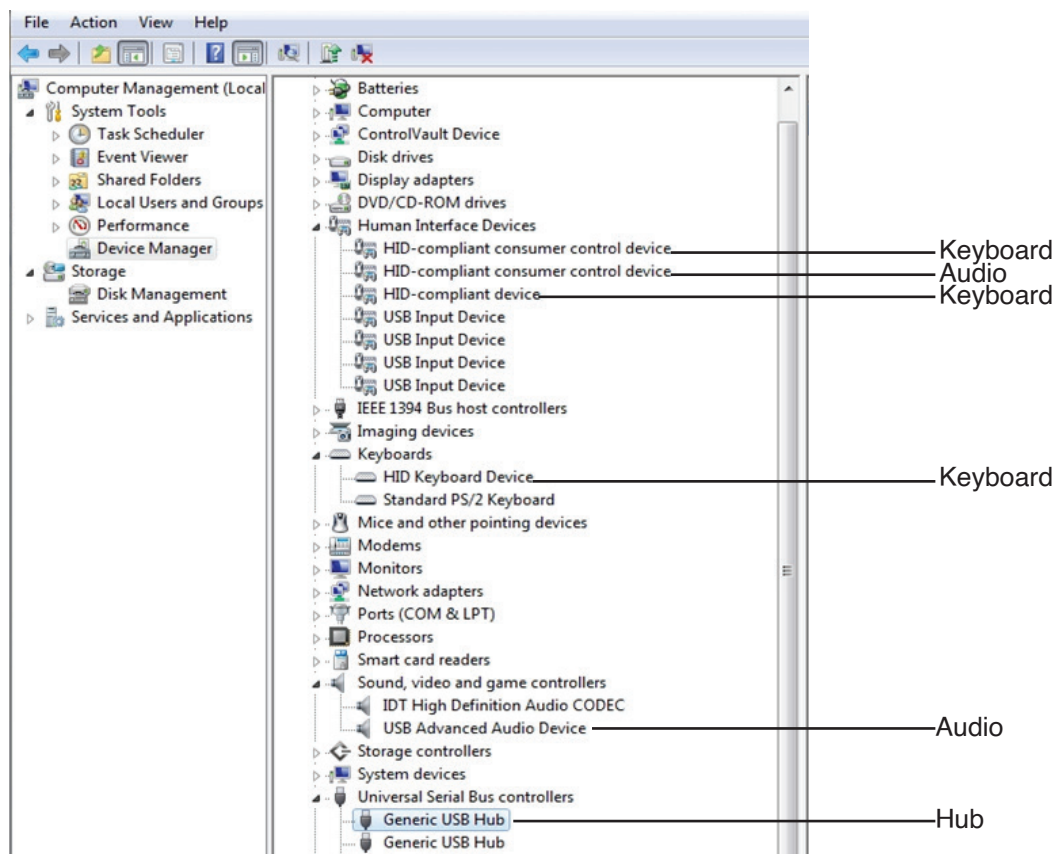
- USB Advanced audio device, indicates Audio

Under “Universal Serial Hub controller”

- Generic USB Hub, indicates Hub



NOTE: In the Sound Control Panel set the action on communications activity as “Do nothing”



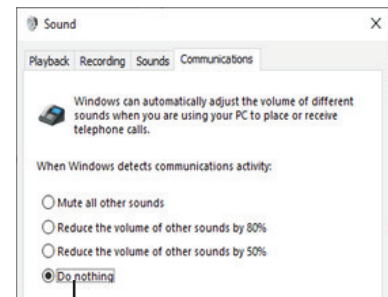
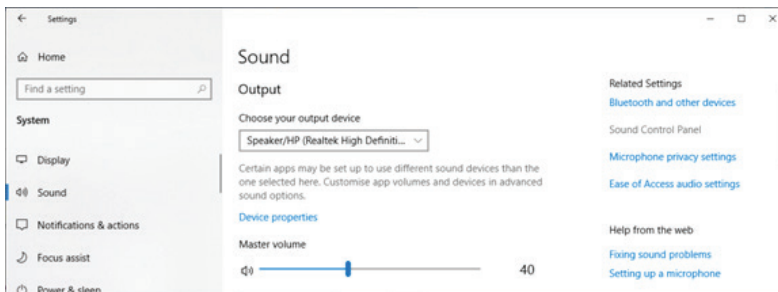
Microphone Support

The device will enumerate as a standard sound device, so no special drivers are required. It will appear in Device Manager as a USB Advanced Recording Device.

For any Windows application, ensure that the microphone is set as the default recording device.

When speaking, the level indicator on the right-hand side should respond, confirming that the microphone is picking up audio.

For optimal speech recognition performance, it is recommended to set the sample rate to 8 kHz. To do this, click on Properties, then navigate to the Advanced tab and select the appropriate sample rate.



Select "Do nothing"



6. Specifications

Product Characteristics

AudioNav is available in 6 Keys, Extended Functionality 9 Keys, Externally Mounted and Angled versions, with the following characteristics:

keys

- A 4-way directional key providing UP, DOWN, LEFT and RIGHT navigation
- A central CONFIRM key
- An illuminated audio volume key
- Additional keys on the Extended Functionality version
- Illuminated 3.5 mm audio jack socket (illumination under software control)
- Orientation switch in under panel version to allow portrait or landscape mode
- Mini-USB socket for connection to host (external version has fitted cable)

USB Interface

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

Bluetooth

- Option to include Bluetooth functionality so that the device can be used with the touchless-CX app. This is disabled as factory default

Support

- Windows compatible utility for changing the USB Code Tables
- API for custom integration
- Remote Firmware update support

Category	AudioNav 6 Keys	Angled AudioNav 6 keys	Externally Mounted AudioNav	AudioNav EF 9 Keys
Rating	5V $\pm$ 0.25V (USB 2.0); 130mA (max)	5V $\pm$ 0.25V (USB 2.0); 130mA (max)	5V $\pm$ 0.25V (USB 2.0); 130mA (max)	5V $\pm$ 0.25V (USB 2.0); 190mA (max)
Connection	Mini USB B socket	Mini USB B socket	USB A Male 2.0	Mini USB B socket
Compatibility	Microsoft Windows platforms. Compatibility with non-Windows platforms or operating systems cannot be guaranteed.	Microsoft Windows platforms. Compatibility with non-Windows platforms or operating systems cannot be guaranteed.	Microsoft Windows platforms. Compatibility with non-Windows platforms or operating systems cannot be guaranteed.	Microsoft Windows platforms. Compatibility with non-Windows platforms or operating systems cannot be guaranteed.
Audio	3.5mm jack socket, illuminated	3.5mm jack socket, illuminated	3.5mm jack socket, illuminated	3.5mm jack socket, illuminated
Audio Output Level	30mW per channel max into 32 ohm load	30mW per channel max into 32 ohm load	30mW per channel max into 32 ohm load	30mW per channel max into 32 ohm load
Bluetooth Interface (BLE)	Supported in some versions	Included	Not Included	Supported in some versions
Dimensions	107mm x 83mm x 33mm	153mm x 148mm x 97mm	150mm x 80mm x 39mm	140mm x 91mm x 33mm
Cable	Not included	0.9m cable	2m (includes coiled section)	Not included
Operational Temp	-20°C to +70°C	-20°C to +70°C	-20°C to +70°C	-20°C to +70°C
Impact Rating	IK08(5J)	IK08(5J)	IK08(5J)	IK09 (10J)
Vibration/Shock	ETSI 5M3	ETSI 5M3	ETSI 5M3	ETSI 5M3
Key Operational Life	4 million	4 million	4 million	4 million
Water / Dust Sealed	IP65	IP65	IP54	IP65
Certification	CE / FCC / UL / UKCA	CE / FCC / UL / UKCA	CE / FCC / UL / UKCA	CE / FCC / UL / UKCA
ADA/EAA	Compliant	Compliant	Compliant	Compliant



7. Troubleshooting

Problem	Possible Cause	Solution
No power / device not detected	USB cable not connected or faulty	Check USB connection and replace cable if needed
No power / device not detected	Host system not recognising USB device	Verify drivers and test on another USB port or PC
No audio output	Headphones not connected properly	Check 3.5mm jack connection and ensure fully inserted
No audio output	AudioNav not set as default audio device	Set AudioNav as default playback device in system settings
No audio output	Audio output disabled in software configuration	Check configuration utility and enable audio output
Audio too low or distorted	Volume settings too low or incorrect	Adjust system and application volume levels
Audio too low or distorted	Faulty or incompatible headset	Test with a different headset
Keys not responding	Incorrect code table or configuration loaded	Reload correct configuration using Configuration Utility
Keys not responding	Hardware fault or debris under keys	Inspect keypad and clean if necessary
Incorrect navigation behaviour	Wrong code table assigned	Select correct code table and reapply settings
LEDs not lighting	LED brightness set to 0 in configuration	Increase LED brightness in Configuration Utility
LEDs not lighting	Power or connection issue	Check USB connection and device recognition
Bluetooth not connecting (BLE models)	Bluetooth disabled in settings	Enable Bluetooth via Configuration Utility
Bluetooth connection drops frequently	RSSI or range settings too low	Adjust RSSI and transmit power settings
Bluetooth connection drops frequently	User too far from device	Ensure user is within configured range (~1.5m default)
Device not recognised by configuration utility	Incorrect device selected or not connected	Ensure correct hardware is connected before launching utility
Firmware update fails	Wrong firmware file or interruption during update	Verify correct firmware and retry update process
Microphone not working (if supported)	Mic not enabled or tested	Enable and test mic via Configuration Utility
Orientation issues (horizontal/vertical)	Incorrect H/V configuration	Adjust orientation settings in software or hardware switch
Audio prompts incorrect or missing	Incorrect or missing audio files in host system	Verify audio content integration with kiosk software
Device works on Windows but not other OS	Limited compatibility with non-Windows systems	Confirm OS compatibility or contact support



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