

Switch-It[®] Vigo

Head Drive Kit

USER MANUAL

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You can find step-by-step tutorial videos at

www.nowtech.hu/tutorials/

And all installation and usage related documents at

www.nowtech.hu/downloads/vigo/latest/

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User Guide

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Quantum Q-Logic is the property and registered trademark of Quantum Rehab. NowTechnologies Ltd. is not associated with Quantum Rehab.

Linx is the property and registered trademark of Dynamic Controls. NowTechnologies Ltd. is not associated with Dynamic Controls.

The intended lifetime of the Switch-It® Vigo Head Drive Kit is five (5) years. Please DO NOT use or fit any third party components to the Switch-It® Vigo Head Drive Kit unless they are officially approved by NowTechnologies Ltd.



WARNING *Do not use this equipment without first reading and understanding this manual. If you are unable to understand the Warnings, Cautions, and Instructions, contact a qualified clinician or an authorised dealer - otherwise injury or damage may occur.*

Information contained in this publication regarding device applications and the like is provided only for your convenience and may be superseded by updates. It is your responsibility to ensure that your application meets your specifications.

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You can find detailed tutorial videos on setting up the system at <https://www.nowtech.hu/tutorials/>

REUSABILITY INFORMATION

The Switch-It® Vigo Head Drive Kit is designed with reusability in mind to enhance its longevity and sustainability. This product is classified as reusable. Guidelines and detailed steps of preparation for reuse can be found in the Switch-It® Vigo Head Drive Kit Reusability Guide. By following the recommendations outlined in the document, **authorised dealers and specialists** can ensure the continued safety, optimal performance, and extended use of their Switch-It® Vigo Head Drive Kit. For easy reference, the Reusability Guide can be accessed at <https://nowtech.hu/downloads/vigo/latest/> or by contacting [Customer Support](#).

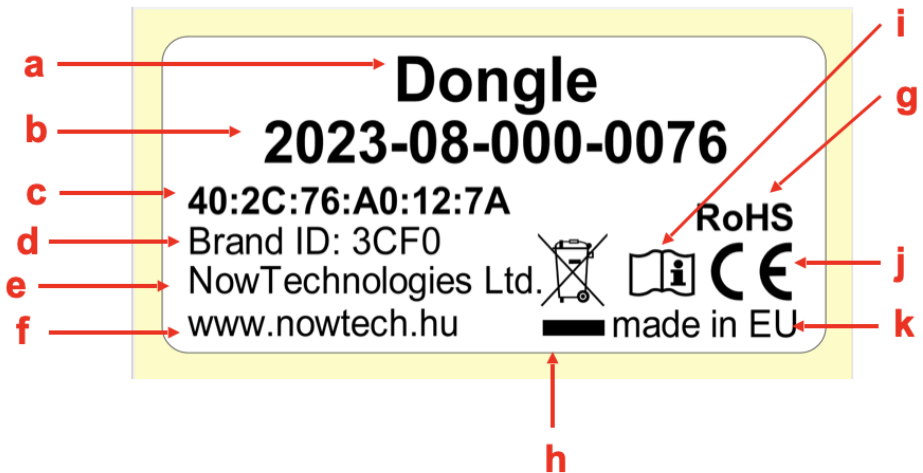
SYMBOLS AND LABELS USED ON THE PRODUCTS

The signs, symbols, and instructions affixed to the device comprise part of the safety facilities. They must never be covered or removed. They must remain present and clearly legible throughout the entire lifespan of the device.

Replace or repair all illegible or damaged signs, symbols, and instructions immediately. Please contact your authorised dealer for assistance.

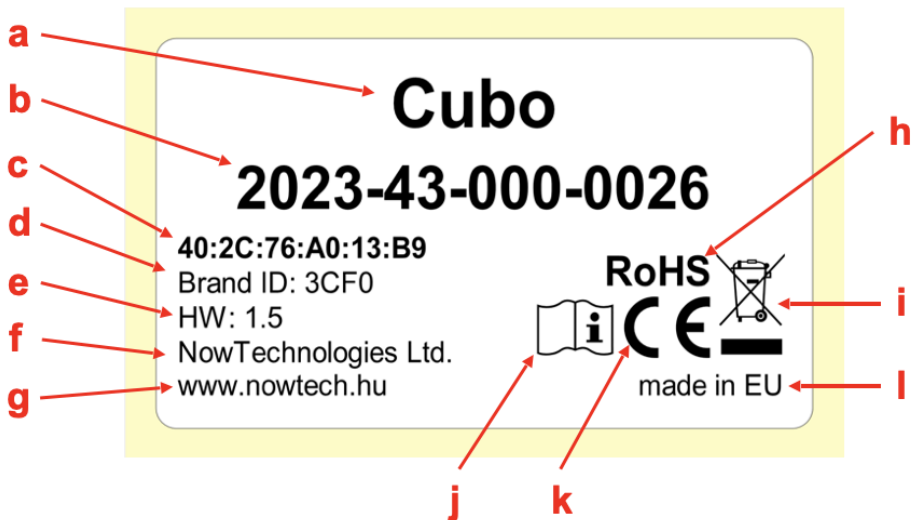
Dongle label

1. The label of Switch-It BLE Dongle contains the following:
 - a. Product name
 - b. Serial number
 - c. MAC address
 - d. Brand ID
 - e. Manufacturer name
 - f. Manufacturer web page
 - g. RoHS symbol
 - h. WEEE symbol
 - i. Read the manual first symbol
 - j. CE symbol
 - k. CoO



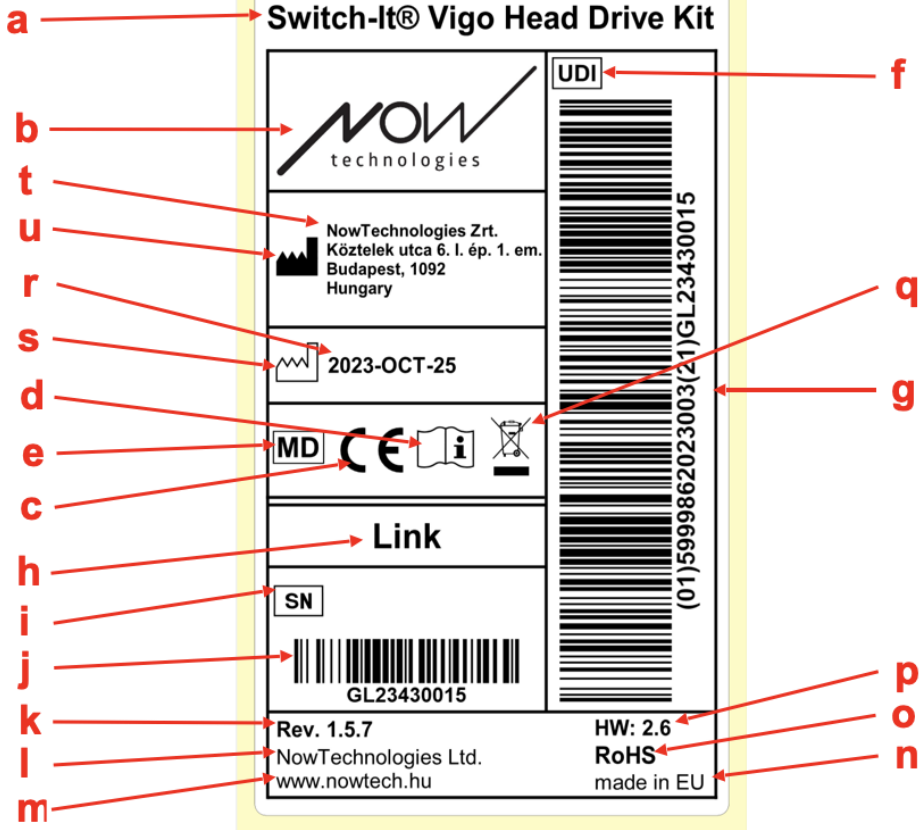
Cubo label

1. The label of Switch-It Cubo contains the following:
 - a. Product name
 - b. Serial number
 - c. MAC address
 - d. Brand ID
 - e. HW version
 - f. Manufacturer name
 - g. Manufacturer web page
 - h. RoHS symbol
 - i. WEEE symbol
 - j. Read the manual first symbol
 - k. CE symbol
 - l. CoO



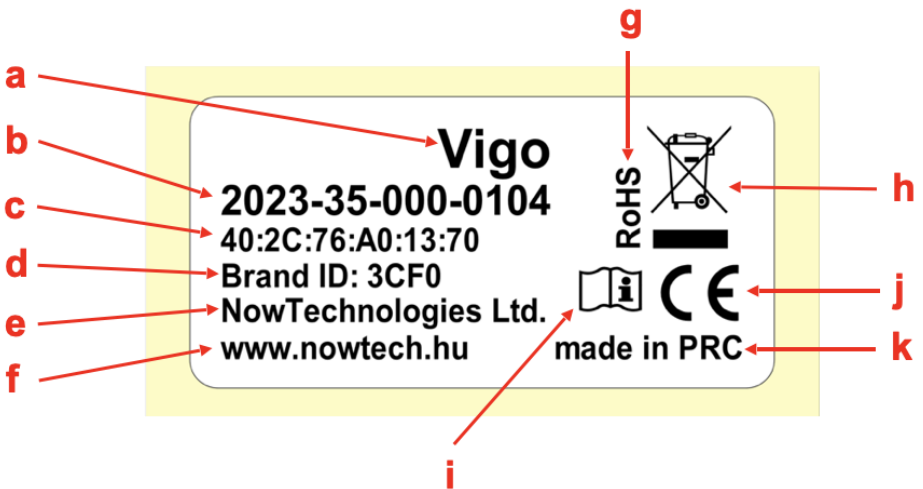
Link label

1. The label of Switch-It Link contains the following:
 - a. Medical device name
 - b. Manufacturer logo
 - c. CE symbol
 - d. Read the manual first symbol
 - e. Medical device symbol
 - f. UDI symbol
 - g. UDI number
 - h. Product name
 - i. Serial number symbol
 - j. Product serial number
 - k. Protocol revision
 - l. Manufacturer name
 - m. Manufacturer web page
 - n. CoO
 - o. RoHS symbol
 - p. HW version
 - q. WEEE symbol
 - r. Manufacturing date
 - s. Manufacturing date symbol
 - t. Manufacturer name and address
 - u. Manufacturer symbol















Vigo label

1. The label of Switch-It Vigo contains the following:
 - a. Product name
 - b. Serial number
 - c. MAC address
 - d. Brand ID
 - e. Manufacturer name
 - f. Manufacturer web page
 - g. RoHS symbol
 - h. WEEE symbol
 - i. Read the manual first symbol
 - j. CE symbol
 - k. CoO



Box label

1. The box label in case of VCDL network contains the following:
 - a. Title of the label
 - b. Company logo
 - c. Identification data of the Vigo
 - d. Identification data of the Cubo
 - e. Identification data of the BLE Dongle
 - f. Identification data of the Link

	Content of the Box
<u>Vigo</u> SN:  2023-35-000-0106 MAC:  40:2C:76:A0:13:72 HW:  1.4	
<u>Cubo</u> SN:  2023-43-000-0026 MAC:  40:2C:76:A0:13:B9 HW:  1.5	
<u>Dongle</u> SN:  2023-08-000-0072 MAC:  40:2C:76:A0:12:72 HW:  2.1	
<u>Link</u> SN:  GL23430001 HW:  2.6	

SYSTEM REQUIREMENTS

A *wheelchair* equipped with:

- **PGDT R-Net:**
 - **Omni** or
 - **Omni2** or
 - **IOM Input/Output Module**, or
- **Dynamic Controls:**
 - **Linx DLX-IN500**, or
- **Quantum Rehab:**
 - **Q-Logic 3 EX Enhanced Display** or **SCIM Module**

Requirements for the **Switch-It® Vigo Drive** software that enables the personalization of the driving experience and **Switch-It® Vigo Mouse** software that allows customization of the mousing experience:

- Either a Mac computer with Catalina operating system or later
- Or a personal computer with a Windows 10 operating system or later

STATEMENT OF THE INTENDED PURPOSE AND USERS

The device is intended to be used as a specialty controller input device attached to power wheelchair controller systems. Users of the device are power wheelchair users who have difficulty using standard wheelchair input devices.

This device may be useful to people with the following disabilities or conditions:

- Spinal cord injuries
 - Cervical injuries
 - Herniated cervical disc
 - Central cord syndrome
- Cerebral Palsy
- Multiple sclerosis
- Muscular Dystrophy
- Tetraplegia
- Dysmelia
- Traumatic brain injuries
 - Intracranial bleeding
 - Cerebral contusions
 - Concussion
 - Intracranial haemorrhage
 - Subdural haematoma
 - Epidural haematoma

- Stroke
 - MCA and ASA infarctions
 - Lacunar infarction
- Brain tumours
- Brachial Plexus injury
- Peripheral Nerve injuries
- Acquired and congenital Myopathies
- Amyotrophic Lateral sclerosis
- Spinal muscular Atrophy

The controls for power wheelchairs are exclusively for a user who is unable to walk or has limited mobility, for their own personal use indoors and outdoors, and thus requires a power wheelchair.

Driving a powered wheelchair requires cognitive, physical, and visual skills. The user must be able to estimate and correct the results of actions when operating the wheelchair.

The user must be informed of the contents of this user manual before driving the wheelchair. In addition, the user of the wheelchair must be given thorough instruction by a qualified specialist before he or she participates in traffic. The first sessions in the wheelchair should be practised under the supervision of a trainer/adviser.

CONTRAINDICATIONS

- Individuals with severe neck or head injuries should avoid using the device, as it may exacerbate their condition and cause further harm.
- Those with limited neck stability or control might find it challenging to maintain consistent and safe head movements, potentially leading to unintended wheelchair maneuvers.
- Individuals with certain medical conditions, such as severe vertigo or motion sickness, might experience discomfort or dizziness when using the device.
- Individuals with cognitive impairments or conditions that affect their ability to understand and respond to the device's controls might not be suitable candidates for this method of wheelchair control.

Before implementing this technology, it is essential for healthcare professionals and users to carefully assess each individual's specific needs and capabilities to ensure the safe and appropriate use of the device.

Safety and Handling Instructions

INSTALLATION

The Switch-It® Vigo Head Drive Kit components may only be installed by a dealer authorised and trained by NowTechnologies Ltd. / Sunrise Medical. The dealer carries out the assembly according to the instructions given on the installation training. Incorrect installation might have an adverse effect on performance and will invalidate warranty.

BATTERIES

Do not attempt to replace any of the Switch-It® Vigo System's batteries yourself – you may damage the battery, which could cause overheating, fire, and injury. The lithium-polymer battery in your Vigo headset should be serviced or recycled by NowTechnologies Ltd. or an authorised service provider and must be recycled or disposed of separately from household waste. Dispose of the batteries according to your local environmental laws and guidelines.

THE Switch-It® VIGO HEADSET USES A LITHIUM-POLYMER BATTERY

Keep it away from anything that can catch fire and make sure it cannot get hit by sharp objects.

For charging, only use the charging cord provided.

Avoid storing and using the Vigo below -10 and above 50 degrees Celsius. Do not place the Vigo in direct sunlight or keep it in hot vehicles.

Stop using the Vigo if you notice these problems: odor, change in color, too much heat, change in shape, leaking, odd noises. If it is safe to do so, move the device away from anything that can catch fire.

MEDICAL DEVICE INTERFERENCE

The Vigo and the Cubo contain components and radios that emit electromagnetic radiation. This electromagnetic radiation – although unlikely - may interfere with pacemakers, defibrillators, or other medical devices. Maintain a safe distance of separation between your medical device and the above mentioned Switch-It® devices. Consult your physician and medical device manufacturer for information specific to your medical device. If you suspect any of your Switch-It® devices are interfering with your pacemaker, defibrillator, or any other medical device, stop using the Switch-It® Vigo system.

SPECIAL SAFETY WARNING

When driving with the Switch-It® Vigo system, do not forget to switch modes in order to be able to safely look around or control the actuator(s).

When driving with the Switch-It® Vigo system, make sure that the user is properly trained by a trained professional and have enough (a couple of weeks minimum) indoor experience driving the wheelchair before starting to drive outdoors in traffic.

Always make sure that the blink detection sensor is at a safe distance from your eye, cheek, or the corner of your mouth – 1-3 cm – and in a position that a sudden change in the position of the Vigo won't hurt your eye.

Circumstances that can affect the operation of the Vigo:

The Switch-It® Vigo Head Drive Kit offers unprecedented freedom of movement by using wireless radio communication. The operation can be disturbed in environments with above-average Bluetooth or Wifi device usage, this may result in a safety stop.

Please refer to our special safety checklist at the end of this document!

MEDICAL DEVICE COMBINATIONS

It may be possible to combine this Medical device with one or more other Medical Devices or other products. Information on which combinations are possible can be found at www.nowtech.hu.

All combinations listed have been validated to meet the General Safety and Performance Requirements, Annex 1 section 14.1 of the Medical Device Regulation 2017/745. Guidance on the combination, such as mounting, can be found at www.nowtech.hu

TRANSPORTATION AND STORAGE

The transportation and storage of the Vigo should be handled with care to maintain its functionality and longevity. The device's packaging, usually provided with foam inserts, serves as an ideal option for safe transportation, offering protection against physical shocks or impacts. When not in use, it is advisable to store the headset in a secure, protected space to safeguard its delicate components.

Temperature considerations play a role in storage, as the Link can withstand a wide temperature range from -20 to 50 degrees Celsius. However, this might not apply to the Vigo headset due to it being powered by a battery.

Please be aware that the battery may behave differently in colder conditions, battery life may be shorter!

For optimal performance and longevity, the recommended working conditions, including humidity, are between 40% to 60%.

When travelling or transporting the Switch-It® Vigo Head Drive Kit, it is recommended to ensure that all connections and cables are secure and well-organised to prevent any potential damage or disconnection.

Overall, proper handling, adherence to storage guidelines, and protection from physical impacts are essential to guarantee the continued functionality and durability of the Vigo Bluetooth headset device and its associated components, contributing to a seamless and reliable experience for wheelchair users seeking enhanced mobility control.

Getting Started

What's in the box

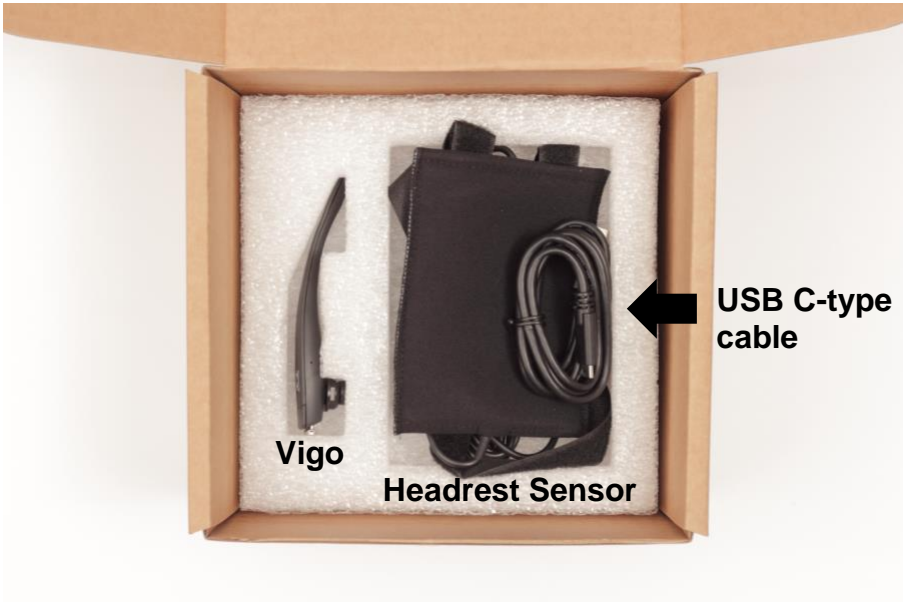
- **Link** (formerly known as GyroSet™ Link)
- USB to micro-USB cable with magnetic extension to charge the Vigo
⚠ Warning! *Please do not use the magnetic extension for anything other than charging the Vigo!*
- **Dongle** (formerly known as GyroSet™ Dongle)
- **Vigo** with plastic “C” mounting ring
- The headband of the Vigo (formerly known as GyroSet™ Vigo)
⚠ Caution! *If you have a history of allergies to plastics, you should exercise care when using the headband.*
- Ear cushion cover
- Special USB C-type cable to connect the Link and the Cubo
⚠ Please handle this cable with care!
Due to the nature of its placement, it can be damaged easily. If that happens, please [contact support](#) and ask for a replacement. Do not attempt to replace the cable with other USB C cables! It is a crosslink cable specially made for these devices.
- **Cubo** (formerly known as GyroSet™ Cubo)
- Headrest Sensor



WARNING *Magnetic components, such as those found in magnetic charging cables, may interfere with the proper operation of medical devices, including but not limited to pacemakers, defibrillators, and insulin pumps.*



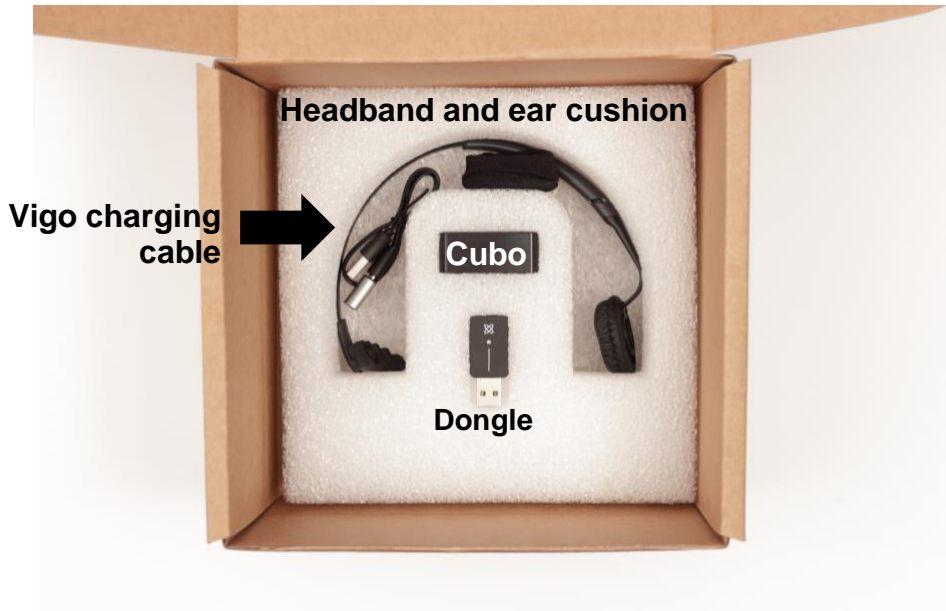
Link



Vigo

Headrest Sensor

**USB C-type
cable**



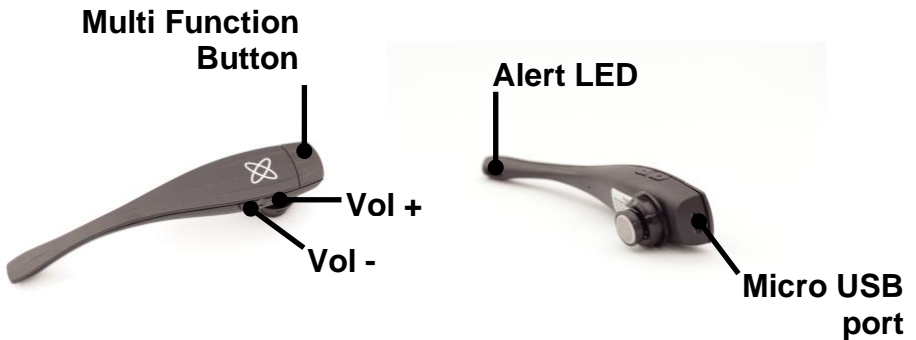
Vigo

What does the Vigo do?

The Vigo is a headset that measures the head movements of the user in three dimensions and transfers signals to the Cubo via Bluetooth to enable driving.

It also supports other functions such as receiving phone calls and listening to music (not recommended while driving).

Important: Please make sure to pay attention to the “Battery Low” warning signals from the Vigo. Depending on usage the Vigo will shut down after approx. 10 minutes from the first warning. Please make sure to put the Vigo on a USB charger as soon as the “Battery Low” warning has been announced. It is advised that users take a USB power bank with them when going outdoors.





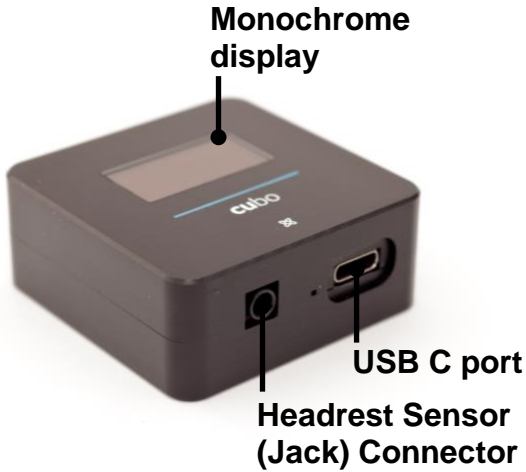
WARNING Do not bend the neck of the **Vigo!** Bending may damage it.

You can easily adjust its position by rotating it within the headband or re-positioning the headband itself on the user's head. As a lightweight, wearable tech it is a delicate instrument, which must be handled with care!

Cubo

What does the Cubo do?

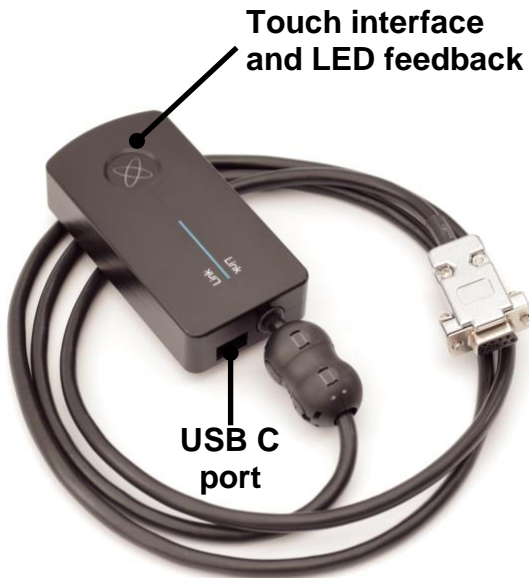
The Cubo provides visual feedback to the end-user via its display. It also receives the signals from the Vigo, calculates the orientation of the user's head and transfers commands to the Link.



LINK

What does the LINK do?

The Link translates the user's head movements into analog joystick signals that are interpreted by the wheelchair's controller system.

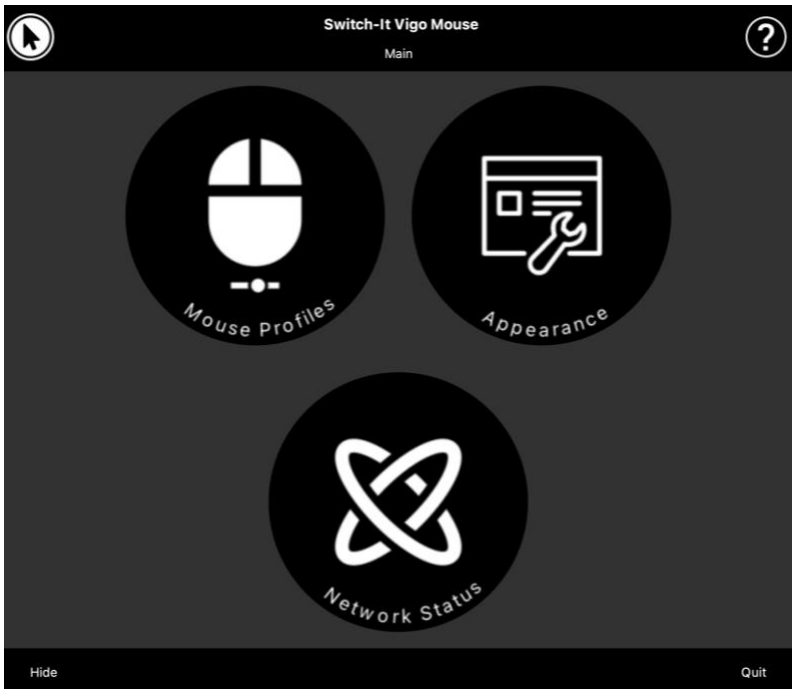


Switch-It® Vigo Mouse Desktop Application

Switch-It® Vigo Mouse (formerly known as GyroSet™ Mouse) is the desktop application that unlocks several extra features (like a virtual keyboard) for the Vigo as a computer mouse. It also allows users to customise settings for the mouse mode, for the best user experience.

Switch-It® Vigo Mouse is available to download from:

<https://nowtech.hu/downloads>



Important:

When using a MAC computer, please make sure to follow these steps:

- 1. Open Finder*
- 2. Locate the install file(.pkg) on your computer*
- 3. Right click on the file name*
- 4. Choose 'Open'*
- 5. And click 'Open' again in the pop-up window. This will enable the installation of the application.*

Switch-It® Vigo Drive Desktop Application (Available for authorised dealers only)

Switch-It® Vigo Drive (formerly known as GyroSet™ Drive) is a desktop application that allows specialists to customise the Vigo's sensitivity settings for the best driving experience.

If you find your headset difficult to use, please make sure to contact your local distributor to have them adjust settings!

Important:

When using a MAC computer, please make sure to follow these steps:

- 1. Open Finder*
- 2. Locate the install file(.pkg) on your computer*
- 3. Right click on the file name*
- 4. Choose 'Open'*
- 5. And click 'Open' again in the pop-up window. This will enable the installation of the application.*

Switch-It® Vigo Toolbox Mobile Application

Switch-It® Vigo Toolbox is a mobile application that helps users to manage their Head Drive & Mouse Networks, to add and/or remove new Switch-It® devices, and to keep their devices up to date with the latest firmware.

Switch-It® Vigo Toolbox is available on the App Store or Google Play

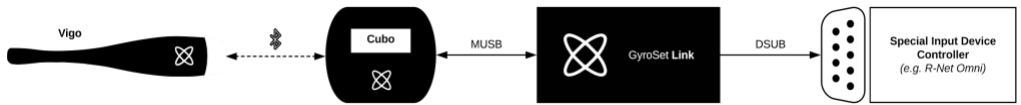


Important:

- *We advise you to use Switch-It® Vigo Toolbox with only one phone at a time. Its safe usage on multiple phones is not yet fully supported.*
- *If at any time during the Network setup process your phone requests pairing with the Dongle, make sure Switch-It® Vigo Mouse (or Switch-It® Vigo Drive) is running on the computer the Dongle is plugged into. This is to provide the Dongle with a platform through which it can communicate with your phone.*
- *If Switch-It® Vigo Mouse (or Switch-It® Vigo Drive) is not running on your computer, no Pairing pop-up window will appear in which you can input the pairing code provided by your phone and the Network cannot be set up. Moreover, Cubo may get stuck in this state of offering to pair with the Dongle and no other device can connect to it, until this is resolved.*
- *The same applies to pairing your Dongle and Cubo. If Switch-It® Vigo Mouse (or Switch-It® Vigo Drive) is not running on your computer, no Pairing pop-up window will appear in which you can input the 6 digit pairing code/passkey provided by Cubo and the Network cannot be set up.*

Assembly instructions

System connection diagram



Vigo assembly



To ensure the Vigo is securely attached into the headband, the open end of the C-ring should always point towards the end or the back of the Vigo (i.e. the "mouth" of the C should be perpendicular to the headband), otherwise, it can fall out of the headband.

Important: For safety reasons, make sure to charge the Vigo with the provided USB charging cable before the first use.



WARNING If you have a history of allergies to plastics, you should exercise care when using the headband.



Make sure to check the C-ring's position every time you put the headset on the user, or adjust the Vigo's position in the headband!



WARNING Please do not remove the C-ring from the Vigo! Removing the C-ring may damage the device.

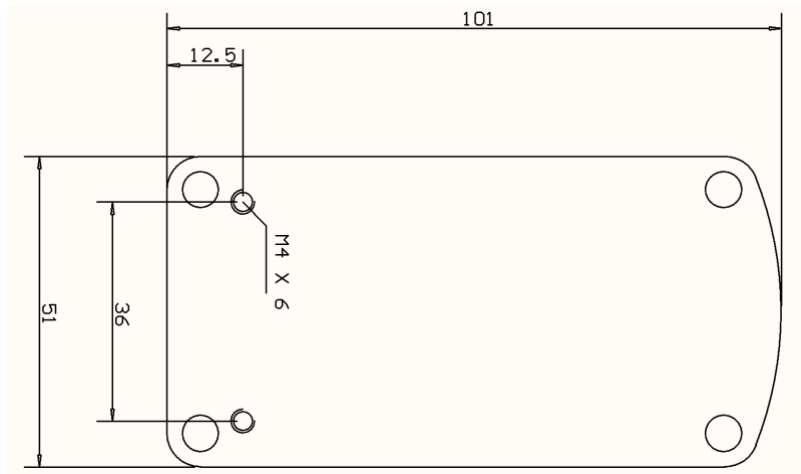
Link installation

The Link enables Switch-It® Vigo users to use their Vigo on a PGDT Omni or IOM or Quantum Q-Logic 3 EX Enhanced Display or SCIM Module or Dynamic Linx DLX-IN500 equipped wheelchair as a specialty input device (SID). The Omni is a universal specialty control interface that accepts signals from many different types of SIDs and translates them into commands compatible with the PG Drives Technology R-Net control system.

Before proceeding please make sure that one of the compatible devices is already installed on the chair and working properly. For more information on how to set up the Omni please follow the instructions of R-Net OMNI TECHNICAL MANUAL SK78813/7. It is possible to set up a control system so that it is unsuitable for some users or even some vehicles. Although this guide contains recommended settings for Omni for all of the above reasons it is important that you contact PG Drives Technology if you have the slightest doubt or if you need any advice on programming the product.

Link Mounting

The Link enclosure has two M4 nuts at the back of the device that is designed specifically for mounting. As every vehicle and user is unique there is no general mounting bracket available.



Please make sure that the physical mounting meets the following criteria:

- ❑ To take advantage of the IP54 protection of the casing, cables must face the ground to prevent rain getting into the connector.
- ❑ The Link's mode selection touch interface (touch button with the logo) must be accessible for the caretaker.
- ❑ Devices that may produce high capacity charges, such as ionisators must be at a safe distance from the touch interface to avoid accidental activation.
- ❑ The audible feedback of the Link is of high importance for the user, placement should avoid blocking of the speaker.
- ❑ Please don't exceed the minimum working temperature of -20°C and the maximum of 50°C of the Link



WARNING *Protection against water according to IP54 is guaranteed only in case the Link has been installed in a vertical position.*

Link Wiring to PGDT

The **Link** provides a proportional analog signal compatible with the PGDT Omni (and some other controller systems – see in System Requirements). The interface is a standard D-type connector, fitted with “detect link” and “fifth switch” functions. As there is no internal power source or auxiliary power input connector on the Link the power for operation is provided by the Omni.

If the Omni is configured with the programmable parameter “Sleep 12V” to cut the power on SID connectors when turned off, Link is going to be turned off as well. The Link doesn’t require a permanent power supply. For power saving reasons “Sleep 12V” parameter is advised to be set in the R-Net system.

On the Link there are two connector interfaces. One of which is an integrated cable with a D-type connector on it to control the Omni (referred to as Omni cable) and another square shaped interface to connect the Cubo cable (referred to as Data cable).



Omni Port-1 D-type connector



*The two interfaces of the Link
(on the left, the square-shaped
data connector)*

The preferred SID port, if there is only one input device connected to the Omni is Port 1, as shown in the picture below. In case of using a PGDT IOM there is only one INPUT port where the D-type connector can be connected:



Connecting the Link to Omni

Connecting the Link to IOM

Please make sure that the wiring meets the following criteria:

- The Link must be properly connected to PGDT Omni or IOM or Quantum Q-Logic 3 via an Enhanced Display or a SCIM Module.
 - The Link D-type connector connecting to the wheelchair controller must be secured with screws.
 - Cable to the wheelchair must be tied to the frame to avoid accidental tearing or crushing by the movement of actuators.
 - Cable placement has to be designed so that cables are protected during accidental crashes if the wheelchair hits an obstacle.
 - The analog connector should be connected to Omni Port-1 or IOM INPUT only.

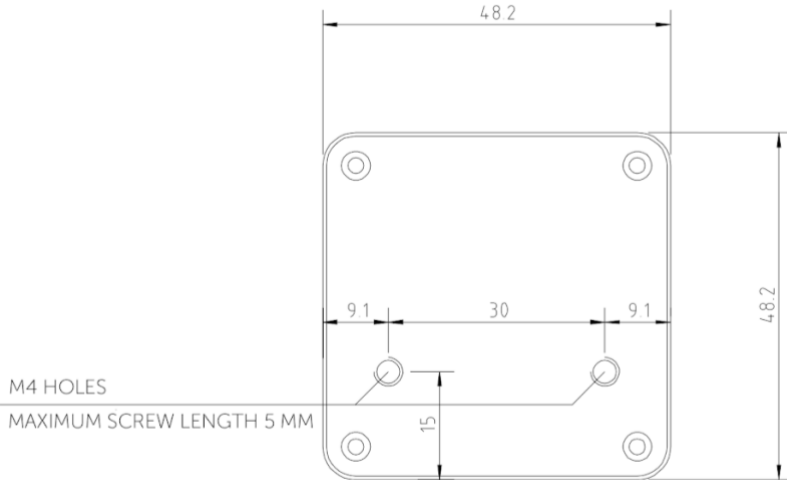
In case the Omni's SID detect function is turned on and the D-type connector has become disconnected, a screen will appear on the Omni with error code 0905:



WARNING Always make sure that the chair is configured in a way that the chair's on/off switch is available to the user, according to the manufacturer's guidance.

Cubo Mounting

The Cubo enclosure has two M4 nuts at the back of the device that is designed specifically for mounting. As every vehicle and user is unique there is no general mounting bracket available.



- ❑ Devices that may produce radio interference, such as Smartphones, Pagers, Bluetooth devices must be kept out of the way and placed at a distance from the Cubo.
- ❑ The Cubo should be placed so that the display is visible for the user and the assistant/carer as well.
- ❑ To take advantage of the IP54 protection of the casing, cables must face the ground to prevent rain getting into the connector.
- ❑ We recommend placing the Cubo on the same side on which the user wears the Vigo.
- ❑ Please make sure that the placement of the Cubo allows for protection against mechanical damages (e.g. falling objects) for the display.

Connecting the Cubo to the Link and to the Headrest Sensor



*Headrest
Sensor
Connector*

*Link
Connector*



Please make sure that the wiring meets the following criteria:

- The Cubo must be properly connected to the Link and the Headrest Sensor.
 - The Cubo Micro-USB and the headrest's cable must be tied to the frame of the wheelchair to avoid accidental tearing or crushing by the movement of actuators.
 - The Cubo Micro-USB and the headrest's cable placement has to be designed so that cables are protected during accidental crashes if the wheelchair hits an obstacle.

Headrest and Headrest Sensor

For safety reasons we strongly recommend using the Headrest Sensor as it has been designed to fulfil both emergency stop and drive start functions while enabling the users to rest their head while not driving.

Headrest Requirements

Suitable headrests must have a fairly hard foam density and a large enough flat or almost flat surface space to accommodate the full size of the Headrest Sensor in its pouch. It can be mounted on the outside of the headrest or placed under the removable cover of the wheelchair's headrest. The removable cover must be a tight fit around the headrest foam to ensure the sensor is snug and tight between the surfaces to stop it from moving and keep it secure.

An example of the ideal shape of the headrest:



Unsuitable headrest examples:

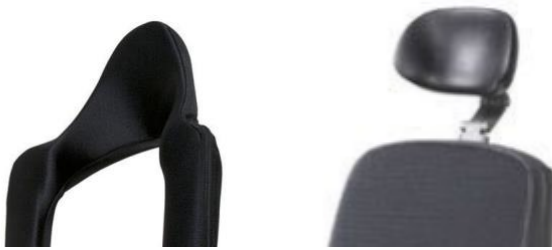
Very puffy and soft, low density foams that do not allow the sensor to operate at optimum performance.



Headrests that are too curved or with too small a surface to accommodate the size of the pouch or sensor alone.



Hard rubberized with deep curves and dips not allowing a flat enough surface for the sensor.



Jack connector on Cubo

Jack connector is the interface for connecting auxiliary buttons and sensors to the system. The route of the signal coming from the button can be redirected to be processed by either the Cubo itself or by the Link. By default, the signal is processed by Cubo.

- The Link as the receiver is compatible strictly with sensors and buddy buttons manufactured by NowTechnologies Ltd. - such as the Headrest Sensor.
- In case the Cubo is set to receive Jack signals any kind of NowTechnologies or third party buddy button can be used.

How to place the Headrest Sensor on the wheelchair



Please make sure that the wiring meets the following criteria:

- The Headrest Sensor must be properly connected to Cubo.
 - The Headrest Sensor's cable must be tied to the frame of the wheelchair to avoid accidental tearing or crushing by the movement of actuators.
 - The Headrest Sensor's cable placement has to be designed so that cables are protected during accidental crashes if the wheelchair hits an obstacle.
- The Headrest Sensor must be tied to the headrest by the reusable tie and strap in a way that it won't move during extended periods of usage.
- Please make sure that the position of the Headrest Sensor is easily reachable for the specific user during driving.

Setting up the System

Setting up the Omni and the Link

Please find our tutorial videos on <https://www.nowtech.hu/tutorials/>

The Link and the Cubo enables Switch-It® Vigo users to use their Vigo on a PGDT Omni or IOM equipped wheelchair as a specialty input device (SID). The Omni is a universal specialty control interface that accepts signals from many different types of SIDs and translates them into commands compatible with the PG Drives Technology R-Net control system.

Important: Please be aware, whilst controlling your chair via the Omni (and the Switch-It® Vigo Head Drive system), you won't be able to use your regular Joystick!

If you would like to use the Joystick instead, turn off the Omni and turn the system back on with the power button on the Joystick.

Programming the Omni

For programming the Omni please follow the instructions provided by Penny and Giles Drive Technologies. There are three methods of programming the Omni. Details of the actual programmable parameters are given in the SK78813 Programming chapter. Ensure the R-Net Control System's Drive, Acceleration and Deceleration settings are at a comfortable and safe level prior to attempting to program the Omni to suit the user.

Refer to the R-Net Technical Manual SK77981 or the On-Board Programming Manual SK78571 for details of how to program the R-Net Control System. Programming should only be conducted by professionals with in-depth knowledge of PG Drives Technology electronic control systems. Incorrect programming could result in an unsafe set-up. NowTechnologies Ltd. accepts no liability for losses of any kind if these conditions are not met.

The screenshot displays the configuration tree on the left and a parameter table on the right. The tree is organized into several categories: Global, Profiled, Ports, Switches, and Controls. The 'Ports' category is expanded to show 'SID' and 'Switches' settings. The 'Controls' category includes 'User Control', 'Return To', 'Timeout to Menu', 'Menu Navigation', 'Menu Scan Rate', 'Auto-repeat', 'Fwd / Rev Auto Toggle', 'Auto Toggle Time', 'Actuator Selection', and 'Actuator Axes'. The 'User Menu' and 'Beeps' categories are also visible.

1.0 s		
Off		
Profile VMP	Ilona	NoTech
Port 1	Port 2	
Proportional	Proportional	
Port 1	Port 2	
Normally Open	Normally Closed	
Off	On	
On	Off	
5.00 s	1.00 s	
1.00 s	1.00 s	
50 ms	50 ms	
0.3 s	0.3 s	
Port 1	Port 2	
Menu	Menu	
Drive	Drive	
0 s	0 s	
Normal	Normal	
0.00 s	0.50 s	
Off	Off	
Off	Off	
2.00 s	2.00 s	
SID	SID	
Normal	Normal	
Port 1	Port 2	
Port 1	Port 2	

Using the R-Net PC programmer to configure Omni, Port 1 SID has to be set to **proportional**. To use the Click sensor of the Vigo to activate menu functions on the Omni, Port 1 User control has to be set to **Menu and Return To Drive**.

 Input Output Module			
 Input Module	Input 1	Input 2	Input 3
 Input Type	Proportional	Proportional	Proportional
 Output Module	Output 3	Output 4	Output 5



WARNING *The Omni can be put to sleep by selecting that option in the User Menu. To wake the Omni, the following SID sequence is required: Left, Right, Left, Right. Note, this waking method only works if the Omni has been put to sleep via the User Menu. For that to work, the “Sleep 12V” parameter has to be turned off to allow the Link to operate constantly. For safe operation of the chair NowTechnologies does not recommend the above-described scenario, instead please **install the Headrest Sensor** within the reach of the User that can act as an emergency stop as well. For more instructions, see the “Headrest and Headrest Sensor” section.*

Please make sure that your R-Net configuration meets the following criteria:

- *The correct SID port is configured as proportional.*
- *Sleep 12V parameter is set.*
- *User control is set.*
- *Drive, Acceleration and Deceleration settings are at a comfortable and safe level.*

To avoid control problems when changing your seating position, we recommend modifying your setting in the Omni to allow control of the actuators only when the head is tilted either to the left or right side.

Setting up the IOM and the Link

Setting up the IOM with the Link should only be conducted by the distributor or a PGDT trained person.

Setting up the Dynamic Controls Linx DLX-IN500 and the Link

Setting up the Dynamic Controls Linx DLX-IN500 with the Link should only be conducted by the distributor or a Dynamic Controls trained person.

Setting up the Quantum Rehab Q-Logic 3 EX Enhanced Display or SCIM Module and the Link

Setting up the Quantum Q-Logic 3 EX Enhanced Display or SCIM Module with the Link should only be conducted by the distributor or a Q-Logic trained person.

Pairing instructions

In order to communicate securely, Bluetooth devices need to be paired. This process might be familiar from using other Bluetooth devices.

Scenarios where pairing might be needed:

- *Phone - Dongle:* Make sure the Switch-It® Vigo Mouse application is running on your computer. When the phone offers the pairing code, type it in the pairing window that appeared on the screen of your computer.
- *Phone - Cubo:* A 6 digit passkey will appear on the screen of the Cubo, enter it into the input field that has just appeared on your phone.
- *Cubo - Dongle:* Make sure the Switch-It® Vigo Mouse application is running on your computer. A 6 digit passkey will appear on the screen of Cubo, enter the code in the input field that has just appeared on the screen of your computer.

Important:

- *Pairing Dongle with your phone or Cubo will require Switch-It® Vigo Mouse (or Switch-It® Vigo Drive) to run on the computer the Dongle is plugged into. This is to provide the Dongle with a platform through which it can communicate with your phone or the Cubo.*
- *If Switch-It® Vigo Mouse (or Switch-It® Vigo Drive) is not running on your computer, no Pairing pop-up window will appear in which you can input the pairing code provided by your phone or the Cubo and the Network cannot be set up. Moreover, Cubo may get stuck in this state of offering to pair with the Dongle and no other device can connect to it, until this is resolved.*
- *If you're adding a second Dongle to your network, it too will need to be paired with your Cubo through the same process described above.*

Setting up the Vigo

The Vigo was paired to your system at the factory.

Important: *For safety reasons, make sure to charge the Vigo with the provided USB charging cable before the first use.*

Pairing with your phone (optional: to receive calls and listen to auditory type entertainment)



WARNING *Using this function will drastically decrease the battery life of your Vigo from an average of 14 hours of run-time to 4-5 hours.*

1. In the mobile phone Settings, turn on Bluetooth. (iOS and Android: Settings > Bluetooth > On)
2. To pair Vigo with your mobile phone, press and hold the Vigo Multi-Function Button for 7 seconds, until you hear the word “Pairing” in the speaker. The Alert LED will flash alternating red and blue.
3. In your mobile phone Settings, search for new Bluetooth devices.
4. Select “Vigo”.
5. Once successfully paired, the Alert LED will stop flashing, and you will hear “Connected” spoken from the Vigo earpiece.

LINK CONFIGURATION (Available for authorised dealers only)

If you are a user and you need to adjust the headset's settings, please contact your local distributor!

If you're one of our authorised dealers, please contact us at nowtech.hu/contact to request access to the software and the Switch-It® Vigo Drive manual!

Personalise the driving experience

1. Download and install the Switch-It® Vigo Drive software from our website.
After the installation, the Switch-It® Vigo Drive application should start running automatically (depending on the operating system version and the setup of your computer).
2. Insert the Dongle into the computer's USB port.
3. Turn on the Omni. This will turn on your Link and your Cubo.
4. In Switch-It® Vigo Drive, go to Drive Profile. For further information, click the Help (?) icon in the top right corner or download the Switch-It® Vigo Drive Help document.

The Link translates the user's head movements into analog joystick sweeps. For that to function correctly all Link parameters must be set according to the individual user's needs. The configuration of the Link can be achieved through the Switch-It® Vigo Drive application - available only for distributors - that provides an interactive Help and settings Wizard, which you can find by clicking on the question mark icon in the top right corner of the application on any page. The Vigo can measure the tilting of the head in the four main directions, forward, backward, left and right.

Setting the driving parameters in the OMNI for safe and smooth acceleration

Speeds		HD
	Maximum Forward Speed	80 %
	Minimum Forward Speed	10 %
	Maximum Reverse Speed	80 %
	Minimum Reverse Speed	10 %
	Maximum Turning Speed	80 %
	Minimum Turning Speed	10 %
	Maximum Forward Acceleration	15
	Minimum Forward Acceleration	15
	Maximum Forward Deceleration	20
	Minimum Forward Deceleration	15
	Maximum Reverse Acceleration	15
	Minimum Reverse Acceleration	10
	Maximum Reverse Deceleration	20
	Minimum Reverse Deceleration	15
	Maximum Turn Acceleration	25
	Minimum Turn Acceleration	25
	Maximum Turn Deceleration	30
	Minimum Turn Deceleration	30
	Power	100 %
	Torque	100 %
	Tremor Damping	50 %
	Fast Brake Rate	80

1. Based on the factory default parameters, and according to the results of the test drive with a joystick, the assistant shall identify the highest speed values of the chair that enables the user to drive the chair safely:

1. Maximum Forward Speed
2. Maximum Reverse Speed
3. Maximum Turning Speed

2. It is recommended to set both acceleration and deceleration speeds to a relatively low value in order to avoid the swinging of the head. This could disturb the operation of the sensors.

- Maximum Forward Acceleration: 15-35
- Maximum Forward Deceleration: 20-40
- Maximum Reverse Acceleration: 15-35
- Maximum Reverse Deceleration: 20-40
- Maximum Turn Acceleration: 25-45
- Maximum Turn Deceleration: 30-40

3. The assistant shall validate the drivability of the chair by using the chair themselves.

Twitch of the chair during acceleration, deceleration or especially driving forward can be caused by the swinging of the head. In this case, we recommend increasing the value of the Tremor Damping from zero step by step, until the chair is able to accelerate without twitches.

4. The end-user should validate the driving parameters by driving the chair with the Switch-It® Vigo Head Drive Kit. The assistant shall modify the maximum speed values and the value of the Tremor Damping according to the user's needs.

5. It is recommended to create a copy of the final profile as a basis for other profiles. When for example the user needs a second profile for indoor driving, it is enough to use the copy of the outdoors profile and change only the maximum forward speed value and leave the rest untouched.

The above-mentioned example values and ranges can greatly differ from user to user. It is recommended to always follow the above process when setting values to gain safe driving and smooth acceleration.

How to wear and drive with the Vigo

How to wear the Vigo



1. Find a comfortable seating position for the user and adjust the headrest so that the Headrest Sensor is always in reach for the user (3-5 cm). Pushing the Headrest Sensor with the back of the head should always be an easy operation. Try to do that several times and adjust your chair/wheelchair's seating or headrest position if required.

2. Try the Vigo on the user's head. Adjust the headband in a way that it sits firmly on the top of the user's head, and they can wear it comfortably for hours. To ensure operational efficiency, adjust the Vigo on the head. The sensor should be placed approximately 1-3 cm from the movable parts of the user's face (corner of the eye, cheek, corner of the mouth, etc.)

Turn on the System (for assistants/carers)

1. To turn on the Vigo, press and hold the Multi-Function Button on the Vigo for about 5 seconds. The Alert LED will flash 3 times, Vigo will vibrate once, and you will hear “Power on” spoken from the Vigo earpiece if it’s close enough to your ears.
2. Put the Vigo safely on the head of the user: place it on the user’s head, adjust the click sensor’s flexible tube as described in this Manual. The sensor should be placed approximately 3 cm from the movable part of the user’s face (corner of the eye, cheek, corner of the mouth, etc.)
3. Turn on the Omni. This will turn on the Link and the Cubo
4. You will see the Bluetooth icon of the Cubo flashing and a No device text.



5. The Cubo will recognize the Vigo and the text “Link Drive” will appear.



6. Ask the user to push the Headrest Sensor, and when he/she starts hearing the sounds, push it again before the sounds are over. This will activate the Drive mode and Deactivate again to finish the calibration process. At the end of the process, the Link will be in an inactive state.

For other status displays, please see the Cubo System Status Feedback section in the Appendix.



WARNING *If you ever experience that the chair is not following your directions accurately, stop driving and recalibrate the system. Follow the directions above and put the Vigo on a stable and flat surface after step 5 until the calibration icon changes to a checkmark (usually 5-10 seconds).*

Driving and mousing with the Vigo

Switch modes with the Vigo

The default mode after the turn-on process is inactive drive mode.

Drive mode

To start driving, give the Headrest Sensor a short-press with the back of the head (0-1 seconds) and assume a comfortable, neutral head position. The (adjustable) countdown should allow enough time to do that. It's best to take up this neutral position with the chin held up slightly to make moving forward with the chair an unobstructed, comfortable experience.

Emergency stop/Leave driving mode:

Push the Headrest Sensor with the back of the head with a fast (faster than reversing) movement. The chair will react immediately to the push of the sensor.

The chair stops when the head leaves the range set in the Switch-It® Vigo Drive application or when the user is making fast, seizure-like movements.

Enter the Omni menu:

When the driving mode is inactive, use a face-wink gesture to enter the menu of the Omni.

To be able to navigate in the menu, the head drive needs to be in active mode, please use the Headrest Sensor to activate navigation in the menu.



WARNING *Please do not leave the Omni menu by the Exit option in the menu as this will cause you to immediately drive the chair. Instead, deactivate the menu navigation first by using the Headrest Sensor and then switch to drive mode with a face-wink to continue driving.*

Mouse mode

To use this function, a connected set of Dongle and Vigo is sufficient.

If a Cubo is present in the network, the user can switch between 'drive mode' and 'mouse mode' by long-pressing the Headrest Sensor, as described below.

Plug the Dongle in the computer's USB port.

The colour of the LED will indicate whether the Dongle is communicating with the Cubo or Vigo.

In a network where a Cubo is present, mousing can be initiated by short-pressing the Headrest Sensor.

In case of a 'Dongle and Vigo only' connection, you can start mousing by pressing the Vigo's Multi-Function button.

In this setup we advise users to disable the headset button in their phone settings or disconnect their smartphone from the Vigo, otherwise the Multi Function button will start mousing on the computer and start playing music (or answer calls) on your phone at the same time.

The mousing experience can be greatly enhanced by using the **Switch-It® Vigo Mouse** application, which allows the user to adjust and fine-tune how the cursor reacts to head movements. Its toolbar unlocks other mouse functionalities, like the right-click and the middle-click, provides shortcuts for modifier keys (Ctrl/Cmd, Alt/Option, Shift) and the most used editing functionalities for easy access.

During mousing a face-wink is equivalent with the click of a mouse.

Details on how to use the software are included in its Help section (question mark in the top right corner).

For a detailed explanation of the Dongle's LED colors, please see the Dongle LED Status Feedback section in the Appendix.

Standby mode

This mode is only available in case of using a full network (Link, Cubo, Vigo and Dongle). The Standby mode has to be enabled in Switch-It® Vigo Toolbox, under the Device Order menu.

The mode itself is only accessible if the Dongle has been removed or it's out of range. Long-pressing the Headrest Sensor will switch from Drive mode to Standby mode in this case. This mode has no active state.

The purpose of this mode is to act as filler, in case the user doesn't need the Drive mode (not even in its passive state), but doesn't have a Dongle nearby to switch to Mouse mode as a stand in.

Switching between available functions

If the user has a system of at least the following connected devices: Link, Cubo, Vigo and Dongle (i.e. the potential to use 'drive mode' or 'mouse mode'), then they can switch between the modes these devices provide (in this case driving and mousing) by long-pressing (1-5 seconds) the Headrest Sensor.

The Cubo's screen will show the current mode (e.g.: LINK drive, MOUSE).

Resting

Tap the Headrest Sensor with the back of the head and hold it there for over 5 seconds. The Vigo Headset will give out a short vibration, signalling that the system entered rest mode, and the Cubo's screen will light up and stay that way for the duration of the rest. This function enables you to rest your head without the risk of accidentally initiating driving or mousing.

Two Dongle Support

In the current release we support the use of 2 Dongles in one network. This option may be beneficial for users with two computers (e.g.: laptop and desktop computer, home computer and work computer). This way they don't have to carry their one dongle wherever they want to use the mouse function.

An extra Dongle can be added to the network in Switch-It® Vigo Toolbox under Network Management.

Switching between two active Dongles (if they are both in range) is as easy as switching between 'drive mode' and 'mouse mode' except in this case there are 2 'mouse modes' from which the user can choose, by long-pressing the Headerst Sensor.

Important: Please do not try to add more than 2 Dongles to one network. Our system can only manage a maximum of 2 Dongles safely in one network.

Drive with your Vigo

1. Imagine that your head is like a regular joystick.
2. Tilt your head (make sure not to turn as it has no effect) to the direction you wish to go. The tilt amount is proportional to the speed of the wheelchair's movement. Make slow, fluid and small movements with your head to avoid activating the emergency stop.
3. To come to a halt, move your head into the neutral position (into the dead-zone)
4. To stop driving press the Headrest Sensor.

For each drive session, a new neutral position can be selected, this helps in case the users change their posture.

Using the OMNI Menu

1. To avoid control problems when changing your seating position, we recommend modifying your setting in the OMNI to control the actuators only with head side tilts.
2. When the chair is not moving the Vigo's click sensor (face wink) can be used to enter into the Omni Menu.
3. Activate the head drive - by tapping firmly the Headrest Sensor - to navigate the menu.
4. Your head will act as a joystick to help you go through all the available preferences.
5. Select menu items with tilting your head right as with a joystick, but make sure to return to the neutral position.
6. Use the face wink gesture again to deactivate the Omni menu navigation.

Other Vigo Functions:

Answer an incoming call

Short-press the Multi-Function Button to answer the incoming call.

End a call

Short-press the Multi-Function Button to end the current call.

Reject a call

Long-press the Multi-Function Button for 2 seconds to reject the incoming call.

Adjust the volume

Press "VOL+" to increase volume. You will hear "beep" from the Vigo earpiece.

Press "VOL-" to decrease volume. You will hear "beep" from the Vigo earpiece.

Play/Pause

Short-press the Multi-Function Button to play/pause the music.

Power off

To power off the Vigo, press and hold the Multi-Function Button for 5 seconds. The Alert LED will flash blue 3 times, and you will hear “Power off” spoken from the Vigo earpiece.

Battery charging & battery level

Charging: Use the included USB cable for charging. Simply attach the magnetic end of the charging cable to its counterpart that comes already inserted in the Vigo.



The Alert LED will turn red while charging.

Charging time: 2 hours. When fully charged, the Alert LED will turn off.

Low battery: You will hear “Battery Low” spoken from the Vigo earpiece.

Important: Please make sure to pay attention to the “Battery Low” warning signals from the Vigo. Depending on usage the Vigo will shut down after approx. 10 minutes from the first warning. Please make sure to put the Vigo on a USB charger as soon as the “Battery Low” warning has been announced. It is advised that users take a USB power bank with them when going outdoors.

Music streaming

Streaming audio is initiated and controlled by your mobile phone.

When a call rings, any streaming audio will automatically pause, to enable you to answer the call. When the call has ended, the streaming audio will resume.

Play/Pause: Click the Multi-Function Button once.

Previous song: Long-press “Vol+” for 2 seconds.

Next song: Long-press “VOL-” for 2 seconds.

Vigo Product Specifications

1. Bluetooth operating range: Up to 10 meters (30 feet)
2. Talk time: 10 hours (only when used as a headset, not as Head Drive)
3. Audio playtime: 10 hours (only when used as a headset, not as Head Drive)
4. Standby time: 10 days
5. Charging time: 2 hours
6. Bluetooth version: 4.0
7. Bluetooth profile: Support HFP, HSP and A2DP
8. Charging: Micro-USB
9. Noise cancellation: Dual MEMS microphone technology



WARNING Do not press and hold the combination of the Power button and the Volume down (-) buttons. This will put the Vigo into DUT (service mode) which will render the Vigo unusable. In this state the Vigo cannot be turned off, you have to wait for the battery to deplete completely.

Appendix

Vigo LED Indications:

Solid Red: Charging

No led while USB cable is attached to power: Fully charged

Flashing Red: Vigo's battery is low

Flashing Blue: Vigo is in pairing mode

Red, Green and Blue sequence: Vigo has just been turned ON

3 quick Red flashes: Vigo has just been turned OFF

LED flash blue once every 5 seconds: Vigo standby (without connecting to a phone)

LED flash cyan once every 7 seconds: Vigo working mode (connect to a phone) or playing music

LED double-flash cyan once every 3 seconds: incoming call, answer a call or dial-out

Dongle LED Status Feedback

In normal mode:

Blinking blue light: Dongle is *not* connected to Vigo or Cubo

Continuous blue light: Dongle is connected to Vigo or Cubo

Continuous purple light: Dongle is connected and half-calibrated

Continuous cyan light: Dongle is connected and fully calibrated

Continuous red light: Protocol mismatch with Vigo. Vigo's Firmware is probably not up to date.

Yellow light: The reset button is being pressed

During Firmware update:

White light: when firmware update starts in Bootloader mode

Yellow light: during firmware upload


Green light (for a moment before Dongle restarts): at successful update

Red light: when the firmware upload process fails

Link LED (GyroSet™ Logo) Indications:







Colour	Light pattern	Status
None	No	The device is turned off or in sleep
White	Breathing: fade in – fade out	The device is turned on, but there is no headset
Green	Breathing: fade in – fade out	Connection to the headset established through CABLE and IDLE
Green	Blinking	Connection to the headset established through CABLE and ACTIVE
Orange	Breathing: fade in – fade out	Link is in Service Mode
Red	1 short high sound signal	System halted due to an error. Driving stopped
Green	Rapid Blinking	Waiting for centering the head (CABLE connection)



Link Audible feedback:

Please note that you can mute/unmute all Link sounds by a short tap on the GyroSet™ logo: 



	Description	Meaning
. -	one short and low sound followed by a longer and higher sound	Linked turned on
. -	one very short, lower sound, followed by a longer and a little bit higher sound	Start driving
. _	one very short higher sound followed by a longer and a little bit lower sound	Stop driving
— — —	one very long sound repeating continuously	Reversing
.	one short, high sound	Fifth down
.	one short, high sound (a bit lower than fifth down)	Fifth up
.	one very short sound of average height	Set center/waiting
.	one very short beep sound	Mute

Cubo system status feedback








	Description	Meaning
	<p>An arrow is running around the Bluetooth icon in a counterclockwise direction.</p> <p>A circle and a “no device” label are visible.</p>	<p>The system lost its binding with the Vigo and is looking for the first Vigo it is able to find.</p>
	<p>The Bluetooth icon is flashing. A circle and a “no device” label are visible.</p>	<p>The system is bound to, but doesn't have a connection with the Vigo and is looking for it.</p>
	<p>The Bluetooth icon is highlighted.</p> <p>The clock hand in the circle is flipping. A “LINK Drive” label is visible.</p>	<p>The system is connected and is being calibrated. To enable the system to finish calibration, the Vigo has to be in a stable, resting position.</p>
	<p>The Bluetooth icon is highlighted. A checkmark icon is highlighted. A “LINK Drive” label is visible.</p>	<p>The system is connected and ready for driving, but the drive mode is passive.</p>
	<p>The Bluetooth icon is highlighted. A checkmark icon is highlighted. The “LINK Drive” label is highlighted.</p>	<p>The system is connected and it is in active drive mode.</p>
	<p>The entire screen lights up inverted.</p>	<p>The system is switching between modes in the channel map.</p> <p>(e.g. LINK Drive → MOUSE)</p>

	<p>The Bluetooth icon is highlighted. A checkmark icon is highlighted. A “MOUSE” label is visible.</p>	<p>The system is connected and ready for mousing, but the mouse mode is passive.</p>
	<p>The Bluetooth icon is highlighted. A checkmark icon is highlighted. The “MOUSE” label is highlighted.</p>	<p>The system is connected and it is in active mouse mode.</p>

Other important display messages and items:

 The image shows a display icon for 'LINK Drive'. It features a Bluetooth symbol on the left and a checkmark inside a circle on the right, both on a black background. Below this, the text 'LINK Drive' is written in white on a black rectangular background.	<p>The Bluetooth icon is highlighted. A checkmark icon is highlighted. A "LINK Drive" label is blinking upon pressing the Headrest Sensor.</p>	<p>Driving cannot be initiated, the Link can't communicate with the Cubo.</p>
 The image shows a display icon for 'MOUSE'. It features a Bluetooth symbol on the left and a checkmark inside a circle on the right, both on a black background. Below this, the text 'MOUSE' is written in white on a black rectangular background.	<p>The Bluetooth icon is highlighted. A checkmark icon is highlighted. The "MOUSE" label is blinking upon pressing the Headrest Sensor.</p>	<p>Mousing cannot be initiated, the Vigo can't communicate with the Cubo.</p>

- *"LINK connected Protocol error"* - means that the Link's Firmware is not compatible with Cubo's. Update the Link via the Switch-It® Vigo Toolbox mobile application!
- *"VIGO connected Protocol error"* - means that the Vigo's Firmware is not compatible with Cubo's. Update the Vigo via the Switch-It® Vigo Toolbox mobile application!
- We've added a new Vigo headset battery status icon to the Cubo display, which has the following states:

	Description	Meaning
	The battery icon is blinking between an empty and a full state.	Reading battery state - please, wait about 30 sec!
	The battery icon is blinking between a ONE bar and an empty state.	The Headset's battery is low - please, charge your Vigo ASAP!
	The battery icon is showing TWO bars.	The Headset's battery is at 50%.
	The battery icon is showing THREE bars.	The Headset's battery is at 70%.
	The battery icon is showing FOUR bars.	The Headset's battery is at 90%.
	The battery icon is showing FIVE bars.	The Headset's battery is FULL.
	The battery icon is cycling through all states ending with the plug icon.	The Headset is charging.



WARNING *If your Vigo has been manufactured before 2021 (you can tell by the first set of numbers on the serial number, e.g. 2019-41-000-0017), its battery status displayed by the Cubo may not be completely accurate. The 3rd, 4th and 6th battery states from the table above may not get displayed.*

SPECIAL SAFETY CHECKLIST

Please make sure that the following criteria are met before trying to drive the wheelchair with the Switch-It® Vigo Drive System:

- Understanding of the intended use of the Cubo and the Vigo by getting familiar with this User Manual.
- The adjustment of the headrest: The user must be able to reach the Headrest Sensor at any time to be able to activate it.
- The intended direction of movement must be set by using Switch-It® Vigo Drive.
- The user's head movement range must be set by using Switch-It® Vigo Drive.
- Out of operation range for the faint detection threshold must be set using Switch-It® Vigo Drive.
- Tremor filter must be set using Switch-It® Vigo Drive.
- Click sensor functions and parameters must be set using Switch-It® Vigo Drive.
- Click sensor long-press maximal timeout must be set using Switch-It® Vigo Drive.

- ❑ Centre mode and parameters must be set using Switch-It® Vigo Drive:
 - ❑ Please make sure to check if the center mode is set to “Countdown” in Switch-It® Vigo Drive. If yes, the “Timeout” has to be set.
- ❑ The maximum speed, acceleration, deceleration of the head drive profile of the wheelchair controller must be adjusted:
 - ❑ Settings of the controller must be administered by specifically trained and authorized personnel.
 - ❑ Acceleration and deceleration settings of the wheelchair shall not cause inertia on the user’s head that the user cannot compensate for.
 - ❑ Maximum speed must always be in accordance with the local regulations.
- ❑ The service network must be used only for the time when changes are made to the personal drive profile.

- ❑ The user should avoid:
 - ❑ Environments with extreme radio interference when driving wirelessly as it may cause the wheelchair to stop if it receives no signals.
 - ❑ Environments with extreme temperatures. The working temperature of Link is between -20°C and 50°C.
 - ❑ The user shall be aware of the fact that the Link must be selected by using the Headrest Sensor for control with the Vigo.
- ❑ The user must be trained and know how to handle the center detection (jump to center).
 - ❑ In case the mode is set to countdown, the user's head shall be motionless in a neutral position after activating the drive function for a few seconds until the countdown stops.
 - ❑ In case the mode is set to automatic, the drive won't start until the head is put into a motionless state for less than a second.

- ❑ Be aware that the Vigo acts as a joystick within the R-Net control system:
 - ❑ By programming the wheelchair controller, various functions can be tied to “fifth button” presses, in this case, the click sensor of the Vigo.
 - ❑ When the fifth button’s long-press timeout is set to a smaller value on the R-Net than on the Link the click sensor can turn the chair into sleep mode.
 - ❑ In case the fifth button function is programmed so that the User can access the Omni menu, the Vigo can be used to navigate within the menu using head gestures similar to the controller’s joystick.
 - ❑ In case the fifth button function is programmed so that the User can control actuators, the Vigo can be used to move the actuators using head gestures similar to the controller’s joystick.
- ❑ After the drive mode is initiated, a distinguishable audio feedback can be heard.
 - ❑ The chair will move according to the head movements and the profile settings of the Link and the controller.
 - ❑ The chair will move until the function is deactivated or failure is detected. The chair stops immediately if a failure is detected, a cable is unplugged or wireless signal is lost.
 - ❑ The chair can be stopped while in drive mode by moving the user’s head to the initial neutral position.

- ❑ In case the center of driving feels off compared to the initial center, the user shall stop and reinitiate drive, taking on a new center/neutral position.
- ❑ That depletion of the Vigo's battery will cause the chair to stop.
 - ❑ The Vigo's battery must be charged on a daily basis.
- ❑ If the Vigo falls off, the chair stops.
- ❑ A sudden backward movement of the head inside the turning dead zone will force the system to execute an emergency brake of the chair.
- ❑ If the user's head reaches the safety zone in any direction the chair will stop.
- ❑ If the user's head is in the range of the center dead zone the chair won't move or it will stop.
- ❑ If the cable connecting the Link and PGDT Omni or IOM equipped wheelchair gets damaged and/or short-circuited the chair will stop. Short circuits on analog lines are handled by R-net's safety system, because neither GND nor VCC are accepted as analog control voltages.

- ❑ User or carer intervention may be required when experiencing unusual behaviour. The Safety switch button needs to be pressed or the Headset tilted to the safety limit to induce stopping. Tremor filter can be used to compensate for vibrations.
- ❑ If there is no BLE data stream available, the Cubo gives a stop command to Link which is passed on to the chair, and the chair stops immediately.
- ❑ When in doubt, just remember, the chair can be stopped immediately by tilting the Headset to the previously set safety limits!



WARNING *The microcontroller is protecting the firmware with built-in hardware fuses, any attempt on reading or modifying the content of the flash will fail. All user-related variables are encrypted, any attempt on gaining access to secure data will erase the chip content.*

WARRANTY

NowTechnologies Ltd. provides two year's full warranty on the products. This warranty covers any defects in materials or workmanship, with the exceptions stated below:

Faults resulting from the installation by an unqualified person. Any problem that is caused by abuse, misuse, extreme water damage, or extreme weather are not covered. Also, consequential and incidental damages are not recoverable under this warranty.

Revision History

Revision number	Changelog	Date of release
01	Original content	30 November 2019
02	Updated to pre-final release	10 May 2020
03	Minor updates	01 February 2021
04	Update to final release	25 June 2021
05	Minor updates for the new release	19 December 2022
06	Rebranded product names	15 January 2023
07	Regulatory addendum	29 June 2023
08	Product photos updated	31 October 2023
09	Reusability information update	29 January 2024



EUROPEAN UNION – DISPOSAL INFORMATION

The symbol above means that according to local laws and regulations your product and/ or its battery shall be disposed of separately from household waste. When this product reaches its end of life, take it to a collection point designated by local authorities. The separate collection and recycling of your product and/or its battery at the time of disposal will help conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment.

EU COMPLIANCE STATEMENT

NowTechnologies Ltd. hereby declares that this wireless device is in compliance with the essential requirements and other relevant provisions of the R&TTE Directive and Radio Equipment Directive 2014/53/EU, as applicable.

The Switch-It® Vigo Head Drive Kit components contain modules with the following FCC IDs:

Cubo:

FCC ID: 2AC7Z-ESPWROOM32D

Vigo:

FCC ID: 2AFKV-VIGO

Dongle:

FCC ID: SH6MDBT50Q

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RoHS DECLARATION OF CONFORMITY

We hereby declare that our products are compliant to RoHS Directive 2011/65/EU of the European Parliament and the Council from 08/06/2011 on the restriction of the use of certain hazardous substances in electrical and electronic appliances.

NowTechnologies Ltd. herewith declares that all of our products are manufactured in compliance with RoHS.

Our products are in accordance with ISO-9001, which ensures high-quality products at every stage, from R&D to production. This product meets the requirements in accordance with EU regulations.

As the manufacturer, Now Technologies, declares that this product conforms to the Medical Device Regulation (2017/745).

NOTE: General user advice. Not following these instructions may result in physical injury, damage to the product or damage to the environment! A notice to the user and/or patient that any serious incident that has occurred in relation to the device should be reported to the manufacturer and the competent authority of the Member State in which the user and/or patient is established.

All identified risks have appropriate risk mitigation or rationales in place. It is agreed that risk has been lowered as far as possible and residual risk has been deemed acceptable.



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