Installation manual

Head Control

Head Control Omni Proportional (P011-61) - Head Control Omni Switched (P011-62)

mo-vis

moving forward together

Contents

About this manual

Installation manual

This manual contains **useful and important information** about your device. **Please read it carefully before use and store safely for future reference**.

Our team will be happy to answer your questions.

mo-vis bv

	Biebuyckstraat 15D . 9850 Deinze . Belgium http://www.mo-vis.com . contact@mo-vis.com . +32 9 335 28 60
CH REP	CH-REP: SKS Rehab AG, Im Wyden, 8762 Schwanden GL, Switzerland.
UKCA	UK Responsible Person: QServe Group UK, Ltd., 49 Greek Street, London, WID 4EG, UK.

Important information

> ⚠️ **CAUTION:** Incorrect use or installation may lead to risk of injury to the user and damage to the wheelchair or other property. In order to reduce these risks, you should carefully read this manual, paying particular attention to the safety instructions and warning texts.

> 📄 **NOTICE:** Only install this product on a wheelchair where the wheelchair manufacturer allows the installation of third party parts.

Warranty

mo-vis bv warrants the product to be free from defects in material and workmanship for a period of 2 years under proper use, care and service. The dealer should never keep mo-vis products in stock for a period more than 6 months prior to delivery to the end-user. mo-vis' warranty will never exceed a period of 2 years and 6 months after shipment.

All warranties do not extend beyond the initial purchaser from an authorized mo-vis dealer or mo-vis itself.

Repair and replacement

For warranty service, contact your dealer (or us if bought directly). In the event of a defect in material or workmanship, the dealer or customer must obtain a Return Merchandise Authorization (RMA) number from us. The product must be shipped to a service centre designated by mo-vis. mo-vis will repair or, at mo-vis' option, replace any product covered by the warranty.

Amendments

No person is authorized to alter, extend or waive the warranties of mo-vis.

Disclaimer and limitations of remedies

The express warranties set forth in this agreement are in lieu of all other warranties of merchantability or fitness of purpose. In no event shall mo-vis be liable for any direct, indirect, incidental or consequential damages resulting from any defect in this product.

Warranty of parts subject to "normal wear and tear" (e.g. joystick handles, pads, …) are not covered in the warranty except as it applies to defects in material or construction.

Voiding of warranties

The foregoing warranties are contingent upon the proper installation, use, maintenance and care of the product. The warranty will be void if the product has been installed or used improperly, or if it has been repaired or any part replaced by persons other than mo-vis or an authorized dealer. This product is considered as a non-serviceable part.

The addition of equipment or features that are not manufactured or recommended by mo-vis could affect the intended function of the mo-vis product and may invalidate the warranty.

Technical support

TROUBLE:
In case of technical problems:

1   Contact mo-vis at contact@mo-vis.com or +32 9 335 28 60.

2   Always state the device serial number when contacting us. This ensures you are provided with the correct information.

Warning labels

Please read this manual, the safety instructions and warning texts carefully, in order to reduce the risks associated to the device. Our products are safe under normal and reasonably foreseeable operating conditions.

📒 **NOTE:** This symbol indicates general notes and information.

⚠️ **CAUTION:** This symbol indicates caution for a hazardous situation that, if not avoided, could result in minor or moderate injury.

⚠️ **WARNING:** This symbol indicates a warning for a hazardous situation that, if not avoided, could result in death or serious injury.

Other labels:

REF	Catalogue number: indicates the manufacturer's catalogue number so that the medical device can be identified.
LOT	Batch code: indicates the manufacturer's batch code so that the batch or lot can be identified.
MD	Medical device: indicates that the item is a medical device.
�	Date of manufacture: indicates the date when the medical device was manufactured.
SN	Serial number: indicates the manufacturer's serial number so that a specific medical device can be identified.
📖	Consult instructions for use or consult electronic instructions for use: indicates the need for the user to consult the instructions for use.
☂	Keep dry: indicates a medical device that needs to be protected from moisture.

⊗	Do not use if package is damaged and consult instructions for use: indicates that a medical device should not be used if the package has been damaged or opened and that the user should consult the instructions for use for additional information.
C E	CE label: indicates that the manufacturer or importer affirms the good's conformity with European health, safety, and environmental protection standards.
⊠	WEEE: indicates that the product should not be discarded as unsorted waste but must be sent to separate collection facilities for recovery and recycling.
▱	Manufacturer: indicates the medical device manufacturer.

Limited liability

mo-vis accepts **no liability** for personal injury or damage to property that may arise from the failure of the user or other persons to follow the recommendations, warnings and instructions in this manual.

⚠ **CAUTION:** Carry out only the service and maintenance activities specified in this manual, as long as you comply with the demands stated in this manual for a specific action. In case of doubt, contact mo-vis.

⚠ **WARNING:** The device should always be tested without any person sitting in the wheelchair after every alteration of the physical installation or adjustment of the parameters.

Parts and accessories

Head Control Omni Proportional (P011-61)

The Head Control Omni Proportional (P011-61) package consists of the following elements:

1	P011-54 Head Control Center Unit Omni with integrated SUB D9 cable
2	2 x P011-52 Head Control Side Unit
3	2 x M011-15 Head Control Mounting Set Side Unit
4	*D-P011-61-70-MX Head Control User manual*
5	*D-P011-61-70-M9 Head Control Installation manual*

Head Control Omni Switched (P011-62)

The Head Control Omni Switched (P011-62) package consists of the following elements:

1	P011-54 Head Control Center Unit Omni with integrated SUB D9 cable
2	2 x P030-31 Twister Pro (D36) Black Head Control Set
3	2 x M011-15 Head Control Mounting Set Side Unit
4	*D-P011-61-70-MX Head Control User manual*
5	*D-P011-61-70-M9 Head Control Installation manual*

Mounting parts

mo-vis offers 3 different pieces to mount the Head Control onto a bracket.

You will need to add one of these to the P011-61 or P011-62 order.

1   M011-16 Head Control Set 17 mm Ball Joint
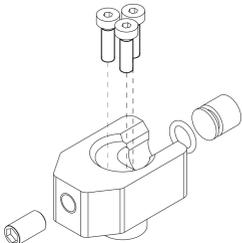
2   M011-17 Head Control Set 25.4 mm (1 inch) Ball Joint
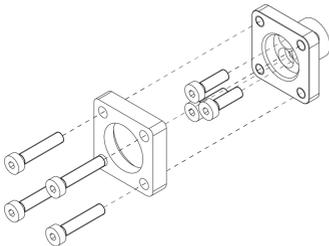
3   M011-18 Head Control Set Body Link Joint
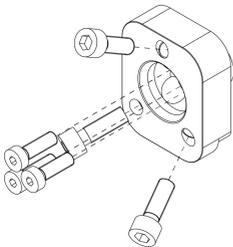
Optional parts

mo-vis does not offer its own head mounting brackets, but the following third party brackets are available to order through us:

• DISTE00022 Unilink Fixed Head Hardware UHB2D33200 (use M011-16 Head Control Set 17 mm Ball Joint)

• DISTE00023 Unilink Flip-Down Head Hardware UHB2D232FD (use M011-16 Head Control Set 17 mm Ball Joint)

To add additional satellites (button or sip-and-puff) to the set-up, you can use the M011-10 Head Control Satellite Mounting Set:
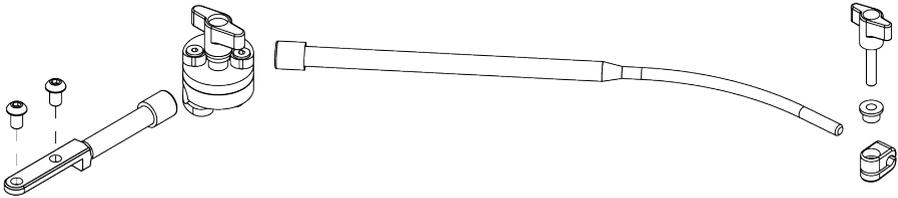
For more information about the P032-51 Sip and Puff Set Head Control, we refer you to the manuals: *D-P032-51-70-MX Sip and Puff User manual* and *D-P032-51-70-M9 Sip and Puff Installation manual*

Spare parts

The following product codes are also available as spare parts:

• P011-52 Head Control Side Unit

• M011-15 Mounting Set Side unit

- M011-74 Cable 180 mm 3.5 mm stereo

  > 📑 **NOTE:** If you use another cable, make sure it's a stereo 3.5 mm jack cable that fits in the jack insert

- M011-13 Cushion side

- M011-12 Cushion center

  > 📑 **NOTE:** To remove the cushions, use a flat screwdriver and put it in the inserts to push the cushion out to the front. To put them back in, insert it first in one side and then push down on the other side until you hear it click.

- M011-86 Rod Set D10 55 mm ball 17 mm => if the rod of the M011-15 set is too long, you can replace it with the shorter one

- P030-31/32/33 Twister Pro Head Control Set for mounting on the M011-15 (31 = black, 32 = red, 33 = green)
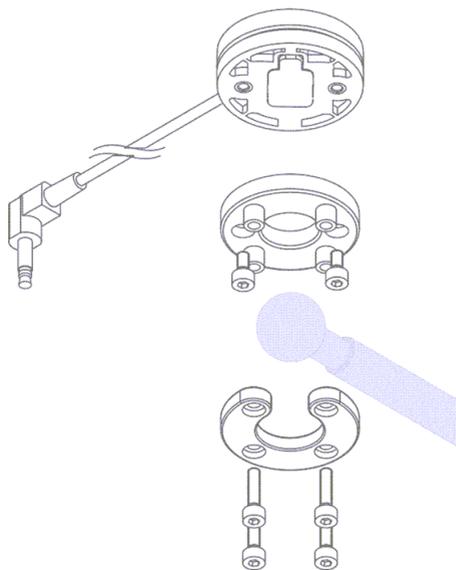
- P030-41/42/43 Twister Pro Q2M Set (41 = black, 42 = red, 43 = green)

Head Control Installation manual
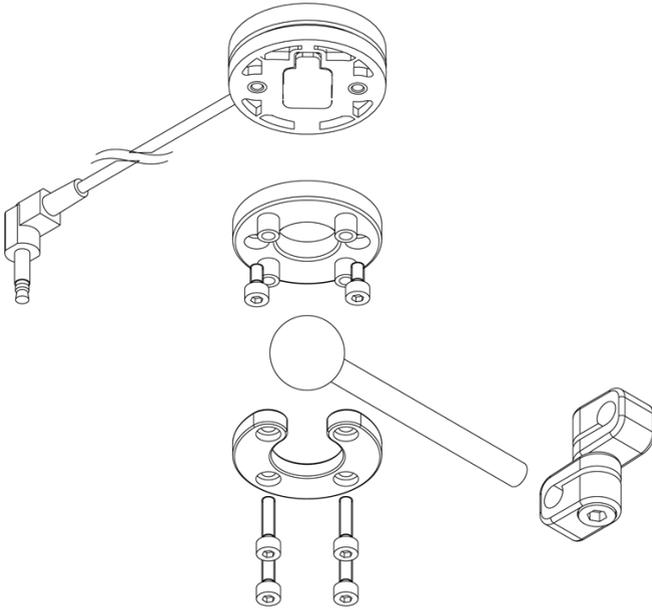
Preparations

> ⚠️ **CAUTION:** Before you start with the installation:
> - Please check the packaging and verify that all items are included.
> - Make sure that you have all the necessary documentation and knowledge to install this device.
> - Check the condition of the device.

Qualified service engineer

Only a qualified service engineer may install the device.

> ⚠️ **CAUTION:** An incorrect programming of the wheelchair electronics may cause damage to the devices, or injury to the user.

Tools

Use an Allen wrench to install the device.

> ⚠️ **CAUTION:** Use proper tools to install and adjust the device. The use of improper tools may cause damage to the device.

Installation plan

Set up an installation plan before beginning the installation. Based on the users' needs and capabilities, this plan should take into account:

- Where which part of the device should be placed.
- How the device will be operated.
- A robust and reliable positioning. Hard or sudden movements of the wheelchair may not disorganize the installation.

> ⚠️ **WARNING:** Protect the device against bumps. Mind damaging the unit and wiring. Make sure that cabling is mounted in such a way that excessive wear and tear is avoided.

> ⚠️ **WARNING:** Do not use the control as only support for hands or limbs. Movements and shocks may disrupt controls.

Installation

Mechanical Installation

P011-61

1   Mount the P011-54 Head Control Center Unit Omni on the wheelchair. (There are several options to mount the Head Control on the wheelchair, for more information see Parts and accessories on page 10.)
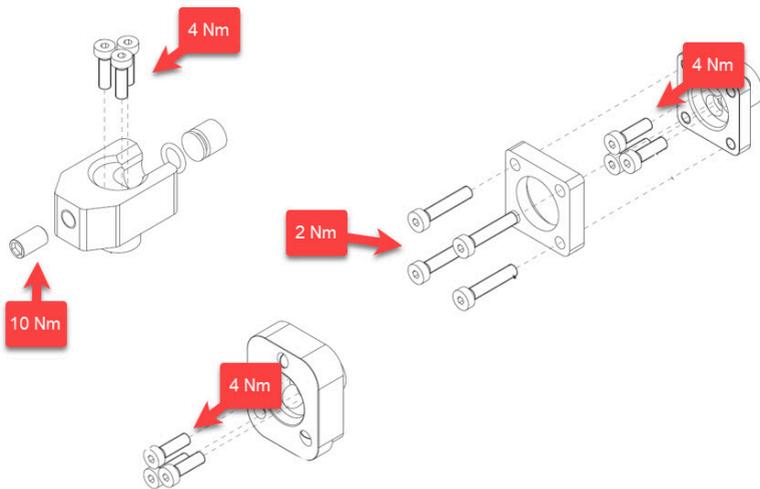
2   Find the right position for the Center Unit and secure it.

3   Take the M011-15 Mounting Set Side Unit and the P011-52 Head Control Side Unit and see where you want to place it. There are many different options:

- The M011-15 can be mounted on the top of the center unit or on the bottom.
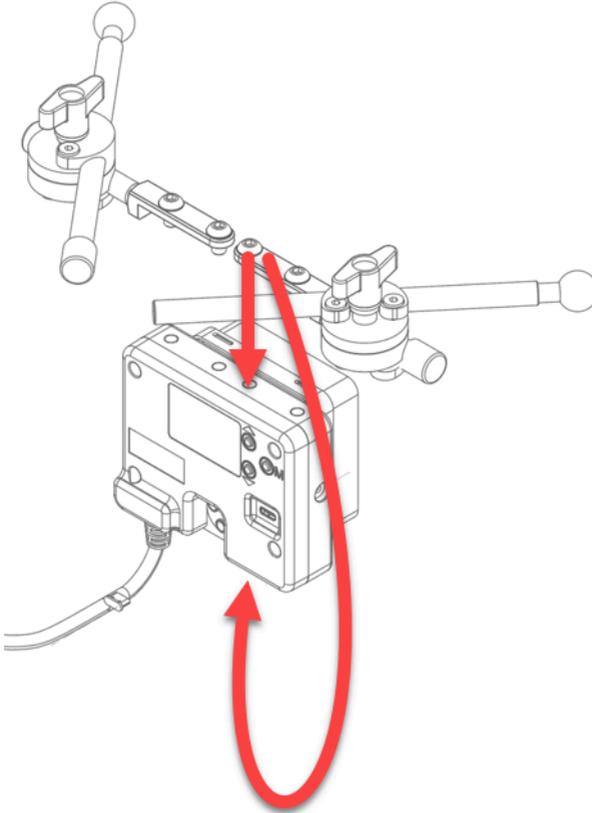
> 📄 **NOTE:** Torque the two screws to mount the M011-15 to the center unit with 3 Nm

- The M011-15 includes a M011-11 Head Control Joint Assembly, which allows for 3 different movements:

  i   By moving this part, you can create a more narrow or wider set-up of the Head Control.
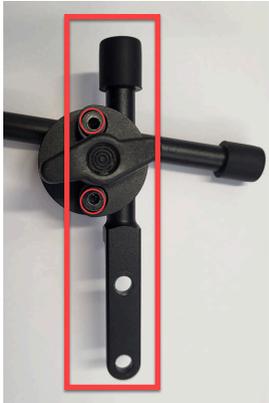
ii   By moving this part, you bring the side pad or satellite more to the front or back of the head.

iii   The movement of part in 2 is limited by an adjustable end-stop on the bottom of the Joint (part 4 below):

iv   When you release the wing nut, you can change the angle of the rod and bring it more to the center or to the side.
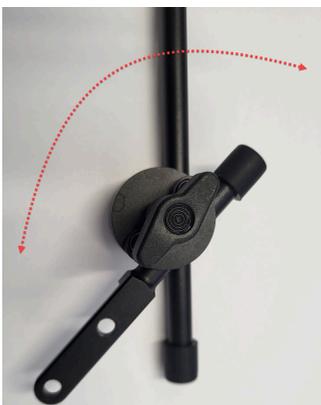
5   Furthermore, you can also change the position of the side pad itself, because of the ball joint and the 2 inserts.

📄 **NOTE:** Gradually torque the 3 bolts to 1 Nm.

📄 **NOTE:** Align the triangle. Make sure that the cut-out in the triangle is aligned with the rod.

⚠️ **CAUTION:** When mounting the side units, make sure that the jacks are not on the top side of the unit, but that you protect them as much as possible from water ingress.

P011-62

Repeat steps 1-3 from but instead of mounting a side pad you will mount the Twister Pro.

Mount the Twister Pro on the ring (part 1) with the 2 short screws of set M018-23 (part 3). Do not use the 2 screws supplied with P030-21. Mount the Twister Pro on the ball joint with the horseshoe bracket (part 2) and the 4 screws (part 4).
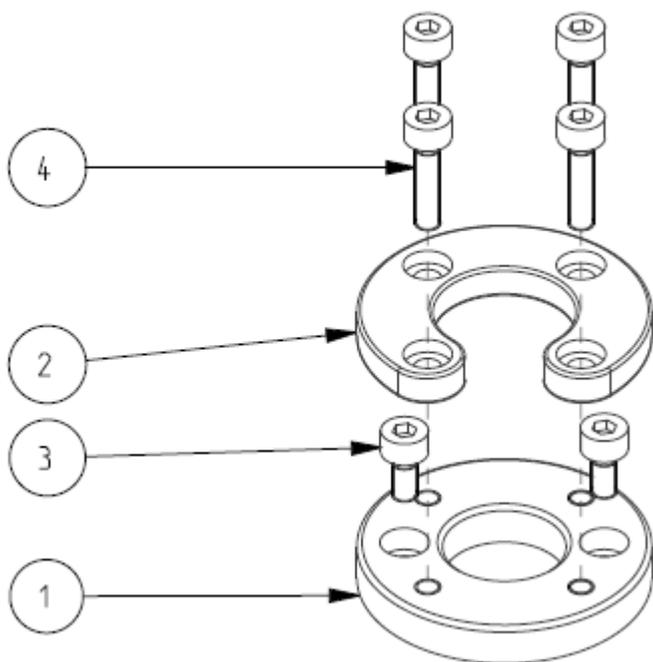
📄 **NOTE:** Gradually torque the 4 screws.

📄 **NOTE:** Guide the cable of the Twister Pro through the insert of the horseshoe bracket.

Adding more satellites

Finally, you can also add more satellites to the set-up (Twister Pro, Sip&Puff, Twister on Bended Tube...). If you have mounted the M011-15 in Step 1 on top of the center unit, then you can mount the M011-10 Head Control Satellite Mounting Set on the bottom or vice versa.

⚠️ **CAUTION:** A stable mounting of all parts of the Head Control is really important! If the device is mechanically instable, this may lead to reduced functionality, unwanted movements or no reaction of the wheelchair.

⚠️ **CAUTION:** Make sure that no objects or body parts can get stuck within the opening range of the satellites, to avoid pinching.

📋 **NOTE:** It is most logical to install the satellites on the side of the jacks on the bottom of the Head Control (right side as seen from the back).

Connecting the Head Control

1   Connect the cable of the center unit to the chair. See Omni Control Connection on page 55 for more information.
2   Connect a remote pad, a normal open switch or a safety switch to each side jack.
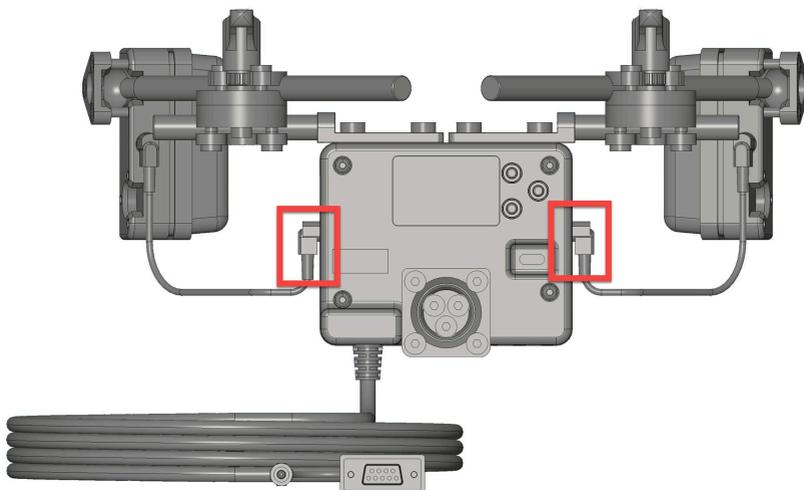
> 📄 **NOTE:** The jacks on the sides of the Head Control Center Unit have dedicated driving functions (not configurable).

> 📄 **NOTE:** You can connect any 3.5 mm mono jack switch, but we strongly advise you to use a mo-vis Twister Pro or another switch with resistor values to ensure driving safety!

3   Connect the necessary switches and/or satellites to the head control. This picture shows a bottom view of the Head Control:
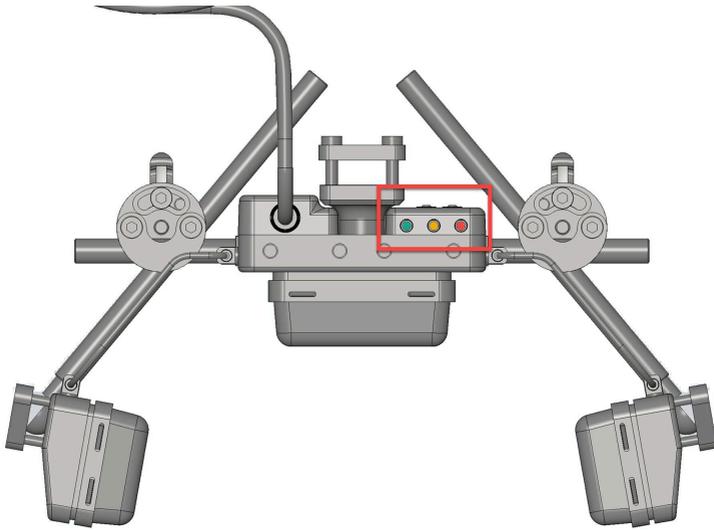
- At least an on/off switch in the red jack
- Optionally 1 or 2 satellites (e.g. sip & puff, buttons, pads) in the yellow or green jack for programmable functions (see Parameter Settings on page 31 for more information).

4   The Head Control is correctly connected to the wheelchair, when pressing the on/off button results in activation of the wheelchair. The display screen will 'wake up' and show you either this image below or an error code.
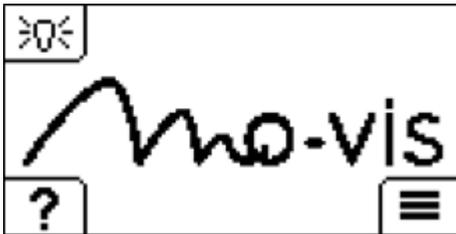
Operation

The movements of the control are translated into according movements of the wheelchair, e.g. driving or menu navigation.

Common practice to navigate the wheelchair with the control is as follows:

- **Direction**: by default, pressure on the center pad leads to forward driving, pressure on the side pads or switches leads to left/right driving. You can go from forward to reverse driving by pressing a button or by performing a head gesture

  📄 **NOTE:** Switching to reverse driving needs to be programmed in the electronics of the wheelchair and/or the head control

  .

- **Speed**: the harder you push on the pads, the faster the wheelchair moves.
- **Stop**: whenever you stop the pressure, the wheelchair stops driving.

⚠️ **CAUTION:** Avoid hitting obstacles during driving.

⚠️ **CAUTION:** Before inserting a connector, remove the protective cover. If the connections are not used, always put or keep the protective covers in.

⚠️ **WARNING:** Contact your dealer immediately to perform a functional test in the following situations:
- When the display shows an error code
- When you hear an error/warning beep
- After every incident with the wheelchair

Head Control status

The display on the backside of the Head Control Central Unit indicates the operational status of the control.

HEAD CONTROL STATUS	ICON	STATE DESCRIPTION
Standby	Zzz	The system disables the drive functionality
Out of neutral	☁	The Head Control is out of neutral
Focus	☼	The Head Control is in control of the wheelchair

HEAD CONTROL STATUS	ICON	STATE DESCRIPTION
Out of focus		The Head Control is not in control of the wheelchair (not in OMNI version)
Calibration		The Head Control is being calibrated
Error		The Head Control is in error state
Warning		The Head Control is in warning state

Configuration

> ⚠️ **WARNING:** Changes in parameter settings may cause damage to the device or power chair, or may cause injury to people.

> ⚠️ **CAUTION:** Always change parameters and test the outcome without anyone sitting in the power chair.

Software download

- You can download the Configurator Software on our website http://www.mo-vis.com
- Software requirement: Windows version 10 or 11, 64 bit
- For all details on how to install and use the software, we refer you to the *Configurator Software manual*.
- To configure the parameters of the device, you need dealer level access. This level is password-protected. Contact mo-vis to obtain the password.

> 📄 **NOTE:** Never share your password with anyone and keep access to the Configurator Software strictly personal.

Programming

On-board configuration

1   Use the buttons on the center unit to navigate through the on-board programming
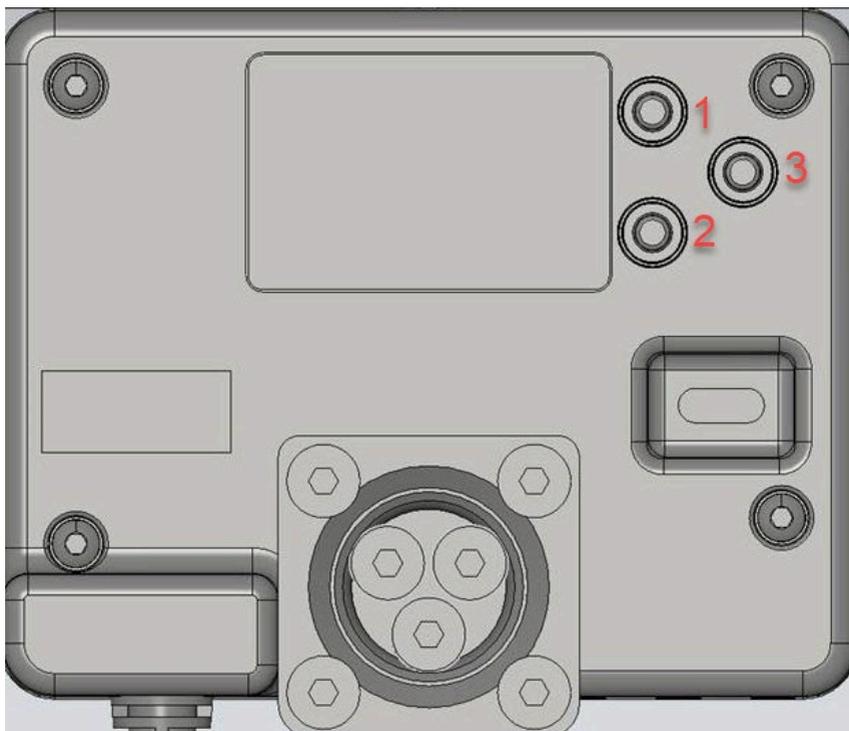
1	Navigate up
2	Navigate down

3	Select: the action depends on how long you hold the button. Short will activate the icon in the bottom left corner of the display, long will active the icon in the bottom right corner of the display. For example, in this image below, holding button 3 short will take you back to the previous page in the menu, holding the button long will select 'Calibration'.

2 Certain sections are 'locked' (see lock symbol after 'Calibration in this image above). In that case, you will need to input a pincode.
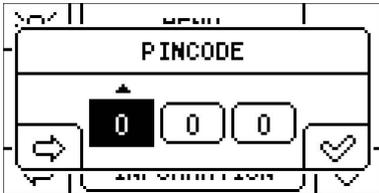
> ⚠️ **CAUTION:** By default, the pincode is the three final digits of the serial number. This pincode should be protected from unauthorized access.

Via the Configurator Software

1   Connect the device to a PC. Use a standard USB-C cable.

> ⚠️ **CAUTION:** Before inserting a jack or USB cable, remove the protective cover. If the connections are not used, always put or keep the protective covers in.

2   Configure the parameters with the software.

3   Upload the configuration.

4   Test the configuration and adjust if necessary.

Parameter Settings

> 📄 **NOTE:** Parameters in **bold** are default settings

Input jack settings

This group of parameters contain all the sections for the stereo input jacks. There is a green and a yellow input jack. When you insert a button directly into either of these jacks, then pressing this button will lead to the action programmed under the 'tip'. If you use a splitter cable and connect two buttons to one jack, then you can have another action for the tip then for the ring.

SETTING	DESCRIPTION	PARAMETERS	
Type	Which type of input is connected to the button. 📄 **NOTE:** The **default** value is **None**, except for the **Yellow Tip**, where the default value is **Normally open switch**.	None	Nothing is connected
		Normally open switch	Standard normally open button is connected
		Safety switch	A Twister Pro (or another resistor-switch) is connected
		Sip	mo-vis sip-and-puff sensor is connected
		Puff	mo-vis sip-and-puff sensor is connected
Direct action	Action is activated from the moment the input (button) is closed until the input (button) is released. 📄 **NOTE:** You either choose a direct action OR a short + long action. If you program action for both the direct action and short + long action, direct action gets priority and the others are ignored. 📄 **NOTE:** The **default** value is **None**, except for the **Yellow Tip**, where the default value is **Mode**.	**None**	No action
		Standby	(De)activate standby state
		Mode	Mode output
		Left drive	Proportional left drive for sip & puff/ switched drive for switches
		Right drive	Proportional right drive for sip & puff / switched drive for switches
		FWD drive	Proportional forward drive for sip & puff / switched drive for switches
		REV drive	Proportional backward drive / switched drive for switches

SETTING	DESCRIPTION	PARAMETERS	
Short press	If the input is closed for a time shorter than the **Short timer**, the short press action will be executed as soon as the input is released.	**None**	No action
		Standby	(De)activate standby state
		Mode	Mode output

> 📄 **NOTE:** If you program a standby action, the wheelchair will always start up in standby mode.

It is also possible to change the parameters of the left and right jack of the center unit:
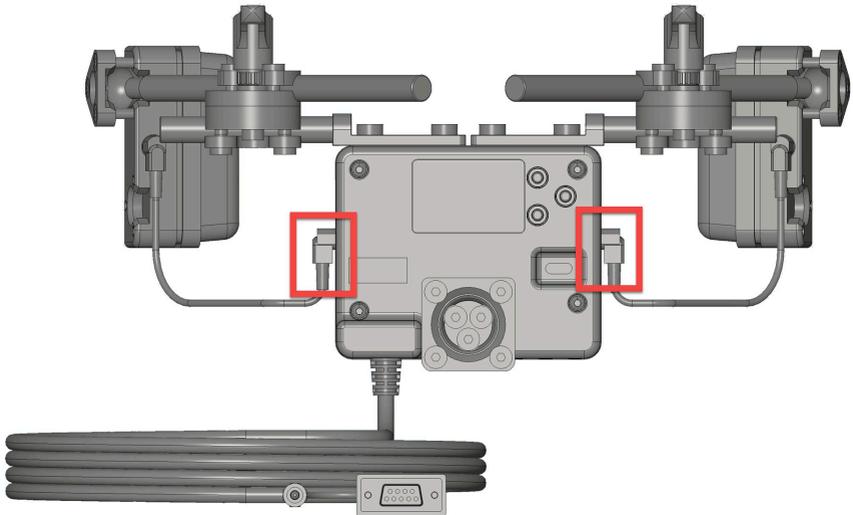
SETTING	DESCRIPTION	PARAMETERS	
Type	Which type of input is connected to the left/right jack.	None	Nothing is connected
		Normally open switch	Standard normally open button is connected
		Safety switch	A Twister Pro (or another resistor-switch) is connected
		Remote pad	A side pad is connected

This is what this flow would look like if you program it on-board.
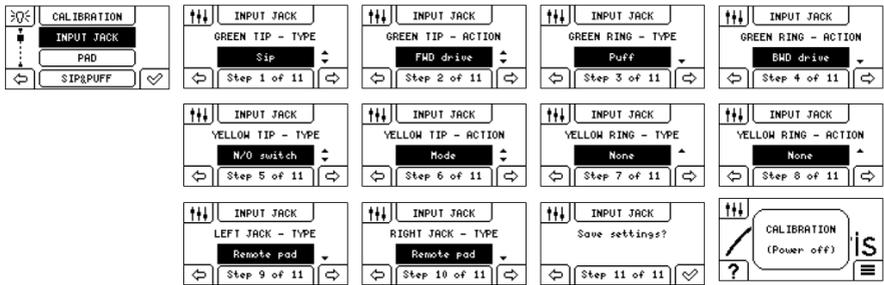
There is also a parameter group concerning the timers of the input buttons:

SETTING	DESCRIPTION	PARAMETERS	
Short timer	It is only active when a short/long press is selected and no direct action. If the input is closed for a time shorter than the **Short timer**, the short press action will be executed. If the button is closed for a time longer than the **Long timer**, the long press action will be executed.	Minimum	0
		Maximum	10000
		Step	100
		Default	1000
		Unit	ms

SETTING	DESCRIPTION	PARAMETERS	
Debounce timer	The input needs to be closed for longer than the debounce timer, before it is seen as an input. It can be useful to increase this timer in case the user has a tremor, for instance.	Minimum	50
		Maximum	2500
		Step	10
		Default	50
		Unit	ms

Pad settings

This group of parameters contains settings for the pad sensors.

> 📄 **NOTE:** The easiest way to program these is to go to the on-board programmer and go to **Menu** > **Calibration** > **Pad** and follow the instructions for each pad.

SETTING	DESCRIPTION	PARAMETERS	
Minimum force	Minimum force required on the pad to activate the wheelchair.	Minimum	100
		Maximum	3000
		Step	100
		Default	100
		Unit	g
Maximum force	The force at which the wheelchair will reach maximum speed. ⚠️ **CAUTION:** High sustained pressure against the pad can lead to neck pain or increased muscle tone, which makes it difficult for the user to bring the head forward quickly. Configuring the forces required can prevent this issue.	Minimum	100
		Maximum	3000
		Step	100
		Default	2000
		Unit	g

SETTING	DESCRIPTION	PARAMETERS	
Overload force	⚠️ **CAUTION:** Spastic movements may result in a drive input and uncontrolled behaviour of the wheelchair. This parameter ensures the safety and reliability of the system by preventing excessive force that could potentially lead to discomfort or damage. This parameter defines the maximum allowable force that can be exerted on the pads of the Head Control before triggering a warning state. When the force exerted on the pad exceeds this predefined threshold, the system detects an overload and transitions into an warning state, signaling to the user that the head needs to be released from the pad until the warning disappears. Users can adjust this parameter to customize the sensitivity of the pad according to their comfort and mobility needs, providing a tailored and responsive control experience.	**None**	Overload force is disabled
		125%	Overload force when force > 125% of max. force
		150%	Overload force when force > 150% of max. force
		175%	Overload force when force > 175% of max. force
		200%	Overload force when force > 200% of max. force
Initial speed	You can set your initial speed at the minimal force to give the user an easier start.	Minimum	0
		Maximum	40
		Step	5
		Default	0
		Unit	%

SETTING	DESCRIPTION	PARAMETERS	
Veering	📄 **NOTE:** This parameter only applies to the center pad.	Minimum	0
		Maximum	100
	This parameter controls the degree to which the center pad of the head control system assists in steering and turning the power wheelchair. When set to 0, the center pad is solely responsible for forward and reverse driving, while turning is exclusively handled by the side pads/satellites. As the parameter value is increased, the center pad gradually gains the ability to assist in turning motions, allowing users to initiate turns by pressing towards the sides of the center pad. However, full turns in place cannot be achieved solely with the center pad, ensuring that turning remains primarily reliant on the side pads. Users can adjust this parameter to customize the level of assistance provided by the center pad, balancing between convenience and precision in maneuvering the wheelchair.	Step	10
		Default	0
		Unit	%

Sip-and-puff settings

For both the sip and the puff, you can set the **maximum pressure**:

SETTING	DESCRIPTION	PARAMETERS	
Maximum pressure	This is the sip or puff pressure at which you reach the maximum speed of the wheelchair.	Minimum	1
		Maximum	150
		Step	1
		Default	50
		Unit	mBar

> 📄 **NOTE:** The easiest way to program these is to go to the on-board programmer and go to **Menu** > **Calibration** > **Sip & Puff** and follow the instructions.

Angle compensation

This parameter enables the adjustment of the sensitivity of the proportional head control system to changes in the weight distribution caused by the tilting of the wheelchair.

> ⚠️ **CAUTION:** When the wheelchair tilts, the weight of the user's head in its resting position increases, potentially triggering unintended movement of the wheelchair. The Angle Compensation parameter allows users to fine-tune the system's response, filtering out the additional weight of the head when in a tilted position to prevent inadvertent activation of the driving mechanism.

By adjusting this parameter, users can optimize the performance of the head control system to suit their individual needs and preferences, ensuring a comfortable and controlled driving experience

SETTING	DESCRIPTION	PARAMETERS	
Enable	Used to enable/disable the angle compensation.	**Off**	Angle compensation disabled
	📄 **NOTE: If you enable this setting, don't forget to execute the on-board calibration!** Go into the on-board menu and select 'Calibration' and then execute 'Angle Compensation'.	On	Angle compensation enabled
Calibration adjustment	Perhaps you want to tweak the angle compensation a bit to further tailor it to the user's individual needs.	Minimum	-20
		Maximum	20
		Step	1
		Default	0
		Unit	%

Gesture settings

If you want to perform a mode action without using a button, you can use gestures with head. There are gestures that you can perform during the standby state (= nudges) and there are gestures that you can perform during drive mode (= movement pattern).

First, the gestures in standby mode: you need to configure one of the nudges to exit standby. When doing so you will automatically go into standby after the **Standby settings > Timer** has passed. To exit the standby, you give a nudge to the programmed pad. You can use the other nudges to execute the mode function.

SETTING	DESCRIPTION	PARAMETERS	
Forward nudge	A tap to the central pad of the head control or a sip/puff for forward movement, can be linked to the exit of the standby mode or going to/exiting function mode.	**None**	No action
		Standby	Exit standby state
		Mode	Go to mode
Left nudge or **Right nudge**	A left/rigt movement of the head (touching the side pads or satellites) can be linked to the exit of the standby mode or going to/ exiting function mode	**None**	No action
		Standby	Exit standby state
		Mode	Go to mode

Secondly, the gestures in drive mode, can be used to execute mode.

> 📋 **NOTE:** The gestures in drive mode can be executed when driving, but will create a delay in the driving experience.

SETTING	DESCRIPTION	PARAMETERS	
Left/Left or **Right/Right**	A left//left OR right/right movement of the head (touching the side pads or satellites) can be linked to tgoing to/exiting function mode.	**None**	No action
		Mode	Go to mode

There are two timers that are important for these gestures:

SETTING	DESCRIPTION	PARAMETERS	
Gesture Timer	This timer indicates the time the user has to perform the gesture.	Minimum	500
		Maximum	10000
		Default	5000
		Step	100
		Unit	mS

SETTING	DESCRIPTION	PARAMETERS	
Nudge timer	This timer indicates the time to user has to perform the left/left or right/right sequence	Minimum	500
		Maximum	10000
		Default	1000
		Step	100
		Unit	mS

Auditive feedback

SETTING	DESCRIPTION	PARAMETERS	
Error/warning beep	You will hear a beep every time the Head Control goes into an error or warning state.	Off	No beep when in error/warning
		On	Beep sounds the flash code when in error/warning
State change beep	You will hear a beep every time the state of the Head Control changes	Off	No beep when there is a state change
		On	Beep sounds when there is a state change
Function beep	You can set a beep to indicate going into standby or going from driving into mode function	None	No beep
		Standby	Beep on standby action
		Mode	Beep on mode press

Standby settings

SETTING	DESCRIPTION	PARAMETERS	
Timer	Set a timer to enter the standby mode automatically 📄 **NOTE:** Standby only works when there is a method to exit the standby state (button action or gesture). 📄 **NOTE:** You can disable the timer by setting the value to 0.	Minimum	0
		Maximum	1800
		Step	10
		Default	60
		Unit	s

Omni settings

📄 **NOTE:** These parameters are only applicable for a Head Control in Omni version (SUB D9 cable).

SETTING	DESCRIPTION	PARAMETERS	
Mode output type	If you want to detect open or short circuit in the mode output (Omni cable), you can simulate a safety switch by configuring this parameter. When doing so, you need to configure the R-net Omni parameter (9-way SID switch detect). When configuring those two parameters, if there is a open or short circuit, the R-net system will display an error on the screen. 📄 **NOTE:** This parameter is only applicable when used on a R-net system.	**Normally open switch**	Standard normally open button is connected
		Safety switch	A Twister Pro (or another resistor-switch) is connected

SETTING	DESCRIPTION	PARAMETERS	
Mode timer	This timer determines how long the mode output will be on. Only valid when mode is set on gestures or short press.	Minimum	50
		Maximum	2500
		Step	10
		Default	500
		Unit	ms

Pincode settings [Configurator only]

SETTING	DESCRIPTION	PARAMETERS	
Pincode	This is the pincode used on the display	Minimum	0
		Maximum	999
		Step	1
		Default	Last 3 digits of Serial Number
		Unit	/

External programming

📄 **NOTE:** Please refer to the Technical Manual of the wheelchair electronics for more information on programming.

Curtiss-Wright

You need an OMNI (2) display by Curtiss-Wright.

You will have to program the device as a **3-Axis Proportional** device in the R-net Programmer. Go to **OMNI** > **Ports** > **SID** and choose **3-Axis Proportional** for the appropriate port.
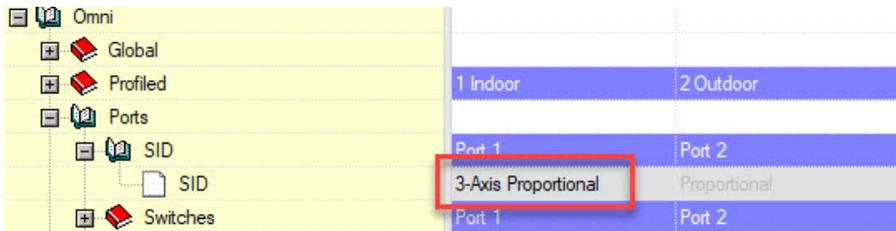
When you have done that, an arrow of the drive direction will be displayed on the Omni display.

Toggling the direction (forward/reverse) can be achieved in 3 ways:

1   Forward/Reverse Auto Toggle
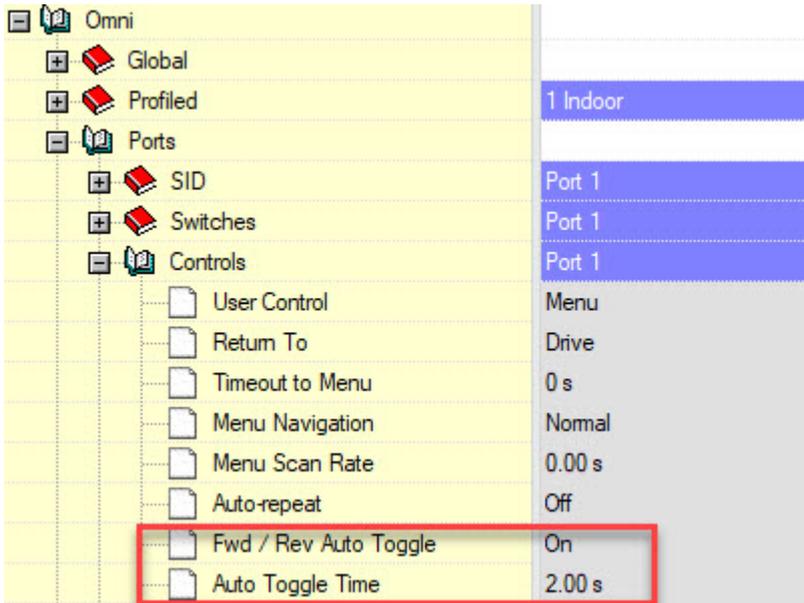
2   User Switch: single/double click => a single user switch operations toggles the direction, a double operation will enter the User Menu or sequence of other functions. A long press will enter sleep mode.

3   User Switch: timed click => If set to Timed, the selected drive direction will automatically toggle when in standby, at the rate set by Auto Toggle Time.

In cases 2 & 3, configure the used input jack of the Head Control with the mode action (see Parameter Settings on page 31). Also, make sure that **Omni** > **Ports** > **Controls** > **Fwd / Rev Auto Toggle**

If you want to use a Twister Pro with safety switch functionality on the Head Control, take the following into account:

- Set the dip switches on the bottom of the Twister Pro in the correct position:

- Red jack on the Head Control has a dedicated on/off function. To use a Twister Pro with safety switch functionality, program the following: **OMNI** > **Global** > **External On/Off Switch Detect** > **On**.

- Left/Right Jack on the Head Control have dedicated drive functions. No need for additional configuration in R-net, only in the Head Control itself (see Parameter Settings on page 31).

- Yellow/Green Jack on the Head Control have configurable functions (mode, standby...). If used for anything other than mode, no need for additional programming in R-net, only in the Head Control itself. (see Parameter Settings on page 31). If you use it for the mode, then you should also set the parameter **Mode output type** to **Safety switch** in the Head Control and you should program **OMNI** > **Ports** > **Switches** > **9-Way SID Switch Detect** to **On**.

> 📄 **NOTE:** The Head Control is not compatible with the Input-Output Module from Curtiss-Wright as there is no 3-axis proportional option available then.

Dynamic Controls

You need a IN500-A module from Dynamic Controls.

You will have to program the device as a **Proportional Head Array** LiNX Access App. Go to **Modules** > **IN500** > **User Input Configuration** and choose **Proportional Head Array**.

Toggling the direction (forward/reverse) can be done using a switch by setting a rule in the LiNX Access App: **Modules** > **IN500** > **Input Pin 6 - Port Settings** > **Momentary** > **Always =>**

Drive > **Toggle Reverse**. Also, configure the used input jack of the Head Control with the mode action (see Parameter Settings on page 31).
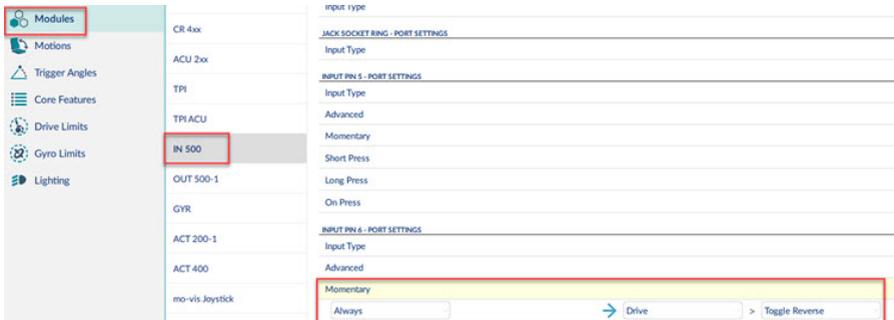
If you use the red jack of the Head Control in combination with the IN500, connect the pigtail of the Omni Cable to the jack socket of the IN500 and configure it as follows in the LiNX Access App: **Modules** > **IN500** > **Jack Socket Tip - Port Settings** > **Input Type** > **Power Button**.

If you want to use a Twister Pro with safety switch functionality on the Head Control, take the following into account:

* Set the dip switches on the bottom of the Twister Pro in the correct position:

Figure 1: LiNX Band 1

Figure 2: LiNX Band 10

* Red jack on the Head Control has a dedicated on/off function. Safety switch functionality is not supported in LiNX. However, if you use the red jack for anything else than a power button, you have to set the dip switches in on the bottom of the Twister Pro in the correct position and program in LiNX Access App **Modules** > **IN500** > **Jack socket tip - Port settings** > **Input type - Resistor bands** and choose **Band 1** or **Band 10**.

- Left/Right Jack on the Head Control have dedicated drive functions. No need for additional configuration in LiNX, only in the Head Control itself (see Parameter Settings on page 31).
- Yellow/Green Jack on the Head Control have configurable functions (mode, standby...). No need for additional programming in LiNX, only in the Head Control itself. (see Parameter Settings on page 31).

Curtis Instruments

You need a SCIM/Enhanced Display from Curtis Instruments.

You will have to program the device as a **3-Direction Prop. Head** in the ECON-W programmer. Go to **SCIM/Enhanced Display** > **Input Configuration** > **3-Direction Prop. Head**.
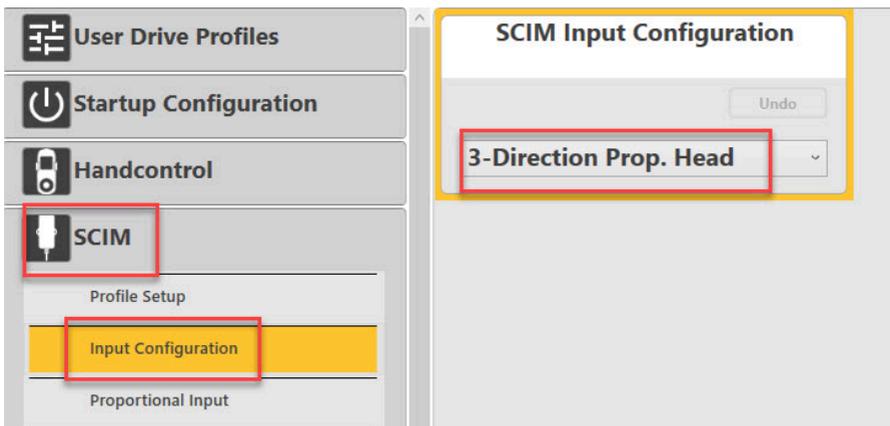
> **NOTE:** If you want to use the mo-vis parameter **Angle Compensation**, then program the device as follows: **SCIM/Enhanced Display** > **Input Configuration** > **3-Direction Proportional** and then the forward/reverse axis needs to be swapped.

Toggling the direction (forward/reverse) can be done using a short nudge on the backpad or via jack command, both to be programmed in the ECON-W Programmer:

- Toggle command: **SCIM/Enhanced Display** > **3-Direction Arrow Toggle Settings** >

Toggle Command Time or **Teach Toggle Command**.
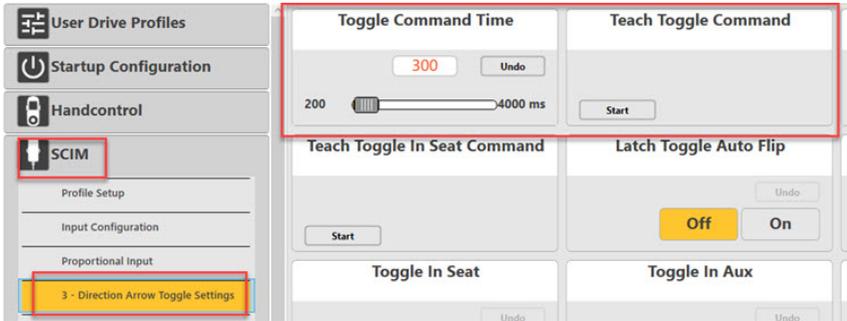
- Jack command: **SCIM/Enhanced Display** > **D-Sub (9-Pin)** > **Mode Short/Long/Double Command Type** > **Toggle**. Configure the used input jack of the Head Control with the mode action (see).
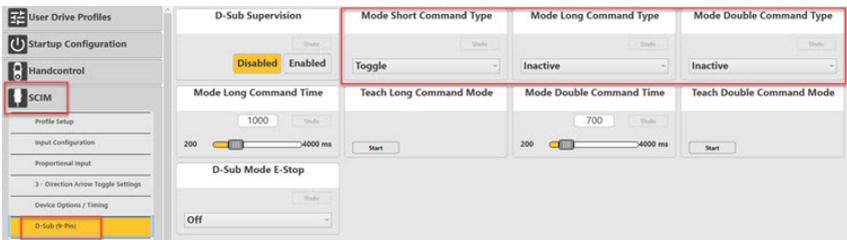
📝 **NOTE: Power on device** setting can't be used with a SCIM because it has no on/off jack. Use other options like **Startup Configuration** > **Input Device Selection** > **Input Device Selection Screen** or **Input Device Selection** > **Default Input Device**.

📝 **NOTE:** Q-Logic does not support safety switches for the red on/off jack of the Head Control.

- Left/Right Jack on the Head Control have dedicated drive functions. No need for additional configuration in ECON-W Programmer, only in the Head Control itself (see).

- Yellow/Green Jack on the Head Control have configurable functions (mode, standby...). No need for additional programming in ECON-W Programmer, only in the Head Control itself. (see).

Testing

After installation of the device, execute the following tests before the wheelchair is delivered or put into service, in according order:

Check the device for intactness

Check whether:

- The device is not bent or damaged.
- Housing, cabling and all connectors are not damaged.
- The device returns to its default position when pressing and releasing the center, left and/or right pads.

Operational test

> ⚠️ **CAUTION:** Execute this test only on a level surface, with at least one metre of free space around the wheelchair.

> ⚠️ **CAUTION:** The wheelchair may start to move during the test.

1   Activate the wheelchair operating system.
2   Check for any error message.

> 🔧 **TROUBLE:** for more information on the error messages, see Error codes on page 53

3   Press on the pad slowly until you hear the parking breaks switch off.
4   Immediately release the pad. You should hear the parking break react within a few seconds.
5   Repeat step 3 and 4 three times, for the center, left and right pad (or the satellites).
6   Check whether the power on/off (pwr) and mode (in) switch function properly.

Test drive

Do a test drive with the wheelchair.

1   Check whether the wheelchair and all its functionalities function correctly in all positions the user may use the control and switches.
2   Check whether cables or parts may not get damaged or hindered in any possible position of the wheelchair.

Stop test

Drive full speed ahead and shut down the wheelchair with the power on/off switch.

The wheelchair may not suddenly stop, but must slow down to a gradual stop.

Maintenance

The device is maintenance-free. Under regular circumstances of use, the device and different parts do not require additional maintenance. Please refer to the *User Manual* of the device for cleaning instructions.

⚠️ **WARNING:** As dust and dirt could lead to reduced functionality, all parts of the device should be cleaned on a regular basis (monthly) or whenever needed.

Monthly inspection

Monthly, or whenever needed, check whether:

- All bolts and screws are still firmly tightened.
- There is no damage to any wiring.
- There is no excessive wear to any of the parts.

Yearly inspection

We advise to have at least yearly a full check of the wheelchair and its operating systems by a qualified service engineer.

First time use

During first time use by the user, it is advised that the dealer or service engineer assists and explains the different possibilities to the user and/or his attendant. If needed, the dealer can make final adjustments.

> ⚠️ **CAUTION:** It is important that the customer is fully aware of the installation, how to use it and what can be adjusted to optimize his/her experience.

1   Explain and show the customer how you have executed the installation and explain the functionality of every (new) button.
2   Have the user test all positions of the device. If needed, adjust the (position of the) device.

•   Are the control and the switches within easy reach?

•   Can the user safely operate the power chair with the least effort?

•   Is the placement of the device in all available positions optimal for the user?

3   Explain the possible problems and how to address them, to the user.
4   Draw the user's attention to the following:

> ⚠️ **WARNING:** A functional test is needed when the LED light flashes and/or after every incident with the wheelchair or the mo-vis device.

> ⚠️ **WARNING:** The device should never be covered or blocked in order to avoid uncontrollable behavior of the control and/or the wheelchair.

Error codes

> 🔧 **TROUBLE:**
> When a fault occurs, the LED of the control will start to flash. A long delay is followed by a number of flashes with a short delay. Count the number of flashes and look up the according error message in the table below.

We have two categories:

- Warnings: LED will flash in orange. A warning can be resolved quite easily (see table below).
- Errors: LED will flash in red. An error might indicate a more serious issue and/or the device will have to come back to mo-vis.

FLASH COUNT	LED	REASON	REQUIRED ACTION
1	Orange	There is an issue with one of the non-driving input jacks.	You have programmed an input type (e.g. safety switch, sip-and-puff), but the system cannot detect one. Check if you have connected the correct input type and if you have set it up like that. Check if the input type is still functional (no broken cable or in short-circuit).
2	Orange	A remote pad is in warning state. This can occur for example if a pad is activated for more than 15 minutes straight while in driving state.	Make sure the remote pad is not activated. Otherwise there might be an issue with the remote pad and it might need to be replaced.

FLASH COUNT	LED	REASON	REQUIRED ACTION
5	Red	There is an issue with one of the driving input jacks.	You have programmed an input type (e.g. safety switch, sip-and-puff), but the system cannot detect one. Check if you have connected the correct input type and if you have set it up like that. Check if the input type is still functional (no broken cable or in short-circuit).
6	Red	There is an issue with the wheelchair connection.	Make sure the SUB D9 cable is connected correctly and that the cable is not damaged.
7	Red	Miscellaneous	Contact mo-vis
8	Red	Double warning.	See solutions for flash count 1 and 2. You will have to power off and on the device for it to be functional again.
9	Red	Test flag failed or Diagnostic failed	Redo tests and/or replace PCB. If problem persists, contact mo-vis.
10	Red	Coding error	Update software or replace PCB. Contact mo-vis.

TROUBLE:
A fault log with counters is maintained. The fault log can be accessed by the configurator (dealer level). For more information, contact mo-vis.

Omni Control Connection

Purpose

A mo-vis Omni Control has a cable with a SUB D9 connector and a 3.5 mm jack connection. They can be plugged in directly to the electronics of the wheelchair. The control then controls the wheelchair in all its functions (driving, electric gears, lights …).

Connectivity

The Omni Control allows you to connect to a wheelchair with a Curtiss-Wright Omni or Omni2 display.

📄 **NOTE:** To connect with other types of electronics, there are third party adapters available.

Features

The Omni Control Connection is an integrated part of a mo-vis Omni Control and consists of:

• Omni (SUB D9) connector with cable
• 3.5 mm mono jack out with cable

Other information

These products were tested with an Omni 2 display by Curtiss-Wright.

Technical data

Product description & code

- P011-61 Head Control Omni Proportional
- P011-62 Head Control Omni Switched

Interface connectors

SUB D9 connector

Dimensions
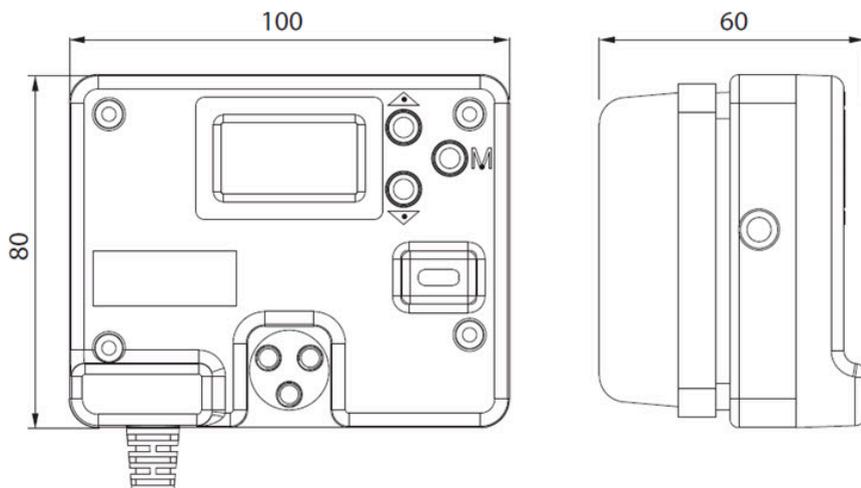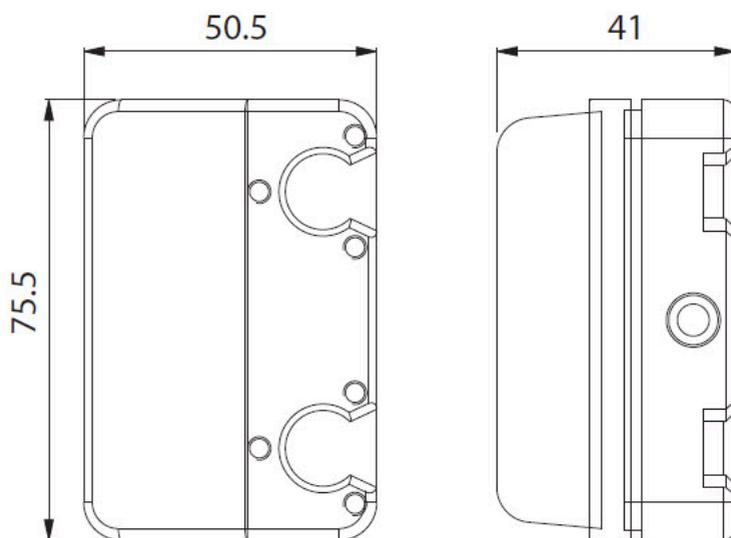
Required force

Minimum required force for proportional driving is 100 g.

Maximum allowed force on the pads is 20 kg.

mo-vis

moving forward together

Go to our website for more information on our products or share your experience with us via email.