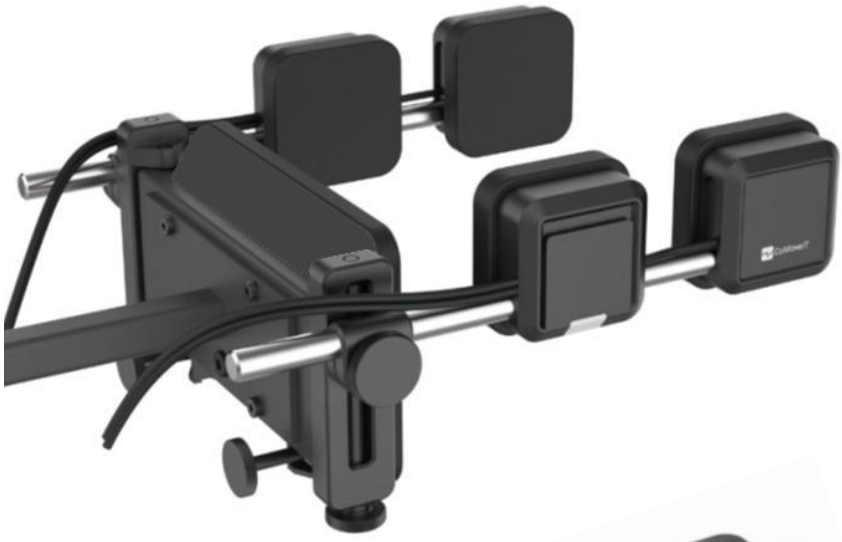
EN

CoMoveIT

CoMoveIT Flex

Specialty Input Head-Foot Control Device for Powered Wheelchairs



Instructions for Use

How to contact CoMoveIT?

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Important information about these Instructions for Use

Congratulations with your CoMoveIT product!

Before using this product, it is important to read these Instructions for Use and in particular the Safety Instructions. They also contain important safety and maintenance information, as well as describe how to use the product in the best way.

Make sure to store these Instructions for Use for future reference.

We sincerely apologize for any inconvenience caused, as the instructions for use are currently not accessible to visually impaired individuals.

All information, pictures, illustrations, and specifications are based upon the product information that was available at the time that these Instructions for Use were printed. Pictures and illustrations that are found in these Instructions for Use are representative examples and are not intended to be exact depictions of the various parts of the product. CoMoveIT reserves the right to make changes to the product without prior notice.

Ordering of documentation

If you need another copy of this Instruction for Use document, it can be ordered from CoMoveIT via info@comoveit.com, by asking for item CM0020-IFU-EN.

You can find the latest version of this document on www.comoveit.com. To obtain a paper version, contact CoMoveIT.

Serious incidents

SERIOUS INCIDENTS
In case of adverse or serious incidents causing human injury, this should be reported as soon as possible to CoMoveIT (vigilance@comoveit.com) or your local distributor, and to the competent authority of the Member State in which the user is established.

Support, scrapping and spare parts

Technical support

In the event of technical problems, contact your local distributor or CoMoveIT at +32 477 88 01 75 or via info@comoveit.com.

Always state the Reference and Serial Number of the product to ensure that the correct information is provided.

Scrapping

Contact your local distributor or CoMoveIT for information about scrapping agreements in force.

⚠	CAUTION
Follow the local waste legislation for scrapping. Dispose of obsolete electronic parts responsibly in accordance with local recycling regulations.	

Spare parts and accessories

Contact your local distributor for information about and to order spare parts consumables or accessories.

Warranty

CoMoveIT warrants CoMoveIT Flex to be free from defects in material and workmanship for a period of two years under proper use, care and service.

All warranties will cover parts only and do not extend beyond the initial purchaser from an authorized CoMoveIT dealer. Normal wear and tear and consumables are always excluded from the warranty.

Commencement of Warranty Period

The warranty of CoMoveIT Flex begins on the date that the product is first delivered to the customer, or forty (40) days from the date that the product is shipped to the authorized distributor by CoMoveIT, whichever comes first.

Repair or Replacement

For warranty service, customers should contact the authorized distributor from whom the product was purchased. In the event of a defect in material or workmanship, the distributor must obtain a return authorization number from CoMoveIT, and the product must be shipped to a service center designated by CoMoveIT. CoMoveIT will repair or replace any product covered by the warranty. This warranty does not include any labor charges or shipping charges incurred in replacement for installation or repair.

Amendments

No person is authorized to change, extend, or waive the warranties of CoMoveIT. Warranty shall only be extended as necessary to comply with state laws and requirements.

Voiding of Warranties

The above-mentioned warranties are depended to proper use, maintenance, and care of the product. The warranty will be void if the product has been used improperly or if it has been repaired or any part replaced by persons other than CoMoveIT or an authorized CoMoveIT distributor.

The addition of equipment, peripherals or features that are not manufactured or recommended by CoMoveIT could affect the intended function of CoMoveIT Flex product.

The use or installation of equipment not issued or accepted by CoMoveIT invalidates the warranty.

Safety Rules

General

Read the Instructions for Use carefully, paying particular attention to the safety instructions and the warning texts.

Follow the recommendations in the Operation section carefully in order to prevent the risk of accidents from use.

All alterations to and interventions the product must be performed by a qualified service engineer. In case of doubt, always contact CoMoveIT or a qualified local distributor.

All information and specifications included applied at the time of delivery of this product. CoMoveIT reserves the right to make changes without prior notification. These Instructions for Use are related to Installation Instructions CM0020-INST--XX.

Warning labels

These Instructions for Use utilize the following warning labels, which are intended to draw attention to situations that could lead to unwanted problems, personal injury, or damage to the wheelchair, etc.

⚠ CAUTION
Please use caution where this symbol appears. A situation could result in minor or moderate injury.

⚠ WARNING!
Please use extreme caution where this warning symbol appears. Failure to observe warnings can lead to serious injury or death.

General Warnings and Cautions

⚠ WARNING!
Do not attempt to operate a powered wheelchair with the CoMoveIT Flex without the assistance, training and permission from a qualified healthcare professional.

⚠ WARNING!
The wheelchair must be fitted with an emergency stop function that is within the reach of the attendant. Users who are unable to operate an emergency stop button should have an accompanying person with them at all times.

⚠ WARNING!
Stop using the device immediately if it is behaving abnormally or erratically.

⚠ WARNING!

The device may inadvertently activate when exposed to rain, causing the wheelchair to drive in an unintended manner, creating a dangerous situation.

⚠ WARNING!

Electromagnetic Compatibility (EMC)

This product complies with the limit values for Electromagnetic Compatibility (EMC) with respect to powered wheelchairs, as set out in ISO 7176-21.

This device can disturb the operation of devices in its environment that emit electromagnetic fields (e.g. alarm systems, automatic doors, etc.).

The driving performance of this device can be influenced by electromagnetic fields (e.g. those emitted by electricity generators or high-power sources).

⚠ WARNING!

Do not bump against other objects, do not compress or squeeze any parts of your device.

⚠ WARNING!

Do not use the footpads if the top layer is damaged or worn out. This may cause inadvertently activation, causing the wheelchair to drive in an unintended manner, creating a dangerous situation. Visible and palpable damage indicates the need for replacement. Replacement can be done by qualified personnel.

⚠ WARNING!

In case of critical fault, the device may come to a sudden stop at any time during operation.

⚠ CAUTION

CoMoveIT accepts no liability for personal injury or property damage that may arise from the failure of the users to follow the indications, recommendations, warnings, cautions, and instructions given in this Instructions for Use document.

⚠ CAUTION

Do not press the head pads and footpads of your device using sharp objects. This will affect the operation.

⚠ CAUTION

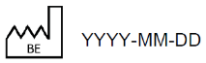
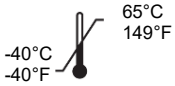
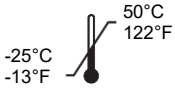
Obsolete parts of CoMoveIT Flex should be responsibly disposed according to local recycling regulations.

⚠ CAUTION

The head array of CoMoveIT Flex may be affected by extreme force applied by the user. The maximal forces applied in the head array in any direction are specified by CoMoveIT to be up to 170 newtons.

List of Symbols

All symbols used in the labeling of CoMoveIT Flex are in accordance with ISO 15223-1:2021 Medical devices

Symbol	Description	Symbol	Description
	Consult instructions for use or consult electronic instructions for use		Keep away from rain
MD	Medical device		Protect from heat and radioactive sources
	Manufacturer		Handle careful to avoid damage
 YYYY-MM-DD	Country and date of manufacture		Don't used if the package is damaged or opened and consult instructions for use.
REF	Product reference number	CH REP	Authorized representative e.g. for Switzerland
LOT	Batch number		Local distributor
SN	Serial number		Don't discard as unsorted waste, send to separate collection facilities for recovery and recycling
 65°C 149°F -40°C -40°F	Storage temperature range	CE	Conformity with European health, safety, and environmental protection standards.
 50°C 122°F -25°C -13°F	Operating temperature range	IP41	Protection against solid foreign objects ≥ 1 mm and against vertically falling water drops (IEC 60529).
UDI	Unique device identifier		
UDI (01) (11) (21)	(01) Global Trade Item Number (10) Batch number: 6-digits: YYMM and 2-digit number (11) Date of Manufacture: 6-digit indicating year, month and date in the following format: YYMMDD. (21) Serial Number: 9-digit number		

Intended Use

CoMoveIT FLEX is intended to be used as a specialty input control device for powered wheelchairs. CoMoveIT FLEX allows users to control their powered wheelchair with their head or head and feet.

CoMoveIT FLEX captures pressure applied by the user on the head array and foot pads of the device and translates them into driving commands for the powered wheelchairs.

Moreover, CoMoveIT FLEX adapts in real time the required by the user pressure in order to activate the wheelchair control command. CoMoveIT FLEX offer multiple degrees of freedom for the adjustment of the head array. CoMoveIT FLEX is configurable via the user interface of the electronics control unit.

Intended User Group

CoMoveIT FLEX is intended to be used in adult and pediatric power wheelchairs for people who lack the ability to control the powered wheelchair via conventional means such as joysticks, chin controls and conventional head controls.

CoMoveIT FLEX is intended to be used by people diagnosed with Dyskinetic Cerebral Palsy (DCP), Multiple Sclerosis (MS), Amyotrophic Lateral Sclerosis (ALS), Tetraplegia, Spinal Cord Injuries (SCI) and other complex movement disorders.

Contraindications

CoMoveIT Flex must not be used by individuals who have a severe mental disability, and are not able to follow and understand basic instructions, are diagnosed with severe visual impairment, or suffer from severe epilepsy. The user must be able to estimate and correct the results of actions when operating the wheelchair.

Environmental Conditions

Operation

- Operating temperature range: -25°C to 50°C // -13°F to 122°F
- Relative humidity: 10% and 90%.

⚠	**WARNING!**
Do not use the device under rain. To assure the water ingress level of the electronic control unit, always leave the connection protection in place.	

Storage

- Recommended storage temperature range: room temperature
- Maximum temperature range: -40°C to 65°C // -40°F to 149°F
- Keep dry
- Keep away from sunlight and sharp objects.

Always conduct a functional check before using your device after a long-term storage.

Device Description

General

CoMoveIT Flex consists of a head array with five sensor pads and an electronic control unit (ECU), optionally combined with one or two footpads, each equipped with a forefoot and heel sensor. The sensors detect user-applied pressure and translate it into driving and other control commands for a powered wheelchair.

Identification of parts

Item picture	UDI (part number / GTIN), Product name, description
	**UDI : 05430002911106** **CoMoveIT Flex**: • Head array with 5 head pads with pressure sensors • Electronic Control Unit (ECU) • DB9 cable for connection with wheelchair interface • Vertical adjuster for head array mounting
	**UDI: 05430002911113** **CoMoveIT Flex F**: Footpad with pressure sensor under front and heel of the foot. (to be purchase separately from CoMoveIT Flex)
	**UDI: 05430002911045** **CoMoveIT Smart dF**: Dummy footpad, without sensor or cable. (to be purchase separately from CoMoveIT Flex)
	UDI: 05430002911137 **CoMoveIT Flex dF**: Dummy footpad, without sensor or cable. (to be purchase separately from CoMoveIT Flex)
	**UDI:** 05430002911069 **Head array Mounting Clamp:** Mounting clamp for fixation and height adjustment – Fit for a.o. Permobil powered chairs. (to be purchase separately from CoMoveIT Flex)
	**UDI:** 05430002911090 **Head array Mounting Clamp S:** Mounting clamp for fixation and height adjustment – Fit for a.o. Sunrise Medical powered chairs. (to be purchase separately from CoMoveIT Flex)

Note: Only specified products shall be used with the device.

Features

Head control or head-foot control with up to 9 sensors: The system can be configured based on the abilities of the user. The head array holds 5 sensors and each footpad holds 2 sensors. The function of each sensor is assigned by plugging its cable in one of the 10 potential inputs on the ECU.

Sensor positioning: The position of sensors on the head array can be adjusted in a high number of ways to optimize operation and comfort of the user.

Driving and non-driving functions: besides driving commands forward, reverse, left and right, the user can select “User Switch” to open the controller menu (e.g. to adjust seating position). Also “Out select” to change from driving mode to output port control or “Relax” to change from driving mode to sleep mode can be selected.

Electronic Control Unit (ECU): this central control unit has 10 input for the sensors, 2 output ports for external devices and the output to the wheelchair controller. The ECU includes:

- **A User Interface** providing access to mode selection, sensitivity adjustment and system settings.
- **Sensitivity adjustment** for each sensor. The sensitivity range can be set individually, defining the minimum required and maximum permitted force to activate the assigned function.
- **Adaptive algorithm**: an advanced real-time and continuous adaptation, taking short and longer term driving patterns into account, results in limitation of pathological high tone.
- **Selectable switched or proportional control**: Switched operates at a defined speed. Proportional control transfers increasing pressure into increasing driving speed.
- **Two output ports** to connect external devices like communication tools, home automation and gaming controllers. The driver can switch from driving to output control and back. An attendant can also activate the other output port on the ECU menu.

Installation

⚠	CAUTION
The Installation of CoMoveIT Flex has to be done by qualified personnel and according to the Installation manual which can be downloaded from www.comoveit.com	

⚠	CAUTION
Installation should only be done by individuals familiar with the process as there may be multiple mounting and fastening tools used to secure the product.	

⚠	CAUTION
Don’t use the product or the wheelchair and contact your local distributor in case the installation has not been completed or in case of problems after installation.	

⚠	CAUTION
All elements of the system should be fitted in a stable and proper way, avoiding damage of any part, cables or sensors. The head arrays needs to be solid for use, footpads need to be attached with Velcro on the footplate and stable. Contact your local distributor in case of doubt.	

In short, installation steps:

- Mechanical installation
- Wheelchair controller programming

- CoMoveIT Flex ECU connections and set up for use as described below.

Compatibility

CoMoveIT Flex works with PG Drives Technology R-net OMNI2 (including related like Permobil Power Platform), Q-Logic 3 EX Enhanced Display, Curtis Instruments AG Display Module and Dynamic Controls LiNX IN 500.

If only 3 driving commands forward, left and right are used, the wheelchair controller shall be configured in 3-axis proportional driving. If also reverse is used as separate command, the wheelchair controller shall be configured in proportional driving.

⚠	**CAUTION**
The powered wheelchair must always be programmed for proportional driving. Selection between proportional and switched driving is done via the user interface of FLEX.	

⚠	**CAUTION**
Programming of compatible wheelchair control systems should only be done by qualified personnel and in accordance with the specifications, requirements and safety rules defined in the installation manuals of the control system.	

Removal

⚠	**CAUTION**
It is recommended that the removal of the product is done by qualified personnel and according to the Installation manual which can be downloaded from www.comoveit.com	

In short, removal steps:

- Switch off the wheelchair.
- Remove tie wraps and disconnect all cables.
- Remove the head array, the foot pads and the ECU.

Operation and Set up for Use

⚠	**WARNING!**
Do not use the device under rain.	

⚠	**WARNING!**
Do not attempt to operate a powered wheelchair with the CoMoveIT Flex without the assistance, training and permission from a qualified healthcare professional.	

⚠	**WARNING!**
The wheelchair must be fitted with an emergency stop function that is within the reach of the attendant.	

⚠ WARNING!
The attendant or healthcare professional is expected to interpret the abilities of the user in terms of speed, any of the functionalities, cognitive and mental ability to use a powered wheelchair, in particular the safety mechanisms such as on/off button or an emergency button.

⚠ WARNING!
CoMoveIT FLEX is not appropriate to use during car transportation of the powered wheelchair.

⚠ WARNING!
Do not cover the head array and foot pad.

⚠ CAUTION
CoMoveIT Flex is designed for both indoors and outdoors use. For use indoors, normal care should be observed. Outdoors you must remember to move very slowly on steep inclined terrain and be extremely careful when moving over uneven surfaces. Consult the wheelchair's instruction manual for more information on the wheelchair's driving rules.

⚠ CAUTION
Do not use sharp objects on the display or the surface of the ECU to avoid damage.

Using the CoMoveIT

Before using CoMoveIT Flex for the first time, it is advised that the provider assists and explains the different possibilities and options to the user and/or the attendant. If you are unsure how to use your CoMoveIT Flex to control your powered wheelchair, it is advisable to consult your healthcare provider or local authorized distributor.
It is important that the user and the attendant are fully aware of how to use the system and the possible adjustments to optimize the use experience.
It is recommended, prior to using your CoMoveIT Flex in public places, crowded places, or in tight driving situations, that you try it out several times in an open space area that is familiar to you, so that you become comfortable with how your CoMoveIT Flex operates.
Please inspect your device following the Maintenance section.

⚠ WARNING!
Turn off the wheelchair prior to entering or exiting the wheelchair.

Basic functionality for the driver:
Some of the below mentioned functions might not be possible for all wheelchair users. The feasible configuration is determined together with qualified personnel.
A sensor connected to input X on the ECU is referred to as *input X* sensor (e.g. *Relax* sensor).

Driving the wheelchair	• Apply pressure on the sensors on the head array and potentially in the footpads, which have been given driving functions, to drive forward and backward and to turn the wheelchair left and right. Combine forward/reverse with turning to veer. • Release any pressure from these sensors to stop wheelchair movement. • Operational forces can range between 50 gr and 15kg, depending on the sensitivity settings on the ECU. ⚠ **CAUTION** When the wheelchair is programmed for latched driving, it may be necessary to activate a reset switch. Contact your provider for more details.
Speed control	• When the driving type is “Proportional”: press harder to drive faster • When the driving type is “Switched”, the wheelchair drives at a predefined speed.
Controlling external devices:	• Select External mode by pressing the *Out Select* sensor. This will allow you to use the different sensors to control functions of the external device.
Putting the wheelchair to sleep mode	• Press the *Relax* sensor. All sensors except this one will not respond until you exit the relax mode by pressing the *Relax* sensor
Use wheelchair operating modes like Seating adjustment	• Press the *User Switch* sensor to access the wheelchair controller modes. Navigate to e.g. seating with the *Forward* sensor and select with the *Right* sensor • Functions are typically Seating, Bluetooth device control, and infrared device control, as programmed by your provider.

Advanced functionality, configuration and set up

Qualified personnel can tailor the operation to the individual needs, according to the following sections:

Defining the configuration	➔ See ‘ECU connections determining the configuration’ (below)
Optimizing the position of the head support	➔ See ‘Head array adjustments’ (below)
Using the Electronic Control Unit: Set up and use.	➔ See ‘ECU User Interface’ (below)
Change the Operating Mode	➔ See ‘Operating Modes’ (below)
Adjust the sensor sensitivity	➔ See ‘Sensitivity settings’ (below)
Adjust system settings	➔ See ‘System settings’ (below)
Defining the wheelchair modes and parameters by programming the wheelchair controller.	➔ See Installation Manual and Instruction for Use of the wheelchair

ECU Connections determining the configuration

⚠ **CAUTION**
Handle the connectors and cables of the device elements with care.

Inputs (top)

Connect the sensor cables with their jacks to the ECU input according to the desired configuration: the sensor gets the function as indicated on the ECU (see below).

E.g. connect the back head sensor to Rev 1 to drive backwards when applying a certain pressure on the back head sensor.

⚠ CAUTION

Message codes might appear when (un)plugging jacks. Press OK to clear the message. If it returns, contact your qualified distributor. The sensor or cable might be damaged.

⚠ CAUTION

Do not insert jack plugs from any other devices like buddy buttons (won't work), head phones,… to avoid damage.

⚠ CAUTION

Do not insert jacks plugs of the head array and footpad to other devices (laptops, phones,…. to avoid damage)

⚠ CAUTION

Use only jack cables provide by CoMoveIT. Third-party cables might affect the functionality of your device.

⚠ CAUTION

Remove the protective cover, before connecting a jack. If the sensor connections are not used, always place or keep the protective covers in.

→	Forw 1	Connect the sensor for driving forward
→	Forw 2	Connect the sensor for driving forward (identical as Forw 1)
→	Left1	Connect the sensor for left turn
→	Left 2	Connect the sensor for left turn (identical as Left 1)
→	Right 1	Connect the sensor for right turn
→	Right 2	Connect the sensor for right turn (identical as Right 1)
→	Rev 1	Connect the sensor for reverse driving
→	User switch	Connect the sensor for user switch
→	Out select	Connect the sensor for change from driving to output channel
→	Relax mode	Connect the sensor to go in relax mode

Practical example of input configuration with a head array and one footpad:

- Forw 1: connect the sensor of the front of the right footpad
- Forw 2 - not used

- Left 1: connect the left side pad most to the back
- Left 2 - not used
- Right 1: connect the right side pad most to the back
- Right 2 - not used
- Rev: connect the back head sensor
- User Switch: connect right side pad most to the front
- Out select - not used
- Relax: connect left side pad most to the front

In this example,

- the user will be able to drive forward by pressing on the right foot pad with the front of this foot. The sensor in the heel of the footpad is not used.
- The user will be able to turn left by pressing the rearmost left side pad and to turn right by pressing the rearmost right side pad.
- The user will be able to put the wheelchair in and out of the relax/sleeping mode by pressing the most front left side pad once.
- The user will be able to go in and out the user menu by pressing the most front right side pad once.
- The user will be able to drive backwards by pressing on the back head pad.
- The inputs FORW2, LEFT2 and RIGHT2 are not connected in this case. If they would be, the connected sensor will also act as respectively forward driving, turning left and turning right, just as if it was connected to the same numbered 1. The purpose of these second inputs is to allow the user to use two locations as input sensor, e.g. connecting the front and the heel of the footpad to FORW1 and FORW2 will allow him to drive forward when pushing on the front or on the heel or on both at the same time.

Outputs (bottom):

Connect the DB9 output with the wheelchair controller with the provided DB9-DB9 cable.

Connect a DB9 output OUT1 or OUT2 to an external device (e.g. gaming controller, home automation controller) to control it with the CoMoveIT Flex. Additional cables e.g. DB9 to jacks needs to be purchased separately for this. *The external device will need to be set up for correct operation of the controls.*

⚠ CAUTION

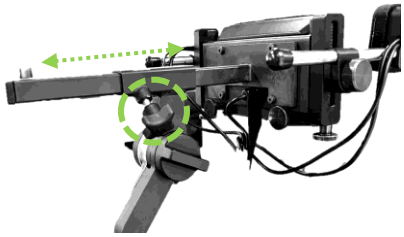
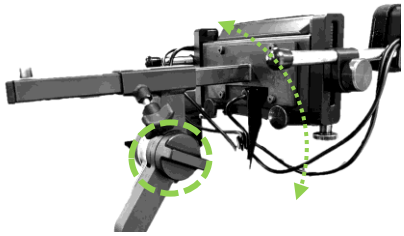
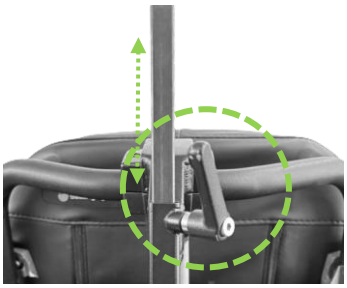
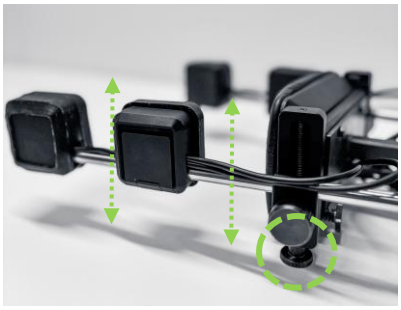
Don't connect the output to non-compliant devices.

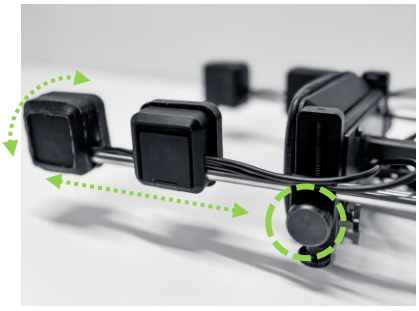
	To control	Connect the wheelchair controller with the provided DB9 cable. Make sure to fix the screw of the DB9 connector to avoid error messages. **⚠ CAUTION** Use only the DB9 cable provided by CoMoveIT. Third-party cables might affect the functionality of your device. **⚠ CAUTION** Remove the protective cover, before connecting a DB9 cable. If the output connections are not used, always place or keep the protective covers in.
	Out 1	Connect to an external device
	Out 2	Connect to an external device

Practical example of setting up OUT1 and OUT2:

A wireless unit of a home automation control system is connected to OUT 1, allowing the wheelchair driver to control window blinds independently. For this, the user switches from driving to this system, by pressing the *Out Select* sensor. To return to driving mode, the user presses the same sensor again.
When the wheelchair user wants to play a computer game, an attendant connects the a game controller to OUT 2 and has to select “OUT 2 ACTIVE” in the menu. To go back, the attendant disconnects any wires, selects OUT1 ACTIVE as default output. Remark that leaving OUT2 ACTIVE would allow the user only to switch between driving and OUT 2, not reaching OUT 1.

Head array adjustments

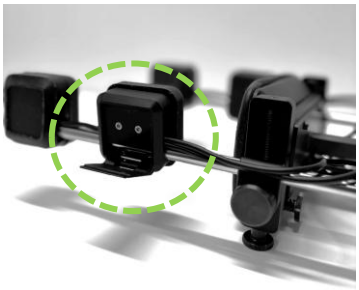
	Use the rotary knob or lever to move the head array more to the front or to the back
	Use the rotary knob to change inclination ⚠ **CAUTION** Do not overtighten the rotary knob to avoid damage.
	Use the lever to change the height of the head array.
	Use the rotary knobs at bottom side to change the height of the side pads.
	Use the rotary knobs at the back to change the opening angle of the side pad bar.

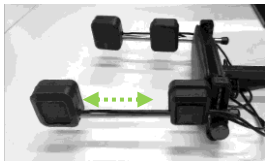


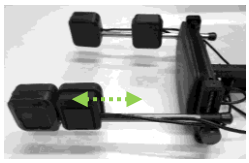
Us the rotary knob at the side to rotate the bar around its axis or to slide it more to the front or to the back.

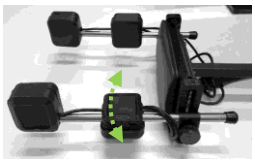
⚠ CAUTION

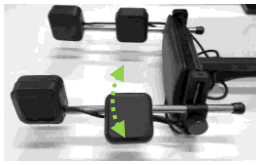
Do not try to rotate the bar when the rotary knob is tightened. This might damage your device.











Open the lever to rotate the rearmost side pad or to slide it along the lateral bar.

⚠ CAUTION

Do not force any adjustment of the rearmost side pad when the lever is locked. This might damage your device.

⚠ CAUTION

Forcing any of the adjustment mechanisms to move other than as described above might damage the locking mechanisms.

⚠ CAUTION

Ensure that all adjustment mechanisms are locked before use.

ECU User Interface

After power up the User Interface will start in a “**status”** screen.

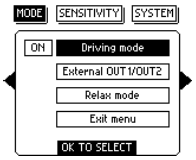
Menu

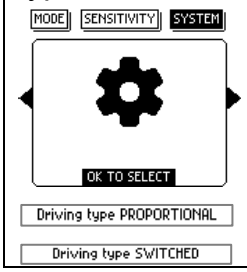
Status → OK → Menu

- **Mode:** select the active operating mode. The currently active mode is indicated. Mode changes take effect immediately after confirmation.

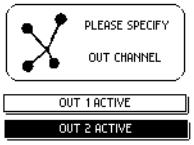
	• **Sensitivity**: to adjust sensor activation levels within defined limits. User-level settings are stored when confirmed. • **System**: to configure device settings, including driving type selection, audio feedback, Out Select activation time, password protection, and system information. Access to advanced (master) settings requires appropriate authorization.

Modes

	Status → OK → Menu → MODE "ON" = active. OK to exit → Status Possible operating modes are Driving, External and Relax.

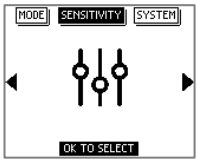
Driving Mode Driving mode	Status → OK → Menu → MODE → Driving mode
How does it work?	• Sensor pressure is converted to driving commands and control of the wheelchair user switch. • Pressing the sensor connected to any forward (left/right) input will lead to forward driving (left turning/right turning) of the wheelchair. • Pressing the sensor connected to reverse input will lead to reverse driving. • Combined movements are possible. • For directions with two channels (e.g. Forward 1 and Forward 2), the system selects the higher of the two values as command. • For opposing directions (e.g. Forward and Reverse), the resulting output is based on the difference between the two inputs. • Depending on the selection of the driving mode, the speed will remain the same or the speed will change in accordance with the applied pressure. • Stop pressing to stop the active command.
How to change the driving type? 	Status → OK → Menu → SYSTEM → OK The indicated driving type is active. Press < > to toggle the driving type: • **Proportional** control transfers increasing pressure to increasing driving speed. • **Switched** control operates at a defined, fixed driving speed.

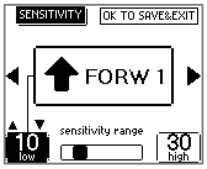
External Mode: External OUT1/OUT2	Status → OK → Menu → MODE → External OUT1/OUT2 *or* Press *Out Select* sensor for a configurable duration (short activations do not switch the operating mode).
How does it work?	• The status screen will show the active output

	• All sensor inputs (except *Out Select* and *Relax*) are used exclusively to activate external device controls. Any wheelchair movement is disabled. • *The external device needs to be set up for correct operation of the controls.*
How to change which output is active? 	Status → OK → Menu → MODE → External OUT1/OUT2 → Select OUT X ACTIVE → OK • The selected output will be active and is also the one that the driver is able to select with the *Out Select* sensor. ⚠ **CAUTION** When OUT CONTROL is active, the wheelchair interface keeps displaying the Drive Profile or Mode, but your Flex does not control the wheelchair.

Relax Mode	Status → OK → Menu → MODE → Relax mode *or* Press the *Relax* sensor to bring the wheelchair to sleeping mode.
How does it work? 	• The status screen will show the relax mode status. • The wheelchair is brought into its sleep state. All sensor inputs are ignored (except the *Relax* sensor itself). • While going into Relax mode and depending on the programming of the wheelchair controller, the wheelchair user switch menu might be temporarily active before entering the sleep state. • If audio feedback is enabled, sensor activation results in an audible indication confirming that the input is blocked.

Sensitivity settings

	Status → OK → Menu → SENSITIVITY The sensitivity of each individual sensor can be set in the ECU menu.
How does it work?	• Applying a sensor pressure between the set low and high value will lead to activation of the function of that input. • In proportional driving type, the force applied just above “low” will lead to lowest speed, while a force applied just below “high” will lead to the highest speed. • Excessive pressure, for instance by hyperextension, on forward or reverse driving will stop the wheelchair.
How to set up? 	Status → OK → Menu → SENSITIVITY → OK • Enter user password if requested: Press 5x > + OK • Press < > to select the sensor input (e.g. FORW 1). • “low” shows the threshold from where the function will be activated; • “high” shows the threshold below which the function will be activated. • The values can be 1-99, ○ 1 indicating the lowest possible activation force (highest sensitivity),

	○ 99 indicating the highest possible activation force. ○ Only force applied between the low and high value, will activate the function. • One or multiple inputs can be set, OK to save and exit → SENSITIVITY **Note: Leaving any screen untouched for 1 minute will result in loss of changes in the settings.**
Determining the value	• Set the low value to a level that allows comfortable activation but avoids unintended activation by rest position for instance. Practically, increase the low value until you find the rest point for that sensor position. If the activation seems to be reached too easily, the low value needs to be increased for that sensor input. • When in proportional control: Set the high value to define the highest force level that a user has to apply to achieve the full proportional speed range. Practically, bring the high value down step by step, still allowing the user to drive the highest speed in a comfortable way. • Set the high value to define a safety level at excessive pressure: any pressure to a certain extent higher than the set high value on the forward and reverse driving function will stop of the wheelchair movement. • In case the applied force doesn't activate the wheelchair, decrease the low value unit the lowest force is found, increase the highest value so the overpressure safety stop is not activated all the time. Master settings of the sensitivity can be restored at all times via the SYSTEM tab (see further).

Practical example

- Forw 1: connect the sensor of the front of the right footpad, sensitivity low = 15
- Forw 2 - not used
- Left 1: connect the left side pad most to the back, sensitivity low = 5
- Left 2 - not used
- Right 1: connect the right side pad most to the back, sensitivity low = 5
- Right 2 - not used
- Rev: connect the back head sensor, sensitivity low = 50
- User Switch: connect right side pad most to the front, sensitivity low = 25
- Out select - not used
- Relax: connect left side pad most to the front, sensitivity low = 25

In this example,

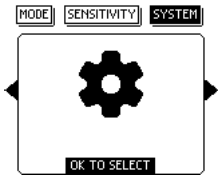
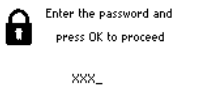
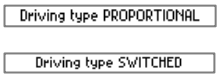
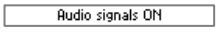
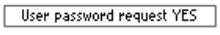
- The rest point of the right foot is just below 15, the rest point of the back of the head is just below 50. In order not to activate the user switch and the relax mode by a too soft touch, the low value is set to 25.
- These values are indicative only and need to be determined per user.

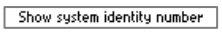
Note:

CoMoveIT Flex executes an advanced real-time and continuous adaptation, taking short and longer term driving patterns into account. This has impact on the actual threshold that are active after a certain period of use. The actual range limits might be brought lower or higher as a result of the algorithm taking the user's movement pattern into account. This feature is key to limit pathological high tone and to resolve challenges in case of evolution of the movements or forces executed by the user.

All adapted values are reset to the set values in the SENSITIVITY menu, each time there is any value changed in that menu.

System settings

	Status → OK → Menu → SYSTEM
	OK → Enter user password if requested: Press 5 times > + OK
Driving type  	The indicated driving type is active. Press < > to toggle the driving type → OK to save and exit • **Proportional** control transfers increasing pressure to increasing driving speed. • **Switched** control operates at a defined, fixed driving speed.
Audio signals  	Press < > to toggle between ON and OFF → OK to save and exit The volume cannot be adjusted. Audible feedback does not affect device functionality. Distinct audible signals are used to indicate system conditions: - Error: triple beep - Sensor press in Relax: single beep
Out select channel delay 	Indicates how long the user needs to press the out select to toggle between driving mode and external mode. Press < or > to change the duration between 1,0 and 9,9 seconds → OK to save and exit
User password request  	The device supports a user password and a master password, entered using predefined button sequences. Press < or > to toggle ON and OFF → OK to save and exit When ON, the password is required for SENSITIVITY and SYSTEM access. Master settings will always require the master password. Passwords cannot be changed. • **User password:** Press 5x > + OK • **Master password:** *only released to authorized CoMoveIT partners*
Purpose of the user password request	• When the user expects people to enter the ECU menu and potentially change values without knowledge or unintentionally. • It is recommended to activate the user password when not in a configuration or set up activity.

Show system identity number 	This section displays the identity of the device, including the device serial number in the last 8 characters and the software version.
Master settings 	OK → enter password There are two functions under this title. 1) When entering the user password, it allows to restore the master settings. We recommend to restore the master settings when the settings at delivery were changed to a status where you lost the reference point. OK → Enter user password → OK → RESTORE → OK → RESTORE → OK 2) Entering the master password allows access to the Master mode, which are meant to be set by CoMoveIT or CoMoveIT's authorized distributor at installation of the device. Contact your local distributor if changes to the master settings are needed. **See installation manual for set up of the Master mode.**
Save and Exit 	OK to save and exit system settings

Maintenance

⚠ WARNING!
In case excessive wear of any of the pads, it is mandatory to contact your local authorized dealer and have the worn parts replaced.

Maintenance is important for the safety and performance of your CoMoveIT Flex.

Perform a monthly inspection to ensure that:

- All rotary knobs are in place and in good shape.
- All bolts and screws are tightened.
- All cabling and connectors are undamaged and connections are tight.
- There is no excessive wear to any parts of the device, especially the pads of the head array and the top layer of the foot pad(s).
- The fixation Velcro of the footpads offers an adequate grip.

Let your local distributor perform a yearly check of the wheelchair and the subsystems.

Cleaning

⚠ WARNING!
Never spill water or use a water hose to clean CoMoveIT Flex parts to avoid damage.

⚠ WARNING!
Do not clean the device while in use by the patient.

⚠ CAUTION
Do not use aggressive cleaning agents or additional lubricants.

⚠ CAUTION
Water might affect the operation of sensors. Make sure that all parts and surfaces are completely dry before use.

⚠ CAUTION
Cleaning contributes to the overall hygienic condition of your device, especially on the pads where your head is in contact with. Failure to clean on a regular basis, might cause excessive sweat and dirt build up on the cushions of the head array.

Metal and plastic parts	Clean with a damp cloth. In case of excess dirt concentration, a soap water solution can be used. Always wipe dry after cleaning.
Head array pads	Clean weekly with a damp cloth using water or a soap water. During hot weather conditions, clean them every day since sweat concentration might be increased. Gently, wipe dry after cleaning. ⚠ **WARNING!** In case excessive wear of any of the head pads, it is mandatory to contact your local authorized dealer and have the worn parts replaced.
Footpads	Clean with a damp cloth using water or a soap water solution. Wipe dry after cleaning. ⚠ **WARNING!** In case excessive wear of any of the foot pads, it is mandatory to contact your local authorized dealer and have the worn parts replaced.

Troubleshooting

If your device does not react as expected, check the following:

- Make sure the wheelchair, the wheelchair controller and the CoMoveIT ECU are powered on.
- Make sure that the sensors are connected to the ECU.
- Make sure that the cable between CoMoveIT Flex and the controller (e.g. Omni module) is connected, tightened and connected to the right programmed port.

If one of the components no longer works, contact your local distributor.

Trouble	Remedy
No wheelchair movement when pressing a sensor	• Check if the wheelchair controller profile is set for usage with CoMoveIT Flex. • Check if set in Driving mode. • Check if the used sensor is connected in the ECU. • Decrease the 'low' sensitivity and increase the 'high' sensitivity • Make sure the used wheelchair controller port is correctly programmed in the wheelchair controller software. • Check for damage on cable, connector or sensor pad.
Functions get activated too easily	• Increase both 'low' and 'high' sensitivity of the functions that are activated to easily. • Check for damage on sensor pad. • In case of a footpad, make sure to replace a worn footpad top layer.
Pushing to drive forward but driving backwards	• Check that the used sensor is connected to Forw1 or Forw2 in the ECU and not in the Rev input. • Push that sensor only and not the Reverse sensor at the same time – to avoid this from happening in normal use, increase the 'low' sensitivity for the Reverse sensor. • Check the programming of the wheelchair controller (joystick axis, motor swap)
Pushing to the right turns left and/or vice versa	• Check that the used sensor is connected correctly • Check that the head array is mounted with the ID label on the bottom • Set the head array side bar in a higher position and tilt the side pads, or don't connect the rearmost side pads.
Glasses hinder to push the side pads	• Use the bottom rotary knob to position the side pads higher.
Side pads are loose on the bar	• Check that all adjustment clamps and rotary knobs are tightened. • If the pads remain loose, contact your local distributor for assistance.
Out select doesn't switch	• Make sure to push for a duration as defined in the setting Out select channel delay (System settings)
Hearing beeps while pushing	• When you're in Relax (sleeping) mode, beeps will be heard when pushing sensors. • When you are not in Relax mode, an error might be displayed on the ECU.
Message codes are shown on the ECU display	• Only if messages remain displayed during driving or when driving is not possible and message codes are visible, contact your local distributor for assistance. • When connecting/disconnecting a sensor, a message will appear. This automatically disappears after a minute. If it doesn't, contact your local distributor for assistance.
Error codes are shown on the wheelchair controller	• Ensure that any sensor is not pressed before or during the time you power on the wheelchair. Power cycle your wheelchair. • If the error persists, contact your local distributor for assistance.

Summary

This summary is not intended to replace complete user instructions. You must read the entire Instructions for Use before you operate your CoMoveIT Flex.

CoMoveIT Flex must not be used by individuals who have a severe mental disability, severe visual impairment, or suffer from severe epilepsy. The user must be able to estimate and correct the results of actions when operating the wheelchair.

Do not attempt to operate a powered wheelchair with the CoMoveIT Flex without the assistance and training from a healthcare professional qualified for these activities. Do not attempt to independently operate a powered wheelchair with the CoMoveIT Flex until a qualified healthcare professional gives you the permission to do so.

The wheelchair must be fitted with an emergency stop function that is within the reach of the attendant. You must stop using the device immediately if operating problems occur.

Do not use your device in rainy weather conditions. This may cause the wheelchair to drive in an unintended manner, creating a dangerous situation. Do not press the sensor pads of your device using sharp objects. This will affect the operation of the force sensors.

Programming of the controller (e.g. R-net) parameters of your wheelchair is important to be fine-tuned based on your needs and should only be conducted by skilled professionals with in-depth knowledge.

Before using your CoMoveIT Flex for the first time, you and your attendant must be fully aware of how to use the system and the possible adjustments to optimize the use experience. Connect sensors to the electronic control unit. Then, connect the electronic control unit to the Omni2 module.

To use your CoMoveIT Flex, power on you wheelchair and select the appropriate driving profile for your driving environment (e.g. indoors or outdoors). Apply pressure on the sensor pads to activate the assigned function.

Please inspect that there no damage in the following parts of your device once a month: bolts and screws, cabling, cable plugs, connectors, head cushions, foot cover, and Velcro fixations. Please clean the head array cushions, plastic and metal parts of your device with a damp cloth using water or a soap water solution once a week. Gently, wipe dry after cleaning and verify correct functioning before use.

This page is intentionally left blank.

Use this space to write potential user-specific instructions

Use this space to write phone numbers for help in case of emergency.

Your local distributor


CoMoveIT

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