

Stealth Products®



**Alternative
Drive Controls**



All-Round Heavy Duty Joystick

Owner's Manual - Maintenance Guide
mo-vis Series Multifunctional Operable Wheelchair Joystick

mo-vis

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Customer Satisfaction

Stealth Products is committed to 100% customer satisfaction. Your complete satisfaction is important to us. Please contact us with feedback or suggestions to help us improve the quality and usability of our products.

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General

Read and understand all instructions prior to the use of the product. Failure to adhere to instructions and warnings in this document may result in property damage, injury, or death. Product misuse or failure to follow instructions will void the warranty.

Immediately discontinue use if any function is compromised, if parts are missing or loose, or if any component shows signs of excessive wear. Consult with your supplier for repair, adjustment, or replacement.

All persons responsible for fitting, adjustment, and daily use of the devices discussed in these instructions must be familiar with and understand all safety aspects of the devices mentioned. In order for our products to be used successfully, you must read and understand all instructions and warnings, and maintain our products according to our instructions on care and maintenance.

The installation instructions will guide you through this product's options and possibilities.

Instructions are written with the expressed intent of use with standard configurations. They also contain important safety and maintenance information, as well as describe possible problems that can arise during use. For further assistance, or more advanced applications, please contact your supplier or **Stealth Products** at (512) 715-9995 or toll free at (800) 965-9229.

Always keep the operating instructions in a safe place so they may be referenced as necessary.

All information, pictures, illustrations, and specifications are based on the product information that was available at the time of printing. Pictures and illustrations shown in these instructions are representative examples and are not intended to be exact depictions of the various parts of the product.

 CAUTION

These products are designed to be fitted, applied, and installed exclusively by a healthcare professional trained for these purposes. The fitting, application, and installation by a non-qualified individual could result in serious injury.

Warranty

Our products are designed, manufactured, and produced to the highest of standards. If any defect in material or workmanship is found, Stealth Products will repair or replace the product at our discretion. Any implied warranty, including the implied warranties of merchantability and fitness for a particular purpose, shall not extend beyond the duration of this warranty. **Stealth Products** does not warrant damage due to, but not limited to: misuse, abuse, or misapplication of product, and/or modification of product without written approval from **Stealth Products, LLC**. Any alteration or lack of serial number, where applicable, will automatically void all warranty.

Stealth Products, LLC Is liable for replacement parts only. **Stealth Products, LLC** is not liable for any incurred labor costs. **Stealth Products** warrants against failure due to defective materials or workmanship:

Covers, Headrest Pads, Cushions: 2 years

Hardware: 5 years

Electronics: 3 years

In the event of a product failure covered by our warranty, please follow the procedures outlined below:

- Call **Stealth Products** at (512) 715-9995 or toll free at (800) 965-9229.
- Request a Return Authorization (RA) form from the Returns Department and follow the documentation instructions.

Full warranty information may be found by visiting the website at <https://stlpro.site/returns-n-warranty>, or by scanning the Warranty Information QR code located on the back cover of this manual. You can download additional copies of this manual by accessing the Stealth website (<https://stlpro.site/stealth-docs>) and searching “All-Round Heavy Duty Joystick” in the search bar at the top of the page.

Supplier Reference

Supplier:	
Telephone:	
Address:	
Purchase Date:	
Model:	

Warning Labels

Warnings are included for the safety of the user, client, operator, and property. Please read and understand what the signal words **DANGER**, **WARNING**, **CAUTION**, **NOTICE**, and **SAFETY** mean, and how they could affect the user, those around the user, and property.



DANGER

Identifies an **imminent** situation which, if not avoided, may result in **severe injury, death, and property damage**.



WARNING

Identifies a **potential** situation which, if not avoided, may result in **severe injury, death, and property damage**.



CAUTION

Identifies a **potential** situation which, if not avoided, may result in **minor to moderate injury and property damage**.

NOTICE

Identifies important information not related to injury, but possible **property damage**.

SAFETY

Indicates steps or instructions for safe practices, reminders of safe procedures, or important safety equipment that may be necessary.

Limited Liability

Stealth Products, LLC 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.

Stealth Products does not hold responsibility for final integration of final assembly of product to end user. **Stealth Products** is not liable for user death or injury.

Testing

Initial setup and driving should be done in an open area free of obstacles until the user is fully capable of driving safely.

The All-Round Heavy Duty Joystick should always be tested without any person sitting in the wheelchair until every alteration of the physical installation or adjustment of the joystick is complete.

Intended Use

The **All-Round Heavy Duty Joystick** is a joystick module which can be connected directly to the wheelchair electronics. It is a large, extremely durable, proportional joystick module which is designed for heavy duty use. It requires medium force and movement to activate (650g, 1.43 lbf). It can serve as a hand or foot joystick and has been developed for users who exert excessive force, i.e. users who exhibit spasticity or dystonia.



WARNING

The joystick operates with high sensitivity. Protect the joystick against bumps. A good movement coordination and force control is required.



WARNING

Do not use on surfaces of which you are unsure. Always follow instructions provided by the wheelchair manufacturer about driving on safe surfaces, angle of ascent, and angle of descent.



WARNING

Do not use the joystick as only support for your hand or limbs. Movements and shocks may disrupt control.

Features

The All-Round Heavy Duty Joystick is:

- Fully proportional with increased throw and force.
- Activated by 650g (1.43lb) of force.
- Linkable with one or two switches: on/off (pwr) and mode (in) with any 1.8" (3.5mm) jack.
- Equipped with an integrated interface, and a mini USB connection for configuration.
- Fully adjustable to individual possibilities.
- Easily configurable with the free mo-vis Configuration Software.
- Compatible with R-Net™, Q-Logic™, Curtis, and Pilot+.

Mounting

The All-Round Heavy Duty Joystick can be mounted at any location on the wheelchair:

- On any flat surface.
- Onto Gatlin hardware using the IDM-HDMT mounting hardware.
- Mounting utilizes a pair of m6 x 12 socket head screws.

Joystick Functions

The movements of the joystick are translated into corresponding movements of the wheelchair, driving, or menu navigation.

Common practice to navigate the wheelchair with the All-Round Heavy Duty Joystick is as follows:

- **Direction:** Point the joystick into the direction you want the wheelchair to move. The wheelchair then moves in that direction.
- **Speed:** The further you move the joystick from the default (center) position, the faster the wheelchair moves.
- **Stop:** Whenever you release the joystick, the joystick moves back to the default (center) position and the wheelchair stops.

Joystick Safety

- Do not use if the joystick handle is damaged, missing, or cracked.
- Do not use if the joystick does not return to neutral position independently.
- Do not use if the joystick does not move to a from a neutral position smoothly.

Safe Driving

It is mandatory to have a wheelchair power on/off switch which immediately shuts down the power and electronics, and is within easy reach of the user while operating the wheelchair. This will allow the user to immediately stop the wheelchair in the event a problem or an emergency should occur.

If the wheelchair should respond in an unexpected way, the user should immediately release the joystick and/or use the power switch to turn off the wheelchair.



WARNING

The on/off switch must be available to the user at all times.

All-Round Heavy Duty Joystick Package

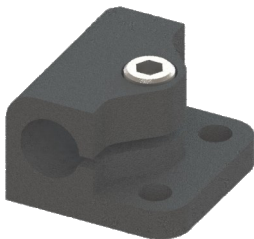
An All-Round Heavy Duty Joystick package consists of the following parts:



Product Description	Part Number
All-Round Heavy Duty Joystick set, with integrated cabling	IDM-HD

All-Round Heavy Duty Joystick Accessory

All Heavy Duty joysticks will be supplied with the IDM-HDMT mounting hardware for mounting onto Gatlin hardware. If a replacement is needed, the bracket is available to order as a separate part.



Product Description	Part Number
mo-vis Heavy Duty Joystick Mount Clamp	IDM-HDMT

All-Round Heavy Duty Joystick Unit Detail

The connections of the All-Round Heavy Duty Joystick unit have protective covers intended to prevent the intrusion of dust or moisture when not in use.



Protective covers removed, ready to insert connectors.



Protective covers in place, safe from moisture, dirt, and debris.

NOTICE

Be sure to remove the protective cover prior to attempting to insert a connector.



CAUTION

The protective covers should be left in place, or replaced, when a socket is not in use, to keep moisture, dirt, and debris from getting into the body of the joystick.

When the joystick is in use, a steady blue LED light on the front of the **All-Round Heavy Duty Joystick** indicates the unit is properly functioning.

In the case of an error, the Blue LED will flash a number of times. Please refer to "Error Codes" for a list of errors indicated by a flashing Blue LED. (Page 28)

Preparations

The All-Round Heavy Duty Joystick should only be installed by a qualified service technician.

Tools

Use a 4mm Hex wrench to install the Quick-to-Mount (Q2M) Rod, Clamp, and Multi Joystick.



CAUTION

Always use the proper tools to install or adjust the **All-Round Heavy Duty Joystick**. Failure to use the proper tools for installation or adjustment may cause damage to the device.

Installation Plan

Set up an installation plan before starting the installation. This plan should take into account:

- Where the **All-Round Heavy Duty Joystick** should be placed.
- How the **All-Round Heavy Duty Joystick** will be operated.
- The operating position of the **All-Round Heavy Duty Joystick**; Do not install the joystick in a location where its movement will be impaired or obstructed.



CAUTION

The installation must be secured with all delivered screws.
Use only the screws provided in the package.

Serial Number Sticker

The additional serial number sticker, which can be found in the joystick package, should be adhered here, to the Supplier Reference section on Page ii of this manual, or the back cover for future reference.

Installation

1. Mount the joystick with the two included M6 x 12mm bolts in the designated location.
 - Do not mount the joystick using the screw holes at the bottom of the unit.
2. Route and secure all cabling on the wheelchair.
3. If required, place a power on/off (pwr) and/or mode (in) switch, route and secure their cabling, and insert their connectors into the joystick.
4. Connect the cabling to the wheelchair electronics.



WARNING

All wheelchair electronics must be switched off when inserting or removing switches to the joystick.



WARNING

Make sure that cabling is routed and secured in a way that avoids snagging or excessive wear and tear.

Defining Position

If the **All-Round Heavy Duty Joystick** is not mounted with the USB connection pointing towards the user, you can adjust the joystick direction in steps of 90° with the mo-vis Configurator Software.

- This software must be installed and ready to use on a PC (Windows or Apple).
- Depending on your profile (User, Attendant, Dealer, OEM), you will be able to change a number of parameter settings.
- To define the movements during the installation procedure, we advise having at least a dealer profile.
- The interface box is built into the joystick, instead of being a separate device. The **All-Round Heavy Duty Joystick** is not calibrated from the factory, and only by running the diagnostic field test with the Configuration Software can the joystick be calibrated to meet the specific needs of the customer.
 - The mo-vis Configurator Software is optional to download. The joystick and its settings can be manually configured through the chair's display.



WARNING

Incorrect programming of wheelchair electronics may cause damage to the devices or injury to the user.

Defining Parameter Settings

To define the parameter settings, proceed as follows:

- Using a standard mini USB cable, connect the **All-Round Heavy Duty Joystick** to a PC.
- Configure the joystick parameters using the software.
- Upload the configuration to the joystick.
- Test the configuration settings and adjust them if needed.

Parameter Settings

Please see "Settings" for a list of all parameter settings, starting on Page 30.

Q-Logic™ Setup

Bookmark Buttons

Navigation

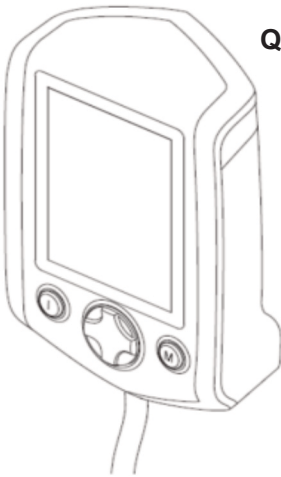
Arrows navigate the main menu. Up and Down navigate the menus, Right to open a menu item and Left to return to the previous menu.

Plus and Minus

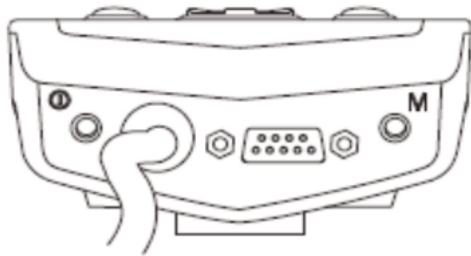
Toggle settings or changes values of the highlighted parameter

Help Button

Displays information about options selected on the display.



Q-Logic Enhanced Display



(Note: Q-Logic™ Enhanced Display and Q-Logic™ Handheld Programmer Required)

Q-Logic Setup

NOTICE

For new chairs that have never been programmed, a power cycle will need to be completed after the joystick has been calibrated and before the joystick throw can be adjusted.

Plug in the Q-Logic™ Handheld Programmer (Previous Page) to the Q-Logic™ ED (Enhanced Display) or to the standalone Joystick if the SCIM (Specialty Control Input Module - Figure 3) is in use.

On the Q-Logic™ Programmer, navigate to Program Adjustments ▢ Specialty Control ▢ Active Device.

Toggle Active Device to Proportional with the Plus & Minus (±) buttons.

Unplug the Q-Logic™ Handheld Programmer and turn off the system. The chair should now be programmed to recognize the All-Round Heavy Duty Joystick. Be sure to re-engage the motors before operation.

NOTICE

If using Q-Logic™ Specialty Control Input Module (SCIM Figure 3), you will need any type of mechanical switch to plug into the power port of the standalone joystick to power ON/OFF the chair and ensure the SCIM as master control. Q-Logic™ Programmer is required.

9-Pin Connector

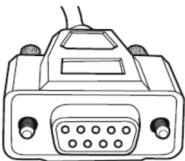


Figure 1

Q-Logic™ Drive Control System

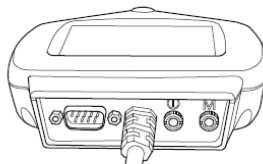


Figure 2

Q-Logic™ SCIM

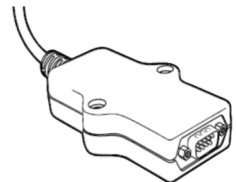


Figure 3

Q-Logic 2

Joystick Setup

1. Plug in the Q-Logic™ Handheld Programmer to the Q-Logic™ ED (Enhanced Display) or to the standalone joystick if SCIM (Specialty Control Input Module - Figure 1) is in use.
2. On the Q-Logic™ Programmer, navigate to *Program Adjustments*  *Specialty Control*  *Joystick Set Ups*  *Proportional*. Here you can fine tune joystick performance and functionalities such as:
 - *Central and Axis Deadband*
 - *Tremor Suppression*
 - *Assign Direction*
 - *Joystick Calibration and Throw*
 - *Switch Operation*

Center Deadband

The Center Deadband parameter defines how far the joystick must be moved from neutral position to engage moving the power chair. The value corresponds to the diameter of a circle around the joystick center position. No drive or menu instruction will be executed unless the joystick is moved out of this circle.

- Select *m: Center Deadband* option with the navigation's Up & Down  &  buttons, then press the Right  button.
- Use the Plus & Minus ( & ) buttons to adjust the *Center Deadband*. Adjustment ranges from 5 to 50%. Press Left  navigation button to save.

Axis Deadband

The Axis Deadband parameter defines how far the joystick has to move to be recognized. This can be helpful, if a toggle command has to be made.

- Select *m: Axis Deadband* option with the navigation's Up & Down  &  buttons, then press the Right  button.
- Use the Plus & Minus ( & ) buttons to adjust the *Center Deadband*. Adjustment ranges from 5 to 50%. Press Left  navigation button to save.

Tremor Suppression

The Tremor Suppression parameter sets a neutral range that suppresses possible tremors (trembling of hand or drive surface conditions) on the joystick. Settings from 0% to 100%.

- Follow "Joystick Setup", Steps 1 & 2, at the beginning of this section.
- Select *m: Tremor Suppression* option with the navigation's Up & Down  &  buttons, then press the Right  button.
- Use the Plus & Minus ( & ) buttons to adjust tremor suppression. To reset, set the parameter to 0%. Press Left  navigation button to save.

NOTICE

A Tremor Suppression parameter setting of 90% or higher can cause the chair to become unresponsive to short or intermittent joystick input.

Assign Direction Function

The Assign Direction Function allows you to set the axis direction, i.e., you want to change Forward (X axis 0 to 100) to Reverse (x axis 0 to -100) or Left (Y axis 0 to -100) to Right (Y axis 0 to 100). If you switch Forward to Reverse, the system will automatically change Reverse to Forward. Same with Left and Right. Parameters are measured in percent (%).

- Follow "Joystick Setup", Steps 1 & 2, at the beginning of this section.
- Select *Assign Direction* option with the navigation's Up & Down  &  buttons, then press the Right  button. Follow on-screen instructions.
- When done, press OK to save.

Switch Operations

The Switch Operations parameter causes the joystick to operate like a switch input (non-proportional). When the joystick is moved out of neutral more than 50% of the operating range, it will activate full throttle (100%) in the deflected direction. Switch operation can be set ON or OFF.

- Follow "Joystick Setup", Steps 1 & 2, at the beginning of this section.
- Select *m: Switch Operations* option with the navigation's Up & Down  &  buttons, then press the Right  button. Follow the on-screen instructions.
- Use the Plus & Minus ( & ) buttons to toggle ON/OFF. When done, press the Left  navigation button to save.

Joystick Calibration

Calibrating your joystick will set the range of motion for the axes or re-center it to improve operation.

CAUTION

A new safety feature update included with Q-Logic Programmers requires that a calibration **MUST** be performed for the joystick.

- Select *Calibrate* option with the navigation's *Up & Down*  &  buttons, then press the *Right*  button.
- The Programmer will prompt for a calibration of the joystick. Follow the directions and move the joystick through two full rotations.
- Calibration should be complete. Press *OK* to save.
- Exit the screen and power cycle the chair.

Joystick Throw

The throw is the place where the joystick yoke is stopped in any particular direction. Throw distance is the maximum distance/angle the shaft can be moved in a particular direction. The throw should be set to the maximum distance/force the individual using it is capable of producing

- Complete the Joystick Calibration section first, then proceed.
- Select *Throw* option with the navigation's *Up & Down*  &  buttons, then press the *Right*  button. Follow on-screen instructions.
- This setting will turn the power chair's system to *IDLE MODE*, press *OK* if prompted. Then follow the on-screen instructions.
- Angle the shaft with individual's maximum force. Adjust the parameters by pressing the Plus or Minus buttons  or .
- When done you will be prompted to save the new configuration. Press *YES* to save.

Q-Logic 3

Joystick Setup

1. Plug the Q-Logic handheld programmer into the back of the display.
2. On the programmer, select Program Adjustments.
3. In the Program Adjustments menu, select Enhanced Display.
4. In the Enhanced Display folder, select Input Configuration
5. With the Plus and Minus buttons ($\pm$), select Proportional
6. Use the Left navigation button  to return to the Main Menu and save.
7. Switch Operation

Joystick Calibration

1. Plug the Q-Logic handheld programmer into the back of the display.
2. On the programmer, select *Program Adjustments*
3. In the Program Adjustments menu, select *Enhanced Display*.
4. In the Enhanced Display menu, with the *Up & Down*  &  buttons, Select *Proportional Input*.
5. With the *Right* navigation button,  select *Proportional Calibration*. The programmer will read 'Roll the joystick in two full circles.' Select OK and verify that calibration was successful.
6. With the *Left* navigation button,  select back until you exit completely. Unplug the programmer and power cycle the chair.

Joystick Throw

1. Plug the Q-Logic handheld programmer into the back of the display.
2. On the programmer, select *Program Adjustments*.
3. In the Program Adjustments menu, select *Enhanced Display*
4. In the Enhanced Display menu, with the *Up and Down*  &  buttons, select *Proportional Input*.
5. In the Proportional Input folder, select *Proportional Throw*. Follow the prompts on the programmer.

Assign Direction

1. Plug the Q-Logic handheld programmer into the back of the display.
2. On the programmer, select *Program Adjustments*.
3. In the Program Adjustments menu, select *Enhanced Display*
4. In the Enhanced Display menu, with the *Up and Down*  &  buttons, select *Proportional Input*.
5. In the Proportional Input folder, select *Proportional Assign Directions*. . Follow the prompts on the programmer.

Center Deadband

1. Plug the Q-Logic handheld programmer into the back of the display.
2. On the programmer, select *Program Adjustments*.
3. In the Program Adjustments menu, select *Enhanced Display*
4. In the Enhanced Display menu, with the *Up and Down*  &  buttons, select *Proportional Input*.
5. In the Proportional Input folder, select *Center Deadband*.
6. With the *Plus and Minus* buttons ($\pm$), adjust the center deadband value.
7. Use the *Left* navigation button, , to exit the menu after selections have been made.

Tremor Suppression

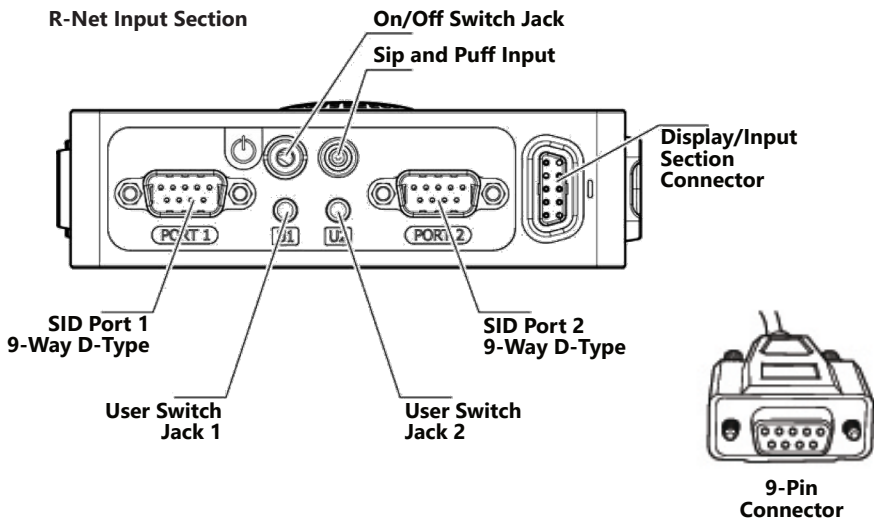
1. Plug the Q-Logic handheld programmer into the back of the display.
2. On the programmer, select *Program Adjustments*.
3. In the Program Adjustments menu, select *Enhanced Display*
4. In the Enhanced Display menu, with the *Up and Down*  &  buttons, select *Proportional Input*.
5. In the Proportional Input folder, select *Tremor Suppression*.
6. With the *Plus and Minus* buttons ($\pm$), adjust the center deadband value.
7. Use the *Left* navigation button, , to exit the menu after selections have been made.

Switch Operation

1. Plug the Q-Logic handheld programmer into the back of the display.
2. On the programmer, select *Program Adjustments*.
3. In the Program Adjustments menu, select *Enhanced Display*
4. In the Enhanced Display menu, with the *Up and Down* buttons, select *Input Configuration*.
5. With the *Plus and Minus* buttons ($\pm$), select *Proportional Switch Op.*
6. Use the *Left* navigation button, , to exit the menu after selections have been made.

R-Net™ Omni Setup

NOTICE An R-net™ programming dongle is required.



Joystick Programming

1. Plug in the R-Net™ Programming Dongle (previous page) in line with the Omni display (previous page) and chair's electronics, and then power ON the chair.
 2. Press the *Mode* button until you reach the *OBP* (Onboard Programming) menu. The *OBP* menu will appear as an hourglass while loading.
 3. With the navigation buttons, navigate to *Omni*  *Global*  *Sleep 12V*, and toggle *Sleep 12V* to *ON* with the *Plus & Minus* ($\pm$) buttons.
 4. Navigate back  to the *Omni* menu, then navigate to *Omni*  *Port 1* (or *Port 2* if the *Micro Joystick* is in *Port 2*).
 5. In the *Port* menu, toggle *SID* to *Prp* with the *Plus & Minus* ($\pm$) buttons.
 6. In the *Port* menu, navigate ($\pm$) to *Switches*.
 7. In the *Switch* menu, toggle *Switch Detect* to *Off* with the *Plus & Minus* ($\pm$) buttons.
 8. In the *Switch* menu, toggle *9 Way Detect* to *Off* with the *Plus & Minus* ($\pm$) buttons.
 9. Navigate back  to the *Omni* menu, and then navigate to *Profiled*.
 10. In the *Profiled* menu, configure a profile to use the port for the *Micro Joystick*.
 11. Power off the chair, remove the R-Net™ Programming Dongle, reconnect the Omni Display, and power on the chair.
- The chair should now be programmed to recognize the All-Round Heavy Duty Joystick. Be sure to re-engage the motors before operation.

Joystick Calibration

1. Plug in the R-Net™ Programming Dongle in line with the Omni display and chair's electronics, and then power ON the chair.
2. Press the *Mode* button until you reach the *OBP* (Onboard Programming) menu. The *OBP* menu will appear as an hourglass while loading.
3. With the navigation buttons, navigate to *System*  *Joystick Calibration*.
4. The system will ask to set each direction independently by pressing towards that specific direction. For example Forward (0 to 100), Left (0 to 100), Reverse (0 to 100), and Right (0 to 100). Figures are measured in percentage (%).
5. Calibration will be successful when the axis to the referred direction reaches its maximum and its counterpart axis is close to 0.
For example, Forward will look like: Forward/reverse 90% > left/right 3%
Left will look like: forward/reverse 5% > left/right -87%
6. When all four axes are calibrated, you will see a green check mark on screen.
7. Power off the chair, remove the R-Net™ Programming Dongle, reconnect the Omni Display, and power on the chair.

R-Net™ Proportional Joystick Setup

1. Plug in the R-Net™ Programming Dongle in line with the Omni display and chair's electronics, and then power ON the chair.
2. Press the *Mode* button until you reach the *OBP*, (Onboard Programming) menu. The *OBP* menu will appear as an hourglass while loading.
3. With the navigation buttons, navigate to *Controls* ▢ *Joystick*. Here you can fine tune joystick performance and functionalities such as:
 - *Active Throw Details*
 - *Active Orientation and Orientation Details*
 - *Deadband*

Throw

The throw is the place where the joystick is stopped in a particular direction. Throw distance is the maximum distance/angle the shaft can be moved in a particular direction. The throw should be set to the maximum distance/force the individual utilizing it is capable of.

Active Throw

- Follow first three steps shown in the Proportional Joystick Setup.
- Use the *Navigation's Up & Down* ⤿ buttons, select *Active Throw* from the list and press the *Right* (>) button. Select *Port* with the *Up & Down* ⤿ button then press *Right* (>) again to set up.
- The system will guide you through the setup, following the on-screen instructions move Joystick towards the defined direction with the maximum force possible. Press the *Plus* (+) button to save and proceed to the next step. Values range from 25% to 100%.

Throw Details

Throw Details will allow you to see all Active Throw setups for all profiles. To select profiles, move Navigation Buttons (Left or Right) (<>) and to select axis (Up or Down) ⤿. The selected axis/profile can be adjusted by increments of 1 or in increments of 10 using the Plus & Minus (±) buttons. For increments of 10, keep Plus or Minus (±) button pressed. Values range from 25% to 100%.

Axis Orientation

The Axis Orientation allows you to switch the axis behavior. For example, the X-axis (Forward/Reverse) can be switched making Forward direction Reverse.

Active Orientation

1. Follow first three steps in the Proportional Joystick Setup.
2. Use the *Navigation's Up & Down*  buttons, select *Active Direction* from the list and press the *Right (>)* button. Then press *Plus (+)* for *Port 1* or *Minus (-)* for *Port 2* to select port to set up.
3. System will prompt you to set the *Forward* (X-axis) by angling shaft. Automatically, *Reverse* will be set to opposite value. Values available: N (*North/Forward*), W (*West/Left*), S (*South, Reverse*), or E (*East, Right*).
4. Next you will be prompted to set the *Left* (Y-axis) by angling shaft. Automatically, *Right* will be set to opposite value. Values same as in step 3. Power cycle the chair.

Orientation Details

Orientation Details is similar to Throw Details, but it sets the direction of proportional controllers listed in each profile. Values are set as *Yes/No* to Invert *Forward/Reverse* (InvFR) or *Left/Right* (InvLR). To swap axis, change value on *SWAP* row either *Yes/No*. Power cycle chair.

Center Deadband

The Center Deadband parameter defines how far the joystick must be moved from neutral position to engage motors on the power chair. The value corresponds to the diameter of a circle around the joystick center position. No drive or menu instruction will be executed unless the joystick is moved out of this circle.

1. Follow the first 3 steps in the Proportional Joystick Setup.
2. Use the *Navigation's Up & Down*  buttons, select *Deadband* from list and press *Right*  button.
3. To select port, use navigation buttons *Left/Right* (<>). When in desired position, press *Plus* or *Minus* ($\pm$) buttons to increase or decrease value. Values range from 10% to 50%.

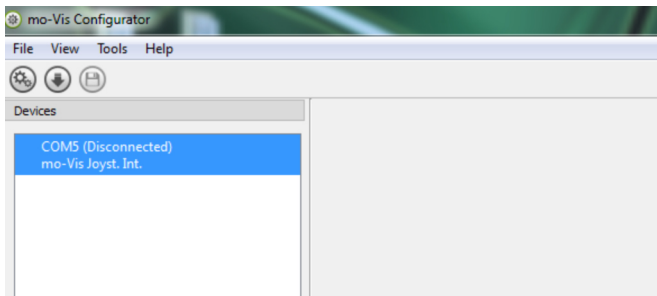
Software Capabilities

- The mo-vis Configurator Software is compatible with Windows 7, Windows 8 and Windows 10 systems.
- The mo-vis Configurator Software is NOT compatible with Android or iOS systems.
- The software is an optional feature that will allow minimal adjustments. All adjustments of the joystick including deadband, calibration, throw, etc. can be completed through the chair's display.

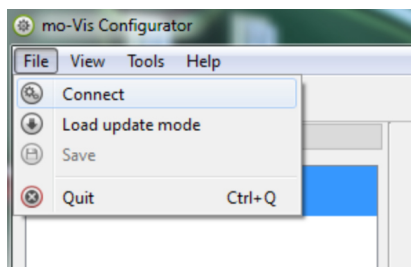
The All-Round Heavy Duty Joystick positioning is adjustable with the mo-vis Configurator Software.

Software Download Instructions

1. You can download the software on Stealth's website: www.stlpro.site/
2. Connect the mo-vis Joystick to the PC using a mini-USB cable.
3. Open the mo-vis Configurator Software. Your computer will choose a COM port and recognize the product that is linked to the PC, but it will still show the status "Disconnected"



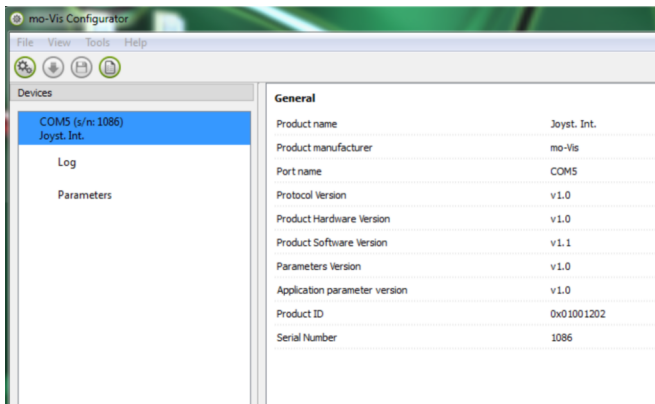
4. Click on the Connect icon  to make the connection between the Configurator Software and the All-Round Heavy Duty Joystick, or choose in the menu bar, *File-Connect*. To disconnect the device, click on the same icon to disconnect, or click on *File* and then click *Disconnect*.



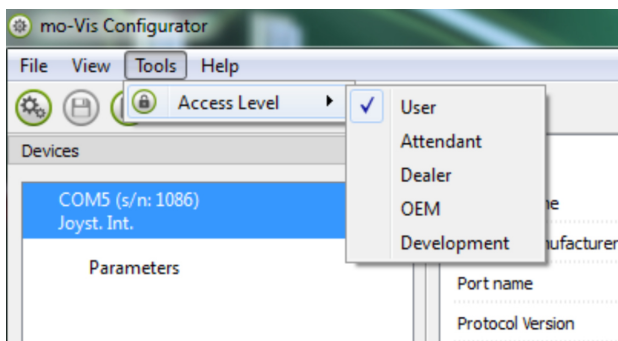
- When the device is in sleep mode or not powered on, you will get this message:



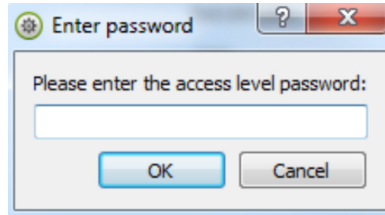
- Once the connection is made, the software will receive all the details and information from the device and will display it on the right hand side of the window.



- The software program always starts at the lowest Access Level. In order to receive more information, or see and change more parameters, you can upgrade your Access Level from *User* to *Attendant* or *Dealer*.

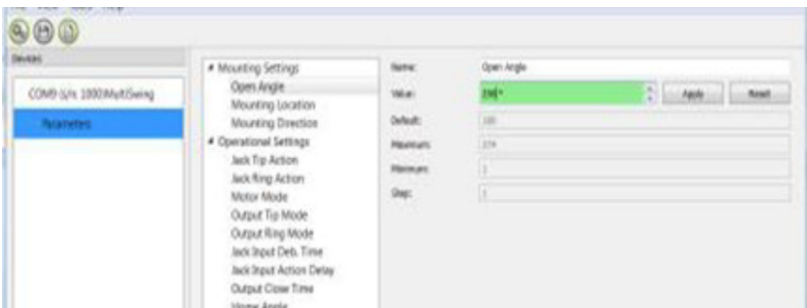


- Click on the *Tools* tab in the menu bar and change the Access Level from *User* to *Attendant* or *Dealer*.
- You will be asked to enter your password. Type the correct password. This password will need to be requested.



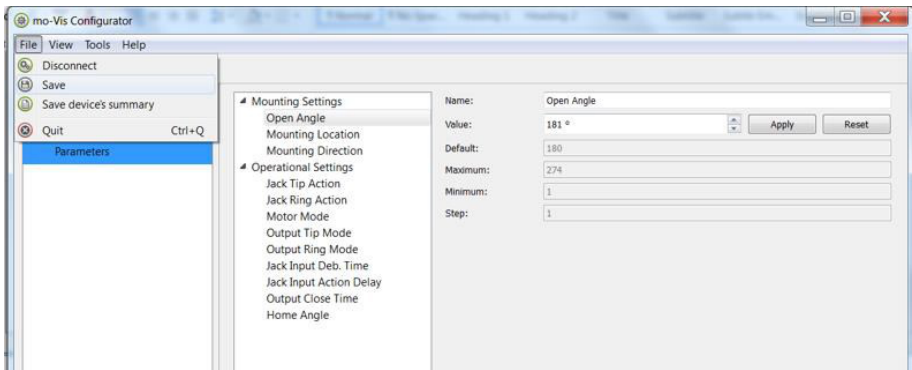
Attention: These passwords are case sensitive!

- After the password has been correctly entered, you will be asked to restart the application. **Any unsaved changes will be lost. If you did make changes and want to save them, choose NO and first save your changes.** If it is okay to restart the application, click Yes. The device will now be disconnected.
 - Repeat Step 4 to connect the device back to the computer.
 - Depending on the Access Level, you will see *General Information*, *Parameters*, *Log* and *Diagnostics*.
- When *Parameters* is selected, a list of parameters will be shown, depending on the device that is connected to the PC.
 - By selecting the specific parameter you wish to adjust, the view on the right will display the stored *Default*, *Minimum* and *Maximum Values* of the specific parameter.
 - This parameter can now be changed by entering a new value in the text box, or by clicking the arrows next to the text box, or by selecting a new value from the drop down box.
 - Values that are being changed will be shown in green.

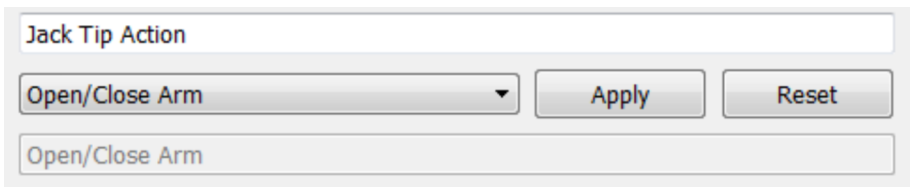


- Click *Apply* to write the temporary value in the device. You can immediately test it, but the new value is not stored yet.
- If you lose connection, any changes you made will be lost. If you would like to store the parameter values into the device, click on the *Save* icon or click in the menu bar, *File-Save*. The new parameter values will now be stored permanently in the device.

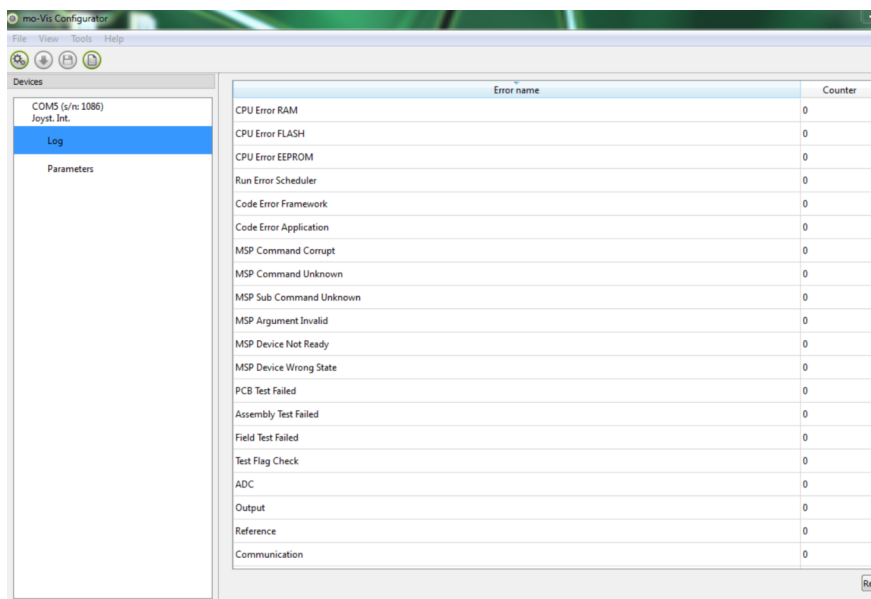
Attention: When a parameter is changed without clicking the Apply button, the new values are not remembered. Once another parameter setting is selected, the previous parameter will go back to the original setting.



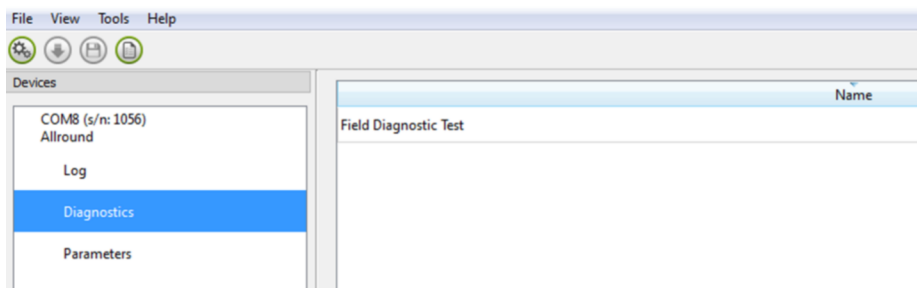
Clicking on the Reset Button will set the parameter value back to the default value. Click Apply to store locally and Save to make the change to the device.



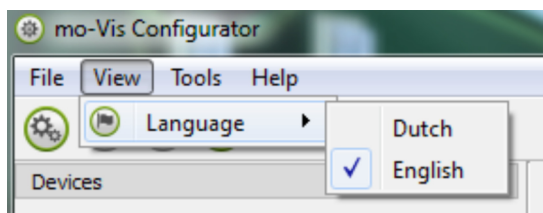
- When your Access Level is set to *Dealer Level*, the categories *Log* and *Diagnostics* will be displayed as well.
 - When *Log* is selected, an overview of all encountered errors and/or actions will be displayed, along with the number of times they occurred, and a *Reset* button to set the counter back to zero.



- When *Diagnostics* is selected, you will be able to run a Field Diagnostics Test. Click on *Field Diagnostic Test* and choose *Run Test* to start the Field Test.



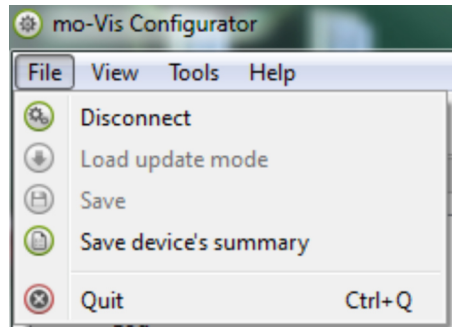
11. To change the language of the Configurator Software, click *View* on the menu bar, hover over *Language*, and select the language you prefer.



12. Save  the device summary. You can save all general product information and values of the different parameters in any folder on your computer.
 - Make sure the device is connected to the USB port of the PC.
 - If the device is recognized it will appear in the *Device View*.
 - Select the correct device in *Device View*.
 - Click on the menu bar on *File-Save Device's Summary* or click directly on the *Save Device Summary* icon . Choose a location to save the file.
13. To close the Configurator Software, choose *File-Quit (Ctrl+Q)* in the menu bar, or click on the 'X' in the upper right of the window. 

Attention: You will lose all unsaved values if you quit the software without first clicking on Apply and Save. If you use the menu bar to quit, your values will be saved automatically once you clicked Apply.

If you use the 'X' on the right corner of the window, the software will automatically ask if you would like to save your changes before closing.



Testing

After installation of the All-Round Heavy Duty Joystick, execute the following tests before the wheelchair is delivered or put into service, in according order.

- Check the All-Round Heavy Duty Joystick for intactness
- Operational test
- Test drive
- Stop test

Check the All-Round Heavy Duty Joystick:

- Is not bent or damaged
- Housing, cabling, and all connectors are not damaged.
- Returns to its default (centered) position when moving and releasing the joystick forward, backward, left, and right.

Operational Test



WARNING

Execute this test only on a level surface, in an open area free of obstacles.

- Activate the wheelchair operating system.
- Check for any error messages.
- Move the joystick slowly forward until you hear the parking brakes switch off.
- Immediately release the joystick. You should hear the parking brake react within a few seconds.
- Repeat steps 3 and 4 three times, while slowly moving the joystick towards you, to the left and to the right.
- Check whether the power on/off and mode switch function properly.



CAUTION

The wheelchair may start moving.

Test Drive

- Perform a test drive with the wheelchair.
- Check whether the wheelchair and all of its operations are fully functioning in all position the user may use the Multi Joystick and switches.
- Check that no cabling or parts may get damaged or hindered in any possible position of the wheelchair.

Stop Test

- Drive at full speed and shut down the wheelchair with the power on/off switch.
- The wheelchair must not stop suddenly, but instead should slow down to a gradual stop.

Error Codes

When a fault occurs, the LED light of the All-Round Heavy Duty Joystick 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.

Flash Count	Reason	Required Action
2	Connection	Check cable
3	Power Supply	Check cable, replace PCB
4	Joystick Sensor	Check/.Replace Sensor
7	Test flag failed or diagnostic failed	Redo tests and/or replace PCB
8	CPU fault	Replace PCB
9	Scheduler fault	Update Software or Replace PCB
10	Coding error	Update Software or Replace PCB

Joystick Data

Operational Force	650g, 1.43lbf	Interface Cord Length	1800mm (180cm)
Angle, Center to End	18°	Joystick Cord Length	N/A
Length of stick from Mechanical Pivot	120mm	Operating Temp.	-13°F to 122°F (-25°C to 50°C)
Travel from Center	40mm (1.57in)	Storage Temp.	-40°F to 149°F (-40°C to 65°C)
Max. Vertical Load	76478g (168.6lbf)	Immunity Level ISO7176-21	20V/m 26MHz to 2.5GHz
Max. Horizontal Load	76478g (168.6lbf)	Emission Level ISO7176-21	CISPR 11 Class B
Expected Life	>2,800,000	ESD ISO7176-21	8kV 4kV Contact
Mass	800g		

Fault Log

A fault log with counters is maintained. The fault log can be accessed by the configurator (Dealer Level). Below is an overview of registered faults.

Fault	Reason	Required Action
CPU Error RAM CPU Error FLASH CPU Error EEPROM	CPU consistency check failed	<i>Replace PCB</i>
Run Error Scheduler Code Error Framework Code Error Framework	Firmware consistency check failed	<i>Update Software or Replace PCB</i>
PCB Test Failed Assembly Test Failed	Factory Test Failed	<i>A fault occurred during factory testing</i>
Field Test Failed	Field test failed (calibration).	<i>A fault occurred during field testing. (Calibration).</i>
Test Flag Check	One or more test flags not set.	<i>Redo tests and/or replace PCB.</i>
ADC Output Reference	ADC Conversion Error. The interface outputs are out of spec.	<i>Check interface cable. Replace PCB interface.</i>
Joystick (Sensor)	The sensor (joystick) is faulty	<i>Check cable to sensor (joystick) and/or replace sensor (joystick)</i>
Accelerometer	The accelerometer failed	<i>Replace PCB interface.</i>

Parameter Settings

With the mo-vis Configurator Software you can change the parameters of the All-Round Heavy Duty Joystick. Depending on your profile (User, Attendant, Dealer, OEM), you will be able to change a number of parameters.

Mounting Settings (User Level)

Setting	Description	Parameter
Mounting Direction	Mounting direction of the All-Round Heavy Duty Joystick	0° (Default)
Min	Minimum deviation	0°
Max	Maximum deviation	270°
Steps	Amount of deviation	90°

Deadband Settings

Setting	Description	Parameter	
Deadband	Neutral zone around the joystick center position. Prevents creeping of the wheelchair after releasing the joystick.	Default	5%
		Min.	5%
		Max.	10%

Tilt Settings

Setting	Description	Parameter
Enable	- The joystick can detect the joystick tilt referenced to the earth's gravitation. - The wheelchair will stop driving when this parameter is enabled, and the joystick is tilted more than the angle defined in the Angle setting. - Important: The joystick needs to be tilted longer than 5 seconds.	N/A

Setting	Description	Parameter	
Angle	- The angle the joystick tilt is compared to. -When the joystick tilt is larger than the angle specified in this parameter, the wheelchair will halt after approximately 5 seconds.	Default	40°
		Min.	5°
		Max.	40°

NOTICE

The joystick needs to be tilted longer than 5 seconds.

Compensation Mode

Setting	Description	Parameter	
Compensation Mode	- Defines activation of the compensation algorithm. - For R-Net: Can be set individually for each profile. - If the joystick is mounted on a location that may multiply the value of a shock (ex. on an arm), the setting should be lowered to "Weak or "Very Weak". - Front wheel-driven wheelchairs are less affected by this factor than back wheel-driven ones.	Off	Always deactivated
		Manual	(De)activated manually by the user.
		On	Always activated

Compensation Factor

Setting	Description	Parameter	
Compensation Factor	- Lowers forward/backward (Y) driving speed on rough terrain. - Wheelchair type and weight have an impact on this factor. - Heavy loaded wheelchairs may need to lower the setting to Weak. - Light wheelchairs may need to increase the setting to Strong.	<i>Very Weak</i>	<i>Almost no slow down</i>
		<i>Weak</i>	<i>Slows down less compared to Normal</i>
		<i>Normal</i>	<i>Default setting</i>
		<i>Strong</i>	<i>Slows down more compared to normal.</i>
X-Compensation	- To limit the steering reaction if the wheelchair overreacts on steering commands. This may happen due to compensation on the X direction that prevents the wheelchair from overcoming an obstacle due to the loss of torque. - This value is based on the compensation in Y direction.	<i>None</i>	<i>No Compensation</i>
		<i>1/2 Y</i>	<i>X = 50% of level</i>
		<i>2/3 Y</i>	<i>X = 66% of level</i>
		<i>Equal Y</i>	<i>X = 100% of level</i>

Setting	Description	Parameter	
(De)activation Pattern	- Active if compensation mode is set to Manual - To activate/deactivate: nudge the joystick forward + Backward + Forward - Agile users may be able to execute this pattern quite quickly. - Set this parameter according to the agility of the user. - Caution: "Slow" may cause the wheelchair to drive while executing the pattern	<i>Fast</i>	<i>Fast Execution Speed</i>
		<i>Normal</i>	<i>Normal Execution Mode</i>

Dealer Assistance

During first time use by the user it is advised that the dealer or service technician assists and explains the different drive configurations to the customer (the user and/or their attendant). If needed, the dealer can make final adjustments.

User Testing

It is important that the customer is fully aware of the installation, how to use it, and what can be adjusted in order to gain as much mobility as possible. As a dealer, proceed as follows:

- Explain and show the customer how you have executed the installation, and explain the function of every (new) button.

Have the user test all positions of the **All-Round Heavy Duty Joystick**:

- Are the Multi Joystick and switches within easy reach?
- Can the user safely operate the wheelchair with the least effort?
- Is the placement of the joystick and buttons in all available positions optimal for the user?

If needed, adjust the **All-Round Heavy Duty Joystick**.

Explain to the customer possible problems and how to address them.

Conditions of Use

The **All-Round Heavy Duty Joystick** is intended for use as installed by the dealer, in accordance to the installation instructions in this manual.

- The foreseen conditions of use are communicated by the dealer or service technician to the user and/or attendant during the first time use.
- If the conditions of use change significantly, please contact your dealer or a qualified service technician to avoid excessive wear and tear or unintended damage.

Cleaning

- Clean all the parts of the All-Round/All-Round Lite Joystick on a regular basis (monthly) or when added.
- Gently remove dust and dirt with a damp cloth
- Use only non-aggressive household cleaning agents.



WARNING

Do not immerse in water or use excessive amounts of liquid.
Do not apply additional lubricants to the moving parts.

Monthly Check

Monthly, or when 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 parts.

Maintenance Free

The **All-Round Heavy Duty Joystick** is maintenance free. Under regular circumstances of use, the joystick, interface unit and different parts do not require additional maintenance.

Product Description & Code

- All-Round Heavy Duty Joystick Set (IDM-HD)
- Heavy Duty Joystick Mount Clamp (IDM-HDMT)

Joystick Connectors

- 1/8" (3.5mm) mono jack in on/off
- 1/8" (3.5mm) mono jack in mode
- Mini USB
- SUB D9 connector with cable

Dimensions

- All-Round Heavy Duty Joystick 6.89" x 3.38" x 3.38" (H x W x D)

Required Force

- All-Round Heavy Duty Joystick: 650g (1.43lbf)

EMC Requirements

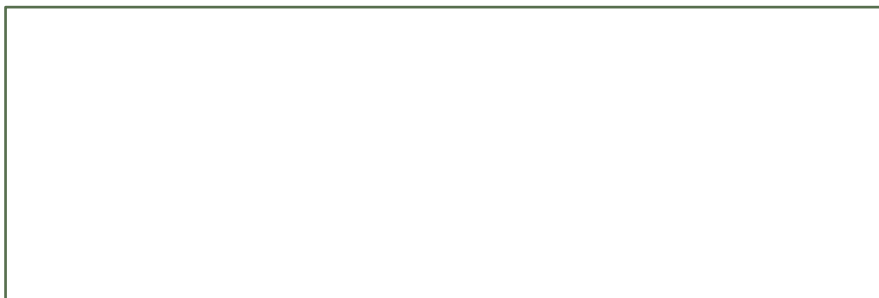
The electronics of a power wheelchair and its options can be affected by external magnetic fields (for example, from mobile telephones). Similarly, the electronics of the wheelchair or options can also emit electromagnetic fields that can affect the immediate surroundings.

The limit values for Electromagnetic Compatibility (EMC) with respect to power wheelchairs are set in the harmonized standards for the EU in the Medical Devices Directive, No. 93/42/EEC.

Installation Date: _____

Dealer: _____

Dealer Stamp:



Serial Number Sticker:





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Warranty Information



Home Page



Online User Manual



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