

Stealth Products[®]

Alternative Drive Controls



USER MANUAL



Power Chin Boom

Stealth's mo-Vis Series Versatile Powered
Mounting Device



Stealth Products strives for 100% customer satisfaction. Your complete satisfaction is important. Please contact us with feedback or suggested changes that will help improve the quality and usability of our products.

You may reach us at:

Stealth Products, LLC

104 John Kelly Drive, Burnet, TX 78611

Phone: (512) 715-9995

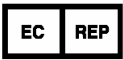
Toll Free: 1(800) 965-9229

Fax: (512) 715-9954

Toll Free: 1(800) 806-1225

info@stealthproducts.com

www.stealthproducts.com



MDSS GmbH

Schiffgraben 41

30175 Hannover, Germany



General

The Power Chin Boom Mounting Hardware is intended to be fitted on any power wheelchair with 24 V connections.

Incorrect use or installation may lead to risk of injury to the user and damage to the wheelchair or other property.

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 due to failure of the following instructions will void the warranty.

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

- The Power Chin Boom Motor Unit is a non-serviceable part.

Important Information!

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
- Maintain our products according to our instructions on care and maintenance
- Devices should be installed and adjusted by a trained technician

Supplier Reference

Supplier: _____

Telephone: _____

Address: _____

Purchase Date: _____

Model: _____

Before you install or begin using this product, it is important that you read and understand the content of these installation and operating instructions.

The installation instructions will guide you through the options and possibilities with the product. Stealth's mo-Vis Series Power Chin Boom Hardware should be adjusted with the mo-Vis Configurator Software.

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 1-800-965-9229.

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.

Ordering Documentation

You can download additional copies of this user manual for mounting the Power Chin Boom and the associated hardware on the Stealth website:

<http://www.stealthproducts.com/gui/docs/?type=usr>

Or search:

mo-Vis Power Chin Boom User Manual in the search bar at the top of the page.

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, LLC does not warrant damage due to, but not limited to:

- Misuse, abuse, or misapplication of products.
- Modification or product without written approval from Stealth Products, LLC.
- Any alteration or lack of serial number, where applicable, will automatically void this warranty.
- Stealth Products, LLC is liable for replacement parts only.
- Stealth Products, LLC is not liable for any incurred labor costs.

No person is authorized to alter, extend, or waive the warranties of Stealth Products, LLC.

Stealth Products warrants against failure due to defective materials or workmanship:

Covers: 180 days

Hardware: 5 years

Electronics: 3 years

In Case of Product Failure

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

1. Call Stealth at +1 (512) 715-9995 or toll free +1-800-965-9229.
2. Request the Returns Department or obtain an RA from the Returns Department and follow department or documentation instructions.

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Warning Labels

6.1

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

 DANGER	Identifies an imminent situation which (if not avoided) will result in severe injury, death, and property damage .
 WARNING	Identifies a potential situation which (if not avoided) will result in severe injury, death, and property damage .
 CAUTION	Identifies a potential situation which (if not avoided) will 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

6.2

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.

Testing

6.3

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

The Power Chin Boom should always be tested without any person sitting in the wheelchair until every alteration of the physical installation or adjustment is complete.

Purpose

7.1

The Power Chin Boom is a versatile, motorized arm to mount on a powered wheelchair. With this arm, a chin joystick can be positioned to drive. The arm is programmed to move horizontally or vertically by pressing a button when needed.

Features:

7.2

The Power Chin Boom is mounted to the back or side of the wheelchair by attaching compatible brackets to the rear of the chair.

- With the included mounting hardware, the Power Chin Boom Motor Unit and arm can be optimally positioned for each individual user.
- With the mo-Vis Configurator Software, the device's movements, speeds, and activation methods can be altered for every situation.
- The Power Chin Boom works with any button with mini jack connection (stereo or mono). The jack connections of the input and output are configurable via computer, e.g. one input button can be configured to perform up to three different functions.

Available Versions

7.3

When ordering the Power Chin Boom (IDM-PCB-L or IDM-PCB-R), please specify what type of chair this will be mounted onto. This will determine which hardware package you will receive with your order.

- **Power Chin Boom Package for the Right Side of the chair (IDM-PCB-R):** For installation at the right side of the wheelchair, comes with right arm. Includes Chin Boom Brackets for mounting.
- **Power Chin Boom Package for the Left Side of the chair (IDM-PCB-L):** For installation at the left side of the wheelchair, comes with left arm. Includes Chin Boom Brackets for mounting.
- **Chin Boom Bracket Hardware Package-** The Power Chin Boom Bracket Hardware comes with each order of a Power Chin Boom. Please specify what type of chair will be used; this will determine the hardware package you receive. These packages can be ordered separately if more parts are needed.
 - For a Quantum chair, DBM100-1
 - For a Permobil chair, DBM100-2
 - For a Cane mount, DBM100-3
 - 1" standard Cane Clamp is provided with this package. If a different size is needed, please specify when ordering.

Power Chin Boom Package

8.1

The Power Chin Boom package can be ordered for the right side of the chair or the left side. Each package includes:



Product Description
Power Chin Boom Right Arm 2mm Set Screws included
Power Chin Boom Left Arm 2mm Set Screws included
Power Chin Boom T-Connection 3mm Set Screws included
Power Chin Boom Arm to Rod Interconnection Assembly 2.5mm Set Screws included
Power Chin Boom T-Bar Connection
Power Chin Boom Motor Unit with i-Connect Power Source 2.5mm Set Screws included
Power Chin Boom C-Rod
Power Chin Boom S-Rod
Power Chin Boom Pulling Wire
Power Chin Boom End Stop

- The Dog Bone Bracket Package is included with each order of a Power Chin Boom Right/Left Package. Depending on the chair being used, certain brackets will be included.



Product Description	Package #
Track/Cane Chin Boom	DBM100-1
Front Rotation Chin Boom Mount	DBM100-1 DBM100-2 DBM100-3
Back Track Chin Boom Mount	DBM100-2
Chin Boom Extension Straight	DBM100-1 DBM100-2 DBM100-3
Track/Cane Chin Boom Slide	DBM100-1 DBM100-2 DBM100-3
Chin Boom Extension Angled	DBM100-1 DBM100-2 DBM100-3
1" Cane Clamp	DBM100-3
Universal 2GTR Lateral Nut- Metric 4mm T-Handle Required	DBM100-2
T-Nut Metric 4mm T-Handle Required	DBM100-1

Additional Items:



Product Description	Product Code
All-Round Joystick Mounting Set (for mounting All-Round Joystick only)	IDM-46

- The All-Round Mounting Set (IDM-46) is REQUIRED if mounting the All- Round Joystick to the Power Chin Boom.

Complete Installation

8.2

Below, you see a picture of a completely installed Power Chin Boom Arm, ready to be mounted to the brackets on a chair.



- A torque limiter is installed within the motor unit housing. When the torque becomes too high, the limiter is released.
- The arm can be “shifted” out of its location when too much torque is being placed on it. This should have no effect on the position or mechanical stop of the arm when it is in use.

Power Chin Boom Motor Unit Detail

8.3

The connections of the Power Chin Boom Motor Unit have protective inserts to avoid the intrusion of dust or moisture during usage. An i-Connect power source is attached to the motor unit for connection to a Quantum or Permobil chair.



Custom Configurations

8.4

Stealth has the ability to create custom configurations for the desired mounting hardware.

Qualified Service Technician

9.1

Only a qualified service technician may install the Power Chin Boom.

Tools

9.2

- T-Bar Connection- 3mm T-Handle
- Arm to Rod Interconnection- 2.5mm T-Handle
- Arm-2mm T-Handle
- Motor -2.5mm T-Handle

NOTICE

Before inserting a connector, remove the protective cover.

⚠ CAUTION

Use the proper tools to install and adjust the Power Chin Boom. The use of improper tools may cause damage to the device.

⚠ CAUTION

Do not tighten screws with excessive force.

⚠ CAUTION

Always put or keep the protective cover in case the connections are not used.

Installation Plan

9.3

Set up an installation plan before starting the installation. Based on the users' needs and with actual measurements of the wheelchair and the user, this plan should specify:

- Where each part of the Power Chin Boom should be placed.
- How the Power Chin Boom will be operated.
- The Power Chin Boom Motor Unit parameter settings.

Serial Number Sticker

9.4

The additional serial number sticker (included in the package) has to be adhered to the back of this manual.

⚠ CAUTION

Any connection must always be secured with supplied screws.

Motor Unit Installation

10.1

To install the Power Chin Boom Motor Unit, carefully follow the directions of this manual.

To install the Power Chin Boom Mounting Hardware, follow the instructions in the correlating installation manual.

Depending on the needed placement of the Power Chin Boom, angle and height adjustments can be made to the hardware.

If more hardware is needed, the Chin Boom Brackets can be ordered as a separate package. Please call Stealth Products for more information.

CAUTION

The mount must be inside the wheelbase.

CAUTION

The connections must be at the bottom (default position) or at the lower part (tilted position).

Lead the i-Connect Power Source Connector to a fused connection on the wheelchair battery and secure the i-Connect Power Source Connector to the wheelchair.

- An IC24PS-QL or IC24PS-RN is required in order to connect from the power source to the chair. Please specify when ordering which connector you will need.

WARNING

Do not connect the i-Connect Power Source Connector to the wheelchair battery or another battery source while installing or adjusting the Power Chin Boom Motor Unit or Power Chin Boom Arm to avoid any unwanted movement.

Power Chin Boom Arm Installation

10.2

Make sure the Power Chin Boom Motor Unit is properly installed before starting installation of the Power Chin Boom Arm. The Motor Unit contains 2.5mm set screws.

CAUTION

Any connection must always be secured with all delivered screws. Only use the screws provided in the package.

To install the arm, proceed as follows according to your installation plan:

- Insert the Power Chin Boom T-Bar Connection into the motor unit. Adjust and secure with provided set screws.
- Attach the T-connection to the T-Bar Connection. Attach and secure with provided set screws.

CAUTION

Select the appropriate screw location in the T-connection. Screws should be placed in such a way that they do not enter the cable throughputs in the arm.

- Insert the Power Chin Boom Right or Left Arm into the T-connection. Adjust arm to desired length and secure with set screws.
- Place and secure Arm to Rod Interconnection Assembly at the end of the arm.
- Place C-Rod or S-Rod into end of the Arm to Rod Interconnection Assembly. Adjust angle and secure with provided screw. Choose the rod that best fits your clients needs.

NOTICE

The screws on the Power Chin Boom need to be tightened regularly.

NOTICE

There is play in the arm when it is not in the end position.

NOTICE

If needed, cut off excessive piping at the back of the arm (behind the T-connection). Remember to keep a small excess of piping off the back in order to make readjustments.

SAFETY

By removing excess piping, this can reduce the risk of objects becoming hung or stuck. This will also ensure safety during transfers.

To install the joystick onto the Power Chin Boom, follow the provided Instructions:

- Remove screws from the base of the interface and open interface box. Carefully disconnect the joystick cable from the interface.
- Insert pulling wire at base of arm and feed until you have reached the top of the arm. The end of the wire with the hook should be inserted first.
- Use the pulling wire to insert the connection cable for the device into the arm at the top. Carefully pull down on wire and feed through until the cable is through the final slot in the arm.
- The connection cable enters at the C-Rod or S-Rod and leaves the arm just past the T-connection.
- Place the device on the C-Rod or S-Rod in the desired location and secure it firmly.

NOTICE

Disconnecting and reconnecting cable from the interface will NOT void the warranty.

CAUTION

The maximum device weight is 500gr at a distance of 25.59in. (650mm) from the pivot point at the Power Chin Boom Motor Unit connection.

- Reattach and secure the joystick cable to the interface.
- Use screws to carefully screw interface box back together. Do not overtighten screws.
- Mount the end stop.

Testing

10.3

After installation of the Power Chin Boom Motor Unit and the Power Chin Boom Arm, test the positioning and movements of the arm.

WARNING

First, test without any person sitting in the wheelchair.

CAUTION

Always use a fused connection of maximum 15A on the wheelchair battery.

- Connect the Power Chin Boom Motor Unit to the wheelchair battery with the i-Connect Power Source Connector.

Connect a button* to the Power Chin Boom Motor Unit steering input.

Power up the wheelchair.

Push the button.

Default Power Chin Boom Motor Unit parameter settings are:

- Open/Close Arm, Momentary (arm moves as long as the button is pressed, pressing again changes the direction of the movement).

Check the following items:

- Is the arm moving in accordance with the default settings?
- Can the arm move freely without hindering any wheelchair item or cable?
- Can the arm move without hindering a person in the wheelchair?
- Can all cables move freely while being securely attached?

If needed, adjust the positioning of the arm and Power Chin Boom Motor Unit and retest until optimal and secure functioning.

 **WARNING**

Switch off the wheelchair and disconnect the Power Chin Boom Motor Unit from the power source to avoid any unwanted movement.

 **CAUTION**

Check that all screws are firmly secured.

* A Black Egg Switch is included with each Power Chin Boom order. This switch will activate movements of the arm.

Installing Mounting Set

11.1

1. Define the position of the joystick.
 - When the USB connection points toward the user, a forward movement of the joystick will result in a forward movement of the wheelchair. If needed, you can change this positioning in steps of 90° with the mo-Vis Configurator Software.
2. Determine which of the 2 slots you will user to guide the cable.
3. Place the 2 M5 locknuts in the first Mounting Plate.
4. Secure the Mounting Plate with the 4 M5 bolts to the base of the joystick housing.
5. Place the adaptor 6mm mounting set on the rod.
6. Secure the Mounting Plate with the 2 M5 bolts.



- The All-Round Mounting Set (IDM-46) is sold separately and is only required for mounting the All-Round Joystick to the Power Chin Boom.

NOTICE

The All-Round Joystick cable will not feed through the arm of the Power Chin Boom.

⚠ CAUTION

Tighten the screws firmly, but not excessively. Excessive force may damage the unit.

The Power Chin Boom movement, speed, angle, and connection are fully adjustable with the mo-Vis Configurator Software.

- This software must be installed and is ready to use on a pc.
- Depending on your user 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.

Defining Parameter Settings

12.1

To define the parameter settings, proceed as follows:

- Connect the Power Chin Boom Motor Unit to a pc. Use a standard mini-USB cable.
- Configure the parameters with the software.
- Upload the configuration.
- Test the configuration and adjust if necessary.

Parameter Settings

12.2

Please see "Settings" for a list of all parameter settings (Section 17.0).

- The mo-Vis Configurator Software is optional to download. The joystick and its settings can be configured through the chair's display.

Dealer Assistance

13.1

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 his attendant).

If needed, the dealer can make final adjustments.

User Testing

13.2

It is important that the customer is fully aware of the installation, how it is used, 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 Power Chin Boom Motor Unit and arm:

- Is the arm moving in accordance with the settings?
- Can the arm move freely without hindering the person in the wheelchair?
- Is the placement of the arm and buttons in all available positions optimal for the user?

If needed, adjust the Power Chin Boom and retest until optimal position and functioning is reached.

To explain to the customer possible problems and how to address them see 'Troubleshooting' (Section 14.0).

Conditions Of Use

13.3

The Power Chin Boom 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.

User Adjustments

13.4

WARNING

Changes in parameter settings may cause damage to devices or the wheelchair, or may cause injuries to persons.

CAUTION

Change parameters without any person sitting in the wheelchair.

CAUTION

Test new settings without any person sitting in the wheelchair.

- As a user or attendant, you can make a limited number of parameter adjustments yourself with the mo-Vis Configurator Software.
- Although the number of parameters you can change as a user or attendant is limited, we advise changing only parameters you completely understand.

Software Capabilities

14.1

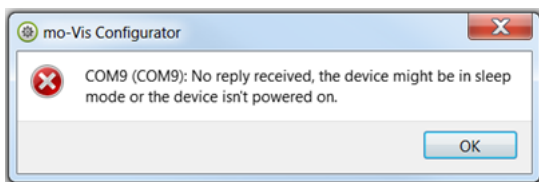
- The mo-Vis Configurator Software is compatible with Windows 7, Windows 8, and Windows 10 systems.
- The mo-Vis Configurator Software is NOT compatible with Android or IOS systems.
- The software is an optional feature for adjusting the joystick. All adjustments of the Power Chin Boom are completed through the software.

The Power Chin Boom movement, speed, angle, and connection are fully adjustable with the mo-Vis Configurator Software.

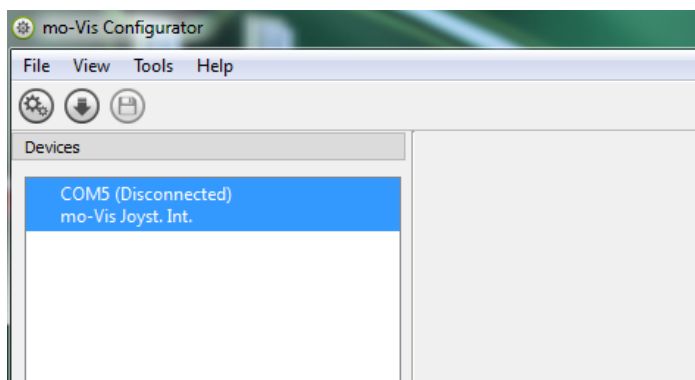
Software Download


14.2

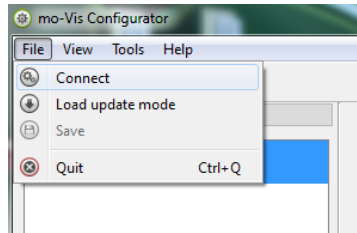
1. You can download the software on Stealth's website: www.stealthproducts.com.
2. Connect the mo-Vis Power Chin Boom to the pc using a mini USB cable. Make sure the Power Chin Boom gets power and is not in 'sleep mode'. When the device is in sleep mode or not powered on, you will get this message:



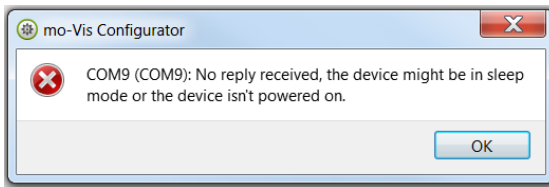
3. Open the mo-Vis Configurator Software. Your computer will choose a COM port and recognize the product that is linked to the pc, but will still show the status "Disconnected".



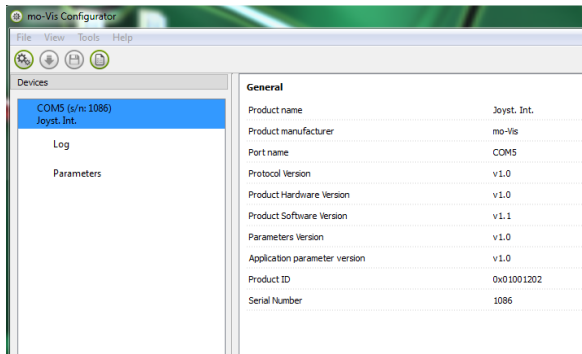
4. Click on the Connect icon  to make the connection between the Configurator Software and the mo-Vis device, or choose in the menu bar *File-Connect*. To disconnect the device, click on the same icon to disconnect, or click on *File* and then click *Disconnect*.



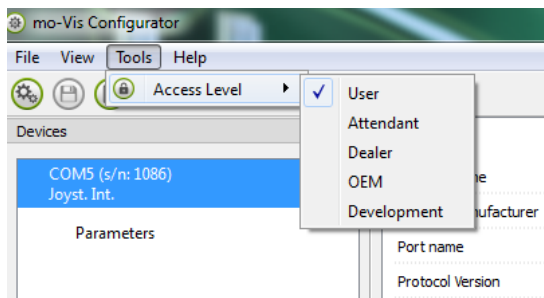
5. When the device is in sleep mode or not powered on, you will get this message:
- Make sure the Power Chin Boom is receiving power. Activate it by pressing down the button to move the arm. Then try to connect again.



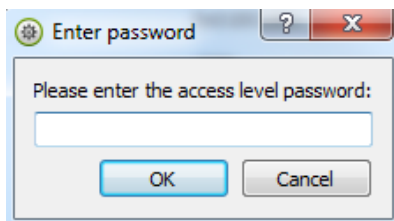
6. Once the connection is made, the software receives all the details and information from the device and will display them on the right hand side of the window.



7. 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*.



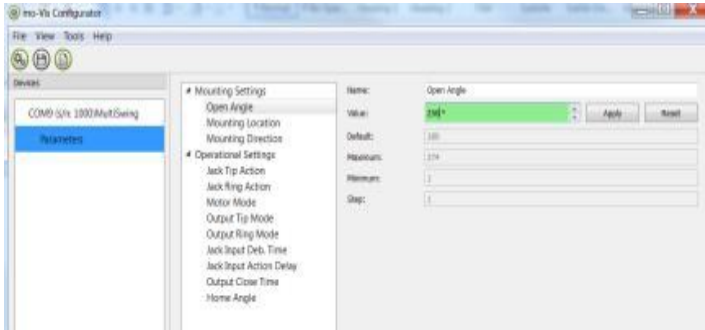
- Click on the *Tools* tab in the menu bar and change the Access Level from *User* to *Attendant* or *Dealer*.
- You will be asked to enter your password. This password will need to be requested.



Attention: These passwords are case sensitive!!

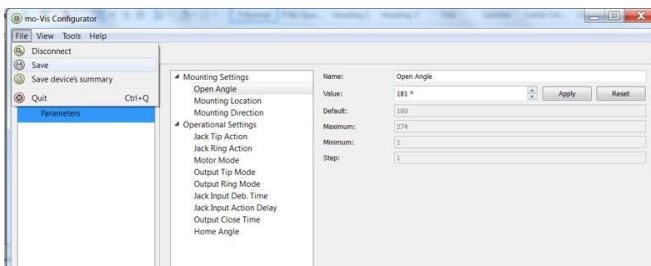
8. After the password has been correctly entered, you will be asked to restart the application. **Any unsaved changes will be lost. If you did make changes and want to save them, choose NO and first save your changes.** If it is okay to restart the application, click **Yes**. The device will now be disconnected.
- 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*.

9. When *Parameters* is selected, a list of parameters will be shown, depending on the device that is connected to the pc.
 - By selecting one 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 textbox, 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.

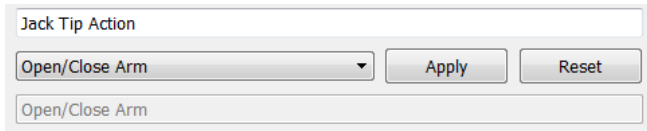


- Click *Apply* to write the temporary value in the device. You can immediately test it, but the new value is not stored yet.
- If you lose connection, any changes you made will be lost. If you would like to store the parameter values into the device, click on the *Save* icon or click in the menu bar,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

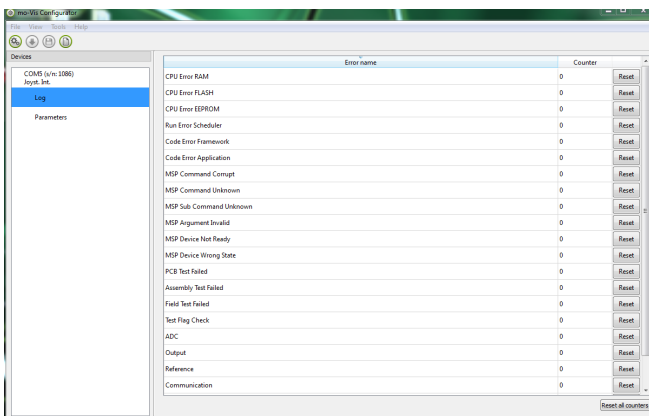
Attention: When a parameter is changed without clicking the Apply button, the new values are not remembered. Once another parameter setting is selected, the previous parameter will go back to the original setting.



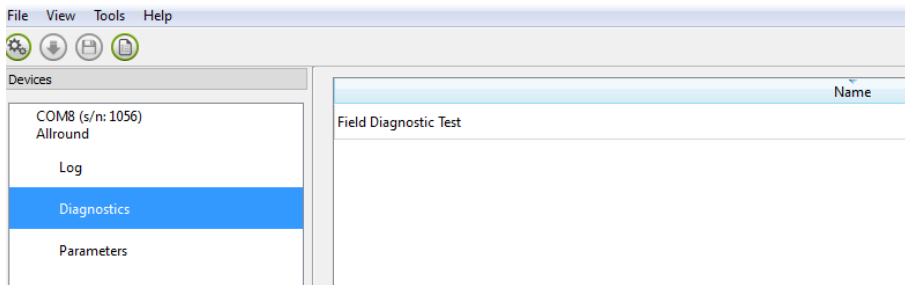
Clicking on the Reset button will set the parameter value back to the default value. Click Apply to store locally and Save to make the change to the device.



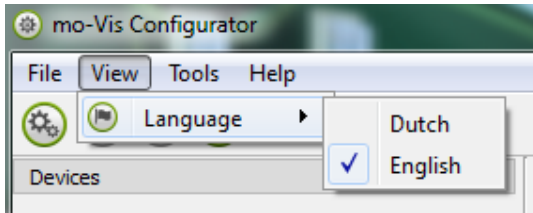
10. When your Access Level is set to *Dealer Level* the categories *Log* and *Diagnostics* will be displayed as well.
 - When *Log* is selected, an overview of all occurred errors and/or actions will be displayed with a number of times that they occurred, and a *Reset* button to set the counter back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







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



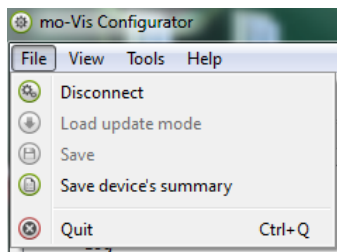
11. To change the language of the Configurator Software, click *File-View* on the menu bar and select the language you prefer.



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 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 small x on the right corner of the window, the software will automatically ask if you would like to save your changes before closing.



Installation Possibilities

14.3

- The Power Chin Boom can be ordered as a right arm package or left arm package.
- Please indicate if a Quantum or Permobil chair will be used for operating. This will determine which Chin Boom Mounting Package will come with your order.

Default Power Chin Boom Motor Unit Placement

14.4

By default, the Power Chin Boom is placed for a sideways movement of the arm, however, by adjusting the position of the Chin Boom Brackets and the Motor Unit, the arm can be programmed to move up and down.

Power Chin Boom Arm Positioning

14.5

The T-connection is used to connect the Power Chin Boom arm to the Power Chin Boom Motor Unit. To attach the device to the Power Chin Boom arm, use either the S-Rod or C-Rod.

Connection Options

14.6

- The Power Chin Boom is operated by any type of button, and can be configured in multiple ways.
- The input and the output jack are stereo types, allowing dual channel use. You can thus connect two buttons (input jack), or trigger two outputs (output jack).
- To use both channels, a splitter cable is needed.

⚠ CAUTION

When inserting a mono jack into the input, make sure that no functionality has been programmed for the second input (ex. If initially two buttons have been programmed and then a mono jack button would be used, a continuous signal will still be sent if the second function was not cleared beforehand).

Operation Options

14.7

There are three operation modes that can be triggered from both input channels and can be configured in the operation modes with the mo-Vis Configurator Software.

Normal operation mode

- One Action per Channel: Operate the arm or trigger an output

Combined double action, 2 actions per channel

- To Activate: Set the 'Output Mode Tip' to 'Output Timed'
- Press Short: Trigger the Output Tip
- Press Long: Operate the arm

Combined triple action, 3 actions per channel

- To Activate: Set the 'Output Mode Tip' to 'Output Timed'
- Press shortly once (single click): trigger the Output Tip
- Press shortly twice (double click): trigger the Output Ring
- Press long: operate the arm

Drive Safety

14.8

With the mo-Vis Configurator Software, you can set an output to be triggered when the arm is in home position.

⚠ CAUTION

When the Power Chin Boom is in sleep mode and the arm is moved manually– although it is not advised– it can take 5 to 10 seconds before the output will react to the new positioning of the arm.

Below is a list of possible problems and their probable cause and solution.

Problem	Possible Cause	Solution
Arm Does Not Move	<ul style="list-style-type: none"> No power -Bad or wrong connection of the button -Faulty button or wiring -The mounted device is too heavy 	<ul style="list-style-type: none"> -Check whether all power cables are still attached -Check battery level -Check whether the button cable is still firmly attached to the correct terminal -Connect a different button -Change the wiring -Dismount the device
Arm Keeps Moving	<ul style="list-style-type: none"> -Bad connection of the button -Faulty button or wiring 	<ul style="list-style-type: none"> -Disconnect and reconnect the button -Disconnect and reconnect the power supply cable -Connect a different button -Change the wiring
Arm Does Not Move the Complete Foreseen Trajectory	<ul style="list-style-type: none"> -Arm movement is hindered -The mounted device is too heavy -Wrong parameter settings 	<ul style="list-style-type: none"> -Free trajectory of the arm -Dismount the device -Change the settings

If the problem persists after intervening, please contact your local dealer or Stealth Products to attend to the problem.

Fault	Reason	Required Action
CPU Error RAM	CPU consistency check failed.	Replace PCB
CPU Error FLASH	CPU consistency check failed.	Replace PCB
CPU Error EEPROM	CPU consistency check failed.	Replace PCB
Run Error Scheduler	Firmware consistency check failed.	Update Software or Replace PCB
Code Error Framework	Firmware consistency check failed.	Update Software or Replace PCB
Code Error Application	Firmware consistency check failed.	Update Software or Replace PCB
MSP Command Corrupt	Corrupt command was received.	Connection with the PC (Configurator program) went Wrong. Try again.
MSP Command Unknown	Unknown command was received.	Connection with the PC (Configurator program) went wrong. Update Firmware or update Configurator Software. Try again.
MSP Sub Command Unknown	Unknown Sub Command was received.	Connection with the PC (Configurator program) went wrong. Update Firmware or update Configurator Software. Try again.
MSP Argument Invalid	Invalid argument received.	Connection with the PC (Configurator program) went wrong. Update Firmware or update Configurator Software. Try again.
MSP Device Not Ready	Device as not ready to receive an MSP command.	Connection with the PC (Configurator program) went wrong. Update Firmware or update Configurator Software. Try again.

MSP Device Wrong State	The device is not able to receive a command in the current device state.	Connection with the PC (Configurator program) went wrong. Update Firmware or update Configurator Software. Try again.
PCB Test Failed	Factory test failed.	A fault occurred during factory testing.
Assembly Test Failed	Factory test failed.	A fault occurred during factory testing.
Field Test Failed	Field test failed (Calibration).	A fault occurred during field testing (Calibration).
Test Flag Check	One or more test flags not set.	Redo tests and/or replace PCB.
Driver Error	The PWM driver signals a problem.	Check motor and mechanics. Replace PCB.
Motor Stalled	Motor is not moving while it should be moving.	Check motor, potentiometer and mechanics and/or replace PCB.

With the mo-Vis Configurator Software you can change the parameters of the Power Chin Boom. Depending on your user profile (User, Attendant, Dealer, OEM), you will be able to change a number of parameters.

Mounting Settings (User Level)

17.1

Setting	Description	Parameters	
Open Angle	-The opening angle of the arm. -Automatic stop of the movement when the angle is reached.	Default	180°
		Min	1°
		Max	274°
		Steps	1
Mounting Location	-Right Mount -Left Mount	-Right (default) -Left	
Mounting Direction	-Horizontal mount; arm moves left/right. -Vertical mount; arm moves up/down.	-Horizontal (default) -Vertical	

Operational Settings (User Level)

17.2

Normal Operation

- In this case the button will cause a direct action. The action could move the arm or operate an output.

Combined Double Action

- In this case the button is used to control both an output and move the arm.
- When the button is closed shortly the Output Tip will be closed for a fixed, settable time (see Settings).
- Pressing the button longer will operate the arm. Depending on the settings the arm will move as long as the button is pressed or move all the way until the end.

Combined Triple Action

- In this case the button is used to control both outputs and move the arm.
- When the button is pressed shortly once (single click) the 'Output Tip' will be closed for a fixed, settable time (see Settings).
- When the button is pressed shortly twice (double click) the 'Output Ring' will be closed for a fixed, settable time (see Settings).
- Pressing the button longer will operate the arm. Depending on the settings the arm will move as long as the button is pressed or move all the way until the end.

Do not forget to set both the 'Output Mode Tip' and 'Output Mode Ring' to 'Output Timed'. Otherwise the output(s) will not be functional. This is to avoid that outputs used for drive safety would lose their function.

Jack Tip Action

- Use this action when a button is connected to the tip of the input jack (this is the case when no splitter is used) and a mono jack or standard button with mono jack.

Parameter	Setting
Combined Double Action	Two actions are executed with the same button.
Combined Triple Action	Three actions are executed with the same button.
Open/Close Arm (default)	Open/Close arm, the direction will alternate.
Open Arm	Open the arm.
Close Arm	Close the arm.
Operate Output Tip	Actuate the tip of the output jack.
Operate Output Ring	Actuate the ring of the output jack.
No Action	Nothing will happen.

Jack Ring Action

- Use this action when a button is connected to the ring of the input jack (use a splitter cable to access the ring of the jack).

Parameter	Setting
Combined Double Action	Two actions are executed with the same button.
Combined Triple Action	Three actions are executed with the same button.
Open/Close Arm	Open/Close arm, the direction will alternate.
Open Arm	Open the arm.
Close Arm	Close the arm.
Operate Output Tip	Actuate the tip of the output jack.
Operate Output Ring	Actuate the ring of the output jack.
No Action (default)	Nothing will happen.

Motor Mode

Parameter	Setting
Move Arm Momentary (default)	The arm moves as long as the button is pressed.
Move Arm to End	The arm moves towards the end even after the button has been released. Pushing the button again will stop the arm.

Output Tip Mode

Parameter	Setting
Output Momentary	The output is closed as long as the button is pressed.
Output Timed (default)	The output is closed for a set time (see 'Output Close Time').
Output Switched	-The output acts as a switch. -Press the button to open/close. -This is also called toggle mode.
Output Drive Close	The output is closed when driving is allowed (related to home angle parameter).
Output Drive Open	The output is open when driving is allowed.
Output Close	The output is always closed.
Output Open	The output is always open.

Output Ring Mode

Parameter	Setting
Output Momentary	The output is closed as long as the button is pressed.
Output Timed (default)	The output is closed for a set time (see 'Output Close Time').
Output Switched	-The output acts as a switch. -Press the button to open/close. -This is also called toggle mode.
Output Drive Close	The output is closed when driving is allowed.
Output Drive Open	The output is open when driving is allowed.
Output Close	The output is always closed.
Output Open	The output is always open.

Setting	Description	Parameters	
Jack Input Debounce Time	<p>-Debounce time is the time the button needs to be pressed continuously before an action will occur.</p> <p>-Use this action to avoid multiple actions in cases such as tremor.</p>	Default	50ms
		Min.	10ms
		Max.	2500ms
		Steps	10
Jack Input Action Delay	<p>-Only in combination with combined double/triple action.</p> <p>-Sets the delay time. The button must be pressed (once or twice depending on the input mode) to trigger.</p> <p>-Pressing the button longer will operate the arm.</p>	Default	500ms
		Min.	100ms
		Max.	5000ms
		Steps	10
Output Close Time	<p>-The time the output will be closed if 'Output Timed' is set for an output.</p>	Default	200ms
		Min.	20ms
		Max.	5000ms
		Steps	10
Home Angle	<p>-When the arm is near the home position (mechanical end-stop): To set an output to indicate the position of the arm.</p> <p>-Used, for instance, to inhibit driving when the arm is not in drive position.</p> <p>-See also 'Output Tip Mode' and 'Output Ring Mode'.</p>	Default	5°
		Min.	5°
		Max.	30°
		Steps	1

Motor Settings (Dealer Level)

17.3

CAUTION

Due to product optimizations, the default setting values stated below may deviate.

Setting	Description	Parameters	
Nominal Speed of the Arm	<p>-To set the nominal speed.</p> <p>-Increase this value only for light loads.</p> <p>-Increasing this speed may cause the current limit to be reached too soon.</p>	Default 80% Min. 60% Max. 100% Steps 1	
Start Speed of the Arm	<p>-To set the start/end speed.</p> <p>-Decrease this value only for light loads.</p> <p>-Decreasing this speed may cause the current limit to be reached at the start.</p>	Default 45% Min. 30% Max. 50% Steps 1	
Acceleration Sector	<p>-Determines how far the arm needs to move to go from min. to max. speed or vice versa.</p> <p>-The smaller the angle, the higher the acceleration/ deceleration will be.</p> <p>-Decrease this value only for light loads.</p>	Default 15° Min. 10° Max. 50° Steps 1	
Current at Nominal Speed	<p>-Motor Current limit at nominal speed.</p> <p>-Increasing this value too much may cause the slip coupling to be actuated.</p>	Default 575mA Min. 100mA Max. 3500mA Steps 5	

Current at Start Speed	-Motor current limit at start. -Increasing this value too much may cause the slip coupling to be actuated unnecessarily.	Default	325mA
		Min.	50mA
		Max.	2500mA
		Steps	5
Current at End Stop	-Motor current limit when reaching the end stop. -Increasing this value too much may cause the slip coupling to be actuated unnecessarily.	Default	200mA
		Min.	50mA
		Max.	2500mA
		Steps	5

Hardware Settings (OEM Level)

17.4

CAUTION

Due to product optimizations, the default setting values stated below may deviate.

Setting	Description	Parameters	
Motor Voltage	-The voltage of the motor used in the design.	Default	12000mV
		Min.	5000mV
		Max.	24000mV
		Steps	100
Voltage/Current Comp	-Use this setting to adjust the motor and PWM driver. -The device will try to keep the speed of the motor constant, independent of the supply voltage. This also depends on the motor and PWM driver adjustment.	Default	120
		Min.	50
		Max.	200
		Steps	1

Setting	Description	Parameters	
PWM Offset	<p>-The PWM driver has a rise/fall time. The PWM cycle needs to be increased to compensate for this effect.</p> <p>-This value depends on the driver used and should not be changed for a certain hardware design.</p>	Default	10
		Min.	0
		Max.	25
		Steps	1
Power Factor	<p>-Use this setting to increase the power to the motor to compensate a speed drop.</p> <p>-When the current consumption of the motor increases, the motor speed will slightly drop.</p> <p>-Do not set this value too high. The speed is not meant to be kept perfectly constant. A value too high might cause oscillations or the current limit could be reached to</p>	Default	10
		Min.	0
		Max.	50
		Steps	1
Inrush Time	<p>-Use this setting to allow an increased current (in ms) during the inrush moment to avoid the current limit to be activated.</p> <p>-When the motor starts, an elevated current is used during a short time: the inrush current.</p>	Default	150ms
		Min.	100ms
		Max.	1000ms
		Steps	10
Inrush Over Current	<p>-Use this setting to allow an increased current (in %) during the inrush moment to avoid the current limit to be activated.</p> <p>-When the motor starts, an elevated current is used during a short time: the inrush current.</p>	Default	150%
		Min.	100%
		Max.	250%
		Steps	10
Stall Time	<p>-When the main axle is not moving during the set time, the electronics will assume the motor stalled and power to the motor will be stopped.</p>	Default	50ms
		Min.	100ms
		Max.	10000ms
		Steps	10

Setting	Description	Parameters	
Stall Angle	When the main axle has moved more than the set angle, the stall counter is reset.	Default	1°
		Min.	1°
		Max.	10°
		Steps	1
Switch Input Debounce Time	Debounce time is the time the switch needs to be closed continuously before an end stop is detected. This can be used to compensate for switch vibrations when the hardware is equipped with end-switches.	Default	50ms
		Min.	10ms
		Max.	2500ms
		Steps	10

Cleaning

18.1

Clean all parts of the Power Chin Boom on a regular basis (monthly), or whenever needed.

- Gently remove dust and dirt with a damp cloth.
- Use only non-aggressive household cleaning agents.

WARNING

Do not immerse the Power Chin Boom Motor Unit in water or do not use excessive amounts of liquid.

Monthly Check

18.2

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 of the parts.

Power Chin Boom Motor Unit Maintenance

18.3

The Power Chin Boom is maintenance free. Under regular use circumstances, the Power Chin Boom Motor Unit and different parts do not require additional maintenance.

CAUTION

Do not apply additional lubricants to the moving parts of the Power Chin Boom Motor Unit.

Product Description & Code

19.1

- Power Chin Boom Package (IDM-PCB-L) (IDM-PCB-R)
 - Power Chin Boom Motor Unit
 - Power Chin Boom T-Connection
 - Power Chin Boom Arm to Rod Interconnection
 - Power Chin Boom Right Arm
 - Power Chin Boom C-Rod
 - Power Chin Boom S-Rod
 - Power Chin Boom Pulling Wire
 - Power Chin Boom End Stop
 - Black Egg Switch
- All-Round Joystick Mounting Set (for mounting All-Round only) (IDM-46)
- Power Chin Boom Hardware– Quantum (DBM100-1)
- Power Chin Boom Hardware– Permobil (DBM100-2)
- Power Chin Boom Hardware– Cane (DBM100-3)
 - Track-Cane Chin Boom Mount
 - Front Rotation Chin Boom Mount
 - Back Track Chin Boom Mount
 - Chin Boom Extension Straight
 - Track/Cane Chin Boom Slide
 - Chin Boom Extension Angled
 - 1" Cane Clamp
 - Universal 2GTR lateral nut– metric
 - T-Nut Metric

Interface Connectors

19.2

- 1/8" (3.5mm) stereo jack in
- 1/8" (3.5mm) stereo jack out
- Mini USB

Maximum Torque Arm

19.3

- 3.25 Nm (500 gr load at 65 cm from pivoting point)

Sleep Mode Timer

19.4

- 120s

Power Chin Boom Dimensions 19.5

- Power Chin Boom Motor Unit– 6.476in. Height
4.134in. Depth
- Power Chin Boom Arm- 19.685in. End of arm to start of angle
8.11in. End of angle to tip of arm

Voltage Supply 19.6

- 16 V to 26 V

Output Drive Safety Update Time 19.7

- (In sleep mode) 5s

Power Consumption 19.8

- Sleep mode: 1.56mA
- Active mode, with inactive motor: 5.2mA
- Active mode, with active motor up to 1 000mA

EMC Requirements 19.9

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

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. Multi Swing complies with these limit values.

Installation Date:...../...../.....

Dealer:.....



Stealth Products, LLC. • info@stealthproducts.com • www.stealthproducts.com
+1(800) 965-9229 | +1(512) 715-9995 | 104 John Kelly Drive, Burnet TX 78611