

MCSH Configurator Tool

User Manual

SmarAct GmbH
Schuette-Lanz-Strasse 9
D-26135 Oldenburg

Tel.: +49 (0) 441 8008 79-0
Fax: +49 (0) 441 8008 79-21

eMail: info@smaract.de
www.smaract.de

© SmarAct GmbH 2015
Subject to change without notice.

1 Introduction

Each MCS Hand Control Module has a set of configuration slots which can be loaded from or saved to the internal EEPROM. Besides the option to set up the configuration slots directly through the Hand Control Module, you have the opportunity to use the MCSH Configurator Tool.

It is highly recommended to read the user manual of your Hand Control Module first for a better comprehension of the terminology used in this manual.

2 Connecting to the System

The MCSH Configurator Tool may be used for controllers with a USB, a network or RS232 interface. Simply connect your device to the PC via a USB resp. RS232 cable and power up the system.

Select the menu entry “Device” → “Connect” to open up the connect window.

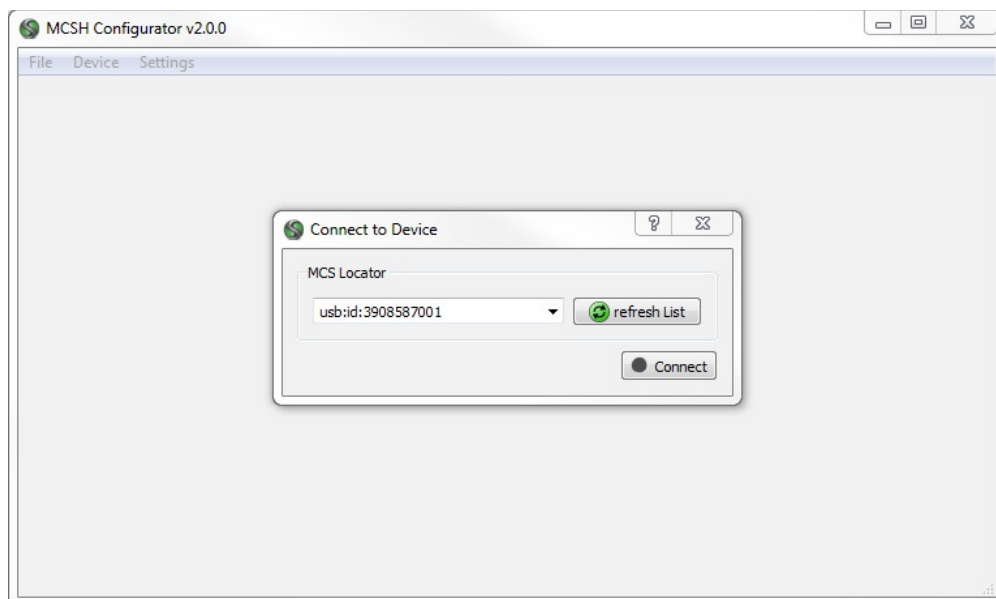


Figure 1: Connecting to Hand Control Module.

Select a system from the list of USB devices or serial ports. Alternatively you can enter a locator string for the controller you wish to connect to.

- If you have a USB device select one of the “usb:id:123456789” entries from the menu where “123456789” must match the system ID of the MCS you want to update. Please note that USB devices also install a virtual COM port on your PC, but cannot be connected by selecting the COM port from the menu.
- If you have a RS232 device select one of the “serial:COM1” menu entries where COM1 must be the COM port that the MCS is connected to.
- If you have a MCS with network interface, enter its locator string in the text field. A locator string for network controllers has the format:
network:192.168.1.200:5000
where 192.168.1.200 is the IP address and 5000 is the port of the MCS. The IP address and port must match the network address that the MCS network interface has been configured for.

After you have selected the MCS, click the *Connect* button to establish a connection to your hardware. Please note that with USB devices it may take several seconds after power-up / cable connection before they are detectable by the software. If the connection fails, try to connect a few seconds later again.

Once the connection has been established the status bar at the bottom of the application window will show *Connection Established*.

3 Reading/Writing Config Slots from/to Device

After the connection has been successfully established you can select the menu entry “Device” → “Read configuration” to read the configuration slots from your Hand Control Module.

Figure 2 shows a read configuration of a MCS-3H Device.

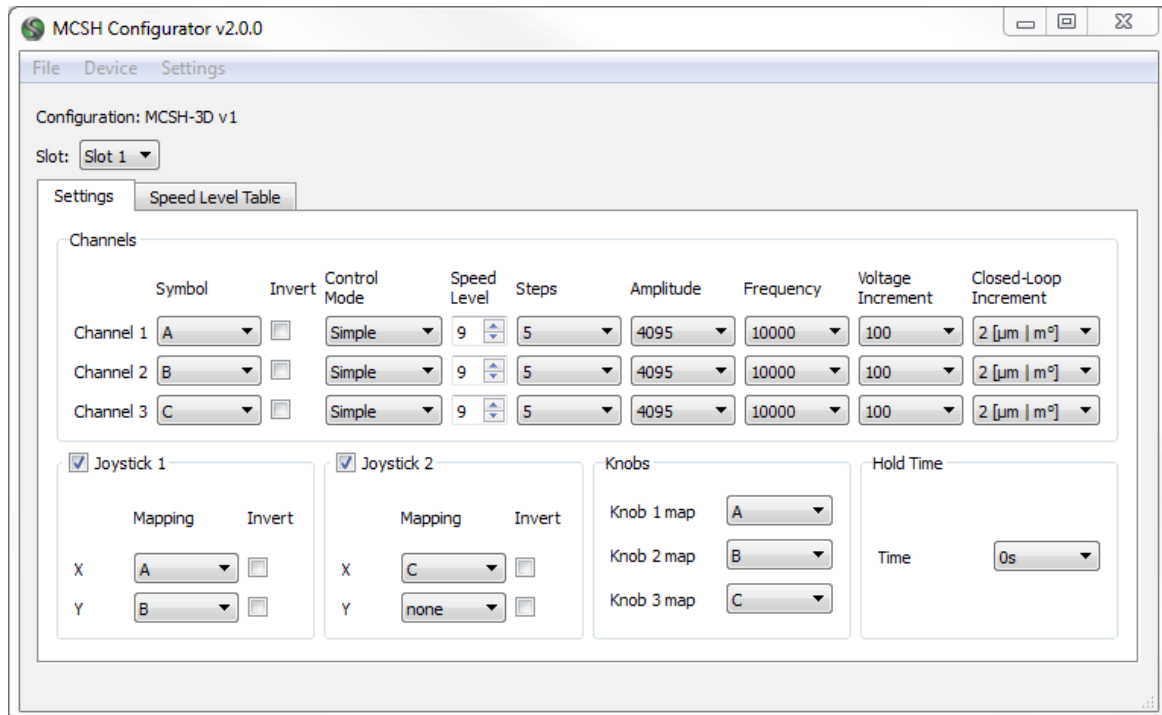


Figure 2: Reading Configuration of a MCS-3H.

To write changed configuration slots to your Hand Control Module, select the menu entry “Device” → “Write configuration”. By default the MCSH Configurator Tool will verify the written configuration. To disable this option deselect “Settings” → “auto verify”.

You can also execute the verification process manually by selecting “Device” → “Verify configuration”.

Note: The written changes take effect after the next power-up of the MCS or by manually loading the changed configuration slot directly from the Hand Control Module.

3.1 Changing Configuration Slots

After a successful connection and readout of the configuration, you probably would like to change some settings of your Hand Control Module. For a better product specific understanding the following subsections explain how to change the configuration slots for a MCS-3H and a MCS-nH device.

MCS-3H

Figure 2 provides an overview of the MCSH Configurator Tool after reading out the configuration slots of a MCS-3H device.

On the top, choose one of several *slots* you may want to change.

Note: All settings below the slot selection are dependent from the slot you choose.

Channels

In the *channels* area, you may want to change channel specific settings.

- First, you can choose a symbol for each channel for better identification. The default symbols of the channels 1,2 and 3 are A,B and C.
- To invert the direction of each channel use the *invert* checkboxes. All Channels are not inverted by default.
- Under *Control Mode* you can choose between *Simple*, *Advanced*, *Scan* and *Closed-Loop Control Mode* for each channel. For further information about control modes please have a look at the MCS-3H User Manual.
- Each one of the settings *Speed Level*, *Steps*, *Amplitude*, *Frequency*, *Voltage Increment* and *Closed-Loop Increment* is a preset for one control mode. Table 1 provides information about the assignment and value ranges.

Table 1: Control Mode Settings

Setting	Assignment	Minimum Value	Maximum Value
<i>Speed Level</i>	Simple Mode	1	Up to 17 *
<i>Steps</i>	Advanced Mode	1	9000
<i>Amplitude</i>	Advanced Mode	100	4095
<i>Frequency</i>	Advanced Mode	5 Hz	18500 Hz
<i>Voltage Increment</i>	Scan Mode	0	4095
<i>Closed-Loop Increment</i>	Closed-Loop Mode	1nm or 1 μ ° **	5mm or 90° **

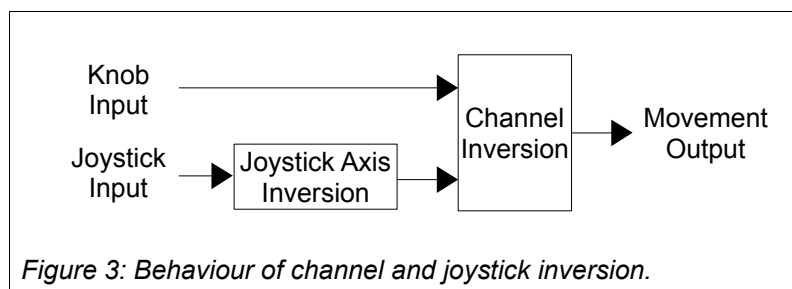
(*) To adjust the size (and the input) of the Speed Level Table use the MCSConfiguration Tool.

(**) The values for the Closed-Loop Increment are sensor type dependent. If a channel is configured for rotatory actuators the corresponding SI-unit of the increment is degree (°). For linear actuators the SI-unit of the increment is meter (m).

Joystick 1 / 2

- In the *joystick* areas you have the opportunity to *map* channels to the axis X and Y of each joystick. The corresponding drop-down menus contain the symbols of each channel.
- Besides the possibility of channel inversion described above, there is an opportunity to *invert* every axis of each channel by using the check boxes.

Figure 3 describes the behaviour of joystick inversion in combination with channel inversion.



When turning a knob, only the channel inversion applies to the input before the actual movement is executed. When moving a joystick axis, both the joystick axis inversion and the channel inversion apply.

Note: The channel inversion is bound to a channel and not to a knob. Therefore, when remapping the knobs to different channels, you don't need to adjust the inversion parameters.

Knobs

- In the knobs area you can map a channel to each knob. Exactly like in the joystick area, the drop-down menus contain the symbols of each channel.

Hold Time

- The hold time is a global parameter that will affect all channels equally.
If a channel is set up in Closed-Loop Mode, the corresponding positioner holds the target position for the duration, configured by the hold time, after an executed movement.

MCS-nH

Figure 4 provides an overview of the MCSH Configurator Tool after reading out the configuration slots of a MCS-nH device.

On the top left, choose one of several *slots* you may want to change.

Note: All settings below the slot selection depend on the slot you choose.

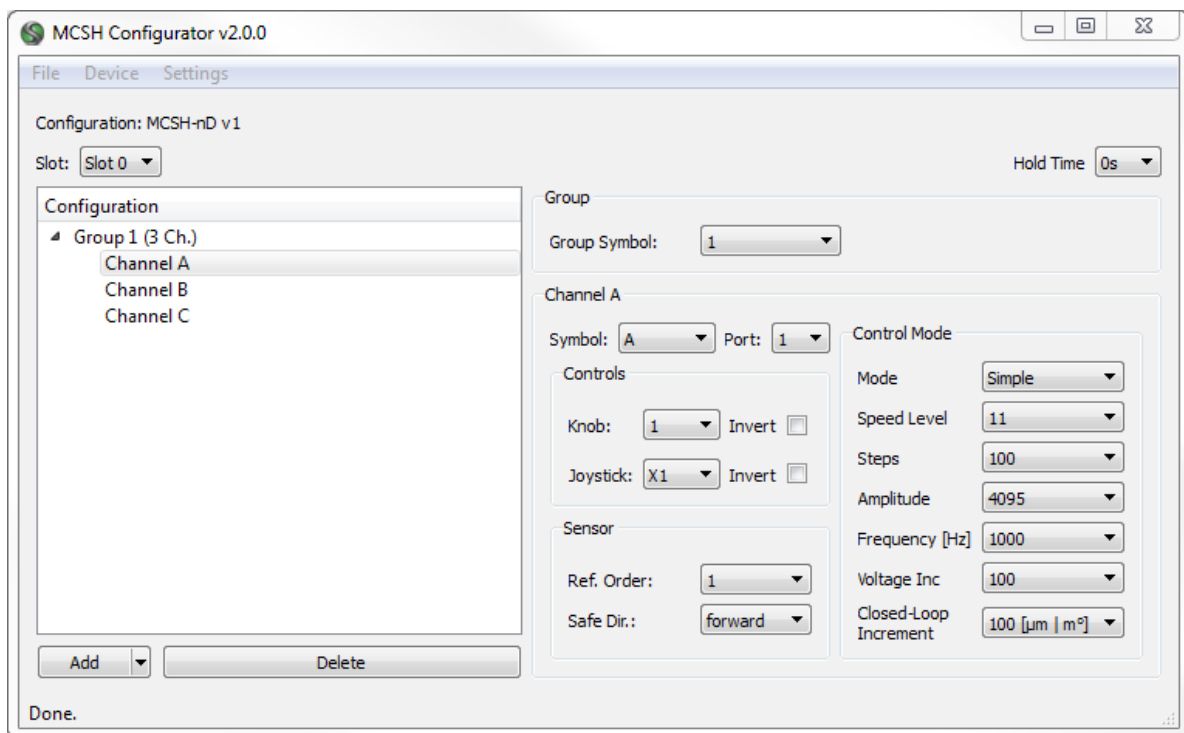


Figure 4: Reading Configuration of a MCS-nH.

Configuration

First, you should define groups in the *configuration* section. Each *group* acts as a kind of “container” to group up to four channels together. For best practice, a *group* should consolidate all positioners of one mechanical system e.g. one manipulator.

After adding at least one group you are able to add channels to a selected group.

Group

- By selecting a group in the configuration section, you are able to choose a *group symbol* in the group area on the right side for better identification.

Channel

After selecting a channel in the configuration section, the channel area on the right side of the MCSH

Configurator Tool shows up the corresponding channel settings.

- Choose a channel *symbol* of your choice for identification.
- By choosing a *port* you are able to map a physical output to the selected channel.

Controls

- In the *controls* area - under *knob* settings - you have the opportunity to *map* a knob to the selected channel. Furthermore you are able to invert the direction of the selected knob.
- Moreover - under *joystick* settings - you can map an axis of a joystick to the selected channel. X1 and Y1 represent the X and Y axis of joystick 1, X2 and Y2 the X and Y axis of joystick 2. Equally to knobs you are able to invert the direction of the selected joystick by using the corresponding invert check box.

Note: In contrast to MCS-3H there is no channel inversion.

Sensor

- In the sensor area you can specify a reference order for each channel. While executing the “find reference all” option, the MCS will execute individual reference operations for each channel in the given order.
- Furthermore you can preset a *safe direction* - forward or backward - for each channel to take a direction into account while referencing.

Control Mode

- Under *Control Mode* you can choose between *Simple*, *Advanced*, *Scan* and *Closed-Loop Control Mode* for a selected channel. For further information about control modes please have a look at the MCS-nH User Manual.
- Each one of the settings *Speed Level*, *Steps*, *Amplitude*, *Frequency*, *Voltage Increment* and *Closed-Loop Increment* is a preset for one control mode. Table 1 on page 4 provides information about the assignment and value ranges.

Hold Time

- The hold time is a global parameter that will affect all groups containing channels equally. If a channel is set up in Closed-Loop Mode, the corresponding positioner holds the target position for the duration, configured by the hold time, after an executed movement.

4 Save/Load Configuration to/from File

For saving a configuration to a file select the menu entry “File” → “Save to File”. A file dialog will appear for choosing a location and file name.

Note: This operation saves the configuration which is set up in the MCSH Configurator Tool. If you change some settings and you do not write the configuration back to the device you will save the program configuration to a file and not the device configuration.

For loading a configuration from a file select the menu entry “File” → “Load from File”. A file dialog requests you to choose a *.hcmc configuration file.