

Manual Thirdparty control panels for Beamicon2

Foreword

The plugin for the Beamicon2 software currently supports the following models

Manufacturer XHC :

XHC HB-04 (cable version),
XHC HB-04 (wireless),
XHC WHB-04B-6

Since the manufacturer XHC offers different versions of the handwheels and occasionally changes them, it is important that you are aware of the version of the handwheel.

A correct function can only be guaranteed if the models mentioned above are really the ones mentioned.

Test your handwheel version before buying the plugin! (Chapter Recognizing the Handwheel Type)

Furthermore, it must be pointed out that these handwheels are designed for use with the CNC control software MACH3 or other programs. Some key assignments and display indications do not make sense or are not clear when used with Beamicon2.

Furthermore the Beamicon2 supports the BeamiRC control unit. No plugin is required for this. (Chapter Recognizing the Handwheel Type)

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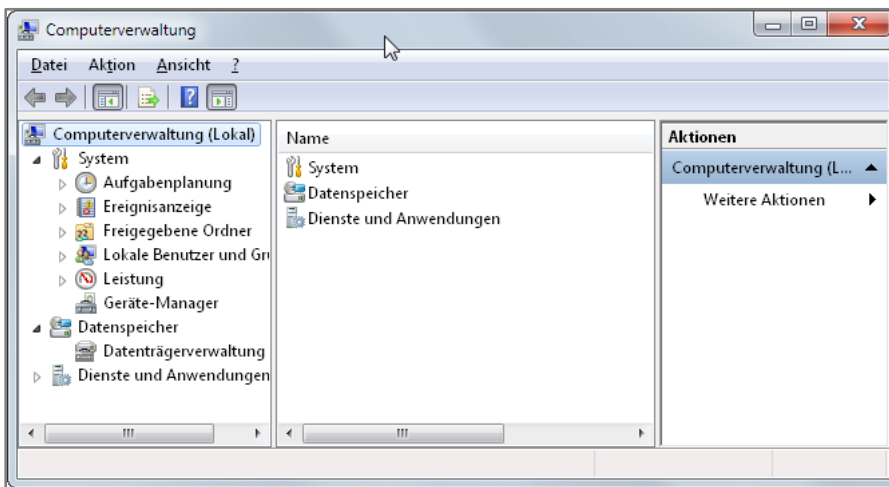
Identifying the handwheel type

As mentioned at the beginning, there are many different models that look very similar on the market. However, these models may not be compatible with each other.

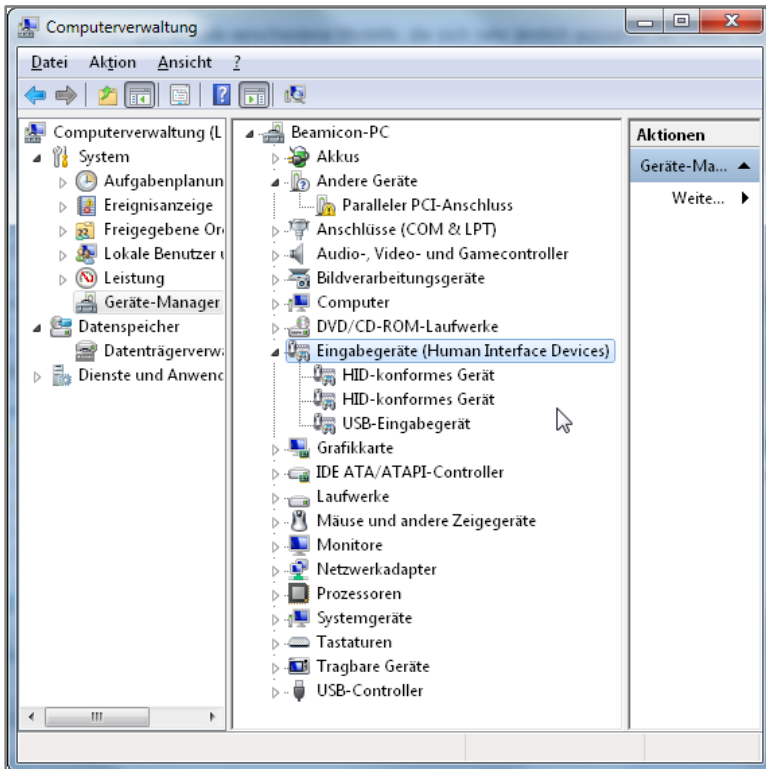
To be sure which model it is, you can identify it quite easily. The description is for Windows7. If you have another operating system and you are not familiar with it, please ask your system administrator.

Opening the Device Manager

There are several ways to open the Device Manager. If you already know some of them, simply open the Device Manager now. Here is a short instruction: Click on the start icon, then right-click on the entry "Computer". Select "Manage". The administration dialog opens.



Now click on "Device Manager". The Device Manager opens.



Search for the entry "Input devices (Human Interface Devices)". The XHC handwheels are displayed as HID-compliant devices. There may be some of them in this list, because mice, keyboards, joysticks are also shown as such. Double-click on an entry to open the properties window.

Under the map "Details" select the entry "Hardware IDs" off. A list with different values is displayed.

Now compare the entries with the supported models:

XHC HB04 (Cable and Wireless) HID\VID_10CE& PID_EB70

XHC WHB04B-6 (Wireless) HID\VID_10CE& PID_EB93

BeamiRC (cable) HID\VID_015C& PID_0100

Only these two models are currently supported by XHC. If a number other than VID_10CE is displayed, the device is not from XHC. If a number other than the two mentioned is displayed for PID_EB70 or PID_EB93 for the correct VID_10CE, it is a handwheel from the XHC company, but the model is not (yet) supported.

Handwheel XHC HB04 and HB04 wireless



Installation of the hardware

HB04 Cable version

Plug the cable of the handwheel into any USB port of the PC and switch it on with the round push switch on the top right. Your operating system automatically loads the USB driver for the device. After the driver has been installed, please check if it is a version of the handwheel supported by Beamicon2 (Chapter: Recognizing the handwheel type).

HB04 Wireless version:

Plug the wireless receiver into a free USB port of the PC running the Beamicon2 software. After plugging it in, the operating system automatically loads the corresponding driver.

Check that the batteries are inserted in the handwheel and switch the handwheel on by pressing the "Power" button.

After the driver has been installed, please check if it is a version of the handwheel supported by Beamicon2 (Chapter: Recognizing the handwheel type).

Attention!

The presence of the handwheel is only checked when starting the Beamicon2 software. It may therefore be necessary to restart Beamicon2 if the handwheel was not connected or not switched on during startup. Once the handwheel has been detected, it can later be switched off and on again as often as required or disconnected and reconnected, even during operation.

Installation of the software plugin

To use the handwheel, the Beamicon2 software version 1.60 or higher is required. If you purchased the hand wheel together with a license for Beamicon2, a voucher for registration is included with the device. If you do not have a voucher, e.g. because you bought the handwheel from a MACH3 dealer, you must purchase a license to operate the handwheel with the Beamicon2 software before you can use the handwheel.

You can purchase a license from the following companies, among others:
Benezan-Electronics (Only dealers, Corporate customers)
Sorotec
Tecno-World

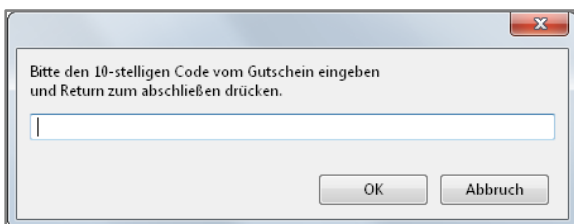
Activate software option

Select in the Menu Support -> Order and activate options off. In the dialog that appears, select "Activate coupon codes".

There are 2 variants available for activation.

If your PC has Internet access, the easiest way is to activate the voucher online. The function is automatically enabled. If the PC does not have Internet access, you can activate the handwheel function from any other computer with Internet access.

Variant 1: After clicking on "Activate voucher online" a window opens where you enter the 10-digit voucher code. If the code is valid, the option is activated immediately.

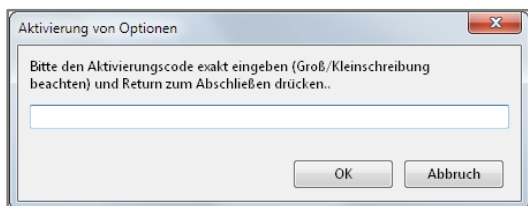


Variante 2: After clicking on the button "Activate voucher from another PC" the following dialog opens:

Now go to the internet address given and fill out the form. Make sure that the number you enter is correct (no spaces at the beginning or end). An activation code will be displayed and also sent to you by e-mail.

After receiving the activation code, click on the button "Enter activation code". A window will open where you have to enter the code exactly.

Pay attention to lower/upper case, and spaces.



After confirmation with OK the option is activated.

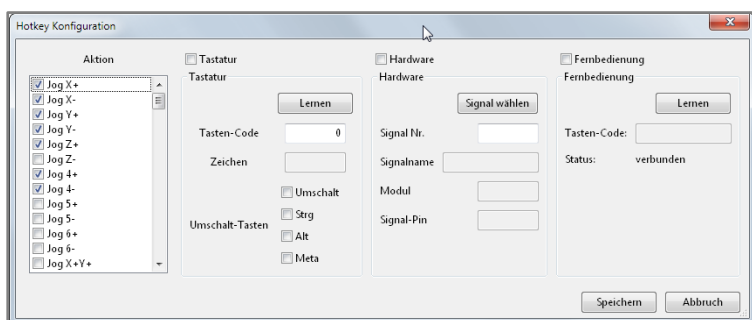
Adjusting the individual assignment (hotkeys)

Most keys of the handwheel can be freely assigned. For security reasons, this is not done automatically, as each user uses and saves different macros. This could lead to unpredictable and unwanted conditions on the machine. However, the assignment of individual functions of the handwheel is very simple. There is a sample file for the XHC HB04 handwheel. To install them, proceed as follows:

Set the File menu to "Importing settings" and then click on the button "Standard settings". A file dialog opens. Open the directory "Addons" and select the file "XHC_HB04.ini" off.

Click on "Open" in the file dialog and then again "Open" in the parameter dialog.

To change individual keys and to store new or different functions, proceed as follows:
Open via "Menu->Configuration->Hotkeys...." the Hotkey Configuration dialog.










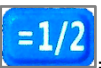





On the left side of Action you can now select any function. By clicking on the button "Learning" in the section "Remote control" the button turns blue and the Beamicon2 is now in learning mode and waits for a button press on the handwheel. After pressing the desired button, the button code appears under the button and the function is assigned. Now proceed in the same way for all keys to be defined. If you no longer want to assign a function to a button, simply remove the tick in the box in front of "Remote control". This removes the assigned function.

Operating the handwheel

Hotkey Assignment

Please note that the key layout was originally developed for the CNC control software MACH3, and unfortunately not everything fits the Beamicon2 software perfectly. This is not a bug of the Beamicon2 or the plugin, the handwheel was simply designed for a different control software.

 RESET	Reset spindle or feed override to 100% (only if rotary switch is set to F or S)
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 Stop	Stop program
 to zero	Move the axis currently selected with the rotary switch to the zero point of the currently set offset (workpiece offset G54...., coordinates to the right in the handwheel display)
 Start/Pause	Start / stop program
 Rewind	Rewind program
 Probe-Z	Can be assigned a user macro to perform a tool length measurement. See: Adaptation of the individual assignment
 Spindle	Switch spindle on or off
 =1/2	Set the axis coordinate currently selected with the rotary switch to half the value.
 =0	Set the axis coordinate currently selected with the rotary switch to zero
 Safe-Z	Can be assigned with a user macro. See: Adaptation of the individual assignment
 Zero point	Move to X/Y/Z = 0 in the currently selected offset
 Macro-1	Can be assigned with a user macro. See: Adaptation of the individual assignment
 STEP + +	Switching resolution and speed
MPG Fashion	No function at present

Display



Coordinates MC: The machine coordinates are displayed here, this corresponds to offset G53.

Coordinates WC: Here the workpiece coordinates are displayed, depending on the currently selected offset (G54-G59 and temporary offset)

More displays:

mm/inch: This display shows the currently selected unit of measurement.

0*1x: Display for the resolution of the handwheel. The larger the numbers the further the machine travels per handwheel step. The display does not always exactly match the actual step size, it is more an estimated display to show the order of magnitude. The exact values can be found under Machine->Configuration->Speeds->Hand wheel speeds.

Move axes



Turn the rotary switch at the bottom right to the position for the axis you want to move. The axle now follows the movement of the large wheel with crank and scale. Resolution and speed can be switched with the "STEP + +" button. The setting of the selectable step sizes is done in the menu "Configuration - Machine" on the page "Speeds" at "Handwheel", right.

Look out!

It is recommended to set the rotary switch back to the "OFF" position before putting the handwheel down. Otherwise, unintentional and possibly dangerous machine movements may occur if you accidentally touch the wheel or if the device falls down.

Moving the axes with the handwheel is, of course, only possible if a program or other movement is not currently running (homing, macro, jog mode via keyboard, etc.).



Readiness for handwheel operation is indicated by the rotary wheel symbol in the Status field (instead of the OK symbol).

Spindle and feed override

The handwheel can also be used to influence the feed rate or spindle speed during a running program. To do this, set the rotary switch to position "Spindle" or "Feed". By turning the wheel, the speed can now be regulated between 0 and 150%.

User configuration

Of course, you can customize the assignment of hotkeys to keys according to your own ideas. You can find out more about this in the Chapter "Adjusting the individual assignment"

Handwheel XHC WHB04B-6



Installation of the hardware

XHC WHB04B-6 Wireless version:

Plug the wireless receiver into a free USB port of the PC running the Beamicon2 software. After plugging it in, the operating system automatically loads the corresponding driver.

Check that the batteries are inserted in the handwheel and switch the handwheel on by pressing the "Power" button.

After the driver has been installed, please check if it is a version of the handwheel supported by Beamicon2 (Chapter: Recognizing the handwheel type).

Attention! The presence of the handwheel is only checked when starting the Beamicon2 software. It may therefore be necessary to restart Beamicon2 if the handwheel was not connected or not switched on during startup. Once the handwheel has been detected, it can later be switched off and on again as often as required or disconnected and reconnected, even during operation.

Installation of the software plugin

To use the handwheel, the Beamicon2 software at least version 1.60 is required. If you purchased the handwheel together with a license for Beamicon2, a voucher for registration is included with the device. If you do not have a voucher, e.g. because you bought the handwheel from a MACH3 dealer, you must purchase a license to operate the handwheel with the Beamicon2 software before you can use the handwheel.

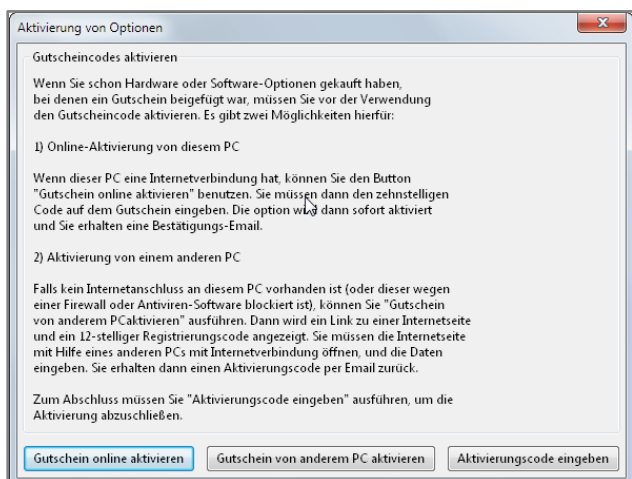
You can purchase a license from the following companies, among others:
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Sorotec
Tecno-World
Bulldog CNC Machines

Activate software option

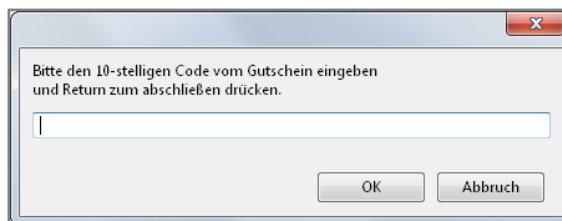
Select in the Menu Support -> Order and activate options off. In the dialog that appears, select "Activate coupon codes".

There are 2 variants available for activation.

If your PC has Internet access, the easiest way is to activate the voucher online. The function is automatically enabled. If the PC does not have Internet access, you can activate the handwheel function from any other computer with Internet access.

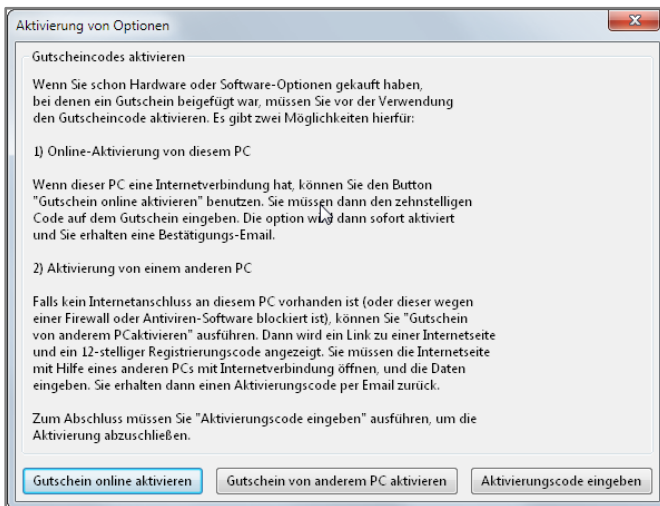


Variant 1: After clicking on "Activate voucher online" a window opens where you enter the 10-digit voucher code. If the code is valid, the option is activated immediately.

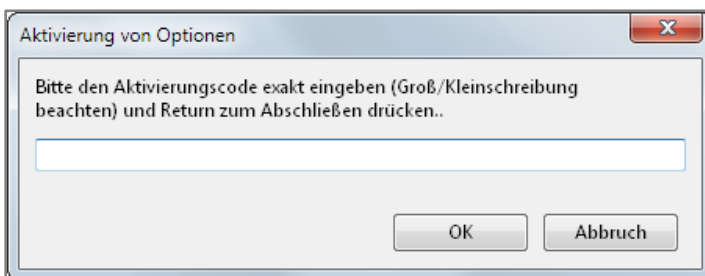


Variant 2: After clicking on the button "Activate voucher from another PC" the following dialog opens:

Now go to the internet address given and fill out the form. Make sure that the number you enter is correct (no spaces at the beginning or end). An activation code will be displayed and also sent to you by e-mail.



After receiving the activation code, click on the button "Enter activation code". A window will open where you have to enter the code exactly. Pay attention to lower/upper case, and spaces.



After confirmation with OK the option is activated.

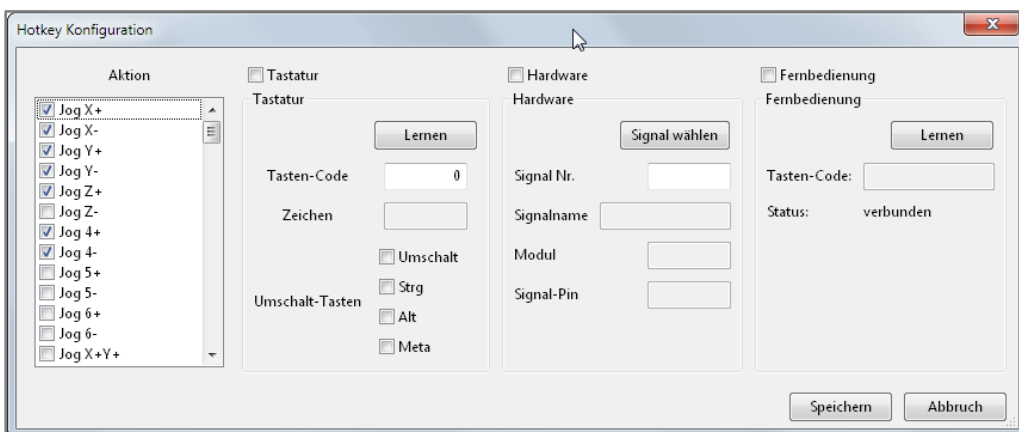
Adjusting the individual assignment (hotkeys)

Most of the buttons on the control panel are already predefined. However, function keys can still be assigned or the key assignment can be changed. However, the assignment of individual functions of the control unit is very simple. There is an import file for the XHC WHB04B-6 control unit. To install them, proceed as follows:

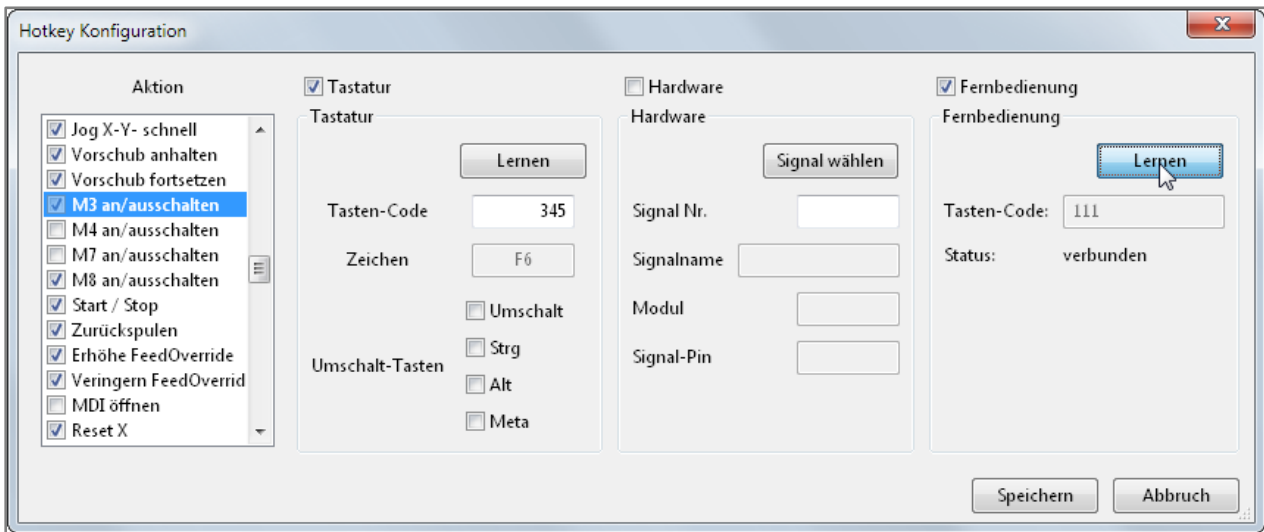
Set the File menu to "Importing settings" and then click on the button "Standard settings". A file dialog opens. Open the directory "Addons" and select the file "XHC_WHB04B-6.ini" off.

Click on "Open" in the file dialog and then again "Open" in the parameter dialog.

To change individual keys and to store new or different functions, proceed as follows:
Open via "Menu->Configuration->Hotkeys...." the Hotkey Configuration dialog.



On the left side of Action you can now select any function.



By clicking on the button "Learn" in the section "Remote control" the button turns blue and the Beamicon2 is now in learning mode and waits for a button press on the handwheel. After pressing the desired button, the button code appears under the button and the function is assigned. Now proceed in the same way for all keys to be defined. If you no longer want to assign a function to a button, simply remove the tick in the box in front of "Remote control". This removes the assigned function.

Operating the handwheel

Hotkey Assignment










Please note that the key layout was originally developed for Mach3, and unfortunately not everything fits the Beamicon2 software perfectly at the moment. Many of the keys are freely definable.

The WHB04B-6 has a Function key which must be pressed simultaneously to reach the orange buttons.



Power button. This button switches the handwheel on.

	<p>This key generates different key codes in conjunction with the axis selector knob. These can be assigned to individual functions, e.g. set the offset of the selected axis to 0.</p>
	<p>This button is a kind of "software emergency stop". Pressing this button will set the feed override to 0% and thus stop the machine.</p>
	<p>This key is freely configurable. It makes sense to assign the start/stop of a program.</p>
	<p>These keys can be assigned individually (without pressing the function key at the same time).</p>

	<p>This button switches to MPG mode.</p>
	<p>This button switches to STEP mode</p>
	<p>Pressing one of the two keys together with the FN key increases or decreases the feed override by 10% of the current value.</p>
	<p>Pressing one of the two keys together with the FN key increases or decreases the spindle override by 10% of the current value.</p>
	<p>This button is incorrectly printed. Actually this should be called "M-Home" and stands for "driving to machine zero". This key can be freely assigned.</p>
	<p>This key can be freely assigned.</p>
	<p>This key should mean: "Move to the workpiece zero point", i.e. to the zero point of the currently set offset. This key can be freely assigned.</p>
	<p>This key can be used to turn the spindle on/off (M3). This key can be freely assigned.</p>
	<p>This key could trigger a G79 (tool length measurement). The key can be freely assigned.</p>

The axis selector switch

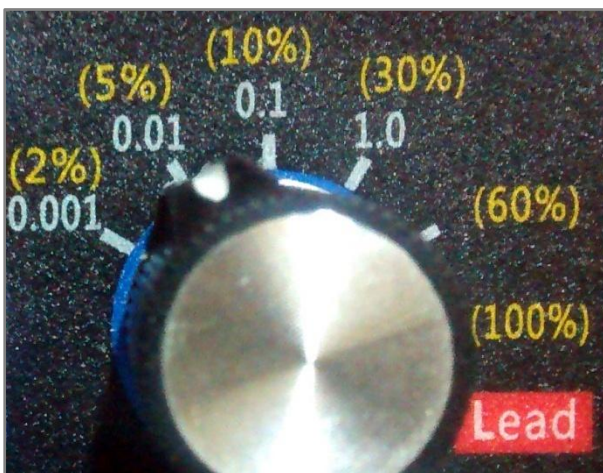


Use this switch to select the axis to be moved.

Attention!

The handwheel is updated NOT the display when the switch is set to OFF is standing. This is not a bug of the Beamicon2 but a (bug?) function of the handwheel.


The step/speed selector switch



Use this switch to set the step size or speed when turning the handwheel.

Handwheel in MPG mode:




Press the button  to switch to MPG mode. In this mode, the yellow % figures apply. The specification of 2%-100% refers to the maximum G1 speed of the selected axis (2/3 of G0). The step size is calculated automatically, so that "normal" movement of the handwheel (1 turn in 5s) results in a smooth movement. The higher the speed the higher the step size. Example: **Axis selector switch is set to "X" -> axis X is moved.** The display shows MPG 10%. The X axis is configured with a maximum speed (G0) of 3.5m/min. If the handwheel is turned quickly, the X-axis now moves at a maximum speed of 233mm/min. If you turn slower, the axis also moves slower, but jerks, because the axis comes to a halt between the steps. A line on the handwheel corresponds to a step of the axis of 0.194mm.

NoteThe function "Lead" is not used and has the same effects as "100%".

Handwheel in Step mode:

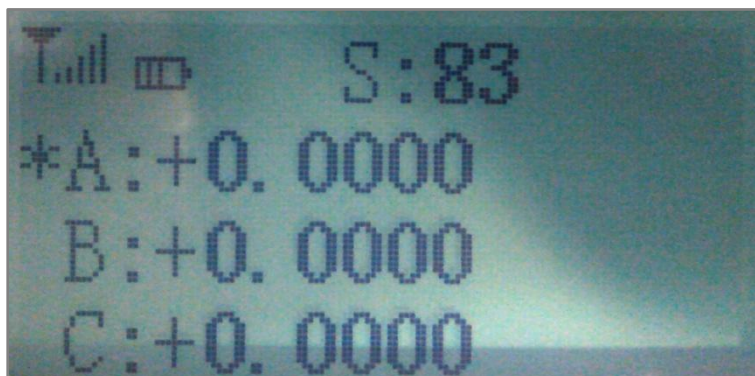


By pressing the key  you switch to the Step Mode. In this mode the white step specifications apply. In the range of 0.001-0.01mm, the selected axis moves at 2% of its maximum speed, in the other ranges at 5% of its maximum speed. Example: **Axis selector switch is set to "X" -> axis X is moved.** The display shows STP 0.1. The X-axis is configured with a maximum speed of 3.5m/min. When turning the handwheel around a detent position, the X-axis now moves at a maximum speed of 116mm/min by exactly 0.1mm.

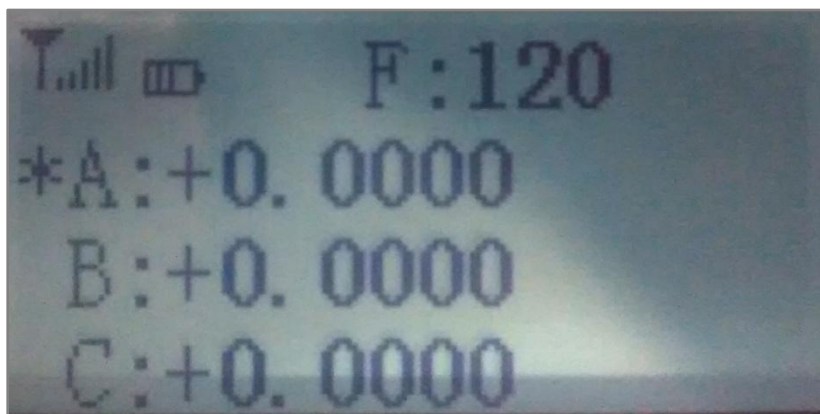
The display



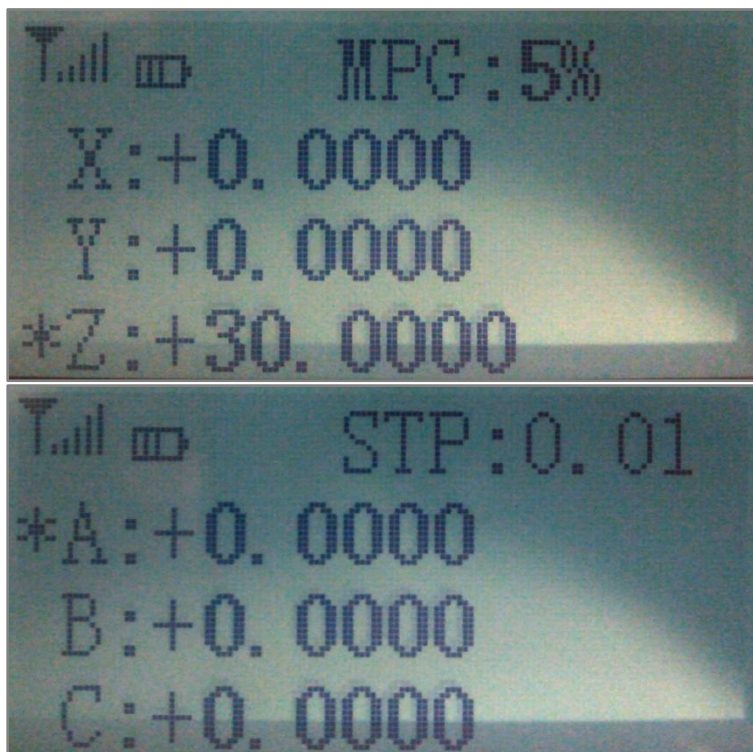
Pressing one of the keys together with the function key will change the spindle override value. The current value is shown on the display. In this example S: 83 = spindle override 83%



When one of the keys is pressed together with the function key, the feed override value is changed. The current value is shown on the display. In this example F: 120 = Feed Override 120%



The selected axis is marked by an asterisk in front of the axis letter. A maximum of 3 axes are always displayed, either axes X,Y,Z or axes A,B,C. The MPG or STP mode is shown at the top of the display.



Control unit BeamiRC



Installation of the hardware

BeamiRC with cable

Plug the cable of the control unit into any USB port of the PC. Your operating system automatically loads the USB driver for the device.

Attention!

The presence of the control unit is only checked when the Beamicon2 software is started. It may therefore be necessary to restart Beamicon2 if the control unit was not connected or not switched on during startup.

Once the control unit has been recognized, it can be switched off and on again as often as desired or disconnected and reconnected again later, even during operation.

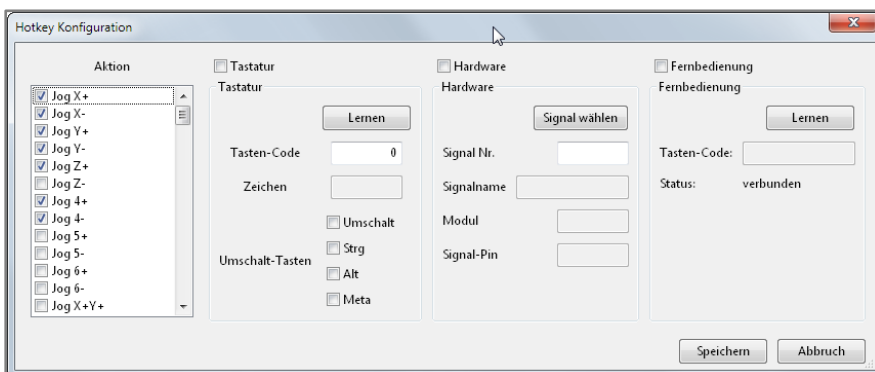
Installing the software

Most of the buttons on the control panel are already predefined. However, function keys can still be assigned or the key assignment can be changed. However, the assignment of individual functions of the control unit is very simple. There is an import file for the BeamiRC control panel. To install them, proceed as follows:

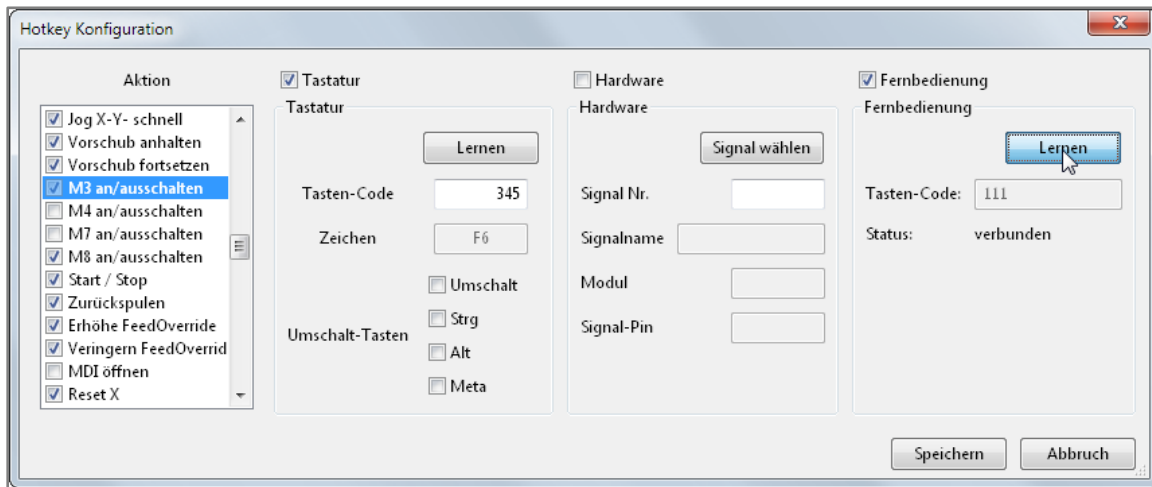
Set the File menu to "Importing settings" and then click on the button "Standard settings". A file dialog opens. Open the directory "Addons" and select the file "BeamiRC.ini" off.

Click on "Open" in the file dialog and then again "Open" in the parameter dialog.

To change individual keys and to store new or different functions, proceed as follows:
Open via "Menu->Configuration->Hotkeys...." the Hotkey Configuration dialog.



On the left side of Action you can now select any function.



By clicking on the button "Learning" in the section "Remote control" the button turns blue and the Beamicon2 is now in learning mode and waits for a button press on the handwheel. After pressing the desired button, the button code appears under the button and the function is assigned. Now proceed in the same way for all keys to be defined. If you no longer want to assign a function to a button, simply remove the tick in the box in front of "Remote control". This removes the assigned function.

Handling of the control unit

Hotkey Assignment



Program start or stop



Rewind program



Switch spindle on/off



Switch cooling on/off



Free function key



Free function key



Free function key



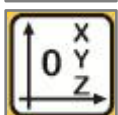
Switch over G40/G43. G43 is indicated by a red LED.



Set current offset to zero. Depending on the representation in the display, axis X or Z.



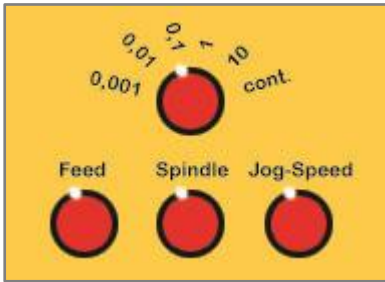
Set current offset to zero. Axis Y or A depending on the display.



Move to the zero point of the current offset



Mode button to switch between X/Y and Z/A axes



Rotary knobs

The upper rotary knob is used to set the step size when the cursor element is activated. The step size can be selected from 0.001mm to continuous. Use the Feed, Spindle and Jog Speed knobs to change the respective override values.