
Operating Manual

Remote control / Keypad SM-7 v.2.0



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Safety instructions

1.1 General instructions

The manipulators and moving-tables are designated for the positioning of repositories, microscopes or tools. (e.g.: capillaries, measuring electrodes, stimulating electrodes... etc.)

For a safe function of the manipulators pay attention to the operating and assembly manuals. Our service team will assist you, if additional information is required.

Comply with the security advice of this manual.

The intended protection can be endangered if the device is not used according to the operating manual of the producer.

1.2 User instructions

Do not touch the motor-driven manipulators during the positioning process in order to avoid injuries and bruises, and to avoid damaging the stated functions of the device.

As a result of the modular, individually constructed device by the customer, different areas can be danger zones with an increased risk of injury or wounds.

Avoid bringing your face too close to the moving devices, because the cramped space in combination with faulty operation of the manipulators can easily lead to the breakage of glass and glass splinters in the eye. The provided protective covering must be assembled according to the operation manual.

1.3 Transport instructions

The manipulators and moving tables are transported in a special packing in order to avoid possible damages during transportation.

1.4 Service and maintenance instructions

The manipulators and moving tables are maintenance-free.

In order to maintain the functional efficiency of the the devices, they must be protected from humidity and excessive heat. Strong jerks can lead to an incorrect adjustment which limits the functional efficiency, with the exception of the activities mentioned in the operating manual or if instructed by our service team. No personal changes are allowed.

1.5 Installation location instructions

Install the devices at locations with adequate air supply for aeration of the equipment.

The main control switch of the device has to be easily accessible at all times.

1.6 Disposal instructions

Broken devices or those no longer needed do not belong in the household rubbish! Dispose of them according to the local legal regulations. If in doubt, ask the service team of Luigs & Neumann for help.

1.7 Guarantee instructions

The producers are not liable for damages caused by unauthorized interference. Unauthorized interference terminates all warranty claims.

1.8 Repair and readjustment instructions

The devices must be packed according to the legal regulations. Contaminated devices must be cleaned beforehand if possible, otherwise a user declaration must be provided in which the substance is described and the absolute safety of the health of human-beings is confirmed.

Remote control / Keypad SM-7

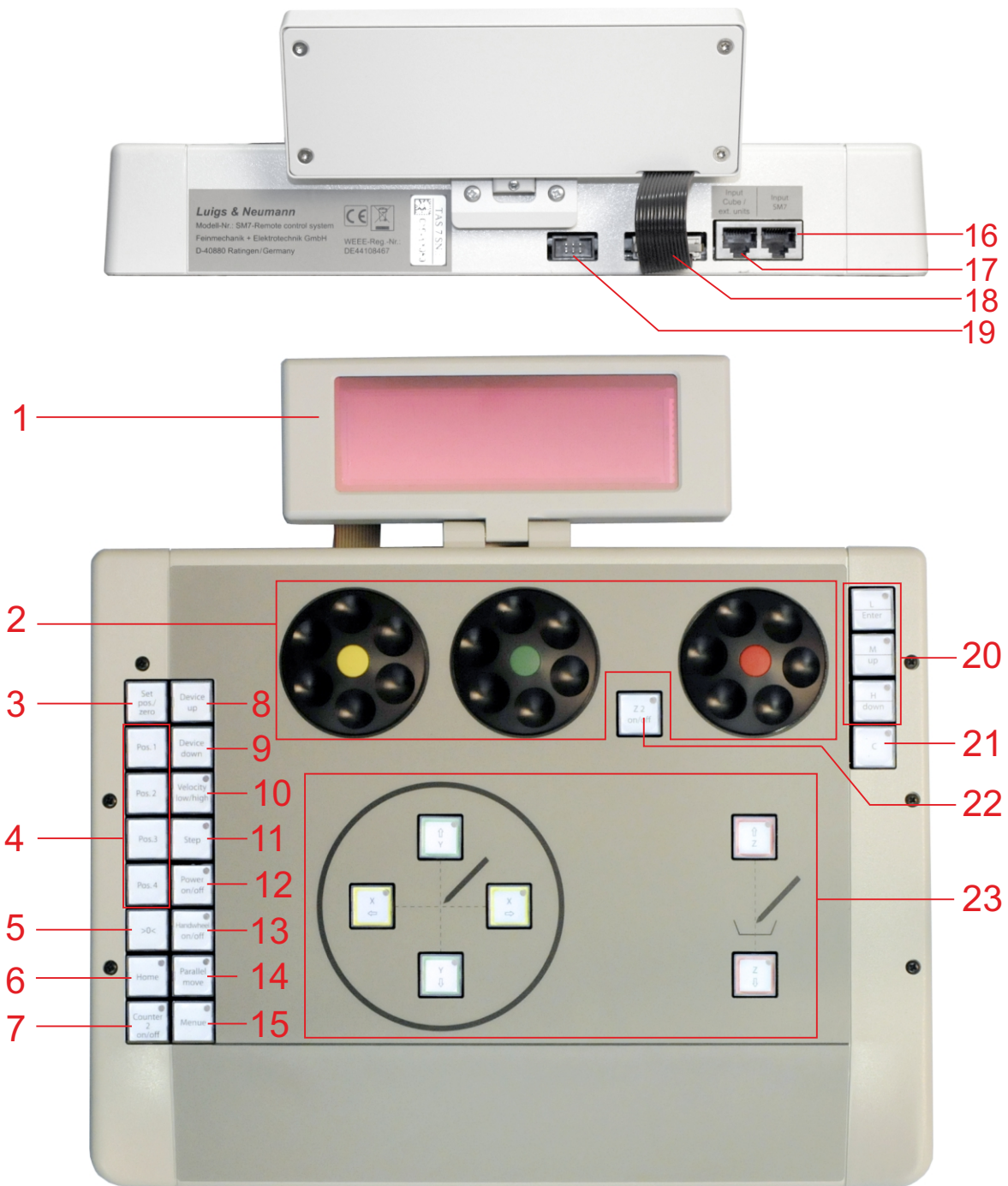
The Keypad SM-7 allows access to up to 72 motor-driven axes. A standard LN-Unit consists of three motor-driven LN-Axes. The motor-driven LN-axes can be moved with the handwheels or, optionally, with the direction keys. The exact position value of each LN-axes is shown on the display. Additionally it is possible to attach up to two handcubes to the Keypad SM-7. The Keypad SM-7 has got a menu function that allows the individual setup of all basic settings, as for example: move speed, move direction, handwheel resolution and so on.

The Keypad SM-7 is connected to the controlbox SM-7 or SM-8.

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Overview: Remote control / Keypad SM-7



- | | |
|---|---|
| <ol style="list-style-type: none"> 1. Display 2. Handwheels (X, Y and Z handwheel) 3. Set pos./zero (Store of zero point and position) 4. Pos.1 bis 4 (Move toward position 1 to 4) 5. >0< (Move toward zero point) 6. Home (Homefunction on/off) 7. Counter 2 on/off (Secand counter, on / off) 8. Device up (Selection of units/devices) 9. Device down (Selection of units/devices) 10. Velocity low/high (Slow/fast switch-over) 11. Step (Stepfunction, on/off) 12. POWER on/off (Power, on/off) 13. Handwheel on/off (Handwheel, on/off) 14. Parallel move (Parallel move, on/off) 15. Menu (Menu access) | <ol style="list-style-type: none"> 16. Input SM7 (Input SM7 Control) 17. Input cube (Input cube) 18. Display-joint 19. Interface 20. Handwheel resolution L / M / H and menu navigation keys Enter, up and down 21. Handwheel resolution C (Coarse on/off) 22. Z2 (Z1-Z2 switching / horizontal move on/off) 23. Direction keys (X, Y and Z) |
|---|---|

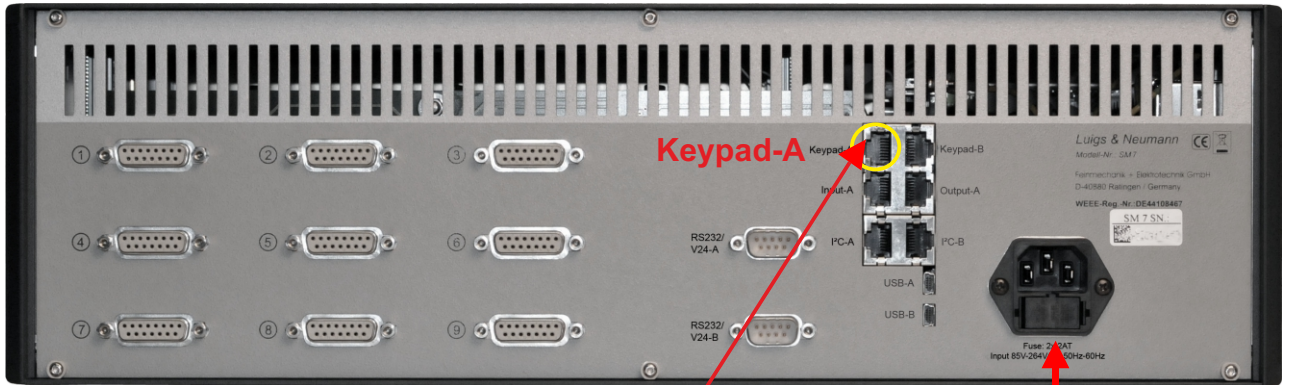
Connection: Keypad SM-7 to the LN-Control box SM-7



When connecting the Keypad, the LN-control box has to be **switched off**.

Plug one end of the keypad cable into the keypad connection socket (*Keypad-A*) of the control box and the other end into of the *Input SM7* connection socket of the Keypad SM-7.

By using two Keypads connect the second Keypad into the keypad Connection socket (*Keypad-B*) of the control box unit.



The Keypad SM-7 can only be attached to a master control box which is correctly addressed **113**.

* Please consult the operating manual of the Control SM7 for further information.



Keypad cable

110VAC...240VAC
50/60 Hz

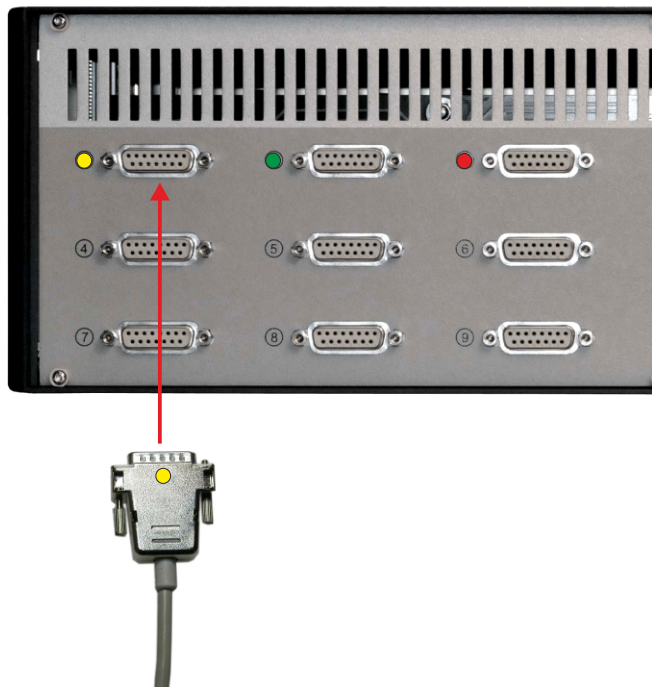


Input-SM7

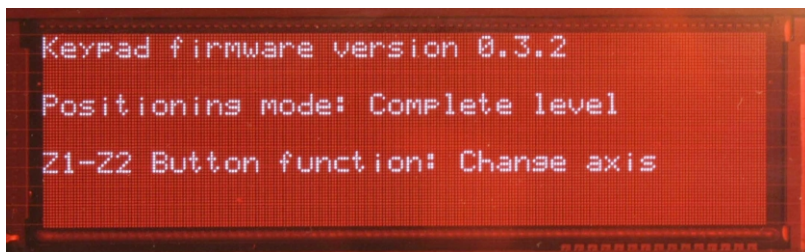
Connection: Motor-driven LN-axis to the LN-Control box SM-7

Attach the motor-driven LN-axis to the corresponding motor-driven connections ①...⑨ of the LN-Control box SM7.

The motor-driven connections and the LN-axes are marked in colours.



Switch on the control box SM-7 after connecting the motor-driven LN-Axes :



Version No., Positioning Mode and the function of the Z2-Button are shown.



The Keypad SM-7 is ready for operation.

Device selection

Up to seventy-two motor-driven LN-axes / twenty-four Units (Devices) can be operated with the Keypad SM-7.

One Unit (Devices) is always active and can be operated with the direction keys or the handwheels of the Keypad SM-7.


If there are more than two units (Devices), it is necessary to choose the desired unit (Device) with the "Device up" and "Device down" keys.

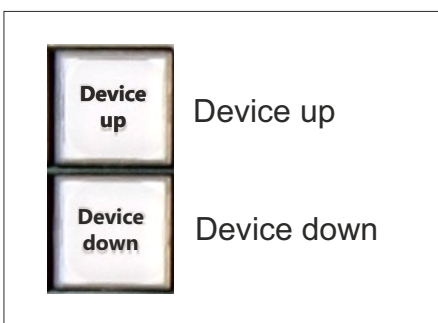
The marked line on the display shows which device is active.

Only maximum four consecutive devices are shown on the display.

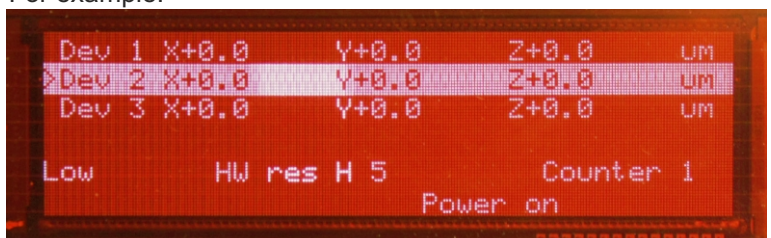
A motor-driven unit (Device) could be, for example:

A motor-driven XYZ 3-axes manipulator or
a motor-driven XY-moving table with a motor-driven focus-axis

 **If there is more than one unit**, it is necessary to choose the corresponding device with the "**Device up**" and "**Device down**" keys, as the display only shows max. Devices, and only one of them is active.



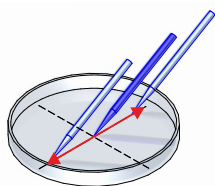
For example:



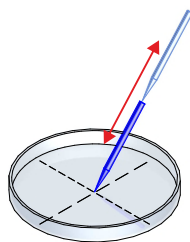
Device 2 is active !

Colour-code of the LN-axes

The different motor-driven LN-axes of the units are colour-coded.



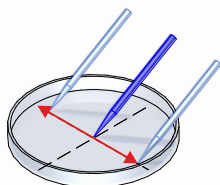
shifting table
(e.g.: V240, 380FM-U)



manipulator/Units
(e.g.: Unit MRE/MLE)

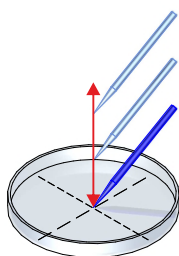
X = yellow

Yellow indicates the axis, with which the shifting table is moved left / right or the electrode is moved to and from the slice.



Y = green

Green indicates the axis, with which the shifting table is moved forwards / backwards or the electrode is moved laterally to the slice.

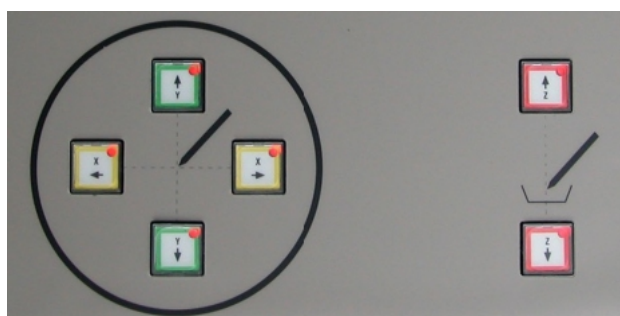


Z = red

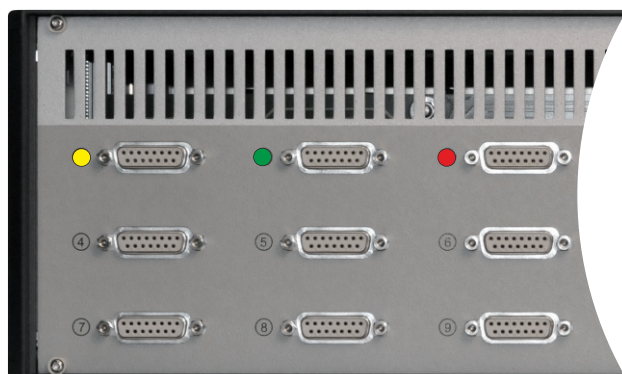
Red indicates the axis, which moves the electrode upwards or downwards.



Handwheels
X, Y and Z



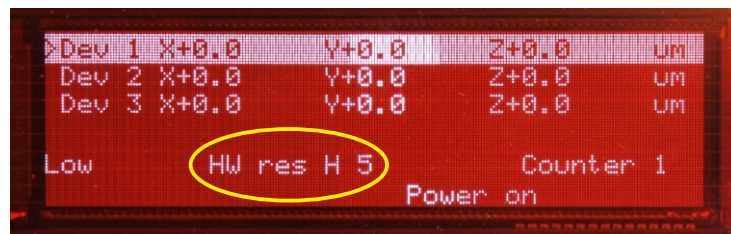
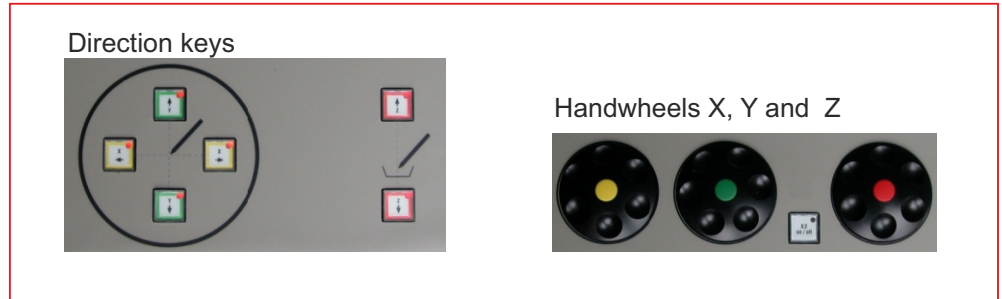
Direction keys
X, Y and Z



Axes connected
X, Y and Z

Movement of the motor-driven LN-axes

The motor-driven LN-axis can be moved with the help of the direction keys or the handwheels. The direction keys offer two speed settings (**High** or **Low**) The handwheels can be operated with four different speed settings (**Low**, **Middle**, **High** or **Coarse**). The display indicates which handwheel resolution is on and active. It also shows the speed setting for the direction keys (high or low).



Handwheel resolution „H” is active and set on rate 5 in the menu.

Handwheels X, Y and Z





The three handwheels make it possible to move the motor-driven LN-axes very precisely.



The movement direction of the handwheels and the direction keys can be set up independently.

Handwheel-setup

It is possible to choose between four pre-set handwheel resolutions.

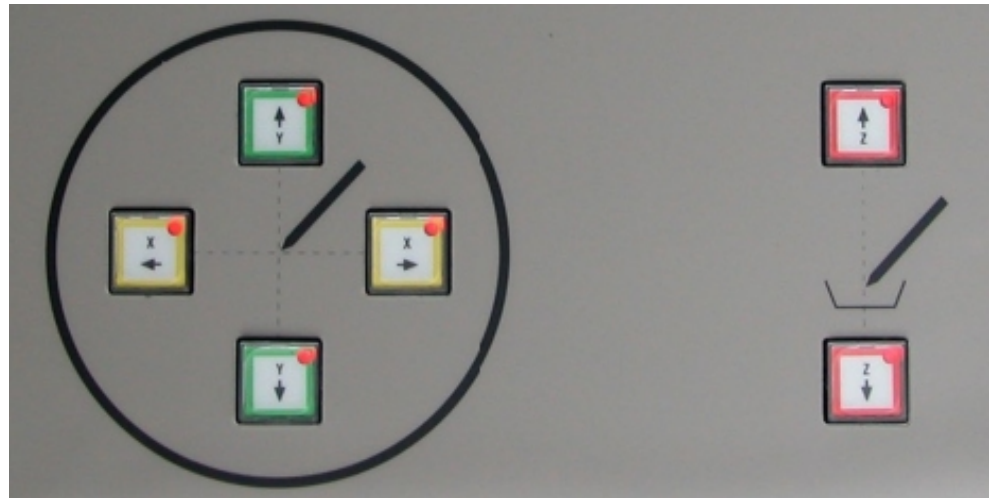
- | | | |
|---------------|---|---|
| Low |  | The motor-driven units can be moved very precisely over the handwheels in the L,M or S operation. |
| Middle |  | |
| High |  | |
| Coarse |  | In C-mode the motor-driven units are coarsely adjusted, and the speed depends on the movement of the handwheel. |

- After the deactivation of C-mount the last speed setup is activated again.
- If the device is changed during C-mode, the C-mode is automatically deactivated.

Movement of the motor-driven LN-axes

Direction Keys

When using the direction keys, it is possible to choose between a slow (Low) and a fast (High) speed. The velocity and direction of movement can be adjusted individually in the menu.



Velocity

Velocity choice for the direction keys

Two different speed settings are available, Low and High, which can be individually preset in the menu. The speed which is active is shown on the display and on the Velocity key.

Choice of key for High / Low



Low: slow speed



High: fast speed

Movement of the motor-driven LN-axes

The LEDs on the adjustment keys X, Y and Z indicate several different settings:

Both LEDs
are on



LN-axis is active

* These keys can be used to move the motor-driven LN-axis

Both LEDs
are off



The LN-axis is deactivated

* "POWER OFF" is blinking on the display and motor-driven LN-axis cannot be moved

* The control box is not equipped with a circuit board. The axis is not shown on display.

* LED from the Home key is on and the motor-driven LN-axis is in the end position

One of the LEDs
is on



- LN-axis has reached the end position

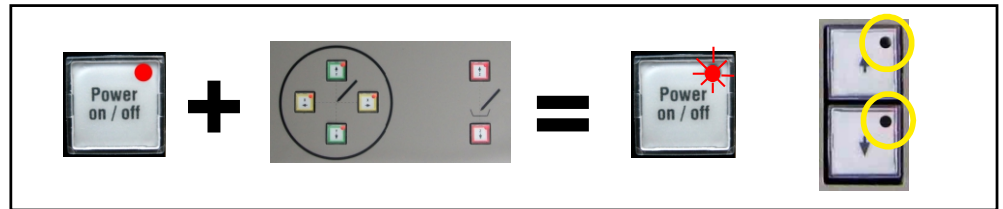
* The motor-driven LN-Axis cannot be moved any further in this direction

Power on/off function

Each individual motor of the LN-axes can be deactivated with the “Power on/off” function. The motor stops µm exactly.

LN-axis deactivation

Press and hold down the “Power on/off” key, then press the direction key of the LN-axis to be deactivated.



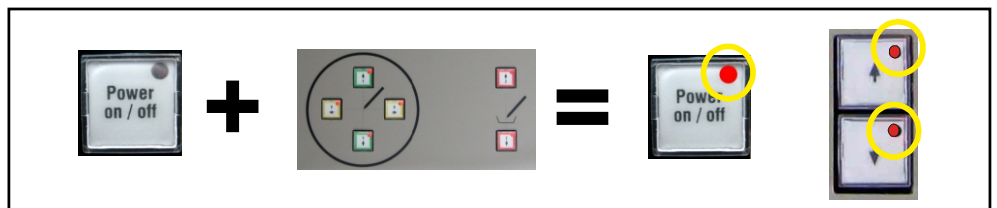
The LN-axis is now deactivated.

The LEDs on both direction keys are off, and the LED on the “Power on/off” key blinks.

The LED on the “Power on/off” key stops blinking as soon as all LN-axes are deactivated.

LN-axis reactivation

Press and hold the “Power on/off” key, then press the direction key of the LN-axis you would like to reactivate.



The axis is now activated.

The LEDs on Home key are blinking.

When all LN-axes are reactivated, the LED on the “Power on/off” key is constantly glowing again.



LED are on:
All LN-axes are activated.



LED is blinking:
One or more LN-axes are deactivated



LED is off:
All LN-axes are deactivated

Home funktion

The home-funktion is used for the fast removal of the motor-driven LN-axis from the working area. Activation of the home-funktion moves the motor-driven LN-axis automatically to the end position and can be moved back to the exact starting position. The velocity and direction of movement can be adjusted in the menu.

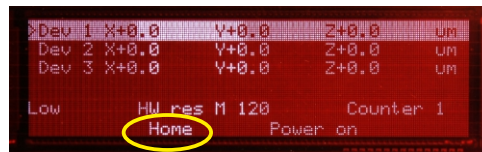
Activation



1. Press the "Home" key

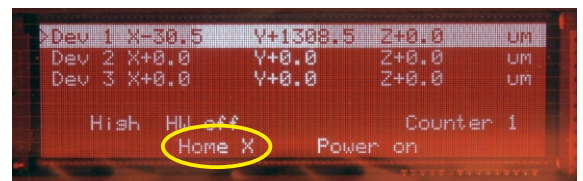
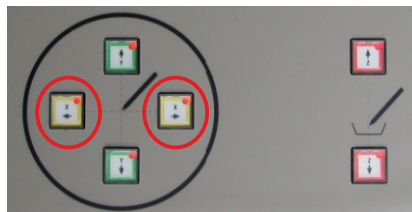


The home-funktion is activated.
The LED of the key is blinking and "Home" appears on the display.



Move LN-axis to the end position

2. Press one of the two direction keys of the motor-driven LN-axis, which should be moved to the end position.



X-axis is in the end position

The manipulator moves automatically to the end position. The LEDs on the direction keys of the axis are off and the LED on the home key is constantly glowing. The axis is shown in its end position on the display.

Move LN-axis back to starting position

3. Press one of the direction keys again in order to move the motor-driven LN-axis from the end position back to its starting position. As soon as the LN-axis is back to the starting position, the display shows that it is switched off.

When all axes are back to the starting position, the LED on the home-key blinks, and only "Home" is shown on the display.

Deactivation

4. Press the home-key again



Home-funktion is deactivated
LED is off and "Home" is switched off on the display.



All starting positions are deleted
when the home-funktion is deactivated.

Counter-2

The counter-2 is an additional counter used to measure distances without changing the zero position or pos. 1 to 4.

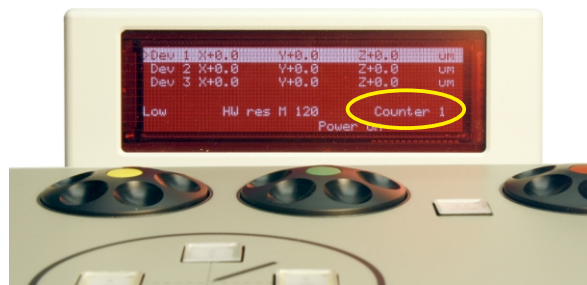


By pressing the “Counter-2 on/off” key you can switch counter-1 and counter-2. The display indicates “Counter-2” when the counter-2 mode is active.

Counter 1



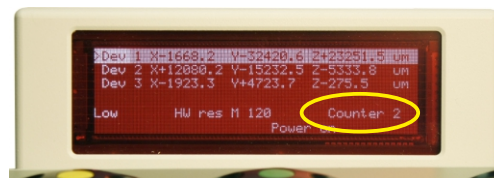
LED off:
Counter 1 (Reference-Counter)



Counter 2



LED on:
Counter 2 (Measuring counter)



Zeroing counter-2 does not influence the zero-position or the stored positions of counter-1.

Step function

When the step-function is activated, pressing a direction key will move the motor-driven LN-axis a preset step-distance with a preset step-speed. The step-speed and the step-distance can be preset individually in the menu.

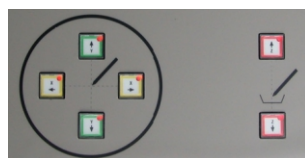
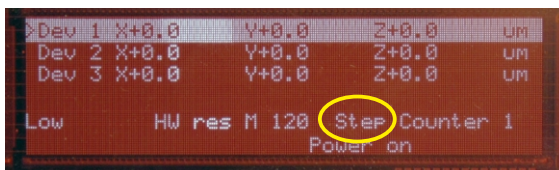
Activation



1. Press the "Step" key



LED is on
Step-function is active and "Step" appears on the display.



2. Press one of the direction keys of the desired LN-axis.

The motor-driven LN-axis moves constantly with the preset speed and the preset distance.

Deactivation



3. In order to deactivate the step-function, press the step key again. LED is off and "Step" is switched off on the display.

Single stage mode / Complete level mode

The keypad SM-7 can select whether the axes are stored separately and moved all of them together at the same time to zero-point and position function.

After switching on the control box, the active mode is shown by the keypad on the display.



e.g.: Complete level mode is active

The setting between single stage and Complete level mode can be changed in the menu.

Single Stage-Mode (Standard)

All axes must be stored separately and can only be moved again singly to zero-point and positioning point.

Complete Level-Mode

All axes of a device must be stored at the same time and they can only be moved together again to zero point and position point.

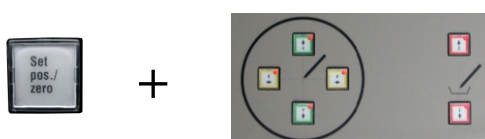
Zero-point function in single stage mode

When storing the zero point in Single stage mode the current position value of that particular motor-driven LN-axis to zero on the display and the current position are stored as zero point.

The stored zero point of the particular motor-driven LN-axes are moved singly to the zero point. The zero point can always be repeated for all LN-axes. The zero point is also the datum point for the positions 1 to 4.

Setting Zero point

Press and hold the “Set pos./zero“ key and additionally one of the direction keys which is to be set to zero.

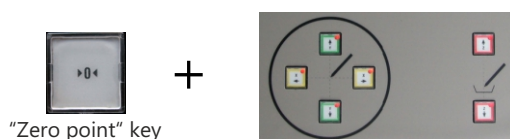


The counter for this specific axis is set to zero and the current position of the motor-driven LN-axis is stored as zero position.



Moving to Zero point

Press and hold the “Zero point“ key and additionally one of the direction keys of the axis that should move to zero point.



The corresponding motor-driven LN-axis moves automatically to zero point.

Zero-point function in Complete level mode

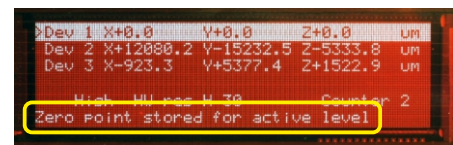
When storing zero-point in complete level mode, all three counters of the axes X,Y and Z of the currently active device on the display are set to zero and the current position is stored as new zero point. All three motor-driven LN-axes are moved to zero-point at the same time. The zero-points for all three LN-axes can always be repeated. The zero-points are also the datum points for the positions 1 to 4.

Setting Zero-point

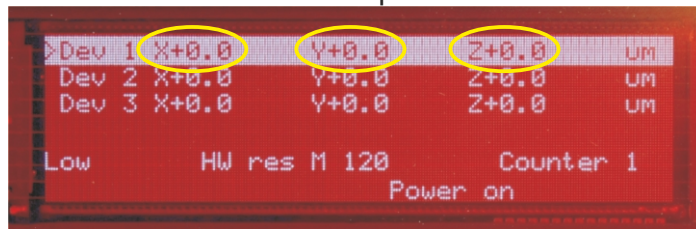
Press and hold the “zero-point“ key for about 3 seconds until the “**Zero point stored for active level**“ is shown on the display.



Press and hold
for 3sec.



All three counters of X,Y and Z of the active device on the display are set to zero and the current position is stored as zero-point.



Moving to Zero-point



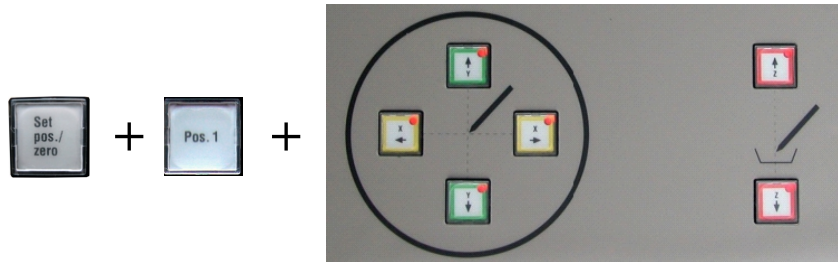
Press the “Zero-point“ key.
All three motor-driven LN-axes are moving to the zero points.

Storing of positions 1 to 4 in Single stage mode

When storing positions in Single stage mode, the three motor-driven LN-Axes must be stored and moved separately to the position points. Four positions can be stored for each LN-axis. The stored positions 1 to 5 can be repeatedly moved and stored anew.

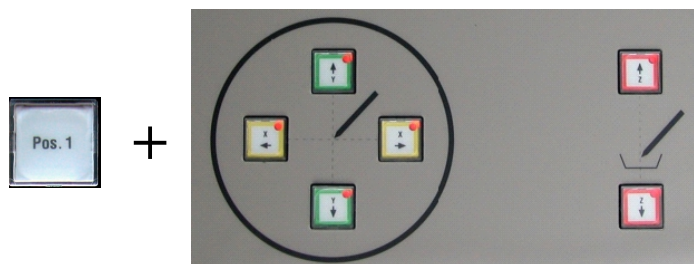
Setting position

1. Press and hold the “Set pos./zero” key
2. Additionally press and hold one of the pos. 1 to 4 keys
3. Press one of the direction keys of the axis you wish to store and release all keys.



Moving to stored position

1. Press and hold one of the position keys in order to store.
2. Press one of the direction keys of the axis which is to be moved to the stored position.
The motor-driven LN-axis moves to the stored position automatically.



! Attention !

Changing the zero position in Counter 1 mode also changes the stored positions 1-4 corresponding to the new zero position.

Storing of positions 1 to 4 in Complete level mode

When storing positions in Complete level mode, all three LN-axes are stored or moved at the same time.

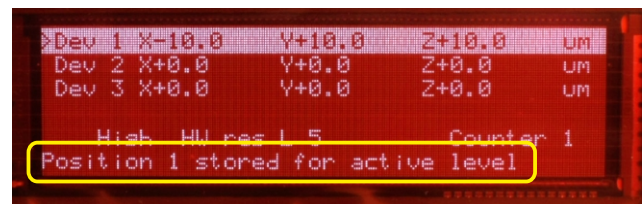
The Keyped SM-7 has five positions keys. The stored points 1..4 can be repeatedly moved and stored anew.

Storing

Press and hold one of the 4 position keys for three seconds until the display shows "**Position 1..4 stored for active level**". The positions of all three axes X,Y and Z are stored on the Position key.



Press and hold the Position key for three seconds.

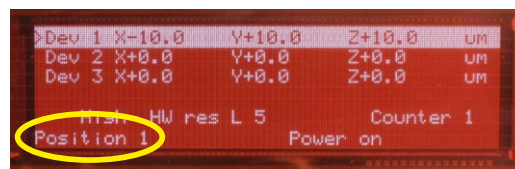


Moving



Press the Position key

All three axes of the device move to the stored position at the same time. The last of the selected positions is shown on the display.



! Attention !

Changing the zero position in Counter 1 mode also changes the stored positions 1-4 corresponding to the new zero position.

Key Z2: Choice of function



There are two function options for the Z2-key:

- Z1 or Z2 switching
- Horizontale move (Virtual X2-axis)

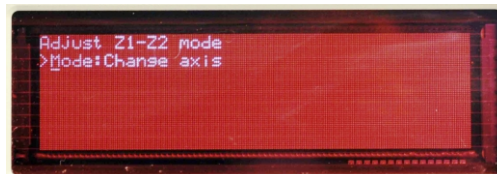
Setting the key function

The key function is set in the menu.

“Set Z1-Z2 Button function“



Mode: Change axis



Mode: Change axis
Z1 or Z2 switching

Mode: Move horizontal



Mode: Move horizontal
Virtual X2-axis

After switching on the control box, the active function-mode is shown by the keyed SM-7 on the display.



e.g.: Change axis = Z1- Z2 switching function is active

Mode: Z1-Z2 Switching



When using the "Z2 on/off" button, the following Z-axis is activated and the Z-axis in the current device is deactivated. As a result it is possible to switch over using one of the two Z-axes without using the device.

Application:

The fourth axis (Z2) of the four axes unit can be moved with this function.

Activation



LED on: Z2 active

The Z-axis is deactivated in the active device and the Z-axis is activated in the following device.



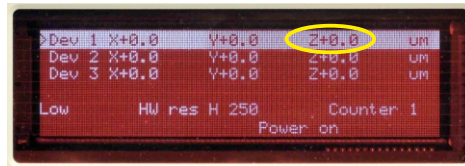
The Z-axis in device 2 is active.
e.g.: The fourth axis of the 4 axes unit

Deactivation



Led off: Regular operation

The Z-axis is active in the active device



The Z-axis in device 1 is active.

Z2-Button: Move Horizontal Mode

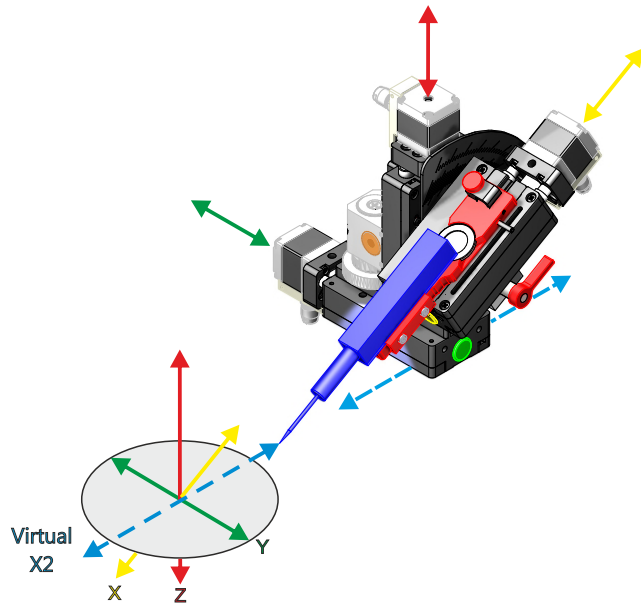
Virtual X-Axis

The electrode can be moved horizontally with the new horizontal-function. This function replaces the four axes Manipulator-Unit (4MRE/ 4MLE), by moving the X and Z-axis simultaneously. This function is only limited to the handwheels-X.

X and Z values change on the display when the function is activated and when moving the handwheel X (yellow).

Both axes move according to the set angle. The angle can be set manually in a separate menu or it can be set automatically by using a junior-Unit with an angle sensor.

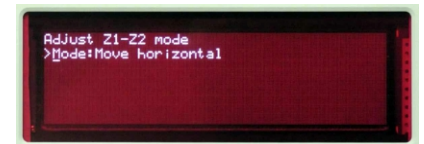
Directions:



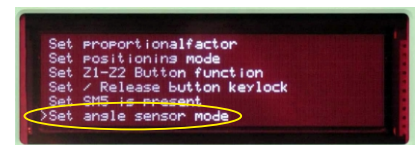
Set Z1-Z2 Button

In the menu:
"Set Z1-Z2 Button function"

set to Mode "Move horizontal" .



Choice of angle Choose whether the angle of the X-axis should be determined automatically or manually in the menu "Angle Sensor mode": **automatical** or **manual**



- automatical:

The angle of the X-axis is determined automatically.
(Only when the Junior-Unit has an angle-sensor)



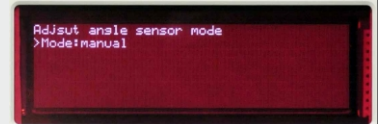
Functions only with Junior-Units with angle-sensor!

Z2 Taste: Move Horizontal Mode




Set the angle manually

- Manual:

The angle value of the X-axis is set manually in an angle-menu.






Open the angle-menu:




Press and hold the keys  and  simultaneously and press the  key as well.


Angle-menu is opened:



Read the adjusted angle of the X-axis on the manipulator-Unit and set the value in the angle menu.

Select the device with the keys  and  and confirm with .

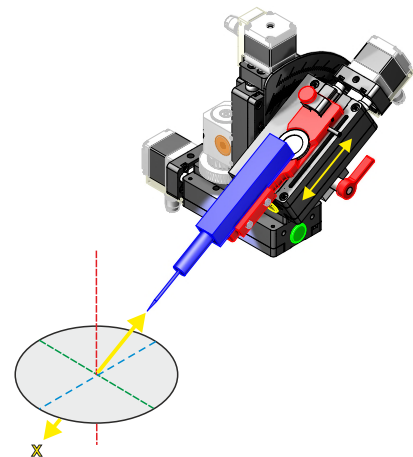
Set the angle with the keys  and  and confirm with .

It is possible to leave the menu with the key .

Virtual axis - off



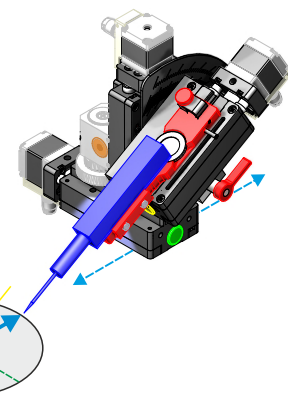
Horizontal movement is **off**
- Normal X-axis is active



Virtual axis - on



Horizontal movement is **on**
- the fourth virtual axis is active



! Attention !

Horizontal movement is only possible with the handwheel resolutions L, M and S.
Not in 'C' Mode.

Mode: Parallel Movement

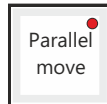


The “Parallel move“ key activates the parallel movement of the Z-Axis in the active and following device.

Application:

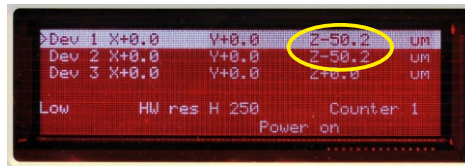
This function makes the changing of the electrode easier through the simultaneous moving up of the Z-axis and focus-axis.

Activation



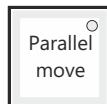
LED on: Parallel movement activates

The Z-axis of the following device moves simultaneously with the Z-axis of the activated device. It is important to notice that this function only applies to the handwheels. The Z-axis in the following device is activated. The four handwheel resolutions L/M/H/C are available for use.



The handwheel moves the Z-axis in the active device and the Z-axis in the following device simultaneously.

Deactivation



LED off: Regular operation

Only the Z-axis is active in the active device.



The Z-axis is moved in device 1



! Attention !

The parallel movement of the two axes only functions with the handwheel

“PoS”: Move to position with two different speeds

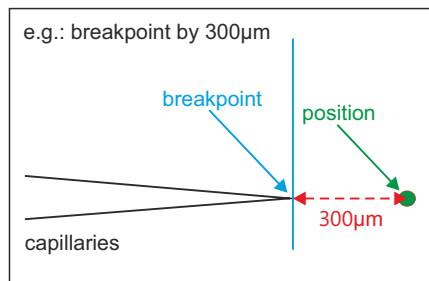
When the additional option “PoS” is activated, the motor-driven LN-axis moves to the stored position at two different speeds. The motor-driven LN-axis moves fast to a stop position, and the remaining distance at a preset slower speed (PoS speed). The fast and the PoS speed can be preset individually in the menu.

Activation and deactivation of the PoS-function

Access “Menu” and activate or deactivate “**Set point of switching (PoS) on/off**” by choosing “on” or “off”

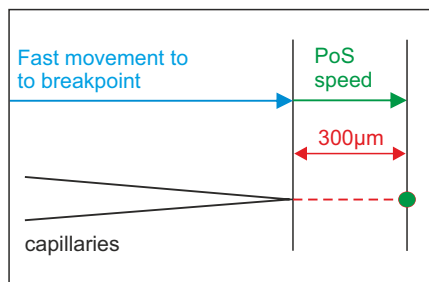
Set breakpoint

Access „Menu“ and use „**Set point of switching position**“ in order to set the desired breakpoint distance with μm accuracy. Breakpoint range is adjustable in $10\mu\text{m}$ steps (0 to $9990\mu\text{m}$).



PoS speed

Access “Menu” and choose the desired speed level with „**Set low positioning velocity behind PoS**“ (0 to 15).



! Attention!

The PoS-function is only active for positions that are stored (Pos.-keys 1 to 4). If the axis moves to the zero point, it only moves at one speed. If you want to move the axis to the zero point at two different speeds, it is necessary to store the zero position with the pos.-keys and access it with the help of the pos.-keys.

Connect control box SM5 to SM7 as Slave

When connecting a Slave control box SM5 to a Master control box SM7, it is necessary to activate the inquiry function in the menu of the key panel SM7.

Activation and deactivation

1. Switch on the control box SM7 and activate the inquiry function "**Set SM5 is present**" in the menu.
2. Switch off the control box SM-7.
3. Connect the control box SM5 to the control box SM7
Look at the operation manual for control box SM7 „Master Slave Function“
4. Switch on the control boxes SM7 and SM5.



! Attention !

The starting operation takes longer when the inquiry function is active

Menu

The Keypad SM-7 offers a menu-section that allows the individual setup of all basic settings.

Open menu

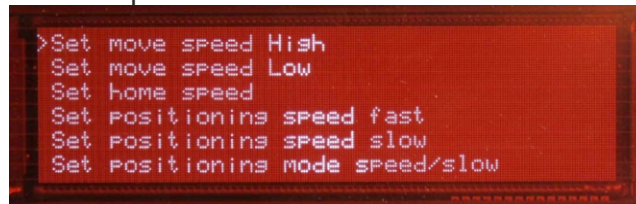
1. Press the „menu“ key



The LED of the “menu“ key lights up and the menu opens:

Set Menu

The first part of the menu is the “set-menu“ function.



Here you can choose the desired setup option with the help of the navigation keys.

Navigation keys:

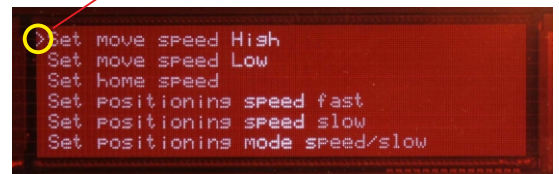


Enter / confirm

One line up

One line down

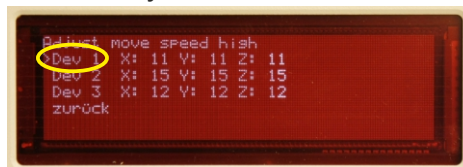
The arrow on the left of the display indicates the current active selection.



Adjust Menu

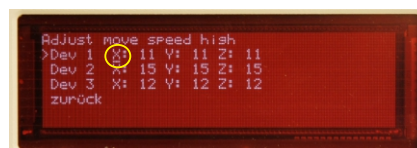
Select the option you would like to adjust and confirm with the “Enter“ key.

Thereafter you enter the **Device-menu**:



Choose the device you want to adjust and confirm with the “Enter“ key. Thereafter you enter the adjust-menu.

Device Menü



The adjust-menu allows the individual setup of the parameters of each motor-driven LN-axis.

The blink Cursor „_“ shows the actual position

After confirmation of a parameter value with the enter key, the next parameter value can be changed.

Menu

Parameter values



Adjust-menu



Device-menu

On confirming the last parameter Z in adjust-menu, one automatically returns to the device menu.

In the device menu it is possible to choose another device in order to change the parameter or to return to the set-menu by pressing “Zurück“, or, by pressing the “menu“ key, it is possible to leave the menu.

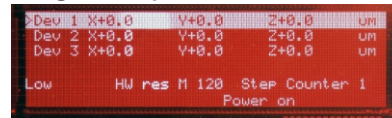
Leave menu



You can leave all positions of the menu by pressing the “menu“ key.

Menu overview

Regular operation

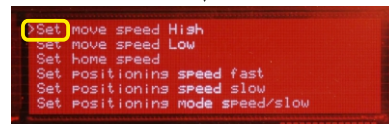


Press “Menu“ key

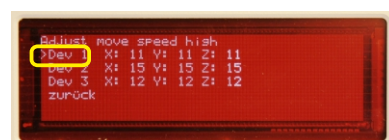


LED lights up and the Set-menu opens:

Set-Menu



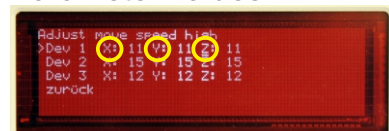
Device - Menu



“zurück“ / exit



Parameter-values

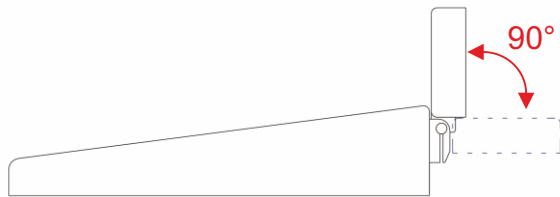
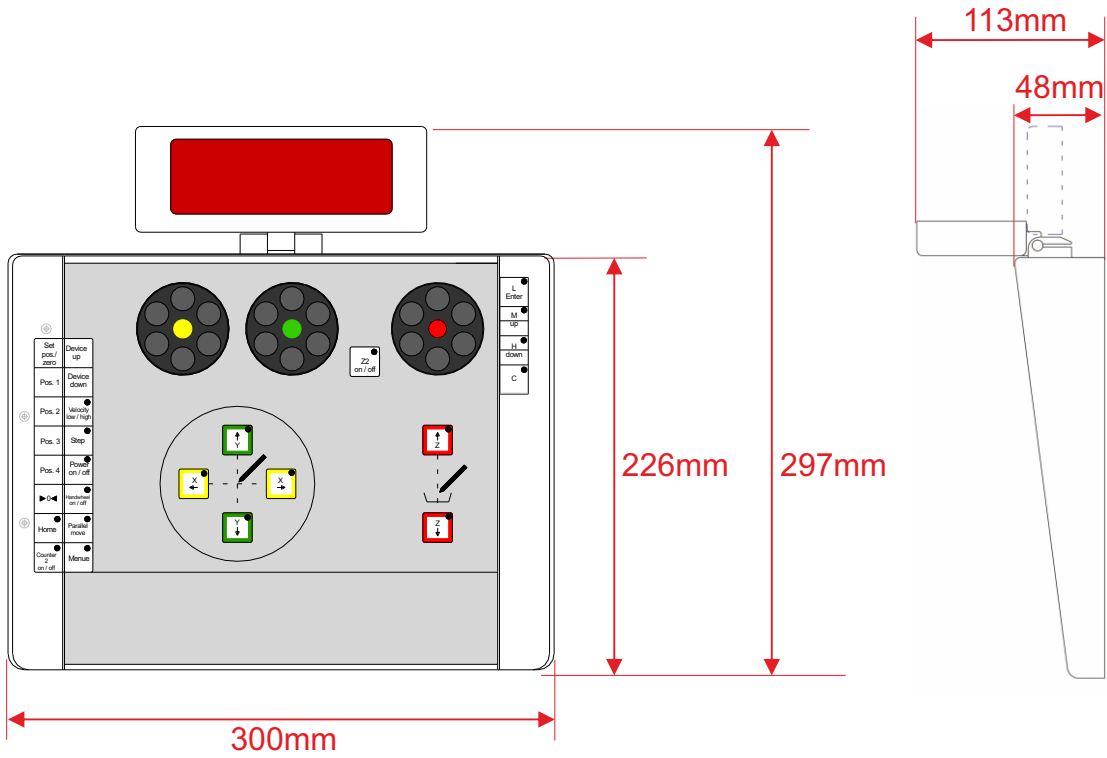


“zurück“ / exit

Menu overview

- Set move speed High	Adjust move speed high X:0...15 Y:0...15 Z:0...15	Velocity: Fast speed (H igh)
- Set move speed Low	Adjust move speed low X:0...15 Y:0...15 Z:0...15	Velocity: Slow speed (L ow)
- Set home speed	Adjust home speed X:0...15 Y:0...15 Z:0...15	Move speed of the home function
- Set positioning speed fast	Adjust positioning speed X:0...15 Y:0...15 Z:0...15	Fast adjustment speed while moving to position
- Set positioning speed slow	Adjust positioning speed slow X:0...15 Y:0...15 Z:0...15	Slow adjustment speed while moving to position
- Set positioning mode speed / slow	Adjust positioning speed mode X:slow/fast Y:slow/fast Z:slow/fast	Speed selection (fast /slow) for movement to position
- Set step speed	Adjust step speed X:0...15 Y:0...15 Z:0...15	Adjust speed for step mode
- Set home direction	Adjust home direction X: - / + Y: - / + Z: - / +	Movement direction for Home Selection: - or +
- Set step distance	Adjust step distance X:0,1..999,9 Y:0,1..999,9 Z:0,1..999,9	Step distance entry Adjustable 0,1µm to 999,9µm
- Set ramp length	Adjust start-stop ramp length X:0...15 Y:0...15 Z:0...15	Electronic Chute for pull out and deceleration of the mot. LN-axes
- Set move direction	Adjust move direction X: - / + Y: - / + Z: - / +	Direction of movement of the direction keys
- Set position sign	Adjust position sign X: - / + Y: - / + Z: - / +	Position sign for the LN-axes
- Set handwheel move direction	Adjust handwheel move direction X: - / + Y: - / + Z: - / +	Direction of movement of the handwheels
- Set handwheel resolution	Adjust handwheel resolution L:0...255 S:0...255 H:0...255	Adjust handwheel resolution (low, standard, high)
- Set low positioning velocity behind PoS	Adjust positioning velocity after SP X:0...15 Y:0...15 Z:0...15	Velocity for the PoS-range.
- Set point of switching position	Adjust distance behind PoS X:0...9990µm	Breakpoint range is adjustable in 10µm steps
- Set interrupt positioning on/off	Adjust interrupt positioning on/off X= on/off Y= on/off Z= on/off	See operating manual of the Specialcube-SM5
- Set point of switching (PoS) on/off	Adjust point of switching on/off X= on/off Y= on/off Z= on/off	Activation and deactivation of the PoS
- Set proportional factor	Adjust proportional factor X:0...30 Y:0...30 Z:0...30	Adjust handwheel resolution C (Course)
- Set positioning mode	Adjust positioning mode Mode: Complete level / Singel stage	Selection of positioning mode: Complete level / Single stage
- Set Z1-Z2 Button function	Adjust Z1-Z2 mode change axis / move horizontal	Selection of mode for Z2 key
- Set / Release Button keylock	Adjust button keylock Home:enable/disbl GotoPos:enable/disbl Zero:enable/disbl	Keylock for Home-key, Position-Key and Zero-Key
- Set SM5 is present	Adjust SM5 is present Mode: enable / disbl	Inquiry Controller box SM-5
- Set angle sensor mode	Adjust angle sensor mode Mode: manual / automatical	Choice of angle manual or automatic (Sensor)

Technical Data



Weight : 1,7kg

Operating voltage : $U_B = 24V_{DC}$

Operating current : $I_B = 400mA$

EC-conformity declaration

2004/108/EG

EN61000-4-2 (Level 3/3)

EN61000-4-4 (Level 4)

EN55022-B