



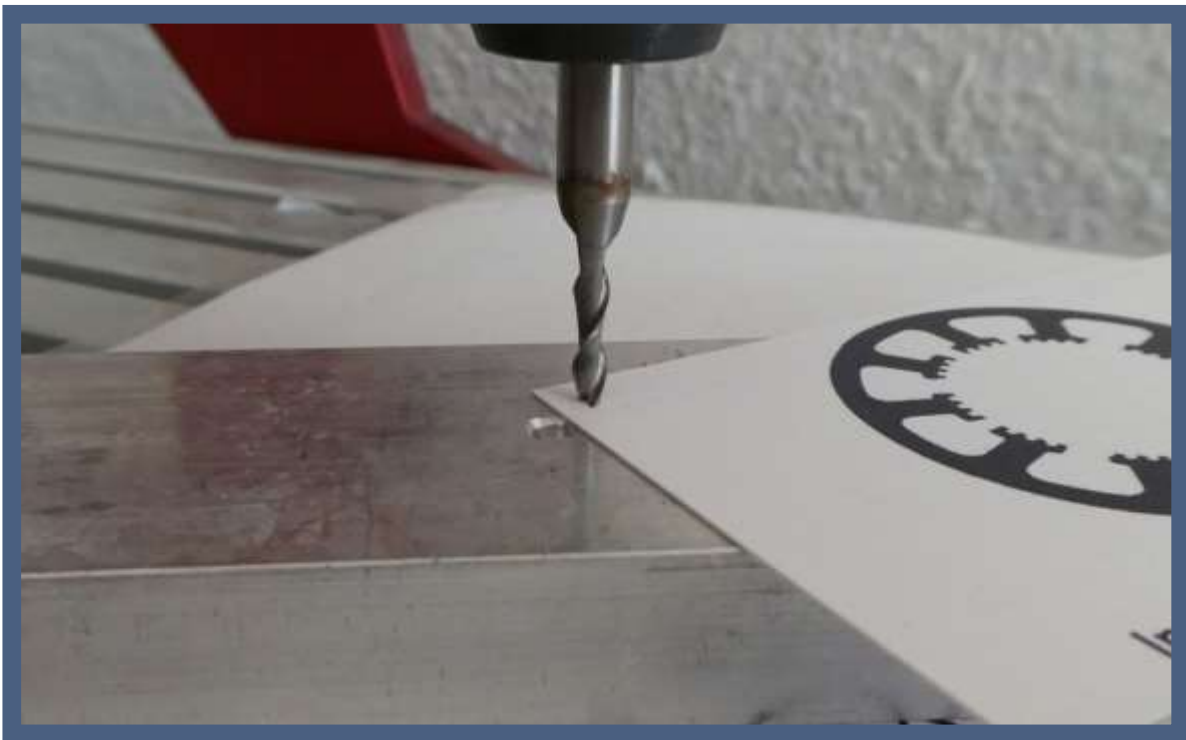
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Technical Software Engineering

How does it work... ... with *WinPC-NC* ?

Z zero point adjustment

- ✓ Light
- ✓ USB
- ✓ Professional





This brief instructions describe how to make the setting for the Z zero point.

WinPC-NC usually defines the Z zero point as the upper edge of the working piece.

Starting with version 4.00/40, **WinPC-NC** offers another possibility to determine the Z zero point with a fixed probe and the specification of the material thickness. This function is explained in a separate manual.

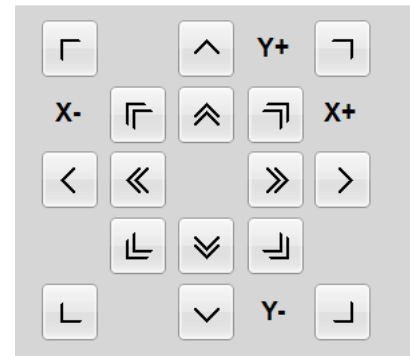
Table of contents

Determine Z zero point with a sheet of paper	3
Configure surface probe	4
Determine unknown probe dimension.....	9



Determine Z zero point with a sheet of paper

1. Start and execute the home function via the menu or the speed button.
2. Switch to the Jog function via the menu, speed button or side panel.
3. Jog the X- and Y- axis until the milling spindle with milling tool is above the material.
Jog move can be executed with the jog buttons as well as with our pendant **HR-10** or with a joystick.
4. Place a sheet of paper on the fixed material below the milling tool.

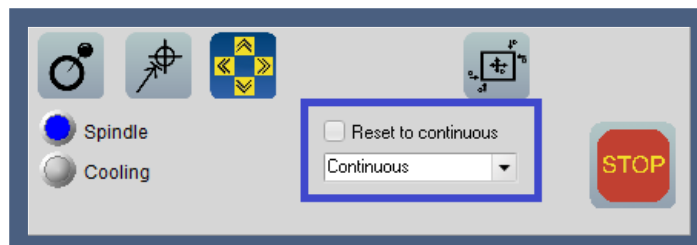


Notice:

**Moving too fast with the Z-axis can lead to a collision of the tool with the material.
Select a correspondingly slow speed.**

5. Move the Z-axis down with the Z+ button as long as the paper can be moved freely between the material and the tool.

For more precise positioning, a path distance can be specified in the path setting. This distance is then executed with each click on the move button.





Z zero point adjustment

6. If the paper is clamped tightly by the tool, the Z-axis should be released again with the **Z-** Button for safety until the sheet can be moved again.
7. An alternating movement in + and - direction provides certainty that not too much pressure is applied to the material.
8. Save the determined Z zero point using the drop-down menu or the button



Configure surface probe




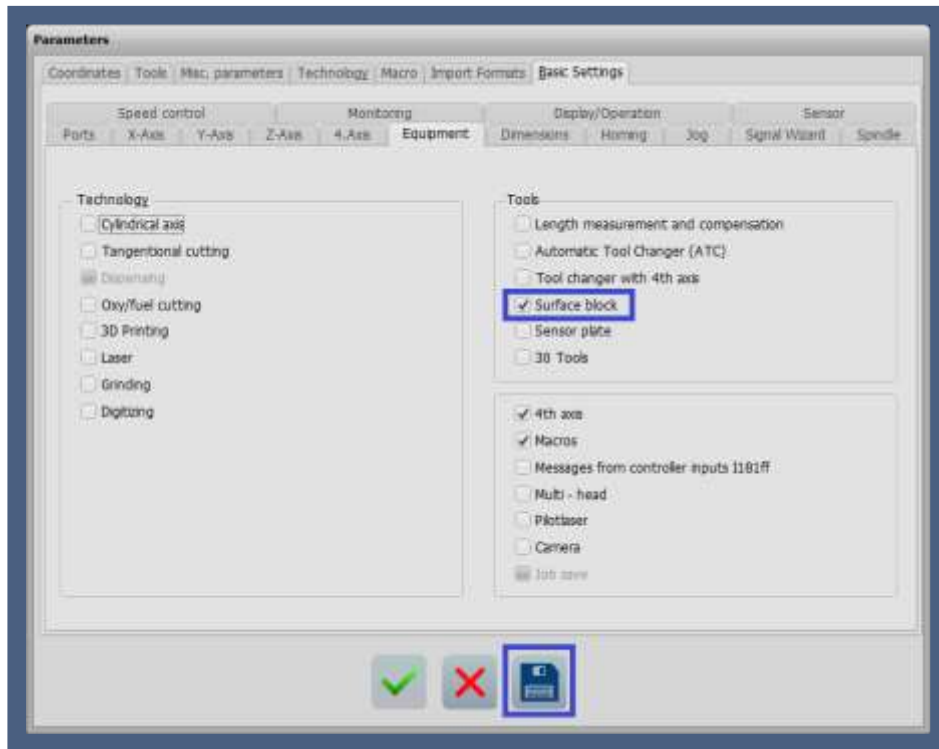
Notice:

Surface scanners should have a switching path

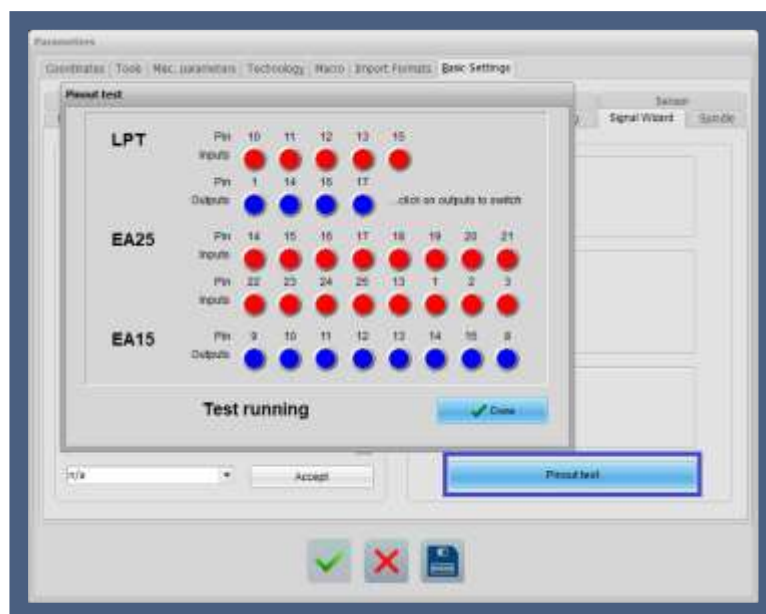


Z zero point adjustment

1. Opening the parameters via the main menu or the button and navigation to basic settings-Equipment 
2. Activate the checkbox surface block and save the parameter changes.



3. Navigate to the Signal Wizard under Parameters Basic Settings-Signal Wizard and open the Pinout test function.





Z zero point adjustment

- The input pin can be determined by manual operation of the connected surface probe.

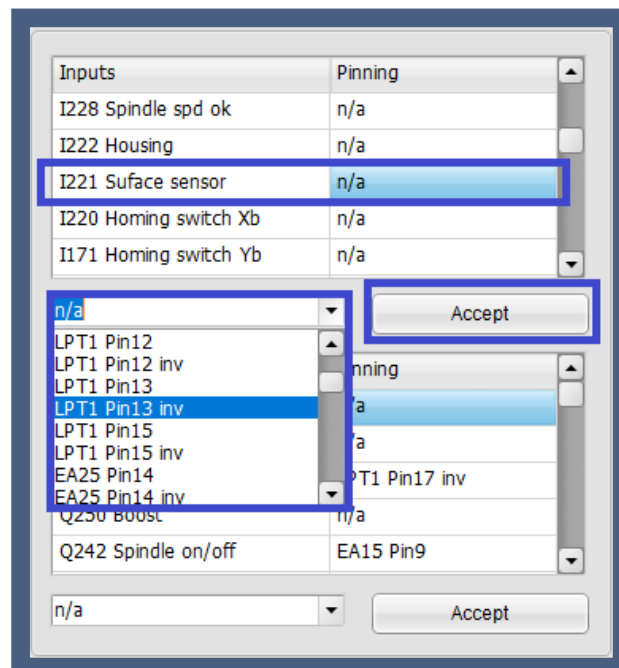
In addition to the pin number, the switching logic must also be determined.

If the signal is black when the probe is pressed and red when it is not pressed, the probe corresponds to a normally closed contact and the pin number must subsequently be assigned inverted.

If the signal is red when the probe is pressed and black when it is not pressed, the probe corresponds to a normally open contact and the pin number must subsequently be assigned normally.

- The function Pinout test signal pins can be closed again with a click on Done.

The pin number determined is now assigned to the input I221 surface sensor in the Signal Wizard. Here, the normal or inverted assignment from the previous step must be considered.



After selecting the pin number, confirm the change by clicking the Accept button and then the Save button.

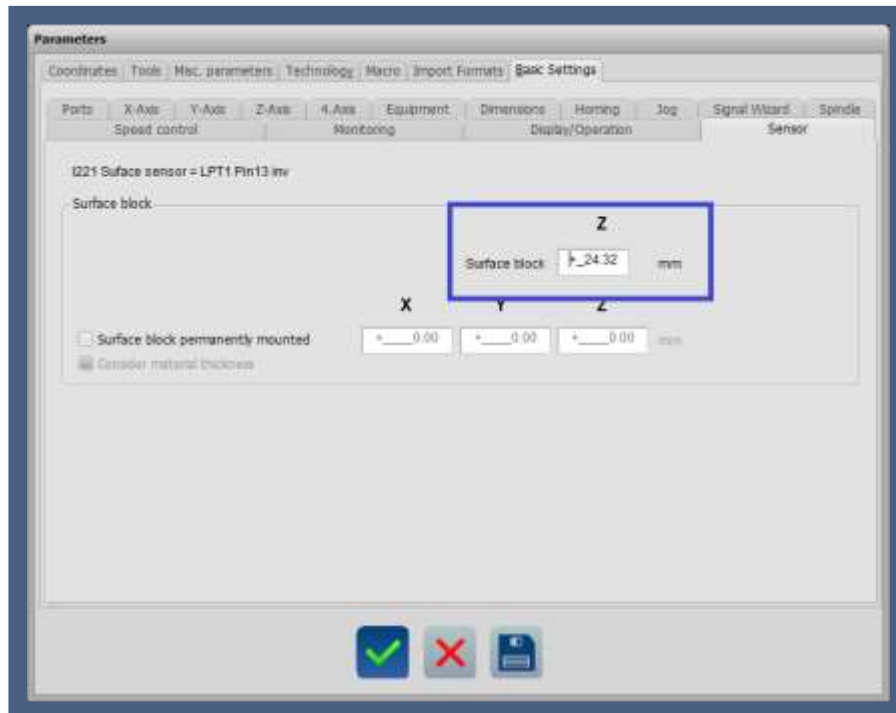




Z zero point adjustment

6. Finally, the surface block dimension must be entered in the parameters under Basic setting-Probe. The block dimension describes the distance of the switching point from the lower surface of the probe.

This value can either be taken from the data sheet of the probe or determined using the description in the last point. The change must be saved by clicking the Save button.



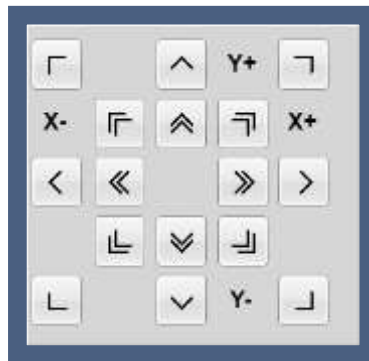


Determining the Z zero point with a surface probe

1. Start and execute the home function via the menu or the speed button.
2. Position the surface probe on the workpiece and switch to the Jog function via the menu, speed button or side panel.
3. Jog the X- and Y- axis until the milling spindle with milling tool is above the workpiece and surface probe.



Jog move can be executed with the jog buttons as well as with our pendant HR-10 or with a joystick.



4. Start the measurement of the Z zero point via the drop-down menu, the button or the key on the pendant.



The spindle must now move in the direction of the surface probe and then stop when the probe is touched and the switch contact is triggered. **WinPC-NC** then calculates the current position with the defined surface block dimension and saves the new Z zero point in the tool parameters. The Z-axis is then moved to the safety distance via the probe.

If the spindle moves in the wrong direction, the input for the surface probe is wrongly defined and must be determined and assigned again in the signal assistant.

If the measuring process takes too long, because the distance to the surface probe is too far, the measuring process can be interrupted at any time and the Z-axis can be moved closer to the probe.

5. Der gemessene Wert wird automatisch gespeichert und die Koordinatenanzeige wird aktualisiert. Der ermittelte Wert ist auch in den Parametern und Koordinaten-Hilfspunkte beim Wert Nullpunkt einsehbar.

The measured value is automatically saved and the coordinate display is updated. The determined value can also be viewed in the parameters at Coordinates-Auxiliary points at the Zero point value.



Determine unknown probe dimension

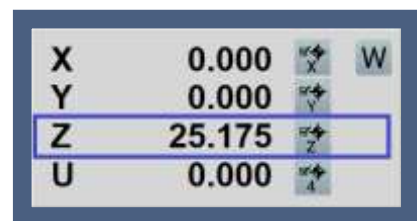
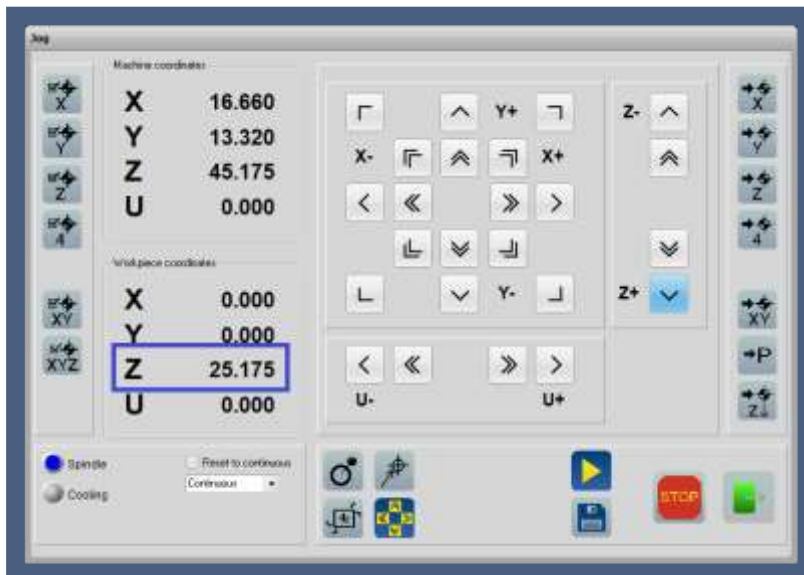
When using a new probe with an unknown surface block dimension, this must be determined once.

The following steps are necessary for this:

1. The block dimension value is set to 0 in the parameters under Basic settings-Sensor. The change is accepted by clicking on Save.
2. The surface probe is positioned on a flat surface.
3. The tool is jogged manually above the surface probe and then the measurement of the Z zero point is started.
4. After the measurement, **WinPC-NC** moves the Z-axis to the safety distance and the probe must be removed.

WinPC-NC saves the current zero point in the tool parameters. Since the probe dimension has the value 0, the determined zero point corresponds to the switching point of the probe.

5. The Z-axis can now be jogged manually downwards onto the surface until it is slightly scratched. Depending on the surface, the spindle can also be switched on to achieve a more precise result.

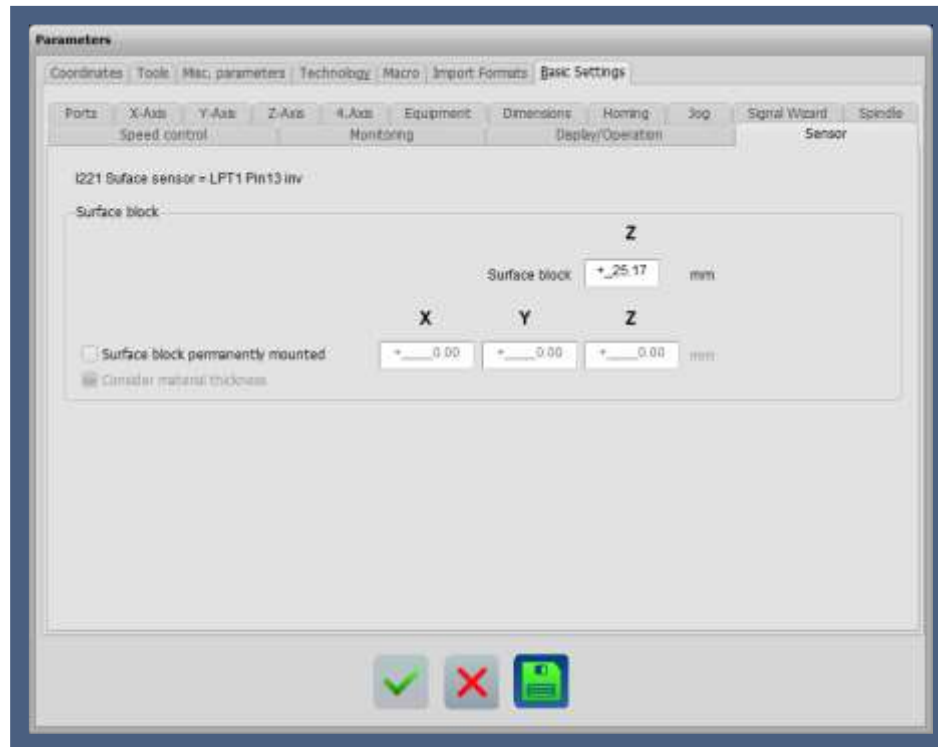




Z zero point adjustment

- When the surface is reached, the current Z workpiece coordinate represents the exact value of the surface block dimension. This value is now specified as the surface block dimension in the parameters under Basic settings-Sensor.

If the determined value has to be rounded, rounding down is recommended. Otherwise, the Z zero point determined in the future may be too deep in the workpiece.



- The changes in the parameters are saved.