



STEPCRAFT.

Quick Start Guide.

UCCNC STEP CRAFT OEM Package V3.0

04/21



System requirements:

- Min. 1,6 GHz Processor
- 1 GB RAM
- 16 GB Hard disk space
- Windows XP, 7, 8, 10 (32- or 64-Bit-Version)

Scope of delivery

If bought new, the package includes:

- USB dongle with software, manuals and sample files
- UC 100 Controller
- USB cable

For D-Series additionally:

- Parallel module
- Mainboard cover for the parallel module

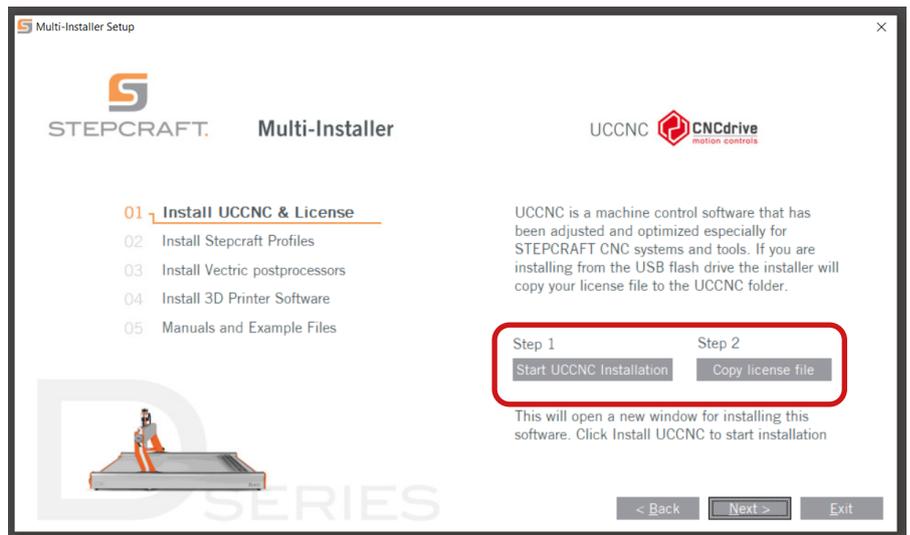
Installation

To begin the installation, open the directory of the USB dongle and execute the file **setup.exe**. You'll need administrative privileges. It's best to close all other running applications before continuing with the installation of UCCNC. The installation will guide you through the necessary steps to setup UCCNC for your CNC machine.

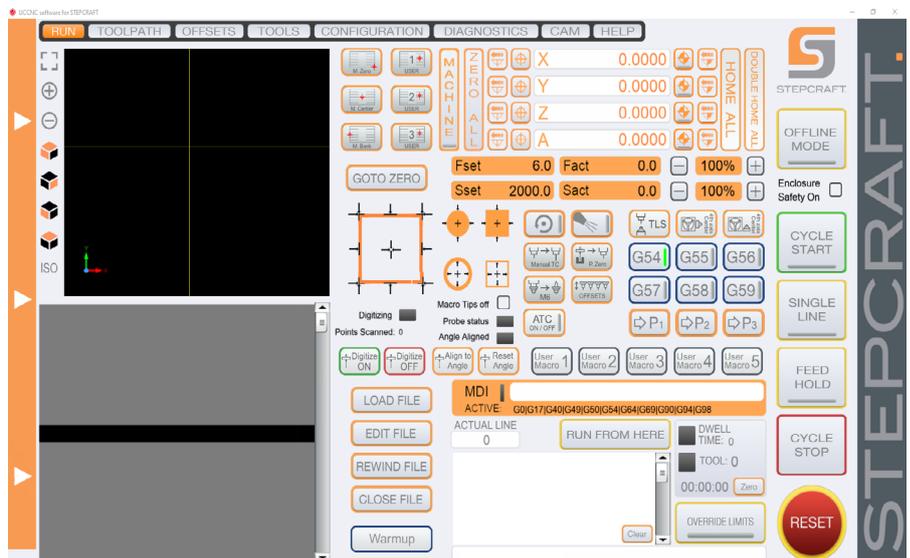
After selecting your machine type, install UCCNC (**Step 1**).

Then add your license file. (**Step 2**).

Click **Next** after you have completed both steps.



Open the UCCNC application using the shortcut on your computer desktop.



New functionalities

Instantly drive to a predefined position: front left, middle of machine table, back middle. Additionally you can save three of your own positions using the macros *M20153*, *M20154*, *M20155*. To do so,



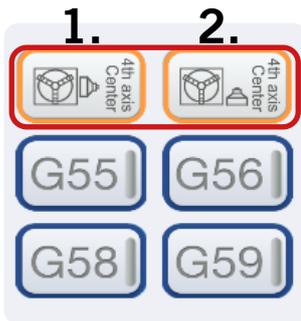
close UCCNC and navigate to the UCCNC profile directory. Open the according macro and edit these lines:

```
double posZ = <Your Value>;
double posX = <Your Value>;
double posY = <Your Value>;
```

C:\<UCCNC-Installation-directory>\Profiles\Macro_<YourStepcraftModel>

Functions designated to find the center of the 4th axis (**STEPCRAFT Art.No. 10055**).

To achieve this, a horizontal and vertical measurement are taken in order to calculate the center.

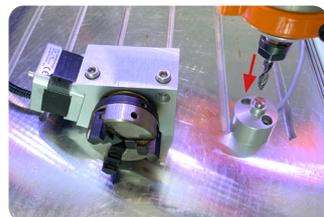


1. Place the spindle (with an inserted end-mill) as pictured. Place and hold a Tool Length Sensor (TLS) to the right side of the 4th axis - align it to the end-mill. Click

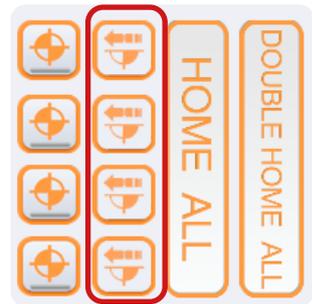
UCCNC now performs the horizontal measurement. Make sure the tool can actually trigger the TLS.



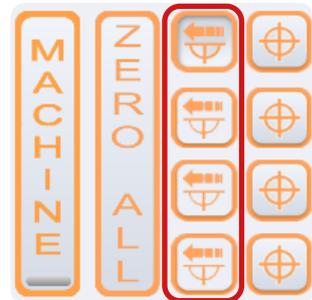
2. Now place the TLS onto the machine table, to the right of the 4th axis. Click to perform the second measurement. This will measure the vertical distance. The function then automatically calculates the center of the 4th axis.



Drive to a position using absolute coordinates (machine coordinates). After clicking one of the buttons, you can enter the coordinate.



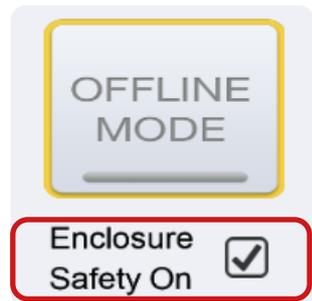
Drive to a position incrementally. The machine drives to the entered distance with regard to the current position. After clicking one of the buttons you can enter the desired distance to drive.



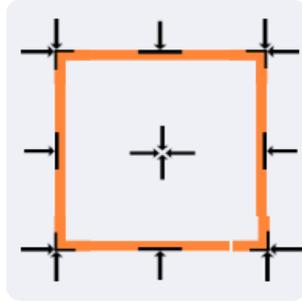
Double homing for greater precision. The machine first homes itself quickly, followed by a slower, more precise homing.



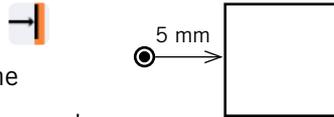
Activate or deactivate the safety enclosure (optional equipment) control. If activated, this option works like an additional safety switch that is triggered by opening the enclosure door.



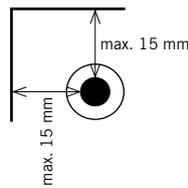
Find outlines using a 3D-Probe. The probe is moved according to the pictured arrow direction until it hits an outline. Click on one of the arrows to trigger a measurement.



If you want to find the outline of any side, manually place the 3D-Probe 5 mm from the according side of the work piece. Click the according button. The found coordinate is displayed in a message box.



To find the coordinates of a corner, place the 3D-Probe above that corner. Make sure to place the probe 15 mm or less from the edges of the corner. After executing the necessary measurements, the 3D-Probe will be placed with a 1 mm offset (in X-, Y- and Z-direction) from the corner. Check the machine coordinates to get the coordinates of the corner. Remember the 1 mm offset!

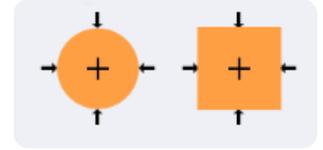


You can find a Z-height by using the function. The found Z-value is displayed in a message box

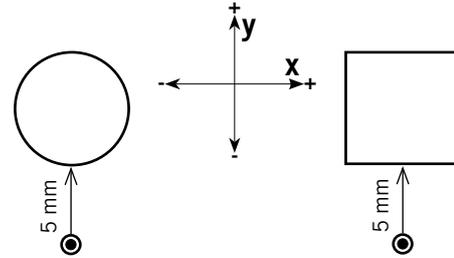
The machine repeatedly moves along all axes. This can be helpful to spread machine grease/ oil after maintenance. This function is also helpful in colder environments (heating up the machine, function test). The process takes a few minutes.



This function automatically finds the outlines of a work-piece and calculates the center, using the 3D-Probe.

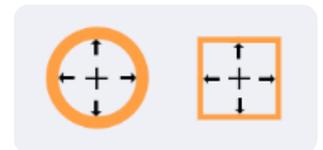


Place the 3D-Probe about 5 mm and centered in front of the workpiece. After clicking one of the buttons, UCCNC asks for the outer dimensions of the workpiece.



After the first measurement a safety distance of 20 mm will be kept. After performing all measurements, the found X/Y-dimensions of the workpiece are displayed. The second message box shows the X/Y-coordinate of the workpieces center.

This function automatically probes the inner contour of a workpiece in order to find its center. Place the 3D-Probe inside the form and drive down to a height which allows the probe to touch the inner contour.



After clicking one of the buttons UCCNC will ask you to enter the inner dimensions of the form. Then the measurements are performed. The first message box displays the found center coordinates. The second message box shows the found X/Y-measurements.

This function can be used to align the internal coordinate system along a slanted work-

piece, using a 3D-Probe (⊙). To achieve this, two measurements with a 50 mm spacing in between are taken. To prevent damages, align your workpiece in a way that allows the 3D-Probe to move 50 mm. Be sure to set the workpiece-zero-points for X,Y,Z at the starting point of the measurement, before starting the macro! There are two possibilities of applying this function:

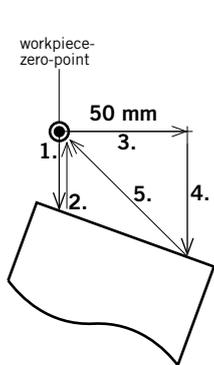


Measurement along the X-axis.

The slant of the workpiece is aligned along the X-axis.

Click and enter X.

The 3D-Probe moves as pictured:

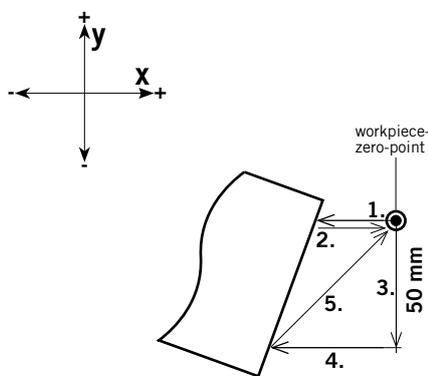


Measurement along the Y-axis.

The slant of the workpiece is aligned along the Y-axis.

Click and enter Y.

The 3D-Probe moves as pictured:



Now that the angle of the workpieces slant is known, the coordinate system is tilted accordingly. It can be necessary to reload your milling program, if the tilt is not visible in the preview window of UCCNC. The *Reset Angle* button resets the coordinate system.

Digitize allows you to probe 3D forms using a 3D-Probe.

For more detail see the info video on Youtube:



<https://www.youtube.com/watch?v=yJhWasl8QYw>

Manually change tools. Place your Tool Length Sensor (TLS) under the current tool.

After clicking , the currently held tool will be measured.

Then UCCNC will prompt you to change your tool. After changing it, click **OK**. The new tool will be measured, too.

Afterwards you can continue your current job by clicking *CYCLE START*.



This function compensates the difference in length between a 3D-Probe and an end-mill. The compensation can be applied to reuse a zero-point with an end-mill, which originally was

found with a 3D-Probe. This allows you to find zero-points in areas a Tool Length Sensor (TLS) cannot reach – like in a slot. Follow these steps:



1. Manually zero Z the desired Z-position using the 3D-Probe. Then move the 3D-Probe out of the way – somewhere over the machine table.
2. Click . The first measurement in Z-direction will be performed. After that the Z-axis will retract upwards.
3. UCCNC prompts you to exchange your 3D-Probe for your spindle and desired tool. After exchanging, place a TLS below the tool. Click **OK** to trigger the second measurement in Z-direction.
4. The difference in length will now automatically be compensated. From now on you can navigate to the exact Z-position you zeroed in Step 1.

Clicking  performs a manual M6 tool change. UCCNC prompts you for the number of the tool you want to pick up. If you enter 0, you will exit the dialogue.



This **OFFSETS**-function has two possibilities of operation, depending on the used type of Tool Length Sensor (TLS):



1) Tool magazine with integrated TLS:

After clicking  UCCNC automatically offsets all tools. Tool 1 always is the first to be measured. Tool 1 will be picked up after the process has been completed.

2) Tool magazine without integrated TLS:

Place your tool changer in about 20 cm distance to the tool magazine. Position a TLS below the spindle. After clicking  all tools will be offset. Tool 1 will be picked up after the process has been completed.

You can disable the automatic tool changer (ATC) by using this button. When the button is lit up green, the ATC is activated. This does not influence the **OFFSETS** function.



It is possible to save three individual parking positions. Use the macros: M200, M201, M202.



You can save five individual macros. Use the macro files: M20210, M20211, M20212, M20213, M20214.



STPCRAFT accessories

The equipment used in this manual can be acquired from the STPCRAFT shop:

<https://shop.stepcraft-systems.com/>

Rotary Table with Three-Jaw Chuck (4. Axis)

Art.No.: 10055



3D-Probe

Art.No.: 10024



Tool Length Sensor TS-32

Art.No.: 10103



Trouble shooting: UCCNC does not load a profile

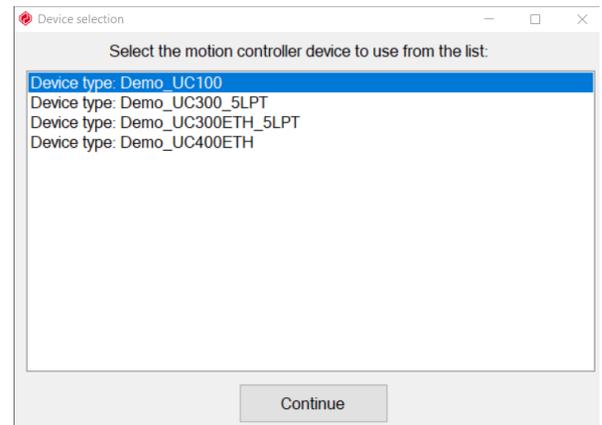
In case UCCNC does not find a license and machine profile, it will only offer demo-profiles. The pictured window will be displayed.

Check these three points:

- Is your controller properly connected to the CNC machine?
- Is the USB cable properly connected to the controller and PC?
- Is your machine profile saved in the directory

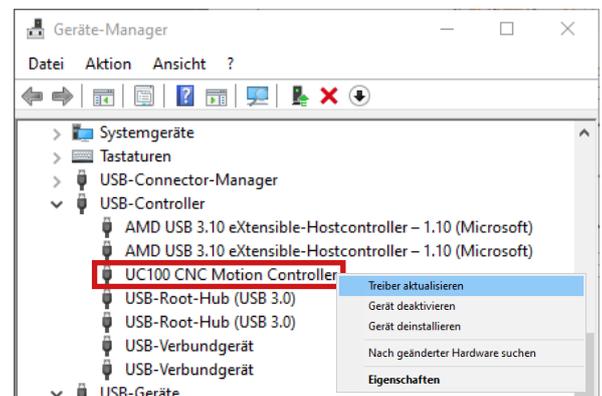
C:\UCCNC\Profiles ?

If these three points are positive, continue with the next step.



In some cases re-installing the controller drivers manually has proven to be helpful. Close UCCNC and open the Windows Device Manager. In this example the UC100 is connected and installed.

Right click the controller and choose **Update Driver**. Select **Browse my computer for driver software**.

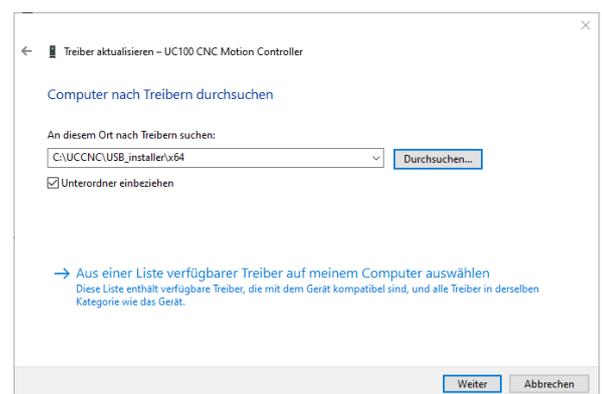


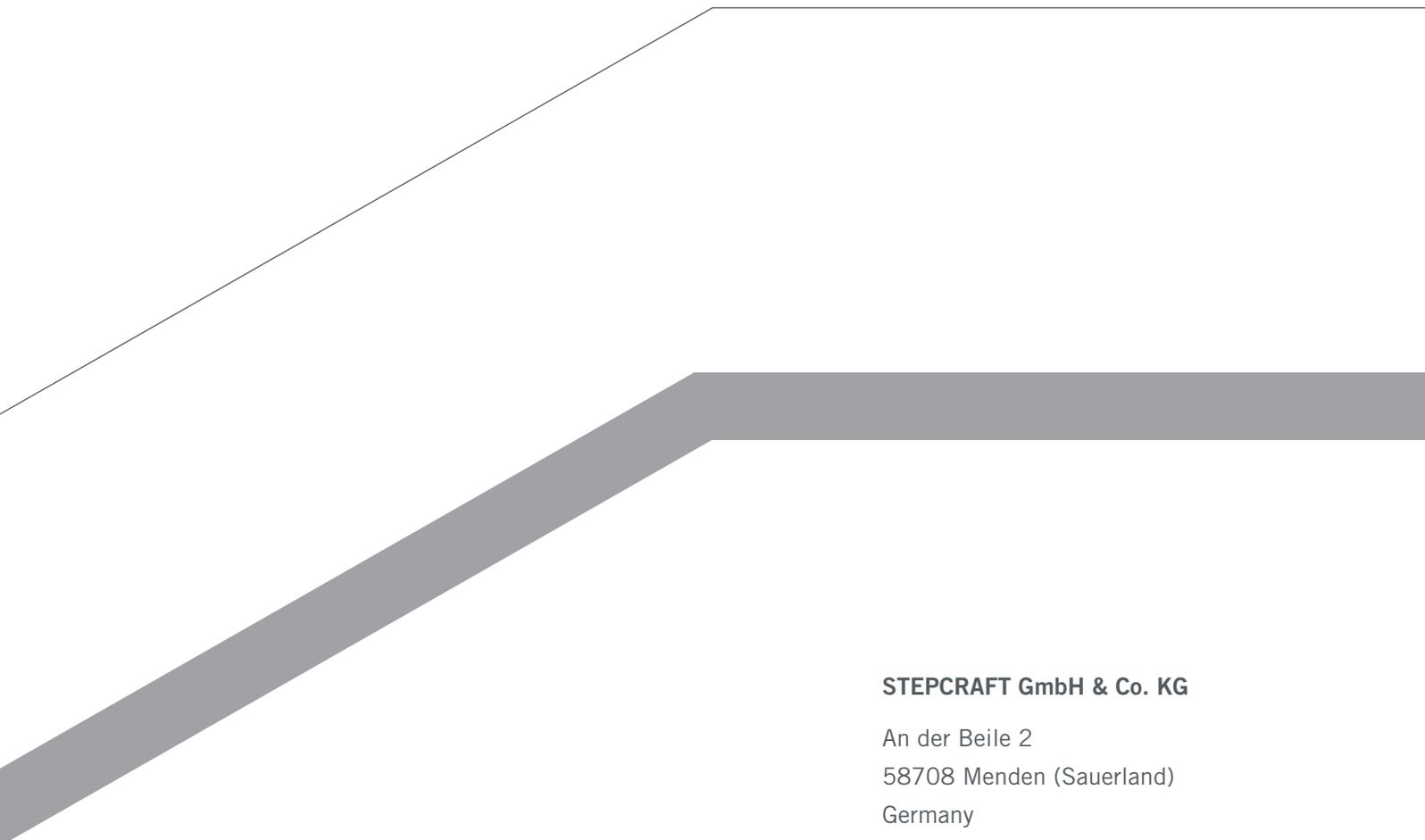
Click **Browse** and navigate to the directory of your UCCNC installation. According to your operating system you have to choose the applicable directory:

64bit **C:\<UCCNC Installationsordner>\USB_installerx64**

32bit **C:\<UCCNC Installationsordner>\USB_installerx86**

Confirm your selection by clicking **Next** and wait for the installation to finish. Start UCCNC to see, if the correct profile is being loaded.





STEPCRAFT GmbH & Co. KG

An der Beile 2
58708 Menden (Sauerland)
Germany

tel.: +49 (0) 23 73 / 179 11 60
mail: info@stepcraft-systems.com
net: www.stepcraft-systems.com

STEPCRAFT Inc.

59 Field Street, Rear Building
06790 Torrington, CT
United States

tel.: +1 (203) 5 56 18 56
mail: info@stepcraft.us
net: www.stepcraft.us