



# HEIDENHAIN



## Programming Station for Milling Controls

(for Virtualization Software)  
Operating Instructions

NC Software  
iTNC 530: 606425-04 SP20  
TNC 620: 817605-17  
TNC 640: 340595-17  
TNC7: 817625-17

English (en)  
03/2023

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# 1

**Documentation**

## 1.1 About this documentation

This documentation provides all relevant information in connection with programming stations for HEIDENHAIN milling controls:

- Installing
- Configuration
- Operation
- Uninstalling

This documentation is valid for the programming station software of the following controls:

TNC model	NC software
TNC7 programming station	817625-17
TNC 640 programming station	340595-17
TNC 620 programming station	817605-17
iTNC 530 programming station	606425-04 SP20

See the corresponding User's Manuals for information about the functions of HEIDENHAIN controls and NC programming.

**Further information:** "More detailed documentation", Page 13

### Notes in this documentation

Follow all safety precautions in these Operating Instructions!

Precautionary statements warn of hazards in handling software and devices and provide information on their prevention. They are classified according to the severity of the danger, and are divided into the following groups:

#### DANGER

**Danger** indicates hazards for persons. If you do not follow the avoidance instructions, the hazard **will result in death or severe injury**.

#### WARNING

**Warning** indicates hazards for persons. If you do not follow the avoidance instructions, the hazard **could result in death or serious injury**.

#### CAUTION

**Caution** indicates hazards for persons. If you do not follow the avoidance instructions, the hazard **could result in minor or moderate injury**.

#### NOTICE

**Notice** indicates danger to material or data. If you do not follow the avoidance instructions, the hazard **could result in property damage**.

### Informational notes

Follow the informational notes provided in these Operating Instructions to ensure error-free and efficient utilization of the programming station.

In these instructions, you will find the following informational notes:



The information symbol indicates a **tip**.

A tip provides important additional or supplementary information.



The gear symbol indicates a function that **depends on the machine**.

The function described depends on the machine if, for example:


- A certain software or hardware option is required on your machine
- The behavior of the functions depends on the configurable machine settings



The book symbol indicates a **cross reference**.

A cross reference leads to external documentation for example the documentation of your machine manufacturer or other supplier.

## Terms used

Designation	Definition
Programming station	<p>A programming station is an application for PCs with Windows operating systems. The programming station contains the following software:</p> <ul style="list-style-type: none"> <li>■ Programming station software</li> <li>■ Programming station expansion package: TNC VB Base Common software and data for the installation and operation of all programming stations with virtualization software on a Windows PC.</li> <li>■ VirtualBox virtualization software from ORACLE</li> </ul> <p>The programming station is based on the same software as the corresponding HEIDENHAIN control. Thus, operation is identical, and the results are compatible.</p>
Software release module	<p>The term "software release module" designates supplementary hardware or software that functions as a license key for PC applications.</p> <p>If the required software release module is missing, then the PC application will not start or will only start with a limited range of functions (e.g., as a trial version).</p> <p>HEIDENHAIN uses USB dongles as software release modules for the programming stations; these dongles are copy protection plugs that are inserted into the USB port of a PC.</p>
	
License server	<p>A PC that controls the license accesses in the network is referred to as the license server (master PC).</p> <p>In a classroom, for example, the teacher's PC can function as the license server, and the students' PCs are then the PC workstations.</p>

## More detailed documentation

See the corresponding User's Manuals for all information about the functions of HEIDENHAIN controls and NC programming.

Control	Contents of the User's Manual	ID number of the User's Manual
TNC7	<ul style="list-style-type: none"> <li>■ Setup, Testing and Running NC Programs</li> <li>■ Klartext Conversational Programming</li> <li>■ Machining Cycles</li> <li>■ Measuring Cycles</li> </ul>	<ul style="list-style-type: none"> <li>■ 1358774-xx</li> <li>■ 1358773-xx</li> <li>■ 1358775-xx</li> <li>■ 1358777-xx</li> </ul>
TNC 640	<ul style="list-style-type: none"> <li>■ Setup, Testing and Running NC Programs</li> <li>■ Klartext Conversational Programming</li> <li>■ <b>ISO</b> Programming</li> <li>■ Cycle Programming</li> </ul>	<ul style="list-style-type: none"> <li>■ 1261174-xx</li> <li>■ 892903-xx</li> <li>■ 892909-xx</li> <li>■ 892905-xx</li> </ul>
TNC 620	<ul style="list-style-type: none"> <li>■ Setup, Testing and Running NC Programs</li> <li>■ Klartext Conversational Programming</li> <li>■ <b>ISO</b> Programming</li> <li>■ Cycle Programming</li> </ul>	<ul style="list-style-type: none"> <li>■ 1263172-xx</li> <li>■ 1096883-xx</li> <li>■ 1096887-xx</li> <li>■ 1096886-xx</li> </ul>
iTNC 530	<ul style="list-style-type: none"> <li>■ Klartext Conversational Programming</li> <li>■ <b>ISO</b> Programming</li> <li>■ Cycle Programming</li> </ul>	<ul style="list-style-type: none"> <li>■ 737759-xx</li> <li>■ 737760-xx</li> <li>■ 670388-xx</li> </ul>

xx) is a placeholder for specifying the language version



If you have purchased a full version of the programming station, please note the information in the enclosed sheet. The programming station software and the corresponding User's Manuals for the NC software are available on the HEIDENHAIN website.

If you need a printed User's Manual, please contact HEIDENHAIN.

**Further information: HEIDENHAIN worldwide**



To become familiar with the complete features of your control for utilizing the complete performance potential of your machine tool, HEIDENHAIN recommends participating in NC programming courses.

HEIDENHAIN, HEIDENHAIN training partners, and many machine manufacturers offer corresponding NC programming courses.

**Further information: Training portal**

You can learn specific control functions with HEIDENHAIN Interactive Training.

**Further information: HIT**



# 2

**Programming  
Station**

## 2.1 About the programming station

The applications and use of the programming station are diverse, in particular because most of the software options and software updates are automatically available without additional costs.

Here are some examples of the programming station's capabilities:

- Creation of NC programs using all the functions of HEIDENHAIN controls, for example by loading data from standardized CAD formats (DXF, STEP, IGES)
- Testing and simulating self-created NC programs generated by a CAM system without further or extended idle machine times
- Testing of new control functions without risk or cost
- Practical training for new employees without interfering in running production

### Items supplied

Three different versions of the TNC programming station are available.

The scope of delivery includes the following items:

#### Programming station with operating panel

- Information sheet with safety precautions and download information for programming station software, drivers and documentation
- Operating panel for connection to the PC via the USB interface
- One USB cable (2 meters)
- Two self-adhesive cable clips for attaching the USB cable



Use the accompanying cable clips, which serve to relieve strain on the USB connecting socket.



#### Programming station with a dongle

- Information sheet with safety precautions and download information for programming station software, drivers and documentation
- USB dongle for removing the memory restrictions

#### Programming station with a network dongle

- Information sheet with safety precautions and download information for programming station software, drivers and documentation
- USB dongle with one, 14, or 20 network licenses for removing the memory restrictions



To find the current programming station software, drivers and User's Manuals, go to the **Download** area, and then to PC Software.

The downloaded files must be unzipped prior to installation!



## System requirements of the PC

System components	Requirement
Operating system	Windows 10/11* (64-bit) PC with the respectively recommended system requirements
Processor	Processor with virtualization support. The VT-x or AMD-V instruction set must be available.
RAM	At least 8 GB of RAM (3 GB of RAM for each started programming station) TNC7: At least 16 GB of RAM (6 GB of RAM for each started programming station)
Graphics board	For graphically demanding applications, the use of a dedicated graphics board is recommended.
Hard disk	At least 10 GB of available RAM for each programming station
Resolution	At least 1024 x 768 pixels TNC 640: At least 1280 x 1024 pixels TNC7: 1920x1080 pixels
Color depth	At least 65,536 colors (16 bits)
Interfaces	<ul style="list-style-type: none"><li>■ USB port (required for the software release module)</li><li>■ LAN port (required for the network license)</li></ul>

\*) Windows and Internet Explorer are trademarks of Microsoft Corporation.



To enable high-performance utilization of the programming station in combination with the VirtualBox virtualization software, an appropriate hardware virtualization must be available. Correspondingly, the processor must support the VT-x or AMD-V instruction set extension. The availability of the hardware virtualization depends on the CPU as well as on the settings in the BIOS and Windows operating system of your PC. Follow the manufacturer's information on this! The installation of a programming station is terminated if no hardware virtualization is available. When starting an already installed programming station, a warning is output in this case.

Third-party virtualization applications, such as ORACLE VirtualBox or VMware Workstation, need the Intel VT-x oder AMD-V instruction set extensions for the hardware virtualization. Most of the modern processors support these. If these instruction set extensions are already being used by Microsoft for its own functions, such as Hyper-V, WSL2 and virtualization-based security, they are no longer completely available to the virtualization applications. To be able to use the virtualization software of third-party providers in combination with hardware virtualization, you must deactivate the above-mentioned functions on the PC. When Hyper-V is active, the virtualization applications of third-party providers can alternatively also use a software interface to replace the above-mentioned instruction set extensions. This can result in performance losses and reduced functions. This concerns, for example, the programming station in combination with VirtualBox. At present, this combination is not possible.

HEIDENHAIN has no influence on the applications installed on a PC or the required Windows features. Please check whether the programming station software including VirtualBox can be used on the respective PC.

VMware Workstation can be used as an alternative if Hyper-V must be active on the PC. With VMware Workstation 16 and higher versions in combination with Windows 10 20H2, Hyper-V is allowed to be active and VMware Workstation can be used as a virtualization application for the programming station software with minor performance losses. Not all of the programming station software versions are prepared for the installation with VMware Workstation. VMware Workstation is not included in the installation package of the programming station software and must be installed by users themselves.



Windows operating systems undergo regular updates. This may require you to update already installed applications as well. If the programming station software no longer behaves as usual after any of these updates, please check whether a newer version of the TNCvbBase programming station expansion package is available. Then make sure that you are using the correct VirtualBox virtualization software for the TNCvbBase (shown in the informational note during downloading).

To find the current programming station software, drivers for the software release module, and the documentation, go to the **Download** area, and then to PC Software.

Also make sure that you are using current drivers for the graphics board if you are suspecting a reduced performance.

## Software assignment and compatibility

### Software assignment

HEIDENHAIN controls are in a process of continual development. Continual development includes new control functions and modifications made to functions.

When a development step is completed, HEIDENHAIN publishes the upgraded range of functions as a new version of the NC software.

Based on this new NC software, HEIDENHAIN also provides a corresponding programming station with a new software ID.

### Compatibility

The programming modes usually offer you the same features as on the control. In the CAD Viewer, the 3D mesh function is not available in the programming station software.

You work with the original TNC software—without any compatibility problems.

When the programs created on the programming station and the execution of the NC programs are identical, the programming station and control are compatible.

To ensure compatibility, the control must feature the control functions used on the programming station.

Ensure compatibility by observing the following:

- ▶ During programming, take into account the actual performance range of the control (e.g., with regard to the NC software version and the available software options)  
**Further information:** "Software assignment", Page 19 and "More detailed documentation", Page 13
- ▶ Configure the programming station in accordance with the machine tool (e.g., concerning the machine axes)



If you also use the programming station to create programs for older software versions or older contouring controls, please pay attention to the downward compatibility.

**Further information:** "Downward compatibility", Page 20

## Downward compatibility

The functions available on the programming station exactly match those of the respective control software. If your control is running this software, then you can download all programs created with the programming station directly to the control. If you want to use the programming station to create programs for older controls, please note the following:

- Only use functions at the programming station that are available on the older controls.
- In some cycles, parameters that were not available on older controls or in earlier software versions have been added. Beginning with the last parameter of the respective cycle, you can use the **NO ENT** key to delete them from the cycle definition. In this way you can ensure that the program will be downward compatible.



If there are any uncertainties, compare the program created on the programming station with the block formatting of your control as it is described in its User's Manual.

## Licensing and regulations for use

### License versions

The TNC programming station can be operated either as a paid full version or as a limited, free trial version.

The trial version of the programming station is limited in the following ways:

- No more than 100 program blocks per NC program
- No more than 10 elements can be selected in the CAD viewer and loaded from there

Five license versions are available with the full version of the programming station:

- Programming station with operating panel
- Single station license for one PC workstation
- Network license for one PC workstation
- Network license for 14 PC workstations
- Network license for 20 PC workstations



The number of specified PC workstations only specifies the number of simultaneous users possible.

Thanks to the type of licensing that uses a hardware-based software release module, the licenses are not bound to individual PCs.

TNC programming station	TNC7 / TNC 640 / TNC 620 / TNC 320 / iTNC 530
With TNC operating panel	ID 1113967- <b>xx</b> <sup>*)</sup>
With virtual keyboard:	
Single station license	ID 1113924- <b>xx</b> <sup>*)</sup>
Network license, 1 station	ID 1125955- <b>xx</b> <sup>*)</sup>
Network license, 14 stations	ID 1113926- <b>xx</b> <sup>*)</sup>
Network license, 20 stations	ID 1113928- <b>xx</b> <sup>*)</sup>
Operating panel without dongle	ID 1113967- <b>xx</b> <sup>*)</sup>

<sup>\*)</sup> **xx** is a placeholder for specifying the product version

Programming station software is available for the following TNC controls. The software release module enables the programming station software by setting it from the demo version to the full version.

TNC control	NC software	Programming station software
TNC7	81762x- <b>xx</b> <sup>*)</sup>	817625- <b>xx</b> <sup>*)</sup>
TNC 640	34059x- <b>xx</b> <sup>*)</sup>	340595- <b>xx</b>
TNC 620	81760x- <b>xx</b> <sup>*)</sup>	817605- <b>xx</b>
iTNC 530	60642x- <b>xx</b> <sup>*)</sup>	606420- <b>xx</b>

<sup>\*)</sup> **xx** is a placeholder for specifying the software version



To find the current programming station software, drivers for the software release module, and the documentation, go to the **Download** area, and then to PC Software.

The downloaded software must be unzipped prior to installation!

### Rules of use

All information concerning the legal use of HEIDENHAIN products and services can be found on the Internet under:

- **Terms of use**
- **Terms of business**
- **Privacy Statement**

## Connecting the programming station keyboard

Connect the programming station keyboard to an available USB port on your computer.

Then install the driver for the USB dongle from the programming station DVD.

The programming station software then automatically recognizes the connected programming station keyboard.

The rear of the programming station keyboard has a USB port, to which you can attach another USB device.



Please note that the additional USB device connected to the programming station keyboard may draw no more than 200 mA of current.

The programming station keyboard is intended for connection to a PC system. The programming station keyboard must not be connected to a control.

You can also use the keyboard of an older version of the programming station if it has the necessary software release module (dongle). The programming station detects older keyboards only if they have a Marx dongle. Refer to the following table to check which dongle is installed in the keyboard:

Programming station	Dongle
iTNC 530	<p>The version of the dongle depends on the ID number of the keyboard (see label on bottom of keyboard):</p> <ul style="list-style-type: none"> <li>■ ID 826834-01: Marx dongle</li> <li>■ ID 532524-01: Aladin dongle</li> <li>■ ID 374148-01: Aladin dongle</li> </ul>
TNC 320/620	<p>The version of the dongle depends on the serial number of the keyboard (see label on bottom of keyboard):</p> <ul style="list-style-type: none"> <li>■ Serial no. lower than 30 000 000: Aladin dongle</li> <li>■ Serial no. higher than 30 000 000: Marx dongle</li> </ul>
TNC 640	Marx dongle

## Number stickers

The self-adhesive number stickers included with the programming station keyboard enable the user to recognize which manually pressed soft key belongs to which soft key displayed on the PC's monitor.

You can attach the individual number stickers to your PC screen so that they match the soft-key numbers of your programming station.

## 2.2 Installing the software

The programming station must be installed separately on each PC workstation, regardless of the type of licensing.

**Further information:** "Installing the programming station",  
Page 25

When using a software release module, the corresponding driver must also be installed on each PC.

**Further information:** "Installing the drivers", Page 30

When using the network license, a license server must also be configured.

**Further information:** "Setting up the license server", Page 31



## Installing the programming station

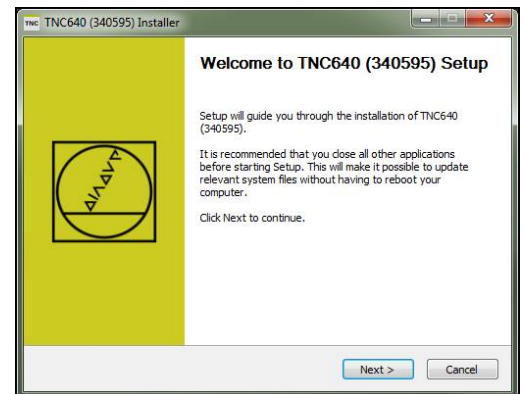
For installing the software, use the programming station DVD or the downloaded installation files.

**i** You can find the latest programming station in the **Download** area, under PC Software.  
The downloaded files must be unzipped prior to installation!

**i** The conversational language is selected corresponding to the set Windows display language during installation.  
The installation package for the programming station software includes:

- Programming station software
- VirtualBox (VBox) virtualization software from ORACLE
- Programming station expansion package: TNCvbBase

PCs with Windows operating systems usually undergo regular updates. HEIDENHAIN recommends checking the VirtualBox and TNCvbBase programs regularly for updates



To install the programming station:

- ▶ Insert the programming station DVD
- ▶ Or unzip the downloaded files
- ▶ Navigate to the installation file (e.g., install TNC640 (340595).exe)

### Navigation:

- Downloaded files
  - Folder with the unzipped files
  - Folder with the software ID (e.g., 340595)
  - HEIDENHAIN folder
  - Programming station folder (e.g., TNC640)
- Programming station DVD
  - HEIDENHAIN folder
  - Programming station folder (e.g., TNC640)

**i** You can bypass the need for manual navigation if you use the programming station DVD.  
Start index.html, and select the desired functions and information in the menu.

- ▶ Start the installation file
  - ▶ Carry out the installation step instructions
- Further information:** "Default installation", Page 27  
**Further information:** "Custom installation", Page 28



- With user-defined installation you can also install the same programming station software (e.g. TNC 620) for a control in the virtualization software in parallel. A virtual machine is generated for the respective programming station software.
- If you require additional applications with a MARX dongle on your PC, then unwanted overlaps may arise. Due to the filter settings in the VirtualBox and VMware Player, all MARX dongles connected to the PC will first be passed on to the virtualization software and evaluated there. Additional applications, such as Teleservice, KinematicsDesign, and software from third-party providers, will be removed from the dongle. Install a local license server on your PC. The dongle is then checked by the license server, and the other applications are no longer affected. You can use the SmarxOS Network Server as the license server.
- You can also install several programming stations side-by-side on your PC. A license is required for each running application. If there is no longer an available license or if there is only a single-station license, then additional applications of the programming station will be started as trial versions.

### Default installation

- ▶ Select the **Default** install type
- ▶ All listed applications will be automatically installed sequentially.
- ▶ Confirm with the **Install** button

**i** The applications are displayed and installed in the required sequence.  
If an application is already present on the target system, then it will not be offered by the installation wizard.

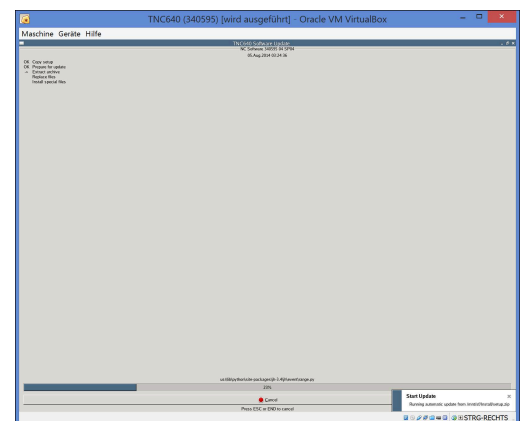
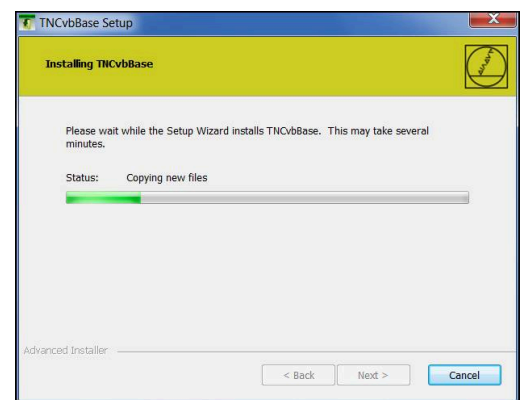
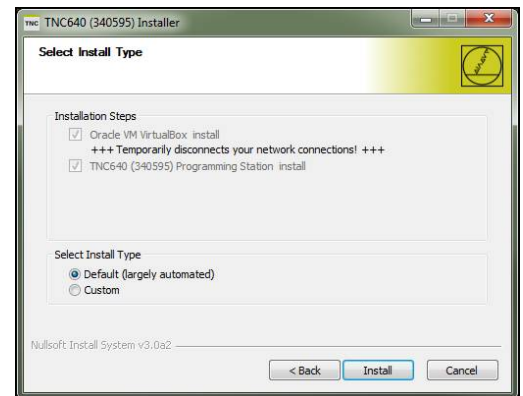
- ▶ VirtualBox is automatically installed with the default settings.

**i** If installation is performed over a network drive, then all of the network connections will be briefly separated and then reconnected during the installation process.

- ▶ Confirm the license terms for VirtualBox
- ▶ The TNC VB Base expansion for VirtualBox is automatically installed with the default settings.
- ▶ Confirm the license terms for the control software
- ▶ The control software is automatically installed with the default settings.

**i** During installation, the control software is created as a setup file. When the software is first started, the setup file is unpacked, installed, and automatically started.

- ▶ The programming station will start after successful installation.



### Custom installation

- ▶ Select the **Custom** install type
- ▶ All of the listed applications will be individually installed.
- ▶ Confirm with the **Install** button



The applications are displayed and installed in the required sequence.  
If an application is already present on the target system, then it will not be offered by the Installation wizard.

- ▶ Confirm the license terms for VirtualBox
- ▶ If necessary, change the installation path for VirtualBox
- ▶ Create the desired menu items
- ▶ Confirm the required device software
  - USB controller
  - Network service
  - Network adapter
- ▶ Confirm with the **Install** button



If installation is performed over a network drive, then all of the network connections will be briefly separated and then reconnected during the installation process.

- ▶ If necessary, change the installation path for the VirtualBox expansion TNC VB Base
- ▶ Confirm with the **Install** button
- ▶ Confirm the license terms for the control software
- ▶ If necessary, change the installation path for the control software

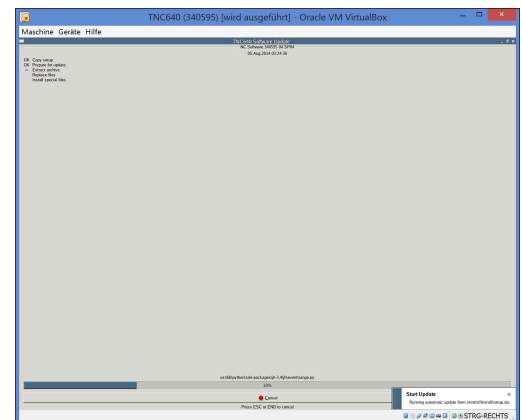
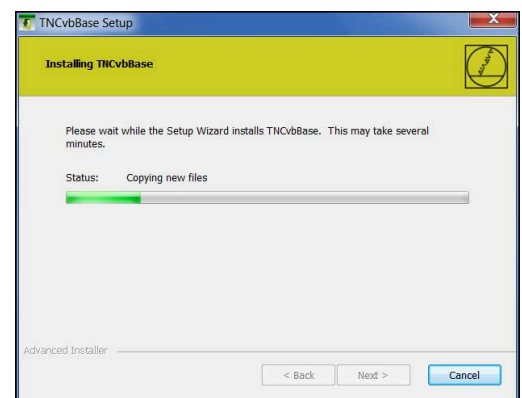
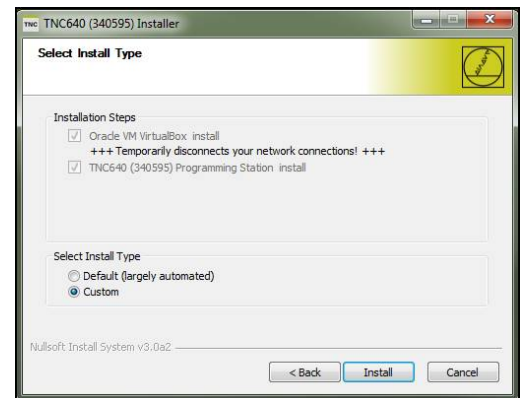


If a virtual machine is already installed on your PC, then you can select one of two options:

- **Update an existing virtual machine:** An existing machine will be overwritten
- **Create a new virtual machine:** A new virtual machine will be created

If the VMware Player virtualization software is already installed on your PC, then you can optionally install the control software for the VMware Player. Not all of the available software versions for the programming station support this optional installation.

- ▶ If necessary, enter a common folder on the target system for the **TNC:** and **PLC:** drives
- ▶ Direct access from the PC to the internal programming station directories is now enabled.





The following constraints apply to direct accesses to the **TNC:** and **PLC:** drives:

- Deactivate SELinux
- User administration is not supported
- Encrypted PLC partition (PLCE) is not supported

This option is not available when installing the current software version for the programming station. It can only be selected for older software versions.

- ▶ If desired, create an icon on the desktop
- ▶ Confirm with the **Install** button
- > The control software will now be installed.



During installation, the control software will be set up as a setup file. When the software is first started, the setup file is unpacked, installed, and automatically started.

- ▶ Confirm with the **Finish** button
- > The programming station will start after successful installation.

## Installing the drivers

You can use the programming station DVD or the downloaded installation file for installation.



To find the current drivers, go to the **Download** area, and then to PC Software.

Note that various drivers are available depending on the software release module used and on the license version.

Downloaded files must be unzipped before installation.

Install the driver as follows:

- ▶ Insert the programming station DVD or unzip the downloaded files
- ▶ Navigate to the installation file CBUSetup.exe

### Navigation:

- Downloaded file
  - Folder with the unzipped file
- Programming station DVD
  - Single station license
    - JH folder
    - CBDriver folder
  - Network license
    - JH folder
    - CBServer folder



If you use the programming station DVD, manual navigation is not needed.

Start index.html, and select the desired functions and information in the menu.

- ▶ Start the installation file

## Setting up the license server

A software release module connected to the license server only makes available the number of purchased licenses in the network.

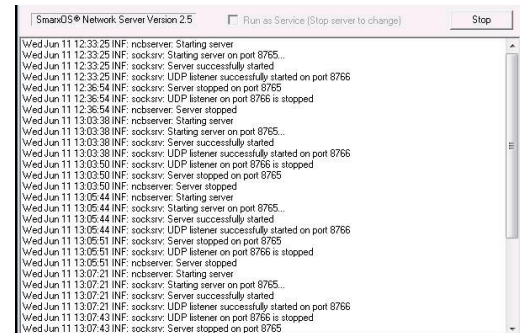
For controlling license access via the single PC workstations, the license server requires an additional software program: the SmarxOS Network Server.

You can use the programming station DVD or the downloaded installation file for installation.





The installation file is located in the driver folder for the network license.

**Further information:** "Installing the drivers", Page 30



Configure the license server as follows:

- ▶ Copy the complete content of the CBServer folder to the hard disk of the license server
- ▶ Navigate to the CBIOS Network Server.msi installation file
- ▶ Start the installation file
- ▶ The taskbar now displays the following icon:  

- ▶ Double-click the  icon
- ▶ Stop the application with the **Stop** button
- ▶ Select the **Run as Service (Stop Server to change)** option
- ▶ Restart the application with the Start button
- ▶ The application has started and is configured as a service.
- ▶ The service starts automatically in the background when the PC is restarted.



Configuring the application as a service means that manually starting the application is not needed with each new start of the PC.

This ensures that the PC workstations can access the available licenses.

You can check or alter the settings for the service at any time. You will find the settings in the Administrative Tools area in the Services group. Use the control panel for navigation.



Depending on the firewall settings of the license server, it may be necessary to permit execution of the CBIOS Network Server.msi file.



If you are not permitted or do not wish to configure the application as a service, then you must repeat the following steps after each restart of the PC:

- ▶ Navigate to the CBIOS Network Server.msi installation file
- ▶ Start the installation file



You can carry out further server settings and administrative functions by using the AdminApp.exe application.

For a description of the application, see the readme.txt. file.

Both files are located in the driver folder for the network license.

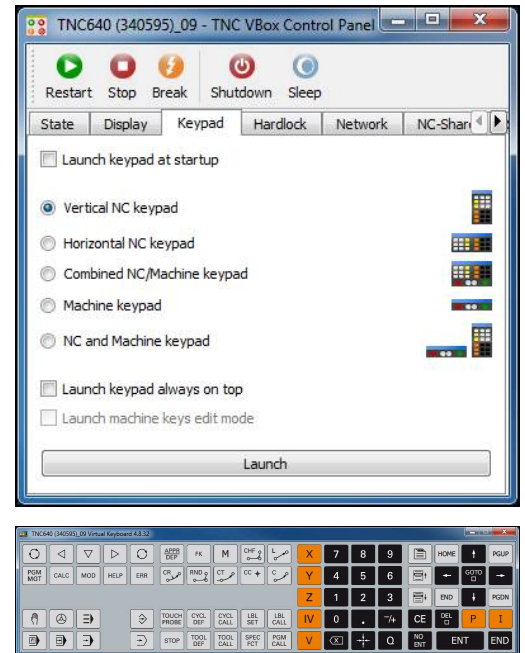


## 2.3 Operating the programming station

### Showing the virtual keypad

To show the virtual keypad, proceed as follows:

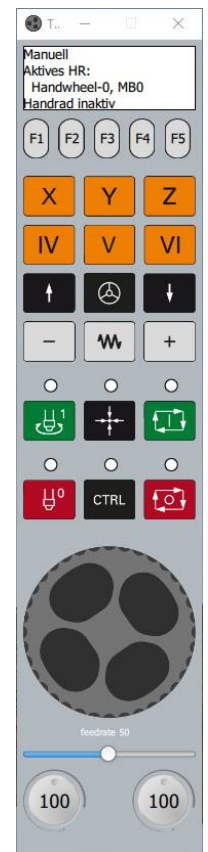
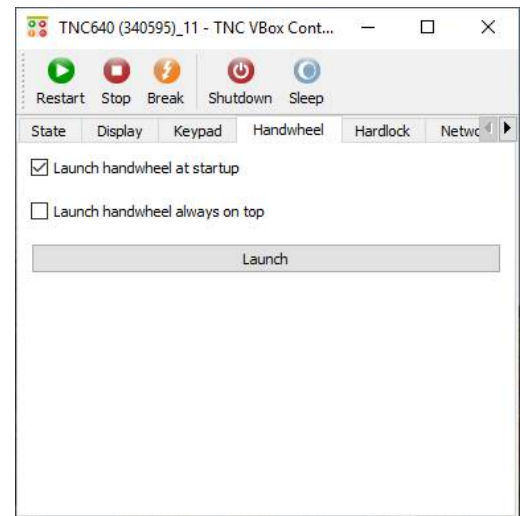
- ▶ Start the programming station
- ▶ Click the HEIDENHAIN VirtualBox icon in the bottom right of the taskbar
- ▶ The **TNC VBox Control Panel** will start.
- ▶ Select the **Keypad** tab
- ▶ Additional settings for the keypad will be shown.
- ▶ Select the **Launch keypad at startup** option so that the keypad will be shown every time the programming station is started
- ▶ Select the keypad layout, for example:
  - **Vertical NC keypad**
- ▶ Click the **Launch** button
- ▶ The **Virtual Keypad** is now shown.



## Showing the virtual handwheel

To show the virtual handwheel, proceed as follows:

- ▶ Start the programming station
- ▶ Click the HEIDENHAIN VirtualBox icon in the bottom right of the taskbar
- ▶ The **TNC VBox Control Panel** will now start.
- ▶ Select the **Handwheel** tab
- ▶ Additional settings for the keypad will be shown.
- ▶ Select the **Launch handwheel at startup** option so that the handwheel will be shown every time the programming station is started
- ▶ Select the **Launch handwheel always on top** option so that the virtual handwheel will always be shown in the foreground
- ▶ Click the **Launch** button
- ▶ The **Virtual Handwheel** is now shown.



## Operating elements




The programming station is operated using the programming station keyboard, a PC keyboard, or a mouse.



























Functions for vertical soft keys are available only if you use a special PLC program for the programming station.

### Keys for functions

Control key	PC keyboard	Function
	<b>F1 to F10</b>	Select the function in the horizontal soft-key row
	<b>F9</b>	Shift soft-key row left
	<b>F10</b>	Shift soft-key row right
	<b>F11</b>	Select screen layout
	<b>F12</b>	Toggle the display between machining and programming modes
	<b>CTRL+ALT+P</b>	Select or delete programs and files, external data transfer
	<b>CTRL+ALT+N</b>	Show calculator
	<b>CTRL+ALT+M</b>	Select MOD functions
	<b>CTRL+ALT+H</b>	Display help texts for NC error messages, call TNCguide
	<b>CTRL+ALT+L</b>	Display all pending error messages
	<b>CTRL+ALT+5</b>	Contour approach and departure
	<b>CTRL+ALT+6</b>	FK free contour programming
	<b>CTRL+ALT+8</b>	Program a chamfer
	<b>CTRL+ALT+9</b>	Program a straight line segment
	<b>CTRL+ALT+T</b>	Program a circular arc with radius
	<b>CTRL+ALT+Z</b>	Program a corner rounding
	<b>CTRL+ALT+U</b>	Program a circular arc with tangential connection







Control key	PC keyboard	Function
	<b>CTRL+ALT+I</b>	Program the circle center/pole for polar coordinates
	<b>CTRL+ALT+O</b>	Program a circular arc with center
	<b>CTRL+ALT+1</b>	Select the Manual Operation mode
		Select the smarT.NC mode (not for TNC 320, TNC 620 and TNC 640)
	<b>CTRL+ALT+2</b>	Select the Handwheel operating mode
	<b>CTRL+ALT+Q</b>	Select the Positioning with MDI operating mode
	<b>CTRL+ALT+W</b>	Select the Program Run, Single Block operating mode
	<b>CTRL+ALT+E</b>	Select the Program Run, Full Sequence operating mode
	<b>CTRL+ALT+4</b>	Select the Programming mode of operation
	<b>CTRL+ALT+R</b>	Select the Test Run mode of operation
	<b>CTRL+ALT+A</b>	Define touch probe cycles
	<b>CTRL+ALT+S</b>	Define machining cycles
	<b>CTRL+ALT+D</b>	Call fixed cycles
	<b>CTRL+ALT+F</b>	Define subprograms and program section repeats
	<b>CTRL+ALT+G</b>	Call subprograms and program section repeats
	<b>CTRL+ALT+Y</b>	Enter program contents
	<b>CTRL+ALT+X</b>	Define tool in the program
	<b>CTRL+ALT+C</b>	Call the tool
	<b>CTRL+ALT+V</b>	Call the soft-key menu for special functions
	<b>CTRL+ALT+B</b>	Enter a program call
	<b>Backspace key</b>	Delete the entry to the left of the cursor

Control key	PC keyboard	Function
	<b>DEL</b>	Delete area
	<b>END</b>	Conclude the NC block, end your input
	<b>CTRL+PgDn</b>	Select the next tab in forms
	<b>Up arrow key</b>	Position the cursor
	<b>Left arrow key</b>	Position the cursor
	<b>Right arrow key</b>	Position the cursor
	<b>Down arrow key</b>	Position the cursor
	<b>CTRL+ALT+Up arrow key</b>	Up/down one dialog box or button
	<b>CTRL+ALT+Down arrow key</b>	Up/down one dialog box or button
	Numeric keypad: <b>/</b>	Take over actual position
	Numeric keypad: <b>*</b>	Decimal separator
	Numeric keypad: <b>-</b>	Change arithmetic sign
	Numeric keypad: <b>7</b>	Select the X axis or enter into the NC program
	Numeric keypad: <b>4</b>	Select the Y axis or enter into the NC program
	Numeric keypad: <b>1</b>	Select the Z axis or enter into the NC program
	Numeric keypad: <b>8</b>	Select the fourth axis or enter into the NC program
	Numeric keypad: <b>5</b>	Directly select NC blocks, cycles, and parameter functions
	Numeric keypad: <b>2</b>	Select the fifth axis or enter into the NC program
	Numeric keypad: <b>9</b>	Polar coordinate entry
	Numeric keypad: <b>6</b>	Q parameter programming / Q parameter status

Control key	PC keyboard	Function
	Numeric keypad: <b>3</b>	Incremental values
	Numeric keypad: <b>+</b>	Ignore dialog questions. Delete words
	Numeric keypad: <b>Enter</b>	Conclude entry. Continue the dialog
	Numeric keypad: <b>,</b>	Clear entries or error message

### Key assignment on American PC keyboards

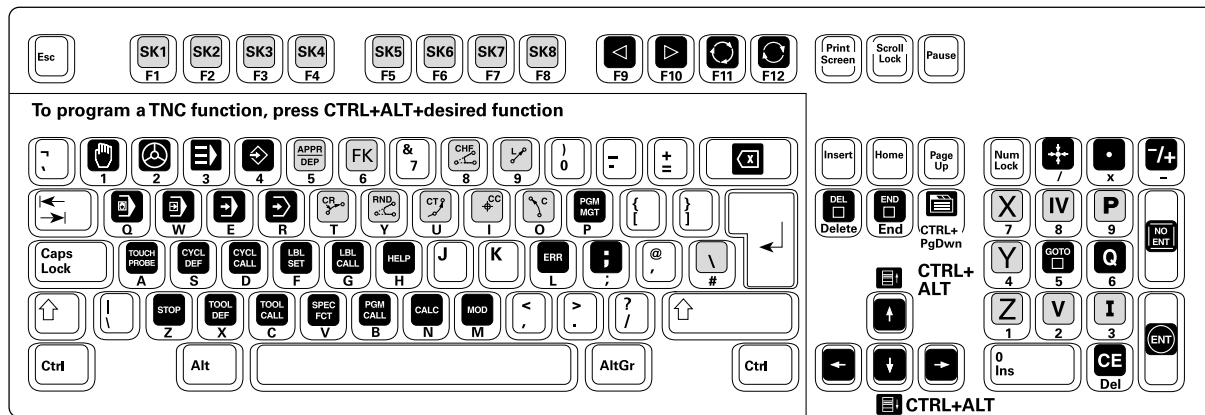
The following keys are arranged differently if you use a PC keyboard with an American key layout.

Control key	PC/Keyboard	Function
	<b>CTRL+ALT+6</b>	FK free contour programming
	<b>CTRL+ALT+8</b>	Program a chamfer
	<b>CTRL+ALT+9</b>	Program a straight line segment
		Select the smarT.NC mode (not for TNC 320, TNC 620, and TNC 640)
	<b>CTRL+ALT+2</b>	Select the Handwheel operating mode
	<b>CTRL+ALT+Y</b>	Program a corner rounding
	<b>CTRL+ALT+Z</b>	Enter program contents



The control functions (such as L, C, CC) are sent over certain key combinations to the programming station software. Remember that such key combinations are also used by other Windows programs, which can result in undesired effects.

These keys are summarized on a keyboard template:



Refer to the Appendix for a printout of the keyboard template.

**Further information:** "Overview of keyboard assignment", Page 66

## Working with the HEIDENHAIN Basic PLC Program

After you have started the programming station, the most important programming station functions for operating the machine will be available to you.

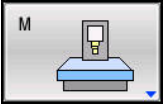
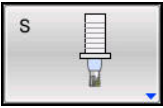
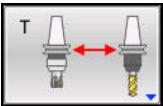


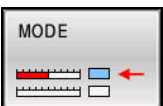
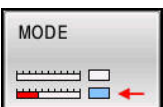
**Further information:** "Installing the programming station", Page 25

In the vertical soft-key row, you will find important soft keys for operating the machine:

- NC start
- NC stop
- Moving the axes






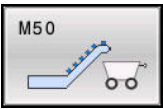
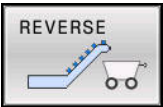
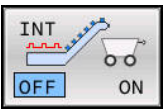
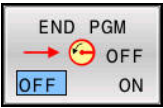
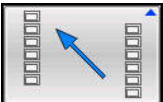
The vertical soft-key row allows you to simulate various machine functions of the basic PLC program by means of a mouse.

**Main menu**

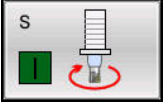
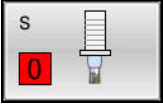
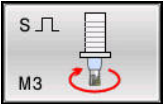
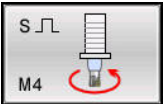

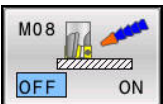


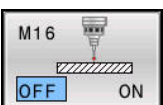
Soft key	Keys
	Machine functions
	Spindle functions
	Tool functions
	Spindle override 100 %
	Feed rate override 100 %
	Switch function of upper bar display in small PLC window
	Switch function of lower bar display in small PLC window





**Machine functions**

Soft key	Keys
	NC start
	NC stop
	Move axes in positive direction
	Move axes in negative direction
	Rapid traverse
	Chip conveyor ON/OFF M50/M51
	Chip conveyor reverse direction
	Chip conveyor interval
	Automatic switch-off after end of program
	Back

**Spindle functions**

Soft key	Keys
	Spindle start M03
	Spindle stop M05
	Spindle jog mode in M03 direction
	Spindle jog mode in M04 direction
	Spindle orientation (M19)
	External coolant ON/OFF M08/M09
	Internal coolant ON/OFF M07/M09
	Additional coolant ON/OFF M17/M09
	Blow out TSxxx touch probe M16 (timer)

**Tool-changer service functions**

Soft key	Keys
	Select tool change
	Clamp/release tool

**Working with a machine-specific PLC program**

For the programming station, some machine tool builders provide a PLC program adapted to the respective type of machine. Please contact your machine tool builder to request a description of the adapted PLC program's functions.



In order to protect data and files from read accesses, the machine tool builder can encrypt the PLC.

HEIDENHAIN points out that no data encryption is able to provide perfect data protection. Thus, HEIDENHAIN cannot provide a guarantee or assume liability for the impairment of data stored there, nor for the damages that arise therefrom.

## Directory structure and file types

### Directory structure

During installation you enter the installation path.

**Further information:** "Installing the programming station", Page 25

The following directory structure of the control will be automatically created in the virtual machine.

- **LOG:** Contains the LOG files
- **PLC:** Contains the PLC files
- **SF:** Contains the SF files
- **TNC:** Contains the end user files



In TNCremo, the end user directory is displayed as **TNC:\** and **SF:\**.

You can gain access to the **PLC:\** and **LOG:\** directories with TNCremo only after you have entered the required code number or the daily password.

TNCremo is a HEIDENHAIN software solution for the transfer of data between the control and the PC workstation, among other things.

### The TNC: end user directories

Subdirectory	Content
<b>config</b>	Configuration files
<b>lost+found</b>	Collective folder for data or links that can no longer be associated
<b>nc_prog</b>	Includes NC programs organized according to file types
<b>system</b>	Folder for all files and tables (e.g., tool kinematics or text files)
<b>table</b>	Tables
<b>temp</b>	Buffer (Clipboard), e.g. the DXF converter doesn't need any special rights in order to copy its elements to this buffer
<b>tncguide</b>	Files of the TNCguide context-sensitive help system

### File types

Extension	Use
.H	Program in HEIDENHAIN format
.I	Program in ISO format
.HU	Compatible HEIDENHAIN unit programs
.HC	Compatible HEIDENHAIN contouring programs
.T	Table for tools
.TCH	Table for tool changers
.D	Table for datums
.PNT	Table for points
.PR	Table for presets
.TP	Table for touch probes
.BAK	Table for back-up files

Extension	Use
.DEP	Table for dependent data (such as structure items)
.TAB	Freely definable tables
.P	Table for pallets
.TRN	Table for turning tools
.3DTC	Table for tool compensation
.A	Texts as ASCII files
.TXT	Texts as log files
.CHM	Texts as help files
.DXF	CAD data as ASCII files
.IGES	CAD data as ASCII files
.STEP	CAD data as ASCII files

## Starting the programming station

The programming station is always started in the same way, regardless of the type of licensing.

To start the programming station:



- ▶ Double-click the programming station link
- ▶ Or select it in the Windows Start Menu
- ▶ The programming station will now start.



If a programming station with a single-station license variant starts as a trial version, then this may be due to the following:

- The software release module has not been connected to the PC workstation
- The software release module is already occupied by a currently running programming station.
- The driver for the software release module was not installed

**Further information:** "Installing the drivers", Page 30



If a programming station with a network license starts as a trial version, then this may be due to the following:

- The programming station of the PC workstation has not been assigned to a license server
- The license server is off
- The software release module has not been inserted into the license server
- The driver for the software release module was not installed
- The SmarxOS Network Server software was not started on the license server
- The network connection between the license server and PC workstation does not work
- All network licenses are being used

"Configuration for using a USB network dongle",  
Page 54, "Installing the drivers", Page 30, and "Setting up the license server", Page 31

During startup, the programming station automatically activates the **TNC VBox Control Panel**. The control panel allows you to configure various settings for the programming station.

Start the **TNC VBox Control Panel** as follows:

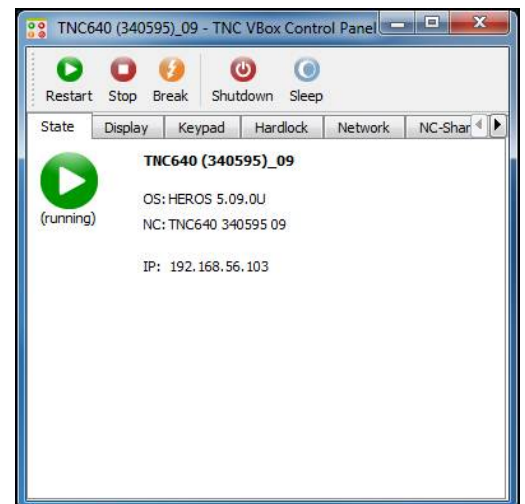


- In the taskbar, click the HEIDENHAIN VirtualBox icon



When starting the programming station with the virtualization software Oracle VM VirtualBox, the virtual machine contained therein is also started. This virtual machine contains the programming station software. If you shut down the programming station, then the Oracle VM VirtualBox virtualization software ends automatically as well.

In order to redisplay a minimized programming station window on the desktop, click the taskbar button:



## Display settings

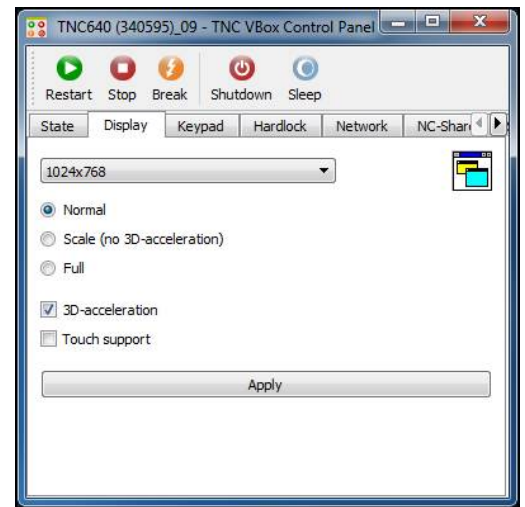
In the **TNC VBox Control Panel**, you can choose the resolution and configure various programming station display settings after selecting the **Display** tab:

- **Normal:** The programming station will be opened in window mode with the selected resolution
- **Scale (no 3D acceleration):** Opens the programming station in a window, the size of which can be adjusted. You can use the mouse to drag the programming station window to the desired size
- **Full:** Opens the programming station in full-screen mode
- **3D-acceleration** option: Activates or deactivates the 3-D hardware acceleration of the graphics card

If you confirm the setting with **Apply**, then the programming station will be restarted.



The resolutions that can be selected depend on the control model.





## Updating the programming station

### NOTICE

#### Caution: Data may be lost!

System files are overwritten during updates of the programming station.

- Create a backup

For updates, you can use a programming station DVD or the downloaded installation files.

- i** To find the current programming stations, go to the **Download** area, and then to PC Software.  
You must unzip the downloaded files prior to performing the update!

To update the programming station:

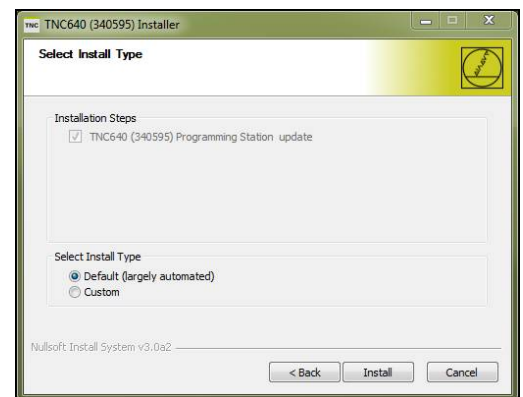
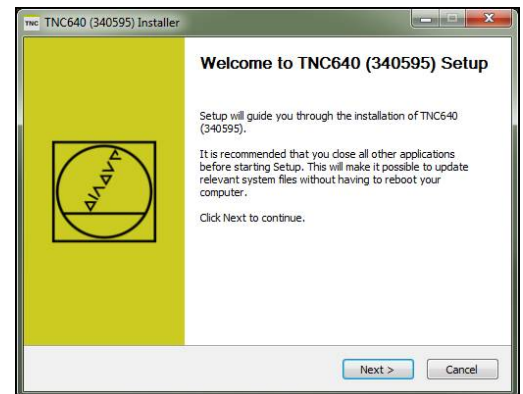
- Insert the programming station DVD
- Or unzip the downloaded files
- Navigate to the installation file (e.g., install TNC640 (340595).exe)

#### Navigation:

- Downloaded files
  - Folder with the unzipped files
  - Folder with the software ID (e.g., 340595)
  - HEIDENHAIN folder
  - Programming station folder (e.g., TNC640)
- Programming station DVD
  - HEIDENHAIN folder
  - Programming station folder (e.g., TNC640)

- i** You can bypass the need for manual navigation if you use the programming station DVD.  
Start index.html, and select the desired functions and information in the menu.

- Start the installation file
- The installation wizard now opens
- Confirm by pressing the **Next >** button
- The installation wizard will now display the applications to be installed.
  - VirtualBox virtualization software from ORACLE
  - Extension package for VirtualBox TNC VB Base (control panel and keypad)
  - Control software
- Select the desired application(s)
- Confirm by pressing the **Install** button
- The programming station will now be updated.



## Using the TNCguide help system

The TNCguide help system is the context-sensitive online help for HEIDENHAIN milling controls.

The TNCguide help system contains the following documentation:

- **BHBoperate.chm** contains information on setup, testing, and running of NC programs
- **BHBKlartext.chm** contains information about Klartext, the conversational programming language from HEIDENHAIN
- **BHBtchprobe.chm** contains information about the cycles
- **errors.chm** contains a list of all NC error messages



Individual documents are grouped and organized in the **main.chm** book file.

The **main.chm** book file may also contain further documentation of the machine manufacturer.

### Opening the TNCguide help system

There are two different ways of opening the TNCguide help system.

If you need information, for example, about an input field, then open the help system as follows:



- ▶ Place the cursor in the desired entry field



- ▶ Press the **HELP** key.
- > The programming station opens the help system.

If you need information, for example, about a soft key, then open the help system as follows:



- ▶ Click on the **?** button between the vertical and horizontal soft-key row
- > A question mark is added to the mouse pointer.
- ▶ Click on the desired soft key with the mouse pointer
- > The programming station opens the help system.



See the corresponding User's Manual for a detailed description of navigating and searching in the TNCguide help system and downloading the required language version.

**Further information:** "More detailed documentation", Page 13

## Checking the software version

You need the software version for the following (among other reasons):

- To explicitly identify the programming station during servicing
- To order or download the suitable documentation for your programming station

Check the software version as follows:



- ▶ Press the **MOD** key
- > The programming station opens a pop-up window.
- ▶ Select General Information
- ▶ Select Version Information
- ▶ Check the software version



- ▶ Press the **Cancel** soft key
- > The programming station now closes the pop-up window with the software information.

## Shutting down the programming station

### Fundamentals

In order to avoid losing data when closing the program, you must shut down the programming station correctly. There are several ways available for doing this, and these will be described in the following sections.

#### NOTICE

##### Caution: Data may be lost!

You can force the programming station to shut down by using the **Break** function. This corresponds to the "hard" shutdown of a regular PC. The most recently made changes will not be saved.

- ▶ Shut down the programming station correctly

### Shutting down the programming station per soft key



- ▶ Select the **Manual Operation** mode
- ▶ Scroll through the soft-key row

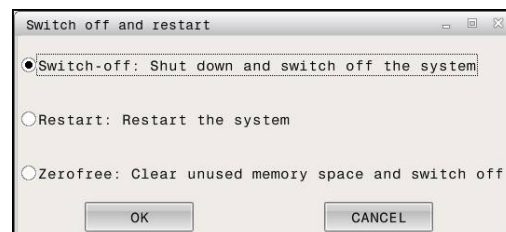


- ▶ Press the **OFF** soft key
- ▶ Press the **SHUT DOWN** soft key
- ▶ The programming station will now shut down.

### Shutting down the TNC via the Switch off and restart dialog window



- ▶ Move the mouse pointer to the bottom of the soft-key row
- > The programming station displays the taskbar.
- ▶ Press the symbol
- > The programming station opens the **Switch off and restart** dialog window.
- ▶ Select the **Switch-off** function
- ▶ Confirm with **OK**



Possible selections in the **Switch off and restart** dialog window:

- Switch-off: Exit the programming station
- Restart: Restart the programming station
- Zerofree: Clear unused memory and exit the programming station

### Shutting down the programming station via the TNC VBox Control Panel

- ▶ Depending on your PC settings, you must press the Windows key on the ASCII keyboard in order to show the taskbar



- ▶ Click the HEIDENHAIN VirtualBox icon in the bottom right of the taskbar

- > The **TNC VBox Control Panel** will now start.

- ▶ Press the **Stop** button

- > The programming station will now shut down.

- > The **TNC VBox Control Panel** will continue to remain active.

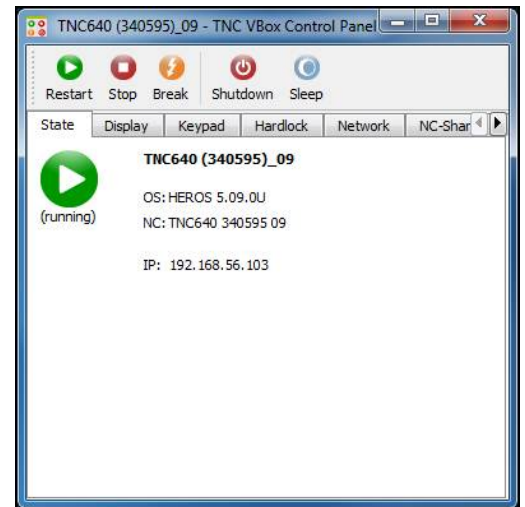
- ▶ You can restart the programming station again using the **Start** function



Stop



The **Shutdown** function shuts down the programming station and the **TNC VBox Control Panel**.



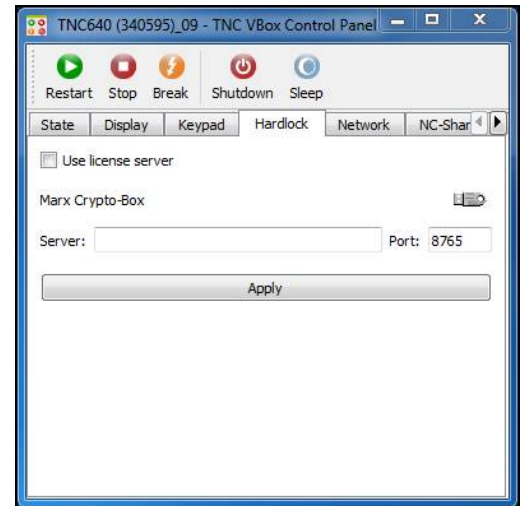
## 2.4 Configuring the programming station

### Configuration for using a USB network dongle

For all of the virtual machines that are to have access to the network dongle, you must perform this configuration.

Proceed as follows:

- ▶ Start the programming station
- ▶ Double-click the HEIDENHAIN VirtualBox icon in the bottom right of the taskbar
- > The **TNC VBox Control Panel** starts
- ▶ Click the **Hardlock** tab
- > Additional configuration options for the USB network dongle are now shown.
- ▶ Select the **Use license server** option
- ▶ In the **Server** input field, enter the IP address or the network name of the PC that you are using as the server—that is, the PC in which you have inserted the USB network dongle
- ▶ Press **Apply** to confirm your settings
- > The programming station will now be restarted.
- > The changes are now active



You do not need to install **any additional drivers** on the client PC in order to be able to access the USB network dongle.

## MOD functions

### Changing the conversational language

Modify the conversational language as follows:

MOD

- ▶ Press the **MOD** key
- ▶ Code number entry
- ▶ Enter the code number **123**.
- ▶ Confirm with the **OK** button
- > The programming station opens the list of machine parameters.

FIND

- ▶ Press the **Find** soft key
- ▶ Enter machine parameter **CfgDisplayLanguage** (no. 101300)
- ▶ Open the folder with the **ENT** key
- ▶ Select the desired conversational language
- ▶ Confirm with the **OK** button



The following machine parameters can also be modified in the same way:

- **CfgDisplayLanguage** (no. 101301) for the **NC dialog language**
- **CfgDisplayLanguage** (no. 101302) for the **PLC dialog language**
- **CfgDisplayLanguage** (no. 101303) for the **PLC error message language**
- **CfgDisplayLanguage** (no. 101304) for the **help language**

END

- ▶ Press the **END** soft key

STORE

- ▶ Press the **STORE** soft key
- > The programming station applies the changes.



The corresponding User's Manual contains a detailed description.

**Further information:** "More detailed documentation", Page 13

### Country-specific keyboard

The programming station of the TNC 640, TNC 620, and TNC 320 can be operated with a country-specific keyboard.

Proceed as follows:



- ▶ Select the **HEROS menu**
- ▶ Continue with **Settings**
- ▶ Select **Language/Keyboards**
- > The programming station opens a dialog window.
- ▶ Select the **Keyboard** tab as well as the keyboard to be changed
- ▶ Press the **CHANGE** soft key
- > The programming station opens a new tab.
- ▶ Select the desired language. The selection can be checked in a test line with **Apply**.
- ▶ Press the **OK** soft key
- ▶ Press the **END** soft key



## 2.5 Transferring data from the programming station to the machine

### Requirements



Before you can transfer data, you must connect the PC on which you have installed the programming station to your machine. The corresponding User's Manual contains a detailed description.

**Further information:** "More detailed documentation",  
Page 13

You can start a data transfer only from your machine.

## Preparations at the programming station

In order to transfer programs created with the programming station to the machine tool, you can create a transfer directory on the PC on which you temporarily store the programs to be transferred.

Proceed as follows:

- ▶ If a transfer directory does not exist, then use the Windows Explorer to create a new directory on your PC or on any network drive desired (e.g., <c:\pgmtransfer>)
- ▶ Switch back to the programming station
- ▶ Select the **Devices** VirtualBox menu (menu bar to the upper left)
- ▶ Select the **Shared Folders Settings** function
- ▶ Right-mouse-click, select **Add Shared Folders**
- ▶ Select the transfer folder under **Folder Path**
- ▶ Select options (e.g., **Make Permanent**)
- ▶ Apply your selection with **OK**
- ▶ Restart the programming station in order to apply the settings



If you create a new transfer directory or a shared folder, the directory will not be shown in the file management of the programming station until a restart has been carried out.

The **Devices** VirtualBox menu is available only if you activate it in the VirtualBox settings and if you select the **Normal** display setting in the **TNC VBox Control Panel**

Functions for managing shared folders:

Icon	Function
	Create a new folder
	Edit folder
	Remove folder

If you add a transfer directory, then you can configure various settings:

- **Read-only:** Read access only
- **Auto-mount:** The programming station automatically tries to set up the connection to this folder (to mount it). If the shared folder is not shown in the file management of the programming station, then you must restart the programming station
- **Make Permanent:** The entry for the shared folder is retained after the programming station has been shut down and is thus available upon the next switch-on.

In the programming station, the transfer directory is shown in the SF drive (**S**hared **F**older). Proceed as follows in order to transfer a program via the file management of the programming station:

- ▶ Select the **Programming** mode of operation
- ▶ Press the **PGM MGT** key
- > File management is called.
- ▶ Select the program that you want to transfer to the machine

- ▶ Select the split-screen view
- ▶ In the right-hand window, select the transfer directory as the target path
- ▶ Copy the program into the transfer directory

**i** Refer to the control's User's Manual for more information about copying files.

### Calling a program from the machine tool

- ▶ Select the **Programming** mode of operation
- ▶ Press the **PGM MGT** key
- > The file management is called.
- ▶ Select the target directory to which you wish to copy the program that has been created on the programming station
- ▶ Select the split-screen view
- ▶ In the right-hand window, select the directory of the programming station PC
- ▶ Select the program to be transferred, and transfer it to the machine tool <c:\pgmtransfer>

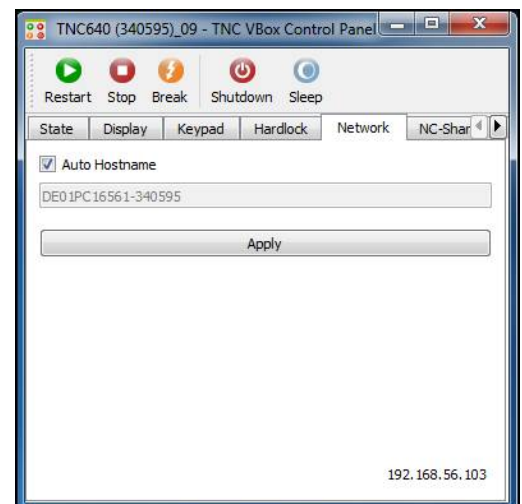
**i** In the corresponding User's Manual you will find a detailed description of how to copy files.

**Further information:** "More detailed documentation", Page 13

### Establishing a connection between the programming station and HEIDENHAIN PC software applications

In order to establish a connection between a HEIDENHAIN PC software application (e.g., TNCremo or PLCdesign) and the programming station, you must enter the network address or the host name of the programming station in the connection settings of the PC software. The programming station automatically generates a host name based on the PC name and the software number.

- ▶ Open **TNC VBox Control Panel**
- ▶ In the **Network** menu, select the **Auto Hostname** function
- ▶ Enter the displayed **Hostname** in the corresponding configuration menu of the HEIDENHAIN PC software.
- ▶ Or enter the IP address displayed in the **TNC VBox Control Panel**
- > The programming station can be connected to the PC software like a machine.



## 2.6 Uninstalling the software

The programming station must be uninstalled separately on each PC workstation, regardless of the type of licensing.

**Further information:** "Uninstalling the programming station", Page 61

When a software release module is used, the corresponding driver must also be uninstalled on each PC.

**Further information:** "Uninstalling the drivers", Page 62

When a network license is used, the license server must also be cleared.

**Further information:** "Clearing the license server", Page 63

## Uninstalling the programming station

### NOTICE

#### Caution: Data may be lost!

During uninstallation, all of the files of the virtual machine are deleted!

- ▶ Create a backup

Uninstall the programming station as follows:

- ▶ Open the Windows start menu
- ▶ Navigate to the desired function (e.g., Uninstall TNC640 (340595-xx))

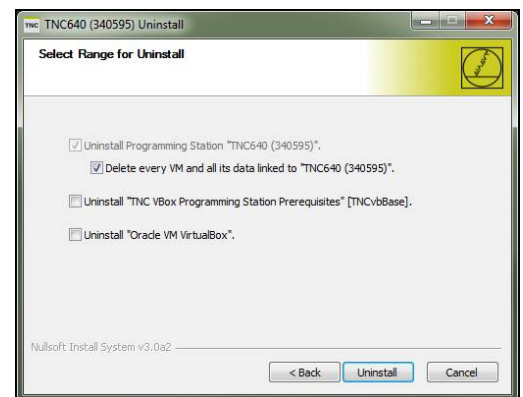
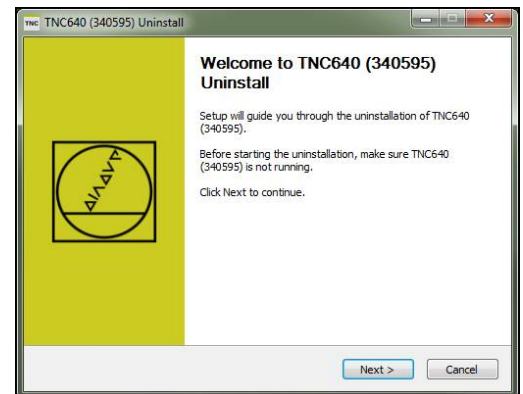
#### Navigation:

- All programs
- HEIDENHAIN folder
- Programming station folder (e.g., TNC640)
- Folder with the software ID (e.g., 340595)
- ▶ Start the desired function
- > The uninstallation wizard will now start.
- ▶ Confirm with the **Next >** button
- > The uninstallation wizard now displays the installed applications.
  - VirtualBox virtualization software from ORACLE
  - Extension package for VirtualBox TNC VB Base (control panel and keypad)
  - Control software
- ▶ Select the desired application or applications
- ▶ Confirm with the **Uninstall** button



Pay attention to which applications you are uninstalling.

- The control software is, for example, no longer executable without virtualization software.
- If more than one programming station has been installed in one folder, then all of the programming stations will be deleted during uninstallation
- If necessary, use the VirtualBox Manager to uninstall an individual installation if you have saved several programming stations of the same control type in a directory.



## Uninstalling the drivers

**i** With multiple installations of the programming station, the driver is simultaneously used by all programming stations. Deleting the driver affects all programming stations.

The same file is used for uninstallation and installation. Use the programming station DVD or downloaded installation file for this purpose.

**i** To find the current drivers, go to the **Download** area, and then to PC Software.  
Note that various drivers are available depending on the software release module used and on the license version.  
Downloaded files must be unzipped before installation.

To uninstall the driver:

- ▶ Insert the programming station DVD or unzip the downloaded files
- ▶ Navigate to the installation file CBUSetup.exe

### Navigation:



- Downloaded file
  - Folder with the unzipped file
- Programming station DVD
  - Single station license
    - JH folder
    - CBDriver folder
  - Network license
    - JH folder
    - CBServer folder

**i** If you use the programming station DVD, manual navigation is not needed.  
Start index.html, and select the desired functions and information in the menu.

- ▶ Start the installation file
- ▶ Select the **Uninstall** option
- ▶ Confirm with the **OK** button
- ▶ Carry out the uninstallation step instructions

## Clearing the license server

Clear the license server as follows:

- The taskbar displays the following icon: 
  - Double-click the  icon
  - Stop the application with the **Stop** button
  - Close the window
  - Modify implemented settings if required, e.g. the firewall settings
- Further information:** "Setting up the license server", Page 31
- Delete the CBServer folder from the hard disk of the license server



If you made no settings, then deleting the CBServer folder is sufficient.

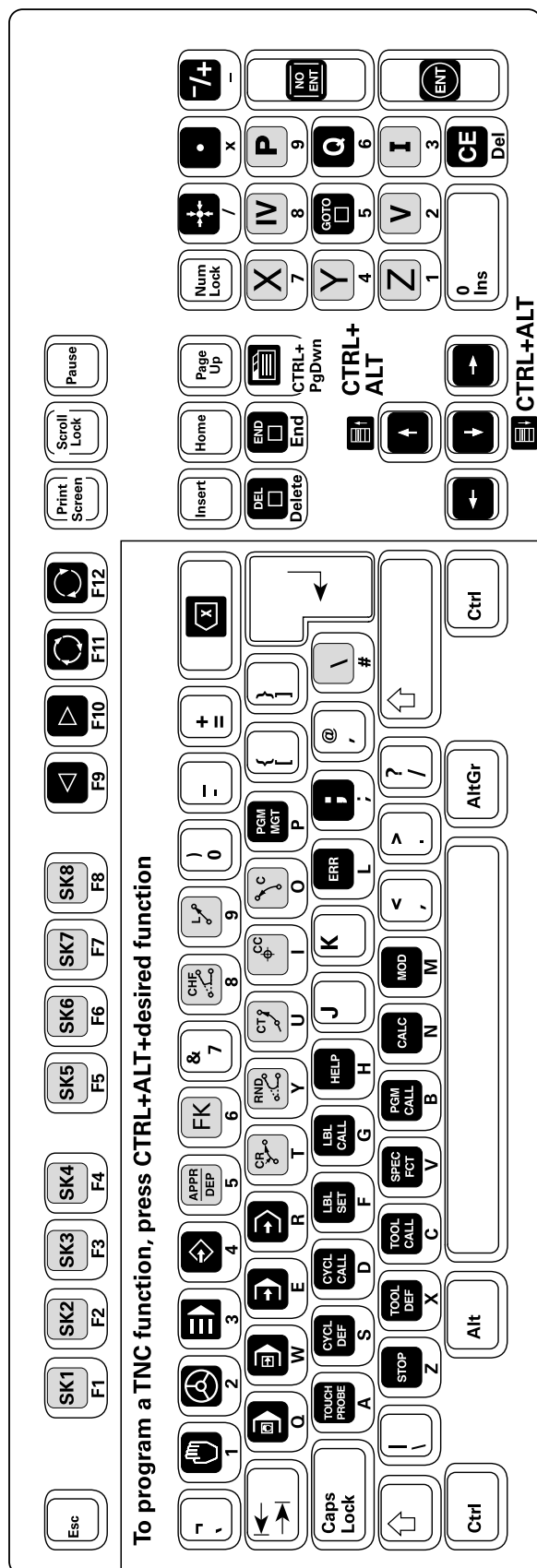




# 3

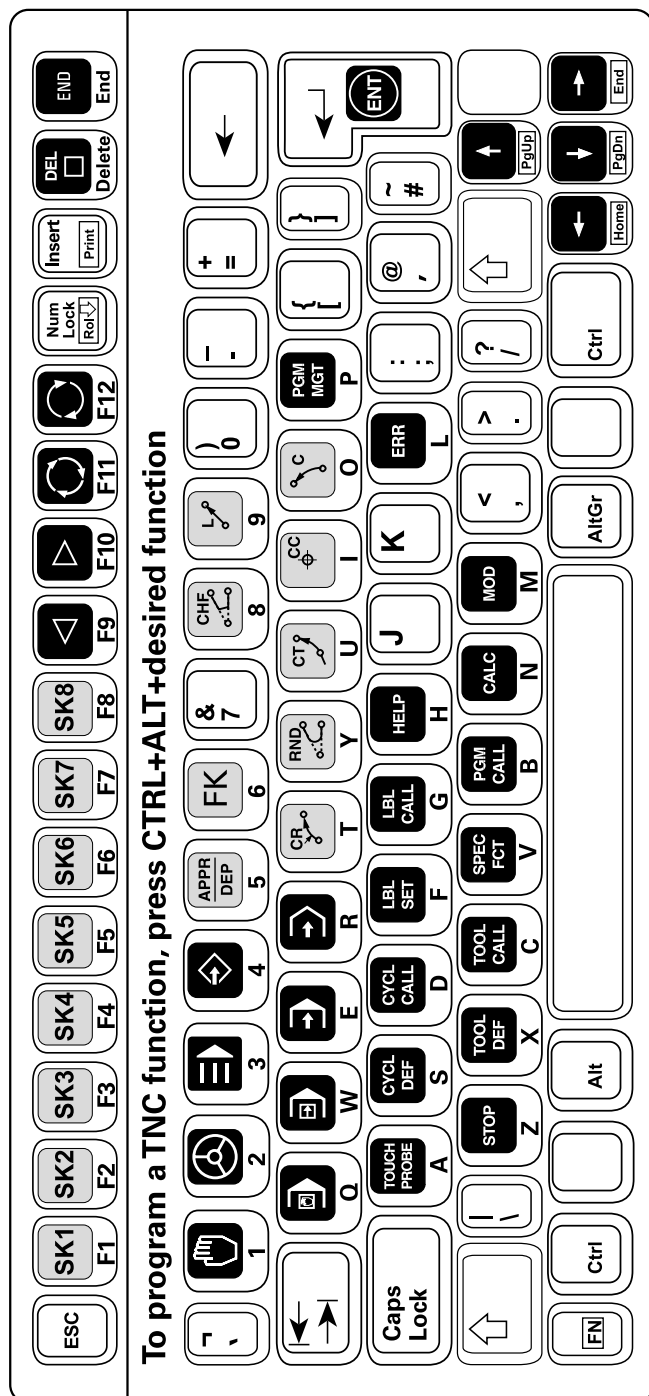
**Appendix**

### 3.1 Overview of keyboard assignment



### 3.2 Key assignments without numeric keypad

On keyboards without numeric keypad, some functions such as DEL (delete) or the cursor keys can be activated with an FN key. Refer also to the operating instructions of your keyboard.



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