

# **SIEMENS**

English

EN

## **SinuTrain**

# **SINUMERIK Training and Programming**

### **Getting Started**

**01.05 Edition**

**A5E 0039 1242 – 001**

Additional Information is available on the Internet under:  
<http://www.ad.siemens.com/mc/sinutrain>

This documentation was produced with WinWord V 8.0

We have checked that the content of this document correspond to the hardware and software described. Nonetheless, differences might exist and therefore we cannot guarantee that they are completely identical.

The information contained in this document is, however, reviewed regularly and any necessary changes will included in the next edition. We welcome suggestions for improvement.

© Siemens AG, 2004. All rights reserved

Subject to change without prior notice.

---

Printed in Germany

A5E 0039 1242 – 001  
Siemens Aktiengesellschaft

# Preface

Welcome to “Getting Started” for the SinuTrain PC-based Training and Programming CD, which will enable you to operate and program SINUMERIK 802D/810D/840D/840Di controllers.

“Getting Started” guides you step-by-step through the following tasks:

- Installing the training software from the CD
- Starting the training program
- Selecting the required machine tool
- Working with the examples provided

If you want to further your knowledge, we recommend studying the training booklets, which have been specially developed for the training CD. Ordering information appears in the Appendix to this Manual.

## Who is the SinuTrain CD designed for?

This multimedia SinuTrain CD has been designed for the training and further training of:

- Beginners, new users
- Training managers, trainers
- Sales staff for the purpose of giving customer presentations

## Hotline

Should you have any questions about the software, please contact the following hotline:

A&D Technical Support Phone: +49 (0) 180 / 5050 - 222

Fax: +49 (0) 180 / 5050 - 223

<http://www.siemens.com/automation/support-request>

Should you have any questions about the documentation, please contact:

Fax: +49 (0) 9131 / 98 - 2176

E-mail: [motioncontrol.docu@erf.siemens.de](mailto:motioncontrol.docu@erf.siemens.de)

## Danger and warning concept

The following danger and warning symbols are used in this document:



---

### Danger

This symbol indicates that death, severe personal injury or substantial property damage **will** result if proper precautions are not taken.

---



---

### Warning

This symbol indicates that death, severe personal injury or substantial property damage **may** result if proper precautions are not taken.

---



---

**Caution**

This symbol (with a warning triangle) indicates that minor injury or damage to property **may** result if proper precautions are not taken.

---

**Caution**

This symbol (without a warning triangle) indicates that damage to property **may** result if proper precautions are not taken.

---

**Notice**

This symbol indicates that an undesirable result or state **may** result if proper precautions are not taken.

---

**Note**

This symbol always appears in this documentation where further, explanatory information is provided.

---

**Trademarks**

IBM® is a registered trademark of the International Business Corporation. MS-DOS® and WINDOWS™ are registered trademarks of the Microsoft Corporation.

**Legal basics**

SinuTrain™ software is used for creating and simulating NC programs on a PC, on the basis of the DIN 66025 programming language as well the products ShopMill, ShopTurn and ManualTurn, and language commands of the type SINUMERIK™ 802D, 810D, 840D, 840Di.

The programs created using the software must only be used for production with machine tools if the software (SinuTrain/JobShop) has been adapted for the SINUMERIK controller on which the program is intended to run. Adaptation must be carried out properly by authorized personnel employed by, for example, Siemens, the machine tool manufacturer, or the dealer; during adaptation, the defaults specified by Siemens and the machine tool manufacturer must be adhered to. Otherwise, the machine tool may malfunction.

Furthermore, for customers outside Germany, the software is subject to the **"General license conditions for software products for automation and drives for customers with a seat or registered office outside of Germany"**.



# SinuTrain

## Training and Programming (EN)

<b>1 Installation</b> .....	<b>EN/1-7</b>
1.1 System prerequisites .....	EN/1-7
1.2 Installing the CD.....	EN/1-7
1.3 Settings prior to starting the software for the first time .....	EN/1-11
1.4 Automation License Manager (ALM).....	EN/1-13
1.5 Documentation .....	EN/1-14
1.6 Uninstallation .....	EN/1-14
<b>2 Keyboards and Operation</b> .....	<b>EN/2-15</b>
2.1 SinuTrain startup.....	EN/2-15
2.2 Example programs.....	EN/2-18
2.3 Operation via standard PC keyboard .....	EN/2-20
2.4 Operation via SinuTrain training keyboard (USB) .....	EN/2-20
2.5 Printing.....	EN/2-21
2.6 Using CAD Reader (option) .....	EN/2-21
2.7 Exiting SinuTrain.....	EN/2-21
2.8 Differences concerning operation of the 802D controller .....	EN/2-22
2.8.1 Data exchange settings .....	EN/2-22
2.8.2 Booting the SinuTrain environment.....	EN/2-22
2.8.3 Operating HMI 802D.....	EN/2-24
2.8.4 Data exchange between SIM_LOCAL_NCK and hard disk via HMI 802D .....	EN/2-26
2.8.5 Exchanging data with the 802D controller .....	EN/2-26
2.8.6 Printing from the 802D controller .....	EN/2-27

<b>3 Training Room (Option)</b> .....	<b>EN/3-29</b>
<b>4 SinuTrain Basic Training</b> .....	<b>EN/4-31</b>
4.1 Getting started with CNC technology .....	EN/4-31
4.2 Virtual machine (outlook) .....	EN/4-31
<b>A Appendix</b> .....	<b>EN/A-33</b>
A.1 SinuTrain Software on CD .....	EN/A-33
A.2 SinuTrain training booklet.....	EN/A-34



# 1

## 1 Installation

### 1.1 System prerequisites

Hardware:	<b>PENTIUM 500 MHz</b> or higher Min. <b>256 MB RAM</b> CD-ROM drive Disk drive
Disc capacity:	Approx. <b>400 MB</b> with standard installation ( <b>50 MB of this on the system drive</b> ) Approx. <b>1 GB</b> if all products are installed ( <b>50 MB of this on the system drive</b> )
Operating system:	Windows XP Professional (Service Pack 1)

#### User profile settings

In order to install and start up SinuTrain, you must have administrator rights.

### 1.2 Installing the CD

To install, please insert the CD marked "SinuTrain 802D/810D/ 840D/840Di Version 6.3 Edition 2" into the CD-ROM drive.  
Setup starts automatically via AutoPlay or by double-clicking on SiSetup.exe.

#### Supplementary conditions

To install SinuTrain, you will need a valid functionkey. You will receive the functionkey when you purchase your SinuTrain CD (see Certificate of License).

The range of available functions will depend upon the scope of supply (functionkey). Only one operator interface package can be installed at once.

To start up SinuTrain, you will need a valid license key. This license key is contained on a disc, which is included in the SinuTrain scope of supply. The license key must be transferred to the PC before SinuTrain is started up for the first time.

For this purpose, an additional program is installed when SinuTrain is installed: the Automation License Manager. The Automation License Manager enables the license key to be transferred to the PC (see section "Automation License Manager").

Before installing SinuTrain, you must ensure that no other version of the SINUMERIK HMI software is already installed on the machine. Once SinuTrain has been installed, no other versions of SINUMERIK HMI can be installed.

Before installing SinuTrain, you must ensure that no version of STEP5/STEP7 is installed on the PC (because installing SinuTrain will delete the STEP5/STEP7 MPI connections).

### Startup screen

Only click the "Install" button once you have read the installation instructions.

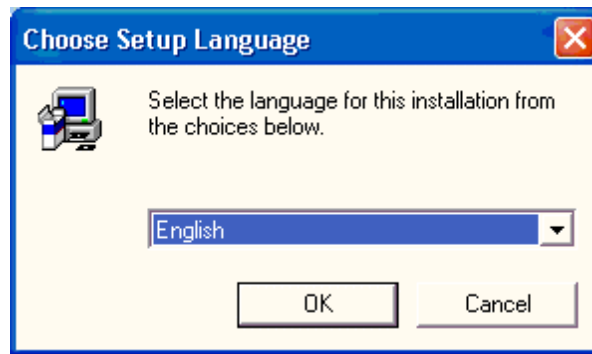


Click "Deutsch" to change the startup screen language to German and "Exit" to quit installation.

### Selecting the setup language

Select the language to be used during setup in this dialog box: German and English are available.



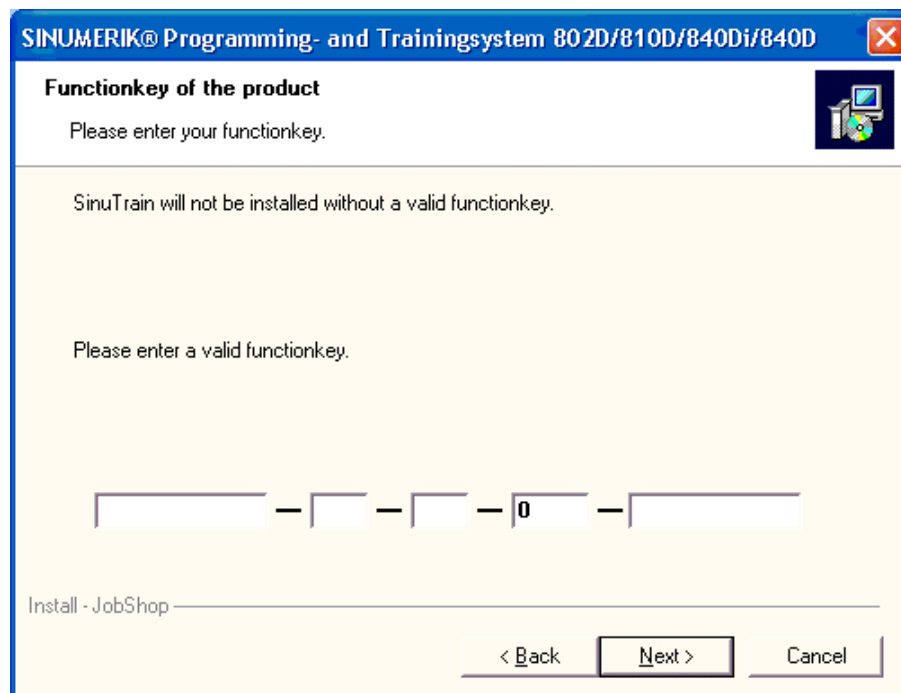


### License agreement

Please read the license agreement and confirm your agreement with "Yes".

### Entering the functionkey

Enter the functionkey (uppercase), which appears on the packaging.



### Selecting the target path

Click "Browse" to select the drive in which you want to install the SinuTrain software. It is not possible to change the path.

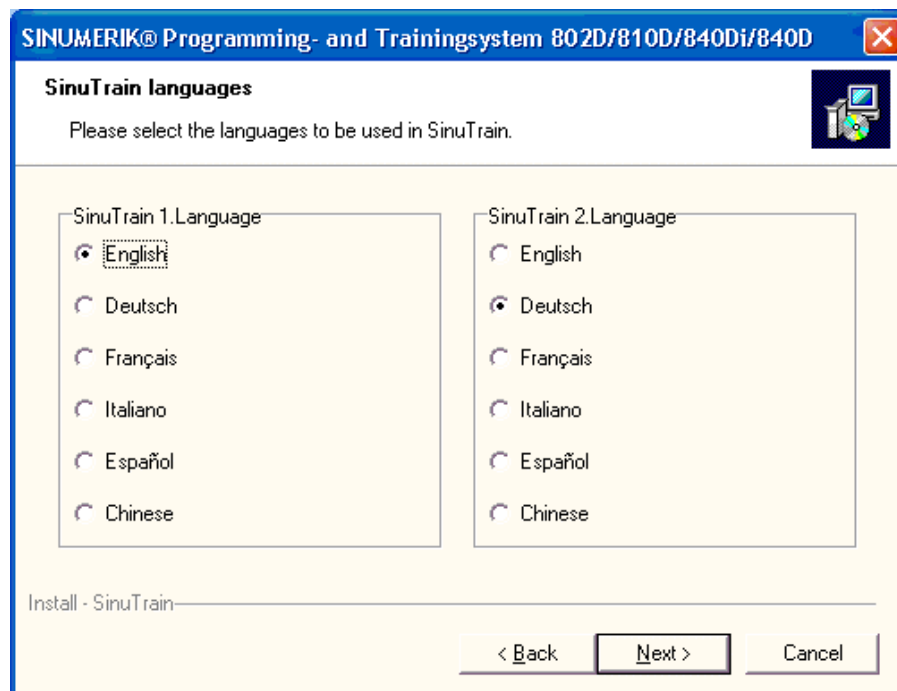
## Selecting the technology

According to the range of functions purchased, the corresponding machines are installed.

## Language settings

The languages installed are Chinese, English, French, German, Italian, and Spanish.

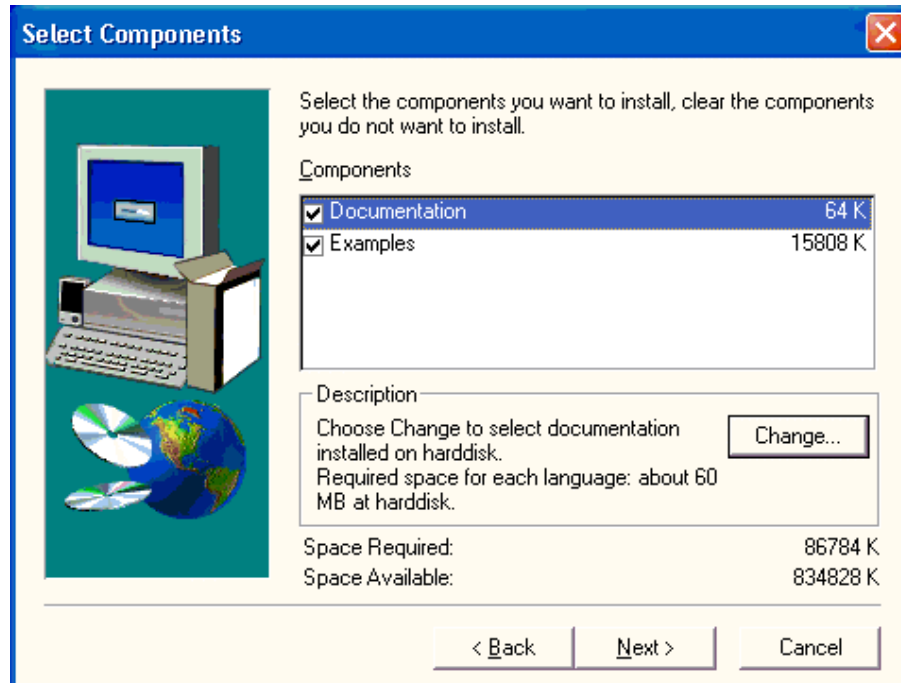
Select the primary and secondary languages in which the installed machines are to start up. It is possible to switch between these online (startup screen).



For information about the availability of additional languages, please visit: <http://www.siemens.com/sinutrain> (under Downloads)

## Selecting components

Any additional components to be installed (documentation and example programs) can be selected here. Click "Change" to select the language in which the documentation is to be installed.



## Summary

A summary of the components you have selected for installation appears. Start installation by clicking "Next".  
Once installation is complete, the PC is rebooted.

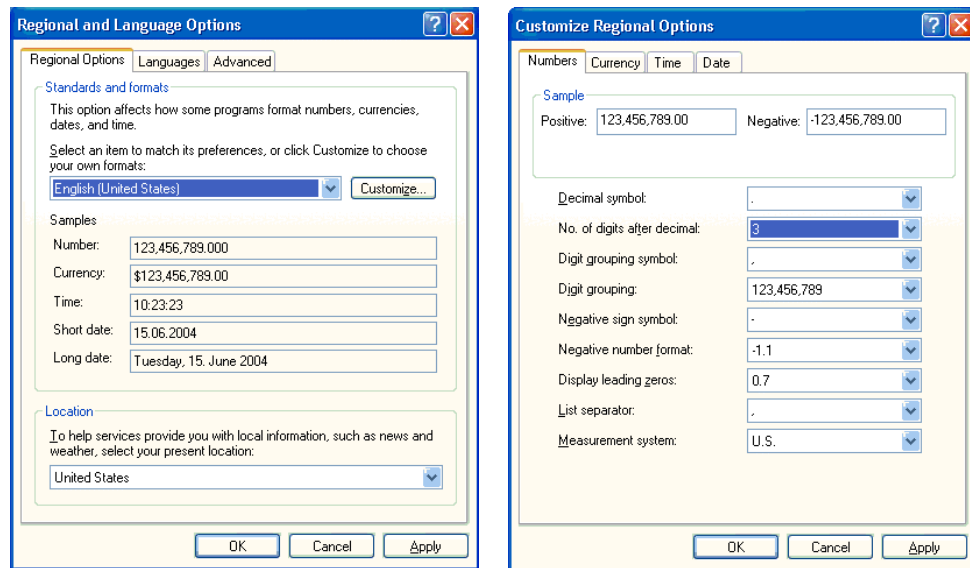
## 1.3 Settings prior to starting the software for the first time

### Setting regional and language options

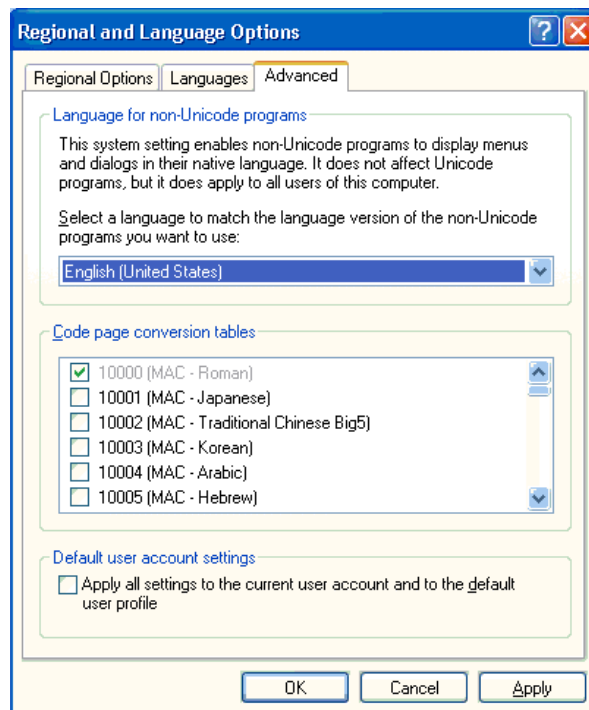
Click "Start" → "Control Panel" → "Regional and Language Options":

- "Regional Options" tab: English (United States)
- Then select "Customize" and change "No. of digits after decimal" to 3.

**Do not change any of the other settings under "Customize"!**



- Use the "Advanced" tab to make the following settings:  
"Language for non-Unicode programs" English (United States) (please note the default setting for the purpose of uninstalling!)



- Do not make this setting prior to installing SinuTrain!

### Changing the virtual memory

The virtual memory must be set to **User-defined, initial size and maximum to twice the size of the physical RAM** in the Control Panel, under "System" → "System Properties" → "Advanced".

## Screen settings

Display font size: **"Normal"**  
Color quality: **Medium (16 bit)**  
Approved screen resolution: **800 x 600** or **1024 x 768** (recommended)

## Taskbar settings

"Lock the taskbar" and "Keep the taskbar on top of other windows" must not be checked.

# 1.4 Automation License Manager (ALM)

## Installing the Automation License Manager

The Automation License Manager program is installed automatically during SinuTrain setup. Alternatively, the Automation License Manager can be installed directly from the SinuTrain CD. Setup can be found under "...\\SinuTrain\\SinuACC" and is started via "setup.exe".

## Starting the Automation License Manager

The Automation License Manager is started via the relevant icon on the desktop or via the Start menu (Start → SIMATIC → License Management). Follow the on-screen instructions.

---

### Note

The Automation License Manager will not be automatically uninstalled along with SinuTrain. To remove it, select "Start/Settings/Control Panel/Add or Remove Programs".

---

## Transferring the license without a built-in disk drive

If your PC does not have a built-in disk drive, you can proceed as follows:

- Connect an external disk drive via a USB port.
- Install the Automation License Manager on a PC with built-in disk drive and transfer the license key to a USB memory stick.
- Install the Automation License Manager on a PC with built-in disk drive and transfer the license key to a network drive.

## Further information

Once installed, you can find out more about the Automation License Manager in the Start menu:

- Start → SIMATIC → Documentation
- Start → SIMATIC → Product Information
- Via the Automation License Manager's online help

## 1.5 Documentation

You will need Acrobat Reader (included on the CD) to read the documentation.

Launch the program by selecting Start → SinuTrain Version 06.03 → Documentation or go to the C:\SI\_TRAIN\Doku folder.

## 1.6 Uninstallation

### Procedure:

1. All applications must be closed before uninstalling the software.
2. Select "Regional and Language Options" via Start/Settings/Control Panel. Set "Language for non-Unicode programs" in the "Advanced" tab. Here you should select the default setting referred to in section "Settings prior to starting the software for the first time".
3. Then start the uninstall process via "Start → Programs → SinuTrain Version 06.03 Edition 2 → Uninstall SinuTrain".

Once uninstallation is complete, the PC will need to be rebooted.

---

### Note

While uninstallation is underway, a setup dialog may vanish into the background, giving the impression that the PC has crashed. The dialog can be brought back into the foreground by clicking on the taskbar.

---



# 2

## 2 Keyboards and Operation

### 2.1 SinuTrain startup

To start SinuTrain, the user needs administrator rights.

- SinuTrain can be started via the relevant icon (“SinuTrain Start” or “ShopMill Start”, “ShopTurn Start” or “ManualTurn Start”) on the desktop.
- Start → Programs → SinuTrain Version 06.03 Edition 2

---

**Note**

SinuTrain can only be started if a valid license key has been installed on the PC.

#### Set up local power user

Alternatively, you can start SinuTrain V6.3 without administrator rights if you are registered as a local power user under Windows XP.

**Requirements:**

- SinuTrain must have been installed on the PC as administrator.
- The user must already exist within the domain.

**Procedure:**

1. Log onto the PC as administrator.
2. Select Start -> Control Panel -> Administrative Tools -> Computer Management.
3. In “Computer Management”, select Local Users and Groups -> Groups -> Power Users.
4. Members: Add... A "Select Users or Groups" dialog box appears:
5. Enter the domain name under "From this location" and the domain user (e.g., Student) who is to be the local power user under "Enter the object names to select". Confirm with OK.
6. Open the Explorer and the "Si-Train" properties; select the “Security” tab.
7. Select “Users” under "Group or user names" and "Full Control" in the “Allow” column under "Permissions for Users".
8. Click Apply and OK to confirm.

9. Execute Regedt32 via "Start" and "Run": Select HKEY\_LOCAL\_MACHINE -> Software -> Siemens: Permissions.
10. Select "Power Users" under "Group or user names" and "Full Control" in the "Allow" column under "Permissions for Power Users". Click Apply and OK to confirm.

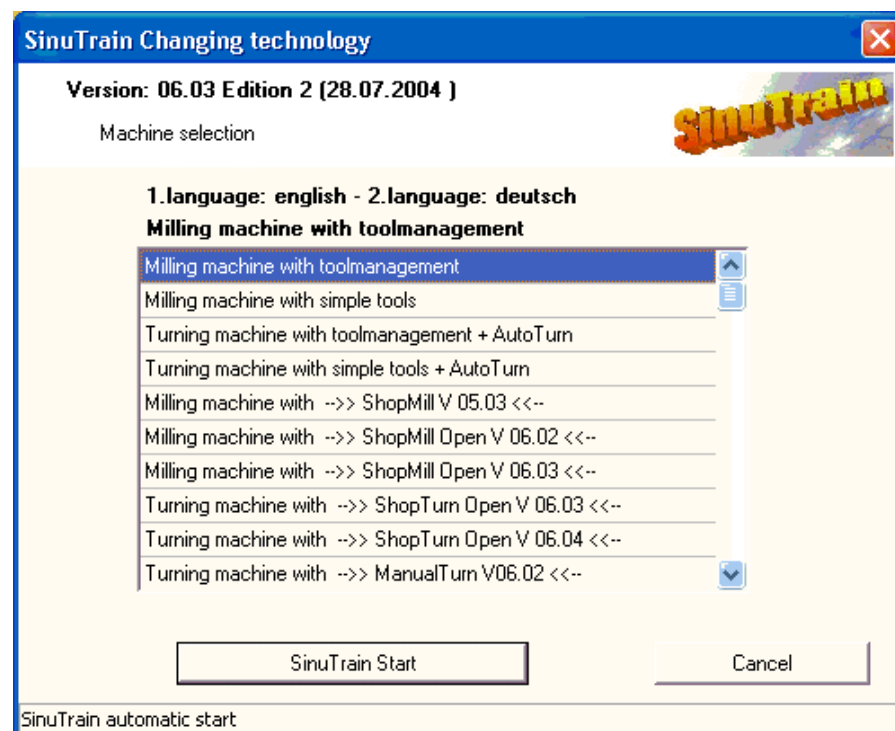
Log onto the PC as a new user (e.g., Student) and start SinuTrain.

## Selecting the machine

Once SinuTrain has been started, a prompt will appear asking you to select a machine. Press "OK" to proceed to machine selection.

Depending on the range of available functions, you can select the machine to be started here: In the example below, a **milling machine with tool management** is being selected.

This machine is started via "SinuTrain Start".



## Machine with tool management

Tool management (TOOLMAN) ensures that at any given time, the correct tool is in the correct location and that the data assigned to the tool is up to date.

This function is used on machine tools with circular, chain or box magazines. As well as speeding up tool changes, it avoids scrap by monitoring tool service life and machine downtimes by using spare tools.



## Machine with tool compensation

Tool compensation data consist of data that describes wear, geometry, identification, tool type, and the assignment to parameter numbers.

Tool length compensation and tool radius compensation can be activated at different times:

- Tool length compensation (TLC) is performed on the first traversing motion of the axis on which the TLC is to act. This traversing motion must be a linear interpolation (G0, G1).
- Tool radius compensation (TRC) becomes active when G41/G42 is programmed in the active plane (G17, G18 or G19). The selection of tool radius compensation with G41/G42 is only permitted in a program block with G0 (rapid traverse) or G1 (linear interpolation).

## Machine with ShopMill

ShopMill is operating and programming software for milling machines that makes it easy for you to operate the machine and to program workpieces.

ShopMill offers a complete CNC control solution for milling in the workshop. You can use ShopMill on single-channel versions of vertical or universal milling machines with up to 12 axes (including rotary axes and spindles). Of the 12 axes, 3 linear and 2 rotary axes plus 1 spindle can be displayed at any one time.

ShopMill's tool management function is transparent and user-friendly. This function must be linked to the machine's PLC program.

## Machine with ShopTurn

ShopTurn is an operating and programming software program for single-slide turning machines that makes it easy for you to operate the machine and to program workpieces.

You can use ShopMill on single-channel versions of single-slide turning machines with up to 12 axes (including rotary axes and spindles).

Of the 12 axes, 5 axes plus 1 spindle can be displayed at any one time. ShopTurn also supports machine extensions with C axes and counterspindle.

ShopTurn's tool management function is transparent and user-friendly. This function must be linked to the machine's PLC program.

## Machine with ManualTurn

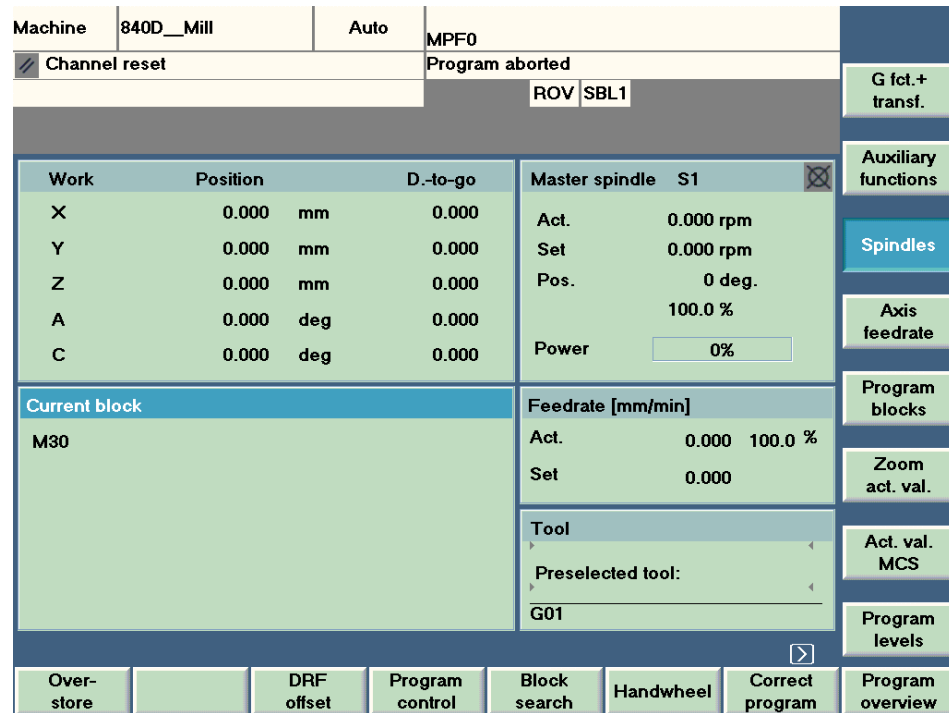
The ManualTurn operator control software is designed for cycle-controlled turning machines primarily used for conventional operations including step by step machining of turned parts with manual intervention capabilities and easy programming for the machine operator.

With ManualTurn, you enter the traverse commands using simple input forms in a dialog that provides plain text and graphic support. The following modes are possible: manual, straight, angular, circular, cycles, machine cutting, contour and program.

## Booting

After booting, an image of the machine appears (in this example, a milling machine with tool management).

After booting, the following screen appears:



To proceed to the main menu, press "F10".

For the purpose of operating the machine, please read and observe section "Operation via standard PC keyboard" below.

## 2.2 Example programs

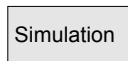
Overview of example programs for a milling machine (solely by way of illustration):

Name ( *.MPF )	Description
BELLCRANK	Mill bellcrank from rectangular block
CRANE_HOOK	Mill crane hook from rectangular block
DISY1	Mill semicircle into an irregular shape
ENGRAVING_PICTURE	Engrave picture onto a plate
FLOWER	Mill flower into rectangular block
JETFORM	Mill jet from rectangular block
MATH_SPLINE_C	Mathem. forms: Standard form, A/B/C spline
MATH_COS_EXP	Mathematical forms
PLATE_BLOCK	Mill block

Name ( *.MPF )	Description
PLATE_FLANGE	Mill flange
PLATE_LEVER	Mill lever
WING	Mill wing from cylinder





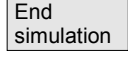
### Select program for DIN programming

The simulation can be selected directly from the program overview in the “Program” operating area following selection of a part program (\*.mpf format).





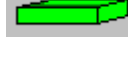
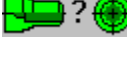
 Press the Simulation softkey to start this application.

### Starting simulation

The following controls are available for running the simulation:

-  START simulation
-  STOP simulation
-  RESET simulation
-  SINGLE BLOCK simulation
-  End simulation

### Workpiece views:

- |   |                                  |   |   |
|---|----------------------------------|---|---|
| <b>Mill</b>   |                                  | <b>Rotate</b>   |   |
|  | Plan view                        |  | External view (front)                       |
|  | Default plan view and front view |  | Full sectional view (front)                 |
|  | 3D view or wire model            |  | Default half-section (front) and wire model |

### Training booklets

You can find out more about operating and programming the SINUMERIK 802D/810D/840D/840Di by consulting the relevant training booklets. The order numbers for these booklets are listed in Appendix A.

## 2.3 Operation via standard PC keyboard

### Hotkeys

PC keyboard	HMI function
F1 ...F8	Horizontal softkeys 1...8
Shift + F1...F8	Vertical softkeys 1...8
F9	^ Recall
Shift + F9	> Menu extension, etc.
F10	Area switchover key
F11	Channel switchover
Shift + F10	Master key (machine area)
F12	HELP key
Page Up	Page down
Page Down	Page up
Tab	Block advance
Enter	Input
Paste	Edit
"5" on numeric keypad	Toggle
ESC	Clear error

### Shortcut keys in machine area:

In each case, all four keys must be pressed at once.

Ctrl+Alt+Shift+1	JOG
Ctrl+Alt+Shift+3	RESET
Ctrl+Alt+Shift+4	NC start
Ctrl+Alt+Shift+5	NC stop
Ctrl+Alt+Shift+6	MDI
Ctrl+Alt+Shift+7	Single block
Ctrl+Alt+Shift+8	AUTO
Ctrl+Alt+Shift+9	Spindle right
Ctrl+Alt+Shift+0	Spindle left
Ctrl+Alt+Shift+-	Spindle stop

---

### Note

These keys cannot be used with all of the available machines!

---

## 2.4 Operation via SinuTrain training keyboard (USB)

Num Lock must not be active. Otherwise, some keys on the training keyboard will not respond (Program, Offset, Program Manager, Alarm, Custom).

## 2.5 Printing

### Printing workpieces, main programs and subprograms

1. Press the "Print" softkey (F10, Shift F9, Print).
2. Select the file to be printed: WCS = workpiece, MPF = main program file or SPF = subprogram file.
3. Press the "Print File" softkey.
4. The printer used is the one installed under Windows.

### Producing a hard copy

Hard copy icon in the "Info" taskbar:

- Left-click: Print screen.
- Right-click: Open screen in hard copy window for editing.

## 2.6 Using CAD Reader (option)

The Cad Reader can be accessed as follows:

- In the case of standard machines and with JobTurn Open and JobMill Open:  
Via the "CAD Reader" softkey (F10, Shift F9, CAD Reader)
- In the case of ShopMill V05.03 and ManualTurn V06.02:  
After switching to CNC ISO, via the "CAD Reader" softkey (F10, Shift F9, CAD Reader)

## 2.7 Exiting SinuTrain

SinuTrain can be exited as follows:

- Operation via standard PC keyboard:   Shortcut keys: Ctrl+Alt+Shift+2
- Operation via training keyboard:       Key: Exit
- Operation via HMI (not with 802D):
  - Area switchover           F10
  - ETC                         Shift + F9
  - Exit                         F8

## 2.8 Differences concerning operation of the 802D controller

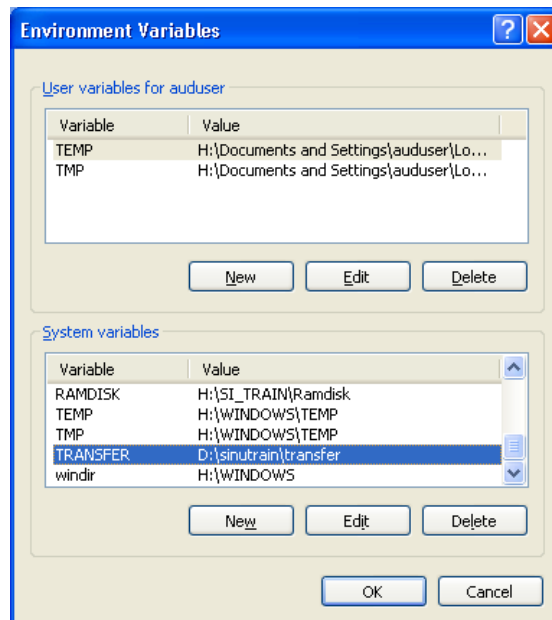
### 2.8.1 Data exchange settings

These settings must be made before SinuTrain is started up.

The minimum screen resolution is 800x600 pixels.  
Lower resolutions prevent operation of the system.

For the purpose of data exchange (part programs, cycles) between SIM\_LOCAL\_NCK and HMI 802D, a directory is required for data swapping. For this purpose *C:\sinustrain\transfer* is used as the default directory setting.

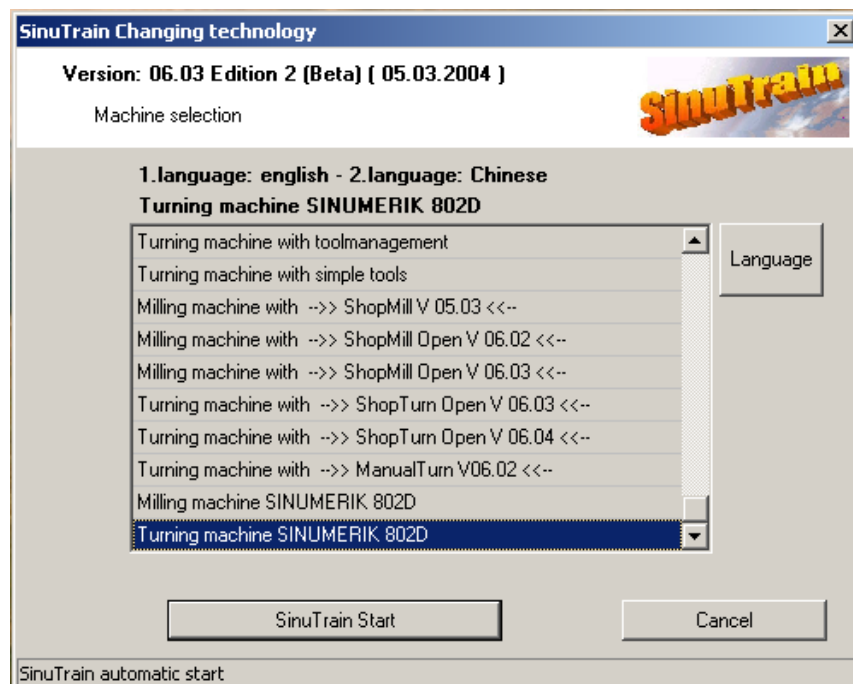
Alternatively, the user can set up a specific directory using an environment variable, which can also be located on a network drive. To define environment variables, select them via the Windows Control Panel using the "Advanced" tab. The following dialog box will then appear:



The directory shown here must exist.

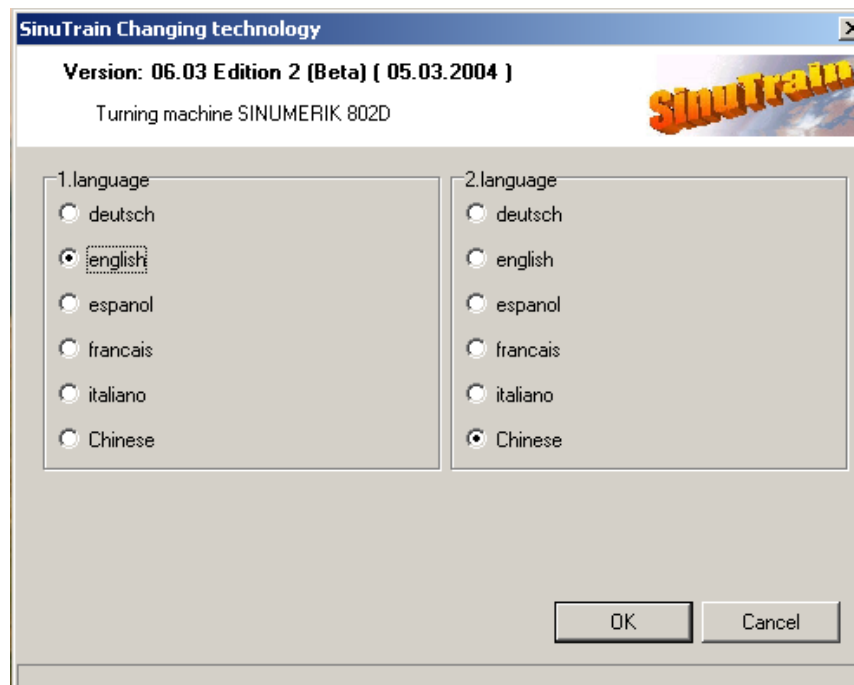
### 2.8.2 Booting the SinuTrain environment

When SinuTrain is started up, a boot screen is displayed so that the required machine type can be selected:



If the SINUMERIK 802D milling or turning machine is selected, a “Language” button will appear on the right-hand side so that language selection can be made before the “SinuTrain Start” button is pressed.

The following window will then appear to enable selection of the primary and secondary language:



The 6 standard SinuTrain languages are available. Please note that the primary language selected will also be the language used for the HMI 802D online help.

Currently, this online help is only available in Chinese, English, German, and Italian. Therefore, in the case of French and Spanish, the help language is automatically set to English. If either of the languages selected happens to be Chinese, then the help language is always set to Chinese as well. Once the languages have been selected, the machine selected for use with HMI 802D can be started.

### 2.8.3 Operating HMI 802D

HMI 802D can be operated via the PC keyboard or mouse.

Horizontal softkeys 1 – 8 are accessed via keys F1 – F8 on the PC keyboard.

Vertical softkeys 1 – 8 are operated via the corresponding shortcut keys SHIFT + F1 .... SHIFT + F8.

#### Shortcut keys for switching areas:

ALT + C	Offset Parameters operating area
ALT + X	Machine operating area
ALT + B	Program Manager operating area
ALT + V	Program Editor operating area
ALT + M	Alarms operating area
ALT + N	System operating area
ALT + H	Online help

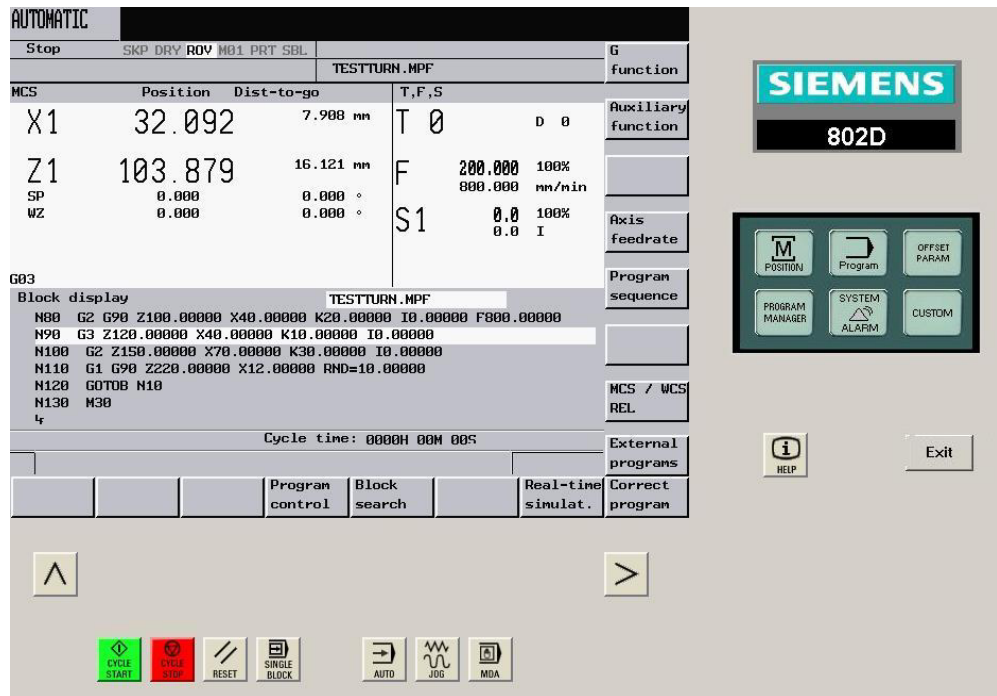
#### Shortcut keys for switching operating modes:

ALT + F1	JOG mode
ALT + F2	MDA mode
ALT + F3	Automatic mode

You can work the softkeys on the machine control panel or operator panel using the mouse or shortcut keys described above.

Operation via the training keyboard leads to certain characters such as “{”, “}”, “~”, “” not being recognized.





**Note**

Once HMI 802D has been booted for a turning machine, you must ensure that the channel machine data 27800 TECHNOLOGY\_MODE = 1.  
In the case of turning machines, if the value is 0, misinterpretations will occur in connection with the contour input forms of the program editor, the online simulation and tool selection, which will result in incorrect axis assignment.



### 2.8.4 Data exchange between SIM\_LOCAL\_NCK and hard disk via HMI 802D

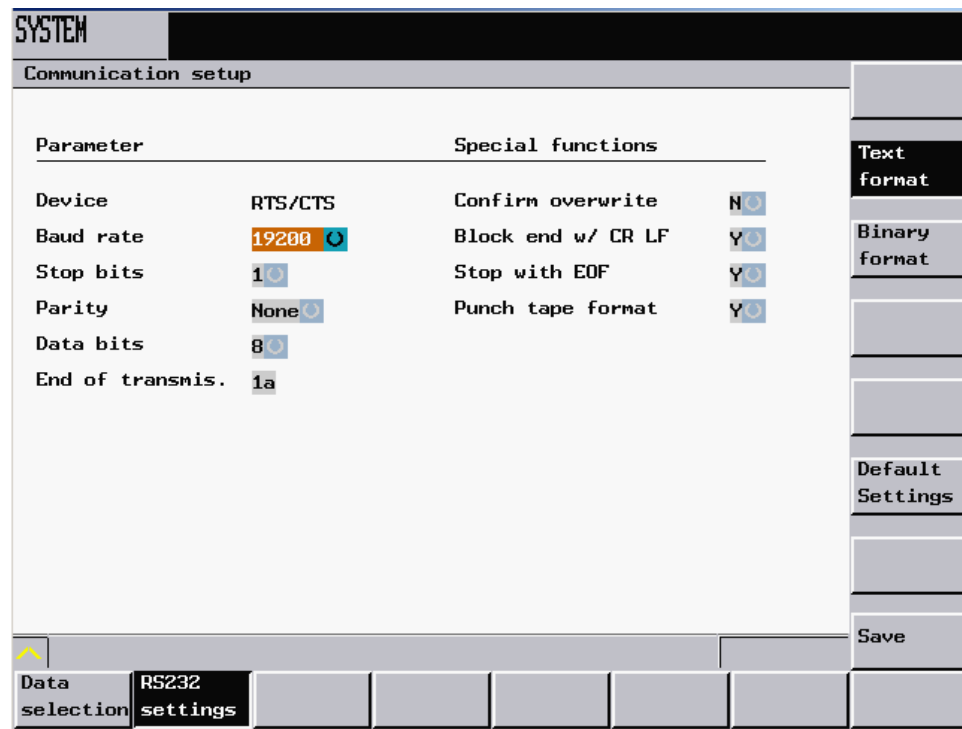
A directory must be created for the purpose of data exchange (see 2.8.1), e.g., C:\SINUTRAIN\TRANSFER. In order to exchange part programs, use vertical softkeys 7 (“Read out”) or 8 (“Read in”), which can be found in the Program Manager operating area of HMI 802D (“Program” button on the operator panel).

### 2.8.5 Exchanging data with the 802D controller

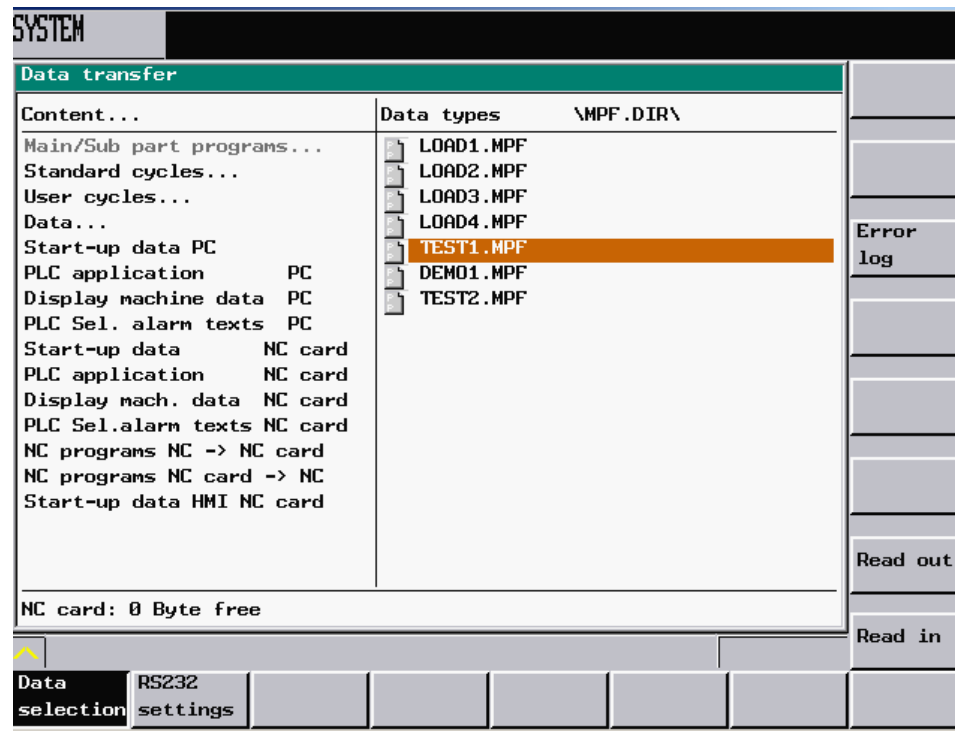
SINUMERIK 802D does not make use of any workpiece directories. With the exception of cycles, all part programs and subprograms are managed in a single shared directory.

Data can be exchanged with the 802D controller via the transfer folder (as set above) using the WinPCin tool. HMI 802D only supports the exchange of individual files in MPF (Main Program file), SPF (SubProgram File), and COM (cycle description text file) formats under SinuTrain. Archives are not supported.

When exporting a file (e.g., TEST1.MPF) from the controller as a text file to the above transfer directory for SinuTrain 802D, make sure that the interface parameter settings (in particular transmission rate and format → text) in WinPCin match those of the 802D under “File Transfer” → “RS232 Settings”.



The transfer directory must be specified as the target directory in WinPCin and the name of the file selected on HMI 802D must be entered in WinPCin (right-hand side of selection window) along with the file extension. Otherwise, errors will occur when importing into SIM\_LOCAL\_NCK with SinuTrain 802D.



When importing files into the 802D controller from the transfer directory, this directory must be selected as the source directory in WinPCin. It is also possible to select a number of source files here.

## 2.8.6 Printing from the 802D controller

Screen contents: The current screen can be printed out using the shortcut SHIFT + Print Scrn.

Part programs: Part programs cannot be printed out directly. They must first be exported (read out) to the TRANSFER directory using the Program Manager. From there, they can be printed out using a text editor.

■

## Notes

## 3

## 3 Training Room (Option)

When a classroom license is purchased, the SinuTrain package includes the licenses required for one teacher and the corresponding number of licenses for the trainee workstations. The software must be installed individually on each trainee workstation. No provision has been made for setting the software up on these workstations by creating and copying an “installation image”.

### Setting up a didactic network

Although it is possible to set up a didactic network, this will depend on supplementary conditions such as the hardware being used, communication equipment, etc. For further information, please contact your Siemens Service Partner.

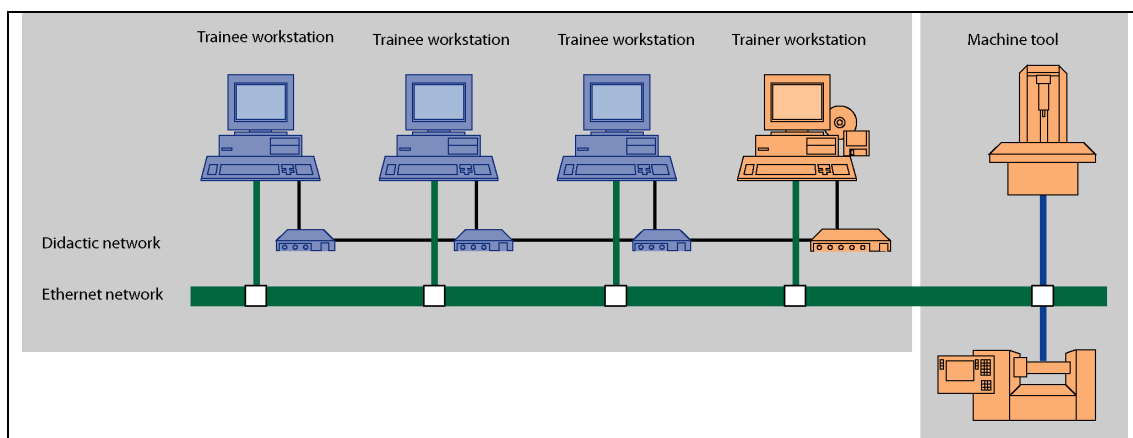


Fig. 3-1 Example of a training room configuration

The options supported by a didactic network include:

- Real-time transfer via external hardware that is not part of the operating system
- Cabling via a special bus system
- No need for additional controls on trainee workstations
- Trainers can blank out trainee workstation screens
- Trainers can disable the mouse and keyboard on trainee workstations

- Trainer can control the mouse/keyboard on trainee workstations remotely
- Video transfer possible in any combination

### **From mere training room to training centre**

In order to allow the trainer to intervene in the training program from his desk whenever necessary, recognize problems immediately and control learning processes in a purposeful manner, SinuTrain allows trainee workstations and trainer workstations to be linked over a didactic network.

The trainer's PC then becomes the "director's chair" for CNC training. The trainer sees on his computer what the trainees are seeing on theirs or can put the same content on all screens. Furthermore, he has total control over the trainee workstations.

Networking the trainee and trainer workstations plus the machine tools completes the creation of a training center. This enables the training programs produced to be transferred from trainee to trainer workstations and from trainer workstations to machine tools, for example.



# 4

## 4 SinuTrain Basic Training

### 4.1 Getting started with CNC technology

A single-user station license is available for self-study in the form of CBT (Computer Based Training). This multimedia PC-based educational software will help you to get started with CNC technology.

### 4.2 Virtual machine (outlook)

The system is currently undergoing expansion:  
With SinuTrain training and programming, you will soon be operating a virtual turning or milling machine in the workshop directly and processing workpieces using part programs you have produced yourself.



## Notes



# A

## A Appendix

### A.1 SinuTrain Software on CD

- Universal operating and programming software for turning and milling machines
- ShopMill operator and programming interface for milling machines
- ShopTurn operator and programming interface for turning machines
- ManualTurn operator and programming interface for semi-conventional turning machines
- DIN 66025 programming
- User-friendly contour calculator
- Network connection via DNC machine (for transfer of programs and tool data)
- CAD Reader (conversion of DXF files into contours or drilling patterns for HMI Advanced, ShopMill, ShopTurn or ManualTurn)
- Printout and hard copy of screen contents
- Programming examples
- Configuration tool for adapting to different machines
- Online selection of 5 European languages and Simplified Chinese

#### ShopMill

- Operator and programming interface for milling machines
- Printout and hard copy of screen contents
- Programming examples
- Configuration tool for adapting to different machines

#### ShopTurn

Operator and programming interface for turning machines  
Further functions: See ShopMill

#### ManualTurn

Operator and programming interface for semi-conventional turning machines  
Further functions: See ShopMill

#### Classroom license

Detailed information about licenses and installation is available on request.

## Our training packages – ordering couldn't be easier!

Order No.: 6FC5270-	Description	CAD Reader	Single-user station/ Classroom License	
0AX70-0AG0	SinuTrain complete package	---	✓	---
0AX72-0AG0	SinuTrain complete package	---	---	✓
0AX73-0AG0	SinuTrain 810D/840D/840Di	---	✓	---
0AX74-0AG0	SinuTrain 810D/840D/840Di	✓	✓	---
0AX75-0AG0	SinuTrain 810D/840D/840Di	---	---	✓
0AX76-0AG0	SinuTrain 810D/840D/840Di	✓	---	✓
0AX80-0AG0	SinuTrain 802D	---	✓	---
0AX82-0AG0	SinuTrain 802D	---	---	✓

Order No.: 6FC5463-	Description	CAD Reader	Single-user station/ Classroom License	
0FA40-0AG0	SinuTrain ShopMill	---	✓	---
0FA41-0AG0	SinuTrain ShopMill	✓	✓	---
0FA42-0AG0	SinuTrain ShopMill	---	---	✓
0FA43-0AG0	SinuTrain ShopMill	✓	---	✓
0GA50-0AG0	SinuTrain ShopTurn	---	✓	---
0GA51-0AG0	SinuTrain ShopTurn	✓	✓	---
0GA52-0AG0	SinuTrain ShopTurn	---	---	✓
0GA53-0AG0	SinuTrain ShopTurn	✓	---	✓
0GA40-0AG0	SinuTrain ManualTurn	---	✓	---
0GA41-0AG0	SinuTrain ManualTurn	✓	✓	---
0GA42-0AG0	SinuTrain ManualTurn	---	---	✓
0GA43-0AG0	SinuTrain ManualTurn	✓	---	✓

## A.2 SinuTrain training booklet

Each training booklet is available in 6 languages (English, French, German, Italian, Simplified Chinese, and Spanish) and is installed in the installation directory under SI\_TRAIN\Doku when SinuTrain is installed.

Training booklet		Order number (language codes A, B, C, D, E, R)
SINUMERIK 810D/840Di/840D	SW Color	6FC5 095 – 0AB00 – 0 _ P1 6FC5 095 – 0AB00 – 1 _ P1
ShopMill	Black and white Color	6FC5 095 – 0AA50 – 0 _ P1 6FC5 095 – 0AA50 – 1 _ P1
ShopTurn	Black and white Color	6FC5 095 – 0AA50 – 0 _ P1 6FC5 095 – 0AA50 – 1 _ P1