

# SIEMENS

## SINUMERIK 840Di sI/840D sI/840D

### PCU-Basesoftware (IM8)

#### Commissioning Manual

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Valid for:




PCU base software version 8.2

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## Safety Guidelines

This manual contains notices you have to observe in order to ensure your personal safety, as well as to prevent damage to property. The notices referring to your personal safety are highlighted in the manual by a safety alert symbol, notices referring only to property damage have no safety alert symbol. These notices shown below are graded according to the degree of danger.

 <b>DANGER</b>
indicates that death or severe personal injury <b>will</b> result if proper precautions are not taken.
 <b>WARNING</b>
indicates that death or severe personal injury <b>may</b> result if proper precautions are not taken.
 <b>CAUTION</b>
with a safety alert symbol, indicates that minor personal injury can result if proper precautions are not taken.
<b>CAUTION</b>
without a safety alert symbol, indicates that property damage can result if proper precautions are not taken.
<b>NOTICE</b>
indicates that an unintended result or situation can occur if the corresponding information is not taken into account.


If more than one degree of danger is present, the warning notice representing the highest degree of danger will be used. A notice warning of injury to persons with a safety alert symbol may also include a warning relating to property damage.

## Qualified Personnel

The device/system may only be set up and used in conjunction with this documentation. Commissioning and operation of a device/system may only be performed by **qualified personnel**. Within the context of the safety notes in this documentation qualified persons are defined as persons who are authorized to commission, ground and label devices, systems and circuits in accordance with established safety practices and standards.

## Prescribed Usage

Note the following:

 <b>WARNING</b>
This device may only be used for the applications described in the catalog or the technical description and only in connection with devices or components from other manufacturers which have been approved or recommended by Siemens. Correct, reliable operation of the product requires proper transport, storage, positioning and assembly as well as careful operation and maintenance.

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We have reviewed the contents of this publication to ensure consistency with the hardware and software described. Since variance cannot be precluded entirely, we cannot guarantee full consistency. However, the information in this publication is reviewed regularly and any necessary corrections are included in subsequent editions.

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# Commissioning a system

## 1.1 Delivery condition of the system

### Overview

The high-performance SINUMERIK PCU 50.3 has onboard interfaces for communicating via Ethernet, MPI and PROFIBUS DP. The integrated free slots remain free for other tasks. The PCU 50.3 is equipped with the Windows XP ProEmbSys operating system and for data backup tasks with the Symantec Ghost software.

Interfaces:

- Four USB ports (USB 2.0) offer points where a keyboard, mouse and other peripheral devices can be connected.
- For CF cards, there is a covered slot.
- For use with SINUMERIK 840D/840D sl:  
Two internal PCI slots are available for specific expansions.
- For use with SINUMERIK 840Di sl:  
A PCI slot is already equipped with the MCI2 board and can be equipped with the optional MCI board extension.

For commissioning:

- Two 7-segment displays and two LEDs are integrated for diagnostic purposes. They indicate the current operating status and display the BIOS error codes during boot up.
- If the PCU is to be operated without an operator panel front, a monitor and an additional keyboard will also be required:
  - For diagnostics when booting the PCU
  - When installing a replacement hard disk  
(alternatively, the hard disk can also be installed externally).

**References:** Operator Components and Networking Manual

### Supplied software on the PCU

The software installed on delivery of the PCU includes the components below, among others:

<b>MS Windows XP Professional SP2</b>	
Internet Explorer	V 6.0
MPI driver	V 6.03
Symantec Ghost (default)	V 8.2 (incl. Ghost Explorer)
TCU Support (is already installed and available on the hard disk under D:\Updates, if it must be re-installed.)	V 8.2

Documentation for all Ghost tools is supplied on the PCU's hard disk under E:\TOOLS.

#### Note

For the system component versions contained in the PCU Basesoftware, see the C:\BaseVers.txt file.

### 1.1.1 Hard disk partitions

#### Division of the hard disk

The hard disk has 40 GB of storage capacity and is divided into a primary partition C and an expanded partition with the three logical drives D, E and F which work with NTFS file access.

Depending on the order details, the HMI system software may be pre-loaded on delivery. It is installed subsequently by the customer the first time the system is booted up.

For reasons of data security, the HMI system software and the Windows XP system software are distributed on the different hard disk partitions.

The following figure shows how the hard disk of the PCU is used:

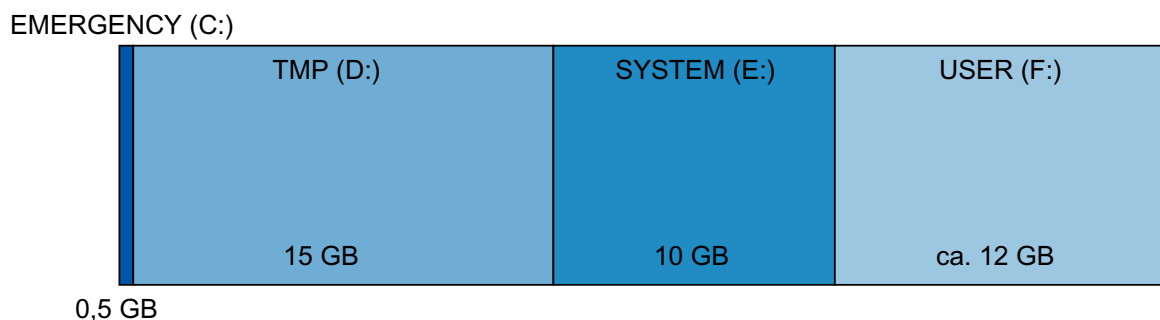


Figure 1-1 Division of the hard disk

## Content of the partitions

The individual partitions are intended for the following data or already contain this data:

EMERGENCY (C:)	Reserved for service tasks under WinPE 2005.
TMP (D:)	Used for storing ghost images (e.g. of the status on delivery) and local backup images. Contains the installation directory where the software to be installed is first copied to from a remote PG/PC prior to the actual installation procedure.
SYSTEM (E:)	Reserved for the Windows XP software. The Windows XP software is available on the recovery media CD via network, for example to install drivers or updates as and when needed later on.
USER (F:)	For installing user programs. Applications such as HMI system software (incl. data storage and temporary data), STEP7, OEM applications for HMI or customer-specific applications should only be installed here.

<b>NOTICE</b>
---------------

All of the applications must be exclusively installed on USER (F:); even if these applications have a different drive set as the default drive in their installation path.
--

The partition names EMERGENCY, TMP, SYSTEM, USER must not be changed; otherwise the "ServiceCenter" will no longer function.
--

## See also

Installing SINUMERIK products (Page 49)

Starting ServiceCenter Backup Restore (Page 58)

## 1.1.2 System features

### Configuration of the operating system

For safety reasons, Windows XP has been preset as follows:

- The Autorun function is deactivated.
- Automatic Windows Update is deactivated.
- Monitoring and alerts for antivirus software and automatic update are deactivated.
- Links used to call up Internet Explorer from the service desktop and the start menu are removed.

1.1 Delivery condition of the system

- Remote Procedure Call (RPC) is possible for calls that are not connected.
- The firewall settings are activated on the network card Eth 1 and deactivated on Eth 2.

### Changes to Windows services

Other default settings:

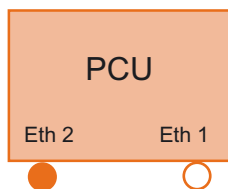
Windows services:	Start-up type:	
Computer Browser	Manual	(Not started)
Error Reporting Service	Disabled	
Portable Media Serial Number	Manual	(Not started)
SSDP Discovery Service	Disabled	
Universal Plug and Play Host	Disabled	
Web Client	Manual	(Not started)
Wireless Zero Configuration	Manual	(Not started)

### Name of the PCU

Upon delivery of the system, a unique computer name is generated which can be read out under: "Start" → "Settings" → "Control Panel" → "System", "Computer Name" tab.

### Pre-configuration of the PCU

The PCU 50.350.3 has two Ethernet interfaces that are suitably preset with the SINUMERIK solution line for connecting to the system network.



**Eth 1** is preset as a default DHCP client for connection to a company network.

**Eth 2** is preset as a SINUMERIK DHCP server for connection to a system network. Eth 2 is preset to the fixed IP address 192.168.214.241.

**References:** Operator Components and Networking Manual, Networking Chapter

### See also

How to set the IP address of the PCU 50.3 (Page 30)



## 1.2 User administration

### 1.2.1 Which users are set up?

#### Starting ServiceCenter Users



Using this link on the service desktop, you can start the ServiceCenter Users.

In ServiceCenter Users, the boot up behavior of the PCU is globally set for all users or individually set individual users.

The users are managed in the "ServiceCenter Users", so that the commissioner/service technician no longer has to make corresponding settings directly in the registry.

#### Preset users

Each user is from one user type and belongs to one user group.

User name	Password	User type	User group
operator	operator	HMI	Operator
auduser	SUNRISE	HMI+Service	System administrators
siemens	*****	---	System administrators

For the HMI user and HMI service user, individual settings can be configured for boot up, the HMI program and service.

Upon delivery of the system, the following users are defined at the factory:

- **The "operator"**

The "operator" is an HMI user type of user and belongs to the operators' user group. The operators have limited user rights under Windows.

- **The "auduser".**

The "auduser" is an HMI service user type of user and belongs to the system administrators' user group. The system administrators have the user rights of a local administrator under Windows.

#### User type

A user can be assigned to the following user types:

User type	Task card
HMI	<ul style="list-style-type: none"> <li>• Boot up of the PCU</li> <li>• Operating the HMI program</li> </ul>
HMI+Service	<ul style="list-style-type: none"> <li>• Service tasks</li> <li>• Boot up of the PCU</li> <li>• Operating the HMI program</li> </ul>

The user types are implemented under Windows in user groups with various user rights.

### User group

The user types are implemented via the following user groups:

User group	User type	Windows user group	User Rights
Operator	HMI	operator.group	Restricted
System administrators	HMI+Service	Administrators	local administrator

### Service Desktop

The service desktop provides the HMI+Service user with a Windows desktop, which is expanded to include tools and functions for service tasks, such as manage users, install software, save/restore data, check system integrity, etc.

## 1.2.2 How to create a new user

### Overview

As an HMI+Service user, you can execute the following tasks in the Users ServiceCenter:

- Create new users.
- Delete users.
- Change user names.
- Add users from a domain.

### Creating new users

To create a new user:

1. Click on "New User".
2. Enter a user name and assign a user type: e.g., "HMI + Service".
3. You will then be asked to specify a password.
4. Once you have confirmed by clicking on "OK", the new user will be set up and displayed in the list under "Users" (see following diagram).

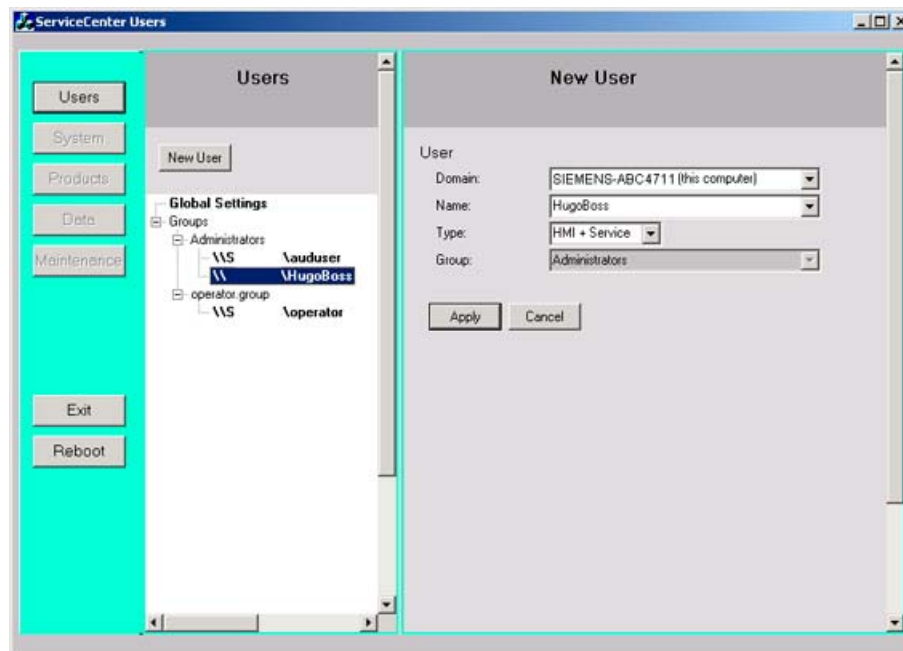


Figure 1-2 ServiceCenter Users: New user

## Deleting users

To delete a user again, follow these steps:

1. Left or right-click the user who you wish to delete in the list.
2. To delete the user, select "Delete" from the pop-up menu.

**Result:** The user is deleted with a confirmation prompt.

## Change the user name

1. Left or right-click the user who you wish to rename in the list.
2. To change the user name, select "Rename" from the pop-up menu.
3. Enter a new name and confirm with OK.

## Adding users from a domain

If the PCU is a member of a domain, users already existing in this domain can be added as HMI users or HMI+Service users:

1. Click on "New User".
2. To do this, select the corresponding entry from the "Domain" list and a user from the "Name" list to assign the user to a user type on the PCU. The associated Windows user group is then assigned automatically.

## See also

How to add the PCU to a domain (Page 31)

### 1.2.3 Global user settings

#### Global settings

In the "ServiceCenter Users", set the following responses under "Global Settings":

- Boot up behavior of the PCU
- Start the HMI program
- Behavior in service mode

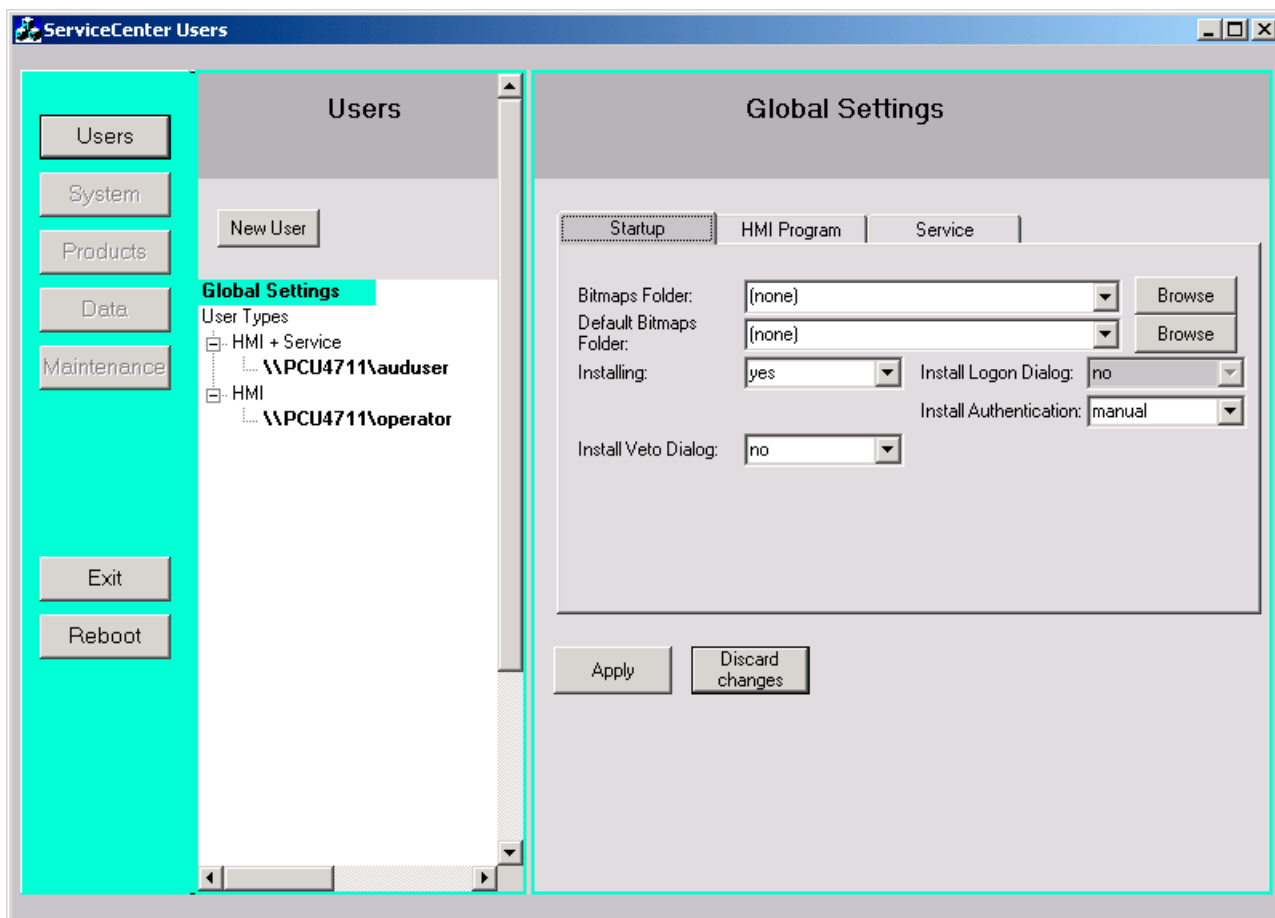


Figure 1-3 Global settings for users (HMI-Advanced installed)

The default is marked in "bold".

Table 1-1 Start-up

	Option	Effect
Bitmaps folder:	<b>F:\hmi_adv\ib\DATA\</b>	Directory with boot screens
Default bitmap folder:	<b>F:\hmi_adv\ib\DATA\default</b>	Directory containing default boot screens
Installing:	<b>"yes"</b>	Authorization is in place to install user software during booting.

	Option	Effect	
	"no"	No installation authorization.	
	Install logon dialog:	"yes"	Display install logon dialog.
		"no"	Do not display install logon dialog.
	Install authentication:	manual	Authentication of an HMI+Service user in the install logon dialog is undertaken manually.
		EKS	Authentication of an HMI+Service user in the install logon dialog is undertaken using EKS. The install logon dialog appears if authentication by EKS has failed in the background.
		manual+EKS	Authentication of an HMI+Service user in the install logon dialog is undertaken manually or using EKS.
Install veto dialog:	"no"	For pending installation during the boot up: No prompting, the installation begins immediately.	
	"yes"	For pending installation during the boot up: Prompt asking whether to install.	

Table 1-2 HMI program

	Option	Effect
Start:	"yes"	The HMI program is started.
	"no"	The HMI program is not started.
File:	F:\hmi_adv\rngkrnl.exe	Directory of the HMI program
Task bar autohide:	"no"	HMI program: Hide start task bar
	"yes"	HMI program: Show start task bar
Task bar on top:	"no"	HMI program: Start task bar in the background
	"yes"	HMI program: Start bar always visible

Table 1-3 Servicing

	Option	Effect
Start dialog:	"yes"	Display service start dialog
	"no"	Do not display service start dialog
Logon dialog:	"yes"	Display service logon dialog
	"no"	Do not display service logon dialog
Authentication:	manual	Authentication with user name and password (manual)
	EKS	Authentication with EKS

	Option	Effect
	manual+EKS	Either authentication with user name and password or with EKS
Default password map:	<b>"yes"</b>	The password is not case-sensitive.
	"no"	The password must be entered exactly as specified.
Bitmaps folder:	<b>(none)</b>	Directory with background screens for the service desktop
Default bitmap folder:	<b>(none)</b>	Directory with default background screens for the service desktop
Task bar autohide:	<b>"no"</b>	Service desktop: Hide start task bar
	"yes"	Service desktop: Show start task bar
Task bar on top:	<b>"no"</b>	Service desktop: Start task bar in the background
	"yes"	Service desktop: Start bar always visible

**Principle of passing on**

The settings that are made for users under "Global Settings" are passed on to individual users. The settings which are passed on can be specifically adapted by each user.

## 1.2.4 Example: User settings for the "operator"

### The "operator"

The settings under "Global Settings" are inherited by all users:

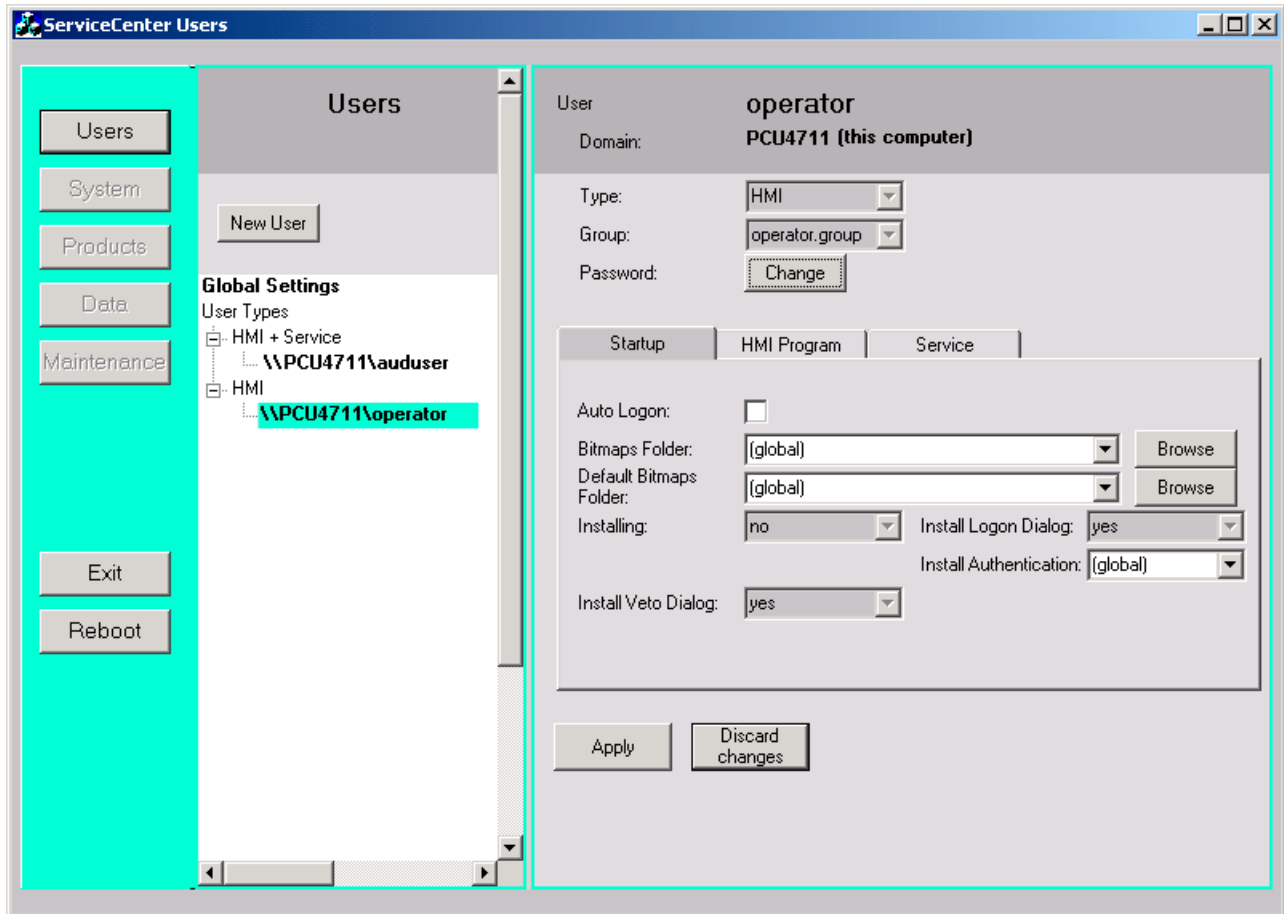


Figure 1-4 User settings for the "operator"

Left-click the user in the "Users" list. After entering the password, you can adapt the settings as required. The settings that cannot be changed are displayed with a grey background.

---

#### Note

If you press the "Reboot" button, the system immediately reboots (without prior prompting). Use "Exit" to end the ServiceCenter Users.

---

## 1.3 Boot up behavior of the PCU

### 1.3.1 Service dialogs during boot up

#### Responses during booting

The following dialogs are shown during boot up:

- The **service start dialog** is shown, if no HMI program is installed or the start of the HMI program is deactivated during booting.

Displaying this dialog can be suppressed through configuration in the global or user settings. "Service desktop" is then selected as the default.

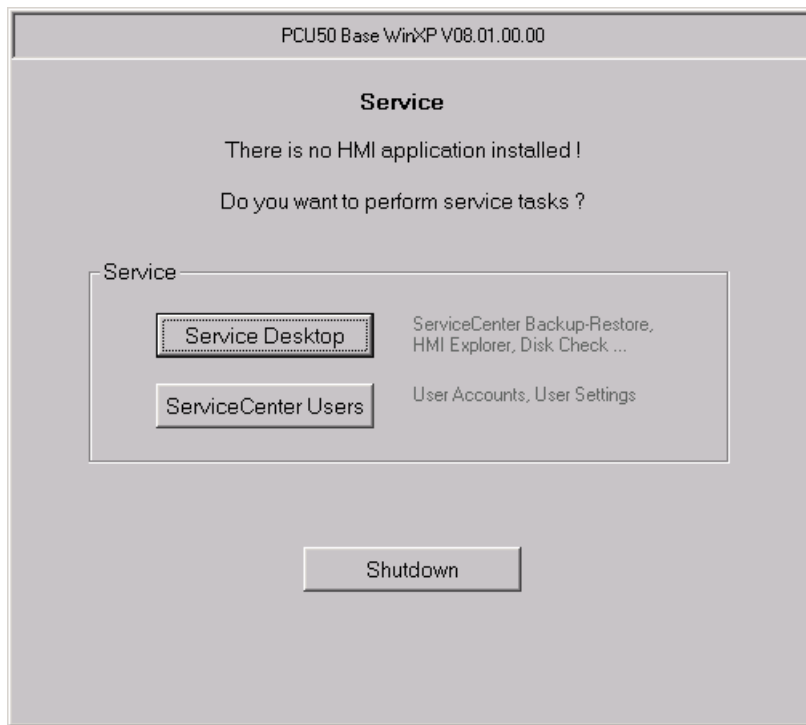


Figure 1-5 Service start dialog without HMI program

- If an HMI program is installed, the "Start HMI" button is also available in the **service start dialog**.
- If authentication is set to "manual", once the "Service Desktop" or "ServiceCenter Users" button has been pressed in the service start dialog, the **service logon dialog** is displayed:



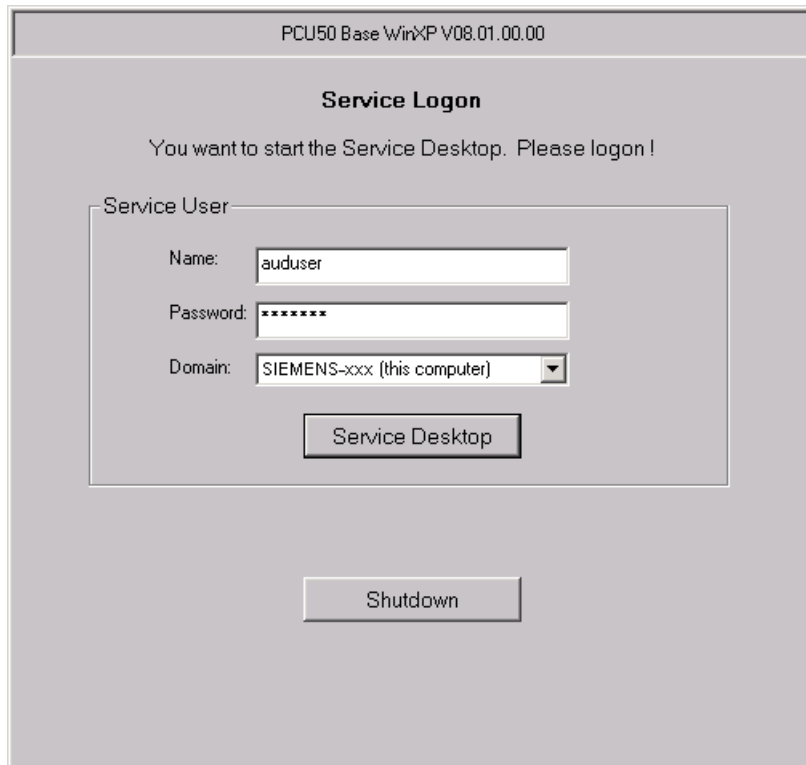


Figure 1-6 Service logon dialog (with authentication: "manual")

This **service logon dialog** is also shown if no valid user data is returned from the authentication system (EKS).

#### NOTICE

Setting the access level via EKS:

- If an EKS unit is active, i.e., the key is inserted and can be evaluated, then the key information for the EKS unit alone determines the active access level. The access level in the HMI program cannot be changed when EKS is active.
- If the key is withdrawn from the active EKS unit, i.e. the EKS unit becomes inactive, the system adopts the current access level as determined by the key switch.
- If changing the operating right amongst the operating stations, the EKS unit of the new active operating station is authoritative. If no EKS unit is assigned there, the effect is the same as for an inactive EKS unit.
- The key information is evaluated by the HMI. Once an access level has been determined from the key information, HMI adopts this access level and also sets it in the NCK: The last access level set always applies to the system.

### 1.3.2 Boot up of the PCU: no HMI program installed

#### Requirement

No HMI program is installed during the PCU boot up.

#### Ramp-up phase

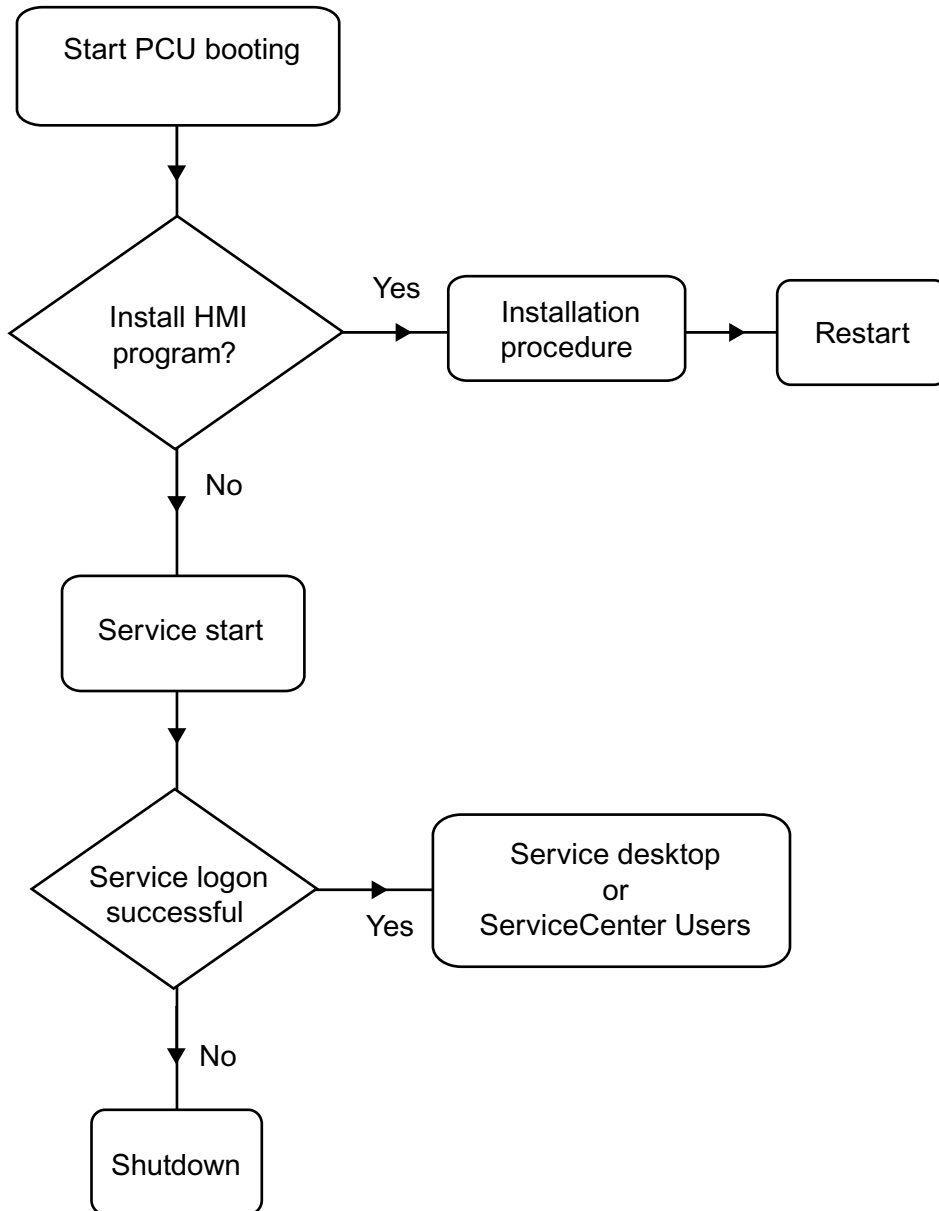


Figure 1-7 PCU bootup diagram (without HMI program)

Explanations:

- If installation programs are present in directory D:\Install, you will be prompted during the first boot up as to whether the installation procedure should be started. After installation is completed, you need to restart the system.

The installation can also be skipped and carried out later.

- "Service desktop", "ServiceCenter Users" or "Shutdown" can be selected in the service start dialog.
- Selecting "Service desktop" or "ServiceCenter Users" opens the service logon dialog.

---

**Note**

During the **initial** boot up of the PCU 50.3, the user can only log on as 'auduser'.

---

### 1.3.3 Boot up of the PCU: HMI program already installed

#### Requirement

There is already an HMI program installed.

#### Ramp-up phase

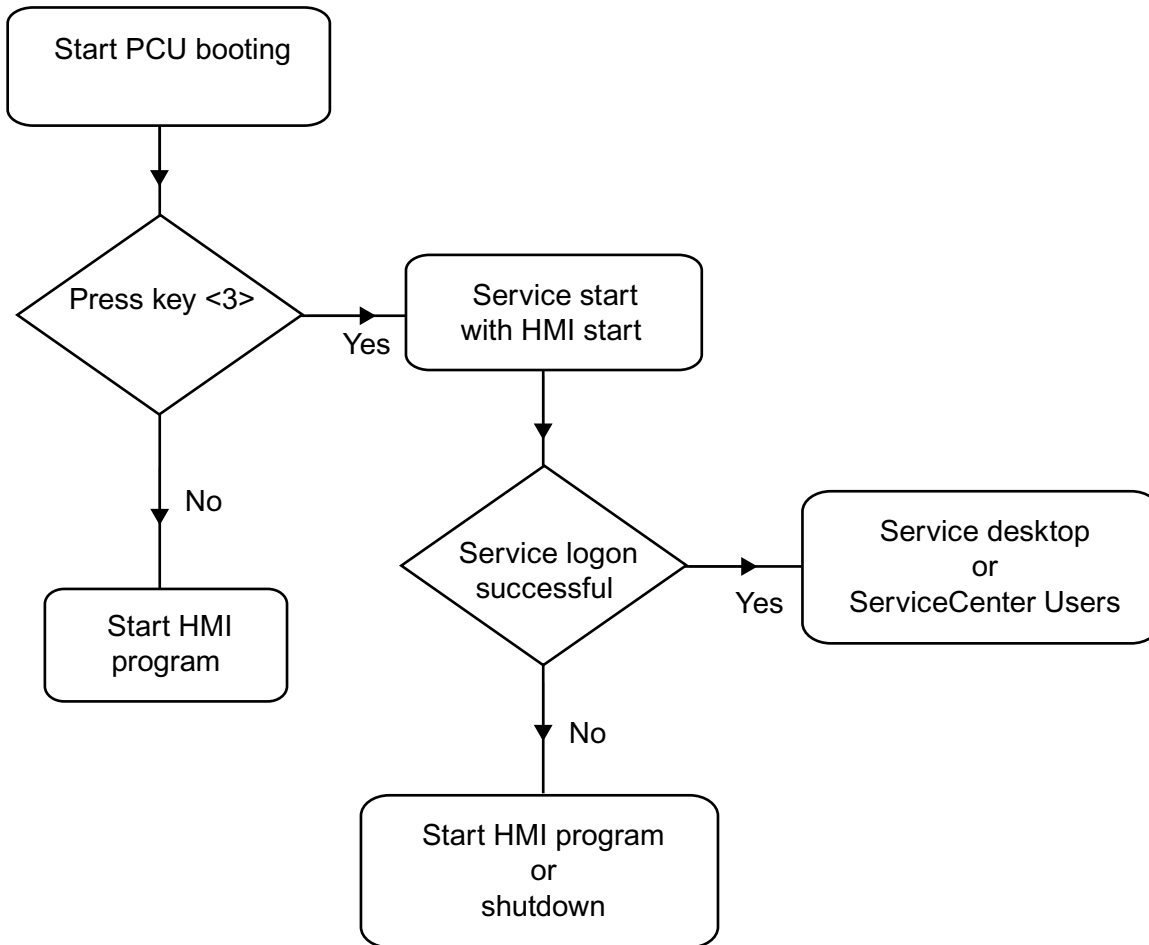


Figure 1-8 PCU bootup diagram (HMI program installed)

#### Explanations:

- If the HMI program is already installed, the PCU boots up and the HMI program is started (default).
- During the boot up, there is a time interval for pressing key <3> when the version information appears on the lower right of the background screen. The service start dialog then opens.

- To carry out service tasks, you will have to log on as a service user.

The following input options are available:

- Manual logon to a domain using user name and password.
- Logon using EKS: A key and valid user data for authentication must be provided for this. If valid user data is not available via the EKS, the service logon dialog is displayed along with user name and password.
- Both options can be selected.

## 1.3.4 Setting the screen resolution

### Overview

The system behavior during boot up for the screen resolution is set in the file tcu.ini.

You can find the delivery status for tcu.ini in E:\siemens\system\etc. Modified tcu.ini files are saved in F:\addon\_base\..., F:\oem\_base\..., F:\user\_base\...

### Set the resolution when booting up the PCU

The following options are available in the [RESOLUTION] section in the tcu.ini:

- 0 = SYSTEM
- 1 = AUTO\_OP\_1 (default)
- 2 = AUTO\_OP\_2
- 3 = AUTO\_MON\_1
- 4 = AUTO\_MON\_2
- 5 = 640X480
- 6 = 800X600
- 7 = 1024X768
- 8 = 1280X1024

The meanings of the settings are as follows:

Settings	Meaning
SYSTEM	The resolution is not specially set; i.e., the resolution last used in the system is active, e.g., the resolution which had been set manually in the Control Panel.
AUTO_OP_1	Default: During boot up, the resolution is automatically set ("PCU panel" has priority) in accordance with the following scenarios:

Settings	Meaning
Example 1:	<p>There is a PCU panel (irrespective of whether there is a PCU monitor and TCU panels)</p> <p>[in active TCU mode:</p> <p>The following additional condition applies: PCU is activated (with dynamic resolution switching enabled):</p> <p>The resolution is set to the max. resolution of the PCU panel (max. 1280x1024).</p>
Example 2:	<p>There is no PCU panel, however there is a PCU monitor (irrespective of whether there are any TCU panels):</p> <p>[in active TCU mode:</p> <p>The following additional condition applies: PCU is activated (with dynamic resolution switching enabled):</p> <p>The resolution is not specially set; i.e., the resolution last used in the system is active, e.g., the resolution which had been set manually in the Control Panel.</p> <p>(Different to AUTO_OP_2 !)</p>
AUTO_OP_2	<p>Like AUTO_OP_1, except:</p> <p>Example 2: There is no PCU panel, however there is a PCU monitor (irrespective of whether there are any TCU panels):</p> <p>[in active TCU mode:</p> <p>The following additional condition applies: PCU is activated (with dynamic resolution switching enabled):</p> <p>The resolution is set to the max. resolution of the PCU monitor, reduced to the next lowest SINUMERIK resolution. The SINUMERIK resolutions are 640x480, 800x600, 1024x768 and 1280x1024.</p> <p><b>Example:</b> In the case of a PCU monitor with a max. resolution of 1440x900, the SINUMERIK resolution setting is 1280x1024.</p>
AUTO_MON_1	<p>During boot up, the resolution is automatically set ("PCU monitor" has priority) in accordance with the following scenarios:</p>
Example 1:	<p>There is a PCU monitor (irrespective of whether there is a PCU panel and TCU panels)</p> <p>[in active TCU mode:</p> <p>The following additional condition applies: PCU is activated (with dynamic resolution switching enabled):</p> <p>The resolution is set to the max. resolution of the PCU monitor, reduced to the next lowest SINUMERIK resolution. The SINUMERIK resolutions are 640x480, 800x600, 1024x768 and 1280x1024.</p> <p><b>Example:</b> In the case of a PCU monitor with a max. resolution of 1440x900, the SINUMERIK resolution setting is 1280x1024.</p> <p>If there is a PCU panel, the display there is panned if the max. resolution of the PCU panel is lower than the max. resolution of the PCU monitor.</p>

Settings	Meaning
Example 2:	<p>There is no PCU monitor, however there is a PCU panel (irrespective of whether there are any TCU panels):</p> <p>[in active TCU mode:</p> <p>The following additional condition applies: PCU is activated (with dynamic resolution switching enabled):</p> <p>The resolution is not specially set; i.e., the resolution last used in the system is active, e.g., the resolution which had been set manually in the Control Panel.</p> <p>(Different to AUTO_MON_2 !)</p>
Example 3:	<p>There is no PCU monitor and no PCU panel (= headless operation):</p> <p>A) in active TCU mode:</p> <p>a) dynamic resolution switching is enabled (resolution adaptation entry in TCU.ini) and at least one TCU is already logged on:</p> <p>The resolution is set to the resolution of the TCU which is currently active.</p> <p>b) dynamic resolution switching is enabled (resolution adaptation entry in TCU.ini) and no TCU has logged on yet or dynamic resolution switching is disabled:</p> <p>The resolution is set to the max. resolution of the current PCU panel, i.e., which logged on during the previous session.</p> <p>Default: Default TCU resolution in accordance with the registry.</p> <p><b>Notice:</b> The first TCU panel to logon (later) becomes activated. The focus handler then automatically sets the resolution to this TCU panel's resolution (in the case of dynamic resolution switching).</p> <p>A) in inactive TCU mode:</p> <p>The resolution is not specially set - i.e. the resolution used during the previous session in the system is active, e.g. the resolution set manually in Control Panel.</p>
AUTO_MON_2	<p>Like AUTO_MON_1, except:</p> <p>Example 2: There is no PCU monitor, however there is a PCU panel (irrespective of whether there are any TCU panels):</p> <p>[in active TCU mode:</p> <p>The following additional condition applies: PCU is activated (with dynamic resolution switching enabled):</p> <p>The resolution is set to the max. resolution of the PCU panel (max. 1280x1024).</p>
640X480	During boot up, the SINUMERIK resolution is set to 640x480.
800X600	During boot up, the SINUMERIK resolution is set to 800x600.
1024X768	During boot up, the SINUMERIK resolution is set to 1024x768.
1280X1024	During boot up, the SINUMERIK resolution is set to 1280x1024.

## 1.4 BIOS settings

### Overview

The BIOS of the PCU 50.3 is preset in such a way that no changes are required. The date and time can be set under Windows or the HMI operator interface.

**NOTICE**

Your device configuration is preset for working with the software supplied with the unit. You should only change the preset values if you have modified your device in any way, or if a fault occurs when the unit is powered up.

### Starting BIOS setup

1. Start the BIOS SETUP as follows:
  - Reset the device (warm or cold restart).
  - After the first boot up, the following message appears:  
Press < F2 > to enter SETUP or <ESC> to show boot menu
2. Press the F2 key as long as the BIOS prompt appears on the screen.
  - The BIOS main menu opens:

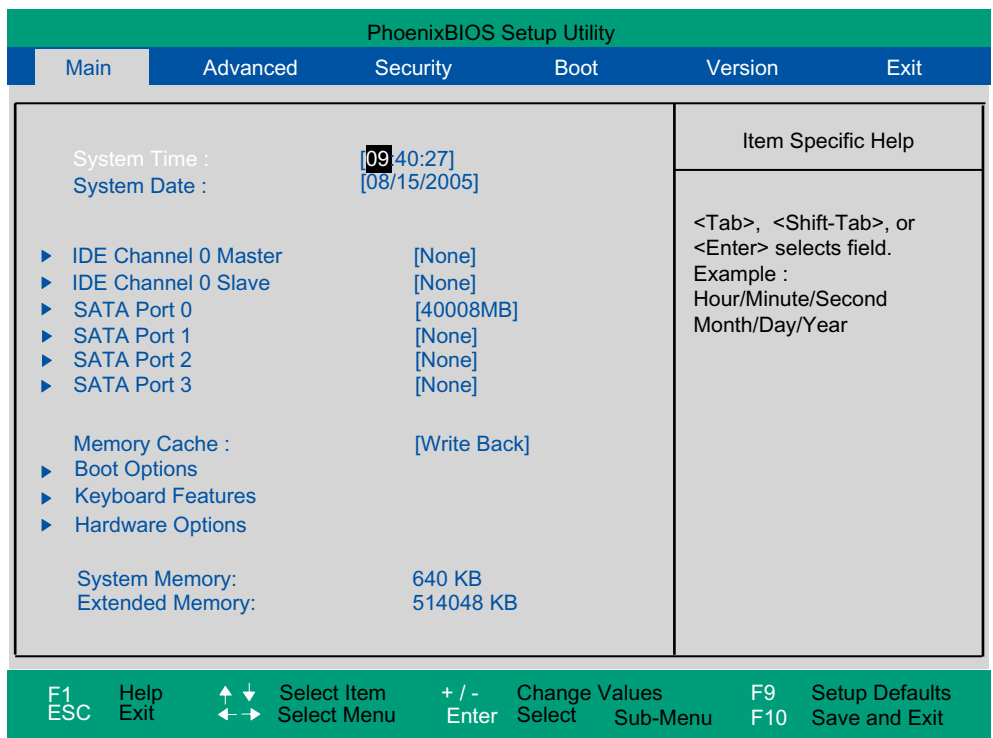


Figure 1-9 BIOS Main Menu (Example)



**BIOS setup: Defaults**

The following system parameters are saved on delivery:

**Menu: Main**

<b>System parameters</b>	<b>Defaults</b>	<b>Custom entries</b>
System Time	hh:mm:ss	
System Date	MM/DD/YYYY	
IDE Channel 0 Master	None	
IDE Channel 0 Slave	None	
SATA Port 0	40008 MB	
SATA Port 1	None	
SATA Port 2	None	
SATA Port 3	None	
Memory Cache	Write Back	

<b>Boot options</b>		
Quick boot mode	Enabled	
SETUP prompt	Enabled	
POST errors	All, but not keyboard	
Summary screen	Enabled	
Diagnostic screen	Enabled	
Post Code/Status	LPC Bus	

<b>Keyboard features</b>		
Numlock	ON	
Key click	Disabled	
Keyboard auto-repeat rate	30 / sec	
Keyboard auto-repeat delay	½ sec	

<b>Hardware Options</b>		
PCI MPI/DP	Enabled	
Onboard Ethernet 1	Enabled	
On-board Ethernet 1 Address	08 00 06 90 xx xx	
On-board Ethernet 1 Remote Boot	Enabled	
Onboard Ethernet 2	Enabled	
On-board Ethernet 2 Address	08 00 06 90 xx xx	
On-board Ethernet 2 Remote Boot	Disabled	
SafeCard functions	Enabled	
Fan control	Enabled	
CRT/LCD selection	Simultan. Auto	

**Menu: Advanced**

System parameters	Defaults	Custom entries
Installed O/S	Other	
Reset configuration data	No	
Legacy USB support	Disabled	
USB controller restart	Enabled	
I/O Device Configuration		
Internal COM 1	Enabled	
Base I/O address	3F8	
Interrupt	IRQ 4	

PCI Configuration		
<b>PCI device slot 1</b>		
Option ROM scan	Enabled	
Enable master	Enabled	
Latency timer	Default	
<b>PCI device slot 2</b>		
Option ROM scan	Enabled	
Enable master	Enabled	
Latency timer	Default	

SATA/PATA Configuration		
PATA Controller:	Enabled	
SATA Controller mode	Enhanced	
AHCI Configuration	Disabled	
RAID support	Disabled	

**Menu: Security**

System parameters	Defaults	Custom entries
Supervisor password is	Disabled	
User password is	Disabled	
Set user password	Enter	
Set supervisor password	Enter	
Password on boot	Disabled	
Fixed disk boot sector	Standard	

**Menu: Boot**

<b>System parameters</b>	<b>Defaults</b>	<b>Custom entries</b>
Boot priority order:		
1: SATA0:	Fujitsu MHT2040BHTBD	
2: PCI BEV:	VIA BootAgent	
3:		
4:		
5:		
6:		
7:		
8:		
Excluded from boot order:		

**Menu: Version**

<b>System parameters</b>	<b>Defaults</b>	
SIMATIC PC	SINUMERIK PCU50.3	
BIOS version	V05.01.06	
BIOS number	A5E00370214-ES005	
MPI/DP firmware	V01	
CPU type	Celeron ® M processor 1.50GHz	
CPU ID	06D8	
Code revision	0020	

**Menu: Exit**

<b>Save Changes &amp; Exit</b>	All changes are saved; a system restart is carried out with the new parameters.
--------------------------------	---

### Changing BIOS settings

Once additional components have been installed or attached, it may be the case that the system has to be informed of this via the BIOS setup:

1. Ramp up the device.
2. When the prompt to activate the BIOS setup appears, press the <F2> key (corresponds to horizontal softkey 2 on the OP).
3. The BIOS setup menu appears. In the menu, use the cursor keys to navigate to the desired selection box.
4. Change the setting using the <+> key (press <SHIFT> and <X> at the same time) or the ↔ key on in the numeric keypad.
5. Using the left-right cursor keys, you can reach other setup menus.
6. Press <ESC> (<Alarm Cancel> key) to go to the "Exit" menu (or press the right cursor key again).
7. Press the <Enter> key to exit the setup menu.

Then the system powers up.

---

#### Note

Changes to the BIOS settings, with the exception of the boot sequence, require an OEM contract to be concluded.

---

## Configuring the system

### 2.1 System settings

#### 2.1.1 How to change the name of the PCU

##### Default

The PCU is supplied with an automatically generated computer name.

##### Procedure

To change the name of the PCU:

1. Select "Start" → "Control Panel" → "System".
2. Select the "Computer Name" tab and click on "Change".

The following dialog opens:

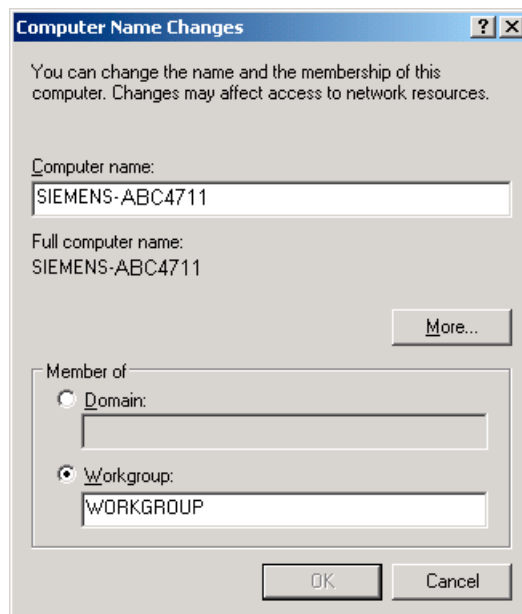


Figure 2-1 Changing the name of the PCU

### 2.1.2 How to set the IP address of the PCU 50.3

#### Default

<b>NOTICE</b>
The IP address 192.168.214.241 is set as a factory default for every PCU 50.3 on the system network.
You must only perform the steps described below if you wish to change this default.

#### Procedure

1. Select the following on the PCU on the service desktop: "Start" → "Settings" → "Network Connections".

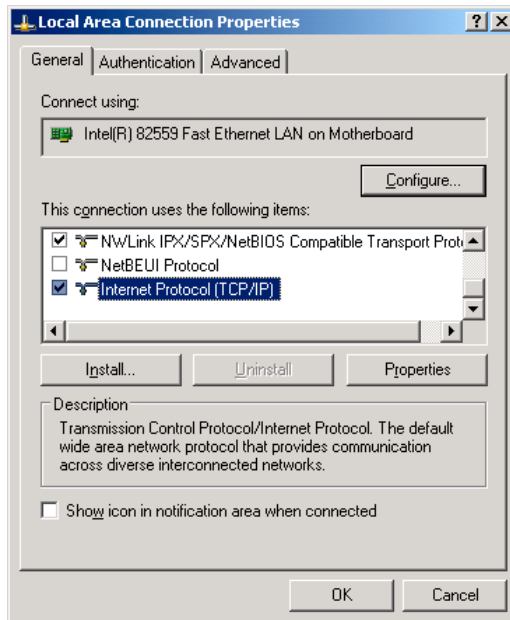
The "Network Connections" window opens.

2. Double-click the Ethernet 2 interface you want to parameterize which is to be used for connecting the TCU or system network.

The "Ethernet 2 (System Network) Properties" window opens.

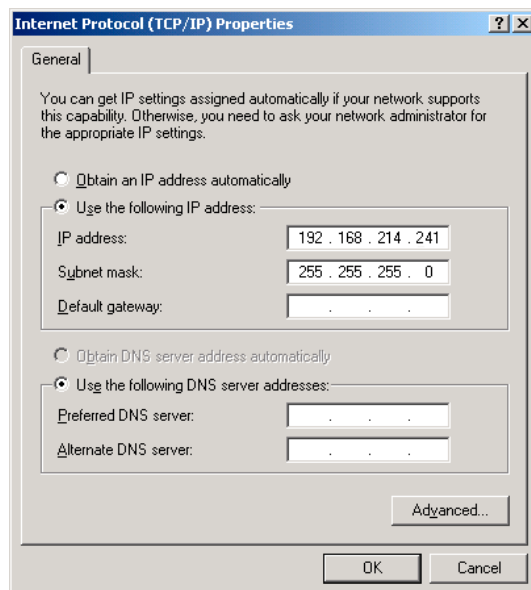
3. Under the "General" tab, select "Internet Protocol (TCP/IP)" and click the "Properties" button.

The "Internet Protocol (TCP/IP) Properties" window opens:



4. Under the "General" tab, select the "Use the following IP address" option and enter the IP address and the subnet screen form.

Recommended setting for the first PCU:



5. Enter the required new IP address and confirm the settings with "OK".

### 2.1.3 How to add the PCU to a domain

#### Requirement

Only a user with the corresponding entitlement, e.g. a domain administrator, can add a PCU to an existing domain.

#### Domain Controller (DC)

A domain controller (DC) is a server for central authentication and authorization of computers and users in a network. In a network with a domain controller, several computers are combined to form one domain.

#### Proceed as follows

To add the PCU to a domain:

1. Select: "Start" → "Settings" → "Control Panel" → "System", "Computer Name" tab.  
Default: The PCU belongs to a "WORKGROUP" and is not assigned to any domain.
2. Click "Change ...".

The following dialog opens:

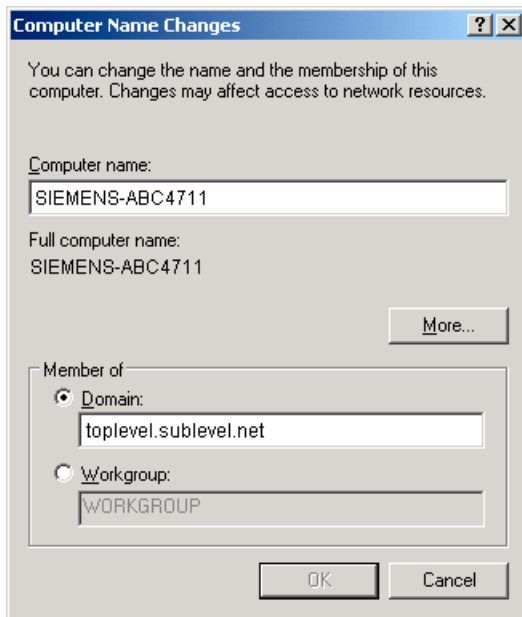


Figure 2-2 Add PCU to domain

3. Enter the name of the domain to which you want to add the PCU.
4. You will then be asked to log on as a user with the corresponding entitlement to conclude the process.

### 2.1.4 How to connect an external monitor

#### Conditions

To connect an external monitor, the following conditions apply:

- The external monitor is connected to the DVI interface on the PCU (using an adapter, if necessary).
- The monitor may not be connected while in use.

#### Procedure

To connect an external monitor:

1. Right-click the PCU's service desktop and select "Properties" from the pop-up menu.
2. Select the "Settings" tab and then click "Advanced".
3. Select the "Troubleshooting" tab and set the "Hardware acceleration" to a value other than zero. The recommended setting is "full".



4. Close the dialog and click OK to confirm all the dialogs.
5. Repeat steps 2 and 3. There is an additional tab for "Intel(R) ... Graphics Controller"
6. Click the "Graphics Properties" button. On the "Devices" tab the external monitor corresponds to the "Monitor" selection; the OP/TP on the PCU corresponds to the "Notebook" selection.
7. Select a "Primary Device" and a "Secondary Device".
8. Close the dialog and click OK to confirm all the dialogs: The external monitor is now ready.

## 2.2 Configuring the customized operator interface

### 2.2.1 How to select the language for the Windows system

#### Default setting

In the delivery condition, the Windows XP operating system is only installed on the PCU in English and with a US keyboard layout.

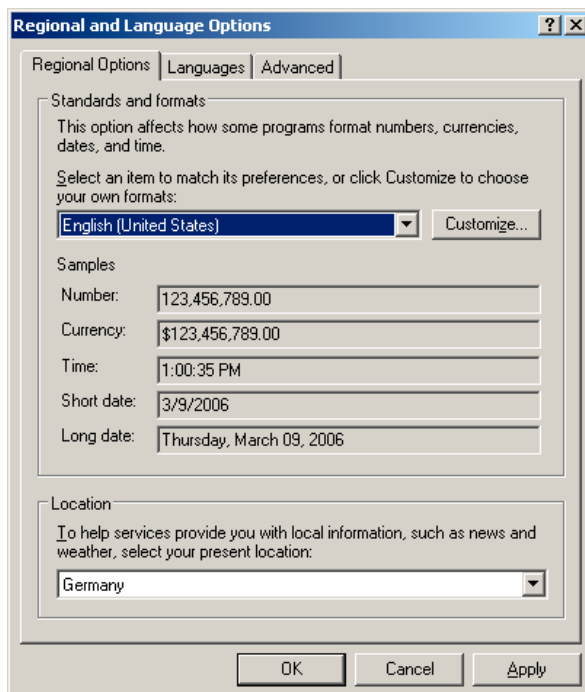
#### Requirement

In order to be able to switch languages, the desired languages must be installed from the DVD of the "SINUMERIK Service Pack Recovery Media Win XP ProEmbSys SP2". With the "Multilingual User Interface" (MUI), you can switch to menus, dialogue boxes and keyboard layouts for the Windows system in different languages:

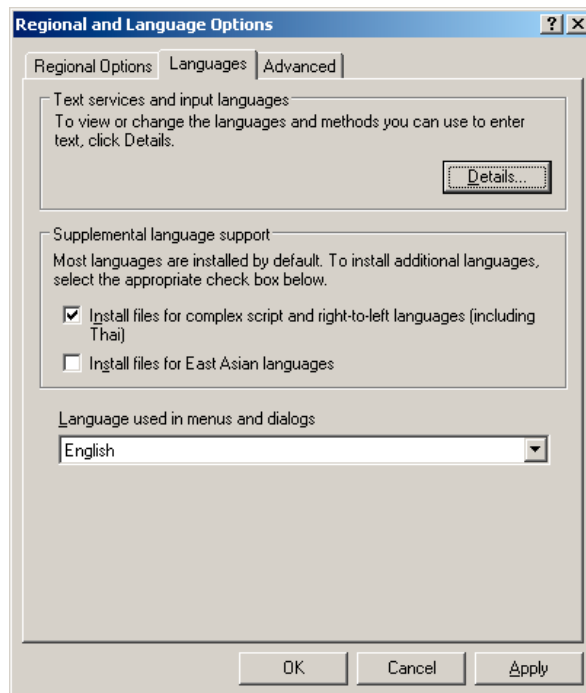
#### Select a language

After installing a language from the corresponding CD, proceed as follows:

1. Choose "Start" → "Control Panel" → "Language and Regional Options", to open the following dialogue box:



2. Choose the "Languages" tab, in order to switch the language for the Windows XP operator interface. Under "Language used in menus and dialogues," choose the new language and confirm with OK.



3. On the "Advanced" tab, choose the language for programs that do not support Unicode.

## Result

To make the language change effective, the PCU must be rebooted. The selectable languages are displayed using the font set of the respective language.

### NOTICE

The settings for the keyboard layout and the formats for date, time and number displays on the "Regional Options" tab **must not be changed** .

These settings are automatically adjusted depending on the language selected for the operator interface under HMI Advanced.

## See also

How to install additional languages under Windows XP (DVD) (Page 53)

### 2.2.2 Storage location of HMI boot screen

#### Default setting

The Siemens boot screens are stored under the path below on the appropriate PCU, e.g., for the SINUMERIK 840D sl controller:

F:\hmi\_adv\ib\DATA\10700\0\

A directory tree can also be created for manufacturer-specific boot screens. The manufacturer's screens can then be saved in accordance with the schematic below:

Directory tree of manufacturer-specific boot screens:

F:\oem\ib\DATA\

<NckType>	stands for:
0	840D
10700	840D sl
15000	840Di sl

<Resolution>: 640, 800, 1024 or 1280 dpi

If you want the same screen to be used each time (NCU-independent screen), it can be saved in the "default" directory in the required resolutions. If you want to be able to use different screens for different NCUs, they should be saved in the <NckType>\<Resolution> subdirectories using the appropriate resolution.

#### Screen name and resolution

<Name>.bmp: The name can be selected freely; only one file is permitted per directory. The screens must be created with a graphics tool in the resolution indicated by the subdirectory name and stored in the corresponding directory. The HMI software selects the screen, depending on the NCK type and the resolution of the available operator panel.

### 2.2.3 Displaying your own boot screen

#### Directories

Set up a directory containing several boot screens (for different panel resolutions). This directory should be segmented into subdirectories 640, 800, 1024 and 1280, which each contain a boot screen of the appropriate resolution.

A directory containing boot screens can also be set up, likewise divided into subdirectories 640, 800, 1024 and 1280. The boot screen stored there for a particular resolution is displayed if no boot screen (including one with a lower resolution) is found in the booting-screen directory described above.

If no boot screen (including one with a lower resolution) is found, a general boot screen is displayed, which is part of the PCU basic software.

## User-specific settings

The directories can be user-specifically set in ServiceCenter Users under:

- Startup: Bitmaps folder
- Startup: Default bitmap folder

## 2.2.4 Changing the background of the service desktop

### Overview

A background pattern for the service desktop is not set via the "Control Panel" (system control), but in the registry:

- Background pattern:

Key:	HKLM\SOFTWARE\Siemens\SINUMERIK\Basic software\ <version>\HMI desktop
Value:	Pattern (STRING)
Date:	<bit code>" (e.g., "0 80 114 32 0 5 39 2", see HKCU\Control Panel\Patterns) "(None)" (= NO background pattern)
Init data:	Background pattern previously set via the Control Panel
Default data:	"(None)" (if entry is not available/readable)

- Background image:

A background screen for the service desktop is not user-specifically set via the "Control Panel" (system control), but in the ServiceCenter Users under "Service: Bitmap Folders" or "Service: Default Bitmap Folders".

---

#### Note

An attempt to set the service desktop background (as in standard Windows) via the Control Panel does not affect the service desktop background display, but only the boot screen display.

---

## 2.3 User-specific settings during boot up

### Overview

If an HMI program, e.g. HMI Advanced, is to be started following boot up, the settings and functionality differ from those that apply if the service desktop is to be started.

### 2.3.1 Configuring key filters for an HMI program

#### Filtering keys

During boot up of an HMI program, keystroke sequences and pressed function keys are simultaneously filtered. The keystroke sequences and functions that were pressed simultaneously and are to be filtered can be configured in file E:\Windows\System.ini.

Filtering keystroke sequences:

Section:	MMC103Keyb
Key:	SeqAct
Value:	<bit mask> (= keystroke sequences to be filtered, specified in accordance with the comment in E:\Windows\System.ini)
Init value:	262143

Filtering function keys that were pressed simultaneously:

Section:	MMC103Keyb
Key:	ConcurrentKeyMask
Value:	<bit mask> (= function keys to be filtered, specified in accordance with the comment in E:\Windows\System.ini)
Init value:	255

## 2.3.2 Saving service desktop settings

### Starting the service desktop

The Windows platform is freely accessible via the service desktop. When the service desktop is started, all of the programs that would automatically be started by Windows (standard version) during log-in are also started.

- **Executing an HMI program**

The HMI program can also be started from the service desktop.

- **Ending an HMI program**

When an HMI program started from the service desktop is exited, you are returned to the service desktop.

### Saving the service desktop (default)

The settings on the service desktop (e.g. arrangement of the links on the service desktop) are not saved when you log off. A service technician should always find the same starting condition on the service desktop, not the settings from a previous session.

### Saving the settings of the service Desktop

This behavior can be changed by making an entry in the registry. The following settings can be saved via this registry entry:

- Positions of open windows
- Size and position of the task bar
- Moving and deleting links

Key:	HKLM\SOFTWARE\Siemens\SINUMERIK\Basic software\ <version>\HMI Manager
Value:	SaveSINDesktopSettings (DWORD)
Date:	1 (the settings are saved) or 0 (the settings are NOT saved)
Init data:	- Value is not created by the basic software -
Default data:	0 (if entry is not available/readable)

The key is effective for all service users and other users.

Links on the service desktop are always saved, irrespective of the registry entry.

---

#### **Note**

Application windows that are still open before logging out, must be closed by the setting "Save settings" before exiting the service desktop. Otherwise, these application windows will briefly be displayed and then closed again during a restart immediately before the HMI program starts.

---

### 2.3.3 Starting programs during boot up

#### Starting additional programs

Programs can also be started at the same time as the HMI program and are started automatically by Windows when the service desktop is opened. This start in parallel to the HMI program can be configured.

If the programs to be started are located in the Windows directories of E:\Documents and Settings, the following registry entry must be set:

Key:	HKLM\SOFTWARE\Siemens\SINUMERIK\Basic software\ <version>\HMI Manager
Value:	StartSINHMIStartupDirsPrograms (DWORD)
Date:	1 (the programs are started) or 0 (the programs are NOT started)
Init data:	0
Default data:	0 (if entry is not available/readable)

If the programs to be started are set in the registry entries 'HKCU\Software\Microsoft\Windows\CurrentVersion\Run' and 'HKLM\Software\Microsoft\Windows\CurrentVersion\Run', the following registry entry must be set:

Key:	HKLM\SOFTWARE\Siemens\SINUMERIK\Basic software\ <version>\HMI Manager
Value:	StartSINHMIRunPrograms (DWORD)
Date:	1 (the programs are started) or 0 (the programs are NOT started)
Init data:	0
Default data:	0 (if entry is not available/readable)

#### Executing an HMI program

While the HMI program is being executed, Windows Explorer runs in the background and its settings (disabled browser functionality, taskbar, start menu, ...) prevent the Windows platform being accessed unintentionally.

The behavior of the taskbar can be user-specifically set in the ServiceCenter Users under "HMI program" using "Taskbar Autohide" and "Taskbar On Top".

#### Ending an HMI program

When the HMI program is ended, Windows XP shuts down completely.



## 2.3.4 Starting OEM programs

### Overview

You can start OEM programs directly before starting the HMI system software. This requires these programs (or their links) to be stored in subdirectories of the directory C:\RunOEM.

### Starting sequence

The subdirectories are executed in the order listed. The programs within a subdirectory are started in the chronological order in which they were placed in the subdirectory.

- Programs in the C:\RunOEM\SeqOnce subdirectory are started **once and sequentially**, i.e., a program is not started until the previously started program is completed.
- Programs in the C:\RunOEM\Seq subdirectory are started **sequentially whenever the system is ramped up**, i.e., a program is not started until the previously started program is completed.
- Programs in the C:\RunOEM\ParOnce subdirectory are started **once and simultaneously**. They run parallel with the HMI system software.
- Programs in the C:\RunOEM\Par subdirectory are started **simultaneously whenever the system is ramped up**. They run parallel with the HMI system software.

Not only program files, but also other types of file can be stored in the subdirectories, which are then opened in accordance with their file type.

For example, ".txt" files are opened using Notepad, ".htm" files are opened using Internet Explorer.

## 2.3.5 Starting applications in service mode

### Starting other applications

If other applications are to be started in service mode, enter them with their complete path in the [OEMRun] section in the file WINBOM.INI:

#### Example: Starting the "Notepad" program

```
[OEMRunOnce]
"Start WinVnc", "x:\I386\system32\StartWinVnc.exe"
"Check Password", "x:\I386\system32\CheckPEPw.d.exe"
[OEMRun]
"Start Backup/Restore", "x:\I386\system32\GhostOrder.exe"
"notepad", "e:\windows\notepad.exe"
```

All other entries must not be changed.

## 2.4 PCU 50.3 with SITOP UPS module

### Conditions

- PCU basic software WinXP V08.00.00 or higher for USB port
- HMI Advanced of V07.01.00 or higher
- SITOP software, version 2.5.2.4 or higher is installed:  
SITOP software is available for download from: [www.ad.siemens.de/sitop](http://www.ad.siemens.de/sitop)
- SITOP monitor/configuration program is installed:  
To enable this, the SITOP software must be copied to the E:\SITOP directory set up on the PCU. This directory already contains PCU tools required for shutdown on the SITOP UPS. If this directory does not exist in an older version of the PCU basic software, it must be created so that it will be compatible for any subsequent updating of the PCU basic software.
- UPS USB driver for Windows XP is installed:  
Installation is described in the relevant SITOP documentation. The documentation is part of the SITOP software download package.
- The SITOP UPS hardware is connected.

### Application

If the supply voltage at the PCU dips, the SITOP UPS modules below could maintain operation for a limited period if a backup battery is being used, allowing the PCU to be properly shut down before the battery is exhausted:

Name	Order number (MLFB)
SITOP POWER DC UPS module 15 (USB interface)	6EP1931-2EC41

---

### Note

#### Information about the test environment for machine OEMs

The "SITOP UPS" function has been tested in the standard configuration of HMI Advanced. When installing add-on or OEM software components, the shutdown procedure of the complete system has to be checked by the operator.

---

## 2.4.1 Starting and configuring the SITOP monitor

### Windows boot up

The SITOP monitor has to be started by Windows automatically during booting. A new value has to be entered for the SITOP monitor under the key below in the Windows registry:

```
HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\Run
ValueName: SITOP
ValueType: REG_SZ
Value Data: E:\SITOP\SITOP_DC_USV.exe
```

A script file, sitop.reg, is located in the E:\SITOP directory. The required key is entered into the registry automatically if this file is executed.

The SITOP monitor is started automatically once the PCU is restarted. The next installation step is to configure the monitor.

#### NOTICE

The SITOP monitor must not be started via the Windows Autostart directory.

### General settings

The following settings must be made in the SITOP monitor configuration dialogue box:

- Parameterization of the interface: For module with USB port
- Parameterization of the change action:

The monitoring window display must be deselected, as this function can lead to sporadic faults on the HMI operator interface.

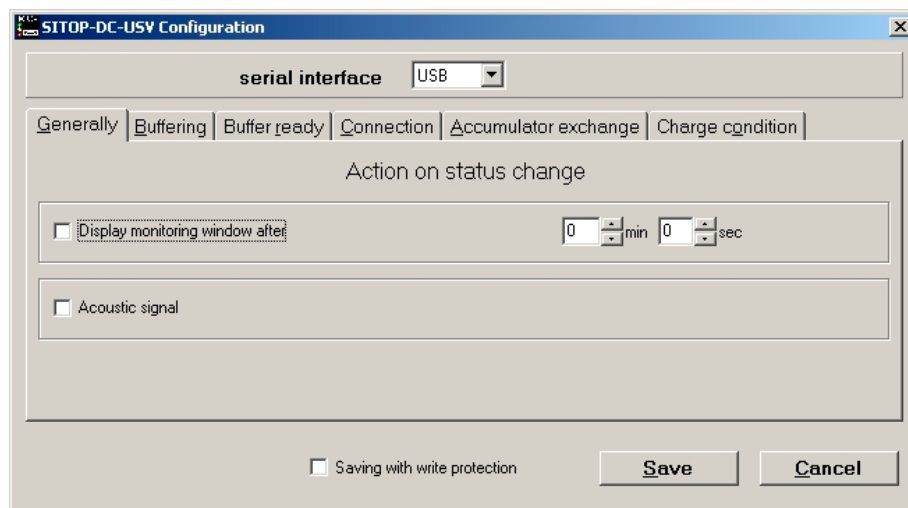


Figure 2-3 Configuration of the SITOP monitor: General settings

### Parameterization of the SITOP monitor

Enter the path of the program that ensures that HMI Advanced and the PCU shut down properly in the event of a power failure into the parameter area of the buffer.  
E:\SITOP\Shutdown.bat

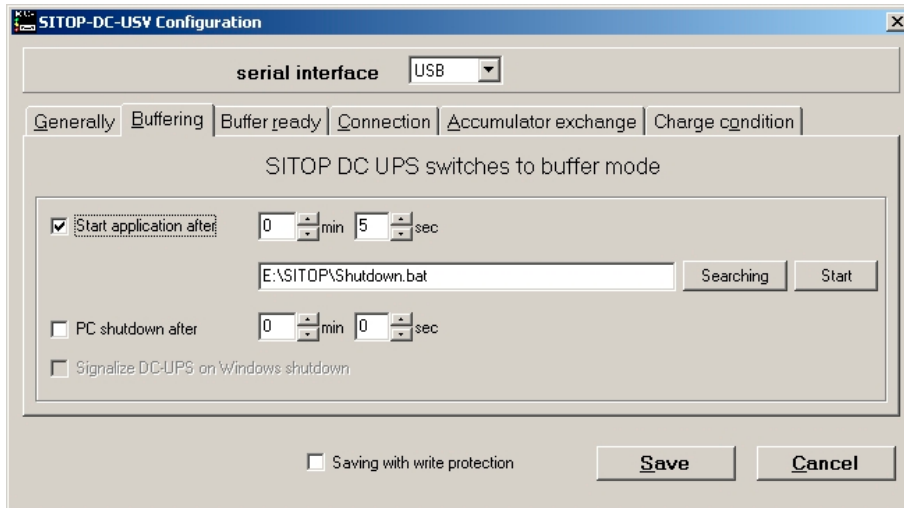


Figure 2-4 Configuration of the SITOP monitor: Buffering settings

Alternatively, the following setting can be used: E:\Windows\system32\hmiexit.exe

## 2.4.2 Configuration of the SITOP UPS module

### Buffering parameterization

The UPS module can be used to select whether buffering should be completed after a predetermined period of time or not until the accumulator's lowest discharge threshold (= maximum buffer time) has been reached. Both buffering parameterizations result from this.

### "Maximum buffer time" mode (PCU basic software XP 08.00.00 or higher)

This mode enables the system to be shut down in a time-optimized manner. The UPS module is synchronized with the shutdown of the operating system. Buffering is maintained until the operating system has been shut down. The operating system must shut down within a maximum of five minutes (including all applications). Otherwise, the UPS module buffers for the maximum buffer time (dependent on the accumulator state).

**Required settings on the UPS module (USB interface)**

	On - Off			
1		●	+2V	Cut-in threshold +22V (fixed)
2		●	+1V	
3	●		+0.5V	
4		●	+1V	End-of-charge voltage + 26.3V fixed
5		●	+1V	
6	●		+0.5V	
7	●		+0.2V	
8		●	+0.2V	
9		●	+0.1V	
10		●	0.35A / 0.7A	Charging current

	On - Off			
1		●		Set time/max. time
2		●	+320 s	Buffer time
3		●	+160 s	
4		●	+80s	
5		●	+40 s	
6		●	+20 s	
7		●	+10 s	
8	●			Disconnection
9		●		Accumulator operating state on/off

Legend:                      ●                      Delivery condition setting  
   ●                      Setting for operation on the PCU 50

**“Fixed buffer time” mode**

In this mode, the UPS module always buffers for the pre-selected, fixed period of time. It is not possible to synchronize the UPS module with the operating system shutdown.

**Required settings on the UPS module**

	On - Off			
1		●	+2V	Cut-in threshold +22V (fixed)
2		●	+1V	
3	●		+0.5V	
4		●	+1V	End-of-charge voltage + 26.3V fixed
5		●	+1V	
6	●		+0.5V	
7	●		+0.2V	
8		●	+0.2V	
9		●	+0.1V	

	On - Off			
10		●	0.35A / 0.7A	Charging current

	On - Off			
1	●			Set time/max. time
2		●	+320 s	Buffer time +5 s fixed
3	●		+160 s	
4		●	+80s	
5		●	+40 s	
6		●	+20 s	
7		●	+10 s	
8	●			Disconnection
9		●		Accumulator operating state on/off

Legend:                      ●                      Delivery condition setting  
    ●                      Setting for operation on the PCU 50

### 2.4.3 Configuration for exiting the HMI

#### HMI monitoring

Exiting of the HMI advanced is monitored by a separate application, hmiexit.exe. This application is started implicitly via the shutdown.bat batch file. In case of error, the application forces the operating system to shut down. An error occurs if the HMI cannot be exited within the configured delay.

Optionally, the parameters below can be set for hmiexit in file: E:\SITOP\hmiexit.ini.

```
[Actions]
#Waiting time in seconds for closing HMI Advanced applications
Wait = 120
# Action on expiration of the waiting time
ForceShutdown = True
```

These default settings only need to be changed if it takes longer than 120 seconds to exit the HMI applications in an OEM installation. This configuration is not usually changed.

#### Configuring the EXIT button

During production, the option to shut down the HMI via the EXIT button in the operating area menu should be disabled, as this function cannot be synchronized with the UPS module.

The EXIT button is disabled by entering ExitButton=False in the Regie.ini file.

## **Hibernate**

The operating system's hibernate mode is suspended when operating the UPS, as the USB interface always has to be active for the UPS module.

---

### **Note**

More information can be found in the product descriptions with the corresponding order number.

---





# Install software and updates

## 3.1 Installing SINUMERIK products

### Overview

This chapter describes how to install additional software on the basis of the pre-installed PCE basic software or how to carry out an update.

The description below is based on the delivery condition of the hardware and software components.

The service desktop is, for example, used for the following tasks:

- Installing HMI system software
- Setting the running environment of the HMI system software
- Checking the hard disk or version
- Privilege for SIMATIC STEP 7

## 3.2 Installation via service desktop

### Installing additional software

The service desktop makes it possible to install system software or a software update. This mostly affects installation/update packages that are to be installed via the Windows network.

Installation can be performed in two ways:

- The installation/update package is stored in directory D:\INSTALL. When booting the PCU the next time, the installation/update process is automatically started while booting. Only when the installation or update process is completed does normal boot manager continue and, if necessary, HMI software started.
- The installation/update process can be started from the service desktop directly by executing the installation/update package.

### Using installation directories

Several installation directories can be set to enable an operator setup to be executed automatically. Installation directories include the subdirectory D:\Install and the directories listed in the [SetupDirs] section of the E:\Windows\System32\HMIServe.ini parameters file.

**The "D:\Install" installation directory is preset there.**

The key names contained within a section of the E:\Windows\System32\HMIServe.ini parameters file must be unique.

The installation directories are evaluated in the sequence described in the parameters file. If the parameters file is missing or it does not contain a [SetupDirs] section, the preset "D:\Install" installation directory is considered instead.

If the [SetupDirs] section contains installation directories, but not "D:\Install", the "D:\Install" directory is not considered within the context of the set installation directories.

When executing a setup using OpFile.txt, the issue of whether or not the setup requires a reboot once it has been completed is taken into account and displayed via a corresponding OpFile.txt entry. If a corresponding entry exists, a reboot is triggered. If there is a chain of setups to be executed one after the other, the reboot is performed once the final setup is complete.

**Installing with HMI Explorer**

The "HMI Explorer" Windows program is available on the service desktop. When this program is called up, detailed version information relating to the HMI system software applications installed and to Windows XP is displayed. Applications can be individually started or uninstalled from HMI Explorer.

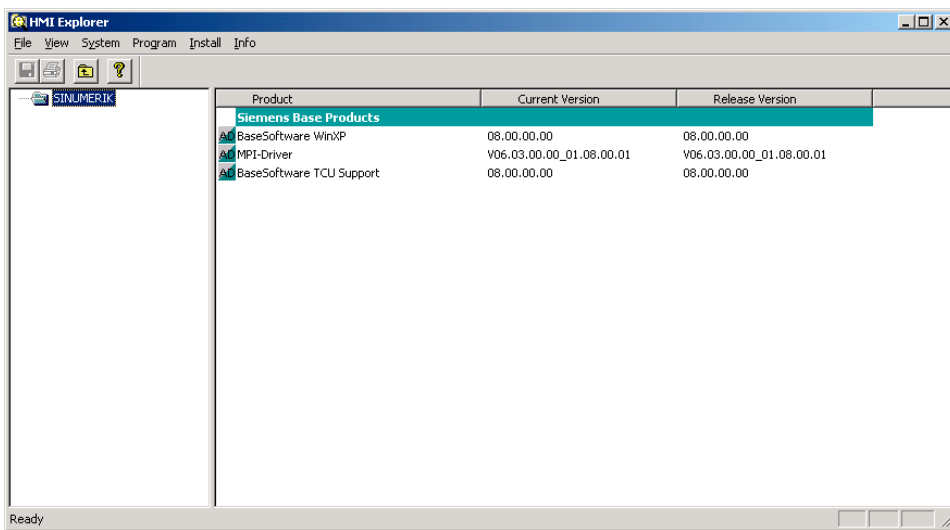


Figure 3-1 HMI Explorer (Example)

**Description of HMI Explorer**

The properties dialogue box gives detailed information on installing the software product:

- **Information on the SINUMERIK product:**

The "Info" dialogue box provides information on the selected SINUMERIK product:

- Current version: Specifies which version of the SINUMERIK product is currently installed. The version is shown in long form.
- Internal version: Shows the current internal version number of this product.

Installation Date/Time:	Shows the installation date and time of the current version.
Installation path:	Displays the path for the main directory of the SINUMERIK product.
Start application:	Gives information on the path to the *.exe file, which launches the SINUMERIK product.

- **Language of the product**

The "Language" dialogue box lists the installed languages for the respective SINUMERIK product and provides information on the name of the installed language. If the language is not known, an abbreviation of its name is displayed. Known languages of HMI Explorer are German, English, Spanish, French and Italian. The version of the installed language is also displayed. Information is also given regarding the installation time and date.

- **History of the product**

The "History" dialogue box shows information on the history of the SINUMERIK product. This dialogue box gives information on the release version, any service packs and hot fixes. The "release" entry is always available. The entries for "service pack" and "hot fix" only appear if they have been installed. Information on the "version", "internal version" and "installation date/time" is given for each entry on this list.

- **Component information**

The "Components" dialogue box shows the information on the components accompanying a product:

Component:	Component name
Version:	Internal version of the components
Path:	Path of the components
File:	*.exe file
Enable :	Shows whether or not the component is enabled
Description:	Description of components
Type:	Type of components

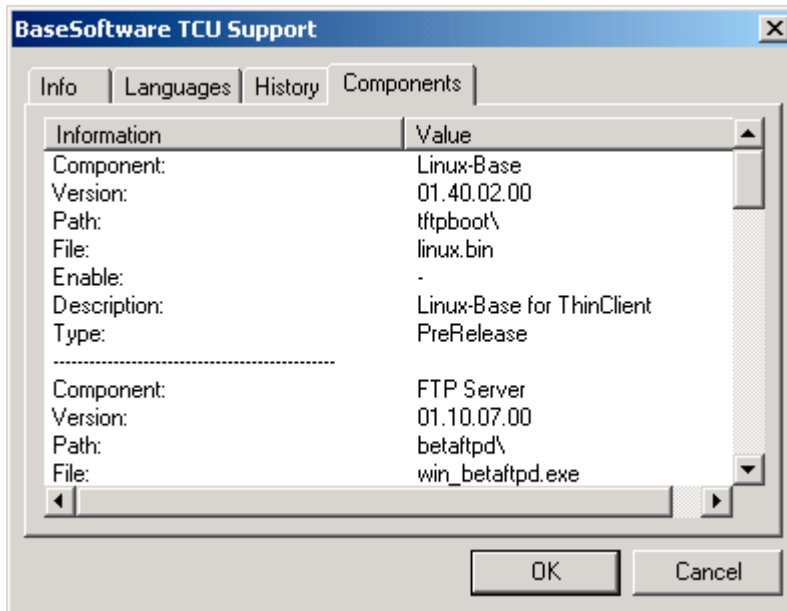


Figure 3-2 "Components" dialogue box (example)

### 3.3 How to install and authorize SIMATIC STEP 7

#### Overview

SIMATIC STEP 7 V5.4 SP1 can also be installed on the PCU.

Delivery item:	SIMATIC STEP 7 V5.4 SP1
Components:	SIMATIC STEP 7 V5.4 SP1 and Add-on for SINUMERIK 840Di sl/840D sl/840D
Type of delivery:	1 installation DVD
System requirements:	PCU basic software V8.0 or higher A network connection or a connection to a DVD drive is required. <b>Recommendation:</b> Mouse port

#### Note

The "MPI driver" package available on the PCU is part of the HMI software and must not be uninstalled!

## Installation under Windows XP

You must follow the installation sequence described here!

1. Boot up the PCU in the service desktop.
2. Access DVD (via network or external DVD drive) and call up SETUP.EXE in the root directory there.
3. The installation proceeds with operator prompting. The installation directory for STEP 7 should be changed to F:\... where the directory in F: can be freely selected.
4. The prompt for "Transfer license keys" must be answered with "No, transfer the license keys later." The licensing is done after the installation of SINUMERIK add-on. Once installation is complete, the PC will need to be rebooted. During boot up, select the service desktop again.
5. Switch to the Sinumerik\_Add\_on directory on the DVD and call SETUP.EXE. The installation proceeds with operator prompting. Once installation is complete, the PC will need to be rebooted. During boot up, select the service desktop again.
6. Start the link "STEP7 authorizing" on the service desktop. This authorizes STEP 7 and it can now be started from the HMI Advanced operator interface (STEP 7 appears as its own operating area on the expansion bar of the area menu, protected with access level 3).

The following entries are made automatically in F:\Add\_on\oemframe.ini:

```
[s7tgtopx]
; with HMI Advanced: eliminate minimize/maximize buttons
; of the Step7 window
WindowState_Off=196608
; with HMI Advanced: switch to previous task when Step7 is
terminated
nSwitchToTaskAfterTermination= -2
```

These entries may also need to be modified in OEM configurations.

## 3.4 How to install additional languages under Windows XP (DVD)

### Use

Use the SINUMERIK service pack recovery Media WIN XP ProEmbSys SP2 to:

- Subsequently install Windows components
- Re-establish the delivery condition of the PCU **without HMI Advanced**
- To install other languages for Windows XP

### Contents of the DVD

There are the following directories on the DVD:

Directory	Contents
1_WIN_Components	Windows XP ProEmbSys SP2 Windows XP ProEmbSys operating system, incl. SP2 for post-installation of software components that are no longer located on the PCU.
2_XP_Base	Symantec Ghost image for PCU 50.3 and EBOOT <ul style="list-style-type: none"><li>• Ghost image of the delivery condition of the PCU basic software Windows XP for PCU 50.3 without HMI Advanced and other application software.</li><li>• Ghost image for creating an "Emergency Boot System" (identical to the directory D:\EBOOT on the PCU)</li></ul>
3_MUI_1	Chinese (simplified) Traditional Chinese Japanese Korean Romanian Slovakian
4_MUI_2	Danish German French Dutch Italian Spanish Swedish
5_MUI_3	Brazilian Portuguese Finnish Polish Russian Czech Turkish Hungarian
EULA TERMS	Contained
Certificate of authenticity	Not contained

## Installing languages

To install additional languages, proceed as follows:

1. If no DVD drive is directly connected via a USB port, the DVD can be accessed via a network to a released DVD disk drive via "Explorer" → "Tools" → "Map Network Drive". The letter G should be selected as the drive letter.
2. Select the directory with the appropriate language, the program "MUISETUP.EXE" starts. After accepting the licensing conditions, you can start the installation procedure with "Continue". A list of all of the pre-installed languages and the languages available on the DVD is displayed.
3. Now the desired languages can be installed/uninstalled by inserting or deleting a check mark in front of the language.
4. Other settings include:
  - Choice of language version for the standard user/new user
  - The language for programs without Unicode support must be set to "English (US)".
  - The font set must also be set to "English (US)".
5. After confirming with "OK," the installation begins. Many languages (e.g. Chinese) require system files that are also located on the DVD.

If the installation drive is other than the recommended "G:" the "Windows XP Professional Service Pack 2 CD" or the "Windows XP Professional CD" may be required. The path name must then be changed accordingly.
6. After successful installation, a reboot may be requested depending on the language.

---

### Note

- The choice can only be made from among the languages that were previously installed on the PCU.
  - The new language of Windows XP only goes into effect if the user logs in again after the changeover or the PCU is turned off and then on again.
  - The language of the HMI Advanced operator interface is independent of this. It is set independently of this under "Start-up" → "HMI" → "Change Language".
-





## Backing up and restoring data

### 4.1 Backing up and restoring data

#### Overview

The entire contents of hard disks can be saved as a disk image using the Symantec Ghost utility. These disk images can be stored on various storage media and the data restored to the hard disk at a later date.

PCU replacement hard disks and complete PCU hard disks are supplied by the plant with Symantec Ghost already installed. Symantec Ghost is used for the data storing and restoring processes described in the following sections.

More information is available on the Internet at: <http://www.ghost.com/>

#### 4.1.1 How to create a service system for PCU

##### Use

In case servicing is needed, create a portable service system as an "Emergency Boot System" (EBS) on a USB memory store on the basis of WinPE.

##### **Recommendation:**

Preferably, the SIMATIC PC USB-FlashDrive with 512 MB storage capacity should be used.

##### Creating a service system

The Ghost image is available on the hard disk under D:\Eboot in order to create the service system for a PCU 50.3 on a USB memory store.

Use the following procedure:

1. Start the PCU 50.3 in the service mode.
2. Plug a USB memory store with at least 256 MB into one of the four USB ports of the PCU 50.3.
3. Launch Ghost32.exe in directory E:\Tools
4. Select Ghost: Local → Disk → From Image. As the source, select D:\Eboot\boot.gho and as the destination select the USB memory store (recognizable by its storage capacity).

**Result:**

After successfully transferring eboot.gho to the USB memory store, the service system for the PCU is ready to use.

Using the same procedure, create a service system on a PG/PC. For this, the Symantec Ghost program must be installed on the PG/PC.

**Booting up the service system**

1. Plug the EBS into one of the rear USB ports of the PCU 50.3.
2. Press the <ALARM CANCEL> key on the operator panel or the <ESC> key on an external keyboard while the BIOS of the PCU is booting up in order to display the "Boot Menu".
3. Select the entry "USB-HDD: XXX " from the list of available media.

**Result:**

The PCU boots up from the service system and the ServiceCenter starts.

4. First select "Start" to start the ServiceCenter and then "Backup/Restore Disk Image", to restore the hard disk using the disk image.

<b>NOTICE</b>
<b>During booting:</b> <ul style="list-style-type: none"><li>• The boot-up of the PCU from the EBS via the front USB interface (=USB V1.1; rear USB V2.0) of a directly connected OP is also possible but it is considerably slower.</li><li>• It is not possible to boot up the PCU from the EBS via the USB interface of a TCU.</li><li>• It is not possible to save network settings on the EBS.</li><li>• The EBS is not capable of functioning if a DVI monitor is connected directly to the DVI interface of the PCU 50.3. VGA mode is only possible via a DVI → VGA adapter.</li></ul>

**See also**

How to backup and restore the hard disk (Page 63)

**4.1.2 Starting ServiceCenter Backup Restore**

**Starting ServiceCenter Backup Restore**

You start the ServiceCenter Backup Restore for the following tasks:

- Backing up/restoring data
  - Starting via linking from the service desktop
  - Starting during boot up via entry in the "background" under SINUMERIK
- From the service system in the event of service
- When installing a replacement hard disk

In order to ensure that the user is authorized to carry out service tasks, direct access is password-protected during boot up of the PCU. This password can be changed.

#### NOTICE

If you start the ServiceCenter Backup Restore via the service desktop from a service system or when installing a replacement hard disk, no password is needed.

The following dialog appears after you double-click the ServiceCenter Backup Restore link on the service desktop:

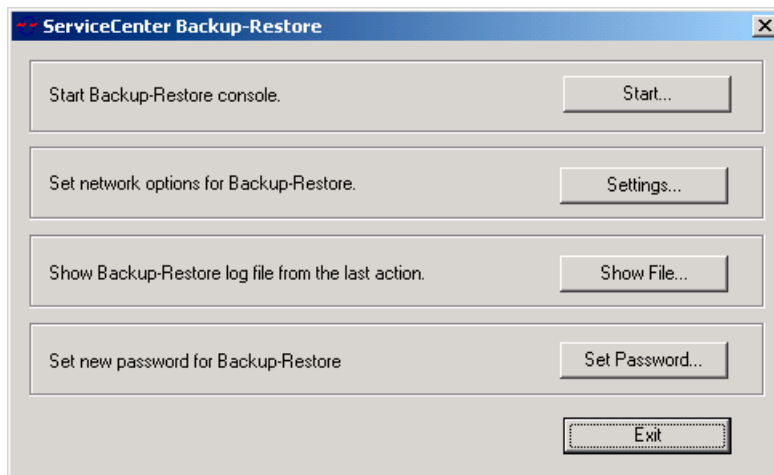


Figure 4-1 Starting service

<b>Start ...</b>	With "Start," you start the shutdown of the system and the start of the ServiceCenter.
<b>Settings ...</b>	With "Settings," you open the dialogue box for network settings.
<b>Show File ...</b>	Under "Show File," you can view the log of the last data back up.
<b>Set password ...</b>	This is where you enter a new password for ServiceCenter Backup Restore. (the default is the same as for the service user "auduser".)
<b>Exit</b>	Cancel and return to the service desktop.

## Network settings

1. To connect the PCU to a programming device or PC, choose "Settings" in order to check or reset the set IP addresses.
2. Select "Use Windows settings", to keep the factory defaults. (This is the default here as well.)

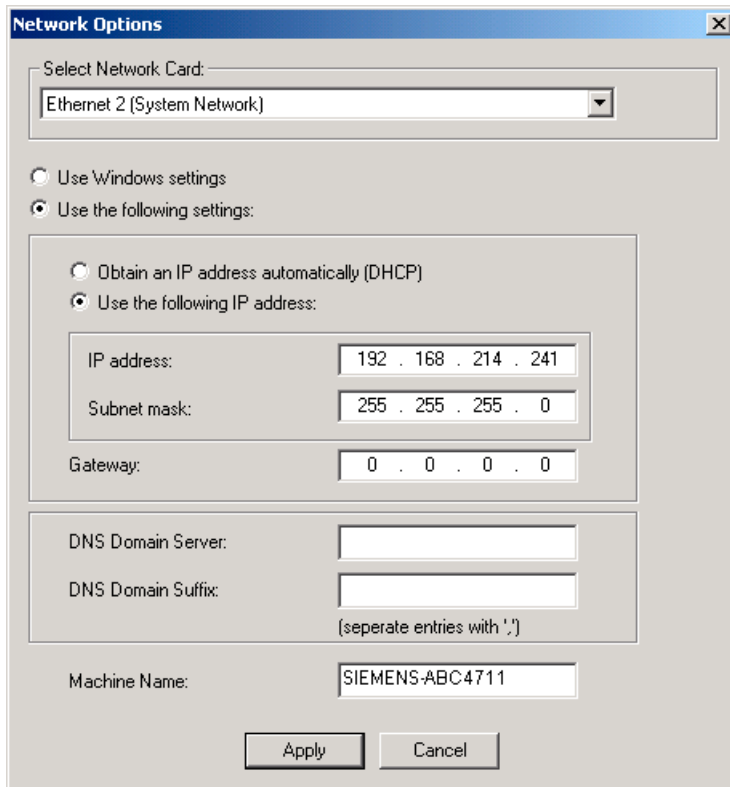


Figure 4-2 Network settings

3. Select "Use the following settings", to set a new configuration:
  - With "Obtain an IP address automatically (DHCP)," you receive an automatically assigned IP address from your DHCP server.
  - With "Use the following IP address," you enter an IP address in the range of 192.168.214.250 – 254 using subnet screen form 255.255.255.0.
4. To activate a DNS name service, specify the server's IP address under "DNS Domain Server" and the extension, e.g. "network.com" under "DNS Domain Suffix".

The default is ".local" if you don't enter anything else.

---

**Note**

Changes to the network settings that you make here only become effective after you reboot the PCU.

On the other hand, if you make changes to the network settings from service desktop, they are immediately adopted.

---

**See also**

System features (Page 7)

### 4.1.3 Select service task

#### Selecting the service task

After start-up of the ServiceCenter, the following dialog opens:

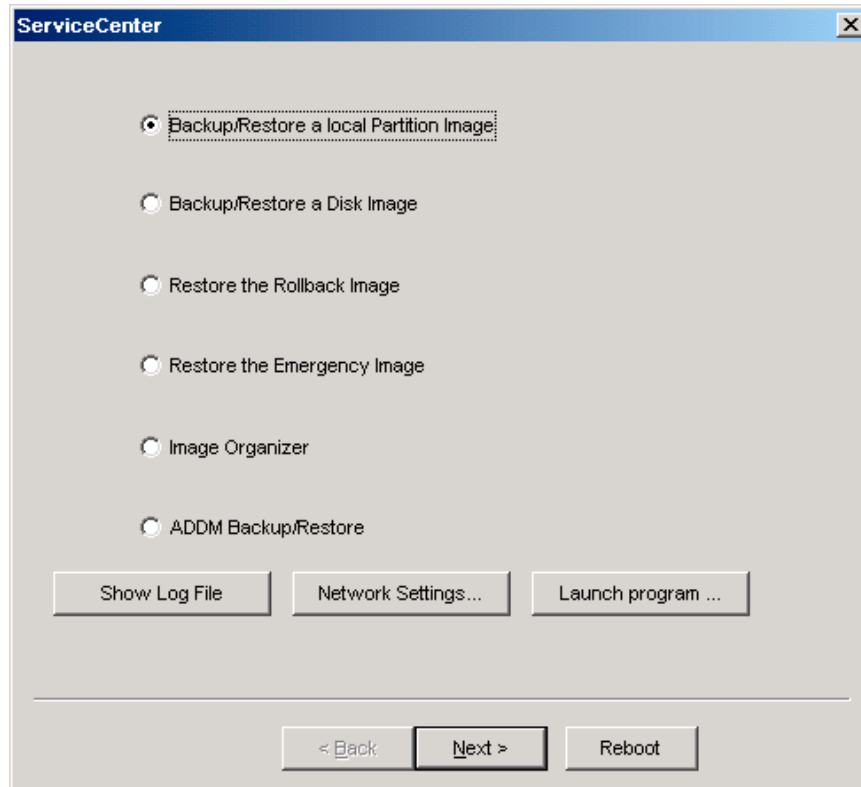


Figure 4-3 ServiceCenter Selection

Select from the following service tasks:

- Backup/Restore a local Partition Image
- Backup/Restore a Disk Image
- Restore the Rollback Image
- Restore the Emergency Image
- Image Organizer

#### Show log file

This option opens file bacres.txt, which contains a log of all backup records.

#### Network Settings

With "Network Settings," you open the dialogue box for network settings.

### Launch Program

To start a program in service mode, enter the program name here, e.g. "cmd" for starting a DOS shell.

## 4.1.4 How to backup and restore local partitions

### Backing up partitions

1. Select the "Backup" action from "Backup/Restore a local Partition Image" to backup an image of one or more C, E, and F partitions locally on the D:\Images partition of the hard disk:

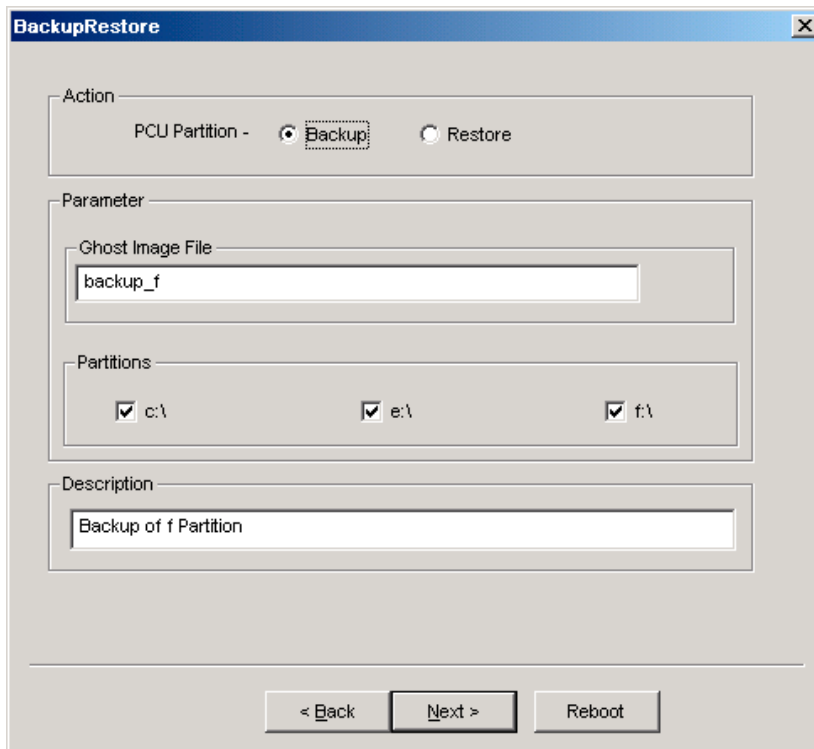


Figure 4-4 Local Partition Backup

2. Select the partitions for which an image is to be produced.
3. Before the backup is started, the size of each partition will be displayed in the next dialogue.

**Recommendation:**

If you wish to save the backup file and restore it later, we recommend that you always create a complete image of partitions (C, E and F).

## Restoring partitions

Select the "Restore" action from "Backup/Restore a local Partition Image" to restore an image of one or more C, E, and F partitions locally from the D:\Images partition:

## Restore the Rollback Image

To restore the most recently saved image, namely the current image ("Rollback Image"), select "Restore the Rollback Image".

The "Rollback Image" is the last created back-up of a partition.

## 4.1.5 How to backup and restore the hard disk

### Backing up the hard disk

Select "Backup/Restore a Disk Image" to backup an image of the hard disk using the network connection:

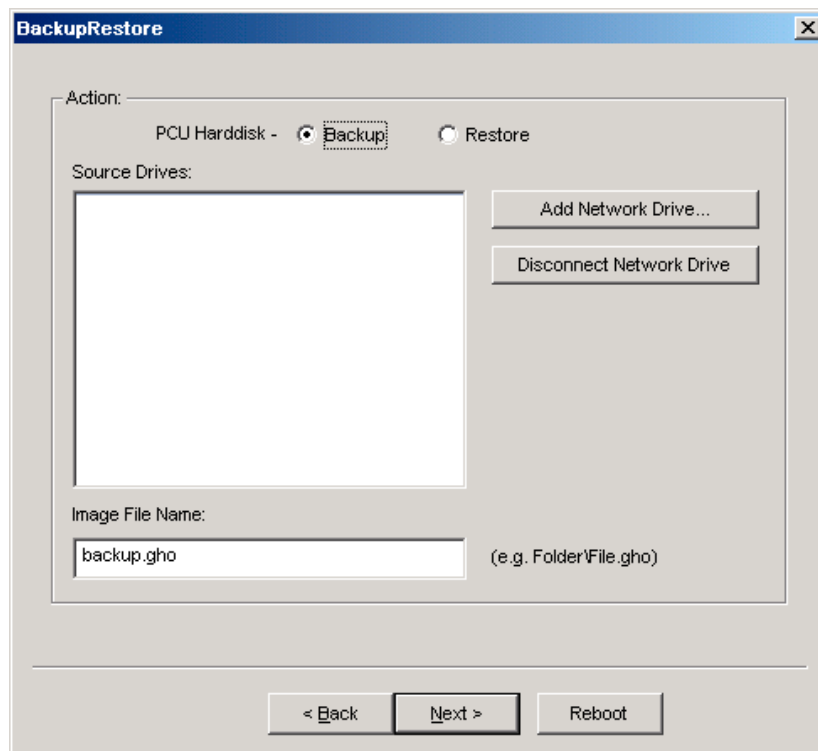


Figure 4-5 Backup hard disk via the network

1. In order to establish a network connection with access to a released drive, select "Add Network Drive" and specify the name of the file for "Image File Name."
2. Under "Share," enter the computer name and the released directory.
3. To receive access rights, enter a user name and password.

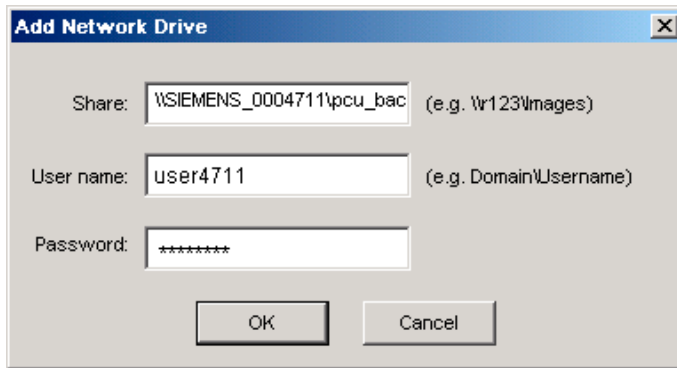


Figure 4-6 Drive Connection

4. Under "Options," select whether the disk image that is to be created is divided into several files of a certain size, so that these files can fit on one CD.

### Restoring a hard disk

Select the "Restore" action from "Backup/Restore Disc Image" to restore an image. Click "Next>" to be prompted:

### See also

Requirements (Page 66)

## 4.1.6 Restoring system data from "Emergency Image"

### Restoring system data

Select "Restore the Emergency Image", to restore the emergency image. This image must contain the back-up of partition E and can also contain a back-up of partitions C, D or F. It is provided in the event that only the system on partition E: is defective. The user data on partition F: are kept in the current status.

#### CAUTION

The reading in of an "Emergency Image" from partition E: can only take place if no additional software has been installed or configured after this back up is created or the registry entries of all the applications that are on partition F: must be included in the image. Use the "Image Organizer" function only to identify an image as an emergency image that fulfills these conditions.

To restore the system data with "Emergency Image", the PCU must be booted from the service system (EBS).



### **Manage images**

Select "Image Organizer" to mark out one image contained in the displayed list as the emergency image, or to delete an existing image.

### **See also**

How to create a service system for PCU (Page 57)

## **4.2 Saving the HMI Advanced environment**

### **Setting the original SINUMERIK HMI environment**

The "Original SINUMERIK HMI Environ" function is available as a script file on the service desktop. The original delivery condition is set up, i.e., the contents of the directories below are saved, when this function is executed:

- C:\RUNOEM
- F:\ADD\_ON
- F:\OEM
- F:\USER

Then the directories are cleared.

### **Setting the current SINUMERIK HMI environment**

The "Current SINUMERIK HMI Environ" function is available as a script file on the service desktop. When this function is executed, restoration of the original settings is canceled, i.e., the saved directory contents are copied back.

## 4.3 Connecting a PG/PC to the PCU in the system network

### Applications

For the following applications, you will, for example, need a connection in the system network between the PCU and a PG/PC:

- To store a backup image from the hard disk of a PCU 50 on a PG/PC.
- To restore a PCU 50 hard disk via the CD-ROM drive of a PG/PC.
- To commission a replacement hard disk.

### 4.3.1 Requirements

#### Overview

The following figures show the typical connection options in the system network:

- PCU to "Eth 2" with service PG/PC, directly, using a crossed Ethernet cable
- PCU to "Eth 2" with service PG/PC, via a switch, using an un-crossed Ethernet cable

If you want to connect the service PG/PC via a company network (Eth 1), contact your network service center.

Meaning of the connections:

○	Eth 1 as a DHCP client
●	Eth 2 as a DHCP server
■	Eth 2 with a fixed IP address
Green connection	Uncrossed Ethernet cable
Gray connection	Crossed Ethernet cable (crossover)

### Configuration with PG/PC directly to PCU

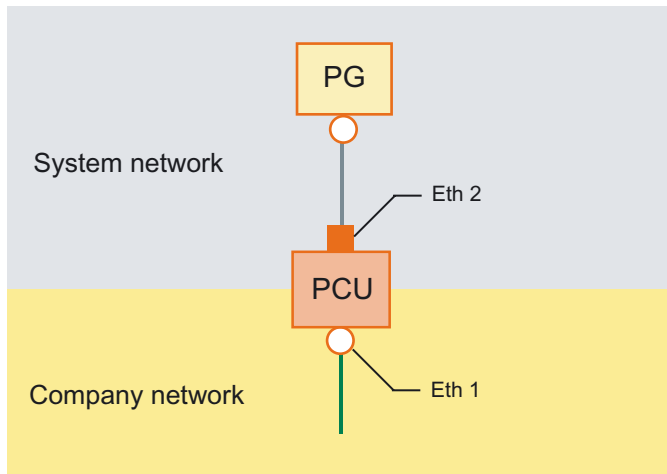


Figure 4-7 Connecting a PG directly to a PCU

### Configuration with PG/PC and switch to PCU

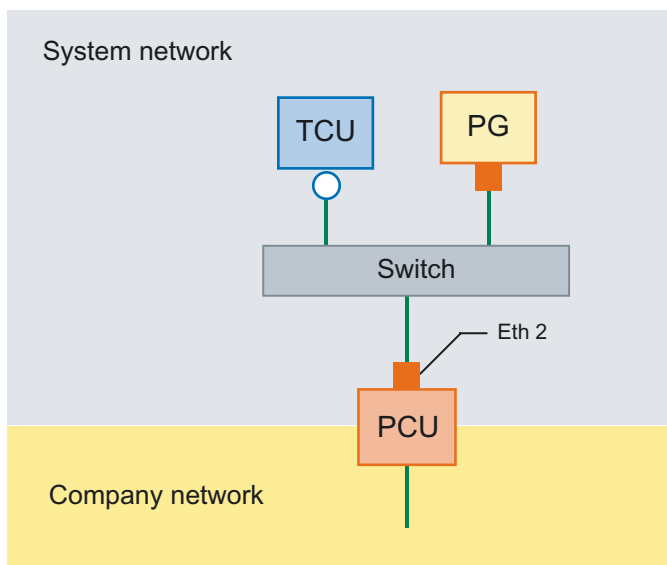


Figure 4-8 Connecting a PG via a switch to a PCU

#### Note

If a PCU is switched off and on again without its own OP/TP including TCU, and if the PCU boot-up is supposed to take place from the service system (EBS), an external VGA monitor and keyboard are needed in order to operate the PCU.

An external VGA monitor and keyboard are not needed if the TCUs are operating and the PCU is not switched off with the EBS during booting.

### **Basic procedure**

On the PG/PC with Windows XP:

- Connecting a PG/PC to a PCU 50.3 as per one of the configurations in the figures above.
- The network protocol used is: TCP/IP.  
TCP/IP is already pre-configured in the basic PCU software.
- Setting up IP addresses on the same subnetwork.
- Releasing a directory on the PG/PC for network access.

On the PCU under WinPE:

- Start the ServiceCenter under WinPE on the PCU 50.3.
- Establish a network connection to the released directory of the PG/PC.
- Using the "Backup" function, a ghost image of the PCU hard disk is saved in the released directory of the PG/PC in the event of a need for service.
- With the "Restore" function, the hard disk of the PCU 50.3 is restored from a ghost image in the released directory of the PG/PC.

### **See also**

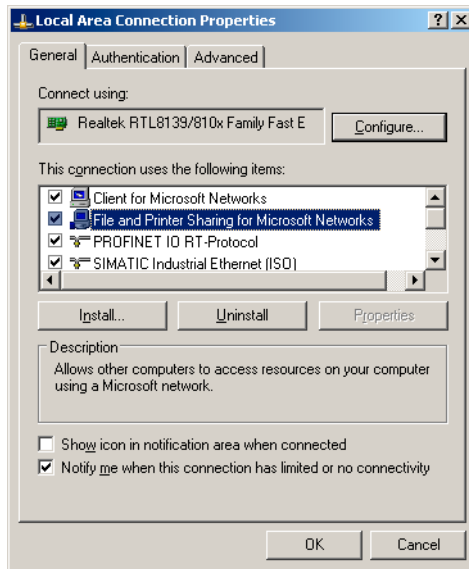
How to backup and restore the hard disk (Page 63)

## 4.3.2 How to connect a PC/PG to a PCU within the system network

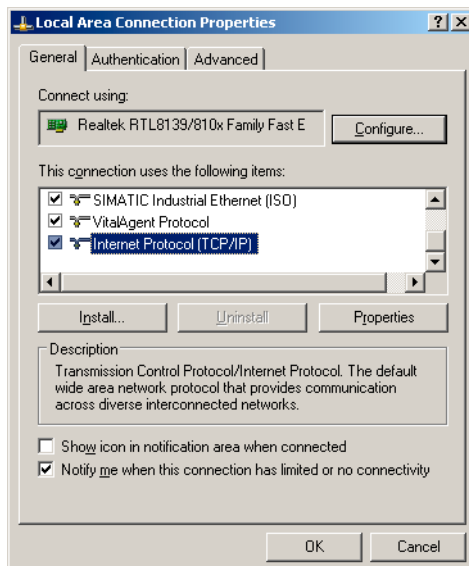
### Settings on a PG/PC with Windows XP

On a PG/PC, the following settings must be made:

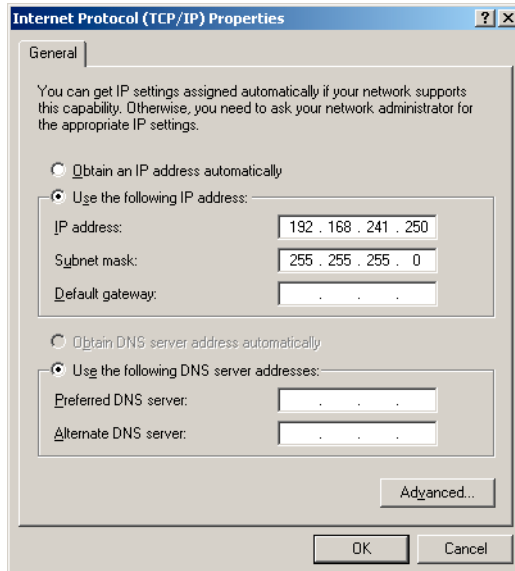
1. Select "Control Panel" → "Network Connections" → "Local Area Connection Properties", then you will see the following dialogue box:



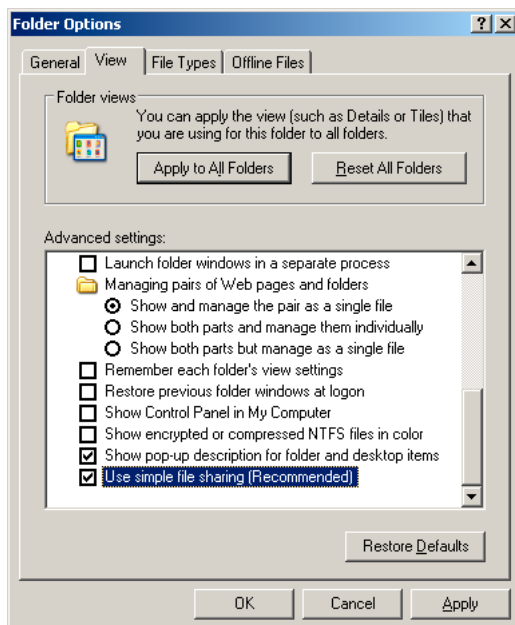
2. Check to see whether "File and Printer Sharing ..." is selected, so that directories can be released and then select "Internet Protocol (TCP/IP)".



3. Open the "Properties" dialogue box and select the option "Use the following IP address", in order to enter an IP address, such as 192.168.214.250 and the subnet screen form 255.255.255.0.

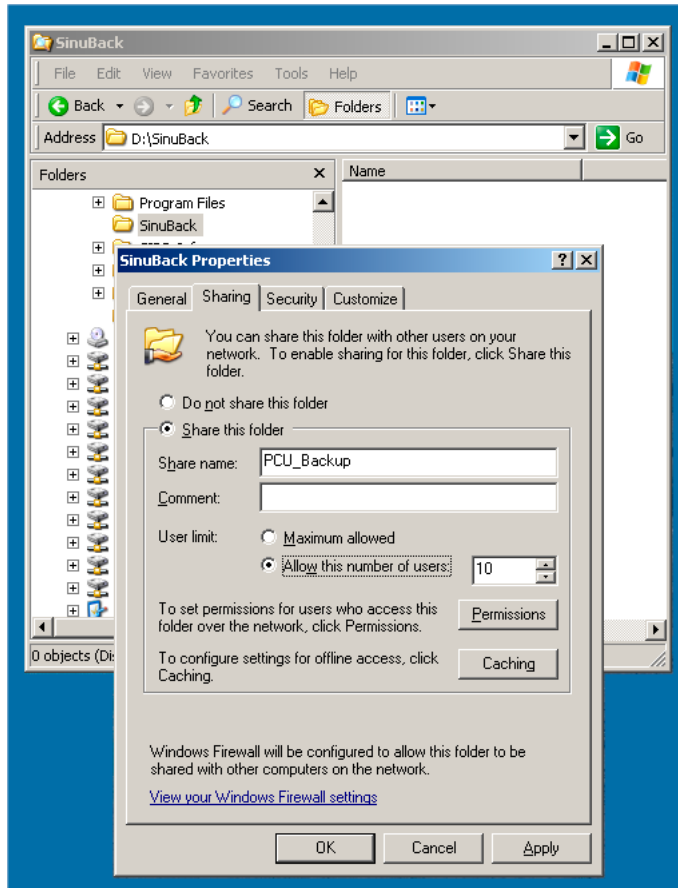


4. Select "Control Panel" → "System" → "Computer Name" tab to view the computer name of the PCU: e.g. SIEMENS-ABC4711
5. Select "Control Panel" → "Folder Options" → "View" and activate "Use simple file sharing (Recommended)", to avoid problems with the release of the directory.



### Releasing directory for network access (Windows XP)

1. Create a directory on a local drive; e.g. D:\PCU\_Backup
2. Using the right mouse key, open the "Properties" dialogue box of the directory and the "Sharing" tab.



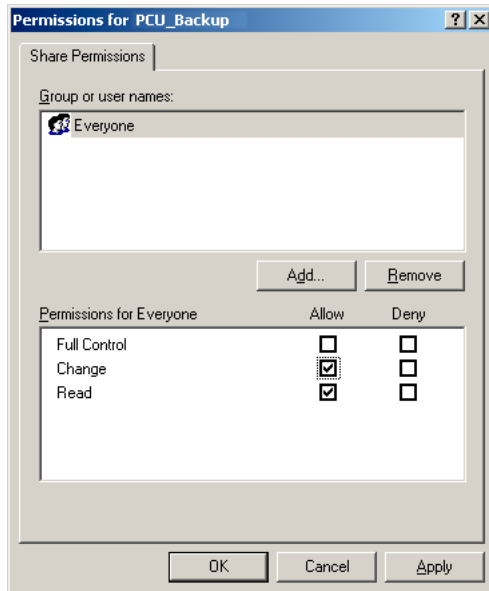
3. Select "Share this folder". As a share name (release name), the directory name is used, e.g. PCU\_Backup.

If the directory name is changed, the new name must be specified when connecting the drive!

#### Note

Ensure there is sufficient free memory on the hard disk of the PG/PC to be able to save the ghost image when creating a back-up.

4. Select "Permissions" and activate the "Change" square for all the users in the "Allow" column so that files can be saved in this directory (e.g. the ghost image).



### Procedure on the PCU 50.3

The following steps must be carried out on the PCU:

1. Start the ServiceCenter with "Start Backup/Restore console".
2. Maintain the pre-setting of the "Network Options" on the PCU:

IP address of PCU: 192.168.214.241 with subnet screen form 255.255.255.0

IP address of PG/PC: 192.168.214.250 with subnet screen form 255.255.255.0

3. In the ServiceCenter, select the service task "Backup/Restore a Disk Image".
4. Establish a network connection to the released directory, e.g. \\SIEMENS-ABC4711\PCU\_Backup.
5. Restore the hard disk of the PCU using the ghost image.

---

#### Note

If the transfer is interrupted during the "Restore" process, no consistent system is available on the hard disk, i.e. the "Restore" process cannot be repeated because the PCU no longer boots up.

In this event, the "Emergency Boot System" on the USB memory store is used.

---

### See also

How to backup and restore the hard disk (Page 63)

How to create a service system for PCU (Page 57)



## 4.4 Commissioning the replacement hard disk

### Overview

The mechanical and electrical steps involved in replacing the PCU 50.3 hard disk are described in:

**References:** Operator Components and Networking Manual

---

#### Note

The replacement hard disk is delivered without the Windows operating system and without HMI system software.

The ServiceCenter incl. Symantec Ghost is installed at the factory on each PCU and on the replacement hard disk.

---

### Creating a hard disk backup (disk image)

The entire contents of hard disks can be saved as a disk image file using the Symantec Ghost software. This "disk image" can be stored on various types of media for later restoration of the hard disk, e.g. on CD-ROM or a network drive.

### Commissioning the replacement hard disk

After installing the replacement hard disk, the Ethernet interfaces of the PCU are preset in the following manner:

- Ethernet 1 (Company Network) as a standard DHCP client
- Ethernet 2 (System Network) as a SINUMERIK DHCP server with the fixed IP address 192.168.214.241 and subnet screen 255.255.255.0

The PCU must therefore be disconnected from the system network before the replacement hard disk is fitted.

To commission the hard disk, proceed as follows:

1. Connect a PG/PC as per the recommended configurations.
2. Start the ServiceCenter and select "Restore Disk Image".

---

#### Note

If the transfer is interrupted during the "Restore" process, no consistent system is available on the hard disk, i.e. the "Restore" process cannot be repeated because the PCU no longer boots up.

In this event, the "Emergency Boot System" is used.

---

### See also

Requirements (Page 66)

How to backup and restore the hard disk (Page 63)

How to create a service system for PCU (Page 57)



## Service and diagnostics

### 5.1 PCU Hardware Diagnostics

#### Purpose

The PCU hardware supports the diagnostics of important system components via an integrated "safecard", which is designated as a Safecard-On-Motherboard (SOM).

These diagnostic functions are only evaluated by systems with HMI Advanced. The fault statuses of the hardware are reported in the form of alarms via the operator interface of HMI Advanced. This allows for visualization of the data in HMI Advanced and external evaluation.

#### Monitored Parameters

The following physical parameters of the PCU 50.3 hardware are monitored:

- CPU temperature
- Housing temperature
- I/O chip temperature
- Speed of the two housing fans
- S.M.A.R.T - status of the hard disk

#### Logging errors without HMI Advanced

The PCU hardware monitor logs all hardware errors in the Windows event log so that the errors can be output even for a PCU without HMI software being installed.

The alarms are output in the log under "Control Panel" → "Administrative Tools" → "Event Viewer".

---

#### Note

The PLC interface of HMI Advanced is located in DB 10 of the PLC program and is supplied by the PCU hardware monitor in the event of a failure.

---

#### See also

Description of the alarms: Diagnostics Manual SINUMERIK

Operator Components and Networking Manual: Chapter PCU 50.3, spare parts

Commissioning the replacement hard disk (Page 73)

## 5.2 Evaluating 7-segment display

### Purpose

The 7-segment display is intended for initial diagnosis of the PCU 50.3 during operations without a local OP (known as "Headless mode"). If an error is detected during booting, a local display is needed for subsequent error analysis of the connection.

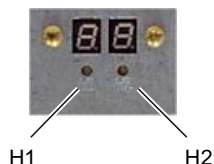


Figure 5-1 7-segment display with LEDs

The two displays have the following function:

- Segment display H1  
 Segment display H1 and the associated LED are assigned to the PCU basic software. Status codes are output during system booting, normal operations and shutdown. Compatibility in relation to the NCU modules is taken into account.
- Segment display H2  
 Segment display H2 and the associated LED are assigned to the application software.

### Meaning of status codes

- During system power-up:

LED H1	LED H2	7-segment display	Status	
Orange	Orange	Output of BIOS post codes	After switching on the system	
Orange	Off		After cycling the BIOS	
Orange	Off		After starting Windows	
		1	Start Windows	Load device drivers needed for the Windows start
		2	PCU hardware service	The PCU hardware service has been started.
		5	Network	Wait for network interfaces to be ready.
		8	TCU support test step 1	Wait for FTP server to start
		9	TCU support test step 2	Wait for boot server to start for TCU network boot and for TCU hardware service to start
		A	TCU support test step 3	Wait for VNC server to start
		B	HMI manager	Wait for HMI manager to start

- During operation:

LED H1	LED H2	7-segment display	Status	
Flashing green	--	0	OK	
Flashing red	--		Error:	
		1	Temperature alarm	Housing or CPU temperature; temperature above limit value (SOM error)
		2	Fan alarm	Housing or CPU: Low fan speed or fan failure (SOM error)
		3	Hard disk alarm	S.M.A.R.T hard disk error
		6		Failure of VNC server or VNC server service stopped

- During shutdown

LED H1	LED H2	7-segment display	Status	
Flashing red/green	--	5	Shutdown active	

## 5.3 Enabling/disabling error log during boot up

### Application

Each time the system is booted up, information is written to a block in the file D:\\$\$Base.log, which contains the date, time and nature of administrative interventions.

Information about the booting controlled by the HMI Manager, can be displayed on the screen and written to log file D:\\$\$Base.log.

### Output in log file

The output is controlled by registry values:

- **Type of information**

The type of information to be output is set via registry value "HKLM\SOFTWARE\Siemens\SINUMERIK\Basic software\<version>\HMI Manager\InfoLevel":

**InfoLevel (DWORD)**

- = 1: Mandatory information is output (default setting)
- = 2: Mandatory and supplementary information is output
- = 3: Mandatory, supplementary and trace information is output  
(InfoLevel <= 0 is treated as InfoLevel == 1;  
InfoLevel <= 3 is treated as InfoLevel == 3)

- **Outputting information to the screen**

Whether the information is also to be displayed on the screen (as well as being output to the log file) is set via registry value 'HKLM\SOFTWARE\Siemens\SINUMERIK\Basic software\<version>\HMI Manager\ShowInfo':

**ShowInfo (DWORD)**

- = 0: Displays the mandatory information,  
no display of the supplemental and trace information
- = 1: Mandatory, supplementary and trace information is displayed (default)

## 5.4 How to search for stations within the system network

### Intended use

The VNC scanner is used within the system network. The scanner is primarily used to identify devices containing an active VNC server, e.g. NCUs or PCUs.

The VNC scanner offers the option of connecting directly to the VNC server and, for example, operating an HMI application. The integrated VNC viewer is used to do this.

Furthermore, it enables you to call up a list of all the network devices, thereby creating an overview of the system network.

---

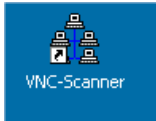
**Note**

The VNC scanner is available on the Service Desktop of the PCU 50.3 and on the PCU base software DVD for installation on a PG/PC.

You require a mouse to use this program.

---

## Operating "VNC scanner"



1. You can launch the "VNC Scanner" program via this link on the Service Desktop of the PCU 50.3.

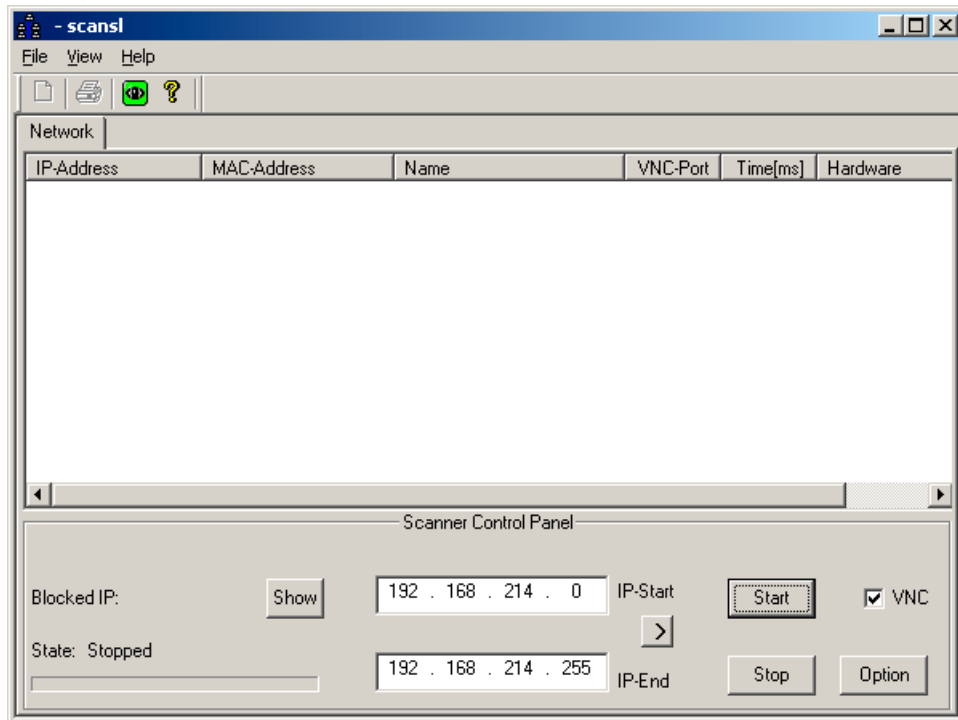


Figure 5-2 VNC scanner

2. "IP start / IP end": Set the IP-address browsing range.  
Eight ranges can be saved. Click ">" to switch to the next range.
3. "VNC" option:
  - ON: only search for VNC servers.
  - OFF: search all the stations in the network.
4. Start the search with the "Start" button.  
The following station parameters will be listed:
  - IP address
  - MAC address
  - Name in the network
  - VNC port
  - Response time of the station in milliseconds
  - Device type

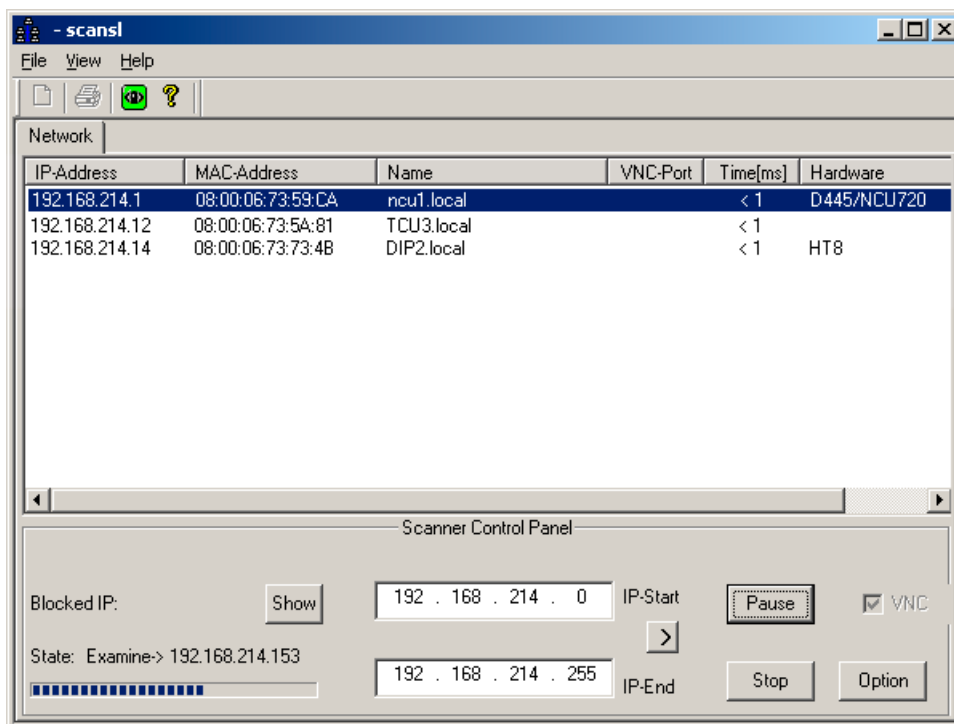


Figure 5-3 VNC scanner: List of stations

- By right-clicking a network station from the list, you can execute the following actions via a pop-up menu:
  - "VNC": Connecting directly to the VNC server and, if applicable, operating the HMI.
  - "VNC → Auto reconnect": Corresponds to the option "Automatic reconnect if the server closes the connection" in order to restore the connection to the selected network station.
  - Ping: Opens a command shell and executes the "ping" command to the selected network station.

**Note**

**Operation via a VNC viewer:**

A system can only be monitored from another station via an external VNC viewer (default).

To view the system from another station, this function must be enabled by the system. You can find the settings for this in the "System Network Center" or directly in tcu.ini in the [VNCViewer] section.

Should you wish to access a PCU 50.3 via the company network using the VNC scanner or VNC viewer, port 5900 must be added on the PCU 50.3 under "Control Panel" → "Windows Firewall" → "Exceptions".

**Reference:** Operator Components and Networking Manual



## Additional Options



1. Use this button to start the VNC viewer.
2. Use the "Option" button to set parameters for the search.

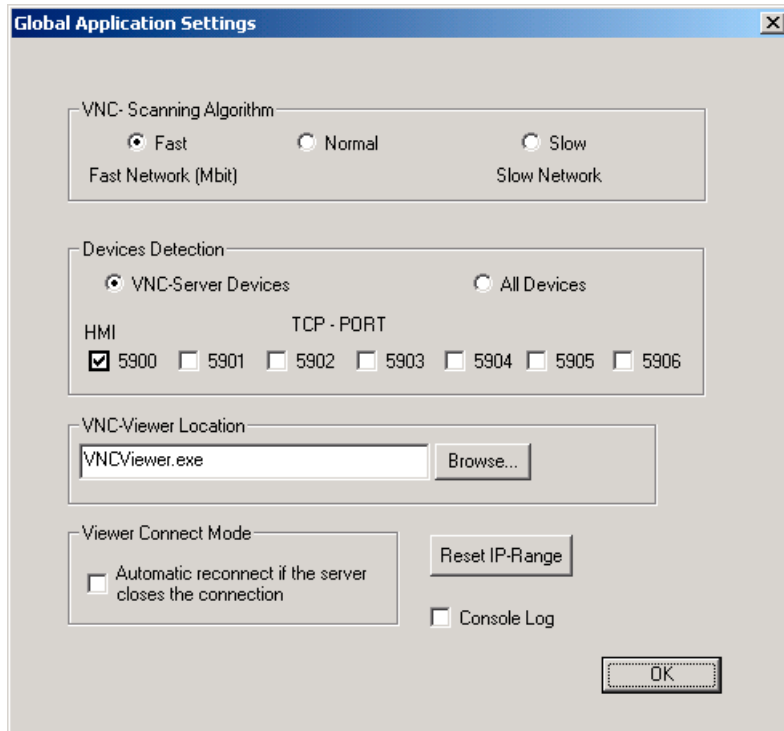


Figure 5-4 VNC scanner: Set search parameters

- VNC scanning algorithm:
  - Default is "Fast", i.e. device feedback within approximately 100 ms
- Devices detection: (corresponds to the "VNC" option, see point 3).
  - "VNC server devices": only search for VNC servers.
  - "All devices": search all the stations in the network.
- VNC viewer location:
  - Link to the VNC viewer (open source program: already pre-installed on the PCU; on a ServicePC this link must be specified).
- Viewer default connection mode:
  - "Automatic reconnect if the server closes the connection" (default: OFF)
    - OFF: One attempt is made to establish a connection.
    - ON (loop mode): For situations where access will be via Internet, for example for service purposes, then the system will wait longer and try again after several milliseconds to establish a connection to this station.

- "Reset IP range": All IP address ranges are reset.
- Console log: Opening a console to output a protocol, e.g. for error analysis (default: OFF).

### Options for the VNC viewer

<b>CAUTION</b>
<b>Do not change defaults!</b>
To ensure that the VNC viewer works properly, the following options may not be changed.

After starting the VNC viewer, the following dialog opens:

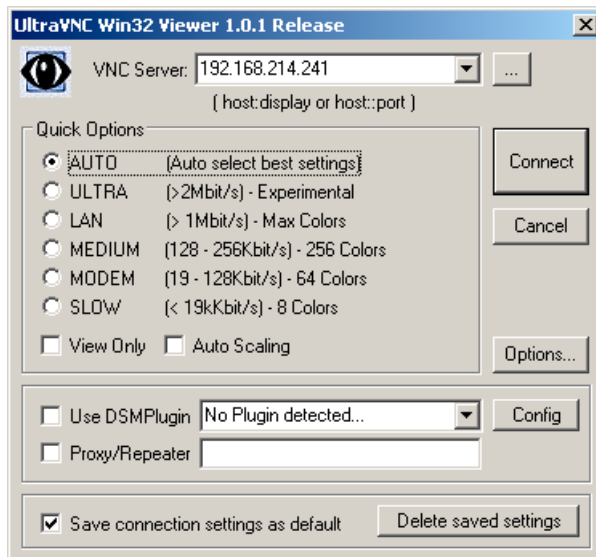


Figure 5-5 Default: UltraVNC

After clicking the "Options ..." button, the following dialog opens:

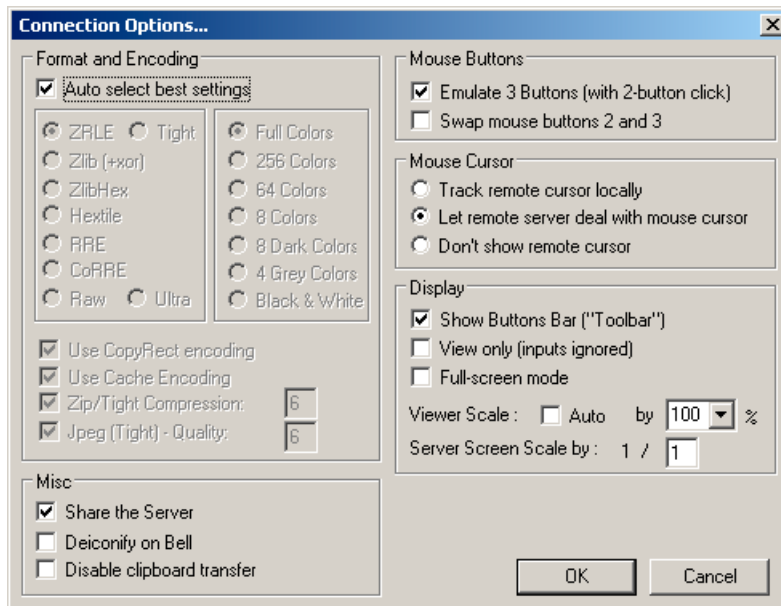


Figure 5-6 Default: Connection Options ...

## 5.5 OpenSSH for WinSCP and PuTTY

### Intended use

The service tools WinSCP and PuTTY are already used to access NCU 7x0. They can now similarly be used to access the PCU50.

### Default

The user "auduser" is enabled for SSH access via its login name + password. Preferred SSH clients are PuTTY or WinSCP.

### Function

The COPSSH tools "activate user" and "deactivate user", including documentation, are accessible from the service desktop via "Start" → "Programs" → "Service Tools" → "COPSSH".

When the user logs in via SSH, his home directory, under which access takes place, is set as the current directory. By changing to the `../..cygdrive` directory, the user can branch to the c: d: e: and f: drives.

**See also:**

"NCU Operating System" Commissioning Manual (IM7):  
Description and Licenses for WinSCP and PuTTY.

# A

## List of Abbreviations

### A.1 Abbreviations

CF	Compact Flash: Memory card
DCK	Direct Control Keys Direct control key
DHCP	Dynamic Host Configuration Protocol: Dynamic assignment of an IP address and other configuration parameters on a computer in a network
DNS	Domain Name System: Conversion of domain names into IP addresses
EBS	Emergency Boot System
EKS	Electronic Key System: System to check the identity of a user (authentication system)
HMI	Human Machine Interface: Operator interface
IRT	Isochronous Realtime (Ethernet)
MAC	Media Access Control: The MAC address is a 48-bit Ethernet ID.
MCP	Machine Control Panel Machine control panel
MPI	Multi-Point Interface Multiple interface
MUI	Multilanguage User Interface
NCK	Numerical Control Kernel: NC kernel with block preparation, travel range, etc.
NCU	Numerical Control Unit: NCK hardware unit
NRT	Non-Realtime (Ethernet)
NTFS	New Technology File System
NTP	Network Time Protocol: Standard for synchronizing clocks in the entire network
NTPD	NTP Daemon: Utility that runs in the background and does not have to be started by the user.
PCU	PC Unit: Computer unit
PG	Programming device
PLC	Programmable Logic Control: PLC
PROFIBUS	Process Field Bus: Standard for the fieldbus communication in automation systems
RAM	Random Access Memory: Program memory which can be read and written into
RDY	Ready Ready
TCU	Thin Client Unit
TFTP	Trivial File Transfer Protocol: Very simple data transmission protocol
UDP	User Datagram Protocol: NTP is mostly processed via UDP.
USB	Universal Serial Bus
UPS	Uninterruptible power supply
UTC	Universal Time, Coordinated Coordinated universal time
VNC	Virtual Network Computing



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