

# MTC200/ISP200 Installation 19VRS Application Manual

**SYSTEM200**

	MTC200/ISP200
<b>Title</b>	Installation 19VRS
<b>Type of Documentation</b>	Application Manual
<b>Document Typecode</b>	DOK-CONTRL-INS*BOF*V19-AW01-EN-P
<b>Internal File Reference</b>	<ul style="list-style-type: none"> <li>• Box 1.1-19V-EN</li> <li>• Document Number 120-0400-B335-01/EN</li> </ul>
<b>Purpose of Documentation</b>	This documentation describes the installation of the control families MTC200 and ISP200. It includes the new installation, the software update as well as the firmware update.

<b>Record of Revisions</b>	<b>Description</b>	<b>Release Date</b>	<b>Notes</b>
	120-0400-B335-01/EN	05.00	New issue for V19

**Copyright** © 2000 Rexroth Indramat GmbH

Copying this document, giving it to others and the use or communication of the contents thereof without express authority, are forbidden. Offenders are liable for the payment of damages. All rights are reserved in the event of the grant of a patent or the registration of a utility model or design (DIN 34-1).

**Validity** All rights are reserved with respect to the content of this documentation and the availability of the product.

**Published by** Rexroth Indramat GmbH  
Bgm.-Dr.-Nebel-Str. 2 • D-97816 Lohr a. Main  
Telephone 09352/40-0 • Tx 689421 • Fax 09352/40-4885  
<http://www.rexroth.com/indramat>  
Dept. ESM (JA)

**Note** This document has been printed on chlorine-free bleached paper.

# Table of Contents

<b>1</b>	<b>General Information About Installation</b>	<b>1-1</b>
1.1	Setup Program and Installation Instructions .....	1-1
1.2	System Requirements.....	1-1
	Hardware requirements .....	1-1
	Firmware .....	1-2
	Software requirements.....	1-2
	Software options .....	1-3
1.3	Before You Start Installing the User Interface.....	1-4
1.4	Call Parameters in the Start File .....	1-4
<b>2</b>	<b>Installation Under MS-DOS</b>	<b>2-1</b>
2.1	System Files.....	2-1
	Recommendations for the Utilization of Compatible PCs.....	2-1
	The CONFIG.SYS File of the BTV30.....	2-1
	Example of a CONFIG.SYS File of a Compatible PC .....	2-2
	Die AUTOEXEC.BAT File of the BTV30.....	2-3
	Example of an AUTOEXEC.BAT File for a Compatible PC.....	2-3
	GUI Directory Tree.....	2-4
	The MT-RUN.BAT File.....	2-4
2.2	First-Time Installation of the GUI .....	2-6
	How to use the setup program.....	2-6
	Start setup.....	2-7
	Additional information about the installation .....	2-10
2.3	Updating a GUI Installation .....	2-11
	Start the update .....	2-11
2.4	Removing the GUI.....	2-13
<b>3</b>	<b>Installation Under MS WindowsNT</b>	<b>3-1</b>
3.1	Administrator Rights.....	3-1
	Log on as Administrator .....	3-1
	Assign Administrator Rights to the User "Indramat" .....	3-2
	Execute Installation/Update .....	3-3
	Withdraw Administrator Rights of the User "Indramat" .....	3-4
3.2	Set WindowsNT System Properties.....	3-5
	Performance characteristics .....	3-5
	Adjust Date/Time .....	3-5
	DOS Box Environment.....	3-5
	Relocating the kernel mode drivers .....	3-6

Idle Sensitivity .....	3-7
Memory .....	3-8
Network services.....	3-8
3.3 First Installation of MTC200/ISP200 .....	3-9
Load Firmware/SPS Program .....	3-12
3.4 Update MTC200/ISP200 Installation.....	3-12
3.5 Further Steps Before First Operation.....	3-13
Execute System Configuration.....	3-13
Load Firmware/SPS Program .....	3-13
<b>4 System Configurator (WindowsNT)</b>	<b>4-1</b>
4.1 Utilization.....	4-1
4.2 Call System Configurator .....	4-1
4.3 Menu Structure and Data Input.....	4-1
<b>5 Install/Update Firmware</b>	<b>5-1</b>
5.1 General Information .....	5-1
5.2 Before you install/update.....	5-1
5.3 FWA Programming.....	5-1
Call FWA Programming .....	5-1
Save Modifications.....	5-2
5.4 Execute FWA Programming .....	5-2
Delete Memory.....	5-3
Complete Firmware Download.....	5-3
Selective Firmware Download .....	5-5
<b>6 Install Languages</b>	<b>6-1</b>
6.1 Overview Overview .....	6-1
6.2 Install Languages Under DOS .....	6-1
Subsequent Installation German/English.....	6-1
Install Optional Language Modules .....	6-1
6.3 Install Languages Under WindowsNT.....	6-2
6.4 Hungarian Character Set Under WindowsNT .....	6-3
DOSBOX.....	6-3
WinNT .....	6-4
<b>7 Index</b>	<b>7-1</b>
<b>8 List of Figures</b>	<b>8-1</b>
<b>9 Kundenbetreuungsstellen - Sales &amp; Service Facilities</b>	<b>9-1</b>
<b>10 Revisions to this Document</b>	<b>10-1</b>

# 1 General Information About Installation

## 1.1 Setup Program and Installation Instructions

**Who installs the program?** The installation of the graphical user interface of the software and firmware version 19VRS requires knowledge of working with PCs and knowledge of operating systems. Especially for the optimization of the system, settings and adjustments are necessary. This requires knowledge of the installing operating system. Furthermore administration rights are necessary for installing under WindowsNT.

⇒ We recommend that the installation is executed by an experienced user with knowledge of operating systems and with administration rights.

**Setup Program** The installation program decompresses and copies the user interface and the associated files from the CD ROM or the installation diskettes onto your hard disk. The interface cannot be operated without this installation.

⇒ Execute the setup program before using the interface.

**Documentation** This chapter tells you how you can install and set up the user interface on your hard disk. There is a difference between an installation under MS-DOS and an installation under WindowsNT. Furthermore you will learn how you can update an existing installation under the respective operating system.

⇒ Read these installation instructions and if necessary additional documents **before** you install the software.

## 1.2 System Requirements

### Hardware requirements

The user interface of the software and firmware version 19VRS for MTC200-P/ISP200-P can be installed on the Rexroth Indramat BTV20 and BTV30 operator panels and on most standard IBM compatible PCs.

Depending on the employed operating system, the following hardware prerequisites are expected:

	<b>MS-DOS</b>	<b>WindowsNT</b>
Processor type	≥ 5x86 / 133 MHz	≥ Pentium P166
Main memory	≥ 32 MB	≥ 64 MB
Display	VGA Color 640*480, minimum 256 colors	65535 colors
Hard disk	≥ 100 MB free space	≥ 250 MB free space
Floppy disk drive (optional CD-ROM drive)	for installation and data backup for installation	
Serial interface	RS232C or RS485 for MTC200/ISP200 connection	

Figure 1-1: Hardware requirements

In order to install a MTC200-P/ISP200-P in a PC, at least 2 slots must be available.

Depending on the required option, further hardware components (such as interface modules) will be necessary.

---

**Note:** Due to the required computing power and free memory space, the NT version of the 19VRS software can no longer be used in the BTV01. There will only be the DOS version that can be used in the BTV01 under the 19VRS software.

---

## Firmware

The firmware of version 19 can be used on the following hardware platforms:

Hardware type	Firmware type
MTC-P01.2-xxx	FWA-MTCP01-M01-19VRS-NN
MTC-R01.1-xxx MTC-R02.1-xxx	FWA-MTCR0*-M01-19VRS-NN FWA-MTCR0*-M01-19VRS-NN
MTS-P01.2-xx-xxx MTS-P02.2-xx-xxx	FWA-MTSP01-S01-19VRS-NN FWA-MTSP01-M01-19VRS-NN FWA-MTSP02-S01-19VRS-NN FWA-MTSP02-M01-19VRS-NN
MTS-R01.2-M1-xxx MTS-R02.2-M1-xxx	FWA-MTSR0*-M01-19VRS-NN FWA-MTSR0*-S01-19VRS-NN FWA-MTSR0*-M01-19VRS-NN FWA-MTSR0*-S01-19VRS-NN

Figure 1-2: Supported hardware types

## Software requirements

The user interface of the 19VRS software and firmware version for MTC200/ISP200 can be used under the operating systems MS-DOS (Version 6.22) and WindowsNT 4.0.

For WindowsNT 4.0 service pack 5 is required.

The installation program checks whether the required service pack has been installed.

---

**Note:** The corresponding service pack must again be activated if an additional operating system components (such as a network driver) will subsequently be installed.

---

Indramat supplies Version 19VRS only in conjunction with MS-DOS 6.22 or Windows-NT 4.0.

Some functions of Version 19 are only available under WindowsNT 4.0.

## Software options

Within software version 19, the functions listed in the following table will only be available as an option.

The required functions must be ordered by its type name, and must be installed using the enabling code that is included in the delivery.

Function	Type
Custom Display System - CDS - Configuration and runtime version	SWS-MT*BVS-PRO-19VRS-MS
Custom Display System - CDS - Runtime version only	SWS-MT*BVS-RUN-19VRS-MS
Graphical NC Editor - GNE	SWS-MTC200-GNE-18VRS-MS
On Line NC Simulation for MS-DOS - SIM	SWS-MTC200-SIM-17VRS-MS-MS*DOS
On Line and Off Line NC Simulation for WindowsNT - SIM	SWS-MTC200-SIM-17VRS-MS-WIN*NT
NC User Compiler - NUC	SWS-MTC200-NUC-17VRS-MS
Multi Control Interface - MCI	SWS-MTC200-MCI-18VRS-MS-WIN*NT
SFC Sequence Modes and Diagnosis - SKT	SWS-MTC200-SKT-19VRS-MS
Fast Measurement - SME	SWS-MTC200-SME-18VRS-MS
Drill Breakage Monitoring - BBU	SWS-MTC200-BBU-18VRS-MS

Figure 1-3: Software options

## 1.3 Before You Start Installing the User Interface

If you have ordered a completely configured **BTV20/BTV30** unit with control modules, the user interface and the related firmware have already been installed when the unit is delivered. The following values are invariably entered during the installation process:

The following values are set for the interface data:

- Channel: On line
- I/O address: \$0318
- Memory address: \$D000:\$0000

The following values are set as user data:

- User name: INDRAMAT
- Password: INDRAMAT

In this case you only need the following chapters for updating the software. The user interface must be installed according to the following description if you use the BTV or a third-party PC with external control hardware or if you want to use the MTC-P and MTS-P control modules in a third-party PC.

---

**Note:** In order to be able to function properly, the software version of the user interface and the firmware version of the MTC200/ISP200 must have the same version name. Prior to installing the user interface or to updating an existing installation you must check whether the corresponding firmware version which is to be operated with the interface is available. After the installation, the firmware can be transferred into the control by executing FWA download.

---

## 1.4 Call Parameters in the Start File

As an option, parameters can be added to the called programs in the MT-RUN.BAT start file.

**TSRPG25I** If required the following call parameters can be added to the line **TSRPG25I**. The parameters in parentheses should only be used after Rexroth Indramat Service or Development have been contacted (distinction is not made between capital/small letters):

- /? : Help display (in English)
- (/A) : Shows the file processing during the GUI startup
- /B : Prevents a warm restart through [Ctrl]+[Alt]+[Delete]
- /C1 [/C] : TSR program for utilization in the DOS box of MS-WindowsNT
- /C2 : TSR program for utilization in the DOS box of MS-WindowsNT  
can only be used in conjunction with the Rexroth Indramat function interface
- /D : programmable communication  
address B. \$D000,\$0000)

- (MTC200 must be \$xxxx, \$xxxx)
- (/G) : Creates the "\GLOBAL.DAT" file
- (/I=\$xx,\$yy) : Programmable interrupt selections  
           \$xx = TSR interrupt  
           \$yy = DPR address
- (/K) : TSR program shall work without GUI environment
- /L : Activating GUI logbook functions
- (/O=xxxx) : The clock of the serial interface is reprogrammed:  
           1:55,5ms 2:27,7ms 4:14ms 8:7ms 16:3,5ms 32:1,7ms  
           64:868 µs 128:434 µs 256:217 µs 512:108 µs, 1024:54  
           µs 2048:27 µs 4096:13 µs.  
           The default interrupt time (1.7 ms) is used if the /O  
           parameter has not been specified. Other settings may  
           be selected if there are problems with losing the  
           connection.
- /P : TSR program texts are taken from the hard disk
- (/Q) : Activation of the IPC1-DPR driver
- (/R) : IPC-DPR protocol with BYTE swapping
- (/R0) : IPC-DPR protocol without BYTE swapping
- (/T) : Switch off time synchronization with hardware clock
- (/U) : Debug mode for the TSR program
- (/U0) : Rexroth Indramat function interface with test output
- (/W) : Prevents main memory swapping  
           reduces the free memory area below 640 kB
- (/X) : Changeover of the DTR/RTS control signals for RS-485
- (/Y) : Activates the TELEBYTE function that displays the  
           communication between GUI and MT-CNC upon the  
           start of the GUI (data in \TELEGRAM.TXT).
- (/Z) : Changeover of the data protocol (checksum for  
           TRANSMIT counter)

**MT-CNC** If required the following call parameters can be added to the line **MT-CNC**. The parameters in parentheses should only be used after Rexroth Indramat Service or Development have been contacted (distinction is not made between capital/small letters):

- /? : Help display (in English)
- /B=xx : the GUI starts automatically menu item xx,  
           e.g. /B=09 menu item 9, status display, or /B=10  
           menu item 10, GUI.
- (/E) : Shows the names of the developing engineers when  
           the EXE versions are displayed.
- (/F) : Deactivates the hard disk warning. This warning  
           appears if there is less than 1 MB free space  
           available on the hard disk.
- /H : Third-party EXE files can be started using one of the  
           available function keys. An INI file is used to define  
           the F key and the related EXE file. It is located in the  
           \MT\_TEXTE\ directory and the name of the file is  
           *DeviceTyp*.INI. *DeviceTyp* means the control in use  
           e. g. MTC200-P.INI.
- /I : Using the Rexroth Indramat original diagnosis text;  
           custom-related text is suppressed.

- (/M) : Deactivates the verification of the free main memory upon the GUI start. Caution: When you use this option, unexpected MS-DOS runtime errors may occur during GUI operation that can lead to an uncontrolled abortion of the GUI.
- (/N) : Complete new initialization of the GUI software (deletes the \MT\_TEXTEMT\_START.DAT file).
- (/S) : Boots the GUI into the setup mode.
- (/V) : Inserts the version of the MT-v into the EXE headers.
- /Z : Displays the software license number.

## 2 Installation Under MS-DOS

### 2.1 System Files

#### Recommendations for the Utilization of Compatible PCs

**TSR programs/device drivers** Using special hardware in a computer may require special device drivers and/or TSR programs (memory-resident programs) that must be loaded into the PC's main memory. These programs can disturb the operation of the GUI software or even prevent it. If you have problems with starting or using the GUI software you should first deactivate those programs (e.g. by removing the call in the CONFIG.SYS or AUTOEXEC.BAT files).

**Main memory** The GUI software requires at least **620 Kbyte** free main memory to be started. The execution of the command 'MEM' allows to find out if there is enough free memory on your PC. If necessary, remove memory-resident drivers or programs to provide more conventional main memory for the GUI. From MS-DOS version 6.0 onwards you may also try it with running the MEMMAKER MS-DOS program that moves drivers into the upper memory, thus freeing more conventional main memory.

---

**Note:** Do not execute the MEMMAKER program if you have already installed the GUI program, and the program is started automatically via AUTOEXEC.BAT when the PC starts up.

---

Below you can see the CONFIG.SYS and AUTOEXEC.BAT system files as they are installed in the BTV unit upon delivery. In addition examples for system files of compatible PCs are indicated. These examples only include essential information which is necessary for GUI operation.

#### The CONFIG.SYS File of the BTV30

```

DEVICE=C:\DOS\HIMEM.SYS
DEVICE=C:\DOS\EMM386.EXE NoEMS X=D000-D1FF
BUFFERS=10,0
FILES=30
DOS=HIGH,UMB
LASTDRIVE=E
FCBS=4,0
BREAK=OFF

REM DEUTSCH:
REM COUNTRY=049,850,C:\DOS\COUNTRY.SYS

REM ITALIANO:
REM COUNTRY=039,850,C:\DOS\COUNTRY.SYS

REM ESPANOL:
REM COUNTRY=034,850,C:\DOS\COUNTRY.SYS

REM ENGLISH UK:
REM COUNTRY=044,437,C:\DOS\COUNTRY.SYS

REM ENGLISH US:
COUNTRY=001,437,C:\DOS\COUNTRY.SYS

```

## Example of a CONFIG.SYS File of a Compatible PC

```

DEVICEHIGH=C:\DOS\SETVER.EXE
DEVICE=C:\DOS\HIMEM.SYS
DEVICEHIGH=C:\DOS\EMM386.EXE NOEMS
DEVICEHIGH=C:\DOS\ANSI.SYS /X
DOS=HIGH,UMB
STACKS=0,0
SHELL=COMMAND.COM /E:512 /P
FILES = 30
BUFFERS = 10,0
BREAK = OFF

```

DOS commands are only described briefly. Please refer to your DOS manual for detailed information.

The CONFIG.SYS file is used in the PC for loading special device drivers and for setting up hardware options. The specifications of FILES and BUFFERS are very important.

FILES should be set to 30 or higher. This command specifies the number of files that can be open at the same time. During operation, the GUI software employs several files simultaneously.

BUFFERS (in conjunction with SMARTDRV) should be set to 10.

Despite the additionally reserved memory space, reserving more than 10 data carrier buffers provides, in conjunction with SMARTDRV, increases the processing speed only conditionally, but uses additional memory space.

---

**Note:** Entering too high a value for FILES and/of BUFFERS may lead to assigning an unnecessary high amount of conventional main memory. Reduce these values to the minimum values if the free memory space proves insufficient for starting the GUI.

---

In PCs with 386 or 486 processors and enhanced memory, the DEVICEHIGH command is usually employed for installing the management of the expanded memory. For example:

```

DEVICEHIGH=C:\DOS\EMM386.EXE NOEMS

```

If you have WINDOWS installed in your PC, you may also use the following commands:

```

DEVICE=C:\WINDOWS\HIMEM.SYS
DEVICEHIGH=C:\WINDOWS\EMM386.EXE NOEMS

```

---

**Note:** Never mix up DOS and Windows drivers in a system. If a BTV30 or a third-party PC is used together with the MTC-P and/or MTS-P control modules, The parameter 'X' must be used after the EMM386.EXE call to mask out the memory space that is used for the communication with the control modules (usually X=D000-D1FF).

---

## Die AUTOEXEC.BAT File of the BTV30

```

@ECHO OFF

PROMPT $p$g
PATH C:\DOS
SET TEMP=C:\DOS

REM System MEMORY 16 or 32 MB/ARBEITSSPEICHER 16 oder 32 MB
LH C:\DOS\SMARTDRV.EXE 4096 C

REM DEUTSCH:
LH KEYB GR,,C:\DOS\Keyboard.SYS

REM ITALIANO:
REM LH KEYB IT,,C:\DOS\Keyboard.SYS

REM ESPANOL:
REM LH KEYB SP,,C:\DOS\Keyboard.SYS

REM ENGLISH UK:
REM LH KEYB UK,,C:\DOS\Keyboard.SYS

REM ENGLISH USA:
REM LH KEYB US,,C:\DOS\Keyboard.SYS

CALL MT-RUN.BAT

```

As an option, an external PC keyboard can be connected to the **BTV30** unit. The correct country code of the external keyboard must be selected in the AUTOEXEC.BAT file. The default setting expects a German keyboard. If you wish to connect a different keyboard, you must enter the REM command to blank out the calls of the German driver, and activate the drivers of the required language by deleting the appropriate REM command. Check the settings in the AUTOEXEC.BAT file if your external keyboard produces wrong characters.

## Example of an AUTOEXEC.BAT File for a Compatible PC

```

@ECHO OFF
PROMPT $P$G
PATH=C:\DOS;\WINDOWS;C:
SET TEMP=C:\WINDOWS\TEMP
SMARTDRV 2084 1024 C
LH DOSKEY
CALL MT-RUN

```

Calling the MT-RUN batch file at the end of the AUTOEXEC.BAT file ensures that the GUI is loaded automatically when the PC is started.



**CAUTION**

Ensure that the "Write-Behind-Caching" mode is switched **OFF** at switch "C" when you use the SMARTDRV.EXE hard disk cache program.



For drive 'C', directory 'MT-CNC' and controller MTC200-P, it has the following contents:

```
ECHO OFF
REM INDRAMAT          (c) Copyright 1998
REM -----
C:
CD C:\MT-CNC
TSRPG25I /R0 /D=$XXXX,$XXXX
MT-CNC /H /B=10
CD\
REM -----
```

## 2.2 First-Time Installation of the GUI

The complete GUI installation without user programs requires at least 40 MB of free space on the hard disk (54 MB if the English text files are installed). There should be approximately 10-20 MB free space on the hard disk for user data.

1. Prior to starting the GUI installation procedure you should execute the 'DIR' command in the main directory of the hard disk and ensure that there is sufficient free space available on the hard disk.
2. You should read the Software License Agreement before you start the GUI installation process.

### How to use the setup program

**Call menus** The menus of the installation interfaces can be activated with function key **<F10>**. The cursor keys allow to move horizontally or vertically within the menus.

**<Alt>** and the letter which is displayed in a colour allow to directly call a menu. The menu item can be selected by simply entering the letter which is displayed in a different colour. For example **<Alt>+<E>** allows to open the menu **new installation**, **<S>** starts the installation.

**Navigating in the screen masks** **<Tab>** allows to switch between the buttons and the entry fields in forward direction, **<Shift>+<Tab>** in reverse direction. The cursor keys allow to move within an entry field.

**Mark selection fields** Fields for the selection are marked by the **<Space>** key. For example language selection: ( ) German becomes (•) German after selecting with the **<Space>** key.

**Mouse support** The installation program can also be controlled using a Microsoft mouse (or compatible) if a corresponding driver is installed.

**Help** The installation program provides help texts for various screens and errors.

Press **<F1>** to open the help window that is related to the current screen or the current error.

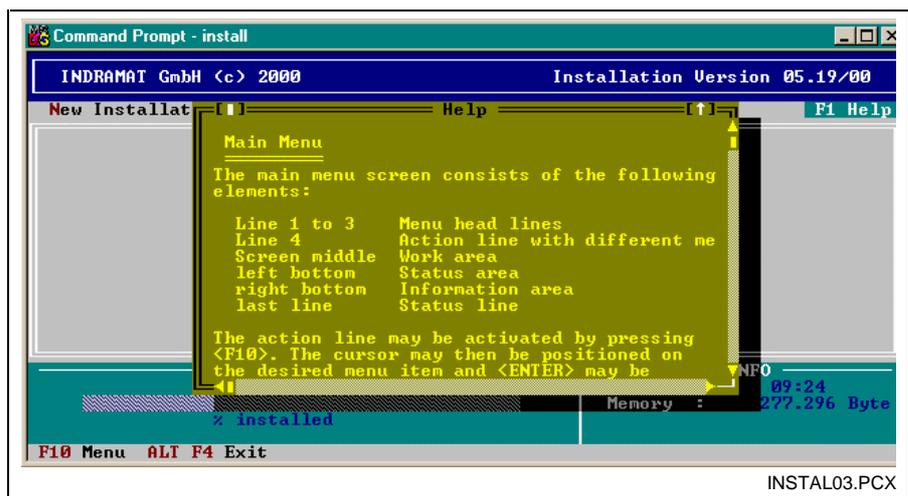


Figure 2-1: Example of a help window

**Exit the setup program** **<Alt> + <F4>** allow to cancel the setup program.

**Note:** If the installation is cancelled, it is absolutely necessary to execute a new installation in order to operate the interface.

## Start setup

**Note:** Available data will be deleted during a new installation.

To install the GUI, insert diskette no. 1 in drive A or B of your PC (in this description we assume that you use drive A). Return to the main directory of your hard disk (e.g. 'CD\') and change to drive A (e.g. A: <Enter>).

**Call the setup program** 1. Enter 'INSTALL' and press <Enter>.  
The installation program starts.

**Select installation language** 2. Select the language which is to be used for the setup program (German is default).  
3. Press <Enter> to continue.

Once the language has been selected, the main installation selection screen appears. When the screen is opened for the first time, a window shows the version and a Copyright message regarding the installation program.

4. Press <Enter> to confirm this window.  
5. Select **Start** in the **New installation** menu.

**Select program language** In the following dialogue you are prompted to define the language of the GUI. German and/or English can be selected for:

- the start language: This language will be used when the GUI is started
- further languages: A second language can be selected. This language can be selected in the SETUP menu of the GUI.

• the help files:

6. Select the start language, further languages and the language of the help files

**Select control** Use the following screen to select the controller.

7. Select the control (PC format or RECO format) which is to be installed and close the dialog with <Enter>.

**Set interface parameters** The following interface parameter screen is displayed when you select an MTC200:

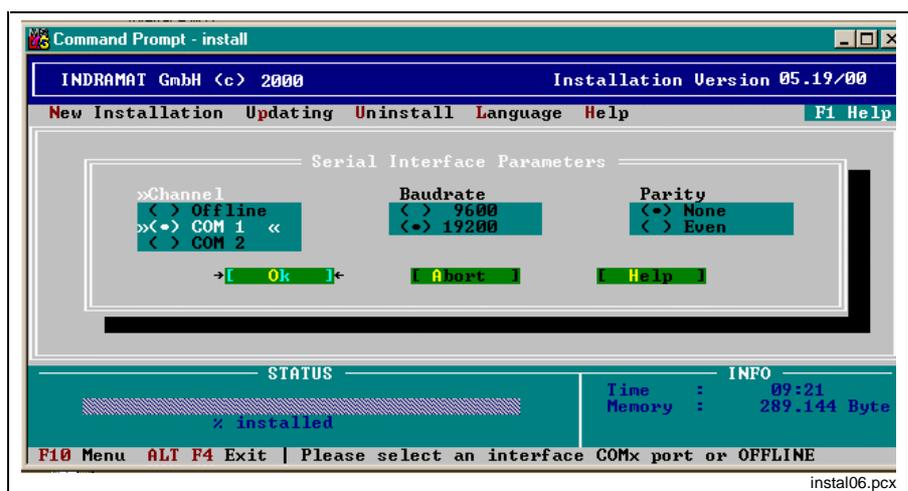


Figure 2-2: Selection of interface parameters for MTC200-R

Use this screen to select the settings of the serial interface that are employed when the GUI starts up.

'Offline' permits the GUI to be used without a connection to the controller.

'Baudrate' and 'Parity' define the transfer parameters of the serial interface.

**Note:** The selections made for 'Baudrate' and 'Parity' must match the switch settings of the MTC200-R (default: 19,200 bd, no parity).

The following interface parameter screen is displayed when you select an MTC200-P:

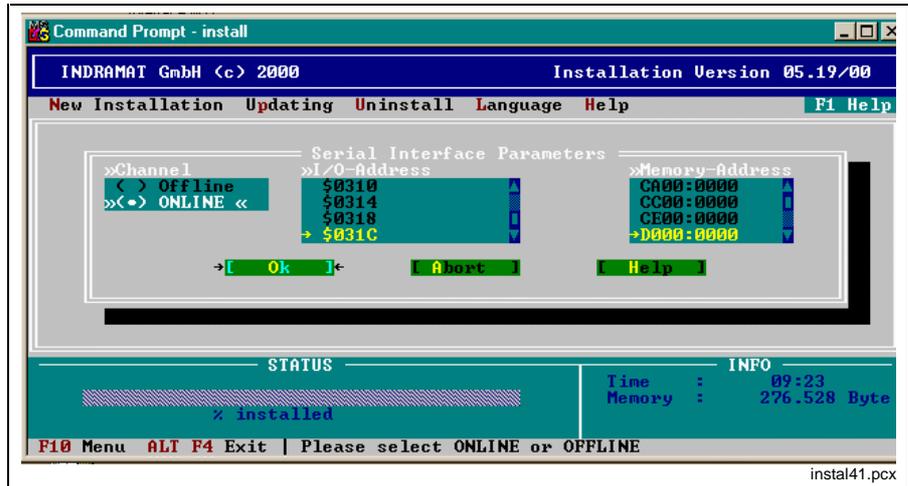


Figure 2-3: Selection of interface parameters for MTC200

In this screen the communication with the control card MTC200-P is set. For I/O address areas are displayed in which the setup program found a MTC200-P. Furthermore it is possible to determine the memory range in which the PC and the MTC200-P communicate. The default selection should be D000:0000.

8. Set the interface parameters in correspondence to your system and exit the dialog with **<Enter>**.

#### Determine destination drive and directory

The next step determines which drive and which directory will be used for the installation of the program.

9. Confirm the given path with **<Enter>** (recommended)

- or -

⇒ enter another destination directory for the installation.

**Note:** Successful installation requires at least 40 MB free capacity on the target drive.

The installation program issues a message that tells you whether or not the specified directory exists.

10. Confirm the creation of the directory.

The installation program checks now whether there is enough free capacity on the selected hard disk.

#### If there is not enough memory:

- Exit the setup program
- free memory on the requested drive or
- install the program again on another drive

- Program personification** The personification (serial number, name, company) of the user interface is performed during the first-time installation. You are prompted to enter the serial number, the name and the company of the rightful owner of the software. The serial number is printed on your diskette set.
11. You are prompted to enter the serial number, the name and the company of the rightful owner of the software.
- This information is displayed every time the user interface is started. It also appears in the footer line of each user data printout (e.g. NC programs).
- If you have copy licenses and are allowed to use the set of diskettes more than once, the entered user information is automatically used for every further installation.
- The information is displayed again. If the entry contained errors, you can select **<No>** in this screen. The entry dialog screen is displayed again and you can correct your entries.
- Once you have confirmed your entries, they will be saved on the diskette.

---

**Note:** If you have a pre-installed BTV, the personification is executed during the first startup of the interface.

---

- Enable software options** Select the software options from the following screen.
12. If required enter the option enable codes for the software options and confirm with **<Enter>**.
- The installation procedure starts.
- During installation, a window displays status information about the decompressing process.
- In between, the user is prompted to insert the required diskettes. Software version 19V00 requires 16 diskettes.
- Enter user** When installation is completed, the user is prompted to enter the name of the system administrator and the system administrator's password. This user is the only person who is authorized to enter new users and to define their privileges.



**CAUTION**

⇒ Be sure that you always remember the exact entries you made for user name and password. If you forget the entries, you must clear the interface from the hard disk and install it again. In this process you will lose the user data. **In this case contact Rexroth Indramat's customer service, they can assist you in finding the password.**

13. Enter name and password of the administrator.

Once installation has successfully been completed, you can enter additional users via the SETUP/Password Management Screen of the GUI.

- Update system files** The system asks you whether the CONFIG.SYS and AUTOEXEC.BAT system files shall be modified such that they satisfy the GUI requirements. The modifications are accepted automatically when you press the **<Enter>** key to confirm the OK button.
14. Press the **<Enter>** key in order to execute modifications automatically.

- or -

⇒ press **<No>** if you would like to execute the modifications later.

The last screen shows the default setting of the GUI:

**COM1:** The GUI tries to communicate with MTC200-R through the COM1 connection of the PC.

**00:** Up to 16 MTC200 can be managed via the GUI. Upon startup, the GUI selects the MTC200 with the communication address 00.

**DEUTSCH:** The GUI starts in this language.

**The installation is now completed and the MS-DOS prompt appears.**

The main directory of the hard disk drive contains the MT-RUN.BAT batch file with the default settings. The possible parameters are specified in the section 'MT-RUN.BAT File'.

## Additional information about the installation

In order to avoid a blocking of the PC when the GUI starts up for the first time, all other units that are connected to the serial COM1 port of the PC must be disconnected. The GUI will try to communicate with the MTC200 via this serial connection because COM1 is the default selection for ONLINE MODE.

If you have already selected OFFLINE MODE during installation, the GUI will not try to establish a link to the MTC200 via a serial connection. In this case you may use the serial interfaces for other I/O units, such as mouse or printer.

The MT-RUN.BAT file can be modified such that the MUI setup screen can be started directly so that you can select OFFLINE MODE there.

If you wish to exit the GUI and return to DOS, you must first press **<F10>** to return to the GUI main menu. This is the only point where you can use the **<Ctrl>+<C>** key combination to return to the DOS prompt. This exit is password-protected. If a password is not active, the system will prompt you to enter your name and password. This prevents that unauthorized users can return to the operating system level.

## 2.3 Updating a GUI Installation

Before you start updating an existing older GUI version to this new version, you should remember the following points:

- An update to the current version is possible from any previous GUI installation.
- Restore all user data items (backups) that shall be converted for this new version in the existing old GUI form. To do this, use the archiving utilities of the old and currently installed GUI version. This is necessary because backups of earlier GUI versions can not be read and/or converted when they are retrieved or restored with the new version.
- When you update the GUI of a machine you must ensure that all components of the MTC200 system are equipped with the corresponding firmware. For information about the firmware version, press **<Ctrl>+<F1>** in menu item 7 of the GUI to print the firmware that is installed in the MTC200, RECO, BTM;

---

**Note:** Updating is only possible if there is at least another 30 MB free space on drive that contains the current GUI installation. Prior to starting the update you should therefore use the 'DIR' command in the main directory of the hard disk to check whether there is a sufficient amount of free space on the hard disk available.

---

Type designation  
of the GUI software:

GBO-19V00  

 Release version  
Version  
Type: GUI

To update the GUI, insert diskette no. 1 in drive A or B of your PC (in this description we assume that you use drive A). Return to the main directory of your hard disk (e.g. 'CD\') and change to drive A (e.g. A: **<Enter>**).

### Start the update

**Call the setup program**

1. Enter 'INSTALL' and press **<Enter>**.  
The installation program starts.

**Select installation language**

2. Select the language which is to be used for the setup program (German is default).
3. Press **<Enter>** to continue.

Once the language has been selected, the main installation selection screen appears. When the screen is opened for the first time, a window shows the version and a Copyright message regarding the installation program.

4. Press **<Enter>** to confirm this window.
5. Select **Start** in the **Update** menu.
6. Enter the directory where the current GUI version is installed.  
The installation program issues a message if the directory in the specified drive cannot be found or is not a GUI main directory.
7. Enter the serial number for software personification.

A safety message is issued as soon as the specified directory has been recognized as the GUI main directory.

8. Press **<No>** to cancel the update.

- or -

⇒ To continue uninstalling, press **<Yes>**. All GUI data items are replaced with the ones of the new version. The user data is retained on the hard disk, and is converted for the new version.

During installation, a window displays status information about the decompressing process.

In between, the user is prompted to insert the required diskettes.

Once the updating process is completed, the system issues a message that says that the last setup settings were not modified during GUI updating.

9. Press **<Enter>** to close the information window.

The setup program is terminated and the command prompt is displayed.

Updating is now terminated and the DOS prompt is displayed. The main directory of the hard disk drive contains a new MT-RUN.BAT batch file. The original file with the previous settings is saved as MT-RUN.OLD. Your modifications must be checked and eventually entered again! Possible settings are described in the section 'MT-RUN.BAT File' (see page 2-4).

**Start GUI again** To start the GUI, enter 'MT-RUN' at the DOS prompt, and press the **<Enter>** key.

**Exit GUI** If you wish to exit the GUI and return to DOS, you must first press **<F10>** to return to the GUI main menu. This is the only point where you can use the **<Ctrl>+<C>** key combination to return to the DOS prompt. This exit is password-protected. If a password is not active, the system will prompt you to enter your name and password. This prevents that unauthorized users can return to the operating system level.

## 2.4 Removing the GUI

The installation program helps you to remove all GUI files, MTC200 user files and their directories from a specific hard disk.



**CAUTION**

**All program files and user data will be deleted!**

⇒ Use the backup functions for data which is to be used again after the update.

To uninstall the GUI, insert diskette no. 1 in drive A or B of your PC (in this description we assume that you use drive A). Return to the main directory of your hard disk (e.g. 'CD\') and change to drive A (e.g. A: <Enter>).

**Call the setup program**

1. Enter 'INSTALL' and press <Enter>.

The installation program starts.

**Select installation language**

2. Select the language which is to be used for the setup program (German is default).

3. Press <Enter> to continue.

Once the language has been selected, the main installation selection screen appears. When the screen is opened for the first time, a window shows the version and a Copyright message regarding the installation program.

4. Press <Enter> to confirm this window.

5. Select **Start** in the **Uninstall** menu.

6. Enter the directory where the current GUI version is installed.

The installation program issues a message if the directory in the specified drive cannot be found or is not a GUI main directory.

A safety message is issued as soon as the specified directory has been recognized as the GUI main directory.

7. Press <No> to cancel un-installation.

- or -

⇒ Press <Yes> to continue.



**CAUTION**

**All GUI and user program data items on the specified hard disk will be deleted.**

Once you have completed the installation program, all GUI files including the created user data will be cleared from the hard disk.

Once you have pressed the [Yes] button, the installation program returns to the DOS prompt.

The GUI, all data items you have created, and the related directory structure are now deleted from the hard disk, and the DOS prompt appears. If the invocation of the GUI was entered in the AUTOEXEC.BAT file, you should now remove this entry.



## 3 Installation Under MS WindowsNT

### 3.1 Administrator Rights

For WindowsNT system settings and the installation of the interface, administrator rights are necessary. During the installation settings which depend on the user are necessary. Therefore it is not sufficient if an administrator logs on since these settings will not be effective if the normal user logs on. On the other hand the user needs administration rights during the installation which can be assigned to the user temporarily. After the installation the administration rights should be withdrawn.

⇒ Log on as a user with administrator rights.

**Pre-installed BTVs** BTVs delivered by Rexroth Indramat have the following access data:

- User name: INDRAMAT
- Password: INDRAMAT

### Log on as Administrator

When the BTV is delivered the default setting includes that WindowsNT is started automatically and the user logs on with the standard user name "Indramat". The boot process must be interrupted for logging on as administrator.

⇒ Keep one of the two shift keys pressed during the boot process.

The log on dialog "log on information" is displayed.

Log on as administrator.

- User name: Administrator
- Password: indramat

## Assign Administrator Rights to the User "Indramat"

User settings and the administration of rights can be executed in the WindowsNT user manager.

1. Start the user manager in the start menu **Programs - Administration (general) - User Manager**.

The users set up in the system can be viewed in the divided user manager window.

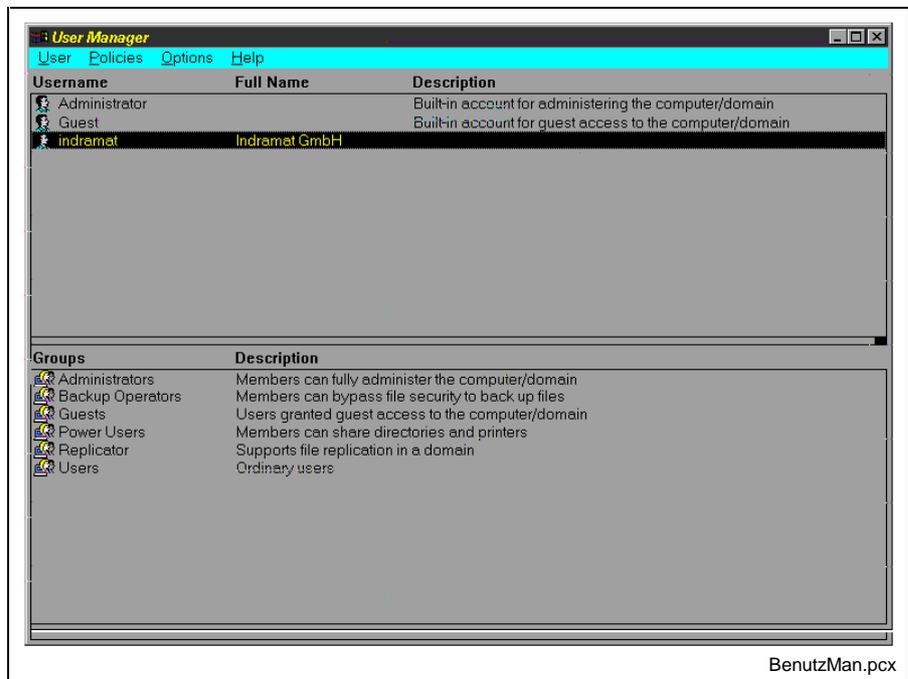


Figure 3-1: The User Manager

2. Select the user "Indramat" with a double click.  
The window "user properties" is displayed.
3. Press the button **Groups**.  
The window "group members" is displayed.

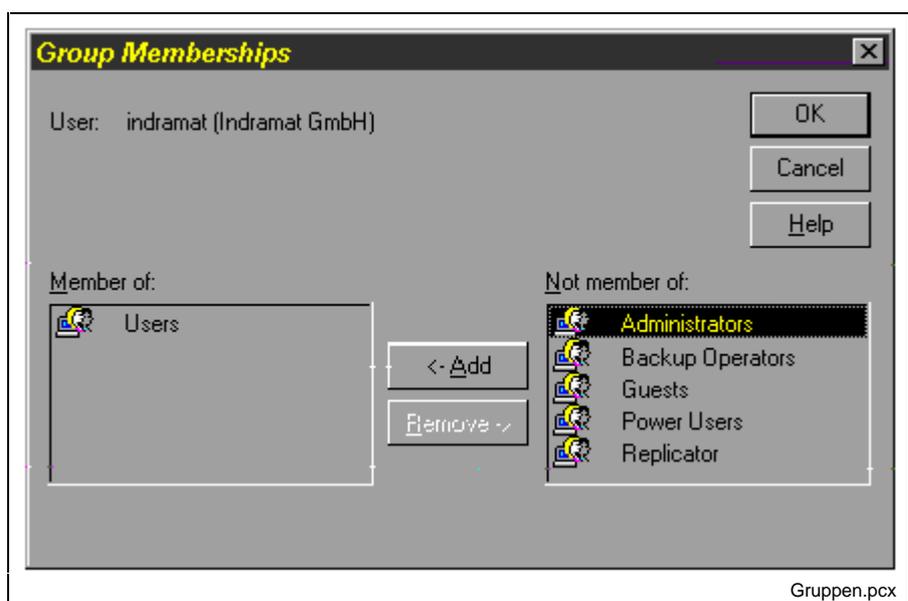


Figure 3-2: The window "group members"

4. Mark the group "Administrators" in the "Member of" field and confirm with the **Add** button.  
"Administrators" are displayed in the "Member of" field.
5. Close the window with **OK**.  
The window "user properties" is displayed.
6. Set the options as shown in the following figure and close the window with **OK**.

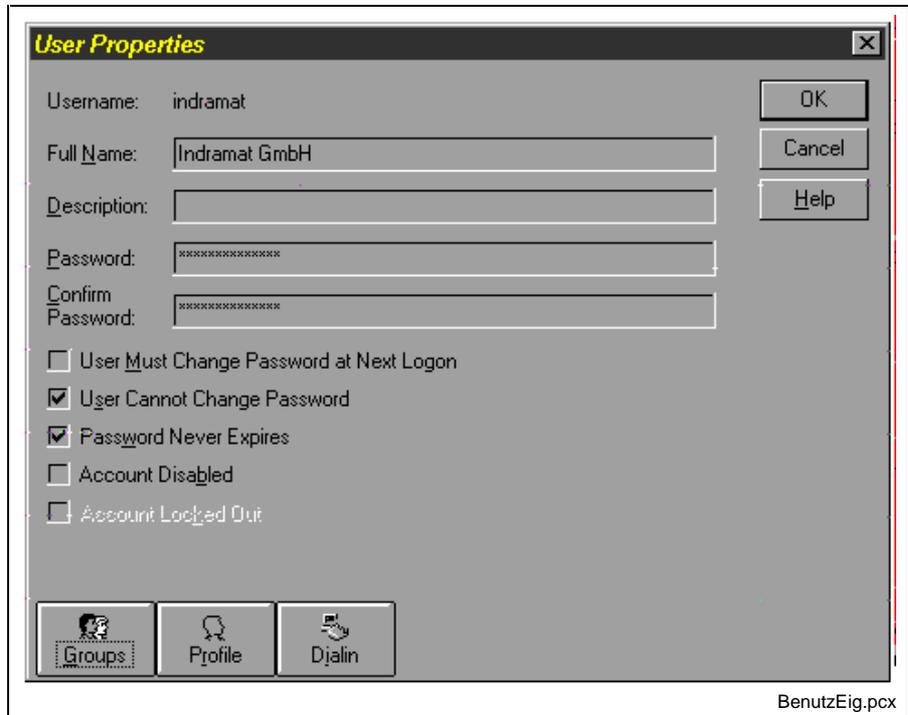


Figure 3-3: The dialog window "User Properties"

The window "User Properties" is displayed.

7. Exit the user manager with **User - Exit**.  
Now the user "Indramat" has administration rights. The user "Indramat" must log on the system now.
8. Select **Shut Down** in the start menu and "close all programs and log on as different user" in the following dialog window.

The user "Administrator" logs off and Windows NT is started with the user "Indramat".

## Execute Installation/Update

The installation or the update can only be executed if the user "Indramat" is logged on.

---

**Note:** For security reasons it is necessary to withdraw the administration rights of the user "Indramat" after the installation or the update.

---

## Withdraw Administrator Rights of the User "Indramat"

The user must log on as administrator in order to withdraw the administrator rights.

1. Log on as administrator as described before.

For user settings the Windows NT user manager must be started.

2. Start the user manager in the start menu **Programs - Administration (general) - User Manager**.

The users set up in the system can be viewed in the divided user manager window.

3. Select the user "Indramat" with a double click.

The window "user properties" is displayed.

4. Press the button **Groups**.

The window "group members" is displayed.

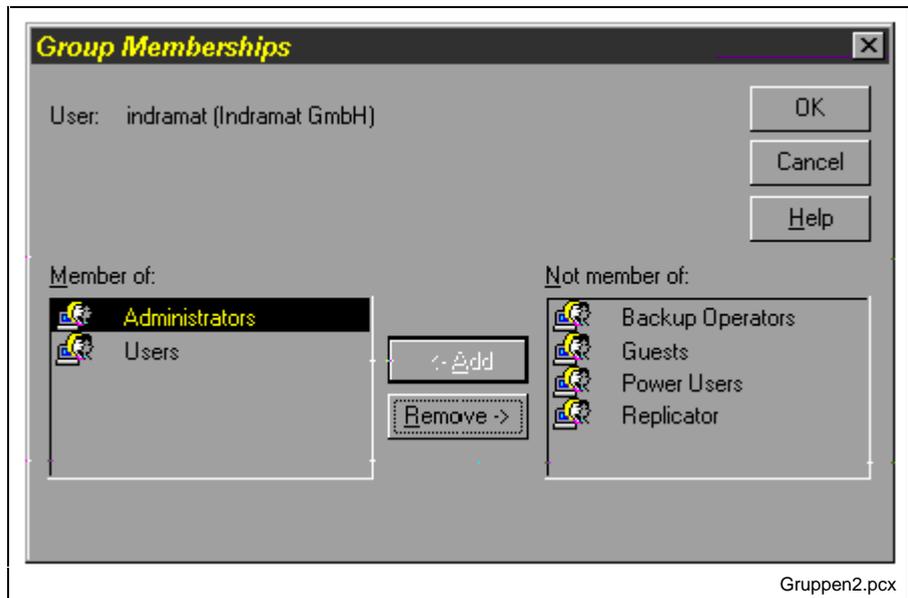


Figure 3-4: Remove "Administrators"

5. Mark the group "Administrators" in the "Member of" field and confirm with the **Remove** button.

"Administrators" are removed from the "Member of" field.

6. Close the window with **OK**.

The window "user properties" is displayed.

7. Close the window with **OK**.

The window "User Properties" is displayed.

8. Exit the user manager with **User - Exit**.

Now the user "Indramat" does not have administration rights. The user "Indramat" must log on the system now.

9. Select **Shut Down** in the start menu and "close all programs and log on as different user" in the following dialog window.

The user "Administrator" logs off and Windows NT is started with the user "Indramat".

## 3.2 Set WindowsNT System Properties

Before you start the installation some system settings are necessary for optimum interface functions.

### Performance characteristics

In order to guarantee best possible reaction time and a faultless operation of the function interface, the performance boost must be set for foreground applications.

1. Open **Control panel** in **Start - Settings - Control Panel**
2. Select **System**.
3. Select **None** for **Boost** in the **Performance** tab.

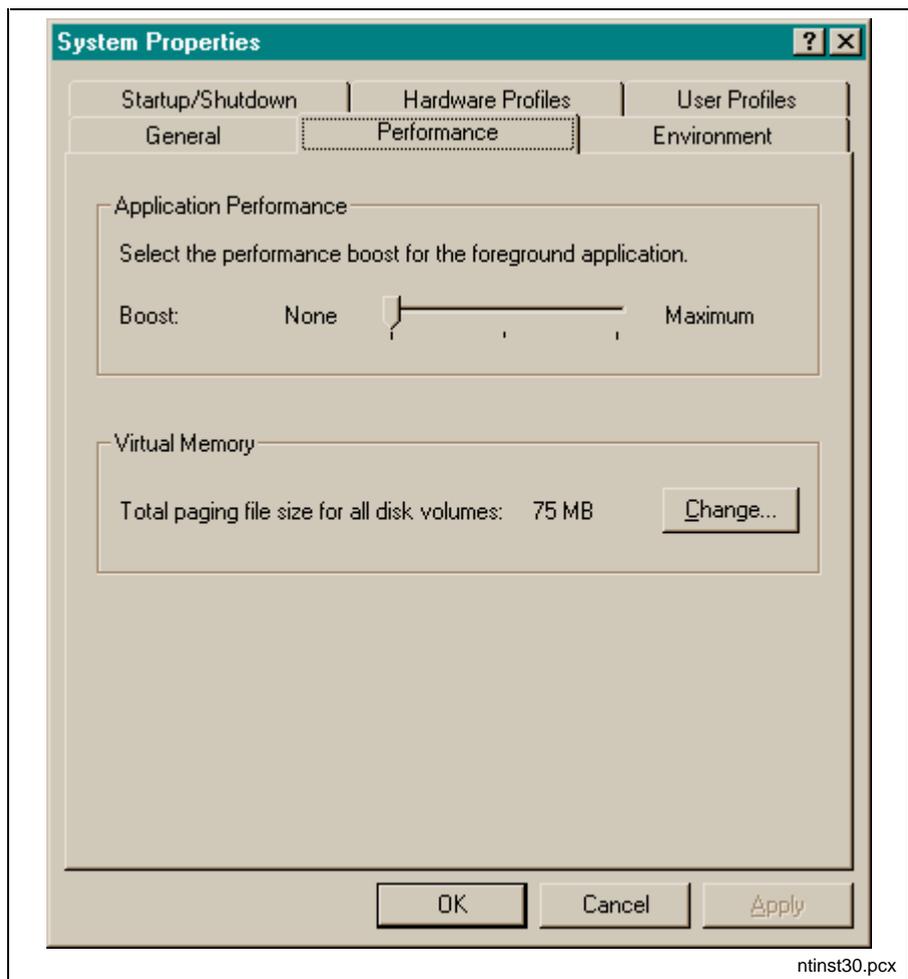


Figure 3-5: Selecting the WindowsNT System Properties "Performance"

### Adjust Date/Time

For data exchange between two PCs with different operating systems (DOS and WindowsNT) it is necessary that the time zone settings are identical on both PCs.

### DOS Box Environment

As the GUI software uses more than one file at the same time during operation, the value for files must be set to 30 or more (FILES=30) in the CONFIG.NT file. The CONFIG.NT file can be found in the \\WINNT\SYSTEM32 directory.



## Idle Sensitivity

In order to achieve a more efficient utilization of the CPU resources during the idling phases of a foreground program (DOS box), the idle sensitivity of the "\_default" file must be set to **high**. This selection provides less resources for the background programs. This means that as much CPU power as possible will be passed on to other active applications while the DOS box is idling.

1. Mark the "\_default" file in the `\\WINNT` directory in the WindowsNT explorer.
2. Click on the \_default file with the right mouse key and select "**Properties**".
3. Select the **Misc** tab and select "high" idle sensitivity.

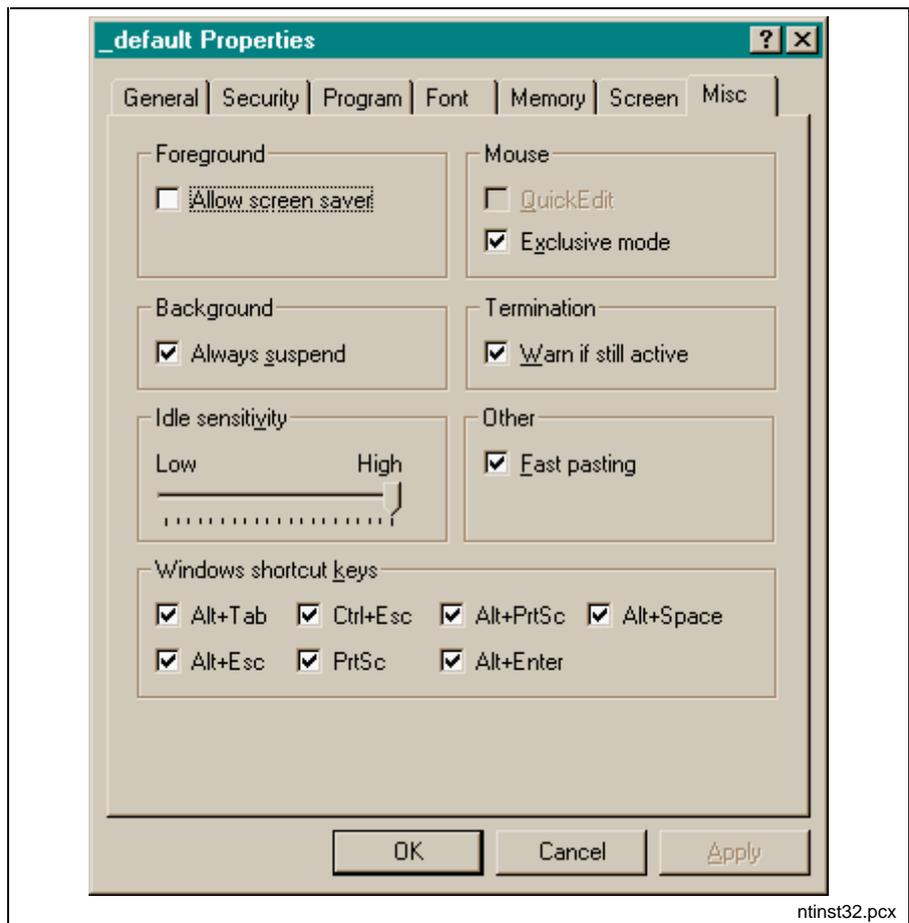


Figure 3-7: Settings in "\_default.pif": Idle Sensitivity

## Memory

For managing the XMS and EMS memory, the correct settings in the "Memory" tab are important.

⇒ Compare your system settings with the following figure.

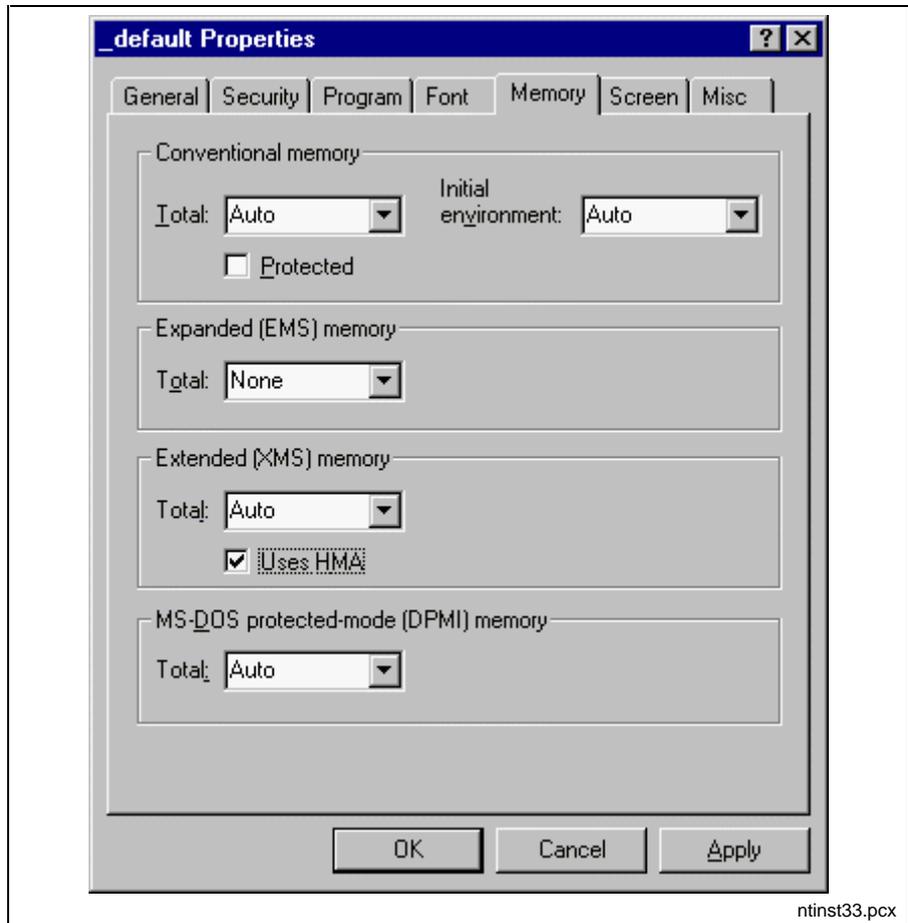


Figure 3-8: Settings in "\_default.pif": Memory

## Network services

If you have installed the network services that are provided by WindowsNT without actually being connected to a network, there will be a long waiting time (approximately 2-5 seconds) when you change menus. This is caused by system-internal time-outs. There are 2 possibilities to solve this problem:

⇒ Uninstall the network services according to the WindowsNT system description

- or -

⇒ Generate two hardware profiles (with and without network services) according to the WindowsNT system description. This will cause an option menu to be displayed upon the next system start from which you can select a configuration with network services or one without.

### 3.3 First Installation of MTC200/ISP200

**CD/Disk Installation** The installation can be executed with CD or with diskettes. For the following description drive "D" is used as an example for an installation from CD, and/or "A" is used for a floppy drive.

1. Insert the CD-ROM into the corresponding drive of your PC.

- or -

⇒ Insert the 1<sup>st</sup> diskette into the corresponding drive of your PC.

2. Click on **Execute** in the start menu.

3. Type the letter for the corresponding drive together with "\SETUP.EXE".

When you install your system from a CD-ROM, type, for example: "D:\DISK1\SETUP.EXE".

When you install your system from diskettes, type, for example: "A:\SETUP.EXE".

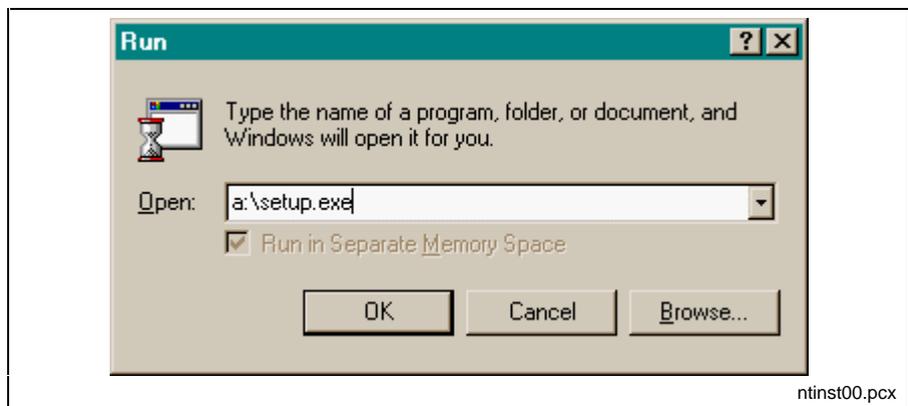


Figure 3-9: WindowsNT dialog box "Execute"

4. Click **OK** or confirm with **<Enter>**.

5. Select the language for the setup program.

The installation program is loaded.



Figure 3-10: The installation program is loaded.

Follow the following installation instructions now. Confirm with **Yes** or **Continue** until the selection between "New Installation" and "Update Installation" is displayed.

6. Select **New Installation** and **Continue**.

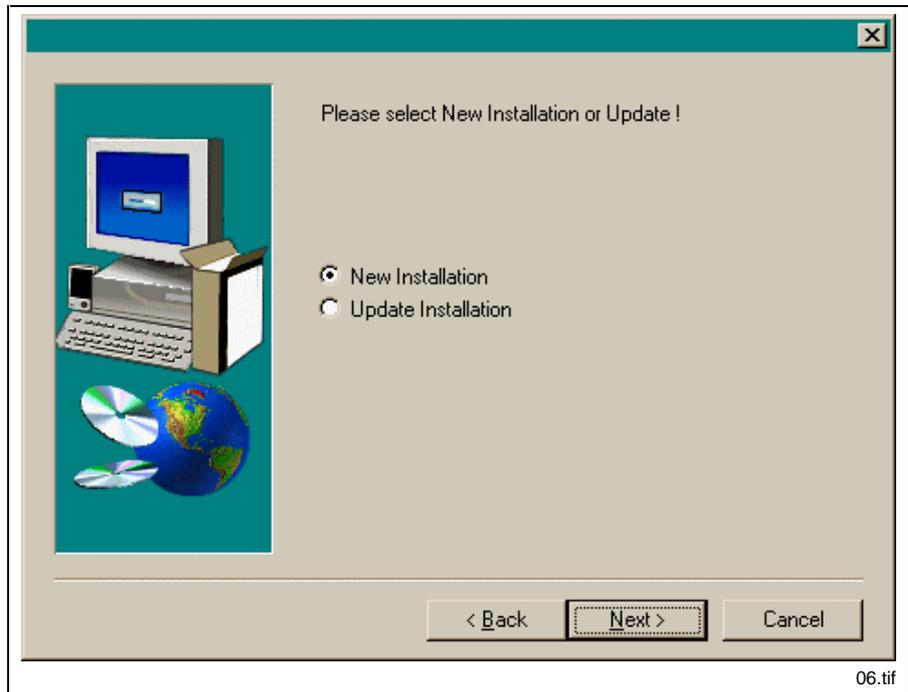


Figure 3-11: Installation selection

7. Enter name and company of the rightful user.
8. Enter the serial number of the software. The serial number is printed on your diskette set.

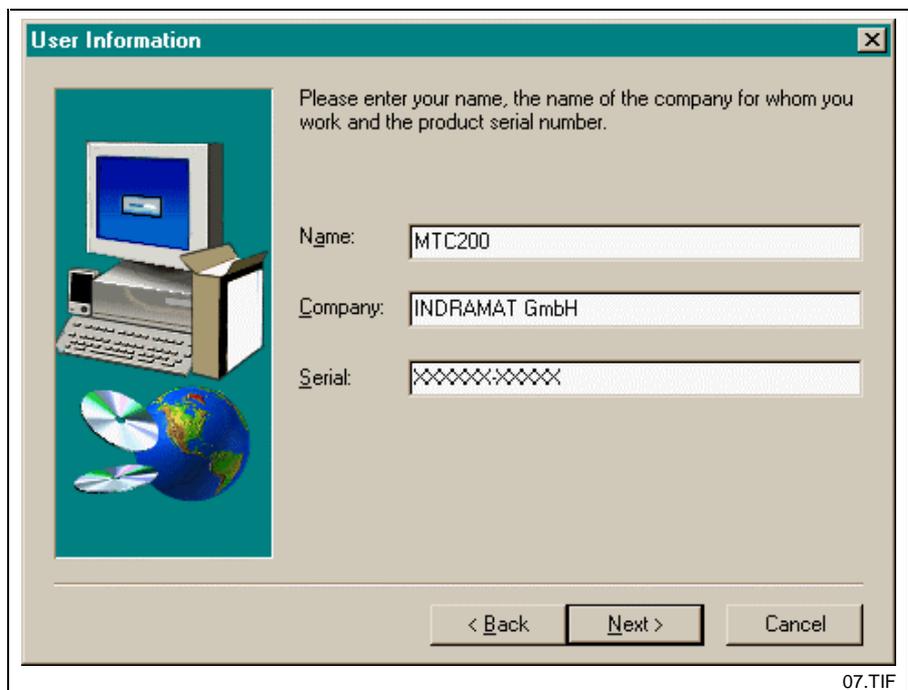


Figure 3-12: Company information and serial number

9. Select drive D: in the following dialog in order to install the interface.

---

**Note:** With a standard BTV, the hard disk is separated into two partitions (C: FAT file system, D: NTFS file system) The interface **must** be installed on drive D: for safety reasons.

---

10. Follow the further instructions of the setup program until you are prompted to enter the folder for the program symbols.

11. Enter a name for a new program folder or select an existing folder.

---

**Note:** Ensure that you do not select the Autostart group. User interface and system configurator cannot be started simultaneously.

---

12. Enter name and password of the administrator in the following dialog. Only the administrator can create new users.

---



**CAUTION**

⇒ Be sure that you always remember the exact entries you made for user name and password. If you forget the entries, you must clear the interface from the hard disk and install it again. In this process you will lose the user data. **In this case contact Rexroth Indramat's customer service, they can assist you in finding the password.**

---

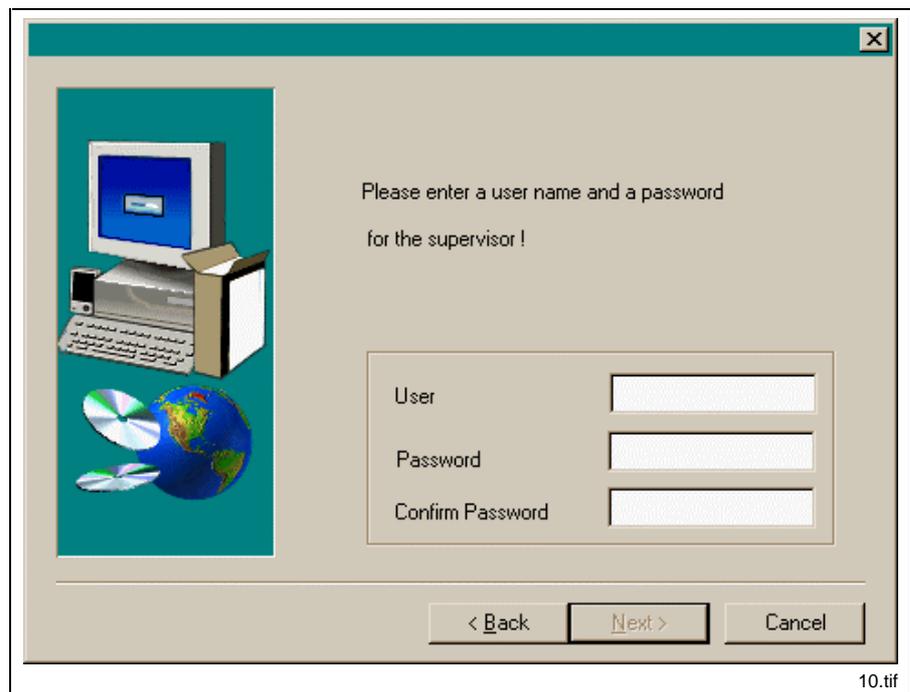


Figure 3-13: Enter user name and password of supervisor

13. Follow the further instructions of the setup program.

If all information has been entered, the copy process is started. With diskette installations you are prompted to change the diskettes.

**Message Integrator** During the installation the Message Integrator is installed. It is used for multilingual parameterization of message texts for general faults and sequential function chart messages. The texts are saved in a MS Access database. You are prompted if the Access runtime version is to be installed.

⇒ Select **Yes** if the complete version of MS Access is not installed on your system.

The runtime version of MS Access will be installed.

Once the installation is completed, you will be asked whether the installation program shall install icons on the desktop.

⇒ Select **Yes** if icons are to be created or select **No** if you don't want to display icons on the desktop. The programs can also be started without icons in the Windows start menu.

Then the installation is finished.

---

**Note:** You must restart Windows and/or your computer before you can use the program.

---

## Load Firmware/SPS Program

After the installation of the interface it is necessary to update the firmware. Proceed as described in chapter 5, 'Install/Update Firmware'.

Also the SPS program must be loaded into the control.

## 3.4 Update MTC200/ISP200 Installation

Before you start updating an existing older GUI version to this new version, you should remember the following points:

- An update to the current version is possible from any previous GUI installation.
- Restore all user data items (backups) that shall be converted for this new version in the existing old GUI form. To do this, use the archiving utilities of the old and currently installed GUI version. Under WindowsNT use the backup program. The restore is necessary because backups of earlier GUI versions can not be read and/or converted when they are retrieved or restored with the new version.
- When you update the GUI of a machine you must ensure that all components of the MTC200 system are equipped with the corresponding firmware. For information about the firmware version, press **<Ctrl>+<F1>** in menu item 7 of the GUI to print the firmware that is installed in the MTC200, RECO, BTM.

---

**Note:** For temporary files drive C: must have also have 30 MB free space in order to executed an update.

---

⇒ Check if enough free disk space is available. This can be checked in the Exploring menu **File**, menu item **Properties**.

For updating the MTC200/ISP200 insert the CD-ROM into the CD-ROM drive or disk 1 into the corresponding floppy drive of your PC.

Follow the installation instructions of the setup program and confirm with **YES** or **Continue** until the window for the installation selection is displayed. Click on **Update Installation** and confirm with **Continue**.

Follow the installation instructions.

When you use diskettes for the update installation, you will now be prompted to insert the corresponding diskettes.



**CAUTION**

⇒ A complete new installation becomes necessary if you abort the update installation during the copy process.

---

Once the installation has been completed, the system asks you whether the installation program shall update the icons on the desktop or create new once if there aren't any.

⇒ Select **Yes** if icons are to be created or select **No** if you don't want to display icons on the desktop.

The update is finished now.

---

**Note:** You must restart Windows and/or your computer before you can use the program.

---

## 3.5 Further Steps Before First Operation

### Execute System Configuration

### Load Firmware/SPS Program

After the new installation of the interface it is necessary to update the firmware. Proceed as described in chapter 5, 'Install/Update Firmware'.

Also the SPS program must be loaded into the control.



## 4 System Configurator (WindowsNT)

### 4.1 Utilization

The system configurator is an editor that is used for defining and listing units that are connected to the controller PC. The device addresses, the device type and the description of the communication path to the unit are employed for this purpose. The goal is to create an image of the unit structure (known as the system configuration) that is connected to the controller PC. The system configuration is stored in the controller PC.

Furthermore, the units can have basic features assigned, such as the allocation of a unit of the MTVNC type (virtual MTC for the "off line simulation function") to a unit of the MTC200-P or MTCNC type for the purpose of generating a simulation pair.

Function interface and user interface employ the system configuration for organizing the communication with the units that are connected to the controller PC.

### 4.2 Call System Configurator

After a new installation of the interface, the system configurator is called automatically the first time the interface is started.

In order to change an existing configuration call the system configurator in the start menu or with the icon on the desktop.

### 4.3 Menu Structure and Data Input

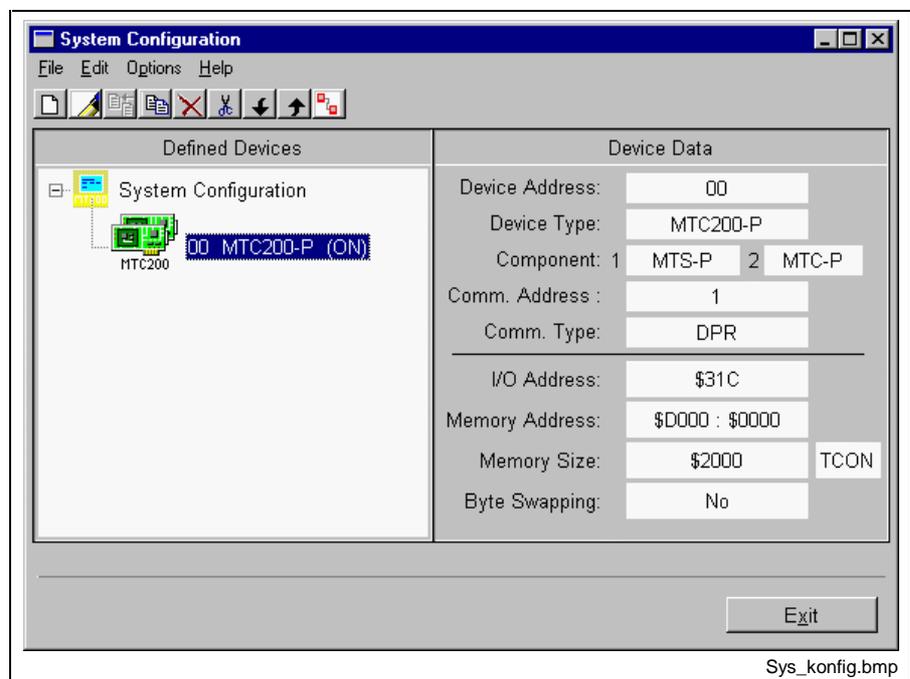


Figure 4-1: Screen System Configurator

- Screen Structure** The left-hand half of the screen contains a graphical representation of the configured units in a tree diagram. The data related to the unit that is selected in the tree is displayed in the right-hand half of the screen.
- Data input** An assistant guides the user during the processes of entering data, entering a new unit or editing an existing unit.
- Typical scenario** If, for example, an MTC200-R, address 0 selected at the address switch, is connected via RS232 to COM2 of the controller PC, this configuration must be entered in the system configurator, i.e. a unit of the MTC200-R type with device address 0, etc.
- If the physical configuration of a device is changed, the device must be adjusted/edited in the system configurator. If for example for device 0 the connection at the control PC is changed from COM2 to COM1, the device 0 must be edited in the system configurator, i. e. COM1 instead of COM2 must be entered.
- A detailed description of the system configurator is available under **DOK-CONTRL-SYS\*CON\*V19-AW01-EN-P**.

## 5 Install/Update Firmware

### 5.1 General Information

The controller components of the MTC200 product family are equipped with electrically erasable flash memories. Replacing EPROM chips is not necessary for installing or updating the firmware of these components. Instead, the firmware is simply loaded via the PC like any other software.

---

**Note:** This functionality only exists for Rexroth Indramat controller components. Third-party elements, such as fieldbus interfaces or network modules cannot be controlled via this function.

---

### 5.2 Before you install/update

Firmware programming is not a part of the installation program. This function can only be reached via the setup screen after the interface has completely been installed.

**Backup user data** Before loading the firmware, a backup of the user data is necessary, otherwise the user data will be overwritten.

**Language selection** You must have selected the language before you reach the setup menu. When the interface is installed, the German as well as the English version are installed. Select one of the versions.

For the installation of optional languages please refer to the delivered documentation.

### 5.3 FWA Programming

Firmware programming is a menu item of the setup. The setup menu is called with a key combination in the main menu.

#### Call FWA Programming

1. Confirm the key combination **<Shift> + <F1>** in the MUI main menu. The language selection screen is displayed.
2. Select the language. The setup menu is displayed.
3. Select **FWA programming**. The main screen of the FWA programming is called.



Figure 5-1: Setup menu in the interface

## Save Modifications

The menu item **Exit Setup** saves modifications and the MUI main menu is displayed.

**Note:** After extensive modifications, the initialization upon the termination may take some time.

## 5.4 Execute FWA Programming

The following screen is displayed when you select the **FWA programming** menu item:

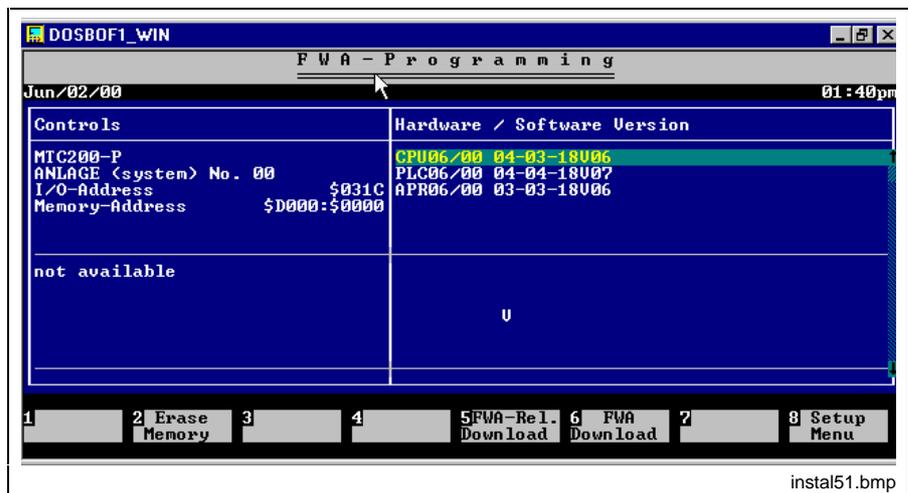


Figure 5-2: Firmware Programming

The softkeys allow to

- <F2> delete the user data from the individual modules
- <F5> load all cards in the system with the current firmware
- <F6> transfer the firmware after the selection of a card for one special card.

## Delete Memory

The function key **<F2> Delete Memory** allows to delete user data from the individual modules. The firmware data, however, is not deleted. This can be necessary for example in order to initialize the control.

1. Position the cursor on the module from which the user data is to be deleted.
2. Press **<F2> Delete Memory**.
3. Confirm the safety prompt with **<Y>**.

The control is shut down and the user data is deleted.

## Complete Firmware Download

The software is completely transferred to all modules of the control by selecting **<F5> FWA rel. download**.

1. Press **<F5> FWA rel. download**.

The file selection window is opened.

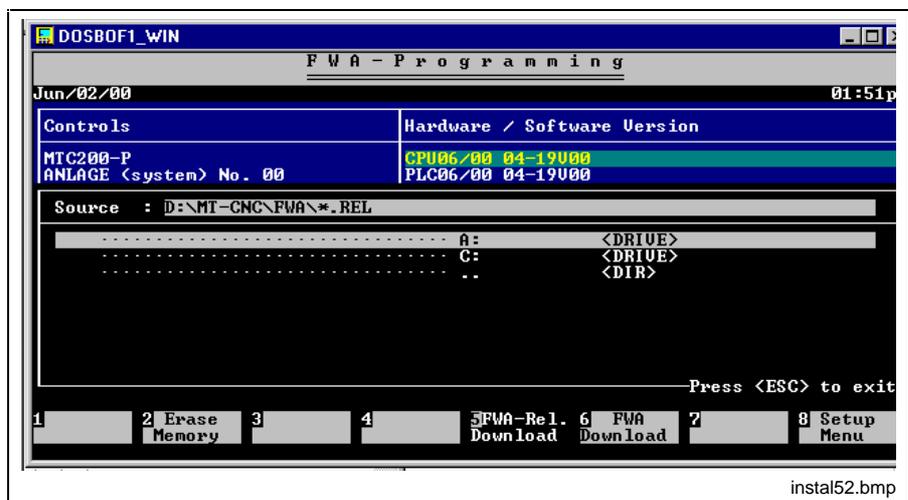


Figure 5-3: Complete firmware programming

As a default the firmware data in the default directory on the hard disk are proposed in the "source" window. **<Tab>** allows to switch to the drives/directories window.

You need the firmware diskette (SWD-MTC200-004-19VRS-NN-C1,44), that is a part of the SWA-MTC200 scope of delivery, if the data is not on the hard disk. If it is, you only need a firmware diskette if you wish to update the firmware.

2. Select the directory or drive where the firmware data is located and confirm with **<Enter>**.
3. Position the marking on the release and press **<Enter>**.

The following screen is displayed.

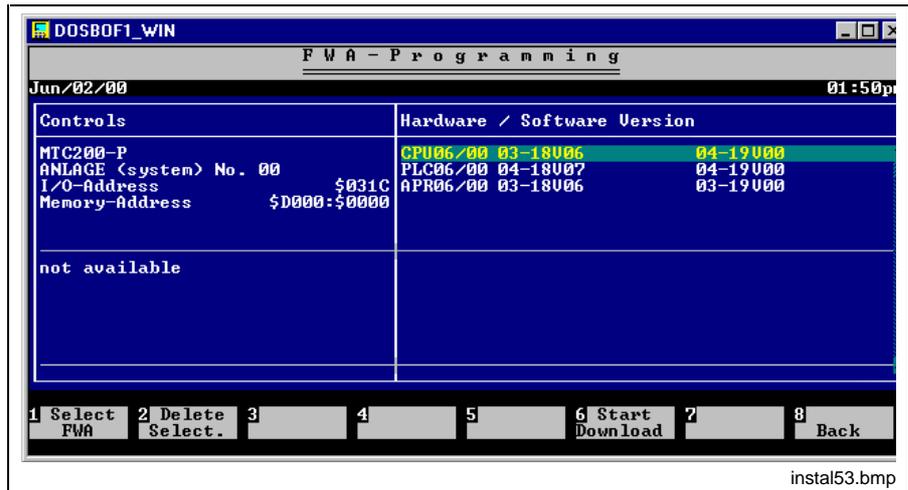


Figure 5-4: Transfer FWA programming data

The right-hand window now contains the following list:

At the left-hand side you can see the firmware that is currently loaded in the firmware. In the right-hand section you see the firmware version that shall be transferred.

Now it is still possible to change the selection. In order to exclude firmware from the selection or in order to add firmware, proceed as follows.

### Change selection

#### Delete selection

1. Position the marking on the module which is to be removed from the selection.
2. Press **<F2> Delete Selection.**  
The firmware list entry on the right is removed for the concerning module.

#### Add selection

1. Position the marking on the module which is to be added to the selection.
2. Press **<F1> FWA Selection.**  
The firmware version for the concerning module is displayed on the right side of the window.

### Start download

Press **<F6> Start download** to start the firmware download.



Figure 5-5: Confirmation FWA download

The transfer starts once you have answered the safety prompt with <Y>. The control is shut down, the data is transferred and the control is started again.

A progress control bar informs you about the progress of the procedure.

### Selective Firmware Download

The execution of a selective firmware download corresponds to the procedure of a complete firmware download that is described above. The difference is that the new firmware, however, is transferred to selected cards exclusively.

1. Press <F6> **FWA rel. download.**  
The file selection window is opened. At the right-hand side you can see the firmware that is currently loaded in the firmware.
2. Position the marking on the module for which the firmware is to be loaded.
3. Press <F1> **FWA Selection.**  
The file selection window is displayed.
4. Select the drive and the file as described under complete download.  
The selected version is transferred to the right side of the window.

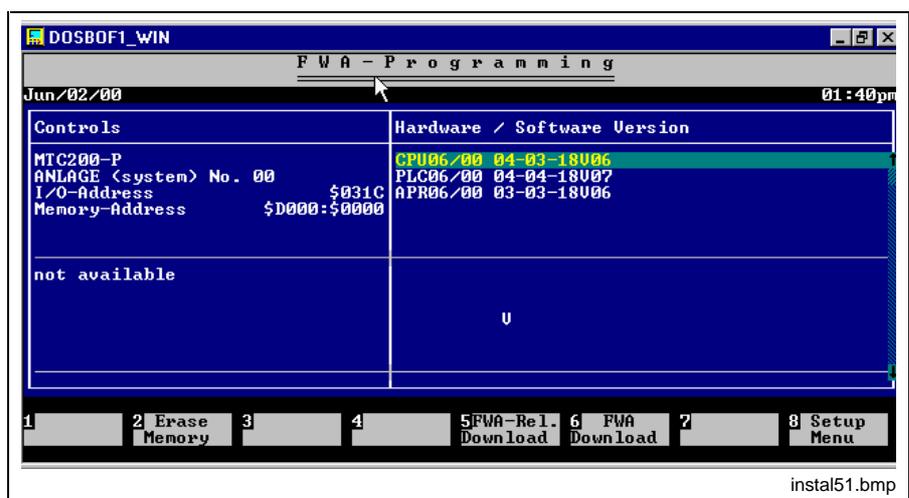


Figure 5-6: Firmware Programming

5. Execute the selection for all required modules.
6. Start the download with <F6> **Start download.**  
The transfer starts once you have answered the safety prompt with <Y>.

Then the firmware programming is finished.

---

**Note:** Transfer the backup user data to the control after the firmware programming is finished.

---

## 6 Install Languages

### 6.1 Overview Overview

After the installation the software can be supplemented with further languages for user prompting, message and help texts. It is distinguished between German/English and other languages.

- |                        |  |
|------------------------|--|
| <b>German/English</b>  | In general the software is delivered with the standard languages German and English. During the first installation both languages can be selected. If only one language has been selected, the other language can be installed later at any time. For this the diskettes/CD of the control software are necessary. |
| <b>Other languages</b> | Other languages (e. g. French, Swedish, ...) are available as an option. For the installation, diskettes with their own setup program are delivered.   |

### 6.2 Install Languages Under DOS

#### Subsequent Installation German/English

To install user prompting or help texts in German/English, insert setup diskette no. 1 in drive A or B of your PC (in this description we assume that you use drive A). Return to the main directory of your hard disk (e.g. 'CD\') and change to drive A (e.g. A: **<Enter>**).

- |                                     |  |
|-------------------------------------|--|
| <b>Call the setup program</b>       | 1. Enter 'INSTALL' and press <b>&lt;Enter&gt;</b> .<br>The installation program starts.                          |
| <b>Select installation language</b> | 2. Select the language for the setup program. (Default is German).<br>3. Press <b>&lt;Enter&gt;</b> to continue. |
- Once the language has been selected, the main installation selection screen appears. When the screen is opened for the first time, a window shows the version and a Copyright message regarding the installation program.
4. Press **<Enter>** to confirm this window.
  5. Select **Start** in the **Language** menu.
  6. Enter the directory where the GUI software is installed or confirm the default C:\MT-CNC with **<Enter>**.  
The installation program issues a message if the directory in the specified drive cannot be found or is not a GUI main directory.
  7. Select the language and the help texts which are to be installed and confirm with **<Enter>**.  
The files are decompressed and copied to the hard disk. Not all files will be used for a subsequent installation. According to the language, the system will ask for the necessary diskettes.
  8. Confirm the last dialog with **<Enter>** when all files have been copied.  
Then the installation is finished. The new language module is available in the MUI menu item **Setup** now.

#### Install Optional Language Modules

To install further languages, insert language module diskette no. 1 in drive A or B of your PC (in this description we assume that you use drive A). Return to the main directory of your hard disk (e.g. 'CD\') and change to drive A (e.g. A: **<Enter>**).

- Call the setup program** 1. Enter 'INSTALL' and press **<Enter>**.  
The installation program starts.
- Select installation language** 2. Select the language for the setup program. (Default is German).  
3. Press **<Enter>** to continue.
- Once the language has been selected, the main installation selection screen appears. When the screen is opened for the first time, a window shows the version and a Copyright message regarding the installation program.
4. Press **<Enter>** to confirm this window.  
5. Select **Start** in the **Language** menu.  
6. Confirm the default C:\MT-CNC with **Ok** or enter the directory where the GUI software is installed.  
The installation program issues a message if the directory in the specified drive cannot be found or is not a GUI main directory.
7. Answer the following questions in the dialog window.  
The files are decompressed and copied to the hard disk.
8. Confirm the last dialog with **<Enter>** when all files have been copied.  
Then the installation is finished. The new language module is available in the MUI menu item **Setup** now.

## 6.3 Install Languages Under WindowsNT

The installation of additional language modules is executed with diskettes. In this description we assume that you use diskette drive "A" for the installation.

1. Insert the 1<sup>st</sup> diskette into the corresponding drive of your PC.
2. Click on **Execute** in the start menu.
3. Type the letter for the corresponding drive together with "\SETUP.EXE".

For an installation from drive A: for example write "A:\SETUP.EXE".

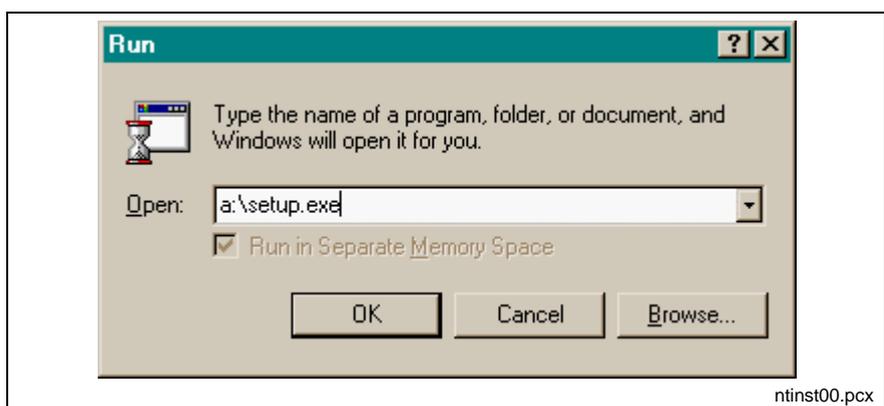


Figure 6-1: WindowsNT dialog box "Execute"

4. Click **OK** or confirm with **<Enter>**.
5. Select the language for the setup program.  
The installation program is loaded.

Follow the further instructions of the setup program. Confirm with **Yes** or **Continue**.

If all information has been entered, the copy process is started. During the installation you are prompted to change the diskettes.

When all files have been copied, a last dialog is displayed.

6. Click on **Exit**.

Then the installation is finished. The new language module is available in the MUI menu item **Setup** now.

## 6.4 Hungarian Character Set Under WindowsNT

After the installation and selection of the Hungarian language, the WindowsNT settings must be changed in order to use the Hungarian character set.

### DOSBOX

The following lines must be added in the CONFIG.NT file or in the corresponding startup file:

```
REM HUNGARIAN CHARACTER SET  
COUNTRY=036,850  
DEVICE=%SYSTEMROOT%\SYSTEM32\DISPLAY.SYS CON=EGA,,1
```

The CONFIG.NT file is located in the SYSTEM32 directory i.e. it depends on the name of the system directory e. g. C:\WINNT\SYSTEM32\CONFIG.NT.

As soon as the graphic mode is selected and then the text mode is selected again, some characters exceeding 80hex (extended characters) are not displayed correctly.

This software problem has not been solved yet but it can be avoided by using the "conversion table".

## WinNT

For operating WindowsNT with an external Hungarian keyboard, the keyboard and country settings must be changed in the control panel.

### Keyboard

The keyboard must be set to "Hungarian". Proceed as follows:

1. Double click on the "keyboard" symbol in the start menu -> **Settings** -> **Control Panel**.  
The dialog box "Keyboard Properties" is displayed.
2. Open the dialog box "Add Input Locale" with the **Add** button.
3. Select "Hungarian" from the list and close the dialog boxes.

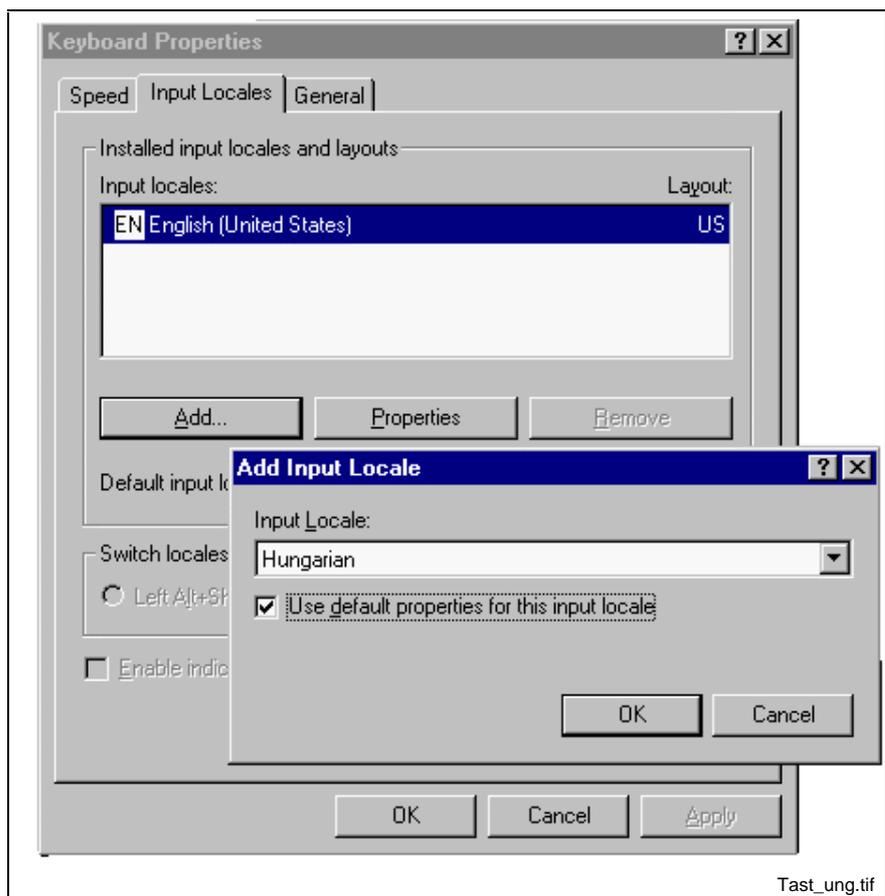


Figure 6-2: Set Hungarian keyboard

Now the Hungarian keyboard is set.

## Regional Settings

In order to display numbers, currency and time correctly, the regional settings must be adjusted.

1. Double click on the "regional settings" symbol in the start menu -> **Settings** -> **Control Panel**.  
The dialog box "Regional Settings Properties" is displayed.
2. Select "Hungarian" from the list field in the "regional settings" tab.



Figure 6-3: Regional settings

Now the regional settings are set.



# 7 Index

## D

Date and Time Properties 3-5  
DOS Box Environment 3-5

## F

Firmware 1-2  
Flash memories 5-1  
Function interface 4-1

## H

Hardware requirements 1-1

## M

MCI 1-3  
MTC200 1-2, 1-3, 4-1

## N

Network services 3-8

## R

Relocating the kernel mode drivers 3-6  
RS485 1-1

## S

Simulation 1-3, 4-1  
Software requirements 1-2  
System configurator 4-1, 4-2

## W

WindowsNT 1-2



## 8 List of Figures

- Figure 1-1: Hardware requirements 1-1
- Figure 1-2: Supported hardware types 1-2
- Figure 1-3: Software options 1-3
- Figure 2-1: Example of a help window 2-6
- Figure 2-2: Selection of interface parameters for MTC200-R 2-7
- Figure 2-3: Selection of interface parameters for MTC200 2-8
- Figure 3-1: The User Manager 3-2
- Figure 3-2: The window "group members" 3-2
- Figure 3-3: The dialog window "User Properties" 3-3
- Figure 3-4: Remove "Administrators" 3-4
- Figure 3-5: Selecting the WindowsNT System Properties "Performance"  
3-5
- Figure 3-6: REGEDT32.EXE: DisablePagingExecutive 3-6
- Figure 3-7: Settings in "\_default.pif": Idle Sensitivity 3-7
- Figure 3-8: Settings in "\_default.pif": Memory 3-8
- Figure 3-9: WindowsNT dialog box "Execute" 3-9
- Figure 3-10: The installation program is loaded. 3-9
- Figure 3-11: Installation selection 3-10
- Figure 3-12: Company information and serial number 3-10
- Figure 3-13: Enter user name and password of supervisor 3-11
- Figure 4-1: Screen System Configurator 4-1
- Figure 5-1: Setup menu in the interface 5-2
- Figure 5-2: Firmware Programming 5-2
- Figure 5-3: Complete firmware programming 5-3
- Figure 5-4: Transfer FWA programming data 5-4
- Figure 5-5: Confirmation FWA download 5-5
- Figure 5-6: Firmware Programming 5-5
- Figure 6-1: WindowsNT dialog box "Execute" 6-2
- Figure 6-2: Set Hungarian keyboard 6-4
- Figure 6-3: Regional settings 6-5



## 9 Kundenbetreuungsstellen - Sales & Service Facilities

### Deutschland – Germany

**vom Ausland:**  
from abroad:

(x) nach Landeskennziffer weglassen!!  
don't dial (x) after country code!

Vertriebsgebiet Mitte <input checked="" type="checkbox"/> SALES Germany Centre <input checked="" type="checkbox"/> Service  Rexroth Indramat GmbH Bgm.-Dr.-Nebel-Str. 2 97816 Lohr am Main  Telefon: +49 (0)9352/40-0 Telefax: +49 (0)9352/40-4885  <b>Kompetenz- Zentrum Europa</b>	<b>SERVICE</b>  <b>CALL ENTRY CENTER</b>  <b>MO – FR von / from 7 – 18</b>  <b>Tel. +49 (0) 9352 40 50 60</b> <u>service@indramat.de</u>	<b>SERVICE</b>  <b>HOTLINE</b>  <b>MO – FR von / from 17 - 07</b> + SA / SO  <b>Tel.: +49 (0)172 660 04 06</b> <b>oder / or</b> <b>Tel.: +49 (0)171 333 88 26</b>	<b>SERVICE</b>  <b>ERSATZTEILE / SPARES</b> verlängerte Ansprechzeit: - extended office time - ♦ nur an Werktagen - only on working days - ♦ von 15 -18 Uhr - from 15-18 o'clock -  <b>Tel. +49 (0) 93 52/40 42 22</b>
Vertriebsgebiet Süd <input checked="" type="checkbox"/> SALES Germany South <input checked="" type="checkbox"/> Service  Rexroth Indramat GmbH Ridlerstraße 75 80339 München  Telefon: +49 (0)89/540138-30 Telefax: +49 (0)89/540138-10 indramat.mue@t-online.de	Gebiet Südwest <input checked="" type="checkbox"/> SALES Germany South-West <input checked="" type="checkbox"/> Service  Mannesmann Rexroth AG Vertrieb Deutschland – VD-BI Geschäftsbereich Rexroth Indramat Regionalzentrum Südwest Ringstrasse 70 / Postfach 1144 70736 Fellbach / 70701 Fellbach  Tel.: +49 (0)711/57 61–100 Fax: +49 (0)711/57 61–125	Vertriebsgebiet Ost <input checked="" type="checkbox"/> SALES Germany East <input checked="" type="checkbox"/> Service  Rexroth Indramat GmbH Beckerstraße 31 09120 Chemnitz  Telefon: +49 (0)371/35 55-0 Telefax: +49 (0)371/35 55-333	Vertriebsgebiet Nord <input checked="" type="checkbox"/> SALES Germany North <input checked="" type="checkbox"/> Service  Mannesmann Rexroth AG Vertriebsniederlassung Region Nord Gesch.ber. Rexroth Indramat Walsroder Str. 93 30853 Langenhagen  Telefon: +49 (0) 511/72 66 57-0 Telefax: +49 (0) 511/72 66 57-93
Vertriebsgebiet West <input checked="" type="checkbox"/> SALES Germany West <input checked="" type="checkbox"/> Service  Mannesmann Rexroth AG Vertrieb Deutschland Regionalzentrum West Borsigstrasse 15 D - 40880 Ratingen  Telefon: +49 (0)2102/409-0 Telefax: +49 (0)2102/409-406	Vertriebsgebiet Mitte <input checked="" type="checkbox"/> SALES Germany Centre <input type="checkbox"/> Service  Mannesmann Rexroth AG Gesch.ber. Rexroth Indramat Lilistraße 14-18 63067 Offenbach  Telefon: +49 (0) 69/82 00 90-0 Telefax: +49 (0) 69/82 00 90-80	Vertriebsgebiet Ost <input checked="" type="checkbox"/> SALES Germany East <input type="checkbox"/> Service  Mannesmann Rexroth AG GB Rexroth Indramat GmbH Holzhäuser Str. 122 04299 Leipzig  Telefon: +49 (0)341/86 77-0 Telefax: +49 (0)341/86 77-219	Vertriebsgebiet Nord <input checked="" type="checkbox"/> SALES Germany North <input type="checkbox"/> Service  Rexroth Indramat GmbH Kieler Straße 212 22525 Hamburg  Telefon: +49 (0)40/85 31 57-0 Telefax: +49 (0)40/85 31 57-15

Kundendienstniederlassungen in Deutschland - Service agencies in Germany

## Europa – Europe

**vom Ausland:** (x) nach Landeskennziffer weglassen,  
**from abroad:** don't dial (x) after country code,

0 nach Landeskennziffer mitwählen (Italien)!  
 dial 0 after country code (Italy)!

Austria <input checked="" type="checkbox"/> SALES <input type="checkbox"/> Service Mannesmann Rexroth Ges.m.b.H. Gesch.ber. Rexroth Indramat Hägelingasse 3 A - 1140 Wien Telefon: +43 (0)1/9852540-400 Telefax: +43 (0)1/9852540-93	Austria <input checked="" type="checkbox"/> SALES <input checked="" type="checkbox"/> Service Mannesmann Rexroth G.m.b.H. Gesch.ber. Rexroth Indramat Industriepark 18 A - 4061 Pasching Telefon: +43 (0)7221/605-0 Telefax: +43 (0)7221/605-21	Belgium <input checked="" type="checkbox"/> SALES <input checked="" type="checkbox"/> Service Mannesmann Rexroth N.V.-S.A. Gesch.ber. Rexroth Indramat Industrielaan 8 B-1740 Ternat Telefon: +32 (0)2/5830719 Telefax: +32 (0)2/5830731 E-mail: indramat@rexroth.be	Denmark <input checked="" type="checkbox"/> SALES <input checked="" type="checkbox"/> Service BEC AS Zinkvej 6 DK-8900 Randers Telefon: +45 (0)87/11 90 60 Telefax: +45 (0)87/11 90 61
Czech Rep. <input checked="" type="checkbox"/> SALES <input type="checkbox"/> Service Mannesmann-Rexroth, spol.s.r.o. Hviezdoslavova 5 CS - 627 00 Brno Telefon: +420 (0)5/48 126 358 Telefax: +420 (0)5/48 126 112	England <input checked="" type="checkbox"/> SALES <input checked="" type="checkbox"/> Service Mannesmann Rexroth Ltd. Rexroth Indramat Division Broadway Lane, South Cerney GB - Cirencester, Glos GL7 5UH Telefon: +44 (0)1285/863000 Telefax: +44 (0)1285/863030	Finland <input checked="" type="checkbox"/> SALES <input type="checkbox"/> Service Rexroth Mecman Oy Rexroth Indramat division Ansatie 6 SF-017 40 Vantaa Telefon: +358 (0)9/84 91-11 Telefax: +358 (0)9/84 91-13 60	France <input checked="" type="checkbox"/> SALES <input checked="" type="checkbox"/> Service Mannesmann Rexroth S.A. Division Rexroth Indramat Parc des Barbanners 4, Place du Village F-92632 Gennevilliers Cedex Telefon: +33 (0)141 47 54 30 Telefax: +33 (0)147 94 69 41 Hotline: +33 (0)6 08 33 43 28
France <input checked="" type="checkbox"/> SALES <input type="checkbox"/> Service Mannesmann Rexroth S.A. Division Rexroth Indramat 270, Avenue de Lardenne F - 31100 Toulouse Telefon: +33 (0)5 61 49 95 19 Telefax: +33 (0)5 61 31 00 41	France <input checked="" type="checkbox"/> SALES <input type="checkbox"/> Service Mannesmann Rexroth S.A. Division Rexroth Indramat 91, Bd. Irène Joliot-Curie F - 69634 Vénissieux – Cedex Telefon: +33 (0)4 78 78 53 65 Telefax: +33 (0)4 78 78 53 62	Hungary <input checked="" type="checkbox"/> SALES <input type="checkbox"/> Service Mannesmann Rexroth Kft. Angol utca 34 H - 1149 Budapest Telefon: +36 (1) 364 00 02 Telefax: +36 (1) 383 19 80	Italy <input checked="" type="checkbox"/> SALES <input checked="" type="checkbox"/> Service Mannesmann Rexroth S.p.A. Divisione Rexroth Indramat Via G. Di Vittoria, 1 I - 20063 Cernusco S/N.MI Telefon: +39 02/92 36 52 70 Telefax: +39 02/92 36 55 12
Italy <input checked="" type="checkbox"/> SALES <input checked="" type="checkbox"/> Service Mannesmann Rexroth S.p.A. Divisione Rexroth Indramat Via Borgomanero, 11 I - 10145 Torino Telefon: +39 011/7 50 38 11 Telefax: +39 011/7 71 01 90	Italy <input checked="" type="checkbox"/> SALES <input type="checkbox"/> Service Mannesmann Rexroth S.p.A. Divisione Rexroth Indramat Via del Progresso, 16 (Zona Ind.) I - 35020 Padova Telefon: +39 049/8 70 13 70 Telefax: +39 049/8 70 13 77	Italy <input checked="" type="checkbox"/> SALES <input type="checkbox"/> Service Mannesmann Rexroth S.p.A. Divisione Rexroth Indramat Via Mascia, 1 I - 80053 Castellamare di Stabia NA Telefon: +39 081/8 71 57 00 Telefax: +39 081/8 71 68 85	Italy <input checked="" type="checkbox"/> SALES <input type="checkbox"/> Service Mannesmann Rexroth S.p.A. Divisione Rexroth Indramat Viale Oriani, 38/A I - 40137 Bologna Telefon: +39 051/34 14 14 Telefax: +39 051/34 14 22
Netherlands <input checked="" type="checkbox"/> SALES <input type="checkbox"/> Service Hydraudyne Hydrauliek B.V. Kruisbroeksestraat 1 (P.O. Box 32) NL - 5281 RV Boxtel Telefon: +31 (0)411/65 19 51 Telefax: +31 (0)411/65 14 83 e-mail: indramat@hydraudyne.nl	Netherlands <input type="checkbox"/> SALES <input checked="" type="checkbox"/> Service Hydrocare B.V. Kruisbroeksestraat 1 (P.O. Box 32) NL - 5281 RV Boxtel Telefon: +31 (0)411/65 19 51 Telefax: +31 (0)411/67 78 14	Norway <input checked="" type="checkbox"/> SALES <input type="checkbox"/> Service Rexroth Mecman AS Divisione Rexroth Indramat Berghagan 1 or: Box 3007 N -1405 Ski-Langhus N -1402 Ski Telefon: +47 (0)64 86 41 00 Telefax: +47 (0)64 86 90 62	Poland <input checked="" type="checkbox"/> SALES <input type="checkbox"/> Service Mannesmann Rexroth Sp.zo.o. Biuro Poznan ul. Dabrowskiego 81/85 PL - 60-529 Poznan Telefon: +48 061/847 67 99 Telefax: +48 061/847 64 02
Rumania <input checked="" type="checkbox"/> SALES <input type="checkbox"/> Service Mannesmann Rexroth Sp.zo.o. Str. Drobety nr. 4-10, app. 14 RO - 70258 Bucuresti, Sector 2 Telefon: +40 (0)1/210 48 25 +40 (0)1/210 29 50 Telefax: +40 (0)1/210 29 52	Russia <input checked="" type="checkbox"/> SALES <input checked="" type="checkbox"/> Service Tschudnenko E.B. Arsenia 22 RUS - 153000 Ivanovo Rußland Telefon: +7 093/223 96 33 oder/or +7 093/223 95 48 Telefax: +7 093/223 46 01	Spain <input checked="" type="checkbox"/> SALES <input checked="" type="checkbox"/> Service Mannesmann Rexroth S.A. División Rexroth Indramat Centro Industrial Santiga Obradors s/n E-08130 Santa Perpetua de Mogoda Barcelona Telefon: +34 937 47 94 00 Telefax: +34 937 47 94 01	Spain <input checked="" type="checkbox"/> SALES <input checked="" type="checkbox"/> Service Goimendi S.A. División Rexroth Indramat Jolastokieta (Herrera) Apartado 11 37 E - 20017 San Sebastian Telefon: +34 9 43/40 01 63 Telefax: +34 9 43/39 17 99
Sweden <input checked="" type="checkbox"/> SALES <input checked="" type="checkbox"/> Service Rexroth Mecman Svenska AB Rexroth Indramat Division Varuvägen 7 S - 125 81 Stockholm Telefon: +46 (0)8/727 92 00 Telefax: +46 (0)8/647 32 77	Slovenia <input checked="" type="checkbox"/> SALES <input checked="" type="checkbox"/> Service Rexroth Indramat elektromotorji d.o.o. Otoki 21 SLO - 64 228 Zelezniki Telefon: +386 64/61 73 32 Telefax: +386 64/64 71 50	Switzerland-East- <input checked="" type="checkbox"/> SALES <input checked="" type="checkbox"/> Service Mannesmann Rexroth Schweiz AG Gesch.ber. Rexroth Indramat Gewerbestraße 3 CH - 8500 Frauenfeld Telefon: +41 (0)52/720 21 00 Telefax: +41 (0)52/720 21 11	Switzerland-West- <input checked="" type="checkbox"/> SALES <input type="checkbox"/> Service Mannesmann Rexroth Suisse SA Département Rexroth Indramat Rue du village 1 CH - 1020 Renens Telefon: +41 (0)21/632 84 20 Telefax: +41 (0)21/632 84 21
Turkey <input checked="" type="checkbox"/> SALES <input checked="" type="checkbox"/> Service Mannesmann Rexroth Hidropar A..S. Fevzi Cakmak Cad No. 3 TR - 34630 Sefaköy Istanbul Telefon: +90 212/541 60 70 Telefax: +90 212/599 34 07			

Europäische Kundendienstniederlassungen (ohne Deutschland) - European Service agencies (without Germany)

## Africa, Asia, Australia – incl. Pacific Rim

**vom Ausland:** (x) nach Landeskenziffer weglassen!  
**from abroad:** don't dial (x) after country code!

<b>Australia</b> <input checked="" type="checkbox"/> SALES <input checked="" type="checkbox"/> Service AIMS - Australian Industrial Machinery Services Pty. Ltd. Unit 3/45 Horne ST Campbellfield, VIC 3061 AUS - Melbourne Telefon: +61 (0)3/93 59 02 28 Telefax: +61 (0)3/93 59 02 86	<b>Australia</b> <input checked="" type="checkbox"/> SALES <input type="checkbox"/> Service Mannesmann Rexroth Pty. Ltd. No. 7, Endeavour Way Braeside Victoria, 31 95 AUS – Melbourne Telefon: +61 (0)3/95 80 39 33 Telefax: +61 (0)3/95 80 17 33 Email: mel@rexroth.com.au	<b>China</b> <input checked="" type="checkbox"/> SALES <input checked="" type="checkbox"/> Service Rexroth International Trade (Shanghai) Co., Ltd. Wai Gaoqiao Free Trade Zone No.122, Fu Te Dong Yi Road Shanghai 200131 - P.R.China Telefon: +86 21/58 66 30 30 Telefax: +86 21/58 66 55 23	<b>China</b> <input checked="" type="checkbox"/> SALES <input type="checkbox"/> Service Mannesmann Rexroth (China) Ltd. 15/F China World Trade Center 1, Jianguomenwai Avenue Beijing 100004, P.R.China Telefon: +86 10/65 05 03 80 Telefax: +86 10/65 05 03 79
<b>China</b> <input checked="" type="checkbox"/> SALES <input type="checkbox"/> Service Mannesmann Rexroth (China) Ltd. A-5F., 123 Lian Shan Street Sha He Kou District Dalian 116 023, P.R.China Telefon: +86 411/46 78 930 Telefax: +86 411/46 78 932	<b>China</b> <input checked="" type="checkbox"/> SALES <input type="checkbox"/> Service Mannesmann Rexroth (China) Ltd. Guangzhou Repres. Office Room 1014-1016, Metro Plaza, Tian He District, 183 Tian He Bei Rd Guangzhou 510075, P.R.China Telefon: +86 20/8755-0030 +86 20/8755-0011 Telefax: +86 20/8755-2387	<b>Hongkong</b> <input checked="" type="checkbox"/> SALES <input checked="" type="checkbox"/> Service Rexroth (China) Ltd. 1/F., 19 Cheung Shun Street Cheung Sha Wan, Kowloon, Hongkong Telefon: +852 22 62 51 00 Telefax: +852 27 41 33 44	
<b>India</b> <input checked="" type="checkbox"/> SALES <input checked="" type="checkbox"/> Service Mannesmann Rexroth (India) Ltd. Rexroth Indramat Division Plot. 96, Phase III Peenya Industrial Area IND - Bangalore - 560058 Telefon: +91 (0)80/8 39 73 74 Telefax: +91 (0)80/8 39 43 45	<b>India</b> <input checked="" type="checkbox"/> SALES <input type="checkbox"/> Service Mannesmann Rexroth (India) Ltd. Rexroth Indramat Division Plot. A-58, TTC Industrial Area Thane Turbhe Midc Road Mahape Village IND - Navi Mumbai - 400 701 Telefon: +91 (0)22/7 61 46 22 Telefax: +91 (0)22/7 68 15 31	<b>Indonesia</b> <input checked="" type="checkbox"/> SALES <input type="checkbox"/> Service PT. Rexroth Wijayakusuma Jl. Raya Bekasi Km 21 Pulogadung RI - Jakarta Timur 13920 Telefon: +62 21/4 61 04 87 +62 21/4 61 04 88 Telefax: +62 21/4 60 01 52	<b>Japan</b> <input type="checkbox"/> SALES <input checked="" type="checkbox"/> Service Rexroth Automation Co., Ltd. Service Center Japan Yutakagaoka 1810, Meito-ku, NAGOYA 465-0035, Japan Telefon: +81 (0)52/777 88 41 +81 (0)52/777 88 53 +81 (0)52/777 88 79 Telefax: +81 (0)52/777 89 01
<b>Japan</b> <input checked="" type="checkbox"/> SALES <input checked="" type="checkbox"/> Service Rexroth Automation Co., Ltd. Rexroth Indramat Division 1F, I.R. Building Nakamachidai 4-26-44, Tsuzuki-ku YOKOHAMA 224-0041, Japan Telefon: +81 (0)45/942 72 10 Telefax: +81 (0)45/942 03 41	<b>Korea</b> <input checked="" type="checkbox"/> SALES <input checked="" type="checkbox"/> Service Mannesmann Rexroth-Korea Ltd. Rexroth Indramat Division 1500-12 Dadae-Dong- Saha-Ku Pusan, 604-050 Republic of South Korea Telefon: +82 (0)51/2600 741 Telefax: +82 (0)51/2600 747	<b>South Africa</b> <input checked="" type="checkbox"/> SALES <input checked="" type="checkbox"/> Service TECTRA Automation (Pty) Ltd. 28 Banfield Road, Industria North RSA - Maraisburg 1700 Telefon: +27 (0)11/673 20 80 Telefax: +27 (0)11/673 72 69	<b>Taiwan</b> <input checked="" type="checkbox"/> SALES <input type="checkbox"/> Service Rexroth Uchida Co., Ltd. No.1, Tsu Chiang Street Tu Cheng Ind. Estate Taipei Hsien, Taiwan, R.O.C. Telefon: +886 2/2 68 13 47 Telefax: +886 2/2 68 53 88

Kundendienstniederlassungen in Afrika, Asien, Australien, Pazifik - Service agencies in Africa, Asia, Australia, Pacific Rim

## Nordamerika – North America

USA <input checked="" type="checkbox"/> SALES <input checked="" type="checkbox"/> Service Mannesmann Rexroth Corporation Rexroth Indramat Division 5150 Prairie Stone Parkway USA - Hoffman Estates, IL 60192-3707 Telefon: +1 847/6 45 36 00 Telefax: +1 847/6 45 62 01 service@indramat.com <b>Competence Centre America</b>	USA <input checked="" type="checkbox"/> SALES <input checked="" type="checkbox"/> Service Mannesmann Rexroth Corporation Rexroth Indramat Division Central Region Technical Center USA - Auburn Hills, MI 48326 Telefon: +1 248/3 93 33 30 Telefax: +1 248/3 93 29 06	USA <input checked="" type="checkbox"/> SALES <input checked="" type="checkbox"/> Service Mannesmann Rexroth Corporation Rexroth Indramat Division Southeastern Technical Center 3625 Swiftwater Park Drive USA - Suwanee Georgia 30174 Telefon: +1 770/9 32 32 00 +1 770/9 32 19 03	USA <input checked="" type="checkbox"/> SALES <input type="checkbox"/> Service Mannesmann Rexroth Corporation Rexroth Indramat Division Northeastern Technical Center 99 Rainbow Road USA - East Granby, Connecticut 06026 Telefon: +1 860/8 44 83 77 +1 860/8 44 85 95
USA <input checked="" type="checkbox"/> SALES <input type="checkbox"/> Service Mannesmann Rexroth Corporation Rexroth Indramat Division Charlotte Regional Sales Office 14001 South Lakes Drive USA - Charlotte, North Carolina 28273 Telefon: +1 704/5 83 97 62 +1 704/5 83 14 86	USA Service HOTLINE  <b>+1-800-860-1055</b>  - 7 days / 24hrs -		Canada <input checked="" type="checkbox"/> SALES <input checked="" type="checkbox"/> Service Basic Technologies Corporation Burlington Division 3426 Mainway Drive Burlington, Ontario Canada L7M 1A8 Telefon: +1 905/335 55 11 Telefax: +1 905/335-41 84

## Südamerika – South America

Argentina <input checked="" type="checkbox"/> SALES <input type="checkbox"/> Service Mannesmann Rexroth S.A.I.C. Division Rexroth Indramat Acassusso 48 41/7 RA - 1605 Munro (Buenos Aires) Telefon: +54 (0)11/4756 01 40 Telefax: +54 (0)11/4762 6862 e-mail:mannesmann@impsat1.com.ar	Argentina <input checked="" type="checkbox"/> SALES <input checked="" type="checkbox"/> Service NAKASE Servicio Tecnico CNC Calle 49, No. 5764/66 RA - 1653 Villa Balester Prov. - Buenos Aires Telefon: +54 (0) 11/4768 36 43 Telefax: +54 (0) 11/4768 24 13 e-mail: nakase@usa.net nakase@infovia.com.ar	Brazil <input checked="" type="checkbox"/> SALES <input checked="" type="checkbox"/> Service Mannesmann Rexroth Automação Ltda. Divisão Rexroth Indramat Rua Georg Rexroth, 609 Vila Padre Anchieta BR - 09951-270 Diadema-SP [ Caixa Postal 377 ] [ BR-09901-970 Diadema-SP ] Telefon: +55 (0)11/745 90 60 +55 (0)11/745 90 70 Telefax: +55 (0)11/745 90 50 e-mail: awittwer@rexroth.com.br	Brazil <input checked="" type="checkbox"/> SALES <input checked="" type="checkbox"/> Service Mannesmann Rexroth Automação Ltda. Divisão Rexroth Indramat R. Dr.Humberto Pinheiro Vieira, 100 Distrito Industrial BR - 89220-390 Joinville - SC [ Caixa Postal 1273 ] Tel./Fax: +55 (0)47/473 58 33 Mobil: +55 (0)47 974 66 45 e-mail: prochnow@zaz.com.br
Mexico <input checked="" type="checkbox"/> SALES <input checked="" type="checkbox"/> Service Mannesmann Rexroth Mexico S.A. de C.V. Calle Neptuno 72 Unidad Ind. Vallejo MEX - 07700 Mexico, D.F. Telefon: +52 5 754 17 11 +52 5 754 36 84 +52 5 754 12 60 Telefax: +52 5 754 50 73 +52 5 752 59 43 e-mail: gsoria@rexroth-mexico.com			

Kundendienstniederlassungen in Nord-/ Südamerika - Service agencies in North- & South- America

# 10 Revisions to this Document

Despite careful creation and proofreading of this document, we cannot guarantee that it is absolutely free of mistakes. It can also be possible that the most recent modifications and/or supplements of the product described here could not be included in the document. If you notice any incorrect or missing specifications in this description, or if you have any suggestions about improving this publication, do not hesitate to tell us about it on this form. Fax a copy of this form to the address below - and you will help us to keep this document up to date.

Thank you very much for your cooperation.



**Rexroth Indramat GmbH**  
**+49 (0) 93 52/40-44 65**

From:	_____
Company:	_____
Department.:	_____
Name:	_____

### Document information:

**Title:** \_\_\_\_\_

**Type code:** \_\_\_\_\_

### Where did you notice faults? (Chapter, Page, Fig., Table)

- ① Chapter:\_\_\_\_\_ Page:\_\_\_\_\_ Fig.: \_\_\_\_\_ Table: \_\_\_\_\_
- ② Chapter:\_\_\_\_\_ Page:\_\_\_\_\_ Fig.: \_\_\_\_\_ Table: \_\_\_\_\_
- ③ Chapter:\_\_\_\_\_ Page:\_\_\_\_\_ Fig.: \_\_\_\_\_ Table: \_\_\_\_\_

### What is the problem? (please explain in detail what is wrong or what is missing)

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---



# Notes

288418

Printed in Germany