
COROS LS-C ME

Operator Control with COROS LS-C

under Windows 2000/XP

COROS LS-C ME
Version 7.0

Manual for the Migration from
COROS LS-C to COROS LS-C ME

Manual Edition 12/2006

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This manual describes the migration from **COROS LS-C** to **COROS LS-C ME**, version 7.0.

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1 Introduction

1.1 The Purpose of this Manual

You use the COROS LS-C operator control and process monitoring system and have decided to migrate your well-proven COROS operating concept into the open Windows environment? Then this Migration Manual is the right book for you.

When you go from COROS LS-C to COROS LS-C ME you don't have to make any changes to your original system - neither to the operator control concept nor to the S5 control program.

This manual assists the COROS LS-C user with step-by-step instructions in converting his "old" COROS system into the "new" COROS system running under Windows 2000 or Windows XP. The manual tells you:

- how to make a copy of the original COROS project data
- how to set up VDU terminals on Windows computers
- how to transfer and activate the COROS project on the VDU master and slave terminals
- how to replace the CP communication processor in the S5 host programmable controller

2 Welcome to COROS LS-C ME

2.1 What is COROS LS-C ME?

COROS LS-C ME migrates your complete COROS operator control and monitoring project - including all configuration data - into a Windows 2000/XP platform.

Invisible to the user, COROS LS-C ME ports the operating system and hardware base of your COROS system from the iRMX86/iRMX286 environment to Windows.

You can then run your COROS project on a Windows server or workstation and thus fully benefit from the advantages of open data communication and networking.

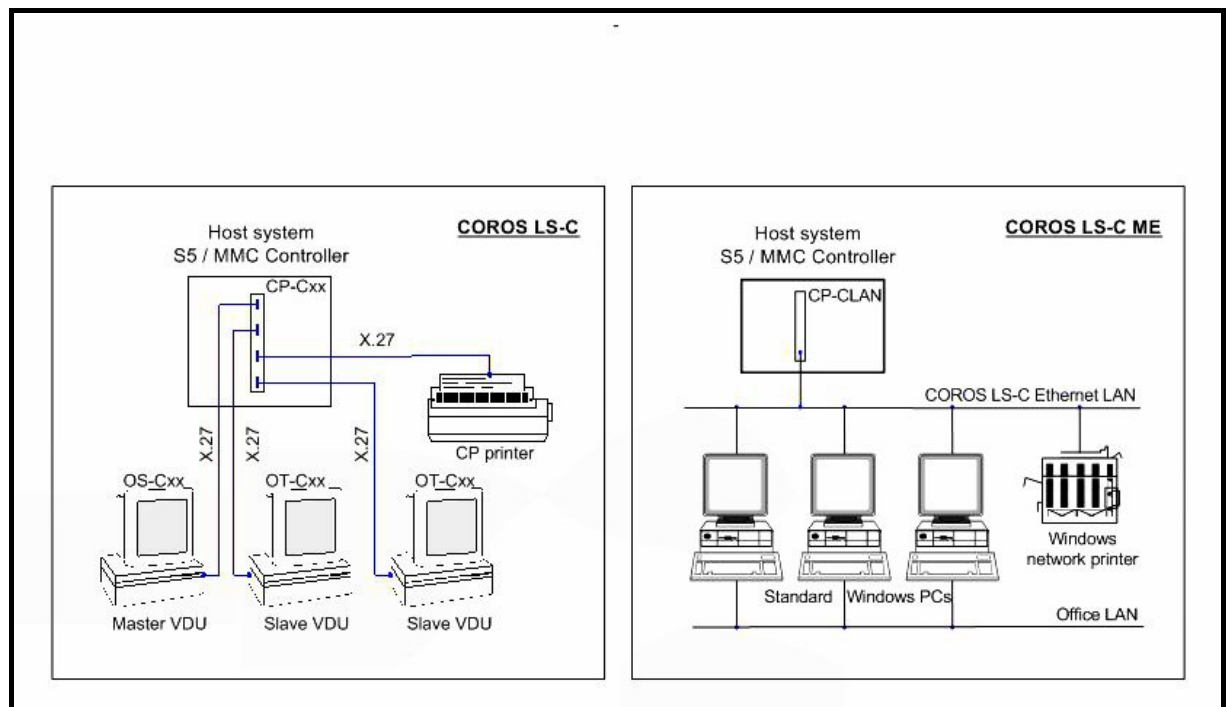


Figure 1: System architecture COROS LS-C ↔ COROS LS-C ME

2.2 Scope of Delivery

When you order the COROS LS-C ME migration system you receive the following components:

- CP-C30/ME or CP-C30/ME FO communications processor
(provided the CP module was ordered from IPKS GmbH and not directly from the manufacturer of the CP module, the company sympat GmbH)
- System CD-ROM "COROS LS-C ME"
- Dongle to prevent unlicensed use
- Documentation (contained in PDF files located in the **doc** folder of the System CD-ROM)

2.3 System Documentation on CD-ROM

The **doc** folder on the System CD-ROM contains the two PDF documents mentioned above. Inserting the System CD-ROM in the CD-ROM drive of a Windows computer gives you direct access to this folder so that you can read the documents on the screen or have them printed out on the connected printer.

The **doc** folder is automatically copied to your computer's hard disk in the course of the COROS LS-C ME installation procedure where it can be accessed at any time.

2.4 COROS LS-C ↔ COROS LS-C ME: The Differences

	COROS LS-C OS-C10 / OS-C30	COROS LS-C ME
Operating system	iRMX 86 / iRMX 286	Windows 2000 / XP
File system	RMX file system	Windows file system
Communication with the S5/MMC control system	Serial CP-Cxx on X.27 standard to 4 VDU terminals max.	CP-C30/ME or CP-C30/ME FO over LAN interface to 4 Windows computers max. (VDU = Windows application)
VDU hardware	Proprietary graphics and communication hardware; 486er PC with 2 specific cards for graphic processing and communication	Commercial-off-the-shelf Windows computer; office computer, industrial computer in 19" housing, notebook computer, also for service tasks and remote operation
Printer	Serial to CP-Cxx (message recording) and/or parallel to VDU	Standard Windows printer, also for interconnected system
Keyboard	Serial connection on X.27 standard	Industrial keyboard, serial with X.27/V.24 converter; Web-emulated keyboard, also WebPLT
Network capability	Not possible	Ethernet LAN
ADD-ONs	Not possible	AC-SeMa fault management WebPLT keyboard emulation

3 The COROS LS-C ME System

3.1 The Concept

In COROS LS-C ME the entire system code, which establishes the connection between the user level and the subordinate hardware, is ported to the Windows 2000/XP environment.

This way and invisible to the user, the operating system and hardware base of the COROS-LS-C system is migrated to the Windows environment.

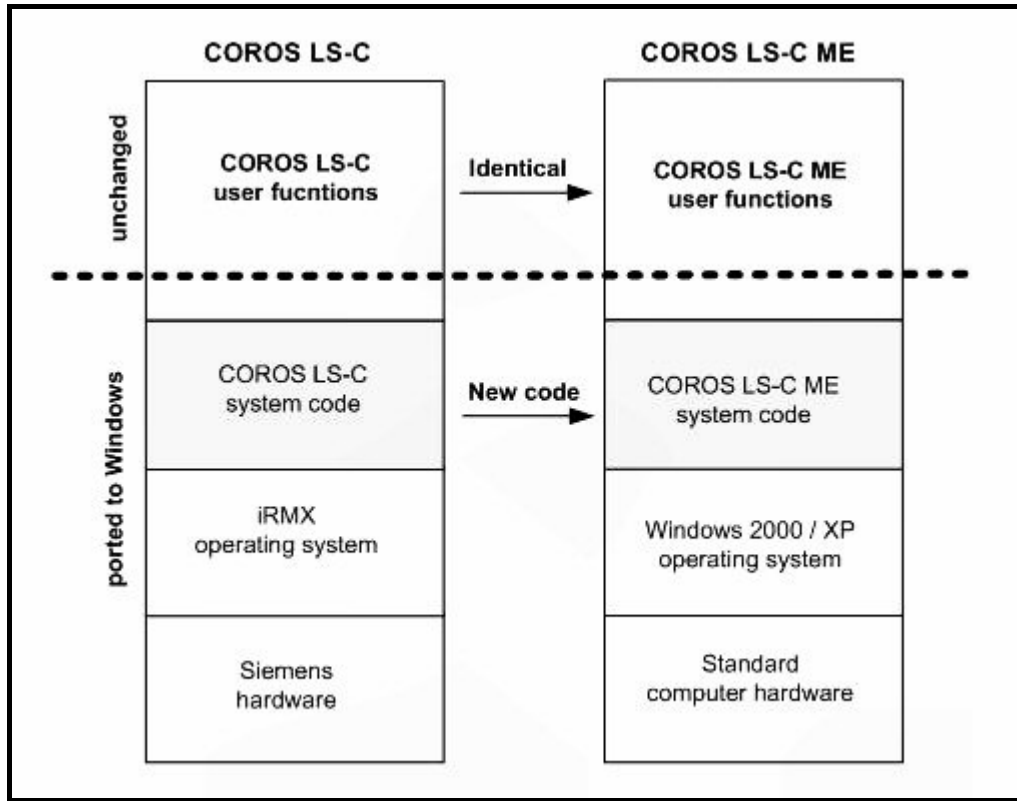


Figure 2: Porting the code to the Windows platform

In addition to migrating the COROS LS-C code to the Windows platform, some functions formerly processed by the CP-Cxx communications processor in the S5/MMC system have been transferred to the Windows computer.

All COROS functions thus run in the Windows 2000/XP environment and can use standard interfaces for their communication with external systems.

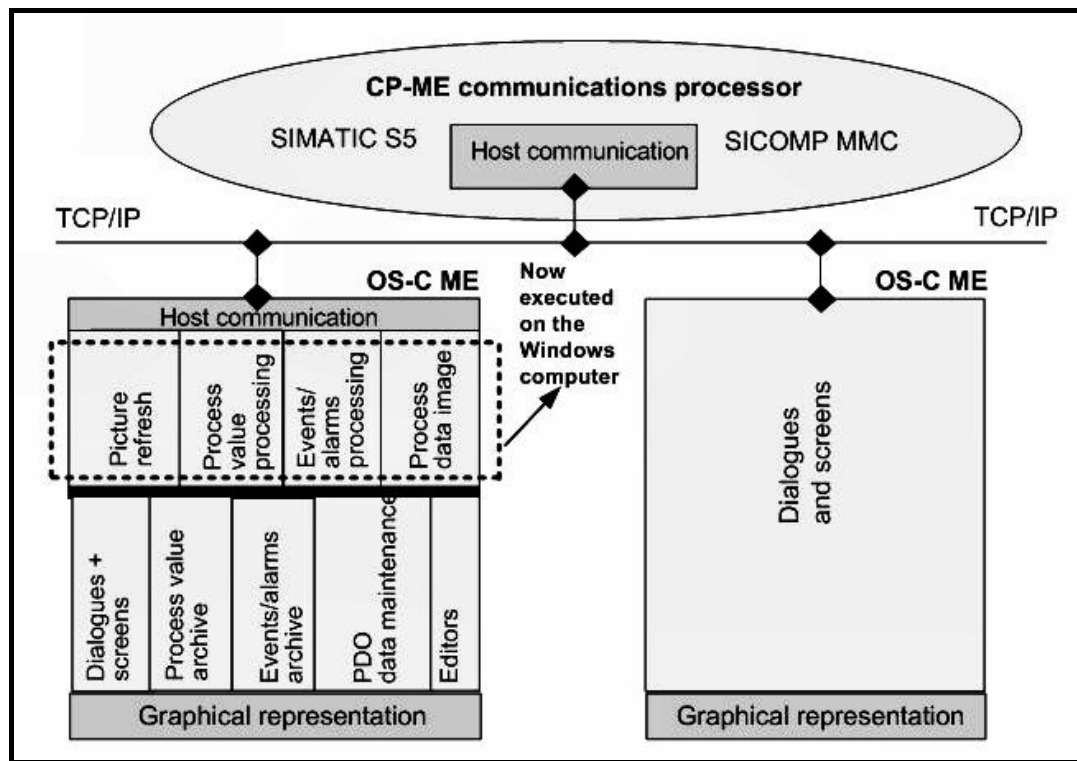


Figure 3: COROS LS-C ME software architecture

The project files ported to the Windows system are fully compatible with the former RMX versions with regard to file name and contents.

The CP-C30/ME communications processor installed in the SIMATIC S5 or MMC racks handles the data transfer with the communication system (IPKS CPDIENST) of the VDU master terminal over a LAN connection.

The VDU master terminal can communicate with up to 3 VDU slave terminals. The master terminal handles the communication between the control system and the slave terminals.

In the migrated system, a VDU is represented by a normal Windows application on the COROS-LS-C ME computer.

3.2 VDU

In the COROS LS-C ME system, the VDU operator terminal is a commercial-off-the-shelf (COTS) computer using the Windows 2000 / Windows XP operating system (please also see chapter 4 "System Requirements").

You can also use industrial computers in 19" housing and notebook computers. The latter are particularly suitable for remote operation and servicing.

The VDU itself is represented by a Windows program that can be run simultaneously with other Windows programs on the computer. To run COOS LS-C ME, the Windows computer does not require any special plug-in cards for graphic processing and communication as the predecessor system COROS LS-C did.

A communications processor, the CP-C30/ME (see section 3.3), establishes the connection to the S5 programmable controller. The CP module can communicate with up to 4 VDUs over a LAN interface (1 master VDU and 3 slave VDUs).

3.3 CP-C30/ME Communications Processor

The CP-C30/ME communications processor is the connecting link between the COROS operator stations (from now on referred to as "VDUs") and the actual process, i.e. the S5 programmable controller or MMC control system. The CP-C30/ME replaces the earlier processor versions CP-C10, CP-C20 and CP-C30.

3.3.1 What Distinguishes the CP-C30/ME from its Predecessors?

Compared to its predecessors CP-C10/C20/C30, the processor card designed for COROS LS-C ME offers

- a higher computing speed
- more reliability due to the use of the LINUX operating system
- a more flexible connection to the VDUs

Functions formerly kept in the CP firmware and executed by CP processors, are now processed by the Windows computer. This way they can be accessed more easily and also allow the exchange of data with external systems. (see Figure 3: COROS LS-C ME software architecture)

3.3.2 Communication with the VDUs

The CP-C30/ME processor directly communicates only with the **IPKS CP Dienst** utility of the master computer. Its data traffic with the other VDUs is organized by the master computer.

With COROS LS-C ME, the connection of the VDUs to the CP card is no longer established by means of serial interfaces but by means of an Ethernet LAN interface (10/100Base-TX or 100Base-FX).

3.3.3 CP-ME Versions

The CP-ME module is available in two different versions.

CP-C30/ME	Standard version comprising an Ethernet interface for the connection of a copper LAN cable.
CP-C30/ME FO	This version comprises two interfaces: one interface for a copper LAN cable and one for the connection of an optical fibre cable. You can choose which Ethernet LAN connection to use by setting the jumpers accordingly.

3.3.4 Description of the CP Modules

Section 5.6 of this guide book describes how to replace the existing CP module with the new module and which hardware settings must be observed. It should provide you with sufficient information for the successful change from COROS LS-C to COROS LS-C ME system and the use of the new CP module.

In addition, the **doc** folder on the LS-C ME system CD-ROM (→ section 2.3) offers you the complete manual as supplied by the manufacturer of the CP module ("CP-C30/ME / CP-C30/ME FO: Module for the Communication with VDU ME Operator Units under SIMATIC S5"). Please note that this manual is in German only.

3.4 Operator-Process Communication

3.4.1 Mouse Instead of Light Pen

In the new COROS LS-C ME system, the light pen of the former COROS LS-C system is replaced by a mouse device.

3.4.2 Mouse Device Instead of Touch Screen

Operation by touch screen is replaced by operation by mouse device.

3.4.3 Process Control Keyboard

The process control keyboard is serially connected to the Windows VDU terminal using an X27/V24 converter.

3.4.4 Reset and Boot Up

During the boot up of the COROS computer the key combinations **SHIFT+E** and **SHIFT+M** are active and they remain active for a period of up to 10 seconds afterwards. The key combination **SHIFT+M** terminates the VDU, and the key combination **SHIFT+E** loads the EEPROM menu. These functions correspond to those of the former COROS LS-C system.

3.4.5 Web Emulation with webPLT

Using the IPKS product **webPLT** you will be able to emulate your familiar process control keyboard by displaying up to 200 freely assignable keys in the Web browser of your choice.

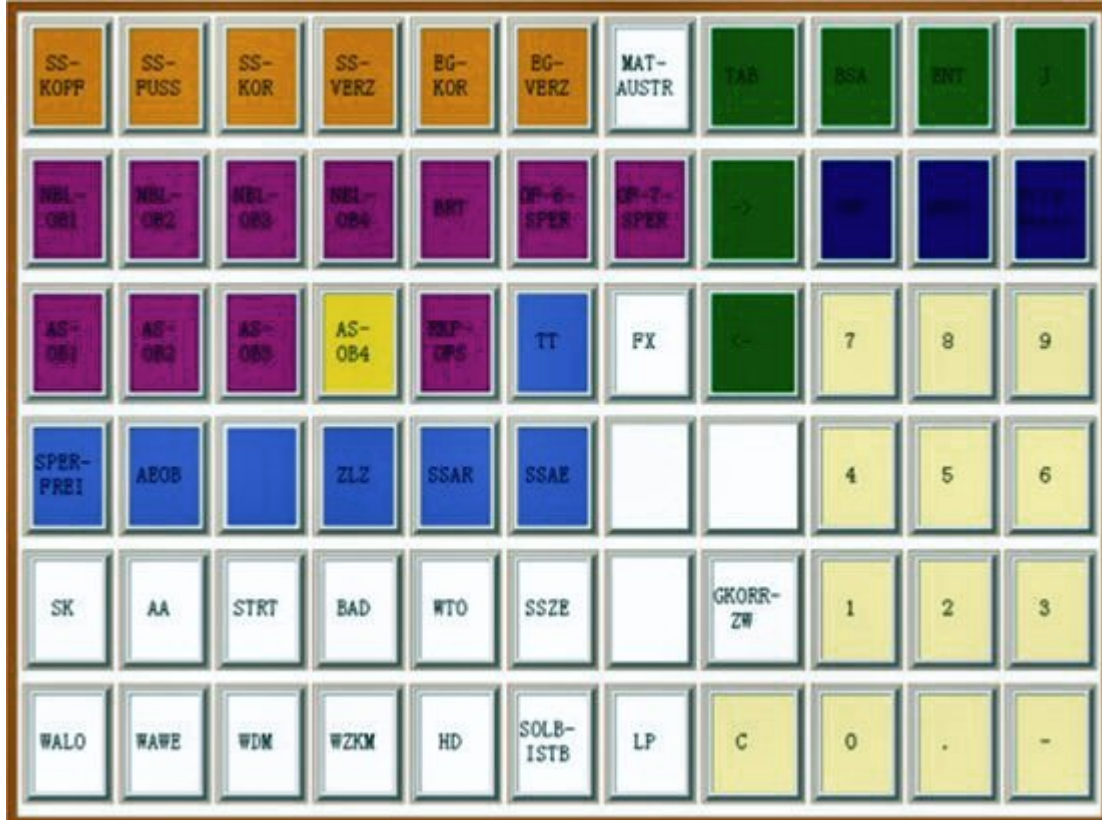


Figure 4: Emulated keyboard with freely assignable keys

4 System Requirements

4.1 Hardware Requirements

One computer for every VDU terminal

MASTER terminal

Processor:	Pentium
Main memory:	512 MB min.
Speed:	1 GHz min.
Network card:	Ethernet, 100 Mbits/s

SLAVE terminal

Processor:	Pentium
Main memory:	256 MB min.
Speed:	500 MHz min.
Network card:	Ethernet, 100 Mbits/s

Local network

We recommend reserving a separate LAN for the COROS system. This network card should have a minimum data throughput of 100Mbits/s.

Printer

If your system is equipped with an alarm log printer, please make sure that it is a line printer (this is the only restriction regarding the use of printers). Thanks to the Windows 2000/XP environment you can connect network printers as well as local printers to the VDU terminals.

How to execute direct S5 print jobs using the CP-SEND command (DR type) is described in detail in section 6.2.

CP-C30/ME or CP-S30/ME FO in the control system (S5/MMC)

A COROS system with up to 4 VDU terminals, one of them set up as the master station, requires *one* CP-C30/ME processor (or the FO version). The CP-C30/ME processor communicates with the master terminal.

4.2 Software Requirements

Windows 2000 or Windows XP operating system

on the VDU computers.

Settings: screen resolution 1280 * 1024

Other settings are described in section 5.4, "Setting Up the Windows Operating System on the VDU Terminals".

COROS LS-C ME Software

and 1 dongle for the master VDU

Version of the S5 handling blocks

The function blocks FB 200 to FB 202 (SEND, START and RECEIVE) in the S5 programmable controller must be of version 5.62.

5 How to Migrate Your COROS System

5.1 Procedure

To change from your COROS LS-C running in an iRMX environment to COROS LS-C ME running in a Windows environment, please follow the procedure shown in Figure 5:

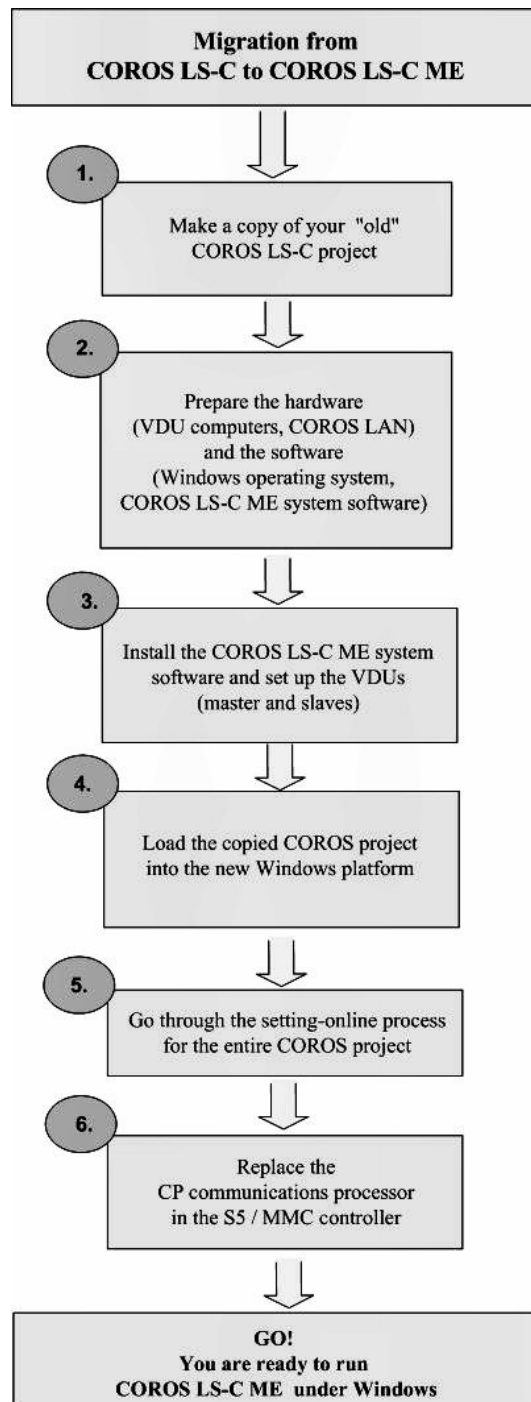


Figure 5: COROS LS-C to COROS LS-C ME: The procedure

5.2 How to Make a Copy of Your "Old" COROS LS-C Project

Transfer the files of the RMX operating system to the DOS environment so that from the DOS partition you can store them on a diskette, or transmit them directly to the Windows computer over a local network.

The Save procedure is different for the two COROS LS-C systems OS-C30 and OS-C10.

5.2.1 How to Save COROS OS-C30 Data

Transfer the COROS project data from the RMX file system to the Windows 2000/XP file system. You can do this using the OS-C30 utility programs for copying to the DOS environment. Once the files are located on the DOS partition you can transfer them to the Windows 2000/XP computer using diskettes, or directly over the LAN connection.

5.2.2 How to Save COROS OS-C10 Data

As it is not possible to address DOS media from the older COROS OS-C10 station, you must have an OS-C30 station with a 5.25" disk drive to be able to save your COROS project data. Save the project data of the OS-C10 station on diskettes and then copy them to the OS-C30 station.

You can now transfer the files to the Windows 2000/XP environment as described in section 5.2.1.

5.2.3 IPKS Support

As the existing COROS project data may have been kept on different types of storage media (e.g., 5.25" diskettes, 3.25" diskettes, tape), different procedures have to be used to transfer the data to the Windows NT environment. As the older OS-C10 stations are not capable of directly addressing the DOS world, a diversion via an OS-C30 station is necessary.

The IPKS Technical Support team will of course gladly help you with the transmission of your existing COROS project data to the Windows 2000/XP file system. If you wish, we can do the complete migration to the LS-C ME process control system for you.

For further information, please contact our Erlangen office.

5.3 Setting Up the Hardware of Computers and Network(s)

5.3.1 Computers for the Master VDU and the Slave VDUs

For every master and every slave of your "old" COROS LS-C system you require a separate computer with the Windows 2000 or Windows XP operating system (see also chapter 4, "System Requirements").

5.3.2 LAN Connection between the COROS System Components

The master and slave computers communicate with each other (and with the CP-ME processor in the control system) over a local area network (LAN). For reasons of operational reliability, we recommend making a separate network available and reserving this network solely for the COROS communication as large amounts of data will be continuously transmitted over this network.

Every computer must therefore be equipped with a network card for the connection to the LAN network. The connection to the LAN can also be established over a fibre-optics line. Every system component in the local network, i.e., the master and slave VDUs as well as the CP-ME processor in the control system, must be identifiable by its unique IP address. The IP addresses are freely assignable.

Example: CP-ME with the address 192.168.5.155
 Master VDU on a computer with the IP address 192.168.5.160
 Slave VDU on a computer with the IP address 192.168.5.165

5.3.3 Typical System Configuration

5.3.3.1 Simple Configuration with One Master Station

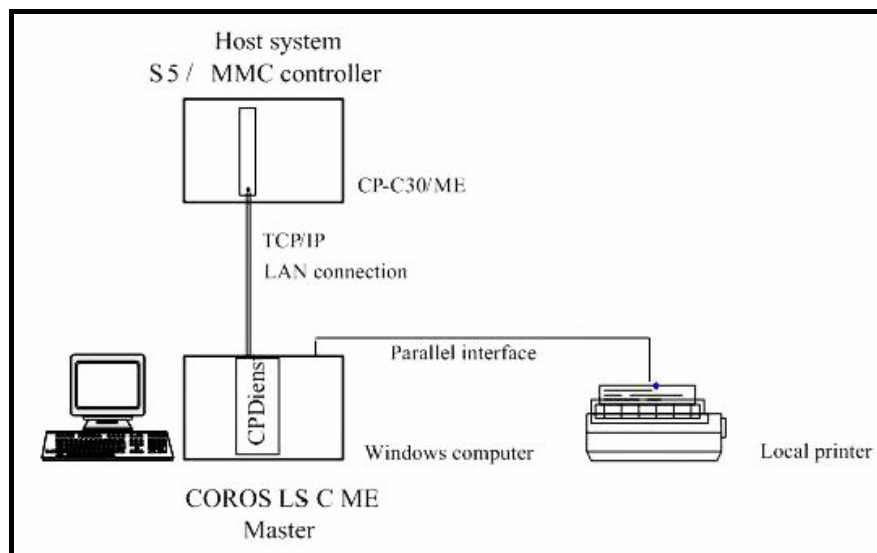


Figure 6: COROS LS-C ME system with one master VDU

In this arrangement, communication between the CP-C30/ME module in the S5 controller and the CPDIENST utility in the master VDU is established over a TCP/IP network connection. This transmission line should be designed for full-duplex operation as it must be capable of transmitting large amounts of data. Depending on the expected effects of existing electromagnetic interference fields (see also section 5.3.4, "Cabling"), you can choose between a CAT5 cross cable (copper cable) and a fibre-optics cable.

5.3.3.2 Master-Slave Configuration in the COROS LAN

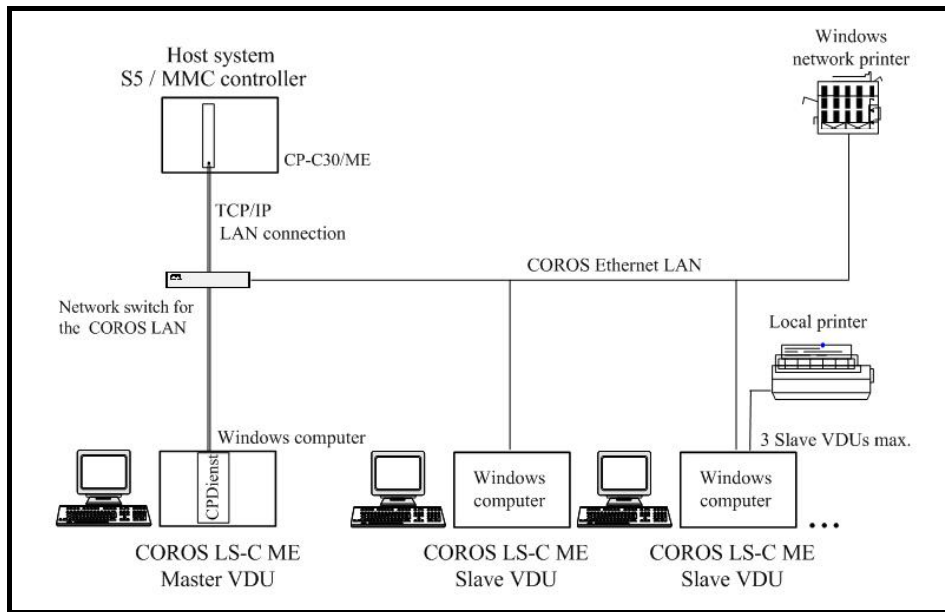


Figure 7: COROS LS-C ME system with master VDU and slave VDU(s)

If several subscribers take part in the communication, network activities need to be assigned by means of a COROS LAN switch which should be capable of full-duplex operation. The connection to the LAN switch can be by means of a CAT5 copper cable or a fibre optics cable. In this arrangement, every Windows computer must be equipped with a LAN card.

5.3.3.3 Master-Slave Configuration with COROS LAN and Company LAN

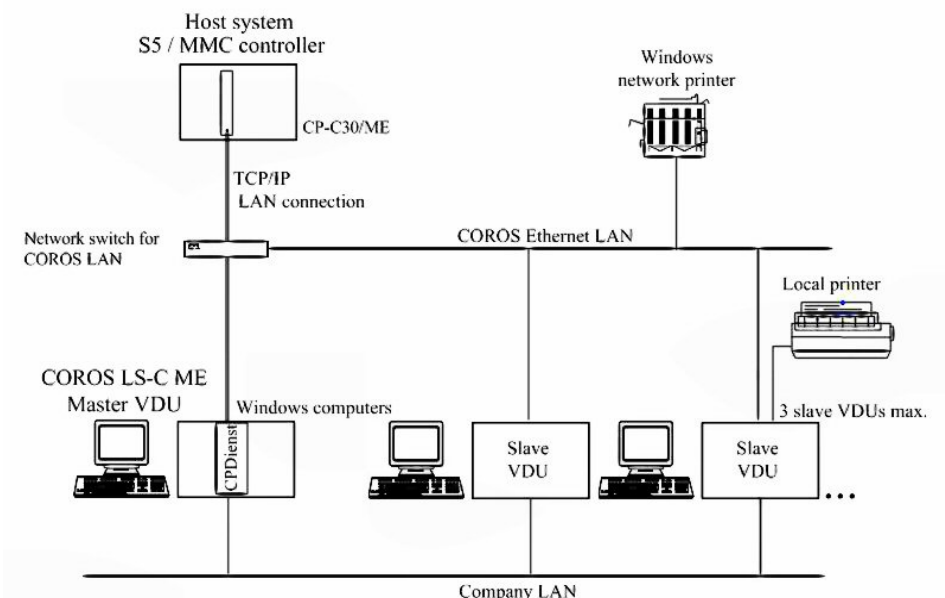


Figure 8: COROS LS-C ME master and slave(s), connected to the COROS LAN and the company LAN

In this arrangement, every COROS LS-C ME computer must be equipped with two network cards. Both networks -the COROS network and the company network- are clearly separated from each other and do not interfere with each other. This ensures that the often substantial data amounts on the CP-ME route cannot be disturbed by broadcast packets from the company LAN.

5.3.4 Cabling

The LS-C ME data is exchanged over an Ethernet network at a throughput of 100 Mbits/s and in full-duplex mode. All network components, such as the LAN switch and the computers' LAN cards, must be designed for this capacity.

Please make sure to adapt the cabling of your LS-C ME system to the local operating conditions. Fibre-optics lines might be the better choice in an environment affected by electromagnetic interference fields. The CP-C30/ME FO version (FO = Fibre Optics) of the communications processor is therefore equipped with two Ethernet interfaces, one for copper cable connection and one for fibre-optics connection (multimode fibre). The CP-C30/ME standard version, on the other hand, is designed for an Ethernet connection by copper cable only.

Fibre-optics and copper cables can of course be combined, so that you can restrict the use of fibre optics to those routes that are affected by electromagnetic interferences. For example, if the S5 control system with the CP-C30/ME communications processor is installed in a rough industrial environment, and the VDU stations, on the other hand, are located in a control room with hardly any interference, then only the CP-C30/ME processor would require a fibre-optics connection to the LAN switch. Normal copper cable would do for all other cabling inside the computer room.

Please observe the maximum permissible cable lengths:

Copper cable:	CAT5 or better, max. line length (including patch lines): 100m
Fibre-optics cable:	Max. line length: 400m multimode fibre

5.3.5 Fibre-Optics Connection

The communications processor CP-C30/ME FO offers an SC plug connector for the connection of a multimode fibre line. LAN cards with SC interface (for example, the 3COM905B-FX/SC card) are available for the fibre-optics connection of the master and slave computers.

5.3.6 LAN Switch

Choose a network switch that matches your type of cabling, i.e. fibre-optics or copper cable. A switch management function is not required.

5.4 Setting Up the Windows Operating System on the VDU Terminals

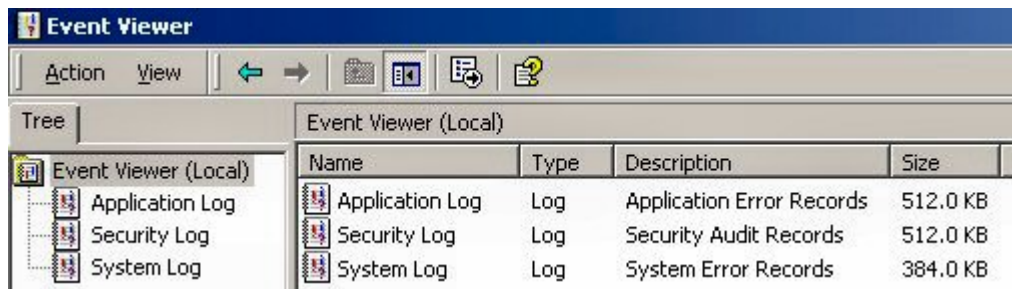
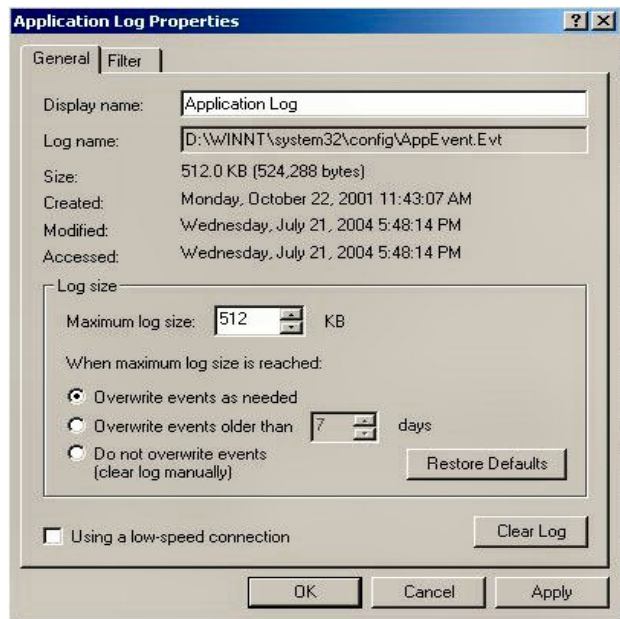
5.4.1 Windows Operating System

Install the Windows 2000 or Windows XP operating system on every computer of your network. We recommend that at this stage you also set up the local network (LAN) and the printers. On your computers, set the screen resolution 1280 * 1024 pixels to enhance the image quality.

5.4.2 Windows Event Log Settings

To avoid that the event logs are unduly "flooded" with system messages, we recommend that you set up the event logs as circulating buffers so that old messages will be overwritten when the maximum log size is reached.

Procedure

Step	Action																
1	<p>In the Start menu, select Settings → Control Panel → Administrative Tools. Alternatively you can select: Start → Programs → Administrative Tools → Event Viewer:</p>  <table><thead><tr><th>Name</th><th>Type</th><th>Description</th><th>Size</th></tr></thead><tbody><tr><td>Application Log</td><td>Log</td><td>Application Error Records</td><td>512.0 KB</td></tr><tr><td>Security Log</td><td>Log</td><td>Security Audit Records</td><td>512.0 KB</td></tr><tr><td>System Log</td><td>Log</td><td>System Error Records</td><td>384.0 KB</td></tr></tbody></table>	Name	Type	Description	Size	Application Log	Log	Application Error Records	512.0 KB	Security Log	Log	Security Audit Records	512.0 KB	System Log	Log	System Error Records	384.0 KB
Name	Type	Description	Size														
Application Log	Log	Application Error Records	512.0 KB														
Security Log	Log	Security Audit Records	512.0 KB														
System Log	Log	System Error Records	384.0 KB														
2	<p>Right-click each of the three logs Application Log, Security Log and System Log and then select Properties to open the corresponding log properties dialog box.</p> 																
4	<p>In the Log size group, activate the Overwrite events as needed option and click OK to confirm your selection.</p>																

5.4.3 New User Name (LOGON USER)

The default setting for the user name in the Windows operating system is ADMINISTRATOR. As the COROS LS-C ME system CANNOT run with this default user name, you must define your own LS-C user name and assign it administrator rights, for example, COROS. The specified user name is then used on the master VDU for the account of the Windows service **IPKS CPDIENST** (see also 5.5.1, "Setting Up a Master VDU").

This user name must be used when the COROS LS-C ME software is installed on the VDU terminals (see section 5.5, "How to Install LS-C ME on the VDU Computers").



To ensure successful data communication between the slave computer and the master computer, you must define the same user name and password on all VDU computers. Please don't use "blank" passwords as this would not be allowed under standard Windows 2000/Windows XP safety regulations.

Procedure

Step	Action
1	In the Start menu; select Settings → Control Panel → Administrative Tools . Alternatively you can select: Start → Programs → Administrative Tools .
2	In Administrative Tools , select Computer Management → System Tools → Local Users and Groups → Users .
3	Right-click the Users folder and select New User...
4	In the New User dialog box, enter the appropriate logon information (User name, Password,...)
5	To grant administrator rights, you must register the new user in the Administrator group: Select Local Users and Groups → Groups → Administrators .
6	In the Administrators Properties dialog box, click the Add... button to assign the new user to the group of administrators.
7	Click OK to confirm your settings.

5.4.4 Setting the Screen Resolution

Set the VDU screens to a resolution of 1280 * 1024 pixels.

5.5 How to Install LS-C ME on the VDU Computers

Before you start with the installation of the COROS LS-C ME software, make sure that the user name especially defined for the COROS system has logged in on the VDU computers (see section 5.4.3, "New User Name (LOGON USER)") as you must use this user name for the installation of the LS-C ME program.

5.5.1 Setting Up a Master VDU

Procedure

Step	Action
1	Insert the supplied dongle in the printer port of the computer that is to be set up as the COROS master terminal.
2	Insert the COROS LS-C ME installation CD-ROM in the CD-ROM drive. The Setup program of COROS LS-C ME is started automatically.
3	Specify the program path and then select Master from the options below: <ul style="list-style-type: none"> • Master • Slave 1 • Slave 2 • Slave 3 <p>(Setting up a slave VDU → see section 5.5.4)</p>
4	SETUP installs the COROS LS-C ME program and then the dongle driver.
5	After COROS LS-C ME has been successfully installed, you will find five COROS icons on the desktop of your computer: <div data-bbox="274 1158 1439 1303" data-label="Image"> </div> <p>You may rename these icons of course, for example:</p> <div data-bbox="274 1368 1439 1503" data-label="Image"> </div>
6	Double-click the Edit HOST File icon to open the HOST file in the Notepad editor.
7	Specify the IP address of the CP-ME processor (see also 5.6.7, "Network Settings of the CP-C30/ME Processor "), for example: <p>192.168.5.155 cpme</p> <p>Careful: "cpme" in lower-case letters and without a space.</p>
8	Save and close the HOST file.

Step	Action
9	Double-click the Install CPDienst icon to start the installation of the Windows service IPKS CPDienst .
10	To specify the user name for the new service, select Start → Settings → Control Panel → Administrative Tools → Services .
11	Double-click the IPKS CPDienst service to open its properties dialog box.
12	On the Log on tab, select the This account: option (instead of the default option Local system account).
13	Enter the logon parameters: the user name of the account and the password. The user name is the name you specified earlier on when you set up the Windows operating system (see also 5.4.3, "New User Name (LOGON USER)").
14	On the General tab, click the Start button to start the service. Click the Apply button to confirm the selected properties of the service.

The Windows service **IPKS CPDienst** is now running and ready to establish a connection with the control system. This of course requires that the new CP-C30/ME processor is installed in the S5/MMC control system (see section 5.6, "Replacing the CP Communications Processor in the S5/MMC Control System"), which is best done at a later stage, after the preparation has been completed and the COROS project has been set online on the new master and slave VDUs.

5.5.2 Copying the "Old" COROS Files to the Master VDU

You can now copy the original COROS files saved earlier on (see section 5.2, "How to Make a Copy of Your "Old" COROS LS-C Project") to the COROS path created for this purpose.

5.5.3 Starting the Master VDU and Setting the Project Online

Double-click the **LSC-ME Master VDU** icon to start the master VDU.

The COROS LS-C start window appears on the screen.



Figure 9: LS-C ME Start dialog box

In the dialog box **F1 DESIGN MODE** → **F6 Management**, check that the parameters match those of the initial COROS project.

Set the system and user data of the COROS project to the online mode.

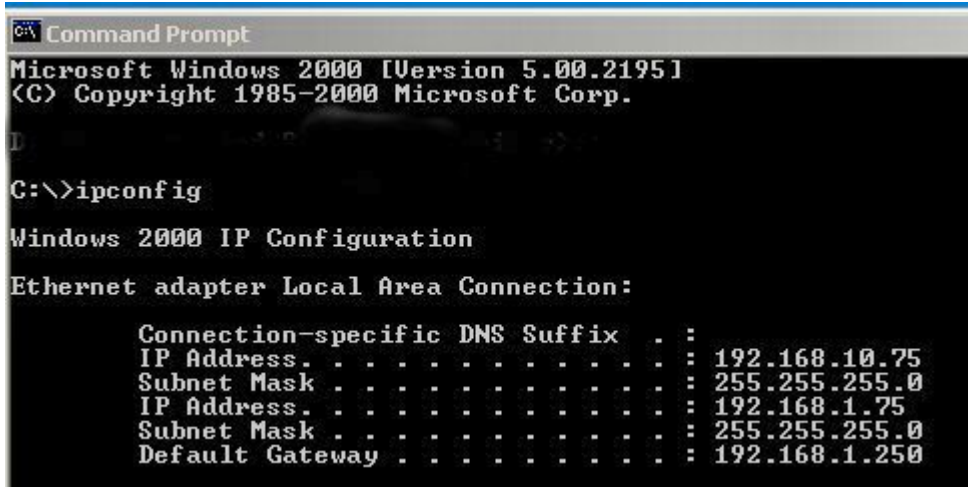


Please note the LSC-ME INI file (→ chapter 6, "Adjusting the COROS LS-C ME Project") in which you may have to specify the data paths and printer ports in order to adjust your new COROS LS-C ME project to the existing conditions.

5.5.4 Setting Up a Slave VDU

Before you start with the installation of the COROS LS-C ME software, make sure that the user name especially defined for the COROS system has logged in on the computer (see section 5.4.3, "New User Name (LOGON USER)") as you must use this user name for the installation of the LS-C ME program.

Procedure

Step	Action
1	Insert the COROS LS-C ME installation CD-ROM. The Setup program starts automatically.
2	Specify the path to which you want to copy the COROS data.
3	Select Slave x from the below options: <ul style="list-style-type: none"> • Master • Slave 1 • Slave 2 • Slave 3
4	Specify the IP address of the computer on which the master VDU is installed. How to determine the IP address: On the master VDU computer, open the DOS prompt by selecting Start → Programs → Accessories → DOS prompt . Type the command ipconfig and press the Enter key. 
5	SETUP now installs the COROS LS-C ME program.
6	The installation of the slave VDU is now complete.

5.5.5 Starting the Slave VDU

Double-click the **LSC-ME Slave VDU** icon to start the slave VDU.

Provided that the slave VDU has been configured in the COROS system and that a connection has been established between this slave VDU and the master VDU, the start window for online operator-process control appears on the screen.

5.5.6 Setting the VDUs to the EXCLUSIVE Mode

All VDU units - master unit as well as slave units - can be set to the Exclusive mode. In the Exclusive mode, COROS displays the process control project across the entire screen so that the operator has no access to other Windows facilities.

5.5.6.1 EXCLUSIVE Mode on a Master VDU

Procedure

Step	Action
1	In the COROS LS-C ME start window, select F3 SERVICE . The SERVICE menu is opened.
2	Open the EEPROM contents with F6 - EEPROM Menu .
3	Set Screen View in the last line of the EEPROM list to Exclusive .
4	Save the modified EEPROM contents with F3 - Set both .
5	Restart the master VDU program with F1 - Process System (I RMX / MS-DOS) .

5.5.6.2 EXCLUSIVE Mode on a Slave VDU

Procedure

Step	Action
1	Double-click the LSC-ME Slave VDU icon to start the slave VDU and then, within 10 seconds, press the key combination SHIFT+E . The EEPROM contents are loaded. If you have missed the 10 second period, restart the slave VDU with Restart VDU (right mouse button).
2	Set Screen View in the last line of the EEPROM list to Exclusive .
3	Save the modified EEPROM contents with F3 - Set both .
4	Restart the slave VDU with Restart Computer (right mouse button).

5.6 Replacing the CP Communications Processor in the S5/MMC Control System

The "old" communications processor must be replaced with a new processor card. The installation and start-up of the new CP-C30/ME communications processor (or the CP-C30/ME FO version) is done in three steps.

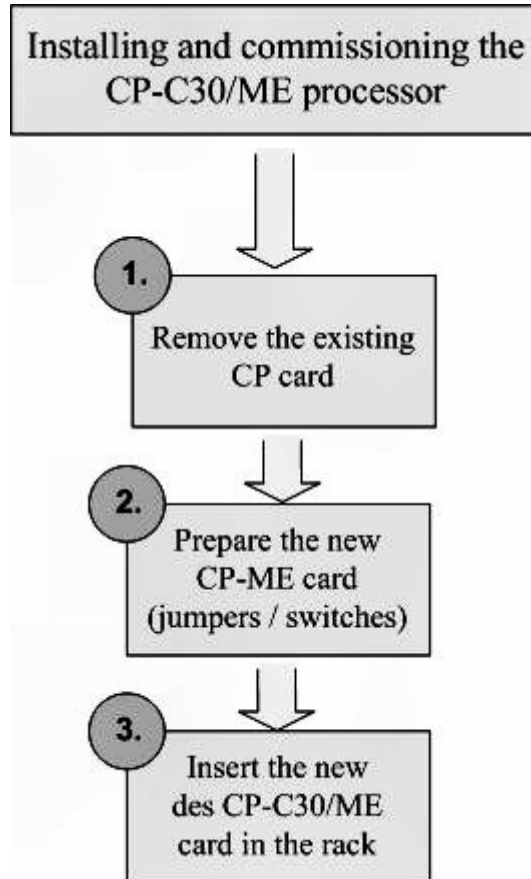


Figure 10: Replacing the CP communications processor

5.6.1 Removing the Old CP Communications Processor



Turn off the S5 / MMC controller before taking out the CP module.

You can now remove the CP card from its slot.

5.6.2 Preparing the CP-C30/ME Processor

Before you install the new CP-C30/ME module (or FO version) in the S5 / MMC control rack, prepare the new module so that its settings match the "old" CP module.

This means setting the new module's DIL switches and jumpers exactly the same way as on the "old" module.

Switch/Jumper	Meaning
DIL S1	S5 base address
Jumper S3	Address multiplexer (Function of the "old" module's X16-X23 switches) <ul style="list-style-type: none"> 16-bit addressing of the S5 controller, or Longer address of the MMC/216 controller
DIL S4	Page frame number and interrupt enable for INTA and INTB
Jumper X30	Type of Ethernet connection: <ul style="list-style-type: none"> Fibre optics connection 100 Mbits/s or Copper cable connection 10/100Mbit/s
Jumper X34	Select the controller <ul style="list-style-type: none"> S5 operation or MMC/216 operation

5.6.3 Comparing the Jumper and Switch Settings

The "old" CP processor to be replaced in the S5 or MMC216 control system can be of the following type: CP2000 (identical with CP-C10), or CP-C20, CP-C30

The switch and jumper designations on these CPs do on the whole coincide with the designations on the new CP-C30/ME processor. The following table gives you an overview of the functions of the switches and jumpers on the individual modules.



Chapter 3 of the **CP-C30/ME User's Manual** provides you with detailed information about the new module and how it is started up.

5.6.5 Factory Settings of the CP-C30/ME Processor

Network factory settings

(see also 5.6.7, "Network Settings of the CP-C30/ME Processor")

Settings	Value
IP address	192.168.3.99
Network mask	255.255.255.0
Gateway	0.0.0.0 (deactivated)
Network port of the server	57 (UDP)

DIL switch and jumper factory settings

The CP-C30/ME module is factory set to S5 operation. If S5 operation is correct for you, all you have to do is to set the basic and page frame addresses and to define the type of Ethernet connection (copper cable or fibre optics cable).

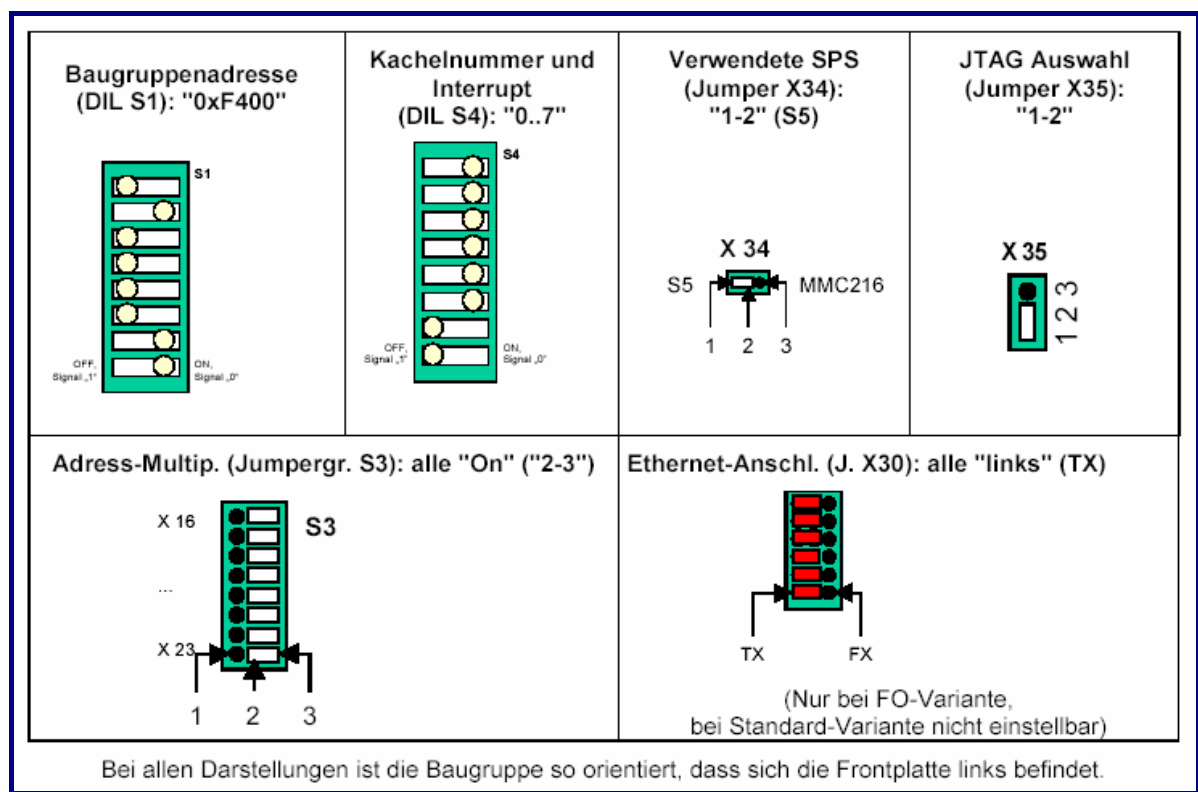


Figure 12: Factory settings on the CP-C30/ME module



You will find a detailed description of the CP-C30/ME module and how to commission it in **Chapter 3** of the **CP-C30/ME User's Manual** which is part of the COROS LS-C ME package.

The status LEDs on the CP's front panel and their meaning are described in section 5.6.9.

5.6.6 Setting the Parameters of the CP-C30/ME Processor's Network Interface

In order to set up the network connection of the CP-C30/ME processor you must connect a terminal to the CP card's X12 maintenance interface.

You can do this with 3-wire zero modem cable with RxD (pin2), TxD (pin 3) and GND (pin5) assignment. As the X12 interface is of the socket type in compliance with EMC regulations a gender changer is required to connect the cable with the interface (9-pin plug-to-plug connection).

You can set the interface parameters with the Windows communication program **HyperTerminal**.

Procedure

Step	Action
1	Select Start → Programs → Accessories → Communication → HyperTerminal to start the HyperTerminal application.
2	Specify a name for the new connection, for example: COROS_LSC_ME., and press OK twice to confirm your entry.
3	Set up the connection as follows: Bits per second: 115200 Data bits: 8 Parity: None Stop bits: 1 Flow control: None Confirm your settings with OK .
4	Select File → Attributes and specify the following attribute: Emulation: ANSI, VT-100 or VT 102 Confirm your settings with OK .

5.6.7 Network Settings of the CP-C30/ME Processor

The factory settings of the CP-C30/ME network connection are as follows:

IP address: 192.168.3.99
Network mask (Subnet): 255.255.255.0
Gateway: 0.0.0.0 (deactivated)
Network port of the server: 57/UDP (any private terminal access)

The factory settings can be changed with the "diag" application which is part of the COROS LS-C ME package (see chapter 4 of the CP Processor User's Manual).

To do so, connect a Windows computer to the CP processor's serial interface and open the Windows communication program **HyperTerminal**.

Start → Programs → Accessories → Communications → HyperTerminal

The application's opening screen appears:



Figure 13: Opening screen of the HyperTerminal application

Press the Enter key several times until the character # is displayed:



Figure 14: Prompt to enter a command

Now enter the program name **diag**:



Figure 15: Calling the diag application from the HyperTerminal window

Confirm with the **ENTER** key. The diagnosis screen of the CP-C30/ME module appears.

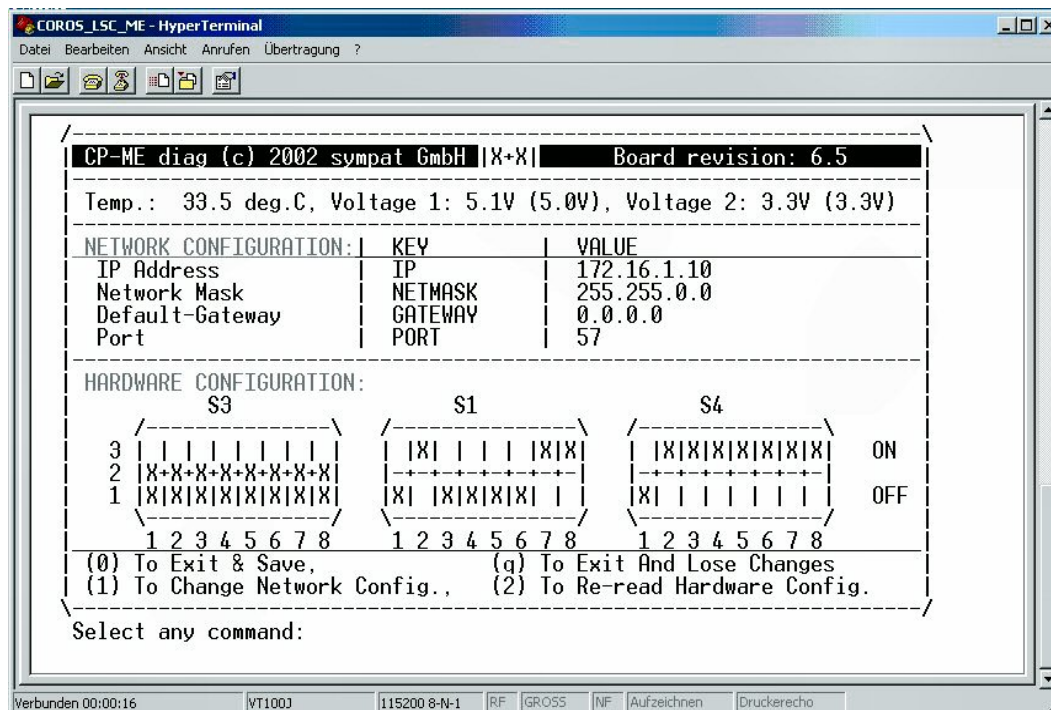


Figure 16: Calling the diagnosis screen of the CP module using **diag**

You'll find a detailed description of the **diag** diagnosis tool and instructions on how to change the CP processor's network settings in the user manual of the CP module provided on the LS-C ME system CD. (chapter 5).

5.6.8 Installing the CP-C30/ME Processor

After having set the DIL switches and jumpers, you can insert the CP-C30/ME module (or the FO version) in the slot of the "old" CP in the S5 or MMC control rack.



Please make sure that the S5 / MMC controller is turned off before you replace the CP module.

Re-booting the Controller

After having plugged in the new CP module, you have to re-boot the S5 controller. Carry out a COLD start to make sure that the information that was buffered when the CPU was stopped is reset and that the new CP module does not start with the information from the battery-backed buffer.

Now start the COROS Master terminal (see section 5.5.3, "Starting the Master VDU and Setting the Project Online").

If the connection between the master VDU and the CP-C30/ME has been correctly established, LEDs 3 and 4 in the upper LED group of the CP's front panel will cease to blink and show a steady green light. The functions of the 4 green LEDs on the CP-C30/ME processor correspond exactly to those of the LEDs on the "old" CP.

Your COROS project ported to the Windows environment is now ready for operation.



Please note the LSC-ME INI file (→ chapter 6, "Adjusting the COROS LS-C ME Project"). In this file, you may have to modify the entries for the data paths and the printer ports to adjust the new LS-C ME project to the existing conditions.

5.6.9 CP-C30/ME: Front Panel LEDs

The front panel provides a number of LEDs that indicate the status of the CP-C30/ME module.

Upper LED group

The upper LED group comprises four green LEDs. The *combination* of these LEDs reflects the current operating state of the CP-C30/ME.

Meaning of the individual combinations (● LED = OFF, ● LED = ON):

LEDs	Meaning
● ● ● ●	Initial start-up (cold start)
● ● ● ●	Restart
● ● ● ●	Warm restart
● ● ● ●	Basic operation
● ● ● ●	Online, indicating device OK.
● ● ● ●	Online, indicating device at fault
● ● ● ●	Stop state (software error)
● ● ● ●	Memory test "static RAM" active
● ● ● ●	Memory test "dynamic RAM" active
● ● ● ●	Memory test "EPROM checksum" active
● ● ● ●	Stop state (hardware failure)

"Restart"

is the operating state after a system restart, e.g., due to a voltage failure and loss of data.

Dimensioning and parameter data is not available in the CP-C30/ME or is not complete. In this mode, only dimensioning or parameter assignment messages are processed.

"Warm Restart"

is the operating state after a system start, e.g., after a reset. Dimensioning and parameter data is available in the CP-C30/ME. In this mode, the system waits for the transmission of the date/time parameters by at least one VDU.

"Basic operation"

is the operating state after a restart or warm restart. Dimensioning and parameter data is available in the CP-C30/ME. In this mode the system waits for the host system to complete the initialization of the I/O areas. Apart from the inter-VDU communication all CP-C30/ME processing functions are disabled.

"Online operation"

is the operating state succeeding the basic operation of the system. All CP-C30/ME processing functions are enabled.

"Indicating device at fault"

In our case it is the COROS master terminal that is the indicating device of the CP-C30/ME module. LED 4 will turn off as soon as the master terminal is found to be operating normally again when the next process alarm message arrives.

Lower LED group

This group comprises eight red, orange and green LEDs that are more or less driven independently of each other. They provide information on the status of the power supply and firmware and on the network connection used and the network activities of the CP-C30/ME module.

PWR Power supply	
OFF	CP-C30/ME power supply interrupted
ON	P-C30/ME power supply active

RDY "Ready", CP-C30/ME firmware status	
OFF	Firmware not ready
Slow flashing (0.5 Hz)	Firmware ready, no connection to VDU ME
Fast flashing (1 Hz)	Firmware update is being performed
ON	Firmware ready, connection to VDU ME established

ERR "Error", CP-C30/ME error condition	
OFF	No error detected
Short flicker	Faulty data received
Steady ON	Firmware start failed
Fast flashing (1 Hz)	Firmware update failed (after a firmware update only)

10/100 Connection rate of the CP-C30/ME	
"10" is ON	10 Mbits/s connection
"100" is ON	100 Mbits/s connection

Only one of these two LEDs is ON at a time.
The connection rate is automatically recognized by the CP-C30/ME.

TX/RX "Transmit/Receive", CP-C30/ME network activity	
"TX" is ON	CP-C30/ME is transmitting
"RX" is ON	CP-C30/ME is receiving

At full-duplex operation, both LEDs will be ON at the same time.

FDX "Full Duplex", CP-C30/ME network interface at full-duplex operation	
OFF	Half-duplex operation
ON	Full-duplex operation

The transmission mode is automatically detected by the CP-C30/ME module.

6 Adjusting the COROS LS-C ME Project

6.1 Editing the INI File

The INI file is a text file that can be edited using any text editor.

```
[PHYSDEVICE]
C=".data"
AH3="A:"
BH3="B:"
[DONGLE]
ZENTRALDONGLE=TRUE
[KEYBOARDS]
;SHOW_KEY_STROKE=TRUE
=====
;== CAREFUL! Make sure that your KEYCODES formats match one of the 5 example formats given below!! ==
=====
;KEYCODE00 = 049->050                ; These two entries swap the numbers 1 and 2 on the keyboard
;KEYCODE01 = 050->049
;KEYCODE02 = 026-032->176              ; ALT + SHIFT + Spacebar -->> F1
;KEYCODE03 = 176->026-032              ; F1 -->> ALT + SHIFT + Spacebar
;KEYCODE04 = 026-046->026-032          ; ALT + SHIFT + Colon ->> ALT + SHIFT + Spacebar
[DISPLAY]
;TOPMOST_SCREEN = YES
;MINIMIZE_SCREEN = NO
;MOVEING_SCREEN = NO

[PRINTERS]
;Print output to (local) file
=====
;PR0=C:\temp\prn_test.txt
;
;Print output to (remote) file
=====
;PR0=\\computername\enablename\prn_test.txt
;
;Print output to serial printer (COM Port 1).
;PLEASE NOTE! The industrial keyboard also uses the COM interface.
=====
;PR0=\\COM1
;
;Print output to parallel line printer (LPT).
;PLEASE NOTE! This output is NOT directed through the spooler.
=====
;PR0=\\PRN
;
;Print output to parallel line printer (LPT1).
;PLEASE NOTE! This output is NOT directed through the spooler.
=====
;PR0=\\LPT1
;
;Local printer connected to LPT1 via spooler (driver) using Timeout=1s
=====
;PR0=\\127.0.0.1\Pinwriter_P6 , winspool, 1
;
;Print output to parallel line printer (LPTx) via spooler using Timeout=several seconds.
;Local printer:
;PR0=\\127.0.0.1\prntername,winspool[,timeout]
;
;Network printer:
;PR0=\\computername\prntername,winspool[,timeout]
=====
;PR0=\\127.0.0.1\Pinwriter_P6,winspool,5
;
;Print output to network printer (ASCII character set)
=====
;PR1=\\computername\prntername
;or
;PR1=\\computername\prntername, ASCII
; e.g.:
;PR1=\\127.0.0.1\BrotherM-Printer
;
;Print output to network printer (ANSI character set)
=====
;PR2=\\computername\prntername, ANSI, e.g.:
;PR2=\\127.0.0.1\FS-1500, ANSI
;
;Hardcopy printer
=====
;HARDCOPY=\\computername\prntername | path and filename, e.g.:
;HARDCOPY=\\127.0.0.1\HPLJ4000k,winspool,Ne01|C:\Screens
;HARDCOPY=\\127.0.0.1\BrotherM-Printer,winspool,LPT1|C:\Temp\Test.bmp
;HARDCOPY=\\127.0.0.1\HPDJ970C,winspool,Ne01:
;HARDCOPY_ORIENTATION=LANDSCAPE
;HARDCOPYINVERS=DEFAULT
;HARDCOPY_X_SIZE=90
;HARDCOPY_Y_SIZE=90
;HARDCOPY_X_OFFSET=10
;HARDCOPY_Y_OFFSET=10
```

6.1.1 Printer Definition in LSC_ME.INI

The printer output parameters are defined in the file **LSC_ME.ini**. A section beginning with "[PRINTERS]" must be created in this file. The individual printers can then be defined below this identification. Comments must start with a semicolon ";" blank lines are ignored. No distinction is made between upper-case and lower-case letters. Line feeds within a parameter assignment instruction are not allowed.

Number of printers and printer types

Up to four printers can be defined. Each one of the entries must begin with "PRn=", where n stands for 0-3, followed by the device specification (with path) in UNC format. Network printers must be identified by their enable name. Devices also include files to which the print output can be transmitted. The type of the device is derived dynamically and need not be entered. The distinction of printer types formerly made in COROS (CENT, EPSN, IBM, etc.) will no longer be interpreted so that any printer type could be entered here.

Character set

You can specify an optional set of characters as the last entry after a comma in the corresponding line. Permissible entries are "ASCII" (ASCII character set, default setting) and "ANSI" (ANSI character set).

As the ANSI character set is automatically used when printing to a file (Windows standard setting), any other entry for printing to a file will be ignored. For true line printers (wire matrix printers), the ASCII character set is used so that the specification of a character set would only make sense for page-oriented printing (laser and ink-jet printers) over the print spooler.

Examples of the printer section in the "LSC_ME.ini":

```
[PRINTERS]
;Print output to (local) file
PR0=C:\bin\prn_test.txt

;Print output to (remote) file
PR0=\\computer name\enable name\prn_test.txt

;Print output to serial printer (COM port 1)
PR1=\\.COM1

; Print output to network printer (ASCII character set)
PR2=\\computer name \FS-1500
;or
PR2=\\Computer name \FS-1500, ASCII

;Print output to network printer (ANSI character set)
PR2=\\computer name \FS-1500, ANSI
```

Settings in the Configuration menu:
see section 7.4, "Special Parameters for Message Printing"

6.2 Executing Direct S5 Print Jobs with CPPRINT

In the LS-C ME system, the printer task directs VDU printers as well as CP printers to any Windows printer. The routing is specified in the INI file with the entries PR0 .. PR3. These print outputs are all directed by the printer task of the VDU. (→ section 0).

In contrast to these redirected VDU and CP print jobs, print jobs can also be triggered directly by the S5 controller: the instruction CP:SEND of type 'DR' sends the print job to a printer on the CP interface 1..3, without involving the VDU or its tasks.

Due to the fact that in LS-C ME the CP's physical interfaces are implemented as pipes of the CPDIENST service, there is no transmission of S5 print jobs to a real printer.

CPPRINT can be installed as a service application and run in the background without display (like the CPDIENST service).

For detailed information see the separate CPPRINT manual.

7 Operator Control: Differences to COROS LS-C

7.1 Exclusive Mode

All VDU units - master and slave units - can be set to the Exclusive mode. In this mode, the COROS process control project will always be displayed across the entire screen so that the operator has no access to any Windows functions.

However, to be able to reset a VDU terminal that is in Exclusive mode the right mouse button is activated in this mode. A right-click opens a menu that offers a command for booting/resetting the computer. This function could be compared to the **OFF** switch of the "old" VDU terminal.

7.1.1 Exclusive Mode on a Slave Terminal

For a slave terminal that runs in the Exclusive mode, the right mouse button is the only possibility to boot the VDU terminal.

7.1.2 Exclusive Mode on a Master Terminal

Booting on a master terminal should always be done in the **OFFLINE** mode with **F3 - SERVICE** and **F1 - Process System (I RMX / MS-DOS)**.

Only in a case of emergency, when the **Online** mark is set (in the dialog 00Menu/00Mena) and returning to the **OFFLINE** mode is not possible, it is allowed to boot the computer by way of the right mouse button.

To be able to enter the **OFFLINE** mode it is necessary to subsequently call the EEPROM menu using **SHIFT+E** and set the **DEFAULT** values with **F4-Default** and **F3-Set both**. Then reset the VDU using **F2 - Reset VDU**. The **OFFLINE** mode is now enabled.

7.2 The EEPROM Menu

The contents of the COROS LS-C ME EEPROM menu largely correspond to that of the original COROS LS-C system.

Some parameters are no longer used in the new system. These have therefore been deactivated and are now greyed in the EEPROM menu.

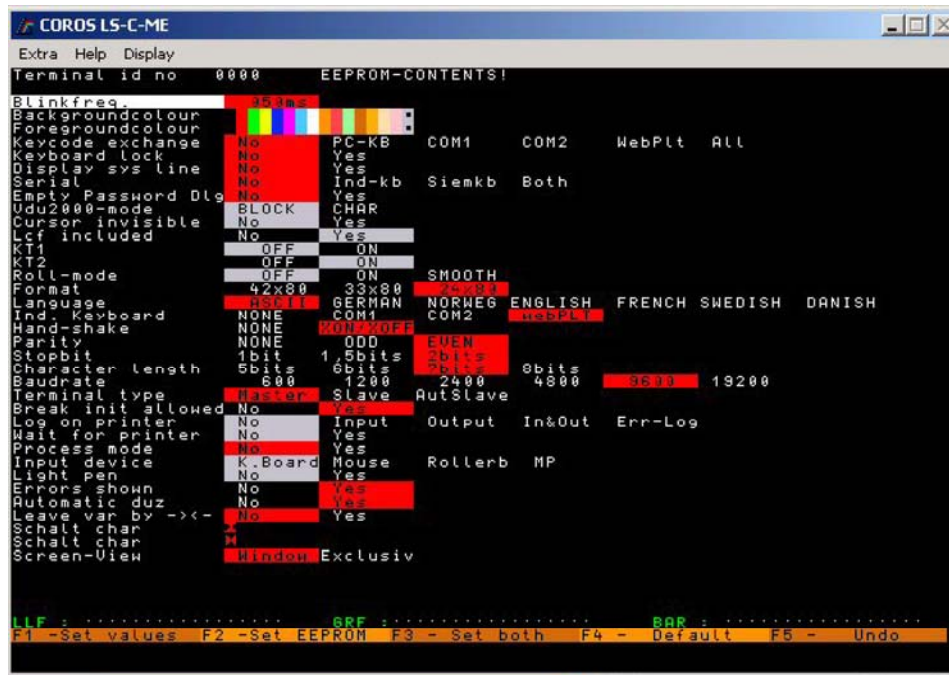


Figure 17: EEPROM menu in COROS LS-C ME

7.2.1 Removed EEPROM Settings

The removed or replaced entries were all related to the CP communication. As this has now been converted to LAN communication, these entries are no longer necessary.

Blink	No	Foreg	Backg	Both				
Signal	V24	X27						
Parity	NONE	ODD	EVEN					
Stop bit	1bit	1.5bits	2bits					
Character length	5bits	6bits	7bits	8bits				
Protocol	BLOCK	DMA	CHAR					
Baud rate	75	110	150	300	600	1200	2400	
	4800	9600	19200	50000	62500	84000		

The parameter "Autarkic slave" is no longer used.

7.2.2 Newly Added EEPROM Settings

Empty Password Dlg	No	Yes				
Ind. keyboard	NONE	COM1	COM2	webPLT		
Keycode exchange	No	PC-KB	COM1	COM2	WebPlt	All
Keyboard lock	No	Yes				
Serial	No	Ind-kb	Siemkb	Both		
Handshake	NONE	XON/XOFF				
Parity	NONE	ODD	EVEN			
Stop bit	1bit	1.5bits	2bits			
Character length	5bits	6bits	7bits	8bits		
Baud rate	600	1200	2400	4800	9600	19200
Screen view	Window	Exclusive				

Empty Password Dlg

If this parameter is **Yes** and no password is given – the empty password dialog is shown.

If this parameter is **No** and no password is given – no dialog is shown.

Ind. Keyboard

This parameter denotes if and where an industrial keyboard is connected and informs about the type of keyboard. A separate description of the installation procedure is provided for the **webPLT**.

If you wish to connect an old industrial keyboard (the industrial keyboard connection to the old COROS LS-C system was established via the X27 interface) to the new system, you must assign the serial COM1 or COM2 port and set the other communication parameters to their default values, i.e.

Handshake	XON/XOFF
Parity	EVEN
Stop bit	2bits
Character length	bits
Baud rate	9600

As the computer's COM port uses the V24 standard you need an X27/V24 converter for the connection of the industrial keyboard. An IT 2000 industrial keyboard would also require a 5V power supply.

Keycode exchange

This parameter selects a keyboard for which the key codes can be changed. The table of keys is part of the INI file and is listed underneath the [keyboards] line.

Keyboard lock

If this parameter is enabled, the **Pause** key has the effect of disabling all keyboard input.

Serial

This parameter defines whether original keyboards are connected b by means of the interface adapter, and if so, which ones they are.

Ind. KB = the original industrial keyboard (PBT) connected to COM1

SiemKB = the original Siemens keyboard connected to COM

If the COM ports are used at this point, then they may not be used for the Ind.Keyboard (see further down) option.

Both = an industrial keyboard connected to COM1 and a Siemens keyboard connected to COM2

Screen View

This parameter offers two options that let you define the appearance of the VDU terminal screen. The **Window** option generates a window that uses the screen resolution of the Windows operating system. The size of this window cannot be altered, it can only be minimized. The window can be moved and it keeps its position even when the system is reset or booted.

The **Exclusive** option generates a window covering the entire VDU screen so that the Windows user interface cannot be accessed. A reset of the VDU corresponds to the booting of the computer.

7.2.3 Changed EEPROM Settings

The following settings have different options now:

Terminal type	MASTER	SLAVE
---------------	--------	-------

7.2.4 Deactivated EEPROM Settings

VDU2000-mode	BLOCK	CHAR		
Cursor invisible	No	Yes		
Lcf included	No	Yes		
KT1	OFF	ON		
KT2	OFF	ON		
Roll mode	OFF	ON	SMOOTH	
Log on printer	No	Yes		
Input device	No	Mouse	Rollerb	MP
Light pen	No	Yes		

Cursor invisible and Roll mode

are no longer available in the new system.

Log on printer

was a trace function that has now been replaced by modern methods. This task and others are now handled by the "TrcView.exe" application (see chapter 8).

Light pen and Roller ball

are replaced by the mouse device in the new system. The new system uses webPLT instead of MP.

7.3 Operating the EEPROM Menu

The old EEPROM of the COM-AT card has been replaced by the file **eeeprom.pos**. If this file does not exist, it is generated immediately and the message **EEPROM reinitialized** is displayed.

This message appears when a master unit is installed because an "eeeprom.pos" file is not supplied for a master unit. The file is, however, supplied for a slave unit due to the fact that the SLAVE setting is not the normal default setting.

To make sure that the settings become effective immediately you must press the **F3 - Set both** key to confirm the settings. If you wish to abort the changes, press the **F5 - Undo** key.

7.4 Configuration (Printer Setup)

To move from the master's main menu to the configuration menu, press **F1 - DESIGN MODE** → **F6 - Management** → **F1 - System Adjustment** → **F1 - Configuration**.

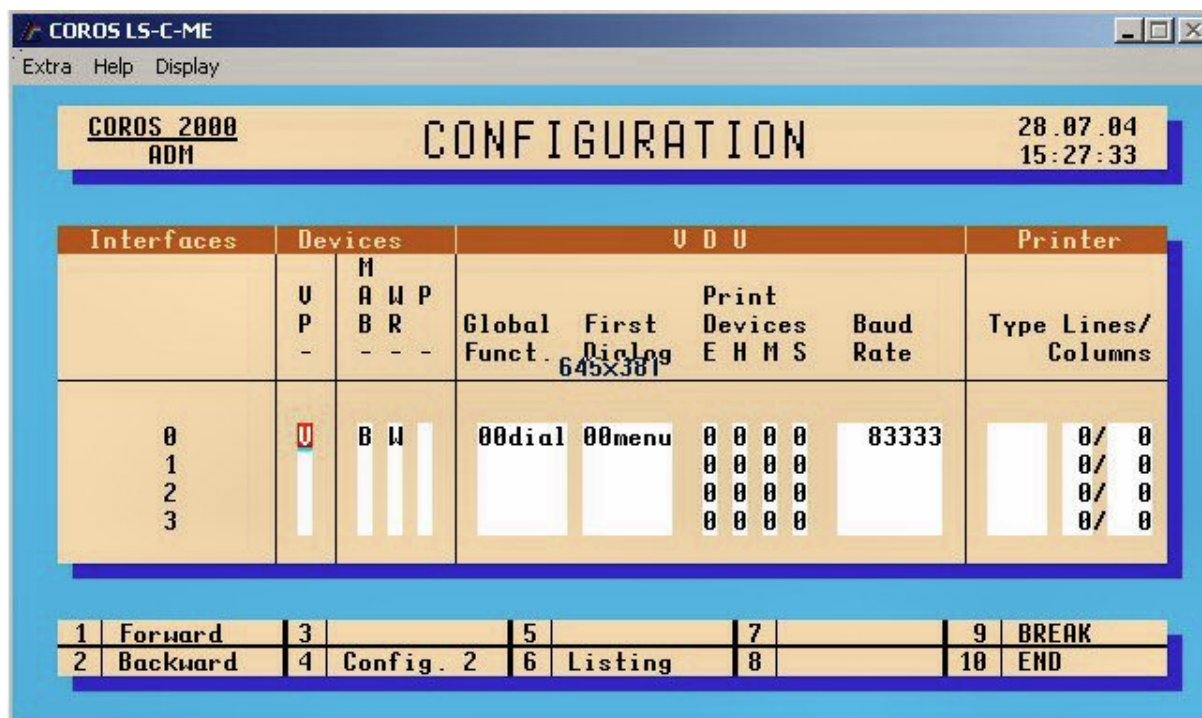


Figure 18: Printer Configuration in COROS LS-C ME

Every VDU terminal of the old system was equipped with a parallel interface for the connection of a printer.

If in addition a printer was connected to the CP and configured, then only two CP interfaces remained for the connection of slave terminals. Hence a maximum of only 4 printers could be connected in this hardware environment. Every VDU terminal had access to its own parallel-connected printer, and also to the CP printer for continuous message logging.

In the configuration table above, a column exists for every recording device (E, H, M and S) on every VDU terminal (interfaces 0 to 3) that states the printer to be used.

The old system offered only two possibilities: 0 for the terminal's own printer, and 3 for a printer connected to the CP.

The new system can offer an extended functionality owing to the interconnection of the printers: Every VDU terminal can access all printers.

The **Printer** → **Type** column is not interpreted. The printer type is specified in the INI file. (See section 0).



1. The printer settings of the old system can also be used in the new system!
2. Extended functional scope: Every VDU terminal has access to all printers configured.
3. Message logging can be directed to files and/or to a printer.

7.4.1 Special Parameters for Message Printing

For every message logging device (E, H, M and S) of a VDU terminal (interfaces 0 to 3), a column exists in the **Configuration** dialog stating the printer used. This entry (0 to 3) corresponds to the PRn entry in the INI file, where n can be a number from 0 to 3 (see section 0).

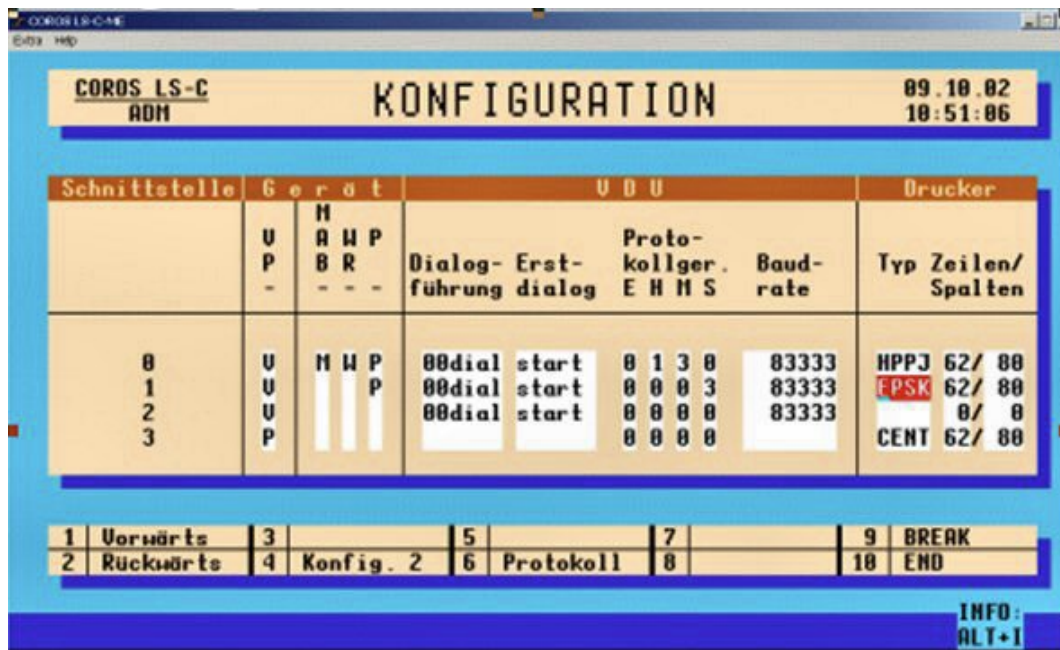


Figure : Defining the message logging

Due to the fact that every VDU terminal can have its own INI file with different entries, it is possible to continue using the initial configuration from the old system. The first entry (PR0=) on every VDU must correspond to the entry of the **Configuration** dialog.

Example:

If an HP printer has been defined for the master in the first line, the INI file on the master unit must contain the entry "PR0=Your-Network-HP-Printer-Name".

If an Epson printer has been configured for the slave unit, the corresponding INI file for the slave must contain the entry "PR0= Your-Network-EPSON-Printer-Name".

On the master:

```
[PRINTERS]
;Print output on network printer (ASCII character set)
PR0=\\Computer name \HPLJ4000k
PR1=\\Computer name \ESP1500
PR3=\\Computer name \FS-1500, ASCII
```

On slave1:

```
[PRINTERS]
;Print output on network printer (ASCII character set)
PR0=\\Computer name \ESP1500
PR3=\\Computer name \FS-1500, ASCII
```

8 Message Tracing with TraceView

Methodical fault locating and analysis can be achieved with **TraceView**, a troubleshooting program developed by IPKS. **TraceView** controls the recording and representation of the incoming messages.

8.1 Installation of TraceView

The **TrcView.exe** program is automatically installed with the COROS LS-C ME software. Active processes on the computer, such as COROS LS-C ME, will automatically be integrated by TraceView in the message tracing routine. This means that you don't have to install **TraceView**, nor do you have to organise the interaction between **COROS LS-C ME** and **TraceView**.

8.2 How to Use TraceView



Depending on the settings for the trace output and the flags to be monitored, a tracing routine can generate large amounts of data.

Therefore, when you intend to use TraveView, we recommend calling an IPKS developer on the phone so that you can do the error locating together.

IPKS Erlangen, phone +49 (0)9131-69588-0

TrcView.exe controls the trace output and the display of traced messages. The main dialog box of the program looks as follows:

Programm-Name	PId	Options	TraceFlag	PName	PId	TId	Date	Time	MName	Line	Text
psevtlog	592	00000000	00000000	lf	1360	872	20.03...	11:46...	nec.cpp	1042	Anfang DRAW_CUR_SYMB() ead_y_j
LSC_ME	1236	00000000	00000000	lf	1360	872	20.03...	11:46...	nec.cpp	1166	Ende DRAW_CUR_SYMB()
lf	1360	00000001	FFFFFFFF	lf	1360	872	20.03...	11:46...	fastpic.cpp	27	Anfang UPDATE_LOC_PICT(cur_y_p
				lf	1360	872	20.03...	11:46...	fastpic.cpp	43	Ende UPDATE_LOC_PICT()

Figure 19: Main dialog of the TraceView program

The left pane of the window contains the list of running programs and processes that are monitored by the TRC-DLL file. Newly started programs are automatically added to the list.

The functions provided by the standard toolbar are indicated by means of tool tips.

Double click the program entry in the left pane to open the **Option** dialog box for that program. You can then define the output of the trace messages for the program selected.

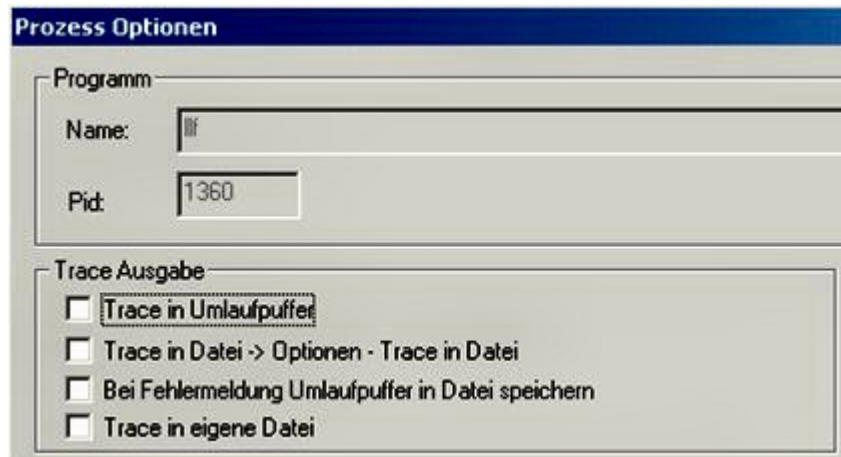


Figure 20: Options in TraceView

In the **Trace-Ausgabe** (*Trace Output*) group you tell the program where to keep the traced messages.

- ☒ **Trace in Umlaufpuffer** (*trace in FIFO shift buffer*)
The traced messages are written into a shift buffer which works on the FIFO principle. The contents of this buffer are displayed in the right pane of the TrcView screen and continuously updated. -
- ☒ **Trace in Datei → Optionen → Trace in Datei** (*Trace to file → Options → Trace to file*)
The messages are written to the file *TrcGlo.trc* in the form of ASCII text (default setting). This file is located in the current %userTEMP% folder. You may of course change the name and the path of this folder as required. To do so, select **Bearbeiten → Optionen → Trace in Datei (Edit → Options → Trace to file)**. If this file does not exist yet on your computer, it will automatically be created. Newly arriving messages are added to the end of the list.
- ☒ **Bei Fehlermeldung Umlaufpuffer in Datei speichern**
(*in the event of an error message, write the contents of the buffer to a file*)
If the process produces an error message (which is also registered in the Windows event log), the FIFO shift buffer stored in the main memory is written to the trace file.
This mode is used to trace the history of sporadically occurring errors without having to record large amounts of information on the hard disk.
- Trace in eigene Datei** (*trace to local file*)
The traced messages are written to an ASCII file. By default this file is located in the %SYSTEMDIR%\Programs\ProgName\... folder and has the file name *ProcessName.txt* where **Process** refers to the process you are observing)
(ProcessName, PID, Options, TraceFlags in the left pane of the TrcView screen)



Please note that the file **ProcessName.txt** created by the trace option - **Trace to local file** (*Trace in eigene Datei*) - may become quite big if you have large amounts of trace information. This file is not organised as a shift around buffer on the FIFO principle and keeps on growing.



We recommend consulting the IPKS support team and decide together with the responsible developer which system and user flags to enable for tracing.

If you have all flags traced by enabling ☒ the **Alle** check box, then this could lead to large amounts of data which - depending on the size of the buffer and file- will eventually be overwritten again during the trace run. .

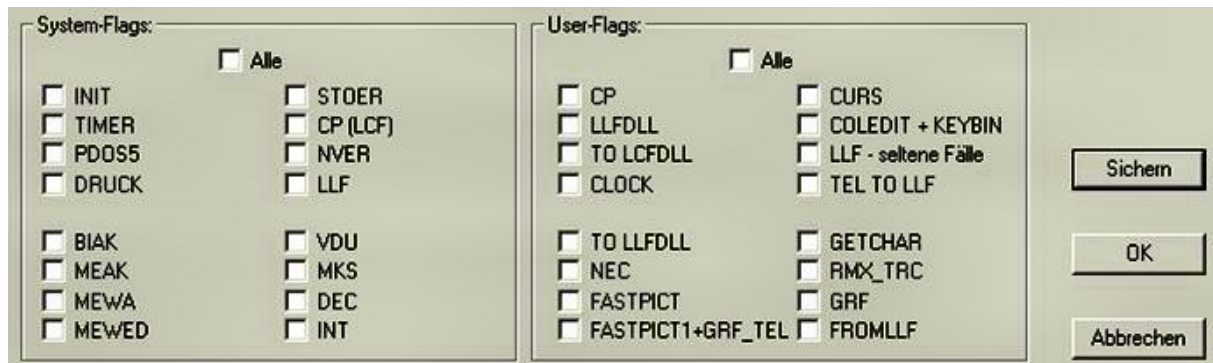


Figure 21: System and user flags to be traced by TraceView

OK If you confirm with **OK**, the settings you have made in this dialog box will only apply temporarily. This means that they are reset as soon as you close the traced process.

Sichern If you confirm your settings with **Sichern** (Save), then they are saved in a register and remain valid even if you close the traced process. The take effect again as soon as you restart the process.

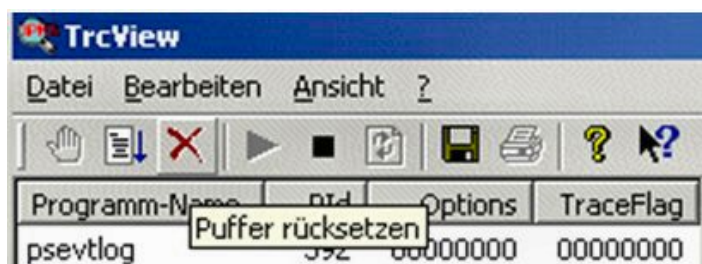


Figure 22: Toolbar of the TraceView program

The toolbar offers the icons for operating the program, such as **Anhalten** (Stop), **Starten** (Start), **Puffer rücksetzen** (Reset buffer), **Aktualisierung starten/stoppen** (Start/stop refresh) and **Traceliste aktualisieren** (Update trace list), **Speichern** (Save buffer) und **Drucken** (Print buffer).



For further information on the performance and functions of the **TrcDLL** file and the handling of the **TraceView** program, please consult the OnlineHelp (? in the menu bar) supplied with the **TraceView** program.

Notes: