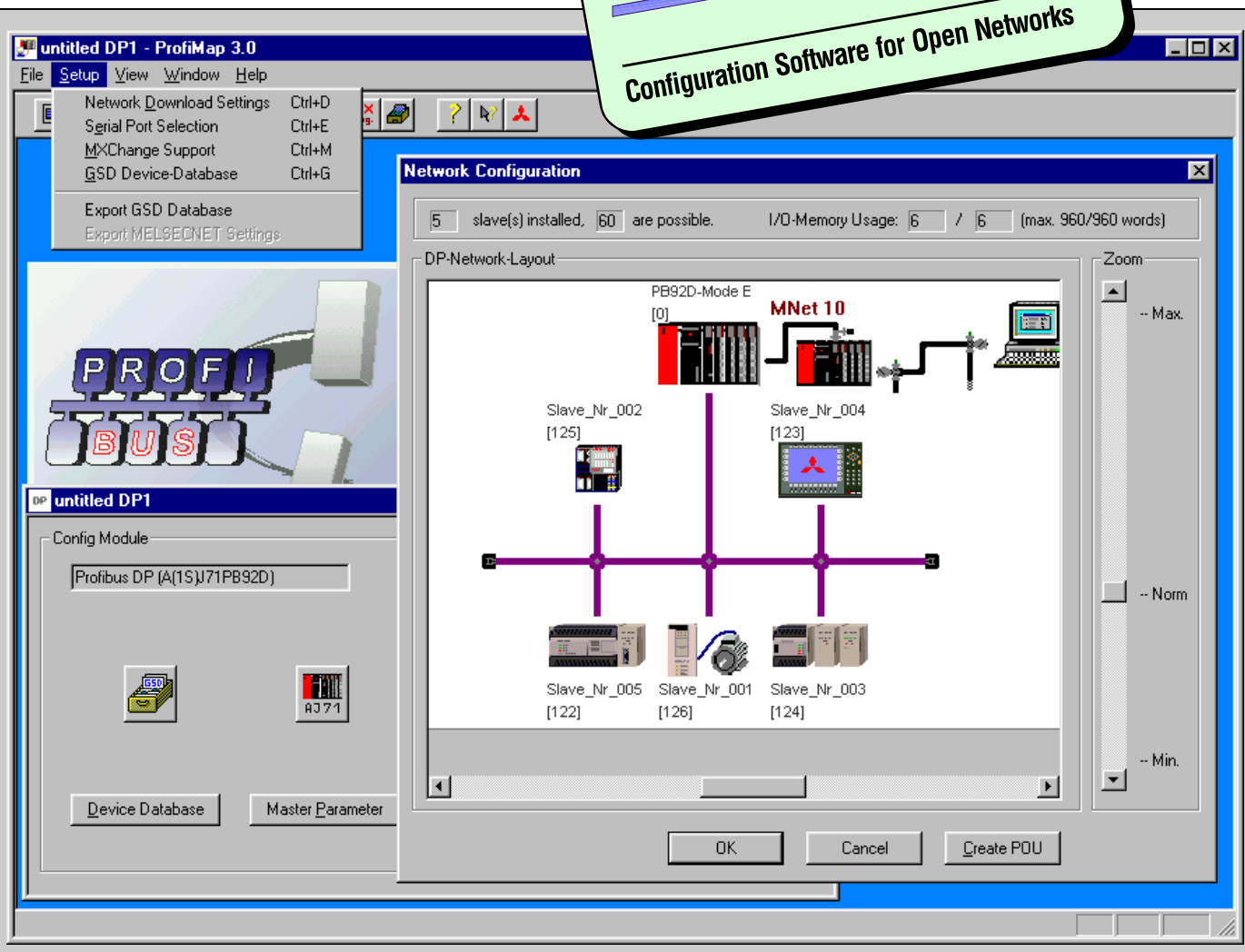
MITSUBISHI ELECTRIC

MELSEC ProfiMap V3.0

Configuration System for Open Networks

Software Manual



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Configuration System for Open Networks

Software Manual

About this Manual

The texts and illustrations in this manual are provided exclusively as a guide to the open network configuration system MELSEC ProfiMap. Separate manuals are available for MITSUBISHI ELECTRIC's various series of MELSEC programmable logic controllers.

The MELSEC ProfiMap software is supplied under a legal License Agreement and may only be used and copied subject to the terms of this License Agreement.

MITSUBISHI ELECTRIC reserves the right to make changes to the technical specifications and information in this handbook at any time and without prior notice.

The IEC 1131.3/DIN 19245 standard cited in this manual is available from the publishers Beuth Verlag in Berlin (Germany).

3rd edition

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Introduction

This manual...

...is a compact guide to using MELSEC ProfiMap software suitable both for beginners and experienced users upgrading from other systems. The manual includes explanations of the terms and structural concepts about the software and the configuration of an open network system. The manual provides a precise step-by-step description of how to use MELSEC ProfiMap including sample projects. These executable application is used to demonstrate the operation of the program with the help of the exercises provided in this manual.

If you're not yet familiar with MS Windows ...

... please at least read the Windows Fundamentals section in the Windows User's Guide, or work through the Windows Tutorial accessible through the Help menu of the Windows Program Manager. This will teach you what you need to know about using the basic elements of MS Windows, and the operating procedures that are identical in all Windows application programs.

If you have problems with parameter settings, ...

... please refer to the user´s manuals of the concerning open network modules.

If you get stuck...

... don't despair, help is never far away! If you run up against seemingly insoluble problems, or if you have questions about MELSEC ProfiMap or the connected programmable logic controller (PLC) configuration, please first refer to the manuals and documentation. Many answers and solutions can also be found directly in the MELSEC ProfiMap context-sensitive online help system, which can always be accessed by pressing F1. Make use of the **Index** command in the **Help** menu as well, as this will often locate the information you need. If you cannot find answers to your questions in any of these places, contact your local MITSUBISHI ELECTRIC representative or call our European headquarters in Ratingen directly. The addresses and phone numbers are provided on the back covers of all our manuals.

Typographic conventions and other hints

Menu names, menu commands, submenu commands and dialog box options are printed in **boldface** type.

Buttons are generally presented in the same way as they appear in the window (e.g. OK Cancel).

These two symbols are used to identify the separate instructions for mouse and keyboard users.

Examples: *This symbol identifies examples.*

Note: *This symbol draws your attention to notes, hints and valuable or useful information.*

WARNING: *Always pay particular attention to the warnings marked with this symbol. Failure to follow these instructions may lead to data loss, damage to your hardware or other serious problems.*

Installation

Before You Begin

Software Purpose

This software is a configuration utility software package which will be used to configure network interface modules of MELSEC A-series' PLC such as:

- PROFIBUS/DP interface A(1S)J71PB92D
- PROFIBUS/FMS interface A(1S)J71PB96F
- 803.3/MAP interface AJ71M56EF1/2

General Features

This software package has the following features:

- Editor windows
- Network parameter checking functions
- Download/Upload/Verify possibilities to the network modules
- Monitor windows
- Import/Export functions
- Parameter file handling on floppy disk / hard disk
- Parameter print feature
- Screen resolution independent

System Requirements

To install the MELSEC ProfiMap software package, your computer has to meet the following requirements.

Minimum hardware configuration

- Pentium PC, 60 MHz
- 16 MB RAM
- Hard disk with at least 20 MB free space
- CD-ROM drive
- VGA compatible graphics adapter
- One serial port for communication with the PLC system
- 14"/35 cm diag. VGA monitor

Recommended enhancements

- Pentium PC, 200 MHz or higher
- 32 MB RAM
- 2nd serial port and mouse
- 1 printer port
- Printer

Software requirements

The software is able to run on the following graphical operating systems:

- Windows 95
- Windows NT (V4.0 or higher)

Copyright

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Software installation

MELSEC ProfiMap software setup

To install the MELSEC ProfiMap software (hereafter called MELSEC ProfiMap) from CD-ROM under Windows 95 or Windows NT, you need to have Windows installed properly. You do not need to be logged in to Windows NT with administrator privileges.

Please close all other running software before installation and do not run other installation programs during the installation of the MELSEC ProfiMap software.

Installing MELSEC ProfiMap on your hard disk

To start the installation, proceed as follows:

① If you have not done already, start Windows.

② Insert the installation CD-ROM into your CD-ROM drive.

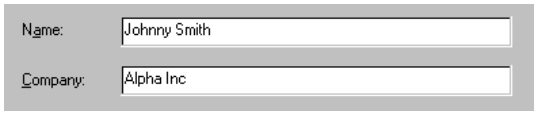
③ On the Desktop select the **Start** menu and the **Run...** command.

④ Enter: **d:\ProfiMap300\disk1\setup.exe**
(for "d:" enter the drive letter of YOUR CD-ROM drive)

⑤ Hit **Return** or click on the **OK** button to proceed with the installation.
The **Welcome** screen appears. Follow the given instructions that guide you through the installation procedure. Continue with **Next**.

⑤ Then you are in the licence agreement window. Please read these terms carefully.

⑥ Click on **Yes** if you want to proceed or **No** if you want to abort. You are then in the User Information screen. You must enter your name and company here.



⑦ Click **Next >** to proceed with the installation.
You are now asked about the installation location. Enter the destination directory where you want the MELSEC ProfiMap software to be installed (default setting is C:\ProfiMap_3_00).

⑧ If you agree with the default setting, just click on **Next >**. If you want to choose another destination click **Browse** and enter your desired drive and directory.

⑨ You can now choose between three types of setup options:

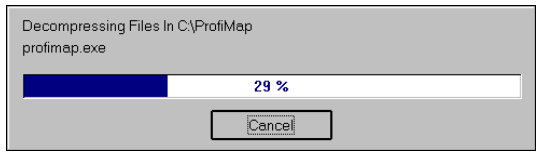
- ▷ **Typical** (default): This selection installs MELSEC ProfiMap and the device data base for Profibus/DP on your harddisk. This is the recommended option.
- ▷ **Compact**: This selection installs MELSEC ProfiMap without device data base for Profibus/DP on your hard disk. This option is especially suitable, if you intend to use this software for the setup of 803.3/MAP 3.0 or either only for MMS or FMS.
- ▷ **Custom**: With this selection you can decide yourself.

After having made your decision click **Next >** again.

⑩ Depending on your Windows version you can select the program folder which you want to have installed. Enter a new folder name or accept the displayed one and click on **Next >**.

⑪ At last you will see an overview of the current settings. You can accept the settings and start the installation with **Next >**.

The installation will start.



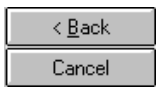
After the installation was successfully finished, you will see an appropriate message.

Please refer to the file **CONTENTS.TXT** in the root directory of the installation CD-ROM for further details on its contents.

The **MELSEC EasySocket** software is required for network connections to the ProfiBus master module only. If you intend to configure the master module exclusively via the programming port, you do not need to install **MELSEC EasySocket**. If **MELSEC EasySocket** is not installed but required afterwards you will be prompted for the installtion.

Button functions

With the **Next** button you will leave the current menu and enter the next menu.



The **Cancel** button ends the ProfiBus installation procedure and with the **Back** button you go to the previous window.

The Menus

Starting MELSEC ProfiMap

① Double-click on the MELSEC ProfiMap icon. This starts the MELSEC ProfiMap software and displays the start-up screen.

② Confirm with a click on the OK button or simply hit Enter.

Menu after Start

After pressing the OK button the menu bar becomes active. The menu bar offers the following pull-down menus:

The pull-down menus can be selected via mouse or keyboard.

File: Alt F

Setup: Alt S

View: Alt V

Help: Alt H

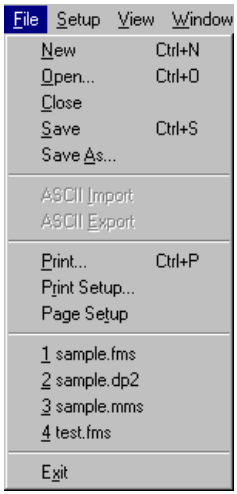
The items in the open pull-down menus can be accessed via mouse or keyboard. The underlined character will start the function. In addition there are some menu items which may be started using predefined hotkeys.

The toolbar just below the main menu contains buttons for an instant access of the most frequently used functions of MELSEC ProfiMap. (The MXChange button is only available, if MXChange actually is installed on your computer):

New	Starting a new project	Ctrl N
Open	Opening an existing project	Ctrl O
Save	Saving a modified project	Ctrl S
Print	Printing the current project	Ctrl P
Print Setup	Opening the printer setup	
Page Setup	Defining the parameters to be printed	
Network Database	Managing the records of the network database	Ctrl D
Serial Port	Select COM port 1 or 2	Ctrl E
MXChange	MXChange support properties	Ctrl M
GSD	GSD device database	Ctrl G
Help	Getting context help	F1
Help Tool	Getting help on items you click on	
About	Displaying program information	

File menu

After having started the MELSEC ProfiMap software, this is the first menu to work with. With the help of this menu you can create a new project, load an existing project, import and export a project.



The menu commands have the following functions.

Command	Purpose	Shortcut	Hotkey
New	Starting a new project	N	Ctrl N
Open	Opening an existing project	O	Ctrl O
Save	Saving a modified project	S	Ctrl S
Save as	Saving a modified project with a new name	A	—
ASCII Import	Reading a project generated by a different software*	I	—
ASCII Export	Writing a project to other format to be read by different software*	E	—
Print	Printing the current project	P	Ctrl P
Printer Setup	Opening the printer setup	R	—
Page Setup	Defining the parameters to be printed	T	—
Project select	Opening one of the four latest used projects	1,2,3,4	—
Exit	Leaving the software	X	—

*The marked items are only valid for configuration of 803.3/MAP3.0 network.

All these menu commands are described in detail on the following pages.

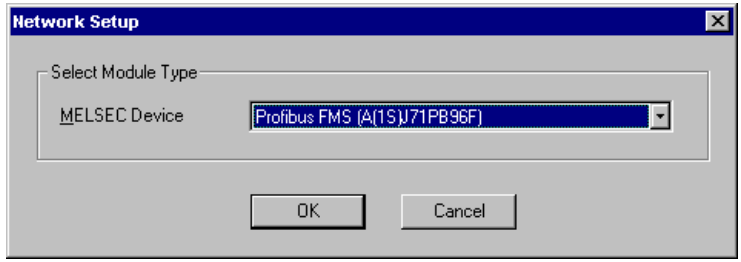
Note: *PROFIBUS/DP-Projects and device databases from MELSEC ProfiMap Ver. 1.0 can only be used in Ver. 2.0 after conversion with the included conversion tool.*

Command New

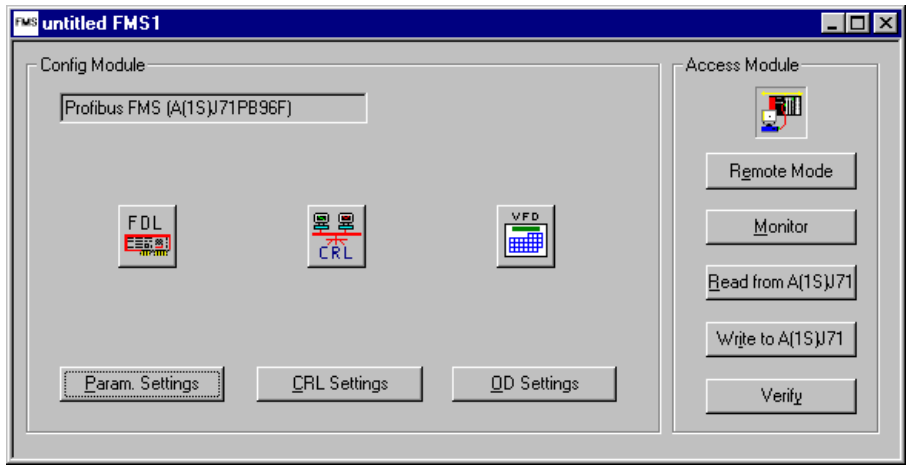
The menu command **New** is used to create a new project. The purpose of this menu command is to setup network parameters for a MELSEC A/Q and AnS/QnAS series network interface module. Up to 8 projects can be opened at the same time.

First you have to select one of the following network modules you want to setup:

- Profibus DP (A(1S)J71PB92D)
- Profibus FMS (A(1S)J71PB96F)
- 802.3 / MAP (AJ71M56EF2)



Then the project dialog box appears where you configure and access the selected network module:



Section "Config Module" in the project dialog box

Here you edit the dedicated parameters for the selected network interface module in specific editors. All buttons and functions within the "Config Module" section depend on the module type selected.

At present 3 network interface modules are supported.

The following parameters can be edited depending on the selected module:

AJ71M56EF2 In case of AJ71M56EF2 MAP3.0 / ETHERNET network interface:

- OSI parameters
- SAP/AE parameters
- Named variables

Chapter 4 of this manual contains a detailed description of the meaning and setting of these parameters

A(1S)J71PB92D In case of A(1S)J71PB92D Profibus DP network interface:

- Device database
- Master parameters
- Definition of I/O slaves

Chapter 5 of this manual contains a detailed description of the meaning and setting of these parameters.

A(1S)J71PB96F In case of A(1S)J71PB96F Profibus FMS network interface:

- Parameter settings
- CRL settings
- OD settings

Chapter 6 of this manual contains a detailed description of the meaning and setting of these parameters.

Section "Access Module" in the project dialog box

These functions interact with the network interface modules. Therefore, it is necessary that the parameter setting cable is installed either to COM1 or COM2 of the personal computer and to the network module.

Note: *Depending on the network interface module different parameter setting cables must be used.*

- *For the AJ71M56EF2 use the red programming cable SC09.*
- *For the A(1S)J71PB92D or A(1S)J71PB96F use the blue ProfiCab cable. It is included in the software package.*

Refer to (Setup/Serial Port) for further details.

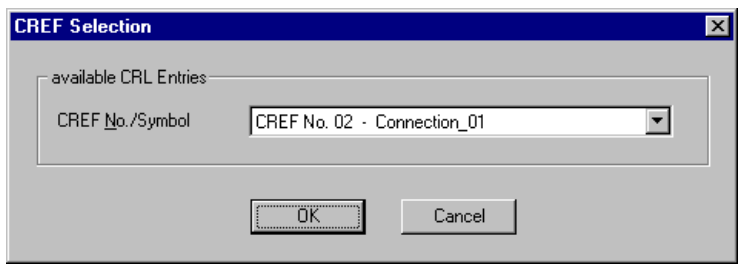
The following buttons and functions are provided (refer to chapters 4, 5, 6 for detailed descriptions of the individual module setups):

Item (button)		Purpose	Shortcut
Remote Mode	① ②	Loads the object dictionary from the remote station	Alt E
Monitor	①	Opens a dialog box for monitor selection. Depends on the selected network module	Alt M
Read from ...	①	Reads parameters from the connected network module	Alt R
Write to ...		Writes the created parameters to the network module	Alt T
Verify		Checks whether the created parameters and the parameters in the connected network module are equal	Alt Y

① Not available for Profibus DP module
② Not available for MAP3.0 module

Button Remote Mode

This function is supported by the FMS modules only and accesses the remote mode management dialog. Here you can load the object dictionary from the remote station via the current CREF. MELSEC ProfiMap only provides an overview of the loaded remote object dictionary.

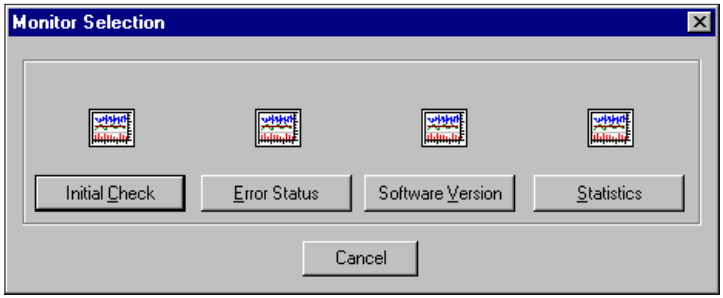


Button Monitor

Depending on the network interface module different monitor functions are available.

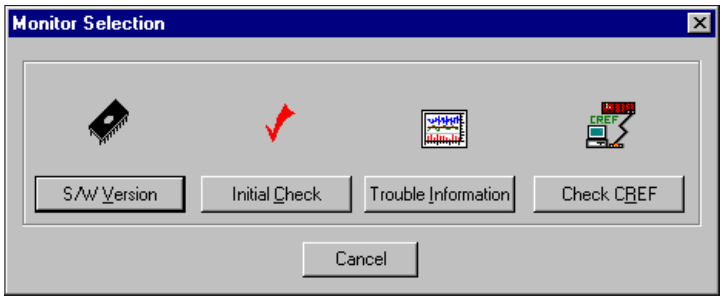
AJ71M56EF2

If the network interface module AJ71M56EF2 has been selected the following dialog box appears:



A(1S)J71PB96F

If the network interface module A(1S)J71PB96F has been selected the following dialog box appears:



A(1S)J71PB92D

The network interface module A(1S)J71PB92D does not support the monitor function.

Read/Write/Verify operations from/to/with the master module

Before you start the transfer:

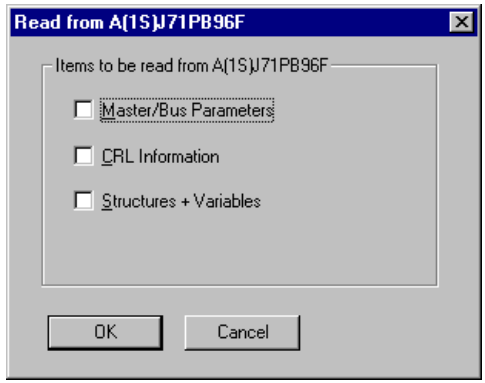
- Ensure that no other data is transferred from or to the network module (FROM/TO instructions)
- Ensure that the serial cable is connected correctly to your personal computer and to the network module
- Set the master module to the parameterize mode
- Reset the PLC CPU

After the transfer is completed:

- Set the master to the operating mode
- Reset the PLC CPU

Button Read from A(1S)J71

The purpose of this function is to upload the module configuration from the selected network interface module. To start this function click on the Read from AJ71 button. Only for an FMS project you can additionally specify the items to be transferred:



When Cancel is selected this dialog box will be closed.

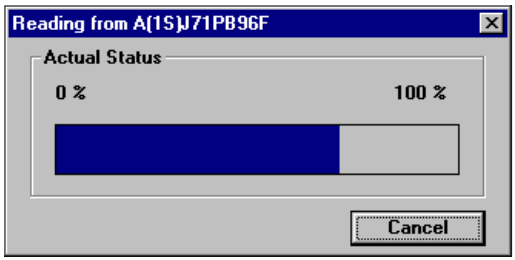
To start the upload operation click on the OK button or simply press Enter.

The upload operation will be started if there are no errors.

If the network interface does not respond, the following dialog box appears:

If the serial port is not configured, the following dialog box appears:

If there is a positive response from the network interface module the reading operation starts and the following status window appears:



The bar graph informs you about the status of the upload operation.

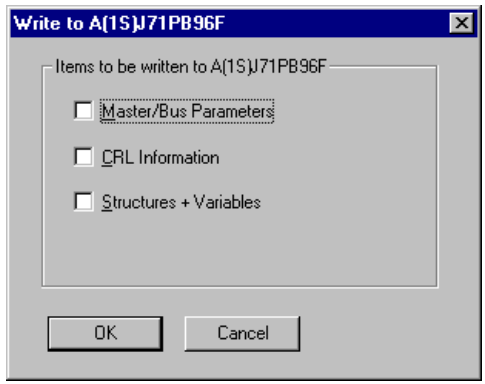
When you click on the Cancel button during the upload operation, the interaction with the network interface module will be stopped. A new message appears informing you that the upload operation has been interrupted and that the old parameter data are still valid.

This means that the parameters defined previously are not overwritten by the uploaded parameters.

The old parameters will only be updated by the uploaded data if the upload operation was done completely and successfully.

Button Write to A(1S)J71

The purpose of this function is to download the generated parameter set to the network interface module. To start this function press the Write to AJ71 button. Only for an FMS project you can additionally specify the items to be transferred:



When Cancel is selected this dialog box will be closed.

To start the download operation click on the OK button or simply press Enter. The download operation will be started if there are no errors.

If the network interface does not respond, the following dialog box appears:

If the serial port is not configured, the following dialog box appears:

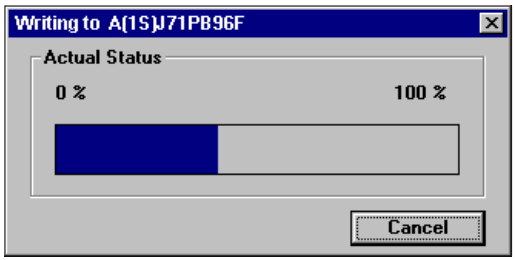
When the configuration software detects that the network interface module is write protected the following message appears:

AJ71M56EF2 "AJ71M56EF2 is write protected. Please set dip switch 1 and 2 to right position."

A(1S)J71PB96F "A(1S)J71PB96F is write protected. Please set rotary switch to position 1."

A(1S)J71PB92D - no message -

If there is a positive response from the network interface module the writing operation starts and the following status window appears:



The bar graph informs you about the current status of the download operation.

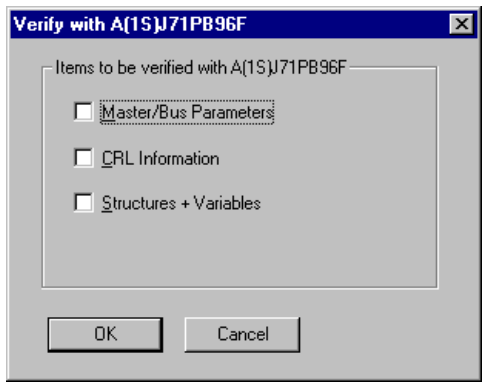
When you click on the Cancel button the interaction with the network interface module will be stopped at the next possible protocol and the status window will be closed. A new message box appears:

"Download has been interrupted. Data may be inconsistent. Retry download".

Button Verify

The purpose of this function is to verify whether the parameters in the software and those in the connected network interface module match.

If the network interface module A(1S)J71PB96F has been selected the following dialog box appears. Only for an FMS project you can additionally specify the items to be verified:



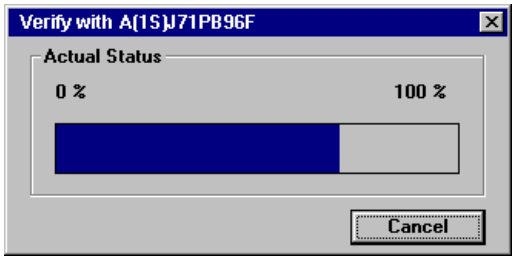
When the Cancel button is pressed this dialog box will be closed.

Click on OK to start the verify operation.

If the network interface does not respond, the following dialog box appears:

If the serial port is not configured, the following dialog box appears:

If there is a positive response from the network interface module the verify operation starts and the following status window appears:



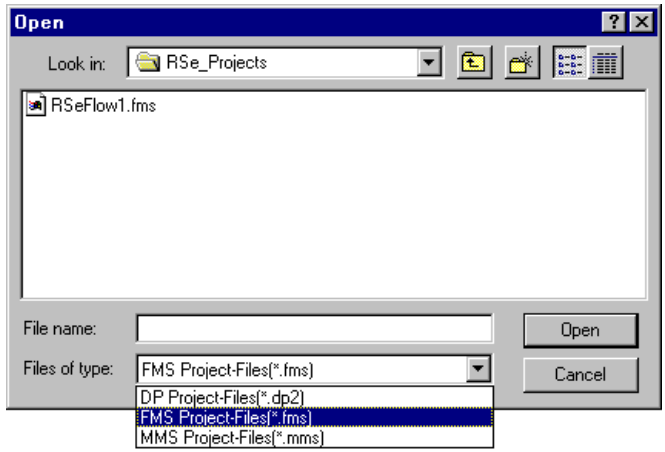
If the verify function does not find any difference between the parameters in the network interface module and those in the software a message appears informing that the parameter settings are equal.

If the verify function finds differences between the parameters at the network interface module and those in the software a message states which set of parameters are not equal.

WARNING: *Do not forget to save your current project under* ***File/Save as...*** *in the main menu otherwise your new project and your changes made will be lost!*

Command Open

The menu command **Open** allows to open a project, which has previously been saved. This command uses the Windows dialog box for file open operation.



The **Open** dialog box lists only files of the type

- *.DP2 (project of A(1S)J71PB92D – Profibus/DP network)
- *.FMS (project of A(1S)J71PB96F – Profibus/FMS network)
- *.MMS (project of AJ71M56EF2 – 803.3/MAP3.0 network)

In case of a *.DP2 project MELSEC ProfiMap is looking for an *.EXT project with the same name, stored in the same directory. In case that the *.EXT file exits MELSEC ProfiMap searches for missing GSD Database entries of the *.DP2 project.

This functionality ensures that any MELSEC ProfiMap V. 2.0 PROFIBUS/DP project can be opened generated on any other personal computer running MELSEC ProfiMap V. 2.0.

The shortcuts defined by the Windows dialog box for file open are valid.

Note: **.DP-projects generated with MELSEC ProfiMap V. 1.0 cannot be opened.*

Command Save

This menu command is used to save a modified project. The project will be saved to the assigned file name. If no file name exists (e.g. new project) the standard dialog box for **Save as** will be opened.

In case of a A(1S)J71PB92D there are two possibilities to save an existing project .

- Saving only the project with the extension *.DP2 where Profibus/DP network configuration is stored. This is usually done.
- Saving the project with the extension *.DP2 and an extract of the currently used GSD-database File. This extract contains all the attributs stored in the GSD-database file of those slave devices which are used in the network. The extract will have the same name as the project file but has the extension *.EXT.

In case that both files (*.DP2 and *.EXT) are stored on a floppy disk or any other media any computer running MELSEC ProfiMap V. 2.0 can open the project and modify the whole PROFIBUS/DP-Network, independently which GSD-database file exists on this computer.

In order that both files are generated by MELSEC ProfiMap the function Export GSD-database must be enabled (**Export GSD Database** in the Menu Setup).

Command Save As

This menu command is used to save a modified project with a new assigned file name. This command uses the dialog box for file saving.

The appropriate file extension is appended automatically depending on the module type you selected:

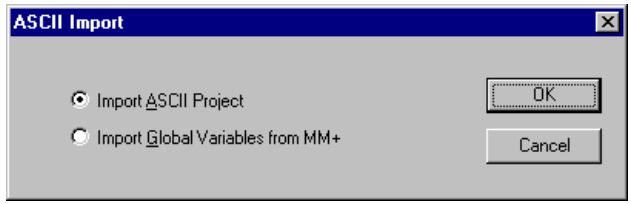
- *.DP2
- *.FMS
- *.MMS

Command ASCII Import

Note: *The menu command* **ASCII Import** *is only valid for the 802.3/MAP3.0 network.*

The ASCII import provides two features:

- Read the global variable list generated by MELSEC MEDOC *plus*.
- Read the whole project generated by any other ASCII editor.



The purpose of reading the global variable list generated by MELSEC MEDOC *plus* is to avoid the generation of named variables twice. This reduces your programming efforts.

The purpose of reading a whole project generated by any other ASCII editor is that you can use this software package just for downloading the parameter set to the network interface. Any other intelligent network software can produce files for each specific node in the network. The ASCII reading function enables you to use these files easily.

However you must follow an ASCII structure defined by MELSEC ProfiMap.

Import ASCII Project

Before the ASCII Import can be executed you need to have a network interface module selected and a project opened.

When you select **Import ASCII-Project** a dialog box for file open operations appears. The format of the ASCII import file is predefined.

If you want to get familiar with this features, create a small project with MELSEC ProfiMap. Perform an ASCII export and look at the syntax. This syntax will be used by the ASCII import function as well. It is quite easy to emulate this syntax.

Import Global Variables from MM+

If you select **Import Global Variables** from MM+, the import function is able to transfer the following variable formats:

IEC 1131.3 variable supported by MM+	MAP 3.0 MMS variable supported by AJ71M56EF2
BOOL	Boolean
INT	Integer
DINT	Octet string, 2 octet
WORD	Octet string, 2 octet
DWORD	Octet string, 4 octet
ARRAY	Array
DUT (Data Unit Type)	Not possible

To be able to import global variables in MELSEC ProfiMap from MM+ it is necessary to perform an ASCII export of the "Global Variables" from MELSEC MEDOC *plus*.

Refer to the MELSEC MEDOC *plus* Reference Manual how to generate an ASCII export file of the global variables.

How to import arrays

IEC 1131.3 array	MMS array
BOOL	Boolean
INT	Integer
DINT	Not possible
WORD	Integer
DWORD	Not possible

All other array variables cannot be imported. A message box appears on the screen: "Cannot import an array variable."

Since MMS-type projects require a MELSEC NET address which is not supplied by the MELSEC MEDOC *plus* global variables, this import function will set the MELSEC NET address to "Host Station = 0xFF" automatically (default).

If an MMS-type project is selected, up to 100 global variables may be imported.

If the number of global variables exceeds these 100 variables, a message dialog box appears:

"Warning: Too many global variables. Cannot import all of them."

If the import is finalized, a message dialog box appears:

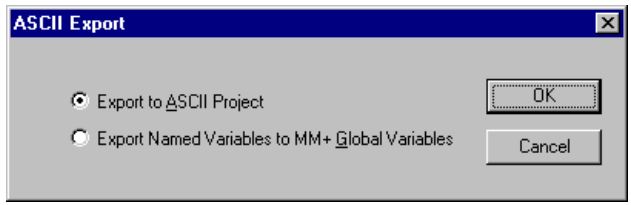
"Import done. XX global variables imported"

Command ASCII Export

Note: *This menu command is not available for PROFIBUS network.*

The ASCII export provides two features:

- Export the named variable list to the global variable list which can be imported by MELSEC MEDOC *plus*.
- Export the whole project to an ASCII file which can be read by an ASCII editor.



The purpose of exporting the named variable list to the global variable list which can be imported by MELSEC MEDOC *plus* is to avoid the generation of global variables twice. This reduces your programming efforts.

The purpose of exporting the whole project to an ASCII file is that you have the possibility to include the generated parameter setting to other vendor configuration utilities.

Export to ASCII Project

If you select **Export to ASCII-Project**, a dialog box for file saving operation appears and a name for the project can be defined.

The format of the ASCII export file is the same as for the menu command **ASCII Import** (see page before).

Export Named Variables to MM+ Global Variables

If you select **Export Named Variables to MM+ Global Variables**, the export function transfers the following variable formats:

MAP 3.0 MMS-variable supported by AJ71M56EF2	**IEC 1131.3 Variable supported by MELSEC MEDOC *plus***
Boolean	BOOL
—	Not possible
Integer	INT
—	DINT
—	Not possible
—	WORD
—	DWORD
Octet-String	Not possible
Bit-String	Not possible
Array of Boolean/ Array of Integer	Array of BOOL/ Array of INT

If a named variable cannot be exported to a MELSEC MEDOC *plus* global variable, a message dialog box appears:

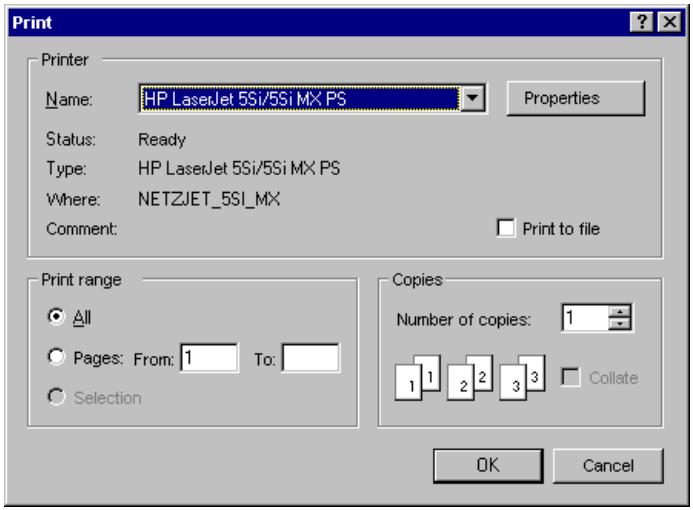
"Cannot export variable "XYZ" to MM+ global variables".

Command Print

The purpose of this menu command is to print the generated parameters of the selected network unit.

This window states the actual printers and offers to select the print quality.

If you want to use another printer you can select it from the **Name** item.



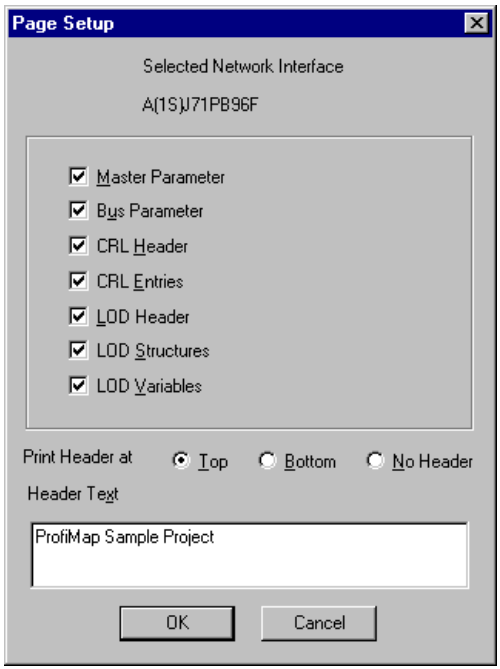
Command Printer Setup

If you select the menu command **Printer Setup** the standard Windows dialog box for the printer setup appears.

Command Page Setup

When you choose **Page Setup** you can select which parameters will be printed. The selections to be checked depend on the used network interface. Additionally you can indicate the position of the printed header on the page: top or bottom. If you select **No header** the header information will not be printed.

The project header belongs to the project and is saved in the project file.

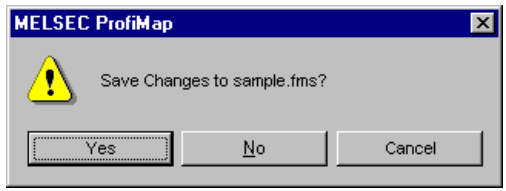


Project Select

The pull-down menu shows you the last four used projects. You can open one of them by pressing the shortcut 1 to 4 or selecting it with the mouse cursor.

Command Exit

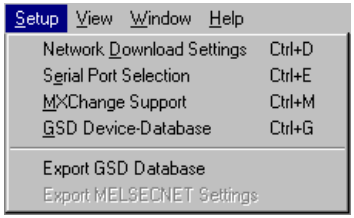
You can use this menu command to quit the software. If anything in the current project has been modified and has not yet been saved the following message appears:



If you want to save the last changes before leaving this software choose Yes .

If you choose No all modifications are lost.

Setup menu



In the **Setup** menu you select the following menu commands.

Command	Purpose	Shortcut	Hotkey
Network Download Settings	Provides a dialog to select and setup a network connection setting from the network database (for details refer to chapter 7).	D	Ctrl D
Serial Port Selection	Selection of the serial port which will interact with the parameter setting port of the network interface.	E	Ctrl E
MXChange Support	Provides a dialog to set up the properties of the MXChange connection. MXChange support is only selectable in case that MXChange is installed on the computer or on a LAN connected to the personal computer.	M	Ctrl M
GSD Device-Database	Provides a dialog to access the GSD device database.	G	Ctrl G
Export GSD Database	The current GSD-database of MELSEC ProfiMap can be exported in order that MELSEC ProfiMap installed on a different computer can import the database.	—	
Export MELSECNET Settings	Available in future versions.	—	

Command Serial Port Selection

The purpose of this menu command is to select the serial port of the personal computer which communicates with the network interface. This port setting is valid only for direct module access via RS232/422, not for CPU/network access.

The following dialog box appears:

The serial port selection will be stored on the hard disk after pressing the OK button. The port selection is a global setting and valid at once for all open projects.

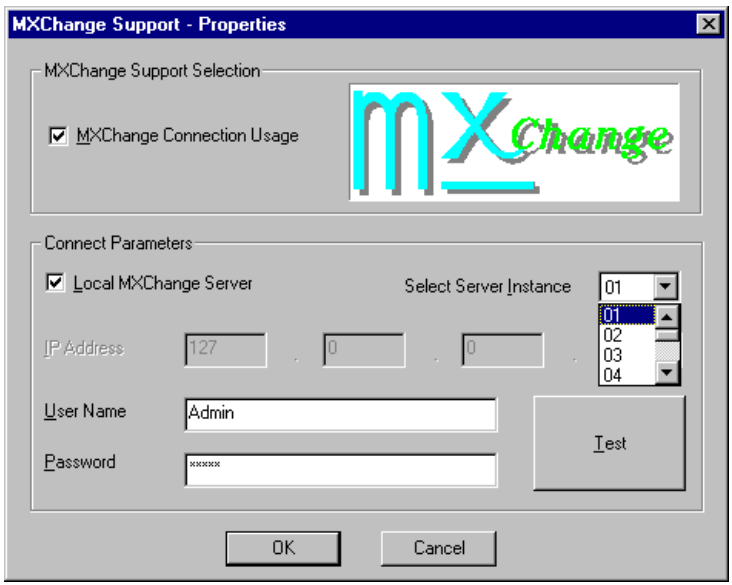
Note: *Depending on the network interface module different parameter setting cables must be used.*

- *For the AJ71M56EF2 use the red programming cable SC09.*
- *For the A(1S)J71PB92D or A(1S)J71PB96F use the blue ProfiCab cable.*

Command MXChange support

MXChange is an external software package made by Mitsubishi Electric. An A(1S)J71PB92D PROFIBUS/DP module project can use MXChange to generate a suitable PLC CPU sequence program at MELSEC MEDOC *plus* V. 2.32 or later. The PLC CPU program update is done automatically with saving the A(1S)J71PB92D project. For this purpose the MXChange server must be installed and MELSEC ProfiMap must be connected to this server.

This dialog is used to setup the MXChange connection:



Item	Meaning	Shortcut
MXChange Connection Usage	Enable/disable the MXChange function	Ctrl M
Local MXChange Server	Specifies that MXChange is installed locally on the same system as MELSEC ProfiMap (not in a LAN)	Ctrl L
Select Server Instance	Selects one of up to 16 available servers to connect to	Ctrl I
IP Address	Specify the IP address of the MXChange server in the LAN (ask your network administrator)	
User Name	Enter your user name for the MXChange server	Ctrl U
Password	Enter your password for the MXChange server	Ctrl P
Test	Tests, if a connection to the MXChange server can be established with the specified settings	Ctrl T

You can set the MXChange connection usage for the A(1S)J71PB92D project by enabling the MXChange Connection Usage check box.

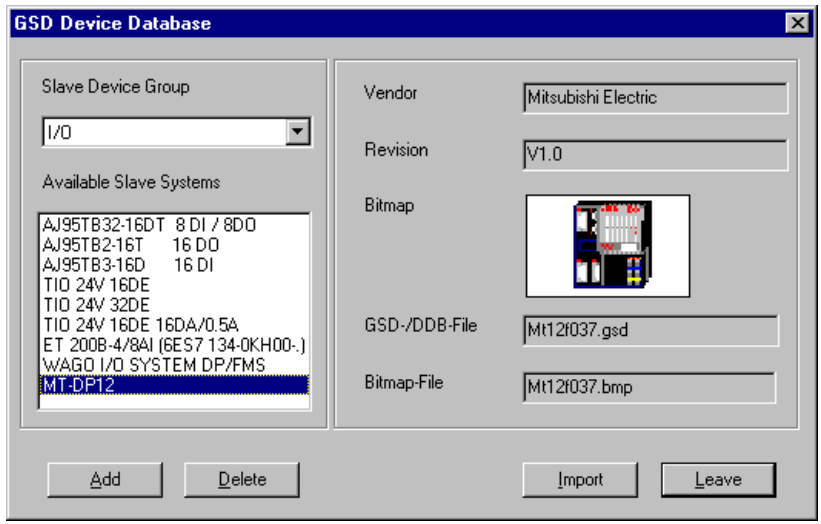
When the user prefers a local MXChange server, it is compulsory to install the server on the local PC. The local MXChange server is selected by enabling the Local MXChange Server check box. For correct remote MXChange support it is compulsory to install the TCP/IP services of the operating system. The correct IP address of the remote station where the server is located can be set by disabling the Local MXChange Server check box. The correct account, subdivided by the User Name and Password is also compulsory for remote connection usage.

Command GSD Device Database

The device database contains information about slave devices from Mitsubishi or 3rd party manufacturers. This item is used to add or delete devices from the internal database (so called GSD files from PROFIBUS/DP slave devices) and to import extracted GSD data from other computers running MELSEC ProfiMap.

The purpose of this function is to add or delete devices from the internal database of available devices. The software is distributed with a predefined list of groups, which provide a general structure for all added slave devices.

The **Device Database** can be modified in the following dialog box:



Note: *Refer to chapter 5 for a detailed description of the GSD Device Database features.*

View menu

In the **View** menu you can select the following menu commands:

Command	Purpose	Shortcut	Hotkey
Tool bar	Enable / disable tool bar	none	none
Status bar	Enable / disable status bar	none	none

These two menu commands allow you to select whether the tool bar and the status bar will be displayed or not. A check mark in front of the commands shows that this function is currently activated.

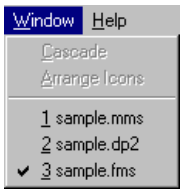
Command Toolbar

If the toolbar is enabled you will find additional buttons for creating documents, opening documents, saving documents or the help menu.

Command Status bar

If this command is enabled a status bar will be displayed at the bottom of the window informing you about the selected item and the current status of the project.

Window menu



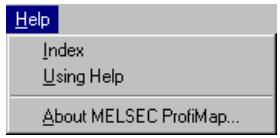
This menu provides the standard "window" functions where you can switch over to one of several projects that you keep open simultaneously.

Either click on the loaded project you want to switch over to or enter the according number.

Up to 8 projects can be opened at the same time.

Help menu

Within the Help menu you can select between the following menu commands:



Command	Purpose	Shortcut	Hotkey
Index	Searching for keywords	none	none
Using Help	Call Windows „Using Help function“	none	none
About MELSEC ProfiMap	Display software release	none	none

Command Index

With the help of this function you can search for a keyword. Just type in the term you need information about and you will get help.

In addition you will be supported by a context-sensitive help. If you have opened any dialog box you can access the help function by pressing the F1 key.

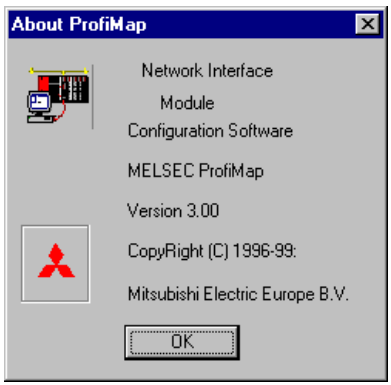
Command Using Help

The purpose of this function is to start the Windows help informing you on how to use the help system.

Command About MELSEC ProfiMap

This function displays information about your software release. Since MITSUBISHI ELECTRIC wants to include further network interface modules to this configuration software package it is possible to distinguish the software by its version number.

The following message box appears:



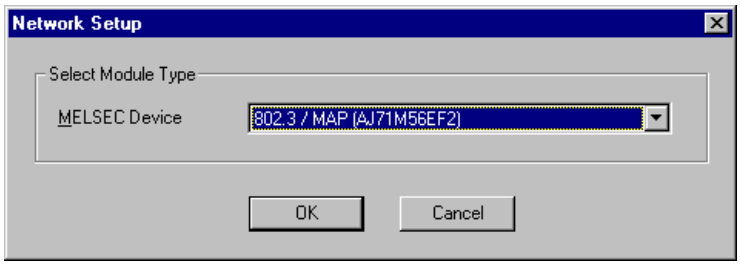
802.3 / MAP3.0 Interface

Parameter Setting for AJ71M56EF2

Introduction and Overview

This chapter describes how to generate the AJ71M56EF2 parameter settings.

After selecting the command **New** in the **File** menu (see chapter 3 for details) choose the module type **802.3 / MAP (AJ71M56EF2)** from the menu.



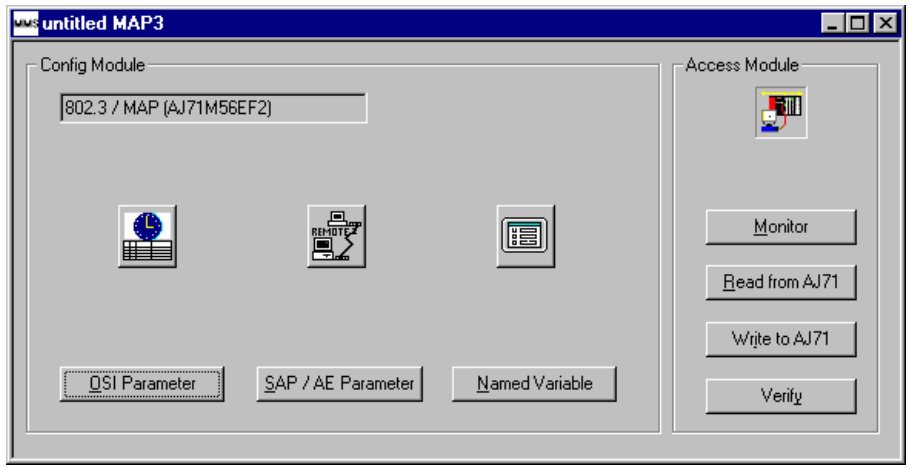
The project dialog box shown below for the network setup appears. It is subdivided into two sections, one for the offline configuration and one for the online access of the module. The following functions are provided:

Config Module

- **OSI Parameter**
- **SAP / AE Parameter**
- **Named Variable**

Access Module

- **Monitor**
- **Read from AJ71**
- **Write to AJ71**
- **Verify**



The parameter for this network interface module are grouped into three different items as follows:

Item	Purpose	Shortcut
OSI Parameter	Setup of layer 3 and 4 parameter of the OSI model. This function is used to define a watch dog timer which checks whether a connection is still active. In addition there are timer settings which are important in case of communication errors.	Alt O
SAP / AE Parameter	Setup of layer 7 parameter of the OSI model. This item defines logical connections to other network nodes.	Alt S
Named Variables	Setup of layer 7 parameter of the OSI model. This item defines variables being server for other network nodes.	Alt N

Command OSI PARAMETER

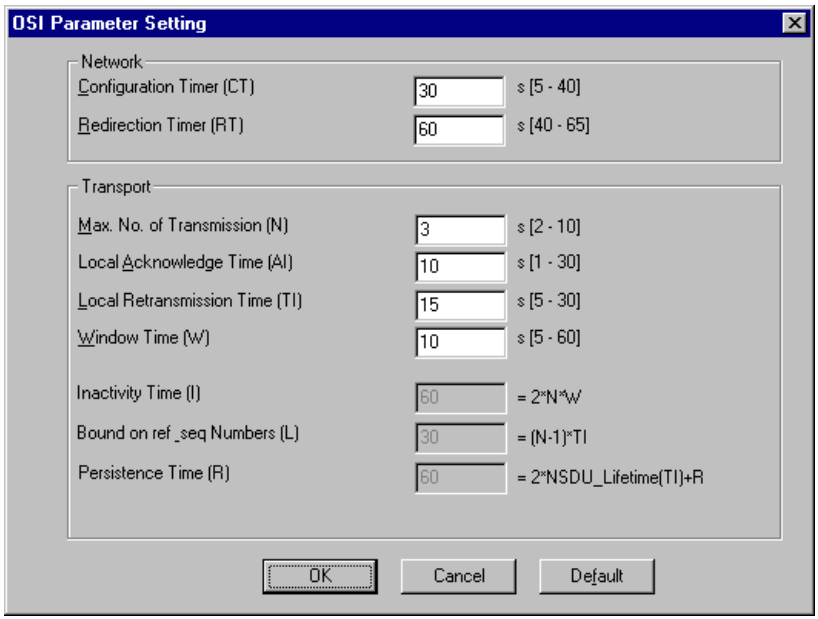
The purpose of this function is to define a watch dog timer which checks whether a connection is still active or not. In addition there are timer settings which are important in case of communication errors.

If you select this function without having modified these values before, the default values will be loaded.

The default values are defined as follows:

Item	Default value
Configuration timer (CT)	30
Redirection timer (RT)	60
Max. No. of transmission (N)	3
Local acknowledge time (A(I))	10
Local retransmission time (TI)	15
Window time	10

The OSI parameters can be modified in the following dialog box:



You can use the Default button to set the "OSI Parameter" entries to default values as defined in the previous table.

If you select Cancel or press the Esc key this dialog box will be closed without updating the "OSI Parameter" setting.

The timers

- Inactivity Time (I)
- Persistence Time (R)
- Bound on ref & Seq Numbers (L)

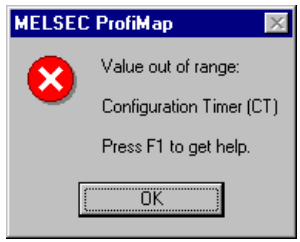
will be calculated based on the settings currently made in this dialog box. For this purpose the following formulars are valid:

- I = 2 x N x W
- L = (N-1) x TI
- R = 2 x TI + R

You can select an entry box by clicking on it or using the shortcuts and/or the Tab key.

If you select OK or press Enter a range checking operation will be started. If no errors are found the modified "OSI Parameter" values will be accepted and this dialog box will be closed. The project dialog box will be active.

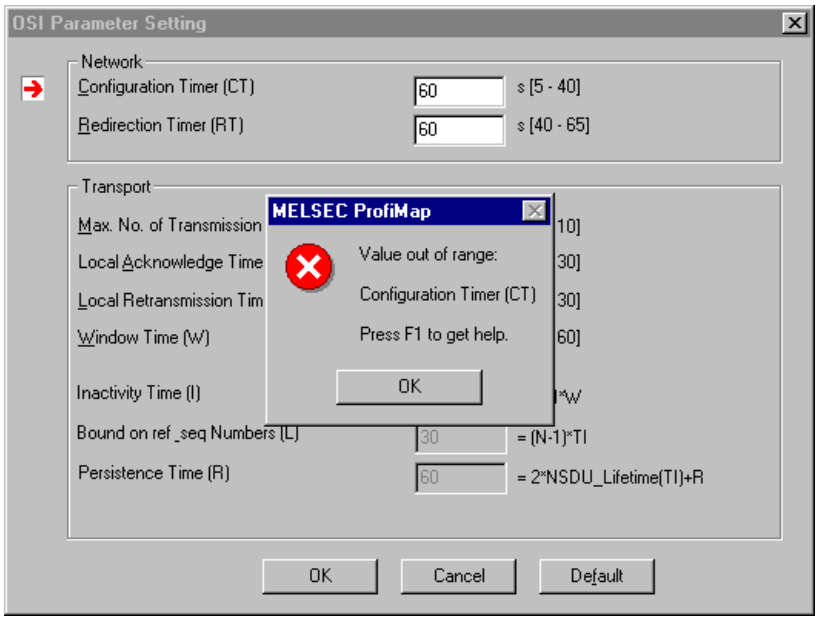
The range checking operation looks for entries which are out of range. The following error message will be displayed:



The setting ranges are as follows:

Item	Range
Configuration timer (CT)	5 – 40
Redirection timer (RT)	40 – 65
Max. No. of transmission (N)	2 – 10
Local acknowledge time (A(I))	1 – 30
Local retransmission time (TI)	5 – 30
Window time	5 – 60

Example:



If a message box of the checking operation is open the buttons OK Cancel and Default in the dialog box **OSI Parameter Setting** cannot be accessed.

Select OK or press Enter in the message box to close it. The dialog box **OSI Parameter Setting** remains open and you can enter a new value.

The purpose of this procedure is, that you can correct all ranges until no more errors remain.

Select OK or press Enter after entering the new value. If no more error message appears all values are entered correctly.

Command SAP/AE PARAMETER

This function defines logical connections to other network nodes. There are two types of connections:

- Local_AE: This is an application entry being server for other nodes.
- Remote_AE: There are application entries which will act as client to other nodes.

If you select this function without having modified these values before, the default values will be loaded.

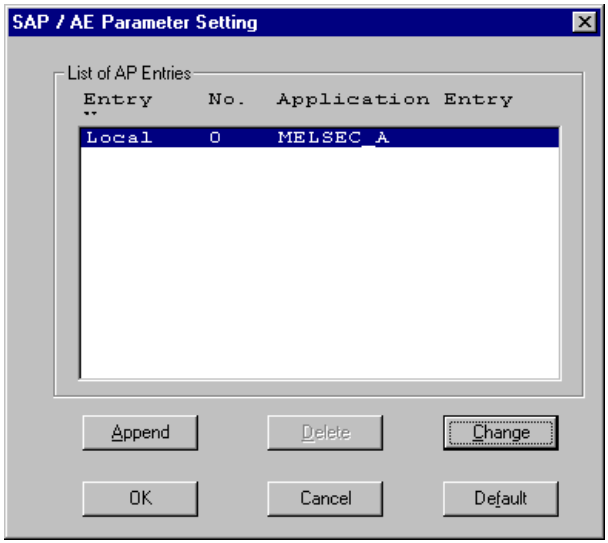
The default values are defined as follows:

Item	Default values				
Application entry (AE)	Local	Remote 1	Remote 2	- - - -	Remote 24
AEname	MELSEC_A	empty	empty	- - - -	empty
APtitle	1,3,9999,3,7	empty	empty	- - - -	empty
AEqualifier	00000001	00000000	00000000	- - - -	00000000
PSAP	0001	empty	empty	- - - -	empty
TSAP	0001	empty	empty	- - - -	empty
NSAPaddress	49 00 01 02 00 00 00 02 00 01	empty	empty	- - - -	empty

One “Local_AE” and up to 24 “Remote_AE” can be defined.

The term “empty” in the above table means that there is no value or ASCII character present.

If you select this function the following dialog box appears displaying only "Application Entry (AE)" and "AEname":



If you select Cancel or press Esc the previous setting (before opening this dialog box) is still valid and this dialog box will be closed.

If you click on the Default button the default values will be loaded (see table above).

The last "Entry No." having an "AEname", which is not empty, will be deleted after pressing Delete .

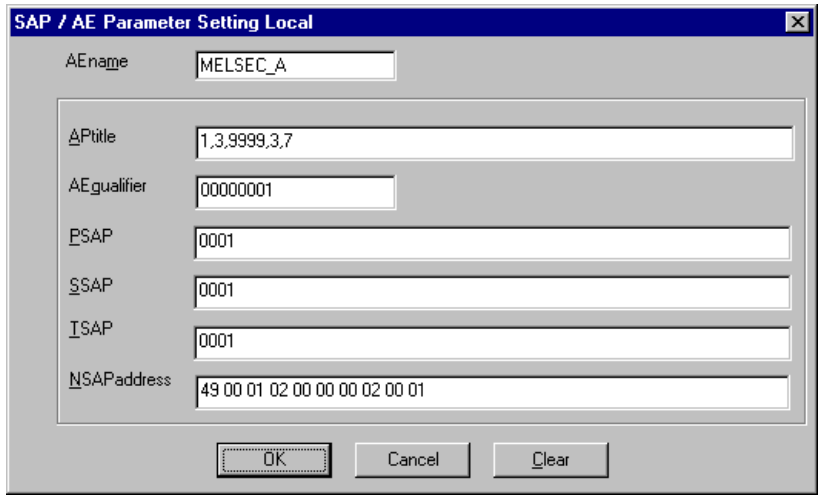
Note: *The "Entry No." called "Local" has to remain, it cannot be deleted.*

If the button OK or Enter is pressed, then the modified values will be updated and this dialog box will be closed.

Append and Change open the same dialog box.

If you select Append , you can define new parameters. The "Append" function reaches the first "Entry No." which is empty. If the default values are loaded the first "Entry No." is "Remote 1".

If you select Change , you can modify a parameter set which has already been defined. If you have selected “AEname: Local” the following dialog box will be displayed:



While this dialog box is open all buttons in the dialog box **SAP/AE Parameter Setting** cannot be accessed.

When you select the Cancel button or press the Esc key the previous setting (before opening this dialog box) is still valid and this dialog box will be closed.

This parameter set becomes equal to “Remote 1" of default parameters. Clear in this dialog box and Delete in the dialog box **SAP/AE Parameter Setting** are similar. With the Clear button you delete the “Entry No.” currently selected. If “Local” is loaded “Clear” has no function.

If you select the OK button or press the Enter key a range checking operation will be started. If no error is found the dialog box **SAP/AE Parameter Setting** will be closed and all modifications will be accepted.

The range checking operation stops after having found the first error. A triangle shaped red pointer on the left side of the dialog box **SAP/AE Parameter Setting** points on the error.

The range checking operation checks whether there is any entry out of range and whether the “AEname” is already used for another setting.

The following error message will be displayed:

If the "AEname" has already been used at another setting there will be a special message.

The ranges are defined as follows:

Item	Range
AEname	max. 8 characters; a previously registered AEname cannot be used
APtitle	String of ASCII character "0" – "9"; If more than 16 characters are set max. every 16 characters must be devided by a comma (",").
AEqualifier	String of ASCII characters "0" – "9"; max. 8 characters; range 1 – 99999999
PSAP	String of ASCII characters "0" – "9" and "A" – "F"; max. 32 characters; range 1 – FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF
SSAP	String of ASCII characters "0" – "9" and "A" – "F"; max. 32 characters; range 1 – FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF
TSAP	String of ASCII characters "0" – "9" and "A" – "F"; max. 64 characters; range 1 – FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF
NSAPaddress	String of ASCII characters "0" – "9" and "A" – "F" and "Space"; max. 34 characters (without space); space is allowed but has no meaning; makes it more readable; range 1 – FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF

Example:

If a message box is open all buttons in the dialog box **SAP/AE Parameter Setting** cannot be accessed.

If you select OK or press the Enter key in the message box, the box will be closed and the red pointer will be erased. The dialog box **SAP/AE Parameter Setting** remains open.

The purpose of this procedure is that you are able to correct the errors until all of them are corrected.

Command NAMED VARIABLE

In a factory automation network the supervising computers exchange current production data. If one computer wants to get data from a PLC (programmable logic controller) it reads the contents of a variable from another PLC. If the computer wants to send data to a PLC it writes data to variables in another PLC.

A network interface must provide variables which can be accessed by other network nodes. This means variables are server data.

The purpose of this function is to define variables for a specific network interface. Other network interfaces can access these variables by calling the name of a variable.

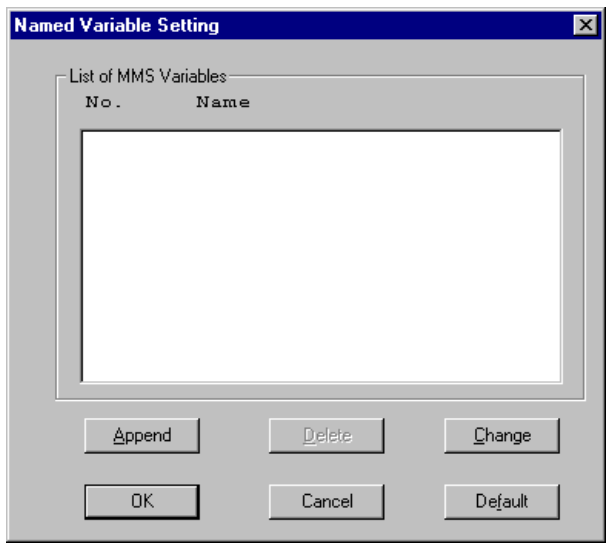
If you select this function without having modified any variables before the default setting for variables will be loaded. One network interface is able to store up to 100 variable definitions.

The default values are defined as follows:

No.	Variable name	Data structure	Data type	Length	PLC device	PLC device start address	MELSECNET access
1	empty	none	none	empty	none	empty	Host (=255)
2	empty	none	none	empty	none	empty	Host (=255)
....	empty	none	none	empty	none	empty	Host (=255)
100	empty	none	none	empty	none	empty	Host (=255)

In the above table “none” means that “none” will be displayed in the dialog box **Named Variable Setting - Variable No**.

If the item **Named Variable** is selected, the following dialog box appears:



If the Cancel button is selected or the Esc key is pressed the previous setting (before opening this dialog box) is still valid and this dialog box will be closed.

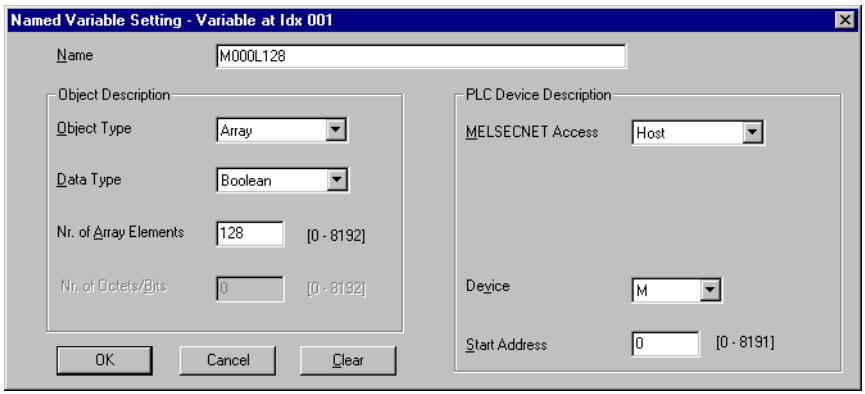
When you select OK or press Enter the modified values will be updated and this dialog box will be closed.

If you select Default the default setting as described in the previous table will be loaded.

Append and Change open the same dialog box.

If you selected Append the "append" function searches the first "Name" entry which is empty. If the maximum number of 100 variables is reached this function is no more accessible.

If you select Change you can modify a parameter set which has already been defined. The following dialog box will be displayed:



When this dialog box is open then all buttons with dialog box **Named Variable Setting** cannot be accessed.

If Cancel is selected or the Esc key is pressed, the previous setting (before opening this dialog box) is still valid and this dialog box will be closed.

If you select Clear or press the Alt C key, all parameters will be set to the default values.

Clear in this dialog box and Delete in the dialog box **Named Variable Setting** are similar.

With Clear you delete the variable currently selected. However, the variable number will still exist. The other variables will not be renumbered.

Note: *Since the AJ71M56EF2 does not support "Array" variables at present, make sure to select* ***Object Type*** *"Simple". Otherwise the AJ71M56EF2 will have a malfunction.*

Name:

Specifiy the name of the variable. A variable name can consist of 1 to 32 characters.

Object Description:

If the Object Type “Array” is selected, the data types “Integer” or “Boolean” can be specified.

“Number of Octets“ will be disabled (grayed). They will be calculated by the software itself.

After selecting the Object Type “Simple” you can select from the following data types

- Boolean
- Integer
- Octet-String
- Bit-String

“Number of Array Elements” will be disabled (grayed). This entry is invalid.

If **MELSECNET Access** “Host” is selected “Station No.” is disabled (grayed). This entry is invalid.

If **MELSECNET Access** “Master” is selected “Station No.” is still disabled.

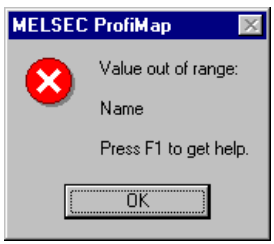
If **MELSECNET Access** “Slave” is selected “Station No.” is valid. You can define a “Station No.” (range 1 to 64).

If you select OK or press the Enter key the range checking operation will be started. If no error is found the dialog box **Named Variable Setting - Variable at Idx** will be closed and all modifications will be accepted.

The range checking operation stops after having found the first error. A triangle shaped red pointer on the left side of the dialog box **Named Variable Setting - Variable at Idx** points on the error.

The range checking operation checks whether there is any entry out of range and whether a variable name is used twice.

The following error message will be displayed:



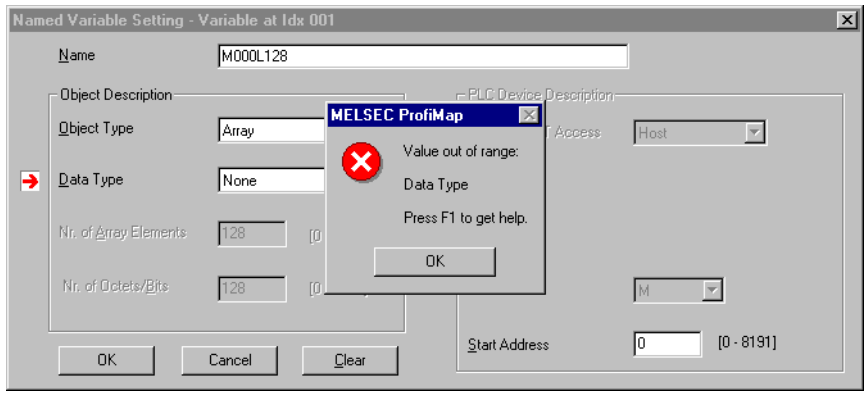
If the variable name has already been used for another variable, there will be a special mark.

The ranges are defined as follows:

Device	Object Type	Data Type	Head address	Data Length	Array Elements
M, L	Simple	Boolean bit string	0 – 8191 0 – (8191 - data length + 1)	1 1 – 8192	n. v. n. v.
	Array	Boolean	0 – (8191 - array elements + 1)	1	1 – 8192
X, Y	Simple	Boolean bit string	0 – 7FF 0 – (7FF - data length + 1)	1 1 – 2048	n. v. n. v.
	Array	Boolean	0 – (7FF - array elements + 1)	1	1 – 2048
B	Simple	Boolean bit string	0 – FFF 0 – (FFF - data length + 1)	1 1 – 4096	n. v. n. v.
	Array	Boolean	0 – (FFF - array elements + 1)	1	1 – 4096
T, C, F	Simple	Boolean bit string	0 – 2047 0 – (2047 - data length + 1)	1 1 – 2048	n. v. n. v.
	Array	Boolean	0 – (2047 - array elements + 1)	1	1 – 2048
CC	Simple	Boolean bit string	0 – 1023 0 – (1023 - data length + 1)	1 1 – 1024	n. v. n. v.
	Array	Boolean	0 – (1023 array elements + 1)	1	1 – 1024
D	Simple	Integer octet string	0 – 6143 0 – (6143 - [data length / 2] + 1)	2 1 – 1024	n. v. n. v.
	Array	Integer	0 – (6143 - array elements + 1)	2	1 – 512
SD	Simple	Integer octet string	0 – 255 0 – (255 - [data length / 2] + 1)	2 1 – 256	n. v. n. v.
	Array	Integer	0 – (255 - array elements + 1)	2	1 – 128
W	Simple	Integer octet string	0 – FFF 0 – (FFF - [data length / 2] + 1)	2 1 – 1024	n. v. n. v.
	Array	Integer	0 – (FFF - array elements + 1)	2	1 – 512
R	Simple	Integer octet string	0 – 8191 0 – (8191 - [data length / 2] + 1)	2 1 – 1024	n. v. n. v.
	Array	Integer	0 – (8191 - array elements + 1)	2	1 – 512
TN, TM	Simple	Integer octet string	0 – 2047 0 – (2047 - [data length / 2] + 1)	2 1 – 1024	n. v. n. v.
	Array	Integer	0 – (2047 - array elements + 1)	2	1 – 512
CN, CM	Simple	Integer octet string	0 – 1023 0 – (1023 - [data length / 2] + 1)	2 1 – 1024	n. v. n. v.
	Array	Integer	0 – (1023 - array elements + 1)	2	
A	Simple	Integer octet string	0 – 1 0 – (1 - [data length / 2] + 1)	2 1 – 4	n. v. n. v.
	Array	Integer	0 – (1 - array elements + 1)	2	1 – 2
V, Z	Simple	Integer octet string	0 – 6 0 – (6 - [data length / 2] + 1)	2 1 – 14	n. v. n. v.
	Array	Integer	0 – (6 - array elements + 1)	2	1 – 7

Note: *Do not use "Array" elements for the existing version of AJ71M56EF2!*

Example:



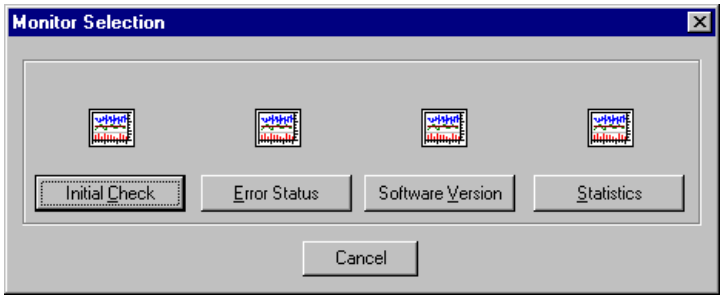
If the message box of the checking operation is open, all buttons in the dialog box **Named Variable Setting** cannot be accessed.

Select OK or press Enter in the message box to close it. The dialog box **Named Variable Setting** remains open and you can enter a new value.

The purpose of this procedure is, that you can correct all ranges until no more errors remain.

Monitoring Mode

This paragraph describes the possibilities of monitoring with the AJ71M56EF2 MMS interface. To activate the monitor selection window click on the Monitor button in the project dialog box.



The monitoring options with the AJ71M56EF2 MMS interface are grouped into four different items.

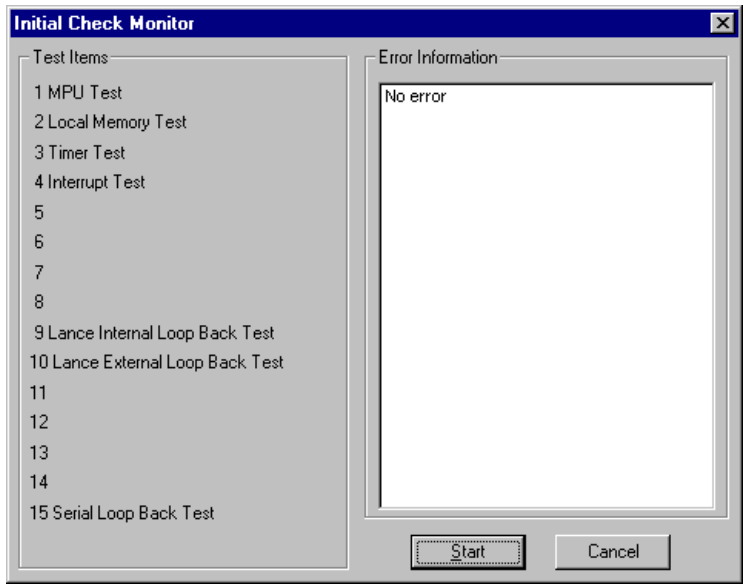
Item	Purpose	Shortcut
Initial check	The AJ71M56EF2 will boot after power on or reset. During boot procedure it will perform a self diagnostics. With this item the self diagnostics result can be made visible.	Alt C
Error status	Using this item any error during network communication can be made visible.	Alt E
Software version	Using this item the current ROM software version can be read.	Alt V
Statistics	Using this item layer 2 and 4 statistical information can be made visible.	Alt S

Note: *If a monitor dialog box is open, all the buttons in the project dialog box cannot be accessed.*

Button Initial Check

Initial Check

The purpose of this function is to perform a self diagnostics check of the AJ71M56EF2 and to monitor the result in a window. The following dialog box appears:



On the left side the items of the self diagnostics function are displayed.

When Cancel is selected or the Esc key is pressed this dialog box will be closed. Afterwards the dialog box “Monitor Selection” will be active.

If you select Start or press the Enter key, the connected AJ71M56EF2 will be asked for the self diagnostics result once. The result will be displayed in the “Error Information area”.

If there is no error, the corresponding message will appear.

If an error occured during the self diagnostics function, then “Error” message will be dispayed at the “Error Information” area.

If the serial communication fails, the following message will be displayed:

MAP 3.0

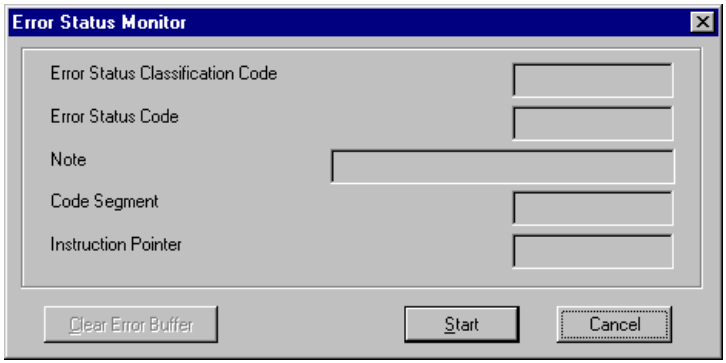
In this case please check the transmission cable and the correct type of the serial interface. It must be the SC-09 cable. Please check the serial port choosen in MELSEC ProfiMap as well.

Then try the diagnostics function again.

Button Error Status

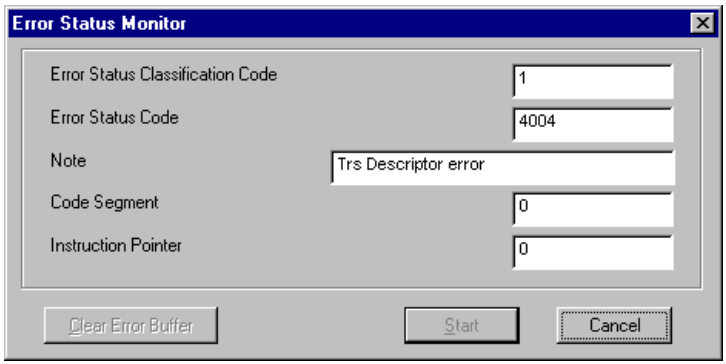
Error Status

The purpose of this function is to check the current error status at the AJ71M56EF2. The following dialog box appears:



If you select Cancel or press the Esc key, this dialog box will be closed. Afterwards the dialog box **Monitor Selection** will be active.

If you select Start or press the Enter key, the connected AJ71M56EF2 will be read for the current error status. The result will be displayed as follows:



Now you can decide if you want to clear the error buffer once. Press the Clear Error Buffer button and the software will force the AJ71M56EF2 to clear the error buffer of the module.

If the serial communication fails, the following message will be displayed:

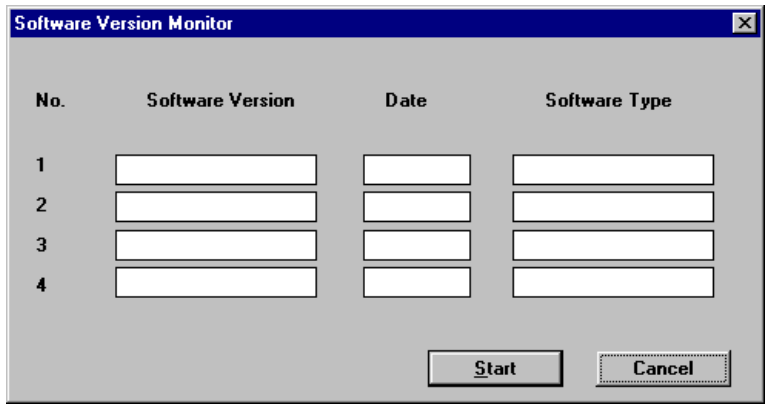
In this case please check the transmission cable and the correct settings of the serial interface.

Then try the error status function again.

Button Software Version

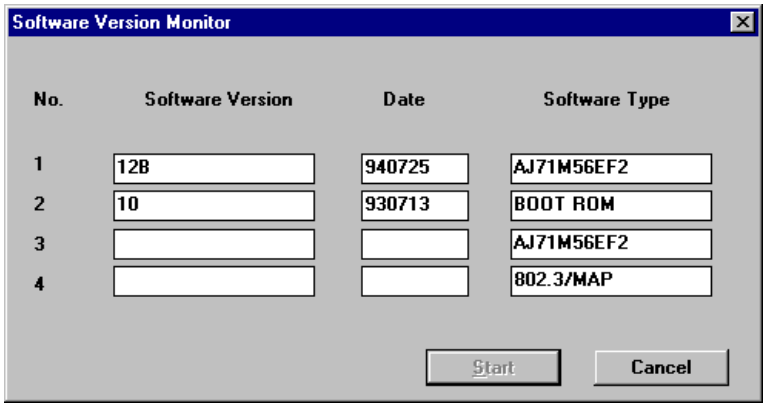
Software Version

The purpose of this function is to read the current software releases of AJ71M56EF2. The following dialog box appears:



If you select Cancel or press the Esc key this dialog box will be closed. Afterwards the dialog box **Monitor Selection** will be active.

When you click Start or press the Enter key the connected AJ71M56EF2 will be asked for the software version currently installed. The result will be displayed as follows:



- 1st row: Version of the ProfiBus communication software
- 2nd row: Version of the boot ROM that manages the operation of AJ71M56EF2
- 3rd row: Module name in column “Software Type”
- 4th row: Protocol type in column “Software Type”

If the serial communication fails the following message will be displayed:

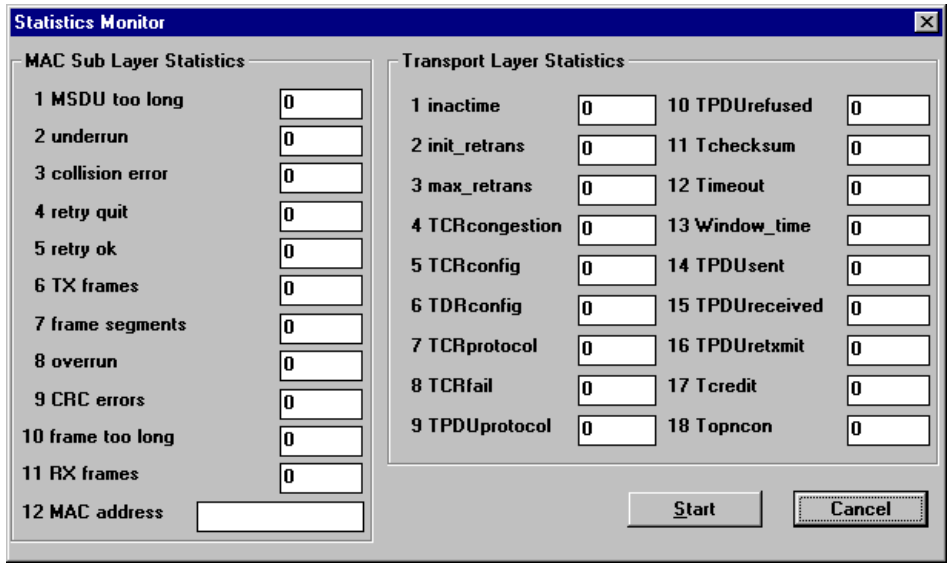
In this case please check the transmission cable and the correct settings of the serial interface.

Then try the software version function again.

Button Statistics

Statistics

The purpose of this function is to monitor the current layer 2 and layer 4 information of the connected AJ71M56EF2. The following dialog box appears:



When you select Cancel or press the Esc key then this dialog box will be closed. Afterwards the dialog box **Monitor Selection** will be active.

If you click on the Start button or press the Enter key the connected AJ71M56EF2 will continuously be asked for the current physical data layer and transport layer statistics information. The result will be displayed in the dedicated message areas.

If the serial communication fails the following message box will be displayed:

Then try this function again.

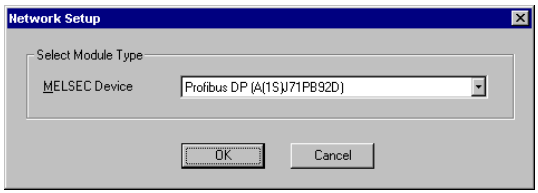
Profibus/DP Interface

Parameter Setting for A(1S)J71PB92D

Introduction and Overview

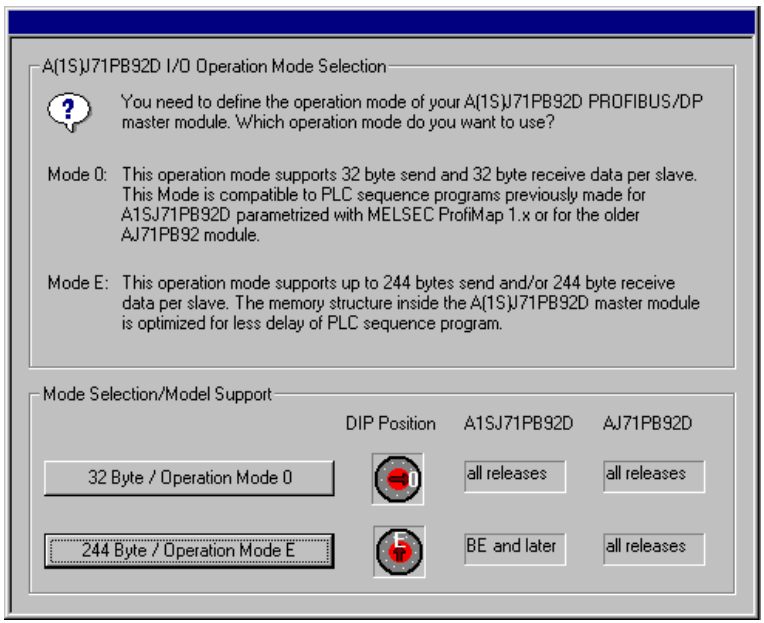
This chapter describes how to generate the A(1S)J71PB92D parameter settings.

After selecting the command **New** in the **File** menu (see chapter 3 for details) choose the module type **Profibus DP (A(1S)J71PB92D)** from the menu.



The following dialog appears where you select the operation mode of your PROFIBUS/DP master module. The Profibus DP (A(1S)J71PB92D) modules support an advanced buffer memory management in 244 byte mode with larger and more flexible data telegrams and thus less delay in the sequence program.

The 32 byte mode is provided for compatibility reasons with the MELSEC ProfiMap V 1.0 software and with the previous A1SJ71PB92D modules.



The dialog box shown below for the network setup appears. It is subdivided into two sections, one for the offline configuration and one for the online access of the module. The following functions are provided:

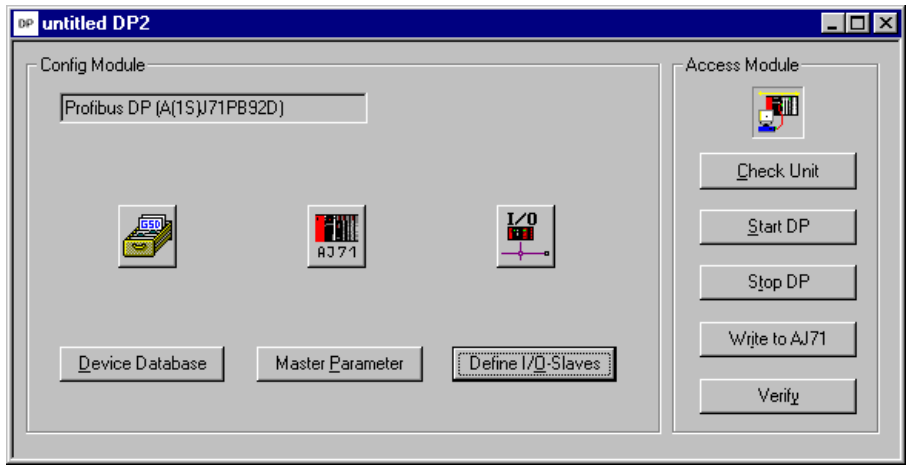
Config Module

- **Device Database**
- **Master Parameter**
- **Define I/O Slaves**

Access Module

- **Check Unit**
- **Start DP**
- **Stop DP**
- **Write to A(1S)J71**
- **Verify**

If one setting dialog box is open (e.g. **Master Parameter**) the other buttons in the dialog box **Config Module** can not be accessed.



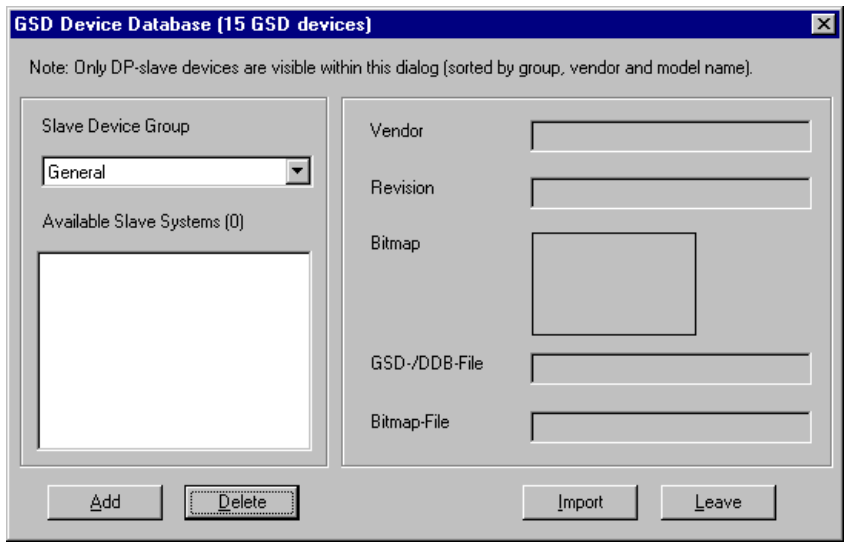
The functions that can be invoked within this network setup dialog are listed below and will be described in detail in the following:

Item	Purpose	Shortcut
Device Database	The device database contains information about slave devices from Mitsubishi or 3rd party manufacturers. This item is used to add or delete devices from the internal database (so called GSD files from PROFIBUS/DP slave devices) and to import/export extracted GSD data.	Alt D
Master Parameter	This item is used to set the bus parameter and all main parameters for the master in the Profibus network.	Alt P
Define I/O-Slaves	This item is used to configure the Profibus/DP network. All network devices can be selected and configured.	Alt O
Check Unit	This item is used to check the master for its slot number, head address, ident string, firmware revision, and operating mode (Function available for network connections only. A network connection can be selected in the master settings).	Alt C
Start DP	This item starts DP data transfer for the master (Function available for network connections only. A network connection can be selected in the master settings).	Alt S
Stop DP	This item stops DP data transfer for the master (Function available for network connections only. A network connection can be selected in the master settings).	Alt T
Write to A1(SJ)71	This item uploads the module configuration from the current project into the module.	Alt I
Verify	This item checks the current project against the module configuration online.	Alt Y

Button Device Database

The purpose of this function is to add or delete devices from the internal database of available devices. The software is distributed with a predefined list of groups, which provide a general structure for all added slave devices.

The **Device Database** can be modified in the following dialog box:

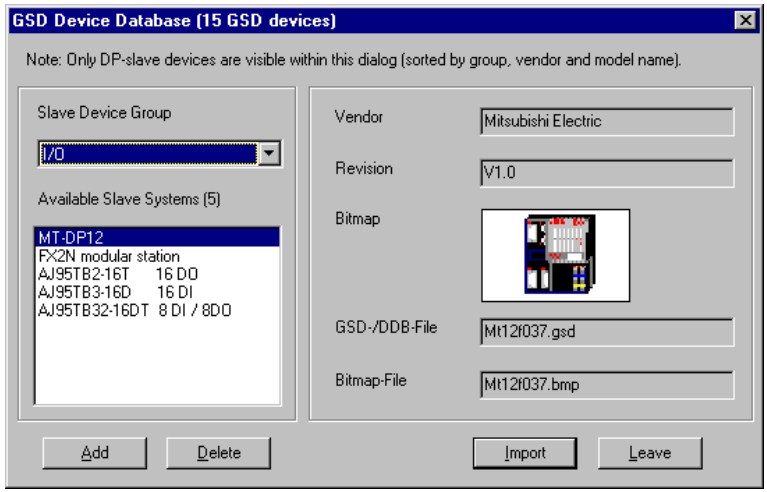


When a group is selected in the box “Slave Device Group”, the model names of the devices belonging to the selected group are displayed in the lower list box “Available Slave Systems”.

Upon selecting a device entry in this list box the bitmap, which has been assigned to the device, is displayed on the right side of the list box. Additionally both vendor name and revision string are displayed, as well as the name of the GSD file and the bitmap file.

The so called GSD file describes the features of the slave such as the supported baud rate and the slave structure (modular slave/compact slave). The displayed vendor name and revision are included in the GSD file as well.

Please ask the manufacturer of the slave device for the proper GSD file.



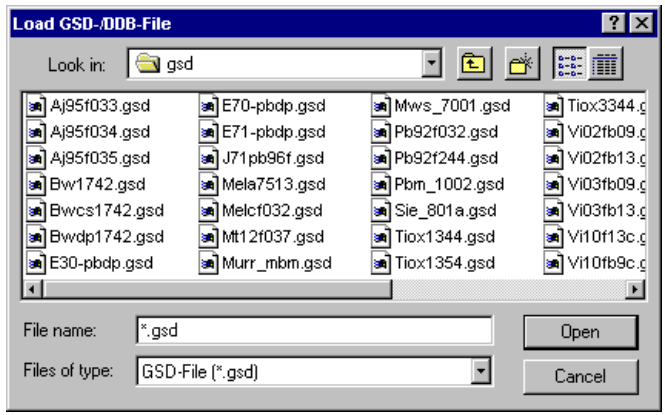
Adding devices

A slave device can be added to the database by pressing Add. A standard Open File-dialog appears, so the GSD file can be selected. Each added GSD file is automatically checked for its data integrity. When leaving the Open-dialog with OK, the user will be asked for some bitmap files (optional). Then the GSD device data is saved in the local GSD device database. The GSD file itself is no longer required. If the GSD file itself refers to a drawing picture of the slave device MELSEC ProfiMap searches automatically for the file. In case that the file is not found another Open File-dialog is displayed, so the user can select the bitmap file, which he wants to be linked to the GSD file, representing the corresponding device.

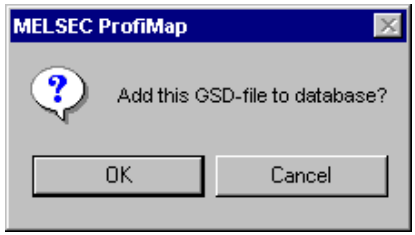
The bitmap file can be supplied by the user from disk. It can be a bitmap file of the data type *.BMP or *.DIB. However the Profibus/DP standard recommends to provide a bitmap file for the dedicated slave device with the following restrictions:

Bitmap	
Width	70 pixels
Hight	40 pixels
Colors	16
File extension	DIB

Only bitmaps that match the requirements in the table above can be used.



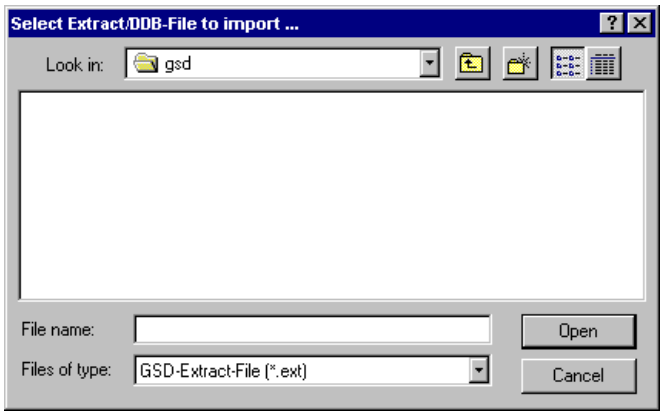
When both GSD and bitmap file have been selected, you will be asked to confirm the operation.



If you confirm, both files are copied to the internal directories for GSD and bitmap files. An entry is added to the internal device database for that device.

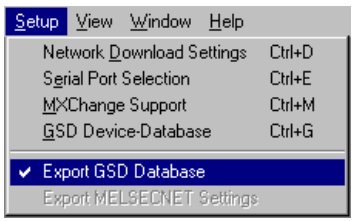
Importing GSD-Extract Files

The GSD-Extract feature allows the transfer of the entire device information of one project from one personal computer to another without passing on each single GSD file for any parameterized devices. Click on Import to load any existing GSD-extract file or a complete GSD-database file:



Creating GSD-Extract Files

In order to create a *.EXT file containing all device information for the current project check the **Export GSD Database** item in the **Setup** menu.



If this menu item is checked, any time you save your DP2-project the according GSD-extract file with the same name but the extension .EXT will be created in the same directory as well.

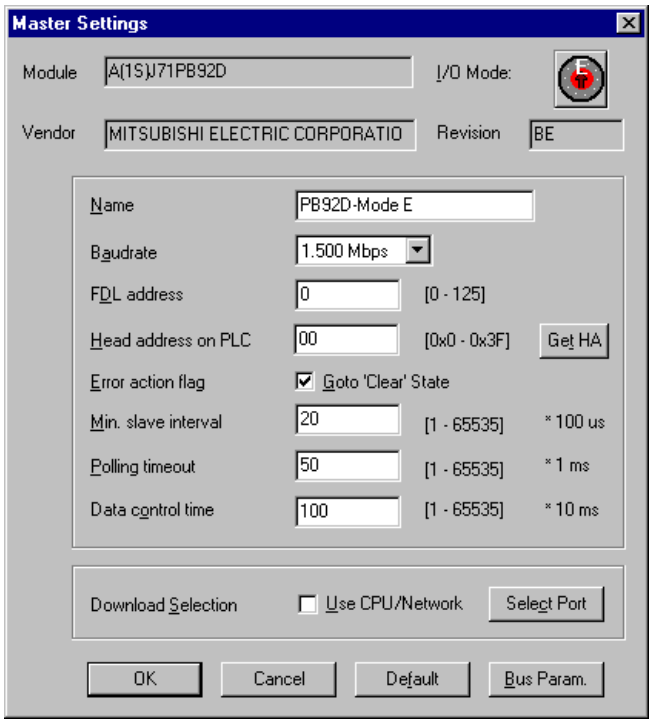
Removing devices

A device can be removed from the database by selecting the entry in the left list box and pressing the Delete button. This deletes only the entry in the database reference file. It does not delete the GSD and bitmap files for that device. These files have to be removed manually. The reason for this is that it is possible to undo the delete function.

Note: *The entry is immediately removed after clicking on the* Delete *button. However you can add it once again later on.*

Button Master Parameter

Within the **Master parameters** the baud rate, different adresses and other parameters for the Profibus module A(1S)J71PB92D can be set. When you click on the **Master Parameter** button the following window appears:



You can define the following parameters:

Communications parameters of Master Settings

Parameter	Range	Meaning
I/O Mode	O or E	Toggles the operation mode (O = 32 Byte, E = 244 Byte).
Name	—	States that the A(1S)J71PB92D is a master.
Baud Rate	9.6 kbps – 12.000 Mbps	Transfer rate for the communication. Define a baud rate that is supported by all slaves.
FDL address	0–125	FDL address (station number)
Head address	0–3F	Module head address on the base unit
Get HA	—	Get the head address of the installed master module (function available for network connections only).
Error action flag	—	Output processing after failure. Type "G" or click on the white square if you want to have the outputs shut off in case of error occurence (recommended for drives, inverters etc.). In practice this means: After occurrence of any network error all outputs of the network are turned OFF.
Download Selection	—	Uses a network connection to the master module for the download of the configuration data. Toggles **Select Port/ Select Network** button.

Note: *If you change the baud rate, power off the slaves. Otherwise the slaves cannot synchronize with the newly defined baud rate.*

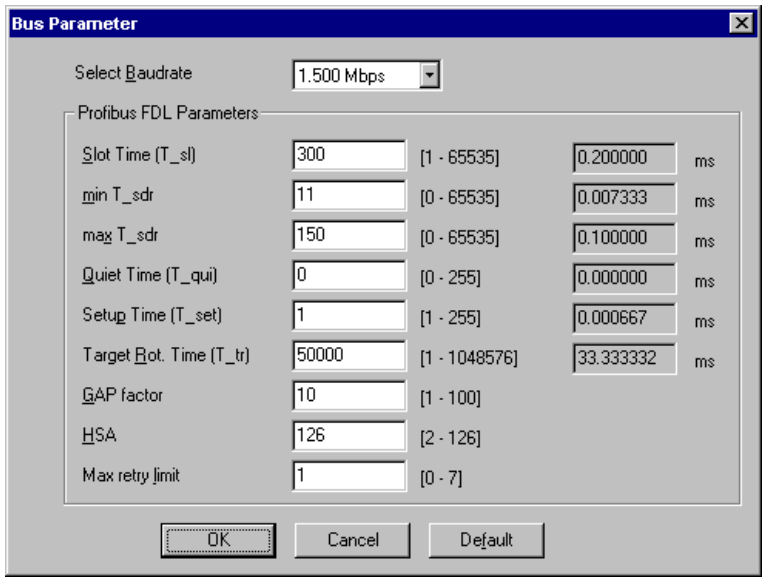
Timing parameters of Master Settings

Parameter	Range	Meaning
Min. slave interval	0 – 65535 x 100 µs	Smallest allowed period of time between two slave poll cycles. This ensures that the sequence of function requests from the DP master can be handled by the DP slave. This value is valid for all installed slaves. The slowest slave defines this value.
Polling timeout	0 – 65535 x 1 ms	In case of master-master communication this parameter specifies the max. amount of time it may take the requestor to fetch the response.
Data control time	0 – 65535 x 10 µs	This parameter defines the period of time during which the A1SJ71PB92D notifies the slave operation status. This time is 6 times longer than the watch-dog control of slaves.

If you want to use the factory set default values click on Default and all values are set to the standard values.

Bus Parameter

This function allows to select the baud rate and to modify any parameters like timeouts, which are related to the baud rate. The last settings made are stored independently for each baud rate, so that by selecting a different baud rate these settings are shown again.



General timing factors are displayed in recalculated form based on the selected baud rate and absolute time durations. The conversion factors are the following:

Parameter	Meaning	Range	Remark
Baud Rate	Transfer rate	see selection	Must be supported by all slaves
T_sl	Slot time	1 – 65535 x t_bit	Max. Interval to wait for response
min T_sdr	Min. Station delay of responder	0 – 65535 x t_bit	
max T_sdr	Max. Station delay of responder	0 – 65535 x t_bit	
T_qui	Quiet time	0 – 255 x t_bit	T = 0, if no repeater present
T_set	Setup time	1 – 255 x t_bit	
T_tr	Target rotation time	1 – 1048576 x t_bit	
GAP factor	Controls the GAP update time (T_gud)	1 – 100	
HSA	Highest station address	2 – 126	

When pressing the Default button all values are set to their default values, especially for the currently selected baud rate.

Note: *If you change the baud rate of an existing PROFIBUS/DP network, power off the slaves. Otherwise the slaves cannot synchronize with the newly defined baud rate.*

The inputs are checked against the input limits when leaving the dialog with the OK button. Additionally the following consistency checks are performed:

- min T_sdr < max T_sdr
- T_qui < min T_sdr
- max T_sdr < T_sl
- T_sl < T_tr

Note: *If you are not an experienced Profibus network administrator the Bus Parameters should not be changed except in the following cases:*

– *more than 15 slave stations are implemented (target rotation time has to be calculated again)*
– *the network consists of more than 1 master (target rotation time has to be calculated again)*
– *Profibus/DP and Profibus/FMS operation are used in mixed mode (FMS parameters have to be defined)*

For the correct parameter setting of the target rotation time TTR (t_tr) please refer to the Profibus standard DIN19245 part 3. However, it is important that the target rotation time is large enough to enable the A(1S)J71PB92D to poll each defined slave once per token cycle.

Download Selection

If ProfiMap is connected to the master module via the CPU port or an Ethernet module, you have to select a network connection for the download of the configuration data. Network connections can be selected from the network database (for details refer to chapter 7).

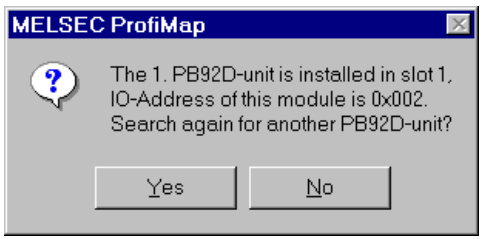
Activate the **Use CPU/Network** checkbox in the **Master Settings** dialog to use a network connection. The **Select Port** button toggles to the **Select NW** (select network) function.

Select NW (select network)

This button in the **Master Settings** dialog opens the network database. From the network database different network connections can be defined, edited, and selected. Refer to chapter 7 for details on the network database.

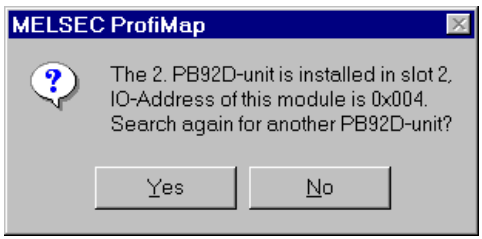
Get HA (get head address)

Click on this button in the **Master Settings** dialog to search for installed master modules and retrieve their head address. The found head address can be transferred to the corresponding parameter.

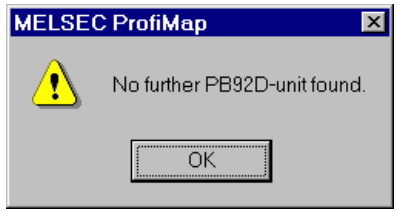


Click on Yes to search for further master modules. Click on No to accept the displayed one and transfer the corresponding head address to the master settings.

Further master modules will be displayed, if searched for.

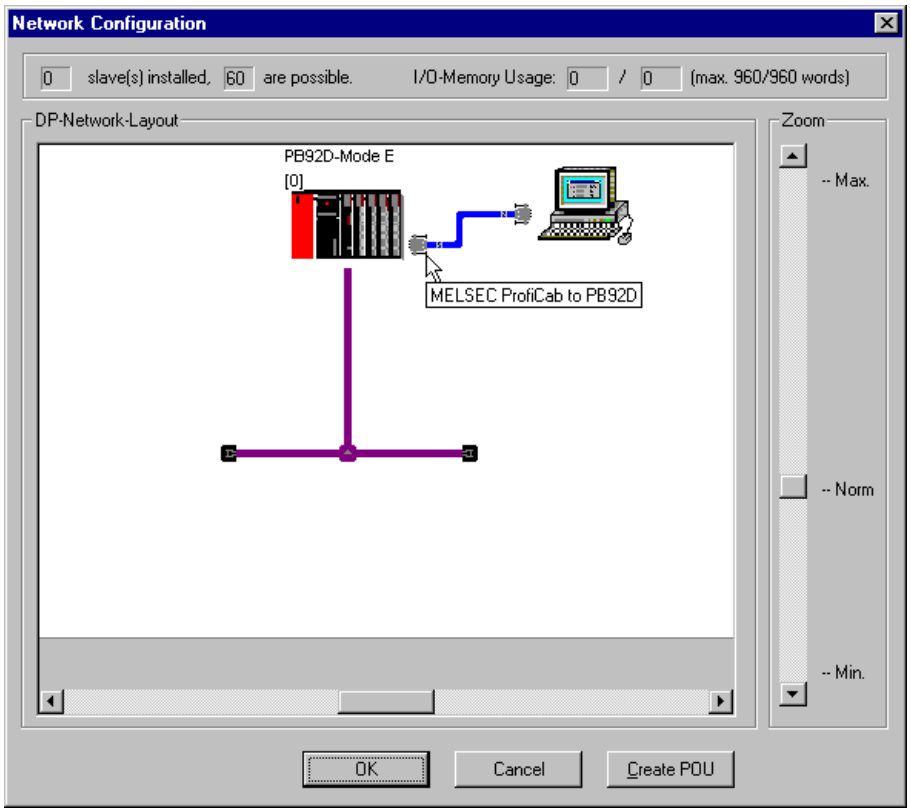


The following message appears, if no further master module has been found.



Button Define I/O Slaves

This function defines the network configuration with the help of a graphical editor. This graphical editor allows you to select those slave stations from the device database, which are attached to the master and to modify their settings. The settings of the master and the other devices can be changed by double-clicking on the according icon. Double-click on the PROFIBUS connecting line to edit the bus parameters. Double-click on the ProfiMap PC to edit the connection to the master station. Move your mouse cursor on any item to obtain information on it.
When you click on the **Define I/O-Slaves** button a symbolic graphical display of the network comes up, which contains only the master station and the ProfiMap PC with the currently selected connection to the master station.



Within this window you can edit and add additional devices. For this purpose the current window is devided into hidden squares. When you click on the window a square appears and you can add a new device.

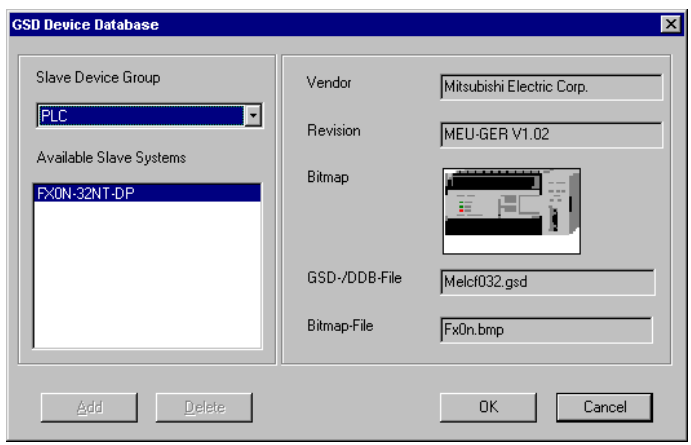
Pressing the right mouse button calls up a context menu with the commands **Insert DP-Slave, Delete DP-Slave,** and **Modify Settings**.

Selecting **Insert DP-Slave** opens the **Device Database** dialog.

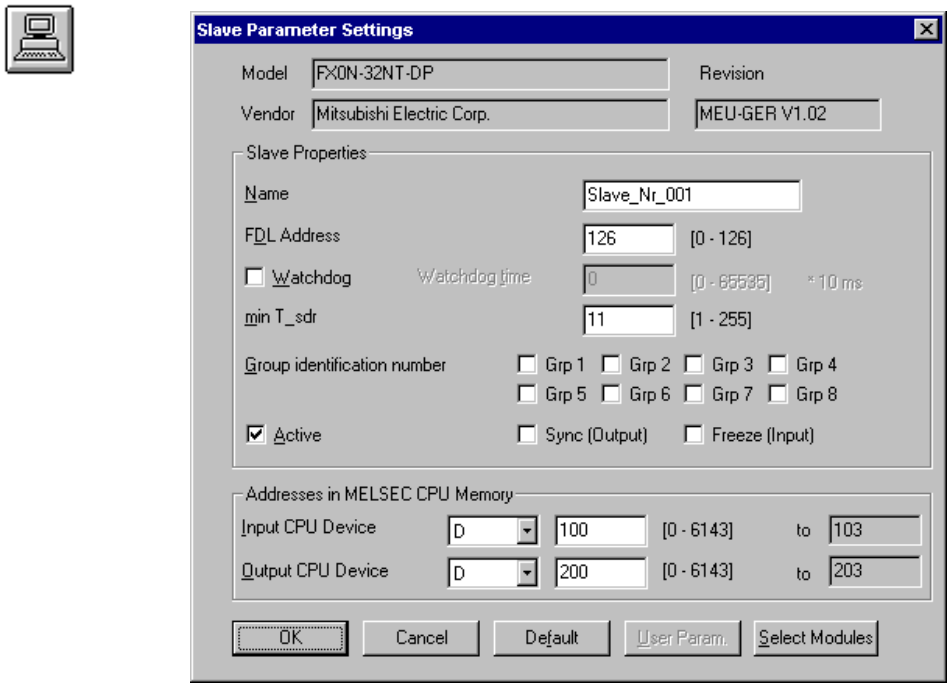
You can also double-click directly on any item to modify it.

Instead of clicking the right mouse button for adding and deleting devices you can use the Ins and Del key.

Right-click within the graphical network configuration editor and select **Insert DP-Slave** to access the **Device Database**. After having selected a group in the window **Device Database**, a list of all slave models assigned to the respective group is displayed. For the selected slave the vendor and revision string, the bitmap and the path of the GSD file and the bitmap file are displayed (refer to the section DEVICE DATABASE for further details).



When a model is selected and the OK button has been pressed, the **Slave Parameter Settings** dialog appears.



In the upper part of the window, the name of the selected device and the vendor name are displayed.

If you have selected a wrong device you can leave this window with the Cancel button. You then jump back to the **Network Configuration** menu.

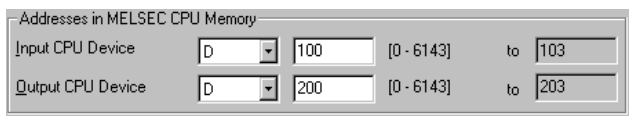
When the correct model is displayed you have to set the parameters listed in the following table.

When pressing the Default button all values are set to their default values.

Parameters in the **Slave Parameter Settings** have the following meaning:

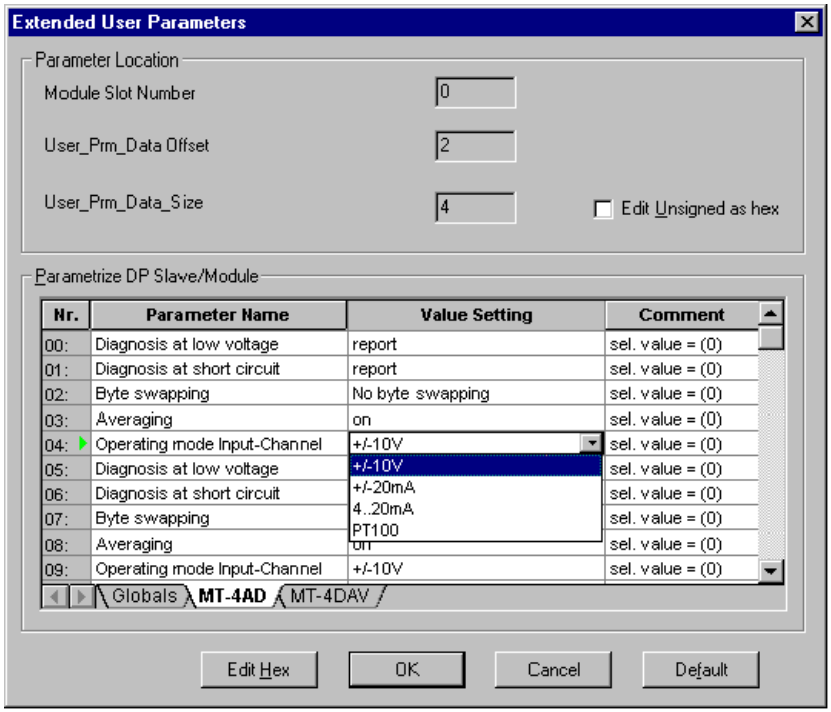
Item	Purpose	Shortcut
Name	The name of the slave can be defined. This is for documentation purpose only.	Alt N
FDL_address	This item is used to define the station address of the slave.	Alt D
Watchdog	Click on the white box or type the shortcut if you want to use the watchdog timer for this device. The check box enables the watch dog control of the slave. The slave will check whether the master was in communication with the slave within the defined watchdog time. If the watchdog time is exceeded the outputs are turned to the save state.	Alt W
Watchdog time	If you have selected the Watchdog function you must define the watchdog time interval of the slave. Make sure that the data control time in the **Master Parameter** setting is 6 times longer than the slaves watchdog time.	Alt T
min T_sdr	This is the minimum waiting time for a DP slave until it is allowed to send response frames to the DP master. Do not change this value.	Alt M
Group identification number	Profibus/DP allows to transmit control commands (such as sync or freeze) from the master to one slave, a group of slaves or all slaves at the same time. The control commands are based on multicast function. This means that slaves with the same group number operate in a synchronized way with each other. A slave can belong to several groups. You can use the boxes to allocate the group for the slave.	Alt G
Active	When this option is activated you get information whether the defined slave really exists (max. 60 slaves are possible). With this function you can define slaves which are not really existant but should be added physically later on.	
Sync*	If this option is activated a synchronous switching of all outputs in the network (for simulation of a time shifted END instruction) is possible.	
Freeze*	If this option is activated a synchronous switching of all inputs in the network (for simulation of a time shifted END instruction) is possible.	
* only available for slaves where this function is possible (stated at GSD file).		

After having made all the necessary entries the start address for devices corresponding to the I/O buffer memory of the master module must be defined in the section **Start Adress in CPU Memory**. The according device range used in the CPU memory is calculated automatically. This dialog will match Profibus/DP data to PLC devices.



Extended User Parameters

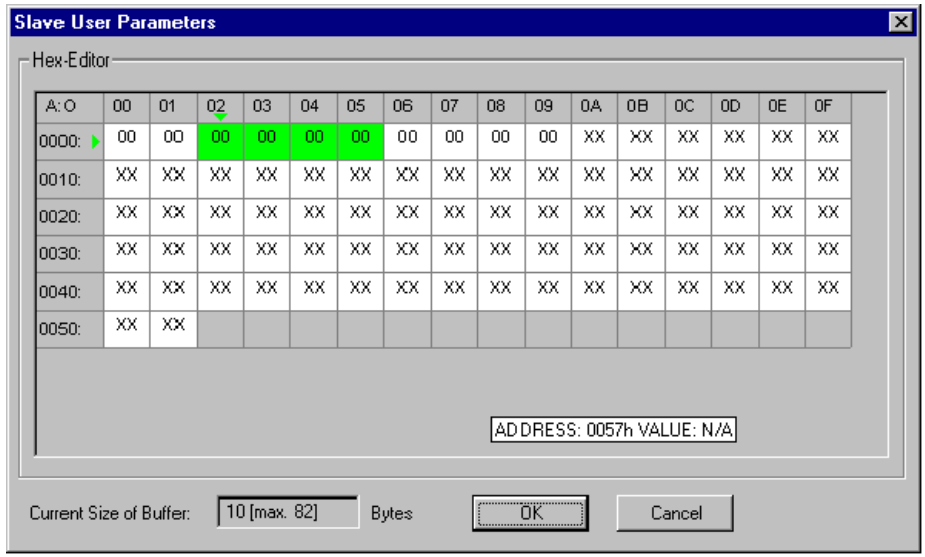
The user parameters for the slave device can be defined individually. In case that the products GSD file supports extended user parameter click on User Param. to access the following dialog box.



The **Extended User Parameters** are not standardized but depend on the slave. The purpose of the user parameters is to parameterize the individual slave. For example the slave is an analog input device and the operating mode of the input channel is to be parameterized by the startup of Profibus/DP. Then you can specify this operating mode here. Click on the value setting if you want to change and select the desired setting. All supported settings are displayed in clear but can also be changed within a simple hex editor. If you prefer to edit unsigned integer values as hex values, check the Edit Unsigned as hex box.

The width of the columns can be varied by placing the mouse pointer between two table headings until it changes to a double-arrow and then clicking and dragging to the left or to the right.

Click on Edit Hex to access the **Hex Editor** for the **Slave User Parameters**. The relevant area for the selected module is indicated by coloured background and arrows. The address is shown in clear as "tool tip".



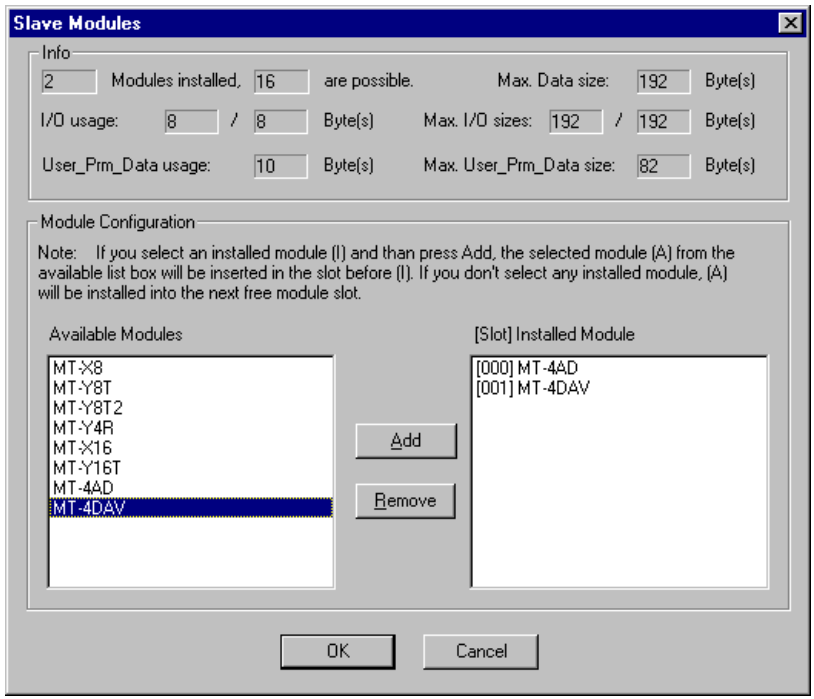
Be careful when editing these parameters via the hex editor. You should have a detailed slave documentation by the manufacturer to prevent errors in the parameterization.

Note: *These parameters should only be changed by experienced network administrators. In general the Slave User Parameters should not be changed. If no extended user parameters are available at the slaves GSD file, this dialog is opened. Consult your slave device manufacturer to generate correct settings.*

Slave Module Selection

When an I/O module is selected the type of module can be defined after clicking on Select Modules. This button is enabled depending on the GSD file of the selected Profibus/DP slave.

The following dialog box is displayed:



Profibus/DP offers the possibility to support modular slave devices. The slave device is the summary of all modules installed to the slave. The GSD file includes all selectable modules for the slave device. You have to select the modules and to add them to the installed area. The slot number they are added to is shown beside the installed modules. MELSEC ProfiMap automatically determines the maximum possible number of modules per slave, the maximum allowed length of the data telegram depending on the installed modules, and the maximum user parameter data size . It also calculates the number of I/O bytes used by the modules you install and user parameter bytes thus preventing you from exceeding the supported length of telegram.

If you have created a new Profbus DP project with a 32-byte array (operation mode 0), it is not allowed to have more than 32 input bytes plus 32 output bytes.

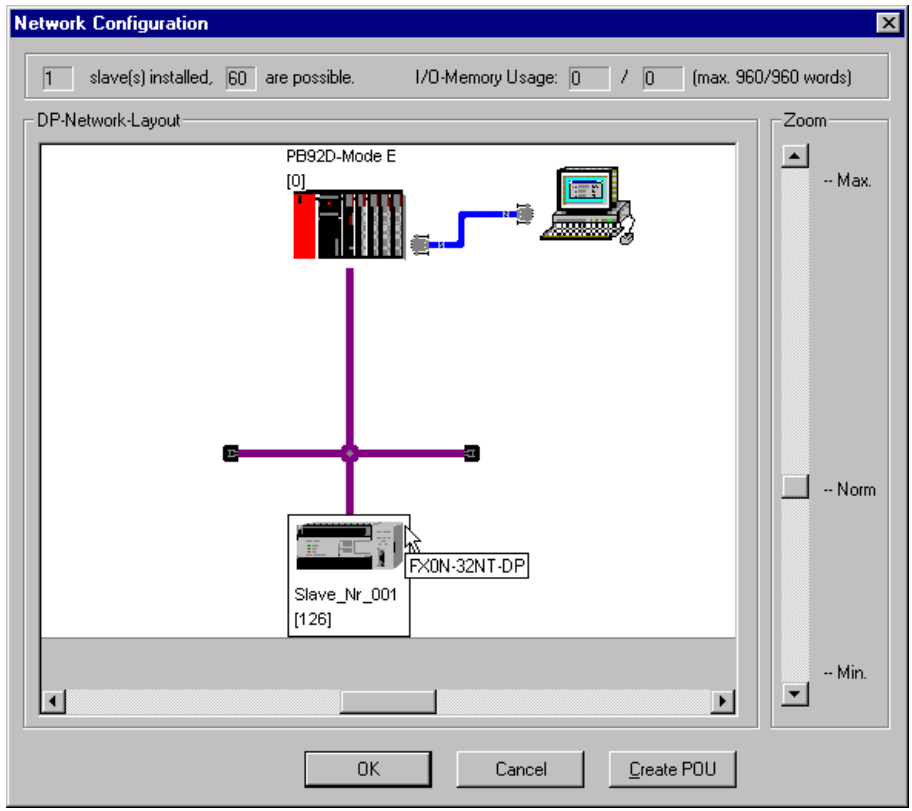
In case you exceed the maximum telegram length MELSEC ProfiMap will ask you to reduce the amount of installed modules.

After cklicking OK the **Slave Parameter Settings** dialog appears again.

Note: *After having made all settings in the* **Slave Modules** *windows you have to define the start address in the CPU memory in the dialog box* **Slave Parameter Settings**.

DP-Network Layout

When the device configuration has been entered click OK and the bitmap for that model is inserted into the graphical network layout. The bitmap of the installed slave device is shown in the window. In addition the name and the FDL address (defined in the **Slave Parameter Setting** dialog) is stated.



A device is deleted by selecting it and activating the **Delete DP-Slave** command in the context menu (right mouse button) or pressing the Del key.

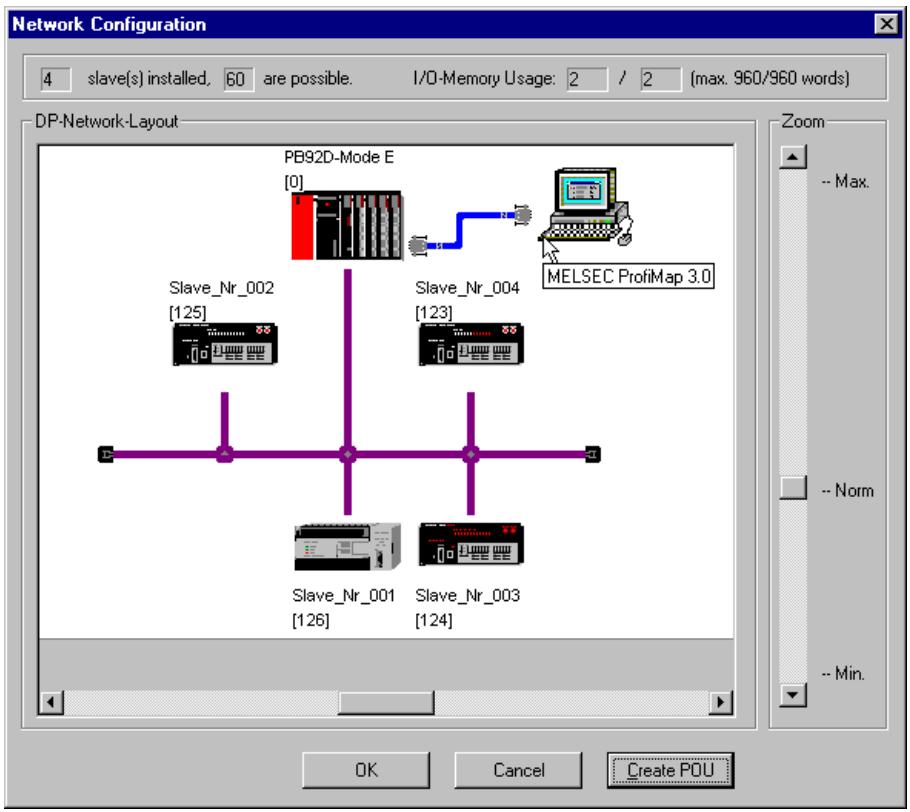
To modify the settings of a device, you can right-click on it and select the **Modify Settings** command from the context menu or double click on the device bitmap.

This opens the **Slave Parameter Settings** dialog, if the mouse pointer is placed on a slave station.

If it is currently placed on the master station, the **Master Settings** dialog pops up (see MASTER PARAMETER for further details).

You can as well double-click on either the master, any slave, or the RS485 line to modify either the master settings, the slave parameter settings, or the bus parameters.

The **Select Modules** and **User Parameters** dialogs can also be accessed from the context menu.

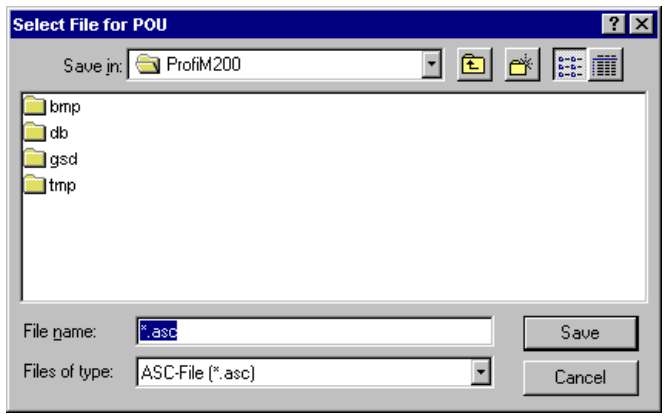


When the whole network creation is complete, the project should be saved with the help of the **File** menu.

Note: *When you select* **Save** *instead of* **Save as ...** *the former saved project will be overwritten!*

Now you can transfer the whole configuration data to the connected Profibus master module with the Write to AJ71 button in the **Network Setup** menu (for data transmission to the A(1S)J71PB92D refer to chapter 3).

The Create POU button opens a **Save File As** dialog, where you select the name of the file, in which a POU in ASCII format is generated for MELSEC MEDOC plus.



After typing in a project name and clicking the OK button the file is saved to your selected drive.

POU means Program Organisation Unit and is installed for a MELSEC MEDOC plus program. Basically the POU includes FROM/TO instructions to access the buffer memory of the master module. This POU must be included into the PLC program to have the I/O data of each slave copied to the given address in CPU memory.

For further informations please refer to the MELSEC MEDOC plus Reference Manual.

Note: *It is not allowed to start the file name with a number (0 to 9). Otherwise you will get an import error in MELSEC MEDOC plus since the file name is equal to the task and POU name which is generated. MELSEC MEDOC plus does allow POU names which are beginning with a number.*

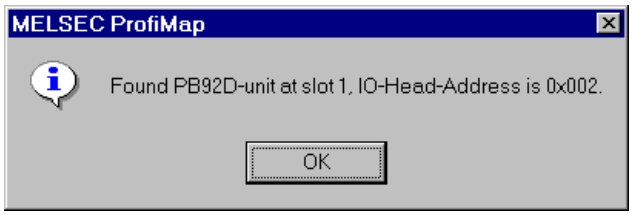
Check Unit

Check Unit

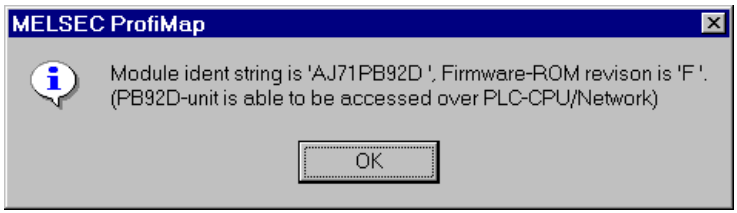
The master can be checked for its slot number, head address, ident string, firmware revision, and operating mode (The check function is available for network connections only. A network connection can be selected in the master settings). The check function can be started from the main network setup dialog or from the master module context menu in the graphical network configuration layout.

The performed checks and returned messages are shown below.

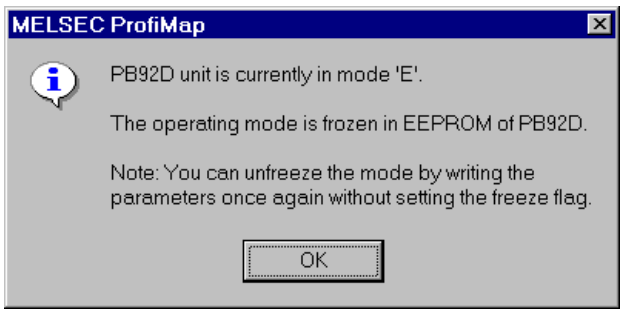
The slot number where the master is installed and the head address:



The module ident string and firmware revision:

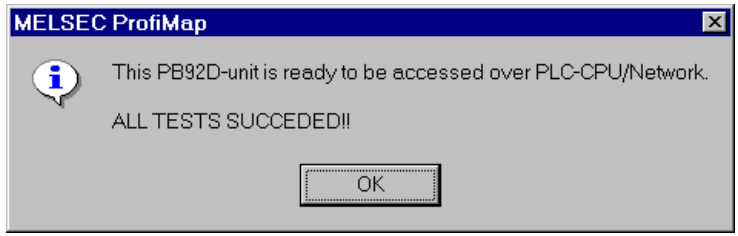


The operating mode:



(The freeze function is determined in the **Write to A(1S)J71** dialog.)

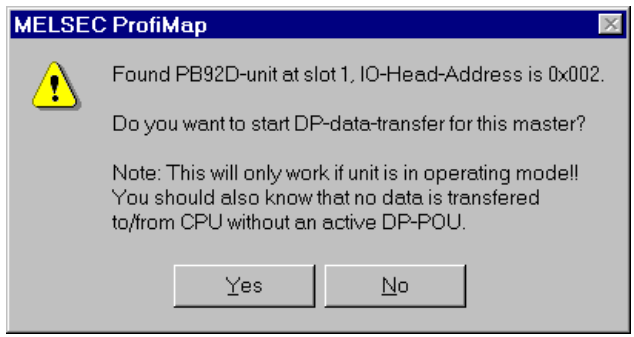
The final test result:



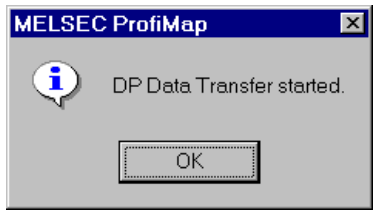
Start DP

Start DP

The PROFIBUS/DP data transfer can be started or stopped manually (This function is available for network connections only. A network connection can be selected in the master settings).



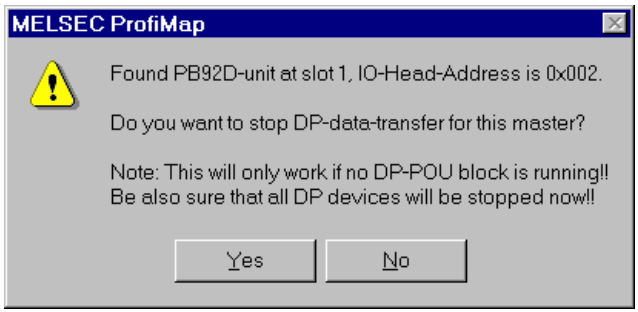
The PROFIBUS/DP data transfer has been started:



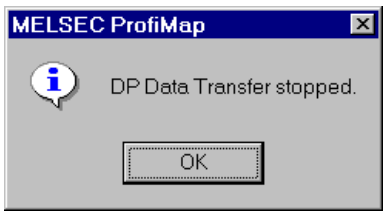
Stop DP

Stop DP

The PROFIBUS/DP data transfer can be started or stopped manually (This function is available for network connections only. A network connection can be selected in the master settings).



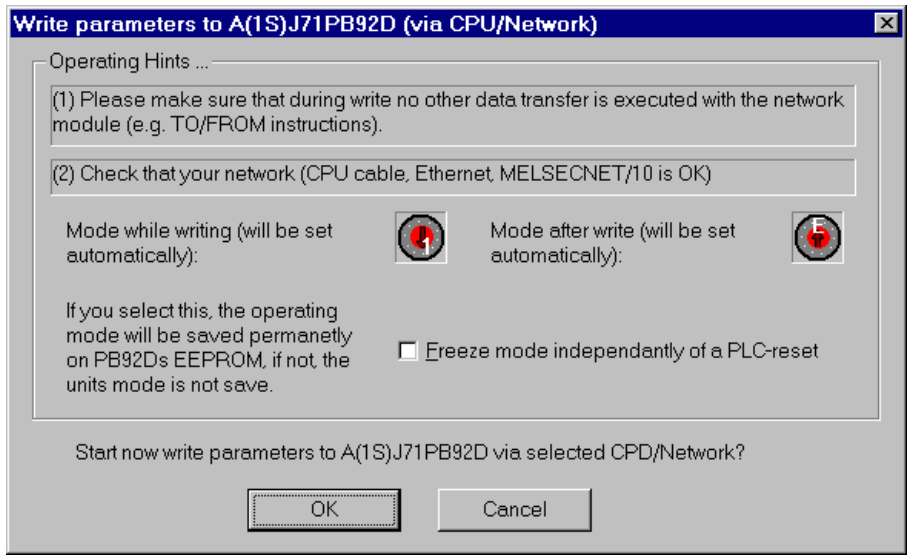
The PROFIBUS/DP data transfer has been stopped:



Write to AJ71

Write to AJ71

This function writes the configuration data to the master module.

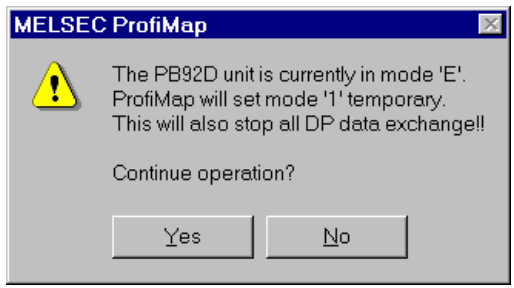


The freeze mode maintains the operating mode of the master even after a CPU reset.

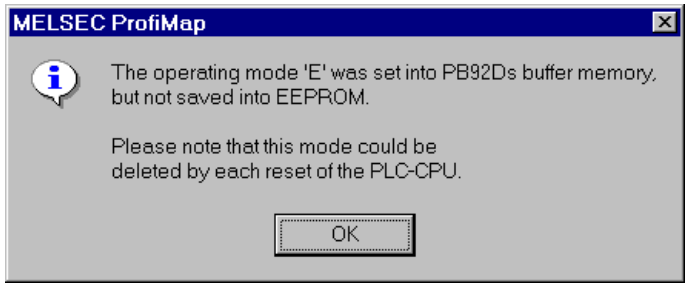
To activate the freeze mode activate the respective checkbox when writing the configuration data.

To deactivate the freeze mode deactivate the respective checkbox and write the configuration data again.

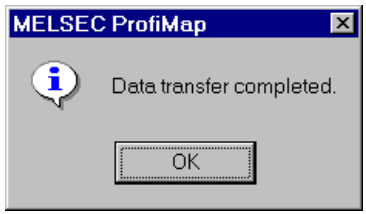
The required mode for the data transfer is set automatically.



The operation mode was not "freezed".

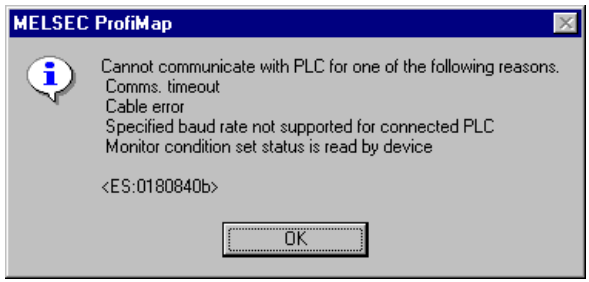


The configuration data was written successfully.



Communication errors

Communication errors will be indicated by appropriate messages:

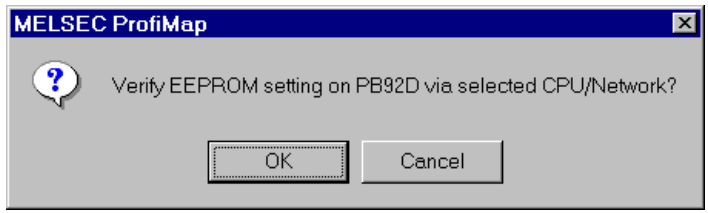


Check the hardware configuration and network settings. Then try to write to the AJ71 again.

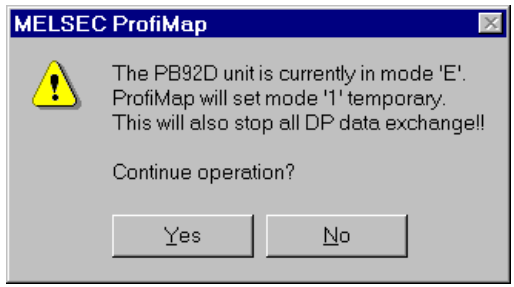
Verify

Verify

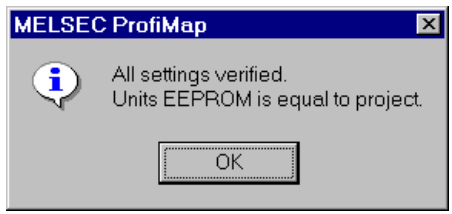
This function compares the settings of the master to the configuration data in the ProfiMap project. The contents of the master and the project must match after writing the configuration data.



The required mode for the verification is set automatically.



The configuration data was verified successfully.



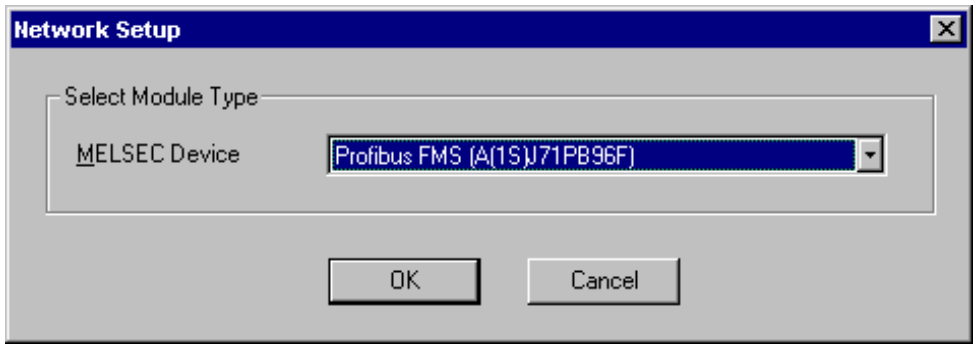
Profibus/FMS Interface

Parameter Setting for A(1S)J71PB96F

Introduction and Overview

This chapter describes how to generate the A(1S)J71PB96F parameter settings.

After selecting the command **New** in the **File** menu (see chapter 3 for details) select the module type **Profibus FMS (A(1S)J71PB96F)** from the menu.



The **project dialog box** shown below for the network setup appears. It is subdivided into two sections, one for the offline configuration and one for the online access of the module. The following functions are provided:

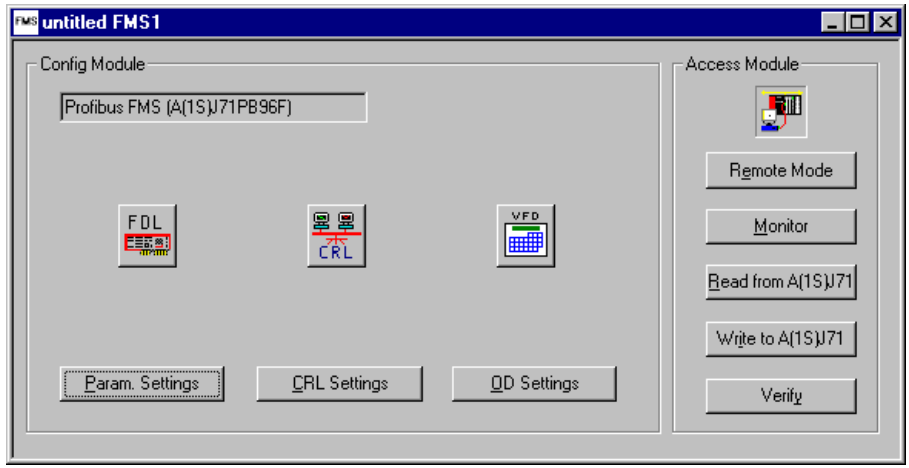
Config Module

- **Parameter Settings**
- **CRL Settings**
- **OD Settings**

Access Module

- **Remote Mode**
- **Monitor**
- **Read from A(1S)J71**
- **Write to A(1S)J71**
- **Verify**

If one setting dialog box is open (e.g. **Param. Settings**) the other buttons in the dialog box **Config Module** cannot be accessed.

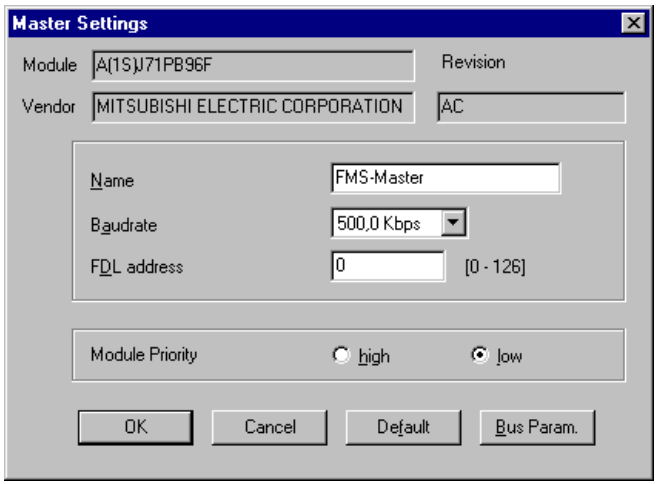


The functions that can be invoked within this network setup dialog are listed below and will be described in detail in the following:

Item	Purpose	Shortcut
Parameter Settings	This item calls the Master Settings dialog and the Busparameter Settings dialog.	Alt P
CRL Settings	This item lists all defined CRL entries; used to append, delete, and change a CRL entry; parameterize the CRL header; support online check of all CRL entries.	Alt C
OD Settings	This item lists all defined FMS variables; used to append, delete, and change a variable; set the start index of the local OD; call the structure dialog.	Alt O
Remote Mode	This item supports the reading of the remote OD of the selected CREF.	Alt E
Monitor	This item offers a choice of monitor options.	Alt M
Read from A(1S)J71	This item downloads the module configuration from the network interface module into the current project.	Alt R
Write to A(1S)J71	This item uploads the module configuration from the current project into the module.	Alt I
Verify	This item checks the current project against the module configuration online.	Alt Y

Button Param. Settings

Click on Param. Settings to start the **Master Settings** dialog needed to generate the A(1S)J71PB96F parameter settings. The **Master Settings** dialog box contains the following items:



The individual items in the **Master Settings** dialog are listed in the table below and commented in the following:

Parameter	Meaning	Range	Shortcut
Name	Project specific name of the master device.	—	Alt N
Baud rate	Used to select a supported baud rate.	9,60 Kbps - 1.500 Mbps	Alt A
FDL Address	Set the local station number address of the A(1S)J71PB96F.	0 - 126	Alt D
Module Priority	Set the module priority of the master device within the network.	high/low	Alt H/L
OK	Leave this dialog and save the data in the project.	—	Enter
Cancel	Leave this dialog without saving the changes in the project.	—	Esc
Default	Overwrite the data in the dialog with default values.	—	Alt F
Bus Param.	Define the timing of the network.	—	Alt B

Name

The name is only shown in the project. It will not be transferred to the master device. The name only is of symbolic character in order to assist you in managing your different projects.

Baud rate

The purpose of this item is to determine the timing of the network. Since the network can operate at different baud rates, the operator has to select the appropriate baud rate from the displayed values (master specific). The maximum baud rate supported by the A(1S)J71PB96F unit is 1.5 MB. The baud rate within a PROFIBUS network must be uniform.

FDL address

The operator may set the FDL address among 0 and 126 for a unique identification of the master within the profibus network. It states the local address for all CREFs of this station.

Module Priority

Set the module priority for non confirmed services. High priority and low priority are supported.

With selected high priority this master is able to send **one** request even if the target rotation time (TTR) has expired. With selected low priority this master is **not** able to send any request after the TTR has expired.

OK

If you select OK , all data from this dialog will be stored into the current project and the **Master Settings** dialog will be closed.

Cancel

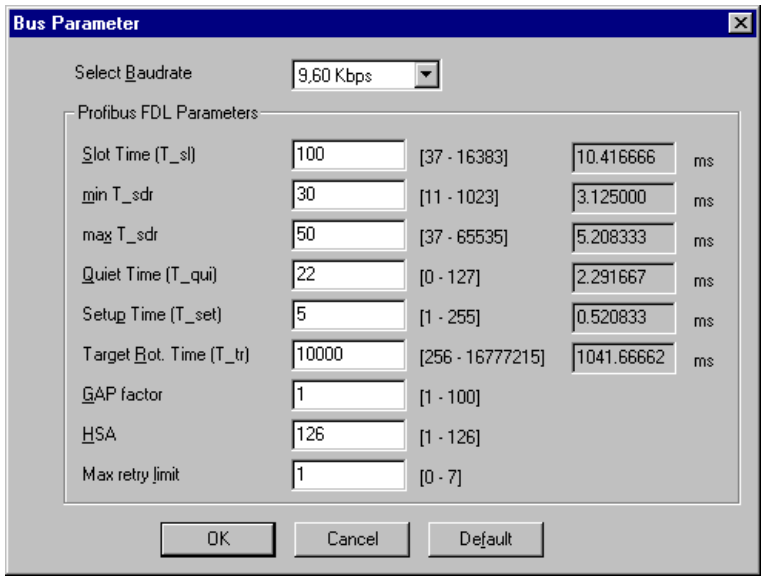
If you select Cancel , all data from this dialog will be restored to the previously defined values and the **Master Settings** dialog will be closed.

Default

If you select Default , all changes within this dialog will be lost. Be careful! The data will be restored to the default values.

Bus Parameter

If you select [Bus Param.], the bus parameter dialog box is displayed. This function allows to select the baud rate and to modify any parameters like timeouts, which are related to the baud rate. The last settings made are stored independently for each baud rate, so that by selecting a different baud rate these settings are shown again.



General timing factors are displayed in recalculated form based on the selected baud rate and absolute time durations. The conversion factors are the following:

Parameter	Meaning	Range	Remark
Baud rate	Transfer rate	see selection	Must be supported by all slaves
T_sl	Slot time	37 – 16383 x t_bit	Max. Interval to wait for response
min T_sdr	Min. Station delay of responder	11 – 1023 x t_bit	
max T_sdr	Max. Station delay of responder	37 – 65535 x t_bit	
T_qui	Quiet time	0 – 127 x t_bit	T = 0, if no repeater present
T_set	Setup time	1 – 255 x t_bit	
T_tr	Target rotation time	256 – 16777215 x t_bit	
GAP factor	Controls the GAP update time (T_gud)	1 – 100	
HSA	Highest station address	1 – 126	

When pressing the Default button, all values of the currently selected baud rate are set to default values.

The inputs are checked against the input limits when leaving the dialog with the OK button. Additionally the following consistency checks are performed:

- min T_sdr < max T_sdr
- T_qui < min T_sdr
- max T_sdr < T_sl
- T_sl < T_tr

Note: *If you are not an experienced PROFIBUS network administrator you should not change the Bus Parameters.*

Calculation of the Target Rotation Time (TTR)

TTR = ETRT + (ATT x baud rate) + ((NOM x TSL)/2)

Notation:

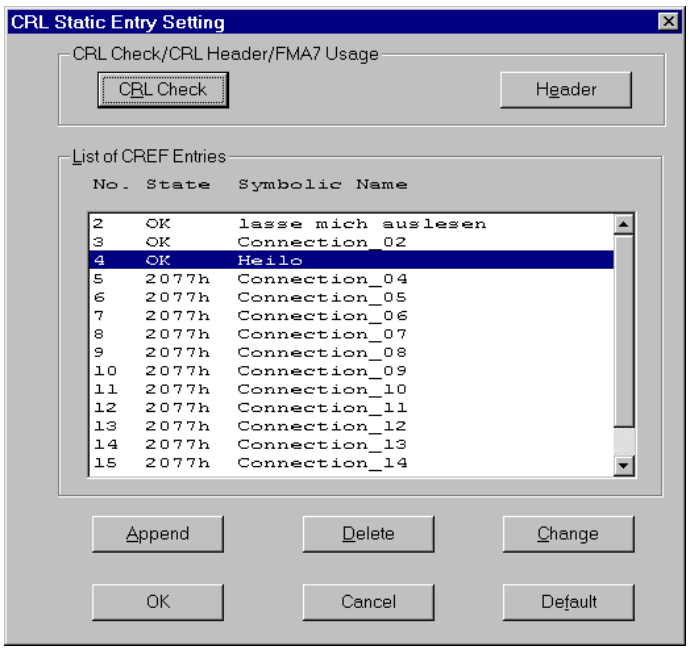
TTR = Target Rotation Time
ETRT = Empty Token Rotation Time
ATT = Average Transmission Time
NOM = Number of installed masters

Worst case calculation example based on 500 kBaud:

TTR = NOM x 1033 + NOM x 28726 + NOM x 3500/2
= NOM x 31509 Bit times
= NOM x 63 ms

Button CRL Settings (Communications Reference List)

Click on CRL Settings to start the **CRL Static Entry Setting** dialog needed to define communication references (max. 32 per master), to display all defined CREFs and to check the CRL (Communications Reference List) online. You can also set the CRL header and the FMA7 connection usage. The list of CREF entries displays the number and the name of all CREFs. The status of all connections is displayed as well. The error value is described in the user manual of the A(1S)J71PB96F module.



Item	Meaning	Shortcut
CRL Check	Test all CREFs online. Make sure that the PROFIBUS/FMS parameters are downloaded to the A(1S)J71PB96F.	Alt R
Header	Parameterize the CRL header and set the FMA7 usage.	Alt E
Append	Append a CREF.	Alt A
Delete	Delete the selected CREF.	Alt D
Change	Reset the selected CREF.	Alt C
OK	Leave the dialog and save the data in the project.	Enter
Cancel	Leave the dialog without saving any changes in the project.	Esc
Default	Reset the entire CRL to default values.	Alt F

CRL Check

After selecting CRL Check all existing CRL entries of the project (not the entries from the unit) will be tested online by sending an FMS connection_open.request. Therefore, it is only useful to check Master/Master and Master/Slave connections. Be sure that all connections are written down to the unit. The error value is described in the user manual of the A(1S)J71PB96F unit.

Result Code	Meaning
OK	Connection was verified successfully.
2055	FMS refused the connection.
2061	Connection already exists and cannot be tested.
2062	The specified CREF is not a valid connection.
2067	A transmission error occurred on PROFIBUS.
206C	This connection does not allow the CRL Check function.
2071	The connection is established by another station.
2077	The CREF attributes do not allow the execution of the CRL Check function.
2258	The other specified station is not available or denied the access.

Note: *Only acyclic Master/Slave (MSxx/D) and Master/Master (MMAC/D) connections can be checked by the "CRL Check" function.*

Header:

After selecting Header the CRL header parameters and the FMA7 connection usage can be set.

Append:

After selecting Append a dialog comes up to set the Connection Attributes and the Protocol Attributes. 32 CREF entries are possible. If you select the FMA7 connection usage, only 31 entries are usable. In case that 32 CREF entries are defined and FMA7 shall be enabled, the number of CREF must be reduced to 31 entries. After that FMA7 can be enabled. Note, that the CREFs are sorted automatically after deleting.

Delete:

Click on Delete to delete the selected CREF. The CRL will be sorted automatically. This means that all following entry numbers are decremented by one. If you want to avoid the renumbering of the CREF number, use the CREF to be deleted as dummy. In this case disable all client and server features.

Change:

Click on Change to edit the selected CREF entry.

OK:

Click on OK to leave this dialog and save all data from this dialog in the current project.

Cancel:

Click on Cancel to leave this dialog without saving any changes in the current project.

Default:

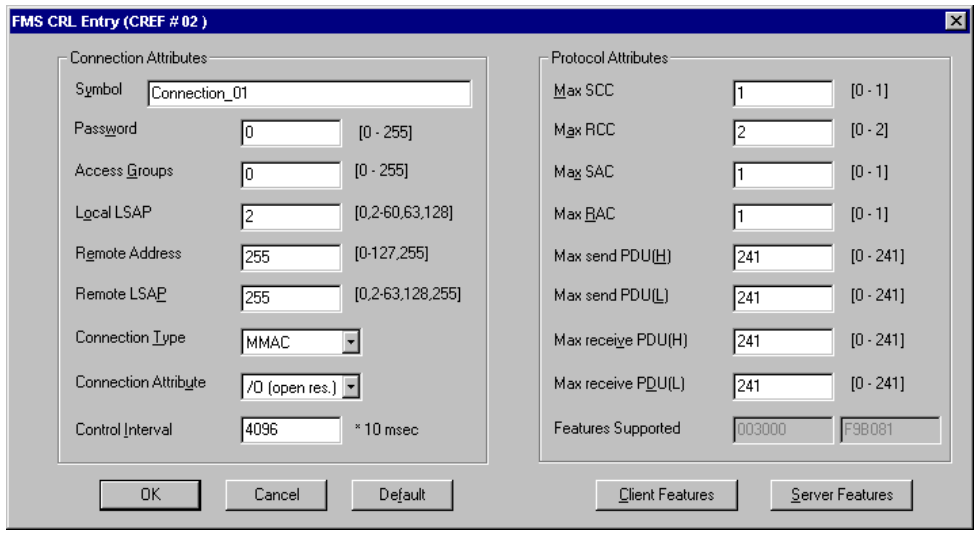
Click on Default to reset the entire CRL to default values. All data from this dialog and subdialogs will be lost. Be careful! The data will be restored to the default values for the CRL.

Note: *The CRL Header is not affected by the Default button.*

Editing an FMS CRL Entry

Via this dialog you define individual communication references. That is, to set the connection attributes and the protocol attributes. A special feature is a detailed editor for client and server features. Click on Change to edit an exitsting CRL entry or on Append to append and edit a new CRL entry.

The **FMS CRL Entry** dialog box appears:



Item	Meaning	Range	Shortcut
Symbol	User-definable name of the connection. This is the unique name within the project.	32 characters max.	Alt Y
Password	FMS password protection for connections.	0 - 255	Alt W
Access Groups	Defines relations of different groups of connections.	0 - 255	Alt G
Local LSAP	Sets the local Service Access Point. It has to be equal to the Poll List SAP for MSxx/D connections.	0, 2 - 60, 63, 128	Alt O
Remote Address	Sets the FDL address of the remote station.	0-127, 255	Alt E
Remote LSAP	Sets the service access point of the remote station.	0, 2 - 63, 128, 255	Alt P
Connection Type	Select the type of the current connection.	See selection	Alt T
Connection Attribute	Sets the attribute for connection-oriented relations.	See selection	Alt U
Control Interval	Sets the WDT time interval for connection control. The selected CREF is supervised by this WDT.	0 - 4294967294 x 10 ms	Alt I
Max SCC	Sets the maximum value for the Send Confirmed Request Counter.	0 - 1	Alt M
Max RCC	Sets the maximum value for the Receive Confirmed Request Counter.	0 - 2	Alt A
Max SAC	Sets the maximum value for the Send Acknowledged Request Counter. Necessary for unconfirmed services.	0 - 1	Alt X
Max RAC	Sets the maximum value for the Receive Acknowledged Request Counter. Necessary for unconfirmed services.	0 - 1	Alt R
Max send PDU(H)	Sets the maximum permissible length of PDUs sending high priority.	0 - 241	Alt H
Max send PDU(L)	Sets the maximum permissible length of PDUs sending low priority.	0 - 241	Alt L
Max receive PDU(H)	Sets the maximum permissible length of PDUs receiving high priority.	0 - 241	Alt V
Max receive PDU(L)	Sets the maximum permissible length of PDUs receiving low priority.	0 - 241	Alt D
Features Supported	Displays the hexadecimal feature supported string for this connection.	—	
Client Features	Specifies the kind of supported FMS services and options for the current connection as client.	—	Alt C
Server Features	Specifies the kind of supported FMS services and options for the current connection as server.	—	Alt S
OK	Leave the dialog and save the data in the project.	—	Enter
Cancel	Leave the dialog without saving any changes in the project.	—	Esc
Default	Reset the opened CREF to default values.	—	Alt F

Symbol:

Every CREF has a symbolic name. The name consists of a maximum of 32 ASCII characters. This name is used to separate the CREFs significantly. A name which is unique must be specified here.

Password:

The password is a decimal number, used for access protection relating to the current connection. The default value is 0 (not protected). In the case of a station supporting access with password, the value of the password received with the service "Initiate" shall be unique for this relationship. This parameter is optional and thus should be left to 0.

Access Groups:

The Access Groups is a decimal number, used to specify different groups of connections. The default value is 0. The value must be binary interpreted. There are eight different access groups supported. This parameter is optional and thus should be left to 0.

Local LSAP:

Specify the Local Link Service Access Point of this station, used for the communication of the current CREF. Valid values are 0 to 63 for SAPs and 128 for NIL. This parameter is unique for MMAC connections but must be equal to the Poll List SAP for MSxx/D connections.

Remote Address:

The Remote Address specifies the FDL address of the remote station for this CREF. If the value 255 is set, all stations in the FMS network are selected (one to any), otherwise the connection type is one to one.

Remote LSAP:

Specify the Remote Link Service Access Point of the remote station, used for the communication of the current CREF. Valid values are 0 to 63 for SAPs, 128 for NIL and 255 for all. For the connections with connection attribute /D the remote LSAP must range within 0 - 63.

Connection Type:

The Connection Type specifies the kind of this communication relationship.

Valid values are:

- MMAC for acyclic master-master data transfer
- MSAC for acyclic master-slave data transfer without slave initiative
- MSAC_SI for acyclic master-slave data transfer with slave initiative
- MSCY for cyclic master-slave data transfer without slave initiative
- MSCY_SI for cyclic master-slave data transfer with slave initiative
- BRCT for broadcast communication (master to all others)
- MULT for multicast communication (master to few others)

Connection Attribute:

This parameter contains further information on the connection type of connection oriented relationships.

Valid values are:

- D for defined connections (master-master or master-slave)
- I for open connection at the requester (master-master connections)
- O for open connections at the responder (master-master or master-slave connections)

Control Interval:

The Control Interval specifies the length of the time interval for the connection control of connection oriented relationships. This value is multiplied by 10 ms to determine the time (acyclic: including ACI, cyclic: including CCI).

If the connected FMS device does not support the "Control Interval" feature, set this value to 0.

Max SCC:

This parameter specifies the maximum permitted number of parallel confirmed services to the partner station.

Rule: Max SCC must be smaller than or equal to Max RCC of the other station.

Max RCC:

This parameter specifies the maximum permitted number of parallel confirmed services from the partner station.

Rule: Max RCC must be greater than or equal to Max SCC of the other station.

Max SAC:

This parameter specifies the maximum permitted number of parallel unconfirmed services to the partner station.

Rule: Max SAC must be smaller than or equal to Max RAC of the partner station.

Max RAC:

This parameter specifies the maximum permitted number of parallel unconfirmed services from the partner station.

Rule: Max RAC must be greater than or equal to Max SAC of the partner station.

Max send PDU(H):

This parameter contains the maximum permissible length of an FMS PDU for sending with high priority on this CREF.

Rule: Max send PDU (H) must be smaller than or equal to Max receive PDU (H) of the partner station.

Max send PDU(L):

This parameter contains the maximum permissible length of an FMS PDU for sending with low priority on this CREF.

Rule: Max send PDU (L) must be smaller than or equal to Max receive PDU (L) of the partner station.

Max receive PDU(H):

This parameter contains the maximum permissible length of an FMS PDU for receiving with high priority on this CREF.

Rule: Max receive PDU (H) must be greater than or equal to Max send PDU (H) of the partner station.

Max receive PDU(L):

This parameter contains the maximum permissible length of an FMS PDU for receiving with low priority on this CREF.

Rule: Max receive PDU (L) must be greater than or equal to Max send PDU (L) of the partner station.

Note: *If the FMS communication partner does not support the high priority function, set the Send and Receive PDU (H) to 0.*

The Send PDU (H) and PDU (L) values of the master should be less than or equal to the Receive PDU (H) and PDU (L) values of the FMS partner.

Features Supported:

This field displays the feature supported string for the current CREF. It specifies which FMS services and options are supported by this relationship. This value is read only. For changes use the **Client Features** or **Server Features** dialog.

Client Features:

Click on 

to open a detailed editor for editing the supported client features.

Server Features:

Click on 

to open a detailed editor for editing the supported server features.

OK:

Click on OK to leave this dialog and save all data from this dialog in the current project.

Cancel:

Click on Cancel to leave this dialog without saving any changes in the current project.

Default:

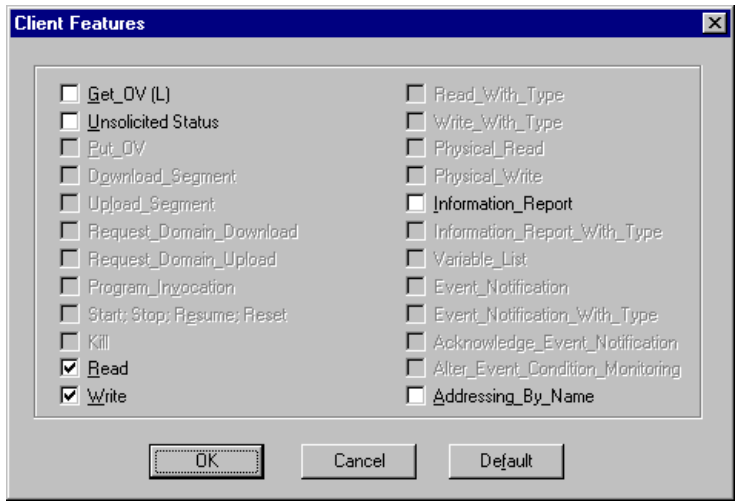
Click on Default to reset all data within this dialog to default values. Be careful, all your changes made will be lost!

Button Client Features

This dialog provides a transparent display of the supported client features of the selected CREF and calculates the client feature string which is defined in the standard.

Features not supported by the A(1S)J71PB96F are greyed. Select these services for connection-design carefully. For a detailed description of all services, refer to DIN 19245 part 2.

Click on Client Features to access the **Client Features** dialog:



Item	Meaning	Shortcut
OK	Leave the dialog and save the data in the project.	Enter
Cancel	Leave the dialog without saving the data in the project.	Esc
Default	Reset the whole client feature string to default values.	Alt F

Rule: *The client features must be equal to or less than the server features of the partner station. In case that the server features of the partner station are not known, enable* ☑ Read *and* ☑ Write *only. These services are compulsory and must be supported by the partner station.*

OK:

Click on OK to leave this dialog and save all data from this dialog in the current project.

Cancel:

Click on Cancel to leave this dialog without saving any changes in the current project.

Default:

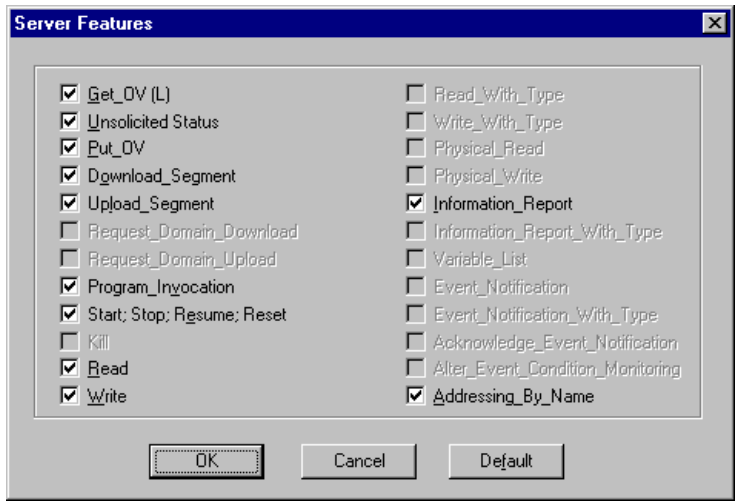
Click on Default to reset all data within this dialog to default values. Be careful, all your changes made will be lost!

Button Server Features

This dialog provides a transparent display of the supported server features of the selected CREF.

Features not supported by the A(1S)J71PB96F are greyed. Select these services for connection-design carefully. For a detailed description of all services, refer to DIN 19245 part 2.

Click on Server Features to access the **Server Features** dialog:



Item	Meaning	Shortcut
OK	Leave the dialog and save the data in the project.	Enter
Cancel	Leave the dialog without saving the data in the project.	Esc
Default	Reset the entire client feature string to default values.	Alt F

Rule: *The server features must be greater than or equal to the client features of the partner station. Therefore, all supported features of the A(1S)J71PB96F are enabled. Only disable a feature in case you do not want the partner station to use this service. However, this might affect the client feature setting of the partner station.*

OK:

Click on OK to leave this dialog and save all data from this dialog in the current project.

Cancel:

Click on Cancel to leave this dialog without saving any changes in the current project.

Default:

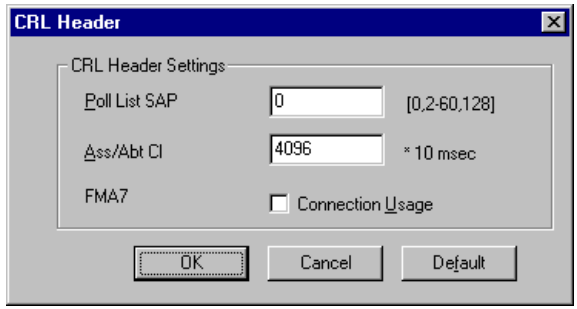
Click on Default to reset all data within this dialog to default values. Be careful, all your changes made will be lost!

After closing the **FMS CRL Entry** dialog a bit string for the "Features Supported" with specified information on the specified server and client features is generated. The minimum configuration items for FMS partners are the read and write features.

Button Header

The CRL Header is used to store general information for all CREF entries. There is only one CRL Header with the index null for the CRL defined. An extra feature is the selection of the FMA7 connection usage.

Click on Header to access the **Header** dialog:



Item	Meaning	Range	Shortcut
Poll List SAP	Specifies the SAP containing the poll list of layer two.	0, 2-60, 128	Alt P
Ass/Abt CI	Time interval for control of connection establishment/release.	0-4294967294 x 10 ms	Alt A
FMA7 Connection Usage	Enable/disable FMA7 usage.	Enable/disable	Alt U

Poll List SAP:

This item specifies the Local Service Access Point, which contains the poll list of layer two. Valid values are 0, 2-62 for SAP, 128 for NIL, and 255 if no Poll List SAP is used in the current CRL. The SAP manages all slaves connected to this master.

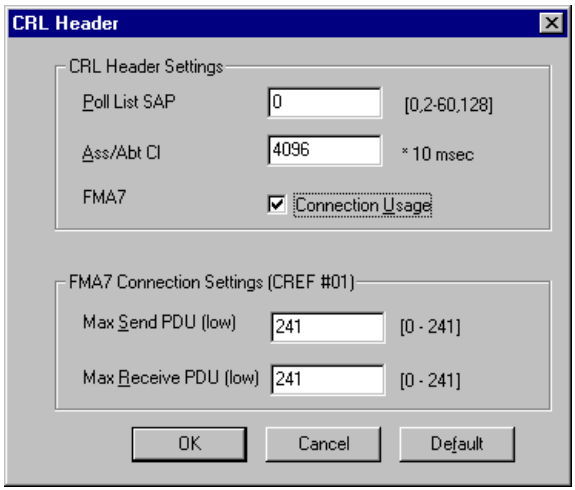
Ass/Abt CI:

This parameter contains the time interval for the control of the connection establishment (**Ass**emble) and the connection release (**Ab**or**t**). The value is multiplied by 10 ms to obtain a time value.

Note: This control interval must range within 0 - 4294967294.

FMA7 Connection Usage:

Check ☑ Connection Usage to enable the FMA7 connection and access the **FMA7 Connection Settings** dialog where you can set the FMA7 connection specific parameters. When the FMA7 connection is to be used, the maximum number of CREFs that can be set in the CRL is 31. The number of the FMA7 CREF is fixed to 1.



Item	Meaning	Range	Shortcut
Max Send PDU (low)	Maximum permissible length of PDUs sending low priority.	0-241	Alt S
Max Receive PDU (low)	Maximum permissible length of PDUs receiving low priority.	0-241	Alt R

Max Send PDU(low):

This parameter contains the maximum permissible length of a PDU for sending with low priority on this CREF.

Max Receive PDU(low):

This parameter contains the maximum permissible length of a PDU for receiving with low priority on this CREF.

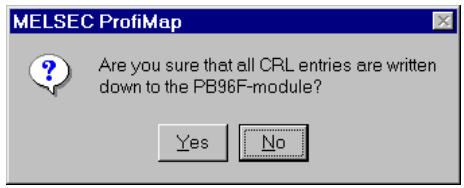
Button CRL Check:

This function checks online all defined CREFs displayed in the CRL static Entry Setting.

In order to ensure correct operation it is essential to download or verify the PROFIBUS/FMS parameters to the A(1S)J71PB96F before selecting this function. Otherwise wrong test results are displayed in the column "State" in the dialog box "CRL Static Entry Setting". This function only tests MSAC/D and MSxx/D connections. Other connections will automatically result in an error.

After the online test, the column "State" in the CREF list shows OK for a valid master connection or a hexadecimal error value. Please see the manual of the unit for detailed information.

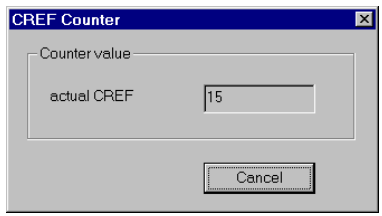
Click on CRL Check to access the **CRL Check** dialog:



Item	Meaning	Shortcut
Yes	Execute CRL online check.	Y
No	Abort CRL online check.	N

Yes:

Click on Yes to check the entire CRL from the current project online. The dialog shown below comes up and displays the number of the CREF currently being checked.



Here you can still abort the CRL online check with Cancel .

No:

Click on No to abort the CRL online check.

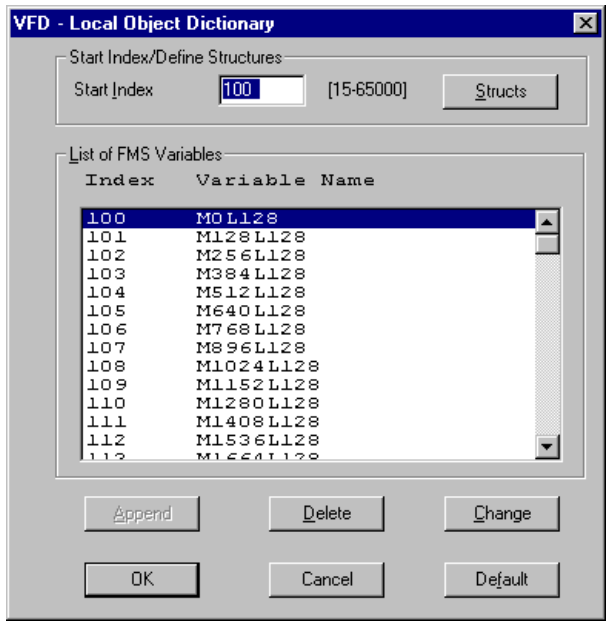
CRL Check result codes:

Result Code	Meaning
OK	Connection was verified successfully.
2055	FMS refused the connection.
2061	Connection already exists and cannot be tested.
2062	The specified CREF is not a valid connection.
2067	A transmission error occurred on PROFIBUS.
206C	This connection does not allow the CRL Check function.
2071	The connection is established by another station.
2077	The CREF attributes do not allow the execution of the CRL Check function.
2258	The other specified station is not available or denied the access.

VFD - Local Object Dictionary

Click on OD Settings to access the **VFD - Local Object Dictionary** dialog box.

This dialog is used to define local FMS object types such as structures and variables. Furthermore, there are a maximum of 128 predefined FMS variables set. As standard, structures are not defined. Objects are used for data transfer with partner stations. For further information refer to Profibus Specification EN50170, volume 2, page 188.



Item	Meaning	Shortcut
Start Index	Set the start index of the object dictionary.	Alt I
Structs	Call the dialog of the static type dictionary (structure definition).	Alt S
List of FMS Variables	Display the defined static variable object list.	Alt L
Append	Append one variable object to the list.	Alt A
Delete	Delete the currently selected variable object.	Alt D
Change	Change/edit the current variable object.	Alt C
OK	Leave this dialog and save all data from this dialog in the current project.	Enter
Cancel	Leave this dialog without saving any changes in the current project.	Esc
Default	Reset all data within this dialog to default values. Be careful, all your changes made will be lost!	Alt F

Start Index:

The index (logical address) serves as a key to the object. Before a remote station is able to access an object it must "know" the index. The **Start Index** is the index of the FMS variable object. Make sure that the index of an FMS variable is not overlapping with the index of a structure. In this case the defined structure will be ignored, but not deleted.

Structs:

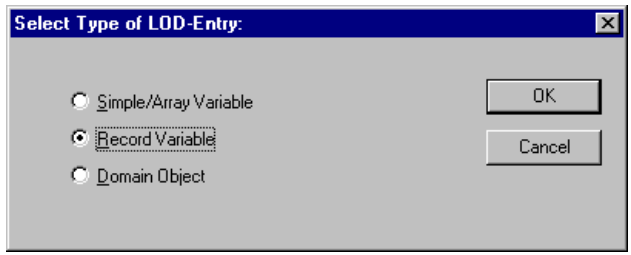
Click on Structs to access the **Data Type Structure List** dialog where you can define structures as a part of the static type dictionary.

List of FMS Variables:

This list box displays all defined variable objects. By default the maximum number of variables is already defined. Supported objects are simple, array, null and record objects. Domain objects (from older configurations) can be read and written, but not changed.

Append:

Click on Append to append a new variable object to the local object dictionary and to access the **Select Type of LOD-Entry** dialog. As standard, no new object can be appended because the maximum number of entries (128) is already set. After deleting individual entries new ones can be appended.



Note: *Before you can append an object of the type "Record Variable" you have to specify the values in the* **Data Type Structure List** *dialog.*

The object type "Domain" is currently not implemented.

Delete:

Click on Delete to delete the current variable object. If the selected variable object is not the last entry in the object dictionary, it will be cleared. This means, the current object is set to a null object. The purpose of null objects is to hold the index order.

Change:

Click on Change to change and edit the object and device descriptions. The object type cannot be changed from record to simple or array, but only from simple object to array object and vice versa. Detailed changes of a domain object read from the unit are not allowed. Any variable object can be changed to a null object.

OK:

Click on OK to leave this dialog and save all data from this dialog in the current project.

Cancel:

Click on Cancel to leave this dialog without saving any changes in the current project.

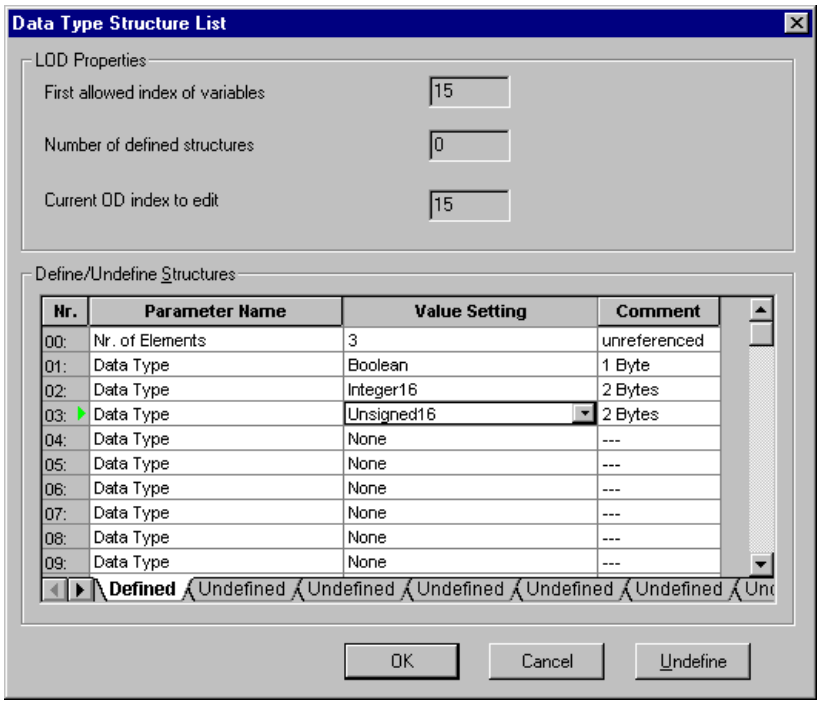
Default:

Click on Default to reset all data within this dialog to default values. Be careful, all your changes made will be lost! Default does not set the structures to default values.

Data Type Structure List

The **Data Type Structure List** shows the definition of the static type dictionary. By default the structure types are not defined. The maximum number of supported structure types is 32. For further information see the Profibus Specification EN50170 volume 2, page 190.

Click on Structs to access the **Data Type Structure List** dialog:



Item	Meaning	Shortcut
First allowed index of variables	Display the first possible index of variable objects, read only.	
Number of defined structures	Display the current number of defined structures, read only.	
Current OD index to edit	Display the index of the current structure.	
Define/Undefine Structures	Enable sheet.	Alt S
OK	Leave this dialog and save all data from this dialog in the current project.	Enter
Cancel	Leave this dialog without saving any changes in the current project.	Esc
Undefine	Undefine the current structure.	Alt

First allowed index of variables:

The displayed value is the first allowed index for the object dictionary, read only.

Number of defined structures:

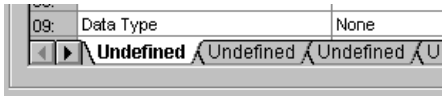
The displayed value presents the current number of defined structures, read only.

Current index to edit:

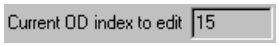
The displayed value presents the index of the current structure, read only.

Define/undefine Structures:

First select the OD index you want to edit via the tabs at the bottom of the **Data Type Structure List** dialog box:

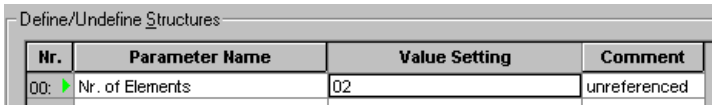


The according OD index is displayed (read only) in the upper section of the dialog box:

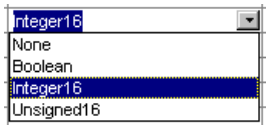


Only the entries within the column "Value Setting" can be edited.

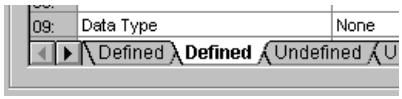
Click on the first field below "Value Setting" and enter a number n from 1 - 10 to specify the number of structure elements you want to edit afterwards:



Then click on the following rows (01...n) within the column "Value Setting" on the drop-down button to select the desired data type for each element:



As you have edited one OD index you can proceed with the next one by clicking on the according Undefined tab:



Note: *A new defined structure provides the comment "unreferenced". Once the structure is used to define a Record variable its comment is changed to "referenced" and the structure cannot be undefined.*

① Tab steps through OK ➜ Cancel ➜ Entry sheet.
Alt S activates the entry sheet at once.

Activate the entry sheet.

② Press Del to delete the "0" from the row "No. of Elements" and enter a number from
1 - 10.

③ Press ↓ to confirm your entry and to step downwards to the first data type selection.

④ Press Space to open the listbox and select the desired data type with ↓ and ↑. Confirm with Enter.

⑤ Proceed with ③ until all structure elements are defined.

Once the entry sheet is activated Ctrl and Shift serve as toggle keys:

Press (and release) Ctrl to toggle to the OD index selection mode:

- Tab steps through the current OD indexes to edit. Press (and release) Shift to toggle the direction of Tab ; index up/index down.

Press (and release) Ctrl to toggle back to the "regular" mode:

- Tab steps through OK ➜ Cancel ➜ Entry sheet

Note: *A new defined structure provides the comment "unreferenced". Once the structure is used to define a Record variable its comment is changed to "referenced" and the structure cannot be undefined.*

OK:

Click on OK to leave this dialog and save all data from this dialog in the current project.

Cancel:

Click on Cancel to leave this dialog without saving any changes in the current project.

Undefine:

Click on Undefine to delete the current structure type. This is only possible, if the comment of the structure states "unreferenced".

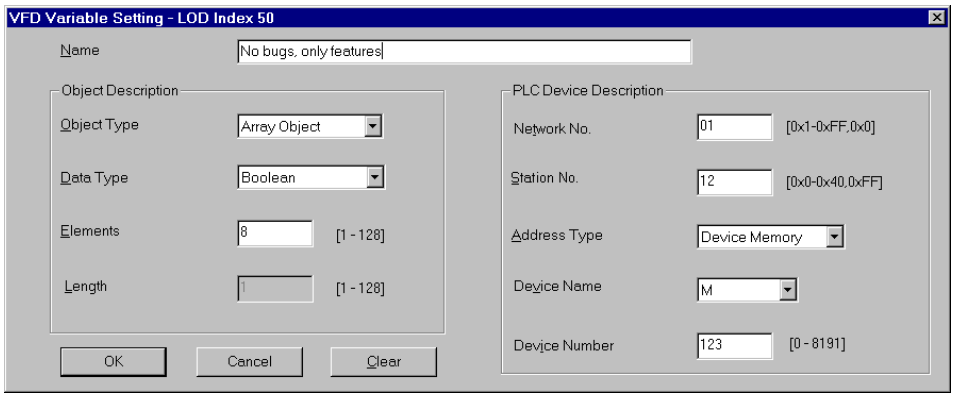
VFD Variable Setting:

MELSEC ProfiMap supports the following object types:

- Null Object
- Simple Object
- Array Object
- Record Object
- Domain Object (not changeable)

The variable setting dialog is the same for null, simple, and array objects.

Click on Change to change/edit the varible settings in the **VFD Variable Setting** dialog:



Item	Meaning	Shortcut
Name	The symbolic name of the variable object.	Alt N
Object Type	Set the null, simple or array object.	Alt O
Data Type	Set the data type of the current object.	Alt D
Elements	Set the number of elements for an array object.	Alt E
Length	Set the length of the elements for data type string.	Alt L
Network No.	Set the network number within the MELSECNET/10.	Alt T
Station No.	Set the PLC number within the MELSECNET (/B /II /10).	Alt S
Address Type	Select device or special function module buffer memory and memory capacity.	Alt A
Device Name	Set the type of device used for object mapping.	Alt V
Device Number	Set the offset in the selected device address space.	Alt I
OK	Leave this dialog and save all data from this dialog in the current project.	Enter
Cancel	Leave this dialog without saving any changes in the current project.	Esc
Clear	Clear all data from this dialog and set the current variable to a null object. The cleared variable serves as dummy object in the current index of the object dictionary to keep the numbering of the remaining objects.	Alt C

Name:

This item is the symbolic name of the current variable object. The maximum length of the string is 32 ASCII characters.

Note: *If you use special characters for the Name generation, be aware that the ASCII code of the currently used character set is downloaded to the A(1S)J71PB96F PROFIBUS/FMS master module. This might cause problems to call the variable from another PROFIBUS/FMS node.*

Object Type:

The object type is used to define simple, array and null variable objects. When the operator selects the null object, the variable will be cleared in the current index (place-marker of the index).

Data Type:

MELSEC ProfiMap supports the following data types for variable definitions:

- Boolean
- Integer8, Integer16, Integer32
- Unsigned8, Unsigned16, Unsigned32
- Floating Point
- Visible, Octet, Bit String.

For further information on coding these data types, refer to the Profibus Specification EN 50 170 volume 2, part six.

Elements:

In case the selected object type is an array object, this parameter is changeable. In this case it represents the number of elements of the selected array object.

In case an array of string data type is selected you need to define the number of elements of the string data AND you need to define the length of the string in units of bytes. This means that even the length of a bit string is defined in units of bytes.

If the object type Simple Object is selected, the variable length needs to be set for string data types only.

Note: *128 ≥ Elements x Length*

Network No.:

This parameter represents the network number of the MELSECNET/10 data link system for the current variable object. For further information, please refer to your module manual.

Station No.:

This parameter represents the PLC number of the MELSECNET (/B /II /10) data link system for the current variable object. For further information, please refer to your module manual.

Address Type:

This parameter selects the device memory or buffer memory for the current variable object. A special case is the memory capacity. The memory capacity is a special array variable. If you select memory capacity, all data will be overwritten.

This parameter **Address Type** offers three different selections:

Selection	Meaning
Device Memory	The defined PROFIBUS/FMS variable is directly connected to PLC CPU devices such as X, Y, M, D, R.
Buffer Memory	The defined PROFIBUS/FMS variable is directly connected to another special function module memory. For example, the value of an analog module can directly be accessed without a PLC sequence program.
Memory Capacity	The defined PROFIBUS/FMS variable can read the current PLC CPU memory size which is used for application variables. For example, the memory size used for file register (R) can be read.

Depending on the selection different settings have to be specified.

Device Memory:

For Device Memory the PLC CPU Device Name and start address need to be specified.

Buffer Memory:

For Buffer Memory you need to specify which special function module is selected (Y No.) and which data from the buffer of the special function module is to be accessed (Buffer Memory Byte).

Setting the Y No.:

The Y No. is calculated very similar to the head address of a special function module. The Y No. is the last occupied I/O address of the special function module without the last digit.

Example: A special function module occupies X/Y 120...13F then the Y No. is 13.

Setting the Buffer Memory Byte:

Generally, the buffer memory of a special function module is limited to 16 kByte (0x0 - 0x3FFF). The PLC CPU can access the buffer memory in units of words. In contrast to this, the A(1S)J71PB96F PROFIBUS/FMS module allows to access the buffer memory in units of bytes. In order to read or write data from or to a special function module the buffer memory address described in the User´s Manual of the selected special function module has to be multiplied by two and set into the buffer memory byte selection.

Buffer Memory Byte = Buffer memory of special function module x 2

Memory Capacity:

For Memory Capacity MELSEC ProfiMap automatically determines the variable correctly.

Device Name:

The device name is a symbolic name for the device at the PLC. The device name is in conjunction with the data type.

Device Number:

The device number is the offset of the device at the PLC.

OK:

Click on OK to leave this dialog and save all data from this dialog in the current project.

Cancel:

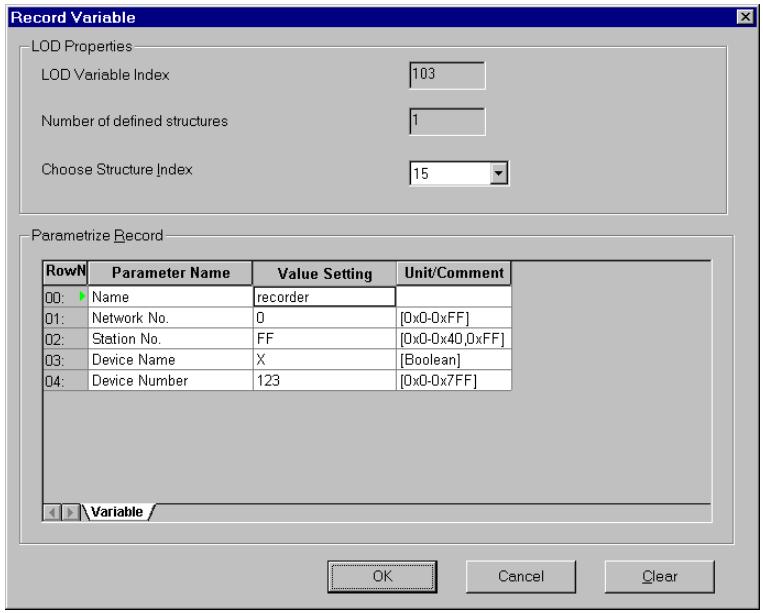
Click on Cancel to leave this dialog without saving any changes in the current project.

Clear:

Click on Clear to clear all data from this dialog and set the current variable to a null object. The cleared variable serves as dummy object in the current index of the object dictionary to keep the numbering of the remaining objects.

Record Variable:

Click on Append to access the **Record Variable** dialog where you define record variables in the static object dictionary. As standard, no record objects are defined. One record stays in conjunction with one structure type defined in the **Data Type Structure List** dialog. For further information refer to the Profibus Specification EN50170 volume 2, page 190.



Item	Meaning	Shortcut
LOD Variable Index	Display the index of the current record, read only.	
Number of defined structures	Display the number of defined structures, read only.	
Choose Structure Index	Select a structure defined in the Data Type Structure List Dialog by index.	Alt I
Parameterize Record	Enable the record sheet.	Alt R
OK	Leave this dialog and save all data from this dialog in the current project.	Enter
Cancel	Leave this dialog without saving any changes in the current project.	Esc
Clear	Clear all data from this dialog and set the record object to a null object.	Alt C

LOD Variable Index:

This value represents the index of the current record object, read only.

Number of defined structures:

This value represents the number of defined structures, read only.

Choose Structure Index:

This list box contains the indexes of all defined structure types.

OK:

Click on OK to leave this dialog and save all data from this dialog in the current project.

Cancel:

Click on Cancel to leave this dialog without saving any changes in the current project.

Clear:

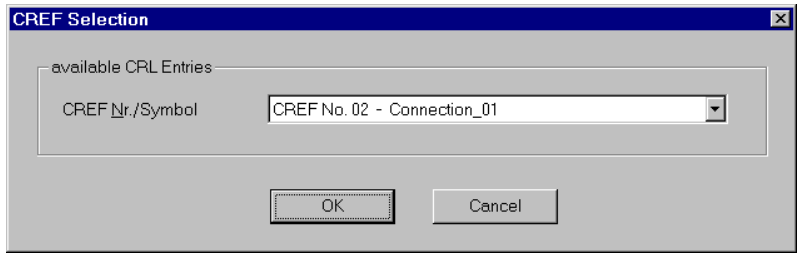
Click on Clear to clear all data from this dialog and set the current record object to a null object. The cleared variable serves as dummy object in the current index of the object dictionary to keep the numbering of the remaining objects.

Remote Mode

Remote Mode

Click on Remote Mode to access the remote mode management dialog. Here you can load the object dictionary from another station via the current CREF. MELSEC ProfiMap provides only an overview of the loaded remote object dictionary of the other stations. For further information refer to the Profibus Specification EN50170 volume 2.

First, you have to select a CREF for the communication with the remote station:



Item	Meaning	Shortcut
CREF Number/Symbol	Set the CREF for remote OD download to MELSEC ProfiMap.	Alt N
OK	Leave this dialog and save all data from this dialog in the current project.	Enter
Cancel	Leave this dialog without saving any changes in the current project.	Esc

CREF Number/Symbol:

Select a CREF from this list box for the communication with the remote station.

To obtain a valid CREF for the data transfer with the remote station, please use the monitor function Check CREF.

Note: *This function is valid only for MMAC/D and MSxx/D connections.*

OK:

Click on OK to leave this dialog and save all data from this dialog in the current project.

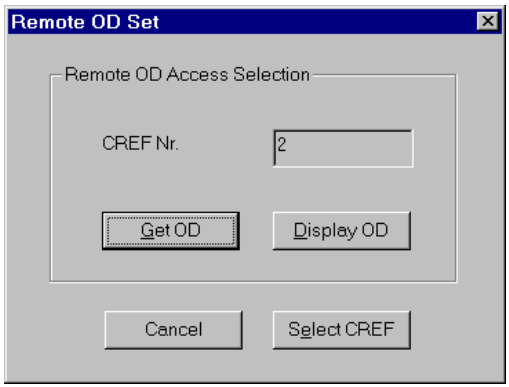
Cancel:

Click on Cancel to leave this dialog without saving any changes in the current project.

After you confirm your CREF selection with OK , the following dialog will be displayed.

Remote OD Set:

Via this dialog you reselect the chosen CREF, get the remote OD, and display the remote object dictionary. You can only display the object dictionary of the other stations, if the **Get OD** (see below) was successful.



Item	Meaning	Shortcut
Get OD	Set the index to get, start the remote data transfer.	Alt G
Display OD	Display the remote object dictionary.	Alt D
Select CREF	Set the CREF for remote OD download.	Alt E
Cancel	Leave this dialog without saving any changes in the current project.	Esc

Get OD:

Click on OK to set the index range of the remote objects you want to get.

Display OD:

Click on OK to show the downloaded remote object dictionary. You can only display a loaded remote object dictionary.

Select CREF:

Select a CREF from this list box for the communication with the remote station.

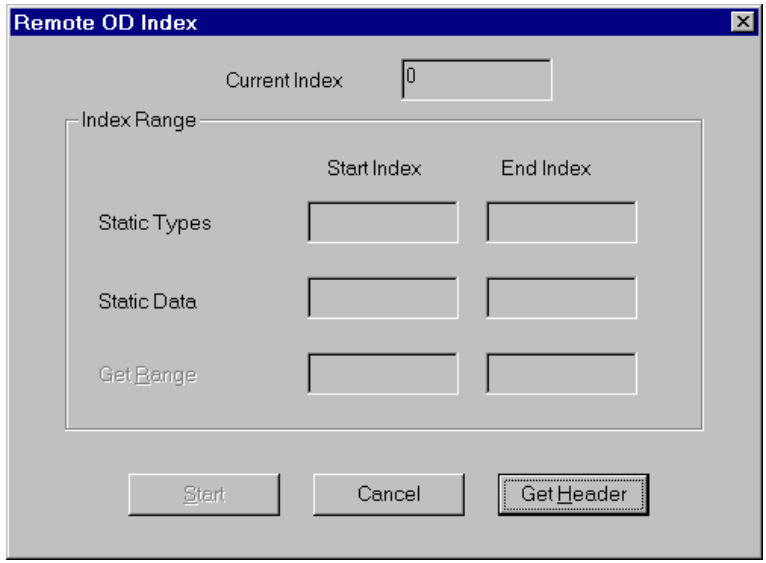
To obtain a valid CREF for the data transfer with the remote station, please use the monitor function Check CREF.

Cancel:

Click on Cancel to leave this dialog without saving any changes in the current project.

Remote OD Index:

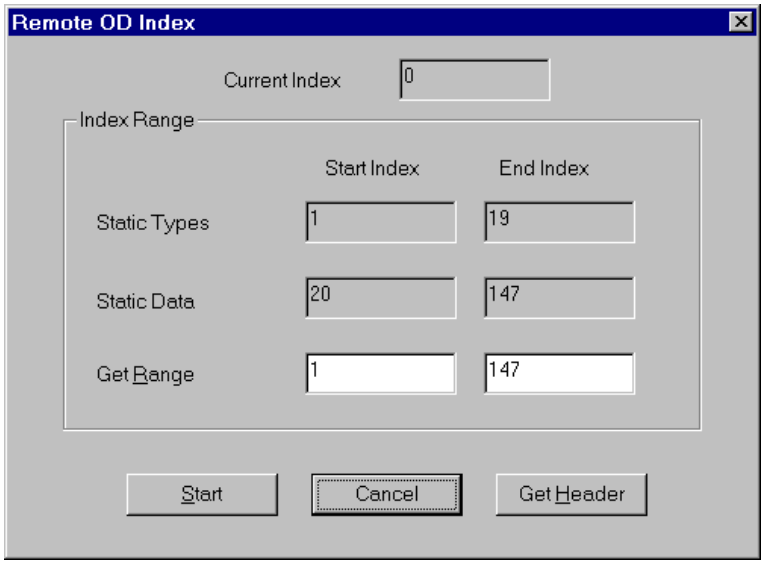
Click on Get OD to reselect the chosen CREF, get the remote OD and display the remote object dictionary. You can only display the remote object dictionary, if the Get OD was successful.



Item	Meaning	Shortcut
Current Index	Displays the current index of the remote object, read only.	
Static Types	Displays the start/end index of the remote static types, read only.	
Static Data	Displays the start/end index of the remote static objects.	
Get Range	Select the range of the types/objects to get remotely.	Alt R
Start	Start the data transfer.	Alt S
Get Header	Download the header of the remote object dictionary to MELSEC ProfiMap.	Alt H
Cancel	Leave this dialog without saving any changes in the current project.	Esc

Get Header:

First click on Get Header to download the header of the remote object dictionary. If the download was successful, you can edit the range or download the whole Remote Object Dictionary.



Current Index:

Displays the current index of the remote object which is in download process to MELSEC ProfiMap, read only.

Static Types:

Displays the start/end index of the remote static types, read only.

Static Data:

Displays the start/end index of the remote static objects.

Get Range:

The **Get Range** represents the start index and the end index of the remote objects/types to get. You can select between the start index of the static types and the end index of the objects.

Start:

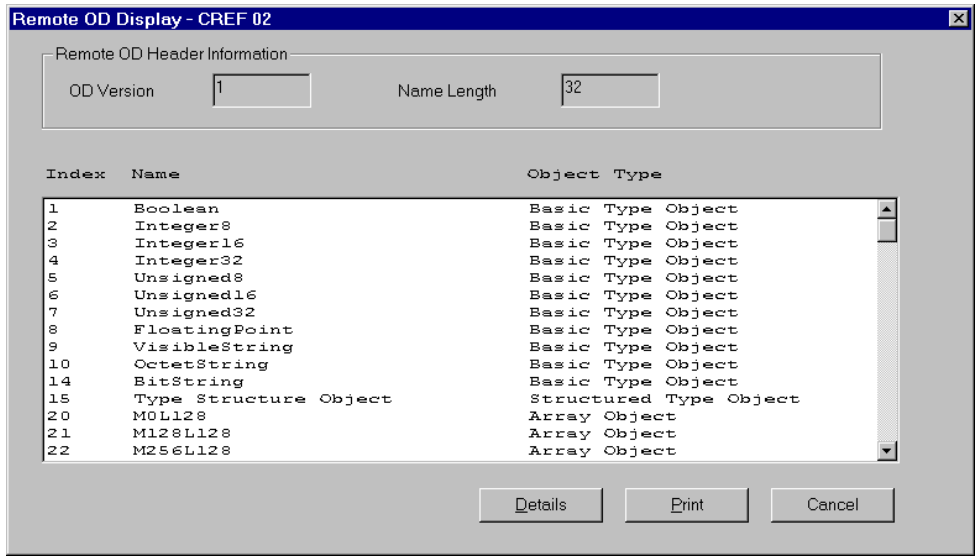
By pressing this button, all remote objects/types between the selected range will be downloaded. The Current Index displays the index of the current remote object/type.

Cancel:

Click on Cancel to leave this dialog without saving any changes in the current project.

Remote OD Display:

This dialog displays the downloaded remote object dictionary. The remote objects are displayed including index, name (depending on the defined **Client Features** of this connection), and object type. Detailed information on all entries is displayed by pressing Details .



Item	Meaning	Shortcut
OD Version	Displays the version of the remote object dictionary, read only.	
Name Length	Displays the length of all object names.	
Details	Displays details of the selected remote object.	Alt D
Print	Prints the Remote OD list.	Alt P

OD Version

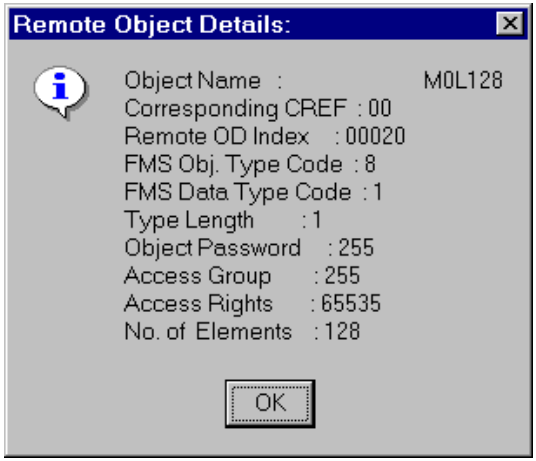
Displays the version of the remote object dictionary, read only.

Name Length

Displays the length of all object names.

Details:

Click on Details to obtain a message box with detailed information on the current remote object:



Print:

Click on Print to print the displayed remote OD list.

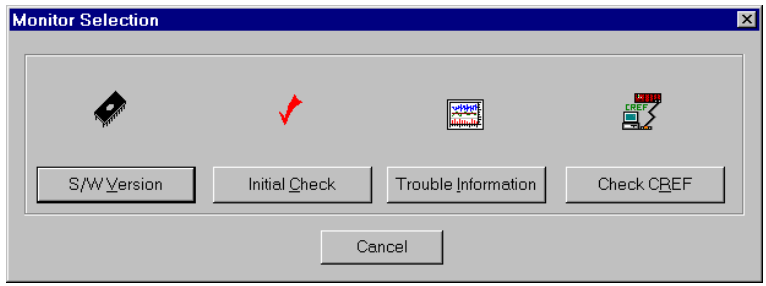
Cancel:

Click on Cancel to leave this dialog without saving any changes in the current project.

Monitor Selection:

Monitor

Click on Monitor to access the **Monitor Selection** dialog. This dialog allows you to get the **Software Version** of the current module, to perform an **Initial Check** of the connected module, to get the Trouble Information buffer area, and to Check CREFs online. For all monitoring functions the module must be in operation mode 0.
A detailed description follows.



Item	Meaning	Shortcut
S/W Version	Call the software version dialog.	Alt V
Initial Check	Call the initial check dialog.	Alt C
Trouble Information	Call the trouble information monitor.	Alt I
Check CREF	Perform an online check of CREFs.	Alt R
Cancel	Leave this dialog without saving any changes in the current project.	Esc

S/W Version:

Click on S/W Version to read the current software version implemented in the module.

Initial Check:

Click on Initial Check to perform a hardware test of the connected module.

Trouble Information:

Click on Trouble Information to display the error buffer area of the PLC.

Check CREF:

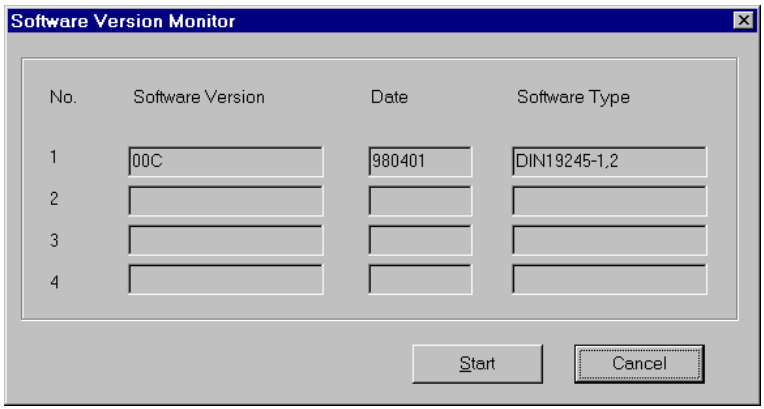
Click on Check CREF to check a selected CREF online.

Cancel:

Click on Cancel to leave this dialog without saving any changes in the current project.

Software Version Monitor:

Click on S/W Version to access the **Software Version Monitor** dialog. This dialog allows you to read the implemented software version from the connected module.



Item	Meaning	Shortcut
Start	Start the data transfer for the Software Version Monitor.	Alt S
Cancel	Leave this dialog in the current project.	Esc

Start:

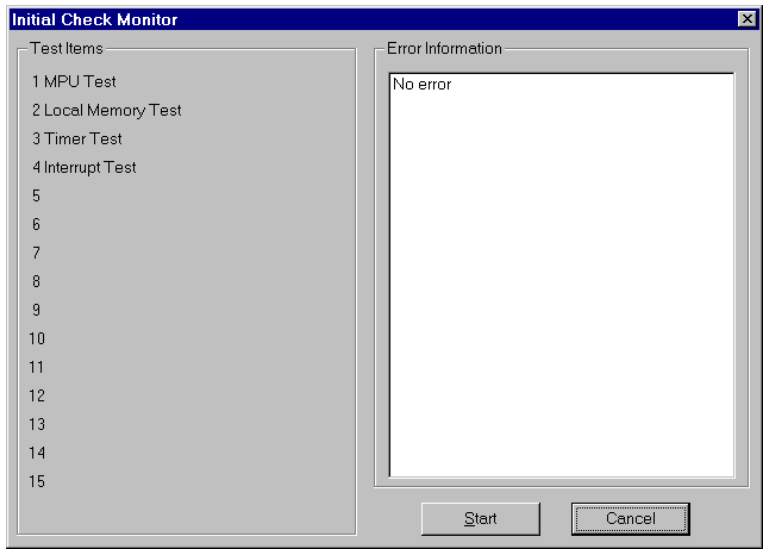
Click on Start to display the software version of the connected module by version, date, and type.

Cancel:

Click on Cancel to leave this dialog without saving any changes in the current project.

Initial Check Monitor:

Click on [Initial Check] to access the **Initial Check Monitor** dialog. This dialog allows you to perform a hardware check of the connected module. Perform this test in operation mode 0.



Item	Meaning	Shortcut
Start	Start the data transfer for the Initial Check Monitor.	Alt S
Cancel	Leave this dialog in the current project.	Esc

Start:

Click on [Start] to perform the initial check of the connected module.

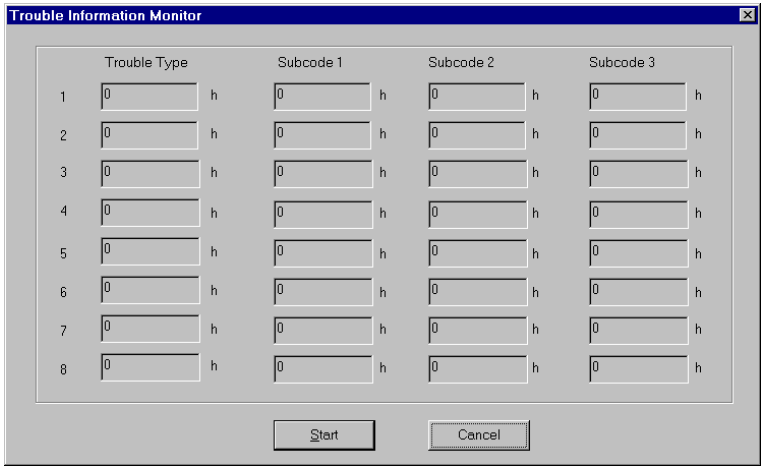
Cancel:

Click on [Cancel] to leave this dialog without saving any changes in the current project.

Trouble Information Monitor:

Click on Trouble Information to access the **Trouble Information Monitor** dialog. This dialog allows you to read the trouble information buffer from the connected module. The connected module needs to be in online mode for this operation. The trouble area (buffer) is divided into eight sections. Each section represents a trouble type with the referring trouble subcodes.

Please refer to the manual of the unit for detailed information on the trouble subcodes.



Item	Meaning	Shortcut
Start	Start the data transfer for the Trouble Information Monitor.	Alt S
Cancel	Leave this dialog in the current project.	Esc

Start:

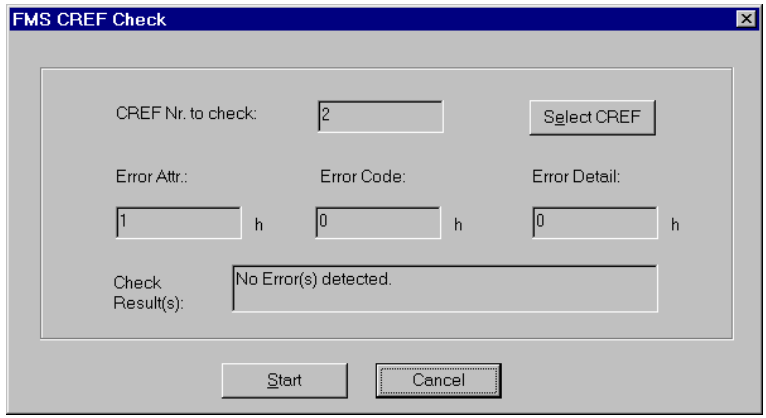
Click on Start to read the trouble information buffer from the connected module.

Cancel:

Click on Cancel to leave this dialog without saving any changes in the current project.

FMS CREF Check:

Click on Check CREF to check a selected CREF online (real FMS communication). The connected module must be in online mode for this operation. At first, a dialog for the CREF selection comes up. Then, the internal test sends an initiate.req and checks the response. Please refer to the manual of the unit for detailed information.



Item	Meaning	Shortcut
CREF Nr. to check	Displays the CREF number to be checked, read only.	
Error Attr.	Displays the error attribute, read only.	
Error Code	Displays the error code, if existing, read only.	
Error Detail	Displays a detailed error code, read only.	
Check Results	Interprets the result as a string, read only.	
Select CREF	Perform a reselection of the CREF to be checked.	Alt E
Start	Start the data transfer for the FMS CREF Check.	Alt S
Cancel	Leave this dialog in the current project.	Esc

CREF Nr. to check:

This field displays the current number of the selected CREF.

Error Attr.:

The error attribute represents the response of the performed FMS service:

- Error attribute 1: The received FMS PDU is an Initiate Response.
- Error attribute 2: The received FMS PDU is an Abort.

Error Code:

The error code represents the buffer memory of the receive area. For detailed information please refer to the manual of the module.

Error Detail:

The error detail is an additional error information. For detailed information, please contact your vendor.

Check Results:

This field displays a description of the obtained failure.

Select CREF:

Click on Select CREF to reselect of the CREF to be checked.

Start:

Click on Start to start the data transfer for the FMS CREF Check.

Cancel:

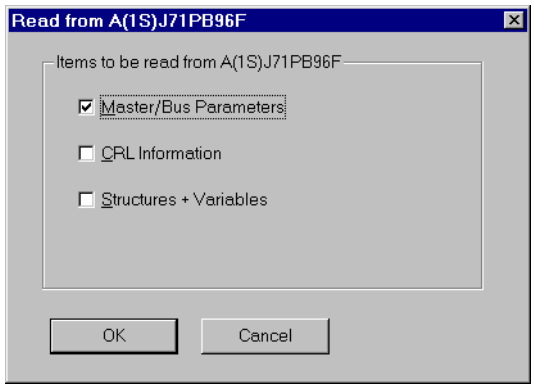
Click on Cancel to leave this dialog without saving any changes in the current project.

Read from A(1S)J71PB96F:

Read from A(1S)J71

Click on Read from A(1S)J71 to select the data to be read from the module. There are three selectable items. Check any item to be read:

- Master/Bus Parameters
- CRL Information
- Structures + Variables.



Item	Meaning	Shortcut
Master/Bus Parameters	Select the master and bus parameters to be read from the module.	Alt M
CRL Information	Select the whole CRL to be read from the module.	Alt C
Structures + Variables	Select the local OD to be read from the module.	Alt S
OK	Start the transfer from the module, and save all transferred data in the current project.	Enter
Cancel	Leave this dialog without saving any changes in the current project.	Esc

Master/Bus Parameters:

This checkbox enables/disables the upload of the master and bus parameters.

CRL Information:

This checkbox enables/disables the upload of the entire communication reference list.

Structures + Variables:

This checkbox enables/disables the upload of the entire local object dictionary.

OK:

Click on OK to leave this dialog, start the transfer, and save all data read from the module in the current project.

Cancel:

Click on Cancel to leave this dialog without reading the project from the module.

Write to A(1S)J71PB96F:

Write to A(1S)J71

Click on Write to A(1S)J71 to select the data to be written to the module. There are three selectable items. Check any item to be written:

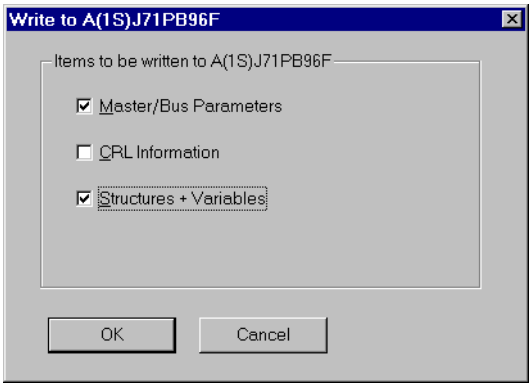
- Master/Bus Parameters
- CRL Information
- Structures + Variables

For a successful download the module must be set to the parameter set mode:

① Set the dip switch on the module to 1 (parameter set mode).

② Reset the PLC and set it to STOP.

③ Start the transfer.



④ After the successful transfer set the module to operation mode 0. Reset the PLC and set it to RUN.

Item	Meaning	Shortcut
Master/Bus Parameters	Select the master and bus parameters to be written to the module.	Alt M
CRL Information	Select the whole CRL to be written to the module.	Alt C
Structures + Variables	Select the local OD to be written to the module.	Alt S
OK	Start the transfer to the module.	Enter
Cancel	Leave this dialog without starting the download to the module.	Esc

Master/Bus Parameters:

This checkbox enables/disables the download of the master and bus parameters.

CRL Information:

This checkbox enables/disables the download of the entire communication reference list.

Structures + Variables:

This checkbox enables/disables the download of the entire local object dictionary.

OK:

Click on OK to leave this dialog, start the transfer, and write all data to the module. A successful transfer will be confirmed by "Transfer completed".

Cancel:

Click on Cancel to leave this dialog without downloading the project to the module.

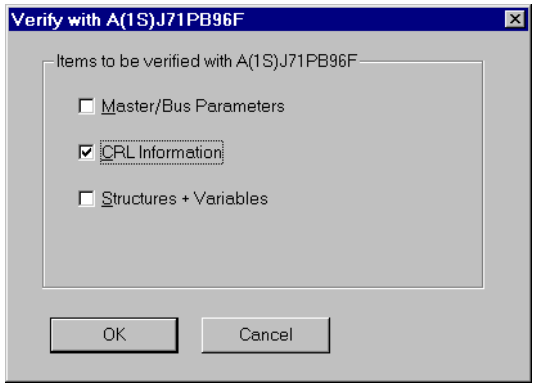
Verify with A(1S)J71PB96F:

Verify

Click on Verify to select the data to be verified with the module. There are three selectable items. Check any item to be verified:

- Master/Bus Parameters
- CRL Information
- Structures + Variables.

The module does not need to be set to the online mode.



Item	Meaning	Shortcut
Master/Bus Parameters	Select the master and bus parameters to be verified with the module.	Alt M
CRL Information	Select the whole CRL to be verified with the module.	Alt C
Structures + Variables	Select the local OD to be verified with the module.	Alt S
OK	Start the verification transfer from the module.	Enter
Cancel	Leave this dialog without starting the verify function.	Esc

Master/Bus Parameters:

This checkbox enables/disables the verification of the master and bus parameters.

CRL Information:

This checkbox enables/disables the verification of the entire communication reference list.

Structures + Variables:

This checkbox enables/disables the verification of the entire local object dictionary.

OK:

Click on OK to leave this dialog, start the transfer, and verify all data with the module. A successful verification will be confirmed by "All settings verified".

Cancel:

Click on Cancel to leave this dialog without verification of any settings.

Network Database

Introduction

ProfiMap is capable of downloading PROFIBUS/DP configuration data to the PB92D master module via MELSEC Ethernet or MELSECNET/10. The master module can be configured via the CPU port of a local or remote MELSEC PLC or via an Ethernet connection to your personal computer (PC).

Up to 1000 different network settings can be configured and stored in a network database. From this database the suitable network connection for a ProfiMap project can be selected in the **Master Settings** dialog.

For successful network settings you should be familiar with the characteristics of MELSEC Ethernet and MELSECNET/10 and refer to the corresponding manuals.

Supported network configurations

ProfiMap 3.00 supports MELSEC Ethernet and MELSECNET/10 connections with the following restrictions.

Restrictions:

- No support for combined MELSECNET/10 and MELSECNET/II systems
- No support for MELSECNET/II, MELSECNET/B
- No support for MELSECNET/10 multi-layer systems
- No support for MELSECNET/10 remote network systems
- Support for AnN, AnA, AnU CPU port access only as local host (no network connection)

Combination of AnU and QnA(S) CPUs in a network

- If ProfiMap is connected to a QnA(S) station in a MELSECNET/10 network, the QnA(S) CPU must be switched to A mode by hardware switch, if transfer to an AnU is required.
- If QnA(S) CPUs are existing in a MELSECNET/10 network, a QnA(S) CPU must be the control station.
- If QnA(S) and AnU CPUs are existing in a MELSECNET/10, a QnA(S) CPU must be the control station. The AnU CPU can only be accessed from a QnA(S) CPU with hardware switch in A mode.

Supported connection types

PC (ProfiMap) to PLC

- COM port to QnA-CPU (RS422 CPU port)
- Ethernet board to QE71 (QnA Ethernet module)
- COM port to A-CPU (RS 422 CPU port) only locally, no network connection

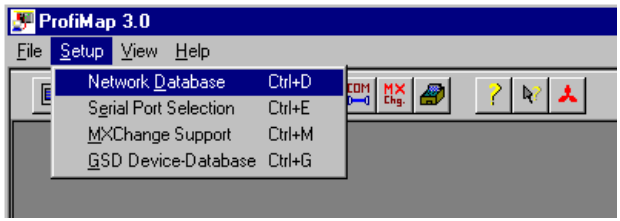
PLC to PLC

- None (local CPU is the PB92D host)
- MELSECNET/10 (PB92D is located on remote CPU rack)

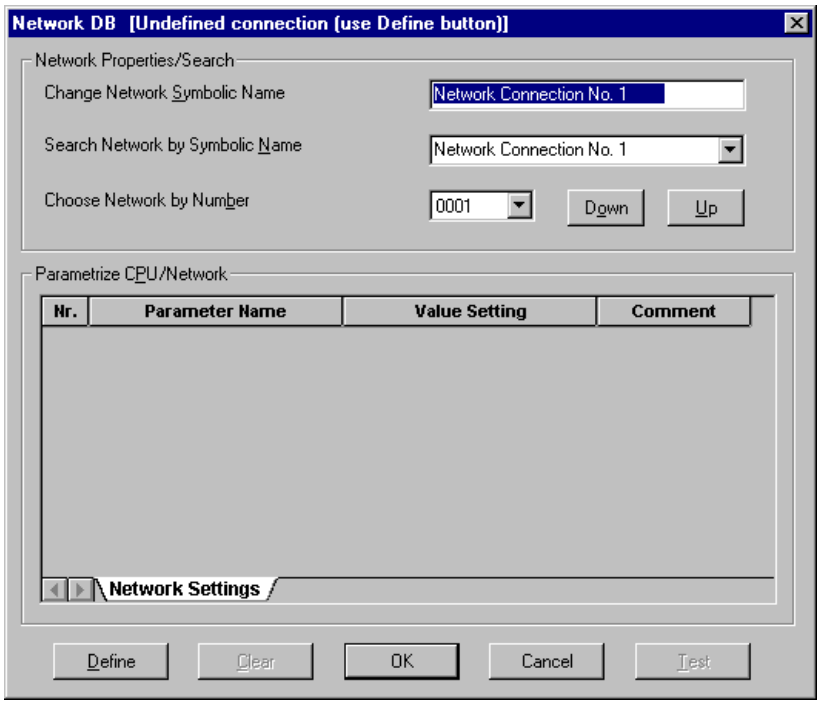
Database Handling

Opening the network database

Click on the network database button in the toolbar or select **Setup/Network Database** from the main menu to open the network database.



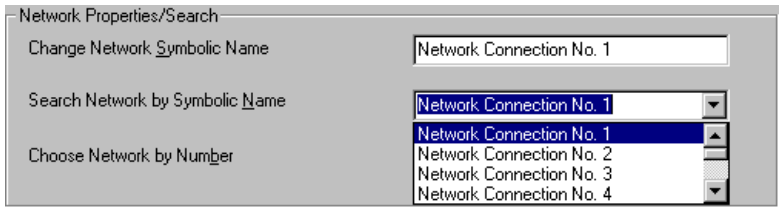
Network database main dialog



Item	Meaning	Shortcut
Change Network Symbolic Name	Change the name of the selected network connection index.	Alt S
Search Network by Symbolic Name	Search for a network connection index by name.	Alt N
Chose Network by Number	Chose a network connection index by number.	Alt B
Down	Switch network connection index number down.	Alt O
Up	Switch network connection index number up.	Alt U
Parametrize CPU/Network	Displays various parameters of a defined network connection. The parameters displayed depend on the selected MELSEC unit and network connection.	Alt P
Define	Define the selected network connection index.	Alt D
Clear	Clears a defined network connection index.	Alt C
OK	Leave this dialog and save all data from this dialog in the network database.	Enter
Cancel	Leave this dialog without saving any changes in the network database.	Esc
Test	Test the network connection settings online.	Alt T

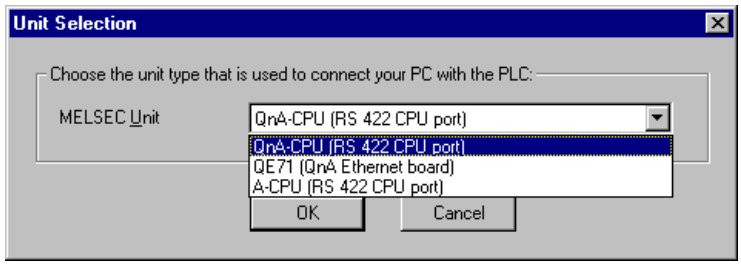
Defining a CPU port network connection

Select a network connection index to be defined either by symbolic name or by number. The default names of undefined network connections are "Network Connection No. *x*".

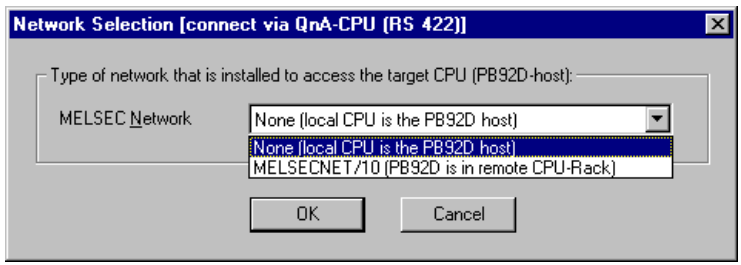


If you have selected an undefined index, the Define button becomes active. Click on the Define button.

Select the **MELSEC unit** your PC is connected to. You can either access the PLC via the CPU port with a special serial programming cable or via an Ethernet board. Below the serial connection is selected.

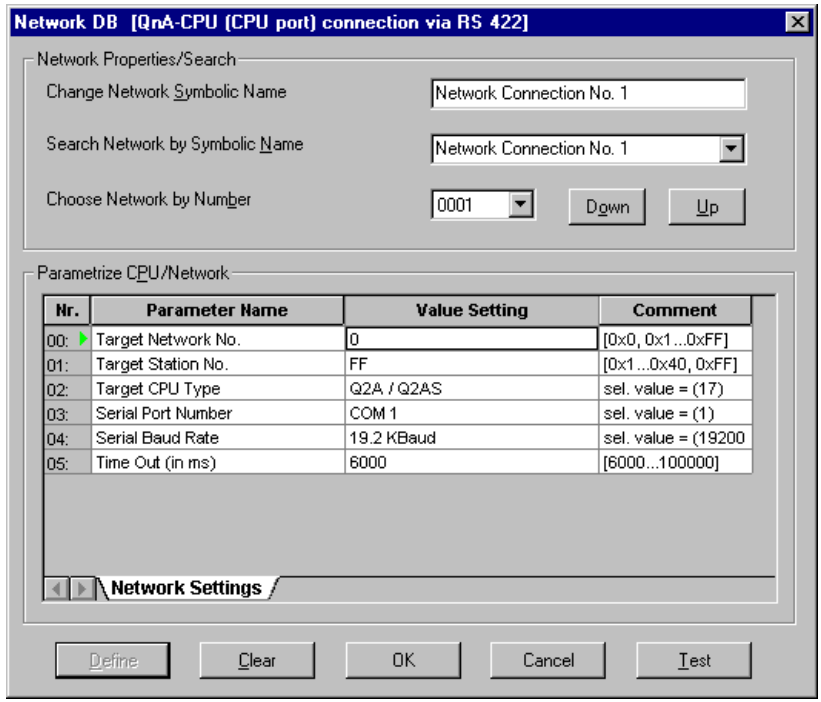


Select the **MELSEC network** across which the host CPU of the PROFIBUS master module can be accessed. The PROFIBUS master module can either be installed together with the target CPU on the same rack or on a remote CPU rack accessible across MELSECNET/10. Below the local installation is selected.



The CPU port network connection is defined using default values. Now you can edit the values directly in the network properties table.

Network properties for the CPU port connection

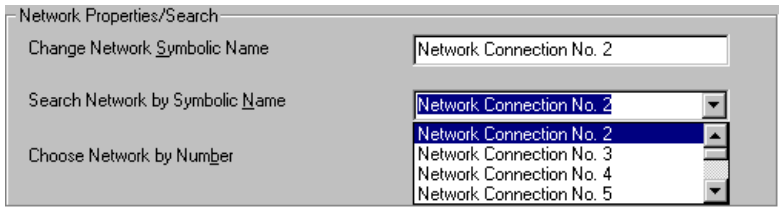


Item	Meaning	Range
Target Network No.	Specify the MELSECNET/10 target network number (0 = none/local).	0x0, 0x1 ... 0xFF
Target Station No.	Specify the target station number within MELSECNET/10 (FF = none/local).	0x0 ... 0x40, 0xFF
Target CPU Type	Select the target CPU type.	Select from drop-down list
Serial Port Number	Select the serial port number of your PC connected to the CPU.	COM 1 ... COM 10
Serial Baud Rate	Select the serial baud rate for the connection between PC and PLC.	9600, 19200, 38400 bps
Time Out	Specify the communication time out value for the serial connection.	6000 ... 100000 ms

The values for the **Target CPU Type**, **Serial Port Number**, and **Serial Baud Rate** can be selected from drop-down lists.

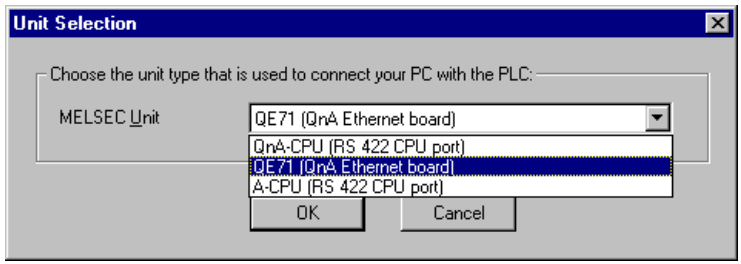
Defining an Ethernet connection

Select a network connection index to be defined either by symbolic name or by number. The default names of undefined network connections are "Network Connection No. *x*".

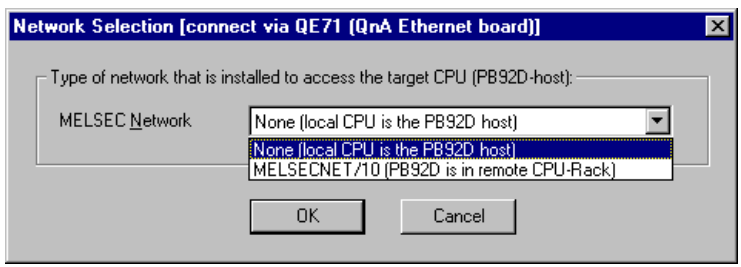


If you have selected an undefined index, the Define button becomes active. Click on the Define button.

Select the **MELSEC unit** your PC is connected to. You can either access the PLC via the CPU port with a special serial programming cable or via an Ethernet board. Below the Ethernet connection is selected.

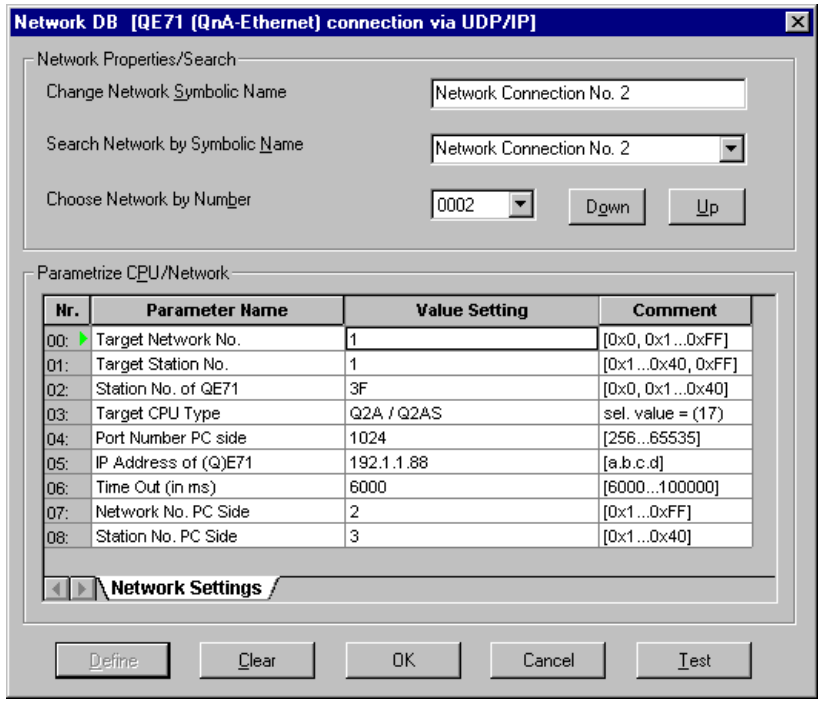


Select the **MELSEC network** across which the host CPU of the PROFIBUS master module can be accessed. The PROFIBUS master module can either be installed together with the target CPU on the same rack or on a remote CPU rack accessible across MELSECNET/10. Below the local installation is selected.



The Ethernet network connection is defined using default values. Now you can edit the values directly in the network properties table.

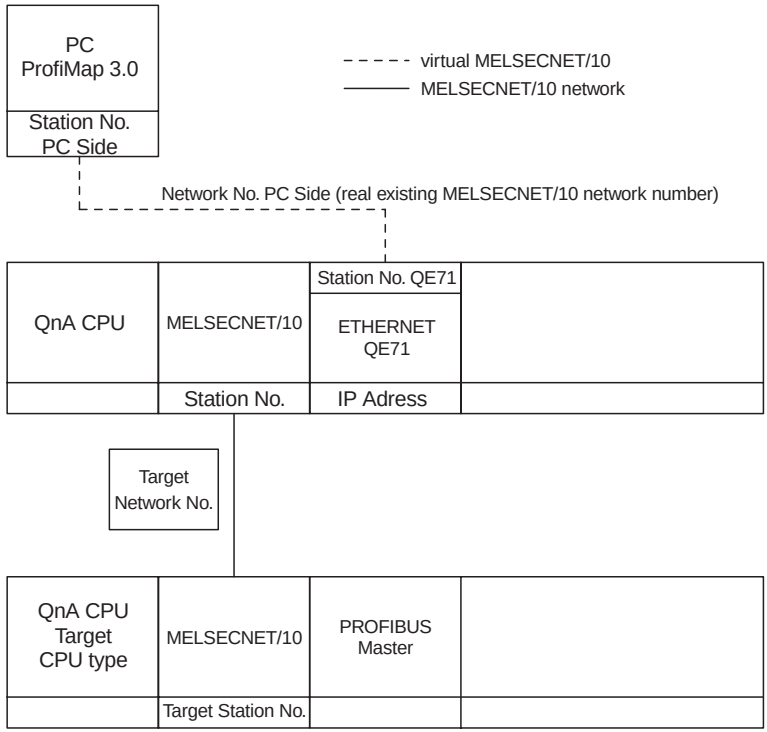
Network properties for the Ethernet connection



Item	Meaning	Range
Target Network No.	Specify the MELSECNET/10 target network number (0 = none/local).	0x0, 0x1 ... 0xFF
Target Station No.	Specify the target station number within MELSECNET/10 (FF = none/local).	0x1 ... 0x40, 0xFF
Station No. of QE71	Specify the station number of the QE71 Ethernet module the ProfiMap PC is connected to (Melsec Medoc *plus* programming via instruction required).	0x0, 0x1 ... 0x40
Target CPU Type	Select the target CPU type.	Select from drop-down list
Port Number PC Side	Specify the IP port of the Ethernet board.	256 ... 65535
IP Address of (Q)E71	Specify the IP address of the Ethernet board.	a.b.c.d
Time Out	Specify the communication time out value for the network connection.	6000 ... 100000 ms
Network No. PC Side	Specify the MELSECNET/10 network number the PC is connected to (virtual MELSECNET/10).	0x1 ... 0xFF
Station No. PC Side	Specify the MELSECNET/10 station number the PC is connected to (virtual MELSECNET/10).	0x1 ... 0x40

The **Target CPU Type** can be selected from a drop-down list.

Structural overview of the Ethernet connection



Ethernet communications (FB init, FB connect) must be executed in the CPU.

The settings must correspond to the FB_GPRSET instruction.

Network connection test

The network connection settings can be tested online. Click on the Test button in the network database dialog to run the test (the test function is available for network connections only. A network connection can be selected from the network database or in the master settings).

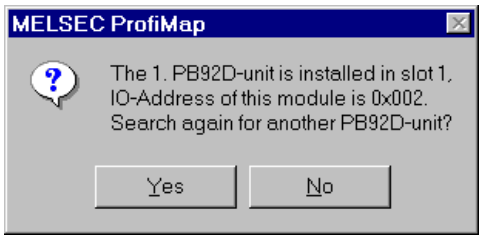
The **Connection Test** dialog appears.

You can either search for available PB92D ProfiBus master modules or check for available QE71 Ethernet modules.

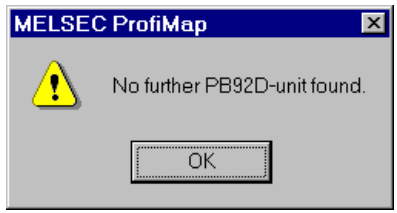
The **Check for QE71 unit(s)** function is only available for CPU port connections.

Search PB92D unit(s)

This function will return the slot number and I/O address of installed PB92D ProfiBus master modules.

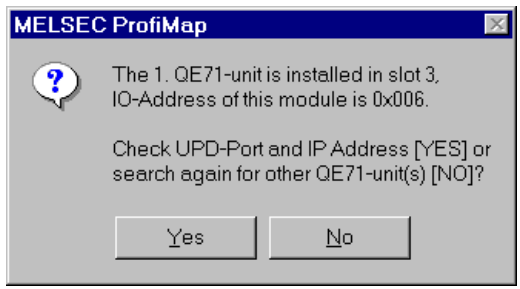


Click on Yes to search for other PB92D units. All further units will be displayed as well. If no further unit is found, the following message will appear.

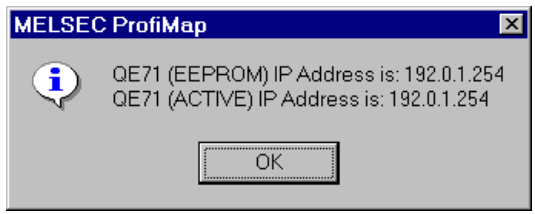


Check for QE71 unit(s)

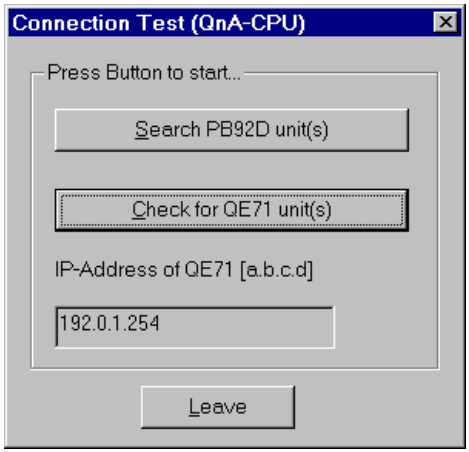
This function is only available for CPU port connections. This function will return the slot number and I/O address of installed QE71 Ethernet modules.



You can also check the UPD port and IP address of the corresponding module. Click on Yes to start checking.

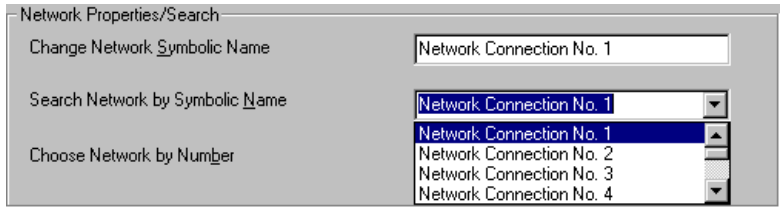


This function is especially helpful to get the IP address of an Ethernet module needed to setup an Ethernet network connection. The found IP address will be entered in the **Connection Test** dialog.

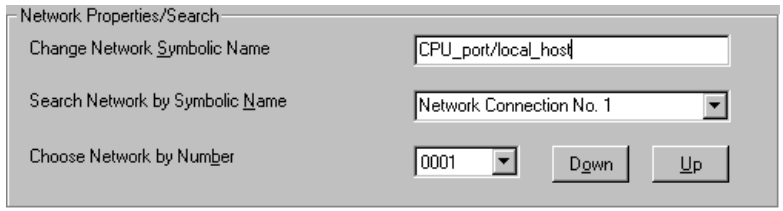


Changing the network symbolic name

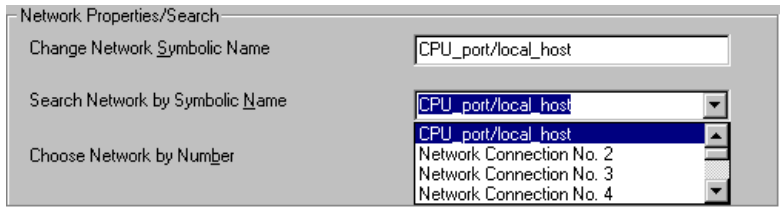
You can change the symbolic name of any network connection index. Select the network connection index you want to change.



Enter the new name in the **Change Network Symbolic Name** entry field and confirm with OK.

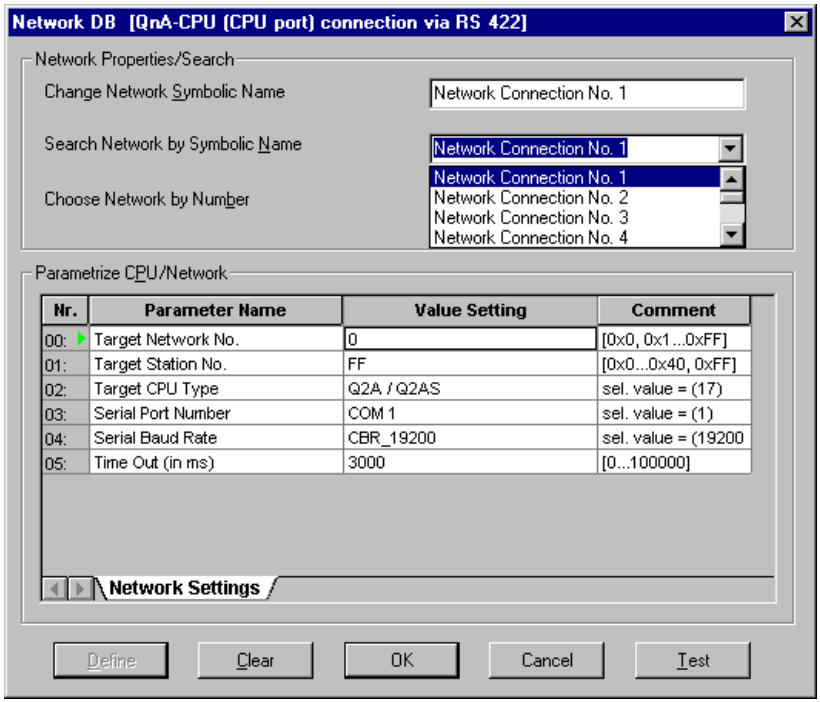


The symbolic name for the network connection has changed and can be selected from the **Search Network by Symbolic Name** drop-down list.



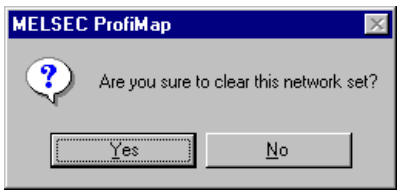
Clearing a network connection index

You can clear any defined network connection index. Select the network connection index to be cleared.

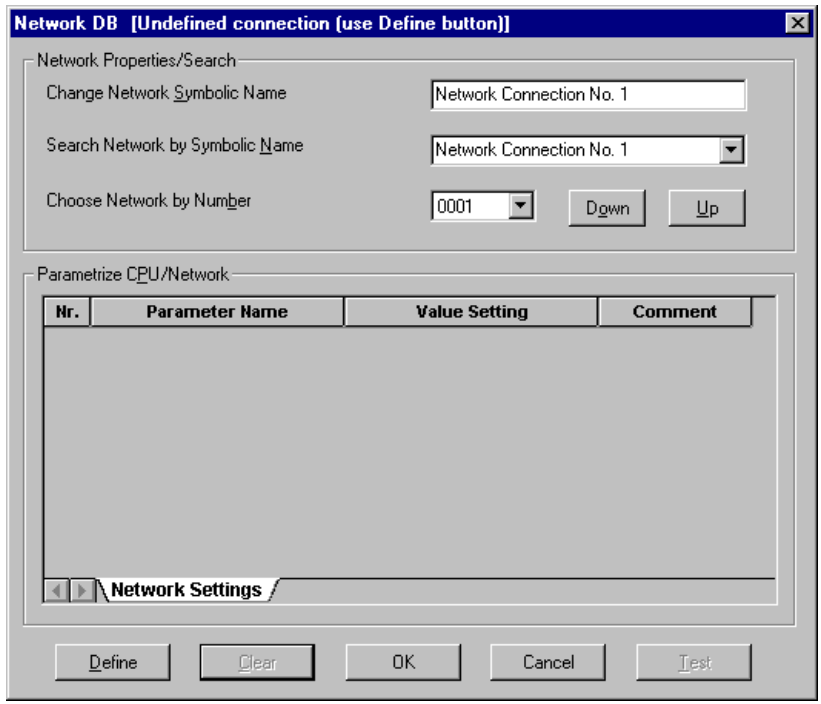


Click on the Clear button.

Confirm the following dialog with Yes.



The network connection index is cleared to the undefined status.



Transferring the network database

The network database is not exported automatically and is not part of the *.dp2 project file. The network connection settings are stored in the ProfiMap subdirectory **net** in the file **mels_net.mdb**. If you want to transfer the network database to other PCs copy it manually.

Index

Specifications subject to change. Art. No.: 65778-C