

# **GX Configurator-DP 7.08J**

Configuration System for Open Networks

**Software Manual** 

Art.no.: 65778 December 2012 Revision a



# About this Manual

The texts, illustrations, diagrams and examples in this manual are only intended as aids to help explain the functioning, operation, use and programming of the open network configuration system MELSOFT GX Configurator-DP. Separate manuals are available for MITSUBISHI ELECTRIC's various series of MELSEC programmable logic controllers.

This manual is only intended for users with experience in handling automation and communication networks. For using and usage of this software only the user his own is responsible. If you have any questions regarding the installation and operation of the software described in this manual, please do not hesitate to contact your sales office or one of your MITSUBISHI ELECTRIC distribution partners. You can also obtain information and answers to frequently asked questions from our MITSUBISHI ELECTRIC website under www.mitsubishi-automation.com.

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The IEC 61131.1 standard cited in this manual is available from the publishers Beuth Verlag in Berlin (Germany).

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# Revisions

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# 1 Introduction

## This manual...

...is a compact guide to using GX Configurator-DP 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 GX Configurator-DP including sample projects. These executable application is used to demonstrate the operation of the program with the help of the examples provided in this manual. The PLC series MELSEC Q Series is referenced as MELSEC system Q in this manual.

## If you are 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 Microsoft ® 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...

... do not despair, help is never far away! If you run up against seemingly insoluble problems, or if you have questions about GX Configurator-DP 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 GX Configurator-DP context-sensitive online help system, which can always be accessed by pressing the <F1> key. 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.

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# 2 Getting to know GX Configurator-DP

## **GX Configurator-DP Concept**

GX Configurator-DP (GXDP) is the configuration tool for PROFIBUS interfaces in MITSUBISHI PLCs. It provides functions for defining a PROFIBUS network, validating the configuration and downloading it to the respective PLC module via a MITSUBISHI automation network.

GX Configurator-DP is capable of downloading configuration data to the PROFIBUS module via a variety of different communication types. The module can be located in a PLC rack directly connected to the PC or in a PLC rack, which is connected to other PLCs in a separate network.

GX Configurator-DP takes information on PROFIBUS DP slaves from GSD files, which are specific to the respective slave and usually provided by the slave hardware vendor. It generates program code for use in GX Works2 (GXW2) and GX IEC Developer (GID).



## **User Interface**

The graphical user interface of GX Configurator-DP assists the user by making the most important functions easily accessible. The user can adapt the user interface to his/her personal requirements by arranging the specific function windows within the application. This placement is stored and reloaded, when the application is started. Therefore the following application window is only an example, indicating the most important components of the user interface.



The main items of the user interface are

- application window
- main menu
- toolbar
- status bar
- about box

GX Configurator-DP cannot simultaneously be started multiple times on the same computer. Trying to start GX Configurator-DP again, while it is already running, brings the existing instance of GX Configurator-DP in the foreground. The GX Configurator-DP application can however have several projects open at the same time.

## Modifying the User Interface

The different views within the GX Configurator-DP application window are 'dock-able'. This means that they can be moved and placed by the user within the application window. The opens views and their position are stored in the registry specific for the project type and loaded, when GX Configurator-DP is started.

The following steps demonstrate moving the 'Task Panel' from its default position and placing it below the project tree.



4. the window (here the task panel) is now displayed below the project tree. Both project tree and task panel have been moved to the left edge of the application window, which was previously occupied by the task panel.

MELSOFT GX Configurator-DP - Funtitled21	
Project Tools View Window Help	_ # ×
PROFIBUS Network	Global GSD data X
	G5D Database
Add slaves via Drag&Drop from GSD device tree	- Contral
	Drives
	Switches
	⊕     _     _
: DDOEIDUS Canfigurates Tasks	Valves
	- Controls
Online Tasks 🔹	Ф Б ни
Setup Tasks	Encoder
Change Master Type 1 GSD Device Database	
Project Properties	Gateway
Devices for Slave-Specific Transfer	Project GSD data Global GSD data
Online Status: not connected DefaultConnection Q02(H)	
Ready	CAP NUM SCRL

Views can also be combined in a tab window. This saves space in the user interface. The original views are selectable via the tabs. Selecting a tab and moving the mouse cursor allows the separation of tabbed windows.

The following steps demonstrate combining the 'Global GSD data' view with the 'Project GSD data' view and separating the views again.

1. place the mouse cursor on the caption of the window, which should be moved, and press the left mouse button

MELSOFT GX Configurator-DP - [un	titled2]		
<u>Project Tools View Window Hel</u>	þ		_ 8 ×
i 🗅 💕 🔙 i 🌆 🍁 🕻 i 🔂 🦠 🌶	•   @		_
PROFIBUS Configurator Tasks	PROFIBUS Network	Project GSD data	Global GSD data ×
Online Tasks 🛛 😵	- I/O no.:0x0/	FDL:0	GSD Database
	Add :	laves 🗸 🚽 💋 General	General
Setup Tasks		Drives	Drives
I GSD Device Database		- 😥 Switches	Switches
Project Properties			ı/o
Devices for Slave-Specific Transfer		Valves	Valves
Turant Tarles			Controls
		— 📂 нмі	🖶 🦳 🍎 нмі
Configuration Image		Encoder	Encoder
Decumentation		NC/RC	
Documentation	4		🖶 🧭 Gateway
Diagnostics 😵			PLC 🔽
A Online Status: not connected Defau	ltConnection Q02(H)		
leady			CAP NUM SCRL

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2. move the mouse cursor while keeping the mouse button pressed. This causes the 'docking pane stickers' to be displayed. Move the mouse cursor onto the button in the middle, which shows a tabbed window symbol, and release the mouse button



3. an additional tab appears with the caption of the moved window

4. to separate the views select the tab and move the mouse cursor while keeping the left mouse button pressed. The area, where the window would be docked, is marked with a blue rectangle.

Ready

CAP NUM SCRL

_	

5. The view is docked at the indicated position, after the mouse button has been released

ROFIBUS Configurator Tasks		PROFIBUS Network	Project GSD data	×	Global GSD data	
Online Tasks	*	I/O no.:0x0/FDL	GSD Database	<sup>1</sup> √ ▲	GSD Database	
Setup Tasks	۲	Add slave	e General		General	
Change Master Type 19 GSD Device Database			Drives		Switches	
Project Properties					4 🝎 1/0	
Devices for Slave-Specific Transfer			Valves		Valves	
Export Tasks	*		Controls		🖶 🧭 Controls	
POU for GX IEC Developer			HMI		нмі	
Configuration Image			Encoder		Encoder	
Documentation	×		- 💋 NC/RC		- 📂 NC/RC	
Documentation			Gateway		🖶 💋 Gateway	
Diagnostics	*	•		-1	ф 🤭 ec	

## **List of Open Project Windows**



The list of open docking windows for the active project can be opened by pressing **Alt+F7**. The user can select a window in this list with the cursor keys while <u>keeping the</u> <u>**Alt** button pressed</u>. When the key is released, the window selected in the list gets the focus. This allows to move between the different windows without mouse operations.

# 3 Installation

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## **Before You Begin**

## Copyright

#### Important Notice:



This software is protected by copyright. By opening the distribution disks package you automatically accept terms and conditions of the license agreement.

You are only permitted to make one single copy of the original distribution disks for your own backup and archiving purposes.

## **Software Purpose**

This software is a configuration utility software package which will be used to configure PROFIBUS DP network interface modules of MELSEC System Qn, QnA, A and FX series' PLCs such as:

- PROFIBUS DP master module A(1S)J71PB92D
  - PROFIBUS DP master module QJ71PB92D
  - PROFIBUS DP V1/V2 master module QJ71PB92V
  - PROFIBUS DP V1 master module FX3U-64DP-M
  - PROFIBUS DP slave module QJ71PB93D

If GX Configurator-DP is used integrated in GX Works2, only the Q-series PROFIBUS master and slave modules are supported.

# 3.1 System Requirements

To install the GX Configurator-DP software package your computer has to meet the following requirements

## **Minimum Hardware Requirements**

- Pentium II 350 Mhz processor (for Vista/7: 1 GHz processor)
- 128 MB RAM for Microsoft ® Windows 2000
- 256 MB RAM for Microsoft ® Windows XP
- 1 GB RAM for Microsoft ® Windows Vista/7
- VGA compatible graphics adapter
- 17"/43 cm diag. VGA monitor
- At least 200 MB free hard disk space
- CD-ROM drive
- interface for communication with the PLC system

## **Software Requirements**

GX Configurator-DP is a 32-bit software that runs on the following operating systems

- Microsoft ® Windows 2000 (Service Pack 2 or later installed)
- Microsoft ® Windows XP Home or Professional Edition (min. SP2)
- Microsoft ® Windows Vista Home (or higher)
- Microsoft ® Windows 7 (32- and 64 bit) Home (or higher)

## **Related MELSOFT Software**

GX Configurator-DP is typically used together with one of the PLC programming packages for MITSUBISHI PLCs

- 'GX Works2' (GXW2)
- 'GX Developer' (GD)
- 'GX IEC Developer' (GID)

Certain functions of GX Configurator-DP are restricted or not available for specific PLC programming packages.

## 'GX Developer' (GD)

PLC code generated with '<u>POU Generation</u>' uses 'IEC Instruction Language' (IL) and cannot be imported in GD

### 'GX Works2' (GXW2)

The standalone version of GX Configurator-DP faces the following restrictions with regard to GX Works2:

- the path to a GX Works2 project cannot be assigned in 'Project Properties'.
- '<u>Autorefresh Update</u>' is not supported for a GX Works2 project; autorefresh settings can only be updated in the CPU.
- the standalone version of GX Configurator-DP cannot update autorefresh settings on a Q-series Remote I/O. Therefore either the integrated version of GX Configurator-DP is required or the PROFIBUS modules must be placed in the rack of the control CPU instead of the rack of the Remote I/O.
- import of the PLC code for I/O mapping requires a GX Works2 version with support for the 'IL' programming language. This is only available in the 'European version' of GX Works2 from version 1.87R or newer.

Beginning with version '7.08J' GX Configurator-DP can be started from within the GX Works2 application for Q-series PLC projects. The integrated version of GX Configurator-DP faces the following restrictions when started in GX Works2:

- PLC code generation 'POU Generation' is not possible with a 'simple' GX Works2 project.
- the 'POU Generation' function requires support for the 'IL' programming language, which is only available in 'European' versions of GX Works2.

**Note:** Integration of GX Configurator-DP in GX Works2 requires GX Works2 version 1.87R or newer.

## 3.2 Software Installation

#### Installing for GX Works2 Integration

GX Works2 must be installed before GX Configurator-DP is installed in order to create the correct system settings.

The following list of installation scenarios describes the effects on the use of the integrated GX Configurator-DP within GX Works2.

1. Case

- GX Configurator-DP 7.08J is installed at first
- GX Works2 version 1.87R or newer is installed after GX Configurator-DP

--> The integrated behaviour of GX Configurator-DP is not enabled. The installer cannot add PROFIBUS DP modules to the Intelligent Function Module selection dialog of GX Works2.

2. Case

- GX Works2 version 1.87R or newer is installed
- GX Configurator-DP 7.08J is installed.
- GX Configurator-DP 7.08J is de-installed
- GX Configurator-DP 7.07H is installed

--> If GX Configurator-DP 7.08J is de-installed, the PROFIBUS DP modules are removed from the Intelligent Function Module selection dialog of GX Works2. If GX Configurator-DP 7.07H is installed, the PROFIBUS DP modules in the Intelligent Function Module selection dialog of GX Works2 are not available. The integrated behaviour of GX Configurator-DP is not available.

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- 3. Case
- GX Works2 version 1.87R or newer step is installed
- GX Configurator-DP 7.08J is installed.
- GX Configurator-DP 7.08J is de-installed

--> The integrated behaviour of GX Configurator-DP is not available. All menu items visible for PROFIBUS DP modules have been removed from GX Works2.

#### **GX Configurator-DP Setup**

To install the GX Configurator-DP software you need to have Microsoft ® Windows properly installed. You may require administrator privileges when installing the software.

If an older version of GX Configurator-DP is already installed, uninstall it first. After the de-installation please start the installation of the new version. If you want to keep the older version of GX Configurator-DP, please select a different directory for the new version. A de-installation of the older version, after the newer version has been installed, will also damage the newer version. Therefore please reinstall the new version after uninstalling both the older and the newer GX Configurator-DP versions, if you encounter problems. Please stop all other running software before the installation and do not run other installation programs during the installation of GX Configurator-DP.

#### Installing GX Configurator-DP (incl. GX Configurator-ST)

To start the installation, proceed as follows:

- 1. Insert the installation CD-ROM into your CD-ROM drive.
- 2. If you have 'Autorun' enabled for the drive, the setup should start automatically.
- 3. If the setup is not started automatically, please locate the 'setup.exe' file and execute it.
- 4. If you see the following message on a Windows ® Vista/Win7 operating system, please select 'Allow'





5. Follow the given instructions that guide you through the installation procedure. Continue with **Next**.

## GX Configurator-DP

6. The licensing agreement is displayed. Please read these terms carefully. If you accept the license agreement, you can proceed with the installation by clicking **Next**. Otherwise the installation is aborted.

Note: This dialog is only shown for European product versions.

🖶 GX Configurator-DP 7.08J - InstallShield Wizard 🔤 🗠
License Agreement Please read the following license agreement carefully.
ENDUSER LICENSING AGREEMENT for the MELSOFT software package The software package contains software under copyright. Use of the software without prior conclusion of this licensing agreement is illegal and subject to prosecution by MITSUBISHI ELECTRIC EUROPE B.V. This licensing agreement is concluded upon the user signing the enclosed ENDUSER SOFTWARE SERVICE CARD. This agreement is concluded between MITSUBISHI ELECTRIC EUROPE B.V. and the enduser, hereinafter referred to as "Licensee".
By means of this agreement MITSUBISHLELECTRIC EUROPE B.V     I accept the terms in the license agreement     I do not accept the terms in the license agreement InstallShield

7. Enter your name, organization and the product serial number. Click on Next to proceed.

🗒 GX Configurator-DP 7.08J - InstallShield Wizard	<b>—</b>
Customer Information	
Please enter your information.	
User Name:	
name	
Organization:	
organisation	
Serial Number:	
InstaliShield	ext > Cancel

8. Enter the destination folder where you want the GX Configurator-DP software to be installed (default C:\Melsec\GX Configurator-DP 7.08J). If you agree with the default setting, just click on Next.

🛃 GX Confi	gurator-DP 7.08J - InstallShie	eld Wizard		<b>—</b>
Destinati Click Nex	on Folder It to install to this folder, or click	Change to insta	l to a different folder	と
	Install GX Configurator-DP 7.0 C:\MELSEC\GX Configurator-D	08J to: 0P 7.08J\		Change
InstallShield –		< Back	Next >	Cancel

9. If you want to install to a different directory, click on **Change** and select the installation directory.

🖶 GX Configurator-DP 7.08J - InstallShield Wizard
Change Current Destination Folder
Browse to the destination folder.
Look in:
GX Configurator-DP 7.08J
C:\MELSEC\GX Configurator-DP Z.081\
InstallShield OK Cancel

#### GX Configurator-DP

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10. You can choose between a 'Complete' and a 'Custom' setup. The 'Complete' setup installs all components, the 'Custom' setup allows the selection of optional components.



11. If 'Custom' setup has been selected in the previous step, the components are listed. By selecting the icon to the left of a component name, you can select respectively deselect the installation of a component.

🗒 GX Configurator-DP 7.08J - InstallShield Wizard	<b>—</b>
<b>Custom Setup</b> Select the program features you want installed.	E
Click on an icon in the list below to change how a feature is in	stalled.
GX Configurator-DP 7.08J GX Configurator ST 1.07H	Feature Description This selection will install the GX Configurator-DP on your computer. This feature requires 106MB on your hard drive.
Install to:	
C: (MELSEC (GX Configurator-DP 7.08))	Change
Help Space < Back	Next > Cancel

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12. The installation is started by pressing the **Install** button.

😸 GX Configurator-DP 7.08J - InstallShield Wizard 📃	3
Ready to Install the Program         The wizard is ready to begin installation.	
Click Install to begin the installation.	
If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.	
InstallShield	
< Back Install Cancel	

13. After pressing the 'Install' button the installation is started. Progress bars will inform you about the setup status.

🛃 GX Config	gurator-DP 7.08J - InstallShield Wizard
Installing The prog	GX Configurator-DP 7.08J ram features you selected are being installed.
1	Please wait while the InstallShield Wizard installs GX Configurator-DP 7.08J. This may take several minutes.
	Status:
	Validating install
InstallShield –	
	< Back Next > Cancel



14. After the installation has been successfully completed, you see the following message

#### **Button Functions**

With the **Next** button you will leave the current menu and enter the next menu. With the **Back** button you go to the previous window. **Cancel** button ends the installation procedure.

## 3.2.1 Getting Started

Below are the main steps, which are required to configure a PROFIBUS DP master module. The QJ71PB92V module is used as an example.

#### Start GX Configurator-DP

1. Start GX Configurator-DP via the shortcut in the Programs menu. The default is **Programs** → **MELSOFT Application** → **GX Configurator-DP 7.08J** → **GX Configurator-DP 7.08J**.

molumation	Installation	
------------	--------------	--

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MELSOFT GX Configurator-DP			_ <b>_</b> ×
Eroject Tools View Help			
🗄 🛅 📂 🔜   #o 📾 🖄   🗞 🧐 🍞   🥥			
Ready	CAP	NUM	SCRL

## Start a New Project

1. in the main menu **Project** select <u>New</u> to open a new project file.



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2. select the PROFIBUS module, which should be configured

🎦 New Project Wizard - S	elect Module 1	Гуре			×
Select Module Type CPU Series <u>M</u> ELSEC Module Type Project Properties PLC Project	© <u>Q</u> n [0J71PB92V	C Qn <u>A</u> /A		<u>B</u> rowse	
Cancel		<u>B</u> ack	Next	Default	

If the module to be configured exists already in a connected PLC, you can select the module online by pressing 'Read from PLC'. After configuring the connection to the PLC, the list of modules is displayed

-Select Module Type CPU Series	⊙ <u>Q</u> n	OQn <u>A</u> /A O <u>P</u>	<
MELSEC Module Ty	pe QJ71PB92v	*	Read from PLC
Project Properties	1odules in PLC		X
	Slot	Starting I/O number	Module Typename
Comment	00	0×000	QJ71E71-100
	01	0x020	ME1AD8HAI-Q
	02	0x040	QJ71PB92V
	03	0x060	QJ71PB92D
	04	0×080	QJ61BT11N
			OK Cancel

3. enter master settings, e.g. starting I/O number and select the baud rate of the PROFIBUS network

lame	PROFIBUS Master
Baudrate	1.5 Mbps Bus Parameters
DL address	0 [0 - 125]
Starting [/O number	040 [0x0 - 0xFE0]
Fror action flag	🔲 <u>G</u> oto 'Clear' State
<u>M</u> in. slave interval 🔽 Calculate time	110 [1 - 65535] * 100 μs
Ž Use 'Min. sla <u>v</u> e interval' for 'Target Token Rot	ation Time (T_tr)'
Colling timeout	50 [1 - 65535] * 1 ms
Slave watchdog 🔽 Calculate time	6 [1 - 65025] * 10 ms
Estimated bus cycle time	5.500 ms
/atchdog for time sync.	0 [0 - 65535] * 10 ms

4. enter the buffer device addresses in the CPU for the data exchanged with the PROFIBUS module

Enter th	e device addresses for buffer	ring I/O and diag	gnostic dat	a.
Suffer Devices	er	Edjt D	levices	
Plack Transfer	Input	D1000	to	D1000
DIUCK TIANSIE	Output	D2000	to	D2000
<u>C</u> omm. Trouble Area			to	
Extd. Comm. Trouble.	Area		to	
Sl <u>a</u> ve Status Area			to	
) ata Transfer between C Copy Instructions	PU and master module using		Con <u>s</u> isten	юу
'LU code options Data transfer only	O User variables	¢	AII D <u>U</u> Ts	
ontents of user library: sta ease export the user libra	art of data transfer, global var ary and import it in your PLC p	iables for all DU roject!	Ts	

5. add the slave devices from the GSD database tree to the project tree with drag&drop

MELSOFT GX Configurator-DP - [untitled DP1]			
Eroject Tools View Window Help			_ & ×
i 눱 💕 🛃   🌆 🍁 🐐   🗞 🦠 🍞   🎯			
PROFIBUS Configurator Tasks	PROFIBUS Network	Global GSD data	×
Online Tasks	I/O no.:0x40/FDL:0 'QJ71PB92V'		FX2N modular st.
🖓 Transfer Setup	Add slaves via Drag&Drop f		MC-DP
👔 Download to Module			MT-DP12
Upload Configuration Image Download Configuration Image Verify	₩T-DN2E		MT-DP12E
Start/Stop PROFIBUS			ST1H-PB
Set Slave Address			ST1H-PB Byte Pa
Setup Tasks 🏾 🙁			_
Master Settings		Control:	s
fig GSD Device Database		👍 — 📂 нмі	-
Project Properties			
		Project GSD data Global GS	D data
Connected DefaultConnection	n Q02(H)		
Ready		CAP	NUM SCRL

Slave Parameters Wizard - Slave Modules	
0 Modules installed 9 are possible	Max. Data size 192 byte(s)
I/O usage 0 / 0 byte(s)	Max. I/O sizes 192 / 192 byte(s)
+] Slave User Parameters Available Slave Modules	Project Slave Modules
🖃 📲 МТ-DP12Е 🖉	- I: Slave_Nr_001
<b>ј</b> мт.dp12е (Х8)	Add modules via Drag&Drop
🧃 MT-X8	
💋 МТ-Ү8Т	
🧃 MT-Y8T2	мт-үя <b>%</b> 5
🔰 MT-Y4B	\$5. *
🧃 MT-Y8R5	
🧃 MT-X4Y4T (X4)	
Cancel	Back Next Default

6. configure each slave device e.g. the FDL address, selected modules and user parameters

7. if the slave does not yet exist in the GSD database, add the GSD file of the slave to the global GSD database. Select the 'Global GSD data' tree and select the item 'Add Slave' from its context menu. In the file dialog select the GSD file. After the GSD file has been parsed, the slave type is added to the database and a new node is added to the tree.



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8. select 'Download to module' in the task panel or press the corresponding button in the toolbar to download the configuration to the master module



#### 9. create the program code by selecting 'POU Generation'

JELSOFT GX Configurator-DP - [gx	dp708_qpb92v.dj	o2]			
Project Tools View Window He	lp				_ & ;
🗅 📂 🔲   🌆 🍁 🕷 🔒 🦠 🍺	• 0				
PROFIBUS Configurator Tasks	🝠 Select the PO	U file (for Q04UI	DEH)		2
Online Textus	Save in:	projects	•	+ 🗈 🖻	* 🎟 -
Online Tasks	<b>A</b>	Name 🔺	▼ Date	modified	- Type
🐐 Transfer Setup	3		No items match your se	arch.	
👔 Download to Module	Recent Places				
Upload Configuration Image					
Download Configuration Image					
Verify	Desktop				
Start/Stop PROFIBUS					
Set Slave Address	Libration				
	Libraries				
Setup Tasks					
	Computer				
Export Tasks	<u></u>				
POU Generation	Network				
Configuration Image		•			•
		<u>Dia</u>			
Online Status: not connected Defa		File name:	gxdp/U8_qpb92V.asc		- Save
		Save as type:	GID POU ASCII Files (*.asc)		<ul> <li>Cancel</li> </ul>
Ready					

10. import the POU in the GID project

🙀 Q02_Ethernet - GX IEC Developer	
🔓 🖬 🍯 🕵 👗 🖬 💼 🖂 🖂	🖆 🗗 📢 🅸 🛗 🕒 😋 👶 🏪 💭 🚥 💷 💷
]] Project Object Edit Tools Online Debu	ig <u>V</u> iew E <u>x</u> tras <u>Wi</u> ndow <u>H</u> elp
Q02_Ethernet	
Project [E:\Melsec\GX IEC Devel Ibitrary_Pool Manufacturer_Lib Standard_Lib Parameter PLC Vetwork Module Configuration Task_Pool DUT_Pool Global_Vars POU_Pool POU_Pool POU_Pool POU_Pool POU_Pool Calltree Project Calltree Calltree	Import from file       Import from file         Look jn:       Q02_leer       Import from file         System       Import from file       Import from file         System       Import from file       Import from file         Resource       Import from file       Import from file         Import from file       Import from file       Import from file         Import from file       Import from file       Import from file         Import from file       Import from file       Import from file         Import from file       Import from file       Import from file         Import from file       Import from file       Import from file         Import from file       Import from file       Import from file         Import from file       Import from file       Import from file         Import from file       Import from file       Import from file         Import from file       Import from file       Import file         Import from file       Import from file       Import file         Import from file       Import file       Import file         Import file       Import file       Import file         Import file       Import file       Import file         Import file       Import file       Import file
Ready	O 13:50

# 4 Main Menu

# Starting GX Configurator-DP

Select GX Configurator-DP from the Windows Start menu. The default shortcut is

Start -> Programme -> MELSOFT Anwendungen -> GX Configurator-DP 7.08J -> GX Configu-

#### rator-DP 7.08J

## Main menu

The main menu offers the following pull-down menus. The menu item **Window** is only available, if a project is open.

if no project is open	E Project	Tools	⊻iew	<u>H</u> elp	
if a project is open	Project	Tools	View	Window	Help

Main Menu Items	Description
<u>Project</u>	menu for creating, opening and saving project files
<u>Tools</u>	menu for external tools
<u>View</u>	menu for configuration of the application
<u>Window</u>	menu for listing the open project windows
<u>Help</u>	menu for help and application information

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

## Shortcuts

Shortcut	Function
Ctrl + 'N'	create new project
Ctrl + 'O'	open existing project
Ctrl + 'S'	save modified projects
Alt + F7	show list of open project windows

# 4.1 Project Menu



After having started the GX Configurator-DP software, this is the first menu to work with. With the help of this menu you can create a new or load an existing project.

Command	Description
<u>New</u>	Starts a new project
<u>Open</u>	Opens an existing project
<u>Close</u>	Closes the active project
Save	Saves the active modified project
Save As	Saves the active project under a new name
Recent Files	Opens one of the latest used projects
<u>Exit</u>	Ends the application

The menu offers the following commands:

## **Command New**

The menu command **New** is used to create a new project.

🎦 New Project Wizard - Se	elect Module T	уре			×
New Project Wizard - Se Select Module Type CPU Series <u>MELSEC Module Type</u> Project Properties PLC Project <u>Comment</u>	elect Module T	ype O Qn <u>A</u> /A		<u>B</u> ead from PLC	
Cancel		<u>B</u> ack	Next	Default	

Name	Description	Choices / Setting range	Default
CPU Series	selection of CPU series, in which the PROFIBUS module is used	Qn, QnA/A, FX	Qn
MELSEC Mod- ule Type	module types supported by the selec- ted CPU series	Qn: QJ71PB92V QJ71PB92D QJ71PB93D QnA/A: A(1S)J71B92D FX: FX3U-64DP-M	QJ71PB92V
Read from PLC	reads the list of modules from the con- nected PLC and displays them in a list, so the user can select module type and head address		-
PLC Project	select the project file of the corres- ponding GD/GID project. The project directory is used to locate the image file for autorefresh parameter settings (iparam.wpa) in the 'Resource' subdir-		-

Main Menu

Name	Description	Choices / Setting range	Default
	ectory of the GD/GID project. This file is updated by GXDP, if the 'Autore- fresh'-option has been selected		
Browse	opens the file dialog to select the GD/ GID project file	max. 255 characters	-
Comment	an optional comment text of max. 255 characters length, which describes the project	max. 255 characters	-
Cancel	close the dialog and discard changes		-
Next	proceeds to next wizard page		Default button
Default	sets CPU series and module type to their default settings, clears PLC pro- ject path and comment field		

MELSEC Module Type: select the type of module for the project

The following table shows the supported project types and marks the types included in the selection list depending on the type of PLC, which has been selected.

Module Type	Qn	QnA⁄A	FX
A(1S)J71PB92D (PROFIBUS DP V0 Master)		х	
QJ71PB92D (PROFIBUS DP V0 Master)	x		
QJ71PB92V (PROFIBUS DP V1/V2 Master)	x		
FX3U-64DP-M (PROFIBUS DP V1 Master)			х
QJ71PB93D	x		

**Read from PLC**: when this button is pressed, the user must first select the type of the PLC CPU, in which the PROFIBUS module is located.

CPU Type Selectio	n X
CPU <u>s</u> eries	0
C <u>P</u> U type	Q02(H) 💌
<u>I</u> ransfer Setup	. Cancel

The entries in the 'CPU series' list depend on the CPU series selected in the 'Select Module Type' dialog, e.g. if 'Qn' has been selected, the 'CPU Series' list contains the entries

- Qn
- QnPH

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- QnPRH
- QnU

The list 'CPU type' contains the CPU types of the selected series. Pressing the button 'Transfer Setup' in the dialog 'CPU Type Selection' opens the transfer setup dialog. When this dialog is closed by pressing 'OK', the latest transfer settings are always stored in the same file in the GX Configurator-DP installation directory. These settings are used as default for the next new project, if the CPU series stays the same. If the CPU series is changed, e.g. by first creating a QJ71PB92V project and then a project for the FX3U-64DP-M, the transfer setup is converted to match the new CPU series.

After this the transfer setup editor is opened, so the user can adjust the settings of the PLC connection. For a detailed description of the transfer setup dialogs see the section '<u>Transfer Setup</u>'.

After leaving the transfer setup editor, a connection to the PLC is attempted. If the connection fails, an error message is displayed.

MELSOFT	GX Configurator-DP				
Failed to read module list from PLC. Please select the project type manu					
[ОК]					

If the connection can be established, the list of modules in the PLC rack is displayed.

CPU Series	💿 <u>Q</u> n	Qn <u>A</u> /A <u>F</u> >	<
<u>M</u> ELSEC Module Type	QJ71PB92V	*	<u>Read from PLC</u>
Project Properties		$\sim$	
PLC Project — Mo	dules in PLC		×
L [	Slot	Starting I/O number	Module Typename
Comment	00	0×000	QJ71E71-100
	01	0x020	ME1AD8HAI-Q
	02	0x040	QJ71PB92V
1 1	03	0x060	QJ71PB92D
	04	0x080	QJ61BT11N
-		[	OK Cancel

м	odules in PLC			×
	Slot	Starting I/O number	Module Typename	
	00	0×000	QJ71E71-100	11
	01	0x020	ME1AD8HAI-Q	
	02	0x040	QJ71PB92V	
	03	0x060	QJ71PB92D	
	04	0×080	QJ61BT11N	
				- 1
			OK Cancel	

Name	Description	Choices / Setting range	Default
Slot	0-based index of the PLC slot	0 - 63	-
Starting I/O num- ber	offset of the module-specific X/Y devices (empty for FX)	0 - 0xFE0	-
Module Type- name	identifier of module type retrieved from GXDP product database	A, QnA, FX: module types found in product database Qn: type name read from PLC	-
ОК	Close dialog and save selected module type and starting I/O number		Default button
Cancel	Close dialog and discard selection		-

If the user selects a module supported by GXDP, the corresponding module type is set in the combo box. The starting I/O number of the selected module is used as default for the starting I/O number of either master or slave instead of the default I/O number 0x00.

#### 'New Project Wizard' for Master Projects

If a master module has been selected in the <u>previous wizard page</u>, the next pages provide access to the master configuration and are identical to the '<u>Master Parameters Wizard</u>'.

Name	PROFIBUS Master				
Baudrate	1.5 Mbps Bus Parameters				
F <u>D</u> L address	0 [0 - 125]				
Starting <u>I</u> /O number	040 [0x0 - 0xFE0]				
Error action flag	🔲 <u>G</u> oto 'Clear' State				
Min. slave interval 🔽 Calculate time	55 [1 - 65535] * 100 μs				
☑ Use 'Min. sla⊻e interval' for 'Target Token Rotation Time (T_tr)'					
Polling timeout	50 [1 - 65535] * 1 ms				
Slave watchdog 🔽 Calculate time	3 [1 - 65025] * 10 ms				
Estimated bus cycle time	5.500 ms				
Watchdog for time sync.	0 [0 - 65535] * 10 ms				

Select the baudrate for the PROFIBUS network and other parameters. For a detailed description see <u>Master Settings</u>

Bus Parameter Settings							
[	Bus Parameters for 1.5 Mbps						
	<u>S</u> lot Time (T_sl)	300	[37 - 16383]	0.200000	ms		
	<u>m</u> in T_sdr	11	[11 - 1023]	0.007333	ms		
	ma <u>x</u> T_sdr	150	[37 - 1023]	0.100000	ms		
	<u>Q</u> uiet Time (T_qui)	0	[0 - 127]	0.000000	ms		
	Setup Time (T_set)	1	[1 - 255]	0.000667	ms		
	Target <u>R</u> ot. Time (T_tr)	8250	[256 - 16777215]	5.500000	ms		
	<u>G</u> AP factor	10	[1 - 100]				
	<u>H</u> SA	126	[2 - 126]				
	Max retry limit	1	[1 - 7]				
		ОК	Cancel	D <u>e</u> fault			

This dialog is opened by pressing the button 'Bus Parameters...' in the 'Master Settings' dialog. For
×

a	detailed	descri	ption	see	<u>Bus</u>	<b>Parameters</b>	
---	----------	--------	-------	-----	------------	-------------------	--

<b>DP New Pro</b>	ject Wizard - CPU Device Access
-------------------	---------------------------------

Slave Specific Transf	er	E dit D	levices	1	
o ojave opecine manar		D1000	to		
Block Transfer	Input		_		
	Output	D2000	to	D2000	
<u>C</u> omm. Trouble Area			to		
E <u>x</u> td. Comm. Trouble	Area		to		
Sl <u>a</u> ve Status Area			to		
)ata Transfer between (	CPU and master module using				
Copy Instructions	Auto <u>R</u> efresh		Con <u>s</u> isten	су	
LC code options					
Data transfer only	O User <u>v</u> ariables	•	All D <u>U</u> Ts		
Contents of user library: start of data transfer, global variables for all DUTs Please export the user library and import it in your PLC project!					

Enter the CPU device addresses of the transfer buffers for exchanging data between CPU and master module. For a detailed description see <u>CPU Device Access</u>

## 'New Project Wizard' for QJ71PB93D Projects

If a QJ71PB93D module has been selected in the <u>previous wizard page</u>, the next pages provide access to the Q-slave configuration and are identical to the '<u>Slave Parameters Wizard</u>'.

DP	New Project Wizard - PROFIBUS Settings

Starting [/O number	[0x0 - 0xFE0]
PROFIBUS Settings F <u>D</u> L Address	1 [0 - 125]
Cancel	<u>B</u> ack <u>N</u> ext Default

Enter the starting I/O number and the FDL address of the slave module. For a detailed description see <u>Q-Slave PROFIBUS Settings</u>.

DP New Project Wizard - Autore	fresh Settings	×
Buffer Devices Enable Autorefresh Consistency Input Size (in words) Output Size (in words) Input CPU Device Output CPU Device	8       [0-122]         12       [0-122]         D1000       to       D1007         D2000       to       D2011	
Cancel	<u>B</u> ack <u>F</u> inish Default	

Enter the CPU device addresses of the transfer buffers for exchanging data between CPU and slave module. For a detailed description see <u>Q-Slave Autorefresh Settings</u>.

#### Command Open

The menu command **Open** allows to open a project, which has previously been saved.

x

Main	Menu	

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Open					? ×
Look jn:	pri 🧰		• +	🗈 💣 🎟 •	
My Recent Documents Desktop My Documents My Computer	DP qpb92v_test_bu DP test_qpb92v.dp	uscycle.dp2 )2			
My Network Places	File <u>n</u> ame:			•	<u>O</u> pen
	Files of <u>type</u> :	GX Configurator-DP project GX Configurator-DP project	file (*.dp2; *.d file (*.dp2; *.d	lpx) 🔽	Cancel
		DP2 project file (*.dp2) QJ71PB93D project file (old	format) (*.dp>	;)	

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

- \*.dp2: old or current GX Configurator-DP project file format
- \*.dpx: old GX Configurator-DP project file format for QJ71PB93D slave modules

The current version can open project files created with previous versions 4.0 or newer of GX Configurator-DP. Previous versions cannot open GX Configurator-DP 7.08J project databases.

**Note**: \*.DP-projects generated with software versions previous to GX Configurator-DP 4.0 cannot be opened.

## **Conversion of Old Projects**

If a project file created with an older version of GX Configurator-DP is opened, the user is informed that the file must be converted.

MELSOFT	GX Configurator-DP		X
i	The project file has been sav and must first be converted t	ed with an older pro to this program versi	gram version ion.
		ОК	Cancel

If the project file cannot be converted, a list of more detailed error messages is displayed.



The error messages can be saved in an ASCII file by selecting the 'Save' button.

If the conversion of a PROFIBUS master project fails, missing GSD information is in most cases the reason. GX Configurator-DP searches the following files for GSD information in the following order:

- 1. project file
- 2. global GSD device database

3. GSD export file (same file name as the project, but extension '.ext')

If the option 'GSD database has priority' is enabled, the global GSD device database is searched first:

- 1. global GSD device database
- 2. project file
- 3. GSD export file (same file name as the project, but extension '.ext')

The second sequence may be helpful in rare situations, where the GSD information in the project is inconsistent with the project configuration.

If a slave type, specified by a combination of the GSD entries 'Model\_Name', 'Ident\_Number' and 'Revision', cannot be found in any of the three files, the conversion stops and the error message lists the missing slave types.

The user should add the corresponding GSD files to the global device database and retry to convert the project file.

If the project file could be converted, but settings had to be changed, the user can review the actions taken during the conversion in a list.

Project Conversion	×
Conversion messages	
Info: Block transfer has been selected. Info: Selected PLC code option 'All DUT's'.	<b>A</b>
	-
OK <u>S</u> ave	

**Note**: the converted project overwrites the old project file, when it is saved. To preserve the original file, a copy of the file with the extension '.backup' is created.

## **Update GSD Information in Project**

If the option 'GSD database has priority' has been selected in <u>'Options'</u>, the user can select slave types, which exist in both the project file and the GSD database.

Select Slaves for Update	×
✓MT-DP12(V1.6 / 991006) ✓FX3U-32DP(1.02)	
Select All	
OK Cancel	

Name	Description	Choices / Set- ting range	Default
Slave Type List	list of slave types, which exist in both the GSD database and the project file		
Select All	toggles the selection of the slave types		
ок	closes the dialog and replaces the GSD information of the selected slave types in the project		Default button
Cancel	closes the dialog and continues opening the project without replacing GSD in- formation		-

If the user presses **OK**, the GSD information for the selected slave types in the project file is replaced with the corresponding GSD information from the GSD database. If the user presses 'Cancel' or does not select any slave type, no GSD information is updated and the project is opened using the GSD information already contained in the project file.

#### **Check of GSD Consistency**

When a project file for a PROFIBUS master is opened, GX Configurator-DP searches the GSD information in the project file for the slave and module types used in the project configuration. If GSD information is missing for a slave or a module type, the following message is displayed.

MELSOFT	MELSOFT GX Configurator-DP		
♪	The project configuration is inconsistent with the GSD information in the project file. This can be caused by replacing the GSD data in the project file with updated GSD files, which are incompatible.		
	Do you want to see the inconsistencies found?		
	<u>Y</u> es <u>N</u> o		

If the user selects 'No', the project cannot be opened. If the user selects 'Yes', the list of inconsistencies is displayed.

Project and GSD Inconsistencies	×
List of inconsistencies found	
Warning: The module type with reference number 7 has changed its name from 'MT-X16' to 'MT-Y16T' Warning: For the slave with FDL addresse 1 the I/O-size of module 'MT-Y16T' differs from the I/O-size of the module type in the GSD database. Warning: The module type with reference number 9 has changed its name from 'MT-4AD' to 'MT-4DAV'	
If the list does not contain 'Error' entries, you can continue by pressing 'OK'.	
OK <u>Cancel</u> <u>S</u> ave	

If errors have been found, the user can only view the messages, but cannot proceed with opening the project. The 'OK' button is therefore disabled.

Project and GSD Inconsistencies	×
List of inconsistencies found	
name from 'MT-4AD' to 'MT-4DAV' Warning: For the slave with FDL addresse 1 the I/O-size of module 'MT-4DAV' differs from the I/O-size of the module type in the GSD database. Error: The module type with reference number 12 (' 16word_output- whole consistency') is missing in the GSD database	•
If the list does not contain 'Error' entries, you can continue by pressing 'OK'.	
OK Cancel Save	

The reason for such inconsistencies can be an import of incompatible GSD information from the central GSD database (see 'GSD Update') when opening the project. In this case the project should be opened again without importing the GSD information from the central database.

#### **Command Close**

This menu command closes the active project.

## **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.

#### **Remove GSD Information**

When saving a master project, the user can have all unused GSD information removed from the project file in order to reduce its size.

If the project file contains GSD information for slave types, which are not used in the project, the user is asked, whether to remove the data.

MELSOFT	GX Configurator-DP
?	Should unused GSD information be removed from the project file? $\Box$ <u>D</u> o not show this message again
	<u>Y</u> es <u>N</u> o

If the user agrees, the GSD information is removed from the project file. If the user does not want to be asked each time a project is saved, the checkbox 'Do not show this message again' in the message box can be set. In this case the same action (removing or keeping unused GSD information) is performed each time, until the application is restarted.

## **Command Save As**

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

Save As					<u>?</u> ×
Save jn:	🗀 pri		•	+ 🗈 💣	
My Recent Documents Desktop My Documents My Computer	<pre>     test_3009_1.dp     test_0610_1.dp     test_009_1_fx     gxdp702_test.d     gxdp703_test.d     gxdp703_test.d     gxdp703_test.d     gxdp703_test14     test_1410_3_er     gxdp702_q_iom </pre>	2 2 dp2 p2 dp2 v.dp2 p2 dp2 H10.dp2 npty_q.dp2 ap.dp2			
My Network	File <u>n</u> ame:	gxdp702_q_iomap.dp2		•	<u>S</u> ave
Places	Save as type:	DP2 project file (*.dp2)		-	Cancel
		DP2 project file (*.dp2)			

Files can only be saved in the 'dp2' format.

## **Command Recent Files**

The pull-down menu shows you the last used projects. You can open a project file by selecting the

corresponding entry.

#### **Command Exit**

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

MELSOFT GX Configurator-DP				
Save c	hanges to untitle	ed DP1?		
<u>Y</u> es	No	Cancel		

If you want to save the last changes before leaving and ending GX Configurator-DP choose **Yes**. If you choose **No**, all modifications to the respective project are lost.

## 4.2 Tools Menu

<u>T</u> ools	⊻iew	<u>W</u> indow	Help
G	X Config	gurator-ST	
<u>0</u>	ptions		

The Tools menu offers the following commands:

Command	Description
GX Configurator-ST	starts GX Configurator-ST for configuration of ST1H-PB 'Slice I/O' slaves
<u>Options</u>	edit general (i.e. project independent) application settings

#### **GX** Configurator-ST

This item starts GX Configurator-ST (GXST), the configuration tool for the ST1H-PB slave devices. This menu command is enabled, if GXST is installed, i.e. the corresponding executable file can be found.

With GXST you can operate settings and graphically monitor ST1H-PB. GXST shows status and error information for the ST slave and its modules. It provides test functions and an user interface for changing parameters of the device.

The GX Configurator-ST runs as a separate application with its own entry in the task list and must be closed separately. However, when GX Configurator-DP is closed, it displays a warning message in case GX Configurator-ST is still running.

#### Options

The menu item 'Options' provides access to general (i.e. project independent) application settings. It opens the 'Options' dialog, which lists the application settings in a 'property grid'.

Options	
🖃 GSD Database Settings	
GSD database has priority	False 🗾
GSD database has priority	
Determines, whether when openin contained therein should be replac from the central GSD database.	g a project file the GSD data ed with the corresponding data
ОК	Cancel

Name	Description	Choices / Set- ting range	Default
GSD data- base has pri- ority	when set to 'True', the user can replace exist- ing GSD data in the project file. Each time a project file is opened, a list of the slave types, which exist in both the project file and the central GSD database, is displayed. The user can select the slave types, of which the in- formation should be replaced.	true, false	false
ок	Close dialog and save settings to become effective after next change		Default but- ton
Cancel	Close dialog and discard changes		-

## 4.3 View Menu

Vie	v <u>H</u> elp	
<b>~</b>	Toolbar	
~	<u>S</u> tatus Bar	

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

Command	Description
<u>Toolbar</u>	Shows or hides the application's toolbar.
<u>Status Bar</u>	Shows or hides the application's status bar.

These menu commands toggle the display of the toolbar and the status bar. A check mark in front of the command indicates that the corresponding bar is activated.

## **Command Toolbar**

The toolbar is a collection of buttons, which provide direct access to the most frequently used functions. Its appearance depends on the type of the open project.

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Toolbar, if no project is open

🛅 📂 🔙 l 🕼 🖮 🖏 l 🗞 🦠 🍞 l 🥥

Toolbar, if project is open and all functions are supported by master



lcon	Function	Available for
1	Project -> New	all
2	Project -> Open	all
3	Project -> Save all	
4	GSD Device Database	master projects
5	Download to Module all	
6	Transfer Setup all	
7	POU Generation	master projects
8	Start/Stop PROFIBUS	all
9	I/O Mapper	master projects
10	Help	all

## **Command Status Bar**

If this command is marked, the standard Windows status bar is displayed at the bottom of the application window. The status bar shows a short message of the menu item under the mouse cursor and the status of certain keyboard keys.

Ready

CAP NUM SCRL

## **Project Infobar**

The infobar is a window of GX Configurator-DP, which is displayed above the standard Windows status bar. It displays important information, which is specific to the active project.

MELSOFT GX Configurator-DP - [gxdp_qpb92v.dp2]					
Project Tools View Window Help		_ & ×			
🗄 🖆 🚅   🌆 🍁 🕷   🗞 🦠 🍞   🥝					
PROFIBUS Configurator Tasks	PROFIBUS Network	Global GSD data ×			
Online Tasks		GSD Database			
🐐 Transfer Setup	🕂 FDL:10 'Slave_Nr_001' (M	🕂 💭 General			
Download to Module		Drives			
Download Configuration Image		Switches			
Start/Stop PROFIBUS		□=···· 📂 I/O			
Set Slave Address		AJ95FPBA2			
Setup Tasks 🛛 🕹		AJ95FPBA4			
Export Tasks		AJ95FPBA4			
POU Generation		AJ95TB2-16			
Configuration Image		Project GSD data Clobal GSD data			
Online Status: not connectedDefaultConnection	O02/H) D:\MELSEC\GY_Configurator_DD/pro	pierts/axdp_apb92v_asc			
Peady	Quz(i) D. WELSEC (ax Conlightator-DP (pr				
Reauy		CAP NOM SURL			

Main Menu

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Online Status: not connected DefaultConnection Q02(H) D: \MELSEC\GX Configurator-DP\projects\gxdp\_qpb92v.asc 4

The following information is displayed in the infobar

- 1. the status of the PLC connection ('connected', 'not connected')
- 2. the name of the currently selected transfer setup
- 3. the type of the CPU selected in the transfer setup
- 4. the last path of the exported POU (only if 'POU Generation' has been called since the project has been opened)

## 4.4 Window Menu



The 'Window' pull-down menu lists the names of the open projects. Selecting an entry activates the corresponding project window.

# 4.5 Help Menu

Help	)
	Help Topics F1
0	About MELSOFT GX Configurator-DP

The 'Help' pull-down menu provides access to the online-help and version information of the application.

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Command	Purpose
Help Topics	Opens the online help
<u>About</u>	Displays version information of the application

## **Command Help Topics**

This item opens the online help in a separate window. Additionally the context-specific help is opened by pressing **F1** in a window of the application.

## Command 'About MELSOFT GX Configurator-DP ...'

The about box show the software name and version as well as the copyright notice.

About MELSOFT GX Configurator-DP		
	MELSOFT GX Configurator-DP Version 7.08J	
	© 2012 MITSUBISHI ELECTRIC CORPORATION	
	ALL RIGHTS RESERVED	
	OK	

# **5 PROFIBUS Configurator Tasks**

## **Using the Task Panel**

PROFIBUS Configurator Tasks		
Online Tasks	۲	Â
Setup Tasks	۲	Ε
Master Settings Change Master Type GSD Device Database Project Properties I/O Mapper Devices for Slave-Specific Transfer		
Export Tasks	*	
POU Generation		Ŧ

The 'PROFIBUS Configurator Tasks' window offers the user project specific shortcuts to manage a PROFIBUS DP project. The shortcuts are grouped into types of actions. With the button in the group header the task items can be collapsed so that only the header is visible to the user.



If operated via the keyboard the up/down cursor keys move the focus within the task panel. The focused task item is marked with a dotted frame.



Pressing the space bar triggers the focused item.

To expand/collapse a task group via the keyboard the caption of the task group must have the focus. The expand/collapse state is then toggled via the spacebar.



Some entries, which are frequently used, show icons before the text. These icons exist in the toolbar as well. Clicking the icon in the toolbar has the same effect as selecting the corresponding entry in the task panel.

#### **Tasks for Master Projects**

The available items in the task panel depend on the project type and application state.



The task panel contains the following groups of items

#### Online Tasks

- Setup Tasks
- Export Tasks
- Import Tasks
- Documentation
- Diagnostics

# 5.1 Online Tasks

Onl	line Tasks	۲
<b>%</b>	Transfer Setup Download to Module	
••	Upload Configuration Image Download Configuration Image Verify Start/Stop PROFIBUS Set Slave Address	

Command	Description
Transfer Setup	Define the network connection type (PC to PLC) In the integrated version of GX Configurator-DP this function is available in the GX Works2 application.
Download to Module	Download the configuration from the current project to the connected module In the integrated version this function is available from the GX Works2 'Write To PLC' dialog.
Upload Configuration Image	Read the binary configuration image from the master and store it in a file In the integrated version this function is available from the GX Works2 'Tool' menu
Download Configuration Image	Download the configuration image taken from the specified file to the master module In the integrated version this function is available from the GX Works2 'Tool' menu
<u>Verify</u>	Upload the existing configuration from the module and compare it with the current project In the integrated version this function is available from the GX Works2 'Verify with PLC' dialog.
Start/Stop PROFIBUS	Start or stop the cyclic DP data transfer In the integrated version this function is available from the GX Works2 'Tool' menu
Set Slave Address	Change the FDL address of a slave online

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Command	Description
	This function is only available for QJ71PB92V and FX3U64DP-M In the integrated version this function is available from the GX Works2 'Tool' menu

#### **Transfer Setup**

This item opens the dialog for managing the communication settings of the PLC connections. For a detailed description see <u>Transfer Setup</u>.

## **Connection Handling for Online Functions**

If any of the functions listed in 'Online Tasks' is started, the settings of the currently selected transfer setup are used to connect to the target PLC and the PROFIBUS module within the PLC.

If the connection to the target PLC fails for any of the 'Online Tasks', the user is informed with an error message.

MELSOFT	GX Configurator-DP
⚠	Failed to connect to PLC. Please check your network configuration and cables.
	ОК

The user can now choose to open the transfer setup to change the transfer settings and try again.

MELSOFT	GX Configurator-DP	<	
?	Do you want to start the transfer setup and select a different connection ?		
	<u>Y</u> es <u>N</u> o		

If the user selects 'Yes', the transfer setup dialog is opened.

If the connection to the PLC is established, GX Configurator-DP tries to locate the module at the specified starting I/O number. If there is no module at the given starting I/O number or if the module found does not match the current module type of the project, the user is informed and asked, whether he wants to select the module online.

MELSOFT	GX Configurator-DP	×	
1	No QJ71PB92V module found at the given head address 0. Do you want to select a module on the PLC ?		
	OK Cancel		

If the user presses 'OK', the list of modules is read from the PLC and displayed in a list.

м	odules in PLC		
	Slot	Starting I/O number	Module Typename
	00	0x000	QJ71E71-100
	01	0x020	QJ71PB92D
	02	0x040	QJ71PB92V
	03	0x060	QJ71PB93D
			OK Cancel

If the user selects a module matching the project type and presses **OK**, the respective online function is executed.

## Download to Module...

When the user selects the 'Download to Module' task item or toolbar button, the user is asked to select the items for download.

Select Items for Download	×
✓Download PROFIBUS configuration	-
Update Autorefresh settings	
Remove Autorefresh settings for the same module type	
☑ Select All	
OK Cancel	

Name	Description	Choices / Setting range	Default
	Download PROFIBUS configuration	selected / not selected	selected
	Update Autorefresh settings	selected / not selected	selected
Items List	available only for Q-series projects, if Autorefresh has been selected in ' <u>CPU</u> <u>Device Access</u> '		

Name Description		Choices / Setting range	Default
Remove Autorefresh settings for the same module type		selected / not selected	not selected
	available only for Q-series projects		
Select All	Select All selects / deselects all items selected / not selected indeterminate		selected
<b>OK</b> close dialog and start update of the selected items.			Default but- ton
Cancel close dialog and do not download any (same as pressing OK with no item s ted)			-

The selectable items, which are listed in the dialog, depend on the project type and settings.

#### 1. Download PROFIBUS configuration

Download the PROFIBUS settings to the connected module.

#### 2. Update Autorefresh settings

Add or update the autorefresh settings for the module with the configured head address.

#### 3. Remove Autorefresh settings for the same module type

Delete existing autorefresh settings for the same module type. This option should be set, if for example a PROFIBUS module has been moved to a different slot or the I/O assignment has been changed. When the CPU cannot find the specified module type at the specified head address, its signals an error. GXDP only updates the autorefresh settings for the head address specified in the 'Master Settings'. Existing autorefresh settings for other head addresses remain unchanged.

The effects of this option depend on the state of the option 'Update Autorefresh settings'. **option 'Update Autorefresh settings' is selected:** autorefresh settings for modules of the same type as used in the project, but with different starting I/O numbers, are removed **option 'Update Autorefresh settings' is NOT selected or not available:** all autorefresh settings for modules of the same type as used in the project are removed, including settings for the starting I/ O number currently configured

If the user presses **OK**, the selected items are downloaded respectively updated. If the option 'Download PROFIBUS configuration' has been selected, the autorefresh settings are only updated, if the previous configuration download has been successful. While the configuration image is written to the module, a progress bar is displayed. This operation cannot be interrupted by the user to ensure a consistent download.



A download to FX master modules can only be performed, if the CPU is in 'STOP' state.

If the download has been successful, the following message is displayed.

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For A(1S)J71PB92D modules the message contains an additional remark about the mode hardware switch.

MELSOFT	GX Configurator-DP
<b>()</b>	Configuration download successful
~	Note: DP data transfer must be started manually or from the PLC program !
	Please set the mode switch of A(1S)J71PB92D modules to the right operation mode !

**Note**: for A(1S)J71PB92D modules the user must set the correct operation mode (0 or E) with the switch on the front of the module. The module will take over the setting of the mode switch after a CPU reset.

#### Download to project module type only

**Note**: a download is only possible, if the type of the connected module matches that of the project. If the user wants to download the project to a different module type, the project must first be converted to the type of the connected module. This is done by selecting the <u>Change Master Type</u> menu item.

#### Autorefresh Update

If the user has selected the 'AutoRefresh' option, the autorefresh settings are updated, after the configuration has successfully been downloaded to the PROFIBUS master module. Before updating the autorefresh settings GX Configurator-DP checks the total number of autorefresh entries, which the CPU would have after the update. The total number of autorefresh entries per CPU is limited and this limit depends on the CPU type.

If the maximum number of supported entries would be exceeded, the user is informed and the settings are not updated. In most cases this problem can be avoided by using 'Block Transfer' (see '<u>CPU Device Access</u>').

The check is done when updating the CPU

MELSOFT	GX Configurator-DP
	Error during update of the CPU: The number of autorefresh entries exceeds the maximum supported by the CPU.
	To reduce the number of entries select 'Block transfer'. Please consult the manual of QJ71PB92V for details.

as well as when updating the GD/GID-project, in case this has been assigned.

)	GX Co	onfigurator-DP
	MELSOFT	GX Configurator-DP
	♪	Error during update of the GD/GID project: The number of autorefresh entries exceeds the maximum supported by the CPU. To reduce the number of entries select 'Block transfer'. Please consult the manual of OJ71PB92V for details.
		OK

The (online) update of the autorefresh settings on the CPU is only possible, if the CPU is stopped. The CPU status is checked and, if the status is not 'STOP', the user is asked, whether the CPU can be stopped.

MELSOFT GX Configurator-DP				
?	To update the autorefresh settings the PLC must be stopped. PLC is in 'Run' mode Is it OK to stop the PLC ?			
	<u>Y</u> es <u>N</u> o			

After stopping the CPU the autorefresh settings on the CPU are updated. Existing autorefresh settings on the CPU for the same head address as the current master module are overwritten with the settings for the master, existing settings for other modules remain unchanged.

MELSOFT GX Configurator-DP 🛛 🔀				
i)	Autorefresh settings have been updated on the CPU			
	ОК			

If the CPU had been stopped prior to the update, the user is asked whether to start the CPU again.



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The autorefresh settings in the parameter file of the corresponding GID/GD project are also automatically updated, if the path to an existing GID/GD project has been set (see '<u>Project Properties</u>'). After the GID/GD project has been updated, the path of the updated IParam file is displayed.

MELSOFT	MELSOFT GX Configurator-DP				
<b>i</b>	Autorefresh settings in file 'E:\Melsec\GX IEC Developer 7.03\Projects\Q02_iparam\Resource\iparam.wpa' have been updated				
	ОК				

#### Autorefresh Settings on Remote I/O

GX Configurator-DP cannot online update the autorefresh settings in Q-series Remote I/Os. For Remote I/Os the settings must be updated in the corresponding GID/GD project file and then be up-

dated in the Remote I/O itself with GID/GD. If the user downloads to a Remote I/O and no GID/GD project path has been set, the user is prompted to enter the path to the IParam image file, which should be updated.

Please select the IPARAM image file				? ×	
Save jn:	C Resource		•	수 🗈 💣 🎫	
My Recent Documents Desktop	DOU Others param.wpa				
My Documents					
My Computer					
My Network Places	File <u>n</u> ame: Save as <u>ty</u> pe:	iparam.wpa IPARAM Files (*.wpa)		•	<u>S</u> ave Cancel

In GID/GD projects the IParam image file is named 'iparam.wpa' and located in the subdirectory 'Resource' of the project directory.

#### Download to FX

The FX3U-64DP-M PROFIBUS master can only be updated, if the CPU is stopped. If the CPU is in 'RUN' state, the user is asked, whether the CPU can be stopped.

MELSOFT	GX Configurator-DP	×		
To download the configuration the PLC must be stopped PLC is in 'Run' mode Is it OK to stop the PLC ?				
	<u>Y</u> es <u>N</u> o			

If the user agrees, the CPU is stopped and the configuration is downloaded. After the download has completed, the CPU can be restarted.

MELSOFT GX Config	urator-DP 🛛 🔀
PLC has b Is it OK to	een stopped set the PLC to RUN ?
Yes	No

## Download to QnPRH Redundant System



Type 1: QnPRH system with redundant PROFIBUS masters



Type 2: QnPRH (2nd) system with single PROFIBUS master in expansion backplane

The QnPRH redundant PLC system can be operated with a dual (redundant) PROFIBUS network. The control CPU provides access to the active PROFIBUS master module, while the standby CPU has a second master, which becomes active, when the standby system takes over the task of the control system. Besides in a redundant configuration a QnPRH CPU can also be used as a single standalone PLC or combined with another QnPRH PLC as a dual PLC system with both CPUs connected via a special communication link ('tracking cable').

To update both masters in a QnPRH system as well as the autorefresh settings in both CPUs, the redundant system must be in 'Separate' mode and device tracking for the X/Y devices must be disabled. GX Configurator-DP therefore switches the redundant system to 'Separate' mode, if it is in 'Backup' mode. It also disables device tracking, if the system is in 'Backup' or 'Separate' mode. After completing the download to both masters and having updated the autorefresh settings, GX Configurator-DP sets the system back into its original state.

The new QnPRH 2nd generation PLC supports a new type of expansion backplane, which is directly connected to the backplanes of both QnPRH CPUs. The expansion backplane is mapped into the I/ O range of the respective control system. The modules in the expansion board are not visible to the standby CPU. The QnPRH expansion board allows to operate a redundant PLC without having each network module twice.

Mode	GXDP Handling
Backup	The PROFIBUS configuration is downloaded to both PROFIBUS modules (redundant network setup) or the single PROFIBUS module (expansion rack

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Mode	GXDP Handling
	setup). The autorefresh settings are updated in both PLCs. Therefore the system must be temporarily switched to 'Separate' mode.
	MELSOFT GX Configurator-DP       X         Image: Configurator with the connected system supports redundancy. Both PLCs will be updated.       Note: during the download the system will be switched to 'Separate' mode and device tracking will be disabled!         Image: Concel       OK       Cancel
Separate	User must choose whether to update both systems (pressing 'Yes') or only the directly connected system (as selected in transfer setup) (pressing 'No'). If 'Cancel' is pressed, nothing is updated. MELSOFT GX Configurator-DP The connected system supports redundancy. Should both PLCs be updated? Note: during the download device tracking will be disabled! <u>Yes</u> <u>No</u> Cancel
Debug	In Debug mode only the PLC selected in the transfer setup is updated.          MELSOFT GX Configurator-DP         Image: Configurator of the directly connected PLC will be updated.         Image: OK       Cancel

**Note**: if device tracking is disabled, this applies only to the default tracking block controlled by SM1520. If the user has specifically configured device tracking and included the X/Y devices of the intelligent function modules, the communication may fail.

## Verify

This function verifies the settings of the selected project with the current configuration of the module. For PB92D masters a warning is displayed to inform the user that the data exchange on the PROFIBUS network will be stopped.

MELSOFT	GX Configurator-DP
1	For reading the current configuration the data exchange on the PROFIBUS network must be stopped !
	OK Cancel

The current configuration is read from the module and compared with the configuration created from the current project. If both settings match, the following message box is displayed.



If the settings differ, the following message box is displayed. More detailed information on which parts of the settings are different, is not provided.

MELSOFT	GX Configurator-DP
1	Project settings differ from current module configuration!
	OK

In case any problems occur, for example when reading the configuration from the module, a general error message is shown.

**Note**: the autorefresh settings and POU code are not compared. Therefore device addresses used for transfer buffer or assigned in the I/O mapper, which are not part of the master configuration, are not verified. The verify may report a match, although device addresses differ.

#### Verify on QnPRH Redundant System

Before uploading the configuration from the PROFIBUS master module(s) and comparing it with the project, the user is asked whether to proceed. The query depends on the redundancy mode, however it does not depend on whether there are one or two master modules.

Mode	GX Configurator-DP Handling
	If there are two masters, the configuration of both masters is uploaded and com- pared. If there is only one master, the configuration of that master is uploaded and compared.
Backup	MELSOFT GX Configurator-DP
	The connected system supports redundancy. The configuration on both PLCs is verified.
	Note: during the operation the system will be switched to "Separate mode and device tracking will be disabled!
	OK Cancel
Separate	If there are two masters, the configuration of both masters can be uploaded and compared. The user can also decide to verify only the configuration of the master in the directly connected PLC rack. If there is only one master, the user's choice has no effect.

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Mode	GX Configurator-DP Handling		
	MELSOFT GX Configurator-DP		
	The connected system supports redundancy. Should the configuration on both PLCs be verified ? If you select 'No', only the configuration on the local PLC is verified.		
	Note: during the operation device tracking will be disabled!		
	Yes No Cancel		
	In this mode only the configuration of the master in the connected PLC is verified.		
	MELSOFT GX Configurator-DP		
Debug	Only the configuration of the directly connected PLC will be verified.		
	OK Cancel		

If the configuration of two master modules in a redundant PLC system is verified, the result shows for each of the two master modules, whether its configuration matches the current project or differs from it.

If the configuration of both masters matches the project:

MELSOFT	GX Configurator-DP	
Local system : Project settings match the current module configu		
	Remote system : Project settings match the current module configuration!	
	ок	

If the configuration of one or of both masters differs from the project:

MELSOFT	GX Configurator-DP X
	Local system : Project settings match the current module configuration!
	Remote system : Project settings differ from current module configuration!
	ОК

If there is only one master module in the redundant system as in a QnPRH (2nd) with a single expansion backplane, only the configuration of this master is compared with the project.





## **Upload Config. Image**

The user is prompted for a file, in which the configuration image should be stored.



For PB92D masters a warning is displayed to inform the user that the data exchange on the PROFIBUS network will be stopped.

MELSOFT	GX Configurator-DP
⚠	For reading the current configuration the data exchange on the PROFIBUS network must be stopped !
	OK

The current configuration is read from the master module and stored in binary format in the file, which the user has selected. Information stored in the PLC CPU like autorefresh settings or POU code is not retrieved.

The user is informed after the successful upload



or gets an error message, if it fails.

The configuration image can be used to configure another master module, if the original GXDP project file is not available. The configuration image is downloaded to a master with the <u>'Download</u> <u>Config. Image'</u> function.

Note: the information read from the master module cannot be used to create a GXDP project file.

#### **Download Config. Image**

The user must first select a file with a configuration image created by a previous upload (see <u>'Up-load Config. Image'</u>) or the corresponding export function of GX Configurator-DP(see <u>'Export -></u> <u>Config. Image'</u>). This configuration must be compatible to the module type set in the current project. GX Configurator-DP reads the configuration image from the file and downloads it to the master module.

The user is informed after the successful download

MELSOFT	GX Configurator-DP
(j)	Configuration download successful
	Note: DP data transfer must be started manually or from the PLC program!
	<u>(СССС)</u>

or gets an error message, if it fails.

#### Start/Stop PROFIBUS

This item is used to manually start or stop the PROFIBUS DP cyclic data transfer of DPV0. The current status of the connected PROFIBUS master is checked. If there is no active data transfer, GX Configurator-DP checks, whether the master is configured and data transfer could be started. For A (1S)J71PB92D, QJ71PB92D and QJ71PB92V the device X1B of the master must be true, for FX3U-64DP-M address 5 in the buffer memory must be non-zero.

If the prerequisite condition is not met, the user is warned and data transfer cannot be started.

MELSOFT	GX Configurator-DP 🛛 🔀	
	The module is not in 'Communication Ready' state.	
•••	Please download a correct configuration before trying again.	
	OK	
Otherwise	the user is asked to confirm starting the transfer.	
MELSOFT	GX Configurator-DP	×
?	Do you want to start DP-data-transfer for this master? Note: This will only work if unit is in operating mode!! You should also know that no data is transfered to/from CPU without an active DP-POU or correct autorefresh s	settings.
	<u>Y</u> es <u>N</u> o	

If the data transfer is active, the user is asked to confirm stopping the transfer.





The cyclic data transfer is started respectively stopped. If a PLC program is running, which starts the data transfer, while the user tries to stop the data transfer, the operation fails. An error message is displayed and the user is informed of the possible access conflict between PC and PLC program.

## **Set Slave Address**

This function is provided to change the FDL address of a slave device online.

**Note**: this function is only available for QJ71PB92V and FX3U-64DP-M and must be supported by the slave.

The appearance of the dialog, which is opened when selecting the 'Set Slave Address' item, depends on the master type and the node, which is selected in the project tree.

	for QJ71PB92V (Ident-No. must be entered)	
	Set Slave Address Online	
Master is selected	Old address: 10   New address: 12   Ident-No. (hex) F031   Messages: for FX3U-64DP-M (Ident-No. not required)	
Add slaves via Drag&Drop from GSD	Set Slave Address Online	
	Qld address: 10   New address: 14   Ident-No. (hex)   Messages:	

PROFIBUS Configurator Tasks

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J	J	

	Set Slave Address Online
Slave is selected	Old address: 10 Set
PROFIBUS Network	New address: 14
	Ident-No. (hex) F037
FDL:10 'Slave_Nr_001' (MT-C	Messages:

If the master is selected, the user must enter the current address of the slave. For QJ71PB92V also the ident number must be entered. If a slave is selected, the current slave address and the ident number are taken from the project settings and both fields are read-only.

The service requires the current and the new FDL address as parameters, together with the ident number of the slave, which is checked to ensure that the correct slave is accessed. The current address and the ident number are taken from the slave, which has been selected in the project tree.

By pressing 'Set' the request is sent to the slave. The response (success or failure) from the slave is displayed in the 'Messages' field.

Request to change FDL address has been sent. Note: A positive response does not imply that the slave has	QJ71PB92V FDL address change request has been sent.
actually changed its address. This must be verified by the user with other means (e.g. using the 'Live List' func-tion of FX3U-64DP-M).	FX3U-64UP-M FDL address change request has been sent. Please check with the 'Life List' function, whether the FDL address has actually been changed.
Failure	Failed to change FDL address
Note that FDL address cannot be changed, if data trans- fer is active	For setting the slave address the data exchange on the PROFIBUS network must be stopped!

Set Slave Address Online		×
<u>O</u> ld address: <u>N</u> ew address: <u>I</u> dent-No. (hex)	10 12 F037	Set Close
Messages:		

Name	Description	Choices / Setting range	Default
Old address	current FDL address of the slave	0 -126	

Name	Description	Choices / Setting range	Default
	If a slave is been selected in the project tree, the address of that slave is set as default, if the master is selected, the user can enter any valid address		
New address	the new FDL address to be set in the slave	0 – 125	
ldentNo. (hex)	the identification number is used to verify that the correct slave is addressed. This parameter is only required for QJ71PB92V. If a slave has been selected in the project tree, the ident no. of that slave is inserted, if the master is selected, the user must enter the correct ident number (for QJ71PB92V only) in hex format. The FX3U-64DP-M will internally determine the ident number for the specified 'old ad- dress' and insert it into the PROFIBUS re- quest.	the ident num- ber (range 0x0000 – 0xFFFF)	
Messages	the result of the operation (success or error message)		
Set	sends the 'SetSlaveAddress' request		Default but- ton
Close	Close dialog		-

# 5.2 Setup Tasks



Command	Description
Master Settings	Open the 'Master Settings' wizard
Change Master Type	Convert the project to a different type of master module Not available in the integrated version of GX Configurator-DP
GSD Device Database	Open the trees with the device types in the global device database and in the project file

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Command	Description
Project Properties	Open a dialog to select the GID/GD project and to set the comment Not available in the integrated version of GX Configurator-DP
I/O Mapper	Open the editor for defining the structures for access to slave inputs/ outputs
Devices for Slave-Specific Transfer	Edit the device addresses for slave-specific data transfer <b>Note</b> : this entry is only enabled, if 'slave specific' transfer has been selected in ' <u>CPU Device Access</u> '.

## Change Master Type

With this menu item the user can change the current project to a different type of master module. This menu item is not available in the integrated version of GX Configurator-DP.

C	hange Master Type				×
[	Select Module Type				
	CPU Series	⊙ Qn	C Qn <u>A</u> /A	O <u>E</u> X	
	MELSEC Module Type	QJ71PB92D			•
L		OK	Cancel		

Name	Description	Choices / Setting range	Default
CPU Series	selection of CPU series, in which the PROFIBUS module is used	Qn, QnA/A, FX	Qn
MELSEC Mod- ule Type	module types supported by the selec- ted CPU series Note: the current module type of the project is not listed	Qn: QJ71PB92V QJ71PB92D QnA/A: A(1S)J71B92D FX: FX3U-64DP-M	QJ71PB92V
ок	convert the project to the selected type and close the dialog		Default but- ton
Cancel	discard changes and close the dialog		

If the type of the master is changed to a FX3U-64DP-M, the user is warned that device addresses, which are not supported for FX3U-64DP-M projects, will be removed from the current project. This warning is displayed independently of whether unsupported device addresses are actually used in

the project or not.



If the project can be converted, a message is displayed. If the change of the master type implies a change of the CPU type, the user is also reminded to adjust the transfer settings.

MELSOFT	GX Configurator-DP	×
(j)	The project type has been changed.	
	Please also adjust the transfer setting	5.
	(ОК)	

The project conversion may fail, if the current configuration is not supported by the new master, for example because of the number of slaves when converting a project from QJ71PB92V to QJ71PB92D.

#### **GSD** Device Database

Opens the tree views for the device types stored in the global device database and in the project file. For a detailed description see '<u>GSD Device Database</u>'.

#### **Project Properties**

This dialog provides access to project specific properties This menu item is not available in the integrated version of GX Configurator-DP.

Project Properties X
PLC Project E:\Melsec\GX IEC Developer 7.03\Projects\Q06UDH_5\S0FTCTRL.PR0 Browse
Comment this is a comment
OK Cancel

Name	Description	Choices / Set- ting range	Default
PLC Project	select the project file of the correspond- ing GD/GID project. The project direct- ory is used to locate the image file for autorefresh parameter settings (iparam.wpa) in the 'Resource' subdir- ectory of the GD/GID project. This file is		-

PROFIBUS Configurator Tasks

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Name	Description	Choices / Set- ting range	Default
	updated by GXDP, if the 'Autorefresh'- option has been selected		
Browse	opens file dialog to select the GD/GID project file	max. 255 charac- ters	-
Comment	an optional comment text of max. 255 characters length, which describes the project	max. 255 charac- ters	-
ок	Close dialog and save changes		Default but- ton
Cancel	Close dialog and discard changes		-

## I/O Mapper

Opens the table for defining 'Data Unit Types' (DUTs) and global variables for access to slave input and output data. For a detailed description see 'I/O Mapping'.

## **Devices for Slave Specific Transfer**

The item is only accessible, if slave specific transfer has been selected in '<u>CPU Device Access</u>'. It opens a modal dialog, which lists the slaves configured in the project sorted by FDL address along with their respective input and output size. The user can assign a device address to each input and output area of slave. The contents of these devices are exchanged with the input and output areas in the buffer memory of the master via autorefresh or copy instructions.

Sla	ave Specific Bu	ffer Devices			×
ſ		alous ta			-
	Slave name	I/O Word Size	Input Device	Output Device	
	Slave_Nr_002	2/3	D100-D101	D200-D202	
	Slave_Nr_003	8/20	D110	D210-D229	
	Slave_Nr_001	5/1	D120-D124	D230-D230	
			Cancel		
					/

Name	Description	Choices / Setting range	Default
Slave name	user-assigned name of the slave	read-only	
I/O Word Size	input and output size of the slave in words (odd byte sizes are rounded up to the next word boundary)	read-only	

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Name	Description	Choices / Setting range	Default
Input Device	start address of device area to transfer inputs to <b>Note</b> : if a device address has been as- signed to a buffer area, the occupied device range is displayed with the ad- dresses of the first and the last device used. When the user begins editing a cell, only the start address is dis- played. When the user has left the cell, the updated range is displayed again.	for use with the I/O map- per (POU) word devices must be assigned; for use with autorefresh the devices must be suppor- ted by the autorefresh function if the slave has no inputs or outputs, the corres- ponding device address	empty
Output Device	start address of device area to transfer outputs from <b>Note</b> : see above	input field is disabled	
ок	Close dialog and saves entered device addresses		Default but- ton
Cancel	Close dialog and discard changes		-

## Slave Specific Transfer in Combination with 'Copy Instructions'

If 'Slave Specific Transfer' and 'Copy Instructions' is selected, the assignment of bit devices to slave I/O buffers is equivalent to not assigning a device address.

The user is warned when entering a bit device for a slave buffer, if 'Copy Instructions' has been selected.

	Slave Specific Buf	fer Devices		x	1
	Slave name	I/O Wor	Input Device	Output Device	
	Slave_Nr_002	2/3	D100-D101	D200-D202	
	Slave_Nr_003	8/20	D110-D117	D210-D229	
	Slave_Nr_001	5/1	X100	D230-D230	
MELSOFT GX Co	onfigurator-DP evices are not suppor can assign bit devices	ted for trans to transfer l	fer buffers by buffers by buffers when u	the I/O Mapping F sing 'Autorefresh'	OU. without the POU.
		OK	Cancel		
		OK	Cancel		é

When pressing **Cancel** the entered address is ignored and the value for the buffer device remains unchanged.

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5lave Specific Buf	fer Devices	5	2	<
Slave name	I/O Wor	Input Device	Output Device	
Slave_Nr_002	2/3	D100-D101	D200-D202	
Slave_Nr_003	8/20	D110-D117	D210-D229	
Slave_Nr_001	5/1	D120-D124	D230-D230	
	ОК	Cancel	]	

When pressing **OK** the bit device address is accepted, but displayed in gray to inform the user that the respective buffer will not be transferred.

ave Specific Buffer Devices 🛛 🔀			
	[-••		
Slave name	I/O Wor	Input Device	Output Device
Slave_Nr_002	2/3	D100-D101	D200-D202
Slave_Nr_003	8/20	D110-D117	D210-D229
Slave_Nr_001	5/1	X100-X14F	D230-D230
		Causal	1

## 5.2.1 GSD Device Database

The device database contains information about PROFIBUS DP slave device types. New device types are added to the database by parsing the GSD file of the device. When a slave is added to a PROFIBUS master configuration project, the GSD information for the slave is copied from the global GSD database to the project file. This enables the user to edit a project file on a different system, without having to add the device types to the respective global database again. Due to these procedure there are actually two databases with GSD device information, the global database under the installation directory of GX Configurator-DP and the project file.

## **GSD** Database Device Tree



A device database is accessed via a tree-like user interface. The GX Configurator-DP user interface contains two device tree windows, one for the global GSD database, one for the GSD information in the project file. You can switch between the two GSD data trees by selecting the corresponding tab.

Global GSD data	Caption	Global GSD data
	Tab	Project GSD data Global GSD data
Project GSD data	Caption	GSD Database

If a slave type from the 'Global GSD data' tree is added to the project and the GSD information for that type is missing in the project, the GSD information is added to the project and a node for the type is inserted in the 'Project GSD data' tree.

The device groups are represented by folders, with the device types of the group as child nodes. The tree node of a device type shows the bitmap of the device and its type name. If no specific bitmap has been assigned to the device, the default bitmap is displayed.

The device tree for the global GSD database provides a context menu with functions to modify the database.
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Menu Item	Description
Add Slave to Project	add the selected slave to the project
	Note: this menu item has the same effect as adding a slave via drag&drop or a double-click on the node
Add GSD File	opens a file dialog to select a GSD file, which is to be parsed and ad- ded to the database
Import GSD Database	import device types from a GSD database (.mdb), GSD export file (.ext) or GXDP project file (.dp2)
<u>Properties</u>	opens a dialog to view properties of the selected slave type.
	In the 'Global GSD data' tree some of the properties can be changed, e.g. the bitmap, in the 'Project GSD data' tree the properties are read- only
Remove Type	removes the slave from the database

## Add Slave to Project

To add a slave of the selected type to the project, the user can either select the corresponding menu item from the context menu of the GSD tree, double-click the node in the GSD tree or move the mouse pointer to the project tree while keeping the left mouse button pressed.



A slave can be added from the 'Project GSD data' and the 'Global GSD data' tree. If a slave type is added from the 'Global GSD' tree and GSD information for the selected type is missing in the project file, the GSD information is transferred from the global GSD database to the project file. If the slave type is already in the project file, the information in the project file is not changed. When the project is edited, the GSD information is always taken from the project to ensure data consistency. Changes made to 'Global GSD data' will only have an effect on an existing project, if the GSD information is updated, when the project is opened. Please see 'Update GSD Information in Project'. To make the user aware of the potential conflict of the same slave type existing in both GSD data-bases, a message box is displayed, if the user adds a slave from 'Global GSD data' to the project, while GSD information of the same slave type already exists in the project.

MELSOFT	GX Configurator-DP
(j)	The GSD information for the selected type already exists in the project. The information is taken from the project. If you made changes to 'Global GSD data', you must first update the GSD information in the project, before the changes take effect.
	Note: you can also add a slave from the 'Project GSD data' tree instead of from the 'Global GSD data' tree.
	Do not show this message again

By marking the 'Do not show this message again' checkbox, further display of this message is avoided as long as GX Configurator-DP is running. When GX Configurator-DP is restarted, this mark is cleared and the message is displayed again.

## Add GSD File

A GSD file can be added to the database by selecting the item 'Add GSD File...' from the context menu. A file dialog appears to select the GSD file. When leaving the dialog with **OK**, the GSD file is parsed and its contents stored in the GSD database. The GSD file itself is no longer required. If the GSD file references a bitmap file for the slave device, GX Configurator-DP automatically tries to load the respective bitmap file and store it in the GSD database. In case the file is not found a default bitmap is used instead. The bitmap can be replaced with a device specific bitmap later on. The PROFIBUS standard specifies the following format for the bitmap file:

Width	70 pixels
Height	40 pixels

Colors	16
File Extension	dib, bmp

Only bitmaps that match the requirements in the table above should be used. Other bitmaps with other sizes and color depths can be used, but may not be correctly displayed.

Select Bitmap File	e				? ×
Look jn:	FX0N32NTDF	0	•	🗢 🗈 💣 🎟	•
My Recent Documents Desktop	EXON.BMP				
My Documents					
My Computer					
My Network Places	File <u>n</u> ame: Files of <u>ty</u> pe:	*.bmp Bitmap-Files (*.bmp)		•	<u>O</u> pen Cancel

When the GSD file has been selected, you will be asked to confirm the operation.

MELSOFT	GX Configurator-DP
?	Add GSD file 'MELCF032.GSD' to database?
	<u>Y</u> es <u>N</u> o

If you confirm, the contents of the GSD file are parsed and added to the GSD database.

MELSOFT	GX Configurator-DP	:
<b>i</b>	The device has been added to the database.	
	(OK	

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

### Import GSD Database

The GSD information for device types, which are missing in the GSD database, can be imported from an old GSD database (gsd\_db.mdb), a GSD export file (\*.ext) or a GXDP project file (.dp2).

**Note**: it is strongly recommended to parse the GSD files for the slave devices using the 'Add GSD File' function instead of importing the parsed GSD information from older databases. This ensures that all GSD information supported by this version of GXDP is extracted from the GSD file.

Selecting the 'Import GSD Database' item in the context menu opens a file dialog to select the file containing the GSD information to be imported.

If all device types found in the selected file already exist in the GSD database, the following message is displayed

MELSOFT	GX Configurator-DP 🗙
(į)	No device types found, which are missing in GSD database
	OK

If there are missing slave types, which can be imported, these types are displayed in a list.



Name	Description	Choices / Setting range	Default
Slave Type List	list of slave types, which exist in the file selected for import, but not in the GSD database		
Select All	toggles the selection of the slave types		
ок	closes the dialog and adds the GSD information of the selected slave types to the GSD database		Default button
Cancel	closes the dialog		-

## **Device Type Properties**

When the item 'Properties...' is selected in the context menu, the 'Device Type Properties' dialog is displayed.

If opened in 'Project GSD data', the device settings cannot be changed and the corresponding controls in the dialog are disabled.

ST1H-PB	×
Vendor	MITSUBISHI ELECTRIC CORPORATION
Revision	AA
Ident-No. (hex)	0X06DD
GSD-/DDB-File	ST1H06DD.gsd
Bitmap          Image: Diagnostics         Image: Diagnostics	
Slave Eamily I/O Set Byte Order for User Para C Low byte first ('Little End High byte first ('Big Ende	ameter dean'/Intel) ean'/Motorola)
	OK Cancel

Name	Description	Choices / Set- ting range	Default
Vendor	company name of the vendor (usually the value of the keyword 'Vendor_Name' in the GSD file)	read-only	-
Revision	the version of the device respectively GSD file (usually the value of the keyword 'Revision' in the GSD file)	read-only	-
Ident-No.	a number assigned by the PNO for unique device type identification. The value is taken from the entry 'Ident_Number' in the GSD file.	read-only	-
GSD-/DDB-File	name of the GSD file	read-only	
Bitmap	shows the slave-specific bitmap for the se- lected state, which has been stored in the database.		
	Different diffmaps can be assigned to the fol-		

Name	Description	Choices / Set- ting range	Default
	lowing states:		
	Normal		
	Diagnostics		
	Special Function		
	GXDP only uses the 'Normal' bitmap for display.		
Replace Bit- map	opens a file dialog for selecting the bitmap file to be assigned to the selected state	in 'Global GSD data': enabled	
		in 'Project GSD data': disabled	
Bitmap-File	name of the bitmap file	read-only	
Slave Family	allows to alter the slave family set by the GSD file, under which the slave is located in the tree	in 'Global GSD data': enabled	
		in 'Project GSD data': disabled	
Set Byte Order for User Para- meter	selects the byte order for user parameters of types short and long (signed and un- signed). This setting should normally never be changed, because PROFIBUS specifies big Endean, which is the default	Low byte first /	High byte
		High byte first	first
		in 'Global GSD data': enabled	
		in 'Project GSD data': disabled	
ок	Close dialog and save changes		Default but- ton
Cancel	Close dialog and discard changes		-

### **Replace Device Bitmap**

The user can replace the existing bitmap of the slave by pressing the button 'Replace Bitmap'. This opens a file dialog, in which a file with a new bitmap can be selected. The device database can store three different bitmaps for a device type, used for different states of the device. Via the group of radio buttons the state, in which the bitmap is used, is selected.

The GSD standard specifies bitmaps for:

- normal operation (this is used in the GX Configurator-DP editor)
- diagnostic status
- special operations mode

When a bitmap is replaced, this applies only to the selected state.

## Change Slave Family / Group

When a slave device is added to the GSD database, it is placed in the slave family, which is specified in the GSD file. If no slave family has been specified, the slave is placed in the 'General' group. The user can move the slave to a different group by selecting a group in the 'Slave Family' list and pressing **OK**.

### Change the Byte Order of User Parameters

The default setting for the byte order is 'High byte first' and should normally never be changed from

its default setting, because incorrect user parameter settings may have unforeseeable effects on the slave. To make the user aware of this a message box is displayed, whenever the user changes the byte order in the dialog



If the user confirms, the byte order is changed, but will only effect new projects. Because existing GXDP project files contain a copy of the GSD information, the change of the byte-order in the GSD database has no effect on the existing project. The byte order of user parameters must not be confused with the byte-order of the slave I/O data.



### Warning:

Please consult the vendor of the slave before changing the byte order as incorrectly encoded user parameters can have unforeseeable effects and may cause malfunctioning or damage.

## **DPV1 Support**

With DPV1 the meaning of the first three bytes of the slave user parameters is specified. Some slaves, especially older models, have placed slave-specific parameters in this range of the user parameters. If a slave supports the standard DPV1 user parameter format, the GSD file should contain an entry 'DPV1\_Slave=1'. With some slaves this entry is missing in their GSD file, although the slave require DPV1 support to be activated in the master. In these cases the entry 'DPV1\_Slave=1' must be inserted in the GSD file using a standard text editor (e.g. 'notepad'). After saving the modified file it must be added again to the GSD database.

## **GSD Update**

If you try to add a GSD file to the device database for a device, which already exists, a warning is shown. You can either choose to add the device information with a device revision or type name different to that of the existing device or choose to replace the existing entry.

Note: please be aware that GXDP uses the combination of

- ident number (GSD keyword 'Ident\_Number')
- model name (GSD keyword 'Model\_Name')
- revision (GSD keyword 'Revision')

to uniquely identify a device. Two GSD files must differ in at least one of these three items in order to both be added to the GSD database.

Collision of Device I	Ds	×		
The device with ident '1.01' already exists.	no. F032, model name 'FX0N-32NT-DP' and revision			
Please either select 'Replace' or change revision or model name in order to provide unique identification of the device.				
Revision	1.01			
Model Name	FX0N-32NT-DP			
OK	Cancel <u>R</u> eplace			

If you choose to replace the GSD file, internally the existing entry is deleted first and then the new GSD file is parsed. This will however not effect existing projects, which already use the device type and where the GSD information is part of the project file.

## Removing Type

A device type can be removed from the database by selecting the 'Remove Type' item from the context menu. Before removing the device the user is asked to confirm the operation.

MELSOFT	GX Configurator-DP
2	Do you really want to delete the selected device type from the database?
	<u>Y</u> es <u>N</u> o

This deletes only the entry in the GSD database. It does not delete the GSD and bitmap files for that device. These files have to be removed manually.

## 5.2.2 I/O Mapping

The purpose of I/O mapping is an easier access to the input and output data cyclically exchanged between the PROFIBUS master and the connected slaves. In I/O mapping GX Configurator-DP generates PLC program code, which will

- transfer output data from buffer devices to the buffer memory of the master
- transfer input data from the buffer memory of the master to the buffer devices
- generate 'Data Unit Types' (DUTs) for each slave module
- · exchange data with devices selected by the user
- start the cyclic data exchange
- copy contents of diagnostic buffers to assigned devices
- reference I/O data via global variables

Instead of calculating the I/O data offsets of the slave modules within the I/O buffer of the master, the PLC program can read or write the respective global variables. These are part of the user library, which is generated via the menu item <u>POU Generation</u>.

I/O mapping program code is only available for the following master modules and operating modes

- A(1S)J71PB92D (only for mode E and QnA-CPUs !)
- QJ71PB92D (only for mode E !)
- QJ71PB92V
- FX3U-64DP-M

**Note**: there is no I/O mapping and POU support for A-series CPUs and for A(1S)J71PB92D and QJ71PB92D in mode 0.

## **I/O Mapping Editor**

To open the editor for I/O Mapping select the corresponding item in the task panel.

**PROFIBUS Configurator Tasks** 

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MELSOFT GX Configurator-DP - [gxdp704_qpb9	02v_300609.dp2]		
Project Tools View Window Help			_ & ×
: 🔁 🚅 📓 i 🌆 🍁 粷 i 🗞 💊 🍞 i 🎯			
PROFIBUS Configurator Tasks	PROFIBUS Network	I/O Mapper	×
Online Tasks	━ <b>-<sup>-</sup></b> ■I/O no.:0x30/FDL:0 'QJ71PB92V'	Identifier Element Type Class U	Js  Globa
😭 Transfer Setup	🕂 💮 🐨 🍈 FDL:2 'Slave_Nr_002' (ST1H-PB Byte	L outputs ARRAY [07] Out	
Download to Module		I ≤ Enter name of	
Upload Configuration Image		L inputs ARRAY [07] Input	
Download Configuration Image	🗖 🔚 FDL:10 'Slave_Nr_001' (MT-DP12) [I/	Enter name of	
Verify		L inputs ARRAY [03] Input	
Start/Stop PROFIBUS	Slot:0 'MT-Y8T'	Enter name of	
Set Slave Address	📶 Slot:1 'MT-X8'	└── outputs ARRAY [07] Out	
Setup Tasks 🔹	🔰 Slot:2 'MT-4AD'		
Master Settings	🗾 🗾 Slot:3 'MT-Y8T'		
Change Master Type	-7		
1 GSD Device Database			
Project Properties			
Devices for Claus Consilia Transfer			
Devices for Slave-Specific Transfer			
Online Status: not connected DefaultConnection	Q02(H) E:\Melsec\GX IEC Developer 7.01\Projects\Q	02_Ethernet\gxdp_iomap.asc	
Ready		CAP N	JM SCRL

The navigation in the I/O mapping editor is done via the 'PROFIBUS Network' tree. The contents of the I/O mapping table depend on the node type, which is selected in the project tree.

Selected Node Type	I/O Mapper Table Contents		
Master	-		
Slave	only the DUTs for the modules of the selected slave		
Slave Module	only the DUT of the selected module		

If a **slave is selected**, the DUTs of all modules of that slave are displayed in 'collapsed' state as default. The user can expand a DUT to view the DUT elements by pressing the 'expand' button in the 'Identifier' column.

PROFIBUS Network	I/O Mapper				×
	Identifier	Element Type	Class	User M…	Glob
	🛨 <enter name="" of<="" td=""><td></td><td></td><td></td><td></td></enter>				
👝 🧱 FDL:10 'Slave_Nr_001' (MT-DP1:	🛨 <enter name="" of<="" td=""><td></td><td></td><td></td><td></td></enter>				
	🛨 <enter name="" of<="" td=""><td></td><td></td><td></td><td></td></enter>				
JOC:U MI-X8	🛃 <enter name="" of<="" td=""><td></td><td></td><td></td><td></td></enter>				
🔰 Slot:1 'MT-Y8T'					
🧃 Slot:2 'MT-Y8T'					
📕 Slot:3 'MT-4AD'					
FDL:12 'Slave_Nr_002' (MT-DP1:					
🧃 Slot:0 'MT-X8'					
🔰 Slot:1 'MT-4DA'					
<					

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If a **module is selected**, the DUT of the module is displayed in 'expanded' state as default. The user can collapse a DUT by pressing the 'collapse' button in the 'ldentifier' column.

PROFIBUS Network	I/O Mapper				×
	Identifier	Element Type	Class	User M	Glob
	Enter name of				
🚍 🚥 🎆 FDL:10 'Slave_Nr_001' (MT-DP1:	L input	ARRAY [07] OF B	Input		
🧃 Slot:0 'MT-X8'					
🧃 Slot:1 'MT-Y8T'					
🧃 Slot:2 'MT-Y8T'					
🧊 Slot:3 'MT-4AD'					
تا ہے۔۔۔۔ 📰 FDL:12 'Slave_Nr_002' (MT-DP1:					
🦾 🧃 Slot:0 'MT-X8'					
🚺 Slot:1 'MT-4DA'					

## I/O Mapping Table

	I/O Mapper					×
	Identifier	Element Type	Class	User MIT-Address	Global Va	
U	Enter Var. Name>					
	<ul> <li>ModuleReady</li> </ul>	BOOL	Input			
	<ul> <li>ForcedOutputMode</li> </ul>	BOOL	Input			1
	<ul> <li>OnlineChange</li> </ul>	BOOL	Input			
	<ul> <li>CommandExecution</li> </ul>	BOOL	Input			1
	– ErrorInfo1	BOOL	Input			1
$\sim$	– ErrorInfo2	BOOL	Input			1
(2)	ErrorInfo3	BOOL	Input			1
	– ErrorInfo4	BOOL	Input			1
	<ul> <li>ModuleStatus</li> </ul>	BOOL	Input			1
	<ul> <li>CommandRequest</li> </ul>	BOOL	Output			1
	– ErrorClear	BOOL	Output			
	- CmdReq	ARRAY [03] OF WORD	Output			1
	L CmdRsp	ARRAY [03] OF WORD	Input			
	🖃 <enter name="" var.=""></enter>					
	- SYS_24V	BOOL	Input			
	- AUX_24V	BOOL	Input			
	– ErrorInfo1	BOOL	Input			
	– ErrorInfo2	BOOL	Input			
	– ModuleStatus	BOOL	Input			
	L ErrorClear	BOOL	Output			
	Enter Var. Name>					-
						L

The I/O mapper table contains two types of rows

(1) a row for each DUT global variable showing the editable variable name

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Column	Range	Description	Default
Identifier	1-32 chars	name of global variable	

### (2) a row for each element of a DUT

Column	Range	Description	Default
ldentifier	1-32 chars	name of DUT element	'inputs' or 'outputs' depend- ing on buffer
Element Type	ARRAY, BOOL, INT, WORD	data type	BOOL, ARRAY OF BOOL, WORD or ARRAY OF WORD depending on buffer
Class	Input or Output	'Input' (data from PROFIBUS slave to PLC CPU) or 'Output' (data from PLC CPU to PROFIBUS slave)	depending on buffer
User MIT-Ad- dress		optional fixed device address, which contains a copy of the cor- responding I/O point	empty
Global Var. Identifier	0-32 chars	optional fixed global variable, which contains a copy of the cor- responding I/O point	empty

**Note**: the type name of a DUT cannot be set by the user, but is always automatically constructed, when the PLC code is exported. To ensure that the type name is unique the starting I/O number of the master, the FDL address of the slave and the index of the module are composed in the type name: *tHA*<*starting I/O no.>SLV*<*FDL address>MOD*<*module index (slot)>* 

### Warning:

The buffer devices should not be directly accessed. If a 'Copy POU' with DUTs is used, the contents of the DUT variables, which are generated for all modules, are copied to the buffer devices. Data, which has directly been written by the application to these devices, is overwritten.

**Note:** the 'Global Variable List' (GVL) in GX IEC Developer (GID) will report overlapping addresses, because the addresses in the transfer buffer are referenced by

1. the automatically generated variables for the I/O transfer buffer

2. the global variables for DUTs

3. the global variables, which the user assigned to individual DUT elements

These warnings can be ignored.

## **DUT Variable Name**

I/O Mapper				×
Identifier	Element Type	Class	User MIT-Address	Global Var. Identifier
binaryInputs				
L input	ARRAY [07] OF BOOL	Input	D1001.0	

DUTs have no global variable names assigned as default. The cell for the DUT variable name contains the prompt '<Enter Var. Name>'. The user can select the cell and enter a unique variable name. The variable name may not be a PLC device address.

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DUTs are exported and instantiated, if...

- 1. the user has selected the PLC code option 'All DUTs'
- 2. the user has selected the PLC code option 'User variables' and
  - ...has assigned a variable name to the DUT
  - ...has assigned a device as 'User MIT-Address' (see 'User MIT-Address')
  - ...has assigned a global variable name in 'Global Var. Identifier' (see 'Global Var. Identifier')

In these three situations a default name for the DUT global variable is constructed with the following scheme:

### 'vHA<starting I/O no.>SLV<FDL address>MOD<module index (slot)>'

For example with

- 1. PROFIBUS master in the first slot (starting I/O number 0x00)
- 2. slave with FDL address 2

the DUT of the first module (index 0 in the slave) has the variable name 'vHA0SLV2MOD0. Program code with declaration of DUT variable with entered variable name:

```
...
VAR_GLOBAL
binaryInputs: tHA4SLV10MOD01;
END_VAR
PROGRAM MAIN_PRG_LD
(**)
```

The tooltip of the 'DUT Variable Name' cell shows the type name of the module, which is represented by the DUT.

Identifier	Element Type	Class	User MIT	Global
Enter name of glob				
L input	ARRAY [07] OF B	Input		
📃 <enter glob<="" name="" of="" td=""><td></td><td></td><td></td><td></td></enter>				
L output	ARRAY [07] OF B	Output		
Conter name of the second s	-Y8T'			
L output	ARRAY [07] OF B	Output		
Enter name of glob				
L input	ARRAY [03] OF	Input		

## **DUT Element Identifier**

I/O Mapper				×
Identifier	Element Type	Class	User MIT-Address	Global Var. Identifier
🖃 binaryInputs				
L pitSignals	ARRAY [07] OF BOOL	Input	D1001.0	

The default DUT elements are either taken from the configuration file, which contains the predefined DUTs for ST1H-PB slave modules, or constructed from the buffer class, i.e. 'input' or 'output'. The user can change the identifier by clicking in the corresponding cell and editing the name. The identifier must be unique within the DUT.

**Note**: the DUT elements of predefined DUTs (e.g. for ST1H-PB) cannot be changed. For these DUTs the element identifier, type and class are read-only.

Program code with declaration of DUT with entered element identifier:

TYPE

```
tHA4SLV10MOD01:

STRUCT

bitSignals: ARRAY [0..7] OF BOOL:=[8(FALSE)];

END_STRUCT;

END_TYPE

...
```

When the DUT is validated and multiple element identifiers are detected, an error message with a list of identifiers is displayed.

I/O Mapper					×
Identifier	Element Type	Class	User MIT-Address	Global Var. Identifier	
Enter name of global variable>					
– output	ARRAY [01] OF BOOL	Output			
– output1	ARRAY [01] OF BOOL	Output			
	ARRAY [02] OF BOOL	Output			
The following DUT identi Press 'DK' and return to t	fiers (element names) are he I/O Mapper to correct	not uniqu the value	e. s.	OK	

## Type of DUT Element

I/O Mapper		_		×
Identifier	Element Type	Class Typ	pe Selection	× identifier
🖃 <enter globa<="" name="" of="" td=""><td>al variabl</td><td></td><td>ADDAY</td><td></td></enter>	al variabl		ADDAY	
L input	ARRAY [07] OF BO	OOL Input	ARRAY 300L INT WORD BOOL INT WORD OI OI	t Type X

For each slave module, which is added to the PROFIBUS configuration, GX Configurator-DP gener-

ates a default DUT structure. It consists of an element for the module inputs and one for the module outputs. The default elements have the type 'ARRAY OF BOOL' with the size of module's input respectively output area, if the I/O-size of the module is an odd number of bytes. If the I/O-size is an even number of bytes, the default type is WORD or ARRAY OF WORD.

The user can change the data type of a DUT element by selecting the corresponding cell in the column 'Element Type' and either click into the cell or press <F2>. A button appears in that cell, which opens the 'Type Selection' dialog(s), offering the following data types

Data Type	Size in I/O Buffer
BOOL	1 bit
INT	16 bit (signed)
WORD	16 bit (unsigned)
ARRAY OF <type></type>	number of array elements multi- plied with size of data type

Instead of clicking into the button in the cell, you can press **<F4>** to open the 'Type Selection' dialog.

If the user selects the type 'ARRAY' in the first dialog, a second dialog is displayed to select the data type of the array elements. After the type selection dialog has been closed by pressing the OK button, the type text in the cell is updated. This text can be manually edited, e.g. to adjust the array size.



**Note**: the start index is always 0. If any other index has been entered, it is automatically changed back to 0 and the last index is set to the array size minus 1.

Program code with declaration of DUT with entered element type:

TYPE	
tHA4SI	.V10MOD01:
	STRUCT
	<pre>bitSignals: ARRAY [07] OF BOOL:=[8(FALSE)];</pre>
	END_STRUCT;
END_TYPE	

When the DUT is validated, the total size of all input and of all output elements is compared with the input/output size of the module. If the DUT size exceeds the size of the module, an error message is displayed.

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DUT elements, which are not of BOOL or ARRAY OF BOOL type, are automatically byte aligned. If for example a BOOL input element is followed by a WORD input element, the WORD element will be byte-aligned by inserting seven padding bits between the BOOL and the WORD element. The padding bits do not show up in the type definition, but are accounted for when assigning the device addresses in the global variable declaration.

TYPE
tHA4SLV10MOD01:
STRUCT
<pre>bitSignal: BOOL:=FALSE;</pre>
<pre>wordData: WORD:=0;</pre>
END_STRUCT;
END_TYPE

This results in a total I/O size of 24 bits (i.e. three bytes), instead of the 17 bits occupied by the defined DUT elements.

**Note:** WORD and INT variables can only reference device addresses, which are word-aligned. If a WORD/INT element in a DUT refers to a position in the transfer buffer, which is not on a word boundary, the corresponding DUT element must therefore be copied. This results in additional program instructions and increased memory use. For more efficient code the user should therefore pay attention to the sequence of PROFIBUS slave modules within a slave and of the type and order of DUT elements for each slave module.

## **Class of DUT Element**

I/O Mapper				×
Identifier	Element Type	Class	User MIT-Address	Global Var. Identifier
Enter name of global variable>				
– input	ARRAY [07] OF WORD	Input 👻		
	ARRAY [07] OF WORD	Input		
Sector Context Action of Action and Action of Actiono		Output		

The class of a DUT element specifies the direction of the data transfer

Class	Direction of Data Transfer
Input	data from PROFIBUS slave to PLC CPU
Output	data from PLC CPU to PROFIBUS slave

If the corresponding module has only inputs or outputs, the 'Class' property is fixed. If the module

has both inputs and outputs, the user selects with the class property, whether the respective DUT element is located in the input or output area of the module.

To see the selection list click into the cell and click onto the button, which appears, or press **<F2>** to open the selection list.

## **User MIT-Address**

I/O Mapper				×
Identifier	Element Type	Class	User MIT-Address	Global Var. Identifier
Enter name of global variable>				
L output	ARRAY [07] OF BOOL	Output	<u>D200.0</u> 👻	

The user can assign an optional fixed device address to a DUT element. This device address will contain a copy of the respective DUT element. This feature benefits users, which always use the same device address for a certain function and do not want to use the symbolic access via a global variable name.

If the user clicks in the cell for the 'User MIT-Address' or presses **<F2>**, a button appears in the cell. Pressing the **<F4>** button opens a list of supported device types and address ranges. When a device type in this list is selected, the selected device type with address 0 is copied to the cell.

I/O Mapper				×
Identifier	Element Type	Class	User MIT-Address	Global Var. Identifier
Enter name of global variable>				
L output	ARRAY [07] OF BOOL	Output	D200.0 👻	
			X[0-1FFF] Y[0-1FFF] L[0-32767] M[0-32767] D[0-25983] R[0-32767] B[0-7FFF] W[0-657F] ZR[0-4184063]	

For example if the entry 'M[0-8191]' has been selected in the list, the device 'M0' is copied to the cell. This default device address must then be edited by the user.

I/O Mapper				×
Identifier	Element Type	Class	User MIT-Address	Global Var. Identifier
Enter name of global variable>				
L output	ARRAY [07] OF BOOL	Output	MO	

For BOOL elements the device must be a bit type or a word type with bit index.

If the user specifies a global variable name together with the device address, the global variable is placed at the specified device address. Only a single 'LD/ST pair is used to transfer data from/to the user device and global variable element (except for ARRAY OF BOOL elements).

If the user does not specify a global variable name, but just a user device address, a temporary variable name is generated. This allows to create the same structure of POU code independently of whether a variable name has been specified or not.

## **Global Var. Identifier**

I/O Mapper				×
Identifier	Element Type	Class	User MIT-Address	Global Var. Identifier
myDUTvariable				
– ModuleReady	BOOL	Input		myvariable
└── ForcedOutputMode	BOOL	Input		

The user can assign an optional additional global variable (GV) identifier to each DUT element. This adds the definition of a variable with the same type as the corresponding DUT element and the name entered by the user. This global variable contains a copy of the data of the corresponding DUT element. The identifier must be unique and may not be a device address.

The user defined global variable allows to use a simple fixed variable name instead of accessing the data via the DUT global variable. For the example in the previous figure the data can be accessed

- 1. via the simple global variable 'myvariable' or
- 2. via the DUT element 'ModuleReady' of the DUT GV 'myDUTvariable', i.e. 'myDUTvariable.ModuleReady'

Program code with

- 1. declaration of DUT
- 2. declaration of DUT variable with device addresses for DUT elements
- 3. declaration of user variable mapped to same device address as corresponding DUT element

```
TYPE
```

11FD
tHA4SLV12MOD2:
STRUCT
<pre>ModuleReady: BOOL:=FALSE;</pre>
<pre>ForcedOutputMode: BOOL:=FALSE;</pre>
END_STRUCT;
END_TYPE
VAR_GLOBAL
<pre>myDUTvariable AT @'%MX0.100.8,%MX0.200.4': tHA4SLV12MOD2;</pre>
END_VAR
CONFIGURATION scConfiguration
RESOURCE scResource ON scResourceType
VAR_GLOBAL
<pre>myvariable AT %MX0.100.8: BOOL:=FALSE;</pre>
END_VAR
END_RESOURCE
END_CONFIGURATION

When the DUT is validated and global variable names are used several times, an error message with a list of global variable names is displayed (please notice that global variable identifiers are case-sensitive).

I/O Mapper				×
Identifier	Element Type	Class	User MIT-Address	Global Var. Identifier
– output	ARRAY [01] OF BOOL	Output		gvName
– output1	ARRAY [01] OF BOOL	Output		
L output2	ARRAY [02] OF BOOL	Output		
The following global variable Press 'OK' and return to the l	identifiers are not unique. TO Mapper to correct the	values.		οκ

**Note**: the I/O mapping editor checks only the global variable names in the editor. A check of all variable names used in the project is done, when the POU is exported (see '<u>Check of Global Variable</u> <u>Identifiers</u>').

## Insert/Remove DUT Elements

Functions for changing the structure of the DUT are called via a context menu. The context menu differs depending on the type of row, which is selected in the table.

The context menu, if the DUT variable row is selected

I/O Mapper				×
Identifier	Element Type	Class	User MIT-Address	Global Var. Identifier
Enter name of clobal wariable >				
L input	hind	Input		

The context menu, if a DUT element row is selected

I/O Map	per						×
Identifier		Element	: Туре	Class	User MIT-Address	Global Var. Identifier	
Enter name of global variable>							
L input			DOOI		Input		
		Insert Element befor	re			.!	
		Insert Element behin	ıd				
		Remove Element					

The user can change the structure of a DUT by adding or removing elements. The context menu in the DUT table contains the items

Menu Item	Function
Insert Element before	adds a new DUT element above the currently selected one

	If the new element is not the first one, its default settings are copied from the previous DUT element, identifier and MIT-address are incre- mented.
Insert Element behind	adds a new DUT element below the currently selected one
	The default settings of the new element are copied from the previous DUT element, identifier and MIT-address are incremented.
Remove Element	removes the selected DUT element

The following screenshot shows the incremented identifiers and user MIT-addresses.

1	/O Map	per				×
Ide	ntifier		Element Type	Class	User MIT-Address	Global Var. Identifier
Ξ	<enter n<="" td=""><td>ame of global variable&gt;</td><td></td><td></td><td></td><td></td></enter>	ame of global variable>				
F	input		BOOL	Input	M12	
F	input1		BOOL	Input	M13	
	input2		BOOL	Input	M14	

**Note:** the DUT elements of predefined DUTs (e.g. for ST1H-PB) cannot be changed. For these DUTs the element identifier, type and class are read-only.

\*

# 5.3 Export Tasks

Ex	port	Tasks

Configuration Image...

Project in GX Configurator-DP Format...

Command	Description
POU Generation	Generates import file and user library for import in GX Works2 and GX IEC Developer For availability and restrictions please see the following section <u>'POU Generation'</u> .
Configuration Image	Generates the binary download configuration image and writes it to a file
Project in GX Configurator- DP Format	Exports project file in GX Configurator-DP file format. This function is only available when GX Configurator-DP is integ- rated in GX Works2.

## **POU Generation**

This GX Configurator-DP function is not available in the following circumstances:

- for A-series CPUs
- for A(1S)J71PB92D
- for QJ71PB92D in operation mode '0'
- when using GX Configurator-DP integrated in GX Works2 in any other than the European version
- when using GX Configurator-DP integrated in the GX Works2 European version with GXW2 'simple'

projects except for Q-series Remote I/O

**Note**: any changes in the master configuration, which change the I/O structure (i.e add/remove slaves or modules), require to generate the I/O Mapping-POU again and to repeat the import.

This function generates PLC program code for GX Works2 (GXW2) and GX IEC Developer (GID), which assists the application programmer in accessing slave input and output. GX Configurator-DP generates an ASCII file (.asc) and a user library (.sul). The ASCII file contains the task definition and the reference to the user library. The user library contains the DUT definitions, global variable declarations and program instructions for I/O mapping. The ASCII file must be imported in GX IEC Developer. The user library referenced therein is automatically imported as well. Because the ASCII file contains the absolute path of the user library, the user library must not be moved to a different directory.

The user can select the directory and the name of the POU ASCII file. The file name must start with a letter and not have more than 24 characters. The file name is also used as name for user library and program.

Select the POU file (for Q02(H))		<u>?</u> ×
Save in: 🔂 Projects	- E 🕂 🎟 -	
My Recent Documents My Recent Documents My Documents My Documents My Computer My Computer	Carley Control	
My Network File <u>n</u> ame: Places Save as <u>typ</u> e:	test_dpv1.asc	<u>S</u> ave Cancel

The user library is located in the same directory, but with the extension '.sul' instead of '.asc'.

**Note**: if the PROFIBUS master is located in a Q-series 'Remote I/O' rack, the POU must be imported in the GID project for the controlling PLC, not the project of the 'Remote I/O' rack.

If in a A(1S)J71PB92D project the selected transfer setup references an A-series connection, no POU is exported. A message is displayed instead to inform the user that POUs for A(1S)J71PB92D projects can only be created for QnA CPUs.

MELSOFT	GX Configurator-DP	×
<b>i</b>	There is no POU support for A-series PLCs. Please select a QnA-CPU in the transfer setup to create a POU for a A(15)J71PB92D module.	л
	OK	

## **Check of Buffer Device Addresses**

The POU does only support word devices for transfer buffers. If a bit device has been assigned to the input or output transfer buffer or even no device address has been assigned to inputs and/or outputs, the user is informed that the inputs and/or outputs will not be included in the POU code.

If 'Block Transfer' is selected:

MELSOFT	GX Configurator-DP
<b>į</b>	You must assign a valid word device address to the input transfer buffer. Otherwise the inputs will not be transferred in the POU.
	OK Cancel

#### If 'Slave Specific Transfer' is selected:

MELSOFT	GX Configurator-DP X
<b>į</b>	'Slave specific transfer' is selected, but some slaves have no valid word-devices assigned to their input and/or output area. Unless you select 'block transfer' or assign the missing devices, the I/O data of these slaves will not be transferred as part of the POU.
	OK Cancel

## **Check of Global Variable Identifiers**

Global variable identifiers must be unique. This restriction is checked for all global variable names used within the PROFIBUS master user library.

Global variable identifiers are not case-sensitive. Therefore the use of 'gvname' with different forms of capitalization results in following error messages

Errors while checking entries	×
The following global variable identifiers are not unique. Press 'OK' and return to the I/O Mapper to correct the values.	
GVName: defined in 'slave FDL:1 module slot:1' GVNAME: defined in 'slave FDL:2 module slot:1' gvname: defined in 'slave FDL:2 module slot:2'	
	11.

The variable names must be changed in the <u>I/O Mapper</u>, before POU and user library can be exported.

**Note:** because only the current master configuration can be checked, variable identifiers may conflict with the variable identifiers used in other master configurations, if multiple master modules are used within the same PLC rack.

### **Check Overlapping Device Addresses**

Device addresses, which have been assigned to DUT elements (see 'User MIT-Address') or to buffer

areas (see 'CPU Device Access'), are checked for conflicts.

If device areas overlap, the conflicting nodes and device addresses are listed.

Errors while checking entries		×
Some device addresses overlap. Press 'Cancel' and correct the input or 'OK' to ignore and continue.		
Slave_Nr_002: D200.0 overlaps with Slave_Nr_002: D200.1 QJ71PB92V[bufferClass=input]: D1000 overlaps with Slave_Nr_001: D100	OK Cancel	
		//.

The user can either ignore the conflicts and proceed by pressing **OK** or press **Cancel** and open the corresponding input dialog to change the device addresses.

## **Configuration Image**

With this menu command the user is prompted for a file path to store the configuration image, which is generated from the current project. The configuration image contains the binary encoded structure of master and slave parameters as they are stored in the master. Its contents are therefore specific for the type of the master.

Select file for configuration image				? ×	
Save jn:	🗀 Q26UD		-	🗕 🗈 💣 🎟	
My Recent Documents Desktop My Documents My Computer	System Resource				
My Network	File <u>n</u> ame:	gxdp_config_img.dpi		•	<u>S</u> ave
	Save as type:	DP Master Image file (*.dpi)		•	Cancel

## **Project in GX Configurator-DP Format**

This task item is anly available in the integrated version of GX Configurator-DP. The user is prompted for a file path to store the current project into.

🍠 Select project f	file			<b>—</b> ———————————————————————————————————
Save in:	\mu prj	•	← 🗈 📸 🖛	
Ca	Name	*	Date modified	Туре
Recent Places		No items match your s	earch.	
Desktop				
Libraries				
Computer				
Network				
	•	III		+
	File name:	PB92v_stahldp12_GXDP708.dp2	•	Save
	Save as type:	DP2 project file (*.dp2)	-	Cancel

\*

# 5.4 Import Tasks

## Import Tasks

Import GX Configurator-DP Project... Add GSD File..... Import GSD Database...

Command	Description
Import GX Configurator-DP Project	Imports GX Configurator-DP project file (*.dp2, *.dpx). The behaviour is similar to the <u>'Open Project'</u> menu item. Only available in the integrated version of GX Configurator-DP
Add GSD File	adds the contents of a GSD file to the device database
Import GSD Database	import device types from a GSD database or a project file

# Import GX Configurator-DP Project

This task item is only available in the integrated version of GX Configurator-DP.

E Select project	file			×
Look in:	📔 Profibus Proj	ects 💌	- 🗈 💣 💷	
Recent Places	Name Q06UDEH_ Q10UDH_Li Q50UDEH_ Q50UDEH_ Temp DP Q10UDH_Li	Control ine Comm Comm2 ine_QJ71PB92V_Export.dp2	Date modified 2011.08.17. 10:00 2011.08.17. 10:00 2011.08.17. 9:59 2011.08.17. 10:00 2011.08.22. 13:37 2011.08.17. 10:03	Type File folder File folder File folder File folder GX Config
	•	m		4
	File <u>n</u> ame: Files of <u>type</u> :	DP2 project file (*.dp2)	• •	Open Cancel

The starting I/O address stored in the GX Configurator-DP project will be ignored during import, and the starting I/O address of the module already set will be kept.

In case of master modules, importing a project created for another type of Q-series master will be possible with the following conditions:

- Settings which exist for both the source and the target module type will be imported without change.
- Settings which exist for the source module type but not for the target module type will not be imported.
- Settings which exist for the target module type but not for the source module type will be set to default.
- If the settings cannot be imported due to a hardware limitation, an error message will be displayed and the project will not be imported. For example, QJ71PB92D modules can have maximum 60 slaves, but in a QJ71PB92V project there may be more than 60, because QJ71PB92V modules support 125 slaves. In that case import will fail with this error message:

MELSOFT GX C	onfigurator-DP
The The	e project could not be imported. e master supports 60 slaves as maximum.
	ОК

In case of master modules the following message will be displayed if the opened project has a different Q-series master module type than the current module:

MELSOFT	GX Configurator-DP	83
<u> </u>	The selected project was made for a different type of PROFIBUS-DP master module: QJ71PB92D.	
	Yes No	

	Name	Description	Choices / Set- ting range	Default
1	-	Actual module type of project	QJ71PB92D, QJ71PB92V	-

In addition, if a QJ71PB92D Mode 0 project is selected to be imported to a master module, the following message will be displayed:

MELSOFT	GX Configurator-DP	x
<b></b>	The selected project was made for operating mode 0 (32 byte I/O) It will be changed to operating mode E (244 byte I/O). Are you sure you want to import this project?	
	<u>Y</u> es <u>N</u> o	

In case a Q slave QJ71PB93D project is attempted to be import to the configuration of a master module, the following message will be displayed:



In case a Q-series master module project is attempted to be imported to a QJ71PB93D configuration, the following message will be displayed:

MELSOFT	GX Configurator-DP	×
<u>^</u>	The selected project was made for a PROFIBUS-DP master module: QJ71PB92V	
	OK	

	Name	Description	Choices / Set- ting range	Default
1	-	Actual module type of project	QJ71PB92D, QJ71PB92V	-

In case an unsupported module's project is attempted to be imported, the following message will be displayed:

MELSOFT	GX Configurator-DP	×
<u>^</u>	The selected project was made for an unsupported PROFIBUS-DP module: FX3U-64DP-M.	
	ОК	

	Name	Description	Choices / Set- ting range	Default
1	-	Actual module type of project	-	-

If the Import has been completed succesfully, the following message is displayed:

MELSOFT GX Configurator-DP
The project was successfully imported.
ОК

# 5.5 Documentation Tasks

Documentation	۲
Project Documentation Documentation of I/O-Mapping	

Command	Description
Project Documentation	Generates an HTML file, which can be printed or stored, with the cur- rent configuration settings and displays the file in the default web browser
Documentation of I/O- Mapping	Generates an HTML file, which can be printed or stored, with informa- tion on I/O mapping (e.g. buffer devices, data structures, variable names) and displays the file in the default web browser

## **Project Documentation**

Selecting the corresponding task item generates a temporary HTML file with the project settings and opens the default web browser to display the file. The user can either save the file for electronic documentation or print it with the print function of the browser, which provides all necessary formatting options.

🕲 qpb	92 <b>v_</b> test.dp2 - Mozilla Firefox		_ 🗆 🗙
<u>File E</u>	dit <u>V</u> iew Hi <u>s</u> tory <u>B</u> ookmarks <u>T</u> ools <u>H</u> elp		
$(\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{$	🔊 - C 🗙 🏠 🗋 file:///e:/tmp/SYSTEM~1/g	gxdp_118.dp2.printproj.html 🏠 🔹 🗔 🕻 Goog	jle 🔎
	Project: qpb	92v_test.dp2	
	Comment		
	PLC Project		
	•	•	
	Master: Q	J71PB92V	
	FDL address	0	
	Ident number	0x925	
	Module	QJ71PB92V	
	Vendor	MITSUBISHI ELECTRIC CORPORATION	
	Name	PROFIBUS Master	
	Baudrate in bps	1.500.000	
	Starting I/O number	0x0	
	Goto 'Clear' state	no	
	Min. slave interval in ms	8	
	Polling timeout in ms	50	
	Maximum input size in bytes	244	
	Maximum output size in bytes	244	
	Watchdog for time sync.	0 ms	
	Slave Watchdog time	inactive	
	Bus Pa	rameter	
	Baudrate (bps)	1.500.000	
	Slot Time (T_sl)	300	
	min T_sdr	11	-
Done	•	S	Proxy: None

**Note**: the project documentation lists the selected modules of each slave. The 'slot index' is the sequential index of the module. It is not necessarily identical with its physical slot, as it is displayed for example by the configuration tool of the slave. At the end of the project document a note describes the slot index.

Output length (in bytes)		2		
Slot index	Modul na	me	User parameter	Configuration data
0	MT-Y8T		00	20
1	MT-X8		00	10
2	MT-4AD		0000000	50505050
3	MT-Y8T		00	20

Slot index	The 'Slot index' table is the sequential index of the module. It is not necessarily identical with its physical slot, as it is displayed for example by the configuration tool of the slave.
------------	--

## **Documentation of I/O-Mapping**

The I/O mapping information can be exported into a separate HTML document. This document lists the global variables for the DP slave modules. It also contains the definition of all exported DUT variables along with the buffer device addresses of each DUT element.

The device addresses are entered in MIT format in the GX Configurator-DP dialogs, but exported with the POU in IEC format. Therefore both formats are displayed in the columns for user and buffer MIT address. The IEC address is displayed in brackets next to the corresponding MIT address.

If global variable names or user device addresses have been assigned to individual DUT elements, these variable names and device addresses are listed as well.

The HTML document is displayed in the default web browser. Using the print menu of the web browser the document can be printed. The file can also be saved to a different path for electronic documentation.

Links constructed from the DUT variable names allow the user to navigate within the document between the PROFIBUS network structure and the definition of the corresponding DUT variable.

05	
30	

DB02y stable									_
-052v_starilut	p12_GXDP708.dp2	2	+						
52 🕲						▼ -	> Soog	le	
			Project: PB	92v_	stah	ldp12_GXDP7	708.dp2		
FDL Addr.	Name Model		Modules						
					Slot	t Mode		Glo	obal Var.
1	Slave_Nr_00	1_1	ST1H-PB Byte Packi	ng	0	ST1H-PB with cmd. w consist.	hole	VHA0SLV1M	OD0
			(ver. B)		1	ST1PSD		-	
					2	ST1X2-DE1 2/-/-		VHA0SLV1M	<u>0D2</u>
					Slot	t Mode		Gle	obal Var.
10	Slave_Nr_00	2	MT-DP12			MT-X8		VHAUSEVIU	MODU MOD1
					2	MT-4AD		VHA0SLV10	MOD2
					3	MT-Y8T		VHA0SLV10	MOD3
100	Clave Nr. 00		161.2	2		t Mode	<b>I</b>	Glo	obal Var.
120	Slave_N_00	1	151_2			9440/15-01-11 CPM	22 Stahl 24V	VHA0SLV120	<u>JMODO</u>
				Gloi	<u>1</u>	9471/10-16-11 DIM : /ariables	16 24V	VHA0SLV120	DMOD1
lave_N	r_001_1	.Mod	lule Slot 0 : v	Glol /HA0	bal V SLV:	/ariables 1MOD0	<u>16 24V</u>	VHA0SLV120	DMOD1
lave_N Eler	r_001_1 nent	.Mod	lule Slot 0 : v ement Type	Gloi /HA0 Cla	al V SLV ss	/ariables 1MOD0 User	Globa	<u>VHAOSLV120</u> I Var. tifiar	Buffer
blave_N Eler Iden	r_001_1 nent itifier	.Mod	lule Slot 0 : v ement Type	Glol /HA0 Cla	ss	/ariables 1MOD0 User MIT-Address	Globa Iden	<u>WHAOSLV120</u> I Var. tifier	Buffer MIT-Addres D2000 (%MW0,2000)
blave_N Eler Iden ImdReg	r_001_1 nent itifier	.Mod Ele ARRA	Iule Slot 0 : v           ement Type           Y [018] OF WORD           Y [018] OF WORD	Glol /HA0 Cla Outr Inp	ss out ut	/ariables 1MOD0 User MIT-Address - -	Globa Iden	<u>HAOSLV120</u> I Var. tifier	Buffer           MIT-Addres           D2000           (%MW0.2000)           D1000           (%MW0.1000)
Slave_N Eler Iden IndReq IndRsp	r_001_1 nent tifier r_001_1	.Mod Ele ARRA' ARRA'	lule Slot 0 : v ement Type Y [018] OF WORD Y [018] OF WORD	Glol /HA0 Cla Outr Inp	ss but sLV	/ariables 1MOD0 User MIT-Address - - 1MOD2	Globa Iden	<u>WHAOSLV120</u> I Var. tifier	Buffer           MIT-Addres           D2000           (%MW0.2000)           D1000           (%MW0.1000)
Slave_N Eler Iden ImdReq ImdRsp Slave_N Eler Iden	r_001_1 nent ntifier r_001_1 nent ntifier	.Mod Ele ARRA ARRA .Mod	lule Slot 0 : v ement Type Y [018] OF WORD Y [018] OF WORD lule Slot 2 : v ement Type	Glol /HA0 Cla Outr Inp /HA0	ss out SLV ss out SLV	/ariables /ariables 1MOD0 User MIT-Address - - 1MOD2 User MIT-Address	Globa Iden Globa Iden	l Var. tifier l Var. tifier	DMOD1 Buffer MIT-Addres D2000 (%MW0.2000) D1000 (%MW0.1000) Buffer MIT-Addres
Slave_N Eler Iden IndRsp Slave_N Eler Iden	r_001_1 nent itifier r_001_1 nent itifier	.Mod Ele ARRA' ARRA' .Mod	Iule Slot 0 : v ement Type Y [018] OF WORD Y [018] OF WORD Iule Slot 2 : v ement Type BOOL	Glol /HAO Cla Outr Inp /HAO Cla Inp	1 SLV SS U SS U SS U SS U SS U U SS U U S S U U S S S U S	/ariables 1MOD0 User MIT-Address - 1MOD2 User MIT-Address -	Globa Iden Globa	I Var. tifier tifier	Buffer           MIT-Addres           D2000           (%MW0.2000)           D1000           (%MW0.1000)

The I/O mapping documentation is also very useful for users of GX Developer (GD). Because GX Configurator-DP only generates code for GX IEC Developer (GID), GD users cannot import the PLC code exported from GXDP. They can however lookup the device addresses of PROFIBUS I/O points in the documentation and manually add them to their GD program.

**Note**: bit devices, which have been assigned to the transfer buffers, are not supported by I/O mapping. They are equivalent to having no device address assigned. Therefore the 'Buffer MIT Address' column remains empty for bit devices.

# 5.6 Diagnostics Tasks

The available diagnostic functions depend on the type of master module selected in the current project.

**Note:** In the integrated version of GX Configurator-DP the diagnostic function are accessible via the 'Tool' menu of the GX Works2 application.



Diagnostic functions, which access the configuration of the master, can only be executed, if cyclic data transfer has been started. Extended information like slave-specific error messages require additionally that the PROFIBUS configuration of the master matches the active project. Both conditions are checked, when one of the functions 'Slave Status', 'Diagnosis Messages' or 'Slave I/O Test' is started.

If the cyclic data transfer is stopped, an error message is displayed.

MELSOFT	MELSOFT GX Configurator-DP								
1	The cyclic data transfer has not yet been started. The requested information is therefore not available.								

If the I/O structure of the master (i.e. number of slaves, their FDL addresses and I/O sizes) differs from the project:

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## **Turn on/off Monitor Mode**

While in monitoring mode, the current PROFIBUS configuration cannot be modified.

Diagnostics	۲
🔁 Turn off Monitor Mode	

Selecting the item 'Turn off Monitor Mode' stops the monitoring and changes the application to 'edit' mode. The icon and the text of the task item change together with the change from 'Monitor' to 'Ed-itor' mode.

Diagnostics	۲
🔁 Turn on Monitor Mode	

If diagnostic views with monitoring function (<u>'Slave Status</u>', <u>'Diagnostic Messages</u>') are open, selecting 'Turn on Monitor Mode' activates the monitoring in these views. The monitoring in the <u>'Slave I/O</u> <u>Test'</u> view must be started manually within the view.

If the item 'Turn on Monitor Mode' is selected, while no view is open, for which monitoring can be activated, the following message is displayed.

MELSOFT	GX Configurator-DP
į)	There is no diagnostic view open, which supports monitoring ('Slave Status', 'Diagnosis Messages'). Please open a monitoring view first.
	OK ]

## **Slave Status**

Diagnostics	۲
😂 Turn on Monitor Mode	
Slave Status	
Diagnosis Messages	
PLC Autorefresh Settings	
Slave I/O Test	

i 🔁 s	lave S	tatus							>
0	1	2	3	4	5	6	7	8	9
10	11	12	13	14	15	16	17	18	19
20	21	22	23	24	25	26	27	28	29
30	31	32	33	34	35	36	37	38	39
40	41	42	43	Slave EDL ac	parar idress:	neters 34			9
50	51	52	53	Slave	status:	Slave h	as diag	. messa	ges 9
60	61	62	63	64	65	66	67	68	69
70	71	72	73	74	75	76	77	78	79
80	81	82	83	84	85	86	87	88	89
90	91	92	93	94	95	96	97	98	99
100	101	102	103	104	105	106	107	108	109
110	111	112	113	114	115	116	117	118	119
120	121	122	123	124	125				
Slave is inactive Cycle time (in ms)									
Slar	ve has ( ua has l	diag. me Kale	essages	;	Now	6			
Sla <sup>r</sup>	ve has i ve has i	no link			мах	5 14			

The purpose of the 'Slave Status Matrix' is to provide a fast overview of the communication situation within the PROFIBUS network. A two-dimensional matrix of rectangles shows all possible device addresses within a PROFIBUS network. The state of a slave with a certain FDL address is signaled by the color of the corresponding rectangle:

Color	Meaning	
light grey	no device with this address included in the configuration	
dark grey	slave has not been selected as 'Active' in the slave settings dialog	
	(restriction for A(1S)J71PB92D and QJ71PB92D see note below)	
yellow	slave has sent diagnostic information	
green	slave is included in the cyclic data transfer (has a link)	
	(restriction for A(1S)J71PB92D and QJ71PB92D see note below)	
red	communication with slave failed, i.e. no link (the master may have generated a diagnostic message stating the exact reason. This message is added to the 'Diagnostic Messages' table)	
	(restriction for A(1S)J71PB92D and QJ71PB92D see note below)	

Additionally to the color display the user can double-click a rectangle and see in a tooltip-window a more detailed description of the device state.

Cycle time (in ms) Now 6 Min 3 Max 14

Below the grid with the slave states the view shows the current actual bus cycle time, which is continuously measured by the master. Additionally the minimum and the maximum of the bus cycle time, since the data transfer has been started, are displayed (values only provided by QJ71PB92V

### and FX3U-64DP-M).

**Note**: the older PROFIBUS master modules AJ71PB92D and QJ71PB92D do not provide the states 'active/ inactive' and 'link/no link' online. This information is obtained by:

- 1. *active/inactive*: the 'active'state of the slave in the current project, which has the same FDL address, is displayed, if the I/O structure of the master matches the one of the active project
- 2. *link/no link*: if the slave is active and the 'has diag. messages' flag is not set, the slave state is 'link' (i.e. green). The state 'no link' (i.e. red) is never displayed.

## **Diagnosis Messages**

Diagnostics	۲
😂 Turn on Monitor Mode	
Slave Status	
Diagnosis Messages	
Slave I/O Test	
Live List	

🗧 PROFIBUS Diagnosis 🔹 👻					
Entry time		Slave name	FDL add	Status	Message
18.09.2008 00:1	15:05	Slave_Nr_002	12	Δ	Exchange with the slave cannot be conducted
18.09.2008 00:1	15:05	Slave_Nr_001	10	Δ	Exchange with the slave cannot be conducted
	_				
		Start			
		Stop			
		Clear			
		Export			
		Export			

This view lists messages for PROFIBUS events as well as diagnostic information coming from slave devices. Slave specific error codes are translated to test messages using the entries of the GSD file of the slave type. The number of messages is limited to 1000. If more messages are received, the oldest messages are removed from the list.

Column	Description			
Entry time	time, when the message was received in the PC			
	Note: the master does not provide a time mark with the message			
Slave name	name assigned by the user			
FDL address	station address of the device			
Status	icon (information, exclamation, stop)			
	Note: at present the table only contains diagnostic messages, which have either been generated by the master or have been sent by a slave. These entries are all marked with the 'exclamation'			
Message	diagnostic text (either standardized message or slave specific text from GSD file)			

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)
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ort

A popup menu can be opened from the caption, which provides the functions

Menu Item	Description
Start	starts the continuous update of the message window
Stop	stops the update
Clear	deletes all messages from the window
Export	exports the messages to a CSV file selected by the user

The same popup menu is also opened as context menu, when the right-mouse button or the 'con-text-menu'-key on the keyboard are clicked.

Start
Stop
Clear
Export

The current communication status is indicated by an icon in the caption

	🗧 🔁 PROFIBUS Diagnosis						
Online	Entry time	Slave name					
	25.11.2008 18:44:59	Slave_Nr_001					
	🕴 🚾 PROFIBUS Diag	gnosis					
Offline	Entry time	Slave name					
	25.11.2008 18:44:59	Slave_Nr_001					

**Note**: the master modules AJ71PB92D and QJ71PB92D have a limited storage capacity for diagnostic messages. They can only store eight standard messages and extended diagnostic information only for one event. This can result in diagnostic messages not being stored and thus not displayed.

## Slave I/O Test



Selecting the item 'Slave I/O Test' in the 'Diagnostics' task group opens a view, which provides read/ write access to the slave input/output areas in the buffer memory of the PROFIBUS master.

Slave I/O 1	ſest	:																×
Slave		Slave	∋_Nr.	_001	~					•	Sta	art Me	onito	r				
<u>V</u> alue format		• In WOR	PUts ID (1	6 bit	o hex.	<u>O</u> ut  )	puts			•	_	writ	:e					
_ Byte Order		WOR DWO INT (	D (1) RD ( 16 bi	6 bit 32 bi it der	hex. t he× timal)	) )												
Addr (Dec)	.F	DINT	(32	bit de	ecima	i)				╧	.5	.4	.3	.2	.1	.0	Value	
6144	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6145	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6146	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6147	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6148	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	•

Control / Command	Description	Range	Default		
Slave	select slave from list of slave nodes in project	slaves in project	slave selected in project tree or first slave		
Value format	format of item in 'Value' column	see list below	16 Bit (decimal)		
Byte order	byte order for numerical value formats	Little Endean (Intel) Big Endean (Motorola)	Little Endean		
Start/Stop Monitor	starts respectively stops the cyc- lic update of the table with the buf- fer contents read from the PROFIBUS module	'Start Monitor', if mon- itoring is stopped; 'Stop Monitor', when monitoring is active	'Start Monitor'		
Write	write the buffer contents to the PROFIBUS module	disabled while in mon- itoring; otherwise en- abled			
Buffer table	buffer contents displayed as bits and in the selected value format see detailed description below				

### Value formats

WORD (16 Bit hex.)	one word as unsigned hexadecimal number
DWORD (32 Bit hex.)	two words as unsigned hexadecimal number
INT (16 Bit decimal)	one word as signed decimal number
DINT (32 Bit decimal)	two words as signed decimal number

### Byte order

Low byte first	low byte on lower address, e.g.
(little Endean / Intel)	a WORD value 0x1234 is the byte sequence 0x34, 0x12
	a DWORD value 0x12345678 is the byte sequence 0x78, 0x56, 0x34, 0x12
High byte first	high byte on lower address, e.g.
(big Endean / Mo-	a WORD value 0x1234 is the byte sequence 0x12, 0x34
torola)	a DWORD value 0x12345678 is the byte sequence 0x12, 0x34, 0x56, 0x78

## **Buffer table**

Column	Description									
Address	word address in user area of buffer memory									
.F0	value of bit with the respective index in hex									
	.6     .5     .4     .3     .2     .1     .0     Value       1     0     1     0     0     0     0     64       0     0     0     0     0     0									
	The bit can be edited by a double-click in the cell.									
Value	value of buffer contents displayed in the selected value format If the value size is two words, the value is only displayed in the row of the first word; the 'Value' column for the second word remains empty.									
	.3     .2     .1     .0     Value       1     0     1     0     B000A									
	1 0 1 1									
	1         1         0         0         D0000C           1         1         0         1									
	The value can be edited by a double-click in the cell.									
	.0     Value       0     54       0     0									
#### Highlighting of changes

Mode	Description				Dis	olay	7	
Monitoring	If a value changes during monitoring compared with the value read in the first update, it is displayed in red bold digits and letters.When monitoring is stopped, the highlighting re- mains, until monitoring is restarted or the user be- gins to edit the buffer. In both cases (monitoring and editing) the display begins with no highlighting.If there is a communication break during monitoring between PC and PLC, the background of the table is colored in light red to indicate to the user that the values are not updated. While monitoring is active, GX Configurator-DP checks the connection and reconnects, if the PLC is online. The back-			Value 10 11 12 Value F1F5 EFFF ECFFF				
Editing	If a value is changed during editing, the value is displayed in black bold digits and letters. If the values have been successfully written to the PROFIBUS module, all highlighting is cleared.	.5 0 1	.4 0 0	.3 0 0	.2 0 0 1	.1 0 0	.0 0 0	Value 3

**Note**: the user must be aware that slave inputs are overwritten in buffer memory, if the PROFIBUS (i.e. the cyclic data transfer) has been started. So the table may not display the actual buffer contents. Correspondingly the outputs could be overwritten by the PLC program or by autorefresh, if the CPU has not been stopped.

### Slave Live List (only FX3U-64DP-M in stand alone version of GX Configurator-DP)



Slave Live List			
Index	FDL address	ldent. number	
	10	0×F037	
	12	0x1712	

This function is very useful for detecting the network address and the ID of slave devices in a PROFIBUS network. The master scans the PROFIBUS address range and returns the FDL address and the ident number of each slave, which is connected to the network (slave must be powered on to

be recognized). The slaves found are displayed in a list.

**Note**: the 'Live List' cannot be accessed during data transfer. This condition is checked and the user is asked to stop the data transfer with 'Start/Stop PROFIBUS'.

MELSOFT	GX Configurator-DP	×
<u>.</u>	Data transfer must be stoppe	ed first
	OK	

### PLC Autorefresh Settings (only Q-series)

Diagnostics	۲
🔁 Turn on Monitor Mode	
Slave Status	
Diagnosis Messages	
PLC Autorefresh Settings	
Slave I/O Test	

Autorefresh Settings						
Start I/O No.	Module Type	Consistency Device	In- /Output	Buffer Address	Buffer Size	Device Address
0~0		V XD-	input	6144	16	D1000
0.00	QJ/ IPD92 V		output	14336	16	D2000
0×40	0.174.08020		input	0	16	D200
	QJ/1PB93D	/1PB93D	output	256	16	D216

This function reads the IPARAM.QPA file from the CPU, decodes it and displays the settings sorted by starting I/O number.

The table contains the following columns:

Column	Description
Start I/O No.	starting I/O number of module
Module Type	type name of module
Consistency Device	sequence of devices for consistency checks
In-/Output	input: from buffer memory to device
	output: from device to buffer memory
Buffer Address	word address in user area
Buffer Size	size of buffer in words
Device Address	start address of device area in CPU

Note: this function cannot read autorefresh settings from a Q-series Remote I/O.

# 6 Configuration of QJ71PB93D Slave Modules

The QJ71PB93D is a module for Q-series PLCs, which provides a PROFIBUS DP V0 communication interface. Most of the configuration is done at startup by the respective PROFIBUS master. Only few parameters e.g. for autorefresh can be set from GX Configurator-DP.



### **Q-Slave PROFIBUS Settings**

DP QJ71PB93D Parameters Wi	izard - PROFIBUS Settings	×
Starting <u>1</u> /O number	0 [0x0 - 0xFE0]	
PROFIBUS Settings F <u>D</u> L Address	1 [0 - 125]	
Cancel	Back <u>N</u> ext	Default

Name	Description	Choices / Set- ting range	Default
Starting I/O number	g I/Ostarting I/O number of the module in the PLC rack[0x0 - 0xFE0]		0
	is read only in the integrated version of GX Configurator-DP		
FDL Address	FDL address (station number)	0 - 125	0
Cancel	close wizard and discard changes		-
Next	proceed to next wizard page		Default button
Default	set parameters back to their default values		

The FDL address of the slave is the only PROFIBUS parameter configured by GXDP. Other settings are made by the respective PROFIBUS master.

# **Q-Slave Autorefresh Settings**

IP QJ71PB93D Parameters	Wizard - Autorefresh Settings	×
Buffer Devices Enable Autorefresh Consistency		
I <u>n</u> put Size (in words) O <u>u</u> tput Size (in words)	8 [0-122] 13 [0-122]	
Input CPU Device	D1000 to D1007 D2000 to D2011	
	,,	
Cancel	<u>B</u> ack <u>E</u> inish	Default

Name	Description	Choices / Set- ting range	Default
Enable autorefresh	enable autorefresh	selected /	not selected
		not selected	
Consistency	enable consistency check for data	selected /	not selected
		not selected	
Input Size (in words)	max size of input area	0 – 122 words	0
Output Size (in	max size of output area	0 – 122 words	0

Configuration of QJ71PB93D Slave Modules

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Name	Description	Choices / Set- ting range	Default
words)			
Input CPU Device	start address of the device area, the inputs are copied to	device types sup- ported by autore- fresh	D1000 only enabled, if input size > 0
Output CPU Device	start address of the device area, the outputs are copied from	device types sup- ported by autore- fresh	D2000 only enabled, if output size > 0
Cancel	close wizard and discard changes		-
Back	returns to previous wizard page		-
Finish	save changes and close wizard		Default button
Default	set parameters back to their de- fault values		

#### Automatic Refresh

The automatic refresh function sets the automatic refresh parameters for the PROFIBUS slave QJ71PB93D in the parameter file stored in the System Q CPU. This file manages parameter data for all special function modules of the System Q.

Via automatic refresh the input and output areas of the PROFIBUS slave are transferred to or from a user definable device area in the CPU. This method provides direct and fast access without using FROM/TO instructions.

For details refer to the hardware manual of the QJ71PB93D slave module.

#### Consistency

The consistency function can be activated for System Q CPUs from OS version B (Sep. 2000). The consistency function interlocks simultaneous access to the buffer memory by the CPU and the DP slave. This way, data consistency especially required for high-speed applications is automatically ensured.

This interlock mechanism slightly decreases the transfer speed. Therefore, only enable the consistency function, if you require data consistency.

For details refer to the hardware manual of the QJ71PB93D slave module.

**Note**: only the FDL address, the autorefresh flag, and the consistency flag are transferred to the DP slave. The size settings in the slave parameter settings dialog are relevant only for the data exchange between DP slave and System Q CPU via autorefresh.

# 7 PROFIBUS Network Tree

**GX Configurator-DP** 

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#### The following nodes construct the project tree

Level	Туре	lcon	Display
1	Master	one icon for AJ71PB92D, QJ71PB92D and QJ71PB92V	I/O: <starting i="" no.="" o="">/FDL: <fdl address=""> '<type name="">'</type></fdl></starting>
		one icon for FX3U- 64DP-M	
2	Slave	slave type specific icon from device database	FDL: <fdl address=""> '<user name="">' (<type name="">) [I/O size=<nr bytes="" input="">/<nr bytes="" output=""> byte(s)]</nr></nr></type></user></fdl>
3	Module same fixed icon for	same fixed icon for	Slot: <slot (sequential="" index)=""> '<type name="">'</type></slot>
	all module types		<b>Note:</b> the slot number is the sequential index of the module. It is not necessarily identical with its physical slot, as it is displayed for example by the configuration tool of the slave.

When a new project is created, the project tree has only a master node, but no slave nodes. To inform the user of how slaves are added to the project, an 'information' node is displayed under the master node. This node is automatically removed, when a slave is added to the project.

#### PROFIBUS Network

Add slaves via Drag&Drop from GSD device tree

Slaves are added by dragging a slave type from the GSD tree and dropping it in the project tree.

Selected Node	Context Menu			
Master	PROFIBUS Network			
	Master Settings			
	P12) [I/O size=9/2 byte(s)]			
Slave	PROFIBUS Network			
	□ <b>1</b> I/O no.:0×10/FDL:0 'QJ71PB92V'			
	FI Slave Settings [I/O size=9/2 byte(s)]			
	FC Duplicate Slave [I/O size=1/8 byte(s)]			
	Remove Slave			
Module	-			

The configuration settings of master and slaves are accessed via entries in the context menu

Menu Item **Function** Master Settings Open the 'Master Parameters Wizard' for master settings and bus parameters. This function can also be started by double-clicking the master node. Sort by FDL address Toggles, how the slave nodes are sorted in the tree. If selected, the slaves are sorted by their FDL address, otherwise they are sorted by their user name. Slave Settings Open the 'Slave Parameters Wizard' with slave settings, module selection and user parameters. This function can also be started by double-clicking the slave node. **Duplicate Slave** Add a copy of the selected slave to the project. Remove Slave Remove the selected slave from the configuration.

#### **Duplicate Slave**

The configuration of a modular DP slave like the ST1H-PB involves several steps like selecting the modules and setting the module specific user parameters. If a PROFIBUS network includes several slaves of the same type, this may require to repeat the same actions for each slave again. To simplify the procedure it is possible to add an exact copy of an already existing slave to the project again.

If this menu item is selected, an additional slave with the same configuration (selected modules, user parameters etc.) is inserted into the PROFIBUS network.

**Note**: adding a slave changes the addresses of the I/O data in the buffer memory of the master. It is therefore necessary to update the PLC program and (if used) the autorefresh settings.

#### **Remove Slave**

A slave can be deleted from the project by right-clicking on the slave, open the context menu and select 'Remove Slave'

**Note**: deleting a slave changes the addresses of the I/O data in the buffer memory of the master. It is therefore necessary to update the PLC program and (if used) the autorefresh settings.

### 7.1 Master Parameters Wizard

The 'Master Parameters' wizard is opened by either double-clicking the master node in the project tree, by selecting the corresponding menu item from the context menu or from the task list.

PROFIBUS Network			
	Master Settings		
÷	Sort by FDL address	P12) [I/O size=9/2 byte(s)]	

#### **Master Settings**

This page provides access to general master parameters. The available parameters depend on the type of master selected in the project.

N <u>a</u> me	PROFIBUS N	1aster
3a <u>u</u> drate	1.5 Mbps	Bus Parameters
<u>-D</u> L address	0	[0 - 125]
Starting [/O number	000	[0x0 - 0xFE0]
Fror action flag	🔲 <u>G</u> oto 'Clev	ar' State
<u>M</u> in. slave interval 🔽 Calculate time	55	[1 - 65535] * 100 μs
Ž Use "Min. sla <u>v</u> e interval" for 'Target Token Rol	tation Time (T_tr)'	
Polling timeout	50	[1 - 65535] * 1 ms
Z Slave watchdog 🛛 🔽 Calculate time	3	[1 - 65025] * 10 ms
Estimated bus cycle time	5.500	ms
Vatchdog for time sync.	0	[0 - 65535] * 10 ms

Name	Description	Choices / Setting range	Default
Name	Project specific name of the master	1 - 16 chars	empty
Baudrate	Transfer rate for the PROFIBUS communica-	9.6 kBd – 12	1.5 MBd

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Name	Description	Choices / Setting range	Default
	tion. The selected baud rate must be suppor- ted by all slaves.	MBd	
Bus Paramet- ers	opens the 'Bus Parameters' dialog to edit the bus parameters for the selected baudrate		
FDL address	FDL address (station number)	0 - 125	0
Starting I/O number	Module head address respectively slot/index on the base unit	0 - 0xFE0 (Qn,QnA/A)	0 disabled
or Module Slot (FX)	If integrated this address will be set in the in- telligent function module properties dialog or in the I/O assignment page of the PLC para- meter dialog	this address will be set in the in- stion module properties dialog or signment page of the PLC para- in the integ- rated version of GX Configura- tor-DP this edit field is disabled	when integ- rated in GX Works2
Error action flag / Goto 'Clear' State	Output processing after failure. If this option is selected, the outputs are cleared in case of an error (recommended for drives, inverters etc.)	selected / not selected	not selected
	For the PLC application this means:		
	when a network error occurs, all outputs of the network are turned OFF and no dia- gnostic information from the slaves is re- turned.		
Calculate time	if selected, the min slave interval is calcu- lated from the estimated bus cycle time	selected / not selected	selected for new projects
Min. slave inter- val	Smallest allowed period of time between two slave poll cycles. This ensures that all re- quests from the DP master can be handled by the DP slave. This value is applied to all configured slaves.	1 – 65535	= estd. bus cycle time
Use 'Min. slave interval' for 'Tar- get Token Rota-	if selected, the target token rotation time in the bus parameters is set to the value of min. slave interval.	selected / not selected	selected for new projects
tion Time (T_tr)'	This option should not be selected, if the PROFIBUS network contains multiple masters. In that case T_tr must be set to the sum of the min slave intervals of all masters.		
Polling timeout	In case of master-master communication this parameter specifies the max. amount of time it may take the requesting station to receive the response.	1 – 65535	50
Data control time	This parameter defines the period of time dur- ing which the master module notifies the slaves of its operation status. This time must	T_wd * 6 – 65535	100

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Name	Description	Choices / Setting range	Default
(only AJ71PB92D and QJ71PB92D)	be at least six times the watchdog time for all slaves		
Slave watchdog	This checkbox enables the watchdog check- ing in all slaves.	selected / not selected	selected for new projects
Calculate time	If selected, the WD time is automatically set to five times the maximum of the estimated bus cycle time and the minimum slave inter- val. The edit field for the slave watchdog time is readonly.	selected / not selected	selected for new projects
	If not selected, the user must manually enter an appropriate watchdog time.		
Slave watchdog time	If 'Watchdog' is selected (ON), this value specifies the maximum time without commu- nication, after which the slave will regard the connection to the master as 'broken'.	1 – 65025	= 5 * target token rota- tion time (T_tr)
	All slaves must use the default time base of '10 ms'. The optional time base of 1 ms for DPV1 slaves is not supported.		
Estimated bus cycle time	Calculated cycle time	no input	
Watchdog for time sync. (QJ71PB92V only)	This parameter specifies the time interval, in which the master broadcasts the current system time.	0 – 65535	0
Cancel	Close wizard and discard changes		-
Next	Proceed to next wizard page		Default but- ton
Default	Set parameters back to their default values		

#### **Calculation of Watchdog and Other Timing Parameters**

The watchdog function of PROFIBUS ensures that the slaves detect a loss of the communication with the master. The time interval without requests from the master before detecting a disconnect must exceed the maximum duration of bus cycles. The actual bus cycle time depends on the I/O size to be transferred, the response times from the slaves, the baudrate and acyclic messages. The parameter 'min slave interval' defines the poll cycle and must not be less than the theoretically possible cycle time, which is displayed as 'estimated bus cycle time'.

The 'target token rotation time' (T\_tr) specifies, when a master will regain the token to exchange I/O data with its slaves. For a single master its min slave interval determines the token rotation time. In a multi-master PROFIBUS network the 'target token rotation time' (T\_tr) is at least the sum of the min slave intervals of all masters. For the current master configuration GX Configurator-DP calculates an estimated bus cycle time, which is displayed in the 'Master Settings'. This time can be used as base for setting the min slave interval and the target rotation time.

If the option 'Calculate time' for the 'min slave interval' parameter and the option 'Use min slave interval val for T\_tr' are set (default for new projects), the timings are set as

#### T\_min\_slave\_interval = T\_estd\_bus\_cycle

and

T\_tr = T\_min\_slave\_interval

If the watchdog function is enabled (default for new projects), selecting the 'Calculate time' option automatically adjusts the watchdog time T\_wd to five times the target token rotation time T\_tr.

 $T_wd = 5 * T_tr$ 

The estimated bus cycle time is adjusted, when relevant parts of the PROFIBUS configuration are changed, e.g. the baudrate or the selected slaves and/or slave modules.

If the proposed watchdog time does not suit the particular application, deselect the option 'Calculate time'. The field with the watchdog time is enabled and a watchdog time within the limits imposed by PROFIBUS can be entered. This time will not automatically be modified, but must be adjusted by the user.

#### Calculation of the Estimated Bus Cycle Time

for A(1S)J71PB92D, QJ71PB92D and QJ71PB92V: the calculation of the cycle time is described in the 'QJ71PB92V User's Manual' in the section '3.5.1 Bus cycle time'.

for FX3U-64DP-M: the calculation of the cycle time is described in the 'FX3U-64DP-M User's Manual' in the section '1.4.2 PROFIBUS (Bus) Cycle Time'.

The field 'Estimated bus cycle time' shows the expected minimum interval between two I/O data exchanges with a slave. The cycle time depends on the following factors:

- baud rate
- number of slaves configured in the master
- I/O size of the configured slaves
- max response time of each slave (max T\_sdr)
- · number of acyclic requests, diagnostic telegrams and retries
- other master stations sharing the same PROFIBUS network

#### **Bus Parameters**

This dialog provides access to baud rate related parameters like timeouts. The default settings should only be changed, if really necessary and with a good background on PROFIBUS communication.

B	ıs Parameter Settings				×
Г	Bus Parameters for 1.5 Mbps				
	<u>S</u> lot Time (T_sl)	300	[37 - 16383]	0.200000 ms	
	<u>m</u> in T_sdr	11	[11 - 1023]	0.007333 ms	
	ma <u>x</u> T_sdr	150	[37 - 1023]	0.100000 ms	
	<u>Q</u> uiet Time (T_qui)	0	[0 - 127]	0.000000 ms	
	Setu <u>p</u> Time (T_set)	1	[1 - 255]	0.000667 ms	
	Target <u>R</u> ot. Time (T_tr)	8250	[256 - 16777215]	5.500000 ms	
	<u>G</u> AP factor	10	[1 - 100]		
	<u>H</u> SA	126	[2 - 126]		
	Max retry limit	1	[1 - 7]		
		ОК	Cancel	D <u>e</u> fault	

Name	Description	Choices / Set- ting range	Default
Slot Time (T_sl)	Slot time (max interval to wait for response)	37 – 16383	300
min T_sdr	min station delay of responder	11 – 1023	11
max T_sdr	max station delay of responder	37 – 1023	150
Quiet Time (T_qui)	Quiet time	0 – 127	0
Setup Time (T_set)	Setup time	1 – 255	1
Target Rot. Time (T_tr)	Target token rotation time (see note below)	256 - 16777215	value of 'Min slave interval' in T_bit
GAP factor	controls the GAP update timer	1 – 100	10
HSA	highest station address	2 – 126	126
Max retry limit	max. number of retries	1 – 7	1
ок	Close dialog and save changes		Default but- ton
Cancel	Close dialog and discard changes		-
Default	sets parameters to their default values		

**Note**: if the option 'Use 'Min. Slave Interval' for T\_tr' has been selected in the Master Settings, the 'Target Token Rotation Time' is automatically set to the 'Min Slave Interval' of the 'Master Settings'

dialog. The input field for T\_tr becomes read-only. If the option is not set, the T\_tr must be entered manually.

For the correct parameter setting of the target rotation time (T\_tr) please refer to the PROFIBUS standard. However, it is important that the target rotation time is large enough to enable the master module to poll each connected slave once per token cycle.

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</li>
- T\_sl < T\_tr

#### **CPU Device Access**

This page provides access to options for the data transfer between the buffer memory of the master module and the PLC device memory.

 Buffer Devices	ie device addresses for baile	ning izo ana alaj	gnostic dat	a.
O Slave Specific Trans	fer	Edit D	evices	
	Input	D1000	to	D1000
<ul> <li>Block <u>I</u>ransfer</li> </ul>	Output	D2000	to	D2000
<u>C</u> omm. Trouble Area			to	
Extd. Comm. Trouble	Area		to	
Sl <u>a</u> ve Status Area			to	
Data Transfer between I	CPU and master module using	I		
C Copy Instructions	Auto <u>R</u> efresh		Con <u>s</u> isten	су
PLC code options O Data transfer onl <u>v</u>	C User <u>v</u> ariables	•	All D <u>U</u> Ts	
Contents of user library: start of data transfer, global variables for all DUTs Please export the user library and import it in your PLC project!				

Name	Description	Choices / Setting range	Default
Slave Specific Transfer	User can assign individual buffer device ad- dresses to each input and output area of a slave. The device addresses are entered in a		

Name	Description	Choices / Setting range	Default
	separate dialog, which is opened when press- ing the 'Edit Devices' button		
Edit Devices	opens the 'Slave Specific Buffer Devices' dia- log (see ' <u>Device Addresses for Slave Specific</u> <u>Transfer</u> ')		
Block Transfer	User assigns one buffer device address to the inputs and one to the outputs of all slaves		
Input (only for Block Transfer)	Device address, where the slave input data is copied to from the buffer memory		D1000
Output (only for Block Transfer)	Device address, where the slave output data is copied from to the buffer memory	see <u>'Device</u> <u>Types' table</u>	D2000
Comm. Trouble Area	Device address, where the so-called 'commu- nication trouble area' is copied to from the buffer memory	Note: for transfer buf- fers only word	-
Extd. Comm. Trouble Area	Device address, where the so-called 'exten- ded communication trouble area' is copied to from the buffer memory	devices can be used	-
Slave Status Area	Device address, where the so-called 'slave status area' is copied to from the buffer memory		-
Data Transfer Using…	Selects, whether TO/FROM instructions or autorefresh is used for exchanging the data between PLC device memory and the buffer memory of the master module		
Copy Instruc- tions	Use TO/FROM instructions	Qn, QnA, FX	QnA, FX: de- fault
Autorefresh (only for QJ71PB92D/V)	Use <u>automatic refresh</u> to transfer data between CPU devices and master buffer memory This option is selected as default for new pro- jects, if supported.	Qn only	Qn: default
Consistency	When selected, the consistency check is ac- tivated in the master. Consistency requires to use autorefresh for data transfer	Qn only, if autorefresh selected	

PROFIBUS Network Tree

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Name	Description	Choices / Setting range	Default
	For a detailed description of consistent data transfer see 'Consistency Handling'.		
PLC code op- tions	Select the contents of the generated user lib- rary (see ' <u>PLC Code Options</u> ') 1. Data transfer only 2. User variables 3. All DUTs	see left	All DUTs
Cancel	Close wizard and discard changes		-
Back	Return to previous wizard page		-
Finish	Save changes and close wizard		Default but- ton
Default	Set parameters to their default values		

In the integrated version of GX Configurator-DP the PLC code options additionally contain a check box to enable/disable generating automatically code for the POU.

- PLC code options				
O Data transfer only	O User variables	AII DUTs		
Contents of user library: start of data transfer, global variables for all DUTs				
Automatically generate code				

Name	Description	Choices / Setting range	default
PLC code options	Select the contents of the generated user library (see ' <u>PLC Code Options</u> ')	see left	All DUT's
	1. Data transfer only		
	2. 2.User variables		
	3. All DUTs		
Automatically generate code	if checked the code for the POU is gener- ated automatically on saving	checked / un- checked	checked
	only available if the current project in GX Works2 is a structured project		

The following table lists the supported device types and their respective address ranges

Address Range Available		e for		Supported as	
Device Type	Qn QnA/A FX		FX	Buffer for POU	
х	0x0 – 0x1FFF	x	х		
Υ	0x0 – 0x1FFF	x	х		
L	0 – 32767	x	х		
М	0 – 32767	x	х	х	
D	0 – 25983	x	х	х	х
R	0 – 32767	x	х	х	х
В	0x0 – 0x7FFF	x	х		
W	0x0 – 0x657F	x	х		х
ZR	0 - 4184063	x	x		x

If a bit device address has been entered for a transfer buffer, the user is warned of the restrictions imposed by bit devices.

<ul> <li>Block</li> </ul>	< <u>T</u> ransfer	Input Output	×100 D2000	to to	X1EF D2023
MELSOFT GX Configurator-DP					
Bit devices are not supported for transfer buffers by the I/O Mapping POU. You can assign bit devices to transfer buffers when using 'Autorefresh' without the POU.					
Do you want to change it?					
<u>Y</u> es <u>N</u> o					

Pressing **Yes** sets the input focus back to the edit field, which caused the error; pressing **No** stores the bit device address.

#### Automatic Refresh (Q-series master only)

If selected, the data transfer between the master buffer memory and the CPU devices uses automatic refresh. This ensures a fast and consistent data transfer without using a FROM/TO instruction and extending the cycle time.

After a PROFIBUS configuration has been downloaded to the master, autorefresh settings are updated online in the CPU and, if a GID/GD project path has been set, in the GID/GD project as well.

#### **Consistency Handling**

In Q- and FX-series PLCs the consistent transfer of I/O data requires specific handshake procedures. Whether a PROFIBUS configuration requires consistent I/O data transfer, can be detected by parsing the configuration bytes ('cfg\_data') of the slave modules. Consistency must be especially ensured, if a module

a) requires consistency over three bytes or more or

b) requires consistency over one word, but the word is not word-aligned in buffer memory The second situation is due to the fact that the I/O data of modules within a slave is byte-aligned within the buffer memory. The order of modules within a slave can therefore effect the consistency handling. **Example**: an MT-DP12 with an X8 module with one byte and a 4AD module with consistency over one word would require consistency handling, because the inputs of the 4AD start in the high-byte of the first word. If the modules are selected in the opposite order (4AD and then X8), no consistency is required, because the 4AD module is now word-aligned).

If one module of a slave requires consistency, consistency handling must be activated for the corresponding slave (in case of FX3U-64DP-M) or for the complete master (in case of QJ71PB92D and QJ71PB92V). For the FX-master the consistency is maintained by using special bits in buffer memory to control access to I/O data. The PLC program code for this handshake is included in the generated user library. For Q-series masters consistency requires the use of autorefresh for data transfer between CPU and buffer memory.

GXDP checks a slave for consistency, whenever it is modified or added. If consistency is required for the slave and 'Copy Instructions' is selected for data exchange, the user is informed with a message, that the data transfer option has automatically been changed from 'Copy Instructions' to 'AutoRefresh' and the consistency flag in the master settings has been selected.

#### **PLC Code Options**

#### Option 1: Data transfer only

The user library only contains the PLC code for copying the inputs from and the outputs to buffer memory and the code for starting the data transfer. DUTs and global variables are not exported. If 'Autorefresh' has been selected for data transfer (Q-series only), the transfer of the input/output data is not part of the user library.

#### **Option 2: User variables (default)**

Additionally to the code from option 1 the generated PLC code contains the variables named by the user and explicit device addresses entered by the user in the column 'User MIT-Address' (see <u>Assign User MIT-Address</u>). DUTs, for which the user has not entered a variable name, are not exported. One exception are DUTs, where the user has assigned a global variable name or a device address to an element of the DUT. These DUTs are exported and instantiated with default global variable names, because they are required for extracting the data of the DUT elements, the user is interested in.

#### **Option 3: All DUTs**

Additionally to the code of option 3 all remaining DUTs are exported and instantiated with default global variable names.

#### Check box: Automatically generate code

In the integrated version of GX Configurator-DP this check box enables or disables generating automatically code for the POU. It is only available if the current project in GX Works2 is a structured project. If disabled generating a POU is available from the task item '<u>POU Generation</u>' only, but only if a structured project is currently active in GX Works2.

### 7.2 Slave Parameters Wizard

The screens for changing the settings of a slave are combined in a wizard-like dialog in sequential order. The 'Slave Settings' wizard is opened by either double-clicking a slave node in the project tree or by selecting the corresponding menu item from the context menu.



# **Slave Settings**

Model	MT-DP12	Revision	
Vendor	Mitsubishi Electric	V1.6 / 991006	
Slave Prop	erties		
N <u>a</u> me		Slave_Nr_001	
F <u>D</u> L Addres	s	10 [0 - 125]	
<u>m</u> in T_sdr		11 [1 - 255]	
Group ident	ification number	Grp <u>1</u> Grp <u>2</u> Grp <u>3</u> Grp <u>4</u> Grp <u>5</u> Grp <u>6</u> Grp <u>7</u> Grp <u>8</u>	
🔽 Sla <u>v</u> e is	active	🔲 Sync (Output) 🔲 Freeze (Input)	
🗌 Ignore A	<u>u</u> toClear	Initialize slave when failing to respond	
🗌 Swa <u>p</u> I/	O Bytes in Master		

Name	Description	Choices / Setting range	Default
Model	type name of the slave (usually the value of the keyword 'Model_Name' in the GSD file)	read-only	-
Vendor	company name of the vendor (usually the value of the keyword 'Ven- dor_Name' in the GSD file)	read-only	-
Revision	the version of the device respectively GSD file (usually the value of the keyword 'Revision' in the GSD file)	read-only	-
Name	name of the slave can be defined. This is for documentation purpose only.		Slave_Nr_ <fd L address&gt;</fd 
FDL Address	Station address of the slave 0 – 125 1		1
min T_sdr	Minimum waiting time for a DP slave,	1 – 255	11

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Name	Description	Choices / Setting range	Default
	until it is allowed to send response frames to the DP master. Do not change this value. The time is entered as multiple of the bit duration on the PROFIBUS. The correspond- ing absolute time depends therefore on the selected PROFIBUS baud rate.		
Group identifica- tion number	PROFIBUS DP allows transmitting 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 synchron- ized way with each other. A slave can belong to several groups. You can use the boxes to assign the slave to any of the groups.	0,1,2,3,4,5,6,7, 8	0
Slave is active	If selected, the slave is included in the cyclic data transfer. Otherwise the slave is not accessed and a con- nection failure with that slave will not cause a response error in the master.	selected / not selected	selected
Sync (Output)	If this option is activated, a synchron- ous switching of all slave outputs is possible. (only available for slaves where this function is supported, stated by the entry 'Sync_Mode_supp' in the GSD file)	selected / not selected	not selected
Freeze (Input)	If this option is activated, a synchron- ous switching of all slave inputs is possible. (only available for slaves where this function is supported, stated by the entry 'Freeze_Mode_supp' in the GSD file)	selected / not selected	not selected
Ignore AutoClear (only QJ71PB92V and FX3U-64DP-M)	The slave should ignore a 'Clear' tele- gram from the master.	selected / not selected	not selected
Initialize slave	The master initializes a slave, if com-	selected	not selected

Name	Description	Choices / Setting range	Default
when failing to re- spond (only QJ71PB92V and FX3U-64DP-M)	munication fails.	/ not selected	
Swap I/O Bytes in Master (not AJ71PB92D)	When selected, the order of each pair of bytes is reversed by the PROFIBUS master.	selected / not selected	not selected
Cancel	close wizard and discard changes		
Back	return to previous wizard page		disabled
Next	proceed to next wizard page		Default button
Default	set parameters back to their default values		

#### **Slave Modules**

This page allows the user to select modules for the slave, which is currently configured. In the upper part of the dialog the I/O size occupied by the selected modules is shown along with the maximum supported by both slave and master.



Name	Description	Choices / Setting range	Default
nr. modules in- stalled	number of modules installed	readonly	0
max. nr. modules	dules     max number of installed modules supported by slave (from GSD file)     readonly     from GSD		from GSD file
I/O usage (inputs)	current length of slave inputs in bytes	readonly	0
I/O usage (outputs)	current length of slave outputs in bytes	readonly	0
Max. Data Size	max. total I/O length (sum of in- puts and outputs) in bytes, which slave supports		from GSD file
Max. I/O sizes (in- puts)	I/O sizes (in- max. length of inputs in bytes, readonly from GS which slave supports		from GSD file
Max. I/O sizes (out-	max. length of outputs in bytes,	readonly	from GSD file

Name	Description	Choices / Setting range	Default
puts)	which slave supports		
Slave User Para- meters	ve User Para- ters       button to show respectively hide the information on the use of the user parameters buffer         collapsed:       + Slave User Parameters		collapsed
	Available Slave Modules MT-DP12 expanded:		
	Slave User Parameters User_Prm_Data usage     Slave Modules		
User_Prm_Data us- age	number of occupied bytes in slave- specific user parameters buffer		-
Max. User- _Prm_Data size	maximum number of slave-specific from GSD file - user parameters supported by the slave		-
Available Slave Modules	lists the module types, which are available for the slave. from GSD file for		from GSD file
Project Slave Mod- ules	shows the slave node and the modules, which have been selec- ted		
×	removes the selected module		
+	moves the selected module one slot down		
<b>†</b>	moves the selected module one slot up		
Cancel	close wizard and discard changes		-
Back	return to previous wizard page		-
Next	proceed to next wizard page		Default button
Default	set parameters back to their de- fault values		

The slave device is the summary of all modules installed in the slave. The GSD file includes all selectable modules for the slave device. Mark a module in the left list of **Available Slave Modules** and drag it onto the tree with **Installed Slave Modules** or open the context menu of the module type and select the 'Add Module to Slave' item. A double-click on a module type in the **Available Slave Modules** list appends the module to the list of **Installed Slave Modules**.



If no module has been selected, an information icon indicates the required action to the user.



To change the position of a selected module use drag&drop or the **1** and **1** buttons. To remove a module from the **Installed Slave Modules** list, select the module and press the **<De-**

lete> button on the keyboard or the button.

GX Configurator-DP automatically determines the maximum possible number of modules per slave, the maximum I/O size and user parameter length. It checks the number of I/O and user parameter bytes used by the installed modules against these limits.

**Note**: adding or removing slave modules may change the addresses of the I/O data in the buffer memory of the master. It is therefore necessary to update the PLC program and (if used) the autorefresh settings.

#### Extended Support for ST1H-PB Slaves Groups of ST Slave Modules

DP Slave Parameters Wizard - Slave Modules	×
Image     Image	Max. Data size 304 byte(s) Max. I/O sizes 152 / 152 byte(s)
+ Slave User Parameters Available Slave Modules	Project Slave Modules
🖃 🍈 ST1H-PB Byte Packing (ver. B)	▲ 🗐 👘 1: Slave_Nr_001_1
Header Modules	Add modules via Drag&Drop
Power Supply Modules	
🚽 🧃 ST1PSD	
📕 🦸 ST1PDD	
Digital Input Modules	
Digital Output Modules	
Analog Input Modules	
Cancel	Back Next Default

For ST1H-PB slaves the modules are sorted in the following groups according to their type/function:

- Header Modules
- Power Supply Modules
- Digital Input Modules
- Digital Output Modules
- Analog Input Modules
- Analog Output Modules
- Reserved (only version B!)

#### Check of Selected ST Slave Modules (All ST Versions)

The module list of ST slaves is especially checked for the following conditions

- 1. first module must be head module
- 2. second module must be a power supply
- 3. only one head module allowed
- 4. the X1616 module must be configured by selecting –F module first and a –L module second

#### Specific Check of Selected ST Slave Modules (Version A)

The module list of a version 'A' ST slave is especially checked for the following conditions

1. the I/Os of all selected modules must fit into the selected head module size

#### Specific Check of Selected ST Slave Modules (Version B)

The module list of a version 'B' ST slave is especially checked for the following conditions

1. the I/Os of empty binary I/O modules marked by a module name starting with '....' must fit into the preceding regular module. If an analog module follows a binary module, a regular binary module must be inserted first, before empty binary modules can be added again

#### Universal Slave Module Type

Some slave GSD files do not contain module descriptions, but require the module configuration data ('cfg\_data') to be constructed in the configuration tool via a so-called 'Universal Module'. If a slave GSD file does not contain module definitions, GXDP displays the entry **Universal** in the **Slave Modules** dialog. One or more universal modules can be added to the slave. The maximum input/output size for each module is 16 words or bytes.

Note: ensure that the slave can work with the respective settings.

DP Slave Parameters Wizard - Slave Modules		X
0       Modules installed       244       are possible         1/0 usage       0       /       0       byte(s)         + Slave User Parameters         Available Slave Modules             •       •       •       •         •       •       •       •       •         •       •       •       •       •         •       •       •       •       •         •       •       •       •       •         •       •       •       •       •         •       •       •       •       •         •       •       •       •       •         •       •       •       •       •         •       •       •       •       •         •       •       •       •       •         •       •       •       •       •         •       •       •       •       •         •       •       •       •       •         •       •       •       •       •         •       •       •       •       •      <	Max. Data size 488 byte(s) Max. I/O sizes 244 / 244 byte(s) Project Slave Modules 1: Slave_Nr_001_1 Add modules via Drag&Drop	
Cancel	<u>Back N</u> ext D <u>e</u> fault	

The following sample shows a slave with selected Universal modules.

When an Universal module entry in the **Project Slave Modules** list is double-clicked, the **Universal Module Settings** dialog is opened and the properties of the selected universal module, i.e. consistency, input and output size, can be changed.

Universal Module S	ettings		×
Consistency	• Byte/Word	C Complete	
Input/Output	C Inputs only	O Outputs only	In- and Outputs
Data Size Unit	Byte	O Word	
Input Length	4	Byte(s)	
Output Length	4	Byte(s)	
	ОК	Leave	

If the module should only have an input area, select the option **Inputs only** and the field for the output length is hidden.

Universal Module	Settings		×
Consistency Input/Output Data Size Unit	Byte/Word     Inputs only     Byte	C Complete C Outputs only	C In- and Outputs
Input Length	4	Byte(s)	
	ОК	Leave	

If the module should only have an output area, select the option **Outputs only** and the field for the input length is hidden.

Universal Module Se	ttings			×
Consistency Input/Output Data Size Unit	Byte/Word     G     Inputs only     Byte	C Complete C Outputs only Word	In- and Outputs	
Output Length	4 E	3yte(s)		
	ОК	Leave		

#### **Extended User Parameters**

The **Extended User Parameters** are not standardized but depend on the slave. The GSD file can provide descriptive texts for parameters as well as available settings. If these parameter descriptions are missing or incomplete the user parameters can also be changed within a simple hex editor.

elect module:	3: MT-4AD global 0: MT-X8		Edit <u>H</u> e>
Module Paramete	1: MT-Y8T		
Diagnosis at low volt	age [2: MT-78]		
Overflow / Wire Brea	кадентина	No buto cupoping	
Byte swapping		No byte swapping	
Averaging	4 Channel		
Operating mode inpu	ut-Channei	+)-10V	
Diagnosis at low voic	aye Waaa	report	
Overnow / wire brea	каде	Ne hute evenesie e	
Byte swapping		No byte swapping	
Averaging	th Channel	00	
Disesses at law yelt	uc-Channei	+)-10V	
Overflew / Wire Pres	dye	report	
Overnow / wire brea	ikaye	No buto support	
byte swapping		No byte swapping	

Name	Description	Choices / Setting range	Default
Select module	select either 'global' for general para- meters or the module specified by its slot number and type name		
Edit Hex	opens the hex editor for editing the user parameters of the selected slave mod- ule		
User Param. Table	each row represents a parameter, showing name and input field		from GSD file
Cancel	close wizard and discard changes		-
Back	return to previous wizard page		-
Next or Finish	if the slave supports DPV1, the button is labeled 'Next', otherwise it is labeled 'Finish' Next: proceed to next wizard page (DP V1/V2 Parameters)		Default button

Name	Description	Choices / Setting range	Default
	Finish: save changes and close wizard		
Default	set parameters back to their default val- ues		

#### Hex Editor for User Parameters

If such descriptions are missing or incomplete the user can start a hex editor to directly change the user parameters. The hex editor does not perform any range checking. Using the hex editor can have unforeseeable side effects and requires an experienced user.

**Note**: be careful when changing parameters in the hex editor, because the data entered is not validated by the application, but downloaded to the slave 'as is'. Invalid user parameters could have unforeseeable effects in the slave.

ser Parameters of Slave Module '3: MT-4AD'																
A:0	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9	+A	+B	+C	+D	+E	+F
00:	0A	00	20	00	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX
L																
<u> </u>																
<u> </u>																
<u> </u>																
	Cancel				ancel						1.					
Name				Description				C ti	hoic ng ra	:es/ ange	Set e	-	Default			
User Para	amete	er Gr	id	shows the contents of the user parameter buffer for the selected slave module				0>	(00 –	0xF	F	1	from GSI file			
OK				Clos	e dial	log al	nd sa	ave cl	nange	es						Default b ton
Cancel				Clos	e dia	log a	nd di	scard	l cha	nges						-

#### Slave DPV1/V2 Parameters

This page contains options related to DPV1. It is therefore only available in projects for DPV1 capable masters (QJ71PB92V and FX3U-64DP-M), and then only available to slaves, which support DPV1.

**Note**: the option 'Watchdog time base 1 ms' is not supported, because it conflicts with a single common watchdog time for all slaves.

<ul> <li>✓ <u>DP V1 support enabled</u></li> <li>✓ 'Fajl Safe' function enabled</li> <li>✓ Slave-specific check of cfg_data</li> </ul>	<ul> <li>Update Alarm</li> <li>Status Alarm</li> <li>Manufacturer Specific Alarm</li> <li>Diagnostic Alarm</li> <li>Process Alarm</li> <li>Process Alarm</li> <li>Pull/Plug Alarm</li> <li>Allow mag. one alarm of each type</li> </ul>
--	---

Name	Description	Choices / Setting range	Default
DP V1 support en- abled	if selected, DPV1 specific services are supported. Beside for acyclic read/write this option must also be set for DPV1 alarm handling	selected / not selec- ted	not selec- ted
'Fail Safe' function enabled	enabled, if GSD file contains entry 'Fail_Safe=1' fixed to ,selected', if GSD file contains entry 'Fail_Safe_required=1'	selected / not selec- ted	not selec- ted
Slave-specific check of cfg_data	enabled, if GSD file contains entry 'Check_Cfg_Mode=1'	selected / not selec- ted	not selec- ted
Update Alarm	if selected, alarms of type 'Update' are enabled enabled, if GSD file contains entry 'Up- date_Alarm_supp=1' fixed to ,selected', if GSD file contains	selected / not selec- ted	not selec- ted

Name	Description	Choices / Setting range	Default
	entry 'Update_Alarm_required=1'		
Status Alarm	if selected, alarms of type 'Status' are enabled enabled, if GSD file contains entry 'Status_Alarm_supp=1' fixed to ,selected', if GSD file contains entry 'Status_Alarm_required=1'	selected / not selec- ted	not selec- ted
Manuf. Specific Alarm	if selected, alarms of type 'Manuf. Spe- cific' are enabled enabled, if GSD file contains entry 'Man- ufacturer_Specific_Alarm_supp=1' fixed to ,selected', if GSD file contains entry 'Manufacturer_Specific_Alarm_re- quired=1'	selected / not selec- ted	not selec- ted
Diagnostic Alarm	if selected, alarms of type 'Diagnostic' are enabled enabled, if GSD file contains entry 'Dia- gnostic_Alarm_supp=1' fixed to ,selected', if GSD file contains entry 'Diagnostic_Alarm_required=1'	selected / not selec- ted	not selec- ted
Process Alarm	if selected, alarms of type 'Process' are enabled enabled, if GSD file contains entry 'Pro- cess_Alarm_supp=1' fixed to ,selected', if GSD file contains entry 'Process_Alarm_required=1'	selected / not selec- ted	not selec- ted
Pull/Plug Alarm	if selected, alarms of type 'Pull/Plug' are enabled enabled, if GSD file contains entry 'Pull_Plug_Alarm_supp=1' fixed to ,selected', if GSD file contains entry 'Pull_Plug_Alarm_required=1'	selected / not selec- ted	not selec- ted
Allow max. one alarm of each type	if selected, only one alarm of each en- abled type may be active enabled, if at least one alarm type has been selected and the slave supports more than one open alarm of the same type (GSD entry 'Alarm_Sequence_Mode_Count>0')	selected / not selec- ted	not selec- ted

PROFIBUS Network Tree

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Name	Description	Choices / Setting range	Default
	fixed to 'selected', if at least one alarm type has been selected and the slave does not support more than one open alarm of the same type (GSD entry 'Alarm_Sequence_Mode_Count=0')		
Cancel	close wizard and discard changes		-
Back	returns to previous wizard page		-
Finish	save changes and close wizard		Default button

### Edit Buffer Devices for Slave-Specific Transfer

If slave-specific transfer is selected, the user is prompted whether to edit the corresponding buffer devices, when the 'Slave Parameter Wizard' is closed and the I/O structure has changed by adding and/or removing modules.

MELSOFT GX Configurator-DP 🛛 🔀			
?	Do you now want to edit the device addresses for slave-specific transfer		
	Yes Not show this message again		

If the user selects 'Yes', the '<u>Slave Specific Buffer Devices</u>'dialog is displayed. To avoid a display of the message box each time a slave is added or modified, the user can select the 'Do not show this message again' option.

# 8 Transfer Setup

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**Note:** in the integrated version of GX Configurator-DP the transfer setup dialog of GX Works2 is used instead.



Click on the Transfer Setup button in the toolbar or select the item 'Transfer Setup' from the 'Online Tasks' group to open the transfer setup. When a new project is created, a default transfer setup is automatically added to the project file.

# Note: for successful network settings you should be familiar with the characteristics of MELSEC networks and consult the corresponding manuals.

Transfer Setup	List	×
Transfer Setup Na	ames	
DefaultConnectio	n 💌	
Target PLC		<u>N</u> ew
CPU <u>s</u> eries	Q	C <u>o</u> nfigure
C <u>P</u> U type	Q02(H)	<u>D</u> elete
		Apply
	OK Cancel	

Name	Description	Choices / Setting range	Default
Transfer Setup Names	allows to select an existing transfer setup and also to change its name		
CPU series	show the family of the CPU type, set in the selected transfer setup	read-only	

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Transfer Setup

Name	Description	Choices / Setting range	Default
CPU type	show the CPU type, set in the selec- ted transfer setup	read-only	
New	define a new transfer setup		
Configure	edit the selected transfer setup		
Delete	delete the selected transfer setup		
Apply	save changes in the transfer setup name		
ок	Close dialog and save changes		Default button
Cancel	Close dialog and discard changes		-

The transfer setup name may only consist of letters, digits and the following characters '\_- (). The first character must be a letter. If the name entered by the user contains other characters, an error message is displayed.

MELSOFT	GX Configurator-DP
1	The transfer setup name may only consist of letters, digits and ().
	(OK

#### **Define New Transfer Setup**

When the user presses the <New> button, the user is first asked to select the CPU type.

#### **CPU Type Selection**

CPU Type Selection			
CPU <u>s</u> eries			
C <u>P</u> U type	Q02(H)		
Transfer Setup.	. Cancel		

Name	Description	Choices / Setting range	De- fault
CPU series	Contains the list of PLC families, which are supported by the master module type selected in the current pro- ject.		
	If the user selects a different family, the list of CPU types is updated to match the selected family. The user can change the CPU type or just press the <b>OK</b>		

Name	Description	Choices / Setting range	De- fault
	button to accept it.		
CPU type	Contains the list of CPU types, which belong to the selected PLC family		
Transfer Setup	Start the transfer settings editor to set the connection parameters, e.g. baud rate, COM port etc.		Default button
Cancel	Close dialog and discard changes		-

The CPU types are grouped in 'series' (FX, QnA, A, Q, QnPH, QnPRH and QnU). The available PLC families depend on the type of the master module according to the table below

Master Module Type	Available CPU Series
A(1S)J71PB92D	QnA-and A-series
QJ71PB92D	Q-, QnPH-, QnPRH- and QnU-series
QJ71PB92V	Q-, QnPH-, QnPRH- and QnU-series
FX3U-64DP-M	FX-series
QJ71PB93D	Q-, QnPH-, QnPRH- and QnU-series

If the user selects a different series, the list of CPU types is updated to match the selected series. The default setting for the CPU type is the one of previously selected setup. The user can change the CPU type or just press the button 'Transfer Setup' and accept the default type.

GX Configurator-DP can detect the type of the connected CPU, if the correct CPU series has been selected. Therefore the user does not have to select the exact CPU type in order to communicate with the target PLC. However the transfer settings, which are available in the following transfer settings dialog, depend on the selected CPU type.

Next the transfer settings editor is opened to specify the parameters of the new connection.

### **Transfer Settings Editor**

Next the transfer settings editor is opened to specify the parameters of the new connection.



After leaving the dialog, the new transfer setup is added with a default name. The default name is constructed as '**TransferSetup**<n>', where <n> is the sequential index of the setup. If this name is already used, <n> is incremented, until the name is unique. Define a network name or just use the default transfer setup name.

**Note**: the network name is used to identify the settings for one transfer path and must therefore be unique.

The new transfer setup automatically becomes the selected one.

#### Configure

The **Configure** button allows the user to change the settings of the selected transfer setup. The procedure is the same as for creating a new path. First the user can either confirm the current CPU type or select a different one. Next the <u>transfer setup</u> is opened, showing the existing settings.

#### Delete

By pressing the **Delete** button the selected transfer setup is deleted. Before the setup is actually removed, the user is asked to confirm the operation.

MELSOFT	5X Configurator-DP	×
2	Do you want to delete the selected transfer setup	p?
	<u>Y</u> es <u>N</u> o	

#### Apply

Changes of the transfer setup name are saved. You can change the symbolic name of any network connection. Select the network connection you want to change. Enter the new name in the **Transfer Setup Names** drop-down list and confirm with the **Apply** button.

If you do not press the **Apply** button after changing the transfer setup name and try to leave the transfer setup or to select a different setup, a message box is displayed that asks you to confirm the changes.

MELSOFT	GX Configura	tor-DP	×
?	Name has bee Do you want l	en changed. to save these ch	anges ?
	<u>Y</u> es	No	

The symbolic name of the transfer setup is changed and can be selected from the **Transfer Setup Names** drop-down list.

### 8.1 Editing the Transfer Settings

The dialog for setting the connection parameters of a transfer setup is also used by other MELSOFT products like GX IEC Developer (GID) and GX Developer (GD).


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Transfer Setup for QnPRH CPU (2)

		Transfer Setup 14	1
Transfer Set	up	x	
PC side I/F	Serial CC IE Cont NET(II) CC-Link Ethernet PLC USB NET/10(H) board board board board	AF SSC board net	
	COM COM 1 Transmission speed 115.2Kbps		
PLC side I/F	PLC     CC IE Cont     MNET(II)     CC-Link     Ethernet     C24       module     NET/10(H)     module     module     module	G4 Bus module	
	PLC n	node FXCPU	
Other station		Connection channel list	
	No specification Other station(Single network) Other station(Co-existence network)	) PLC direct coupled setting	
	Time out (Sec.) 5 Retry times 0	Connection test	
Network route	C24 CC IE Cont NET/10(H) NET(II) CC-Link Ethernet Multiple CPU setting	PLC type Detail	
Co-existence network route	C24 CC IE Cont NET(II) CC-Link Ethernet	System image Line connection (Q/A6TEL,C24)	9
	Accessing host station	Close	

Transfer Setup for FX3U CPU (3)

Transfer Set	ID	×
PC side I/F	Serial CC IE Cont NET (II) CC-Link Ethernet PLC USB NET/10(H) board board board board	AF SSC board net
	COM COM 1 Transmission speed 115.2Kbps	
PLC side I/F	CC IE Cont MNET(II) CC-Link Ethernet <u>C24</u> <u>G4</u> NET/10(H) module module module <u>module</u>	Bus <u>NET/10(H)</u> Remote
	Computer type QJ72LP25/BR15	
Other station		Connection channel list
	No specification Other station(Single network) Other station(Co-existence network)	PLC direct coupled setting
	Time out (Sec.) 30 Retry times 0	Connection test
Network route	C24 CC IE Cont NET(II) CC-Link Ethernet	PLC type
Co-existence	Multiple CPU setting	System image
network route	C24 CC IE Cont NET(III) CC-Link Ethernet	Line connection (Q/A6TEL,C24)
	NET/10(H) Target PLC	ОК
		Close

Transfer Setup for Q Remote I/O (4)

No.	Description
•	PC side I/F
U	Choose the I/F for the connection of the PC to the PLC.
9	PLC side I/F
U	Choose the unit to be connected with the personal computer.
6	Other station
•	Choose no network or one of the specified network types
	Network route
4	Choose the network type, network No., station number and first I/O No. to be accessed. The setting items depend on the network type that has been set.
	Coexistence network route
0	Choose this when making access to the network different from the one where the per- sonal computer is connected. Choose the network type, network No., station number and first I/O No. to be accessed. The setting items depend on the network type that has been set.
	Multiple PLC setting
0	Specify when the access target is multiple CPUs. You can connect up to four PLC CPUs. In this option you decide which CPU is to be connected.
•	Connection channel list
U	Lists possible connection modes and their image. You can set the connection target

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No.	Description		
	while looking at the Connection channel list.		
•	PLC direct coupled setting		
U	By clicking this button you change from Other station to the own station.		
	Connection test		
0	Tests whether proper access can be made to the PLC set as the access target on the Connection Setup screen. If proper access can be made, the model name of the PLC as the access target appears in the CPU type field		
	Target System		
	Specifies the connection destination for redundant PLC systems:		
	1. Not specified:		
	<ul> <li>When a PLC is directly connected: the PLC directly connected to the per- sonal computer</li> </ul>		
Ð	• Via network: The PLC at the station where the network module of the spe- cified station No. is installed in the network communication path.		
	2. Control system: The PLC whose system type is the control system.		
	3. Standby system: The PLC whose system type is the standby system.		
	4. System A: The PLC connected to the A side connector of the tracking cable.		
	5. System B: The PLC connected to the B side connector of the tracking cable.		
•	System image		
W	Here you see an image of the setup system.		
	Line connected(Q/A6TEL,C24)		
Ð	Clicking on this button opens a dialogue to setup a modem connection.		
Ψ	<b>Note:</b> modem connections are not supported by GX Configurator-DP. This button is there-fore disabled.		
Ð	ОК		
e	Closes the dialogue and saves the settings.		
10	Cancel		
w.	Closes the dialogue without saving.		

Description for Transfer Setup (1 - 4)

### Setup of the connection to the PLC

To setup the connection follow the different setup options in *Transfer Setup (1)*. Consult the manuals of the PLC CPU and the network type you are using.

To select a network type you can also click on the button **Connection channel list**. The following dialog window is opened.

Connection channel list	×
1 Serial port PLC module connection	
List mode Display all routes	
Serial port PLC module connection     Serial port Access serial communication other station via PLC module     Serial port Access MNET/10(H) other station via PLC module     Serial port Access Ct-Link other station via PLC module     Serial port Access Ethernet other station via PLC module     Serial port Access serial communication-MNET/10(H) other station via PLC module     Serial port Access serial communication-Ethernet other station via PLC module     Serial port Access MNET/10(H)-serial communication other station via PLC module     Serial port Access MNET/10(H)-serial communication other station via PLC module     Serial port Access MNET/10(H)-serial communication other station via PLC module     Serial port Access MNET/10(H)-Ct-link other station via PLC module	
3 Update 4 OK 5 Cancel	

Dialog Connection channel list

No.	Description		
0	Graphical image of the in 🕗 selected network type.		
0	Listing of the possible network configurations for the selected PLC.		
0	Update		
	Click this button to confirm the selected network configuration without closing the dia- logue		
0	ОК		
	Confirm the set network configuration and close dialogue.		
9	Cancel		
	Closes the dialogue without saving. When the button Update was clicked the dialogue is closed but the network configuration is already saved.		

Use the scrollbar to scroll through the network configurations and select a network configuration corresponding to your network type by clicking in the list. Click on the button Update. Confirm the following security note with OK.



Test the selected network configuration by clicking on the button Connection test. If the connection between the PC and the network is possible a positive note will be shown on the screen. If no connection is possible an error message is shown. In this case you have to check the cabling as well as the connection parameters set in the transfer setup and, if used, the respective PLC network modules.

Close the dialog by clicking on OK. The selected network configuration will be saved and shown in the Transfer Setup.



**Dialog Transfer Setup** 

Now click on System image. An information window is opened in which an image of the setup system is shown. In comparison to the Connection channel list dialog in this dialog the system parameter are also listed. So you can change single settings and check the settings by the help of this dialog.

System image	×
Serial port PLC module	connection
PC side I/F : PLC side I/F :	COM COM 1 Transmission speed 115.2Kbps PLC mode QCPU(Qmode)
Network communication route :	
Co-existence network route :	
Multiple CPU:	No Choice made
	ΟΚ

Dialog System image

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# 9 Using 'GX Configurator-DP' with 'GX Works2'

GX Works2 supports an integrated version of GX Configurator-DP, which is embedded in GX Works2. The integrated version can be used in parallel with the standalone version.

Note: The CPU type QnUDV is not supported in GX Configurator-DP 7.08J.

## 9.1 Integrated Version

The integrated version of GX Configurator-DP improves the handling of PROFIBUS-DP network modules by embedding their configuration into the GX Works2 PLC programming environment. Integrating the data storage of PROFIBUS-DP configurations into the PLC programming project ensures data consistency and eases your work by not having to maintain a group of project files of different software.

Starting from GX Configurator-DP 7.08J the software is integrated in GX Works2 as an "Intelligent Function Module" component.

The following main features are available for intelligent function modules in GX Works2 starting from version 1.87R:

- Intelligent function modules can be added to the project tree under the "Intelligent Function Module" group.
- In the project tree each module node has one or more sub-nodes to set their parameters, auto-refresh settings and switch settings in dedicated windows.
- The settings can be written to, read from or deleted from the PLC, and they can be verified against the PLC.
- The list of parameters included in the online operations can be selected on a per module basis.
- Module configurations can be copied within the project or to another project.
- The auto-refresh settings can be checked to discover overlapping address ranges.
- The inputs, outputs and buffer memories of each module can be monitored in watch windows.
- Sample comments can be used for the buffer memories in the Device Comment functionality.
- Dedicated instructions/functions can be used during programming.

This manual covers the functionalities that are new or different in case of PROFIBUS-DP modules compared to other intelligent function modules in GX Works2. For a general description of the GX Works2 intelligent function module functionalities please refer to the following manual: GX Works2 Version 1 Operating Manual (Intelligent Function Module) – SW1DNC-GXW2-E

### Supported CPU types in the Integrated Version

The supported CPU types between the Integrated and the Standalone Version are different. Please see the following table for the supported CPU types in the Integrated Version:

Basic model QCPU	High performance model QCPU	Universal model QCPU	Process QCPU	Redundant model QCPU	LCPU	FXCPU
Ο	0	*1	О	*2	Х	Х

O = supported X = not supported

<sup>\*1</sup> = QnUDV CPU is not supported in GX Configurator-DP 7.08J

\*2 = QnPRH CPU can be used with GX Works2 1.95Z

### Functional Differences between the Integrated and the Standalone Version

The following tables contain a comparison of the functionality of the standalone and the integrated versions of GX Configurator-DP. The functionality of the standalone and the integrated version is the same except the following:

Functional	ity in standalone version	Integrated version
Project	New	*1
	Open	*1
	Close	*1
	Save	*1
	Save As	*1
	Recent File	*1
	Exit	*1
Tools	GX Configurator-ST	х
	Options	*2
View	Toolbar	X*3
	Status Bar	X*3
Window	<window n="" name=""></window>	*4
Help	Help Topics	*5
	About MELSOFT GX Configurator-DP	*5
O: same as in standalone version : changed		X: not supported

### Menu

\*1: PROFIBUS-DP module configuration is stored in the GX Works2 project. Project handling commands do not exist in the Parameter window.

- \*2: Item is moved to Tool menu of GX Works2.
- A separate toolbar and status bar are not supported. \*3:
- \*4: The window handling of different PROFIBUS-DP configurations is handled in GX Works2 as tabbed windows.
- \*5: Item is moved to the task panel.

### **Task Panel**

**Master Modules** 

Functionality in standalone version		Integrated version
Online Tasks	Transfer Setup	*1
	Download to Module	*6

Functionality i	n standalone version	Integrated version
	Upload Configuration Image	*2
	Download Configuration Image	*2
	Verify	*2
	Start/Stop PROFIBUS	*2
	Set Slave Address*	*2
Setup Tasks	Master Settings	0
	Change Master Type	X*3
	GSD Device Database	0
	Project Properties	X*4
	I/O Mapper	0
	Devices for Slave-Specific Transfer	0
Export Tasks	POU Generation	*5
	Configuration Image	0
	Project in GX Configurator-DP Format	*7
	Project in XML Format	0
Import Tasks	Import GX Configurator-DP Project	*7
	Add GSD File	0
	Import GSD Database	0
Documentation	Project Documentation	0
	Documentation of I/O Mapping	0
Diagnostics	Turn on Monitor Mode	*2
	Slave Status	*2
	Diagnosis Messages	*2
	PLC Autorefresh Settings	*2
	Slave I/O Test	*2
Help	Help Topics	*7
	About GX Configurator-DP	*7

O: same as in standalone version

: changed X: not supported

- \*: Available only for QJ71PB92V
- \*1: The actual connection destination of GX Works2 is used instead
- \*2: Item is moved to the Tool menu
- \*3: The master type can only be selected when the user adds an Intelligent Function Module (PROFIBUS-DP). An existing master type cannot be changed afterwards. The user has to add a new Intelligent Function Module and copy the settings from the old module to the new module.
- \*4: Project Properties are not necessary anymore because the PROFIBUS-DP module is directly connected to a project by the GX Works2 project itself.
- \*5: POU generation is performed within the GX Works2 project without having to import files to the project.
- \*6: The "Download to module" functionality is available via the <u>Online→Write to PLC</u> menu command of GX Works2
- \*7: The task exists only in the integrated version.

Functionality in	n standalone version	Integrated version			
Q-Slave Tasks	Q-Slave Settings	0			
	Project Properties	X*1			
Online Tasks	Transfer Setup	*2			
	Download to Module	*4			
	Start/Stop PROFIBUS	*3			
Export Tasks	Project in GX Configurator-DP Format	*5			
Import Tasks	nport GX Configurator-DP Project *5				
Help	Help Topics *5				
	About GX Configurator-DP	*5			
O: como oc in cton		V: not cupported			

#### Slave Module

O: same as in standalone version : changed X: not supported

- \*1: Project Properties are not necessary anymore because the PROFIBUS-DP module is directly connected to a project by the GX Works2 project itself
- \*2: The actual connection destination of GX Works2 is used instead
- \*3: Item is moved to the Tool menu
- \*4: The "Download to module" functionality is available via the <u>Online→Write to PLC</u> menu command of GX Works2
- \*5: The task exists only in the integrated version.

### Other Functionalities

Functionality in standalone version	Integrated version
The starting I/O address is specified in the master/ slave module settings dialog of GX Configurator-DP.	

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Functionality in standalone version	Integrated version			
DP Master Parameters Wizard - Master Settings	The starting I/O address of the module is specified in GX Works2:			
Ngme         PROFIBUS Master           Bagdrate         1.5 Mbps         Image: Bug Parameters           FQL address         0         [0 - 125]	in the intelligent function module proper- ties			
Starting I/O number         [000         [0x0 - 0xFE0]           Error action flag         □ Goto 'Clear' State           Min. slave interval         □ Calculate time         [55         [1 - 65535] * 100 µs           □ Use 'Min. slave interval' for 'Target Token Rotation Time (T_th')         Polling timeout         [50         [1 - 65535] * 1 ms	or in the I/O Assignment page of the PLC parameter.			
Image: Slave watchdog     Image: Calculate time     3     [1 - 65025]     * 10 ms       Estimated bus cycle time     5:500     ms	New Module         X           Module Selection			
Cancel Book Next Default	[0 - 65535]     * 10 ms       Mourk Position     03778930 03778930       Base No.     Mourked Slot No.       @ Specify start 2Y address     Mounked Slot No.       Next     Default			
	then used by the configurator window, but it does not allow modifying it in the mas- ter/slave module settings dialog.			
The user can define DUTs and global variables to map the I/O data of PROFIBUS-DP modules. They can be used in GX IEC Developer to access the I/O data using data structures instead of direct ad- dresses.	DUTs, global variables, etc. can be trans-			
If the user selects the "POU Generation" com- mand, GX Configurator-DP generates POUs for man- aging the I/O data and writes the DUTs, global vari- ables and POUs to a user library. Additionally an ASC file is created with a program task to call the POUs.	ject from the configurator window via the import mechanism directly.			
The user can install the user library and import the ASC file to the related GX IEC Developer project to use the declarations.				
The GX Configurator-DP project can be associated with a GX IEC Developer or GX Developer project, and GX Configurator-DP can update the auto-refresh settings in the IPARAM.WPA files in that project.				
	GX Configurator-DP will directly store the auto-refresh settings of the module in the			
	GX Works2 project.			

Functionality in standalone version	Integrated version
PROFIBUS-DP module configuration is stored in a	
GX Configurator-DP project file.	
Project handling commands exist in the main menu:	PROFIBUS-DP module configuration is
New project	stored in the GX Works2 project.
Open project	
Close project	Project handling commands do not exist in the configurator window.
Save project	
Save project as	
FX-series PROFIBUS-DP modules are supported.	Х
	FX-series PROFIBUS-DP modules are not supported, because intelligent function modules of FX-series are not supported by GX Works2.
QnPRH PLCs are supported.	0
The layout of the configurator window is saved per module type.	
	The layout of the configurator window is not saved. It always has the default layout after opening.
O: same as GX Configurator-DP : changed	X: not supported

### **Functional Differences between PROFIBUS-DP and Other Modules**

The main difference between PROFIBUS-DP and other intelligent function modules is that:

- The parameters in other words, initial settings of PROFIBUS-DP modules are written to the module, while in case of other intelligent function modules the parameters are written to the CPU. Only the auto-refresh settings of PROFIBUS-DP modules are written to the CPU.
- Once written to the module, the parameters cannot be read from the module to the project, because an editable configuration cannot be reconstructed in the project from the settings stored in the module. In case of other intelligent function modules it is possible to read the parameters from the CPU to the project. Only the auto-refresh settings of PROFIBUS-DP modules can be read from the CPU.
- The parameters of PROFIBUS-DP modules cannot be stored in GX Developer projects, while the
  parameters of other intelligent function modules can be written to or read from GX Developer projects. Only the auto-refresh settings of PROFIBUS-DP modules can be stored in GX Developer
  projects.

These differences affect the following functionalities of GX Works2.

#### Write to PLC / Read from PLC

The Write to PLC functionality is used to write the auto-refresh settings to the CPU and the parameters to the module. The Read from PLC functionality can be used to read the auto-refresh settings from the CPU, but the parameters cannot be read from the module. The parameters of the module are not written to the symbolic information stored in the CPU either, therefore it cannot be read from there as well.

After reading the auto-refresh settings from the CPU, it is attempted to be applied to the PROFIBUS-DP module parameters in the project. There are certain conditions when the auto-refresh settings can be applied. For a detailed description please refer to the Reading from the PLC chapter.

#### **IC Card Operations**

The Write IC Card and Write Image Data functionalities are used to write the auto-refresh settings to the IPARAM file in the card/image. The Read IC Card / Read Image Data functionalities can be used to read the auto-refresh settings from the IPARAM file in the card/image, but the parameters cannot be read.

After reading the auto-refresh settings from the card / image, it is attempted to be applied to the PROFIBUS-DP module parameters in the project. There are certain conditions when the auto-refresh settings can be applied. For a detailed description please refer to the IC Card Operations chapter.

#### Export to GX Developer Format File / Open GX Developer Format File

GX Developer projects can store only the parameters that are written to the CPU, therefore in case of PROFIBUS-DP modules only the auto-refresh settings can be stored in the GX Developer project. After exporting a GX Works2 project to a GX Developer format project, the parameters of PROFIBUS-DP modules will be deleted, unless you export each module's parameters in GX Configurator-DP format.

When opening a GX Developer project – either one that was saved with GX Developer or exported from GX Works2 – only the auto-refresh settings of PROFIBUS-DP modules will be available. After opening he auto-refresh settings can be written to the CPU, but they will not be editable in the Parameter window of the module, because the module's parameters will be set to default in the project. If you edit the module's parameters, then the auto-refresh settings will be updated to the settings you specify in the parameters. It is recommended to import the module parameters from the corresponding GX Configurator-DP project (if available) directly after opening the GX Developer format file. For details on the GX Developer format project related functionalities please refer to the <u>Other Format Files</u> chapter.

### Adding a PROFIBUS-DP Module

A PROFIBUS-DP module can be added to the "Intelligent Function Module" group of the project by calling the <u>Project→Intelligent Function Module→New Module...</u> menu command or by right-clicking the "Intelligent Function Module" node in the project navigator and calling the <u>New Module...</u> context-menu command.

MELSOFT Series GX Works	s2 (Unset Project)	- <b>O X</b>
<u>Project</u> Edit Eind/Repla	lace <u>C</u> ompile <u>V</u> iew <u>O</u> nline De <u>b</u> ug <u>D</u> iagnostics <u>T</u> ool <u>W</u> indow <u>H</u> elp	
i 🗅 🖻 💾 📮 i 🔏 🗗 🗂	: 12 전 1 백 역 역 부 문 중 중 중 중 등 등 후 후 후 두 토, :14 노 압 16 문 신 쇼 ,	
🔚 😑 📄 🞇 🔛 🛯	🖫 🗛 🛛 😥 🛯 🛗 🖕	
Navigation	Ф X	
Project		· · · · · · · · · · · ·
📑 🗈 🖻 🖗 🗿 👫 🚽		
🕀 🚱 Parameter		
Global Device Cor	New Module	
🖽 💼 Global Label	Intelligent Function Module Parameter List	
Program Setting	Read GX Configurator- <u>Q</u> P Data	
🗈 🧔 Device Memory 🛛 🕒	P <u>r</u> operty	
🔤 🗔 Device Initial Value		
Project		
Troject		
User Library		
Connection Destination	n	
	»	
	Structured Q06UI	DEH H NU

The "New Module" dialog is opened. Select the module type (PROFIBUS-DP Module) and the module name, enter the base no., slot no. and start I/O address, and optionally assign a title to the new module.

The number of occupied slots is 1, and the number of occupied I/O points is 32 in case of all three module types.

New Module		×
Module Selection		
Module Type	PROFIBUS-DP Module	•
M <u>o</u> dule Name	QJ71PB92V	
-Mount Position	QJ71PB92D QJ71PB93D	
Base No, -	✓ Mounted <u>Slot No.</u> 0 ÷	Acknowledge I/O Assignment
Specify start XY	address 0000 (H) 1 Slot Occupy [32	points]
Title setting		
Title		
		OK Cancel

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Name	Description
Module Type	Type of intelligent function module
Module Name	Exact model of intelligent function module
Base No.	Number of base where the module is mounted
Mounted Slot No.	Number of slot where the module is mounted
Specify start XY ad- dress	If checked, the automatically assigned start I/O address can be overridden
Title	Title associated to the module for identification

After entering the data and pressing OK, the module node is appended to the project tree. Under the module node additional nodes represent specific configuration tasks.

Navigation
Project
📑 🗈 🕲 🔊 🖓 👘
🕀 💮 Parameter
🖶 🚳 Intelligent Function Module
🖶 🚮 0000:QJ71PB92D
🖌 Switch Setting
Parameter

The following sub-nodes will be added:

QJ71PB92V	QJ71PB92D	QJ71PB93D
Parameter	Switch Setting	Parameter
	Parameter	

In addition, the I/O assignment information of the added PROFIBUS-DP module is reflected to the I/O assignment setting of the PLC parameter.

			Program Jarc Device 1/0 Assignme	int imultiple CPU Sett	ing Built-in Ethernet P	ort Setting
τ/Ο Δ	ssignment(*1)					
No	Slot	Type	Model Name	Points	Start VV	Switch Setting
0	PLC P		Hoder Name	Foints	Julie	
1	0(*-0) Ir	Intelligent 👻	OJ71PB92V	32Points -	· 0000	Detailed Setting
_		Taballianak	017108020	32Pointe	0020	
2	1(*-1) I	intelligent 🔹	Q171F092D	32F011t3	0020	
2	1(*-1) In 2(*-2) In	Intelligent 🗸 🗸	QJ71PB93D	32Points	0040	Select PLC type
2 3 4	1(*-1) In 2(*-2) In 3(*-3)	Intelligent	QJ71PB93D	32Points •	0040	Select PLC type

### **Parameter Window**

When the "Parameter" sub-node of a module is double-clicked in the project tree of GX Works2, a new child window is opened in the GX Works2 main window, in which the GX Configurator-DP project window is mapped.



The contents of the window are organized the same way as in the standalone version. However, there are a number of differences in the behavior and the available functions compared to the standalone version. Throughout this chapter the common functions will be described on an outline level, and the differences will be specified in detail. The detailed description of the common functions can be found in the earlier parts of this manual.

#### Structure of the Window

The Parameter window serves as a container for the different views in it. The views are implemented as docking windows and can be arranged within the window. This structure is the same in the integrated version as in the standalone version.

The layout of the window is not saved when closing the window. When closing and re-opening a window the default layout will be applied.

ROFIBUS Configurator Tasks		-	PROFIBUS Network	Global GSD data	
Setup Tasks	*	Â		🖃 — 间 GSD Database	
Master Settings			FDL:1 'Slave_Nr_001' (QJ71PBS	- 🔁 General	
GSD Device Database			_	A Driver	
🎲 I/O Mapper					
Devices for Slave-Specific				- Switche	
Transfer				🗣 💋 vo	
Export Tasks	۲	н		Valves	
POU Generation				- Controls	
Configuration Image				🔁	
Project in GX Configurator-DP				-0- MI	
Formata				📂 Encoder	
Import Tasks	۲			- 📂 NC/RC	
Import GX Configurator-DP Project		ш		Gateway	
Add GSD File				A PIC	
Import GSD Database					
				Project GSD data Global G	SD data
D 1.0		-	< III >>	Project GSD data Global G	SU data

Open window

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## Task Panel

The task panel offers project specific shortcuts to fully manage a PROFIBUS-DP project. The following figure shows the task panel available for master and slave modules in the integrated version. The list of tasks in the integrated version is mostly a subset of that of the standalone version, and there are a few tasks which are available only in the integrated version.



Refer to the **PROFIBUS** Configurator Tasks chapter for details of each task.

### Main Menu

Some of the task panel commands of the standalone version can be found in the Tool menu of GX Works2.

Most of these menu items are online and diagnostics commands, and the GX Configurator-DP Options dialog is also available via the Tool menu.

The following table shows the menu items added to the end of the Tool menu in case of the various PROFIBUS-DP modules:

Menu item
Upload Configuration Image
Download Configuration Image
Verify
Start/Stop PROFIBUS
Set Slave Address

Menu item			
Diagnostics	Toggle Monitor Mode		
	Slave Status		
	Diagnosis Messages		
	Slave I/O Test		
	PLC Autorefresh Settings		
PROFIBUS-DP Options			

### **Read-Only Mode**

When write-access is not granted to a PROFIBUS-DP module in the GX Works2 project for the current user, the Parameter window will be opened in read-only mode. It is possible to view the configuration, but all functionalities that change the configuration are disabled.

The following tasks of the task panel are disabled in read-only mode:

- I/O Mapper
- Import GX Configurator-DP Project

The following functionalities have modified behavior in read-only mode.

#### Master Settings, Slave Settings and Q-Slave Settings dialogs

- All editing in the controls of these dialogs and their sub-dialogs are disabled.
- Controls show the actual setting values.
- Addition of slave modules is disabled.

#### **PROFIBUS Network view**

• The context menu is not shown on right-click.

#### Global/Project GSD Data view

- Drag & drop will be ineffective.
- The "Add Slave to Project" item in the context menu of slaves is ineffective.
- Double-clicking a slave has no effect.

#### Operation when the Start I/O No. is not set

If the start I/O address becomes unset (e.g. because another module is added to the same position), the Parameter window will display "No setting" for the start I/O address.



Additionally, the following functionality will not be available:

- Master Settings
- Q-Slave Settings
- Devices for Slave-Specific Transfer
- POU Generation
- Export Configuration Image
- Export Project
- Import GX Configurator-DP Project

- Project Documentation
- Documentation of I/O-Mapping
- Upload Configuration Image
- Download Configuration Image
- Verify
- Start/Stop PROFIBUS
- Set Slave Address
- All Diagnostics functionalities

### **Switch Setting Dialog**

QJ71PB92V	QJ71PB92D	QJ71PB93D
O*	0	х

\* The Switch Setting dialog is only available in case of a QnPRH PLC project.

The Switch Setting dialog can be used to specify the switch settings of a module in a convenient way instead of writing hexadecimal values directly in the I/O Assignment page of the PLC Parameter dialog.

### Switch settings for QJ71PB92D modules

The dialog can be opened via the "Switch Setting" sub-node of the module in the project tree of GX Works2.

Navigation
Project
📑 🗅 🖻 🗞 🗿 📲
🕀 💮 Parameter
🖻 👜 Intelligent Function Module
🖻 🚮 0000:QJ71PB92D
Switch Setting
🚊 🖓 🛅 0020:QJ71PB93D
Parameter

QJ71PB92D modules have a Switch Setting dialog. The Switch Setting dialog can be opened only if the start I/O address of the module is set and there is no conflict.

	1				
Switch	Setting 0000	QJ71PB92D	1	×	
Cou	tput status at C	PU stop erro	r		
	← Continue	2	C Stop		
	se QJ71PB92V	module in QJ	71PB92D com	patible mode	1
3		4	OK	5 Cancel	

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	Name	Description	Choices / setting range	Default
1	_	Starting I/O address of the module	0000 to 0FE0	_
2	Output status at CPU stop error	Set whether communica- tion with the slave modules should be continued or stopped if the CPU stops with error	<ul><li>Continue</li><li>Stop</li></ul>	Continue
3	Use QJ71PB92V module in QJ71PB92D compat- ible mode	If checked, a QJ71PB92V module in this position will operate identically to a QJ71PB92D module	<ul><li>Checked</li><li>Unchecked</li></ul>	Unchecked
4	ОК	Save settings and close dialog	_	Default button
5	Cancel	Discard changes and close dialog	_	_

When the Switch Setting dialog is opened, its controls are initialized to the actual values of the switches stored in the project (in the switch setting of the PLC parameter).

When the Switch Setting dialog is closed, the switch values representing the settings are written to the project (the switch setting of the PLC parameter).

#### For example:



When write-access is not granted to the switch settings for the current user, the dialog will be opened in read-only mode. It will be possible to view the configuration, and the controls will be enabled, but the OK button will be disabled, so changes will not be saved.

### Switch settings for QJ71PB92V modules

In a QnPRH project QJ71PB92V modules will have a Switch Setting Dialog. In projects for other Q-series PLCs there will be no Switch Setting dialog for QJ71PB92V modules.



QJ71PB92V module in QnPRH project

The dialog is specified as follows:

	Switch Setting 0000:QJ71PB92V
CONTRACTOR DOLLARS	Standby master FDL address (0-125, or leave blank for no setting):
	OK 31 Cancel

	Name	Description	Choices / setting range	Default
1	Standby master FDL address (0-125, or leave blank for no set- ting)	FDL address of the QJ71PB92V module on the standby system	- 0125 - Empty for 'no set- ting'	Empty
2	ОК	Validate and save settings, then close the dialog	_	Default button
3	Cancel	Close the dialog without saving settings	_	-

After pressing the OK button, the setting will be validated. In case of error the following message will be displayed and the dialog will be kept open:



The following figures show the relation between the "Standby master FDL address" setting in the

Switch Setting dialog and the corresponding PLCs switch value (which can be seen in the Switch Setting page of the PLC Parameter).

When closing the dialog with OK button:

Sv	Switch Setting 0000:QJ71PB92V			If the solution of the low	etting is not blank switch 1 will be 1 7 FDL address wil er byte of switch	t, the higher 10H and the 11 be written to 1.		
		Switch 1			Switch 2	Switch 3	Switch 4	Switch 5
1	0	1	4	Н	Blank	Blank	Blank	Blank
	•	Blank	~		Blank	Blank	Blank	Blank
Switch Setting 0000:QJ71PB92V  Standby master FDL address (0-125, or leave blank for no setting):  OK Cancel					for no setting):	If the set bl	setting is blank, s ank.	switch 1 will be

When opening the Switch Setting dialog:



### QJ71PB92D Compatible Mode for QJ71PB92V

QJ71PB92V modules can be used in QJ71PB92D compatibility mode. In this mode the QJ71PB92V module identifies itself as a QJ71PB92D module and operates identically to one. This mode is useful when a QJ71PB92D module has to be replaced in a system. The existing configuration can be kept.

Steps to enable QJ71PB92D mode of a module in a new project:

- 1. Add a QJ71PB92D module at the appropriate module position and start I/O address.
- 2. Open the Switch Settings dialog of the module, check the "Use QJ71PB92V module in QJ71PB92D compatible mode" checkbox and click OK.
- 3. Open the Parameter window of the module; set up or import the module's configuration.
- 4. Call Online → Write to PLC and write the Parameter, Switch settings and Intelligent Function Module Parameters to the PLC. Close the dialog.
- 5. Reset the PLC. Now the QJ71PB92V module operates as a QJ71PB92D.
- 6. Call Online Write to PLC, switch to the Intelligent Function Module tab and write the

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PROFIBUS-DP configuration to the module.

Steps to enable QJ71PB92D mode for an existing module in the project:

- 1. Open the Switch Settings dialog of the QJ71PB92D module, check the "Use QJ71PB92V module in QJ71PB92D compatible mode" checkbox and click OK.
- 2. Call Online → Write to PLC and write the Parameter and Switch settings to the PLC. Close the dialog.
- 3. Reset the PLC. Now the QJ71PB92V module operates as a QJ71PB92D.
- 4. Call Online → Write to PLC, switch to the Intelligent Function Module tab and write the PROFIBUS-DP configuration to the module.

### **Deleting a PROFIBUS-DP Module**

QJ71PB92V	QJ71PB92D	QJ71PB93D
0	0	0

When a PROFIBUS-DP module is deleted from the GX Works2 project, the corresponding user library and program task will be deleted as well, if they exist. See the POU Generation chapter for details on the PROFIBUS-DP related user library and program task handling.

### Changing the Start I/O Address of a PROFIBUS-DP Module

QJ71PB92V	QJ71PB92D	QJ71PB93D
0	0	0

The start I/O address of the module can be changed using:

- The Property dialog of the module
- The I/O Assignment page of the PLC Parameter dialog

The Property dialog can be invoked via the context menu of the module in the project navigator. It opens a dialog, which is essentially the same as the one displayed when adding a new module, but the module type and model name cannot be changed.

Property of 0000:QJ7	1PB92V 💌
Module Selection -	
Module Type	PROFIBUS-DP Module
Module Name	QJ71PB92V 💌
Mount Position Base No,	Mounted Slot No.     Acknowledge I/O Assignment       Y address     0040     (H)     1 Slot Occupy [32 points]
Title setting	
<u>T</u> itle	
	OK Cancel

If there is a generated program task and user library associated with the module, they will be updated to contain the modified addresses after changing the start I/O address. Refer to the POU Generation chapter for details on the PROFIBUS-DP related user library and program task handling. If the Parameter window is in monitor mode, and the start I/O address is changed, monitoring will be stopped.

### **Type Change of Intelligent Function Module**

QJ71PB92V	QJ71PB92D	QJ71PB93D
0	0	х

Using the following process the type of a master module can be changed from QJ71PB92V to QJ71PB92D or vice versa:

- 1. Open the Parameter window of the module.
- 2. Export the project to file using the "Project in GX Configurator-DP Format" command from the "Export Tasks" group.



3. Take notes of the base number, slot number and starting I/O address of the module, because they will be needed later.

Property of 0000:QJ71	PB92V	×		
Module Selection Module Type Module Name	PROFIBUS-DP Module QJ71PB92V	<b>_</b>		
Mount Position Base No	Mounted Slot No. 0	Acknowledge I/O Assignment points]	3	
Title setting Title				
		OK Cancel		

4. Delete the module from the GX Works2 project tree.

Project		Project
ピ 🗈 🖻 🕑 🖉 👫		📑 🖻 🕲 😼 🖊 -
🖻 🚯 Parameter		Parameter
PLC Parameter		PLC Parameter
Remote Descriver		Remote Destructed
Intelligent Function Module	(4)	Intelligent Euroction Module
0000:QJ71PB92V	0	Global Device Comment
Parameter 🕒 Copy		🗊 🚠 Global Label
Global Device Com		Setting
Global Label     Register to Intellige	nt Function Module Monitor	
Program Setting		Device Initial Value
Device Memory		
Device Initial Value	g	
Project		Project
🖳 User Library		User Library
Connection Destination		Connection Destination
»		» *

5. Create a new module in the GX Works2 project tree with the new module type and the previously retained base number, slot number and starting I/O address.

6	Project
New Module       Module Selection       Module Type       PROFIBUS-DP Module       Mgdule Name       Q171PB92D       Mount Position       Base No.       Y Specify start <u>X</u> Y address       0000       (H)       1 Slot Occupy [32 points]	Gook Label      Gook Labe
OK Cancel	Project

6. Open the Parameter window of the module.

7. Import the previously exported project file using the "Import GX Configurator-DP Project" command of the "Import Tasks" group.



ቻ Open					×
Look <u>i</u> n:	🐌 Temp		•	← 🗈 💣 📰 ▾	
C.	Name	*		Date modified	Туре
Recent Places	DP QJ71PB92V	0001.dp2		2011.10.19. 13:30	GX Config
Desktop					
Libraries					
Computer					
Network					
	•	III			۰.
	File <u>n</u> ame:	QJ71PB92V_0001.dp2		<b>-</b>	<u>O</u> pen
	Files of type:	GX Configurator-DP proje	ct file (*.dp	2) 🔹	Cancel

8. At the end of the process the project will contain the changed type of PROFIBUS-DP module with the original settings.



The following table shows the possible source and destination types where the above process is applicable:

Source Destination	QJ71PB92V	QJ71PB92D	QJ71PB93D
QJ71PB92V	х	0	х
QJ71PB92D	0	Х	х
QJ71PB93D	Х	Х	Х

O: applicable X: not applicable

### **Other Format Files**

### **Opening a GX Developer Format File**

QJ71PB92V	QJ71PB92D	QJ71PB93D	
0	0	0	

When opening a GX Developer project, PROFIBUS-DP modules will be added to the GX Works2 project for each PROFIBUS-DP module existing in the IPARAM file of the converted project. This is the same specification as with other intelligent function modules. Difference from other intelligent function modules

GX Developer projects contain only the auto-refresh settings of PROFIBUS-DP modules. In case of master modules (QJ71PB92V and QJ71PB92D) it is not possible to re-create the PROFIBUS network based on only the auto-refresh settings, because there is no information about master settings, used slaves, etc. in the GX Developer project. Therefore a default configuration will be added for each master module included in the opened GX Developer project.

The result of this limitation for master modules is that after opening a GX Developer project:

- The auto-refresh settings will not be visible in the Parameter window, but the auto-refresh settings related functionalities (e.g. Write to PLC, Intelligent Function Module Parameter List, etc.) will be able to use them.
- After changing the PROFIBUS-DP configuration of a module in the Parameter window, the auto-refresh settings will be updated in the GX Works2 project to those set in the Parameter window. After this point the auto-refresh settings related functionalities (e.g. Write to PLC, Intelligent Function Module Parameter List, etc.) will use the updated settings.

The effects of this limitation can be avoided if the original GX Configurator-DP projects used for the modules included in the GX Developer project's IPARAM file are available. The following process can be applied to import a GX Developer project containing PROFIBUS-DP modules:

- 1. Open GX Developer project using the Project → Open Other Data → Open Other Project... menu command.
- Open the Parameter window of each PROFIBUS-DP master module and use the Import Tasks <u>></u>Import GX Configurator-DP Project... command to import the configuration of each module.

### Export to GX Developer Format File

QJ71PB92V	QJ71PB92D	QJ71PB93D	
0	0	0	

When exporting the project to GX Developer format, the auto-refresh settings of PROFIBUS-DP modules having will be included in the IPARAM file of the exported project. This is basically the same specification as with other intelligent function modules, except for the fact that since the initial settings of PROFIBUS-DP modules are not stored in the IPARAM file, PROFIBUS-DP modules having no auto-refresh settings will not be part of the IPARAM file.

Apart from the auto-refresh settings, other parameters of PROFIBUS-DP modules will not be part of the GX Developer project. It is recommended to export the settings of each PROFIBUS-DP module in the project using the Export Tasks $\rightarrow$ Project in GX Configurator-DP Format... command of the Parameter window. Afterwards the exported project can be opened in the standalone version of GX Configurator-DP.

### **POU Generation**

QJ71PB92V QJ71PB92D		QJ71PB93D
0	0	Х

#### Availability

POU generation can be performed only in the European version of GX Works2 and only in structured projects, therefore:

 The "POU Generation" task of the PROFIBUS-DP Parameter window will be available only in structured projects of the European version of GX Works2.

Exception: in case of Q Remote I/O CPU the "POU Generation" task will be enabled in simple projects, because in case of this CPU the objects are not written to the project, but written to file that is imported to the controlling PLC's project.

 Automatic POU generation will be performed only in structured projects of the European version of GX Works2.

POU generation will not be performed if the start I/O no. of the module is not set.

#### Overview

GXDP has a function that creates PLC program code based on the parameter settings and the I/O mapping information of the module. The generated program parts assist the application programmer in accessing slave input and output using symbolic variables and also perform the data transfer between the CPU and the master module in case copy instructions are used for this purpose instead of auto-refresh.

In the stand-alone version it can be used to create a user library and an ASCII export file with the necessary program objects, which can be imported to a GX IEC Developer project for use.



In the integrated version there is no need for export/import, because the necessary objects will be directly added to the GX Works2 project that contains the PROFIBUS-DP module.



The update of the program code must be performed every time the PROFIBUS-DP configuration is changed in a way that affects the program code. For example, if a new I/O module is added to a slave, or a variable definition is changed in the I/O Mapper, POU generation must be called to update the program code in the project. However, in the integrated version it will be possible to automate this update process: whenever the PROFIBUS-DP configuration is saved, it will be checked whether there has been any change in the configuration for which POU generation is necessary, and in such a case it will be performed. Automatic POU generation can be turned on in the Master Settings dialog of the module (see the <u>Master Settings</u> chapter for details).

The following table shows the advantages of the integrated version over the stand-alone version in

terms of the POU generation feature:

In the integrated version the same objects are created as in the standalone version:

- User library
  - Structured Data Types
  - o Global Variables
  - $\circ\,$  Two POUs
- Program Task

The following table shows the purpose and naming of the generated objects:

Object	Purpose	Name format	Name example
User lib- rary	Container for SDTs, global variables and POUs	<moduletype>_<startingio></startingio></moduletype>	QJ71PB92V_0000
SDTs	Data types for I/O mapping	tHA <starting i="" no.="" o="">SLV<fdl address&gt;MOD<module index<br="">(slot)&gt;</module></fdl </starting>	tHA0SLV10MOD1
Global variables	Individual variables for I/O mapping	user-defined	-
POU	POU for application specific initializa-	<moduletype>_<startingio>_Init</startingio></moduletype>	QJ71PB92V_0000_Init
POU	POU for I/O data access	<moduletype>_<startingio></startingio></moduletype>	QJ71PB92V_0000
Task	A program task in the program re- source named "PROFIBUS" or "MAIN" (depending on PLC type*), containing calls to the previously de- scribed POUs	TASK_ <moduletype>_<start- inglO&gt;</start- </moduletype>	TASK_QJ71PB92V_0000

\*The task will be added to the program resource "MAIN" in case of basic model QCPU. For all other CPUs the task will be added to the program resource "PROFIBUS".

PLC type	Target program
Q00, Q00J, Q01	MAIN
Other	PROFIBUS

If POU generation is used in a project for basic model QCPU, Ladder POUs should not be used in the project, because it would result in mixed use of structured and non-structured languages in the MAIN program, which is not allowed by the compiler.

#### Example:



The user library and the program task will be created at the following events:

- Manual POU Generation
  - o When the "POU Generation" command from the task panel of the Parameter window is clicked.
- Automatic POU Generation
  - When the Parameter window is saved and there have been changes in the settings that affect the user library, or the user library doesn't exist. The Parameter window is saved in the following cases if its contents have been modified:
    - when the window is closed
    - when the project is saved
    - when some function requests the saving of the window (e.g. before build)
  - $_{\odot}$  When the starting I/O address of the module is changed:
    - in the Property dialog of the module
    - in the I/O Assignment page of the PLC Parameter

### **Manual POU Generation**

#### All supported CPUs except Q Remote I/O

The following confirmation message will be displayed when clicking the "POU Generation" command in the task panel of the Parameter window.

20000:QJ71PB92V[]-Parame 🗵	
PROFIBUS Configurator Tasks	
Setup Tasks	MELSOFT GX Configurator-DP
Master Settings J GSD Device Database J O Mapper Devices for Slave-Specific Transfer	Perform POU generation?
Export Tasks	<u>Y</u> es <u>N</u> o

The operation will be performed only if the you answer Yes. Afterwards, the handling specified in the Common Operation chapter will apply.

#### Q Remote I/O

In Q Remote I/O projects this task will perform the same action as in the standalone version: the user library and task will be exported to file, because in case of the Q Remote I/O CPU the program code must be added to the project of the host system, not the Remote I/O system.

2000:QJ71PB92V[]-Parame 🗵	牙 Select the PO	U file (for Q06UD	EH)		×
PROFIBUS Configurator Tasks	Save in:	👔 Temp	•	← 🗈 💣 📰▼	
Setup Tasks	C.	Name	*	Date modified	Туре
Master Settings	Recent Places		No items match your s	earch.	
1 GSD Device Database					
I/O Mapper	Dedden				
Devices for Slave-Specific Transfer	Desktop				
	-				
Export Tasks	Libraries				
POU Generation					
Configuration Image	Computer				
	Network				
		•	III		F
		File <u>n</u> ame:	QJ71PB92V_0002.asc	•	<u>S</u> ave
		Save as type:	GID POU ASCII Files (*.asc)	•	Cancel

The behavior is the same as in the standalone version.

### **Automatic POU Generation**

Automatic POU Generation can be enabled for each module in the Master Settings dialog of the PROFIBUS-DP Parameter window:

Entert BufferDevices	he device addresses for buffe	ring I/O and dia	gnostic dal	ta.
C Slave Specific Transfer		Edįt Devices		
Block <u>I</u> ransfer	Input	D1000	to	D1022
	Output	D2000	to	D2015
<u>C</u> omm. Trouble Area			to	
🔲 E <u>x</u> td. Comm. Trouble Area			to	
Slave Status Area			to	
Data Transfer between	CPU and master module using			
Copy Instructions	Auto <u>B</u> efresh	Consistency		юу
PLC code options C Data transfer only C User <u>v</u> ariables				
Contents of user library: s <ul> <li>Automatically general</li> </ul>	tart of data transfer, global va	riables for all DL	JTs	

The user library and the program task will be created automatically at the following events:

- When the Parameter window is saved and there have been changes in the settings that affect the user library, or the user library doesn't exist. The Parameter window is saved in the following cases:
  - $\circ$  when the window is closed
  - $\circ$  when the project is saved
  - o when some function requests the saving of the window (e.g. before build)
- When the starting I/O address of the module is changed:
- in the Property dialog of the module

o in the I/O Assignment page of the PLC Parameter

#### **Operation when the Parameter Is Saved**

When the Parameter window of a PROFIBUS-DP master module is saved, it will be checked whether the user library and task must be created, updated or deleted. The performed actions depend on whether these objects already exist in the project.

#### If neither the user library nor the task exists

If the corresponding user library and task don't exist, they will be automatically created. The handling specified in the <u>Common Operation</u> chapter will apply.

#### If the user library doesn't exist, but the task exists

If only the corresponding user library doesn't exist, but the task does, it is assumed that the user library has been deleted earlier due to changes in the configuration. You will be asked whether to create the user library.



If you answer Yes, the handling specified in the <u>Common Operation</u> chapter will apply. If you answer No, no action will be taken. You can re-create the user library later by calling the "POU Generation" command or you will be automatically asked this question again next time the Parameter window is saved.

#### If the user library exists

If the corresponding user library already exists, it will be checked whether the configuration has been changed since the last opening/saving of the parameter window in any way that affects the content of the user library. In such a case the following message will be displayed:

MELSOFT	iX Configurator-DP
?	The user library QJ71PB92V_0000 must be updated due to changes in the configuration. Do you want to update it now? Click Yes to update the user library now. Click No if you plan further changes to the configuration until you write the project to the PLC.
	<u>Y</u> es <u>N</u> o

If you answer Yes, the handling specified in the <u>Common Operation</u> chapter will apply. If you answer No, the user library will be uninstalled. You can re-create the user library later by calling the "POU Generation" command or you will be automatically asked again next time the Para-
meter window is saved.

#### Operation when the Starting I/O Address Is Changed

When the starting I/O address of the module is changed in the Property dialog or in the PLC Parameter dialog, the task and the user library will be automatically updated in the GX Works2 project.

The old task and user library will be deleted from the project, and new ones will be added having names that reflect the changed starting I/O address. The identifiers and addresses used in the user library will be changed to be based on the new starting I/O. The handling specified in the Common Operation chapter will apply.



#### **Common Operation**

In this sub-chapter the task and user library creation/update will be specified, which is performed in

all of the previously described cases when it is necessary.

If the program task exists, it will be automatically deleted and created again.

If the user library exists, it will be automatically deinstalled. Afterwards GXDP will perform the same checks on the configuration as in the standalone version (device addresses, overlaps, global variable identifiers, etc.), and display possible error and/or warning messages. In case of error or user break the user library will not be created, otherwise the user library will be added to the project without further interaction.

### Intelligent Function Module Parameter List Dialog

QJ71PB92V	QJ71PB92D	QJ71PB93D
0	0	0

The Intelligent Function Module Parameter List dialog can be used to check the number of parameters of each module and specify which modules will be included in the intelligent function module parameter download.

Two types of parameters exist: initial settings and auto-refresh settings, but in case of PROFIBUS-DP modules only the auto-refresh settings are regarded by the intelligent function parameter download, because the initialization settings are downloaded directly to the module in the Intelligent Function Module tab of the Write to PLC dialog.

XY Address	Module Name	Initialization(Count)	Auto Refresh(Count)
0000	QJ71PB92V	-	✓ Setting Exist(253)
0020	QJ71PB93D	-	Setting Exist(2)
Explanation -			
Confirm setti	ng status of the intellige	ent function module, and s	witch valid/invalid(*) of
intelligent fur	nction module paramete	r if necessary.	
(tobalant)			
("Checked i	tems will be created as	Intelligent function module	parameter)
Intelligent Fur	nction Module Paramete	r Setting Count Total	
Initial	0 (Max:409	6) Auto Refresh	255 (Max:2048)
	C C C C C C C C C C C C C C C C C C C		200 (Hannes Is)

In the "Initialization" column the cell will always contain "-", and it will be grayed, while the "Auto Refresh" column will contain either "No Setting" or "Setting Exist (n)", where n is the number of auto-refresh settings. In the latter case there will be a checkbox to specify whether the settings should be downloaded to the PLC.

### **Online Data Operation**

QJ71PB92V	QJ71PB92D	QJ71PB93D
0	0	0

The following functionalities of GX Works2 can be used to read, write, verify and delete PROFIBUS-DP module related data:

- Write to PLC
- Read from PLC
- Verify with PLC
- Delete from PLC

The auto-refresh and switch settings are transferred to the CPU and the PROFIBUS-DP parameters are transferred to the module's flash-ROM.

The auto-refresh and switch settings can be managed in the PLC Module tab of the corresponding dialogs.

The parameters can be written to the module in the Intelligent Function Module tab of the Write to PLC dialog, but the parameters cannot be read from the module to the project. The Tool $\rightarrow$ Verify command of the Parameter window can be used to verify the parameters of the project with the PLC.

Operation	Auto-refresh settings Switch settings	Parameters
Write	Write to PLC / PLC Module	Write to PLC / Intelligent Function Module
Read	Read from PLC / PLC Module	-
Verify	Verify with PLC / PLC Module	PROFIBUS-DP Parameter Window
Delete	Delete PLC Data	-

# Writing to the PLC

# **PLC Module Tab**

Online Data Operation						×
Connection Channel List						
Serial Port PLC Module Connection(USB)						System Image
C Read C Write C Verify C Delete						
PLC Module Intelligent Function Module Exe	cution Target	Data( N	lo /	Yes )		
Title						
Edit Data	Select Al	Canc	el All Sele	ections		Option Display Size
Module Name/Data Name	Title	Target	Detail	Last Change	Target Memory	Size 🔺
GXDP_TestProject_CheckAR1						
Symbolic Information					Program Memory/D.	
Symbolic Information						
PLC Data					Program Memory/D.	
- New Program (Program File)			Detail			
MAIN				2011/04/20 13:21:17		
Parameter				2011/04/20 12:21:12		772 Puter
PLC/Network/Remote Password/Switch Setting				2011/04/20 13:21:13		2756 Butes
Clobal Davice Comment		•		2011/08/12 16:28:24		3730 Bytes
		H	Detail	2011/04/20 13:21:15		
COMMENT			- Ctall	2011/04/20 15:21:15		<b>_</b>
Necessary Setting( No Setting / Already Set ) Writing Size 4,528Bytes	Set if it is need	ded( No S	Setting /	Already Set ) Free Volume 242,596	Use Volume 3, 164Bytes	Refres <u>h</u>
Related Eunctions <<					Exe	ecute Close
		B				
Remote Set Clock PLC User Data Writ Operation	e Title	Format PL Memory	C Cle	ear PLC Memory Arra M	ange PLC lemory	

The switch settings of PROFIBUS-DP modules will be written to the PLC if the "PLC/Network/Remote Password/Switch Setting" item is checked.

The auto-refresh settings of PROFIBUS-DP modules will be written to the PLC if the "Intelligent Function Module (Initial Setting/Auto Refresh) item is checked, and the module is included in the "Intelligent Function Module Parameter List" (refer to the Intelligent Function Module Parameter List Dialog chapter for details).

Online Data Operation				
Connection Channel List				
Serial Port PLC Module Connection(USB)				System Image
🛄 🕨 👔 👔 🕐 🖻 📴	C <u>V</u> erify			
PLC Module     Intelligent Function Module     Execution	Target Data( No	/ Yes )		
	Select <u>A</u> ll	Cancel All Selections		
Module Name/Detail Setting Item Name	Valid Target	Detail	Module Overview	
0000:QJ71PB92V			PROFIBUS	-DP Module
0020:QJ71PB93D				
			Model Name Q	171PB92V
			Start XY	0000
			Installation Slot	
			Title	
			Parameter will be w	ritten to flash ROM.
			About writing date	
			-Please select parar	meter of PLC module
			to write auto refres	h and switch setting
			parameter.	in module
				<b>~</b>
Necessary Setting( No Setting / Already Set ) Set if it is need	ded( No Setting	/ Already Set )		
Related Functions <<			[	Execute
			<u>_</u>	
Remote Set Clock PI C Liser Data Write Title	Format PL	Clear PI C Memory	Arrange PLC	
Operation	Memory	s cicar reciricitiony	Memory	
1				

Intelligent Function Module Tab

The parameters of the PROFIBUS-DP modules can be written to the module by selecting them in the Intelligent Function Module tab of the dialog.

#### **Reading from the PLC**

The initial settings of PROFIBUS-DP modules cannot be read from the PLC, because a PROFIBUS-DP configuration cannot be recreated from the data on the PLC. Only the switch settings and the auto-refresh settings can be read.

#### **PLC Module Tab**

Inline Data Operation						×
Connection Channel List						
Serial Port PLC Module Connection(USB)						System Ima <u>q</u> e
	C <u>V</u> erify	C	<u>D</u> elete			
PLC Module	Execution Target Dat	ta( No	/ Yes	)		
Title						
Module Data Parameter +Pro	gram Select <u>A</u> ll	Cancel All S	elections			
Module Name/Data Name	Title/Project Name	Target	Detail	Last Change	Target Memor	y Size
Q06UDEHCPU					Decement Memory	
PLC Data					Program Memor	y
Parameter		~				,
PLC/Network/Remote Password/Switc		•		2011/08/03 13:55:44		728 Bytes
Intelligent Function Module (Initial Set		✓		2011/08/03 13:59:24		144 Bytes
Oevice Memory			Detail			
Necessary Setting( No Setting / Already Set	) Set if it is needed	( No Setting	/ Alrea	ady Set ) Acquir	e Symbolic Inform	mation Project Name
OBytes				242,596	3,164Bytes	Refres <u>h</u>
Related Eunctions <<					<u>Exec</u>	ute Close
<b>, 1</b> 🚺 🚹		b				
Remote Set Clock PLC User Data Operation	Write Title For M	mat PLC lemory	Clear PLC	Memory Arrange P Memory	LC	

The switch settings of PROFIBUS-DP modules will be read from the PLC if the "PLC/Network/Remote Password/Switch Setting" item is checked.

Since the PROFIBUS-DP modules' initial settings can't be uploaded using this dialog, they will not be read from the PLC even if the "Intelligent Function Module (Initial Setting/Auto Refresh)" item is checked.

If the "Intelligent Function Module (Initial Setting/Auto Refresh) item is checked:

- A new PROFIBUS-DP module will be added to the project with default configuration for each PROFIBUS-DP module that has auto-refresh settings on the PLC but doesn't exist in the project.
- For each existing and newly added module the auto-refresh settings will be read from the PLC. The auto-refresh settings will be attempted to be applied to the corresponding module in the project:
  - Master modules: the auto-refresh settings are applied to the module if they are valid for the actual network configuration in the project, i.e. the number of auto-refresh settings, their buffer memory address and size must match the I/O area of the slaves in the network. In case of mismatch between the network configuration of the project and the PLC, default auto-refresh settings will be applied to the PROFIBUS-DP module in the project.
  - $\circ\,$  Slave modules: the auto-refresh settings are applied to the module.

The concept of auto-refresh upload is: if the auto-refresh settings of the uploaded IPARAM are valid for the module configuration in the GX Works2 project, they are applied. If the auto-refresh settings of the uploaded IPARAM are not valid for the module in the GX Works2 project, default auto-refresh settings are applied.

QJ71PB93D modules are simple modules with one auto-refresh setting for input and one auto-refresh setting for output. Therefore the settings are always applicable.

Master modules (QJ71PB92V and QJ71PB92D) are not so simple. The auto-refresh settings can be applied only if the slaves in the network of the master have the same buffer memory address and

data size as the auto-refresh entries.

Condition	Result
Module already exists in the project with the same net- work configuration as the module on the PLC.	Auto-refresh settings are applied.
Module already exists in the project with different network configuration as the module on the PLC.	Auto-refresh settings are set to de- fault.
Module does not exist in the project. It is created during reading.	Auto-refresh settings are set to de- fault.

#### Intelligent Function Module Tab

PROFIBUS-DP modules will not be shown on the "Intelligent Function Module" tab, because the settings stored in the flash-ROM of the module cannot be read from the PLC, as they are insufficient to recreate the PROFIBUS-DP configuration in the project.

# Verifying Data with the PLC

#### **PLC Module Tab**



The switch settings of PROFIBUS-DP modules will be verified with the PLC if the "PLC/Network/Remote Password/Switch Setting" item is checked.

The auto-refresh settings of PROFIBUS-DP modules will be verified with the PLC if the "Intelligent Function Module (Initial Setting/Auto Refresh) item is checked.

Since the PROFIBUS-DP modules' initial settings are not stored in the IPARAM file of the PLC, they will not be verified with the PLC even if the "Intelligent Function Module (Initial Setting/Auto Refresh)"

item is checked. The initial settings can be verified using the Tool $\rightarrow$ Verify menu item of the corresponding module's Parameter window (see the <u>Verify chapter</u> for details).

#### Intelligent Function Module Tab

PROFIBUS-DP modules will not be shown on the "Intelligent Function Module" tab, because their settings cannot be verified using this dialog.

# **Deleting from the PLC**



The switch settings of PROFIBUS-DP modules will be deleted from the PLC if the "PLC/Network/Remote Password/Switch Setting" item is checked.

The auto-refresh settings of PROFIBUS-DP modules will be deleted from the PLC if the "Intelligent Function Module (Initial Setting/Auto Refresh) item is checked.

Since the PROFIBUS-DP modules' initial settings are not stored in the IPARAM file of the PLC, they will not be deleted from the PLC even if the "Intelligent Function Module (Initial Setting/Auto Refresh)" item is checked.

#### Verifying Data with another Project

QJ71PB92V	QJ71PB92D	QJ71PB93D
0	0	0

PROFIBUS-DP settings will be supported in the project verify functionality of GX Works2 with limitations. The switch settings and auto-refresh settings can be verified, but other parameters cannot be verified.

The switch settings of PROFIBUS-DP modules are verified if the "PLC/Network" item is checked. The auto-refresh settings of PROFIBUS-DP modules are verified if the "Intelligent Function Module (Initial Setting/Auto Refresh) item is checked.

#### **IC Card Operations**

QJ71PB92V	QJ71PB92D	QJ71PB93D
0	0	0

#### Write IC Card / Image



The switch settings of PROFIBUS-DP modules will be written to the IC card / image if the "PLC/Network/Remote Password/Switch Setting" item is checked.

The auto-refresh settings of PROFIBUS-DP modules will be written to the IC card / image if the "Intelligent Function Module (Initial Setting/Auto Refresh) item is checked, and the module is included in the "Intelligent Function Module Parameter List" (refer to the Intelligent Function Module Parameter List Dialog chapter for details).

Since the PROFIBUS-DP modules' initial settings are not part of the intelligent function module parameters, they will not be written even if the "Intelligent Function Module (Initial Setting/Auto Refresh)" item is checked.

C Memory Card Operation	Image Data Operation				
DriveRath Fr.\	Dive.Pash         Fr.1           KC.Memory.Card.Image Data         [Q12894.img           Memory.Card.Image Data         [Q12894.img				
🔜 👯 🖉 c Read 🔿 Wite	Read C Write				
Tide					
IC Memory Data <u>Barameter +Program</u> Select <u>Al</u> Cagel Al Selections	mage Data Barameter +Program Select All Cagoel All Selections				
Module Name/Data Name Title CPU Target Detail Last Change Size	Module Name/Data Name Title CPU Target Detail Last Change Size				
	- Idl Q12FRH.ing				
Symbolic Information	PLC Data				
Colorador	B C (Network Remote Resource/Switch Setting 01200H 2012/02/24 17:14:55 884 Bytes				
P.C.Network/Remote Password/Switch Setting 012PRH      2012/02/24 17:10:26 884 Bytes	A Intelligent Function Module (Initial Setting/A 01298H 2012/02/24 17:14:56 426 Bytes				
🖓 Inteligent Function Module (Initial Setting/A Q12PRH 🗹 2012/02/24 17:10:26 426 Bytes					
Ø Indegret Function Hodde (Intel Setting) A Q1289+1 92 2012/02/14 17:10:26 426 bytes             Necessary Setting( No Setting / Already Set )             Necessary Setting( No Setting / Already Set )             Execute             Execute             Execute             Execute					

### Read IC Card / Image

The switch settings of PROFIBUS-DP modules will be read from the IC card / image if the "PLC/Network/Remote Password/Switch Setting" item is checked.

If the "Intelligent Function Module (Initial Setting/Auto Refresh) item is checked:

- A new PROFIBUS-DP module will be added to the project with default configuration for each PROFIBUS-DP module that has auto-refresh settings in the IC card / image but doesn't exist in the project.
- For each existing and newly added module the auto-refresh settings will be read from the IC card / image. The auto-refresh settings will be attempted to be applied to the corresponding module in the project:
  - o Master modules: the auto-refresh settings are applied to the module if they are valid for the ac-

tual network configuration in the project, i.e. the number of auto-refresh settings, their buffer memory address and size must match the I/O area of the slaves in the network. In case of mismatch between the network configuration of the project and the settings on the IC card / image, default auto-refresh settings will be applied to the PROFIBUS-DP module in the project.

 $\,\circ\,$  Slave modules: the auto-refresh settings are applied to the module.

The concept of auto-refresh reading is: if the auto-refresh settings of the read IPARAM are valid for the module configuration in the GX Works2 project, they are applied. If the auto-refresh settings of the read IPARAM are not valid for the module in the GX Works2 project, default auto-refresh settings are applied.

QJ71PB93D modules are simple modules with one auto-refresh setting for input and one auto-refresh setting for output. Therefore the settings are always applicable.

Master modules (QJ71PB92V and QJ71PB92D) are not so simple. The auto-refresh settings can be applied only if the slaves in the network of the master have the same buffer memory address and data size as the auto-refresh entries.

Condition	Result
Module already exists in the project with the same net- work configuration as in the data of the IC card / image.	Auto-refresh settings are applied.
Module already exists in the project with different network configuration as in the data of the IC card / image.	Auto-refresh settings are set to de- fault.
Module does not exist in the project. It is created during IC card / image reading.	Auto-refresh settings are set to de- fault.

Since the PROFIBUS-DP modules' initial settings are not part of the intelligent function module parameters on the IC card / image, they will not be read even if the "Intelligent Function Module (Initial Setting/Auto Refresh)" item is checked.

#### Printing

QJ71PB92V	QJ71PB92D	QJ71PB93D
0	0	Х

The PROFIBUS-DP configuration and the I/O-mapping information can be printed using the "Project Documentation" and "Documentation of I/O-Mapping" task panel commands of the Parameter window, respectively. These commands create a HTML document of the corresponding settings and open it in the default browser, which can be used to print the documents.

The Project  $\rightarrow$  Print Window... and Project  $\rightarrow$  Print Window Preview menu items of GX Works2 are disabled when the Parameter window has the focus.

# **Dedicated Instructions/Functions**

QJ71PB92V	QJ71PB92D	QJ71PB93D
0	0	0

All three PROFIBUS-DP modules support the G(P).BBLKRD and G(P).BBLKWR instructions in simple languages and in structured languages as well.

# Function List

The following instructions/functions can be used in the language editors:

No	Instruction name (for simple languages)	Function name (for structured languages)
1	G.BBLKRD	G_BBLKRD
2	GP.BBLKRD	GP_BBLKRD
3	G.BBLKWR	G_BBLKWR
4	GP.BBLKWR	GP_BBLKWR

### Supported CPU types

The instructions/functions are supported by the following CPU types:

No.	Basic model QCPU	High performance model QCPU	Universal model QCPU	Process QCPU	Redundant model QCPU	LCPU	FXCPU
1/2/3/4	0	0	*1	0	0	Х	Х

O = supported X = not supported \*1 = for QnUDV CPU these instructions are not supported

Part Selection Window

The functions can be accessed in the following group of the part selection window:

Functions

• Module Dedicated Instruction

• PROFIBUS-DP

**Function Definition** 

The functions are defined as follows:

No.	Function name	Use EN/ ENO	Class	Label Name	Data Type
			VAR_INPUT_CONSTANT	Un	ANY16
1/2	G_BBLKRD	Voc	VAR_INPUT	n1	ANY16
1/2	GP_BBLKRD	165	VAR_INPUT	n2	ANY16
			VAR_OUTPUT	d	ANY16
3/4	G_BBLKWR	Yes	VAR_INPUT_CONSTANT	Un	ANY16
	GP_BBLKWR		VAR_INPUT	n1	ANY16
			VAR_INPUT	S	ANY16

No.	Function name	Use EN/ ENO	Class	Label Name	Data Type
			VAR_INPUT	n2	ANY16

# Compatibility

QJ71PB92V	QJ71PB92D	QJ71PB93D
0	0	0

# Compatibility with Other Versions of GX Works2

If a GX Works2 project containing one or more PROFIBUS-DP modules is opened on a system that doesn't have GX Configurator-DP installed, PROFIBUS-DP modules will appear as reserved modules in the project tree. The same is true if the installed GX Works2 version is older than 1.87R.



# Compatibility with the Standalone Version of GX Configurator-DP

# Transferring data from GX Works2 to GX Configurator-DP

The "Export Tasks / Project in GX Configurator-DP Format" command in the task panel of the parameter window can be used to export the configuration to a GX Configurator-DP format project file. The compatibility of the exported project file is the same as if the file were saved in the stand-alone version. The exported file can be opened in the same and newer versions of GX Configurator-DP as the one the file was exported with.

#### Transferring data from GX Configurator-DP to GX Works2

The "Import Tasks / Import GX Configurator-DP Project" command in the task panel of the Parameter window can be used to import the settings from a GX Configurator-DP format project file into GX Works2.

The compatibility of the exported project file is the same as if the file were opened in the standalone version. GX Configurator-DP files saved in the currently installed or older versions of GX Configurator-DP can be imported into GX Works2.

#### **Known Issues**

# Transfer Setup changed while monitoring in the PROFIBUS-DP Parameter Window

#### Steps to reproduce:

1. A PROFIBUS-DP master module is being monitored in one or more diagnostic panels of the Parameter window. For example, the Slave Status panel is open and online:



2. The Transfer Setup of the GX Works2 project is changed while monitoring.

For example, the target system of a QnPRH PLC is changed from System A to System B.

MELSOFT Series GX Transfer Setup Connection1				x
Enject Edit Eine PC side I/F Serial CC.IE Cont CC.III E Board USB CC.IE Cont CC.III E Board Board Board Board Bus Board Board Board C.III E Board C.III E Board C.III E Board C.III E Board Board Board C.III E Board C.IIII E Board C.III E Board C.IIII	<u>A</u> ,		-	₽×
Navigation COM COM 1 Transmission Speed 115.2Kbps			4	۵ 🗸
Connection Destinatio		5	6	×
PLC         CC IE Cont         CC-Link         Ethernet         C24         GOT         CC IE Field           Current Connection         Module         NET/10(H)         Module         Module         Master/Local         Communication	14	15	16	17
Connection1 - Module Module · Module · Module · ·	24	25	26	27
	34		36	37
All Connections	44	45	46	47
Other E	54	55	56	57
Station Connection Channel List	64	65	66	67
No Specification Other Station Other Station (Single Network) (Co-existence Network) PLC Direct Coupled Setting	74	75	76	77
Time Out (Sec.) 30 Retry Times 0 Connection Test	84	85	86	87
Network PLC Type	94	95	96	97
Communication Detail	104	105	106	107
NET/10(H) System Image	114	115	110	
Phone Line Connection (C24)	124	120		voleti
The Project	i s		N	ow 6
User Library OK			м	lin 3
CC IE Cont CC IE Field Ethernet CC-Link C24 Cancel			м	ax 1
Accessing Host Station				
	Host	Not Sp	ecified	N
Taxnet Taxnet PI C				
System 1 2 3 4				

#### Result:

The Parameter window keeps monitoring with the original connection settings. For example, monitoring of System A of the QnPRH PLC is continued, although the transfer setup was changed to System B.



#### Workaround:

Monitoring in the PROFIBUS-DP Parameter window should be stopped manually before changing the Transfer Setup and re-started afterwards.

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# PLC type change while monitoring in the PROFIBUS-DP Parameter Window

#### Steps to reproduce:

1. A PROFIBUS-DP master module is being monitored in one or more diagnostic panels of the Parameter window. For example, the Slave Status panel is open and online:



 The PLC type of the GX Works2 project is changed while monitoring. For example, the PLC type of the project is changed from Q25PRH to Q26UDEH.



#### **Result:**

The Parameter window keeps monitoring according to the original PLC type and connection settings. For example, monitoring of the Q25PRH PLC is continued, although the PLC type of the project was changed to Q26UDEH.



#### Workaround:

Monitoring in the PROFIBUS-DP Parameter window should be stopped manually before changing the PLC type and re-started afterwards.

### The PROFIBUS-DP Parameter Window does not check the PLC type before monitoring

#### Steps to reproduce:

- 1. A Q-series project having a PROFIBUS-DP master module is open in GX Works2.
- A Q-series PLC with a PROFIBUS-DP master module is set up in accordance with the GX Works2 project, but the PLC type is different.
   For example, the GX Works2 project is for a Q26UDEH CPU, while the connected CPU is a Q50UDEH.
- 3. One or more diagnostic panels are open in the Parameter window of the module in GX Works2. Monitoring is started.

#### Result:

Monitoring is started successfully, without an error or warning message, although the PLC types are different.

#### Using 'GX Configurator-DP' with 'GX Works2'

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MELSOFT Series GX Works2 F:\GXW	2_DATA\Q25PRH_92V_To93D.gxw - [000	0:QJ71PB92V[]-Parameter]			- <b>O X</b>
Project Edit Find/Replace Com	npile <u>V</u> iew <u>O</u> nline De <u>b</u> ug <u>D</u> iagn	ostics <u>T</u> ool <u>W</u> indow <u>H</u> elp			- 8 ×
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🔁 🐨 📰 🔛 🖬 🖬 📾	·   ②   曲	e	-		
Navigation 4 ×	0000:QJ71PB92V[]-Parame	×			4 ▷ 🗸
Project	PROFIBUS Configurator Tasks	PROFIBUS Network	😂 Slave Status		×
📑 🗈 🖻 🗿 🦣	Setup Tasks 🔹	▲ I/O no.:0x0/FDL:0 'QJ71PB92V'	0 1 2	3 4 5 6	7 8
🖃 🚳 Intelligent Function Module	Master Settings	FDL:2 'Slave_Nr_001' (QJ71	10 11 12	13 14 15 16	17 18 1
Darameter	🚛 GSD Device Database		20 21 22	23 24 25 26	27 28 2
Global Device Comment	I/O Mapper		30 31 32	33 34 35 36	37 38 3
🕀 🏦 Global Label	Devices for Slave-Specific Transfer		40 41 42	43 44 45 46	47 48 4
			50 51 52	53 54 55 56	57 58 5
🗄 🧕 Device Memory	Export Tasks 🛛 🛞		60 61 62	63 64 65 66	67 68 f
			70 71 72	73 74 75 76	77 78 7
			80 81 82	83 84 85 86	87 88 8
	Import GX Configurator-DP Project		90 91 92	93 94 95 96	97 98 9
	Add GSD File		100 101 102 1	03 104 105 106	107 108 10
	Import GSD Database		110 111 112 1	13 114 115 116	117 118 11
			120 121 122 1	23 124 125	
In Project	Documentation	_	Slave is inactive	C)	ycle time (in ms)
	Project Documentation		Slave has diag. mes	sages No	ow 6
	I/O-Mapping		Slave has link	M	lin 3 lax 14
Connection Destination		- I	•		
»	Conline Status: connected				
	English	Structured	Q26UD	EH Host Stat	tion N/

#### Workaround:

Check if the type of the connected PLC matches the PLC type of the project by performing a connection test in the Transfer Setup of GX Works2.

# 9.2 Standalone Version

The following description applies only to the standalone version of GX Configurator-DP started independently of GX Works2.

GX Configurator-DP has the following restrictions with regard to GX Works2

- 1. no 'offline' update of autorefresh settings in GX Works2 project, only 'online' update of CPU
- no import of PLC code, which GX Configurator-DP exports, in GX Works2, newer versions of GX Works2 may support 'IEC Instruction Language' (IL) code

Due to this restrictions the access to the PROFIBUS I/O can only be done

- 1. by manual programming in GX Works2 for accessing the buffer memory of the PROFIBUS master
- 2. by autorefresh settings, which GX Configurator-DP stores in the CPU ('online' update)

Although the 'I/O Mapping' PLC code, which GX Configurator-DP exports, cannot be imported in GX Works2, the 'Documentation of I/O-Mapping' function in GX Configurator-DP assists the GX Works2 user in finding the buffer device addresses for specific PROFIBUS I/O signals.

The following steps describe the functions of GX Configurator-DP, which are especially helpful when integrating PROFIBUS into a GX Works2 PLC project. They also include advises on handling data in the GX Works2 project.

1. create a GXDP project with the configuration of the PROFIBUS network

MELSOFT GX Configurator-DP - [qpb92v_test_a	autorefr.dp2]	
Eroject Tools View Window Help		_ & ×
: 🛅 💕 🛃   🌆 🍁 🖄   🔂 🦠 🍞   🥥		
PROFIBUS Configurator Tasks	PROFIBUS Network	Global GSD data ×
Online Tasks		GSD Database
mansfer Setup	FDL:1 'Slave_Nr_001' (MT-DP12) [I/O size:	👍 🔤 General
Download to Module	🧃 Slot:0 'MT-X8'	Drives
Download Configuration Image	Slot:1 'MT-Y8T'	Switches
Start/Stop PROFIBUS	🍈 FDL:21 'Slave_Nr_002' (ST1H-PB Byte Pacl	цо
Set Slave Address	Slot:0 'ST1H-PB with cmd, whole co	AJ95FPBA2-16TE
Setup Tasks 🔹	🧃 Slot:1 'ST1PSD'	AJ95FPBA4-16DE
Master Settings Change Master Type	🧊 Slot:2 'ST1X4-DE1 4/-/-/-'	AJ95FPBA42-16DT
f GSD Device Database	🥌 🧃 Slot:3 ' ST1X2-DE1 (2)/-/-/-'	AJ95TB2-16T 1
Project Properties	🧃 Slot:4 'ST1Y16-TE2 -/16/-/-'	AJ95TB3-16D 1
Devices for Slave-Specific Transfer	🧃 Slot:5 'ST1SS1'	AJ95TB32-16DT 8
Export Tasks	Slot:6 'ST1DA1-I-F01'	EX2N modular stati
POU for GX IEC Developer	< >	Project GSD data Global GSD data
Online Status: not connected Q04UDEH Ethernet	Q04UDEH	
Ready		CAP NUM SCRL

2. if certain PROFIBUS slaves should use different device types as I/O buffer than others, change the default 'Block transfer' to 'Slave-specific transfer' and assign individual device addresses to each slave. Make sure that the options 'Autorefresh' and 'All DUTs' are both set.

Slave Specific Trail	nsfer	E dijt D	)evices	J			
	Input	D1000	to	D1024			
Block <u>T</u> ransfer	Output	D2000	to	D2024			
Comm. Trouble Are	a	D3000	to	Slave Specific Bu	ffer Devices	5	
Extd. Comm. Troub	le Area	D4000	to	Slave name	I/O Wor	Input Device	Output Devi
✓ Slave Status Area		D5000	to	Slave_Nr_001 Slave_Nr_002	1/1 24/24	D100-D100 D200-D223	D120-D120 D250-D273
Data Transfer betwee	n CPU and master module using	j					
C Copy Instructions	Auto <u>R</u> efresh	V	Consister				
PLC code options							
🔿 Data transfer only	🔿 User <u>v</u> ariables	•	AII D <u>U</u> Ts				
Contents of user library:	start of data transfer, global var ibrary and import it in your PLC -	riables for all DU	Ts				
ontents of user library: ease export the user l	start of data transfer, global va ibrary and import it in your PLC r	riables for all DU project!	Ts				

3. download the PROFIBUS configuration to the master and update the autorefresh settings in the PLC



4. in GX Works2 use 'Online Data Operation' function to read the autorefresh settings for PROFIBUS modules from the CPU

Online Data Operation			
Connection Channel List			
Serial Port PLC Module Connection(U	5B)		
E ( Read	d C <u>W</u> rite	C ⊻erify	C Delete
👔 PLC Module 📓 Intelligent Func	tion Module		
Title			_
	1	1	4
Module Data	Parameter+Program	Select <u>All</u> Cancel Al	I Selections
Module Data Module Name/D-	Parameter+Program	Select <u>All</u> Cancel Al Title/Project Nam	Il Selections e Target
Module Data Module Name/D - II Q06UDEHCPU	Parameter+Program	Select <u>All</u> Ca <u>n</u> cel Al Title/Project Nam	ll Selections e Target
Module Data Module Name/D- - I QO6UDEHCPU	Parameter+Program	Select <u>All</u> Ca <u>n</u> cel Al	ll Selections e Target
Module Data Module Name/D- - M Q06UDEHCPU - Symbolic Information - PLC Data	Parameter+Program	Select <u>A</u> ll Ca <u>n</u> cel Al	e Target
Module Data Module Name/Di Module Name/Di Symbolic Information DLC Data PLC Data	Parameter+Program	Select <u>All</u> Ca <u>n</u> cel Al	I Selections
Module Data Module Name/Du Symbolic Information PLC Data PLC/Network/Remote F	Parameter+Program	Select <u>All</u> Ca <u>n</u> cel Al	I Selections
Module Data Module Name/Di Module Na	Parameter+Program	Select <u>All</u> Ca <u>n</u> cel Al Title/Project Nam	Il Selections
Module Data Module Name/Di Module Na	Parameter+Program ata Name Password/Switch Setting dule (Initial Setting/Auto Re	Select <u>All</u> Cancel Al Title/Project Nam	Il Selections e Target

 check the 'Intelligent Function Module' item in the GX Works2 'Project' tree. For each PROFIBUS module found in the CPU autorefresh settings it should show the starting I/O number and the text 'Reserved Module'

Navigation	ą x
Project	
ピ 🕰 🖄 🤷 🖄 🖊	
🗈 🛃 Parameter	
😑 🛃 Intelligent Function Module	
0000:Reserved Module	
🕑 🚯 0050:Q64AD	
- 1 Global Device Comment	
🕀 🚻 Global Label	
🗈 🚰 Program Setting	
E C POU	
E C Program	
🗈 😭 MAIN	
F8_Pool	

When GX Works2 now updates the autorefresh settings in the CPU, it keeps the settings of the PROFIBUS modules, which have been read before. Without reading the settings in GX Works2 before updating them, the PROFIBUS autorefresh entries would be deleted.

6. in GX Configurator-DP use the menu item 'Documentation of I/O Mapping' and save the displayed document together with the PLC project

MELSOFT GX Configurator-DP - [qpb92v_te	st_autore	efr.dp2]					_	
<sup>‡</sup> <u>P</u> roject <u>T</u> ools <u>V</u> iew <u>W</u> indow <u>H</u> elp							-	. 🗗 🗙
🗄 🗋 🚅 📕 🜆 🍁 🕷 🖶 🗞 🍞 🞯								
PROFIBUS Configurator Tasks		qpb92v_test_aut	orefr.dp2 - Wi	ndows Inte	ernel	: Explorer		
Export Tasks 🏾 🍣	-/@		🗙 🙋 E:\tmp\S	5ystemTi 💌	→	Search		0-
POU for GX IEC Developer	/	<u>File E</u> dit <u>V</u> iew	Favorites Too	ols <u>H</u> elp				
Configuration Image		New Tab		Ctrl+T	1			
	12	Duplicate Ta <u>b</u>		Ctrl+K				
Import Tasks		New Window		Ctrl+N				
		New Session			e	st_autoref	fr.dp2	
Add GSD File		Open		Ctrl+O				
Import GSD Database		Edit with Microsoft	Visual Studio 20	08				
		Save		Ctrl+S		Modu	iles	
Documentation 🖉 🔕		Save <u>A</u> s						-
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Turp op Monitor Mode		Import and Export				cmd. whole	VHA0SLV21MOD0	
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Diagnosis messages DLC Autorefresh Settings		<u>W</u> ork Ornine			- H	ST1X4-DE1 4/-/-	- VHAUSEVZIMUDZ	-
Slave I/O Test					_	(2)/-/-/-	VHA0SLV21MOD3	
					4	ST1Y16-TE2 -	VHA0SLV21MOD4	
Online Status: not connected DefaultConnect	tion			I!		/ 10/ /		
Ready							CAP NUM S	CRL

- 7. locate the PROFIBUS slave modules, which should be accessed, in the 'I/O-Mapping ' document and enter the listed buffer devices in the GX Works2 project. The device adddresses in the column 'Buffer MIT-Address' are calculated for each module from the buffer devices, which the user has entered in the 'CPU Device Access' dialog. Therefore the documentation must updated, when
  - a different buffer device address has been entered in GX Configurator-DP
  - the selection of 'block' or 'slave-specific' transfer has been changed
  - slaves or slave modules have been added or removed
  - the slave order has changed e.g. due to assigning different FDL addresses

#### **Global Variables**

#### Slave\_Nr\_001.Module Slot 0 : vHA0SLV1MOD0

Element Identifier	Element Type	Class	User MIT- Address	Global Var. Identifier	Buffer MIT- Address
inputs	ARRAY [07]	Input	-	-	D100.0

Slave_Nr	_001.Module	Slot 1 :	vHA0SLV	1MOD1
----------	-------------	----------	---------	-------

Element Identifier	Element Type	Class	User MIT- Address	Global Var. Identifier	Buffer MIT- Address
outputs	ARRAY [07] OF BOOL	Output	-	-	D120.0

8. (optional) after downloading the parameters of the GX Works2 project to the PLC use the 'Diagnostics -> PLC Autorefresh Settings' menu item of GX Configurator-DP to ensure that the correct device addresses are exchanged with the PROFIBUS master. This helps to detect potential errors caused for example by not reading the PROFIBUS autorefresh settings from the CPU into the GX Works2 project before downloading the parameters from GX Works2. The contents of the 'Autorefresh Settings' table depend on the settings in the GX Configurator-DP 'CPU Device Access' dialog, i.e. whether 'block' or 'slave-specific' transfer has been selected, which buffer devices have been assigned etc.. Using 'GX Configurator-DP' with 'GX Works2'

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**Note**: because GX Configurator-DP cannot update autorefresh settings neither on a Remote I/O nor in a GX Works2 project, PROFIBUS modules cannot be placed in the rack of a Remote I/O when using GX Works2. They must be placed in the rack of the control CPU instead. The update of autorefresh settings in a GX Works2 project will be added in a future version of GX Configurator-DP.

# 10 Troubleshooting

# GSD Database

# Problem 1

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GSD information missing for slaves when opening older projects

### Solution

Add the corresponding GSD files to the database. The entries 'Model\_Name', 'Ident\_Number' and 'Revision' in the GSD file must match those of the slaves in the project.

GXDP does not automatically import GSD database export files (\*.ext), created by previous GXDP versions along with the project file. In previous versions this file was automatically imported, when a project with unknown slave types was opened. Currently GSD information is exported to the project file itself. When a project file is opened, the GSD information is taken from the project file as default. It is recommended to parse older GSD files into the new database instead of importing an older GSD database or ext-file. Only by parsing the GSD file with the current GSD parser of GXDP it is ensured that all necessary parameters are extracted. An import of the GSD database will only import the parameters stored in the database by the older version of the GSD parser, based on a previous version of the GSD file standard.

# **Device Access**

### Problem 1

Down- and Upload of configuration fails, PROFIBUS communication cannot be started.

### Solution

Check the use of X- and Y-devices as buffers for I/O and diagnostic data. GXDP does not detect that slave I/Os are mapped to X and Y devices, which are occupied by modules on the CPU rack. This will lead to unforeseeable results.

# Problem 2

Data set in buffer devices is overwritten

# Solution

Check the use of buffer devices by the application.

The 'I/O Mapping POU' does not directly access the PROFIBUS I/O data in the buffer memory, but in transfer buffer devices. The buffer devices for outputs are overwritten with the contents of the module specific DUT variables before being exchanged with the buffer memory of the PROFIBUS master via FROM/TO instructions or autorefresh settings. The application program should in general not directly access the transfer devices, but use the global variables, which are automatically included in the user library.

# **ST Slave**

#### **Problem 1**

No detailed I/O points in 'I/OMapping' dialog for ST1H-PB slaves; missing or wrong data structures for ST slaves in generated POU

#### Solution

Use the ST slave type included in the default GSD database. The extended support for ST1H-PB is based on the GSD file, which is shipped with GXDP and already included in the default GSD database.

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