Integrated FA Software

Advancing to new stages with MELSOFT.

Mitsubishi Electric Corporation Nagoya Works is a factory certified for ISO14001 (standards for environmental management systems) and ISO9001 (standards for quality assurance management systems).
Integrated software supporting various scenarios from improvement of shop floor productivity to reduction of engineering time.

**GX Developer**, a common programming tool for the PLC, now also supports motion controller, CNC and inverter.

Debugging environment on a PC requiring no real machine.

Direct real-time link to shop floor data from the office.

Speedy recovery in case of trouble or emergency.

**Integrated FA Software**
Offering wide variety of functions and ease of use, MELSOFT is a powerful integrated software suite which will help to improve your daily operations in 4 key areas: “Engineering”, “Debug & Installation”, “Operation” and “Maintenance”.

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**Contents**

**Programmable Controller**
- **GX Series**: Programming tool for improving productivity of PLC design and maintenance tasks.
- **PX Series**: Programming tool for improving productivity of process control design and maintenance tasks.
- **MX Series**: Middleware which directly links FA data with office and accelerates daily operation tasks.

**Human-Machine Interface**
- **GT Series**: Programming tool that supports design tasks, ranging from GOT screen creation to debugging.

**Motion Controller**
- **MT Series**: Integrated programming tool for improving productivity of motion controller design and maintenance tasks.

**AC Servo**
- **MR Series**: Tool for easily setting up the servo.

**Inverter**
- **FR Series**: Supporting operations from startup to maintenance.

**Numerical Controller**
- **RT Series**: Supporting CNC custom screen creation.

**Robot**
- **RT Series**: Total engineering support tool for robot.

**Processing Machine**
- **Design and manufacturing solution software mainly for processing machines**
- **CAD W, RemoteMagic**

**Trainer**
- **FX-TRN-BEG**: Create, Simulate and RUN your own ladder project with only your personal computer.

**Partner Products**
- **Mitsubishi FA Communication Middleware**
- **EZSocket Partners’ products**

**Service**
- **Internet Service**
MELSOFT Family-dramatically enhances system efficiency in various applications

- **MX Component** ······ P.19
  - Easily create user applications using Microsoft® Visual Basic® or Excel.

- **GX Developer** ······ P.5
  - Programming is possible without worrying about redundant CPUs.

- **PX Developer** ······ P.7
  - Continuous operation even at system switching ······ NEW
    - If system switching occurs due to a stop error inside the CPU, the access target is automatically switched to the other system. This enables continuous operation so that the user need not pay attention to system switching.

### Automatic program transfer
- Both programs and parameters created using GX Developer and PX Developer can be automatically transferred to the standby system. This ensures that the program does not have to be downloaded twice, therefore reducing total setup and design time.

- **GX Developer** ······ P.5
  - Supporting design work from GOT screens to debugging.

- **PX Developer** ······ P.7
  - Carry out settings and monitoring with package operations without creating a ladder program to run the intelligent function module.

- **GT Developer** ······ P.9
  - Easily setup the servo.

- **GX Configurator** ······ P.9
  - Carry out settings and monitoring with package operations without creating a ladder program to run the intelligent function module.

- **GX Simulator** ······ P.8
  - A virtual sequence can be started on the personal computer to confirm the operation and debug ladders and GOT screen creation data.

- **GT Simulator2** ······ P.23
  - Production site conditions can be monitored from the office.

- **GT SoftGOT2** ······ P.24
  - Ladders can be monitored and programs can be rewritten via the internet or intranet.

- **GX Explorer** ······ P.15
- **GX RemoteService-I** ······ P.16
  - Supporting operations from inverter startup to maintenance.

- **GT Designer2** ······ P.21
  - Application development
    - Programming/startup
    - Startup
    - Debugging
    - Remote maintenance

- **MT Developer** ······ P.25
  - Improve productivity in motion control design and maintenance work.

- **MR Configurator** ······ P.27
  - A seamless connection can be established via CC-Link with either GX Developer or GX Explorer.

- **FR Configurator** ······ P.28
  - Supporting operations from inverter startup to maintenance.

- **PLC, HMI, Motion Controller, Servo, Inverter**

- **Controller**
- **Motion Controller**
- **Servo**
- **Inverter**
- **Processor Machine**
- **Robot**
- **Partner Products**
- **Trainer**
- **Service**
GX Developer is an integrated programming tool that uses the Windows® operability and greatly improves work efficiency in all areas from design, debugging to maintenance.

- Network parameter setting and network operation status monitoring.
- Sequence program monitoring, program change, data change and forced I/O ON/OFF on-line.

Programs and parameters created using GX Developer can be automatically transferred to the standby system. This ensures that the program does not have to be download twice, therefore reducing total setup and design time.

Program readability.

Programs can be reused to eliminate coding mistakes.

Large-scale programming can be structured easily.

Common programs can be translated as parts with function blocks.

Processes that are difficult to represent with ladders can be programmed easily using structured text (ST).

The same programming style is applicable for PLC.

Inverters and motion controllers, CNC and inverter products can be controlled from controllers, CNC and inverters through GX Simulator.

With compliance to Windows® 95, Windows® 98, drag & drop, and debugging is available with simple operability.

Data can be easily registered from ladder screen with drag & drop. Data can be input in list format on the ladder display.

The usage of devices or labels is listed.

Used devices can be easily checked and distinguished between unused devices.

When used in combination with GX Simulator, break points can be set in the ST program enabling one-line execution of programs. This results in efficient debugging of ST programs.

GX Simulator Ver. 6.16 or higher is required.
Both program and parameters created using GX Developer and PX Developer can be automatically started right after creating the program. Various screens (faceplate, tuning panel, alarm, list of SV values to be changed, etc., easily from the ladder. This allows the constants of loop control tags and registered variables display switching. This feature also permits input variable / output variable current value display at FB part.

The operation of user applications using MELSOFT middleware (MX Component, MX Sheet) can be easily confirmed without using the actual machine.

- **Device memory monitoring**
  - During simulations, the device memory of multiple PLCs can be monitored simultaneously.
  - The following device memory monitoring formats are available. Bit & word
  - Bit multi-point Word multi-point
  - Time/count
  - Display up to 8 windows

- **Simulate access to multiple PLC devices**
  - This function now provides simulation of multiple PLC devices connected over a network. Consequently, it is now easier for GX Simulator to debug applications that access multiple PLCs via a network.
  - Register up to 1024 PLCs.

- **Confirm reading operation by host station and other station devices**
  - The operation of user application based on device values which change according to the pattern can be checked without creating a debugging program that changes the device values.
  - The reading operations from host stations and other station devices can be confirmed without changing the user application.

### GX Simulator Version7

**Improving productivity of PLC design and maintenance tasks**

**Debugging sequence programs on a personal computer**

- **Check written device values**
  - Check whether values written from the user application to the host station or other station device are within the range expected by the user. Use this function to check for mistakes in the creation or settings of the user application.
  - Check the error details with the log. The date, network number, station number, PLC series, device, device value and error code message for up to 100 errors can be displayed in the log.

**Supporting offline debugging of user applications having MX Series**

- **Sufficient debugging can be carried out**
  - The Q/Ona/A/FX Series can be debugged with one package.
  - As the operation is carried out as a virtual PLC, the ladder can be easily executed at the site. (There is no need to prepare test devices.)
  - Sufficient debugging can be carried out without preparing the actual machine.

**New PLC Uploading / Downloading Function For Project Symbolic Data**

- **This function allows a project to be restored on any personal computer even if the project data is not saved at the personal computer.** (The symbolic data required to restore the project must first be downloaded to the PLC CPU)

**Improved FB Property Management**

- **FB property current values in the PLC CPU can be read and substituted in batch as initial values in the project, thereby preventing individual FB property values from being overlooked.** This feature saves backup works. (Previously, FB property current values had to be substituted individually for each FB part in order to use them as initial values in the project.)

**Improved Monitor Function**

- **The following new features have been added to the existing monitor function in order to simplify operations such as debugging, etc.**
  - **(1) Current value monitor / editing from FB property window**
    - Current values can be edited and monitored without having to register the monitored items at the Variable Entry Monitor Window, resulting in more efficient debugging.
  - **(2) Input variable / output variable current value display at FB part**
    - This feature also permits input variable / output variable display switching.

**New PLC Uploading / Downloading Function For Project Symbolic Data**

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**Increased number of instructions**

- **During simulations, the device memory of multiple PLCs can be monitored simultaneously.**
- **Device memory monitoring**
- **Simulate access to multiple PLC devices**
- **Confirm reading operation by host station and other station devices**
- **Improved FB Property Management**
- **Improved Monitor Function**
- **New PLC Uploading / Downloading Function For Project Symbolic Data**

**Outline**

- **Simple engineering of PID loop control**
- **Improved FB Property Management**
- **Improved Monitor Function**
- **New PLC Uploading / Downloading Function For Project Symbolic Data**
- **Simple standardization and reuse of programs**
- **Easy communication with sequence control**
- **Powerful tuning and monitor functions**
- **Supporting QCPU redundant system**
GX Configurator

Easily use high-performance PLC in Windows® integrated environment

Outline

GX Configurator is simple setting software for running the Q Series intelligent function module without a program.

1. Initialization without programs.
2. Adjustment for the analog modules.
3. Automatic tuning of the temperature control module.
4. Writing initialize data into flash memory.

- GX Developer is required as GX Configurator runs as add-on software. (Excluding GX Configurator-OP, AP and CC)

The Q Series intelligent function module is operated with GX Configurator, so settings and monitoring are applicable with package operations even without creating an initial program.

In addition, function blocks can be automatically generated from the set parameters and used with the sequence program.

* Add-on software

<table>
<thead>
<tr>
<th>Product name</th>
<th>Outline</th>
</tr>
</thead>
<tbody>
<tr>
<td>GX Configurator-AD</td>
<td>MELSEC-Q dedicated AD conversion setting and monitoring tool</td>
</tr>
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<td>MELSEC-Q dedicated DC conversion setting and monitoring tool</td>
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<td>MELSEC-Q dedicated Serial communication setting and monitoring tool</td>
</tr>
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</tr>
<tr>
<td>GX Configurator-TI</td>
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<td>MELSEC-Q dedicated FL-Net setting and monitoring tool</td>
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<td>MELSEC-Q dedicated Temperature input setting and monitoring tool</td>
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<td>MELSEC-Q dedicated Thyristor setting and monitoring tool</td>
</tr>
<tr>
<td>GX Configurator-QP</td>
<td>Q221P/CMM positioning module setting and monitoring tool</td>
</tr>
<tr>
<td>GX Configurator-AQ</td>
<td>A221P/3M positioning module setting and monitoring tool</td>
</tr>
<tr>
<td>GX Configurator-CC</td>
<td>MELSEC-Q dedicated CC-Link module setting and monitoring tool</td>
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</tbody>
</table>

**FB Function**

FB programs are generated automatically from the intelligent-function-module parameters, and the initialization and auto-refresh settings are possible without any concern for the size of the buffer memory or the I/O interface. These are reusable initial programs as components.

**Simpler offset/gain settings**

The offset/gain settings are easier, and reduce adjustments. The analog to digital transfer characteristics are shown as a graph.

**Graphical network display**

The GX Configurator-CC graphically displays the CC-Link connection state. The CC-Link line can be tested and the station status can be monitored easily.

(This function is for the A Series, GX Developer offers the similar function for Q and QnA series.)

**Paste FBs into the program by dragging and dropping from the project tree.**

**Main window of the intelligent function module utility**

**Window for the GX Configurator-AD offset/gain settings**

**Conversion characteristic confirmation window**
GX Configurator / GX Converter

Easily use high-performance PLC in Windows® integrated environment

**FB Function**

- [Automatic generation of communication control program]
  - Without creating complicated sequence programs, equivalent function block programs can be created only by making simple on-screen settings.

**Reduced debugging work**

- A debugging function for communication between the Q Series C24 module and device controller, required for starting up the system, is available. Packet communication over the line is possible without using other tools.

**Program-less settings**

GX Configurator-QP is a development tool that uses the Windows® operability to greatly improve the positioning module setting, programming and monitoring efficiency.

- Parameter Input screen displays values changed from the default in color, and it offers operations to be carried out and viewed easily.
- The selection input method simplifies editing the positioning data.
- The simulation function without a real machine, graphically traces and displays the input positioning data.
- The external I/O signal monitor function allows you to confirm easily external I/O status.
- JOG operation can be used for easy operations before sequence operations.

**GD Converter**

- Without creating complicated sequence programs, equivalent function block programs can be created only by making simple on-screen settings.

**Easy document creation**

GX Converter data conversion software package for Windows is a software designed to convert other format data (text format data, CSV format data) to GX Developer format data (instruction list, device comment). It allows CAD data to be utilized on GX Developer for equipment design or GX Developer data to be utilized for design on CAD, increasing design efficiency.

**Operating environment**

Since GX Converter is an add-in software to GX Developer (SW3D5F/C-GPPW-E or later), GX Developer must be installed in advance.

**Data conversion function**

The following data can be converted by GX Converter:

<table>
<thead>
<tr>
<th>Conversion Factor</th>
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Presenting solutions with MELSOFT

Remote Maintenance

MESEC compatible remote maintenance tool

Outline

- The high-function MELSOFT products realize complete maintenance.
- This tool allows e-mailing, device monitoring, device testing, ladder monitoring and program uploading/download via the internet to realize advanced diagnostics and preventive maintenance.

System Equipment

Access method

Internet/intranet

Personal computer + GX Explorer Version2

MESEC PLC

- Q Series
- NS Series
- EH Series
- Technical verification
- PC CPU

- GX Remote Service-I Version 2 + Modem

MESEC PLC

- Q Series
- NS Series
- EH Series
- Technical verification
- PC CPU

Factory

Supporting motion controller, CNC and inverter

Supporting almost all CPU series

A new system can be newly structured with the Q series by using modulized PC CPUs.

This system is perfect when a PERSONAL COMPUTER cannot be installed due to the installation environment.

When using the QnA, A or FX series, or when adding to an existing configuration, the system can be easily configured by installing a PC.

Supporting almost all CPU series

Points for selecting factory side connection devices

Specifications

Compatible CPU

GX Explorer

GX Remote Service-I

GX Explorer Ver.2

GX Remote Service-I Ver.2

System administrator

[Present/away from the office]

Internet connection environment

Mobile (Laptop personal computer, etc.)

GX Explorer Ver.2

Internet/intranet

Device monitor

Device test

Ladder monitor

Program upload/download

E-mail

Error notification

Inter net

Intra net

Maintenance

Warning

Internet connection environment

Mobile (Laptop personal computer, etc.)

GX Explorer Ver.2

GX Remote Service-I Ver.2

Factory Floor

New

PLC

Connect to internet away from the office.

Motion Controller

Servo

Inverter

CNC

Processing Machine

Robot

Tailor

Partner Products

Service

PLC

Connect to internet away from the office.

Motion Controller

Servo

Inverter

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PLC

Connect to internet away from the office.

Motion Controller

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Service
GX Explorer Version2

Providing convenient and highly necessary functions for maintenance

Outline:
GX Explorer unifies and controls personal computer and PLC project data bi-directionally.
Project data can be easily read and written with intuitive operations.
With similar operations, programs can be downloaded/uploaded to a network PLC.
Also PLC diagnostics, ladder monitoring, timing charts and device monitoring can be carried out.

Network Configuration can be easily confirmed
- GX Explorer uses graphical displays so that the network No., station No. and data details can be viewed at a glance.
- Even if the network configuration is not clear, program maintenance and diagnostics can be carried out easily.
- Even if the schematics are not available and the network configuration is unknown, the configuration can be confirmed with GX Explorer. Data read out at the site can be confirmed online at the design office.

Program read/write can be easily carried out even by beginners
- GX Explorer incorporates intuitive drag & drop operations to read and write the programs, so even beginner for GX Developer can interchange programs.
- When the program or comment icon is double-clicked, the PLC data will be automatically read.

Anyone can carry out PLC and network diagnostics via the network
- With GX Explorer, various diagnostics can be carried out just by selecting the target station and clicking on the right mouse button.
- Diagnostics target: PLC diagnostics, MELSECNET/H, MELSECNET/10 diagnostics, CC-Link diagnostics, system monitor.

A full line of ideal functions for maintenance is available.
- Conventional diagnostic and monitor functions, etc. have been expanded for use in maintenance applications to convey necessary information with ideal displays.

Project management functions have been expanded.
- Various functions from project search to reference are supported as use for the main function when making corrections. The operation range has been expanded enabling use not only between a personal computer and PLC, but also between personal computers (FTP transfer).

Remote access is supported.
- For the execution environment, remote access using the internet or intranet is supported in addition to the CPU direct access method.
  A personal computer with GX RemoteService-I Ver. 2 installed is required.

Setting a security function is feasible.
- Use of each function, designation of the connection and selection of access devices can be set for each user setting. Set data can be protected by setting a password.

GX RemoteService-I Version2

Execute GX Explorer maintenance functions via the internet or intranet.

Outline:
Remote maintenance, including e-mail notification to cellular phones, and system diagnosis using cellular phones can now be carried out easily without a program.

MELSOFT connection functions are provided.
- When GX RemoteService-I Ver. 2 is installed in the server, the PLC system can be remotely accessed from the MELSOFT software via the internet or intranet.
  Maintenance functions are enhanced by using Ver. 2 with GX Explorer Ver. 2.

Compatible networks have been expanded.
- Intranet can now be used in addition to the conventional internet. Various connection methods including analog modem or DSL can be selected. This makes it easy for the user to structure an ideal system or incorporate this software into an existing system.

The operating environment has been expanded.
- This software is compatible with the PC CPU as well as the conventional Windows® personal computer. The system configuration can be selected according to the user’s execution environment. Additional equipment does not need to be prepared when using equipment already incorporating a PC CPU. Furthermore, since I/O points are not required, even the parameters do not need to be changed.

Primary diagnostics of system using cellular phones
- Primary diagnostics can be made from a remote location using the cellular phone’s mobility. A detailed diagnostics can be completed by having the person in charge of service or maintenance diagnose the actual system from a remote location.

Easy setup without a program
- Absolutely no complicated programming is required. Just answer the questions in the Wizard settings to setup the system.

Web functions
- Device monitoring and device testing are possible by starting up GX RemoteService-I Ver. 2 with the Web server on the server in which it is installed, and accessing the corresponding URL from the client's web browser or cellular phone.
  - The corresponding URL supports methods to automatically send mail by setting trigger conditions in the server, or methods to send mail manually.

Security has been strengthened.
- An authentication function, with user name and password, is executed when connecting the client and server to prevent illegal accessing of the server. Security has been strengthened for both the Web functions and MELSOFT connection functions. A setting that enables connection even without a user name or password can also be selected for operation over the intranet.

Automatic e-mail transmission when system error occurs
- When a system error occurs, the system status is automatically notified by e-mail. As e-mail can be automatically sent to the person in charge in person or service or maintenance when a system error occurs, primary diagnosis can be made quickly, and the recovery work time can be shortened.

Intranet can now be used in addition to the conventional internet. Various connection methods including analog modem or DSL can be selected. This makes it easy for the user to structure an ideal system or incorporate this software into an existing system.
Presenting solutions with MELSOFT

**MX Series**

Simplifying program creation and communication with PLC

Outline

MX Series helps to easily develop a system without being aware of the complicated protocol for Ethernet communication or serial communication. The MX Series have a wide range of functions, such as collecting on-site data with Excel without programming, and developing advanced user applications.

**For developing your ideal applications with a program**

**User applications**

- Visual Basic
- Visual C++
- Excel/Access VBA
- VB Script

**MX Component**

**For monitoring the site and collecting data without a program**

**User applications**

- Excel
- MX Sheet

**MX Component**

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**Increasing user application development efficiency**

MX Component recognizes differences in protocol by the communication path, and uses the same method for communication with the PLC and personal computer. This greatly improves the system development efficiency.

**Program-less data collection**

**[MX Sheet]**

- Monitoring and logging of the on-site PLC data is realized without an extra program needed. This is done by setting various attributes from Excel as the commonly used office software.

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**Supporting almost all CPU series**

- MX series can access almost of all CPU series and CPU types.

**Compatible CPU**

- Q Series
  - Q02, Q01, Q22, Q12, Q25, Q20, Q05
  - 10Q, 10Q2, 20Q, 20Q2, 30Q, 20Q3
- D Series
  - D01, D12, D25, D32, D40, D05, D10
- A Series
  - A02, A12, A05, A10, A07, A12, A20, A25, A21, A32
- S Series
  - S20, S21, S22, S23, S24, S26

**Note (MX Component)**

- A17SHCPU, A17SHCPU, A17SHCPU, A17SHCPU, A17SHCPU

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**Wide range of communication paths**

The MX Series supports a wide selection of communication paths between the personal computer and PLC, therefore realizing easy system design that meets the customer’s requirements.

**Connect to the A motion CPU.**

Connect to other controller brands with gateway connection function.

**Powerful Debugging Environment**

- In combination with GX Developer, GX Simulator and GT Simulator, the MX series can perform system simulation and debugging by a single personal computer without actual devices. This remarkably improves system development efficiency.

**Specifications**

- Development environment
  - **MX Component**
    - **Corresponding software**
      - Visual Basic® 5.0/6.0
      - Visual C++
      - VB Script
    - **Operating System**
      - Windows® 95/98/Me
      - Windows® NT/2000/XP
  - **MX Sheet**
    - **Corresponding software**
    - **Operating System**
      - Windows® 95/98/Me
      - Windows® NT/2000/XP/2003 Professional
      - Windows® XP Professional/HomeEdition

**Note**

- MX Component Version 3.01B or higher is required to run MX Sheet.

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**MX Component**

**MX Sheet**
MX Component
Active X® Library for PLC Communication

Outline
MX Component is an ActiveX® control library that supports all communication paths, from the personal computer to the PLC, and enables communication via simple processing without being aware of the different protocols used by various communications. MX Component provides efficient development of applications by reducing the man-hour needed for designing a communication program. This feature is ideal when fast system implementation/maintenance for on-site applications is required. MX Component also enables the development of a wide variety of applications by supporting various languages, such as Visual C++®, Visual Basic®, VBScript, and VBA for Microsoft® Access and Excel.

Simple programs
- Using MX Component (Example of program that reads PLC device values with Visual Basic®)
  (1) Set communication path as instructed by the Wizard. (Option for setting the program without using Wizard are also available.)
  (2) Paste the MX Component control icon into the form, and set the logical station number set in (1) as the property for that control.

Remote monitoring/operations via internet/intranet
Just by accessing the Web Pages created with VBScript (ASP function) using IE (Internet Explorer) or mobile devices, the factory’s PLC can be remotely monitored and operated.

Supporting QCPU redundant system
- The communications settings are oblivious of the redundant systems. There is no programming required to switch communications if the control system goes down.
- Utilizing existing software
- Existing MX Component projects are utilized for the redundant system by simply changing the communication settings for that project.

Easy applications development with VBA
- The offset and gain can be set with simple setting methods that do not require complicated operations.
- The input/output characteristics in respect to the digital/analog values can be confirmed on a graph.

Supporting the latest programming languages

<table>
<thead>
<tr>
<th>Development language</th>
<th>Range of support</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visual Basic® .NET 2003</td>
<td>Additional Visual Basic® .NET languages supported Visual Basic® .NET, Visual C++® .NET</td>
</tr>
<tr>
<td>Microsoft® Office 2003</td>
<td>Additional support for Excel 2003 and Access 2003 VBA</td>
</tr>
</tbody>
</table>

MX Sheet
Easy collection of shop floor data with Excel

Outline
MX Sheet is a software package that provides monitoring, logging, alarm data collection, setting changes, etc. for the PLC system by only simple setting without the need for programming.

Simple and program-less settings
- Settings required to run MX Sheet can all be made easily from the Microsoft® Excel menu. This realizes programless communication between the PLC and Excel.

Collect the on-site data history
- This function logs the PLC device data on Excel. The on-site quality/temperature result data, etc. can be collected and analyzed easily.

Directly connect the office
- The device data in the PLC can be monitored and logged in real-time with Excel, and recipe data, etc., can be transferred to the PLC.

Represent data values as comments
- By converting the device data values into corresponding comments, the on-site operation state, etc., can be checked quickly.
- The alarm information can be stored as a historical data. This can be later used to analyze the line operation rate, etc.

Easy collection of shop floor data with Excel
- Data is collected at 0.1 sec. pitch.
- Automatic creation of daily reports, etc.
- This function automatically saves and prints the data displayed on Excel at a specified time or triggered from the condition of a PLC device. It can automatically print and save daily report and test results.
- Multiple settings for automatic save and automatic print.
GT Designer2 Version2

Reduction in development time by half with integrated screen drawing software!

Outline

GT Designer2 is a screen creation software package common for the GOT1000 and 900 Series, and can be used for creating screens for the GOT1000, GOT-A900 Series and the GOT-F900 Series.

GT Designer2 Version 2 has an advanced screen creation environment and operability to respond to customer's imminent demands for "reducing screen creation time".

Features
- Reduction in development time by half
- Windows standard operability and menu configuration
- Data compatibility with GT Designer

Flow of screen development
- With GT Designer2, the screen is selected and then created by placing and setting objects and figures. The screen can also be debugged with GT Simulator2. The screen development process time can be greatly reduced by using this integrated screen development software.

Easy to select required editing screen
- It's easy to see the entire project so the screen to be edited can be selected right away.
- System settings can also be changed right away with common settings.

Fast setting without opening dialog boxes
- Figure and object attributes can be set without opening the object setting screen.

Direct color change reduces setting mistakes
- Settings can be confirmed on the property sheet or dialog.
- Result of setting change is displayed instantly.
- Window screen display can be confirmed.

Debugging on the personal computer
- GOT screens can be simulated on the personal computer and debugged.
- The PLC program and GOT screens can be debugged simultaneously.

Complete GOT settings
- The communication I/F and screen save time, etc., can be set. (Compatible only with GT1000)

Data compatible with conventional model
- GT Designer data compatible with GT Designer2. Projects created with GT Designer can be used with GT Designer2.
- GOT-900 data compatible with GOT1000. GOT-900 project data can be used with GOT1000.

Features

- The entire screen's configuration can be viewed in tree format, and the screens can be added, deleted, copied and moved.
- A project unit, category unit or library unit can be selected by changing the tabs.
- Each setting item can be customized.
- Objects and figures can be temporarily stored when creating the screen or changing the screen layout.
- The user-created library can be reedited easily.
- It's easy to see the entire project.
- The entire project can be operated.

Property Sheet
- View Change directly
- Window preview

Library Editor
- Register Parts
- Library Workspace
- High-quality design
- Parts Library

Simulation Debugging
- Editing a part couldn't be more simpler, just double-click on part to enter the Library Editor.
- Part contents are automatically updated after editing is completed.

Applicable for the Mitsubishi PLC and Mitsubishi motion controller only.

GT Simulator2 and GX Simulator are required for simulation debugging.

There are some data and functions that cannot be used.

The GOT1000 screen data cannot be used with the GOT-900.
GT Simulator2 Version2

Create and debug screens with just one personal computer!

Outline:
The GOT-A900 Series screen can be simulated on a personal computer to debug the screen. If the screen needs to be modified as a result of debugging, it can be done with GT Designer2 and the result can be checked with GT Simulator2 immediately, so debugging time can be reduced drastically.

- Debug screens with one personal computer
  - The GOT, PLC, and motion controller that are required to create the screens, to confirm the operation and to make revisions are no longer required. GT Simulator2 allows debugging screen data without connecting to devices in a factory.
  - GX Simulator is linked with the simulation sequence program on simulation, but the GOT can also be simulated without a sequence program. This allows effective use even when connecting to a controller other than a MELSEC controller.

- Debug Special Module by connecting with PLC or motion controller
  - Highly accurate debugging is available by connecting the RS-232C port of the personal computer with the actual PLC CPU. This allows GT Simulator2 to display data of special modules or PLCs in the network as same as the actual GOT.

- Screen images for documentation
  - Copying and pasting screen images into a document and manuals can be done easily in a short time. Used together with GX Developer, GX Simulator, and GT simulator device monitor, device values can be forcibly changed to obtain the required screen image.

- Support more debugging functions
  - The alarm history data is stored in the personal computer’s hard disk.
  - The status monitor function, time action function and recipe function can be simulated.

GT Simulator2 is included in GT Works2.

GT SoftGOT2

How about using the personal computer as a GOT?

Outline:
GT SoftGOT2 is software which implements the GOT-A900 functions on a personal computer. Screen data created with the GOT drawing software (GT Designer2) can be used.

- Remote monitoring
  - Remote monitoring by intranet LAN
    - Production site conditions can be monitored from the office.

- Effective utilization of the Internet by combination with general software
  - Alarms and on-site status are collected at anytime from remote locations (mail function)
  - Alarm occurrence/recovery, alarm history data, recipe data and screen image can be sent by e-mail.

- Reduce design time
  - Reduce design costs by utilizing screen data
    - Design costs are reduced by sharing monitor data created on GT Designer2 for GOT with GT Soft GOT2.
  - Monitoring screens can be created more simply and cheaper
    - A monitoring operation screen for the personal computer can be created more easily and cheaper than the monitoring software such as SCADA or Visual Basic.
MT Developer

Integral start-up support software for Windows®
environment Motion controller Q Series

Outline

MT Developer is integral start-up support software used to structure and service a system using the Motion controller. A program design environment and maintenance environment are provided for use in the design, start-up and maintenance of the Motion controller.

System design
- The system settings and servo data can be set intuitively with graphical screens.

Programming environment matching the application
- Various operating system software corresponding to the machine and control details is available with the Motion controller. A programming environment matching each application can be used.

Start-up and debugging
- The start-up time can be shortened by using various system tests and program debugging.

Maintenance and operation
- The system and program operation state can be checked with the monitor function and digital oscilloscope function, etc., and trouble can be resolved quickly.

Document creation
- Documents can be created by outputting the Motion controller various parameters and programs to a popular Word/Excel file format.

Documents can be created by outputting the Motion controller various parameters and programs to a popular Word/Excel file format.
**MR Configurator**

Optimum tuning with personal computer and setup software

**Outline**

This software supports all operations from servo setup to maintenance. Various operations, including monitor display, diagnostics, parameter writing and reading, and test operation, can be carried out easily with this software.

- **Ample monitor functions**
  - The graph display function allows the servomotor state, such as the command pulse, drop pulse and rotation speed, etc., to be displayed at the input signal trigger.

- **For high-performance adjustments**
  - The personal computer automatically accelerates the servomotor and analyzes the machine system’s frequency characteristics. The “machine resonance suppression filter” can be set easily based on the results.

- **Gain search function**
  - The gain is automatically changed with a personal computer to set the gain with the shortest operation time and smallest overshooting and vibration value.

**Specifications**

<table>
<thead>
<tr>
<th>Monitor</th>
<th>Group display, high-speed display, graph display</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alarm</td>
<td>Alarm display, alarm history, data before alarm occurrence display (graph before alarm display)</td>
</tr>
<tr>
<td>Diagnostics</td>
<td>SV00 display, cause of non-rotation display, power OFF count display, software No. display, monitor information display, tuning data display, ABS data display, VC automatic offset display (1), axis name setting</td>
</tr>
<tr>
<td>Parameters</td>
<td>Parameter setting, list display, change list display, detailed information display, tuning</td>
</tr>
<tr>
<td>Test operation</td>
<td>JOG operation, positioning operation, motor-less operation, DO forced output, program operation with simple language</td>
</tr>
<tr>
<td>Advanced functions</td>
<td>Machine analyzer, gain search, machine simulation</td>
</tr>
<tr>
<td>File operation</td>
<td>Data read, save, print</td>
</tr>
<tr>
<td>Mecanism</td>
<td>Automatic operation, help display</td>
</tr>
</tbody>
</table>

*The screens are the MRJAC-SETUP21E (for MR-J2) screens.*

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**FR Configurator**

Software for a pleasant inverter operation environment

**Outline**

FR Configurator (Windows® 95, Windows® 98, Windows® Me, Windows NT® 4.0, Windows® 2000, Windows® XP compatible) is available as an effective tool to support operations from startup to maintenance of the inverter. Parameters can be set and operation can be monitored, etc., efficiently from the personal computer’s Windows® screen. The compatible models are FR-V500 Series, FR-A500, F500, E500, S500 and F500J.

- **Test operation**
  - The test operation function and automatic tuning operation function have been prepared.

- **Diagnostics and help**
  - The internal diagnostics and fault diagnostics methods have been prepared.
  - The operation methods are displayed on the screen.

- **Trace function**
  - Emulate an oscilloscope by using this function together with the trace card option T-TRC50. The data can be measured and operations can be analyzed. (FR-V500 dedicated function)

- **System setting**
  - System settings to write and read the data for several units have been prepared.

- **Parameter setting and editing**
  - The list method, function list method, individual list method and simple setting method have been prepared.

- **File**
  - Files can be saved on a hard disk or floppy disk, read out and printed.

- **Window**
  - Multiple windows can be displayed.
NC Designer
Easily create custom screens

Outline

NC Designer is GUI (Graphical User Interface) software which allows the user to create custom screens easily. NC Designer can create screens with the program-less method which creates screens with almost no program creation, or the programming method which automatically generates source codes from the screen data.

Screen creation tool utilizing the advantages of Windows®
- The screen data can be created by laying out figures and parts with various functions onto the screen.

Register created screens into NC menus
- The screens created with NC Designer can be registered in the main menu for the operation, setup and edit screens.

Easily add control processes with a macro function
- The macro function describes processes allowing various processes to be executed when the controls are operated. As the control processes can be described on NC Designer using macro language, control processes can be added easily without programming in C Language, etc.

C Language library to powerfully support screen development
- In addition to drawing, this software supports window functions required for structuring GUI, such as the control of events such as the mouse and keys, and window systems.

Specifications

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Property window</td>
<td>The properties for the controls, figures, projects, screens, windows and frames are set.</td>
</tr>
<tr>
<td>Resource view</td>
<td>The resource data is displayed as a tree. Resources can also be registered here.</td>
</tr>
<tr>
<td>Source code generation</td>
<td>The created screen data is generated as various source codes.</td>
</tr>
<tr>
<td>Interpreter data generation</td>
<td>The program-less type data is output.</td>
</tr>
<tr>
<td>Simulation function</td>
<td>The created screen data can be displayed and the operation simulated on a personal computer.</td>
</tr>
<tr>
<td>Edit function</td>
<td>Various editing functions, including copy, cut, paste, find and replace, can be executed.</td>
</tr>
<tr>
<td>Layout function</td>
<td>The screen items can be laid out, including position or size alignment and rotation.</td>
</tr>
<tr>
<td>Locate changeover</td>
<td>Up to 16 locates can be set for the control.</td>
</tr>
<tr>
<td>Error check</td>
<td>Various setting mistakes can be checked for.</td>
</tr>
<tr>
<td>Control link</td>
<td>The created controls and the property settings can be listed.</td>
</tr>
</tbody>
</table>

RT ToolBox
Program editing and total engineering support software for CR-500 Series

Outline

This software is for program editing, cycle time calculation, debugging when setting up the robot, and monitoring the robot’s status and errors. In addition to supporting robot engineering, this software can be used as training and educational tool. MelfaROM.exe, which is an ActiveX® control that communicates with robot controller is also available in standard version.

Windows® compatible
- Easily used in a general Windows® environment.
- Compatible with Windows® 95, Windows® 98, Windows® Me, Windows NT® 4.0, Windows® 2000 and Windows® XP.
- The robot movements and operation status can be monitored.

Remote maintenance
- The status can be remotely monitored using a telephone line.
- Centralized monitoring is possible using LAN.

Program editing (editing, program management, debugging), Simulation, Maintenance, Remote maintenance, Monitoring (robot movement monitor, operation monitor, servo monitor)

[Program editing]
- The program on the Windows® screen is available.

[Cycle time calculation]
- The input/output signals and various variables can be set and changed.

[Debugging]
- The cycle time calculation results

[Simulation]
- The robot program can be simulated on the personal computer.

[Monitoring]
- The programs and parameters in the controller are backed up.

- Various information in the controller can be monitored.
CAD/CAM Providing comprehensive system support
- Automatic programming for wire-cut EDM

- **IGES, DXF, BMI Data input**
  - CAD2D functions provided with MEDIAPORT CAD/W enable the wire-cut EDM to be used to its fullest extent.
  - Functions to create involute gears, cams, point sequence data, rack, etc.
  - NC data is output to exactly fit the wire-cut EDM even while CAM functions are in use, and machine operation is confirmed by CAD - 3D NC check

- **Automatic Enlargement Machining**
  - Automatic enlargement machining is required for fine machining. Paths that are not continuous can be created automatically even for irregular shapes.

- **Automatic Second Cuts**
  - All machining conditions from the MITSUBISHI Wire-cut EDM G Series to the latest are standard. In second and third cuts with automatic second cutting, NC programs are generated with automatically selected optimum machining conditions and offsets.

- **3D NC Checker**
  - The new standard 3D NC check, and wire-cut EDM taper, offset and interference shapes not possible conventionally can now be confirmed together with the movements as actual machining.

- **RemoteMagic**
  - Machine management system of manufacturing premise
  - RemoteEDM has the following functions. Batch watch of machine
  - Data transfer to machine
  - Collection of operation results of machine
  - Management of articles of consumption

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**Remote Magic**

- **Create, Simulate and RUN your own ladder project with only your personal computer**


**Master ladder programs with real "3D Simulation"!**

- **Overview**
  - The PLC Training software is suitable for beginners to advanced users of PLC control.
  - The 3D virtual machine simulates a program with real operations, so sequences can be studied and experienced with a single personal computer. It is almost as if the user is actually operating the machine.

- **Operating environment**
  - Depending on your computer environment, the following functions will not be supported:
    - Even first-time users of sequence control can safely learn the methodologies.
    - Start from the ABCs of sequence control, including contacts, NC contacts, timers and counters.
    - Self-latching circuits and interlocks using PLC basic commands.

- **Operating panel window**
  - Operation switches such as RUN, start/stop
    - Input numerical values with digital switches, and display numerical values on a 7-segment display
  - Digital switch operation section
  - 7-segment display

- **Simulation window**
  - Check the program operation with moving 3D images
  - Change the viewpoint to front, plane or inclined

- **Ladder tool window**
  - Read and write programs
  - Monitor programs
  - Save programs
  - Print programs

- **Virtual PLC**
  - Transmit programs to virtual PLC in personal computer
  - Display input/output ON/OFF and RUN states
  - Monitor internal devices

- **Beginner Edition**
  - On/off control
  - Counter control
  - Timer control

**Compatible models**

<table>
<thead>
<tr>
<th>Compatible models</th>
<th>Operating environment</th>
</tr>
</thead>
<tbody>
<tr>
<td>OS</td>
<td>Microsoft® Windows® XP</td>
</tr>
<tr>
<td>CPU</td>
<td>Pentium 500MHz or faster recommended</td>
</tr>
<tr>
<td>Memory</td>
<td>64MB or more / 128MB or more recommended</td>
</tr>
<tr>
<td>Hard disk</td>
<td>15GB or more</td>
</tr>
<tr>
<td>CD-ROM drive</td>
<td>1 unit (For installation)</td>
</tr>
<tr>
<td>CD-ROM drive</td>
<td>CD-ROM drive (4x) or larger required</td>
</tr>
<tr>
<td>Video</td>
<td>DirectX compatible video card having 3D or larger VRAM capacity / 3MB or larger recommended</td>
</tr>
<tr>
<td>Browser</td>
<td>Internet Explorer 4.0 or higher recommended</td>
</tr>
</tbody>
</table>

^1: Setup of Windows XP SP2, Windows XP SP3 and Windows XP SP4 and setup of the software must be carried out under the computer administrator's login.
^2: Memory larger than the recommended can be used provided it is not more than the capacity of the computer.
^3: The training software screen size is fixed to 1024 x 768 pixels.
Partner Products
Mitsubishi FA Communication Middleware

**EZSocket**
Introducing real FA applications for the workshop proposed by Mitsubishi Electric and our partners.

- Use of Mitsubishi’s FA products and EZSocket compatible applications makes engineering environments more efficient, saves power and increases speeds
  - At production sites which continually advance, the needs for software used in production facilities and machine engineering continue to diversify. Mitsubishi Electric provides each of our partner vendors with the communication middleware EZSocket for use with Mitsubishi FA products. This realizes a reliable link with a variety of partner applications. Using EZSocket partner products makes engineering environments more efficient, saves power and increases speeds! Improve your productivity with this middleware.

---

**Internet Service**
Timely internet delivery of latest information to our customers

- The latest information on our products is available at each website.

**MELFANSweb**
- **Online manuals**
  - More than 2000 manuals can be referred to at any time. Our ever-growing library of online manuals currently has manuals in English and Chinese.

**Download service**
- **Trial version download**
  - By registering your ID, the functions, operability and compatibility can be checked with a trial version before purchasing the actual version. The functions are the same as the product version, but the software can be used only for a limited time.

**Software update service**
- Purchased software can be updated and the functions updated free of charge. (Note that updates are available only for the same model.)

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**List of EZSocket partners and their products**

<table>
<thead>
<tr>
<th>Company name</th>
<th>Category</th>
<th>Product</th>
<th>Website url</th>
<th>Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eisco Corporation</td>
<td>SCADA</td>
<td>Factor_clock</td>
<td><a href="http://www.eisco.co.jp">http://www.eisco.co.jp</a></td>
<td><a href="mailto:info@eisco.co.jp">info@eisco.co.jp</a></td>
</tr>
<tr>
<td>Meiji Corporation</td>
<td>Data Collection</td>
<td>i-AP_API</td>
<td><a href="http://www.meiji-corp.com">http://www.meiji-corp.com</a></td>
<td><a href="mailto:sales@meiji-corp.com">sales@meiji-corp.com</a></td>
</tr>
<tr>
<td>TAKIBISHI Electric Sales Corporation</td>
<td>OPC Server</td>
<td>DeviceFox/MELESEC OPC Server</td>
<td><a href="http://www.takeshi-net.com">http://www.takeshi-net.com</a></td>
<td><a href="mailto:sales@takibishi.co.jp">sales@takibishi.co.jp</a></td>
</tr>
</tbody>
</table>

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**Service**
Bringing the latest information to our customers

- After purchasing MELSOFT, register as a user at MELFANSweb to receive various services.

**DIA-X-NET**
- Deliberating valuable information to customers
  - This website is updated daily to provide our customers with the latest technical and industrial information as well as ever-advancing machining conditions and machining knowledge. This website can also be used by members to exchange information.

---

<table>
<thead>
<tr>
<th>Company name</th>
<th>Category</th>
<th>Product</th>
<th>Website url</th>
<th>Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIAX-INC</td>
<td></td>
<td></td>
<td><a href="http://www.dia-x-net.com/">http://www.dia-x-net.com/</a></td>
<td></td>
</tr>
</tbody>
</table>
## List of software products

<table>
<thead>
<tr>
<th>Category</th>
<th>Product name</th>
<th>Model</th>
<th>Description</th>
<th>Category</th>
<th>Product name</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gx Developer</strong></td>
<td>SW_DSC-GP1W_E</td>
<td>MELSEC PLC programming software</td>
<td></td>
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<tr>
<td></td>
<td>SW_DSC-GP2W-EV</td>
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</tr>
<tr>
<td><strong>Gx Simulator</strong></td>
<td>SW_DSC-LTT_E</td>
<td>MELSEC PLC simulation software</td>
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</tr>
<tr>
<td><strong>Gx Explorer</strong></td>
<td>SW_DSC-EXP_E</td>
<td>Project control tool</td>
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</tr>
<tr>
<td><strong>Gx Converter</strong></td>
<td>SW_DSC-CN2W_E</td>
<td>Excel test data converter</td>
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</tr>
<tr>
<td><strong>Gx Configurator-AD</strong></td>
<td>SW_DSC-Q4U-E</td>
<td>MELSEC-Q dedicated AD conversion setting and monitoring tool</td>
<td></td>
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<tr>
<td></td>
<td>SW_DSC-QGU-E</td>
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<tr>
<td><strong>Gx Configurator-CA</strong></td>
<td>SW_DSC-QDAU_E</td>
<td>MELSEC-Q dedicated CA conversion setting and monitoring tool</td>
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<tr>
<td><strong>Gx Configurator-SC</strong></td>
<td>SW_DSC-QSCL-E</td>
<td>MELSEC-Q dedicated Serial communication setting and monitoring tool</td>
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<tr>
<td><strong>Gx Configurator-CT</strong></td>
<td>SW_DSC-QCTU-E</td>
<td>MELSEC-Q dedicated High-speed counter setting and monitoring tool</td>
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<tr>
<td><strong>Gx Configurator-TI</strong></td>
<td>SW_DSC-QTTU-E</td>
<td>MELSEC-Q dedicated Temperature input setting and monitoring tool</td>
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</tr>
<tr>
<td><strong>Gx Configurator-FL</strong></td>
<td>SW_DSC-QFLU-E</td>
<td>MELSEC-Q dedicated FL net setting and monitoring tool</td>
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<tr>
<td><strong>Gx Configurator-PT</strong></td>
<td>SW_DSC-QPTU-E</td>
<td>MELSEC-Q dedicated QPT setting and monitoring tool</td>
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</tr>
<tr>
<td><strong>Gx Configurator-AS</strong></td>
<td>SW_DSC-QASU-E</td>
<td>MELSEC-Q dedicated AS1 master setting and monitoring tool</td>
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<tr>
<td><strong>Gx Configurator-QP</strong></td>
<td>SW_DSC-QGTP-E</td>
<td>QGTP EM positioning module setting and monitoring tool</td>
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<tr>
<td><strong>Gx Configurator-AP</strong></td>
<td>SW_DSC-QATS-E</td>
<td>AQTP/FM positioning module setting and monitoring tool</td>
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</tr>
<tr>
<td><strong>Gx Configurator-CC</strong></td>
<td>SW_DSC-QCHU-E</td>
<td>MELSEC-A dedicated CC-Link setting and monitor tool</td>
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</tr>
<tr>
<td><strong>Gx RemoteService</strong></td>
<td>SW_DSC-RAS-E</td>
<td>Remote maintenance tool</td>
<td></td>
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</tr>
<tr>
<td><strong>Gx Works</strong></td>
<td>SW_DSC-GSET-E</td>
<td>Gx Developer, Gx Simulator, Gx Explorer, Gx Configurator-AD, OA, SC, CT 7-product set</td>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>SW_DSC-GPLL-E</td>
<td>Gx Developer, Gx Simulator, Gx Explorer 3-product set</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td><strong>FX Developer</strong></td>
<td>SW_DSC-FBDO-E</td>
<td>TSB software package for instrument control</td>
<td></td>
<td></td>
<td></td>
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<td><strong>FX Works</strong></td>
<td>SW_DSC-FBDGPF-E</td>
<td>FX Developer, Gx Developer, Gx Configurator-AD, OA, CT, TI 6-product set</td>
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### Windows

- **M Series**
  - MX Component: SW_DSC-ART-E
  - MX Sheet: SW_DSC-SHEET-E
  - MX Parts: SW_DSC-SFC-E
  - MX Works: SW_DSC-SHEETSET-E

- **GT Designer**
  - GT Designer: SW_DSC-GT20-E
  - GT Works: SW_DSC-GT20W-E

- **GTS/GOT70 license key**
  - ANGOTSOFT-LK-GY-F: D-sub 25-pin, parallel port license key
  - ANGOTSOFT-LK-GY-E: Personal computer CPU module dedicated license key

- **MT Designer**
  - SWVNC-GR/MO/D: Integral startup software for G-Motion
  - SWVNC-GR/ST/I: Integral startup software for G-Motion + AS300/C-PC7-15C1-YF card + G-700/CD/1542 card

- **MR Configurator**
  - MRG2W3-SETUP-E: Servo setup software for MR-J5
  - MRG2W3-SETUP1-E: Servo setup software for MR-J5

- **NC Designer**
  - SWVNC-GR/MO/D: Custom screen creation software for CNC M700

- **FR Configurator**
  - FR-SW-SETUP-W: Inverter setup software

- **BT TOOL-BOX**
  - SA-210-WNE: Program editing and tool engineering support software
  - SA-220-WNE: Program editing and tool engineering support software

- **EMD Solution**
  - CAN/W: Can-Cap for Wire EMD
  - Renzologic: Network system for EMD

- **Training**
  - TX-TRIN-BEG-E: SW_DSC-FTTRIN-BEG-E: PLC Training software (Beginner Edition)

**Footnotes**

- [1] Version upgrade product
- [2] Value sets
  - [3] Compatible only Windows® as Second Edition
Precautions for Choosing the Products

This catalog explains the typical features and functions of the Q series PLCs and does not provide restrictions and other information on usage and module combinations. When choosing the products, always check the detailed specifications, restrictions, etc. of the products in the Q series data book. When using the products, always read the user’s manuals of the products.

Mitsubishi will not be held liable for damage caused by factors found not to be the cause of Mitsubishi; machine damage or lost profits caused by faults in the Mitsubishi products; damage, secondary damage, accident compensation caused by special factors unpredictable by Mitsubishi; damages to products other than Mitsubishi products; and to other duties.

For safe use

- To use the products given in this catalog properly, always read the “manuals” before starting to use them.
- This product has been manufactured as a general-purpose part for general industries, and has not been designed or manufactured to be incorporated in a device or system used in purposes related to human life.
- Before using the product for special purposes such as nuclear power, electric power, aerospace, medicine or passenger movement vehicles, consult with Mitsubishi.
- This product has been manufactured under strict quality control. However, when installing the product where major accidents or losses could occur if the product fails, install appropriate backup or failsafe functions in the system.

When exported from Japan, this manual does not require application to the Ministry of International Trade and Industry for service transaction permission.