Changes for the Better

MITSUBISHI ELECTRIC

Mitsubishi iQ Platform-compatible FA Integrated Engineering Software MELSOFT iQ Works

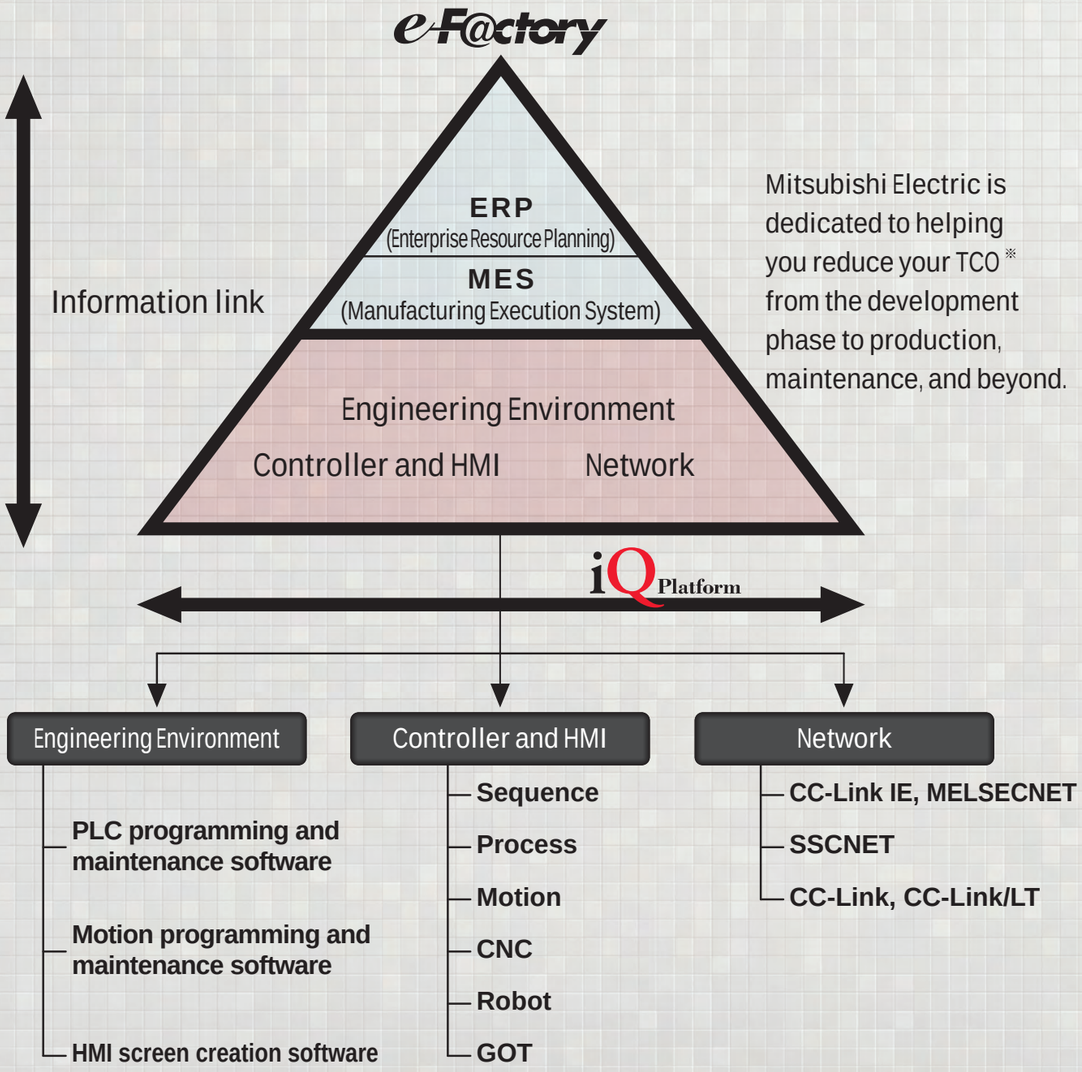
Empowering Industries

Mitsubishi FA Integrated Concept

iQ Platform

iQ Platform

The iQ Platform writes a new chapter in the book of factory automation (FA).



Mitsubishi Electric is dedicated to helping you reduce your TCO ※ from the development phase to production, maintenance, and beyond.

Mitsubishi Electric's "e-F@ctory" FA integrated solution is an evolutionary step in manufacturing which can provide dramatic cost-saving results. Reduce your TCO and stay one step ahead of the competition by using advanced technologies to optimize the entire factory, including the development, production and maintenance phases of operation. The key to this integrated concept is the "iQ Platform." By combining the power of best-in-class components on the same platform, unparalleled levels of performance are possible. In addition, a vast array of communications options ensures connectivity between every element of the production process, from the smallest sensor to the most complicated IT system.

The iQ Platform is a Mitsubishi FA integration concept.

integrated Q／improved Quality／intelligent&Quick

※TCO:Total Cost of Ownership

iQ Works integrates the functions necessary to manage every part of the system life cycle.

System design

The intuitive system configuration diagram allows for the graphic assembly of systems, centralized management of disparate projects, and batch configuration of the entire control system.

Programming

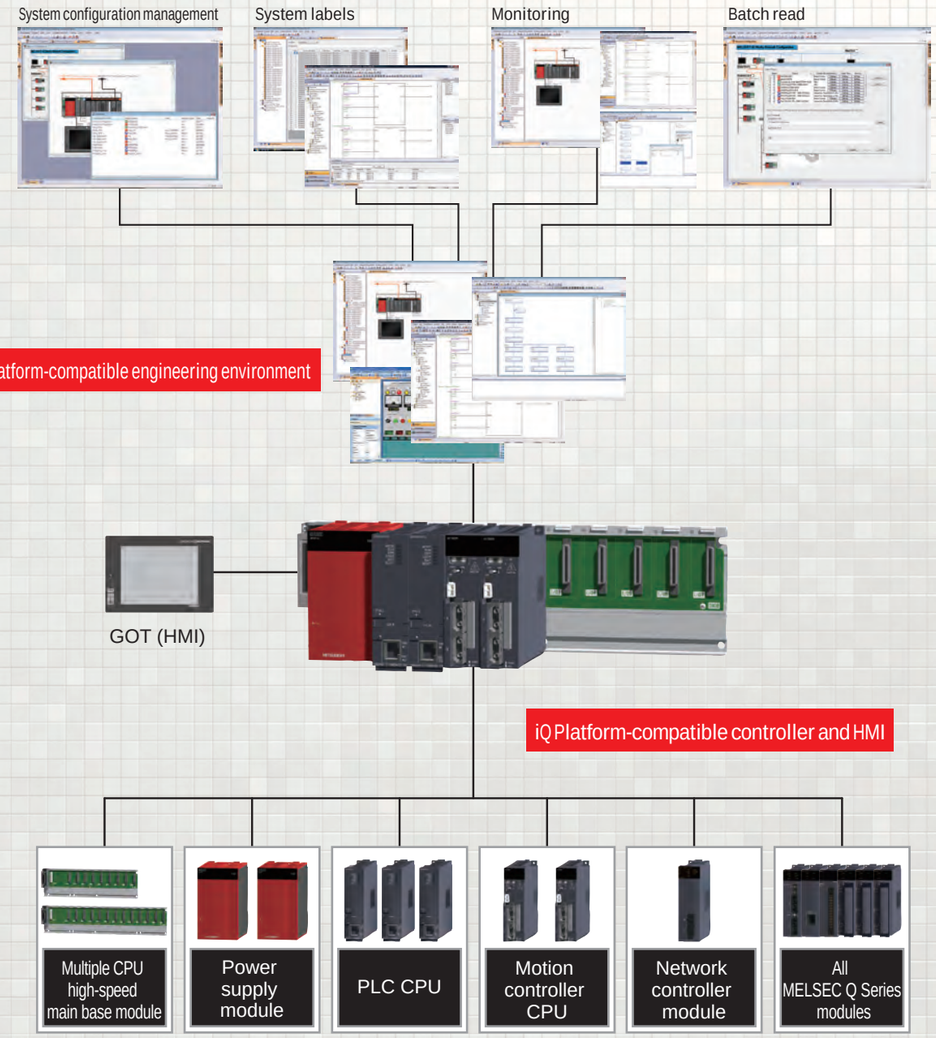
Use system labels to seamlessly share device data between GOTs, PLCs, and motion controllers. Save the time and hassle of changing device values in each program by using the update system labels feature.

Test and startup

Debug and optimize programs using the simulation functions. Use the included diagnostics and monitoring functions to quickly identify the source of errors.

Operation and maintenance

Speed up the process of commissioning, configuring, and updating the system by using the batch read feature. Virtually eliminate the confusion associated with system management.

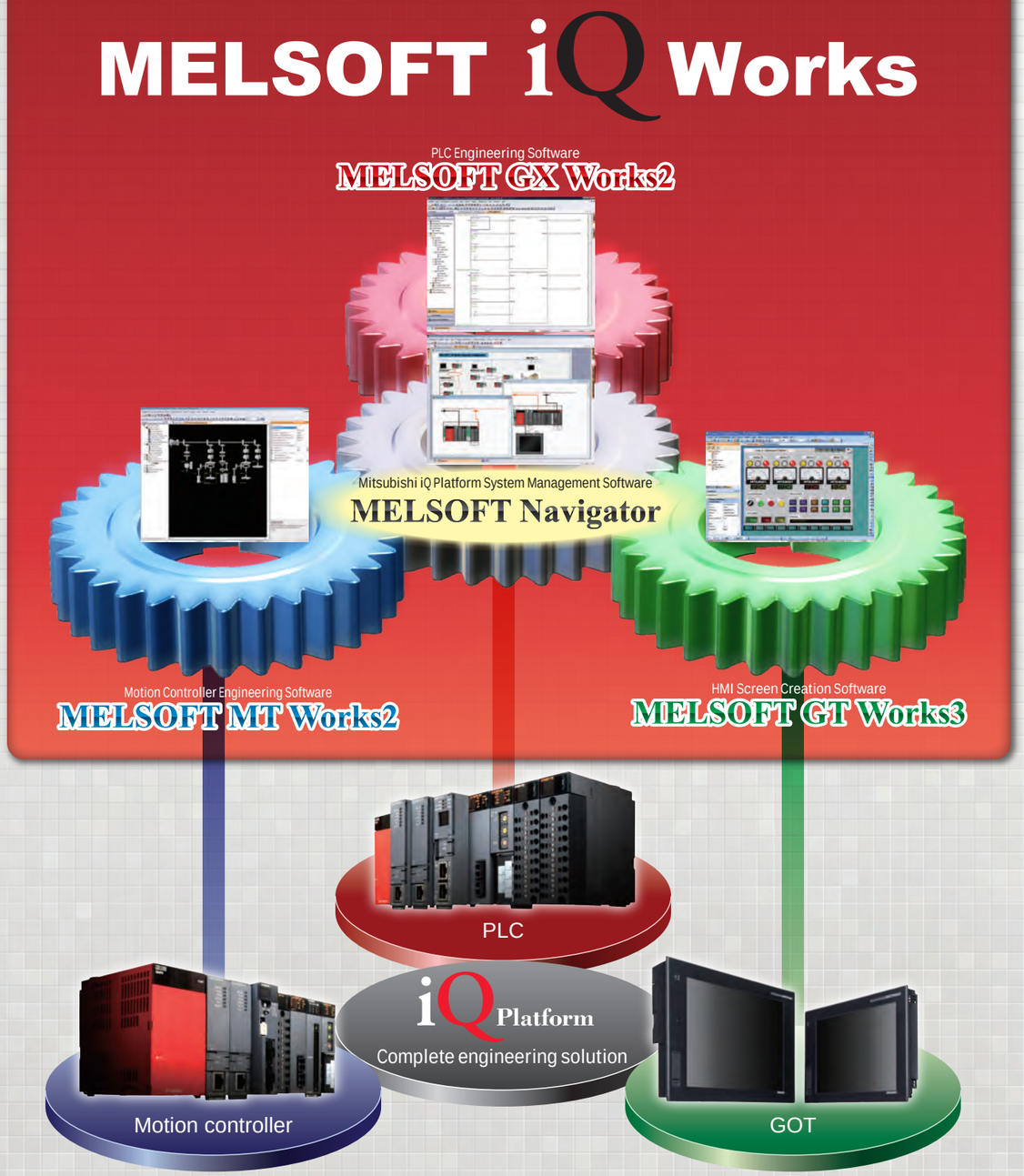


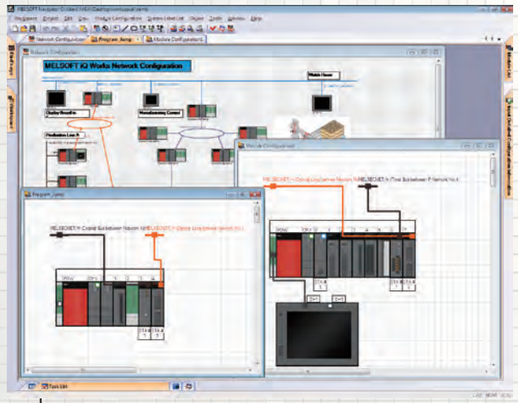
The iQ Platform maximizes the potential performance of each system component.

MELSOFT iQ Works

MELSOFT iQ Works represents a major innovation in systems engineering

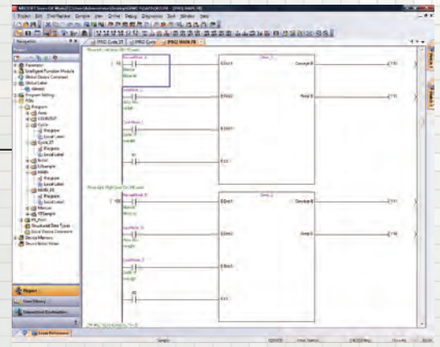
MELSOFT iQ Works integrates the various programming and design software for Mitsubishi programmable controllers, motion controllers, and GOTs. The result is one seamless engineering environment.





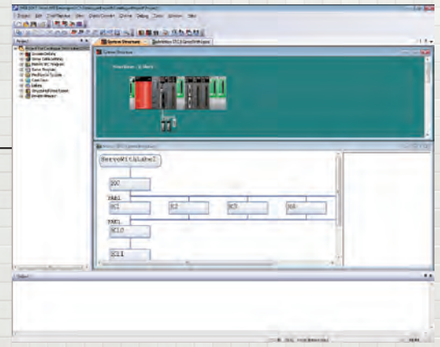
MELSOFT Navigator

is the heart of iQ Works. It enables the effortless design of entire upper-level systems and seamlessly integrates the other MELSOFT programs included with iQ Works. Functions such as system configuration design, batch parameter setting, system labels, and batch read all help to reduce TCO.



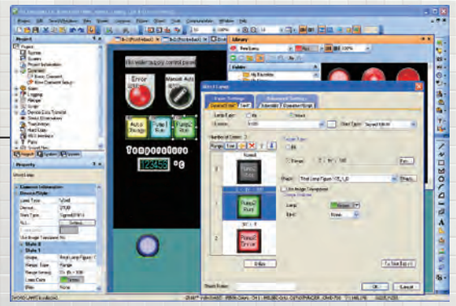
MELSOFT GX Works2

represents the next generation in MELSOFT PLC maintenance and programming software. Its functionality has been inherited from both GX and IEC Developer, with improvements made throughout to increase productivity and drive down engineering costs.



MELSOFT MT Works2

is a comprehensive motion CPU maintenance and program design tool. Its many useful functions, such as intuitive settings, graphical programming, and digital oscilloscope, simulator, assistance help, to reduce the TCO associated with motion systems.

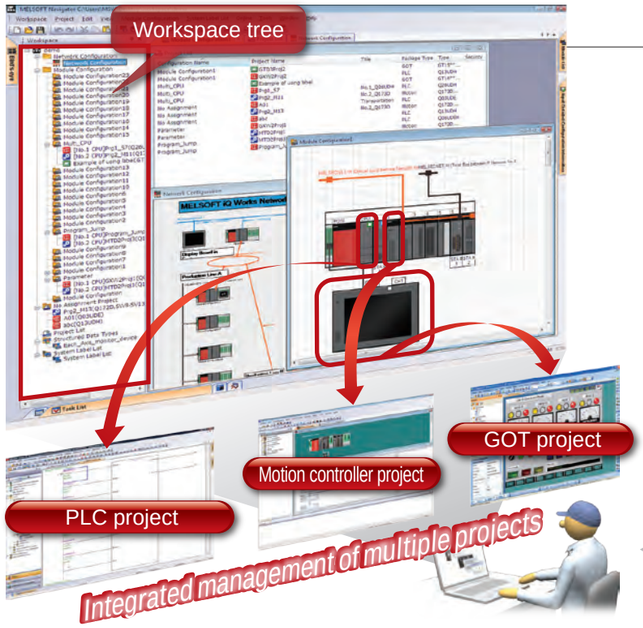


MELSOFT GT Works3

is a complete HMI programming, screen creation, and maintenance program. In order to reduce the labor required to create detailed and impressive applications, the software's functionality has been built around the concepts of ease of use, simplification (without sacrificing functionality), and elegance (in design and screen graphics).

Integrated system management improves efficiency and thereby shortens development and maintenance time

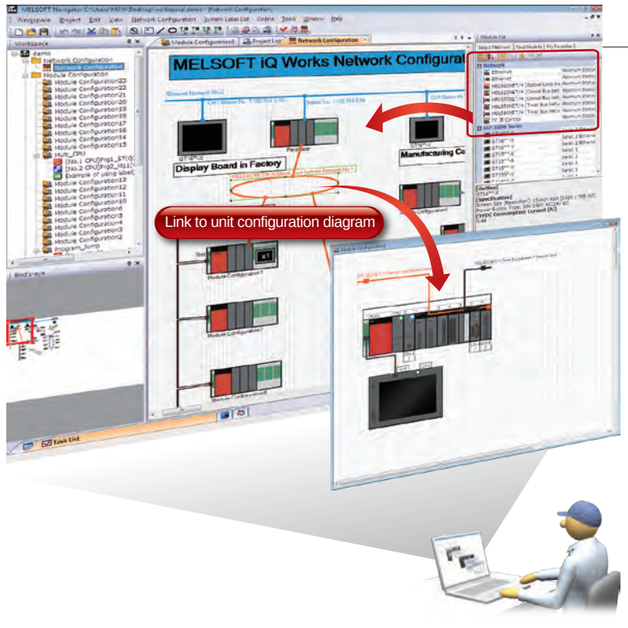
Improved productivity through integrated management



Workspace Management

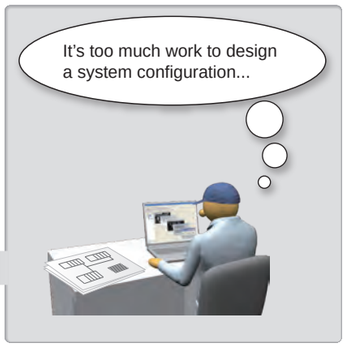
Multiple PLC, motion controller and GOT projects can be managed centrally in the workspace. This enables you to group the projects into manageable units such as factory, line or cell.

Easy-to-design system configuration

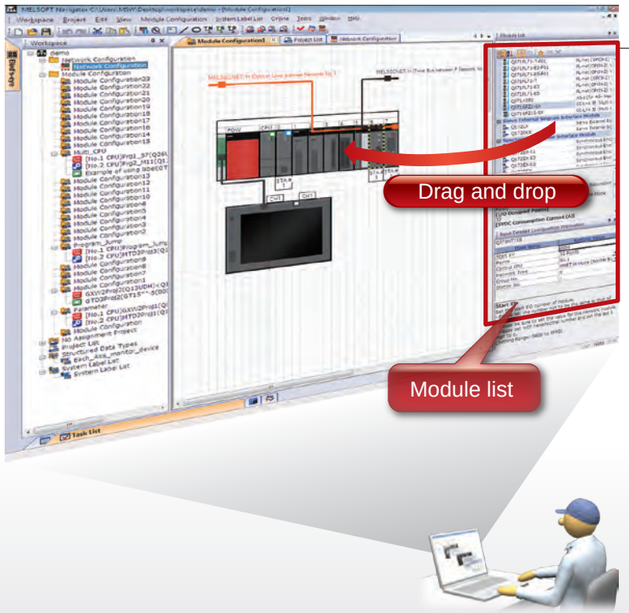


System Configuration Diagram

Create detailed system-wide network maps and select and configure every piece of hardware using multiple unit configurations with simple drag and drop operations. Verify the design using built-in system tests such as power supply capacity check.



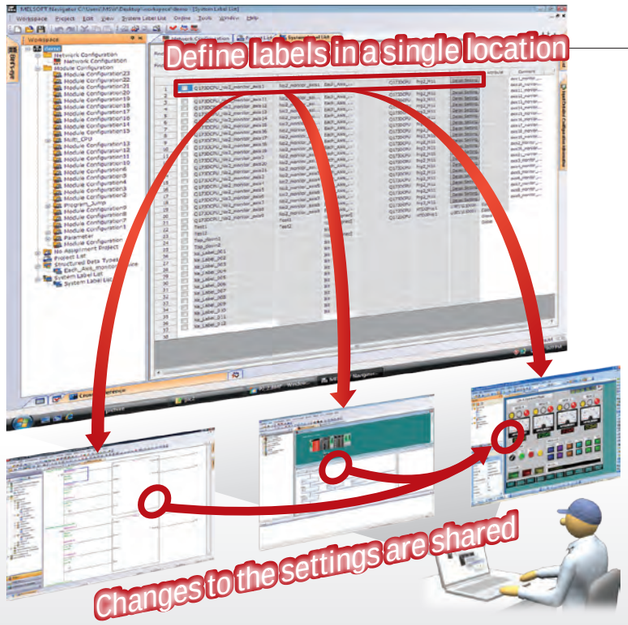
Visualization of project management



Graphical Project Management

Functions such as program edit, parameter setting and batch reading can be executed intuitively using the graphic interface.
In addition, the possibility of making setting errors is minimized because the entire system is immediately visible.

Improved programming efficiency

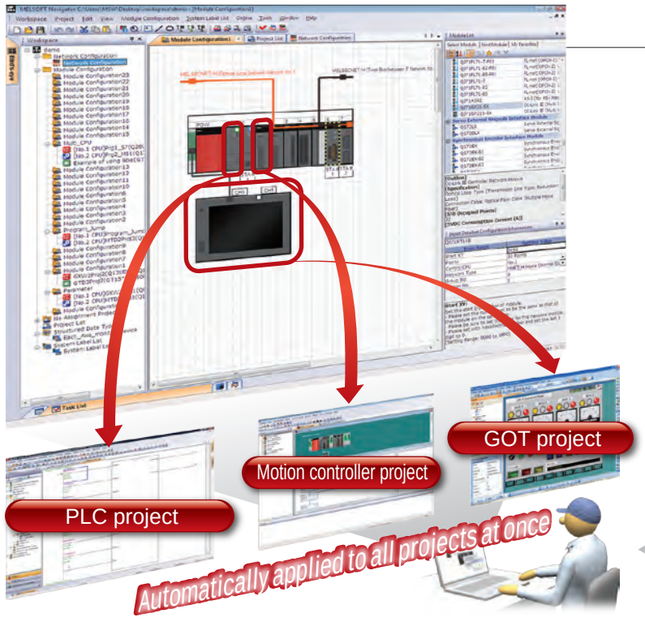


Label Programming

MELSOFT Navigator features a shared label database that automatically updates across all supported platforms. This system allows for top-down engineering, parallel development, and seamless communications. Drastically reduce labor and increase programming productivity by focusing on the application, not the communication details and manually labeling and re-assigning every device when a change is made.

Integrated system management improves efficiency and thereby shortens development and maintenance time

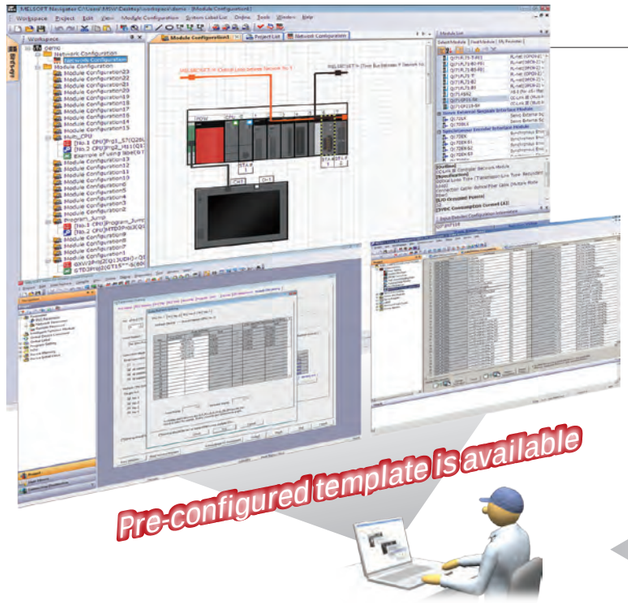
Reduce the time to configure system parameters



Batch Parameter Generation

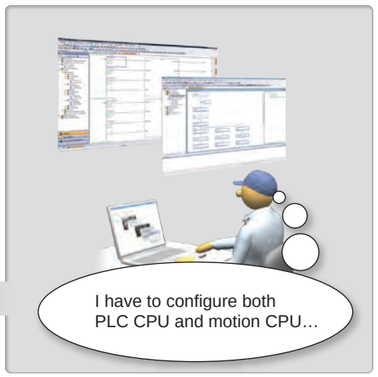
Greatly reduce engineering time by letting MELSOFT Navigator automatically generate the parameter settings for each project based on the graphical system configuration diagram. With one operation, complex parameter settings for networks, I/O assignments, and multi-CPU systems are done for you, preventing mistakes and saving valuable time.

Get up and running quickly with a motion system

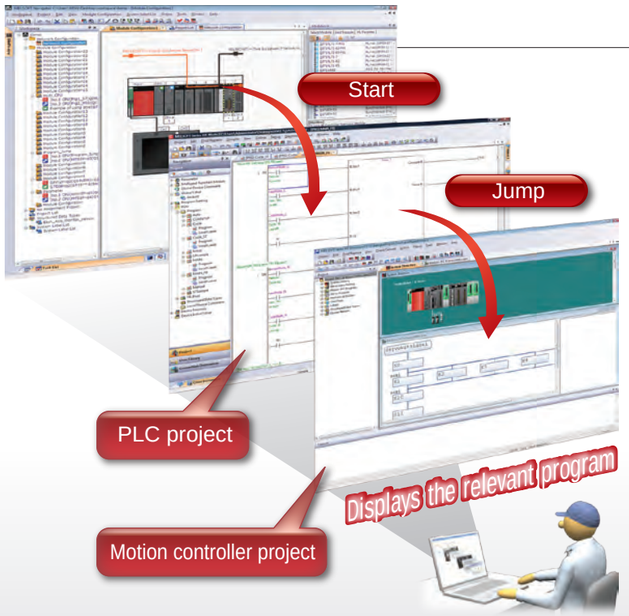


Support for Motion Dedicated Device Settings

Make use of workspace templates to get started with multi-CPU systems including motion control systems. Templates are pre-configured with parameters and labels to speed up the process of developing a new system.

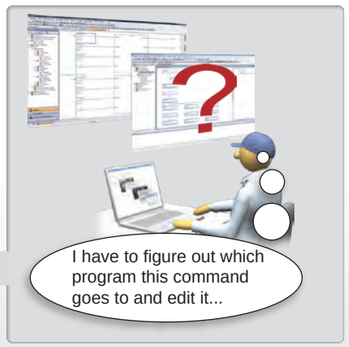


Reduce the time for development



Integrated Development Environment

Navigator eliminates the need to search for motion programs by using the "jump" feature. Simply right-click the motion command in the PLC program and click jump to automatically open the referenced motion program.



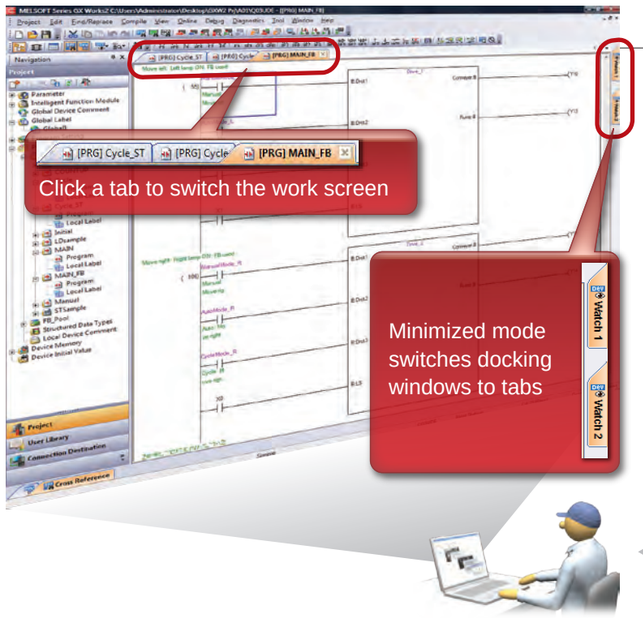
Improved data transfer efficiency

Batch Read

Use the batch read function to download all of the programs and parameters of the PLC CPU and motion CPU, project data of the GOT with one easy operation.

Enhance project development efficiency via the user-friendly interface

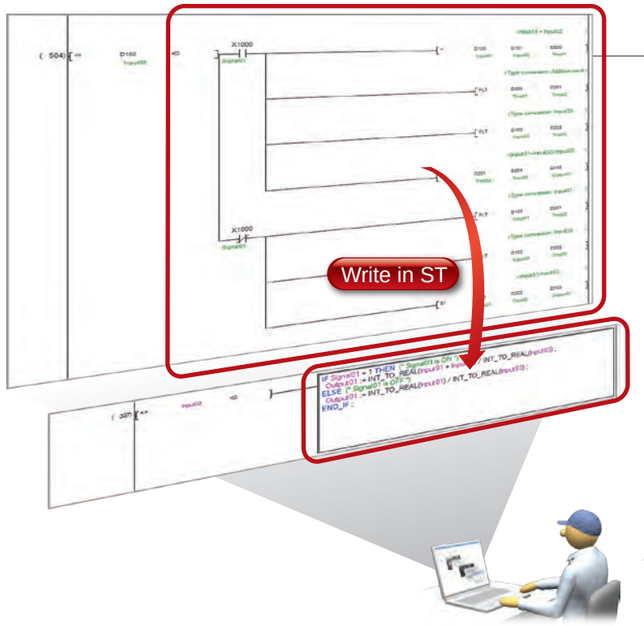
Work faster and more effectively using innovative display functions



Tabs and Docking Windows

The ability to swiftly change the user interface to suit current needs improves programming efficiency. Screen tabs make finding the required work object quick and convenient. Use the work area to your best advantage by minimizing docked windows to the side bar.

Combine different languages in the same program to solve problems efficiently

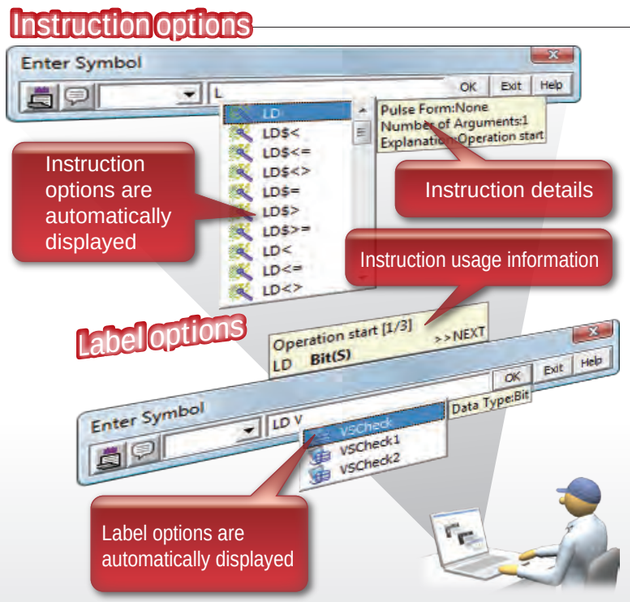


Inline Structured Text

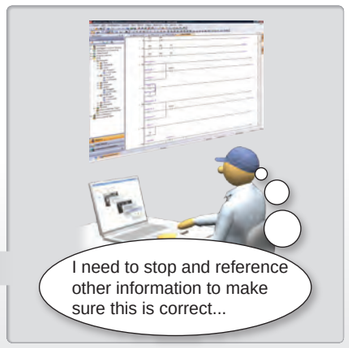
Further shorten development time by programming solutions in the most suitable language, without having to create an entirely new program. For example string and number manipulation is accomplished easier with ST. By using inline structured text the development process can move forward quickly.

Programming support features shorten development time

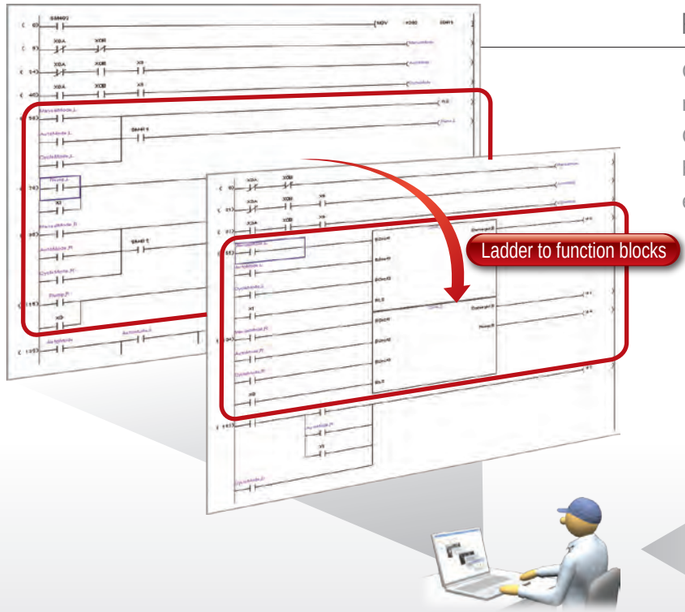
Symbol Entry Window Instruction and Label List



Prevention of coding mistakes saves time with the ability to find an instruction or label even if the entire name is not known. Information about the selected item is automatically displayed insuring the correct choice is made. Instructions include detailed usage information.

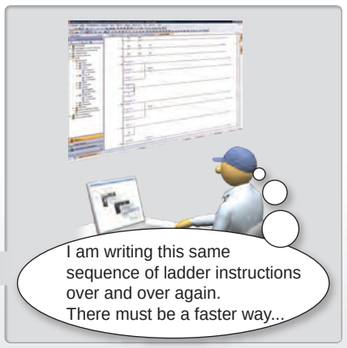


Reduce the labor needed to create solutions by using existing ones



Function Blocks

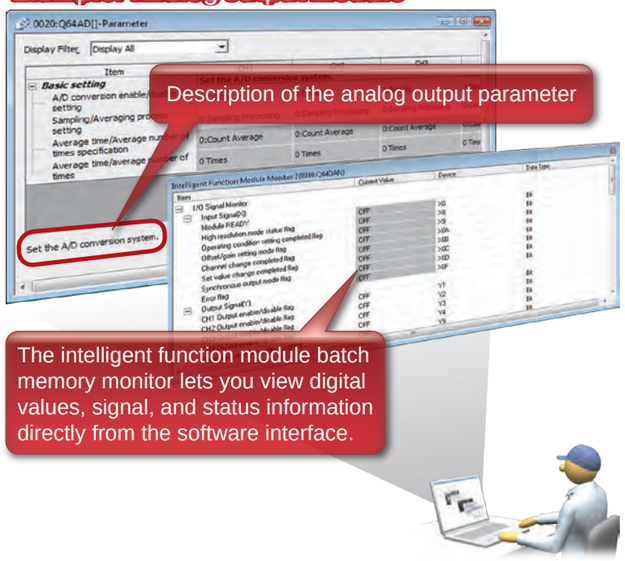
Create your own function blocks for easy re-use or utilize pre-made function blocks. Combine the use of ladder and function blocks seamlessly to reduce programming errors and save time.



Enhanced security and monitoring features aid start-up and maintenance operations

Configure and monitor system hardware with ease

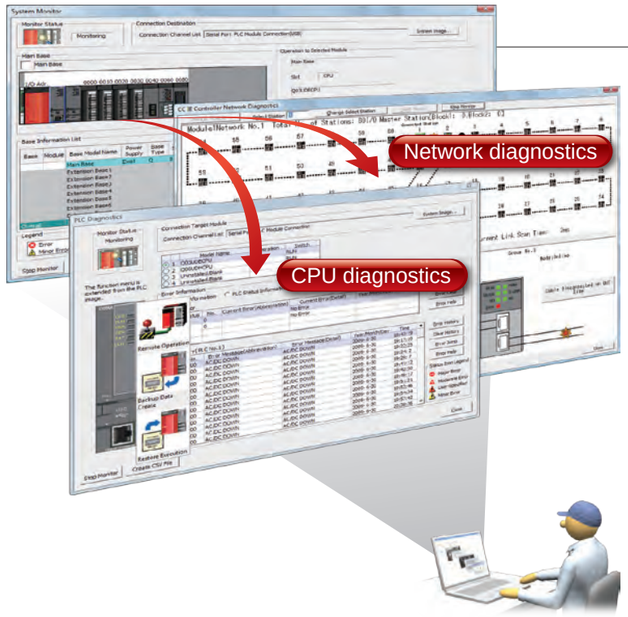
Example: Analog output module



Expanded Support for Intelligent Function Modules

Detailed descriptions are now given for parameter setting items, making it possible to set up and change the configuration of intelligent function modules without having to reference a manual. Use the intelligent function module batch memory monitor to create a custom list of items to observe and quickly identify problems.

Detailed system operating status display



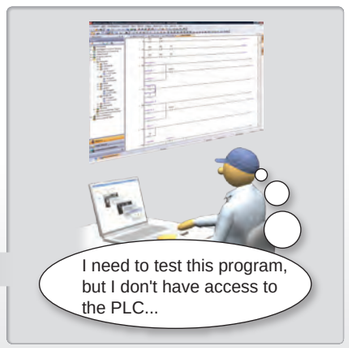
System Monitor

Quickly diagnose network and PLC hardware problems anywhere in the system using the system operating status display.

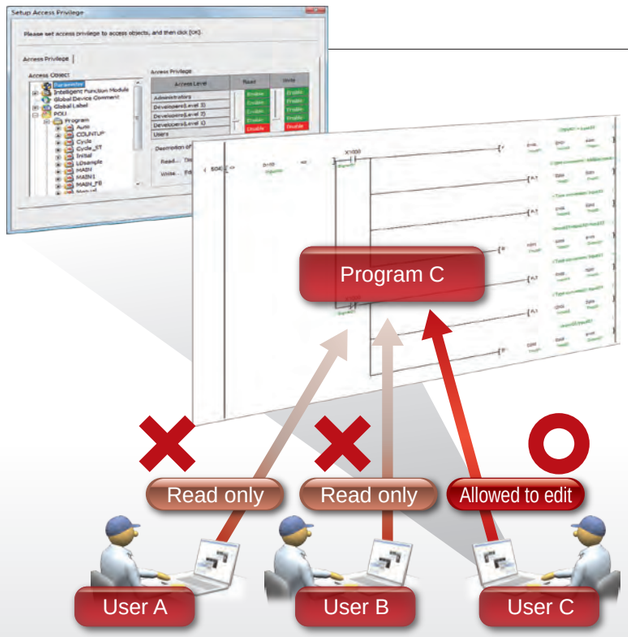
Perform offline debugging without physical hardware

Simulation Function

Full simulation capabilities are immediately available with GX Works2. Accomplish debugging tasks more efficiently with the convenience to perform simulation anywhere, without the need for physical hardware.



Robust security for project management

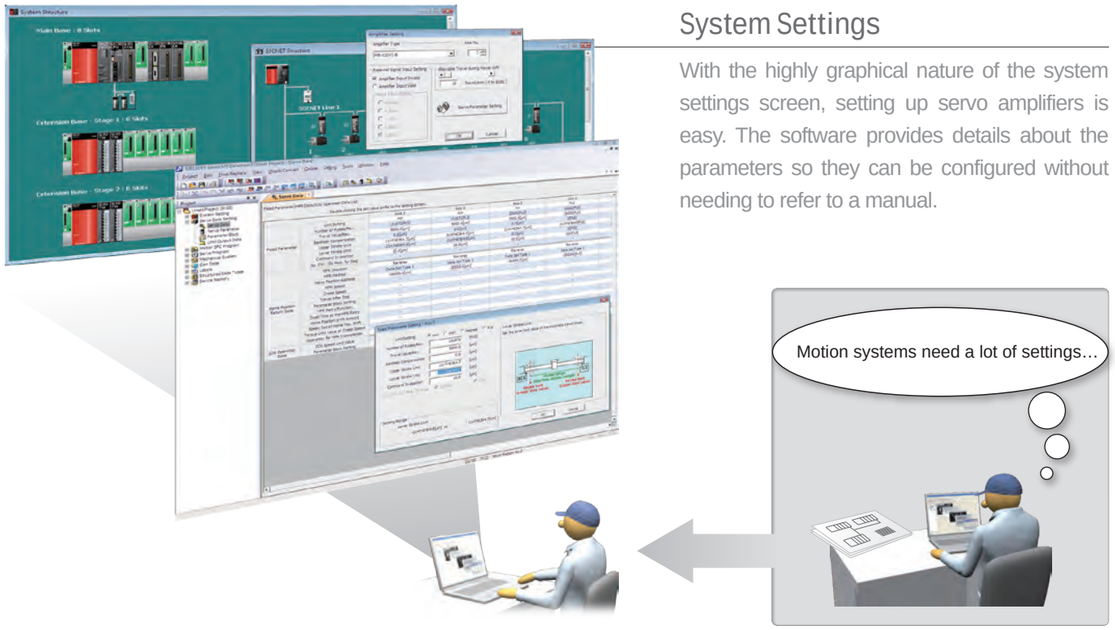


Access Authority

Prevent unauthorized access to programs by requiring user and password authentication. Create a multi-level security scheme to support collaborative development while maintaining data protection.

Create advanced motion control systems with ease

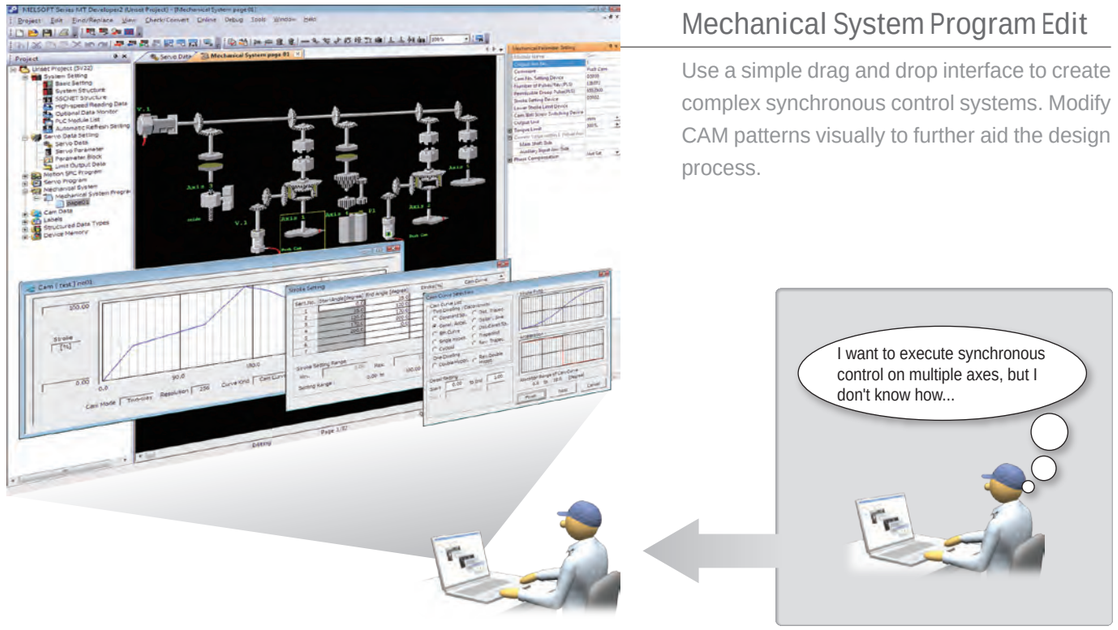
Intuitive system design



System Settings

With the highly graphical nature of the system settings screen, setting up servo amplifiers is easy. The software provides details about the parameters so they can be configured without needing to refer to a manual.

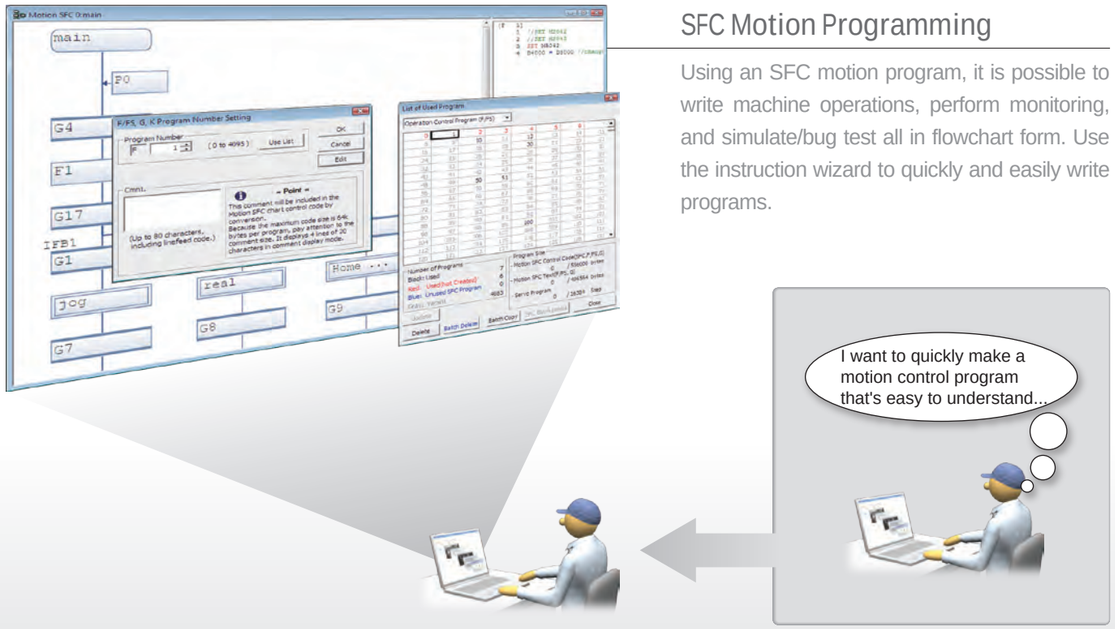
Easily configure a complex synchronized system



Mechanical System Program Edit

Use a simple drag and drop interface to create complex synchronous control systems. Modify CAM patterns visually to further aid the design process.

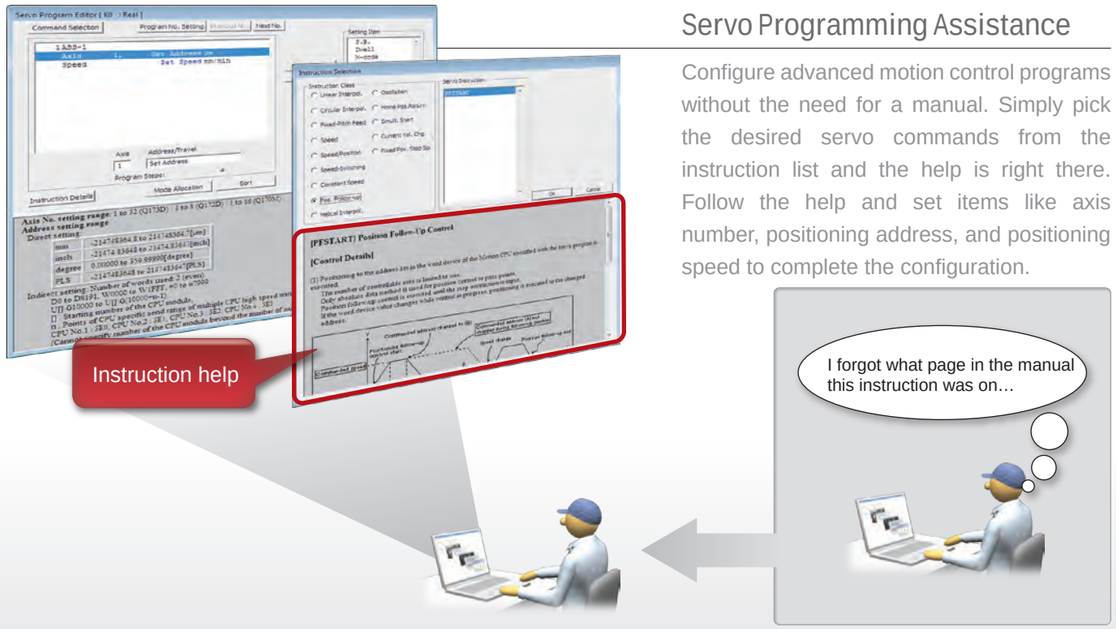
Create clear and easy-to-understand flowcharts



SFC Motion Programming

Using an SFC motion program, it is possible to write machine operations, perform monitoring, and simulate/bug test all in flowchart form. Use the instruction wizard to quickly and easily write programs.

Detailed help is available directly in the software

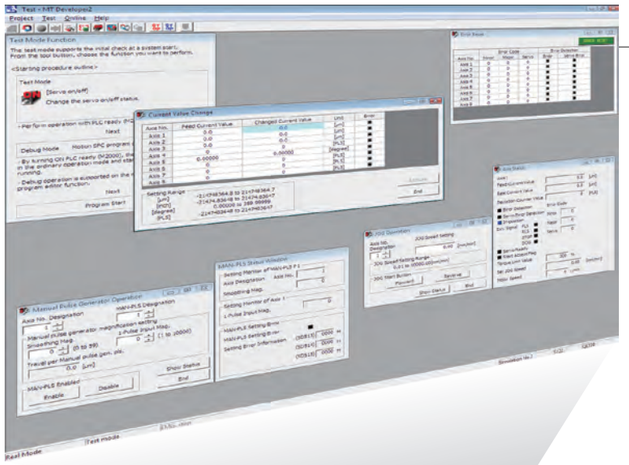


Servo Programming Assistance

Configure advanced motion control programs without the need for a manual. Simply pick the desired servo commands from the instruction list and the help is right there. Follow the help and set items like axis number, positioning address, and positioning speed to complete the configuration.

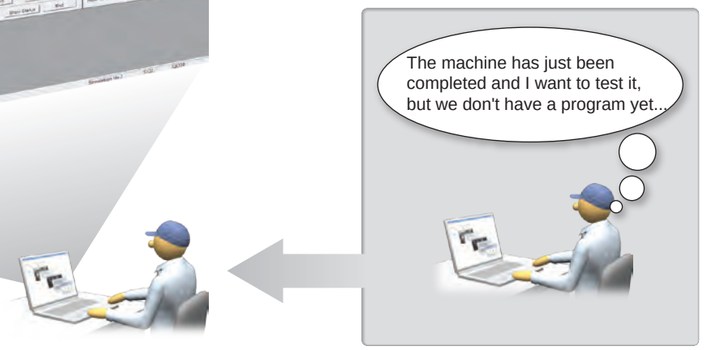
Perform installations and maintenance more efficiently using enhanced debug and monitoring functionality

Test drive equipment without a program

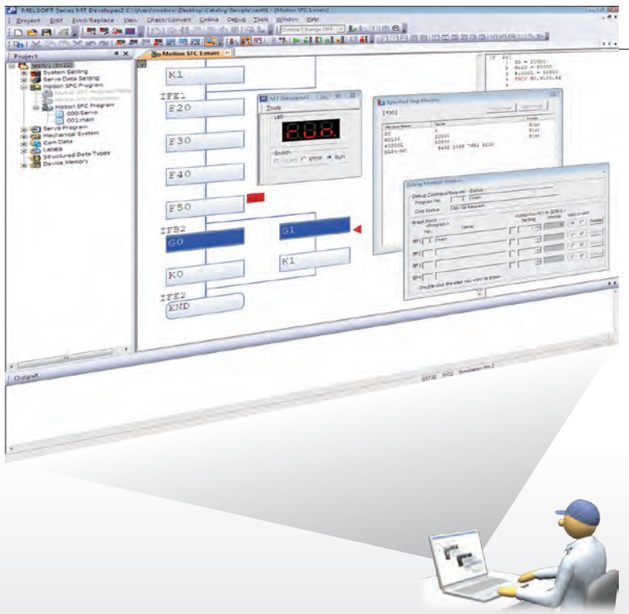


Various Test Mode Functions

Run basic instructions in test mode without the need for a program. Test a new system with functions like return to home position, JOG, and others with just the click of a mouse.



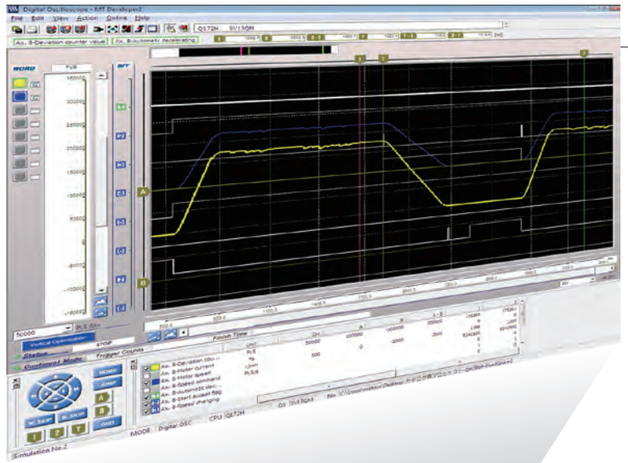
Perform debugging using a simulation



Motion Simulator

Program debug mode and the digital oscilloscope function allow for easy testing of motion SFC programs, servo programs, and mechanical system programs all without the need for real hardware.

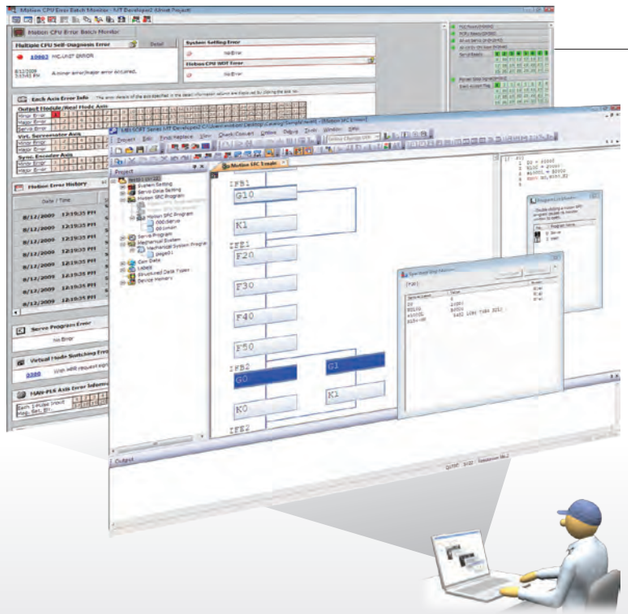
Ensure smooth commissioning and start-up using the tools included



Digital Oscilloscope

Plot feedback data synchronized with motion controller data on the same graph to quickly reveal any problems. Using this feature makes start-up and commissioning quick and easy. Also MT Works2 makes it easy to save the collected data in CSV format.

Reduce down-time and spot trouble before it happens

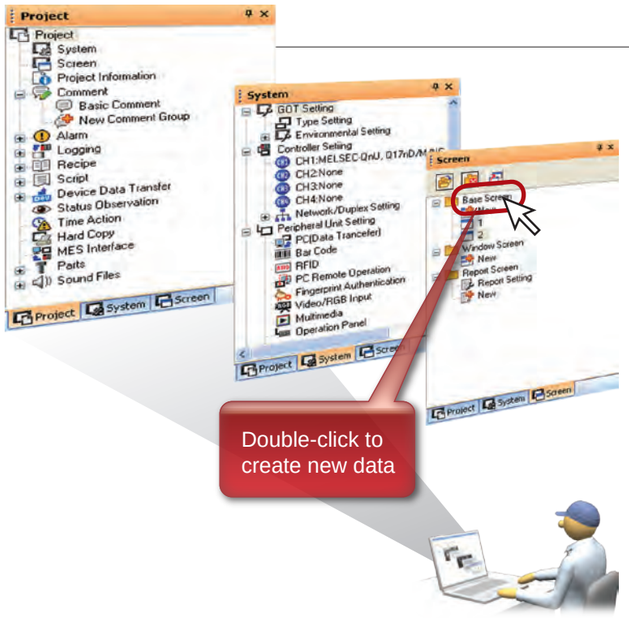


Rich Monitor Functions

Improve installation and maintenance operation efficiency by using one of the many monitoring tools to view the motion SFC program in operation, monitor the motion controller's status, or batch monitor errors.

Enhanced user-friendliness makes it easier than ever to get started quickly

Find what you need fast with work tree categories



Work Tree

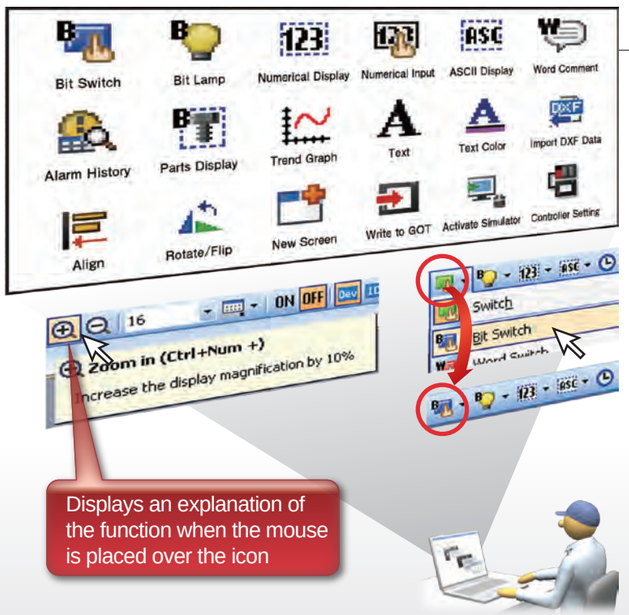
The work tree automatically organizes every piece of your project so it's easy to find later. The files are split among three logical categories so you know where to look intuitively. Additionally you can now create new screens or comments directly from the work tree by double clicking "New."

Create striking screen designs using simple operations

Screen Elements Library

The library tree has been reorganized and sorted to help users find the right element more quickly. For example, it is now possible to jump directly to items based on "appearance" or "function." A feature to select items from a recent history list is also included.

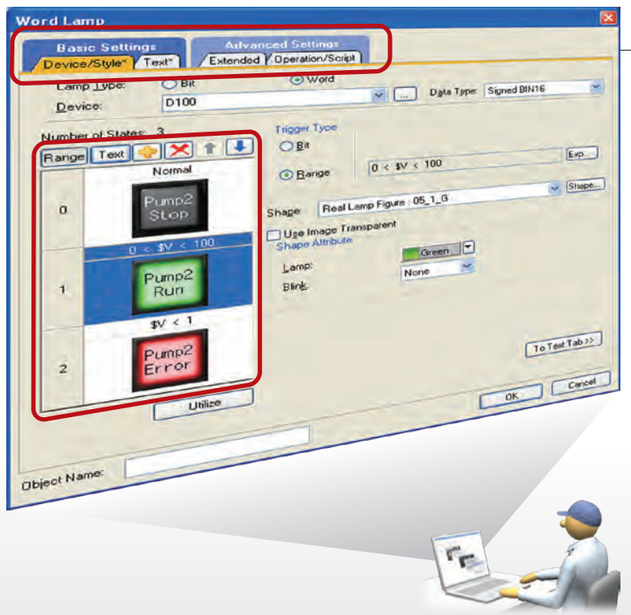
Interface icons designed to help the user



Toolbar

Hovering over icons with the mouse now provides detailed tool-tips. The user tool bar now remembers the last function used to further increase screen design efficiency. Many icons are now rendered in vibrant color for easy identification.

Improved visibility of dialog boxes

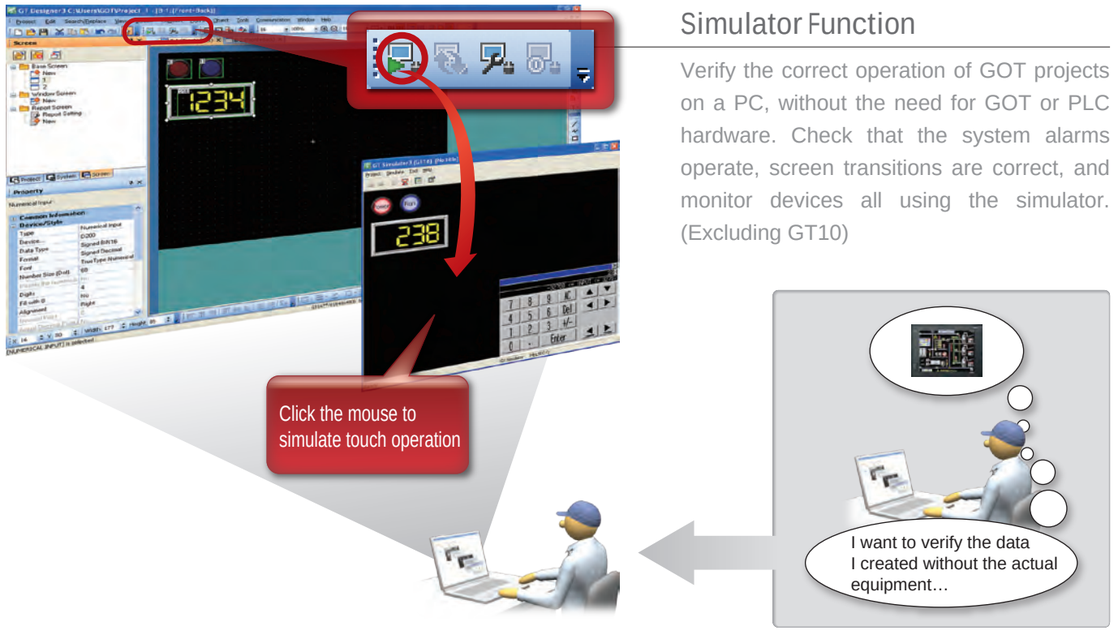


Dialog Boxes

Set-up and operation of the system has been simplified by including easy-to-identify tabs. Tabs which have already been configured are noted with asterisk to show designers that object settings have been modified. Arrange On/Off switches and images by range and check them as you configure them.

GT Works3 is easier to use, reducing the labor necessary for screen design

One-click simulation

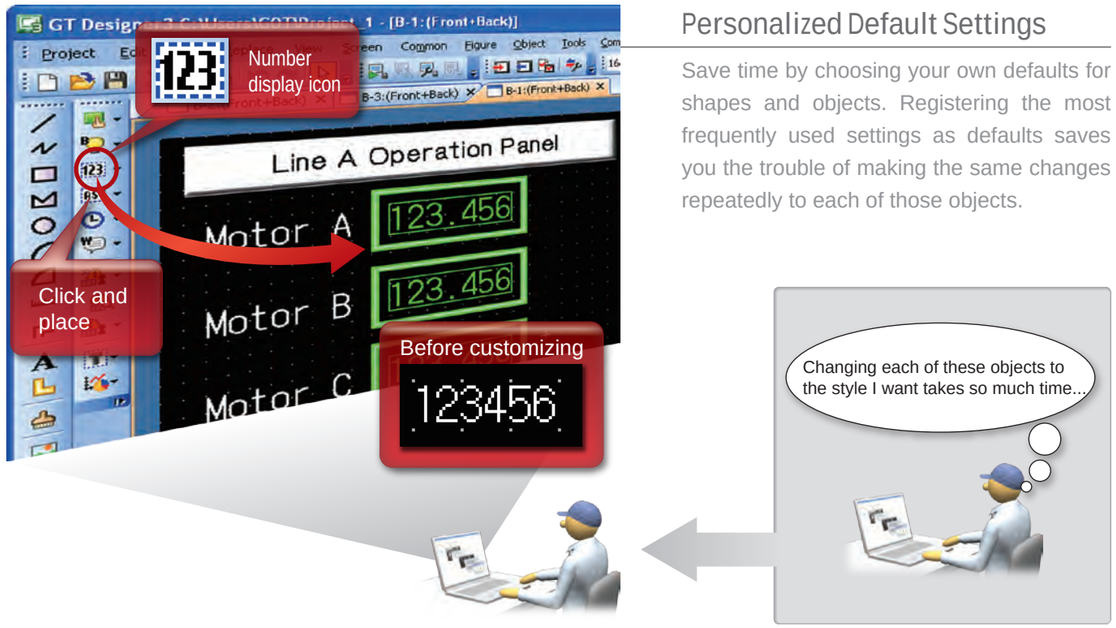


Simulator Function

Verify the correct operation of GOT projects on a PC, without the need for GOT or PLC hardware. Check that the system alarms operate, screen transitions are correct, and monitor devices all using the simulator. (Excluding GT10)

* GX Works2 or GX Simulator is required

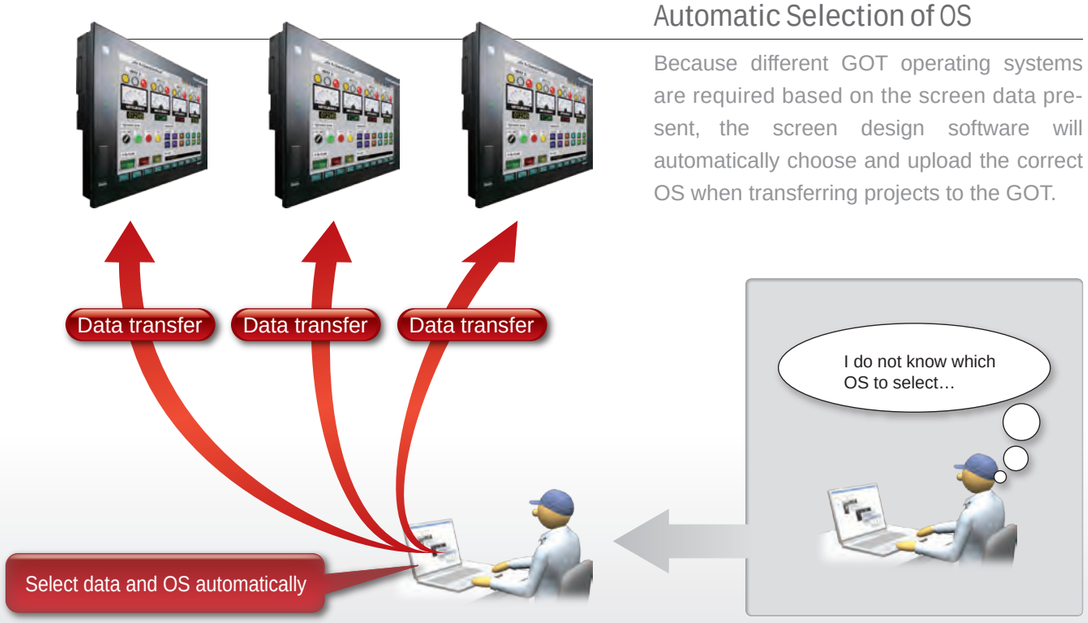
Customizable default settings



Personalized Default Settings

Save time by choosing your own defaults for shapes and objects. Registering the most frequently used settings as defaults saves you the trouble of making the same changes repeatedly to each of those objects.

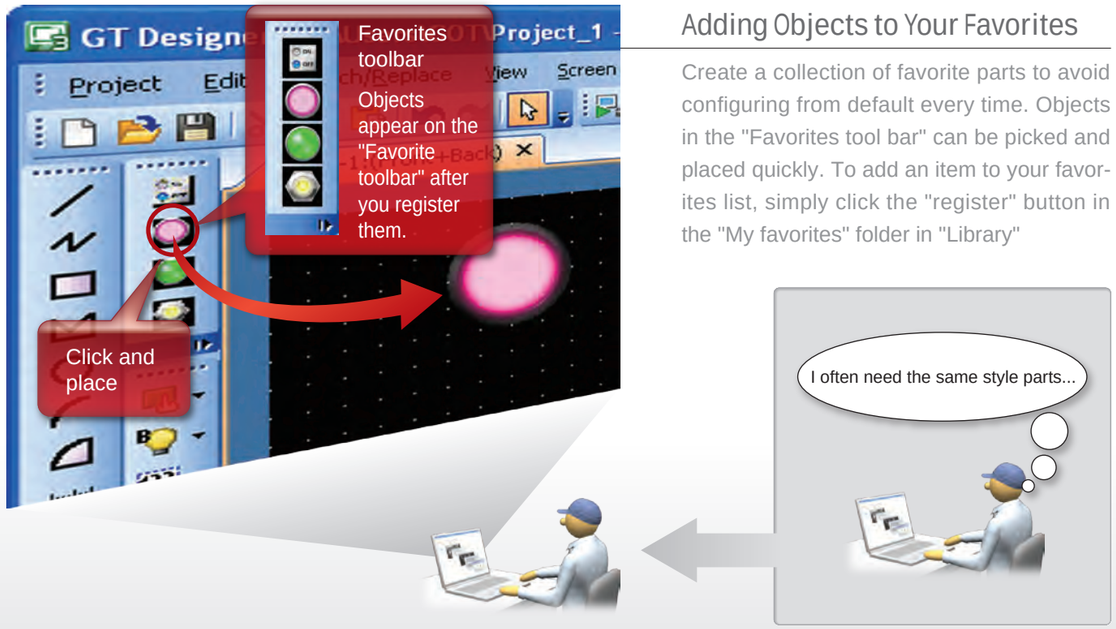
GT Designer automatically chooses the proper GOT operating systems



Automatic Selection of OS

Because different GOT operating systems are required based on the screen data present, the screen design software will automatically choose and upload the correct OS when transferring projects to the GOT.

Selecting parts from the toolbar

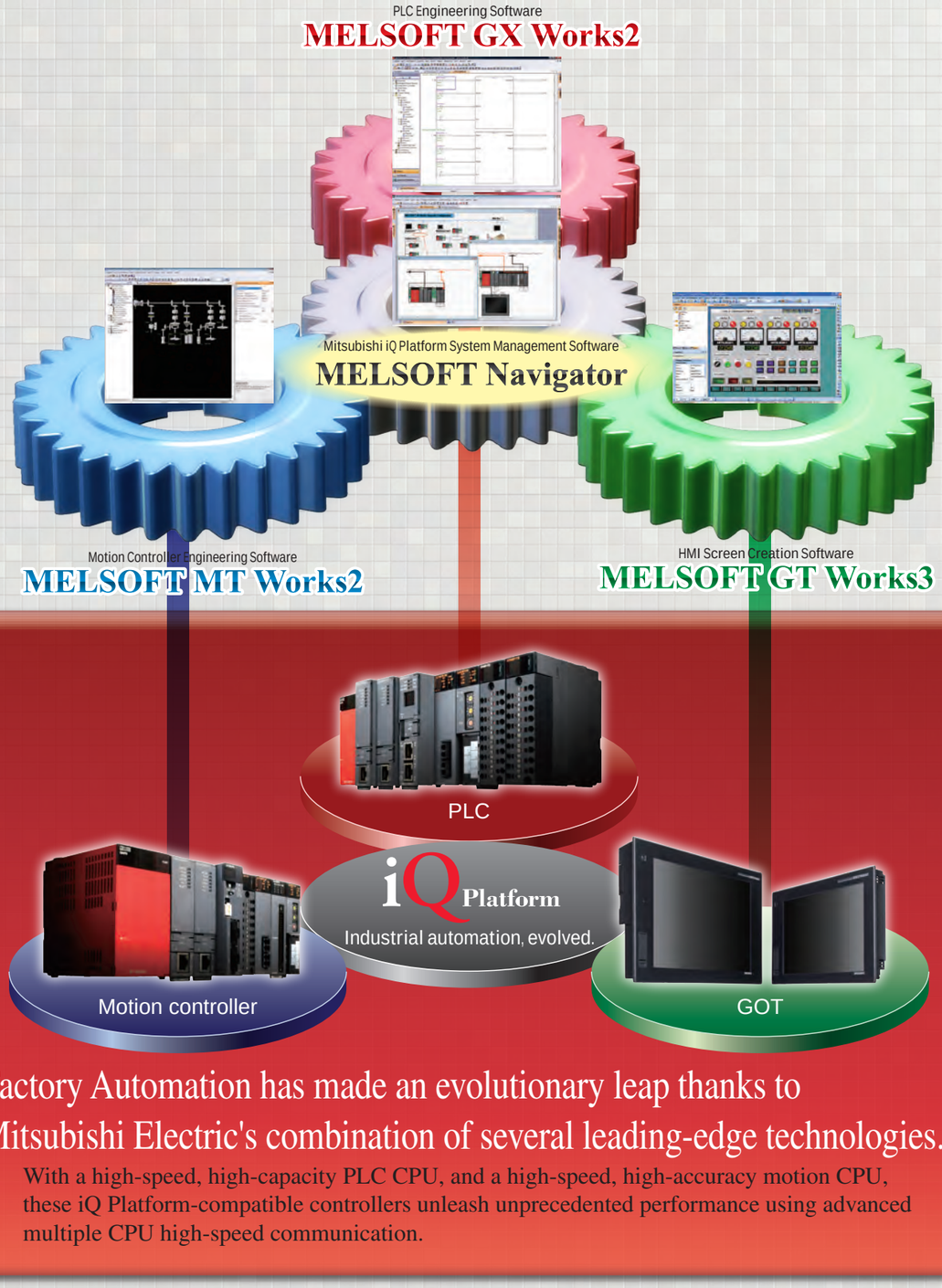


Adding Objects to Your Favorites

Create a collection of favorite parts to avoid configuring from default every time. Objects in the "Favorites tool bar" can be picked and placed quickly. To add an item to your favorites list, simply click the "register" button in the "My favorites" folder in "Library"

iQ Platform

MELSOFT iQ Works



Factory Automation has made an evolutionary leap thanks to Mitsubishi Electric's combination of several leading-edge technologies.

With a high-speed, high-capacity PLC CPU, and a high-speed, high-accuracy motion CPU, these iQ Platform-compatible controllers unleash unprecedented performance using advanced multiple CPU high-speed communication.

PLC

The iQ Platform excels in bringing superior performance to multiple CPU systems. The key is the redesigned back-plane which allows for vastly increased CPU-to-CPU transfer speeds while maintaining full backward compatibility with Q Series hardware. The PLC CPUs have an increased memory sharing capacity and operation speeds in the nanosecond range which further helps to reduce takt time of production machines and manufacturing devices.

Motion controller

The motion controller CPUs realize high accuracy, synchronous, speed/position control by executing communications with servo amplifiers in as little as a 0.44ms. Customize your motion solution by taking advantage of motion control functions such as multi-axis interpolation, speed control, electronic cam, tracking control, and more. In addition, the MELSOFT MT Works2 engineering environment has been optimized to substantially reduce program development and debugging times.

GOT

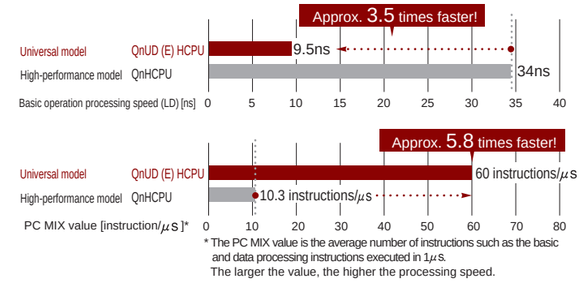
With the introduction of system labels, the labor required for system development has been greatly reduced. There is no longer a need to memorize devices as they can be easily searched. And now, configuring connected devices and drivers has never been easier. Using the batch parameter setting function in MELSOFT Navigator, it is easy to create parameters for all connected devices, drivers, and interfaces.

The results of a quest for the highest performance and operating speeds approaching the lower boundary of the nanosecond scale

Increase the production rate with ultrahigh-speed processing

Major improvements in operational performance

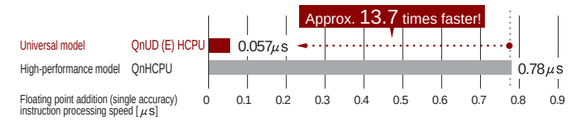
- New CPU models offer ultrahigh-speed basic operation performance, (LD) of 9.5ns, in response to building demands for increased system production rates.
- With the increased speed of basic operation processing comes scan time reductions, and improvements in processing accuracy. High-speed control (previously only supported by micro-computer boards) using these PLC CPUs has become a viable solution.



* The PC MIX value is the average number of instructions such as the basic and data processing instructions executed in 1μs.
The larger the value, the higher the processing speed.

High-speed, high-accuracy real data processing

- In order to speed up production data calculations, the floating point addition instruction's processing time has been reduced to 0.057μs.
- Calculation errors of complex equations can be reduced using the newly added double accuracy operation.



Universal model	QnUD (E) HCPU	: Q04/ 06/ 10/ 13/ 20/ 26UDHCPU, Q04/ 06/ 10/ 13/ 20/ 26UDEHCPU
High-performance model	QnHCPU	: Q02/ 06/ 12/ 25HCPU

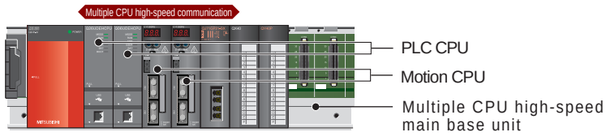
		Universal model QnUD (E) HCPU	High-performance model QnHCPU
Addition (E+)	Single accuracy [μs]	0.057	0.78
	Double accuracy [μs]	4.3 *1	87 *2

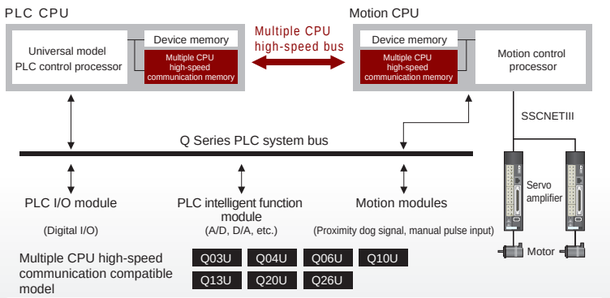
*1 Minimum value. *2 Indicates internal double accuracy operation processing speed.

High-speed and high-accuracy machine control made possible with multiple CPUs

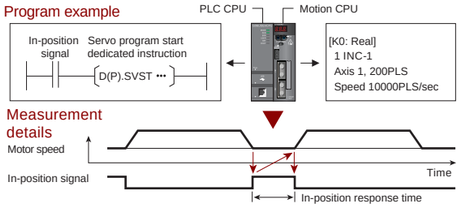
Multiple CPU high-speed communication

- Each programmable controller CPU in the multiple CPU configuration is capable of simultaneously processing multiple CPU high-speed communication (14k words/ 0.88ms), executing a sequence, process or motion program, and performing high-speed machine control. In motion applications, the motion control operations are synchronized using multiple CPU high-speed communications.



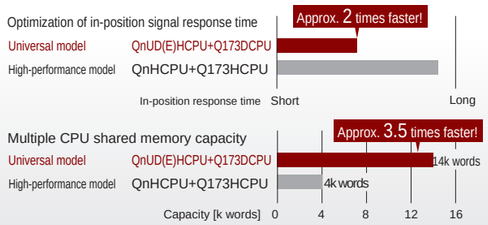


The indicated CPU icons of compatible model include the Ethernet port type and RS-232 port type. (Q03U or later)
Example) Q03U :Q03UDECPU, Q03UDCPU



<In-position response time>

In a multiple CPU system (a PLC CPU and a motion CPU), with the in-position signal from the servo amplifier of the first axis (used by motion CPU) as the trigger, the PLC CPU sends a start command to the servo amplifier of the second axis. The time it takes for the servo amplifier of the second axis to output the speed command is called the in-position response time, and this time is a good indicator of CPU-to-CPU data transfer speed.



Increased program capacity

Efficient management by structuring programs into individual routines

- Programs are divided into 124 (max.) sub-programs according to categories such as product and process. This facilitates structuring programs into individual routines. Such structured programs can be highly specialized to enhance visibility for detailed program management. In addition, standard ROM (4MB max. capacity) enables the storage of device labels and comments for function block and sequence programs to be stored in the PLC CPU.

CPU		Q00UJ	Q00U	Q01U	Q02U	iQ Platform: Q03UDE	Q04UDEH	Q06UDEH	Q10UDEH	Q13UDEH	Q20UDEH	Q26UDEH
						Q03UD	Q04UDH	Q06UDH	Q10UDH	Q13UDH	Q20UDH	Q26UDH
Program memory	Program capacity (Step)	10k		15k	20k	30k	40k	60k	100k	130k	200k	260k
	No. of programs	32			64	124						
Standard ROM capacity (flash ROM)		256KB	512KB			1MB			2MB		4MB	

Large-capacity memory for large-volume data

- The capacity of standard RAM, which can be used as file register, has been increased to store larger amounts of production and quality data. Additionally, large-capacity SRAM cards are now supported. An 8MB SRAM card can be used as file register for 4086k words (max.) to handle large volumes of data.

◎Standard RAM capacity (file register capacity)

Q00UJ	Q00U	Q01U	Q02U	iQ Platform: Q03UDE	Q04UDEH	Q06UDEH	Q10UDEH	Q13UDEH	Q20UDEH	Q26UDEH
				Q03UD	Q04UDH	Q06UDH	Q10UDH	Q13UDH	Q20UDH	Q26UDH
-	128KB (64k words)			192KB (96k words)	256KB (128k words)	768KB (384k words)	1024KB (512k words)		1280KB (640k words)	

◎Memory card (SRAM)

Model	Q2MEM-1MBS	Q2MEM-2MBS	Q3MEM-4MBS	Q3MEM-8MBS
Capacity	1MB	2MB	4MB	8MB
File register capacity *	505k words	1017k words	2039k words	4086k words

* Maximum capacity when the memory card is used as file register.
Memory card cannot be used for Q00UJ, Q00U, and Q01UCPU.

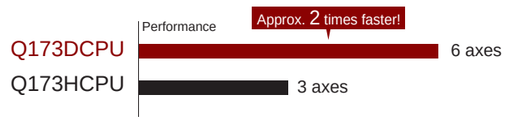
New algorithms result in high-speed and high-accuracy solutions

Motion processing acceleration

- Twice the motion operational performance (0.44ms/6axis) as previously possible has resulted in increased production rates.
- Extremely accurate synchronous control and speed/position control realized thanks to the increased speed of the axial control cycle.
- A motion control-specific processor (high-performance 64bitRISC) and a proprietary acceleration algorithm ASIC improve hardware efficiency.
- Using the MELSEC Q Series universal model CPU, sequence processing is also accelerated. (Using the Q06UDHCPU, the PLC basic instruction time is 9.5ns.)
- Equipped with various motion control functions such as multi-axis interpolation, speed control, electronic cam and tracking control.
- Reduce variations in response time by using motion SFC programming.

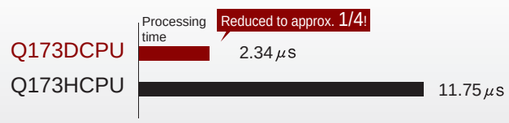
Approximately double the basic motion performance

Basic motion performance
(With 0.44ms operation cycle time)
In case of SV13



1/4 the Motion SFC processing time

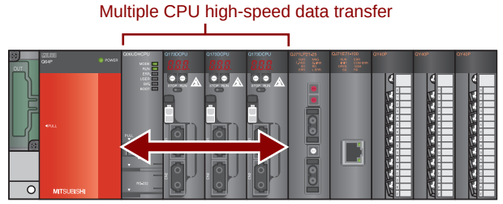
Motion SFC processing time
Process time for D800L = D802L + D804L



Optimal system construction

- Up to 4 CPU modules can be freely selected in the multiple CPU system (one PLC CPU required).
- An optimum decentralized control system can be constructed using multiple CPUs.
  Control is optimized by dispersing processing across the multiple CPUs with the PLC CPU handling general machine control and the motion CPU handling servo control tasks. System expandability is accomplished with ease due to the availability of over 100 different types of MELSEC Q Series modules.

Multiple CPU high-speed data transfer

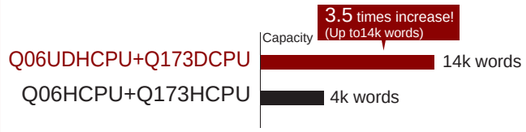


The multiple high-speed transmission cycle is the same as the motion control cycle time. → Increased controllability

- Up to 96 axis per system can be controlled using multiple motion CPUs (three Q173DCPU modules).
- SSCNETIII based MR-J3 servo amplifiers deliver a high-speed, high-accuracy solution.

SSCNET (Servo System Controller NETwork)

Shared memory capacity



PLC program interrupt for multiple CPU synchronization

- Using the new PLC interrupt function synchronized with the motion operation cycle (0.88ms), it is possible to achieve real-time processing of ladder programs.

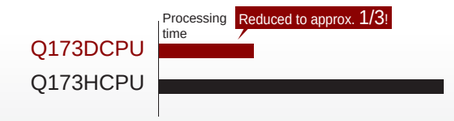
[Application Example]

1. A motor real-time value can be compared against a specific point, and if this point is overrun, the PLC can turn on an output signal. (Variation of comparison processing does not have an influence on the scan time of the ladder which is processed within 0.88ms.)
2. Multiple motion CPUs can be started simultaneously.

Large reduction in programming read/write time

- Substantial shortening of communication time when reading and writing to the motion CPU (Q173DCPU/Q172DCPU use).

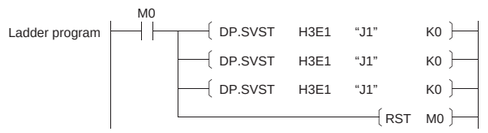
Motion CPU communication time
Servo program read time



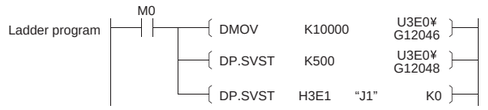
Motion-dedicated PLC instruction

- Motion-dedicated PLC instructions have become easier to use.

Issue multiple instructions at the same time
Example: Execution of three motion-dedicated SVST instructions at the same time



Indirectly set data and execute instructions at the same time
Example: Indirect data setting of speed and position plus execution of the motion-dedicated SVST instructions all at the same time



Servo program

```
[K0: Real]
1  INC-1
   Axis   1.U3E0¥G12046 PLS
   Speed  U3E0¥G12048 PLS/s
```

Improve production site efficiency with the integration of HMI and iQ Platform-compatible products

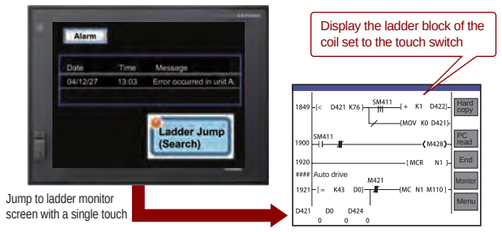
Ladder monitor function

This function monitors Mitsubishi Q/QS/QnA/A/FX Series PLC sequence programs using a circuit diagram (ladder format).

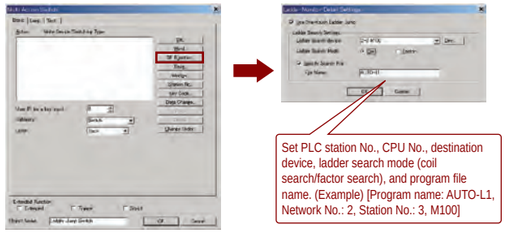
* : Compatible with XGA/SVGA/VGA model.
* : The QS Series can only monitor with the Q/QnA ladder monitor function. You cannot change device values.
* : FX3GCPU is not supported.

Troubleshoot with the one-touch ladder jump function (Q/QnA ladder monitor)

- By setting a program name and coil number of the PLC to a touch switch, the desired ladder circuit block can be displayed directly.



- Select “SP Function” → “Ladder Monitor” from the touch switch property dialog box.

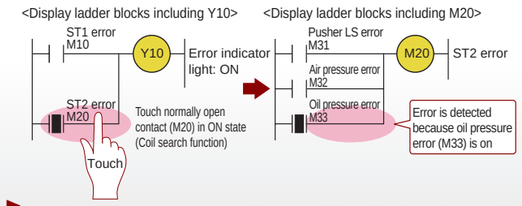


Improve maintenance work efficiency with a wide monitoring range of useful functions

- In addition to the PLC connected to the GOT, other stations including multi CPUs can be monitored. Multiple programs and local devices in every CPU can be monitored.
- Save sequence program comments to the CF card in the GOT (Q/QA ladder monitor).
- Device values and timer (T)/counter (C) set values can be changed.
- Execute a coil search or contact point search simply by touching the (Q/QnA) ladder monitor screen. <Touch search>
- When an alarm occurs, perform a back-tracking ladder search to find the contact that triggered the alarm. <Defect search>

An optional device may be necessary

Example of defect search (when error indicator light [Y10] is on)



Find the root cause of problems quickly, right from the machine.

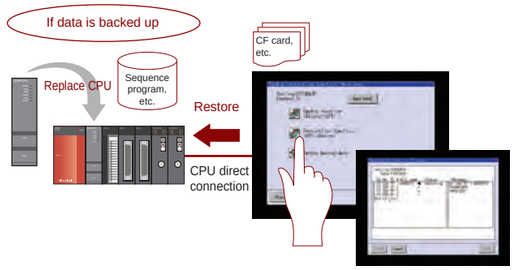
Backup/Restore function

- Various data such as the PLC CPU program, motion controller program and parameters can be backed up to the CF card in the GOT.
- Users can perform batch operations to restore the data to the PLC CPU or motion controller.

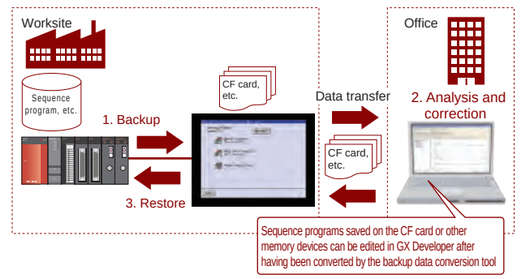
The backup data conversion tool is shipped with GT Works2/GT Designer2

<Supported data> Programs, parameters, device comments, device default data, file registers, etc.
<Supported models> MELSEC Q Series (excluding Q12PRH/Q25PRHCPU), Q Series motion controllers (SV13/SV22 only), CNC C70
<Supported connection type> Bus connection, CPU direct connection, computer link connection, Ethernet connection (host only)

Make a data back up in case of PLC or CPU failure or a dead battery, and quickly replace the faulty device and restore the system using the backup.



When a problem occurs, or when the PLC CPU program is updated, the sequence program data can be transferred, analyzed, and corrected without requiring an experienced engineer, increasing time and cost efficiency.



PLC CPU programs can be easily changed without a personal computer at the worksite or any previous GX Developer knowledge

An optional device may be necessary

* : When replacing the PLC CPU, the restore function may not be available depending on the system configuration and connection type.

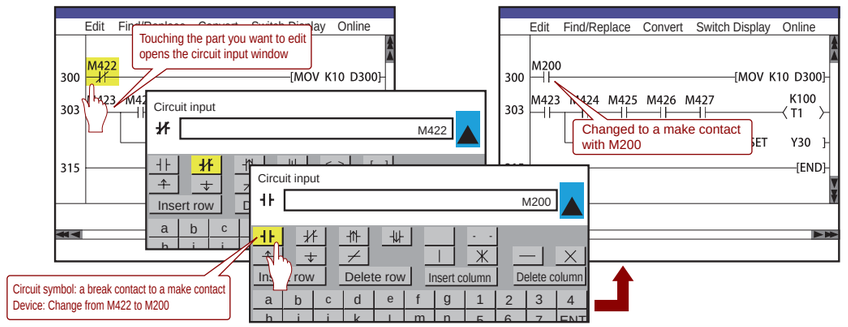
Ladder edit function

Mitsubishi Q Series (Q mode) and CNC C70 PLC programs can be edited in ladder format.

* : Supports the SVGA/SVGA/VGA model except 5.7 model.
* : QnPHCPU/QnPRHCPU are not supported.
* : Q00UJ/Q00U/Q01U/Q10UD(E)H/Q20UD(E) HCPU are soon to be supported.

Easy ladder editing with GOT at your worksite

- Simply by touching the part in the ladder program you want to edit, such as a contact point or a line, you can input, change or delete circuit symbols and devices. You can also insert or delete vertical and horizontal lines, and insert or delete rows and columns.
- You can also find and replace a device. Not only it is easy to find each place to edit, but it is also easy to correct multiple places in a batch.



Writing to the PLC

- After you edit the program, you can “stop” it remotely from GOT to write it, and then “run” it remotely.

* : You cannot write while RUN is in progress.

An optional device may be necessary

Monitor, search and test the ladder program

- You can display the current value, search and execute device test on the ladder program. Testing the edited program can be executed immediately.

Wide range of access

- In addition to the PLC connected to the GOT, you can access other stations (PLCs) in the network including multiple CPUs. You can edit multiple programs in every CPU.

Software model list

		Model name	Contents
iQ Platform-compatible FA integrated engineering software	MELSOFT iQ Works	SW1DNC-IQWK-E	Mitsubishi iQ Platform-compatible FA integrated engineering software suite with additional integrated functions Mitsubishi iQ Platform-compatible system management software [MELSOFT Navigator] (English version) +Mitsubishi iQ Platform-compatible PLC engineering software [MELSOFT GX Works2] (English version) +Mitsubishi iQ Platform-compatible motion controller engineering software [MELSOFT MT Works2] (English version) +Mitsubishi iQ Platform-compatible HMI screen design software [MELSOFT GT Works3] (English version)
	MELSOFT GX Works2	SW1DNC-GXW2-E	MELSEC PLC programming SW programming function + intelligent unit function + simulator function (English version)
	MELSOFT MT Works2	SW1DNC-MTW2-E	Mitsubishi iQ Platform-compatible motion controller engineering software (English version)
	MELSOFT GT Works3	SW1DNC-GTWK3-E	Screen design software for GOT + simple data conversion function + GT SoftGOT1000 function + simulator function (English version)

* : Please contact your nearest sales office or distributor for details of multiple license versions.

MELSOFT iQ Works system requirements

	Contents
OS(Only 32 bit OS)	Windows2000 Professional, Service Pack 4 WindowsXP Professional, Service Pack 2,3 WindowsXP HomeEdition, Service Pack 2,3 Windows Vista Home Basic, Service Pack 1 Windows Vista Home Premium, Service Pack 1 Windows Vista Ultimate, Service Pack 1 Windows Vista Business, Service Pack 1 Windows Vista Enterprise, Service Pack 1
CPU	Desktop: Celeron 2.8 GHz or faster Laptop: PentiumM 1.7 GHz or faster
Memory	1GB or more
Display	XGA (1024 × 768) or higher
Available space	For installation: 3 GB of hard disk space For operation: 512MB virtual memory available

MELSOFT iQ Works compatible version

	Contents
MELSOFT GX Works2	Version 1.11M or later
MELSOFT MT Works2	Version 1.09K or later
MELSOFT GT Works3	Version 1.05F or later

MELSOFT Navigator compatible version

	Contents
PLC	Universal model QCPU High-performance model QCPU Basic model QCPU
Motion controller	Q Series motion controller (iQ Platform-compatible) Q Series motion controller (SSCNETIII-compatible) Q Series motion controller
HMI	GOT1000 series
Module	Base (*), power supply, input, output, I/O, interrupt input, analog input, analog output, temperature input, temperature control, loop control, pulse I/O, positioning, ID interface, information, network, servo external signal input, synchronous encoder input, manual pulse input, blank cover
Network	Ethernet CC-Link IE Control MELSECNET/H (between PCs)

* : In MELSOFT Navigator, the slot number setting of the base is fixed at the actual number of slots.

iQ Platform-compatible controller model list

		Model name	Contents
iQ Platform-compatible controller	PLC	Q03UDCPU	No. of I/O points: 4096 points, no. of I/O device points: 8192 points, program capacity: 30k steps basic operation processing speed (LD instruction): 20ns, program memory capacity: 120kb, multiple CPU high-speed communication peripheral connection ports: USB and RS232, with memory card I/F
		Q04UDHCPU	No. of I/O points: 4096 points, no. of I/O device points: 8192 points, program capacity: 40k steps basic operation processing speed (LD instruction): 9.5ns, program memory capacity: 160kb, multiple CPU high-speed communication peripheral connection ports: USB and RS232, with memory card I/F
		Q06UDHCPU	No. of I/O points: 4096 points, no. of I/O device points: 8192 points, program capacity: 60k steps basic operation processing speed (LD instruction): 9.5ns, program memory capacity: 240kb, multiple CPU high-speed communication peripheral connection ports: USB and RS232, with memory card I/F
		Q13UDHCPU	No. of I/O points: 4096 points, no. of I/O device points: 8192 points, program capacity: 130k steps basic operation processing speed (LD instruction): 9.5ns, program memory capacity: 520kb, multiple CPU high-speed communication peripheral connection ports: USB and RS232, with memory card I/F
		Q26UDHCPU	No. of I/O points: 4096 points, no. of I/O device points: 8192 points, program capacity: 260k steps basic operation processing speed (LD instruction): 9.5ns, program memory capacity: 1040kb, multiple CPU high-speed communication peripheral connection ports: USB and RS232, with memory card I/F
		Q03UDECPU	No. of I/O points: 4096 points, no. of I/O device points: 8192 points, program capacity: 30k steps basic operation processing speed (LD instruction): 20ns, program memory capacity: 120kb, multiple CPU high-speed communication peripheral connection ports: USB and Ethernet, with memory card I/F
		Q04UDEHCPU	No. of I/O points: 4096 points, no. of I/O device points: 8192 points, program capacity: 40k steps basic operation processing speed (LD instruction): 9.5ns, program memory capacity: 160kb, multiple CPU high-speed communication peripheral connection ports: USB and Ethernet, with memory card I/F
		Q06UDEHCPU	No. of I/O points: 4096 points, no. of I/O device points: 8192 points, program capacity: 60k steps basic operation processing speed (LD instruction): 9.5ns, program memory capacity: 240kb, multiple CPU high-speed communication peripheral connection ports: USB and Ethernet, with memory card I/F
		Q13UDEHCPU	No. of I/O points: 4096 points, no. of I/O device points: 8192 points, program capacity: 130k steps basic operation processing speed (LD instruction): 9.5ns, program memory capacity: 520kb, multiple CPU high-speed communication peripheral connection ports: USB and Ethernet, with memory card I/F
		Q26UDEHCPU	No. of I/O points: 4096 points, no. of I/O device points: 8192 points, program capacity: 260k steps basic operation processing speed (LD instruction): 9.5ns, program memory capacity: 1040kb, multiple CPU high-speed communication peripheral connection ports: USB and Ethernet, with memory card I/F
	C language CPU	Q12DCCPU-V	No. of I/O points: 4096 points, endian type: little endian, CF card: available OS: VxWorks Version 6.4
	Motion	Q172DCPU	No. of control axes: 8 axes/operation cycle: 0.44ms to SSCNETIII: 1ch
		Q173DCPU	No. of control axes: 32 axes/operation cycle: 0.44ms to SSCNETIII: 2ch
	Main base unit	Q38DB	8 slots for installing Q Series module
		Q312DB	12 slots for installing Q Series module

Mitsubishi iQ Platform-compatible FA Integrated Engineering Software
MELSOFT iQ Works

MELSOFT iQ Works

Country/Region	Sales office	Tel/Fax
U.S.A	Mitsubishi Electric Automation Inc. 500 Corporate Woods Parkway Vernon Hills, IL 60061, USA	Tel: +1-847-478-2100 Fax: +1-847-478-0327
Brazil	MELCO-TEC Rep. Com.e Assessoria Tecnica Ltda. Av Paulista, 1439-Cj. 72 Cerqueira Cesar CEP 01311-200, Sao Paulo, SP, CEP:01311-200, Brazil	Tel: +55-11-3146-2200 Fax: +55-11-3146-2217
Germany	Mitsubishi Electric Europe B.V. German Branch Gothaer Strasse 8 D-40880 Ratingen, GERMANY	Tel: +49-2102-486-0 Fax: +49-2102-486-1120
U.K	Mitsubishi Electric Europe B.V. UK Branch Travellers Lane, Hatfield, Hertfordshire., AL10 8XB, UK	Tel: +44-1707-276100 Fax: +44-1707-278992
Italy	Misubishi Electric Europe B.V. Italy Branch VIALE COLLEONI 7-20041 Agrate Brianza(Milano),Italy	Tel: +39-039-60531 Fax: +39-039-6053312
Spain	Mitsubishi Electric Europe B.V. Spanish Branch Carretera de Rubi 76-80 E-08190 Sant Cugat del Valles(Barcelona), Spain	Tel: +34-93-565-3131 Fax: +34-93-589-1579
France	Mitsubishi Electric Europe B.V. French Branch 25,Boulevard des Bouvets, F-92741 Nanterre Cedex, France	Tel: +33-1-5568-5568 Fax: +33-1-5568-5757
Czech Republic	Mitsubishi Electric Europe B.V. Czech Branch Avenir Business Park, Radlická 714/113a CZ-158 00 Praha 5	Tel: +420-251-551-470 Fax: +420-251-551-471
Poland	Mitsubishi Electric Europe B.V. Polish Branch ul. Krakowska 50 32-083 Balice, Poland	Tel: +48-12-630-47-00 Fax: +48-12-630-47-01
Russia	Mitsubishi Electric Europe B.V. Moscow Office 52/3, Kosmodamianskaya nab., 115054, Moscow, Russia	Tel: +7-812-633-3497 Fax: +7-812-633-3499
South Africa	Circuit Breaker Industries Ltd. Private Bag 2016,ZA-1600 Isando, South Africa	Tel: +27-11-928-2000 Fax: +27-11-392-2354
China	Mitsubishi Electric Automaiton(Shanghai) Ltd. 17/F Chong Hing Finance Center,No.288 West Nanjing Road, Shanghai 200003 CHINA	Tel: +86-21-2322-3030 Fax: +86-21-2322-3000
Taiwan	Setsuyo Enterprise Co., Ltd. 6F., No.105 Wu-Kung 3rd.Rd, Wu-Ku Hsiang, Taipei Hsine, Taiwan	Tel: +886-2-2299-2499 Fax: +886-2-2299-2509
Korea	Mitsubishi Electric Automation Korea Co., Ltd. 1480-6, Gayang-dong, Gangseo-ku Seoul 157-200, Korea	Tel: +82-2-3660-9552 Fax: +82-2-3664-8372
Singapore	Mitsubishi Electric Asia Pte, Ltd. 307 Alexandra Road #05-01/02, Mitsubishi Electric Bulding Singapore 159943	Tel: +65-6470-2480 Fax: +65-6476-7439
Thailand	Mitsubishi Electric Automation (Thailanad) Co., Ltd. Bang-Chan Industrial Estate No.111 Soi Serithai 54, T.Kannayao, A.Kannayao, Bangkok 10230 Thailand	Tel: +66-2-517-1326 Fax: +66-2-517-1328
Indonesia	P.T. Autoteknindo Sumber Makmur Muara Karang Selatan Block A/Utara No.1 Kav. No.11 Kawasan Industri/Pergudangan Jakarta-Utara P.O Box5045 Jakarta 11050, Indonesia	Tel: +62-21-663-0833 Fax: +62-21-663-0832
India	Messung Systems Pvt.,Ltd. Electronic Sadan NO:III Unit No15, M.I.D.C Bhosari, Pune-411026, India	Tel: +91-20-2712-3130 Fax: +91-20-2712-8108
Australia	Mitsubishi Electric Australia Pty.Ltd. 348 Victoria Road, Rydalmere, N.S.W 2116, Australia	Tel: +61-2-9684-7777 Fax: +61-2-9684-7245

MITSUBISHI ELECTRIC CORPORATION
HEAD OFFICE: TOKYO BUILDING, 2-7-3, MARUNOUCHI, CHIYODA-KU, TOKYO 100-8310, JAPAN
NAGOYA WORKS: 1-14, YADA-MINAMI 5, HIGASHI-KU, NAGOYA, JAPAN

This catalog is an introduction to only part of what Mitsubishi Electric has to offer.
Mitsubishi Electric offers individualized solutions for the challenges in your factory.

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

L(NA)08171E-A

New publication, effective Oct. 2009
Specifications are subject to change without notice.