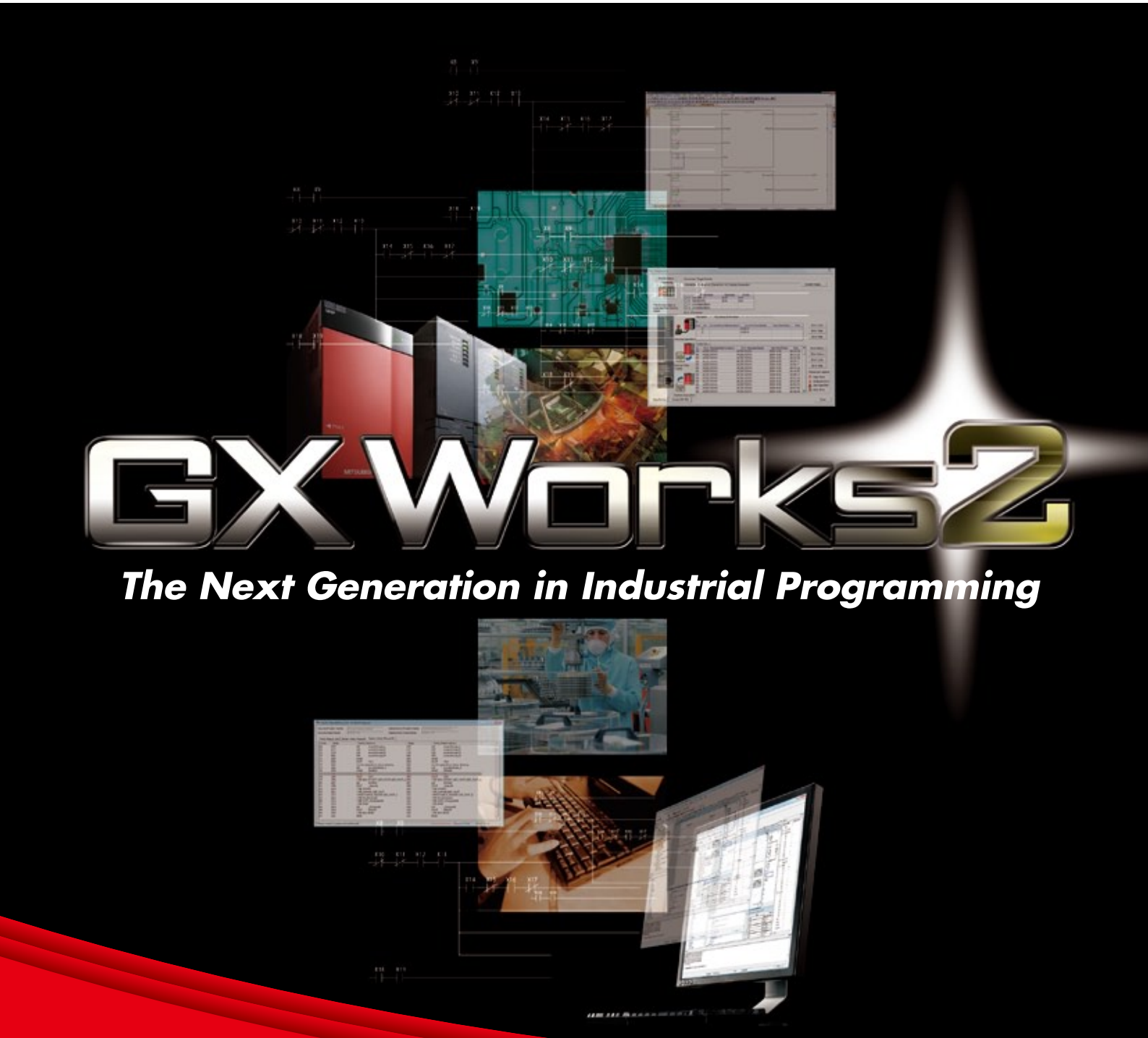
Changes for the Better

MITSUBISHI ELECTRIC

Mitsubishi iQ Platform Compatible Programmable Controller Engineering Software MELSOFT GX Works2

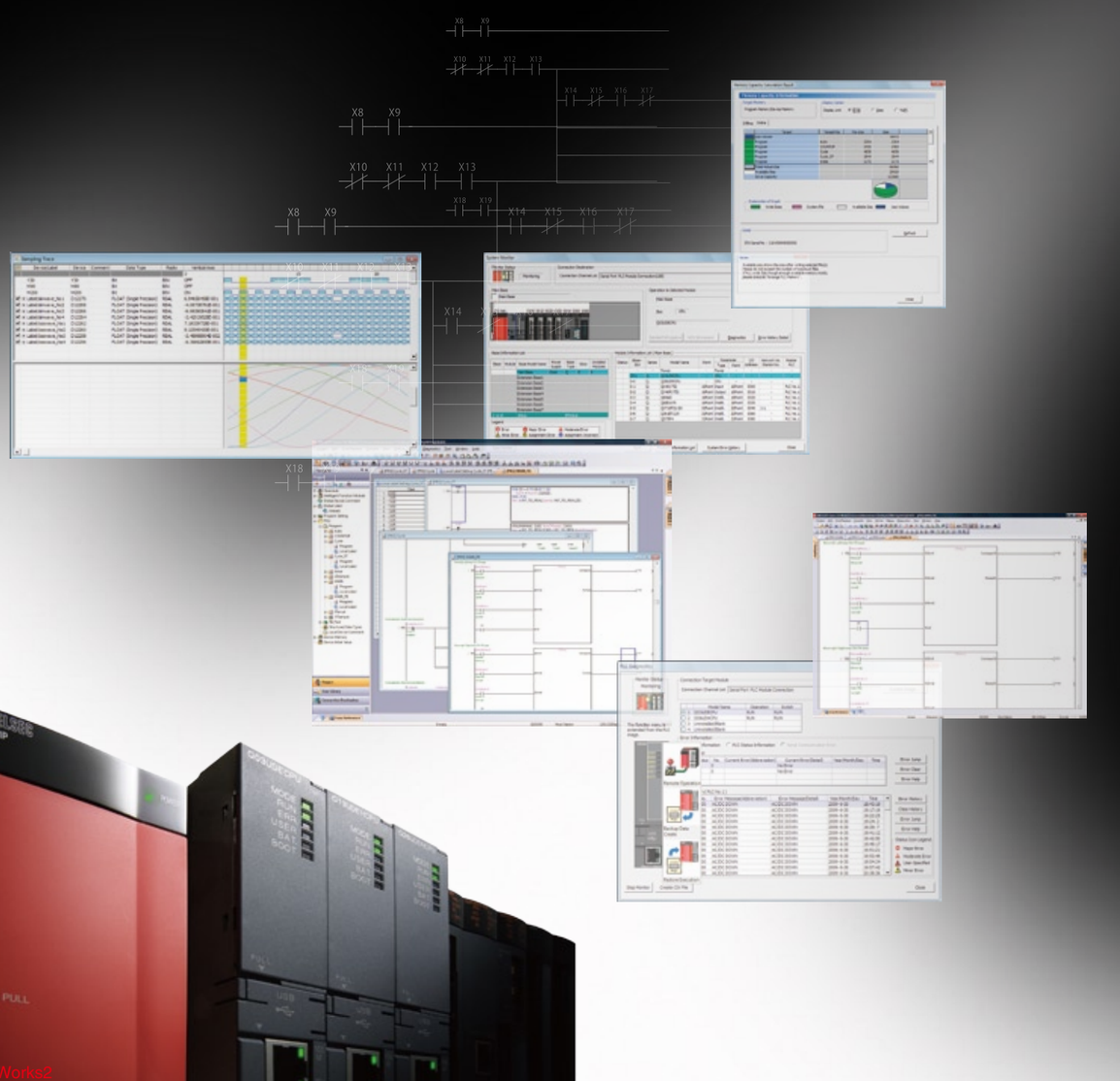


iQ Platform

Mitsubishi FA Integrated Concept

Increase productivity and lower the total cost of ownership. Introducing the next generation of IA programming software:

GX Works2

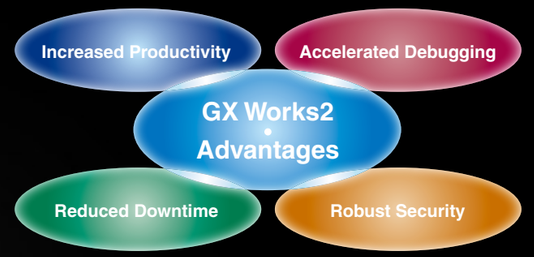


GX Works2 takes the next evolutionary step in user-centric design and operation.

GX Works2 supports a multitude of programming languages and allows them to be mixed and matched for amazing flexibility.

GX Works2 focuses on driving down total cost by including features that speed up commissioning, reduce downtime, improve programming productivity, and provide strong security.

With GX Works2, Mitsubishi has become the innovation leader in industrial automation programmable controller software.

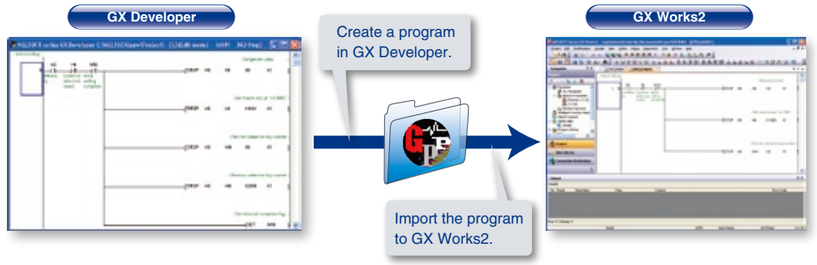


Designed to solve existing problems and the unforeseen challenges ahead.

GX Works2 supports your program development style by providing two project types and four programming languages.

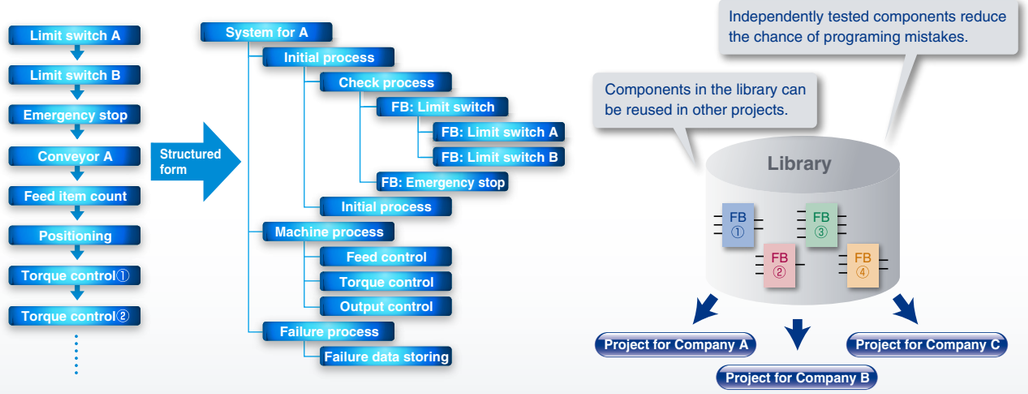
- ☑ Programming will primarily be done in ladder, and I want to be able to program complex formulae easily.
- ☑ I want to use existing GX Developer programs and maintain compatibility.
- ☑ I want a more user-friendly and feature rich version of GX Developer.

Simple project A **"Simple project"** will meet your needs.



- ☑ I want to use program libraries.
- ☑ I want to use structured ladder programs.
- ☑ I want to develop projects based on the international standard IEC61131-3.

Structured project Choose a **"Structured project"** for maximum flexibility.



Increased Productivity

Improved user interface		P5
Keep large projects organized and easy to manage	Manage projects effectively by using multiple programs	P5
Choose the appropriate language for each task	Support for 5 programing languages (future plan)	P6
Build on existing development investments	Import programs made with GX Developer	P6
Crunch numbers easily in ladder programs	Inline ST (Structured Text)	P7 to P8
Use function blocks for common operations	What is a FB?	P9
	Function block selection window	P9
Simplify complex programs using structured projects	Advantages of program structuralization	P10
	Utilize code libraries	P10
Intelligent function module management	Configure modules without the need to reference a manual (GX Configurator Integrated)	P11
Visualize positioning module buffer data	Trace function (GX Configurator Integrated)	P12
Three new features to maximize work area effectiveness	Docking windows	P13
	Screen tabs	P13
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Accelerated Debugging

Advanced search functions	Cross reference	P19
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Test run programs without PLC hardware	Simulator (GX Simulator Integrated)	P22
Keep track of program changes	Project revision	P23
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	Revision verification	P24

Reduced Downtime

Identify problems immediately using an interactive graphical system display	System monitor	P25
	System error history	P25
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	CC-Link IE controller network diagnostics	P26

Robust Security

Control file access	User authentication	P27
	Data security settings	P27
Protect intellectual property rights	Block password	P28
Prevent unauthorized access, data modifications, and leaks	Password registration	P28
	Remote password	P28

Description of icons

Simple project — Indicates functionality that is available in simple projects.

Structured project — Indicates functionality that is available in structured projects.

Available functionality differs according to the project type.
For details, refer to the corresponding manual.

Work more efficiently with an improved user interface and a wealth of new features.

Increased Productivity

Improved user interface

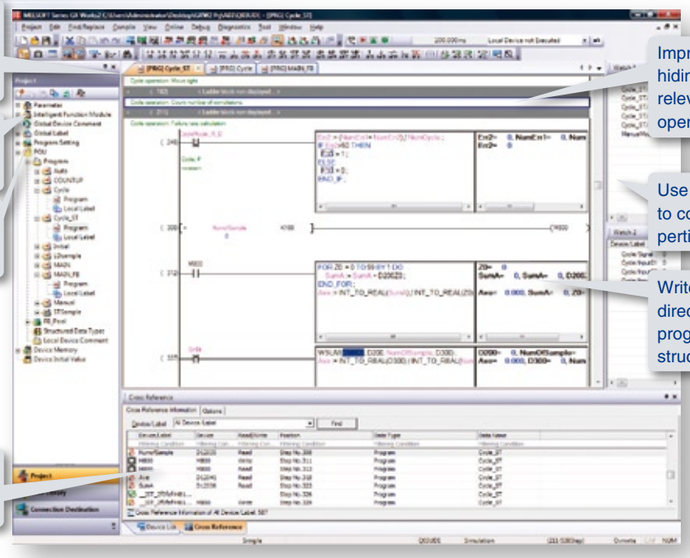
Simple project | Structured project

GX Developer users will find the user interface familiar while discovering a wealth of improvements and completely new features.

Use tabs to easily switch between programs, parameters, and other screens.

Fully integrated intelligent function module management tools.

Quickly identify each program and its execution type.



Improve readability by hiding ladder rungs not relevant to the current operation.

Use "Watch windows" to conveniently monitor pertinent values.

Write ST instructions directly in ladder programs using inline structured text.

Cross reference devices and labels with ease.

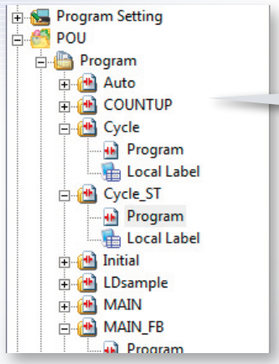
Increased Productivity

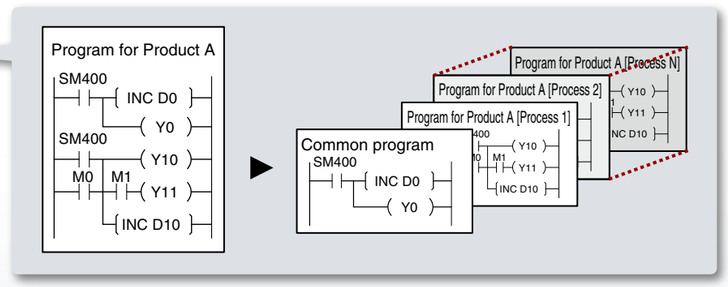
Keep large projects organized and easy to manage

Simple project | Structured project

Manage projects effectively by using multiple programs

Divide complicated programs into separate parts by function or process to make them easier to follow and understand as a whole.





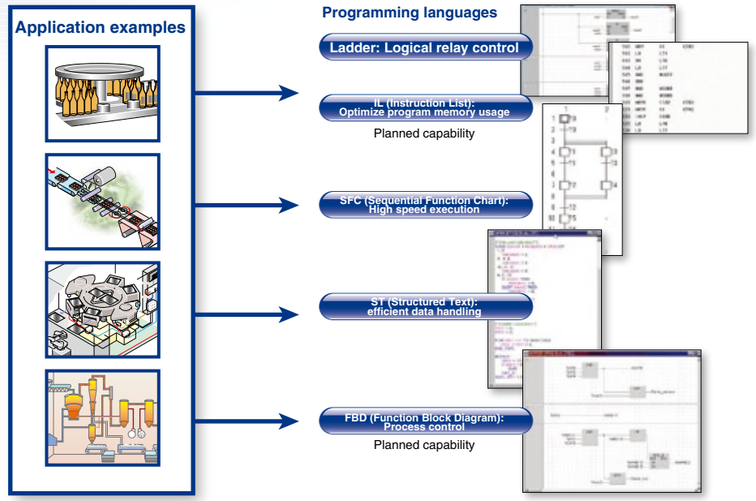
Increased Productivity

Choose the appropriate language for each task

Simple project | Structured project

Support for 5 programing languages (future plan)*1

Accomplish programming tasks more efficiently by utilizing the optimal programming language for any given operation.



*1: 5 languages whose guidelines are defined as languages for programmable controllers by the international standard IEC 61131-3.

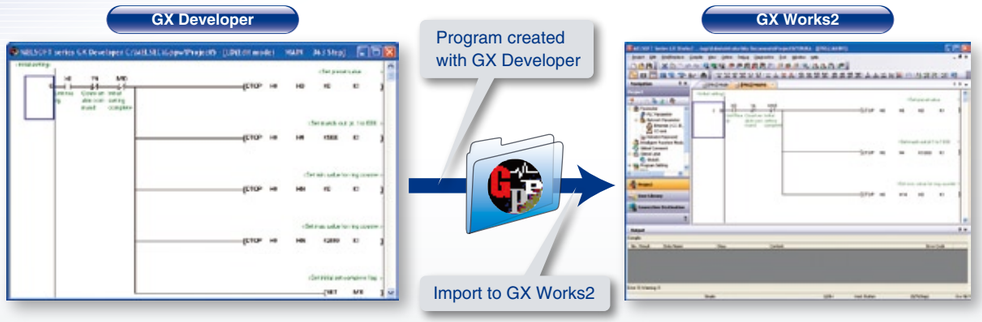
Increased Productivity

Build on existing development investments

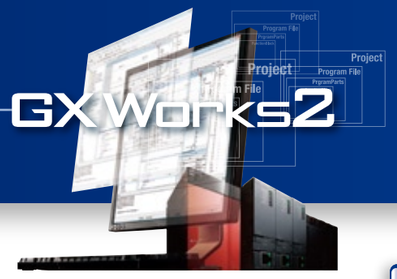
Simple project

Import programs made with GX Developer

Get the most from existing programs and hardware by upgrading to GX Works2.
The advanced maintenance and debugging features can improve the reliability of existing systems.
Importing to GX Works2 ensures future compatibility and increases flexibility in development.



Work more efficiently with an improved user interface and a wealth of new features.



Increased Productivity

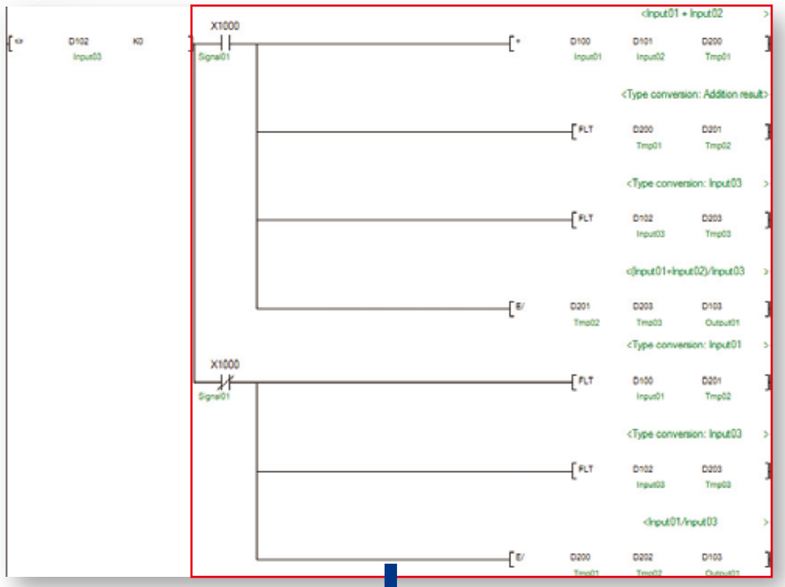
Crunch numbers easily in ladder programs

Simple project | Structured project

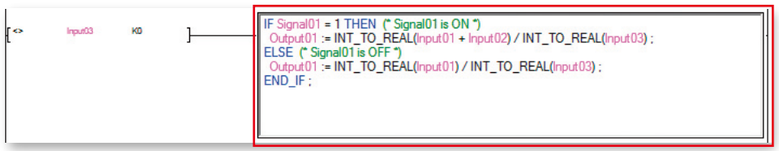
Inline ST (Structured Text)

Include ST in a ladder program to deal with numerical and string operations.
Using inline ST can save time in the program development process and is more efficient with program memory.

For example, perform the following calculations and convert the results to real numbers:
When Signal01 is ON, divide the sum of Input01 and Input02 by Input03.
When Signal01 is OFF, divide Input01 by Input03.



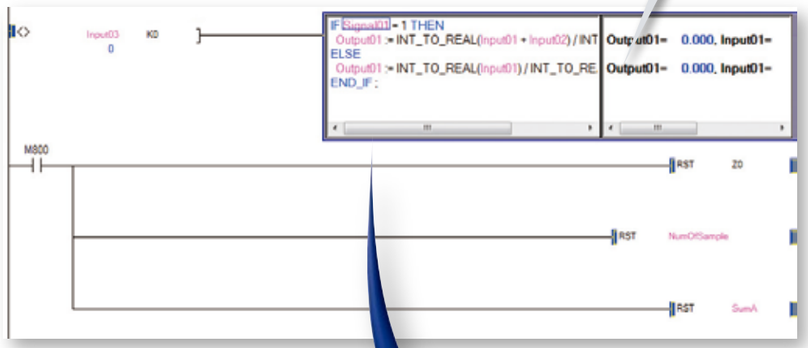
By using inline ST instead of just ladder for these operations, the result is easier to read and saves program memory.



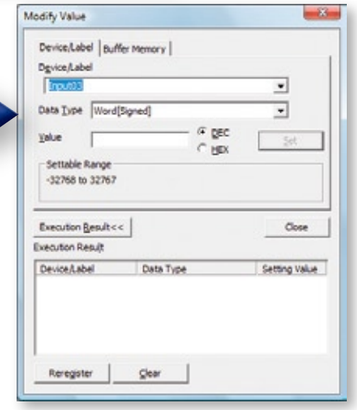
Online monitoring with inline ST

Monitor ST and ladder devices without having to change screens.
Make changes to current device values using the same operation as with ladder programs.
This dynamic view of associated data helps to speed up development and debugging processes.

Use the split-pane display to view the current value of word devices.



Edit current device values using the same method as standard ladder programs.



Work more efficiently with an improved user interface and a wealth of new features.

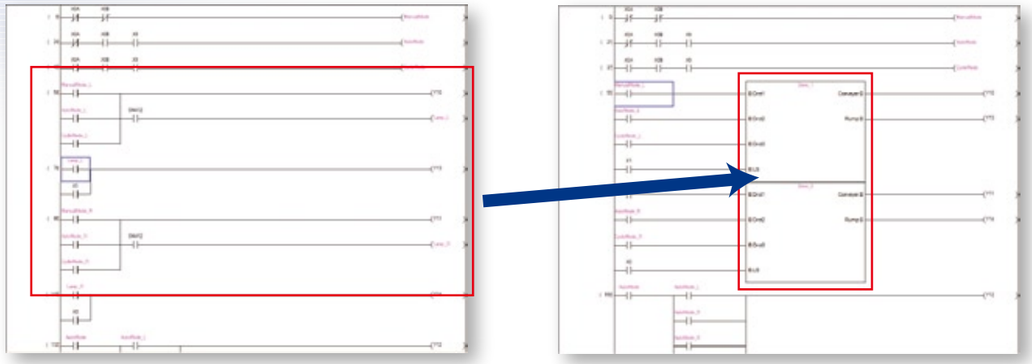
Increased Productivity

Use function blocks for common operations

Simple project | Structured project

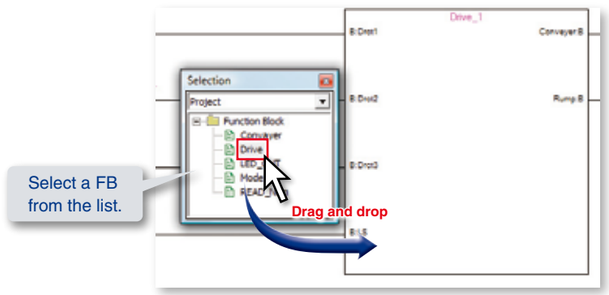
What is a FB?

Function blocks allow selections of commonly used code to be easily reused and shared among projects.
Using them effectively results in faster development times with fewer programming mistakes.



Function block selection window

Function blocks can be easily saved to and recalled from the function block selection window.
Add them to a program with simple drag-and-drop operation.



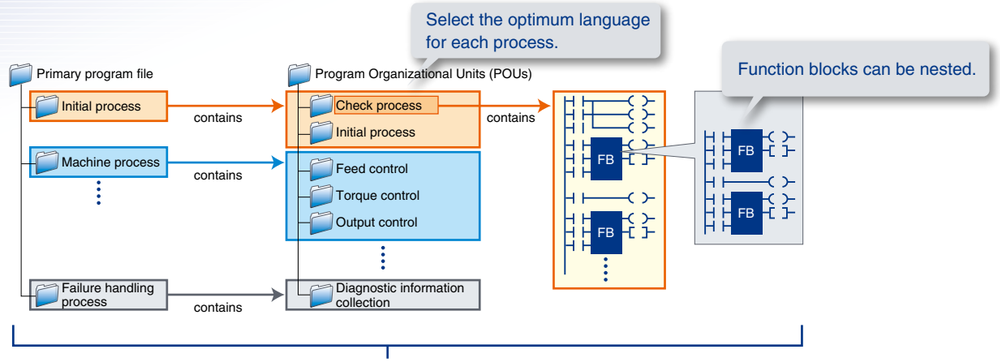
Increased Productivity

Simplify complex programs using structured projects

Structured project

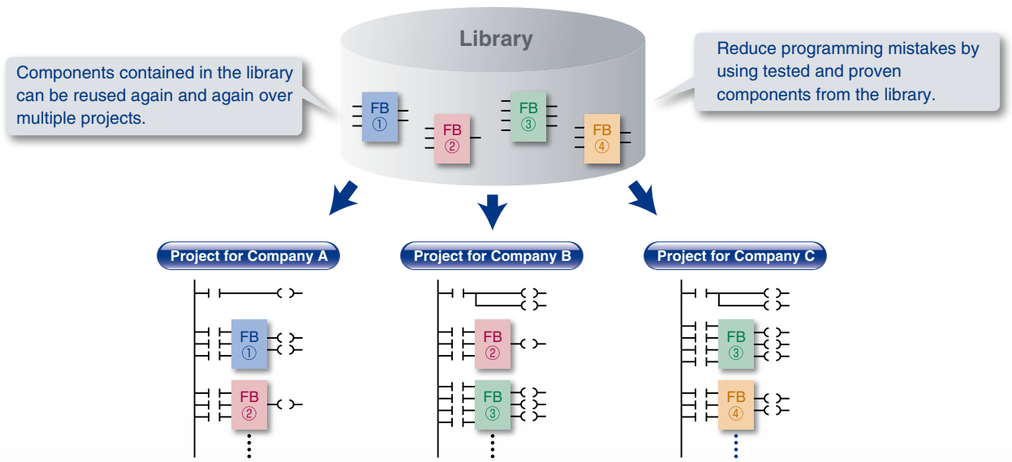
Advantages of program structuralization

Structured projects make it easy to logically separate code based on function.
The resulting programs are easy to understand, debug, and modify.



Utilize code libraries

Create your own libraries of frequently-used program components or use existing ones to quickly accomplish programming tasks and save on development costs.



Work more efficiently with an improved user interface and a wealth of new features.

Increased Productivity

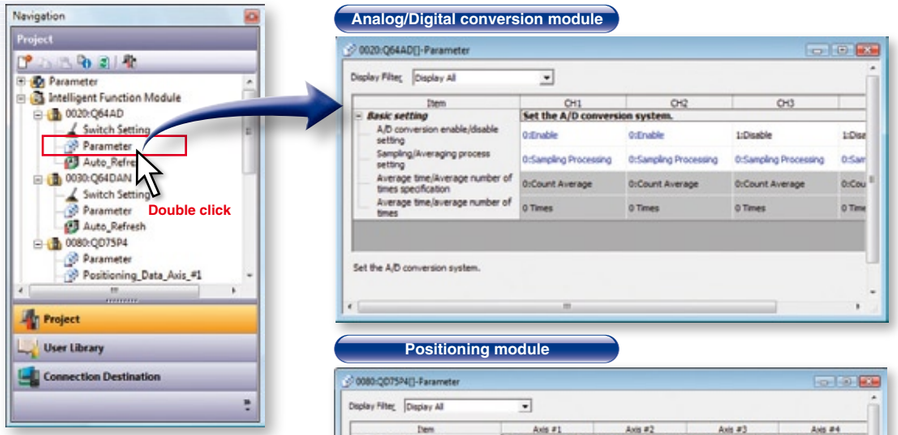
Intelligent function module management

Simple project | Structured project

Configure modules without the need to reference a manual

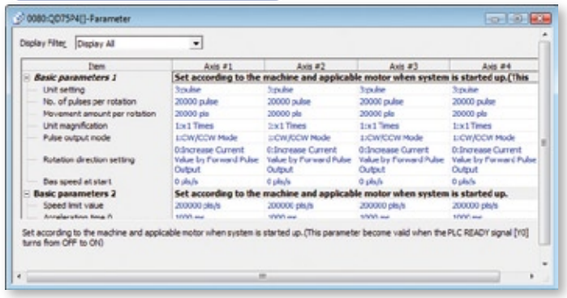
GX Configurator Integrated

GX Works2 incorporates support tools for intelligent function modules right out of the box.
All of the required information to configure and revise complicated parameter settings is included in the configuration tool so it is not necessary to reference a manual.

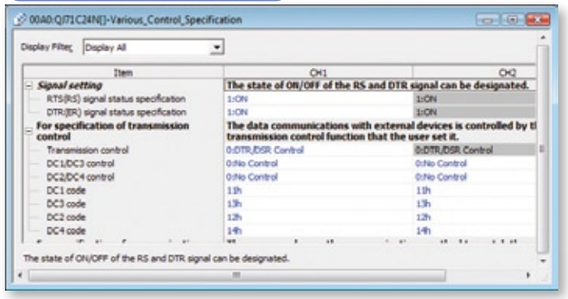


Analog/Digital conversion module

Positioning module



Serial communication module



Increased Productivity

Visualize positioning module buffer data

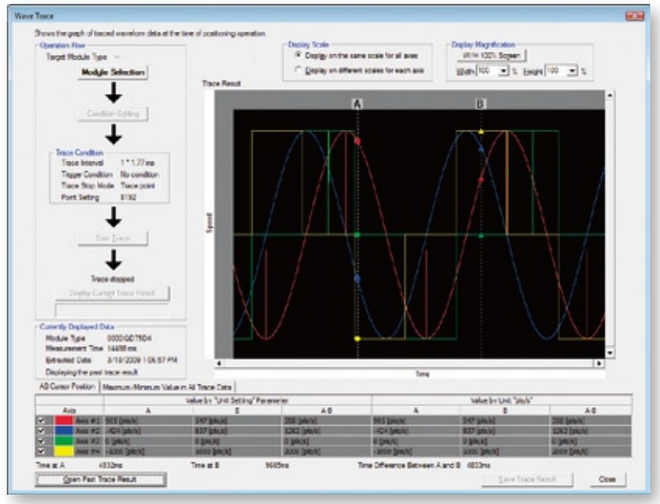
Simple project | Structured project

Trace function

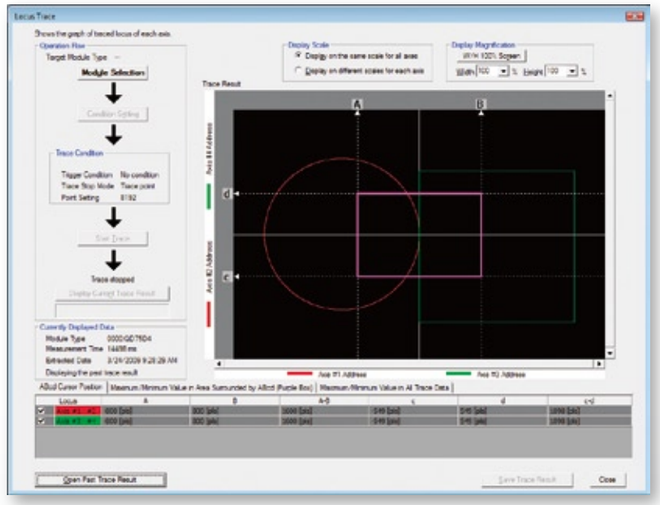
GX Configurator Integrated

Monitor online or save and review motion command data such as speed, simultaneous start, and dual-axis interpolation routines using customizable graphs.

Wave trace



Location trace



Work more efficiently with an improved user interface and a wealth of new features.

Increased Productivity

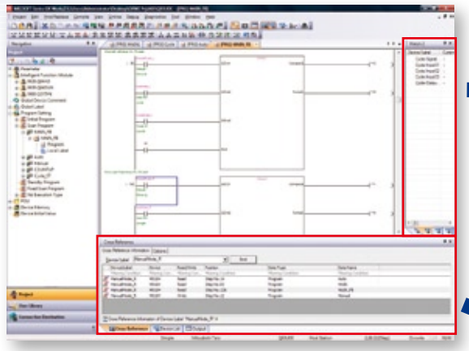
Three new features to maximize work area effectiveness

Simple project | Structured project

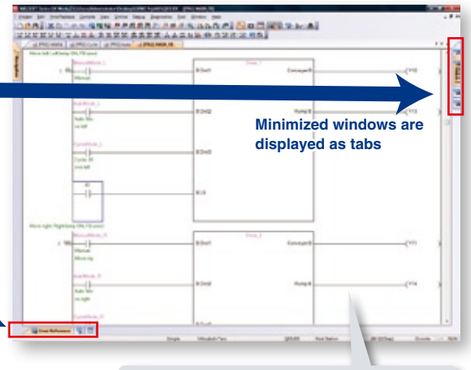
Docking windows

Quickly hide and recall docking windows to make the most of the available display area.

Docking window normal mode



Docking window minimized mode



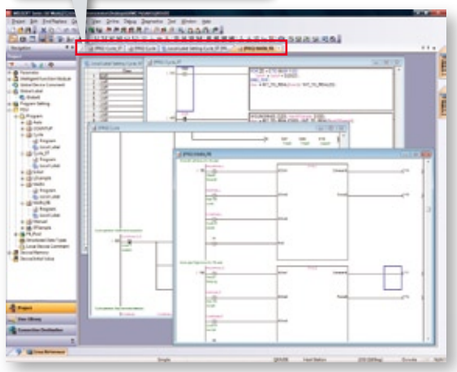
Minimized windows are displayed as tabs

Expand a chosen window to nearly 90% of the available display resolution.

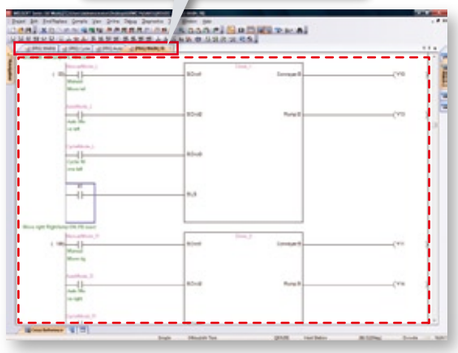
Screen tabs

Large projects can result in many open windows.
Find and switch between them quickly using screen tabs.

Switch between windows by simply clicking the desired tab.

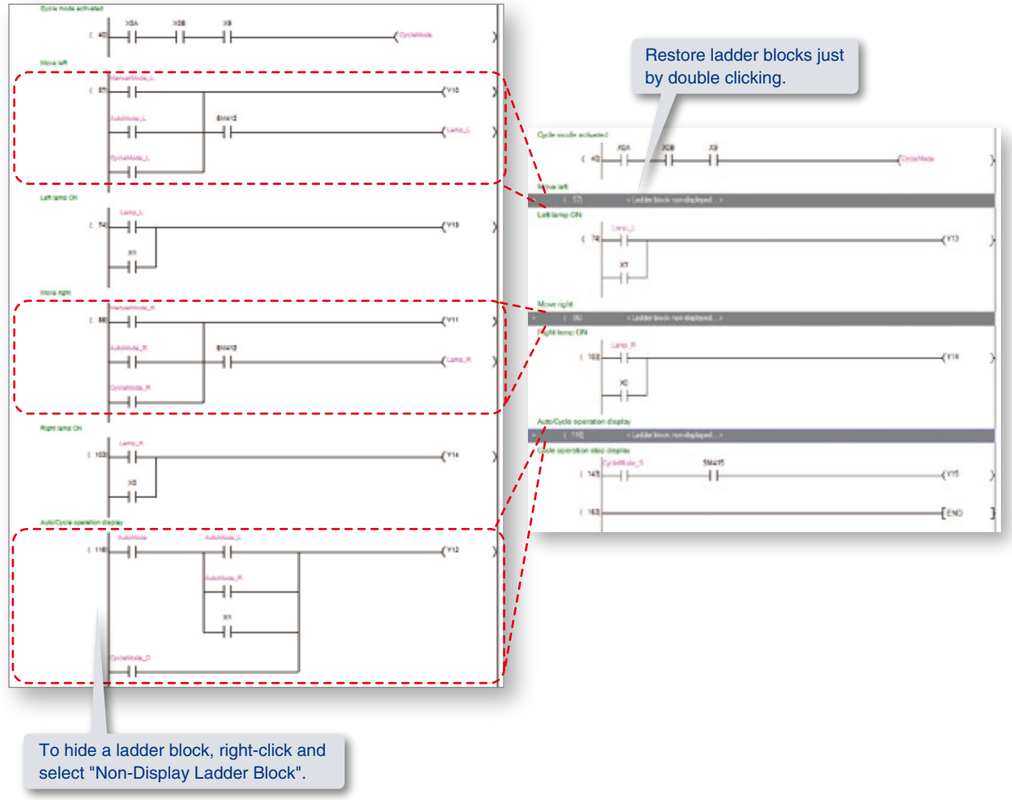


Even with the window maximized, the tabs are readily visible.



Selective display of ladder blocks

Minimize selected ladder code to focus on relevant sections.
Choose to display all ladder blocks for a standard view, or hide all to quickly scan through ladder statements and find the desired section.



Restore ladder blocks just by double clicking.

To hide a ladder block, right-click and select "Non-Display Ladder Block".

Work more efficiently with an improved user interface and a wealth of new features.

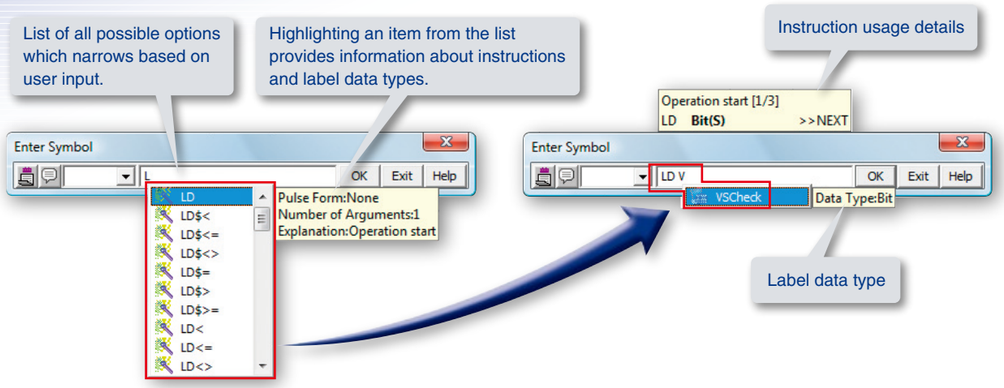
Increased Productivity

Time saving programming features

Simple project | Structured project

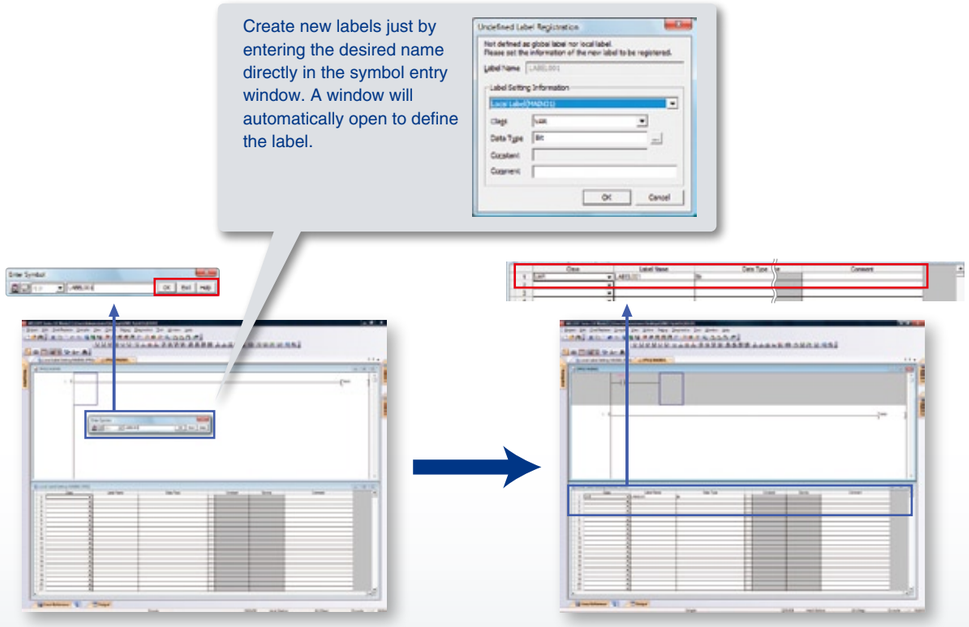
Symbol entry window instruction and label list

The dynamic list of instructions and labels prevents mistakes and saves time.
There is no need to memorize all of these data as they can be found quickly using the list.



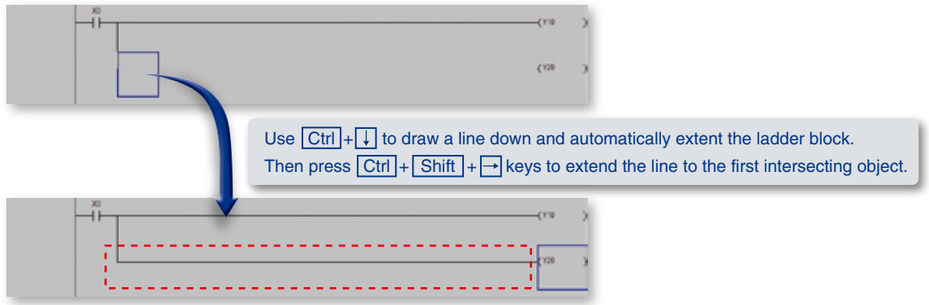
Label programming

One benefit of using system labels is the ability to make system configuration changes without having to modify the associated programs.



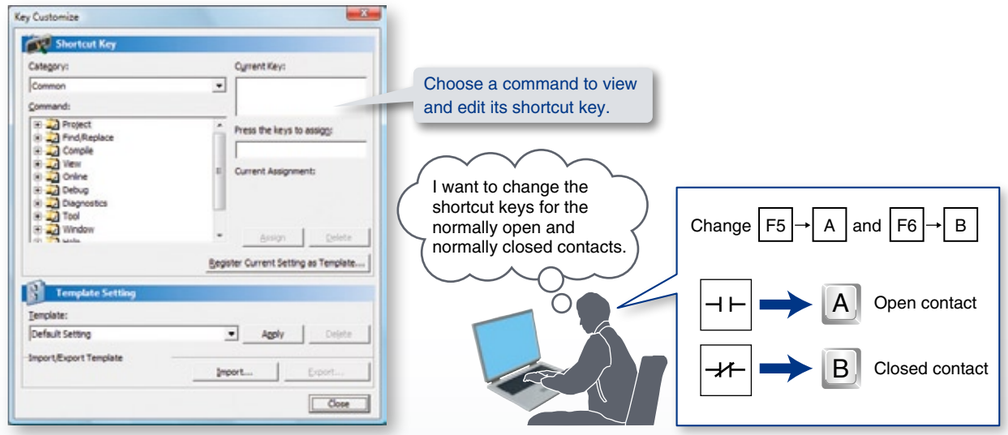
Rapidly edit ladder connections without changing the mode

Hold down Ctrl and use the arrow keys (←, →, ↑, ↓) to draw and erase lines.
Use Shift + Ctrl + (←, →) to edit continuous lines.



Custom key bindings

Select from default, GX Developer format (GPPA), or create custom key bindings and save them to a template.
Different users can easily switch between templates.



Work more efficiently with an improved user interface and a wealth of new features.

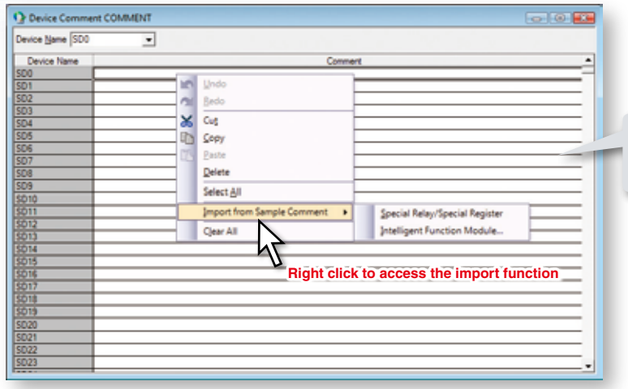
Increased Productivity

Standard devices have pre-defined comments

Simple project | Structured project

Import sample comments

Don't waste time making comments for standard devices. Special relays and registers for each CPU have sample comments pre-defined. Intelligent function modules also have sample comments which can be easily imported.



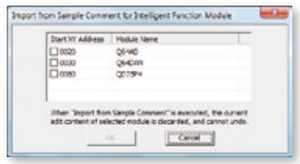
Use the import function in the comment window to add pre-defined devices.

Special relays and special registers

Device Name: SD0

Device Name	
SD0	Diagnostic errors
SD1	Diagnosis error occurrence time
SD2	Diagnosis error occurrence time
SD3	Diagnosis error occurrence time
SD4	Error information categories
SD5	Error common information
SD6	Error common information
SD7	Error common information
SD8	Error common information
SD9	Error common information
SD10	Error common information
SD11	Error common information
SD12	Error common information
SD13	Error common information
SD14	Error common information
SD15	Error common information
SD16	Error Individual information
SD17	Error Individual information
SD18	Error Individual information
SD19	Error Individual information
SD20	Error Individual information
SD21	Error Individual information
SD22	Error Individual information
SD23	Error Individual information

Intelligent function modules



Device Name: U8\G0

Device Name	
U8\G0	Unit setting
U8\G1	No. of pulses per rotation
U8\G2	Movement amount per rotation
U8\G3	Unit magnification
U8\G4	Pulse output mode
U8\G5	Rotation direction setting
U8\G6	Bias speed at start
U8\G7	
U8\G8	Basic parameters 1 Reserve
U8\G9	
U8\G10	Speed limit value
U8\G11	
U8\G12	Acceleration time 0
U8\G13	
U8\G14	Deceleration time 0
U8\G15	
U8\G16	Basic parameters 2 Reserve
U8\G17	Backlash compensation amount
U8\G18	Software stroke limit upper limi
U8\G19	
U8\G20	Software stroke limit lower limi
U8\G21	
U8\G22	Software stroke limit selection
U8\G23	Software stroke limit valid/inva

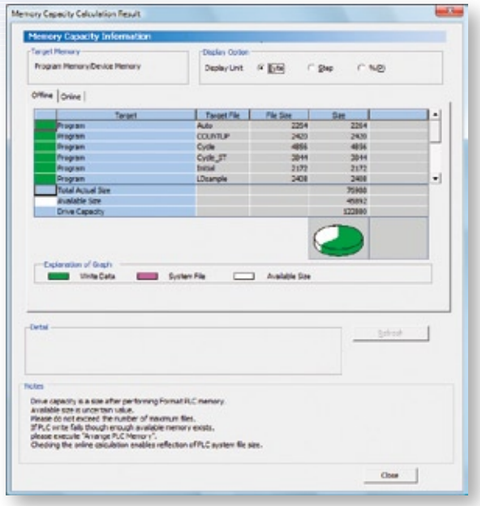
Increased Productivity

Detailed memory usage information

Simple project | Structured project

Memory size confirmation tool

This tool provides detailed information in table form and a pie chart for an at-a-glance understanding of memory resource allocation.



Offline

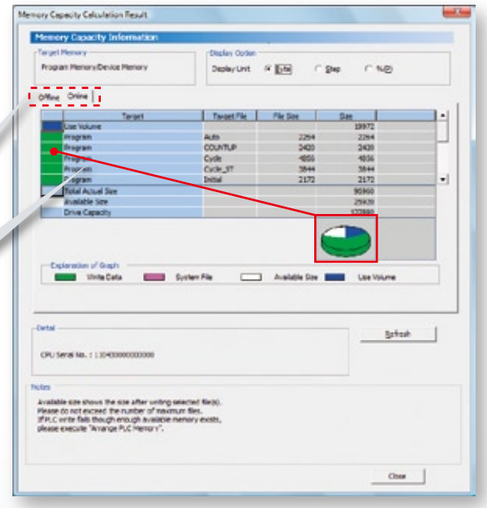
Easily determine memory space requirements for programs to be written to the programmable controller CPU.

Online

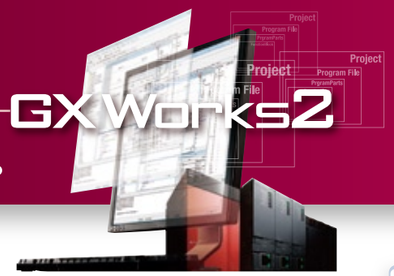
View the usage details and contents of the connected CPU. Determine the available memory before and after writing to the CPU.

Easily change the view mode

The table view reveals the size of each file



Reduce total cost by using features designed to help make debugging and maintenance tasks faster.



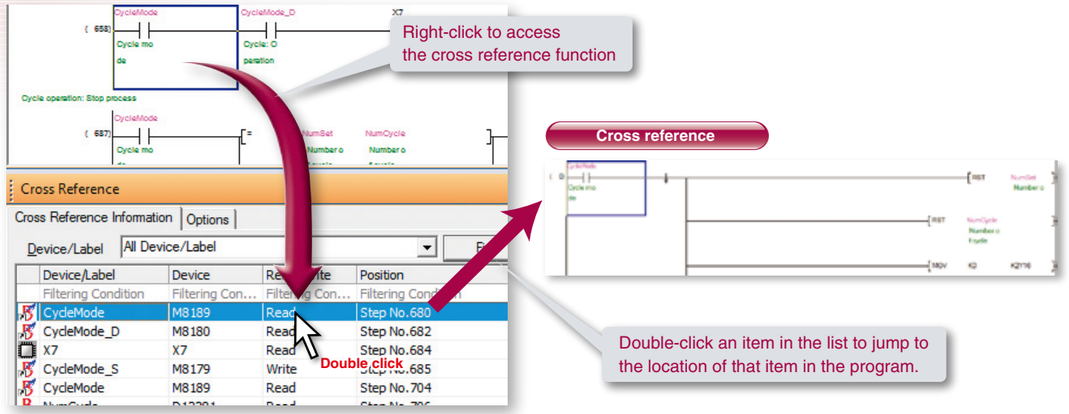
Accelerated Debugging

Advanced search functions

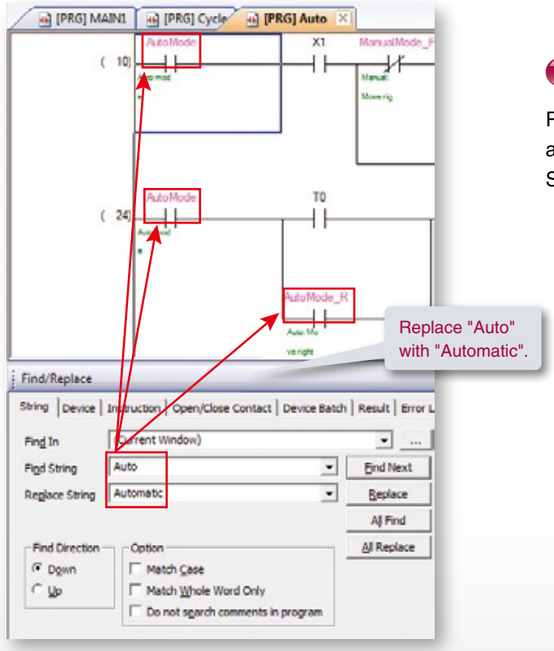
Simple project | Structured project

Cross reference

Quickly find all related labels and devices to an item by using this tool.
Jump to the location of the results to confirm or make changes.



Find and replace

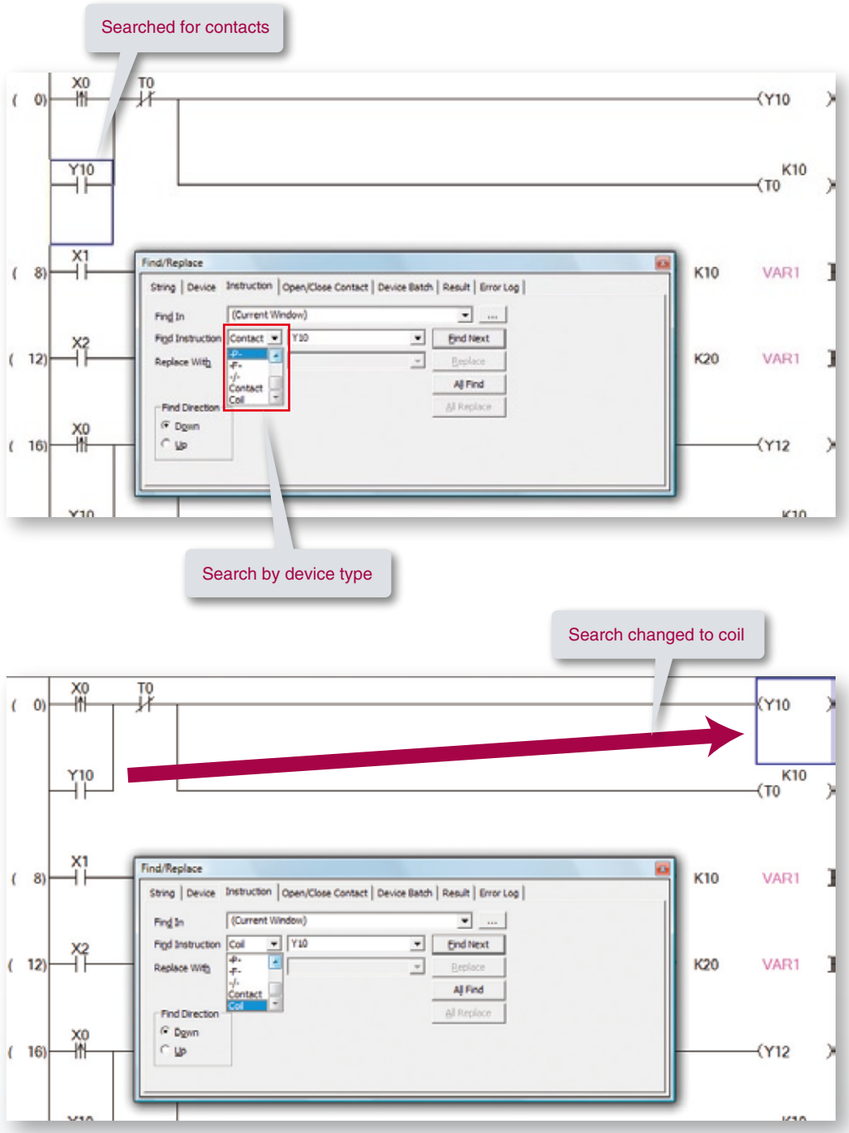


Find and replace

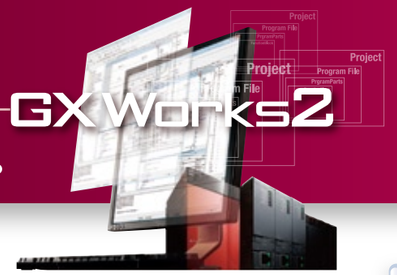
Rename labels and apply the change in batch throughout all associated programs.
Search for labels and devices using partial spellings.

Search by device type

Include device type in your searches to narrow the results and avoid unintentional replacements.
This is particularly useful when a device is used many times throughout a program.



Reduce total cost by using features designed to help make debugging and maintenance tasks faster.



Accelerated Debugging

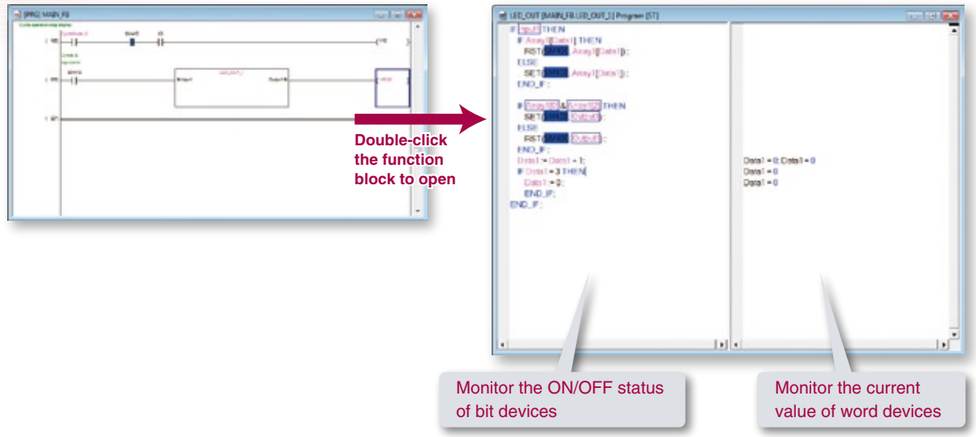
Improved monitoring features

Simple project | Structured project

Program monitoring

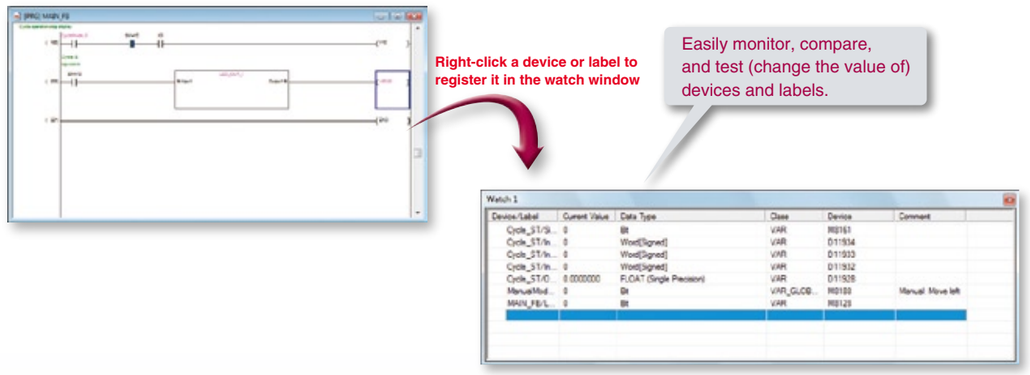
Examine the operational status of function blocks and programs in their respective languages.
Observe and change device values the same way as a standard ladder program.

Examine the internal operation of function blocks



Watch windows

Use watch windows to make a list of values to monitor.
Accomplish debugging tasks quickly by monitoring only the relevant data.



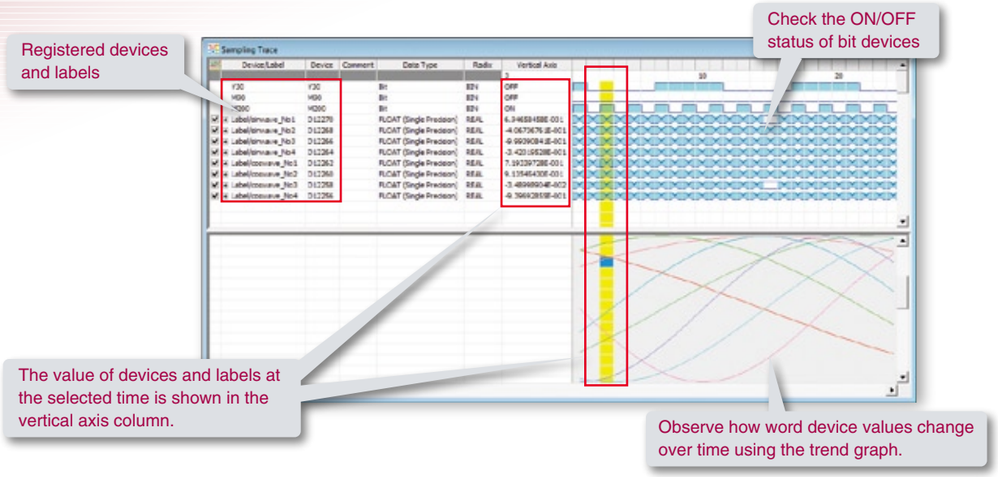
Accelerated Debugging

Visualize changing values with custom timing charts

Simple project | Structured project

Sampling trace

Trace changes in device and label values over time.
Easily get an understanding of program and equipment operating status.



Accelerated Debugging

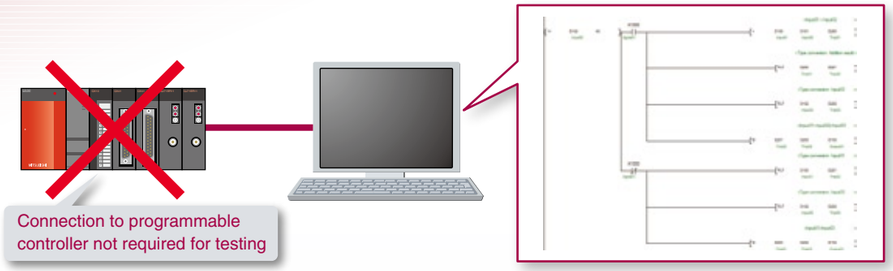
Test run programs without PLC hardware

Simple project | Structured project

Simulator

GX Simulator Integrated

GX Works2 includes simulator functionality as standard.
Perform debugging tasks and confirm proper program operation even without access to PLC hardware.



Programs can be debugged and tested at any time because access to physical hardware is unnecessary. Using this functionality it is possible to write programs that work the way they are intended the first time they are written to the programmable controller CPU.

Reduce total cost by using features designed to help make debugging and maintenance tasks faster.

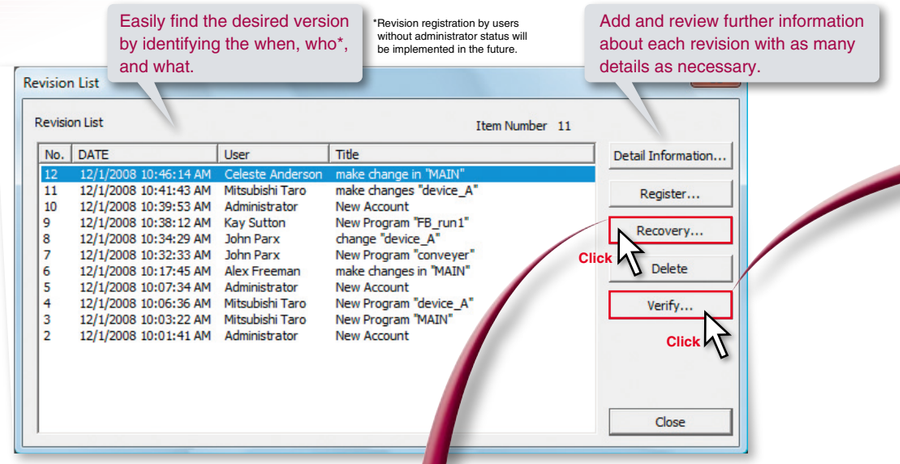
Accelerated Debugging

Keep track of program changes

Simple project | Structured project

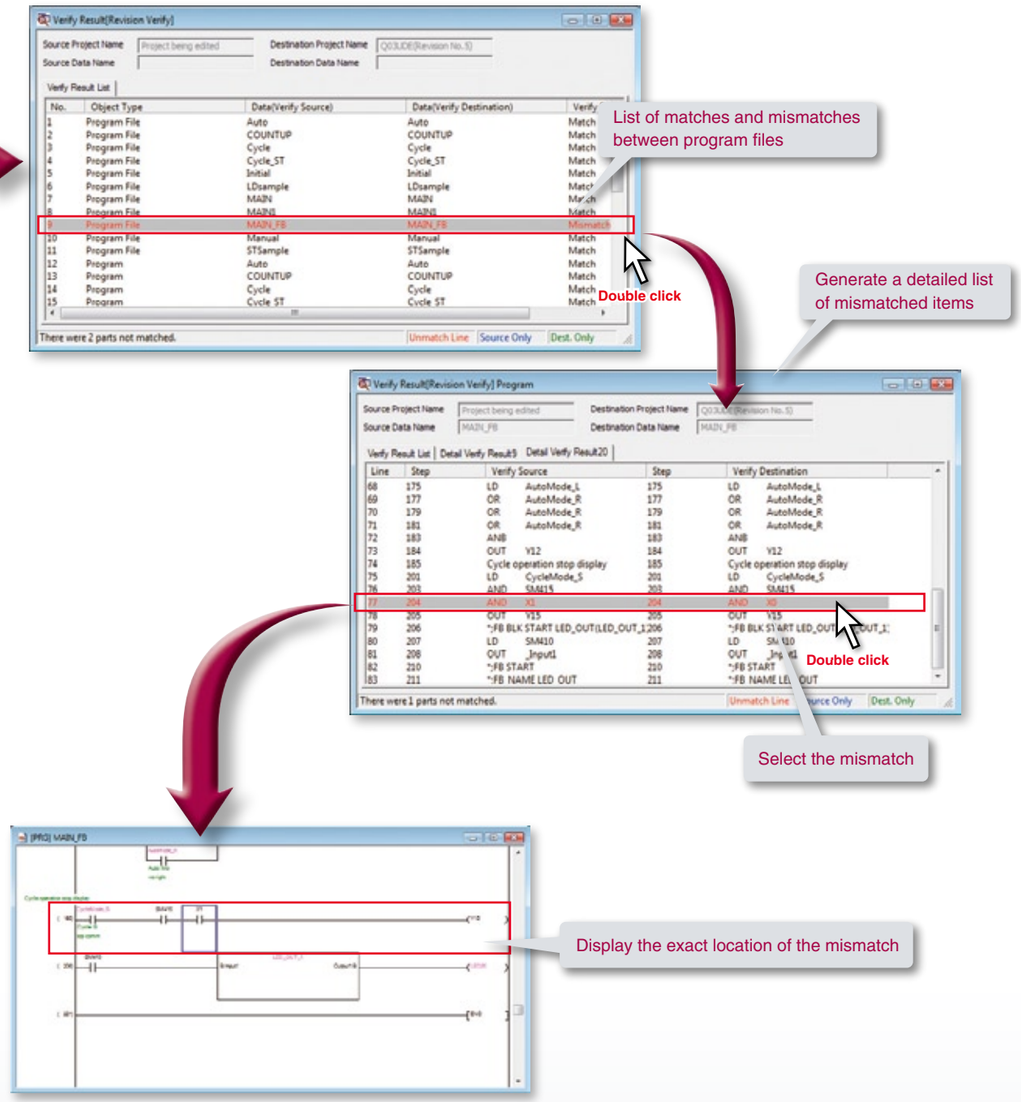
Project revision

Easily keep track of different versions of the same project. By creating a revision entry, subsequent project saves do not permanently overwrite previous versions of the project. Details about each version can be easily seen in the revision list.



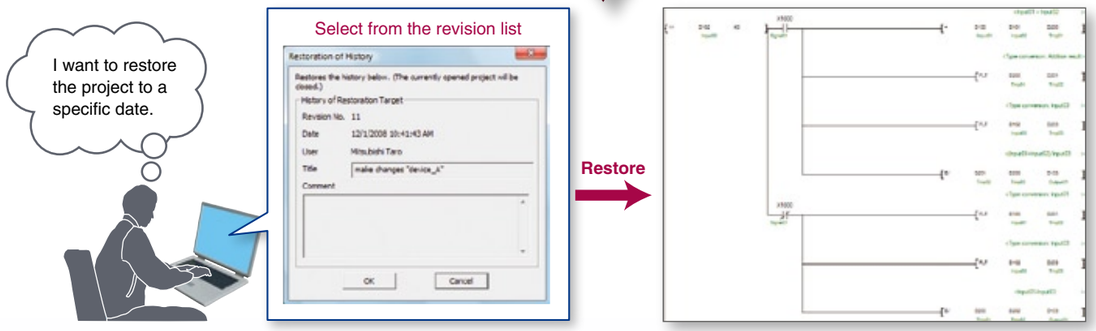
Revision verification

Easily identify what was changed and compare the differences between revisions using the verify function.



Revision restoration

If an unintended change is made, the project can easily be restored.



Identify and recover from errors rapidly using comprehensive diagnostic tools.

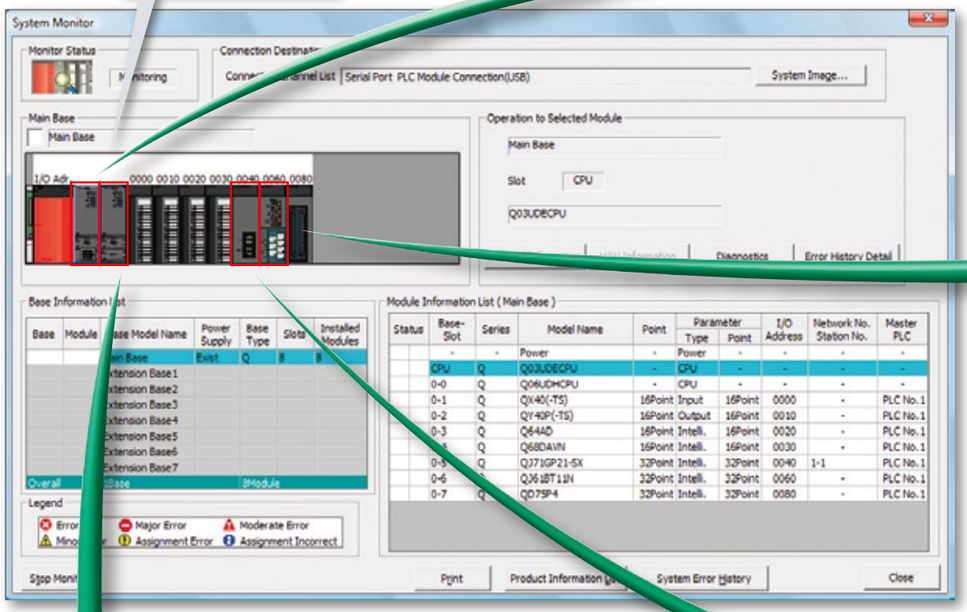
Reduced Downtime

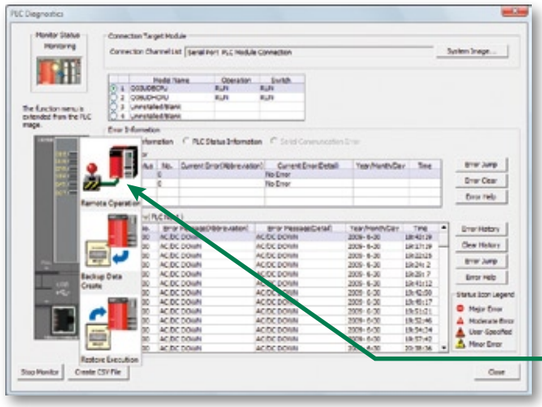
Identify problems immediately using an interactive graphical system display — Simple project / Structured project

System monitor

To quickly spot errors, an icon will appear next to malfunctioning modules based on the severity of the error. The interactive graphical system display provides immediate access to all of the diagnostic features and information about every module.

Inspect the status of each module at a glance.

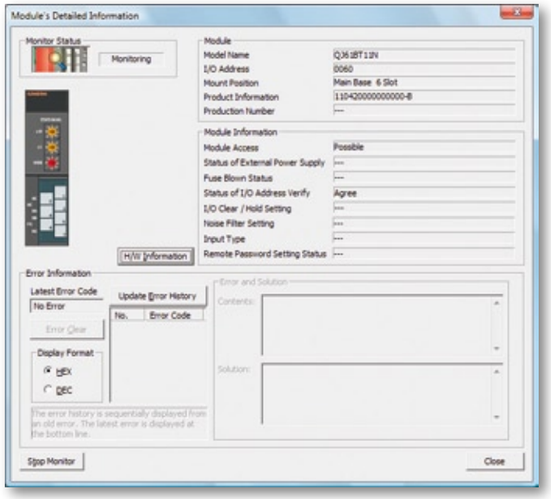




PLC diagnostics

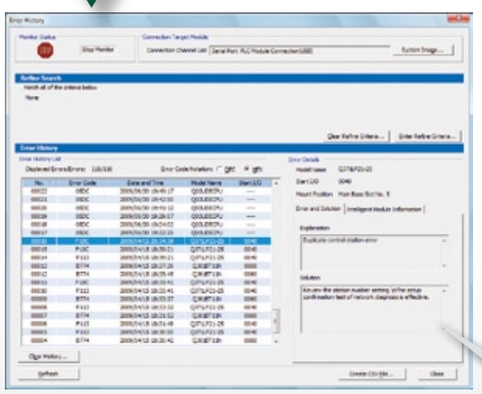
From one central window quickly read error and status information, export log files to CSV, perform remote CPU operations like reset, stop, CPU memory format, and more.

Perform CPU remote operations



Detailed module information

Resolve intelligent function module issues quickly by clicking on a module to open this function.
All of the information relevant to the module is displayed here including error codes, their description, and possible solutions.



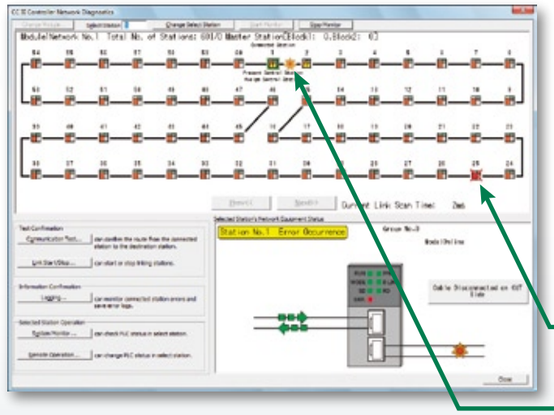
System error history

Simplify troubleshooting with a combined, time-stamped, error history list for CPUs and intelligent function modules. The details section provides explantations of error codes and suggested solutions.

Note:
Currently only Universal model QCPUs support this function.
(with the first five digits of the serial number being 11043 or higher)

Supported intelligent function modules:
QJ61BT11N (first five digits of the serial number being 11042 or higher)
QJ71LP21-25, QJ71LP21S-25, QJ71LP21G, QJ71BR11, and QJ71NT11B
(first five digits of the serial number being 11042 or higher)
(Other intelligent function modules will support this function in the future.)

Quickly identify the error, its cause, and solution without the need to reference a manual.



CC-Link IE controller network diagnostics

A visual display of every station on the network allows rapid identification of problems.
View detailed error information, monitor the status of other stations on the network, download error logs from connected stations, perform communication tests, and more.

Suspended stations or stations with parameter errors appear with a red "X".

The location of faulty or improperly wired cables is immediately apparent.

Protect your investments with advanced security features.

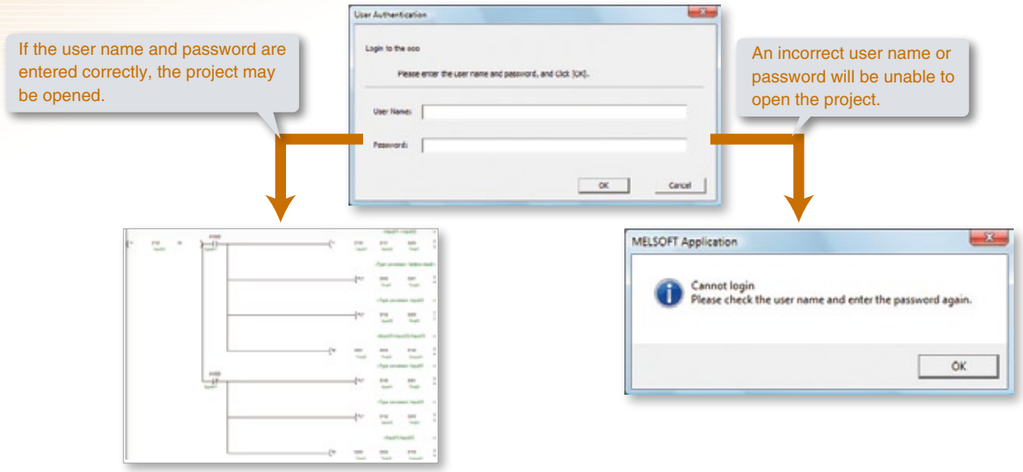
Robust Security

Control file access

Simple project | Structured project

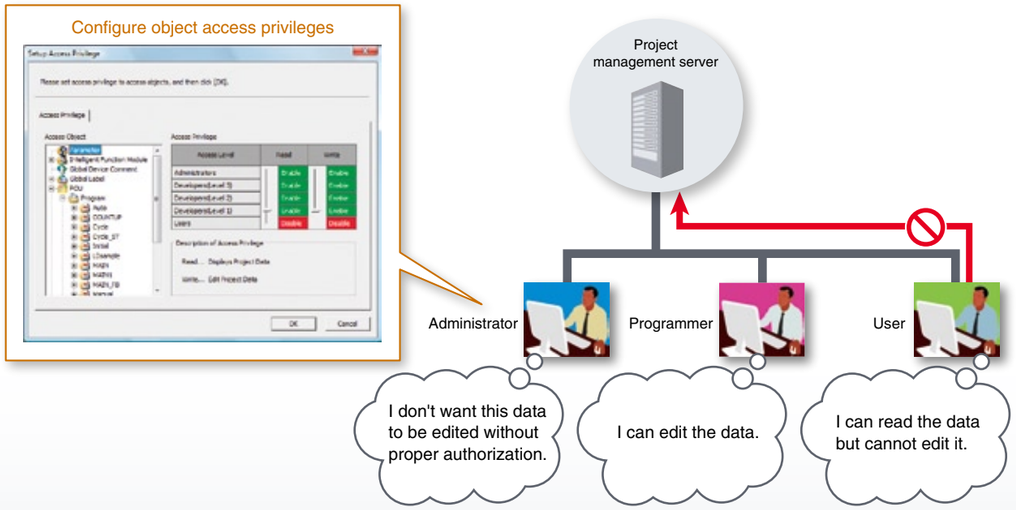
User authentication

Prevent unauthorized access to project files by instituting user management.



Data security settings

Prevent unauthorized access to different parts of a project. Users can be compartmentalized and only given access to specific parts of a project.



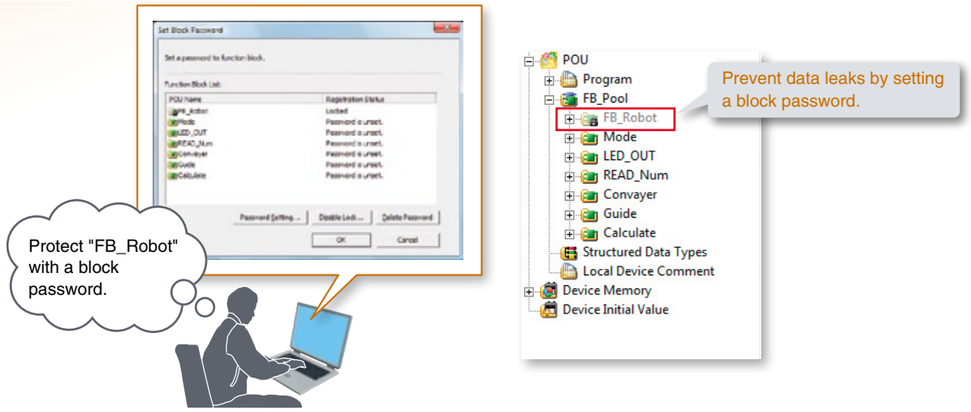
Robust Security

Protect intellectual property rights

Simple project | Structured project

Block password

Protect individual program components with separate user independent passwords. These block passwords can add another layer of security in addition to user authentication and prevent the leak of valuable software assets.



Robust Security

Prevent unauthorized access, data modifications, and leaks

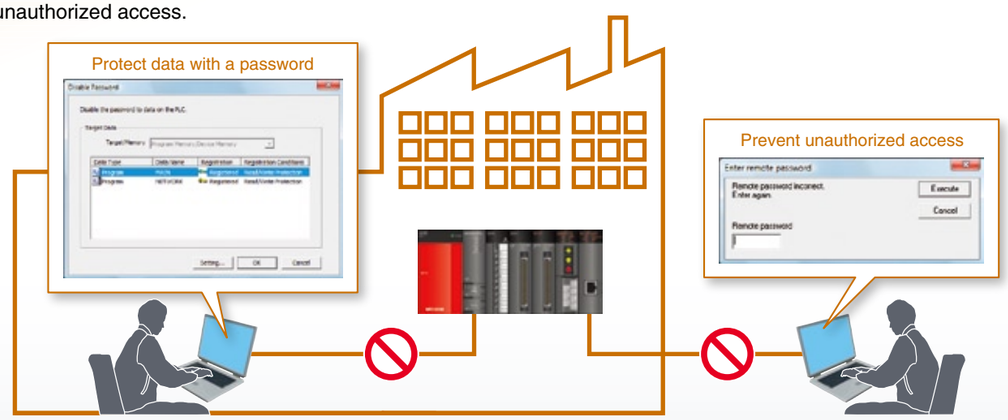
Simple project | Structured project

Password registration

Prevent software leaks and unauthorized changes by setting a programmable controller CPU access password.

Remote password

Programmable controllers connected to a network can be a risk. Secure them using remote passwords to stop unauthorized access.



Operating Environment

Item		Description
Computer	OS	Microsoft® Windows Vista® Home Basic Operating System Microsoft® Windows Vista® Home Premium Operating System Microsoft® Windows Vista® Business Operating System Microsoft® Windows Vista® Ultimate Operating System Microsoft® Windows Vista® Enterprise Operating System Microsoft® Windows® XP Professional, Service Pack 2 or later Microsoft® Windows® XP Home Edition, Service Pack 2 or later Microsoft® Windows® 2000 Professional, Service Pack 4 or later
	CPU	Desktop PC: Intel® Celeron® Processor 2.8GHz or better, recommended / Laptop PC: Intel® Pentium® M processor 1.7GHz or better, recommended
	Memory	At least 512 megabytes (MB) of RAM / At least 512 megabytes (MB) of Virtual Memoy
Hard disk drive		At least 1 gigabyte (GB) of available HDD space
Optical drive		CD-ROM compatible drive
Display		Resolution 1024 × 768 pixels or higher
Communication interface		At least one of the following: RS-232 port, USB port, or an Ethernet port

Supported Programmable Controller CPU

Series		Model
Q series	Universal model QCPU	Q00UJ, Q00U, Q01U, Q02U, Q03UD, Q03UDE, Q04UDH, Q04UDEH, Q06UDH, Q06UDEH Q10UDH, Q10UDEH, Q13UDH, Q13UDEH, Q20UDH, Q20UDEH, Q26UDH, Q26UDEH
	High Performance model QCPU	Q02, Q02H, Q06H, Q12H, Q25H
	Basic model QCPU	Q00J, Q00, Q01
FX series		FX0, FX0S, FX0N, FX1, FXU, FX2C, FX1S, FX1N, FX1NC, FX2N, FX2NC, FX3G, FX3U, FX3UC

Product Information

Single license product

Product name	Model	Model code
GX Works2 Version1 (CD-ROM) Single license product	SW1DNC-GXW2-E	13PG70

Volume license product

Product name	Model
GX Works2 Version1 (CD-ROM) Volume license product	SW1DNC-GXW2-EA

Additional license product

Product name	Model	Remarks
GX Works2 Version1 Additional license product	SW1DNC-GXW2-EAZ	This product does not include CD-ROM. Only license certificate with the product ID number will be issued.

Manuals

Operating manual

The operating manuals are included on the CD-ROM with the software package.
Manuals in printed form are sold separately for single purchase. Order a manual by quoting the manual number (model code) listed in the table below.

Manual name	Supply status	IB/SH No.	Model code
GX Works2 Version1 Operating Manual (Common) Explains the GX Works2 software configuration and functions common to a Simple project and Structured project such as parameter settings and online operations.	Sold separately	SH-080779ENG	13JU63
GX Works2 Version1 Operating Manual (Simple Project) Explains simple project operations in GX Works2 such as program creation and monitoring.	Sold separately	SH-080780ENG	13JU64
GX Works2 Version1 Operating Manual (Structured Project) Explains structured project operations in GX Works2 such as program creation and monitoring.	Sold separately	SH-080781ENG	13JU65
GX Works2 Beginner's Manual (Simple Project) Explains the fundamentals of simple project operations in GX Works2 for inexperienced users such as how to create, edit, and monitor programs.	Sold separately	SH-080787ENG	13JZ22
GX Works2 Beginner's Manual (Structured Project) Explains the fundamentals of structured project operations in GX Works2 for inexperienced users such as how to create, edit, and monitor programs.	Sold separately	SH-080788ENG	13JZ23

Empowering Industries

MELSOFT

Mitsubishi Electric Corporation Nagoya Works is a factory certified for ISO14001 (standards for environmental management systems) and ISO9001(standards for quality assurance managememt systems)

Mitsubishi iQ Platform Compatible Programmable Controller Engineering Software MELSOFT GX Works2

Precautions for Choosing the Products

This publication explains the typical features and functions of the Q Series programmable controllers and does not provide restrictions and other information on usage and module combinations. 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; opportunity loss 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 publication properly, always read the "manuals" before starting to use them.
- The products have been manufactured as general-purpose parts for general industries, and have not been designed or manufactured to be incorporated in a device or system used in purposes related to human life.
- Before using the products for special purposes such as nuclear power, electric power, aerospace, medicine or passenger movement vehicles, consult with Mitsubishi.
- The products have been manufactured under strict quality control. However, when installing the products where major accidents or losses could occur if the products fail, install appropriate backup or failsafe functions in the system.

Country/Region	Sales office	Tel/Fax
USA	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
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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
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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
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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 248, 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 14440, 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

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