MITSUBISHI ELECTRIC

Changes for the Better

for a greener tomorrow eco Changes

iQ Platform Compatible Programmable Controller Engineering Software MELSOFT GX Works2

GX Works2

World-Class PLC Engineering Software

World-Class PLC Engineering Software

Ultimate evolution of PLC engineering software

International Standard IEC61131-3 compliant

Now an easy-to-use engineering software is no surprise.

In addition to its sophisticated usability, the engineering software GX Works2 deploys

the global mainstream concepts of "segmenting" and "structuring"

for fundamental improvement of programming efficiency.

The world-standard engineering style begins with GX Works2.

GX Wor


Project
Program File
Program Parts
FunctionBlock
Project
Program File
Program Parts
FunctionBlock
Project
Program File
Program Parts
FunctionBlock
MITSUBISHI
Integrated FA Software
MELSOFT
GX Works2
Version 1
Programming and Maintenance tool
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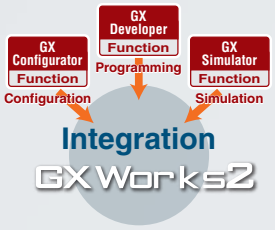
ks2

Concept

Concept.1

All-in-one package

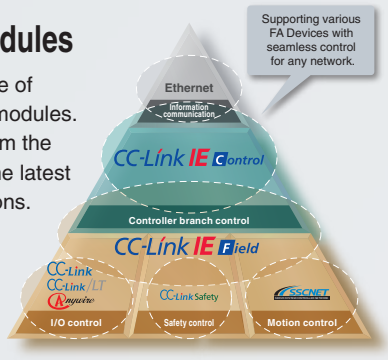
All capabilities required for PLC engineering including the configuration function of the intelligent function module and simulation function are integrated in a single package.
The all-in-one GX Works2 package supports entire engineering such as system design, programming, debug and maintenance.



Concept.2

Make full use of MELSEC PLC modules

GX Works2 enables you to easily make a full use of high-function and high-performance CPUs and modules. New updates are available for free download from the Mitsubishi FA website, so you can always use the latest GX Works2 supporting new products and functions.



Concept.3

Inherits customer assets

Your legacy GX Developer programs can be used in GX Works2 without any modification. Also, programs written by GX Works2 to the programmable controller can be read using GX Developer. For example, even if GX Developer is installed in a production site's PC, the data created and read with GX Developer can be used with GX Works2 installed in a development office's PC.

Concept.4

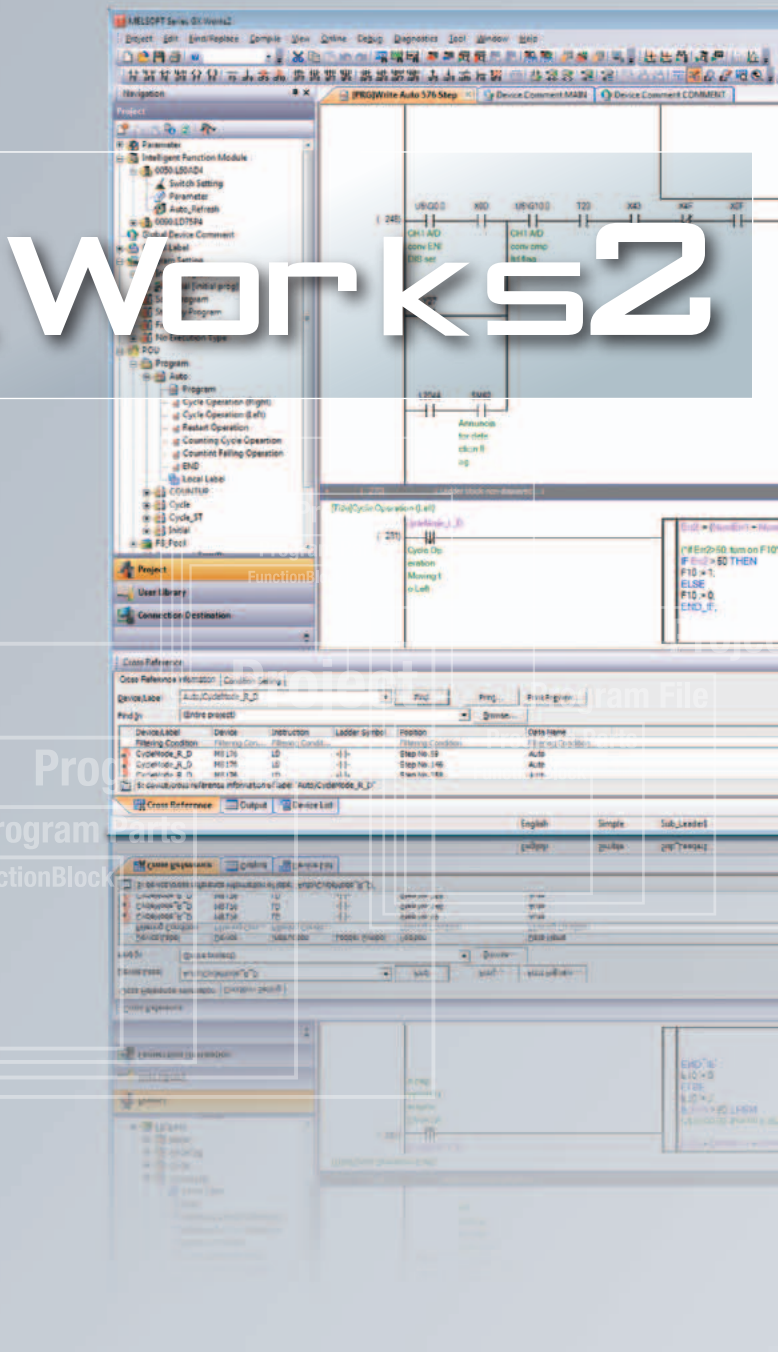
Sophisticated usability

The favorable GX Developer functions have been incorporated to GX Works2 and the usability furthermore improved.
The performance has also been refined thus improving each operation to perform smoothly with a high response.
The usability will continue to advance.

Concept.5

International Standard IEC61131-3 (JIS B 3503) compliant

GX Works2 conforms to the engineering tool international standard IEC 61131-3 (JIS B 3503), and supports segmented and structured programming.
Programming languages including SFC, ST and ladders, can be used according to each application.
In addition, several languages including SFC, ST and ladders can be used together in one program.



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Ultimate "Easy-to-use" user interface

The engineering software GX Works2 has been developed to allow programming, debugging and maintenance operations, etc., to be carried out easily by anyone with intuitive operations.
Its comfortable operation environment further improves design efficiency.

Enhancing program readability with wrapping ladder block ····· P.10

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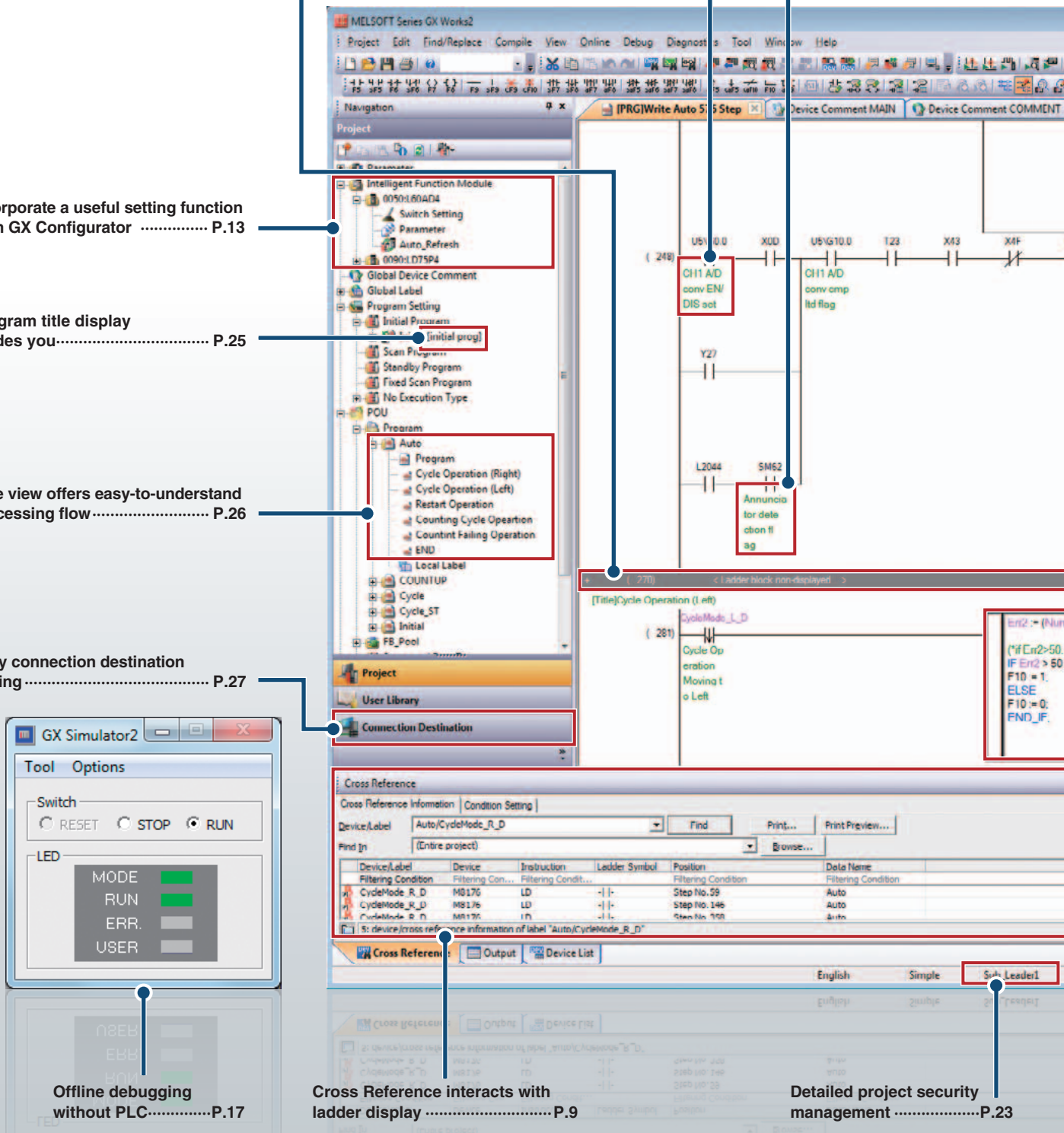

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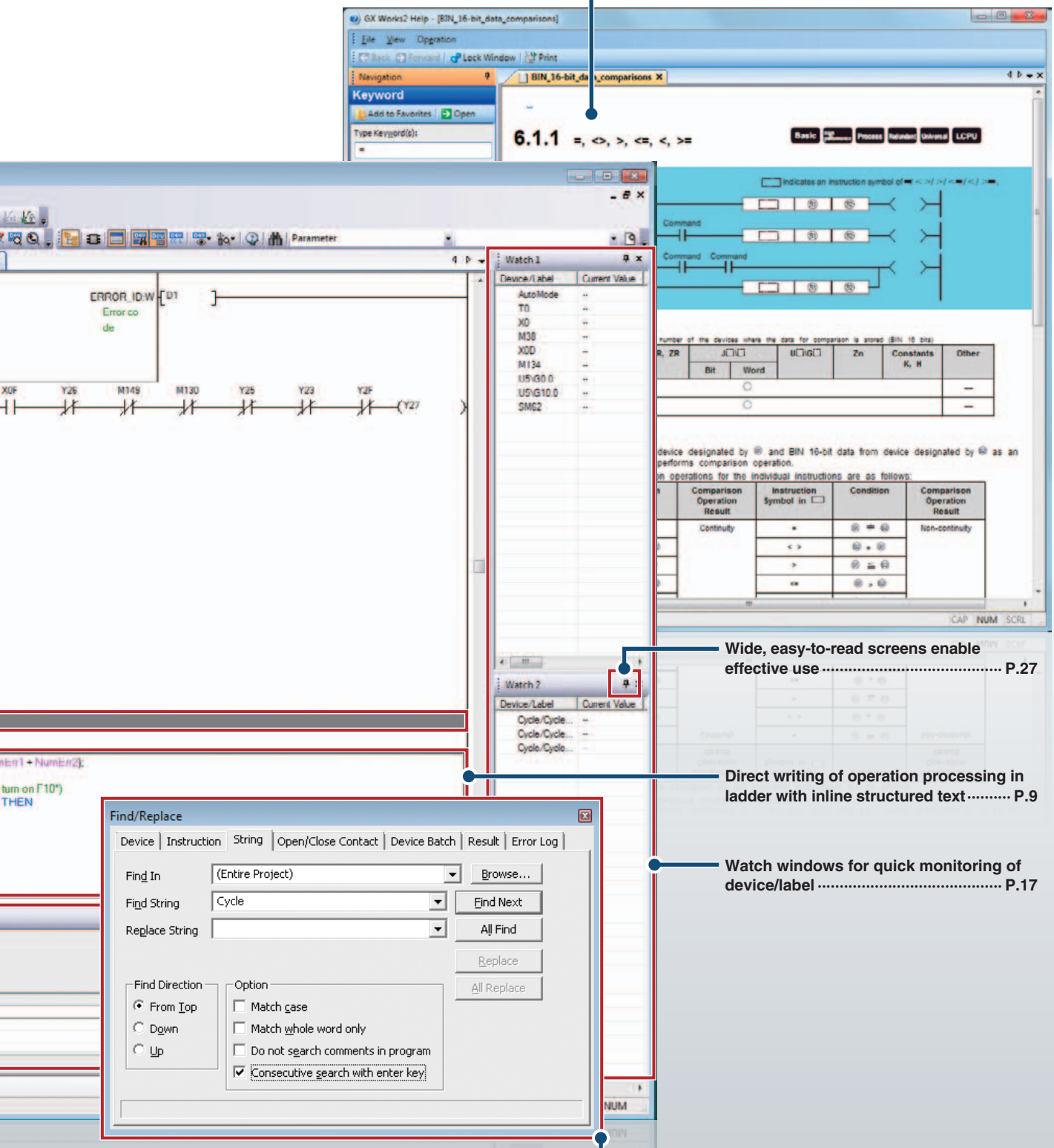


Wide, easy-to-read screens enable effective use ····· P.27

Direct writing of operation processing in ladder with inline structured text ····· P.9

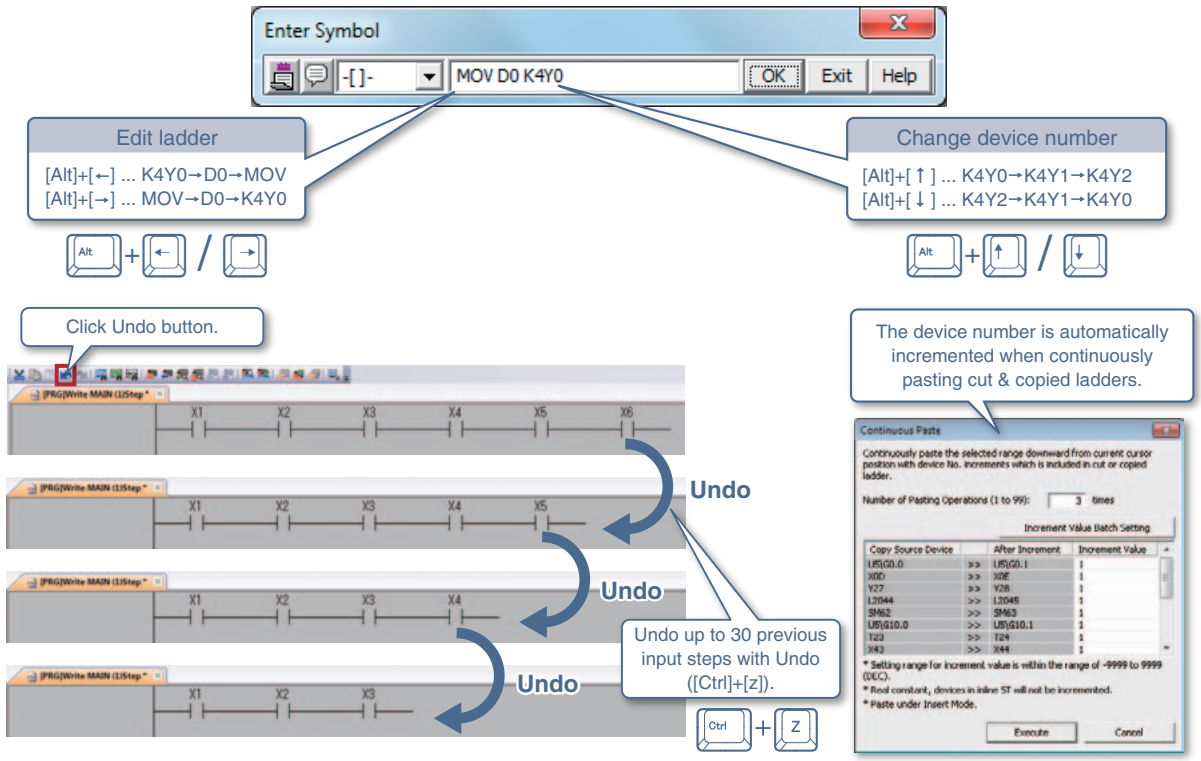
Watch windows for quick monitoring of device/label ····· P.17

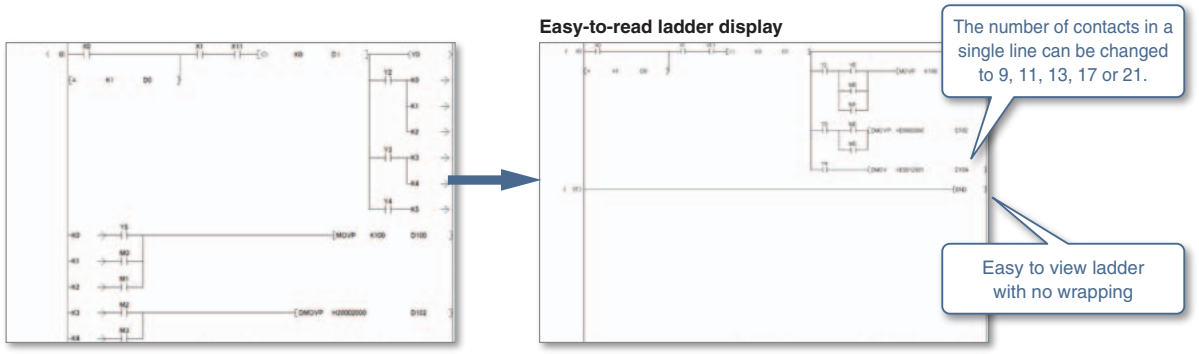
Easy continuous device search with familiar-to-use operation ····· P.8

▶ Ladder input

1 Simple key operation makes an easy ladder programming

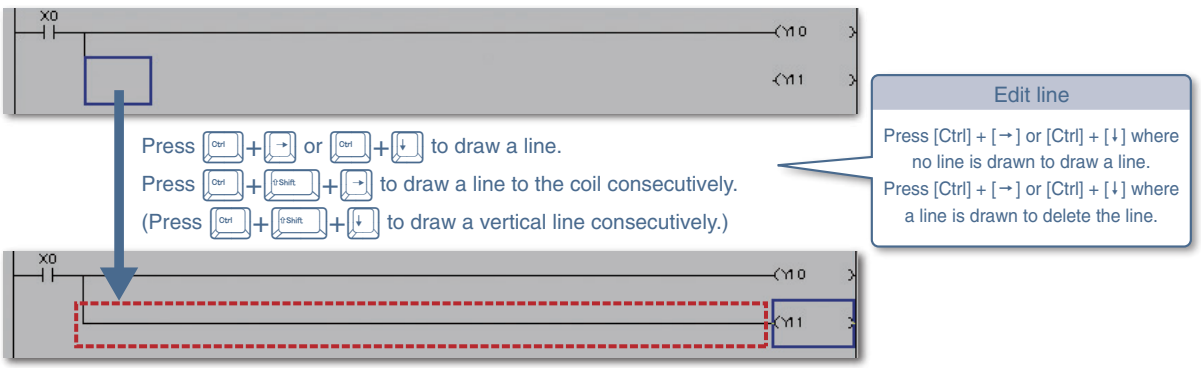
A ladder is easily modified and edited with convenient key combinations such as [Alt]+[←]/[→] or [Alt]+[↑]/[↓].





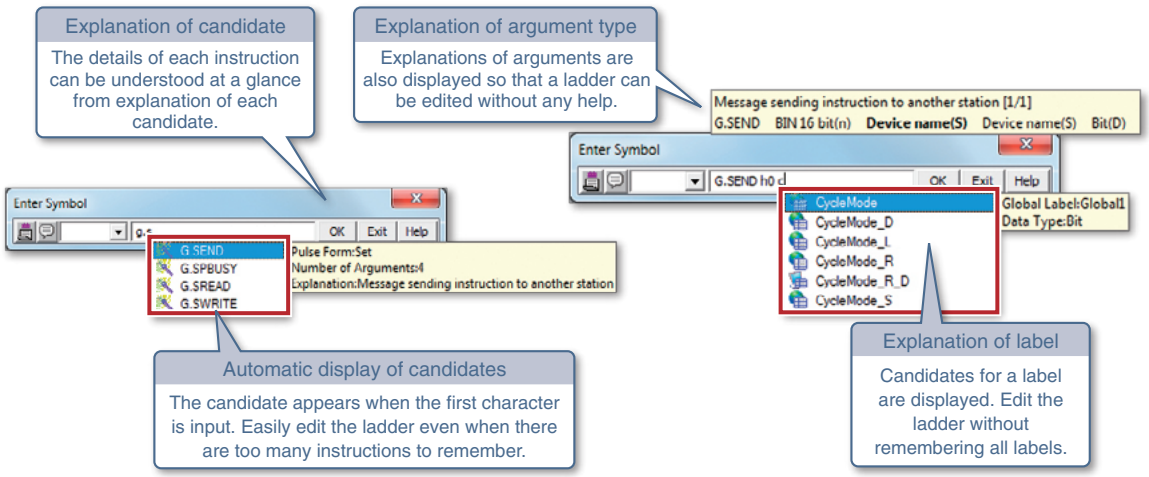
2 Edit lines with simple key operation

Lines are edited only with the keyboard keys. There's no need to switch to the conventional line editing mode.



3 Easy ladder edit with command/label input support

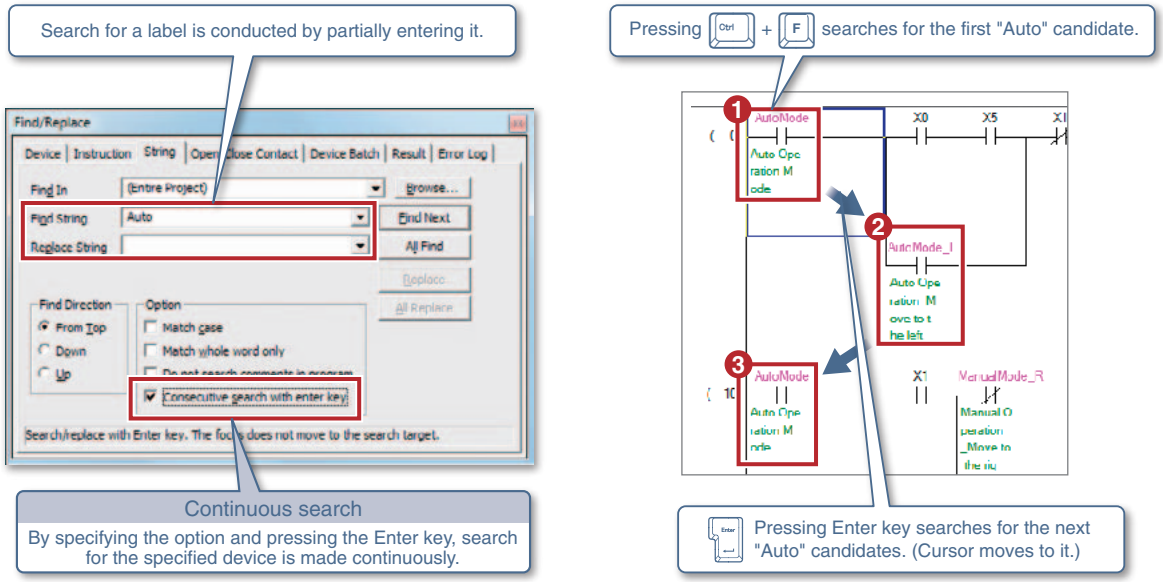
Ladders are easily edited just by choosing.
The information of arguments are also shown to reduce errors during ladder input.



POINT **This function saves time to display and confirm help information during command input. Pressing the [F1] key displays the instruction help screen.**

4 Easy continuous device search

By specifying the search option, you can continuously search for the candidates by pressing the Enter key.
This is particularly useful when a specified device is used many times in the program.

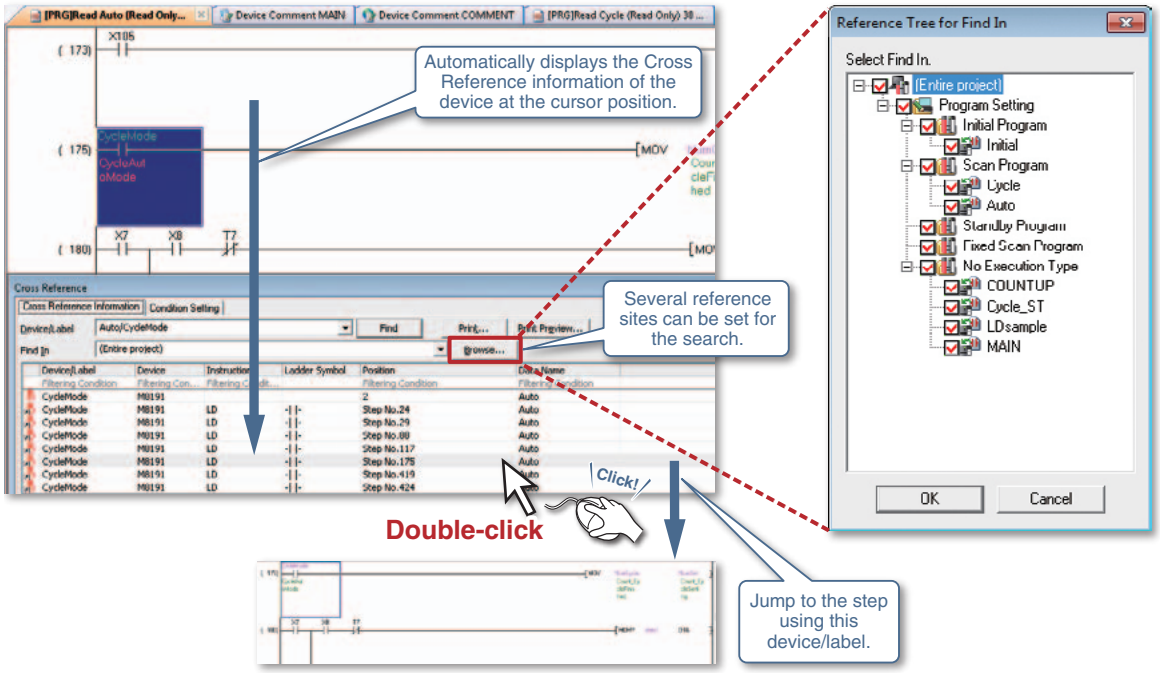


POINT **Search for devices can also be made in the similar manner by switching the ladder display to the device display.**

▶ Ladder input

5 Cross Reference interacts with ladder display

Cross Reference function is used to search for devices/labels used in the project.
The docking windows enable to display the Cross Reference window and program editor vertically.



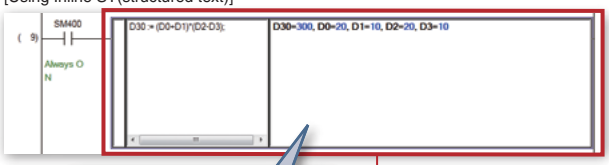
POINT The used locations of devices or labels in the program are confirmed with intuitive operation.

6 Inline ST directly writes Operation processing.

Operation processing is written directly in a ladder with Inline ST(structured text).
Creation of a multi-line ladder or FB(Function Block) in another program editor is not necessary anymore.

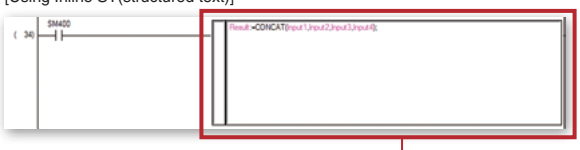
Example of numeric operation
[Using ladder only]

[Using Inline ST(structured text)]



Example of character string processing
[Using ladder only]

[Using Inline ST(structured text)]



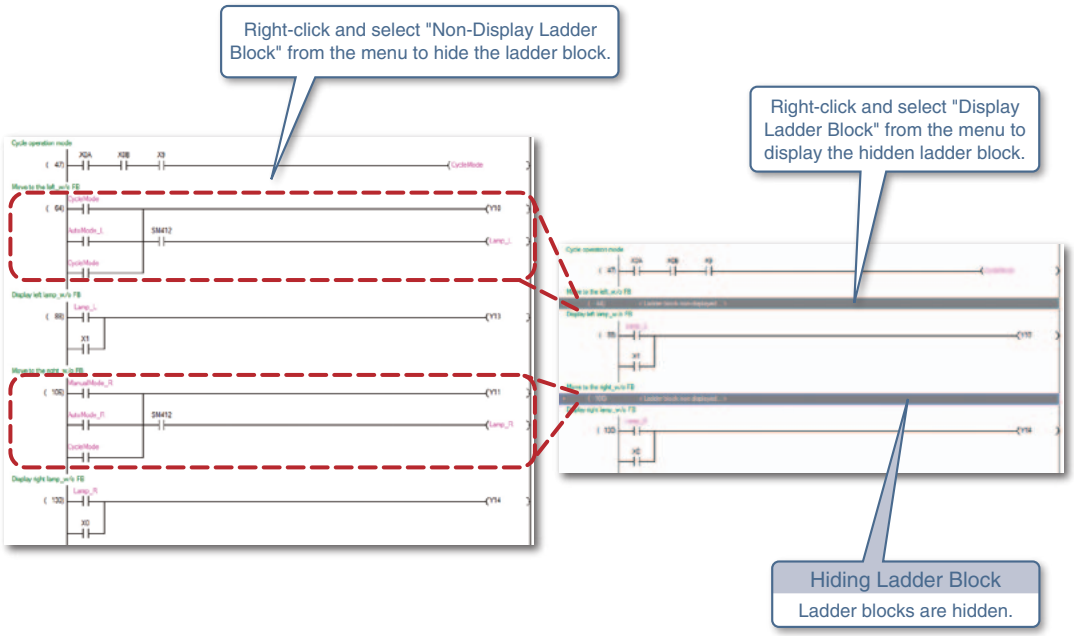
ST edit area
The current value can be monitored and changed.

Describe a program in one line using Inline ST.

POINT Troublesome numeric operations and character string processing are described easily.

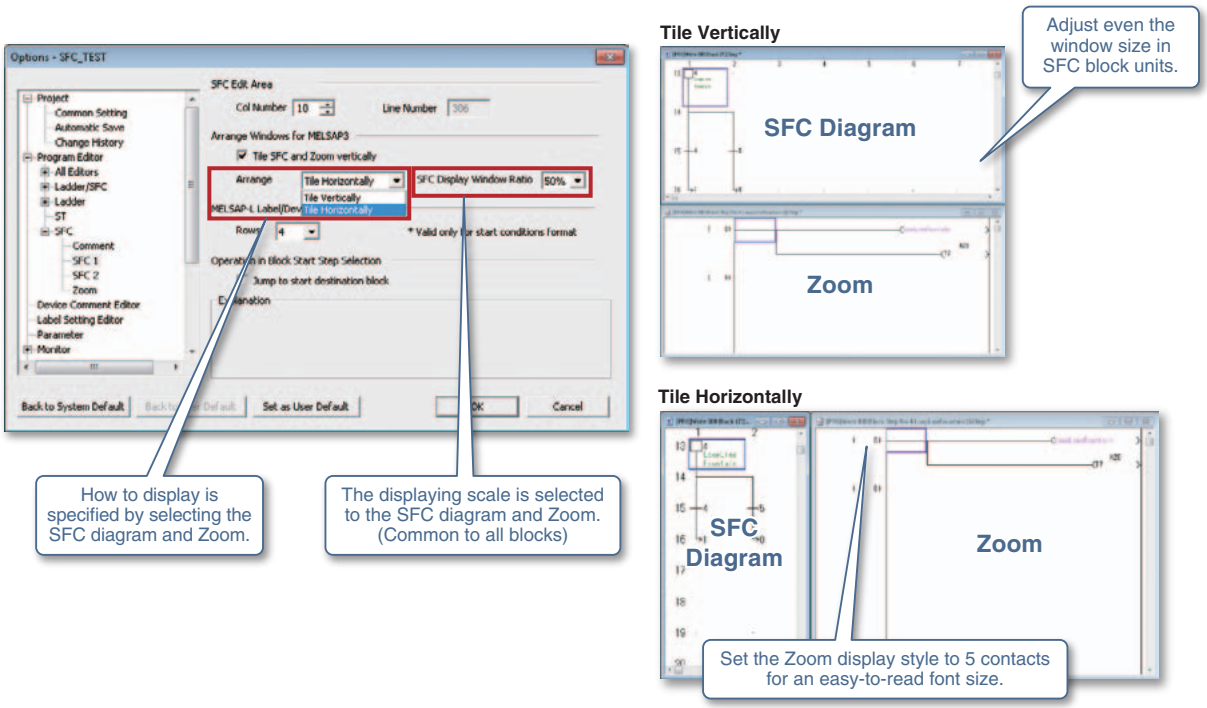
7 Enhancing program readability with wrapping ladder block

By wrapping a ladder block, a long and hard-to-read ladder program is displayed in a compact form.



8 Easier to view SFC diagram and Zoom

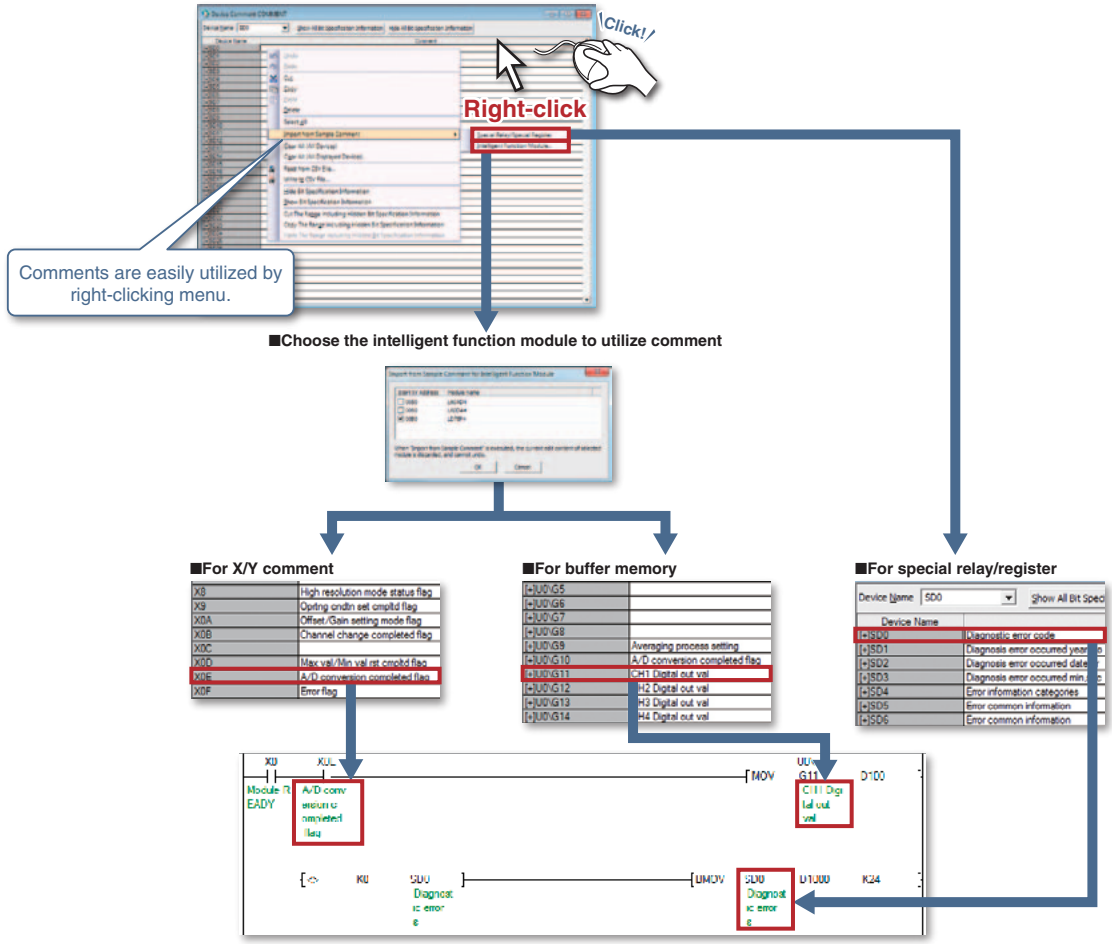
The scale of the window is changed to display the SFC diagram and Zoom.
Since the changed scale is retained, the windows are always displayed with the same layout.



▶ Comment

1 Utilizing sample comment saves time to input comments

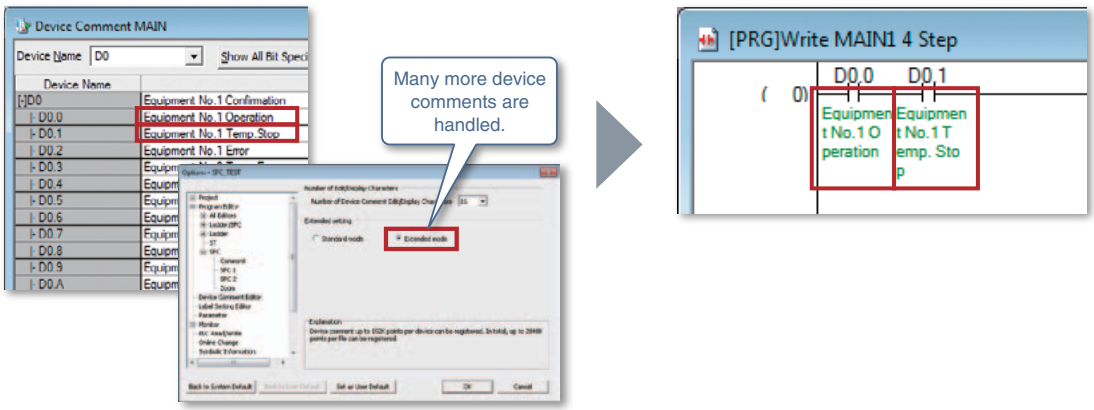
Pre-prepared special relays/registers of the CPU as well as the buffer memory/XY signal of the intelligent function module is copied as sample comments in the project comments.



POINT Time for entering device comments are greatly saved by utilizing sample comments.

2 Distinguish similar devices without bother

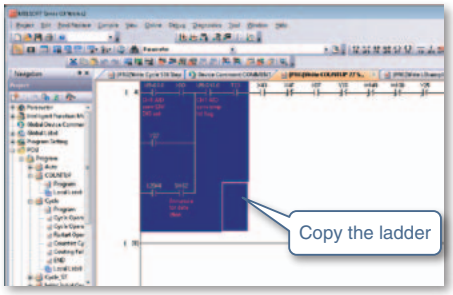
Set a word device comment for each bit to display the contents of the comment on the ladder.



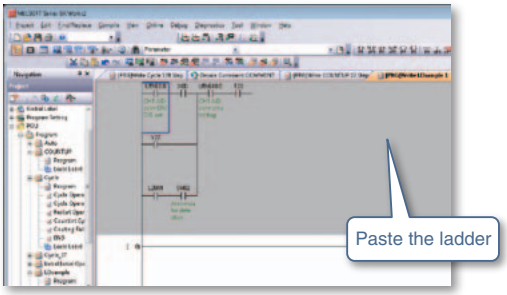
3 Easily copy and utilize device comments

Device comments are copied by copying the ladder of the ladder editor between projects.
When the copied ladder is pasted into the program, the device comments for hose devices in the copy source ladder are also pasted in.

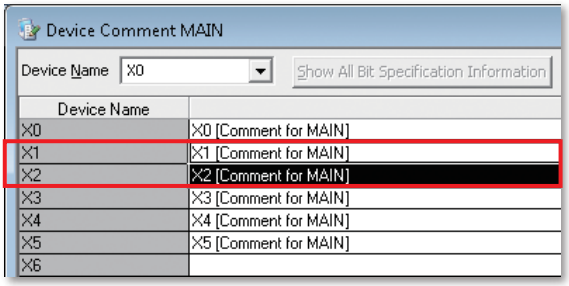
Program A ladder



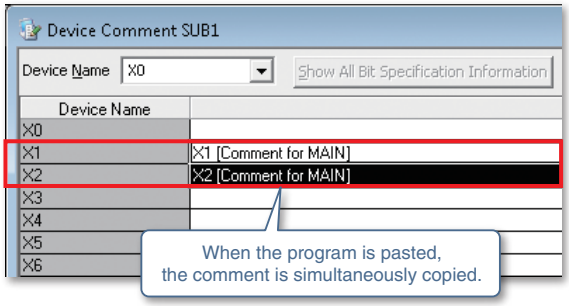
Program B ladder



Device comment in copy source program



Device comment in copy destination program

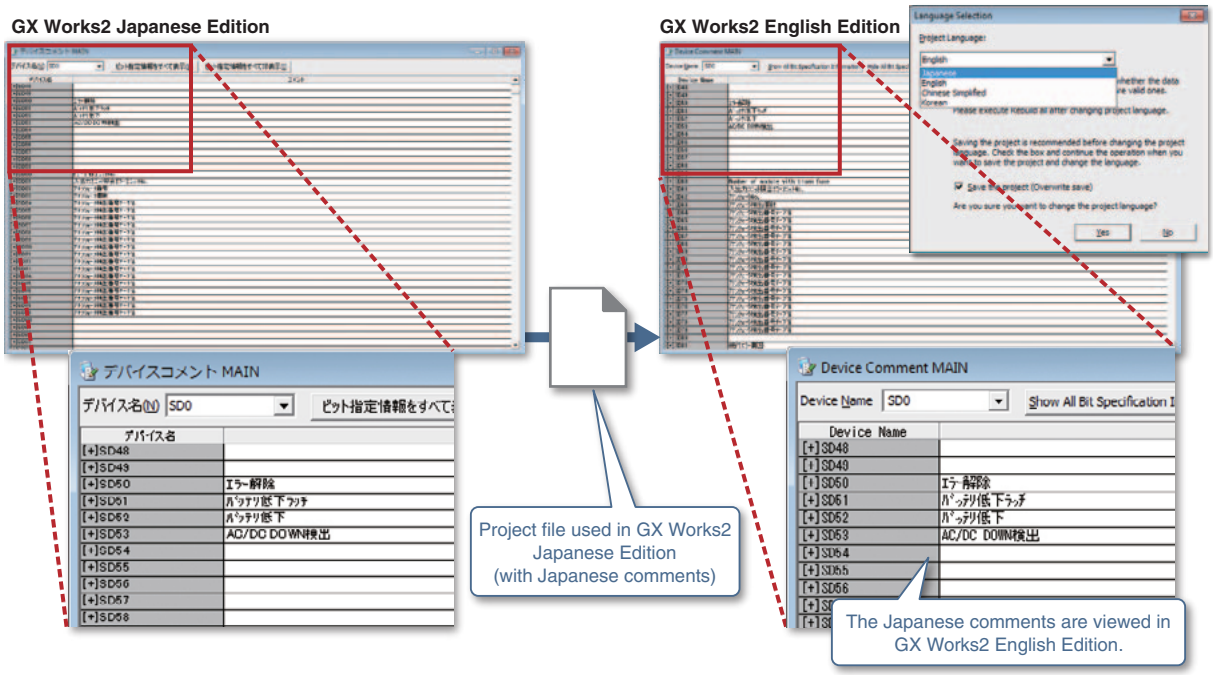


4 Utilize device comments created in other languages

Japanese, Chinese (Simplified and Traditional), and Korean comments are displayed in GX Works2 English Edition for seamless interoperation with international sites.

GX Works2 Japanese Edition

GX Works2 English Edition

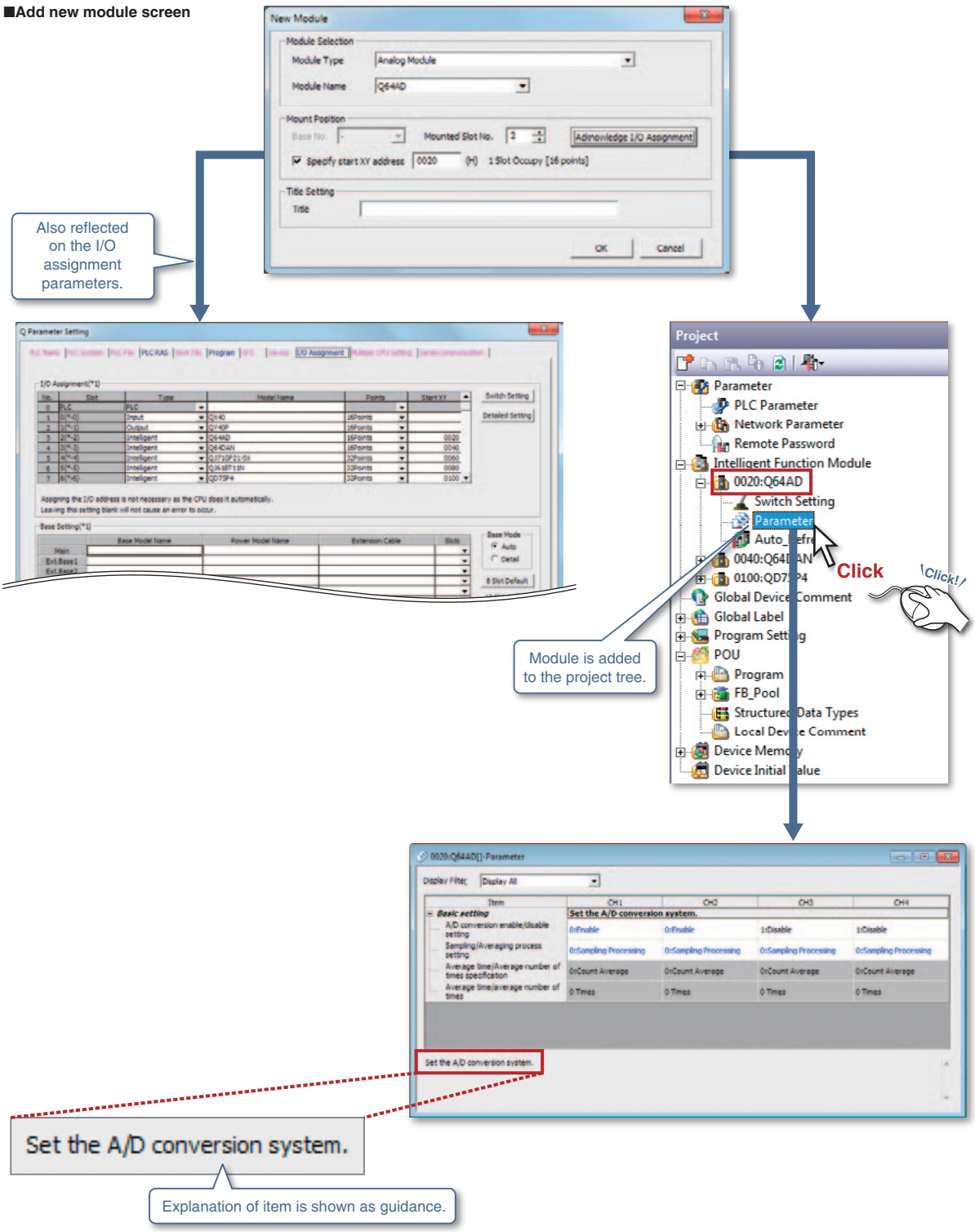


▶ Parameter setting

1 Incorporate a useful setting function from GX Configurator

The setting function of the intelligent function module is now integrated with GX Works2.
The intelligent function module settings are managed in a GX Works2 project.

■Add new module screen

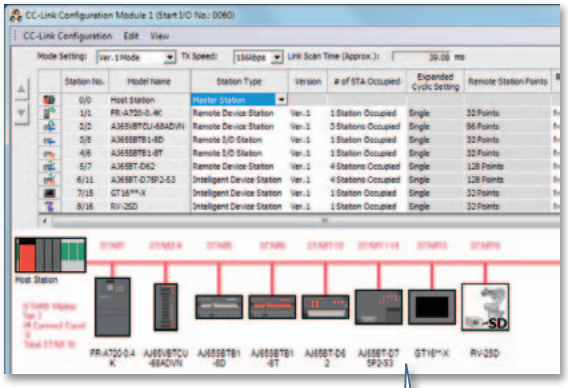


2 Displays device assignment of CC-Link

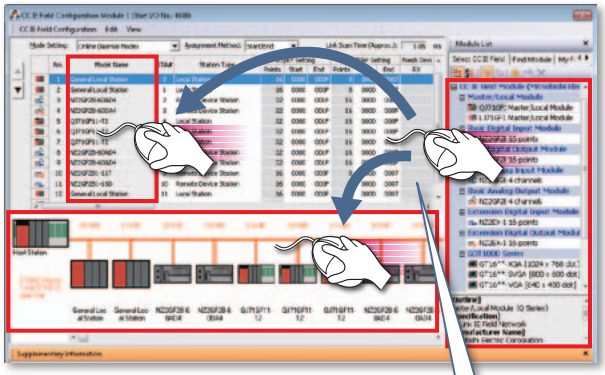
An equipment configuration diagram is created by using the mouse and arranging the image illustration of connected devices on CC-Link Configuration Window. A list of refresh devices assigned to CC-Link modules are displayed.

Partner products are imported by importing CSP+[*1].

*1) Refer to the CC-Link Association website (http://www.cc-link.org) for information on CSP+.

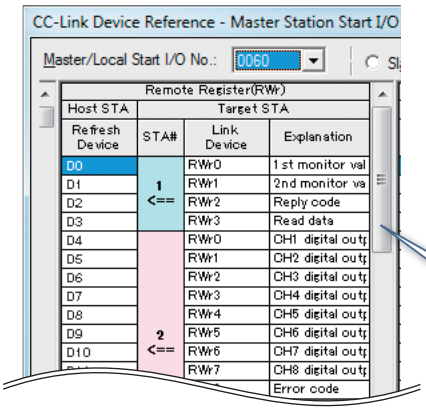


The equipment configuration diagram is created intuitively using CC-Link Configuration Window.



Drag & drop to add devices to connect. Operations are easy since parameters and link scan time are automatically set.

Start from the toolbar.



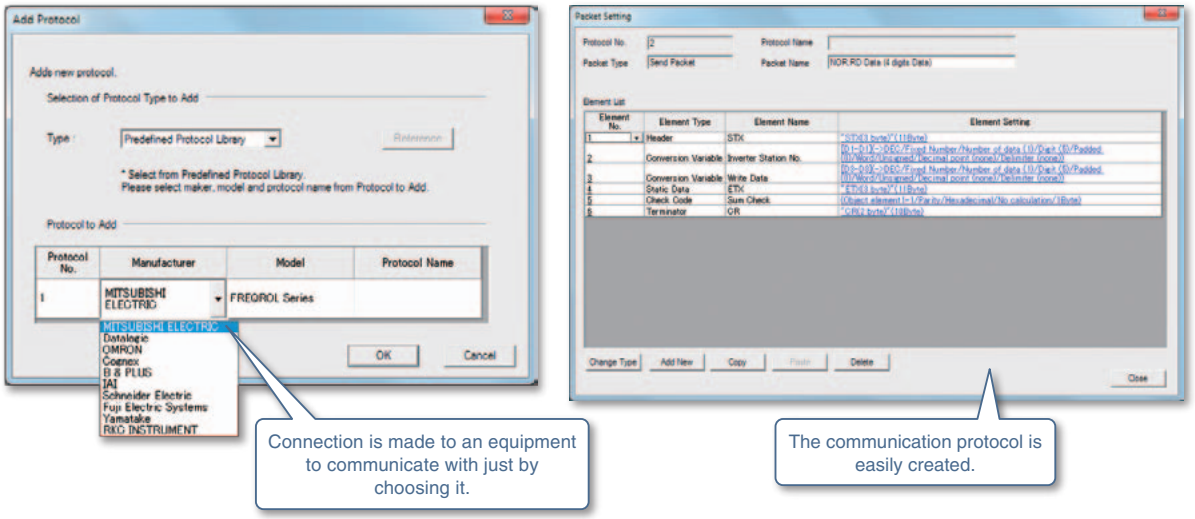
Display the device assignment list. Programming is made while viewing device assignment.

POINT

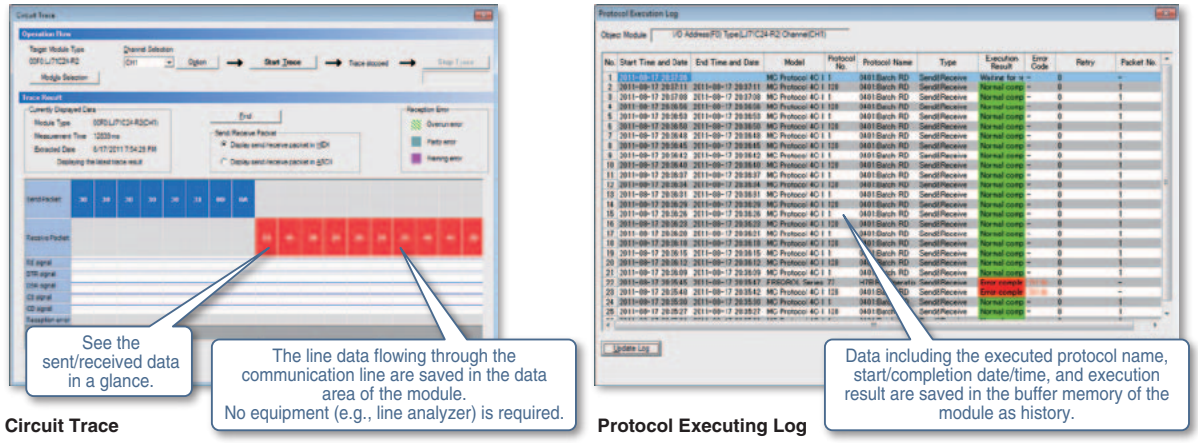
The device assignment information can be exported to a CSV file and imported into the global label information, making it easy to utilize the information in label programming.

3 Easy connection to serial communication device

Using the predefined protocol function of GX Works2, connection to a device you want to communicate with is quickly made just by choosing it from the predefined protocol library.
Even if the external devices are not registered in the predefined protocol library, the desired protocol is easily created.



The line data, communication signals, and status monitor are confirmed even if you do not have a line analyzer, making the debugging process easier.



Circuit Trace

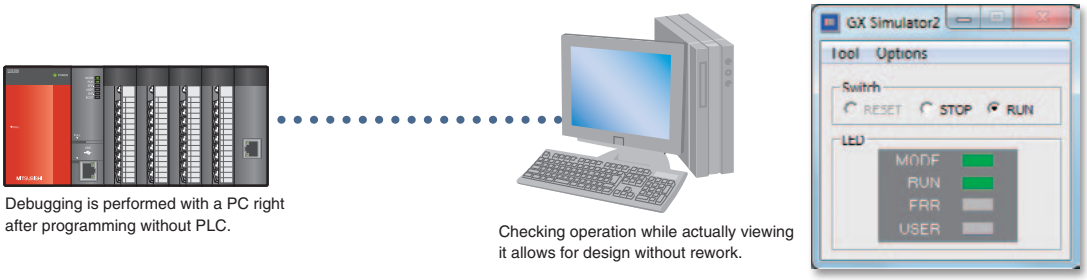
Protocol Executing Log

MEMO

▶ Debugging

1 Offline debugging without PLC

The simulation function is now integrated with GX Works2.
The program operation is easily checked on a personal computer.



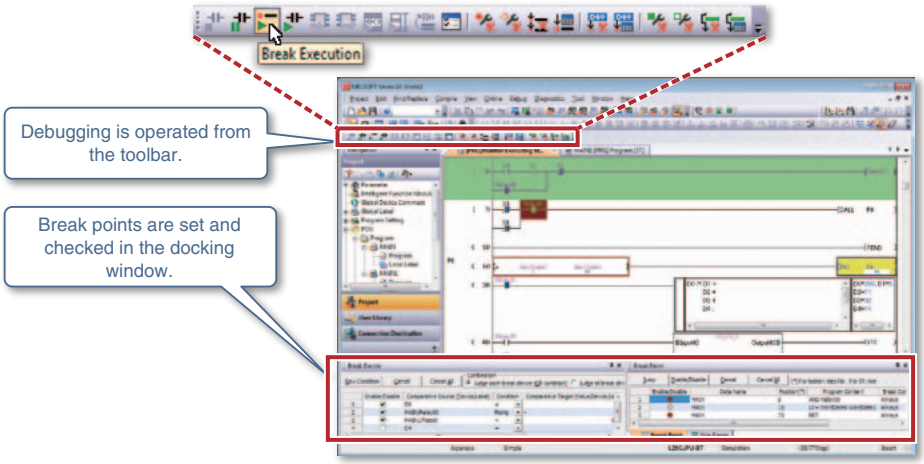
Debugging is performed with a PC right after programming without PLC.

Checking operation while actually viewing it allows for design without rework.

POINT Up to four GX Works2 projects on a single pc are available to simulate concurrently.

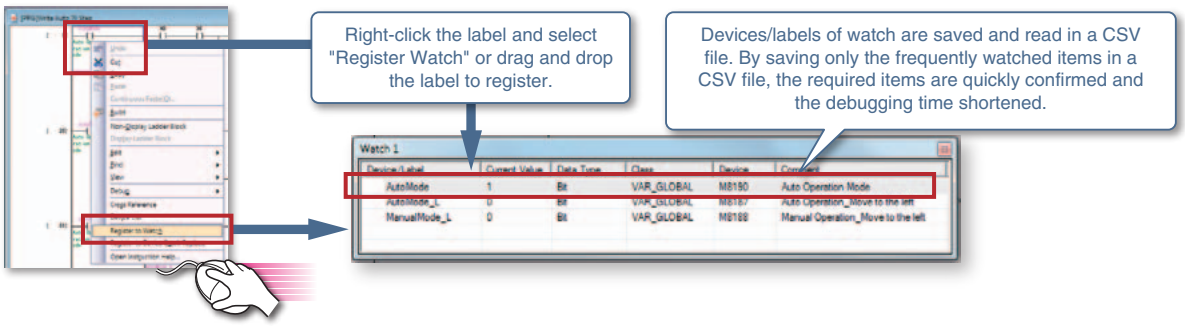
2 Simulation function helps program debugging

A program is executed in a step-by-step method using the simulation function, finding program errors more easily.



3 Watch windows for quick monitoring of device/label

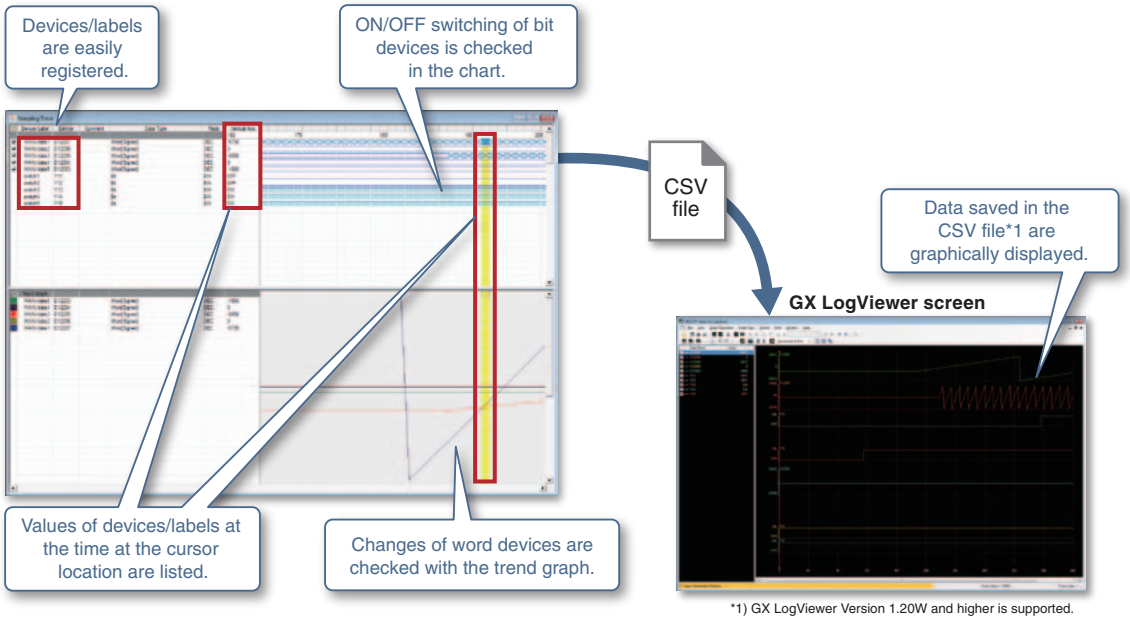
Arbitrary devices/labels are registered and monitored, allowing required sections to be confirmed quickly.



POINT The current value of the device/label is changed from the watch window.

4 Easier-to-use sampling trace

The device values before an after the designated conditions are established can be sampled and displayed in a timing chart. The trace results are saved in a CSV file allowing the device changes to be saved easily.



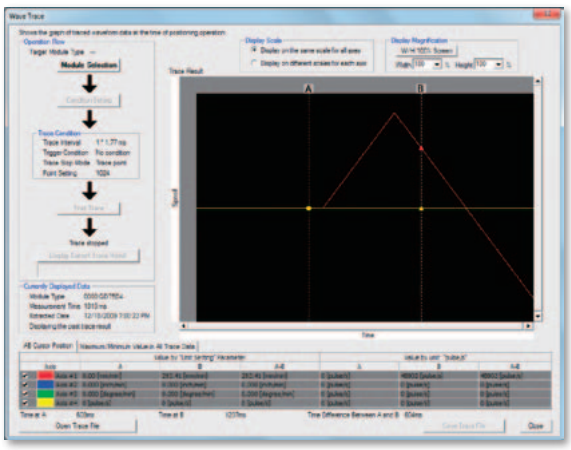
*1) GX LogViewer Version 1.20W and higher is supported.

POINT

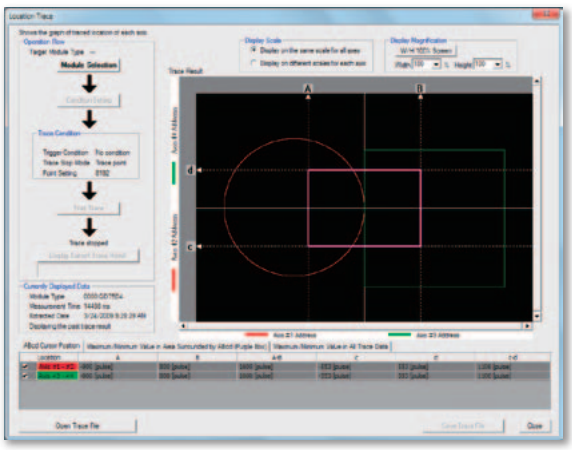
The sampling trace is also used in the simulation function.

5 Easier-to-view positioning trace function

Status of the speed command (axis speed), two-axis interpolation, and simultaneous start (two axes) are traced and displayed in a graph.
The value of each axis is visually checked during the online operation of the positioning module.



Trace function screen (Wave trace)

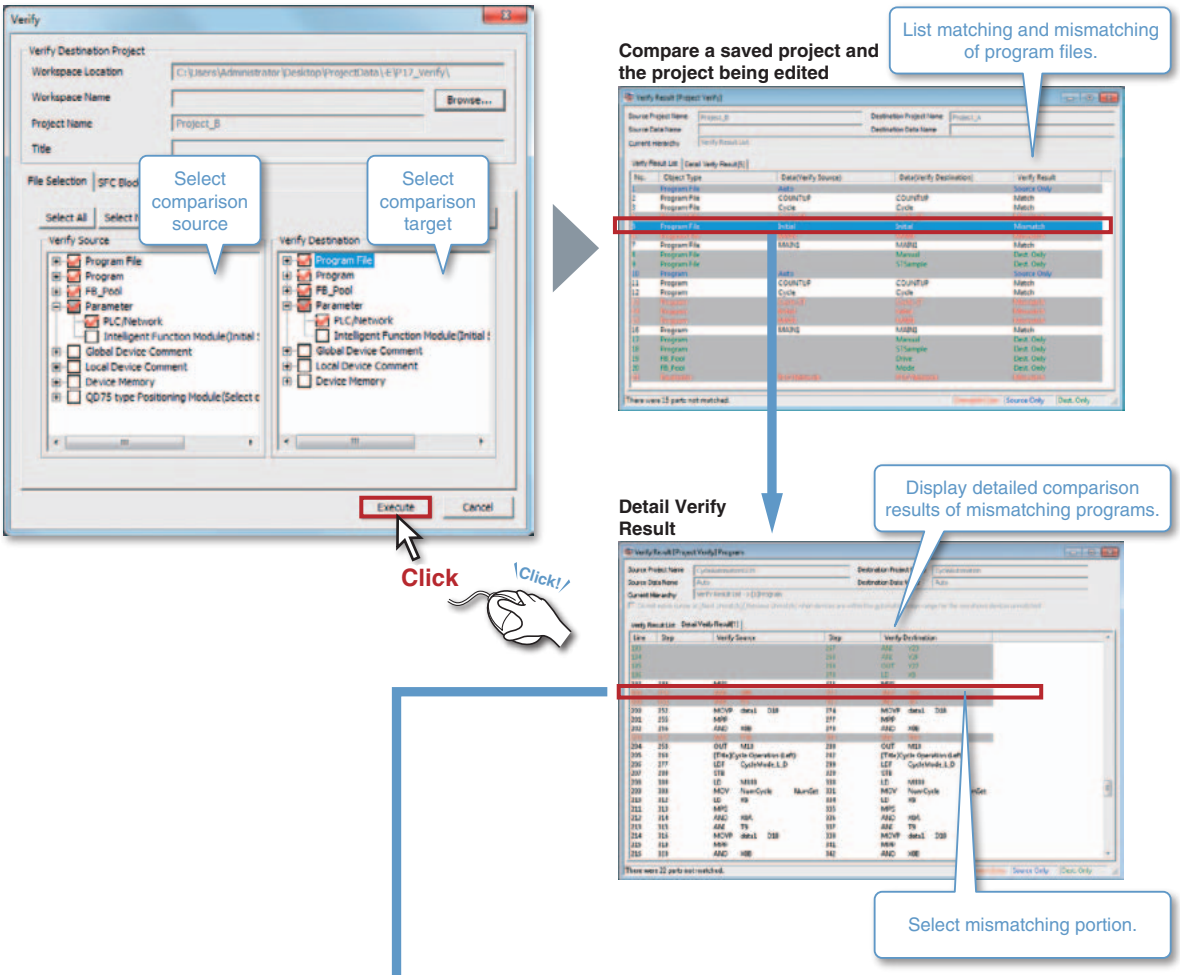


Trace function screen (Location trace)

▶ Operation and maintenance

1 Improved verification function

Verify data of an open project against data of saved project to display the result in an easy-to-view format. The parameters and the programs in the PLC connected to a personal computer also are verified against the data of an open project.



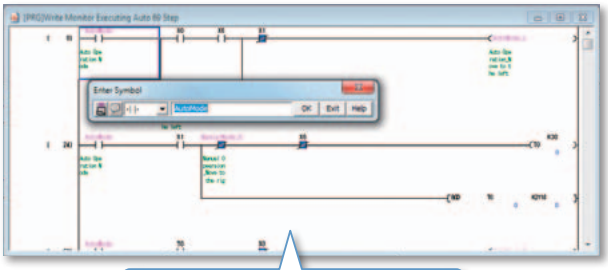
POINT **The verification result is saved to a CSV file to facilitate revision of design documents.**

2 Prevent edit error by Read and Monitor modes

Erroneous operations in monitoring and searching are eliminated by supporting the Read and Monitor modes similar to GX Developer.

Write mode/monitor (write mode)

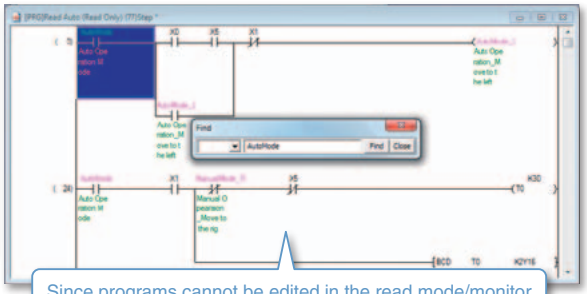
Enter Symbol screen opens by pressing Enter key.



In the Write mode/monitor (write mode), online program change during conversion/compile is performed to accelerate work.

Read mode/monitor mode

Find screen opens by pressing Enter key.

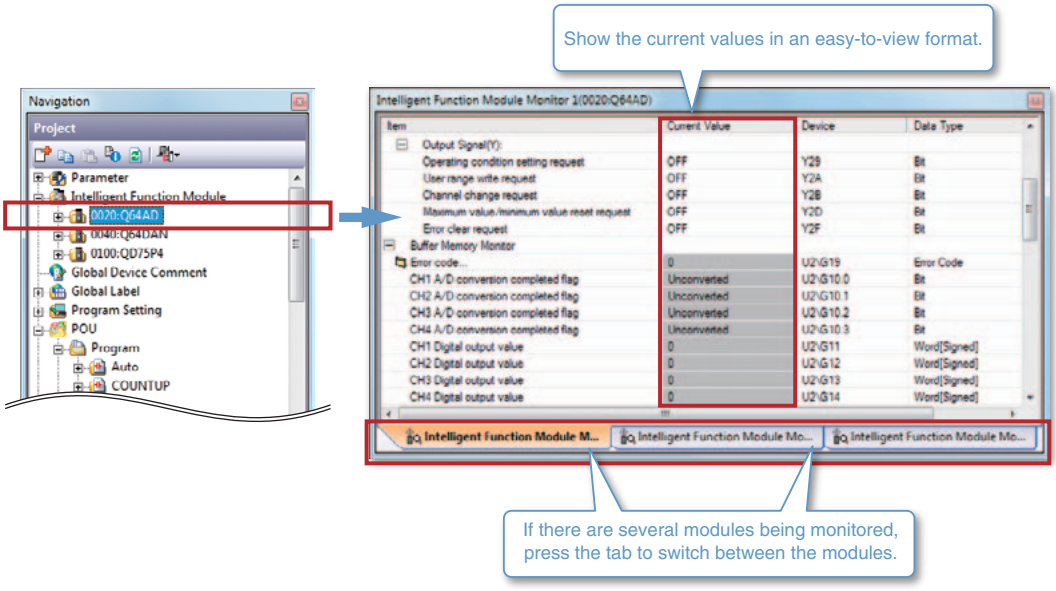


Since programs cannot be edited in the read mode/monitor mode, erroneous editing of the ladder is prevented. The display jumps to the next search candidate each time the Enter key is pressed.

POINT The same key operation as GX Developer is used to switch modes.

3 Easy-to-see monitor for intelligent function module

While watching the ladder program, the buffer memory/XY signal of the intelligent function module is monitored in the docking window. Since the name of each buffer memory address is displayed, so there's no need to refer to the manual to see for what the buffer memory is used.

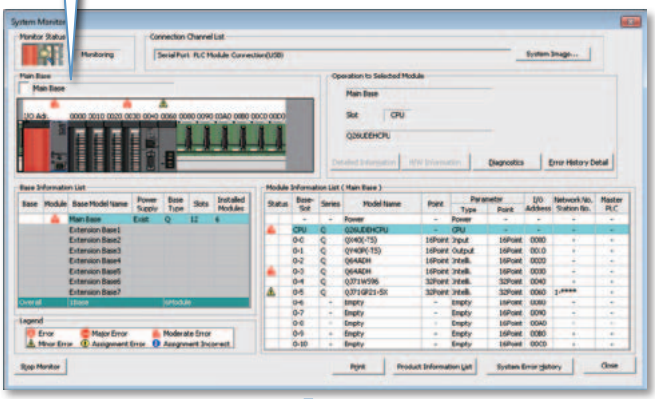


▶ Operation and maintenance

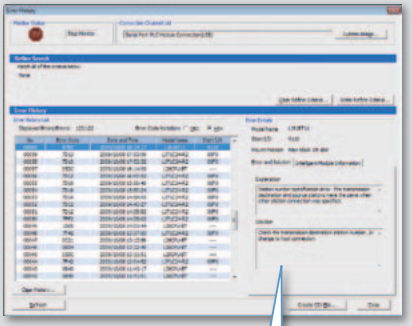
4 Visible System monitor function and PLC diagnostics

Operation status of the entire programmable controller system is clearly displayed.
Each module's diagnosis and detailed information is displayed on the monitor for the entire system allowing the problem point to be confirmed quickly.

The operation status of each module is checked at a glance.

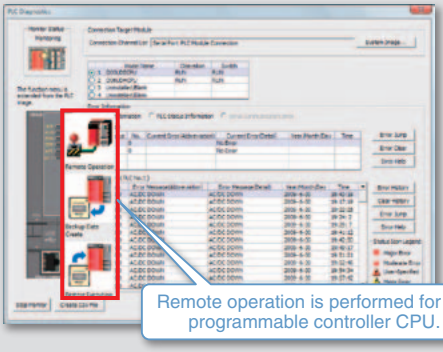


[Module error history collection function]
Error history of PLC and intelligent function module is viewed in time series.



Error details and solution are displayed to handle troubles without the manual.

[PLC diagnostics]
Error history of PLC is quickly checked to respond to a failure immediately. Also remote operation is performed onto the programmable controller CPU to reset it or format its memory.

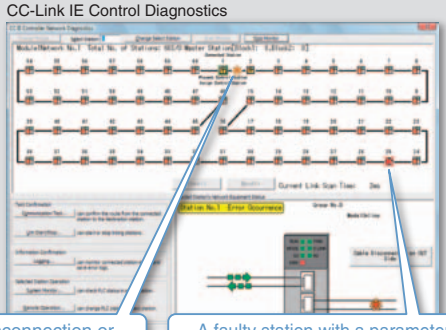


Remote operation is performed for the programmable controller CPU.

[Module's detailed information]
Display the module status, error details, and solution for the error. Immediate response is made to a module failure.

[Network diagnostics]
Display the status of the entire network visually so that a line trouble and module error are quickly found. Also, system monitoring of the PLC at another station is started via network.

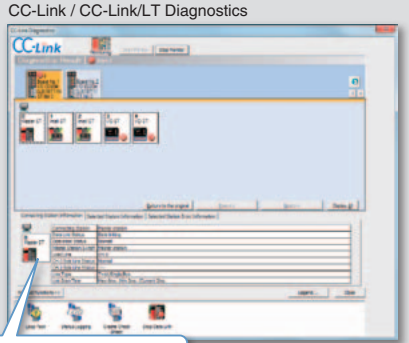
CC-Link IE Control Diagnostics



Disconnection or misconnection is easily found.

A faulty station with a parameter setting error or an erroneous stop is also easily detected.

CC-Link / CC-Link/LT Diagnostics

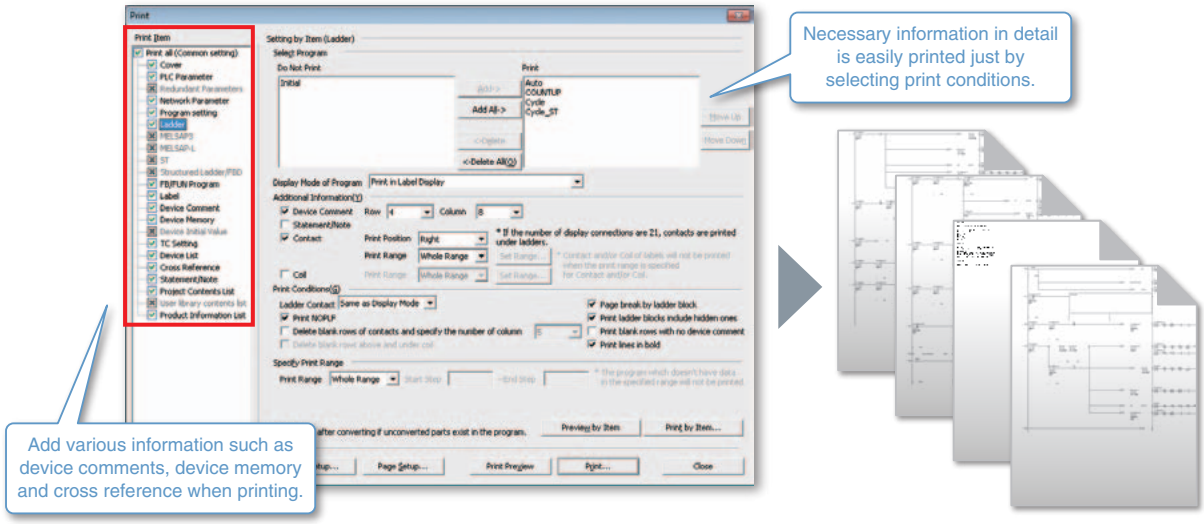


The selected module's information is viewed.

POINT **The system is diagnosed on a graphical screen which gives a feeling as if you are watching actual system and equipment.**

5 Rich print functions

Items to print are specified in details. Also, multiple programs are printed in a single operation.



6 Save and edit labels and parameters with Microsoft® Excel®

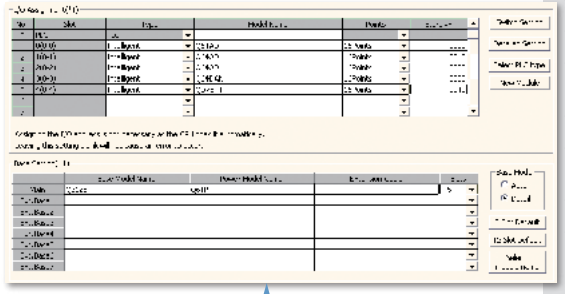
Various program data are exported as a CSV format file.

■Exporting the program data as a CSV format file has the following advantages:

- Data are confirmed even on a personal computer that doesn't have GX Works2.
- Data are saved in the personal computer.
- Data are mailed to a remote location.
- Secondary use of data, such as documentation and graphing, is possible using Microsoft® Excel®.
- Collaborate with other software by handling data in CSV format.

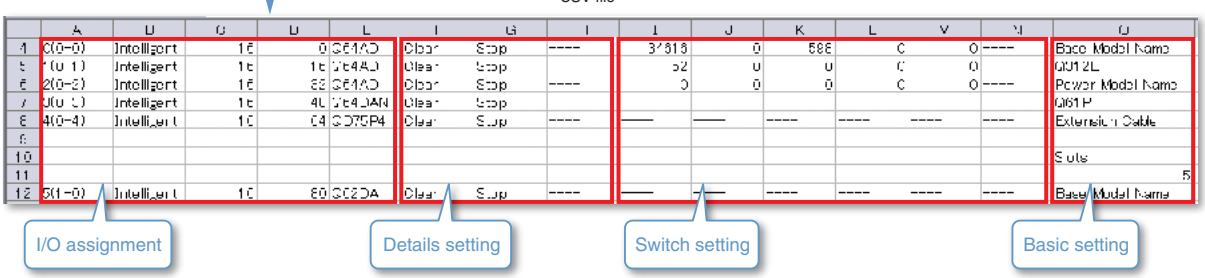
Example of I/O assignment setting CSV file

I/O assignment setting



- Ladder program ····· Write/read
- Label setting ····· Write/read
- Parameter (I/O assignment setting, X/Y assignment confirmation) ····· Write
- Verification results ····· Write
- Sampling trace function ····· Read (CSV file format that can be read with GX LogViewer)
- Watch window device/label list ····· Write/read
- Product information, PC diagnosis, module error history of system monitor for diagnosis functionLadder program ····· Write
- Device memory ····· Write/read

CSV file



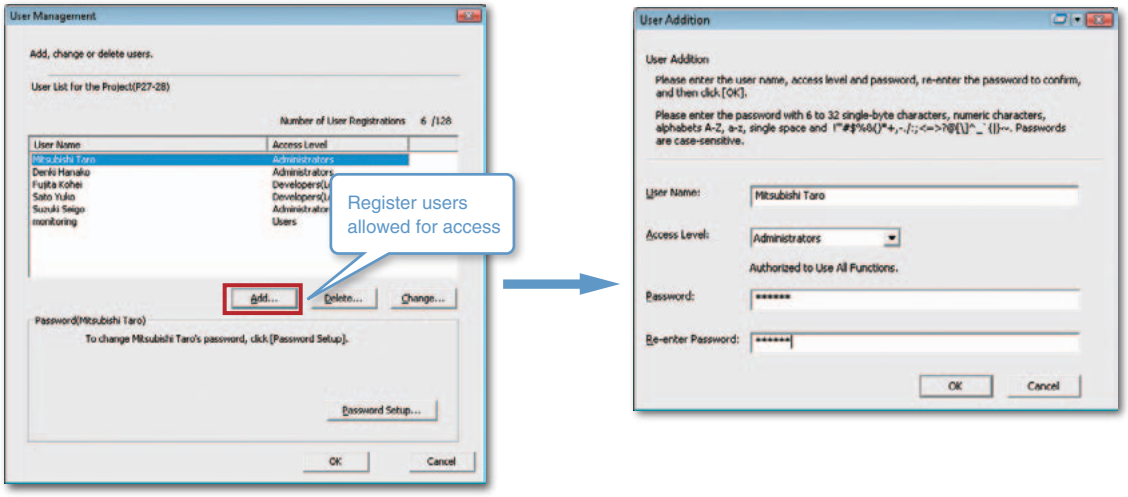
▶ Security

1 Detailed project security management

Project safety is maintained by limiting user access for each program and parameter.

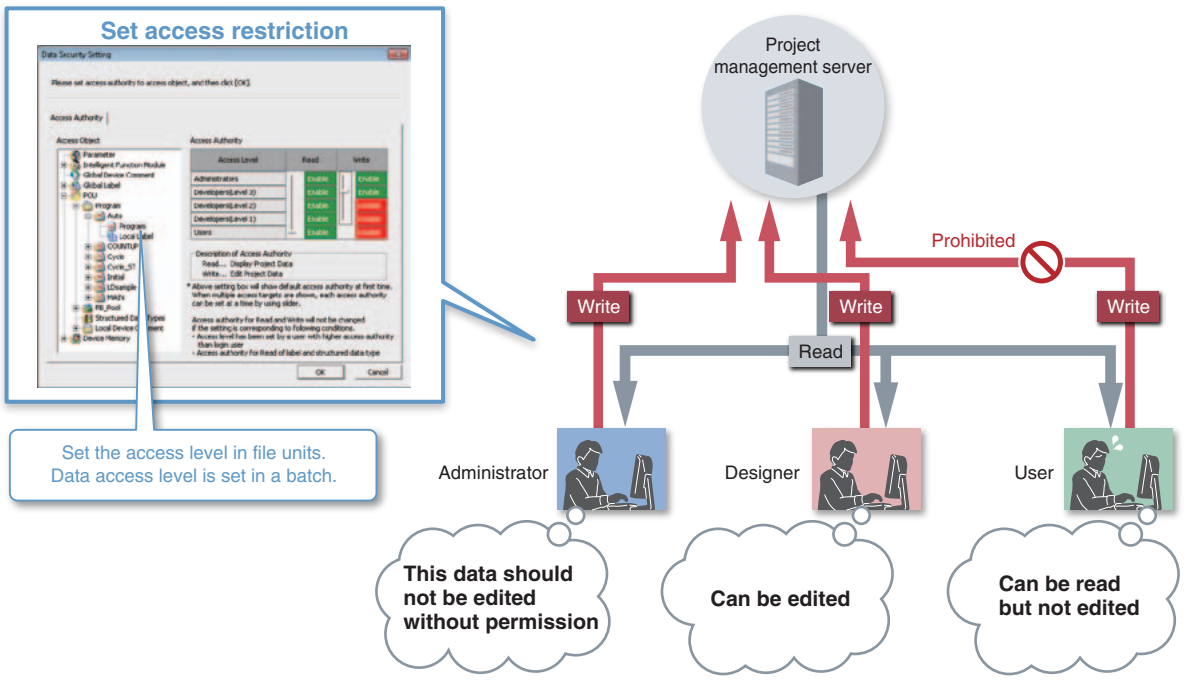
[User registration (addition, change, and deletion)]

The access level is managed for each user.



[Access restriction]

Setting security not only restricts an access to projects but also prevents the data created by the user from erroneous modification and/or disclosure to unauthorized users.

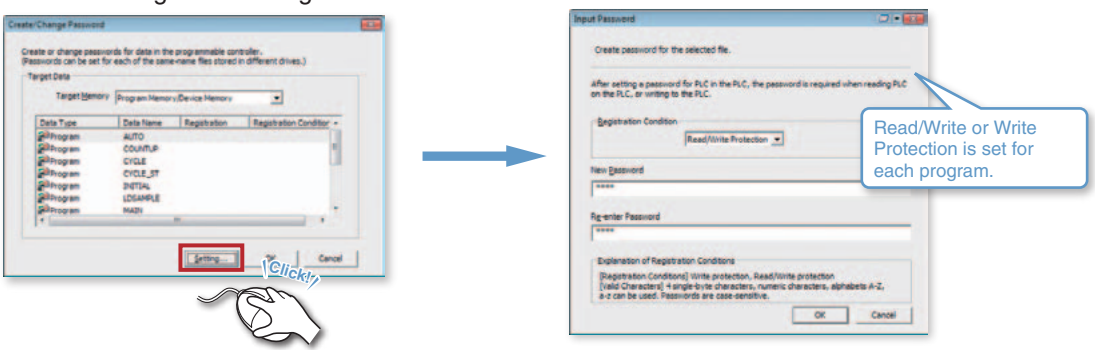


POINT When multiple persons take charge in the same project, unauthorized changes to the project data are prevented.

2 Protects the program

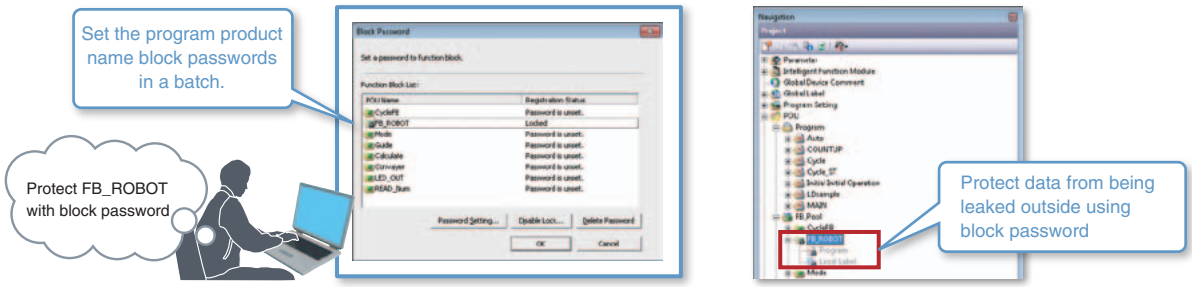
[Password registration]

By setting a password for a program in the programmable controller CPU, the program is protected from unauthorized change and leakage.



[Block password setting]

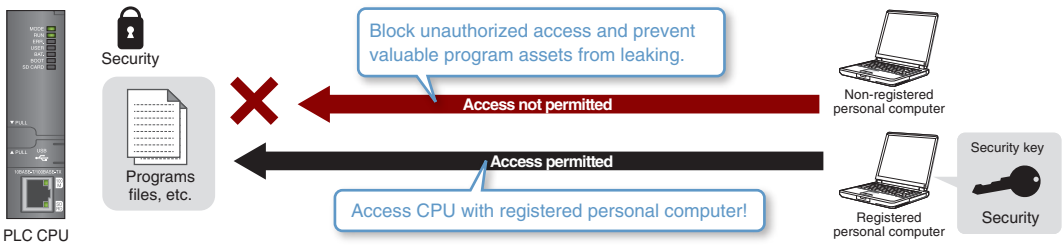
By setting a block password, the FBs in a project which contains in-house software expertise are protected from theft and leakage.



3 Prevents unauthorized access

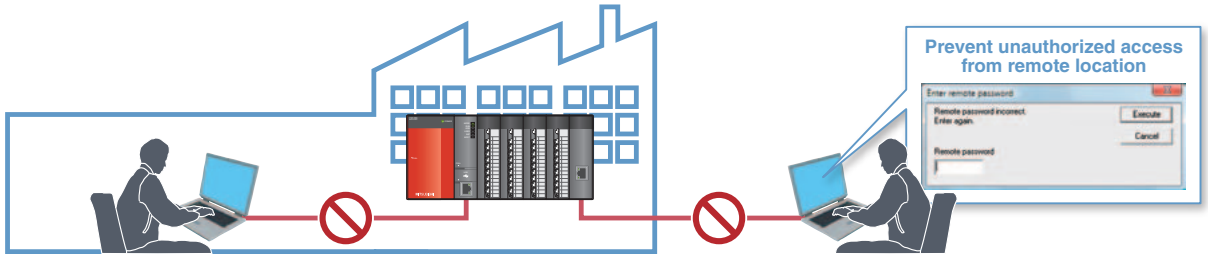
[Security Key]

By registering the devices that access the CPU, unauthorized access from non-registered devices is prevented.
Avoid unnecessary accesses, and prevent your valuable program assets from leaks.



[Remote password]

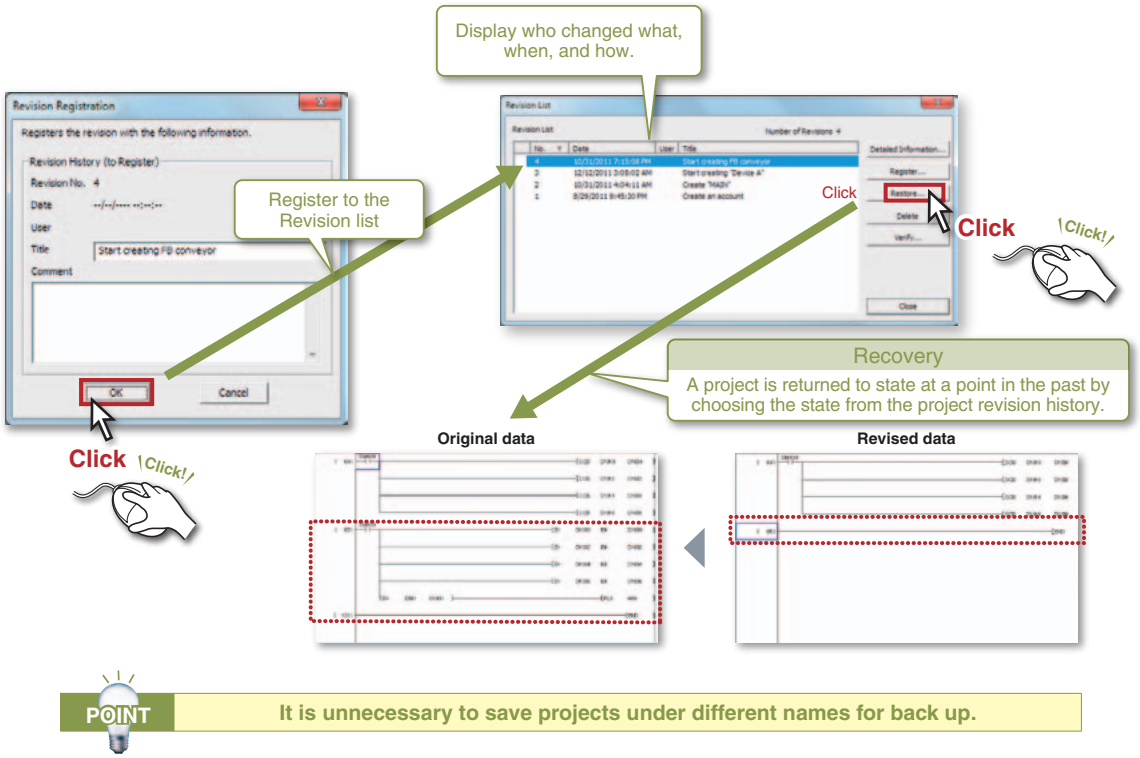
By setting a remote password, unauthorized access of the programmable controller from Ethernet or a public line is prevented.



▶ Project

1 Back up and restore a project easily

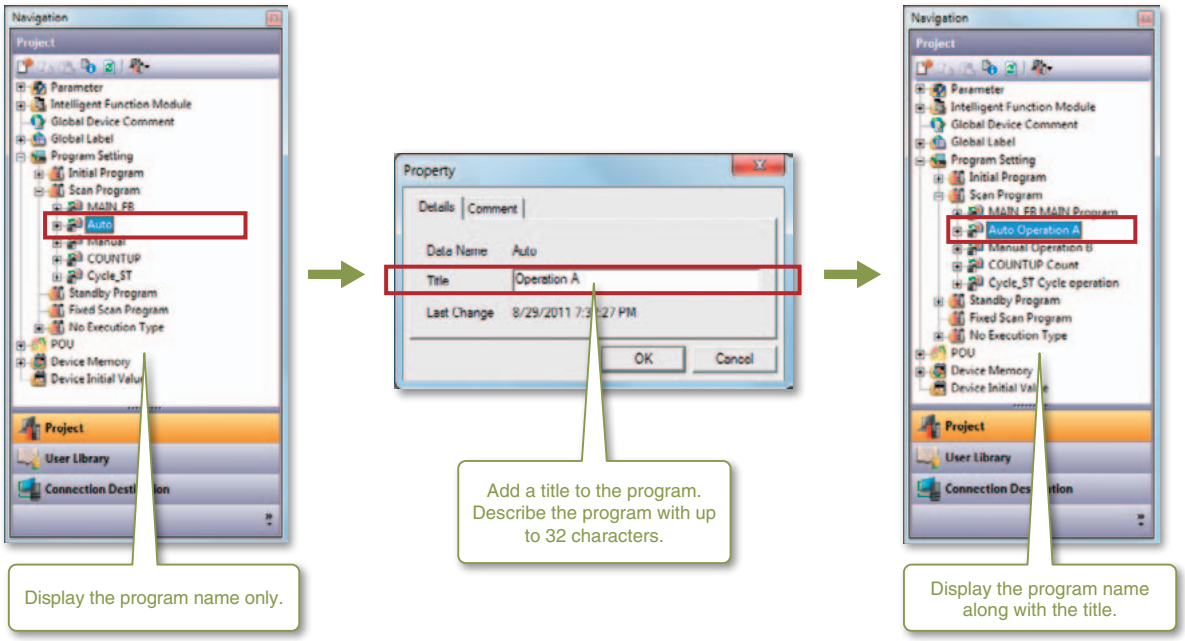
By registering the project revision history, the project is easily recovered to their original state.
Projects with a registered history are compared.



POINT It is unnecessary to save projects under different names for back up.

2 Program title display guides you

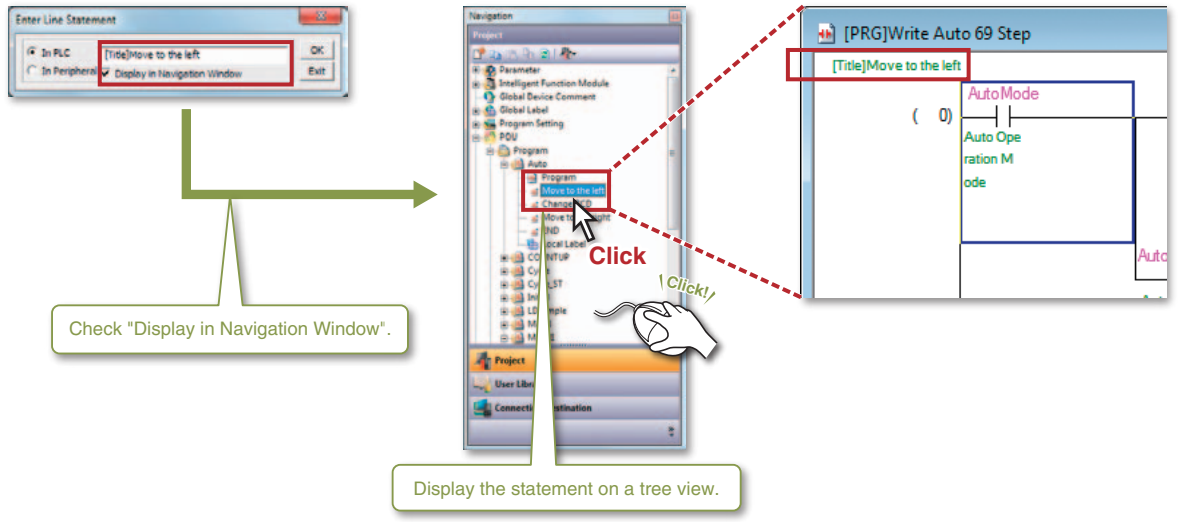
In addition to the program name, the program title is displayed, allowing the program contents to be understood at a glance.



3 Tree view offers easy-to-understand processing flow

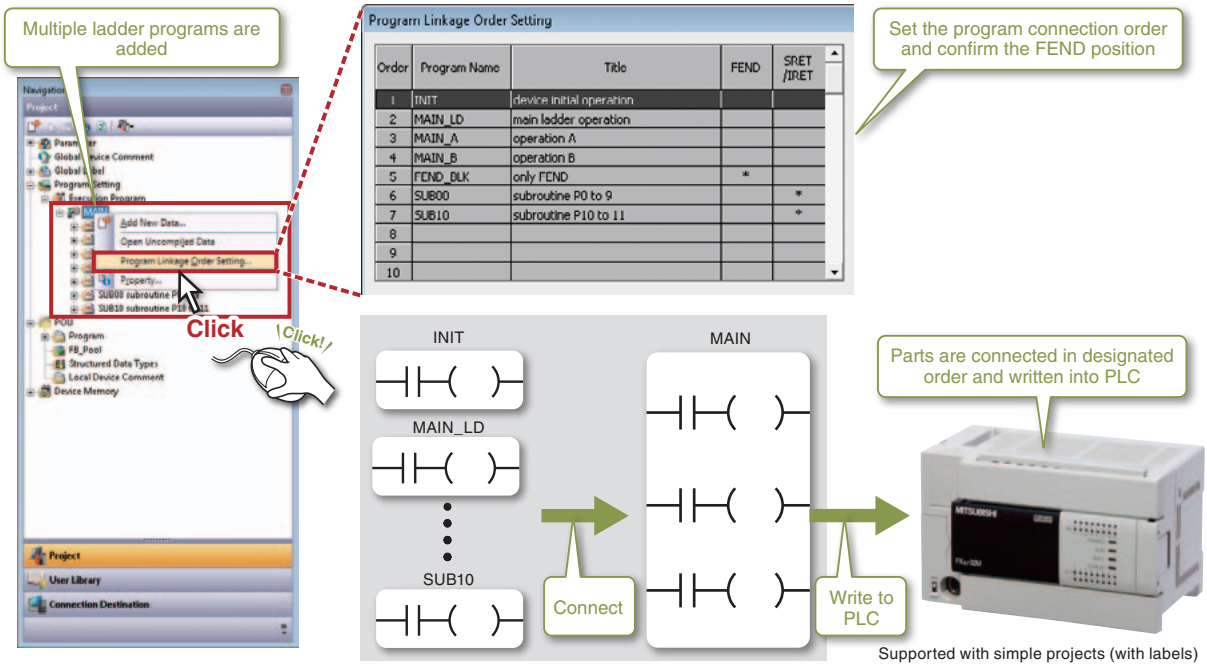
The statements appended to program processes are displayed on a tree view for easy access to them.
The processing flow and structure of the program are easily understood and jump to each process quickly.

Line statement entry screen



4 Handle multiple program parts with FX Series

The PLC program can be created with multiple program parts so the program configuration can be seen and parts can be easily used in other projects.

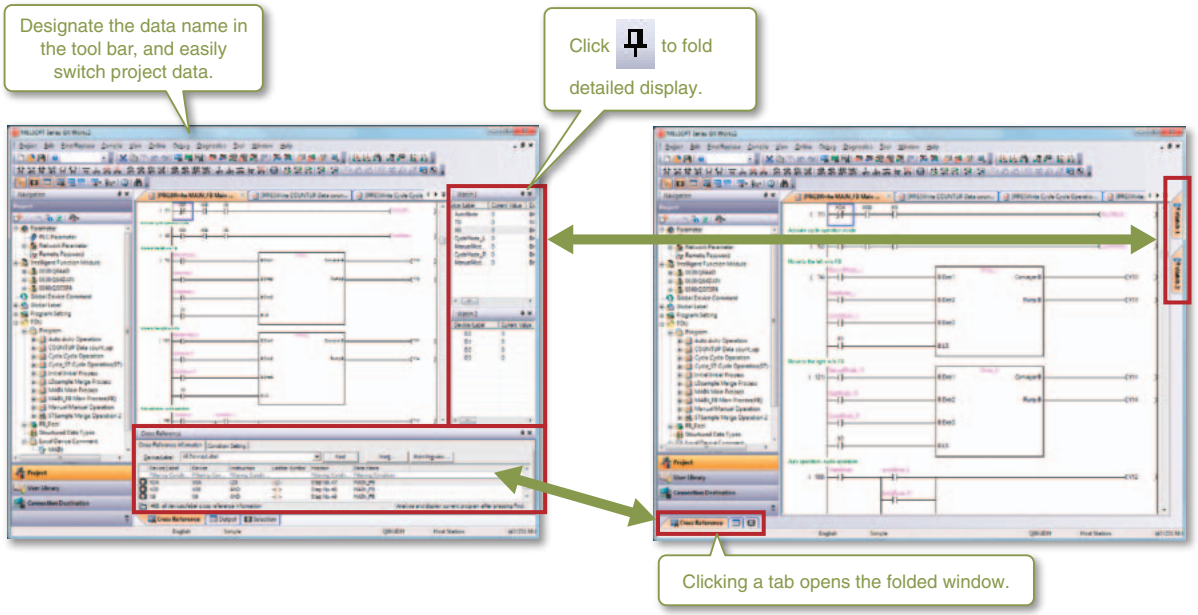


Supported with simple projects (with labels)

▶ Project

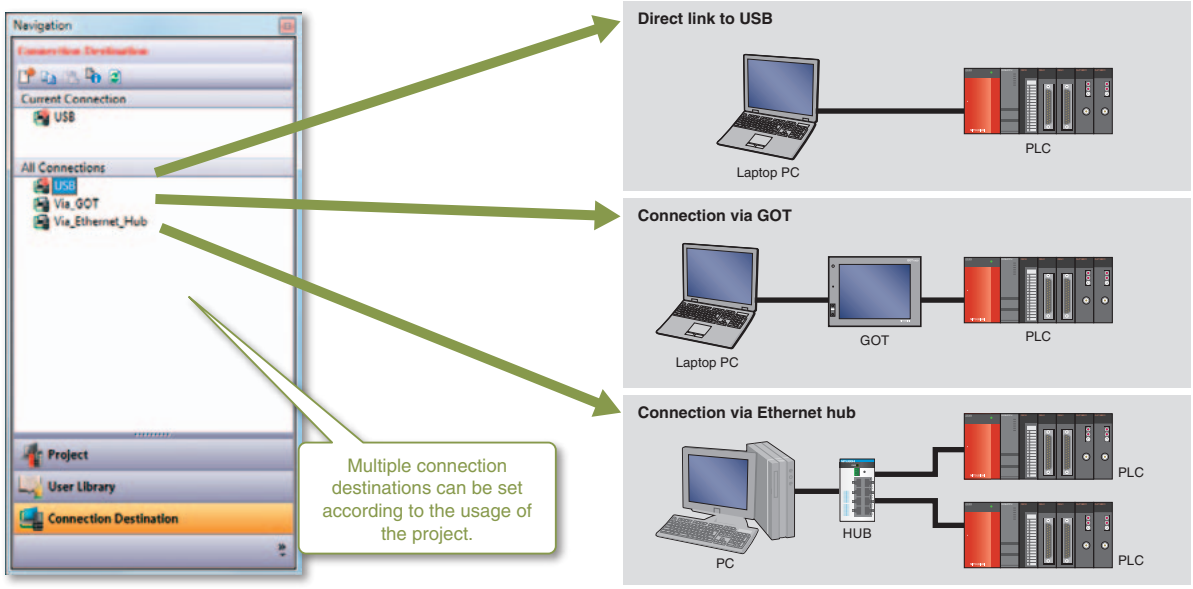
5 Fully utilize the wide and easy-to-read screen

The docking windows are hidden to use the screen efficiently.



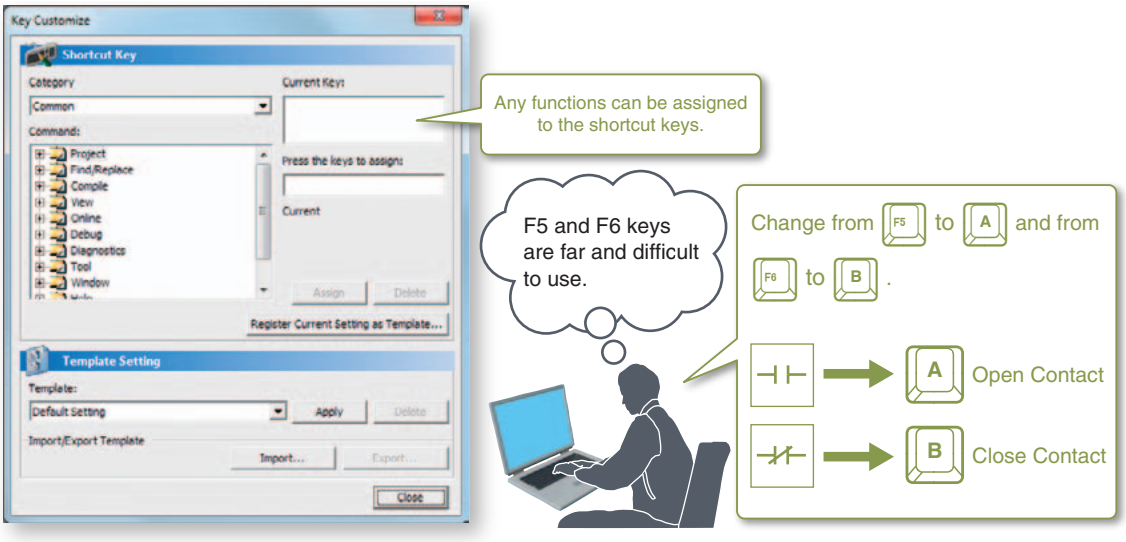
6 Easy connection destination setting

Frequently used multiple connection destinations are set and switched between them according to the use scenario.
It is unnecessary to save projects for different connection targets.



7 Customize keyboard key arrangement

Key customization allows you to arrange keys as you like.
Key customization is saved in a file and reused.

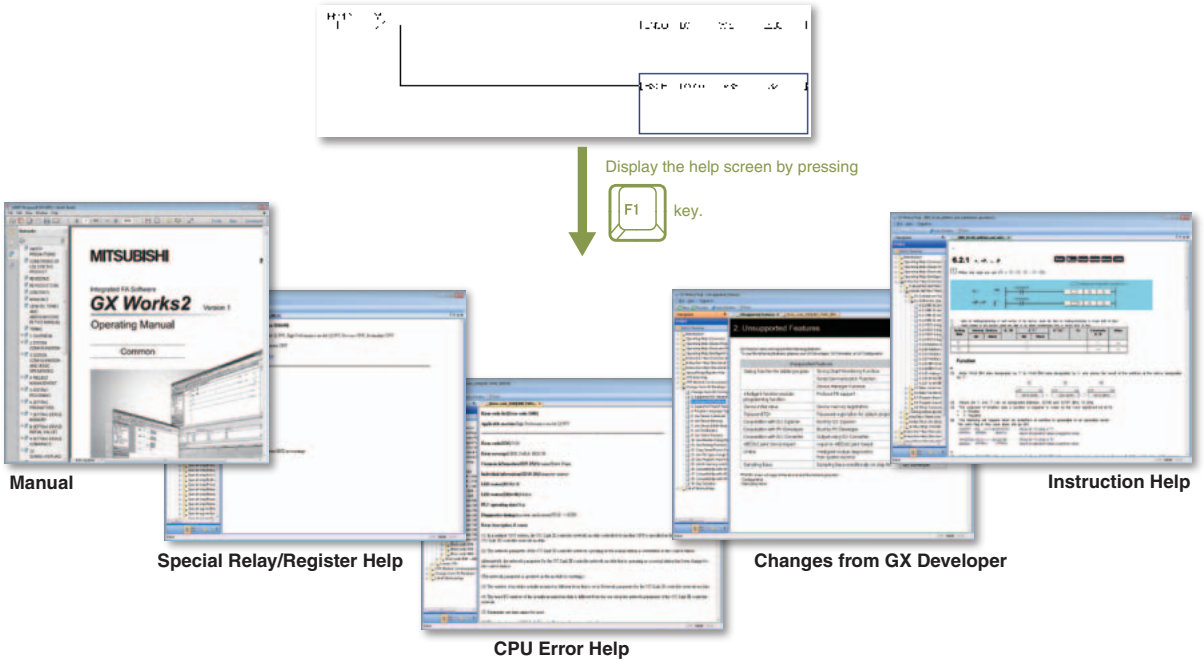


POINT

Keys are assigned to menu items with no shortcut keys assigned but used frequently.

8 Help information guides you operation method

Displaying Help information with a single keystroke makes it easier to confirm the operation.



POINT

Frequently used help screens are bookmarked.

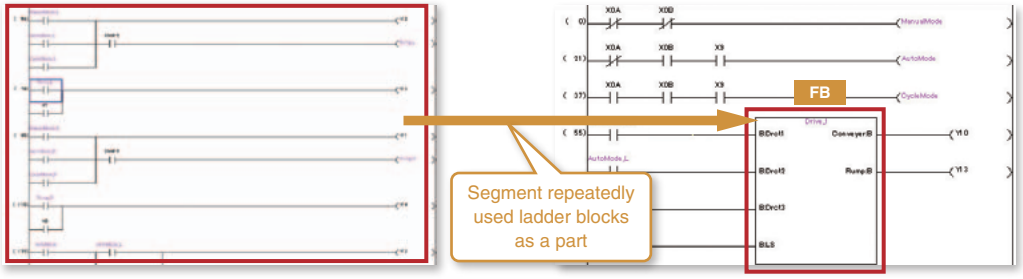
▶ Segmentation of program

1 Make it easy using FB

■What is a Function Block (FB)?

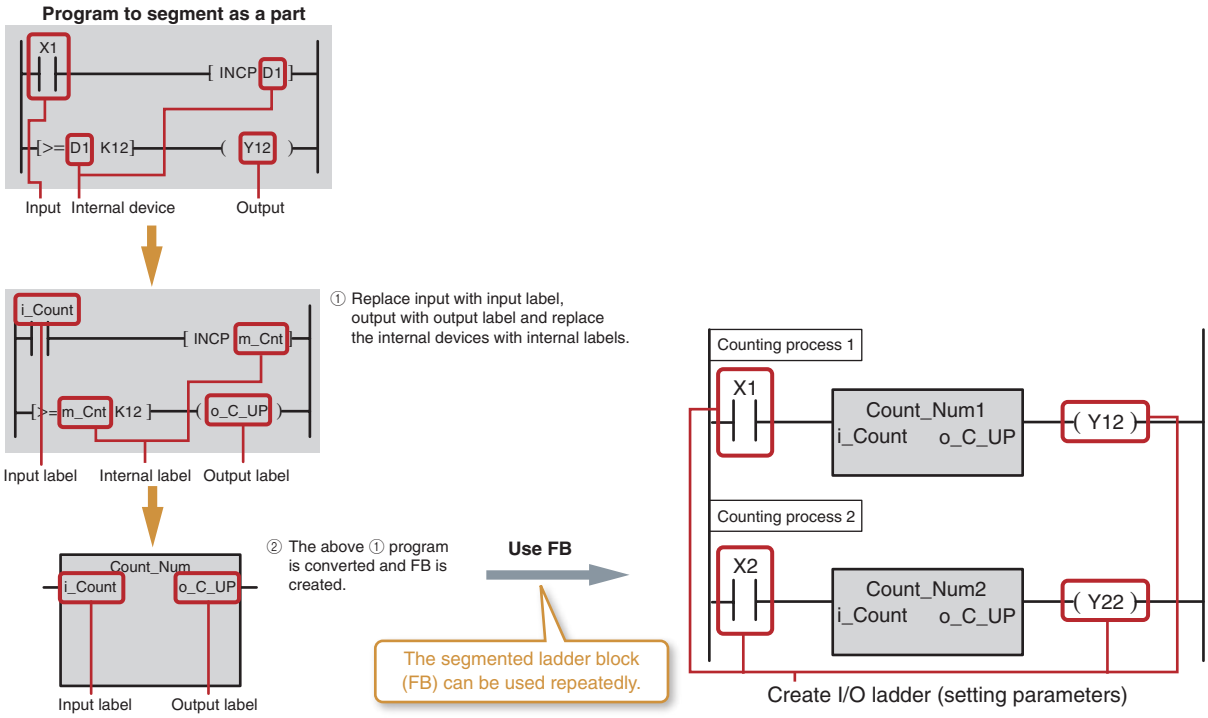
Function Block (FB) is a ladder block frequently used in a sequence program and segmented as a part for reuse within the program.

FB improves program development efficiency and reduces programming errors to ensure higher program quality.



■Segmenting a program

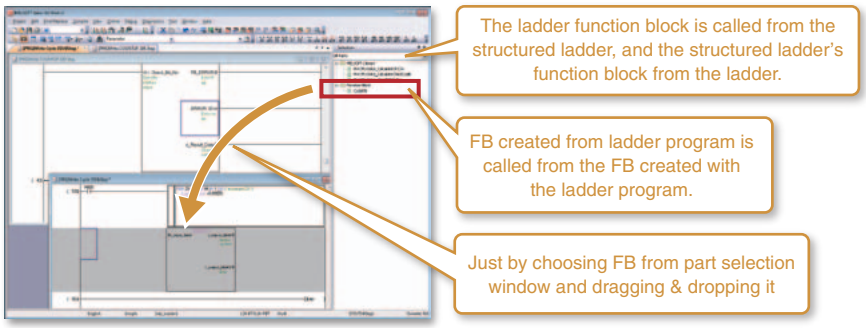
Example) This count process program turns the output signal (Y12) ON after the input signal (X1) turns on for 12 times.



■Advantages of using FB

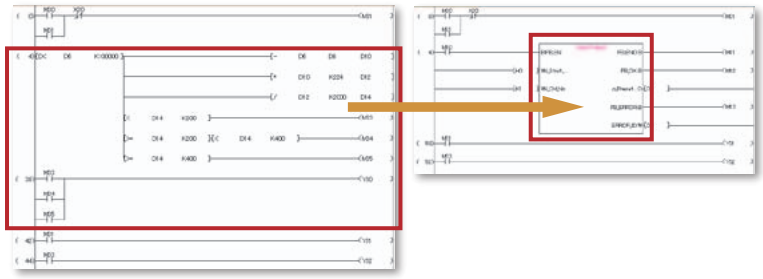
Advantage 1: Easier programming

A sequence program is created just by dragging and dropping FBs.
This significantly reduces program development processes.



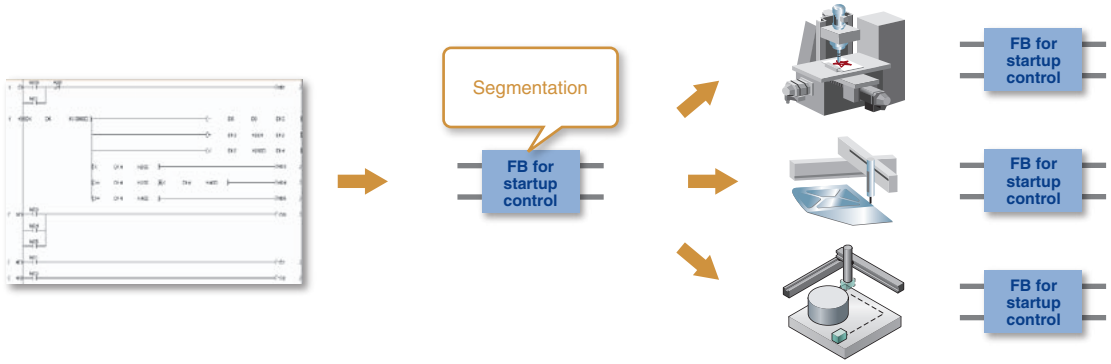
Advantage 2: Improved readability

Using FBs in a sequence program improves its readability because the program only consists of "boxes" (FBs), inputs, and outputs.



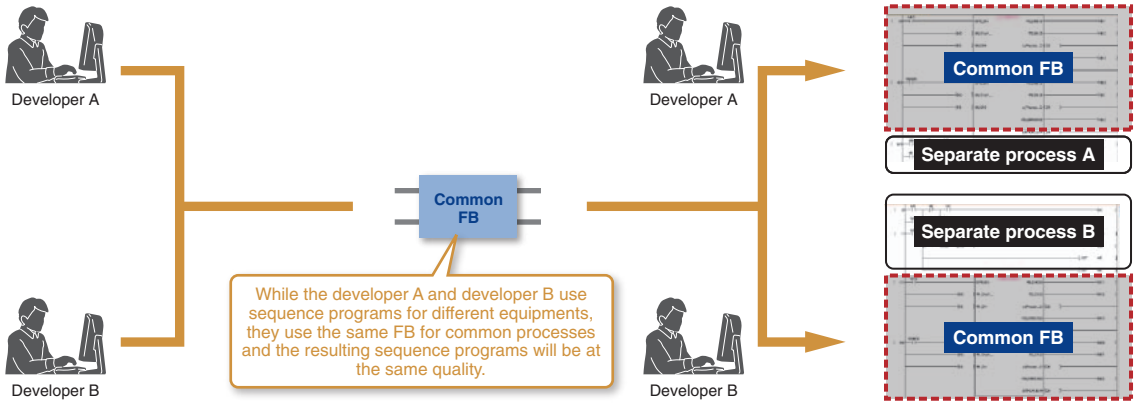
Advantage 3: Reusability

By segmenting standard programs as parts, they are reused as many times as required.
You are no longer required to copy an existing program and then modify devices.



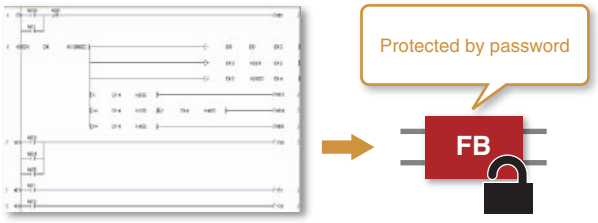
Advantage 4: Higher quality

By segmenting standard programs as parts (FBs) and reusing them, program quality will be uniform and independent from the skill levels of the developers.



Advantage 5: Theft prevention

By segmenting an important sequence program involving technology expertise as a part (FB) and protecting it with a password, it will be protected from leakage.



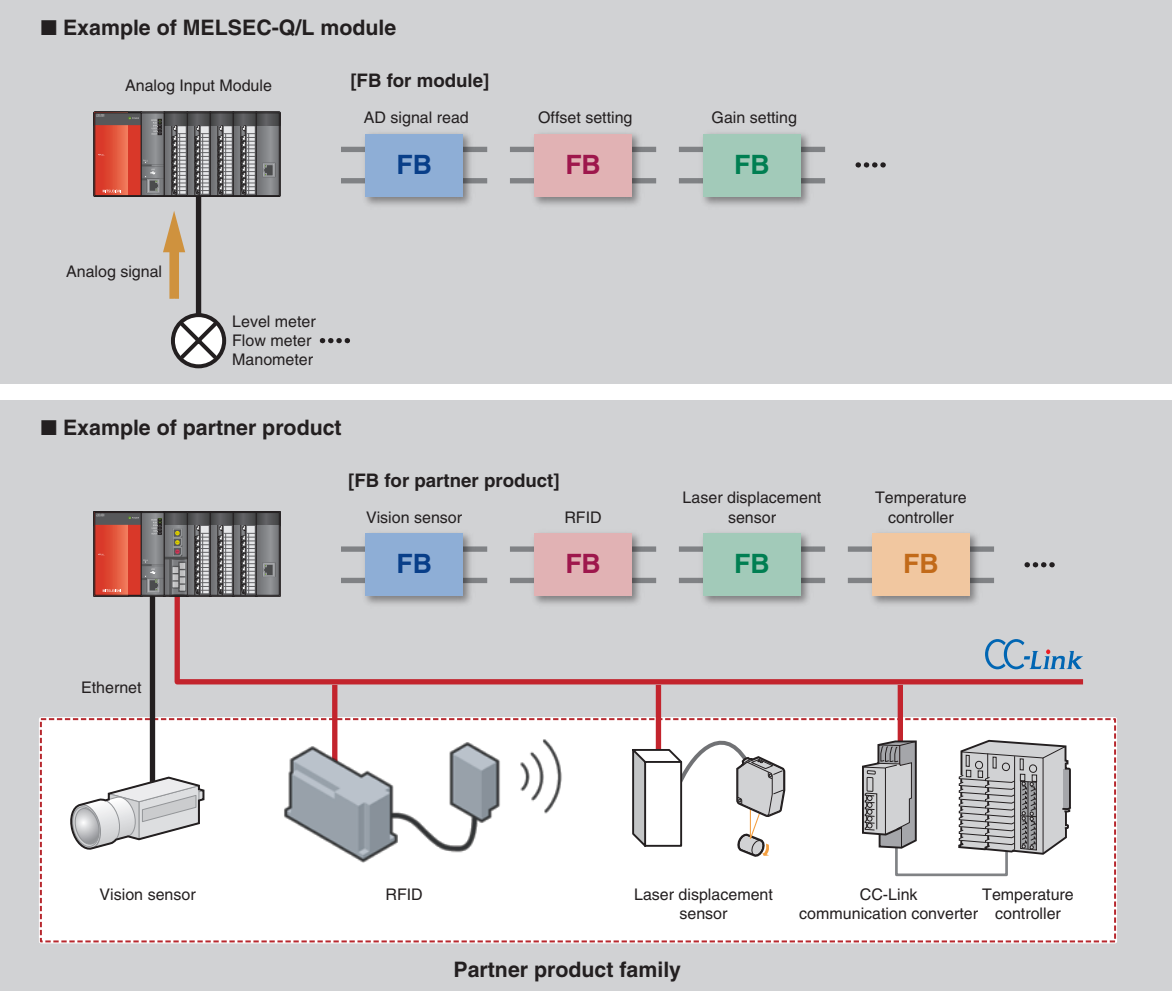
▶ Segmentation of program

2 Useful FB libraries supplied by vendors

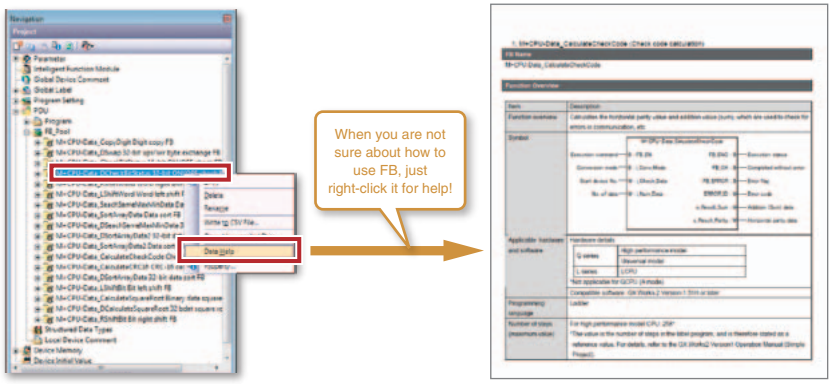
■What is FB library?

An FB library is a collection of FB parts which is used in simple projects of GX Works2.
By using these FBs, settings and operation of the MELSEC-Q/L modules as well as partner products are configured.

In addition to the custom FBs, useful FB libraries supplied by our partners are available. These FBs are downloaded for free from the Mitsubishi FA website's MELSOFT Library. The MELSOFT Library has more than 500 FBs from eleven companies, and is scheduled to continue expanding.



When how to use an FB is not certain, right-click it on the FB Selection Window to display the help information.



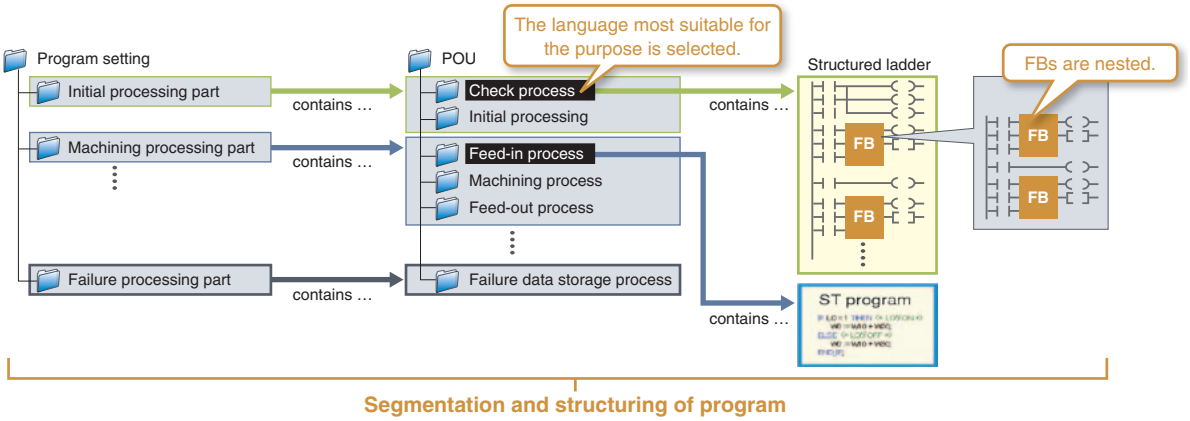
MEMO

▶ Label programming/Structured programming

1 Structured programming

■From a roll of ladder program to structured programming

By using a Structured project, a large and complicated program is structured and segmented according to the processing details, control details, and functionalities.
A "roll" of ladder program tends to be difficult to view the entire processing. On the contrary, by designing a compact program module for each process in structured programming, coding and debugging will be more efficient and the program quality will be also improved.
It also supports complicated structured programming by allowing for a nesting structure which puts a FB in another FB.



2 International Standard IEC61131-3 (JIS B 3503) compliant

GX Works2 conforms to the international standard IEC61131-3 (JIS B 3503).

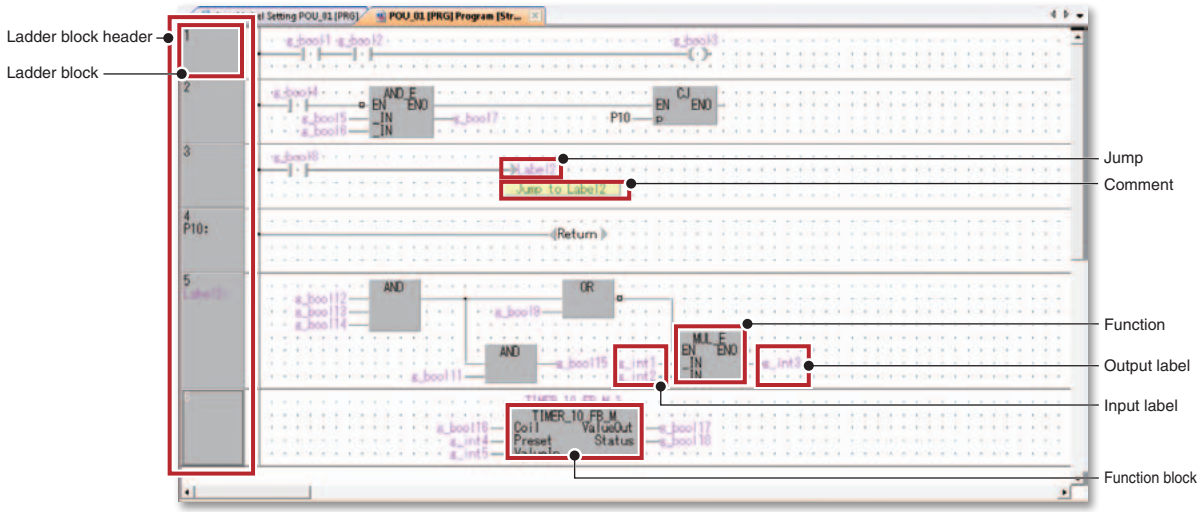
Graphical language

■Ladder language

This graphical language represents a program as a ladder which consists of contact points and coils.

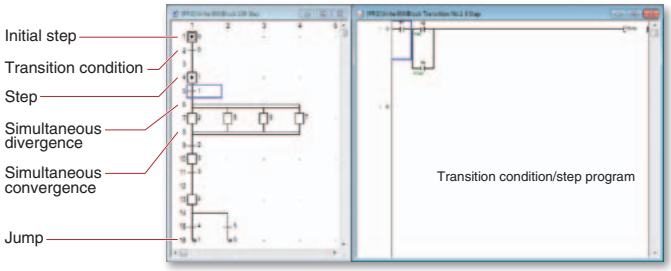
■Structured ladder/FBD language

The structured ladder language is a graphical language used according to the design technique of the relay circuit. The structured ladder allows for nesting FBs. The FBD language graphically represents a ladder by connecting functions and/or FBs.



■SFC language

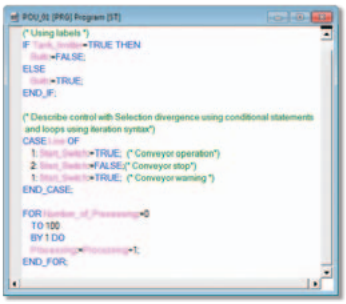
A graphical language for comprehensively describing sequence control.
This language pairs a step which describes a process with a transition condition to move to the next step.
The step and transition condition are described in the ladder language.



Text language

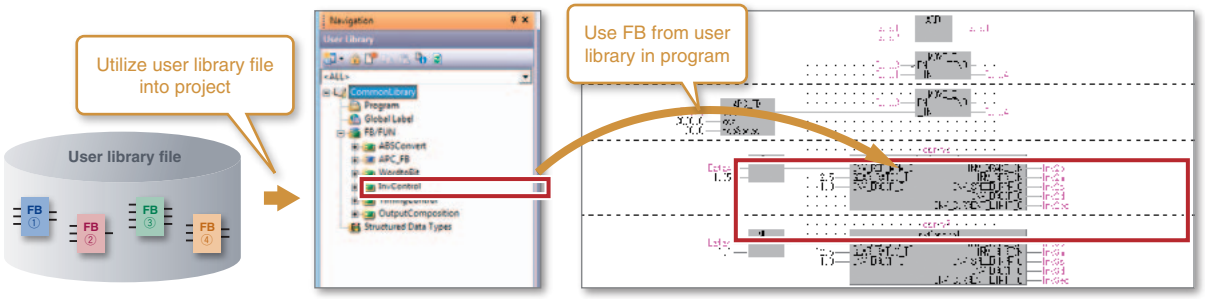
■ST (structured text) language

The ST language allows for describing control with selection divergence using conditional statements and loops using iteration syntax, similar to high-level languages such as C. This helps creating comprehensive and concise programs.



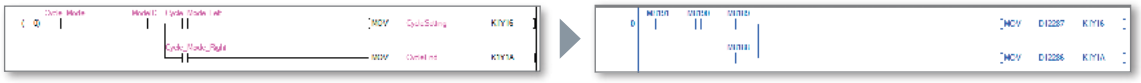
3 Improve development efficiency using user libraries

With structured projects, frequently-used programs are saved in user library files separately from the project. By importing these user library files into a project, the program is developed efficiently without having to create it from scratch.



4 Device-unconscious programming

Labels are used to give easily identifiable names such as “Production line start signal” or “Start parts supply” to the device.



POINT

Using labels eliminates device assignment upon system changes.

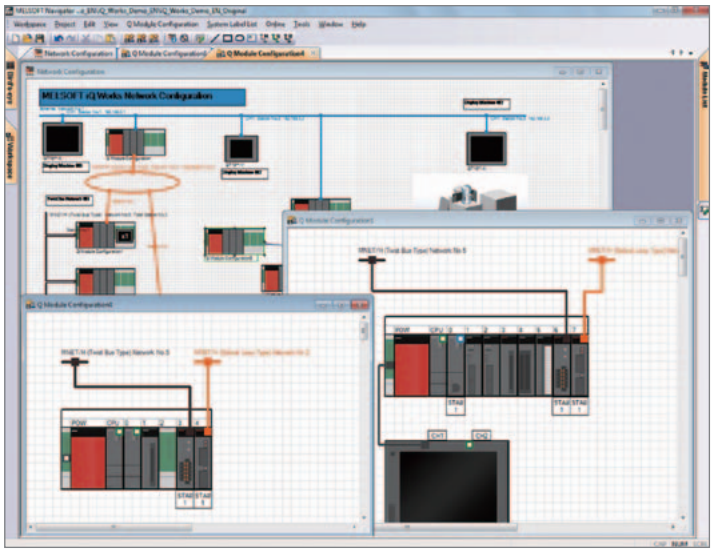
▶ Interaction with iQ Works

1 Implements a seamless engineering environment

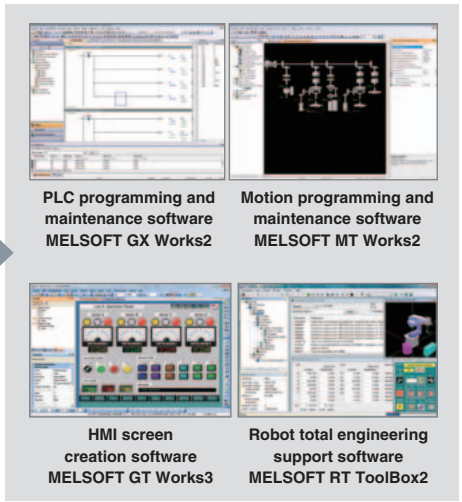
MELSOFT iQ Works is an integrated engineering software product, composing of GX Works2, MT Works2, GT Works3, and RT ToolBox2. By sharing information such as system designs and programming as the entire control system, the system design and programming efficiency are improved and total cost reduction is achieved.

■MELSOFT Navigator

In combination with GX Works2, MT Works2, GT Works3, and RT ToolBox2, this software performs upstream system design and inter-software operation.
It provides such convenient functions as system configuration design, batch setting of parameters, system labeling, and batch reading.



MELSOFT Navigator



■ Workspace management

Multiple project data (programmable controller projects, motion controller projects, GOT projects, and robot controller projects) are managed totally using a workspace.

• System configuration diagram
  Graphically represents the entire system as "network configuration" + "multi module configuration" + "CC-Link configuration".
  The diagram is easily created by dragging and dropping the modules, and various checks such as power supply capacity check are also performed.

• System label
  System labels are set in one place, reducing the number of processes and preventing setting errors.
  The set system labels are shared and used with all related projects.

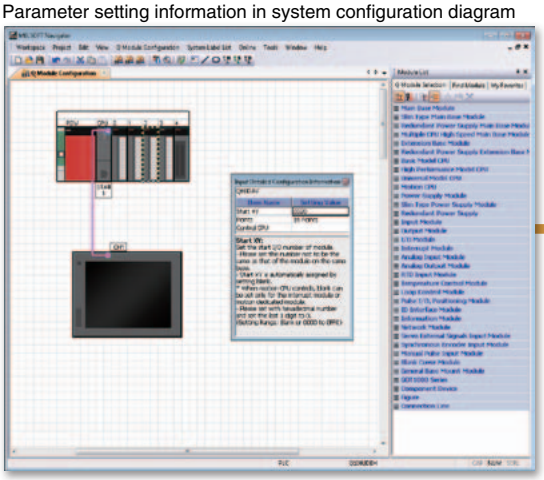
2 Parameter settings for individual tools are no longer required

The information set into the system configuration drawing are reflected in a batch onto the GX Works2, MT Works2 and GT Works 3 projects. *1

There's no need to launch each software and check the integrity.

*1 You are still required to set detailed parameters in each tool.

Parameter setting information in system configuration diagram



Reflected on data of various development tools at once

Programmable controller CPU (GX Works2)

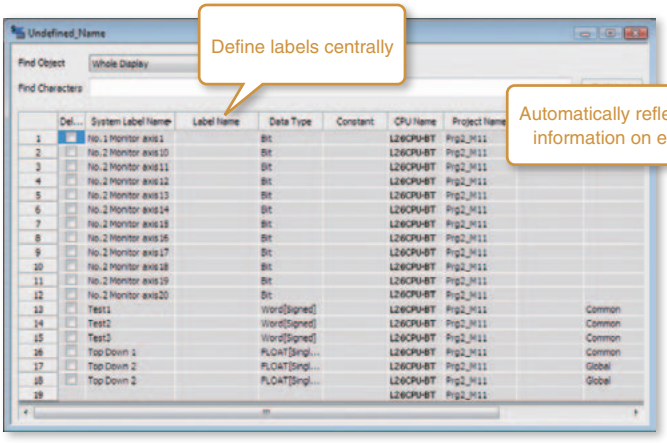
Motion controller (MT Works2)

GOT (GT Works3)

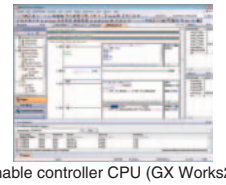
3 Shares labels and automatically changes all related projects

With MELSOFT Navigator, labels are shared by the PLC, motion controller and GOT.

For example, if a device assignment is changed in the PLC project, the changes are automatically reflected onto the motion controller and GOT projects.



Automatically reflects changed information on each project



Programmable controller CPU (GX Works2)

Motion controller (MT Works2)

GOT (GT Works3)

▶ Collaboration with FA devices

1 Supporting next-generation high-speed CPUs

GX Works2 now supports the universal model high-speed type QCPU module which has a greatly improved operation and processing speed for basic operations, structural instructions and FB call functions. Use GX Works2 to easily control the next-generation high-speed CPU equipped with advanced functions.

GX Works2 support

- Universal model high-speed type QCPU *1
  Q03UDVCPU, Q04UDVCPU, Q06UDVCPU
  Q13UDVCPU, Q26UDVCPU

*1) Supported by GX Works2 version 1.95Z and higher.

MELSEC Q series
QnU

Reduce tact-time with super fast processing.

Basic operation processing speed (LD instruction) 1.9 ns

2 Batch control of various FA devices

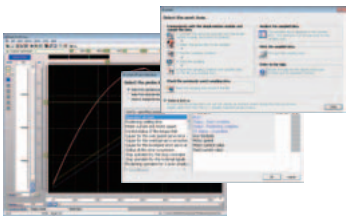
Collaboration with various FA devices is now more powerful.
GX Works2 is used to set and monitor various FA devices on any platform.
Improve your product site's efficiency by integrating with high-performance and high-function devices.

Standard simple motion module setting tool

Configuration, start up and adjustment, operation and maintenance of the simple motion module are powerfully supported.


System configuration setting


Synchronous control parameter setting


Digital oscilloscope

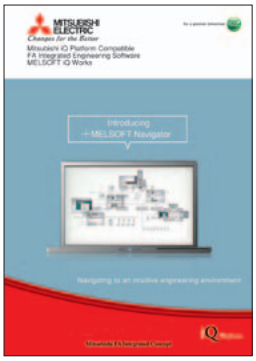
Energy-saving supported

The power measurement module's parameters are set from the GX Works2 without a manual.
In addition, the parameter settings and measured value are confirmed easily. (Intelligent function module monitor supported)
Swift startup using the GX Works2 supports energy conservation of the system.

[Supported units]
QE81WH, QE81WH4W, QE83WH4W, QE84WH, QE82LG

MEMO

▶ Related product catalogs



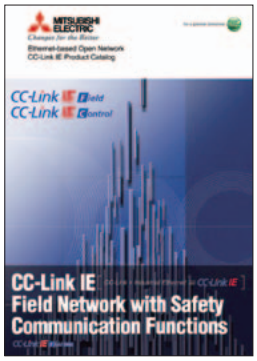
Mitsubishi iQ Platform Compatible
FA Integrated Engineering Software
MELSOFT iQ Works
L(NA)08232ENG

iQ Platform
Programmable Controllers
MELSEC-Q series [QnU]
L(NA)08101E

Programmable Controllers
MELSEC-L series
L(NA)08159E

PROGRAMMABLE LOGIC
CONTROLLERS
MELSEC FX
HIME-B215

Mitsubishi Programmable Controllers
MELSEC Process control/
Redundant system
L(NA)08030E



Ethernet-based Open Network
CC-Link IE Product Catalog
L(NA)08111E

Mitsubishi Graphic Operation Terminal
GOT1000
L(NA)08054

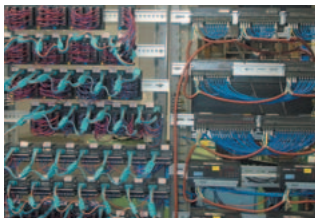
▶ CC-Link Association

CC-Link Partner Association (CLPA) actively promotes the worldwide adoption of CC-Link networks and is working to make new advances in safety systems.

From promotion to specification development, CLPA actively supports CC-Link

CC-Link Partner Association (CLPA) was established to promote the worldwide adoption of the CC-Link open field network. By conducting promotional activities, such as organizing trade shows and seminars, implementing conformance tests, and providing catalogs, brochures, and website information, CLPA has been successfully increasing the number of CC-Link partner manufacturers and CC-Link compatible products. CLPA takes a major role in the globalization of CC-Link.

■Conformance test to support the rapid increase in CC-Link compatible products.



■Exhibitions and seminars are held to recruit new CLPA members.

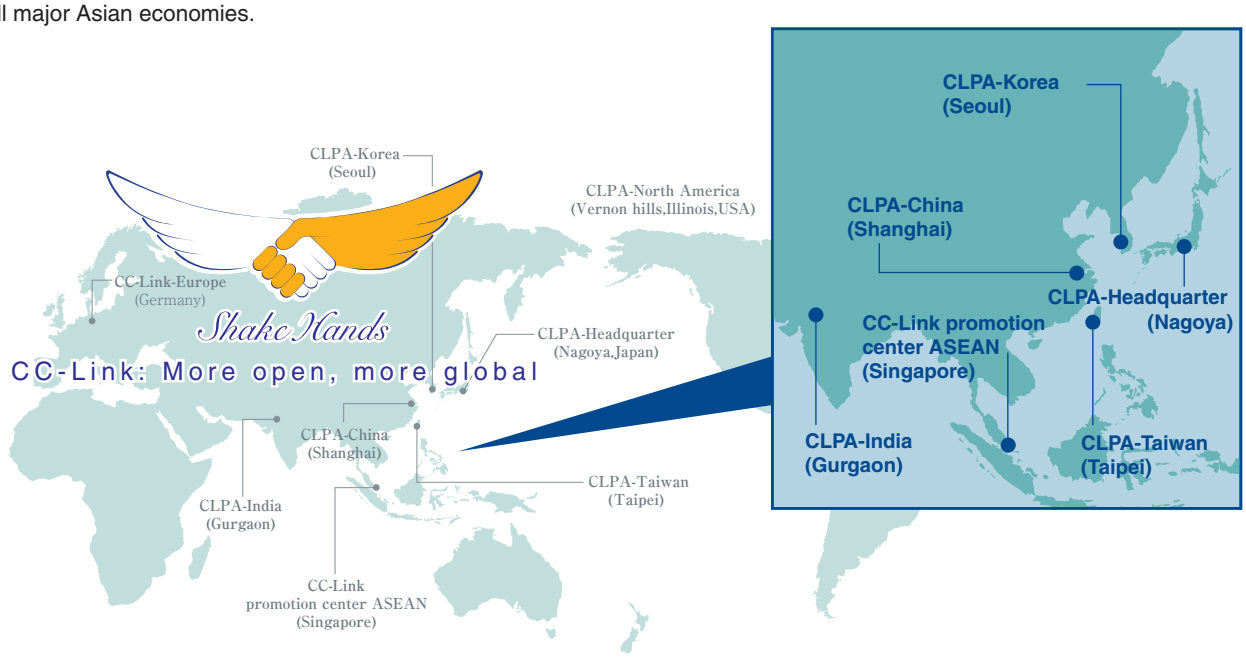
CC-Link Partner Association

The latest CC-Link information is posted on the website.

6F Ozone Front Bldg. 3-15-58 Ozone, Kita-ku, Nagoya 462-0825, Japan
TEL: +81-52-919-1588 FAX: +81-52-916-8655 URL: http://www.cc-link.org/ E-mail: info@cc-link.org

CC-Link continues to increase its global influence

CC-Link is supported globally by CLPA. With offices throughout the world, support for partner companies can be found locally. Each regional CLPA office undertakes various support and promotional activities to further the influence of the network in that part of the world. For companies looking to increase their presence in Asia, CLPA is well placed to assist these efforts through offices in all major Asian economies.



Extensive global support coverage providing expert

Global FA centers

"Mitsubishi Electric Global FA centers" have been established in various countries around the world to cover the Americas, Europe, and Asia. FA centers help to ensure compliance with the certifications and regulations of different regions, initiate product development in response to local demands, and provide full-time, professional customer service.

UK FA Center

Mitsubishi Electric Europe B.V. UK Branch
Travellers Lane, Hatfield, Hertfordshire, AL10 8XB, UK.
Tel: +44-1707-28-8780 / Fax: +44-1707-27-8695
Area covered: UK, Ireland

European FA Center

Mitsubishi Electric Europe B.V. Polish Branch
32-083 Balice ul. Krakowska 50, Poland
Tel: +48-12-630-47-00 / Fax: +48-12-630-47-01
Area covered: Central and Eastern Europe

German FA Center

Mitsubishi Electric Europe B.V. German Branch
Gothaer Strasse 8, D-40880 Ratingen, Germany
Tel: +49-2102-486-0 / Fax: +49-2102-486-1120
Area covered: Mainly Western Europe

Czech republic FA Center

Mitsubishi Electric Europe B.V. Czech Branch
Avenir Business Park, Radicka 751/113e, 158 00 Praha5, Czech Republic
Tel: +420-251-551-470 / Fax: +420-251-551-471
Area covered: Czech, Slovakia

India FA Center

Mitsubishi Electric India Pvt. Ltd.
India Factory Automation Centre
Emerald House, EL-3, J Block, M.I.D.C., Bhosari, Pune, 411026, Maharastra State, India
Tel: +91-20-2710-2000 / Fax: +91-20-2710-2100
Area covered: India

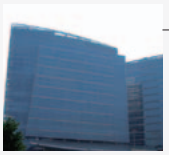
Nagoya,Japan

Beijing FA Center

Mitsubishi Electric Automation (CHINA) Ltd.
Beijing Office
Unit 908, Office Tower 1, Henderson Centre, 18 Jianguomennei Avenue, Dongcheng District, Beijing, China
Tel: +86-10-6518-8830 / Fax: +86-10-6518-3907
Area covered: China

Tianjin FA Center

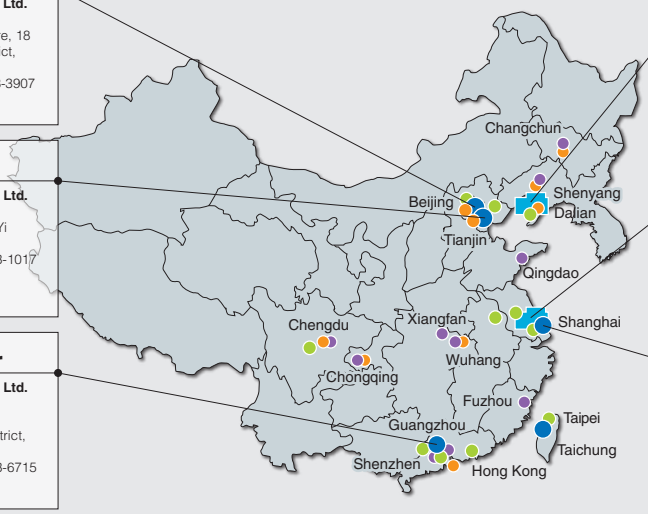
Mitsubishi Electric Automation (CHINA) Ltd.
Tianjin Office
Unit 2003, Tianjin City Tower, No.35, You Yi Road, Hexi District, Tianjin, China
Tel: +86-22-2813-1015 / Fax: +86-22-2813-1017
Area covered: China



Guangzhou FA Center

Mitsubishi Electric Automation (CHINA) Ltd.
Guangzhou Office
Rm.1609, North Tower, The Hub Center, No.1068, Xin Gang East Road, Haizhu District, Guangzhou, China
Tel: +86-20-8923-6730 / Fax: +86-20-8923-6715
Area covered: China

China (including Hong Kong area)



Local factory in China

Mitsubishi Electric Dalian Industrial Products Co., Ltd.

Local factory in China

Mitsubishi Electric Automation Manufacturing (Changshu) Co.,Ltd.
No.706 Southeast Building,Chengahu Southeast Economic Development Zone of Jiangsu,215500 China
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Shanghai FA Center

Mitsubishi Electric Automaiton (China) Ltd.
10F, Mitsubishi Electric Automation Center, No.1386 Hongqiao Road, Changning District, Shanghai, China
Tel: 86-21-2322-3030 / Fax: 86-21-2322-3000
Area covered: China

help whenever needed.

FA center | FA center satellite (China) | Mechatronics service center (China) | Sales and Service office | Factory location | Development center

Russian FA Center

Mitsubishi Electric Europe B.V. Russian Branch St.Petersburg office
Piskarevsky pr. 2, bld 2, lit "Sch", BC "Benua", office 720, 195027, St. Petersburg, Russia
Tel: +7-812-633-3497 / Fax: +7-812-633-3499
Area covered: Russia

Korean FA Center

Mitsubishi Electric Automation Korea Co., Ltd.
3F, 1480-6, Gayang-Dong, Gangseo-Gu, Seoul, 157-200, Korea
Tel: +82-2-3660-9530 / Fax: +82-2-3664-8372
Area covered: Korea

Taiwan FA Center

L : Setsuyo Enterprise Co., Ltd.
6F., No.105, Wugong 3rd Road, Wugu District, New Taipei City 24889, Taiwan, R.O.C.
Tel: +886-2-2299-2499 / Fax: +886-2-2299-2509
R : Mitsubishi Electric Taiwan Co.,Ltd.
No.8-1.Industrial 16th Road,Taichung Industrial Park ,Taichung, Taiwan 407, R.O.C.
Tel: +886-(0)4-2359-0688 / Fax: +886-(0)4-2359-0689
Area covered: Taiwan

Thailand FA Center

Mitsubishi Electric Automation (Thailand) Co., Ltd.
Bang-Chan Industrial Estate No.111 Soi Serithai 54, T.Kannayao, A.Kannayao, Bangkok 10230 Thailand
Tel: +66-2906-3238 / Fax: +66-2906-3239
Area covered: Thailand

North American FA Center

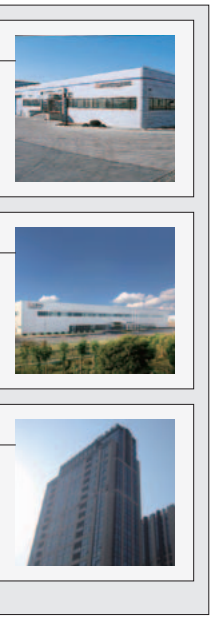
Mitsubishi Electric Automation, Inc.
500 Corporate Woods Parkway, Vernon Hills, IL 60061, USA
Tel: +1-847-478-2100 / Fax: +1-847-478-2253
Area covered: North America, Mexico, Chile, Brazil

ASEAN FA Center

Mitsubishi Electric Asia Pte. Ltd.
ASEAN Factory Automation Centre
307 Alexandra Road #05-01/02,
Mitsubishi Electric Bulding, Singapore
Tel: +65-6470-2480 / Fax: +65-6476-7439
Area covered: Southeast Asia

Brazil FA Center

Mitsubishi Electric Do Brasil Comercio E Servicos Ltda.
Rua Jussara, 1750 - Bloco B- Sala 01 Jardim Santa Cecília- CEP 06465-070, Barueri, São Paulo, Brazil
Tel: +55-11-4689-3000 / Fax: +55-11-4689-3016
Area covered: Brazil



Complying with international quality assurance standards.

All of Mitsubishi Electric's FA component products have acquired the international quality assurance "ISO9001" and environment management system standard "ISO14001" certification. Mitsubishi Electric's products also comply with various safety standards, including UL standards.
*For jointly developed and partner products, guaranteed quality standards may differ. Please refer to the product manuals for details.

Safety Standards

CE	CE : Council Directive of the European Communities
c UL us	UL : Underwriters Laboratories Listing

▶ Specifications/Products

■ Operating Environment

Item		Contents
Personal computer	OS	Microsoft® Windows® 7 Starter Operating System *1 Microsoft® Windows® 7 Home Premium Operating System *1 Microsoft® Windows® 7 Professional Operating System *1 Microsoft® Windows® 7 Ultimate Operating System *1 Microsoft® Windows® 7 Enterprise Operating System *1 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 Pack2 or later Microsoft® Windows® XP Home Edition, Service Pack2 or later Microsoft® Windows® 2000 Professional, Service Pack4 or later
	CPU	Intel®Core™2 Duo Processor 2GHz or more
	Required memory	Recommended 1GB or more
Available hard disk capacity		When installing GX Works2: HDD available capacity is 2.5GB or more. When operating GX Works2: Virtual memory available capacity is 512MB or more.
Disk drive		CD-ROM supported disk drive
Monitor		Resolution 1024 × 768 pixels or higher

*1 64-bit edition supported

■ Supported Programmable Controller CPU

Series name		Model
MELSEC-Q series	Basic model	Q00JCPU, Q00CPU, Q01CPU
	High-performance model	Q02CPU, Q02HCPU, Q06HCPU, Q12HCPU, Q25HCPU
	Universal model	Q00UJCPU, Q00UCPU, Q01UCPU, Q02UCPU, Q03UDCPU, Q03UDECPU, Q04UDHCPU, Q04UDEHCPU, Q06UDHCPU, Q06UDEHCPU, Q10UDHCPU, Q10UDEHCPU, Q13UDHCPU, Q13UDEHCPU, Q20UDHCPU, Q20UDEHCPU, Q26UDHCPU, Q26UDEHCPU, Q50UDEHCPU, Q100UDEHCPU Q03UDVCPU NEW , Q04UDVCPU NEW , Q06UDVCPU NEW , Q13UDVCPU NEW , Q26UDVCPU NEW
	Remote I/O	QJ72LP25, QJ72BR15
	Process CPU	Q02PHCPU, Q06PHCPU, Q12PHCPU, Q25PHCPU
	Redundant CPU	Q12PRHCPU, Q25PRHCPU
LCPU		L02CPU, L06CPU NEW , L02CPU-P, L26CPU-BT, L26CPU-PBT, LJ72GF15-T2, L26CPU, L02SCPU
FXCPU		FX_0, FX_{0S}, FX_{0N}, FX_1, FX_2, FX_{2C}, FX_{1S}, FX_{1N}, FX_{1NC}, FX_{2N}, FX_{2NC}, FX_{3G}, FX_{3GC}, FX_{3U}, FX_{3UC}
QCPU (A mode) *2		All types
QSCPU *2		All types
QnACPU *2		All types
ACPU *2		All types
Motion controller (SCPU) *2		All types
CNC (M6, M7) *2		All types

*2 These modules are supported with using GX Developer.

■ Product Information

Product name	Model	Model code	Remarks
GX Works2 Version1 (CD-ROM)	SW1DNC-GXW2-E	13PG71	Single license product

[Volume license product]

Product name	Model
GX Works2 Version1 (CD-ROM) Volume license product	SW1DNC-GXW2-EA
iQ Works Volume license product	SW1DNC-IQWK-E
	SW1DND-IQWK-E

[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.
iQ Works Additional license product	SW1DNC-IQWK-EAZ	This product does not include CD-ROM. Only license certificate with the product ID number will be issued.
	SW1DND-IQWK-EAZ	

■ Related Software Products

[Operating manual]

Product name	Model	Outline
GX Developer	SW8D5C-GPPW-E	MELSEC programmable controller programming software
	SW8D5C-GPPW-EV	MELSEC programmable controller programming software (upgrade)

■ Manuals

[Operating manual *3]

Manual name	Supply status	IB/SH No.	Model code
GX Works2 Version 1 Operating Manual (Common) Explains the system configuration of GX Works2 and the functions common to Simple project and Structured project such as parameter setting, operation method for the online function.	Sold separately	SH-080779ENG	13JU63
GX Works2 Version 1 Operating Manual (Simple Project) Explains methods for such as creating and monitoring programs in Simple project of GX Works2.	Sold separately	SH-080780ENG	13JU64
GX Works2 Version 1 Operating Manual (Simple Project, Function Block) Explains methods for such as creating function blocks, pasting function blocks to sequence programs, and operating FB library in Simple project of GX Works2.	Sold separately	SH-080984ENG	13JU72
GX Works2 Version 1 Operating Manual (Structured Project) Explains methods for such as creating and monitoring programs in Structured project of GX Works2.	Sold separately	SH-080781ENG	13JU65
GX Works2 Version 1 Operating Manual (Intelligent Function Module) Explains methods of intelligent function module for such as parameter setting, monitoring programs, and predefined protocol support function in GX Works2.	Sold separately	SH-080921ENG	13JU69
GX Works2 Beginner's Manual (Simple Project) Explains fundamental methods for such as creating, editing, and monitoring programs in Simple project for users inexperienced with GX Works2.	Sold separately	SH-080787ENG	13JZ22
GX Works2 Beginner's Manual (Structured Project) Explains fundamental methods for such as creating, editing, and monitoring programs in Structured project for users inexperienced with GX Works2.	Sold separately	SH-080788ENG	13JZ23

*3 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 upper table.

MEMO

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

iQ Platform

MELSOFT

iQ Platform Compatible
Programmable Controller Engineering Software
MELSOFT GX Works2

Precautions before use

This publication explains the typical features and functions of the products herein and does not provide restrictions and other information related to usage and module combinations. Before using the products, always read the product user manuals. Mitsubishi Electric will not be held liable for damage caused by factors found not to be the cause of Mitsubishi Electric; opportunity loss or lost profits caused by faults in Mitsubishi Electric products; damage, secondary damage, or accident compensation, whether foreseeable or not, caused by special factors; damage to products other than Mitsubishi Electric products; and to other duties.

⚠ For safe use

- To use the products given in this publication properly, always read the relevant manuals before use.
- 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 fail-safe 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 : +1-847-478-2253
Brazil	Mitsubishi Electric Do Brasil Comercio E Servicos Ltda. Rua Jussara, 1750 - Bloco B- Sala 01 Jardim Santa Cecília- CEP 06465-070, Barueri, São Paulo, Brazil	Tel : +55-11-4689-3000 Fax : +55-11-4689-3016
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
UK	Mitsubishi Electric Europe B.V. UK Branch Travellers Lane, Hatfield, Hertfordshire, AL10 8XB, UK.	Tel : +44-1707-28-8780 Fax : +44-1707-27-8695
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Spain	Mitsubishi Electric Europe B.V. Spanish Branch Carretera de Rubi 76-80.AC.420, 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, Radicka 751/113e, 158 00 Praha5, Czech Republic	Tel : +420-251-551-470 Fax : +420-251-551-471
Poland	Mitsubishi Electric Europe B.V. Polish Branch 32-083 Balice ul. Krakowska 50, Poland	Tel : +48-12-630-47-00 Fax : +48-12-630-47-01
Russia	Mitsubishi Electric Europe B.V. Russian Branch St.Petersburg office Piskarevsky pr. 2, bld 2, lit "Sch", BC "Benua", office 720; 195027, St. Petersburg, Russia	Tel : +7-812-633-3497 Fax : +7-812-633-3499
South Africa	CBI-Electric. Private Bag 2016, ZA-1600 Isando, South Africa	Tel : +27-11-977-0770 Fax : +27-11-977-0761
China	Mitsubishi Electric Automaiton (China) Ltd. 10F, Mitsubishi Electric Automation Center, No.1386 Hongqiao Road, Changning District, Shanghai, China	Tel : +86-21-2322-3030 Fax : +86-21-2322-3000
Taiwan	Setsuyo Enterprise Co., Ltd. 6F., No.105, Wugong 3rd Road, Wugu District, New Taipei City 24889, Taiwan, R.O.C.	Tel : +886-2-2299-2499 Fax : +886-2-2299-2509
Korea	Mitsubishi Electric Automation Korea Co., Ltd. 3F, 1480-6, Gayang-Dong, Gangseo-Gu, Seoul, 157-200, Korea	Tel : +82-2-3660-9530 Fax : +82-2-3664-8372
Singapore	Mitsubishi Electric Asia Pte, Ltd. Industrial Division 307, Alexandra Road, Mitsubishi Electric Building, Singapore, 159943	Tel : +65-6470-2308 Fax : +65-6476-7439
Thailand	Mitsubishi Electric Automation (Thailand) Co., Ltd. Bang-Chan Industrial Estate No.111 Soi Serithai 54, T.Kannayao, A.Kannayao, Bangkok 10230 Thailand	Tel : +66-2906-3238 Fax : +66-2906-3239
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, Box 5045, Indonesia	Tel : +62-21-663-0833 Fax : +62-21-663-0832
India	Mitsubishi Electric India Pvt. Ltd. Emerald House, EL-3, J Block, M.I.D.C., Bhosari, Pune, 411026, Maharastra State, India	Tel : +91-20-2710-2000 Fax : +91-20-2710-2100
Australia	Mitsubishi Electric Australia Pty.Ltd. 348 Victoria Road PO BOX11, Rydalmere, N.S.W 2116, Australia	Tel : +61-2-9684-7777 Fax : +61-2-9684-7245

MITSUBISHI ELECTRIC CORPORATION

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L(NA)08122E-E 1302(MDOC)

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Specifications subject to change without notice.