MITSUBISHI ELECTRIC

Changes for the Better

Faster, Reliable Connections with a Diversity of Actuators

e-F@ctory

MELSEC iQ-F series   MELSEC iQ-R series

Faster connection set-up with actuators!

Faster and easier… Mitsubishi Electric MELSEC PLC programmer/
actuator combinations support smooth, quick system set-up!

Collaborating Compatible Manufacturers

IAI Corporation

Oriental Motor Co., Ltd.

SMC Corporation

Positioning Communication Protocol Support Tool…

- Serial communication ensures easy connection
- Connect via MELSEC iQ-F Series built-in port

Compatible Lineup

Modules compatible with Positioning Communication Protocol Support Tool

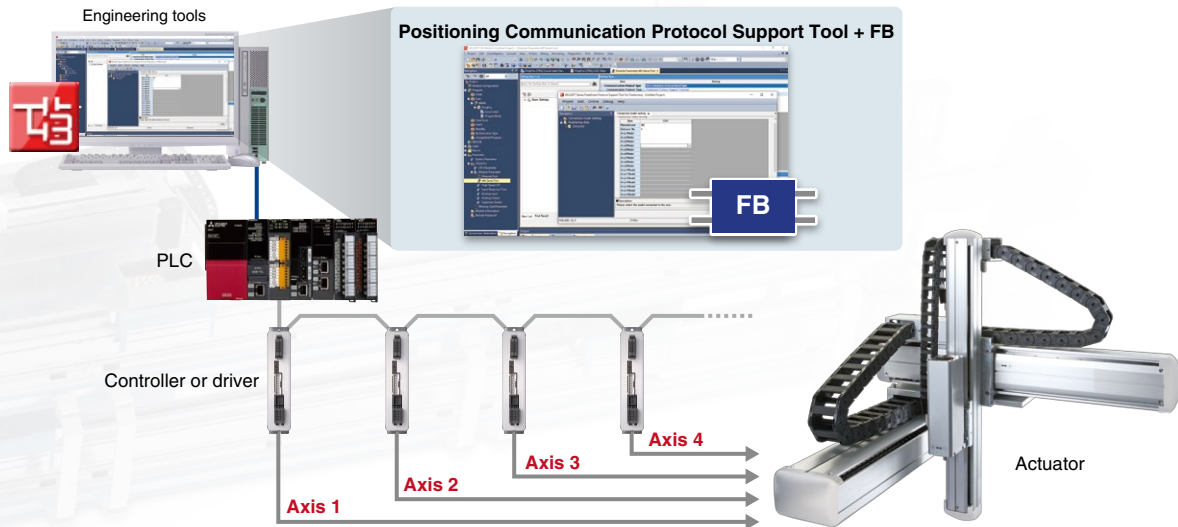| Model Name	Overview	IAI	Oriental Motor	SMC
MELSEC iQ-R Series	Serial Communication Unit	16 axes	31 axes	32 axes
MELSEC iQ-F Series	FX5U(C) CPU Unit (Built-in RS-485, communication expansion board, communication adapter)			

* Actuator connection via serial communication (MODBUS®/RTU).

Positioning Communication Protocol Support Tool + FB

Mitsubishi Electric MELSEC PLCs are equipped with a Positioning Communication Protocol Support Tool, enabling easy connection with electric actuators.

This tool contributes to reducing the time required to start-up customers' systems as well as the time required for maintenance. Moreover, Positioning Communication Protocol Support FB minimizes programming work.

Engineering tools

Positioning Communication Protocol Support Tool + FB

FB

PLC

Controller or driver

Axis 4

Axis 3

Axis 2

Axis 1

Actuator

Features of Positioning Communication Protocol Support Tool +FB!

Point 1	Point 2	Point 3
Automatic setting of communication protocol	**Confirm operations without a program**	**FB reduces the time required for programming**

GX Works3

Engineering costs are reduced even further with easy programming using a simple selection method aided by graphics and intuitive operability. There's also a diagnostics function that simplifies troubleshooting.

MELSEC iQ-R Series

Innovative next-generation controllers pioneering a new age in automation. Equipped with a newly developed, high-speed system bus, takt time is reduced significantly.
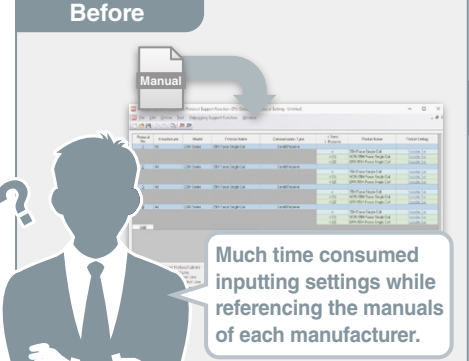
MELSEC iQ-F Series

Next-generation micro-PLCs equipped with a high-speed system bus and enhanced built-in functions, and compatibility with an abundance of networks. Having a range of proposals from stand-alone to whole systems including networks, the MELSEC iQ-F Series powerfully supports customers' "one-step-ahead" manufacturing.

Solving Three Problems Customers Face!

Do you find connecting actuators difficult due to the time required for programming, setting communications, etc.? Our Positioning Communication Protocol Support function solves these problems.
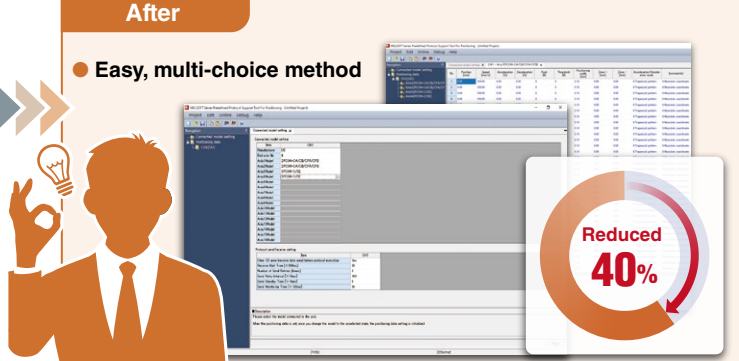
❶ Reduces Design Work

Before

After

● **Easy, multi-choice method**

Much time consumed inputting settings while referencing the manuals of each manufacturer.
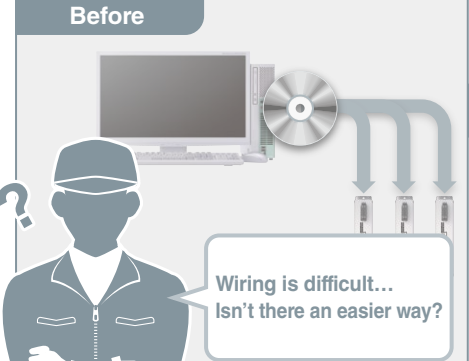
Reduced 40%

Necessary to check protocol specifications for each device.

Using the Positioning Communication Protocol Support Tool, only simple settings related to system configuration are required to automatically set the communication protocol.
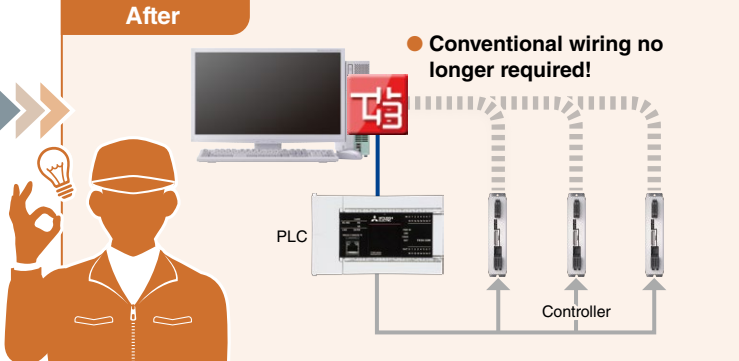
❷ Reduces Wiring Work

Before

After

● **Conventional wiring no longer required!**

PLC

Controller

Wiring is difficult… Isn't there an easier way?

Each controller requires wiring for positioning data writing. Special-purpose software are needed as well.

Positioning data is written from the Positioning Communication Protocol Support Tool to the controller, thereby eliminating wiring between computers and controllers.

❸ Reduces Debugging Work

Before

After

● **Actuator condition understood instantly!**
● **Operations can be checked without a program!**

Can't debugging be easier…?

Hard to understand the actuator condition. Separate programming required for debugging.

Device operation status can be viewed on the tool's screen, thereby significantly improving debugging efficiency.

Preparations Prior to Use

Please download the Positioning Communication Protocol Support Tool and Positioning Communication Protocol Support FB from the Mitsubishi Electric FA site prior to use.
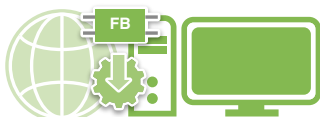
Positioning Communication Protocol Support Tool

Download the Positioning Communication Protocol Support Tool from the Mitsubishi Electric FA site for free.

FA Site▶Download▶Control Equipment PLC▶MELSEC iQ-R▶Software
▶Setting Tool▶Positioning Communication Protocol Support Tool

Positioning Communication Protocol Support FB

You can download the Positioning Communication Protocol Support FB from the Mitsubishi Electric FA site for free.

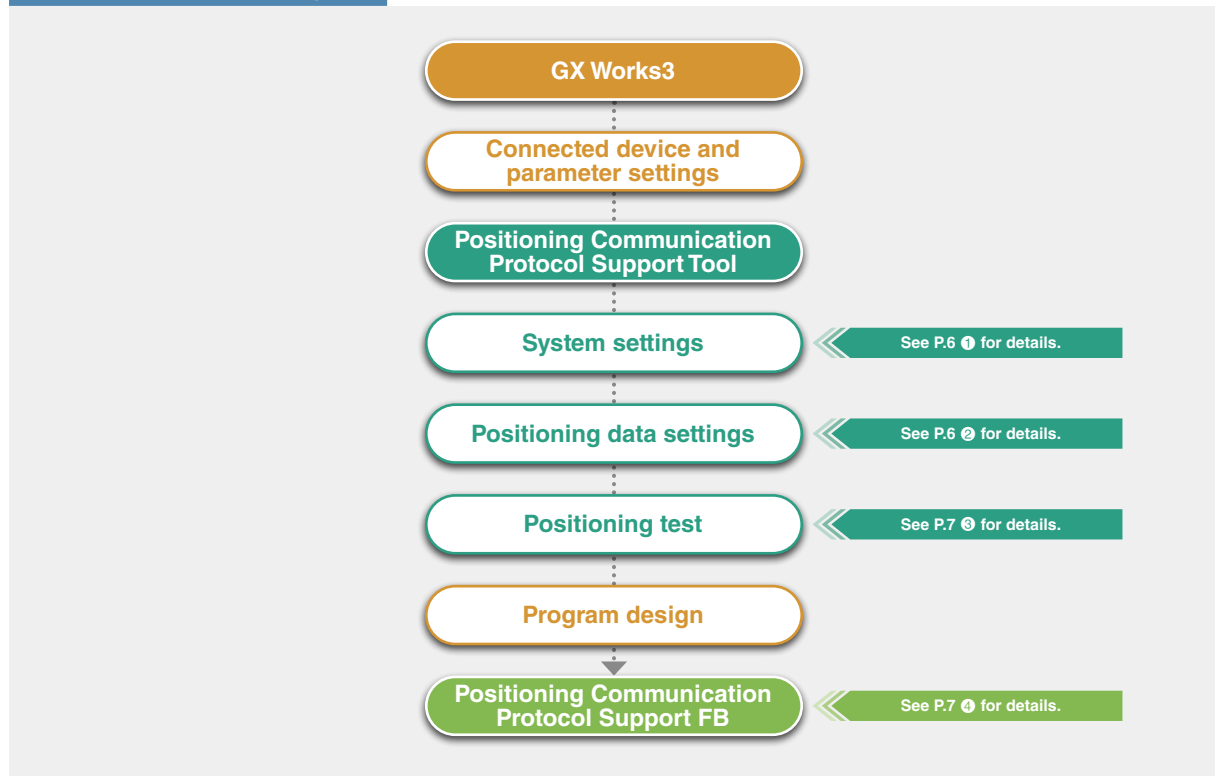### ■ MELSEC iQ-R Series

FA Site▶Download▶Control Equipment PLC▶MELSEC iQ-R
▶Sample Library▶Sample Program Library
▶Information/Network Unit▶Serial Communication▶FB

■ MELSEC iQ-F Series

FA Site▶Download▶Control Equipment PLC▶MELSEC iQ-F
▶Sample Library▶Sample Program Library
▶CPU Unit▶PLC CPU Unit▶FB

Development and Design

GX Works3

Connected device and parameter settings

Positioning Communication Protocol Support Tool

System settings — See P.6 ❶ for details.

Positioning data settings — See P.6 ❷ for details.

Positioning test — See P.7 ❸ for details.

Program design

Positioning Communication Protocol Support FB — See P.7 ❹ for details.

Positioning Communication Protocol Support Function Flow

Collaboration functions provide powerful support to suit customers' specific manufacturing configurations!
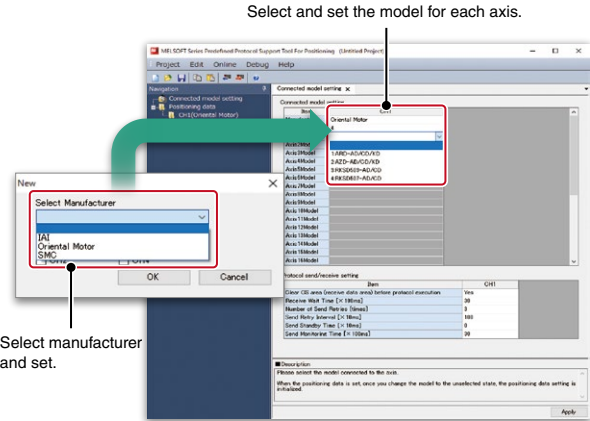
❶ System Settings

Positioning Communication Protocol Support Tool

Use the support tool to complete system configuration settings and link communication with the controller.

Simply set communication protocol by selecting each manufacturer's model for connection.

Manufacturer	Type	Series
IAI Corporation	Controller built-in type actuators	RCP6S*/ERC3/ERC2
	Controllers	PCON/DCON/ACON/SCON*
Oriental Motor Co., Ltd.	αSTEP drivers	AR/AZ
	Stepping motor drivers	RKⅡ
SMC Corporation	Controller step data input type	LECP6/LECA6

* There are limitations to use. Please check the manual for details.

Number of axes that can be set for each channel.

- IAI...16 axes
- Oriental Motor.....................................31 axes
- SMC ....32 axes

Select and set the model for each axis.

Select manufacturer and set.

Point !

There is no need to confirm the protocol specifications of each device, thereby reducing the time required for conventional protocol design.
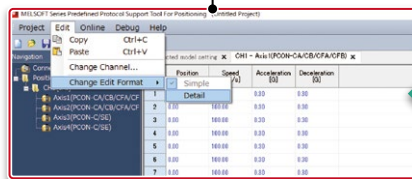
❷ Positioning Data Settings

Positioning Communication Protocol Support Tool

Positioning data is set to control the position of the electric actuator of the connected device.
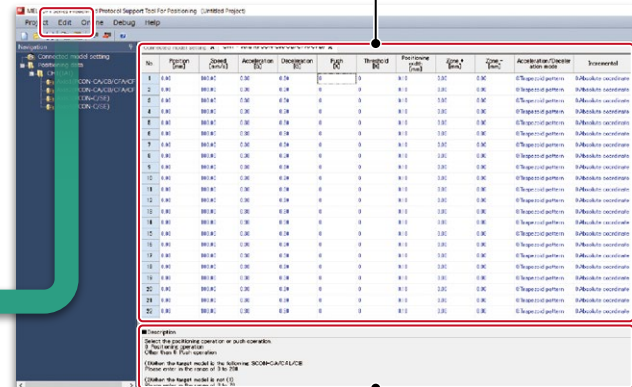Settings include positioning of the electric actuator, speed, acceleration rate, and deceleration rate.

Equivalent to the below data for each manufacturer's controller.

- IAI...Position data
- Oriental Motor............................Operating data
- SMC ....Step data

Set up to 64 data items per axis. Acceleration/Deceleration items can be set individually.

Users can switch between simple and detailed views of setting items from the menu and optimize the display depending on which items are necessary/unnecessary for a specific system.
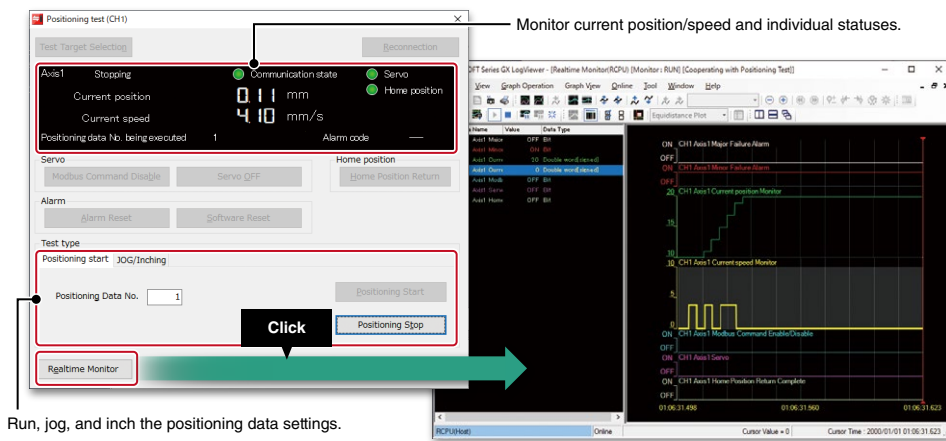
Displays guidance providing a description of each item setting and range.

Point !

Electric actuator operations controlled by specifying positioning data written to the controller.

❸ Positioning Test

Positioning operation of the electric actuator can be performed on a special-purpose screen.
The device operation status is visible on the tool screen, thereby significantly improving debugging efficiency.

Monitor current position/speed and individual statuses.

Run, jog, and inch the positioning data settings.

Real-time Monitor

- Seamlessly links with GX LogViewer for chart monitoring of current position and speed.
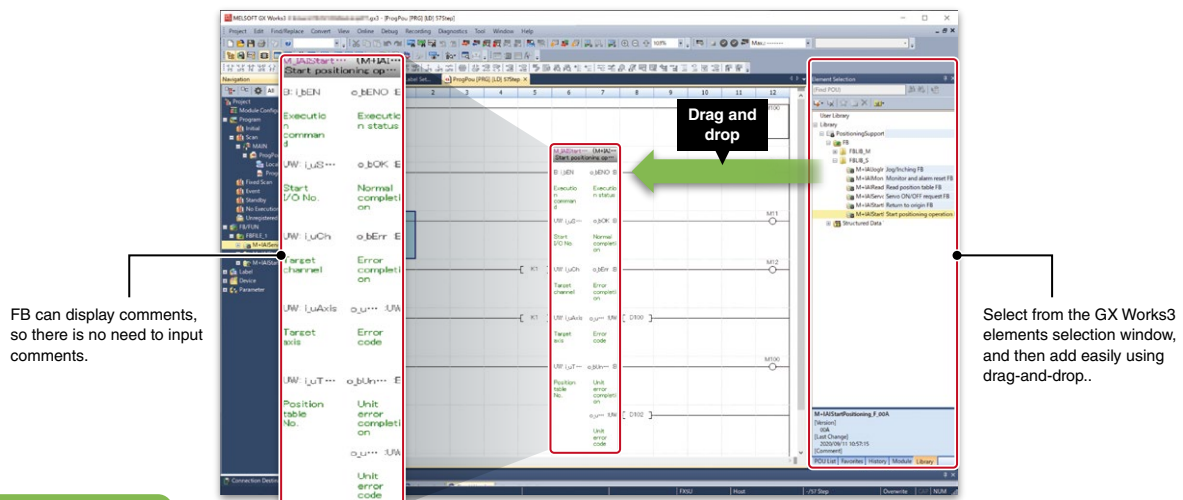
* Only compatible with MELSEC iQ-R Series.

Point !

Debug positioning control without creating a program, realizing smooth, quick system start-up.

❹ Positioning Communication Protocol Support FB

Easily achieves positioning control such as servo on/off, home position recovery, positioning start, etc. using the special-purpose FB (Positioning Communication Protocol Support FB Library) from the program.

FB can display comments, so there is no need to input comments.

Select from the GX Works3 elements selection window, and then add easily using drag-and-drop..

Point !

Supports creating electric actuator control programs.

Screen Samples for Direct Connection to GOT!

Before

I want to connect the actuator and GOT directly.

It's time-consuming to create screens from scratch.

After

GOT

● Easy to install referring to free samples

We have prepared sample screens for monitoring actuator current position and setting values, as well as for making changes.

GOT2000 Series Connection Screen Samples

Sample screens for connection between GOT2000 and each actuator can be downloaded from the Mitsubishi Electric FA site.

These help to reduce the time required to develop GOT display screens and connect actuators.

IAI Corporation	Oriental Motor Co., Ltd.	SMC Corporation
Robot controller	Stepper motor unit	Controller
SCON Series	**αSTEP**	**LEC Series**

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