MITSUBISHI ELECTRIC
Changes for the Better

for a greener tomorrow

eco Changes

Mitsubishi Graphic Operation Terminal
GOT SIMPLE Series Solution Catalog

Inverter Operation Monitor
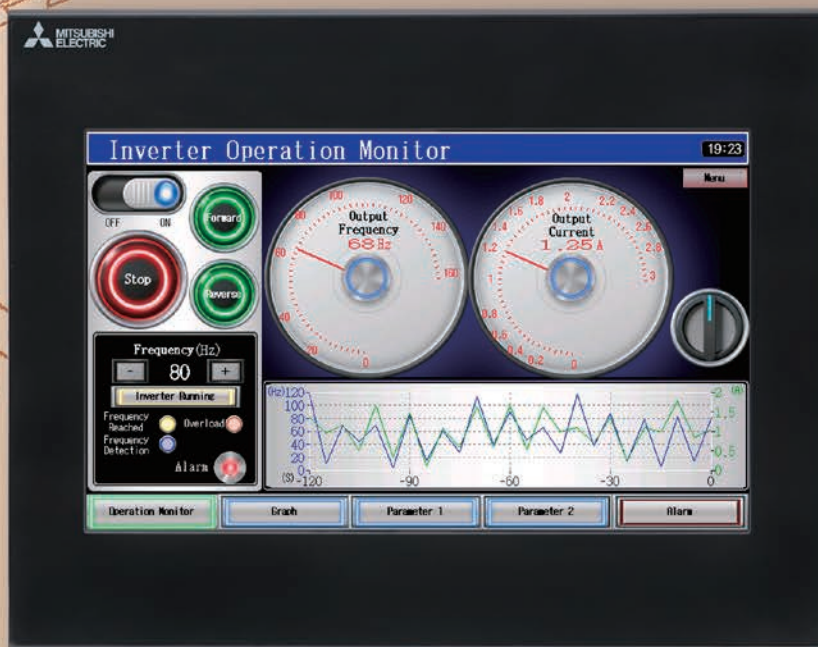
Simple Solutions

GOT SIMPLE
Graphic Operation Terminal
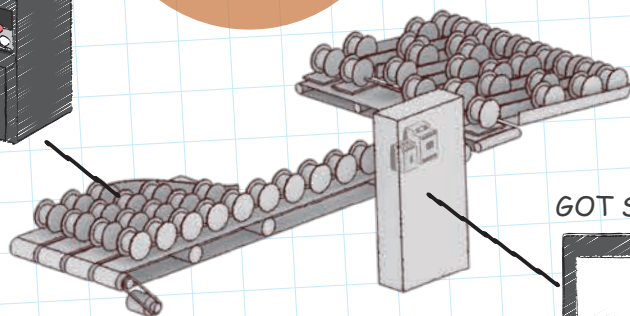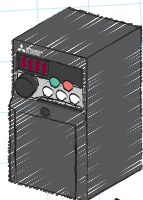
Mitsubishi Industrial Devices Simple Solut

Using Mitsubishi Electric industrial devices together with the GOT SIMPLE Series provides ideal, simple solutions that enhance efficiency and reduce cost in production.

Using GOTs with other devices makes your production process smoother than ever
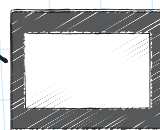
02 Machining

SERVO Amp.

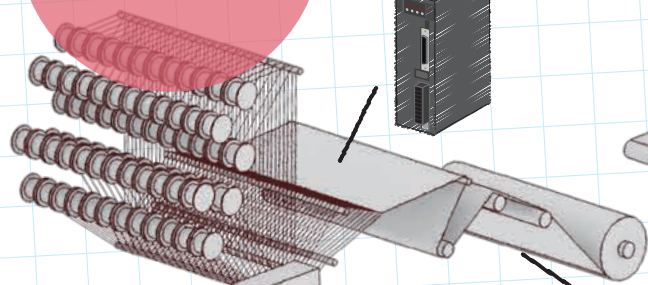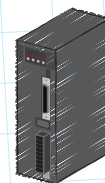**01 Material handling**

INVERTER

Micro PLC
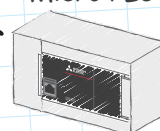
GOT SIMPLE
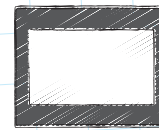
GOT SIMPLE

Simple control

General-purpose inverter × GOT SIMPLE

Visualization, plus!

Positioning control

Programmable controller + AC servo × GOT SIMPLE
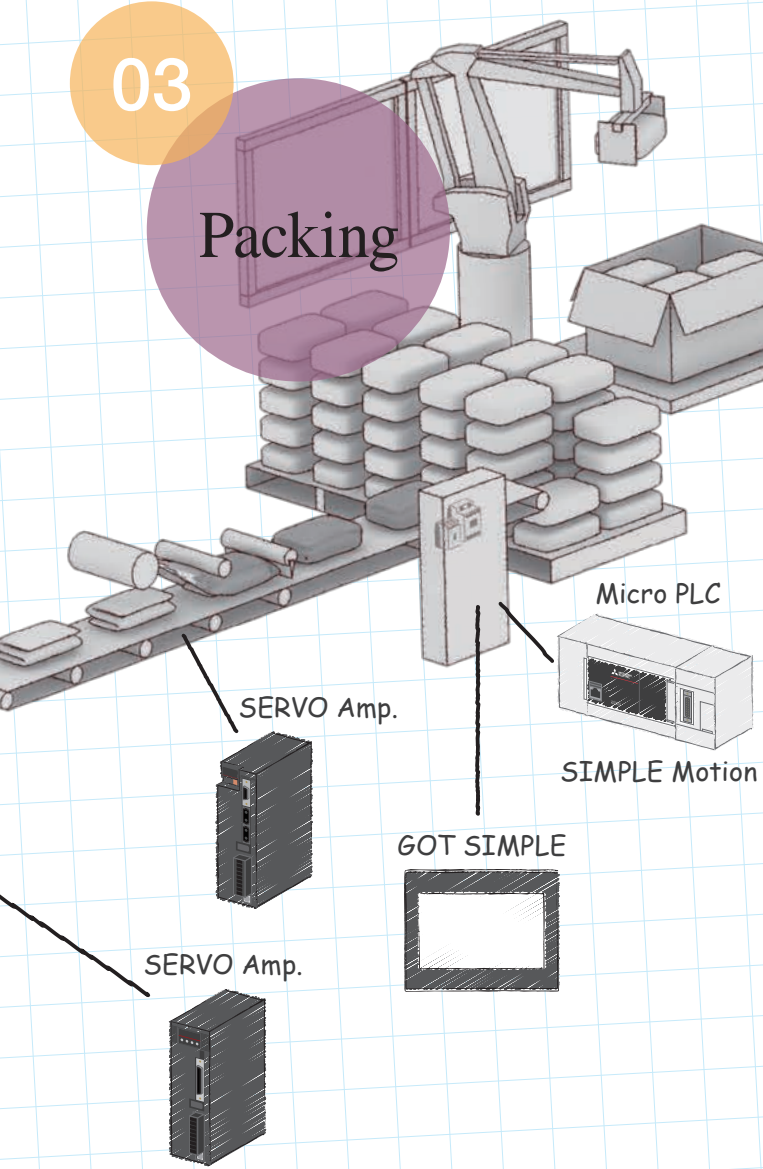
Visualization, plus!

ions

03

Packing

Plus

ROBOT

Advanced automation

SERVO Amp.

Micro PLC

SIMPLE Motion

GOT SIMPLE

SERVO Amp.

Simple Solutions

Smooth drive control

Programmable controller Simple motion

+

AC servo

×

GOT SIMPLE

Visualization, plus!

Material handling

Simple settings
Low cost

Easy material handl

The "non-rotation" auto tuning function optimally controls

INVERTER

GOT SIMPLE

RS-422

Plus! ❶
GOT can be used to monitor material handling lines and display alarms

Plus! ❷
GOT can be used to execute operation commands of inverters
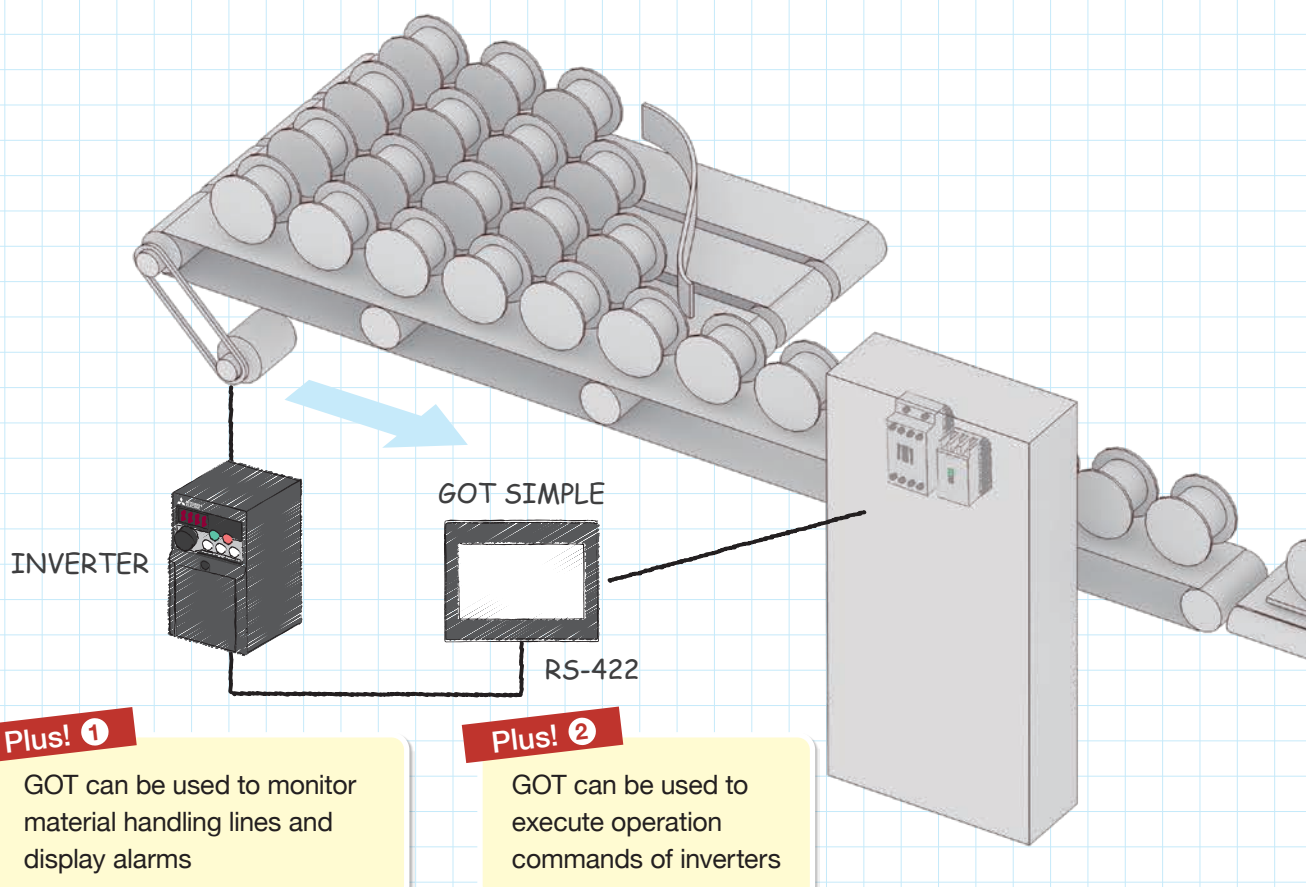
Mitsubishi Inverter

FR-D700

Many kinds of motors can be optimally controlled with Mitsubishi original "non-rotation" auto tuning function. Inverter output current may be used to assume motor slip to keep the motor speed constant.

Mitsubishi
Graphic Operation Terminal

GOT SIMPLE

×

Visualization, plus!

ing with inverters

motors.

GOT SIMPLE

Plus! ❸

A single GOT manages multiple inverters

RS-422

INVERTER

Plus! ❹

Just connect GOT and inverters to establish communication
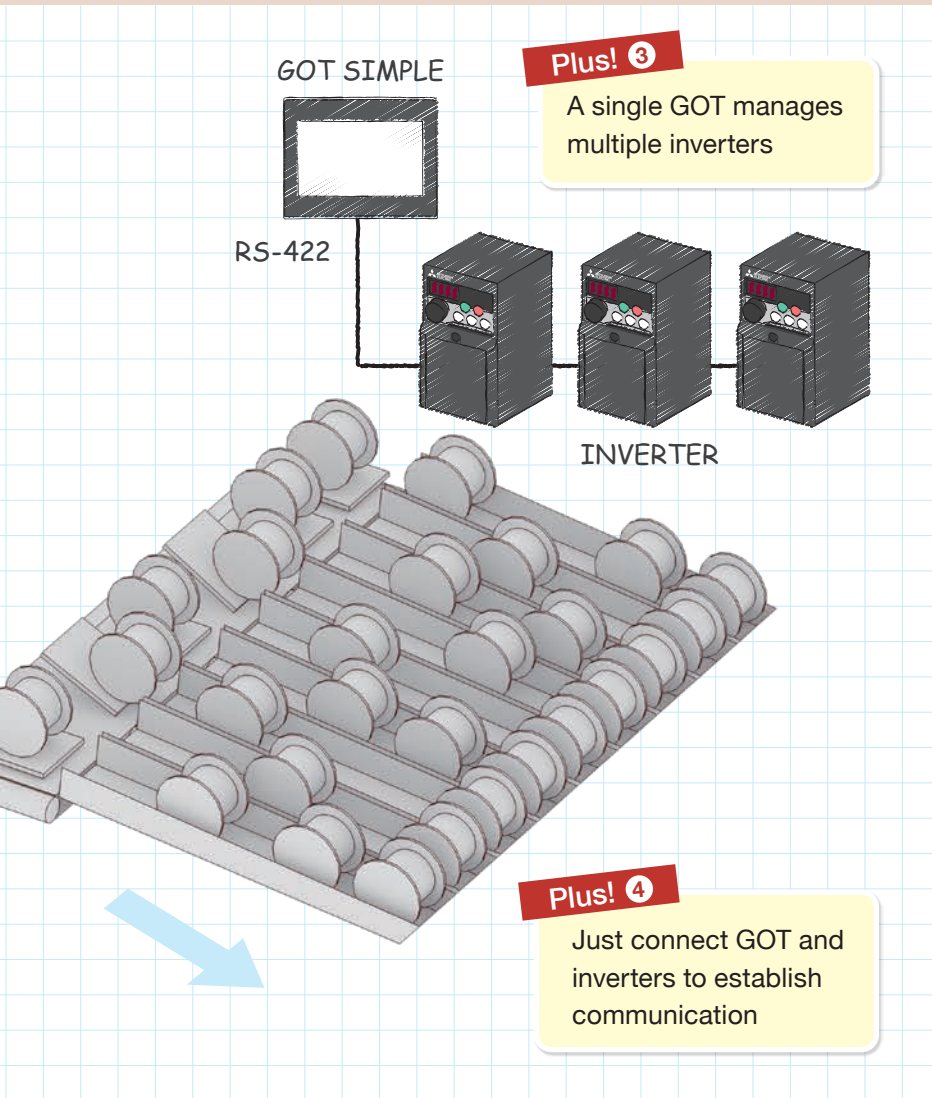
Application examples

Material handling in a logistics center

Baggage handling in an airport

Simple Solutions — Packaged benefits —

Easily collect and display data of industrial devices

Easy startup, adjustment of industrial devices

■ Logging function

GOT manages the data of all connected industrial devices. The data can be collected at an arbitrary timing and can be used for data analysis and feedback.

General-purpose inverter   GOT SIMPLE

■ Historical trend graph

The data collected by the logging function is displayed in a graph. It is easy to check by scrolling or specifying time.

■ FA transparent function

The GOT acts as a transparent gateway to enable programming, start up, and adjustment of devices.

GOT SIMPLE

USB or Ethernet

Serial communication, etc.

Mitsubishi industrial devices
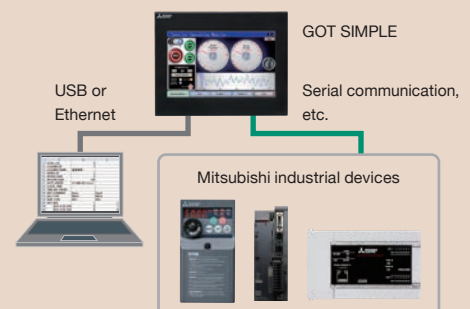
High functionality
Low cost

Easy textile processing

The pulse I/O of programmable controllers enable advanced

Plus! ❶

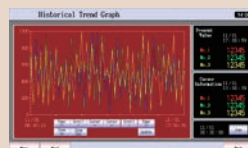Smooth operation by using interrupt, variable speed, and simple interpolation function

GOT SIMPLE   Micro PLC

Ethernet

SERVO Amp.

Plus! ❷
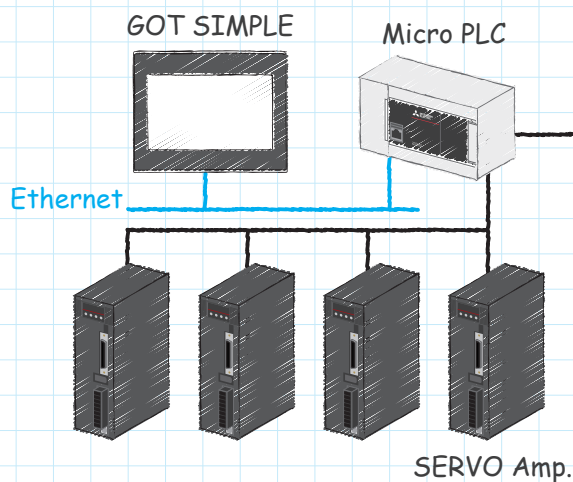
The GOT backup/restoration function quickly restores sequence programs

Mitsubishi Programmable Controller

MELSEC iQ-F

MELSEC iQ-F programmable controllers are equipped with high-speed I/O, and can be connected to up to 4 axes of AC servos without additional modules.

Mitsubishi AC Servo

MELSERVO-JE A type

Setting and making changes are easy using the table method programs so that the positioning operation can be performed in high-speed startup.

+

with programmable controllers and servos

positioning and smooth operation of AC servos.

Plus! ❸

Connect GOT and AC servos directly to execute positioning commands

GOT SIMPLE

RS-422

SERVO Amp.

Plus! ❹

Built-in positioning function

Application examples

Food processing

Textile processing

**Mitsubishi
Graphic Operation Terminal**

GOT SIMPLE

Visualization, plus!

Simple Solutions - Packaged benefits -

Backup of important programs

■ Backup/Restoration function

Using the backup/restoration function, sequence programs can be replaced even without a personal computer. When the programs and parameters are backed up to GOT*, the data and machine operation can instantly be restored even if an unexpected failure occurs.

*: An SD memory card is required separately.

SD memory card

SD Card

Restore

Backup

Programmable controller

GOT SIMPLE

Packing

High efficiency
Low cost

Easy packing with

SSCNETIII/H compatible simple motion modules and with high synchronous performance and less wiring.

GOT SIMPLE

Plus! ❶

Use GOT to set parameters such as the sheet length and the rotary knife axis

Micro PLC

SIMPLE Motion

SERVO Amp.

Plus! ❷

Cut the packing sheet to a certain length by creating cam data automatically or using the mark detection function

SSCNETIII/H
SERVO SYSTEM CONTROLLER NETWORK
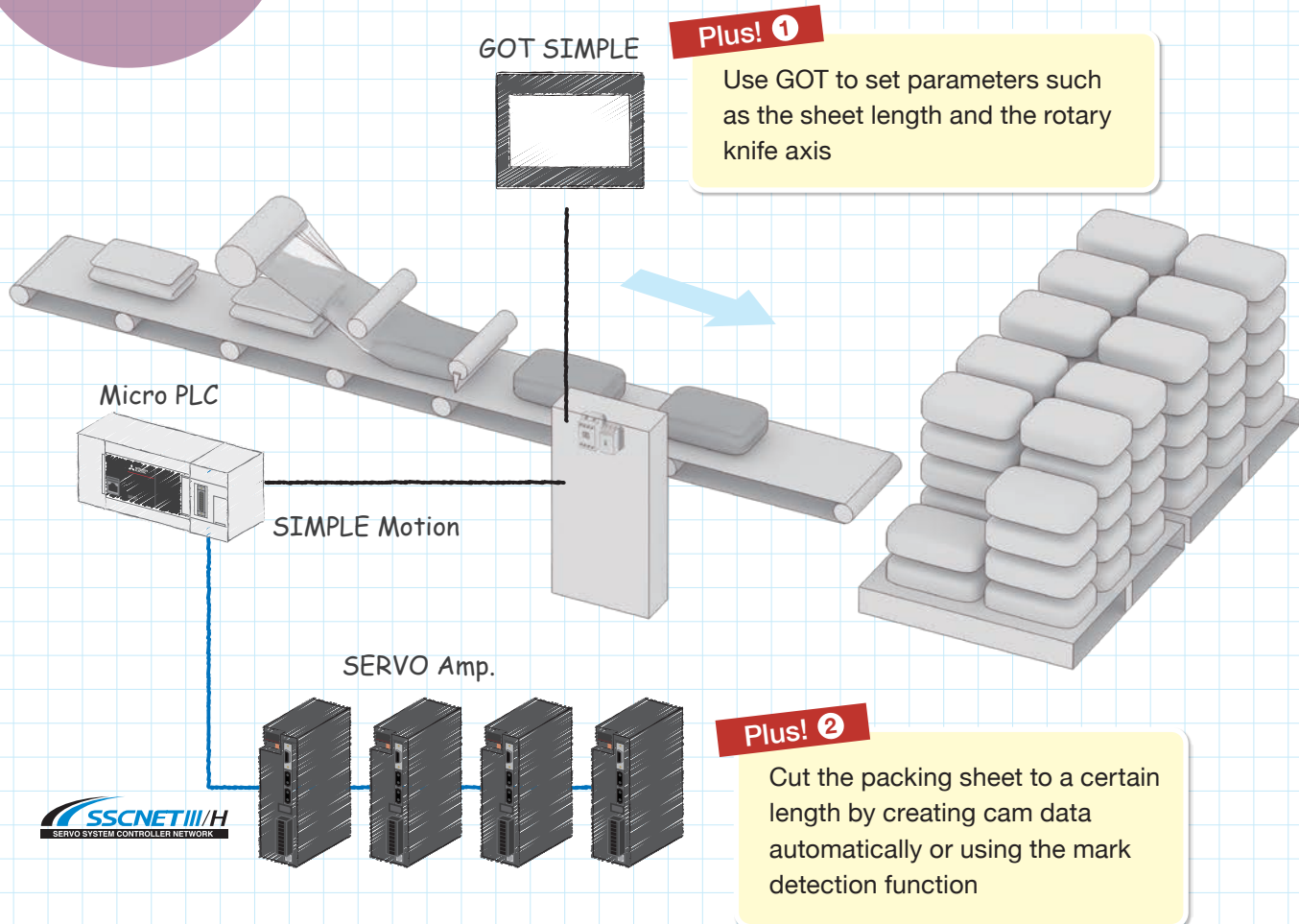
Mitsubishi Programmable Controller

MELSEC iQ-F

MELSEC iQ-F + Simple Motion

Easily program and automatically generate difficult cam data for rotary cutters just by inputting the sheet length, synchronization width, and cam resolution, etc.

+

Mitsubishi AC Servo

MELSERVO-JE B type

When the machine packs products, the whole process is synchronized by using synchronous control and cam control.

simple motion and servos

servo amplifiers enable a high-response system

Plus ## Advanced automation

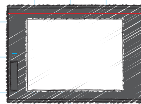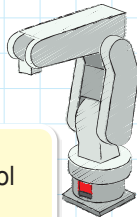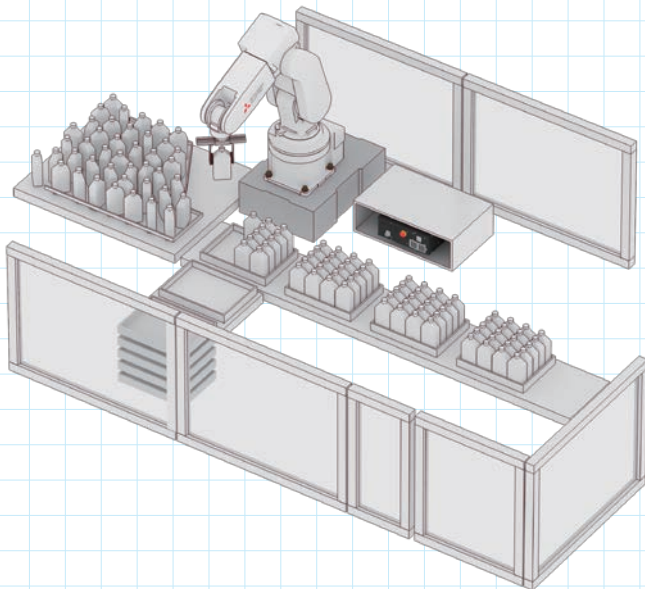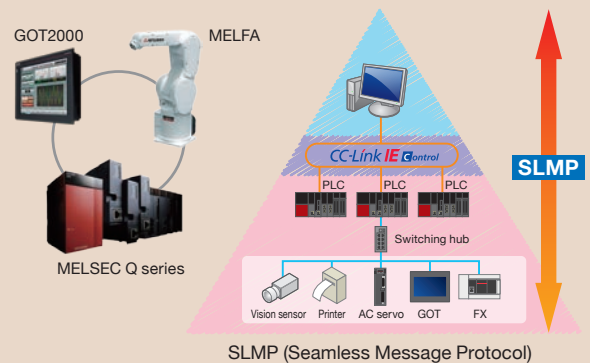PLC   GOT2000   ROBOT

Plus! ❸

Robot CPUs enable high-speed control by directly connecting programmable controllers and robots

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iQ Platform compatible products + CC-Link IE

iQ Platform compatible robots

Robots can be controlled using programmable controllers and GOTs by connecting them directly to each other. Seamless connectivity within all levels from the sensor to the server, visualization of data, and less wiring of various networks can be achieved.

GOT2000   MELFA

CC-Link IE Control

SLMP

PLC   PLC   PLC

Switching hub

MELSEC Q series

Vision sensor Printer AC servo GOT FX

SLMP (Seamless Message Protocol)

Mitsubishi safety solutions

Safety relay

Safety controller

Safety programmable controller

STOP
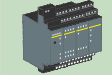
A wide variety of safety product lineup provides total safety solutions
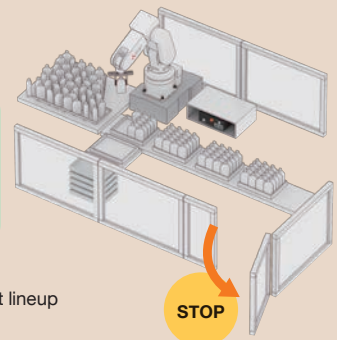
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Mitsubishi Graphic Operation Terminal

GOT SIMPLE

Visualization, plus!

Simple Solutions - Packaged benefits -

Easy monitoring of servo operation status

■ Servo connection

Connecting servo amplifiers directly to GOT enables easy setup, monitoring, adjusting alarms, diagnosis, parameter settings, and test operation.

RS-232/ RS-422 communication ports

MITSUBISHI SERVO AMPLIFIERS & MOTORS
MELSERVO
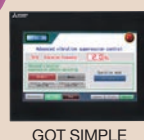
Parameter adjustment →

← **Monitoring**

GOT SIMPLE   J4   JE

RS-422 communication Maximum 10 units

RS-232 communication Maximum 1 unit

Simple Solutions

Simple

GOT

Simple, high functioning

GOT SIMPLE
Graphic Operation Terminal

- Reduce design, setup, and maintenance cost
- Add value to your installation and machine
- Streamlined screen design

For the details of the GOT SIMPLE Series, please refer to the catalog on the left.

(HIME-L076)

GS2110-WTBD
10 inch Touch panel HMI

GS2107-WTBD
7 inch Touch panel HMI

Control multiple industrial devices

■ Multi-channel function

Up to 2 channels of industrial devices can be controlled with one GOT. The data can be easily transferred between devices with just simple settings.

Programmable controller   GOT SIMPLE   Programmable controller

Serial communication   **Ethernet**

Factory
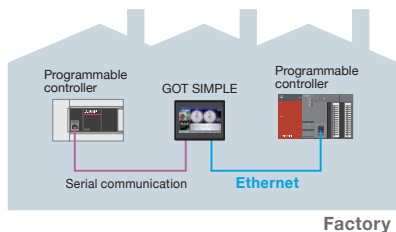
Reduce mass production setup costs

■ Start from SD memory card

Transfer the screen and all necessary system data to an SD memory card in advance. Then the GOT can be used just by inserting the SD memory card. It is easy to start up and operate the GOT.

SD Card

SD Card

SD Card   ① Copy data

SD Card

GOT SIMPLE   ② Insert SD memory card and power on GOT
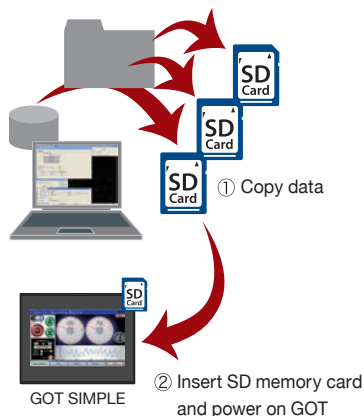
GOT SIMPLE useful functions

■ Alarm function

Alarm functions such as alarm display, alarm history, and alarm pop up display are included. The language switching function is also supported.

■ Various sample screens

Sample screens are available to monitor and change parameters of connected devices.

MELSEC iQ-F

MELSERVO-JE

Simple, small, new standard

INVERTER
FR-D700

- Easy use and time saving built-in as standard
- Easy maintenance
- Compact and space saving

FR-D74□-□K
Capacity: 0.4 kW to 15 kW

FR-D72□-□K
Capacity: 0.1 kW to 15 kW

For the details of the INVERTER FR-D700 Series, please refer to the catalog on the right.

(L(NA)06055ENG)

Spring clamp terminal*(control circuit terminal)

*: Main circuit terminal is screw terminal.

■ Easy wiring

Wiring is completed only by inserting wires treated with blade terminal. Capable of wiring without a blade terminal.

Easy wiring. Just insert.

Assures the tensile strength of the DIN standards.
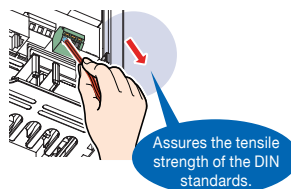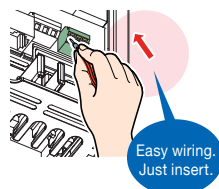
■ Highly reliable

Spring structure in terminal contact section inside prevents contact fault by vibration.

■ Maintenance is unnecessary

Screw retightening is unnecessary.

Side by side installation saves space

Space can be saved by side by side no clearance installation*.

An optional DIN rail attachment (FR-UDA□□) can be attached.

*: Use the inverter at the surrounding air temperature of 40℃ or less.

Easily replaceable compact body

Installation size is the same as that of the FR-S500 Series, the smallest model of the Mitsubishi inverter.

128 mm

FR-D740-0.4K   FR-S540E-0.4K

Mitsubishi Industrial Devices Simple Solutions

Simple

PLC

The next level of industry

MELSEC iQ-F series

- ■ Outstanding performance
- ■ Intuitive programming environment
- ■ Superior drive control

For the details of the MELSEC iQ-F Series, please refer to the catalog on the left.

(HIME-L081)

FX5U
32 to 256 control points*
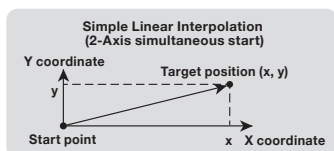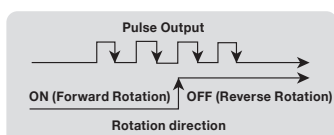Terminal block type

FX5UC
32 to 256 control points*
Connector type

*: Control points up to 512 input/output points, including remote input/output.

Built-in positioning

■ Positioning capable of 20 µs high-speed start

FX5U/FX5UC features powerful positioning functionality with 8 ch high-speed pulse input and 4-axis pulse output. Positioning operations including interrupt, variable speed, and simple interpolation can easily be set up in tables and executed.

Pulse Output

ON (Forward Rotation) | OFF (Reverse Rotation)

Rotation direction

Simple Linear Interpolation (2-Axis simultaneous start)

Y coordinate

Target position (x, y)

y

Start point   x   X coordinate

Simple motion module

■ Positioning control with SSCNETIII/H

FX5-40SSC-S

FX5-40SSC-S is equipped with a 4-axis positioning function compatible with SSCNETIII/H. By combining linear interpolation, 2-axis circular interpolation and continuous trajectory control in the program set with a table, a smooth trajectory can be easily drawn.

1. X-axis   3. Z-axis
2. Y-axis   4. Paint
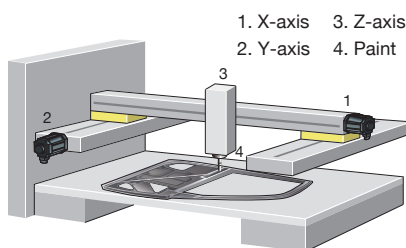
Advanced motion control

■ Making simple motion with compactly packed extra functions

By starting with parameter settings and the sequence program, the simple motion modules can realize a variety of motion control including positioning control, advanced synchronous control, cam control and speed-torque control.

- Use synchronous control and cam control to build a system perfect for your equipment.
- Register up to 64 types of cam patterns to respond to many kinds of control needs.
- Perform continuous operation without stopping the workpiece operation.

Simple

SERVO

MITSUBISHI SERVO AMPLIFIERS & MOTORS

MELSERVO

- ■ High-precision tuning
- ■ High functions for various applications
- ■ Eco-friendly performance

SSCNETIII/H
SERVO SYSTEM CONTROLLER NETWORK

MR-JE-A
General-purpose interface compatible servo amplifier

MR-JE-B
SSCNETIII/H compatible servo amplifier

HG-KN Series
Small capacity, low inertia
Capacity: 100 W to 750 W

HG-SN Series
Medium capacity, medium inertia
Capacity: 0.5 kW to 3 kW

For the details of the MELSERVO Series, please refer to the catalog on the right.
(L(NA)03086ENG)

MELSERVO
JE

Easy to use

■ Advanced one-touch tuning

With just a single touch, you can complete servo adjustment. Vibration suppression, robust filter are automatically adjusted.

■ Large capacity drive recorder

The servo data before and after the alarm occurrence is stored in non-volatile memory and helps you quickly analyze the cause of the alarm.

■ Absolute position detection system

Absolute position detection system can be easily configured with MR-JE-B servo amplifier.

Adjust the servo gains just by pressing the buttons on the front of the servo amplifier.

MELSERVO-JE

MODE ↑ ↓ S
AUTO
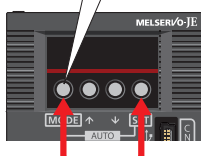
High performance

■ SSCNETIII/H

MR-JE-B is compatible with 150 Mbps full duplex high-speed optical network SSCNETIII/H, achieving high-response system.

■ Fast and accurate

The dedicated engine enables speed frequency response of 2.0 kHz, shortening the tact time.

■ High-resolution encoder

The servo motor is equipped with 131,072 pulses/rev (17-bit) high-resolution encoder, achieving high accuracy.

[Settling time comparison with the prior model]

Prior motor speed
Motor speed
Speed command
Shorter settling time
In-position signal
Settling time

Speed

Time
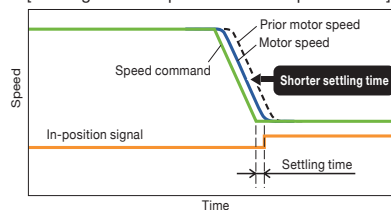
Enhanced integration with drive control

■ Built-in positioning function

AC servos with the built-in positioning function can be connected to GOT for positioning and adjustment.*

*: JE-A only

RS-422

Various setting screens

Point table setting   Tuning

13

Other Products

Mitsubishi Industrial Robot MELFA
MELFA F Series

Vertical, multiple-joint type/Horizontal, multiple-joint type

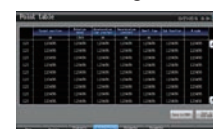- Compact body and slim arm design, allowing operating area to be expanded and load capacity increased.

- The fastest in its class using high performance motors and unique driver control technology.

- Improved flexibility for robot layout design considerations.

- Optimal motor control tuning set automatically based on operating position, posture, and load conditions.

For the details of the MELFA F Series, please refer to the catalog above.
(L(NA)09067ENG)

Mitsubishi Magnetic Contactor
MS-T Series

- 10A frame model is over 16% smaller with a width of just 36mm!!

- New integrated terminal covers.

- Reduce your coil inventory by up to 50%.

- Be certified to the highest international levels while work is ongoing to gain other country.

For the details of the MS-T Series, please refer to the catalog above.
(L(NA)02030ENG)

Mitsubishi Molded-Case Circuit Breakers
MX Series

- Uniform height of the full range. <68mm>

- Easy to install cassette-type internal accessories for 160AF and 250AF.

- For OEM market, suitable for mechanical devices and design of control panel.

- Compliance with GB, IEC, EN standards.

For the details of the molded-case circuit breakers, please refer to the catalog above.

FA Integrated Engineering Software

MELSOFT iQ Works

MELSOFT iQ Works is an integrated software suite consisting of GX Works3, MT Works2, GT Works3, RT Toolbox2 mini and FR Configurator2, which are programming software for each respective product. Integration is further enhanced with MELSOFT Navigator as the central system configuration incorporating an easy-to-use, graphical user interface with additional project-sharing features such as system labels and parameters. The advantages of this powerful integrated software suite are that system design is made much easier with a substantial reduction in repetitious tasks, cutting down on errors while helping to reduce the overall TCO.

**System Management Software**

MELSOFT Navigator

System level graphic-based configuration tool that simplifies the system design by providing a visual representation of the system. System management features such as system-wide parameterization, labels and block reading of project data are also included. (GOT SIMPLE, FR-D700 are not supported.)

GOT Screen Design Software

MELSOFT GT Works3

This integrated software is used to create professional screen designs for GOTs. Developed with the concepts of "Simplicity", "Sleekness", and "User-friendliness" in mind, this is a powerful tool that pushes boundaries and delivers endless design possibilities.
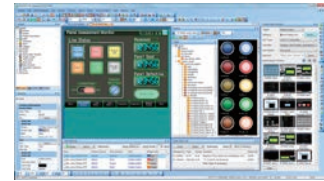
Programmable Controller Engineering Software

MELSOFT GX Works3

GX Works3 is the latest generation of programming and maintenance software offered by Mitsubishi Electric specifically designed for the MELSEC iQ-R and iQ-F Series control system. It includes many new features such as graphic-based system configuration, integrated motion control setup, multiple language support, providing an intuitive engineering environment solution.
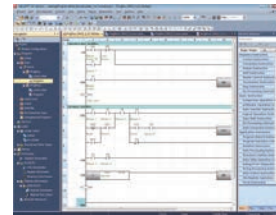
Motion Controller Engineering Software

MELSOFT MT Works2

This motion control design and maintenance software includes intuitive graphic-based programming together with a digital oscilloscope simulator.

**Robot Engineering Software**

MELSOFT RT ToolBox2 mini

This robot setup software supports various steps from programming, to commissioning, evaluation, and maintenance. In addition, improved preventative maintenance is realized through the use of an integrated 3D robot simulator.

Inverter Setup Software

MELSOFT FR Configurator2

This software simplifies the setup and maintenance of AC Inverters. Parameters can be registered easily and distributed to multiple inverters when replacing, and activation of the PLC function all from one setup screen. (FR-D700 is not supported.)
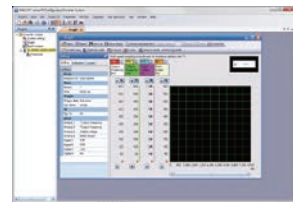
Servo Setup Software

MELSOFT MR Configurator2

Tuning, monitor display, diagnosis, reading/writing parameters, and test operations are easily performed on a personal computer. This start-up support tool achieves a stable machine system, optimum control, and short setup time.
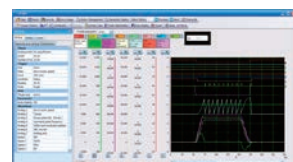
Global Partner. Local Friend

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