



for a greener tomorrow



FACTORY AUTOMATION



## Graphic Operation Terminal GOT2000 Drive Control (Servo) Interactive Solutions

# GOT Drive



MITSUBISHI GRAPHIC OPERATION TERMINAL

MITSUBISHI SERVO AMPLIFIERS & MOTORS

# GOT2000 + MELSERVO-J4

Advanced drive control connectivity  
provides additional value to your system

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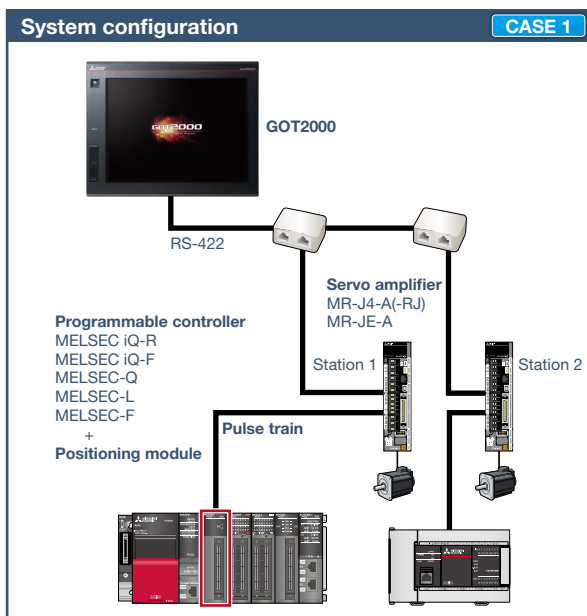
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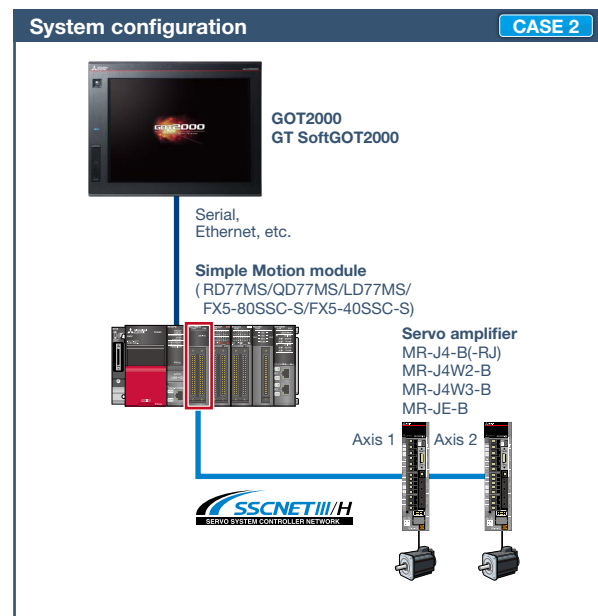
## GOT and servo system configurations



#### System configuration features

- Command interface: pulse train
- Control mode: positioning control
- Program: sequence program (ladder)
- Max. number of control axes: 1/2/4/8/32 axes

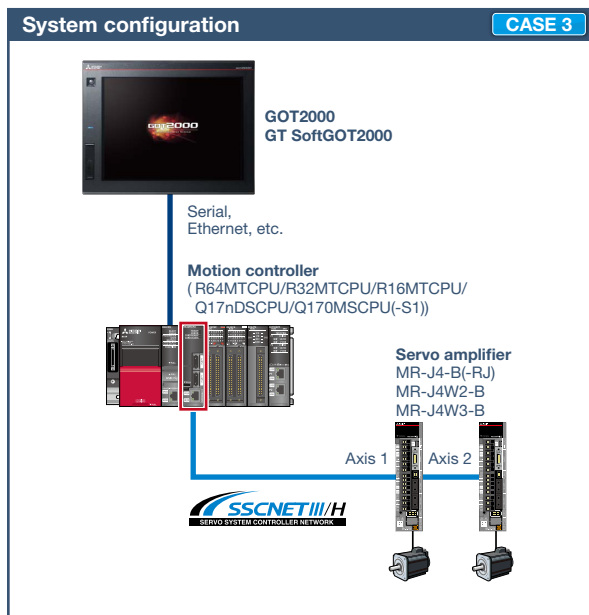
\* Cannot be used in the MR-J3 compatible mode.



#### System configuration features

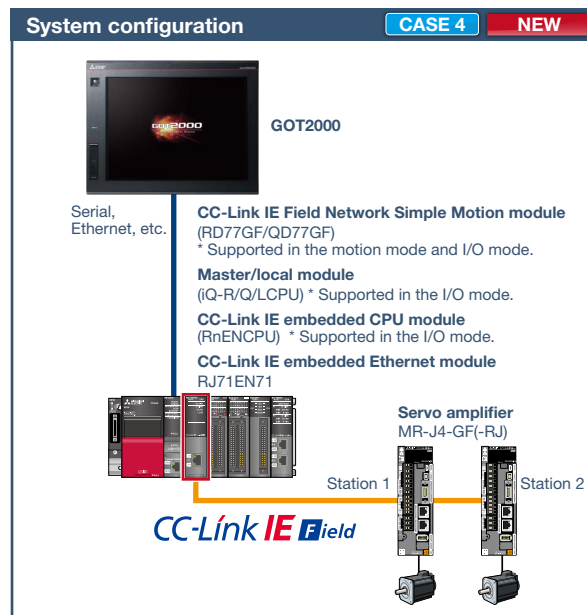
- Command interface: SSCNET III/H
- Control mode: positioning control, synchronous control, speed control, torque control, tightening & press-fit control, cam control
- Program: sequence program (ladder)
- Max. number of control axes: 2/4/8/16 axes

\* Cannot be used in the MR-J3 compatible mode.

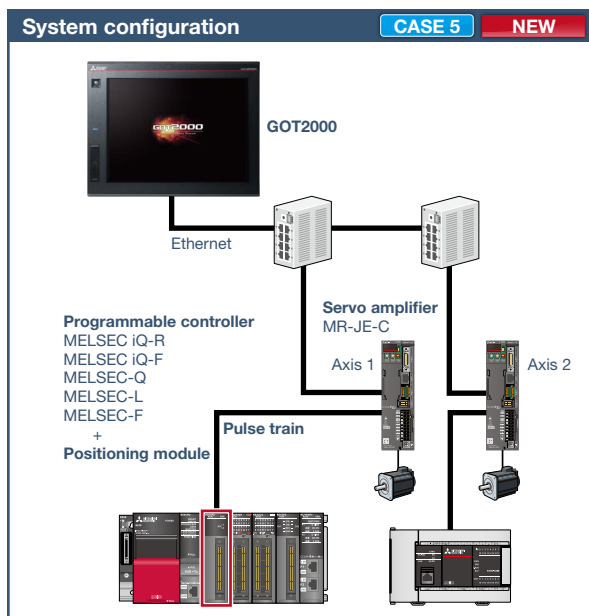
**GOT and servo system configurations****■ System configuration features**

- Command interface: SSCNET III/H
- Control mode: positioning control, synchronous control, speed control, torque control, tightening & press-fit control, cam control
- Program: motion program (SFC)
- Max. number of control axes: 16/32/64 axes

\* Cannot be used in the MR-J3 compatible mode.

**■ System configuration features**

- Command interface: CC-Link IE Field Network
- Control mode: positioning control, synchronous control, speed control, torque control, cam control
- Program: sequence program (ladder)
- Max. number of control axes: 4/8/16/32 axes

**■ System configuration features**

- Command interface: pulse train
- Control mode: positioning control, speed control, torque control
- Program: sequence program (ladder)
- Max. number of control axes: 1/2/4/8 axes

**GOT Drive**

The GOT2000 provides advanced functionality and improves connectivity with Mitsubishi servo systems. It provides some functions of MR Configurator2 (supporting MR-J4).

The GOT Drive enhanced functionality is designed to eliminate need for additional hardware, software and suits customers' applications to speed up system startup, improve maintenance and troubleshooting.

**GOT2000**  
+ MELSERV/O-J4



GOT2000 Drive Control  
Interactive Solutions Movie  
(MITSUBISHI ELECTRIC Factory  
Automation Global Website)



GOT2000 Drive Control  
Interactive Solutions Movie  
(YouTube)

## Drive control interactive functions and supported models

Supported drive control interactive functions differ depending on the system configuration.  
Please refer to the following list.

Function name			Page	GOT supported models					Supported system configuration					
									CASE 1					
				GT 27	GT 25	GT 23	GT 21	GT Soft GOT 2000 <sup>7</sup>	MR-J4-A(-RJ)			MR-JE-A		
Function available	Sample screen <sup>*1,9</sup>	Dedicated screen <sup>*2</sup>	Function available						Sample screen <sup>*1</sup>	Dedicated screen <sup>*2</sup>				
Startup, adjustment	Parameter setting	Basic setting parameters	P.6	○	○	○	○	○	○	●	⊙ <sup>*5</sup>	○	×	×
		Gain/Filter parameters	P.6	○	○	○	○	○	○	●	⊙ <sup>*5</sup>	○	×	×
		Extension setting 1 parameters	P.6	○	○	○	○	○	○	●	⊙ <sup>*5</sup>	○	×	×
		Extension setting 2 parameters	P.6	○	○	○	○	○	○	●	⊙ <sup>*5</sup>	○	×	×
		Extension setting 3 parameters	P.6	○	○	○	○	○	○	●	⊙ <sup>*5</sup>	○	×	×
		I/O setting parameters	P.7	○	○	○	○	○	○	●	⊙ <sup>*5</sup>	○	×	×
		Linear servo/DD motor setting	P.7	○	○	○	○	○	○	●	⊙ <sup>*5</sup>	—	—	—
		Point table	P.7	○	○	○	○	×	MR-J4-A-RJ only	MR-J4-A-RJ only	—	○	×	—
	Test operation	JOG operation	P.8	○	○	○	○	○	○	●	⊙ <sup>*5</sup>	○	×	×
		Positioning operation	P.8	○	○	○	○	○	○	●	⊙ <sup>*5</sup>	○	×	×
		Output signal (DO) forced output	P.8	○	○	○	○	○	○	●	△ <sup>*5</sup>	○	×	×
	Adjustment	One-touch tuning function	P.9	○	○	○	○	○	○	●	—	○	×	—
		Tuning function	P.9	○	○	○	○	○	○	●	—	○	×	—
		Servo amplifier graph function <b>NEW</b>	P.10	○	○	×	×	×	×	—	×	×	—	×
		FA transparent function <sup>*4</sup>	P.10	○	○	○	×	—	—	—	—	—	—	—
Maintenance	Troubleshooting	System launcher (servo network) function <b>NEW</b>	P.11	○	○	×	×	×	—	—	—	—	—	—
		Drive recorder function	P.12	○	○	×	×	×	×	—	×	×	—	×
		Servo amplifier graph function <b>NEW</b>	P.13	○	○	×	×	×	×	—	×	×	—	×
		Backup/Restoration function	P.13	○	○	○	×	×	×	—	—	×	—	—
		Operation monitor	P.14	○	○	○	○	○	○	●	△ <sup>*5</sup>	○	×	×
		Power monitor	P.14	○	○	○	○	○	○	●	—	○	×	—
		Input/output monitor	P.14	○	○	○	○	○	○	●	△ <sup>*5</sup>	○	×	×
		R motion monitor function <sup>*4</sup>	P.15	○	○	×	×	×	—	—	—	—	—	—
		Q motion monitor function <sup>*4</sup>	P.15	○	○	×	×	×	—	—	—	—	—	—
		Motion SFC monitor function <sup>*4</sup>	P.15	○	○	×	×	×	—	—	—	—	—	—
		Motion program editor function <b>NEW</b>	P.16	○	○	×	×	×	—	—	—	—	—	—
		Servo amplifier monitor function	P.16	○	○	×	△	×	○	●	⊙	×	×	×
		Intelligent module monitor function <sup>*4</sup>	P.17	○	○	×	×	×	○ <sup>*3</sup>	—	⊙	○ <sup>*3</sup>	—	⊙
		Alarm display function	P.17	○	○	○	○	○	○	●	—	○	×	—
	Predictive maintenance	Machine diagnosis function	P.18	○	○	○	○	○	○	●	—	○	×	—
		Failure prediction function <b>NEW</b>	P.19	○	○	○	○	×	—	—	—	—	—	—
		Switching axis numbers (station numbers) of servo amplifiers <b>NEW</b>	P.20	○	○	○	○	○	○	●	—	○	×	—
		Servo amplifier life diagnosis function	P.20	○	○	○	○	○	○	●	—	○	×	—
	Screen design		Utilizing screen data <b>NEW</b>	P.22	○	○	○	○	○	○	—	—	○	—

\*1 The sample screen is the project data that is included with GT Works3. (As of June 2018)

\*2 The dedicated screen is the screen that is provided as the extended function of GOT; therefore there is no need for the users to create the screen.

\*3 In the system configuration of CASE 1 (page 2) and CASE 5 (page 3), the function can be used by adding wiring between GOT and programmable controller.

\*4 The supported version of GT Works3 differs depending on the type of connected device (CPU, intelligent function module).

\*5 Parameters of the function can be monitored by using the servo amplifier monitor function in the dedicated screen.

\*6 Usable when the GOT and the programmable controller (IQ-R only) are connected via Ethernet, and the programmable controller and the servo amplifier are connected via the CC-Link IE Field Network.



●: Sample screens available ◎: Dedicated screens available ○: Function supported △: Partially supported —: Not applicable ×: Not supported

Supported system configuration											
CASE 2/CASE 3			CASE 2			CASE 4 <b>NEW</b>			CASE 5 <b>NEW</b>		
MR-J4-B(-RJ) MR-J4-W2-B MR-J4-W3-B			MR-JE-B			MR-J4-GF(-RJ)			MR-JE-C		
Function available	Sample screen <sup>*1,9</sup>	Dedicated screen <sup>*2</sup>	Function available	Sample screen <sup>*1,10</sup>	Dedicated screen <sup>*2</sup>	Function available	Sample screen <sup>*1</sup>	Dedicated screen <sup>*2</sup>	Function available	Sample screen <sup>*1</sup>	Dedicated screen <sup>*2</sup>
○	●	—	○	●	—	○	×	—	○	×	—
○	●	—	○	●	—	○	×	—	○	×	—
○	●	—	○	●	—	○	×	—	○	×	—
○	●	—	○	●	—	○	×	—	○	×	—
○	●	—	○	●	—	○	×	—	○	×	—
○	●	—	○	●	—	○	×	—	○	×	—
○	●	—	—	—	—	○	×	—	—	—	—
—	—	—	—	—	—	○	×	—	—	—	—
○	●	—	○	●	—	○	×	—	○	×	—
○	●	—	○	●	—	○	×	—	○	×	—
○	●	—	○	●	—	○	×	—	○	×	—
○	●	—	○	●	—	○	×	—	○	×	—
○	●	—	○	●	—	○	×	—	○	×	—
○	—	◎	○	—	◎	×	—	×	×	—	×
○	—	—	○	—	—	—	—	—	—	—	—
○	—	◎	○	—	◎	—	—	—	—	—	—
○	—	◎	○	—	◎	○	—	◎	×	—	×
○	—	◎	○	—	◎	×	—	×	×	—	×
×	—	—	×	—	—	○ <sup>*6</sup> MR-J4-GF only	—	—	×	—	—
○	●	—	○	●	—	○	×	—	○	×	—
○	●	—	○	●	—	○	×	—	○	×	—
○	●	—	○	●	—	○	×	—	○	×	—
○ <sup>*8</sup>	—	◎	—	—	—	—	—	—	—	—	—
○ <sup>*8</sup>	—	◎	—	—	—	—	—	—	—	—	—
○ <sup>*8</sup>	—	◎	—	—	—	—	—	—	—	—	—
○ <sup>*8</sup>	—	◎	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
○	—	◎	○	—	◎	○	—	◎	○ <sup>*3</sup>	—	◎
○	●	—	○	●	—	○	×	—	○	×	—
○	●	—	○	●	—	○	×	—	○	×	—
—	—	—	—	—	—	○	×	—	—	—	—
○	●	—	○	×	—	○	×	—	○	×	—
○	●	—	○	●	—	○	×	—	○	×	—
○	—	—	○	—	—	○	—	—	○	—	—

\*7 Supported by using GT Works3 version 1.160S or later. GT SoftGOT2000 can be used in the system configuration of CASE 2 (page 2) and CASE 3 (page 3).

\*8 The function can be used in the system configuration of CASE 3 (page 3).

\*9 Sample screens are available for GT27\*-V (640 × 480) and GT2104-R (480 × 272) only. The data can be used for GOTs with different resolutions by changing the GOT type.

\*10 Sample screens are available for GT27\*-V (640 × 480) only. The data can be used for GOTs with different resolutions by changing the GOT type.

## Parameter setting

Sample screen\*1

End user

OEM

Easy startup

The screens can be used to display and set the values of various parameters in the servo amplifier.

GT27

GT25

GT23

GT21

GT Soft GOT2000\*2

\*1 Sample screens to connect to MR-J4-GF(-RJ), MR-JE-A, MR-JE-C are not available. To monitor parameters, please refer to the "User-created screen" on page 21.

\*2 GT Soft GOT2000 supports MR-J4-B(-RJ), MR-J4W2-B, MR-J4W3-B, and MR-JE-B only.

B

B-RJ

WB

A

A-RJ

GF

GF-RJ

JE-B

JE-A

JE-C

Basic Setting Parameters (ROM) 1/2				
Ax. No.: 1 Name: AXIS 1				
No.	Symbol	Name	Set Value	Unit
PA01	**STY	Operation mode	1234 h	
PA02	**REG	Regenerative option	1234 h	
PA03	**ABS	Absolute position detection system	1234 h	
PA04	*AOP1	Function selection A-1	1234 h	
PA08	ATU	Auto tuning mode	1234 h	
PA09	RSP	Auto tuning response	12345678	
PA10	INP	In-position range	12345678	pulse
PA14	*POL	Rotation direction selection	12345678	
PA15	*ENR	Encoder output pulse	12345678	pulse/rev
PA16	*ENR2	Encoder output pulse 2	12345678	
PA17	**MSR	Servo motor series setting	1234 h	
PA18	**MTY	Servo motor type setting	1234 h	
PA19	*BLK	Parameter block	1234 h	
PA20	*TDS	Tough drive setting	1234 h	
PA21	*AOP3	Function selection A-3	1234 h	
PA22	**PCS	Position control structure selection	1234 h	
PA23	DRAT	Drive recorder arbitrary alarm trigger setting	1234 h	

For any parameter preceded by \*, set the parameter value, switch power off once after setting, and then switch it on again or perform the controller reset and it will be valid.  
For any parameter preceded by \*\*, set the parameter value, switch power off once after setting, and then switch it on again and it will be valid.

To RAM

Menu Basic Setting (ROM) Gain/Filter (ROM) Extension Setting 1 (ROM) I/O Setting (ROM) Extension Setting 2 (ROM) Extension Setting 3 (ROM) Linear servo /DD motor Setting (ROM)

\* The screen image is the connection sample screen of MR-J4-B.

Gain/Filter Parameters (ROM) 1/3				
Ax. No.: 1 Name: AXIS 1				
No.	Symbol	Name	Set Value	Unit
PB01	FILT	Adaptive tuning mode (Adaptive filter II)	1234 h	
PB02	VRFT	Vib. supp. ctrl. tuning mode (Adv. vib. supp. ctrl. II)	1234 h	
PB03	TFBGN	Torque feedback loop gain	12345678	rad/s
PB04	FFC	Feed forward gain	12345678	%
PB06	GD2	Load inertia moment ratio	123.45	times
PB07	PG1	Model loop gain	1234.5	rad/s
PB08	PG2	Position loop gain	1234.5	rad/s
PB09	VG2	Speed loop gain	12345678	rad/s
PB10	VIC	Speed integral compensation	1234.5	ms
PB11	VDC	Speed differential compensation	12345678	
PB12	OVA	Overshoot amount compensation	12345678	%
PB13	NH1	Machine resonance suppression filter 1	12345678	Hz
PB14	NHQ1	Notch shape selection 1	1234 h	
PB15	NH2	Machine resonance suppression filter 2	12345678	Hz
PB16	NHQ2	Notch shape selection 2	1234 h	
PB17	NHF	Shaft resonance suppression filter	1234 h	
PB18	LPF	Low-pass filter setting	12345678	rad/s

For any parameter preceded by \*, set the parameter value, switch power off once after setting, and then switch it on again or perform the controller reset and it will be valid.  
For any parameter preceded by \*\*, set the parameter value, switch power off once after setting, and then switch it on again and it will be valid.

To RAM

Menu Basic Setting (ROM) Gain/Filter (ROM) Extension Setting 1 (ROM) I/O Setting (ROM) Extension Setting 2 (ROM) Extension Setting 3 (ROM) Linear servo /DD motor Setting (ROM)

\* The screen image is the connection sample screen of MR-J4-B.

Extension Setting 1 Parameters (ROM) 1/2				
Ax. No.: 1 Name: AXIS 1				
No.	Symbol	Name	Set Value	Unit
PC01	ERZ	Error excessive alarm level	12345678	rev
PC02	MBR	Electromagnetic brake sequence output	12345678	ms
PC03	*ENRS	Encoder output pulse selection	1234 h	
PC04	**COP1	Function selection C-1	1234 h	
PC05	**COP2	Function selection C-2	1234 h	
PC06	*COP3	Function selection C-3	1234 h	
PC07	ZSP	Zero speed	12345678	r/min
PC08	OSL	Overspeed alarm detection level	12345678	r/min
PC09	MOD1	Analog monitor 1 output	1234 h	
PC10	MOD2	Analog monitor 2 output	1234 h	
PC11	MO1	Analog monitor 1 offset	12345678	mV
PC12	MO2	Analog monitor 2 offset	12345678	mV
PC13	MOSDL	Analog monitor - F/B pos. output standard data - Low	12345678	pulse
PC14	MOSDH	Analog monitor - F/B pos. output standard data - High	12345678	10000pulses
PC17	**COP4	Function selection C-4	1234 h	
PC18	*COP5	Function selection C-5	1234 h	
PC20	*COP7	Function selection C-7	1234 h	

For any parameter preceded by \*, set the parameter value, switch power off once after setting, and then switch it on again or perform the controller reset and it will be valid.  
For any parameter preceded by \*\*, set the parameter value, switch power off once after setting, and then switch it on again and it will be valid.

To RAM

Menu Basic Setting (ROM) Gain/Filter (ROM) Extension Setting 1 (ROM) I/O Setting (ROM) Extension Setting 2 (ROM) Extension Setting 3 (ROM) Linear servo /DD motor Setting (ROM)

\* The screen image is the connection sample screen of MR-J4-B.

### Basic setting parameters screen

Display and set the values of the following parameters in the servo amplifier.

#### • Basic setting parameters ([Pr. PA\_ \_])

\* The screen with the same contents is also available for RAM.

### Gain/filter parameters screen

Display and set the values of the following parameters in the servo amplifier.

#### • Gain/filter setting parameters ([Pr. PB\_ \_])

\* The screen with the same contents is also available for RAM.

### Extension setting parameters screen

Display and set the values of the following parameters in the servo amplifier.

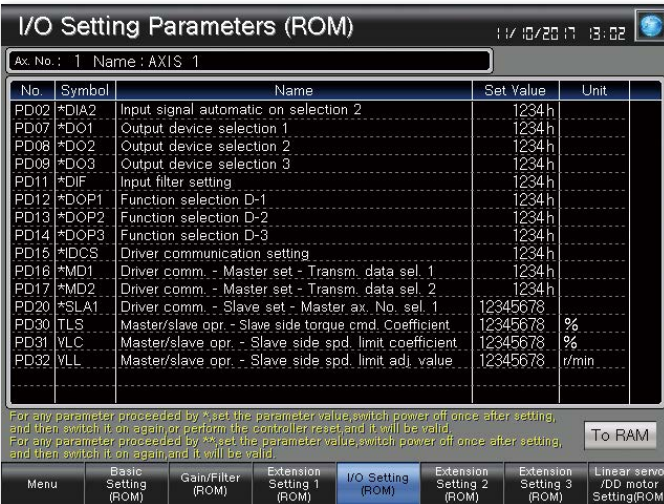
\* The screen with the same contents is also available for RAM.

#### • Extension setting 1 parameters ([Pr. PC\_ \_])

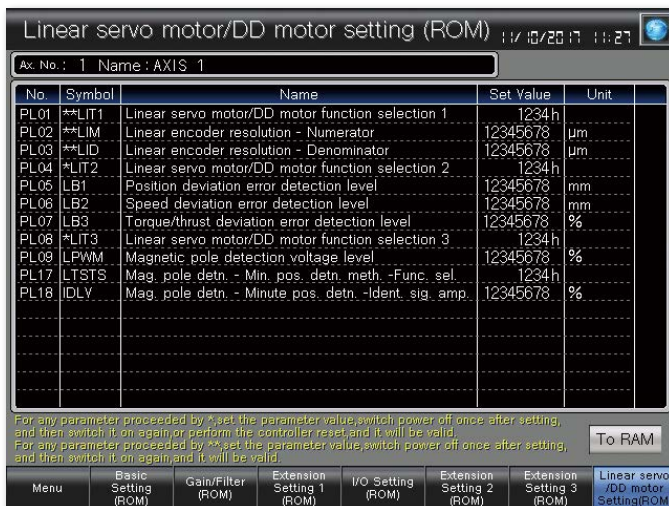
#### • Extension setting 2 parameters ([Pr. PE\_ \_])

#### • Extension setting 3 parameters ([Pr. PF\_ \_])

\* The sample screens are updated as necessary so that the image in this page may not be the same as the latest screen in the sample screen data. For the latest sample screen data, please contact your local sales office.

**Legend****B** MR-J4-B**B-RJ** MR-J4-B-RJ**WB** MR-J4W2-B/MR-J4W3-B**GF** MR-J4-GF**GF-RJ** MR-J4-GF-RJ**A** MR-J4-A**A-RJ** MR-J4-A-RJ**JE-B** MR-JE-B**JE-A** MR-JE-A**JE-C** MR-JE-C

\* The screen image is the connection sample screen of MR-J4-B.



\* The screen image is the connection sample screen of MR-J4-B.



\* The screen image is the connection sample screen of MR-J4-A-RJ.

**I/O setting parameters screen**

Display and set the values of the following parameters in the servo amplifier.

## • I/O setting parameters ([Pr. PD\_ \_])

\* The screen with the same contents is also available for RAM.

**Linear servo/DD motor setting screen**

Display and set the values of the following parameters in the servo amplifier.

## • Linear servo/DD motor setting parameters ([Pr. PL\_ \_])

\* The screen with the same contents is also available for RAM.

**Point table screen (MR-J4-A-RJ\* only)**

Display and set the values in the point table of a servo amplifier (MR-J4-A-RJ\*).

\* GT SoftGOT2000 does not support connection to MR-J4-A-RJ.

\* The sample screens are updated as necessary so that the image in this page may not be the same as the latest screen in the sample screen data. For the latest sample screen data, please contact your local sales office.



## Test operation

Sample screen\*1

End user

OEM

Easy startup

### Use GOT to test the operation and check status of the servo amplifier without a personal computer.

GT27

GT25

GT23

GT21

GT Soft GOT2000\*2

\*1 Sample screens to connect to MR-J4-GF(-RJ), MR-JE-A, MR-JE-C are not available. To monitor parameters, please refer to the "User-created screen" on page 21.

\*2 GT SoftGOT2000 supports MR-J4-B(-RJ), MR-J4W2-B, MR-J4W3-B, and MR-JE-B only.

B B-RJ WB A A-RJ GF GF-RJ JE-B JE-A JE-C

**JOG Operation** 11/10/2017 11:45

Ac. No.: 1 Name: AXIS 1

Item	Current Value	Unit
Cumulative Feedback Pulses	1234567890	pulse
Servo Motor Speed	123456	r/min
Droop Pulses	1234567890	pulse
Cumulative Command Pulses	1234567890	pulse
Command Pulse Frequency	123456	kpulse/s
Regenerative Load Ratio	123456	%
Effective Load Ratio	123456	%
Peak Load Ratio	123456	%
Instantaneous Torque	123456	%
Within One-revolution Position	1234567890	pulse
ABS Counter	123456	rev
Load inertia moment ratio	123.45	times

☒ Start JOG operation

Motor Speed: 300  
Accel./Decel. Time Constant: 50

Fwd. Rot. Rev. Rot.

Menu JOG Operation Positioning Operation Output Signal Forced Output Back

\* The screen image is the connection sample screen of MR-J4-B.

**Positioning Operation** 11/10/2017 11:47

Ac. No.: 1 Name: AXIS 1

Item	Current Value	Unit
Cumulative Feedback Pulses	1234567890	pulse
Servo Motor Speed	123456	r/min
Droop Pulses	1234567890	pulse
Cumulative Command Pulses	1234567890	pulse
Command Pulse Frequency	123456	kpulse/s
Regenerative Load Ratio	123456	%
Effective Load Ratio	123456	%
Peak Load Ratio	123456	%
Instantaneous Torque	123456	%
Within One-revolution Position	1234567890	pulse
ABS Counter	123456	rev
Load inertia moment ratio	123.45	times

☒ Start positioning operation

Motor Speed: 300  
Accel./Decel. Time Constant: 50  
Move Distance: 2000000

Fwd. Rot. Rev. Rot. Restart  
Stop Clear

Menu JOG Operation Positioning Operation Output Signal Forced Output Back

\* The screen image is the connection sample screen of MR-J4-B.

**Output Signal (DO) Forced Output** 11/10/2017 11:49

Ac. No.: 1 Name: AXIS 1

☒ Start output signal (DO) forced output

CN3-8 CN3-9 CN3-13 CN3-15

Menu JOG Operation Positioning Operation Output Signal Forced Output Back

\* The screen image is the connection sample screen of MR-J4-B.

#### JOG operation screen

GOT can be used to send a command to perform test operation (JOG operation) without sending the command from an external controller.

Check the [Start JOG operation] checkbox to switch to the JOG operation mode.

Set the motor speed and the acceleration/deceleration time constant and start JOG operation.

The motor rotates while the forward or the reverse switch is touched.

#### Positioning operation screen

GOT can be used to send a command to perform test operation (positioning operation) without sending the command from an external controller.

Check the [Start positioning operation] checkbox to switch to the positioning operation mode.

Set the motor speed, the acceleration/deceleration time constant, and the travel distance and start positioning operation.

The positioning operation starts when the forward or the reverse switch is touched.

#### Output signal (DO) forced output screen

The screen can be used to forcibly turn on/off the output signals of a servo amplifier.

Check the [Start output signal (DO) forced output] checkbox to switch to the output signal (DO) forced output mode.

Perform the forced output of a signal by touching the corresponding switch. The lamp is lighted while the signal is output.

\* The sample screens are updated as necessary so that the image in this page may not be the same as the latest screen in the sample screen data. For the latest sample screen data, please contact your local sales office.

**J4 Only!**

## One-touch tuning function

Sample  
screen

OEM

Easy  
startup

### Easily adjust servos without a personal computer

**GT27****GT25****GT23****GT21****GT Soft  
GOT2000\***

\* GT SoftGOT2000 supports MR-J4-B(-RJ), MR-J4W2-B, MR-J4W3-B, and MR-JE-B only.

#### Challenges



How can I adjust servo amplifiers without a personal computer?

#### Solutions

**B****B-RJ****WB****A****A-RJ****GF****GF-RJ****JE-B****JE-A****JE-C**

Just a single touch on the switch on the GOT screen to perform adjustment work, which is difficult without experience. You can adjust servo amplifier automatically by selecting from three response modes.

#### One-touch tuning screen

Just a single touch on the switch

Adjustment results are shown

#### Point!

Perform one-touch tuning on GOT and efficiently adjust the servo amplifier without a personal computer.

**J4 Only!**

## Tuning function

Sample  
screen

OEM

Easy  
startup

### Perform fine tuning of gain/filter parameters

**GT27****GT25****GT23****GT21****GT Soft  
GOT2000\***

\* GT SoftGOT2000 supports MR-J4-B(-RJ), MR-J4W2-B, MR-J4W3-B, and MR-JE-B only.

#### Challenges



It's difficult to determine an optimum gain when setting up the device. It's bothersome to connect a personal computer every time I adjust a gain.

#### Solutions

**B****B-RJ****WB****A****A-RJ****GF****GF-RJ****JE-B****JE-A****JE-C**

After one-touch tuning, to obtain higher performance, you can perform fine tuning of gain parameters, machine resonance suppression filter, and vibration suppression control parameters in the tuning screen.

#### Tuning screen

Perform fine tuning of gain parameters, tuning response, and overshoot amount.

#### Filter setting screen

#### Vibration suppression control setting screen

#### Point!

Adjust gains on GOT and efficiently setup the system while performing other tasks in parallel.

**1**

Startup, adjustment

**9**



NEW

## Servo amplifier graph function (startup, adjustment)

Dedicated screen

End user

OEM

Easy startup

### Check and adjust gains in a graph waveform

GT27

GT25

GT23

GT21

GT Soft GOT2000

#### Challenges

If waveform data can be checked and adjusted on GOT, you do not need to bring a PC.

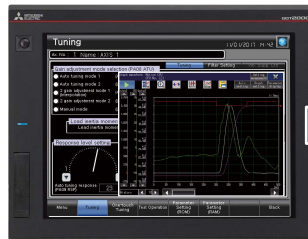


Can I adjust gains while checking the waveform data at the worksite?

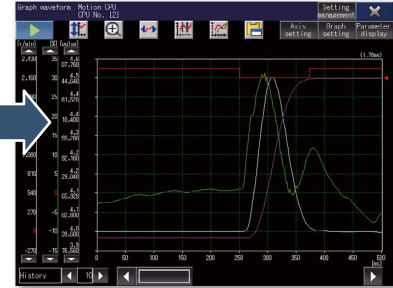
#### Solutions

B B-RJ WB JE-B

The servo amplifier graph function visualizes changes in operation of the equipment due to gain adjustment. Without using a personal computer, you can adjust gains and check parameter information efficiently.



#### Servo amplifier graph waveform



The data of each axis (speed, torque values, etc.) are shown in up to 64 lines in a graph using a window screen on a user-created screen.

#### Point!

Adjust gains and check parameters without using a personal computer.

## FA transparent function

End user

OEM

Maintenance

Easy startup

### Support system startup and adjustment

GT27

GT25

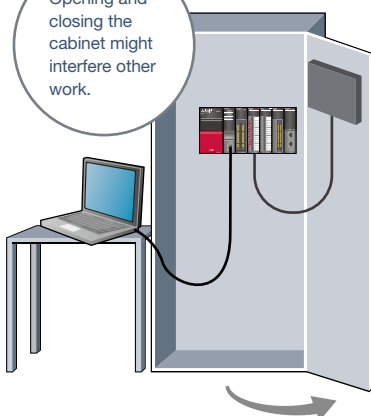
GT23

GT21

GT Soft GOT2000

#### Challenges

Opening and closing the cabinet might interfere other work.



Is it possible to debug programs without opening the cabinet?

#### Solutions

B B-RJ WB JE-B

By connecting a personal computer to a GOT, you can use the GOT as a transparent gateway to enable programming, startup, and adjustment of industrial devices with the following software applications: MELSOFT MR Configurator2, MELSOFT MT Works2, MELSOFT GX Works3, MELSOFT GX Works2, MELSOFT GX Configurator-QP. Users do not have to bother with opening the cabinet or changing cable connections.



#### Point!

Use the front USB interface on the GOT to connect to devices without opening the electrical cabinet.

**NEW****System launcher (servo network) function**

Dedicated screen

End user

OEM

Maintenance

Trouble-shooting

Display the servo network configuration on the on-site GOT

GT27

GT25

GT23

GT21

GT Soft GOT2000

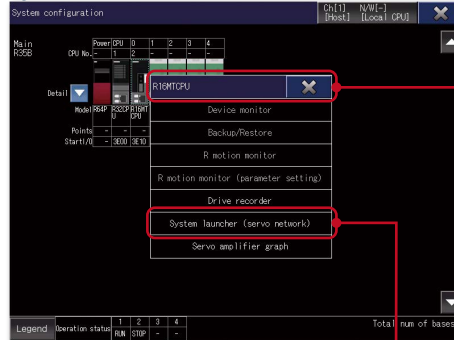
**Challenges****Solutions**

B B-RJ WB JE-B



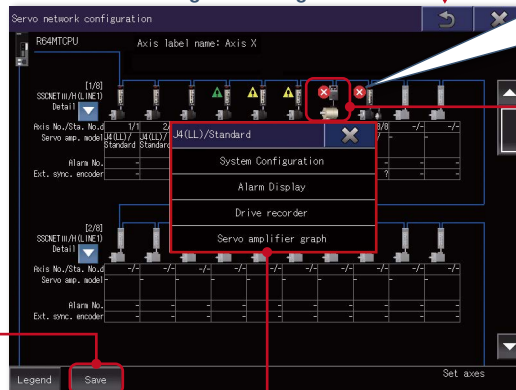
In case of a system failure, is there a simple and quick way to check where the problem occurred?

GOT automatically generates the network configuration diagram for the number of servo axes used so that you can check the system in an easy-to-view screen. You can start the function from the utility screen or just by touching a special function switch on a user-created screen to check the system status.

**System launcher**

Select motion controller CPU or Simple Motion module

Select system launcher (servo network) from the function list

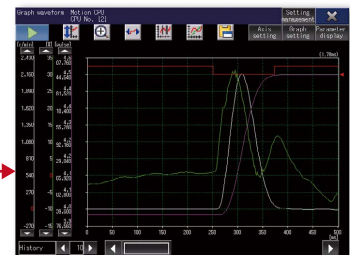
**Servo network configuration diagram**

Where the error occurred is visible and easy to check

Select servo amplifier



Output the servo network configuration information to a text/CSV file and send it by e-mail. You can check it at a remote location.



**Servo amplifier graph waveform**  
Displays the waveform data of a servo amplifier that is useful for analysis.

System Configuration

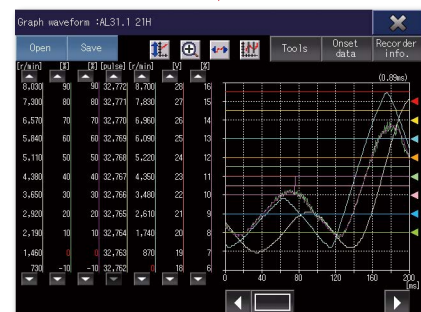
Item	Axis
Servo amplifier identification information	MR-J4-1001
Servo amplifier serial number	E5506.0024
Servo amplifier S/N No.	B0D-B46W000 B3
Option unit identification information	No Connection
Option unit serial number	
Option unit S/W No.	
Converter identification information	No Connection
Converter serial number	
Converter S/W No.	
Motor model	H3-KR13
Motor ID	0111FF130000
Motor serial number	644791005
Encoder resolution	4194304
Accumulated power-on time (h)	630
Num. of Inrush cur. sv. times (times)	23
LED display	E61

**System configuration display**  
Displays the model and the serial number of servo amplifier and motor.

Alarm Display

Axis	1:AX1S1
No.	16.3
Name	Encoder initial communication error 1
Est. occurrence time	2018/05/08 11:23:47
Est. elapsed time (h)	0
Detailed information	03

**Alarm display**  
Displays currently occurring errors in the servo amplifier.



**Drive recorder graph waveform**  
From the drive recorder information screen, displays the waveform data that is useful for analysis.

\* To use this function, open the [Common] > [GOT Setup] > [Advanced Setting] > [System Launcher] menu and check the [Update the setting of system launcher function], and also check the [Display the servo network configuration] in Controller System Launcher Function Setting.

**Point!**

**Check the product information of the servo amplifier and occurring alarms from the servo network configuration diagram without using a personal computer.**

**2****Maintenance**

## Drive recorder function

Dedicated screen End user OEM Troubleshooting

### Check servo amplifier alarm information on the GOT

GT27 GT25 GT23 GT21 GT Soft GOT2000

#### Challenges

I need to go to the office to get a PC to investigate the problem cause.



In case of a system failure, is there a simple and quick way to check the problem cause?

#### Solutions

Servo alarm data such as motor current and position command can be read from the servo amplifier and displayed in a waveform or a list format. Easily check the servo data on GOT without using a personal computer.

\* The drive recorder function can also be started from the CC-Link IE Field Network diagnostics.

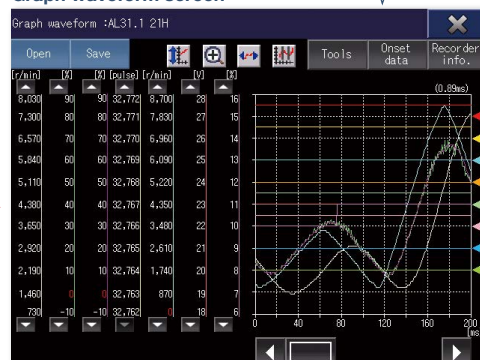
#### Drive recorder information list screen

Drive recorder information list			
Open	Save	Axis label: Sample01	Axis: 1
Connection: Via (CPU, CPU No. [2], Axis [1])			
No.	Name	Occurred Detail	Read
1	Encoder normal communication error 1	996 01	
2	Encoder normal communication error 1	996 01	
3	Encoder normal communication error 1	996 01	
4	Encoder normal communication error 1	996 01	
5	Encoder normal communication error 1	996 01	
6	Encoder normal communication error 1	996 01	
7	Encoder normal communication error 1	996 01	
8	Encoder normal communication error 1	996 01	
9	Encoder normal communication error 1	996 01	
10	Encoder normal communication error 1	996 01	
11	Encoder normal communication error 1	996 01	
12	Encoder normal communication error 1	996 01	

The axis label name is displayed when it is set.

Check graph waveform from the alarm list!

#### Graph waveform screen



#### Point!

GOT can be used to display the screen equivalent to the drive recorder of MR Configurator2.

## Servo amplifier data analysis

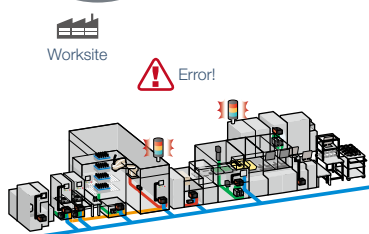
Dedicated screen End user OEM Troubleshooting

### Retrieve servo amplifier data using GOT and analyze it on your computer

GT27 GT25 GT23 GT21 GT Soft GOT2000

#### Challenges

Cannot do anything without a PC?



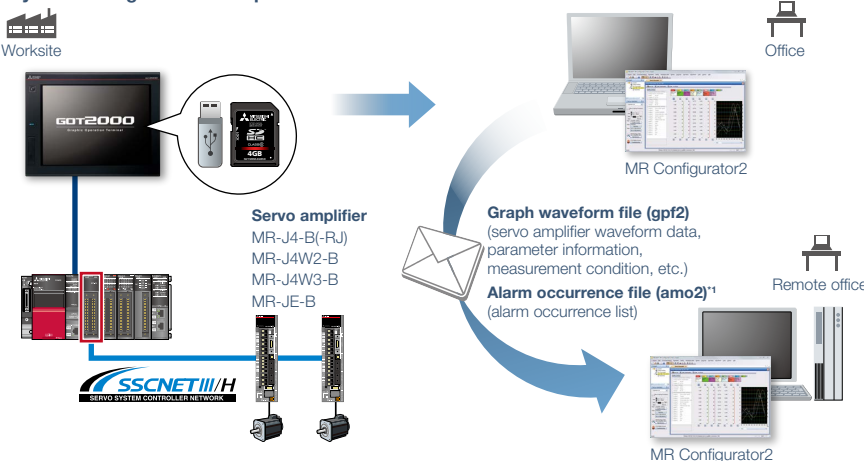
In case of a system failure, is there a simple and quick way to retrieve the servo data and analyze the problem cause?

#### Solutions

GOT reads the data which is saved in a servo amplifier and stores it in GOT's SD memory card or USB memory. After obtaining the servo data from GOT, you can send it to an office in a remote location and quickly solve the problem.

\* The graph waveform file (gpf2) of the servo amplifier graph function is compatible with MR-J4-B(-RJ), MR-J4W2-B, MR-J4W3-B, and MR-JE-B.

#### System configuration example: CASE 2



#### Point!

Save files of the graph waveform data (gpf2) and the list at the alarm occurrence (amo2)\* to an SD memory card or USB memory on the GOT and analyze it on a personal computer.

\*1 Alarm occurrence file (amo2) is supported by the drive recorder function.

**NEW****Servo amplifier graph function (maintenance)**

Dedicated screen

End user

OEM

Preventive maintenance

Trouble-shooting

**Analyze the waveform data of a servo amplifier**

GT27

GT25

GT23

GT21

GT Soft GOT2000

**Challenges**

I need to go to the office to get a PC to investigate the cause of the problem.

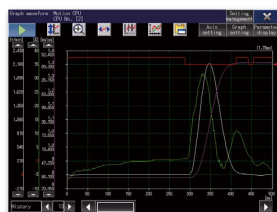


How can I compare the data before and after the error occurrence?

**Solutions**

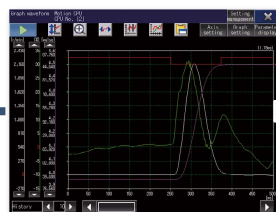
B B-RJ WB JE-B

In the servo amplifier graph function, a specific period of time can be set in the collection and trigger setting window. Then the waveform data that occurred within the set period and the parameter information can be buffered in a servo amplifier, and can be read out and displayed on the GOT. By saving a normal waveform data as a history, you can compare it with the data measured in the same conditions by superimposing them; therefore it is useful for equipment maintenance.



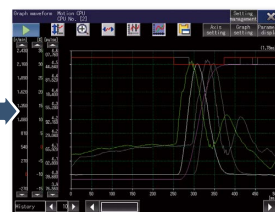
Normal waveform data

+



Abnormal waveform data

→



You can see the difference at a glance by superimposing normal and abnormal waveform data

**Point!**

**Compare normal and abnormal waveform data and analyze them for equipment maintenance.**

J4-GF Only!

**Backup/Restoration function**

End user

OEM

Preventive maintenance

Trouble-shooting

**Easily backup parameters**

GT27

GT25

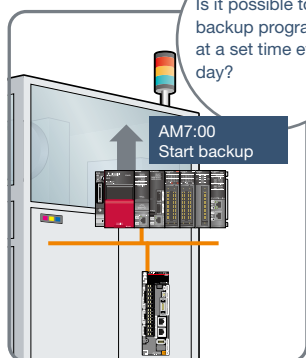
GT23

GT21

GT Soft GOT2000

**Challenges**

Is it possible to backup programs at a set time every day?



How can I backup parameters of servo amplifiers periodically?

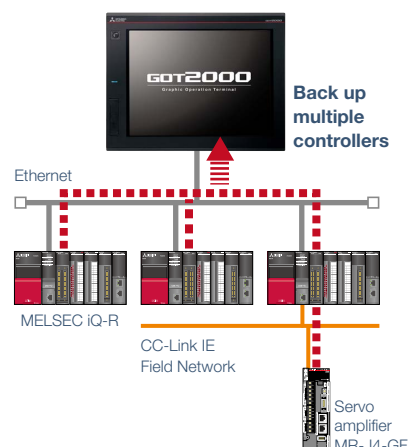
**Solutions**

GF

Backup or restore the parameters of a servo amplifier to or from the GOT's SD memory card or USB memory. You can specify a trigger device, a day of the week, and time for automatic backup.

The function makes it easier to backup data at the end of the day, before the weekend, or before the holiday. You can perform batch operation to restore the data to the servo amplifier.

\* Ethernet connection is supported between GOT and a programmable controller (iQ-R only). For connecting the programmable controller and a servo amplifier, CC-Link IE Field Network connection can be used. Note that this function cannot be used when the CC-Link IE Field Network Ethernet adapter module is used.

**Point!**

**Improve production efficiency by using the GOT to manage product changeovers and maintenance recovery procedures.**

**2****Maintenance**



## Monitor function

Sample screen\*1

End user

OEM

Trouble-shooting

The screens can be used to display the status of the servo amplifier in operation and the I/O signals.

GT27

GT25

GT23

GT21

GT Soft GOT2000\*2

\*1 Sample screens to connect to MR-J4-GF(-RJ), MR-JE-A, MR-JE-C are not available. To monitor parameters, please refer to the "User-created screen" on page 21.

\*2 GT Soft GOT2000 supports MR-J4-B(-RJ), MR-J4W2-B, MR-J4W3-B, and MR-JE-B only.

B

B-RJ

WB

A

A-RJ

GF

GF-RJ

JE-B

JE-A

JE-C

Operation Monitor 1/2		
Ax. No.: 1 Name: AXIS 1		
Item	Current Value	Unit
Cumulative Feedback Pulses	1234567890	pulse
Servo Motor Speed	123456	r/min
Droop Pulses	1234567890	pulse
Cumulative Command Pulses	1234567890	pulse
Command Pulse Frequency	123456	kpulse/s
Regenerative Load Ratio	123456	%
Effective Load Ratio	123456	%
Peak Load Ratio	123456	%
Instantaneous Torque	123456	%
Within One-revolution Position	1234567890	pulse
ABS Counter	123456	rev
Load inertia moment ratio	123.45	times
Bus Voltage	123456	V
Load side encoder cumulative F/B pulses	1234567890	pulse
Load side encoder information 1	1234567890	pulse
Load side encoder information 2	123456	rev
Servo motor thermistor temperature	123456	°C
Internal Temperature of Encoder	123456	°C

### Operation monitor screen 1/2

The screen can be used to display and check the status of the servo amplifier in operation.

\* The screen image is the connection sample screen of MR-J4-B.

Operation Monitor 2/2		
Ax. No.: 1 Name: AXIS 1		
Item	Current Value	Unit
Settling Time	123456	ms
Oscillation Detection Frequency	123456	Hz
Number of Tough Drive Operations	123456	times
Unit Power Consumption	1234567890	W
Unit Total Power Consumption	1234567890	Wh

### Operation monitor screen 2/2 (Power monitor)

The screen can be used to display and check the status (power consumption, total power consumption, etc.) of the servo amplifier in operation.

\* The screen image is the connection sample screen of MR-J4-B.

Input/output Monitor

11/10/2017 11:55

Ax. No.: 1

Name: AXIS 1

Input Signal

☒ CN3-2

☐ CN3-19

☐ CN3-12

☐ CN3-20

Output Signal

☒ CN3-13

☐ CN3-09

☐ CN3-15

☐ CN3-08

Input Device Status

☒ CSON

☐ EMG

☐ LSP

☐ EM2/1

☐ LSN

☐ CRDY

☐ PC

☐ CDP

☐ RES

☐ CLD

☐ CSY1

☐ URGNT

☐ CSY2

☐ FLS

☐ CTL1

☐ RLS

☐ CTL2

☐ DOG

☐ ST1

☐ ST2

Output Device Status

☒ RD

☐ BWNG

☐ SSV1

☐ SA

☐ ALM2

☐ SSV2

☐ ZSP

☐ RDY

☐ STL1

☐ TLC

☐ STO

☐ STL2

☐ VLC

☐ SMPD

☐ ZPASS

☐ INP

☐ CDPS

☐ SFLS

☐ WNG

☐ CLDS

☐ SRLS

☐ ALM

☐ ABSY

☐ SDOG

☐ OP

☐ IPF

☐ SSV3

☐ MBR

☐ SPC

☐ DB

☐ MTTR

Menu

Operation Monitor

Input/output Monitor

Back

### Input/output monitor screen

The screen can be used to display and check the status of the servo amplifier input/output signals.

It is also useful for checking the status of the I/O signals with just the servo amplifier before connecting to a system.

The screen image is the connection sample screen of MR-J4-B.

\* The sample screens are updated as necessary so that the image in this page may not be the same as the latest screen in the sample screen data. For the latest sample screen data, please contact your local sales office.



## R motion monitor function/Q motion monitor function

Dedicated screen

End user

OEM

Trouble-shooting

## Support startup, adjustment of motion controllers

GT27

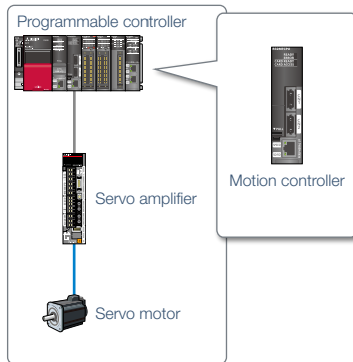
GT25

GT23

GT21

GT Soft GOT2000

## Challenges



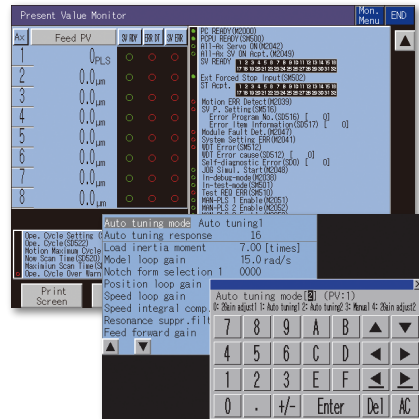
Can I check and change servo parameters of a motion controller easily?

## Solutions

B B-RJ WB

In a dedicated screen on GOT, it is possible to monitor and set parameters of motion controllers that are mounted on the same base unit.

## R motion monitor screen



Parameter setting screen

&lt;Supported models&gt;

- R64MTCPU/R32MTCPU/R16MTCPU
- Q173DCPU/Q172DCPU
- Q170MTCPU(-S1)
- Q170MTCPU
- Q173DCPU(-S1)/Q172DCPU(-S1)
- Q173HCPU/Q172HCPU
- Q173CPU(N)/Q172CPU(N)

\* Motion controller OS (MELSEC-Q Series) should be SV13 or SV22. Supported contents of the Q motion monitor function vary depending on the CPU model.

\* For the details of supported devices and connection types, please refer to the relevant product manual.

## Point!

Monitor and change servo parameters of a motion controller on GOT.

## Motion SFC monitor function

Dedicated screen

End user

OEM

Trouble-shooting

## Check motion SFC programs without a personal computer

GT27

GT25

GT23

GT21

GT Soft GOT2000

## Challenges



How can I check motion SFC programs without a personal computer?

## Solutions

B B-RJ WB

GOT can monitor motion SFC programs in the motion controller CPU (Q series) and display them in the SFC diagram format. Viewing the program batch monitor or active step list enables you to check the complete status at a glance.

## Program tabs

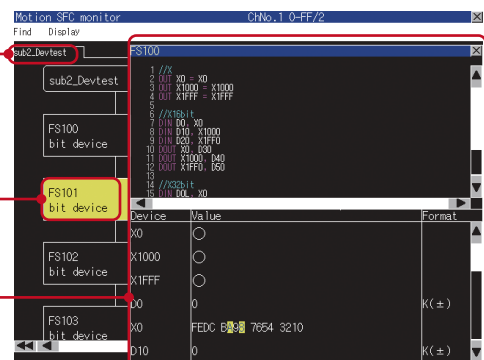
Touch a tab to display the program.

## Step/transition

The active step is highlighted. Touch the step to display the detail program window. The SFC diagram scrolls automatically along with the progress of active steps.

## Detail program window

Displays the program and the present value of the calculation control step/transition.



&lt;Supported models&gt;

Motion controller CPU (Q Series)

\* Motion controller OS (MELSEC-Q Series) should be SV13 or SV22.

\* For the details of production number and the OS version supported by QCPU, please refer to the relevant product manual.

## Point!

Easily troubleshoot programs on GOT without a personal computer.

NEW

## Motion program editor function

Dedicated screen

End user

OEM

Maintenance

Trouble-shooting

Display and edit motion programs (G-code programs) on the GOT

GT27

GT25

GT23

GT21

GT Soft GOT2000

Challenges

Solutions

B B-RJ WB

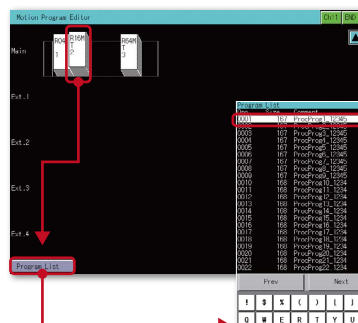


An error occurred during production. Can I edit the motion programs (G-code programs) at the worksite?

Motion programs (G-code programs) can be edited in the dedicated screen of the motion program editor function of the GOT.

\* Supported by GOTs with a resolution of SVGA or higher.

\* To use G-code control, the G-code add-on library (paid) must be installed.

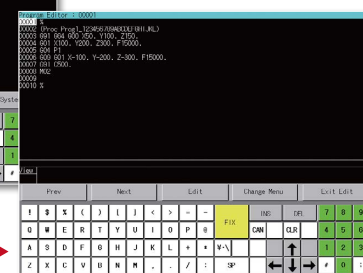


Select a motion controller CPU and touch Program List

<Supported models>

- R64MTCPU/R32MTCPU/R16MTCPU (valid when the G-code add-on library is used)

Select a program to edit and touch Select



Point!

Edit motion programs (G-code programs) at the worksite without a personal computer.

## Servo amplifier monitor function

Sample screen

Dedicated screen

End user

OEM

Trouble-shooting

Support startup, adjustment of servo systems

GT27

GT25

GT23

GT21

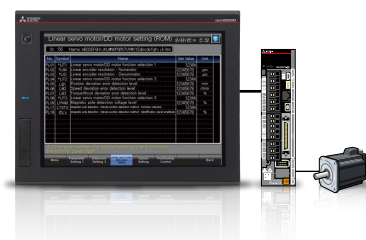
GT Soft GOT2000

Challenges

Solutions

A A-RJ

It's bothersome to design setting screen from scratch...



How can I check the status of servo amplifier easily?

In a system which outputs pulse trains, the GOT can be connected to a servo amplifier in a serial connection (RS-422) to perform the following operations: set up, monitoring, alarm display, diagnosis, parameter setting, and test operations.

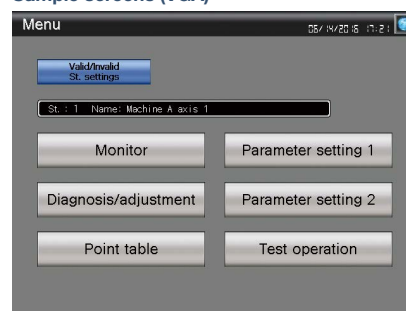
Dedicated screens

MS-A Servo amp. Monitor [JRS]		
Cumulative feedback pulses	-1061092 pulse	Within one revolution position 4066398 pulse
Servo motor speed	0 r/min	ABS counter -627 rev
Droop pulses	1 pulse	Load to motor inertia ratio 7.00 times
Cumulative command pulses	0 pulse	Bus voltage 310 V
Command pulse frequency	0 kbps	Encoder internal temperature 58 °C
Analog speed command voltage	-0.05 V	Setting time 2 ms
Analog torque command voltage	0.00 V	Oscillation detection frequency 0 Hz
Regenerative load ratio	0 %	Tough drive times 0 times
Effective load ratio	0 %	Unit power consumption 10 W
Peak load ratio	0 %	Unit total power consumption 10 W
Instantaneous torque	0 %	

Without creating screens, parameters can be monitored and written from dedicated screens.

\* Not supported by GT21.

Sample screens (VGA)



Various sample screens such as monitoring, parameter settings, test operations are available and they are all customizable.

\* Sample screens for GT21 are available in 480 x 272.

Point!

Various monitoring functions, changes to the parameter settings, and test operations can be performed on the servo amplifier connected to the GOT.

**Intelligent module monitor function**Dedicated  
screenEnd  
user

OEM

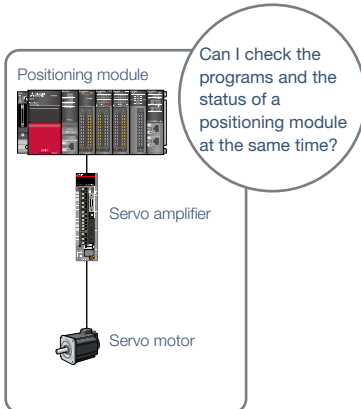
Trouble-  
shooting**Support debug of positioning systems**

GT27

GT25

GT23

GT21

GT Soft  
GOT2000**Challenges**

How can I debug positioning systems efficiently?

**Solutions**

B

B-RJ

WB

A

A-RJ

GF

GF-RJ

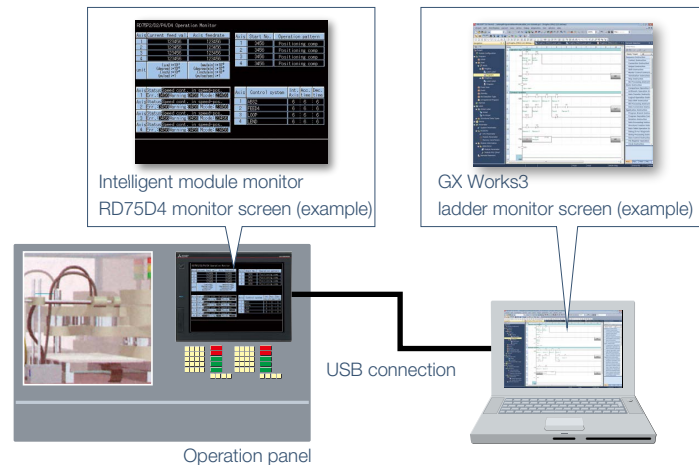
JE-B

JE-A

JE-C

You can debug positioning systems efficiently by displaying the data such as the status, parameters, and the I/O information of positioning module axes on GOT while monitoring positioning sequence programs on a personal computer simultaneously.

\* For the details of supported devices and connection types, please refer to the relevant product manual.

**Point!**

Check the sequence programs and the status of a positioning module at the same time.

**Alarm display function**Sample  
screenEnd  
user

OEM

Trouble-  
shooting**Check alarm documentation stored on the GOT**

GT27

GT25

GT23

GT21

GT Soft  
GOT2000\*

\* GT SoftGOT2000 supports MR-J4-B(-RJ), MR-J4W2-B, MR-J4W3-B, and MR-JE-B only.

**Challenges****Solutions**

B

B-RJ

WB

A

A-RJ

GF

GF-RJ

JE-B

JE-A

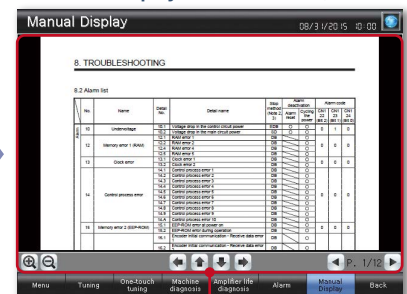
JE-C

GOT displays the alarm information of a servo amplifier by adding the alarm occurrence time using the clock data of the GOT. Use the document display function\* to display the servo amplifier user's manual and quickly check troubleshooting procedures on the GOT.

\* The document display function is not supported by GT23 and GT21.

**Alarm history screen**

Touch here to display the detail information

**Document display screen**

Display the PDF data and check the alarm details and corrective actions

\* Not supported by GT23, GT21.

**Point!**

Check alarms of a servo amplifier on the on-site GOT and quickly solve the problem.

## Machine diagnosis function

Sample screen

End user

Predictive maintenance

Maintenance

Predict machine deterioration and improve system preventive maintenance without a need for personal computer

GT27

GT25

GT23

GT21

GT Soft GOT2000\*

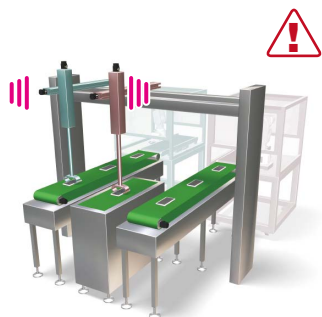
\* GT SoftGOT2000 supports MR-J4-B(-RJ), MR-J4W2-B, MR-J4W3-B, and MR-JE-B only.

### Challenges

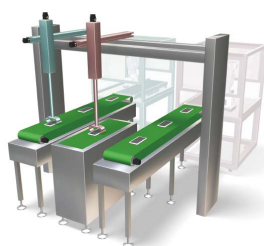
### Solutions

B B-RJ WB A A-RJ GF GF-RJ JE-B JE-A JE-C

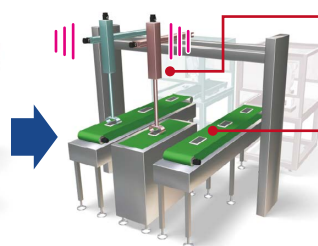
GOT can display estimated values (machine friction, torque vibration, etc.) that are collected by the machine diagnosis function of the servo amplifier. The difference between the initial value (at the startup) and the current value can be used to predict deterioration of the machine. Using this function with the GOT's alarm function will help you perform timely maintenance of machine parts.



How can I predict deterioration of a machine if it has excessive load and is frequently accelerated?



Machine before operation

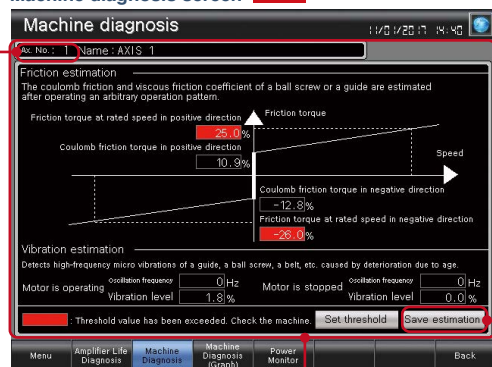


Vibration increased after starting operation

Guide deterioration?

Belt loosened?

### Machine diagnosis screen NEW



By switching the axis number, multiple axes can be maintained on the same screen.

Displays the estimated value upon completion of the machine diagnosis. When any of the estimation values exceed the threshold values that are set on the GOT, the numerical value display area turns red.

Save estimation values to a file and compare the values to check the deterioration of the machine.

### Descriptions of items on the machine diagnosis screen

Item	Description
<b>Estimated friction value</b>	Detect the estimated static friction (coulomb friction) (including gravity and etc.) and dynamic friction (viscous friction) coefficient of guides or ball screws according to the operation patterns.
<b>Friction torque at rated speed (%)</b>	Friction in operation at the rated speed. The value indicates the ratio (%) against the rated torque. The value increases as the machine deteriorates.
<b>Static friction (coulomb friction) (%)</b>	Regardless of the motor speed, a constant value is applied to friction. When an object begins to move, the torque must be greater than or equal to the static friction (coulomb friction) torque. The value indicates the ratio (%) against the rated torque. The value increases as the machine deteriorates.
<b>Vibration estimation</b>	The vibration estimation function observes the torque vibration and estimates the vibration level and the vibration frequency of high-frequency micro vibrations. This function allows checking of the increase of vibration level and the change in the vibration frequency that are caused by deterioration of a guide, a ball screw, a belt, etc. due to age.
<b>Oscillation frequency (Hz)</b>	Frequency of torque vibration when a machine vibrates during operation or it is not operating. The value indicates the frequency when the machine oscillates due to a cause such as deterioration of the machine due to age.
<b>Vibration level (%)</b>	Torque amplitude when a machine vibrates during operation or it is not operating. The value indicates the ratio (%) against the rated torque. The value increases as the machine oscillation increases due to a cause such as deterioration of the machine due to age.

### Friction estimation by using the machine diagnosis function

In order to estimate the friction by using the machine diagnosis function, the machine must be operated at high speed as well as at low speed for at least 150 seconds. Operation at high speed is the range that the motor speed absolute value is greater than or equal to the value of parameter PF31; operation at low speed is the range that the motor speed absolute value is less than the value of parameter PF31. (See Figure 1) In the case of the operation pattern shown in the Figure 1, if for the forward direction friction estimation (a)+(c) is more than 150 seconds and (b) is also more than 150 seconds, a friction estimation result can be obtained. In the system that the operation speed does not exceed the value of parameter PF31, friction estimation can be performed by changing the value of parameter PF31. When the value of parameter PF31 is zero, the value half of the rated speed is the threshold value at high/low speed operation. As stated above, friction estimation requires acceleration and deceleration of machine operation speed. When performing speed control or torque control, the speed is always kept constant so that friction estimation may not be performed.

\* PF31: Machine diagnosis function - Friction judgment speed

\* For the details of the machine diagnosis function, please refer to MR Configurator2 Help.

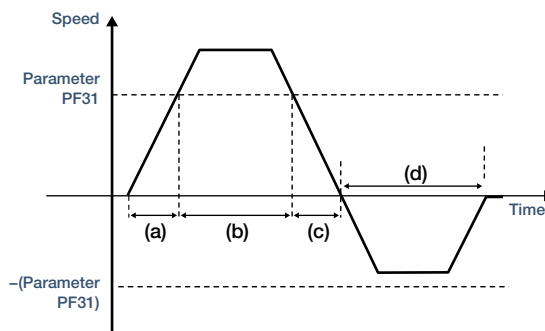


Figure 1. Servo amplifier operation speed

### Point!

Without a personal computer, GOT can be used to predict the deterioration of the machine.



**NEW** J4-GF(-RJ) Only!

## Machine failure prediction function

End

## Predictive maintenance

## Maintenance

## Notify maintenance timing of equipment drive parts

GT27

GT2!

GT23

GT21

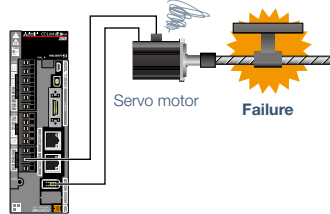
GT Soft  
GOT2000

## Challenges

## Solutions

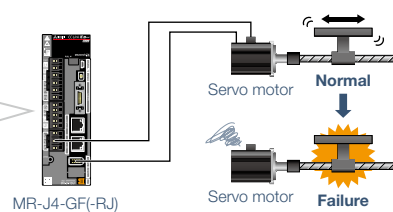
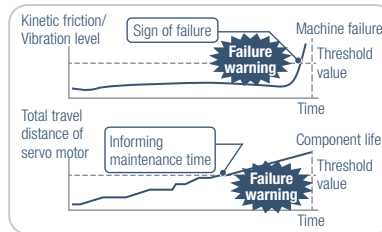
GF

GF-RJ



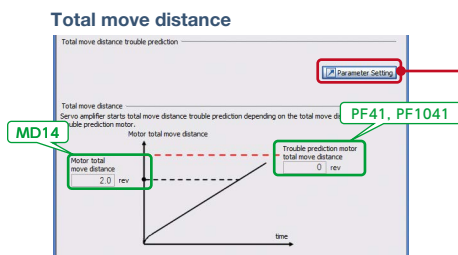
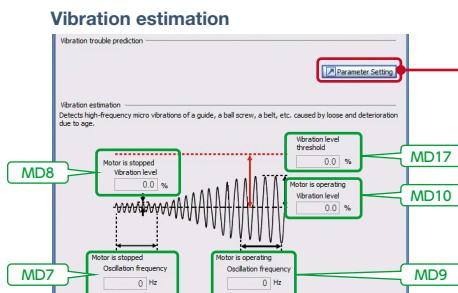
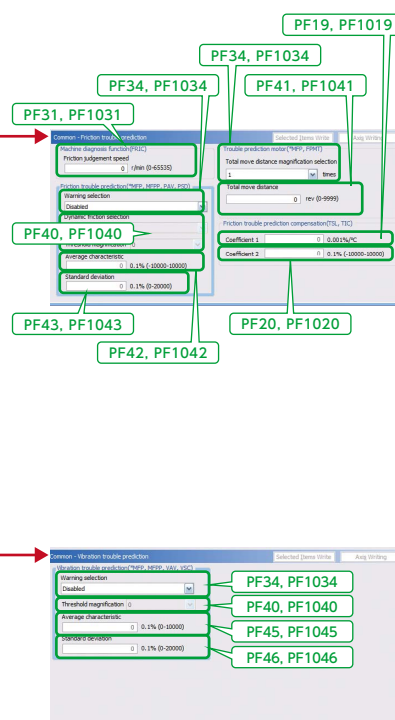
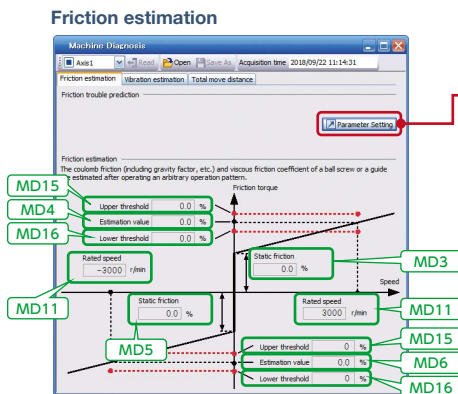
MR-J4-GF(-RJ)

## How can I perform predictive maintenance of equipment drive parts?



MR-J4-GF(-RJ)

## MR Configurator2 Version 1.168W screen



Device name	Item	Symbol
MD3	Machine diagnosis data Static friction at forward rotation torque	-
MD4	Machine diagnosis data Dynamic friction at forward rotation torque (at rated speed)	-
MD5	Machine diagnosis data Static friction at reverse rotation torque	-
MD6	Machine diagnosis data Dynamic friction at reverse rotation torque (at rated speed)	-
MD11	Machine diagnosis data Rated speed	-
MD15	Machine diagnosis data Friction failure prediction - Upper limit threshold	-
MD16	Machine diagnosis data Friction failure prediction - Lower limit threshold	-
PF19, PF1019	Friction failure prediction - Compensation coefficient 1	TSL
PF20, PF1020	Friction failure prediction - Compensation coefficient 2	TIC
PF31, PF1031	Machine diagnosis function - Friction judgment speed	FRIC
PF34, PF1034	Machine diagnosis function selection	*MFP
PF40, PF1040	Machine failure prediction parameter	MFPP
PF41, PF1041	Failure prediction - Servo motor travel distance	FPMT
PF42, PF1042	Friction failure prediction - Average characteristic	PAV
PF43, PF1043	Friction failure prediction - Standard deviation	PSD
MD7	Machine diagnosis data Vibration frequency during stop/servo-lock	-
MD8	Machine diagnosis data Vibration level during stop/servo-lock	-
MD9	Machine diagnosis data Vibration frequency during operation	-
MD10	Machine diagnosis data Vibration level during operation	-
MD17	Machine diagnosis data Vibration level threshold	-
PF34, PF1034	Machine diagnosis function selection	*MFP
PF40, PF1040	Machine failure prediction parameter	MFPP
PF45, PF1045	Vibration failure prediction - Average characteristic	VAV
PF46, PF1046	Vibration failure prediction - Standard deviation	VSC
MD14	Machine diagnosis data Servo motor travel distance	-
PF34, PF1034	Machine diagnosis function selection	*MFP
PF41, PF1041	Failure prediction - Servo motor travel distance (graph side) PF41 x PF34 multiplication numerator	FPMT
		-

\* For the details, please refer to the MR-J4-GF(-RJ) Servo Amplifier Instruction Manual (Motion Mode) (SH(NA)-030218ENG).

### Point!

**Prevent the system from stopping due to machine parts failure.**



NEW

## Switching axis numbers (station numbers) of servo amplifiers

Sample screen

End user

OEM

Maintenance

### Adjust and maintain multiple axes on a single screen

GT27

GT25

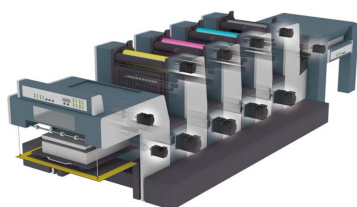
GT23

GT21

GT Soft GOT2000\*

\* GT SoftGOT2000 supports MR-J4-B(-RJ), MR-J4W2-B, MR-J4W3-B, and MR-JE-B only.

#### Challenges



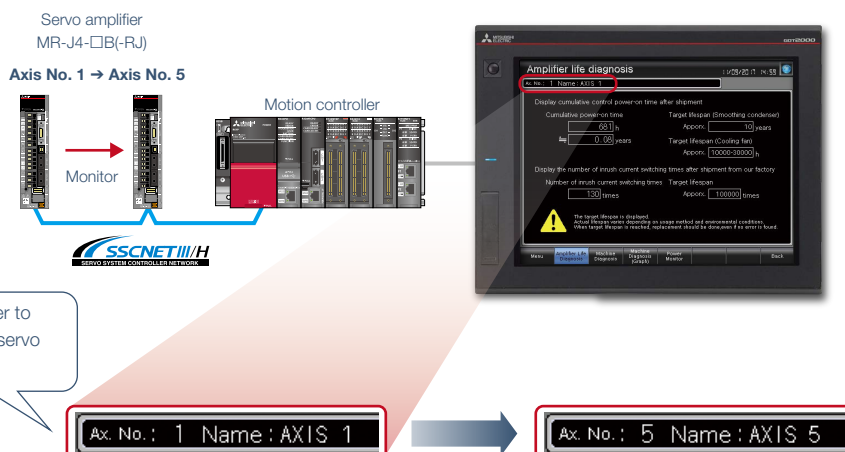
It's a hassle to create screens for the number of servo amplifier axes.

#### Solutions

B B-RJ WB A A-RJ GF GF-RJ JE-B JE-A JE-C

GOT can be used to monitor axes of servo amplifiers by switching the axis numbers so that you can adjust and maintain multiple axes on a single screen. You can reduce the number of screens and also reduce the time for screen creation and equipment maintenance.

#### Switching axis numbers from 1 to 5



#### Point!

You do not have to create the monitor screens as many as the number of axes and can work efficiently.

J4 Only!

## Servo amplifier life diagnosis function

Sample screen

End user

Visualization

Predictive maintenance

### Supports predictive maintenance functions of servo amplifiers

GT27

GT25

GT23

GT21

GT Soft GOT2000\*

\* GT SoftGOT2000 supports MR-J4-B(-RJ), MR-J4W2-B, MR-J4W3-B, and MR-JE-B only.

#### Challenges



Can I check the life of capacitors and relays of servo amplifiers?

#### Solutions

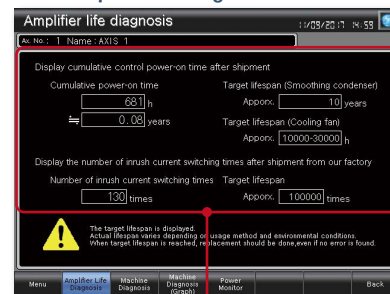
B B-RJ WB A A-RJ GF GF-RJ JE-B JE-A JE-C

Check cumulative operation time, on/off counts of inrush relay on GOT. In addition, replacement timing of servo amplifier components (capacitor, relay) can be displayed on the GOT.



Periodic check

#### Servo amplifier life diagnosis screen



Check the smoothing capacitor energization time or the inrush relay on/off times at a glance

#### Point!

By using with the GOT alarm function, you can notify the replacement timing of servo amplifier components to on-site workers.

\* For replacement of servo amplifier components, please contact your local sales office.

## Sample screens

### Easy to use sample screens of various interactive functions

GT27

GT25

GT23

GT21

GT Soft GOT2000\*

\* GT SoftGOT2000 supports MR-J4-B(-RJ), MR-J4W2-B, MR-J4W3-B, and MR-JE-B only.

B

B-RJ

WB

A

A-RJ

JE-B

Sample screens are available for connection between GOT2000 and servo amplifiers. You can change parameters, monitor the servo amplifiers, and perform test operations. To reuse sample screens, you can select the whole project or individual screens. Sample screens are included with GT Works3.

In the GT Works3 menu, select [Screen] → [Utilize Data].

Select "Sample Project" as the Target on the Utilize Data screen

↓

Select or input a keyword (arbitrary)

↓

Select from the search results, and press the Utilize button

↓

In the sample screen manual, check the details of settings and functions

[Screen specifications]  
GOT type: GT27\*\*-V (640 × 480)  
GT2104-R (480 × 272)  
\* The data can be used for GOTs with different resolutions by changing the GOT type.

[Compatible language]  
English, Japanese, Chinese (Simplified)

**How to obtain sample screens**  
Sample screens are included with GT Works3. For the details, please contact your local sales office.

3

Screen design

## User-created screen

### Create monitor screens by the users flexibly

GT27

GT25

GT23

GT21

GT Soft GOT2000\*

\* GT SoftGOT2000 supports MR-J4-B(-RJ), MR-J4W2-B, MR-J4W3-B, and MR-JE-B only.

B

B-RJ

WB

A

A-RJ

GF

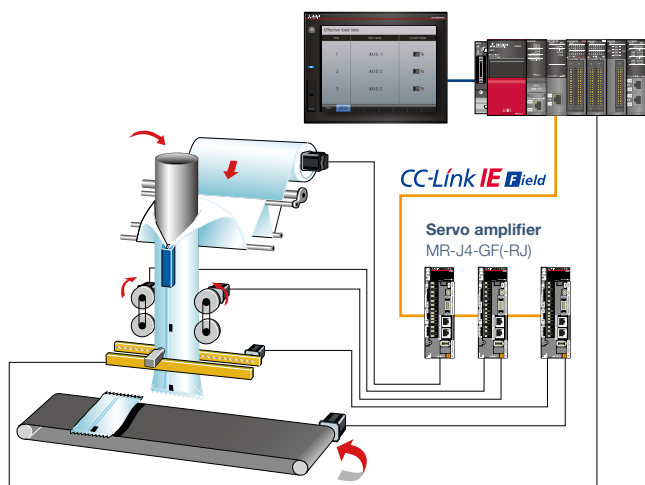
GF-RJ

JE-B

JE-A

JE-C

Users can create screens and set data to be monitored flexibly. If there is no sample screens for the model you wish to use (MR-J4-GF(-RJ), MR-JE-A, MR-JE-C), monitoring is possible by setting the parameters and devices in the numerical displays and lamps. Various connection types can be used so that you can create screens depending on the system.



Effective load ratio		
Axis	Axis name	Current value
1	AXIS 1	20%
2	AXIS 2	30%
3	AXIS 3	25%
Menu Effective load ratio		

An example of displaying multiple axes information in one screen. Screens can be created flexibly to monitor necessary information.

NEW

## Utilizing screen data

Easily utilize sample screens or existing project data

GT27

GT25

GT23

GT21

GT Soft  
GOT2000\*

\* GT SoftGOT2000 supports MR-J4-B(-RJ), MR-J4W2-B, MR-J4W3-B, and MR-JE-B only.

### Challenges

### Solutions

B

B-RJ

WB

A

A-RJ

GF

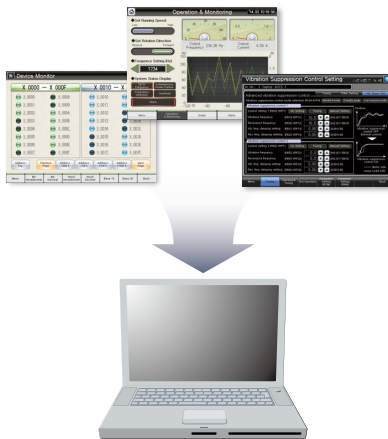
GF-RJ

JE-B

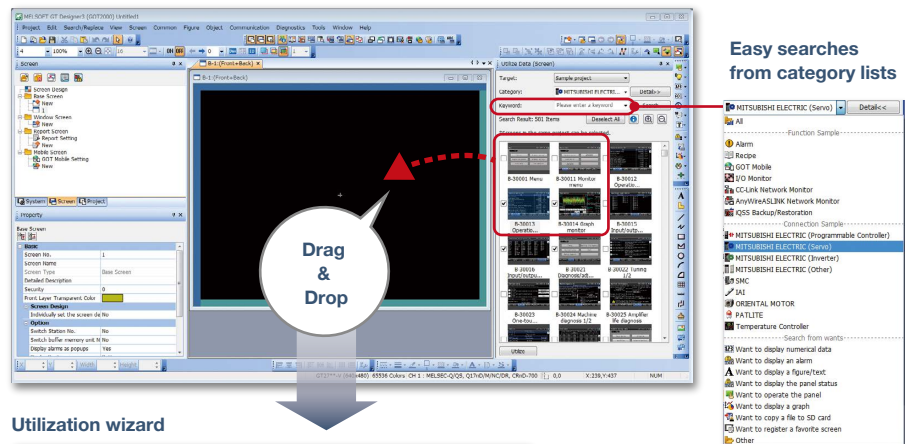
JE-A

JE-C

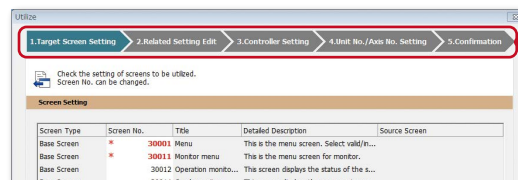
Individual screens can be utilized from past projects and sample projects. Screens you want to utilize can be easily searched by using categories or keywords.



How can I easily utilize screens from past project or sample project?



### Utilization wizard



Simple step navigation

### Point 1

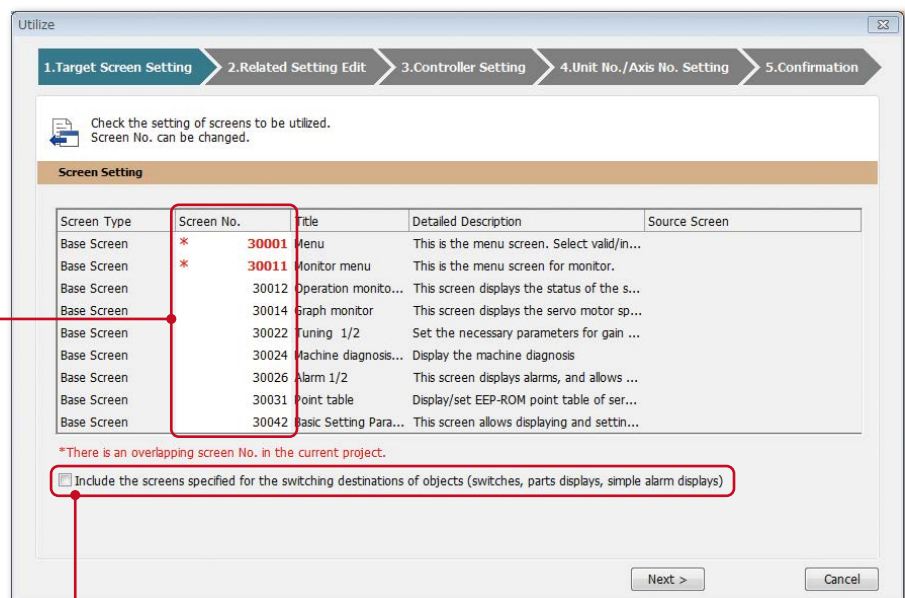
Simultaneously utilize multiple screens by following the instructions in the wizard screen and simply configure settings

#### Utilization wizard:

##### Target screen setting

Select multiple screens, then drag and drop to launch the utilization wizard.

The screen numbers that are duplicated with the editing project are displayed in red



Multiple screens can be utilized at a time. The switching destination screens of the selected screen are also utilized.

## Point 2

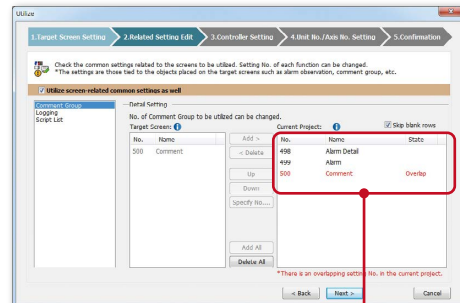
Settings related to target screen (comment group, logging, scripts, etc.) can also be utilized

### Utilization wizard: Related setting edit

Comment groups and scripts related to the target screen can also be utilized at the same time.

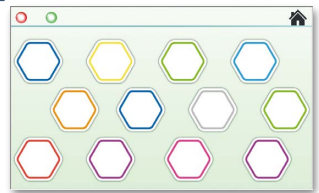
The related settings are listed in the utilization wizard. Therefore, you can change the setting number while checking that the number is not used in the destination project

When utilizing a comment group



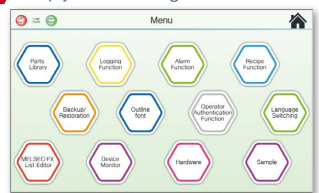
Previously

Comments should be set again...



Now

Simply utilize settings!



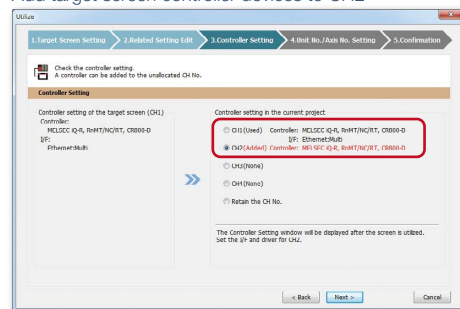
## Point 3

Easily change target screen controller settings

### Utilization wizard: Controller setting

Target screen controller settings can be assigned to an empty channel in the currently editing project.

Add target screen controller devices to CH2



Existing

CH1: RCPU



Addition

CH2: MR-J4-B

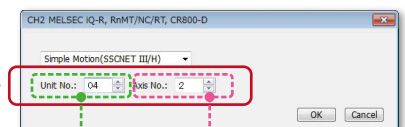
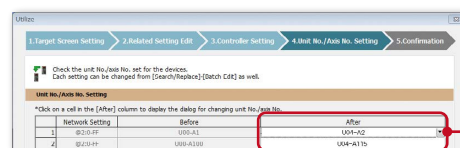


## Point 4

You can change the Simple Motion unit No. and the servo amplifier axis No. to match the actual configuration at once

### Utilization wizard: Unit No./Axis No. setting

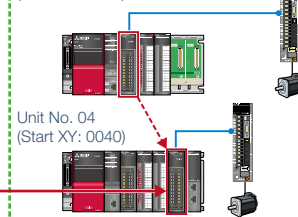
When utilizing screens whose system configuration is different, you can easily change the unit No. (start XY) and the axis No. of the target screen.



System Parameter				
I/O Assignment Multiple CPU Setting Inter-module Synchronization				
Setting Item List Setting Item				
Read Mounting Status Display Setting				
Base/P I/O Ass Setting				
Slot	Module Name	Points	Start XY	
Main				
CPU	RD4CPUHost	3E00		
0(0-0)	RD77MS2	32 Points	0000	
1(0-1)	RY10R2	16 Points	0020	
2(0-2)	RX10	16 Points	0040	
3(0-3)	RD77MS2	32 Points	0060	
4(0-4)	RJ71EN71E+	32 Points	0080	

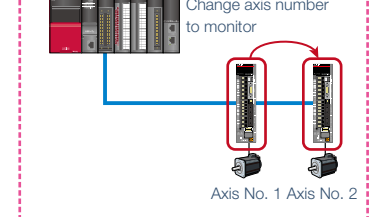
#### Unit No. change

Unit No. 00  
(Start XY: 0000)



#### Axis No. change

Change axis number to monitor



You can easily change the unit No. and axis No. and can work efficiently.

## GOT2000 lineup



### GT27

Advanced model with multi-touch gesture functions

Ethernet RS-232 RS-422/485 CC-Link IE Control CC-Link IE Field\*1 CC-Link IE Field Basic CC-Link Bus MELSECNET

\*1 The CC-Link IE Field Network communication unit and GOT set is also available.

15 inch

TFT  
65536  
colors

AC  
DC



**XGA**  
1024x768

GT2715-XTBA  
GT2715-XTBD

12.1 inch

TFT  
65536  
colors

AC  
DC



**SVGA**  
800x600

GT2712-STBA  
GT2712-STBD  
GT2712-STWA [White model]  
GT2712-STWD [White model]

10.4 inch

TFT  
65536  
colors

AC  
DC



**SVGA**  
800x600

GT2710-STBA  
GT2710-STBD

**VGA**  
640x480

GT2710-VTBA  
GT2710-VTBD  
GT2710-VTWA [White model]  
GT2710-VTWD [White model]

### GT25

High performance, cost efficient, mid-range model

Ethernet RS-232 RS-422/485 CC-Link IE Control\*2 CC-Link IE Field\*1\*2 CC-Link IE Field Basic CC-Link\*2 Bus\*2 MELSECNET\*2

\*1 The CC-Link IE Field Network communication unit and GOT set is also available. \*2 Not supported by GT2505.

12.1 inch

TFT  
65536  
colors

AC  
DC



**SVGA**  
800x600

GT2512-STBA  
GT2512-STBD

10.4 inch

TFT  
65536  
colors

AC  
DC



**VGA**  
640x480

GT2510-VTBA  
GT2510-VTBD  
GT2510-VTWA [White model]  
GT2510-VTWD [White model]

8.4 inch

TFT  
65536  
colors

AC  
DC



**VGA**  
640x480

GT2508-VTBA  
GT2508-VTBD  
GT2508-VTWA [White model]  
GT2508-VTWD [White model]

### GT25 Wide

GOT2000 widescreen expands your view

Ethernet (2 ports) RS-232 RS-422/485 CC-Link IE Field Basic Sound output (built-in)

10.1 inch

TFT  
65536  
colors

DC



**WXGA**  
1280x800

GT2510-WXTBD  
GT2510-WXTSD

7 inch

TFT  
65536  
colors

DC



**WVGA**  
800x480

GT2507-WTBD  
GT2507-WTSD

### GT25 Rugged

Ethernet (2 ports)

RS-232 RS-422/485

CC-Link IE Field Basic

Sound output (built-in)

NEW

7 inch

TFT  
65536  
colors

DC



**WVGA**  
800x480

GT2507T-WTSD

### GT23

Unchallenged cost performance

Ethernet RS-232 RS-422/485 CC-Link IE Field Basic

10.4 inch

TFT  
65536  
colors

AC  
DC



**VGA**  
640x480

GT2310-VTBA  
GT2310-VTBD

8.4 inch

TFT  
65536  
colors

AC  
DC



**VGA**  
640x480

GT2308-VTBA  
GT2308-VTBD



# GOT2000 + MELSERVO-J4



## HMI/GOT Screen Design Software

Professional Designs in Just a Few Clicks

GOT Screen Design Software  
**MELSOFT GT Works3+plus**

You can effectively use existing screen assets or design aesthetic screens with GT Works3, the software that can be commonly used for the GOT2000 Series.

Multi-touch gesture Multimedia\*2 Video/RGB\*2 Sound output External I/O

\*2. Not supported by GT2705.

# SoftGOT

8.4 inch

TFT  
65536  
colors

AC  
DC



SVGA  
800×600

VGA  
640×480

GT2708-STBA  
GT2708-STBD  
GT2708-VTBA  
GT2708-VTBD

5.7 inch

TFT  
65536  
colors

DC



VGA  
640×480

GT2705-VTBD

GOT2000 compatible  
software

65536  
colors



USB port  
license key



GOT2000 compatible HMI software  
**GT SoftGOT2000 Version1**

GT SoftGOT2000 is an HMI software that allows GOT2000 functions to operate on a personal computer or panel computer. Various industrial devices can be connected and monitored. Resolution: 640 to 1920 × 480 to 1200

\* A separate license key must be mounted during use.

Sound output\*2 External I/O\*2

HMI functionality in the palm of your hand

## GT25 Handy

Ethernet RS-232 RS-422/485\*1 CC-Link IE Field Basic

\*1 GT2505HS supports RS-422 only.

5.7 inch

TFT  
65536  
colors

DC



VGA  
640×480

GT2505-VTBD

6.5 inch

TFT  
65536  
colors

DC



VGA  
640×480

GT2506HS-VTBD

NEW

5.7 inch

TFT  
65536  
colors

DC



VGA  
640×480

GT2505HS-VTBD

## GT25

Open frame

A new style of GOT2000

Ethernet RS-232 RS-422/485 CC-Link IE Control CC-Link IE Field CC-Link IE Field Basic CC-Link Bus MELSECNET Sound output External I/O

12.1 inch

TFT  
65536  
colors

AC  
DC



SVGA  
800×600

GT2512F-STNA  
GT2512F-STND

10.4 inch

TFT  
65536  
colors

AC  
DC



VGA  
640×480

GT2510F-VTNA  
GT2510F-VTND

8.4 inch

TFT  
65536  
colors

AC  
DC



VGA  
640×480

GT2508F-VTNA  
GT2508F-VTND

Compact models with basic functions

Ethernet\*1 RS-232\*1 RS-422/485\*1 CC-Link IE Field Basic\*2

## GT21

\*1 Supported interfaces vary depending on the model. Please refer to descriptions in [ ] after the model.

\*2 Supported only by the models equipped with an Ethernet port.

## GT21 Wide

Ethernet  
RS-232 RS-422/485  
CC-Link IE Field Basic

4.3 inch

TFT  
65536  
colors

DC



480×272

GT2104-RTBD  
[Ethernet, RS-232, RS-422/485]

3.8 inch

TFT  
mono-  
chrome

DC

5-color LED



320×128

GT2103-PMBD [Ethernet, RS-422/485]  
GT2103-PMBDS [RS-232, RS-422/485]  
GT2103-PMBDS2 [RS-232 × 2 channels]  
GT2103-PMBLS [RS-422] 5 V DC type

7 inch

TFT  
65536  
colors

DC



WVGA  
800×480

GT2107-WTBD  
GT2107-WTSD

For the status of conforming to various standards and laws, please refer to the Mitsubishi Electric Factory Automation Global website ([www.MitsubishiElectric.com/fa/](http://www.MitsubishiElectric.com/fa/)).

## GOT2000



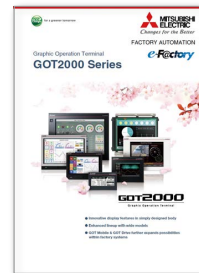
# GOT2000

Graphic Operation Terminal

Designed to meet your  
industrial automation needs

The Graphic Operation Terminal  
GOT2000 Series continues to impress with  
solutions that fulfill all demands

The GOT2000 boasts advanced functionality, acts as a seamless gateway to other industrial automation devices, all while increasing productivity and efficiency. The high quality display is designed to optimize operator control and monitoring of device and line statuses. If you are looking for an intuitive operation terminal, the new tablet-like operability and the higher functionality of operation terminal makes the GOT2000 the ideal choice. Incorporate the GOT2000 to bring forth flexibility, productivity, and quality on a global scale.



For the details, please refer to the  
Mitsubishi Graphic Operation Terminal  
GOT2000 Series Catalog  
(L(NA)08270ENG).

## MELSERVO-J4



MITSUBISHI SERVO AMPLIFIERS & MOTORS

# MELSERVO-J4

Man, machine and environment in perfect harmony  
MELSERVO-J4 – trusted technology makes an  
evolutionary leap forward

Introducing the MELSERVO-J4 series. Offering more than just improved performance, these servos are designed to drive the industries of tomorrow. Backed by Mitsubishi leadership in all-digital technology, MELSERVO has become one of the most globally respected names in factory automation. And now – with the safety, ease of use, and energy-efficient design of the new MELSERVO-J4 series – man, machine and environment can at last work together in perfect harmony.



For the details, please refer to the  
Mitsubishi Servo Amplifiers & Motors  
MELSERVO-J4 Catalog  
(L(NA)03058).

## Related products

Mitsubishi Electric offers a wide variety of industrial devices to meet your needs.



### The MELSEC Series takes control to the next level

MELSEC Series PLCs always meet your system demands and more, with something to offer for any prospective control system.

Enhanced solutions are realized by a wide lineup of PLCs and network systems.



### A diverse product range helps make you the right product choice

Day by day, in heavy industrial use, our frequency inverters prove their high levels of cost-effectiveness, reliability, functionality, and flexibility.



### Armed for productivity Industrial robots MELFA

MITSUBISHI MELFA industrial robot fits for cell manufacturing with high speed and high precision performance and combining intelligent technology. It has easy connectivity with Mitsubishi's PLCs and FA equipments.

All product and company names used herein are either trademarks or registered trademarks of their respective owners.

The actual color may differ slightly from the pictures in this catalog.  
The actual display may differ from what are shown on GOT screen images.

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This publication explains the typical features and functions of the products herein and does not provide restrictions or 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; or any other duties.

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- 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.

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The release date varies depending on the product and your region. For details, please contact your local sales office.

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