MITSUBISHI ELECTRIC

SSCNETIII Compatible
MOTION CONTROLLER Q series

Taking motion control to the age of optics

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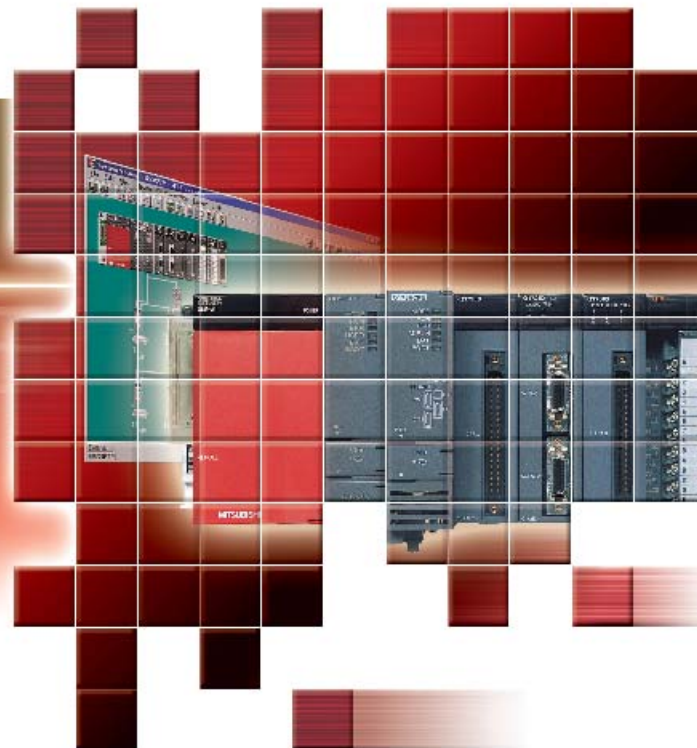
Mitsubishi Electric Corporation Nagoya Works is a factory certified for ISO14001 (standards for environmental management systems) and ISO9001(standards for quality assurance management systems)

SSCNET
SERVO SYSTEM CONTROLLER NETWORK

MELSOFT

ISO 14001
JACO
AUDIT AND CERTIFICATION ORGANIZATION FOR ENVIRONMENT AND QUALITY JAPAN · JAPAN QUALITY
EC97J1113

UKAS
ENVIRONMENTAL
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051

Certified ISO 9001 by
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MANAGEMENT
008

Taking the Various Possibilities of the Servo System *to Optics!*

Taking motion control to new ranges with the high-speed synchronous network SSCNETⅢ!

MOTION CONTROLLER Qseries
SSCNETⅢ compatible

Introducing the SSCNETⅢ compatible Q173HCPU/Q172HCPU to the Motion controller Q Series!

High speeds and high accuracies are attained to comply with the MELSERVO-J3 servo amplifier having the industry's highest performance(as of March 2005).

The conventional Q Series Motion controller's functions and programming environment are incorporated.

(Note) • Q173HCPU/Q172HCPU can be connected only to the SSCNETⅢ compatible MR-J3-B.
• SSCNET(Servo System Controller NETwork)

Attain 50Mbps high-speed communication with optical communication

■ Improved system responsiveness!
— The speed of exchanging data between the controller and servo amplifier has been greatly increased thereby shortening the cycle time.
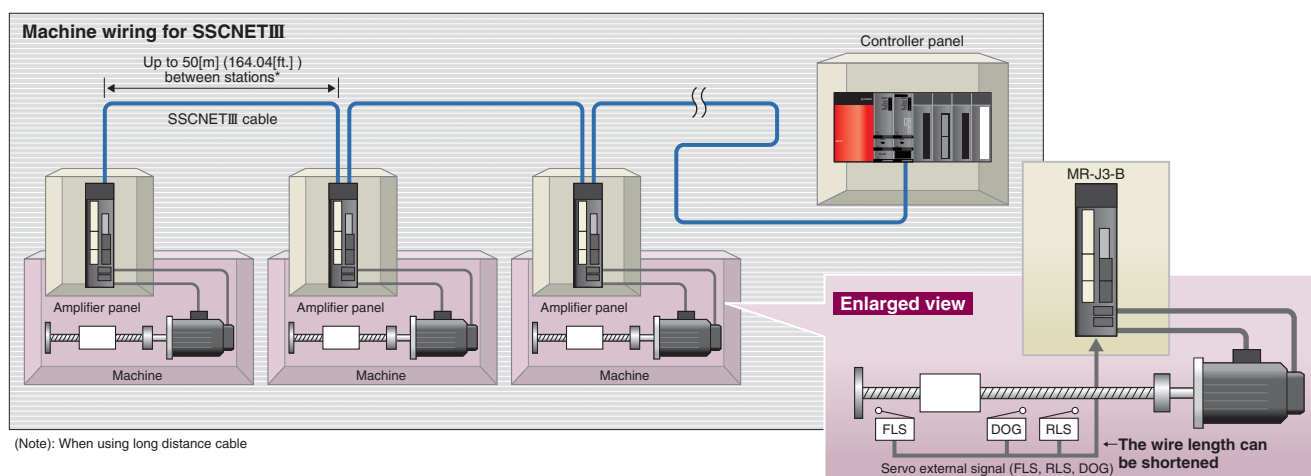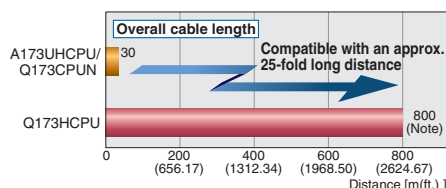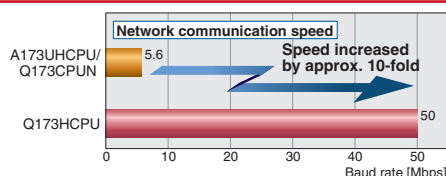
■ Enhanced communication reliability!
— The optical fiber cable was adopted.

■ Improved freedom to device layout!
— This model is compatible with long-distance wiring (Maximum overall distance: up to 50[m] (164.04[ft.]) between stations (Note) × number of axes).
(Note): When using long distance cable: 50[m] (164.04[ft.]) between stations × 16 axes = 800[m] (2624.67[ft.])
— Wiring is reduced by issuing the stroke limit signal and proximity dog signal via the servo amplifier.

Network communication speed

A173UHCPU/Q173CPUN	5.6
Q173HCPU	50

Speed increased by approx. 10-fold

Baud rate [Mbps]

Overall cable length

A173UHCPU/Q173CPUN	30
Q173HCPU	800 (Note)

Compatible with an approx. 25-fold long distance

Distance [m(ft.)]

Machine wiring for SSCNETⅢ

Up to 50[m] (164.04[ft.]) between stations*

SSCNETⅢ cable

Controller panel

Amplifier panel

Machine

MR-J3-B

Enlarged view

FLS DOG RLS

←The wire length can be shortened

Servo external signal (FLS, RLS, DOG)

(Note): When using long distance cable

❷

Attain high speeds and high accuracies with motion control

■ Realized a 0.44ms operation cycle!

— The operation cycle has been reduced by approx. half compared to the conventional model, enabling high accuracy control with smooth commands.

When operation cycle is shortened

Command position / Operation cycle
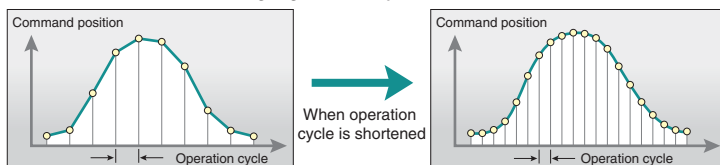
■ Reduced the entire cycle time of the system, including the servomotor!

— This model is compatible with the MELSERVO-J3 servo amplifier having the industry's highest performance.

Powered up motion control

■ Improved synchronization accuracy between multiple axes!

— Errors caused by synchronous encoder's processing time or the servo's droop pulses is automatically compensated with the phase compensation function.

■ 262,144 pulse synchronous encoder (18-bit) is available!

— The synchronous operation accuracy at low speeds is greatly improved (16-fold compared to conventional model).

■ Simultaneous control of synchronous control and PTP positioning possible!

— Real mode and virtual mode combination function.

■ Security function to protect user's know-how incorporated!

— A function to protect user programs with a password has been added.

■ Suitable for devices, such as spinners, with the speed control function with fixed position stop (Orientation function)!
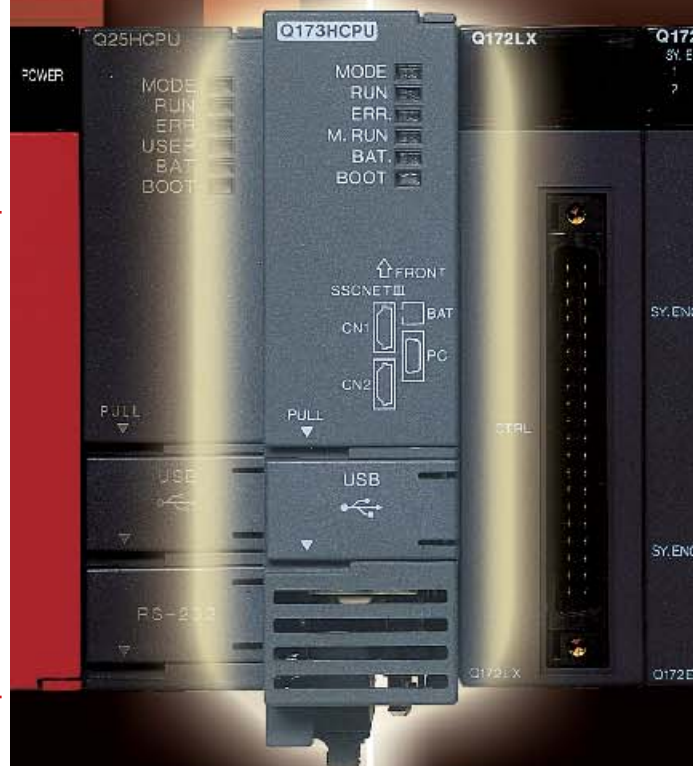
Superior Motion controller usability

■ Realized an integral engineering environment!

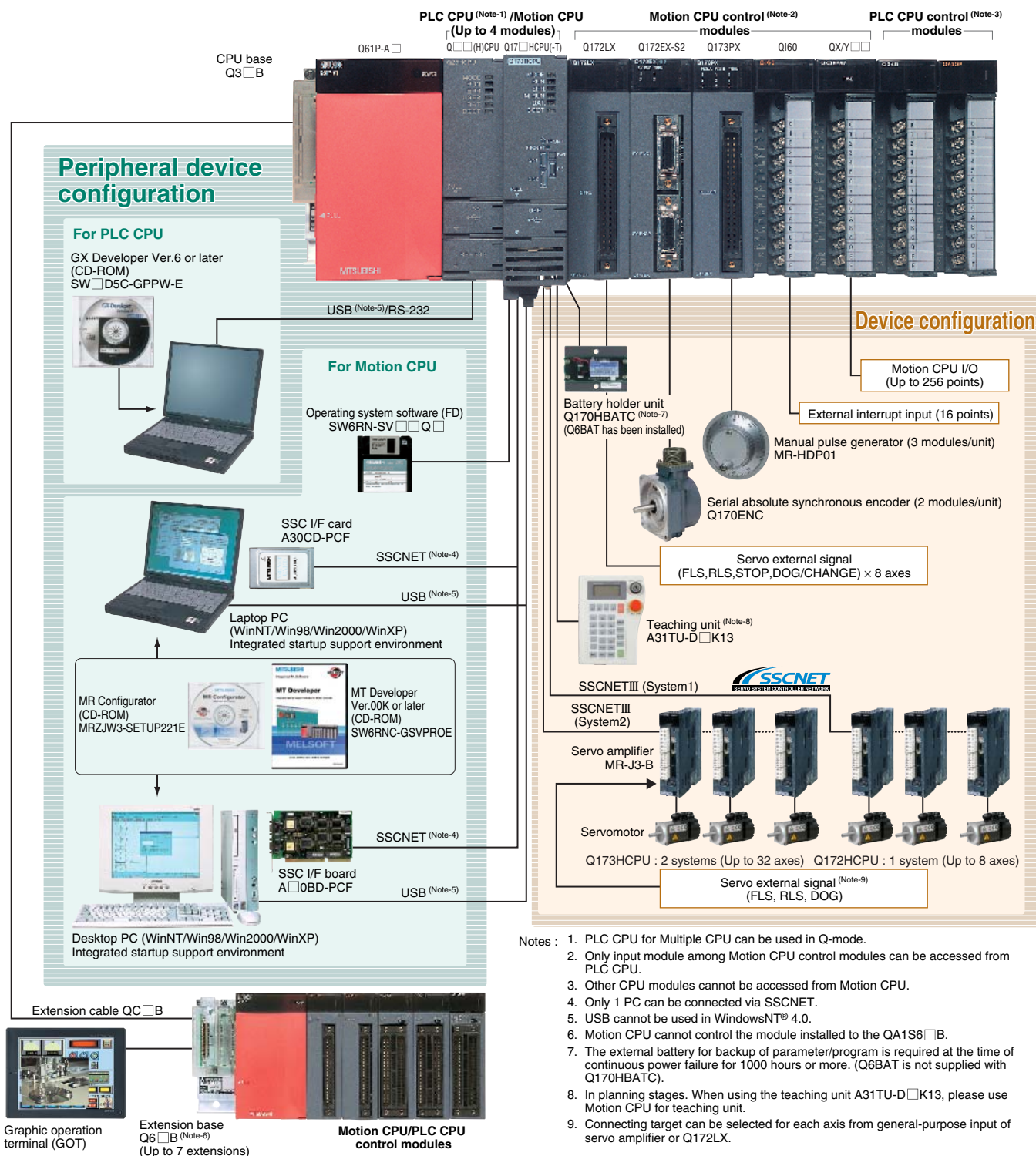— This system can be combined with the MT Developer and MR Configurator.

■ Multiple CPU system carried over with the Q Series PLC!

(Configure a system that matches the system scale.)

■ Easily use user programs created with the conventional Motion controller Q Series!
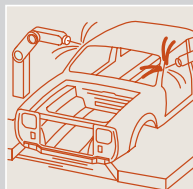
System Configuration

PLC CPU (Note-1) /Motion CPU
(Up to 4 modules)

Q61P-A□ Q□□(H)CPU Q17□HCPU(-T)

Motion CPU control (Note-2) modules

Q172LX Q172EX-S2 Q173PX QI60 QX/Y□□

PLC CPU control (Note-3) modules

CPU base
Q3□B

Peripheral device configuration

For PLC CPU

GX Developer Ver.6 or later
(CD-ROM)
SW□D5C-GPPW-E

USB (Note-5)/RS-232

For Motion CPU

Operating system software (FD)
SW6RN-SV□□Q□

SSC I/F card
A30CD-PCF

SSCNET (Note-4)

USB (Note-5)

Laptop PC
(WinNT/Win98/Win2000/WinXP)
Integrated startup support environment

MR Configurator
(CD-ROM)
MRZJW3-SETUP221E

MT Developer
Ver.00K or later
(CD-ROM)
SW6RNC-GSVPROE

SSCNET (Note-4)

SSC I/F board
A□0BD-PCF

USB (Note-5)

Desktop PC (WinNT/Win98/Win2000/WinXP)
Integrated startup support environment

Extension cable QC□B

Graphic operation terminal (GOT)

Extension base
Q6□B (Note-6)
(Up to 7 extensions)

Motion CPU/PLC CPU
control modules

Device configuration

Motion CPU I/O
(Up to 256 points)

External interrupt input (16 points)

Battery holder unit
Q170HBATC (Note-7)
(Q6BAT has been installed)

Manual pulse generator (3 modules/unit)
MR-HDP01

Serial absolute synchronous encoder (2 modules/unit)
Q170ENC

Servo external signal
(FLS,RLS,STOP,DOG/CHANGE) × 8 axes

Teaching unit (Note-8)
A31TU-D□K13

SSCNETⅢ (System1)

SSCNETⅢ (System2)

Servo amplifier
MR-J3-B

Servomotor

Q173HCPU : 2 systems (Up to 32 axes)   Q172HCPU : 1 system (Up to 8 axes)

Servo external signal (Note-9)
(FLS, RLS, DOG)

Notes : 1. PLC CPU for Multiple CPU can be used in Q-mode.
2. Only input module among Motion CPU control modules can be accessed from PLC CPU.
3. Other CPU modules cannot be accessed from Motion CPU.
4. Only 1 PC can be connected via SSCNET.
5. USB cannot be used in WindowsNT® 4.0.
6. Motion CPU cannot control the module installed to the QA1S6□B.
7. The external battery for backup of parameter/program is required at the time of continuous power failure for 1000 hours or more. (Q6BAT is not supplied with Q170HBATC).
8. In planning stages. When using the teaching unit A31TU-D□K13, please use Motion CPU for teaching unit.
9. Connecting target can be selected for each axis from general-purpose input of servo amplifier or Q172LX.

Operating system software packages

Motion SFC compatible
SV13   Conveyor assembly use

[Applications] Electronic component assembly, Inserter, Feeder, Molder, Conveying equipment, Paint applicator, Chip mounting, Wafer slicer, Loader/Unloader, Bonding machine, X-Y table

Linear interpolation (1 to 4 axes), Circular interpolation, Constant-speed, Fixed-pitch feed, Speed control with fixed position stop, Speed switching, Speed control, Speed/position switching

Dedicated language

Motion SFC compatible
Automatic machinery use
SV22

[Applications] Press feeder, Food processing, Food packaging, Winding machine, Spinning machine, Textile machine, Printing machine, Book binder, Tire molder, Paper-making machine

Synchronous control, Electronic shaft, Electronic clutch, Electronic cam, Draw control
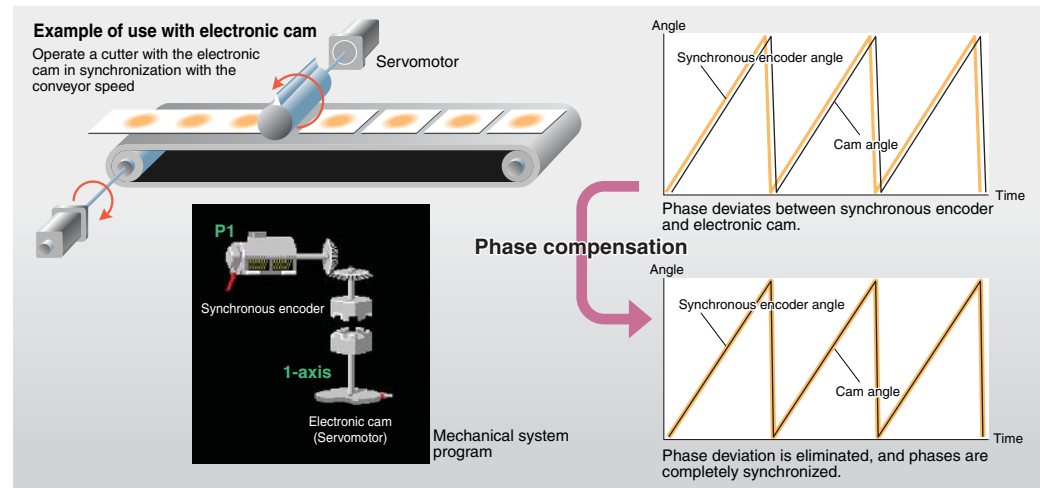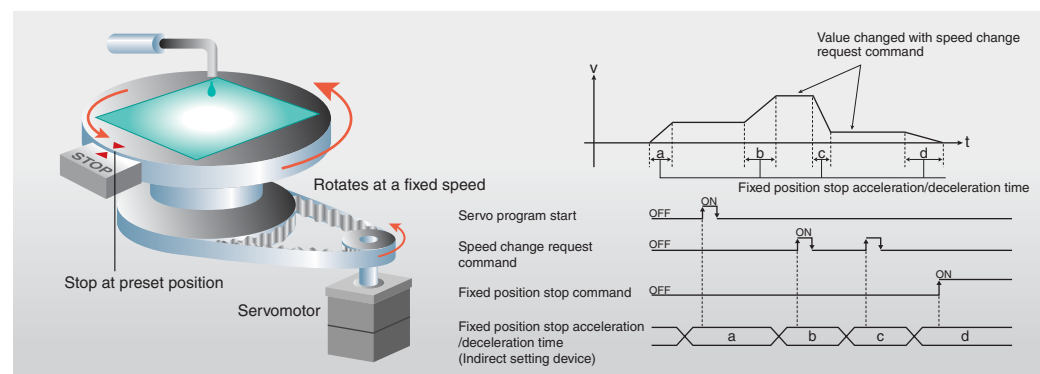
Mechanical support language

New functions

Phase compensation function

When carrying out tracking synchronization with the synchronous encoder, delays in the processes, etc., cause the phase to deviate at servomotor shaft end in respect to the synchronous encoder. The phase compensation function compensates in this case so that the phase does not deviate. The phase deviation between the synchronous encoder and cam angle can be eliminated by using this for the electronic cam.

Example of use with electronic cam

Operate a cutter with the electronic cam in synchronization with the conveyor speed

Servomotor

P1

Synchronous encoder

1-axis

Electronic cam
(Servomotor)

Mechanical system program

Angle

Synchronous encoder angle

Cam angle

Time

Phase deviates between synchronous encoder and electronic cam.

Phase compensation

Angle

Synchronous encoder angle

Cam angle

Time

Phase deviation is eliminated, and phases are completely synchronized.
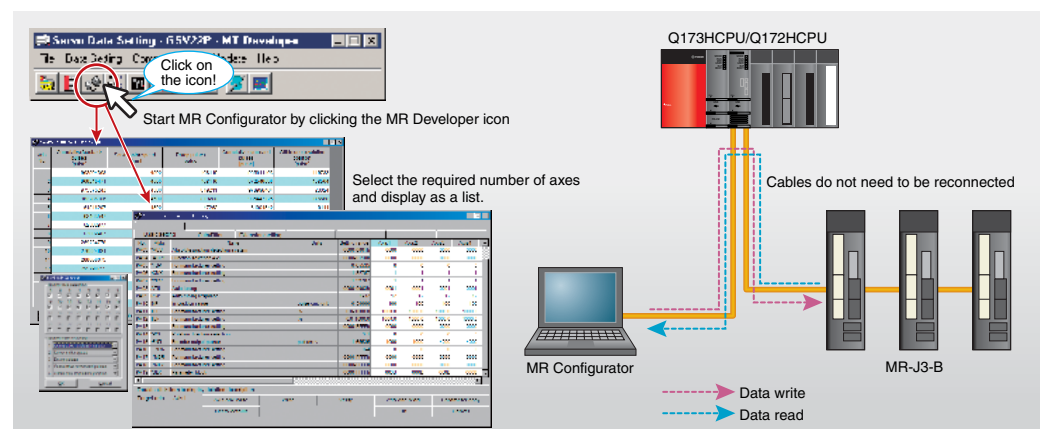
Speed control function with fixed position stop (Orientation function)

The servomotor can be rotated at preset speed and then stopped at preset position after the stop command ON. Not only the speed but also acceleration/deceleration time can be changed to an optional value while operating.

STOP

Rotates at a fixed speed

Stop at preset position

Servomotor

Value changed with speed change request command

v

t

a   b   c   d

Fixed position stop acceleration/deceleration time

Servo program start   OFF ON

Speed change request   OFF   ON
command

Fixed position stop command OFF   ON

Fixed position stop acceleration
/deceleration time   a   b   c   d
(Indirect setting device)

Combination with MR Configurator

Communication between the MR Configurator (setup software) and servo amplifier via Motion controller is possible. Multiple servo amplifiers can be adjusted just by connecting between the personal computer and Motion controller with a cable.

Click on the icon!

Start MR Configurator by clicking the MR Developer icon

Select the required number of axes and display as a list.

Q173HCPU/Q172HCPU

Cables do not need to be reconnected

MR Configurator

MR-J3-B

- - - - → Data write
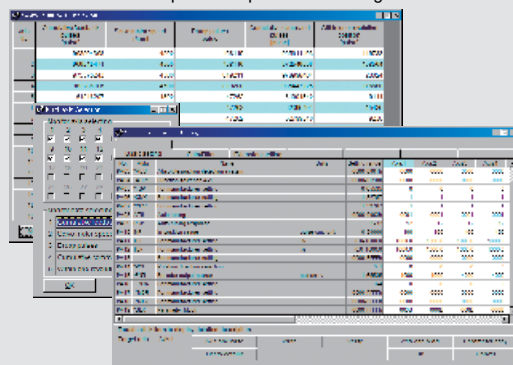- - - - → Data read

⑤

Programming environment

■Motion SFC monitor
●Color indication of executing step on flow chart
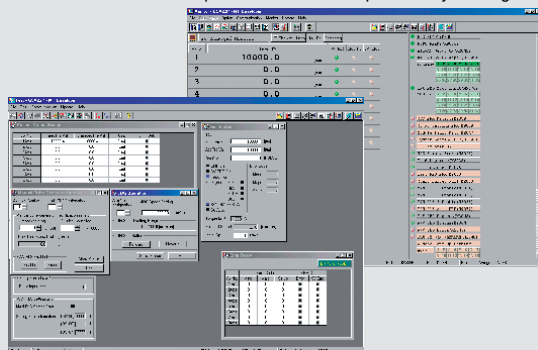●Device monitor and test of execution/specification step
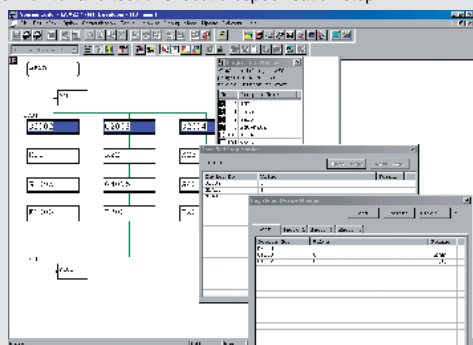
■Servo parameter setting
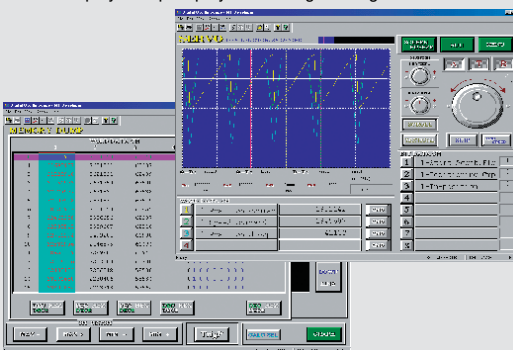●Direct start of MT Developer in the parameter setting screen

■Monitor/Test
●Current value monitor/Axis monitor/Error history monitor
●Various tests such as home position return/JOG operation by clicking mouse

■Digital oscilloscope
●Data sampling synchronized with motion control cycle
●Waveform display/Dump display/Fail saving/Printing

Software packages

Software	Application	Model name		Note
		Q173HCPU(-T)	Q172HCPU(-T)	
Operating system software	Conveyor assembly use **SV13**	SW6RN-SV13QK	SW6RN-SV13QM	—
	Automatic machinery use **SV22**	SW6RN-SV22QJ	SW6RN-SV22QL	
Programming software	Conveyor assembly use **SV13**	SW6RN-GSV13P		Included in the "Integrated start-up support software".
	Automatic machinery use **SV22**	SW6RN-GSV22P		
		SW3RN-CAMP		
	Digital oscilloscope use	SW6RN-DOSCP		

Integrated start-up support software configration

Model name		Details	
MT Developer	SW6RN-GSVPROE	SW6RNC-GSVE (Ver.00K or later) [1 CD-ROM]	• Conveyor assembly software : SW6RN-GSV13P • Automatic machinery software : SW6RN-GSV22P • Cam data creation software : SW3RN-CAMP • Digital oscilloscope software : SW6RN-DOSCP • Communication system software : SW6RN-SNETP • Document print software : SW3RN-DOCPRNP SW20RN-DOCPRNP
		SW6RNC-GSVHELPE (Operation manual [1 CD-ROM])	
		Installation manual	
	SW6RNC-GSVSETE	SW6RNC-GSVPROE	
		A30CD-PCF (SSC I/F card (PCMCIA TYPEⅡ 1CH/card))	
		Q170CDCBL3M (A30CD-PCF cable 3m(9.84ft.))	

MELSOFT

Operating environment
IBM PC/AT with which WindowsNT4.0/98/2000/XP English version operated normally.

Item	WindowsNT®4.0 (Service Pack 2 or later) or Windows®98	Windows®2000	Windows®XP
CPU	Recommended Pentium® 133MHz or more	Recommended Pentium® Ⅱ 233MHz or more	Recommended Pentium® Ⅱ 450MHz or more
Memory capacity	Recommended 32MB or more	Recommended 64MB or more	Recommended 192MB or more
Hard disk free space	SW6RNC-GSVE: 250MB + SW6RNC-GSVHELPE: 81MB (Possible to select installation)		
Display	SVGA (Resolution 800 ✕ 600 pixels, 256 colors) or more		
Application software	Word 97, Excel 97 or Word 2000, Excel 2000 (For document printing) Visual C++ 4.0 or more, Visual Basic 4.03 (32 bit) or more (For communication API function)		

(Note) • When using the A30CD-PCF, the PC card driver for WindowsNT® provided by the personal computer manufacturer must be used.
• WindowsNT®, Windows®, Word, Excel, Visual C++ and Visual Basic are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.
• Pentium® is trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries.

Motion control specifications

Item	Q173HCPU(-T)	Q172HCPU(-T)
Number of control axes	32 axes (Up to 16 axes/system)	8 axes
Operation cycle	0.44~	
Interpolation functions	Linear interpolation (Up to 4 axes), Circular interpolation (2 axes), Helical interpolation (3 axes)	
Control modes	PTP (Point to Point) control, Speed control, Speed-position control, Fixed-pitch feed, Constant speed control, Position follow-up control, Speed control with fixed position stop, Speed switching control, High-speed oscillation control, Synchronous control (SV22)	
Acceleration/ deceleration processing	Automatic trapezoidal acceleration/deceleration, S-curve acceleration/deceleration	
Compensation function	Backlash compensation, Electronic gear, Phase compensation (SV22)	
Programming language	Motion SFC, Dedicated instruction, Mechanical support language (SV22)	
Servo program capacity	14k steps	
Number of positioning points	3200 points (Positioning data can be designated indirectly)	
Programming tool	IBM PC/AT	
Peripheral I/F	USB/SSCNET	
Teaching operation function	Provided (Q17□HCPU-T, SV13 use)	
Home position return function	Proximity dog (2 types), Count (3 types), Data set (2 types), Dog cradle, Stopper (2 types), Limit switch combined	
JOG operation function	Provided	
Manual pulse generator operation function	Possible to connect 3 modules	
Synchronous encoder operation function	Possible to connect 12 modules (SV22 use)	Possible to connect 8 modules (SV22 use)
M-code function	M-code output/M-code completion wait function provided	
Limit switch output function	Number of output points 32 points Watch data: Motion control data/Word device	
Absolute position system	Made compatible by setting battery to servo amplifier. (Possible to select the absolute data method or incremental method for each axis)	
Number of SSCNETⅢ systems (Note-1)	2 systems	1 system
Number of usable motion related interface modules	Q172LX : 4 modules Q172EX-S2 : 6 modules Q173PX : 4 modules(Note-2)	Q172LX : 1 module Q172EX-S2 : 4 modules Q173PX : 3 modules(Note-2)

(Note-1) : The servo amplifiers for SSCNET cannot be used.
(Note-2) : When using the incremental synchronous encoder (SV22 use), you can use above number of modules.
When connecting the manual pulse generator, you can use only 1 module.

Motion SFC Performance Specifications

Item		Q173HCPU(-T) / Q172HCPU(-T)
Motion SFC program capacity	Code total (Motion SFC chart + Operation control + Transition)	543k bytes
	Text total (Operation control+ Transition)	484k bytes
Motion SFC program	Number of Motion SFC programs	256 (No.0 to 255)
	Motion SFC chart size/program	Up to 64k bytes (Included Motion SFC chart comments)
	Number of Motion SFC steps/program	Up to 4094 steps
	Number of selective branches/branch	255
	Number of parallel branches/branch	255
	Parallel branch nesting	Up to 4 levels
Operation control program (F/FS) / Transition program(G)	Number of operation control programs	4096 (F/FS0 to F/FS4095) with F(Once execution type) and FS(Scan execution type) combined.
	Number of transition programs	4096 (G0 to G4095)
	Code size/program	Up to approx. 64k bytes (32766 steps)
	Number of blocks(line)/program	Up to 8192 blocks (in the case of 4 steps(min)/blocks)
	( ) nesting/block	Up to 32
Descriptive Expression	Operation control program	Calculation expression/bit conditional expression
	Transition program	Calculation expression/bit conditional expression/comparison conditional expression
Execute specification	Number of multi executed programs	Up to 256
	Number of multi active steps	Up to 256 steps/all programs
	Executed task — Normal task	Executed in motion main cycle
	Executed task — Event task (Execution can be masked.) — Fixed cycle	Executed in fixed cycle (0.88ms, 1.77ms, 3.55ms, 7.11ms, 14.2ms)
	Executed task — Event task — External interrupt	Executed when input ON is set among interrupt module QI60 (16 points).
	Executed task — Event task — PLC interrupt	Executed with interrupt (GINT) from PLC CPU.
	Executed task — NMI task	Executed when input ON is set among interrupt module QI60 (16 points).
Number of I/O points (X/Y)		8192 points
Number of real I/O points (PX/PY)		256 points
Number of devices	• Internal relays(M), Latch relays: Total 8192 points • Link relays (B) 8192 points • Annunciators (F) 2048 points • Special relays (M) 256 points • Data registers (D) 8192 points	• Link registers(W) 8192 points • Special registers (D) 256 points • Motion registers (#) 8192 points • Coasting timers (FT) 1 point (888μs)

Motion related module specifications

Part name	Model name	Description	Use with Q PLC
Motion CPU module	Q173HCPU	Up to 32 axes control, Operation cycle 0.4[ms]~	
	Q172HCPU	Up to 8 axes control, Operation cycle 0.4[ms]~	
	Q173HCPU-T	Up to 32 axes control, Operation cycle 0.4[ms]~, For teaching unit	
	Q172HCPU-T	Up to 8 axes control, Operation cycle 0.4[ms]~, For teaching unit	
PLC CPU module	Q00CPU	Program capacity 8k steps	○
	Q01CPU	Program capacity 14k steps	○
	Q02CPU	Program capacity 28k steps	○
	Q02HCPU	Program capacity 28k steps	○
	Q06HCPU	Program capacity 60k steps	○
	Q12HCPU	Program capacity 124k steps	○
	Q25HCPU	Program capacity 252k steps	○
CPU base unit	Q33B	Power supply + CPU + 3 I/O slots, For Q series modules	○
	Q35B	Power supply + CPU + 5 I/O slots, For Q series modules	○
	Q38B	Power supply + CPU + 8 I/O slots, For Q series modules	○
	Q312B	Power supply + CPU + 12 I/O slots, For Q series modules	○
Extension base unit	Q63B	Power supply + 3 I/O slots, For Q series modules	○
	Q65B	Power supply + 5 I/O slots, For Q series modules	○
	Q68B	Power supply + 8 I/O slots, For Q series modules	○
	Q612B	Power supply + 12 I/O slots, For Q series modules	○
Extension cable	QC□B	Length 0.45m(1.48ft.), 0.6m(1.97ft.), 1.2m(3.94ft.), 3m(9.84ft.), 5m(16.40ft.), 10m(32.81ft.)	○
Power supply module (Note-1)	Q61P-A1	100 to 120VAC input/ 5VDC 6A output	○
	Q61P-A2	200 to 240VAC input/ 5VDC 6A output	○
	Q62P	100 to 240VAC input/ 5VDC 3A/ 24VDC 0.6A output	○
	Q63P	24VDC input/ 5VDC 6A output	○
	Q64P	100 to 120VAC/200 to 240VAC input/ 5VDC 8.5A output	○
Servo external signals interface module	Q172LX	Servo external signal 8 axes (FLS, RLS, STOP, DOG/CHANGE×8)	
Serial absolute synchronous encoder interface module	Q172EX-S2	Serial absolute synchronous encoder Q170ENC interface×2, Tracking input 2 points (A6BAT built-in)	
Manual pulse generator interface module	Q173PX	Manual pulse generator MR-HDP01/Incremental synchronous encoder interface×3, Tracking input 3 points	
Serial absolute synchronous encoder	Q170ENC	Resolution: 262144PLS/rev, Permitted speed: 3600r/min Permitted axial loads [Radial load: Up to 19.6N, Thrust load: Up to 9.8N]	
Serial absolute synchronous encoder cable (Note-3)	Q170ENCCBL□M	Q170ENC ↔ Q172EX-S2 2m, 5m, 10m, 20m, 30m, 50m	
Battery holder unit	Q170HBATC (Note-2)	Battery holder for Q6BAT (Attachment: battery cable)	
Battery	Q6BAT	For IC-RAM memory backup of Q17□HCPU(-T) module (SFC programs, Servo programs, Parameters)	○
	A6BAT	For backup of Q170ENC	○
Manual pulse generator	MR-HDP01	Pulse resolution: 25PLS/rev(100PLS/rev after magnification by 4), Permitted speed: 200r/min(Normal rotation) Permitted axial loads [Radial load: Up to 19.6N, Thrust load: Up to 9.8N], Open collector output	
SSCNETⅢ cable (Note-3)	MR-J3BUS□M	• Q17□HCPU(-T) ↔ MR-J3-□B • MR-J3-□B ↔ MR-J3-□B — Standard code for inside panel 0.15m(0.49ft.), 0.3m(0.98ft.), 0.5m(1.64ft.), 1m(3.28ft.), 3m(9.84ft.)	
	MR-J3BUS□M-A	Standard cable for outside panel 5m(16.40ft.), 10m(32.81ft.), 20m(65.62ft.)	
	MR-J3BUS□M-B (Note-4)	Long distance cable 30m(98.43ft.), 40m(131.23ft.), 50m(164.04ft.)	
SSC I/F board	A10BD-PCF	PCI bus loading type, 2ch/board	
	A30BD-PCF	ISA bus loading type, 2ch/board	
SSC I/F card	A30CD-PCF	PCMCIA TYPE II, 1ch/card	
Cable for SSC I/F board (Note-3)	Q170BDCBL□M	Q17□HCPU(-T) ↔ SSC I/F board 3m(9.84ft.), 5m(16.40ft.), 10m(32.81ft.)	
Cable for SSC I/F card (Note-3)	Q170CDCBL□M	Q17□HCPU(-T) ↔ SSC I/F card 3m(9.84ft.), 5m(16.40ft.), 10m(32.81ft.)	
Teaching unit (Note-5)	A31TU-D3K13	For SV13, With 3-position deadman switch, Only Japanese	
	A31TU-DNK13	For SV13, Without deadman switch, Only Japanese	
Cable for the teaching unit	Q170TUD3CBL3M	Q17□HCPU-T ↔ A31TU-D3K13, 3m(9.84ft.) (Attachment : short-circuit connector (A31TUD3TM) for teaching unit)	
	Q170TUDNCBL3M	Q17□HCPU-T ↔ A31TU-DNK13, 3m(9.84ft.)	
	Q170TUDNCBL03M-A	Exchange cable for direct connection of Q17□HCPU-T ↔ A31TU-DNK13, 0.3m(0.98ft.)	
Short-circuit connector for teaching unit	Q170TUTM	For direct connection to Q17□HCPU-T, It is packed together with Q17□HCPU-T.	
	A31TUD3TM	For connection to Q170TUD□CBL3M, It is packed together with Q170TUD□CBL3M.	

(Note-1) : Please use the power supply module within the range of power supply capacity.
(Note-2) : Battery Q6BAT is not attached to Battery holder unit Q170HBATC. Please arrange separately.
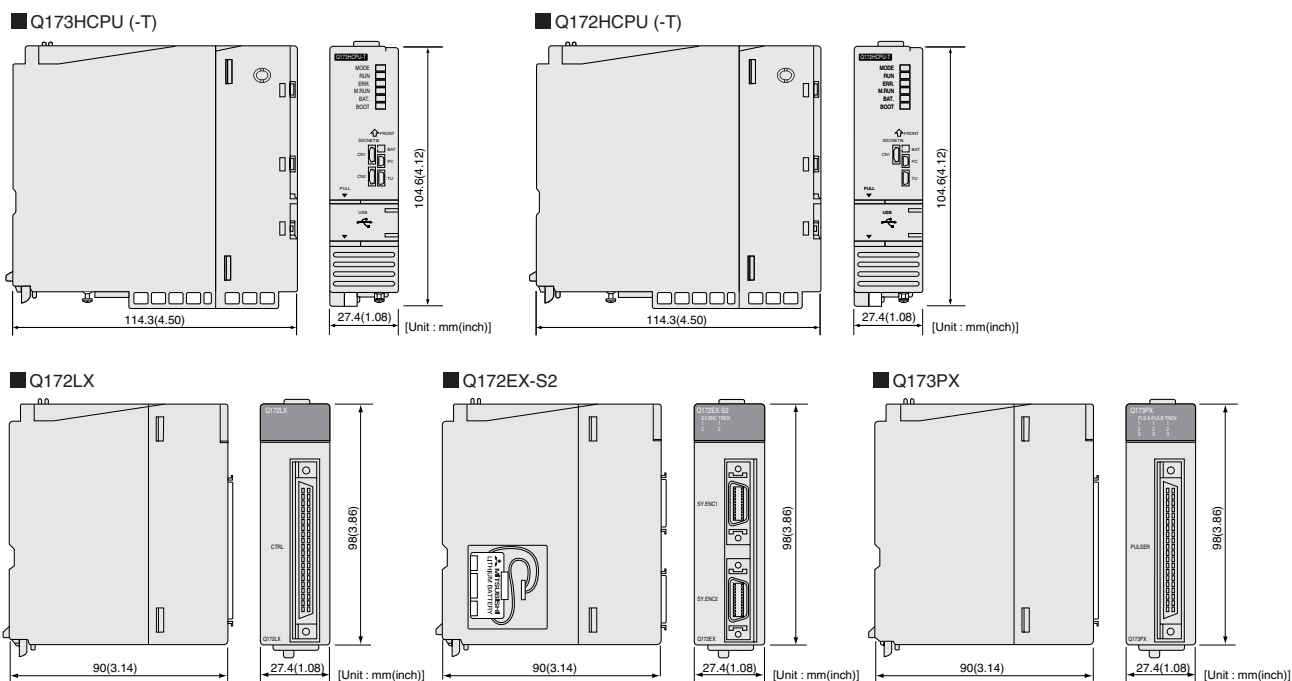(Note-3) : □=Cable length (015: 0.15m(0.49ft.), 0: 0.3m(0.98ft.), 05: 0.5m(1.64ft.), 1: 1m(3.28ft.), 2: 2m(6.56ft.), 3: 3m(9.84ft.), 5: 5m(16.40ft.), 10: 10m(32.81ft.), 20: 20m(65.62ft.), 30: 30m(98.43ft.), 40: 40m(131.23ft.), 50: 50m(164.04ft.))
(Note-4) : Please contact your nearest Mitsubishi sales representative for the cable of less than 30m(98.43ft.).
(Note-5) : In planning stages.

MOTION CONTROLLERS Q series –SSCNETIII Compatible–

Exterior dimensions

■ Q173HCPU (-T)

114.3(4.50)　104.6(4.12)　27.4(1.08)　[Unit : mm(inch)]

■ Q172HCPU (-T)

114.3(4.50)　104.6(4.12)　27.4(1.08)　[Unit : mm(inch)]

■ Q172LX

90(3.14)　98(3.86)　27.4(1.08)　[Unit : mm(inch)]

■ Q172EX-S2

90(3.14)　98(3.86)　27.4(1.08)　[Unit : mm(inch)]

■ Q173PX

90(3.14)　98(3.86)　27.4(1.08)　[Unit : mm(inch)]

⚠ For safe use

- To use the products given in this catalog properly, always read the "manuals" before starting to use them.
- These products have been manufactured as a general-purpose part for general industries, and have not been designed or manufactured to be incorporated in a device or system used in purposes related to human life.
- Before using the products for special purposes such as nuclear power, electric power, aerospace, medicine, passenger movement vehicles or under water relays, contact Mitsubishi.
- These products have been manufactured under strict quality control. However, when installing the product where major accidents or losses could occur if the product fails, install appropriate backup or failsafe functions in the system.
- When exporting any of the products or related technologies described in this catalogue, you must obtain an export license if it is subject to Japanese Export Control Law.

Precautions for Choosing the Products

Mitsubishi will not be held liable for damage caused by factors found not to be the cause of Mitsubishi; opportunity loss or lost profits caused by faults in the Mitsubishi products; damage, secondary damage, accident compensation caused by special factors unpredictable by Mitsubishi; damages to products other than Mitsubishi products; and to other duties.

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