

Motion Controller Q series for the iQ Platform
Motion Controller with Peripheral Interface

MODEL

Q173DCPU-S1/Q172DCPU-S1

January 2011

New Product Release

SV1101-2E

Built-in Ethernet

Motion control is moving towards the generation of vision utilization.

The Mitsubishi Motion Controller can be connected by Ethernet to an engineering environment, GOT or COGNEX vision system using the peripheral interface. Quickly and easily execute high-precision positioning using vision system.



Motion control capabilities continue to expand with built-in Ethernet.

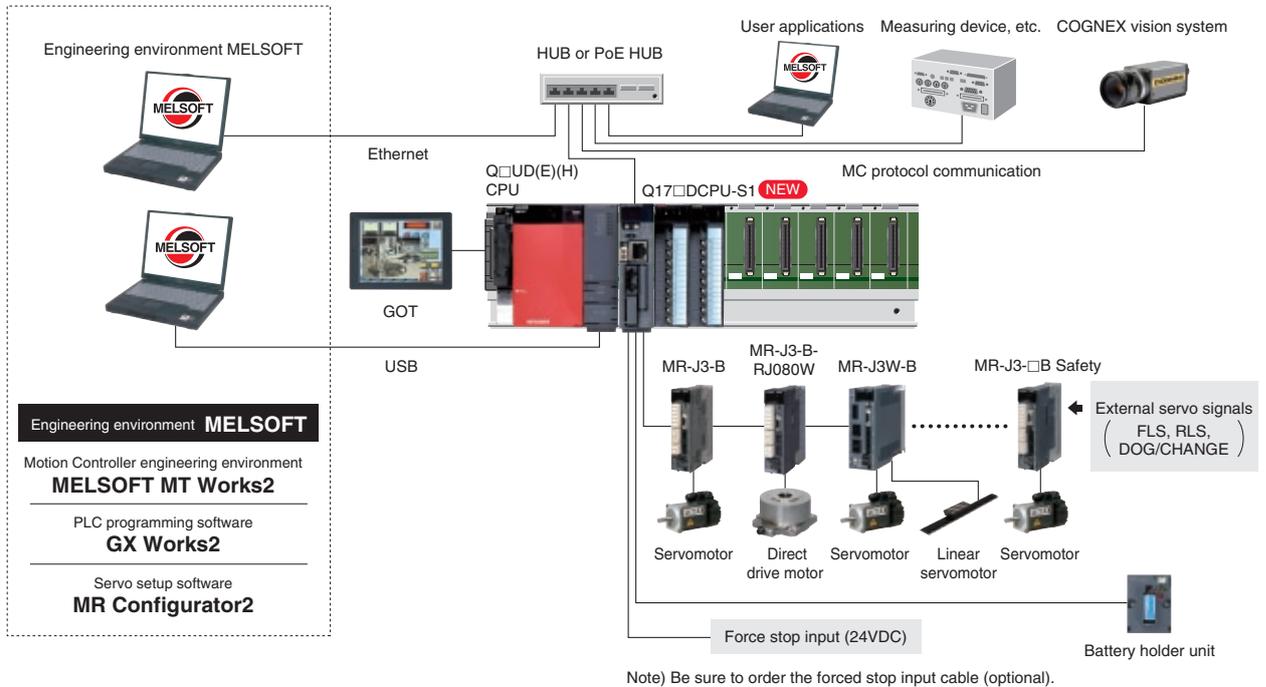
- Directly connect the motion control and vision system, etc., with a single Ethernet cable.
- Coordinated use with a vision system is made easy by using vision sensor dedicated Motion SFC program.
- Connections are improved with the peripheral interface port provided on the front of the motion CPU module.
- High-performance, high-function control is realized when used together with MR-J3 servo amplifier.
- A variety of motors including the rotary servomotor, linear servomotor and direct drive motor are supported.

for a greener tomorrow



System Configuration

Ethernet is directly connected via the peripheral interface on the front of the motion CPU module. This creates new high-speed and high-accuracy positioning possibilities using vision system.



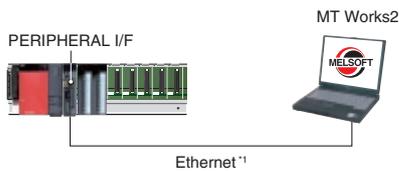
Usage Examples

A variety of connection styles are available to match the purpose and application.

■ Direct connection with MT Works2

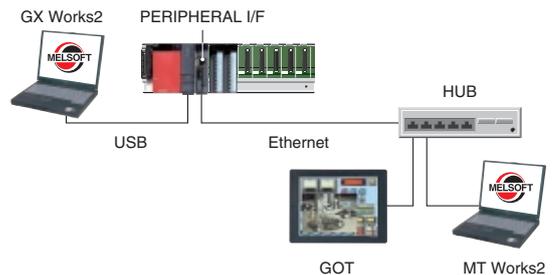
The motion controller can be directly connected to MT Works2 without IP address settings.

*1: Use the cross cable type for direct connection.



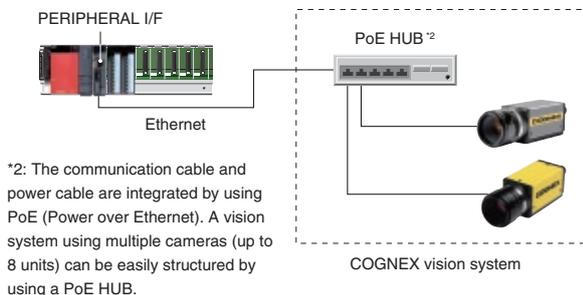
■ Connecting via HUB

Several personal computers or GOT units can be connected. The sequence programs and motion programs can be debugged simultaneously.



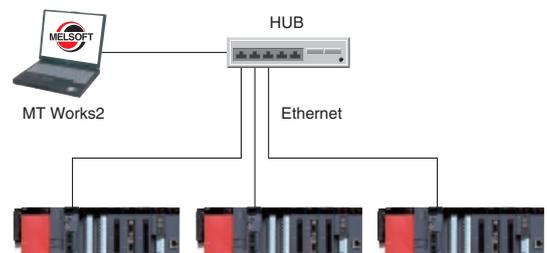
■ Connection with COGNEX vision system

The motion CPU module and vision system can be connected with an Ethernet cable enabling high-speed processing.



■ Connecting multiple motion CPU modules and personal computer

MT Works2 and several motion CPU modules can be connected simultaneously by using a HUB.





Specifications

Item	Q173DCPU-S1	Q172DCPU-S1
Number of control axes	32 axes -- up to 16 axes/system	8 axes
Operation cycle (default)	SV13 0.44 ms: 1 to 6 axes 0.88 ms: 7 to 18 axes 1.77 ms: 19 to 32 axes	0.44 ms: 1 to 6 axes 0.88 ms: 7 to 8 axes
	SV22 0.44 ms: 1 to 4 axes 0.88 ms: 5 to 12 axes 1.77 ms: 13 to 28 axes 3.55 ms: 29 to 32 axes	0.44 ms: 1 to 4 axes 0.88 ms: 5 to 8 axes
Interpolation function	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 switching 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 process	Automatic trapezoidal acceleration/deceleration, S-curve acceleration/deceleration, advanced S-curve acceleration/deceleration	
Compensation function	Backlash compensation, Electronic gear, Phase compensation (SV22)	
Programming language	Motion SFC, Dedicated instructions, Mechanical support language (SV22)	
Program -- dedicated instruction capacity	16k steps	
Number of positioning points	3200 points -- Positioning data can be set indirectly	
Peripheral equipment interface	NEW PERIPHERAL interface, Via PLC CPU (USB/RS-232)	
Home position return function	Proximity dog -- 2 types, Count -- 3 types, Data set -- 2 types, Dog cradle, Stopper -- 2 types, Limit switch combined (Home position return re-try provided, Home position shift provided)	
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 function provided, M-code completion wait function provided	
Limit switch output function	Number of output points: 32 points Watch data: Motion control data/Word device	
ROM operation function	Provided	
Absolute position system	Made compatible by connecting battery to servo amplifier -- Possible to select the absolute data method or incremental method for each axis	
Number of SSCNET III systems ^(Note-1)	2 systems	1 system
Number of usable Motion related interface modules	Q172DLX 4 modules Q172DEX 6 modules ^(Note-2) Q173DPX 4 modules ^(Note-3)	Q172DLX 1 module Q172DEX 4 modules ^(Note-2) Q173DPX 3 modules ^(Note-3)

(Note-1): Just the servo amplifiers for SSCNET III can be used. (Note-2): Q172DEX cannot be used with SV13.

(Note-3): 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.

Software List

■ Operating system software

Application	Model name		Applicable version
	Q173DCPU-S1	Q172DCPU-S1	
Conveyor assembly use SV13 ^(Note-1)	SW8DNC-SV13QB	SW8DNC-SV13QD	Ver. 00L or later
Automatic machinery use SV22 ^(Note-1)	SW8DNC-SV22QA	SW8DNC-SV22QC	Ver. 00L or later

(Note-1): The operating system software is common with Q173DCPU/Q172DCPU.

■ Engineering Environment

Application	Model name	Applicable version
MELSOFT MT Works2	SW1DNC-MTW2-E	Ver. 1.15R or later
MR Configurator2	SW1DNC-MRC2-E	No restrictions

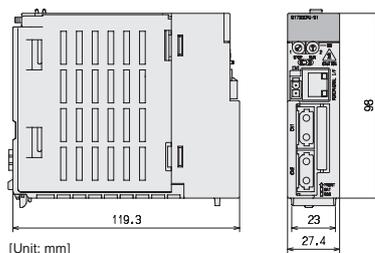
Equipment

Application	Model name	Remarks	Standards
Motion CPU module ^(Note-1)	Q173DCPU-S1	Up to 32 axes control, attachment battery holder unit and battery (Q6BAT)	CE, UL
	Q172DCPU-S1	Up to 8 axes control, attachment battery holder unit and battery (Q6BAT)	CE, UL

(Note-1): Be sure to use the cable for forced stop input (sold separately). The forced stop cannot be released without using it.

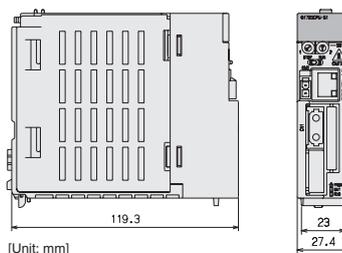
Exterior Dimensions

Q173DCPU-S1



[Unit: mm]

Q172DCPU-S1



[Unit: mm]



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