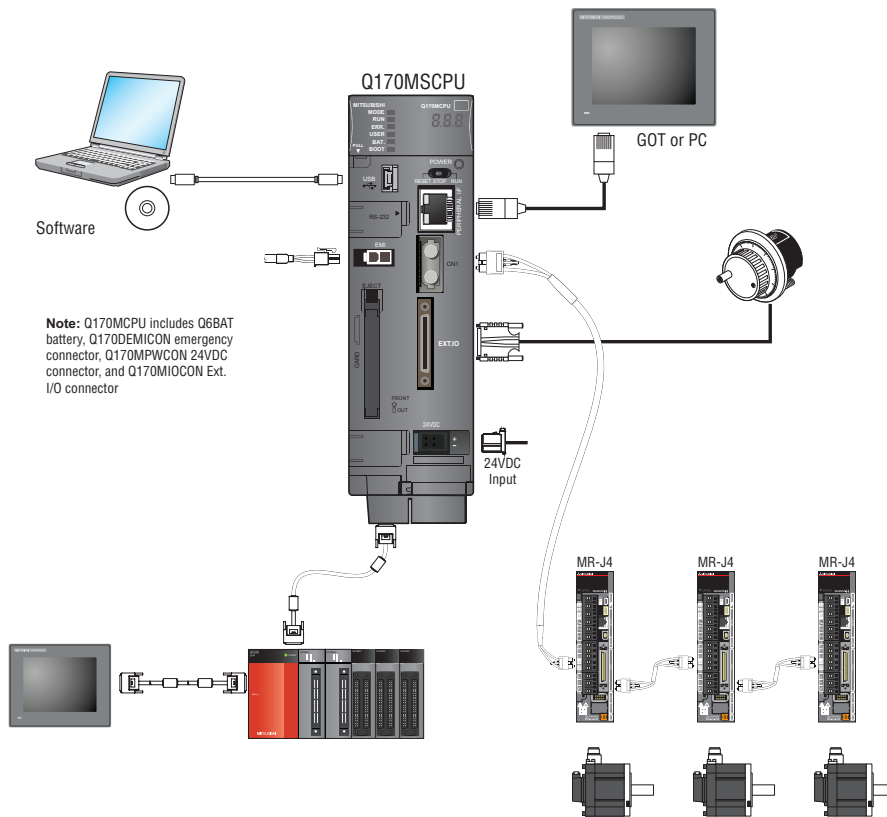# Stand-Alone Motion Controllers

The Q170 Stand-Alone Motion Controllers combine an iQ PLC, iQ Motion CPU, and power supply all in one compact package. The Q170MSCPU is designed for high-end motion applications that don't require a full size PLC. The Ethernet port provides access for programming and connectivity to the GOT family of HMIs. If connectivity to a Rockwell Automation PLC is required, the Q170MCPU-EIP replaces the front Ethernet port with an EtherNet/IP slave interface. A set of AOIs (add-on instructions) for RSLogix 5000 allow users to upgrade to MR-J3 or MR-J4 servos for positioning applications without having to re-write their PLC program.
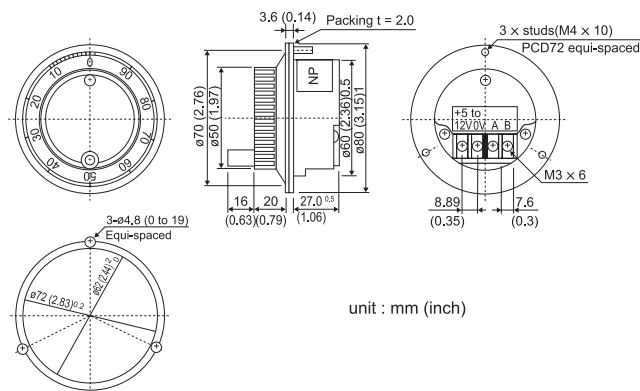

Note: Q170MCPU includes Q6BAT battery, Q170DEMICON emergency connector, Q170MPWCON 24VDC connector, and Q170MIOCON Ext. I/O connector

Stand-Alone Motion Controller (Connectors included)

Model Number	Q170MSCPU	Q170MSCPU-S1	Q170MCPU-EIP
Stocked Status	S	-	S
Number of Control Axes	16	16	16 (8 with AOI)
Operation Cycle	0.44ms for 1 to 6 axes, .88ms for 7 to 16 axes		0.44ms for 1 to 4 axes, 0.88ms for 5 to 12 axes, 1.77ms for 13 to 16 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, Speed torque control, Synchronous control (SV22 (Virtual mode switching method/Advanced synchronous control method))		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)
Control Units	mm, inch, degree, pulse		
Network	SSCNET III/H or SSCNET III		SSCNET III
Motion Programming Method	SFC	SFC	SFC or AOI
PLC CPU	Q03UDCPU equivalent (30k steps)	Q06UDHCPU equivalent (60k steps)	Q03UDCPU equivalent (20k steps)
LD Instruction Speed (µs)	0.02	0.0095	0.02
Extension Base Unit	7 extensions, up to 64 slots, Q52B, Q55B, Q63B, Q65B, Q68B, Q612B		1 extension, Q52B, Q55B
Power	24VDC, 1.4A		24VDC, 1.36A
I/O Type	32 Point Intelligent Function Module		
Dimensions (H x W x D) mm (in)	186 x 52 x 135 (7.32 x 2.05 x 5.31)		178 x 52 x 135 (5.31 x 7.01 x 2.05)
Weight (kg)	0.8		0.9

1

Manual Pulse Generator 25ppr (optional)

Model Number	MR-HDP01
Stocked Item	S
Pulse Resolution	25 PLS/rev (100 PLS/rev at magnification of 4)
Output Method	Voltage - output (power supply voltage - 1V or more), Output current = Up to 20 mA
Power Supply Voltage	4.5 to 13.2VDC
Consumption Current	60
Life	1,000,000 revolutions at 200 r/min
Permitted Axis Load	Radial load: Max. 19.6N; Thrust load: Max. 9.8N
Pulse Signal Status	2 signals: A phase, B phase, 90° phase difference
Friction Torque	0.1N/m (at 20°C (68°F))
Operating Temperature	-10°C to +60°C (14°F to 140°F)
Weight kg (lbs)	0.4 (0.88)

Note: If using an external power supply, it needs to be 5VDC.

unit : mm (inch)

Miscellaneous Parts, Cables and Connectors

Miscellaneous Parts for the System

Model Number	Description	Stocked Item
Q6BAT	Replacement battery for memory data backup	S
Q7BAT	Large capacity battery for memory data backup	S
Q170MBAT-SET	Battery holder for the Q7BAT with Q170MCPU	-
Q170MSBAT-SET	Battery holder for the Q7BAT with Q170MSCPU	-
MR-J3USBCBL3M	USB cable from PC to Q170MCPU	S
Q170MDO-1M	Interface cable, differential type, 1.0M	S
Q170MDO-2M	Interface cable, differential type, 2.0M	S
Q170MDO-5M	Interface cable, differential type, 5.0M	S
Q170MVO-1M	Interface cable, voltage type, 1.0M	S
Q170MVO-2M	Interface cable, voltage type, 2.0M	S
Q170MVO-5M	Interface cable, voltage type, 5.0M	S
SC-Q	RS-232 cable from PC to Q170MCPU	S
GT01-C30R2-6P	RS-232 cable from GOT to Q170MCPU	S

Cables for Forced Stop Input Connector (EMI)

Model Number	Description	Stocked Item
Q170DEMICON	Connector for emergency stop input cable (provided with Q170MCPU)	-
Q170DEMICBL05M	0.5M cable for EMI connector on CPU	S
Q170DEMICBL1M	1M cable for EMI connector on CPU	S
Q170DEMICBL3M	3M cable for EMI connector on CPU	S
Q170DEMICBL5M	5M cable for EMI connector on CPU	S
Q170DEMICBL10M	10M cable for EMI connector on CPU	S
Q170DEMICBL15M	15M cable for EMI connector on CPU	S
Q170DEMICBL20M	20M cable for EMI connector on CPU	S
Q170DEMICBL25M	25M cable for EMI connector on CPU	S
Q170DEMICBL30M	30M cable for EMI connector on CPU	S

Cable and Connectors for the Special Function Modules

Model Number	Description	Stocked Items
A6CON1	Q172DLX connector to use the servo external input signals	S
QD75MCBL-2M	2M I/O pigtail cable to use in place of the A6CON1 connector	S
QD75MCBL-5M	5M I/O pigtail cable to use in place of the A6CON1 connector	S
QD75MCBL-10M	10M I/O pigtail cable to use in place of the A6CON1 connector	S
A6TBXY36	Q172DLX Terminal Block Conversion Module - Sink Type I/O (Standard type)	S
A6TBXY54	Q172DLX Terminal Block Conversion Module - Sink Type I/O (2-wire type)	-
A6TBXY70	Q172DLX Terminal Block Conversion Module - Sink Type I/O (3-wire type)	-
AC05TB	0.5M cable from Q172DLX to A6TBXY _ terminal block conversion module	S
AC10TB	1M cable from Q172DLX to A6TBXY _ _ terminal block conversion module	S
AC20TB	2M cable from Q172DLX to A6TBXY _ _ terminal block conversion module	S
AC30TB	3M cable from Q172DLX to A6TBXY _ _ terminal block conversion module	S
AC50TB	5M cable from Q172DLX to A6TBXY _ _ terminal block conversion module	S

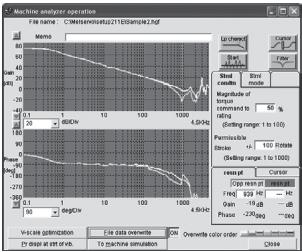## I/O and Power Cables and Connectors for the Q170 Stand-Alone Motion Controller

Model Number	Description	Stocked Items
MR-MQEXTCBL-3M	Cable for EXT I/O connector on Q170MCPU, 3M	S
MR-TBNATBL05M	Terminal Block Cable for EXT I/O Connector on Q170MSCPU, 0.5M	S
MR-TBNATBL1M	Terminal Block Cable for EXT I/O Connector on Q170MSCPU, 1M	S
MR-TB26A	Junction Terminal Block for EXT I/O on Q170MSCPU	S
MR-MQPWRCBL-3M	Cable for 24VDC power to Q170MCPU, 3M	S
Q170MPWCBL2M-E	24VDC power cable with 2 meter EMI terminal with crimp terminal R1.25-3.5. Cable for disabling the emergency stop input on the front of the Q170MCPU by short-circuiting the EMI terminal to the 24VDC power supply.	S
Q170MIOCON	50 pin solder connector for the EXT I/O connector (Provided with Q170MCPU)	-
Q170MPWCON	24VDC connector and pins for the power input (Provided with Q170MCPU)	-

Software

MR-Configurator 2

This software makes it easy to perform setup, tuning, monitor display, diagnostics, reading and writing of parameters, and test operations with a personal computer. User-friendly functions that enable the balance with the machine system, optimum control and short start up time are available.

1. This software can set up and tune your servo system easily with a personal computer.
2. Multiple monitor functions: Graphic display functions are provided to display the servo motor status with the input signal triggers, such as the command pulse, droop pulse and speed.
3. Test operations with a personal computer: Test operation of the servo motors can be performed with a personal computer using multiple test mode menus.
4. Further advanced tuning is possible with the improved advanced functions.

Description	Model Number	Stocked Item
Windows Communication Software	MR-CONFIGURATOR2	S
Communication Cable	MR-J3USBCBL3M	S

Motion Controller Engineering Software

Motion SFC programming, parameter setting, and the digital oscilloscope function, etc. are available. With these various features, this software supports all necessary steps including system configuration, programming, debugging, and maintenance of Motion controllers.

Model Number	Stocked Item	Description
MT-WORKS2-C1	S	Single user license - can be used on 1 computer at a time; Installation manual included
MT-WORKS2-C5	-	5 user license - can be used on up to 5 computers at a time
MT-WORKS2-C10	-	10 user license - can be used on up to 10 computers at a time
MT-WORKS2-C25	-	25 user license - can be used on up to 25 computers at a time
MT-WORKS2-C50	-	50 user license - can be used on up to 50 computers at a time