![Mitsubishi Electric logo] **MITSUBISHI ELECTRIC**
Changes for the Better

Automating the World

MITSUBISHI ELECTRIC SERVO SYSTEM

MELSERVO-J5

Product Overview

Innovation
For evolution of machines

Connectivity
For flexible system configurations

Maintainability
For prompt detection and diagnosis of failures

Usability
For quick operation and startup

MR-J5 SERIES SERVO AMPLIFIERS

The MELSERVO-J5 Series offers cutting edge technology, industry leading performance, and advanced servo features allowing users in a variety of industries to unlock unused potential. Connect to iQ-R CC-Link IE TSN motion modules to configure a high-speed and high-precision system, enabling the user breakthrough innovation with predictive maintenance, rapid machine tuning, short settling time, high encoder resolution etc.

KEY BENEFITS

Innovation
For evolution of machines

- **Scalable synchronous axes –** Meet any axis requirements, from single axis to a 256 multi-axis system, for various industry applications. All motion modules are programmed in one software environment.
- **Multi-axis within one servo unit –** With up to three axes in one servo unit, this helps to reduce energy consumption and maximizes cabinet space with less wiring.

Connectivity
For flexible system configurations

- **1 Gbps CC-Link IE TSN based motion –** CC-Link IE TSN is an Ethernet based open communication network. This 1 Gbps network enables time synchronization across all connected devices and includes servo amplifiers, motion modules, I/Os, PLC etc. CC-Link IE TSN facilitates IoT infrastructure across the manufacturing enterprise.
- **Multi network connectivity –** MR-J5 is compatible with EtherCAT®, allowing for a communication cycle of 125μs and pulse train connection at pulse frequency of 4 million pulses/s.

Usability
For quick operation and startup

- **Instant start-up tuning –** The servo amplifier sets the speed loop gain and suppresses machine resonance in approximately 0.3 seconds through the servo, on command. The machine is able to run instantly and smoothly once the servo is enabled. The One-Touch Tuning function provides more optimum performance with further gain adjustment to reduce settling time. No tuning experience is required since gain values are automatically generated. This results in a completely trouble-free experience at your machine's startup, and cuts machine setup time and effort.
- **Advanced Vibration Suppression Control II™ –** This patented function of the Mitsubishi Electric servo system effectively suppress vibration on both the load and the machine base at frequencies as low as 100Hz. This function enhances high-response motion and improves productivity in a multi-inertia mechanism.
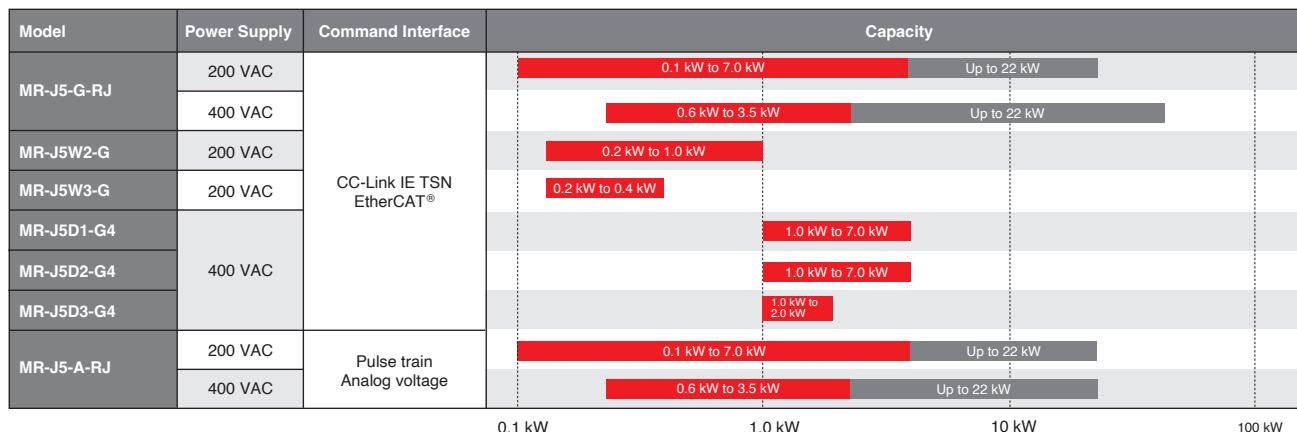
Maintainability
For prompt detection and diagnosis of failures

- **Servo-based predictive maintenance –** The MR-J5 servo provides predictive maintenance powered by AI technology. The servo amplifier detects mechanical component deterioration through friction and vibration values changes, and generates a failure warning as a reminder before any severe downtime happens. This helps to improve machine uptime, reduce unexpected failures, and minimize spare parts inventory.
- **Safety Sub-Functions –** MR-J5 servo amplifiers work with RD78 motion modules and our iQ-R safety CPU and support safety communication via CC-Link IE TSN. This allows servo motors to support a wide variety of safety sub-functions at a higher safety level, decreasing downtime and improving overall machine safety.

MR-J5 Series Servo Amplifier Product Overview

Future release planned ▬

Model	Power Supply	Command Interface	Capacity
MR-J5-G-RJ	200 VAC	CC-Link IE TSN EtherCAT®	0.1 kW to 7.0 kW / Up to 22 kW
	400 VAC		0.6 kW to 3.5 kW / Up to 22 kW
MR-J5W2-G	200 VAC		0.2 kW to 1.0 kW
MR-J5W3-G	200 VAC		0.2 kW to 0.4 kW
MR-J5D1-G4	400 VAC		1.0 kW to 7.0 kW
MR-J5D2-G4			1.0 kW to 7.0 kW
MR-J5D3-G4			1.0 kW to 2.0 kW
MR-J5-A-RJ	200 VAC	Pulse train Analog voltage	0.1 kW to 7.0 kW / Up to 22 kW
	400 VAC		0.6 kW to 3.5 kW / Up to 22 kW

Capacity axis: 0.1 kW — 1.0 kW — 10 kW — 100 kW

Notes: 200 VAC servo amplifiers are compatible with DC power supply input as standard
The indicated servo amplifiers are compatible only with a two-wire type serial encoder. For four-wire type serial encoders and pulse train interface (A/B/Z-phase differential output type) encoders, use MR-J5-G-RJ/MR-J5-A-RJ servo amplifiers.
EtherCAT® is supported by MR-J5-G-N1/MR-J5W2-G-N1/MR-J5W3-G-N1 servo amplifiers.

Simple Converter (option)

Model	Power Supply Specifications	Capacity [kW]	Connectable Servo Amplifiers	Note
MR-CM3K	200 VAC	3	1 to 6 units	Compatible with MR-J5-G/MR-J5W2-G/MR-J5W3-G/MR-J5-A

Motion Module	RD78GH	RD78G	FX5-_SSC-G
Maximum Number of Control Axes	RD78GHV: 128 axes RD78GHW: 256 axes	RD78G4: 4 axes RD78G8: 8 axes RD78G16: 16 axes RD78G32: 32 axes RD78G64: 64 axes	FX5-40SSC-G: 4 axes FX5-80SSC-G: 8 axes
Minimum Operation Cycle (*1)	31.25 [µs]	62.5 [µs]	500, 1000, 2000, 4000, ... [µs]
Communications Speed	1 Gbps		
Command Interface	CC-Link IE TSN		
Engineering Environment	MELSOFT GX Works3		
Programming Method	PLC CPU: Ladder, FBD/LD, ST language; Motion module: ST language		
Control Mode	Positioning control, Synchronous control, Cam control		
Positioning Control	Linear interpolation, Circular interpolation		
Acceleration/Deceleration Process	Trapezoidal acceleration/deceleration, Jerk acceleration/deceleration, Acceleration/deceleration time fixed method		Acceleration/deceleration time fixed method
Manual Control	JOG operation		
Functions that Change the Control Details	Current value change, Torque limit value change, Speed change, Target position change, Override, Acceleration/deceleration time change		
Homing Method	Driver homing method, Data set method		Driver homing method
Auxiliary Function	Forced stop, Event history, Touch probe, Servo ON/OFF, Absolute position control, Monitoring of servo data, Hardware stroke limit, Data logging, Software stroke limit, Slave emulate		
Safety Sub-Functions	Safe Torque Off (STO), Safe Stop 1 (SS1), Safe Stop 2 (SS2), Safe Operating Stop (SOS), Safety-Limited Speed (SLS), Safe Speed Monitor (SSM), Safe Brake Control (SBC), Safety-limited Increment (SLI), Safety-limited Torque (SLT), Safe Direction (SDI)		No safety over network

Note 1: The minimum operation cycle varies depending on the number of control axes and the model.