

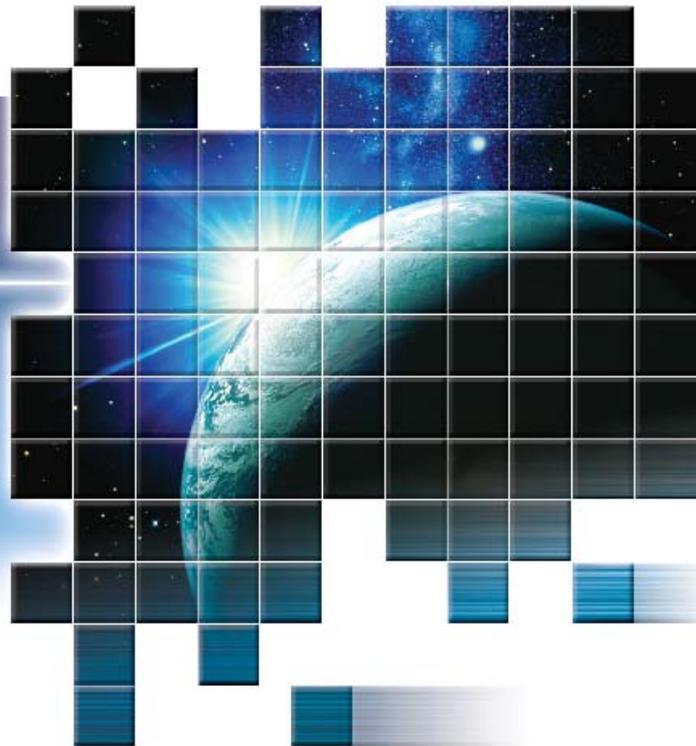
Servo System Network
SSCNETIII

Changes for the Better

Here the History of Optical Networks

SSCNETIII

Servo System Controller
NETwork



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



Evolving Quickly
to New Areas... **to Optics!**

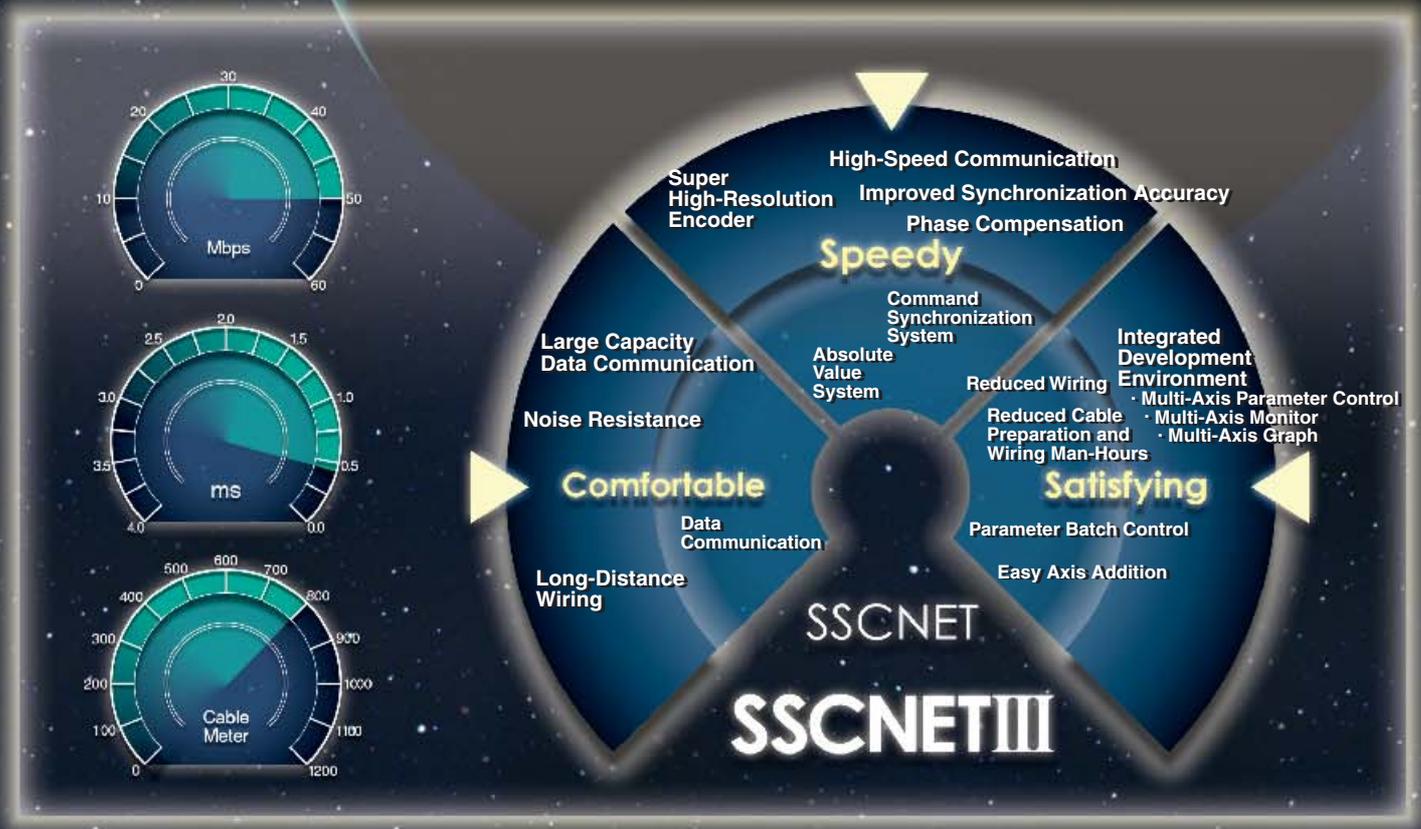
***Raising the Bar to Reach Higher Performance with
High-Speed Synchronous Network SSCNETIII!***

Mitsubishi has invented an original servo system network <SSCNET>
in pursuit of reliability.

SSCNET is an optical network that realizes smooth, high-response
and high-accuracy operation under all circumstances.

※ SSCNET (Servo System Controller NETwork)

Speedy
SSCNETIII
Comfortable
Satisfying

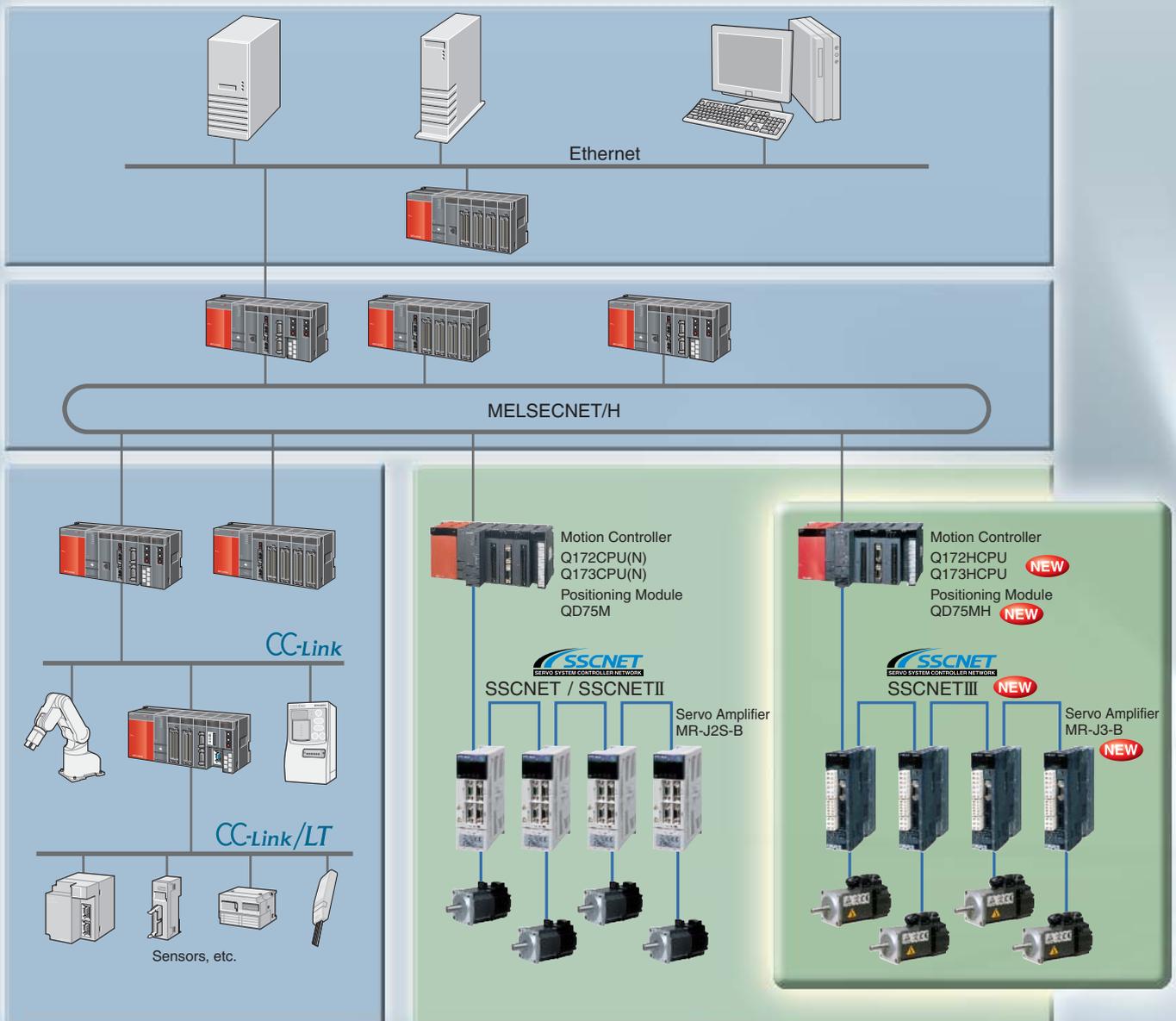


What is SSCNET?

Smooth, High-Speed and High-Accuracy Operation

Servo technology has been remarkably advanced. SSCNET realizes high-performance and high-accuracy devices that could not be attained with conventional pulse train command or analogue command. There were problems with both pulse-train command and analogue command: former had a limited pulse frequency for a high-speed and high-accuracy control, and the latter was vulnerable to the line noise, voltage drop due to the cable length, and temperature drift. SSCNET, however, resolves these problems and realizes smoother operations with high speed and accuracy. The high-speed serial communication system in SSCNET allows the servo motor synchronous control system and absolute-position system to be easily structured, and the one-touch connection with the connector simplifies wiring. SSCNET consists of metal cable SSCNET/SSCNETII and optical fiber cable SSCNETIII.

Network Hierarchy



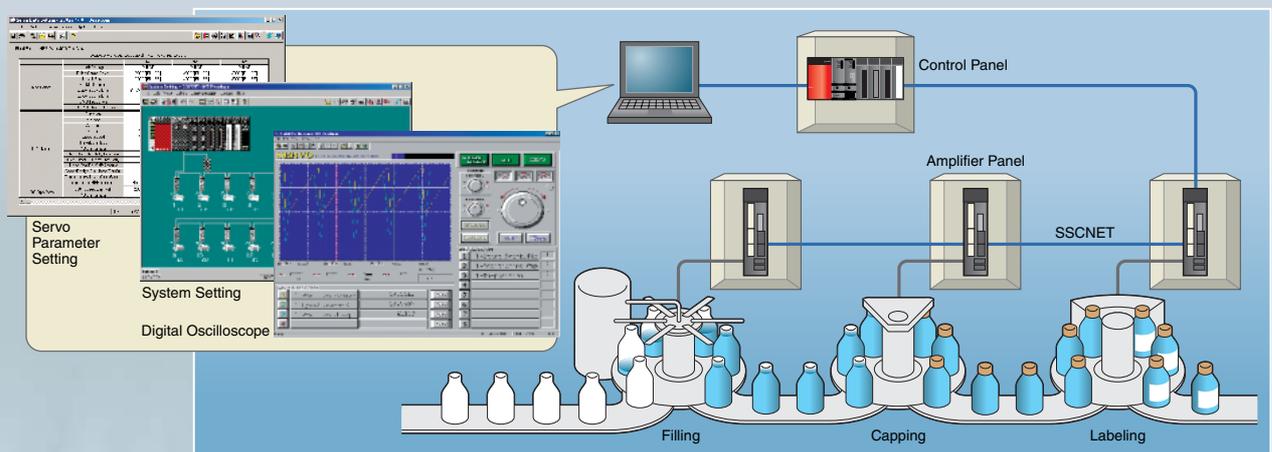
Advantages of SSCNET

Powerful Device with Synchronous Communication

With the conventional pulse-train command, some operations such as synchronous startup and high-accuracy two-axis interpolation were difficult because the servo amplifier and Motion controller were asynchronously operated. SSCNET realizes powerful functionality of the devices (ex. printing machines, food-processing machines, machine tool, etc.) that require accurate synchronization.

Advantages of Central Control with Network

SSCNET can exchange large volume of data between the controller and servo amplifier in real time. Servo parameters can be set from the personal computer connected to the controller when Motion controller is in use. Motor speed, current position and voltage value of each axis can be monitored with the digital oscilloscope function.

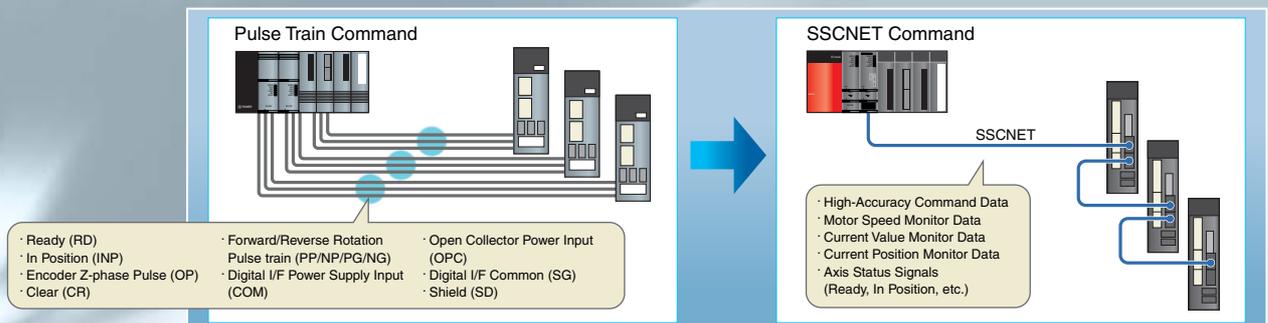


Easy Structure of Absolute System

An I/O module is necessary for sending/receiving the ABS data to structure an absolute system with a pulse-train command, and wiring is also required between the I/O module and servo amplifier. SSCNET does not require any wiring, and structuring an absolute system is very easy. Since home-position return operations are unnecessary, operations can be started up shortly after the power is on even with many axes.

Reduced Wiring

SSCNET can be connected only by inserting the dedicated cable into connectors. No more complicated wiring is necessary.



Improved Reliability

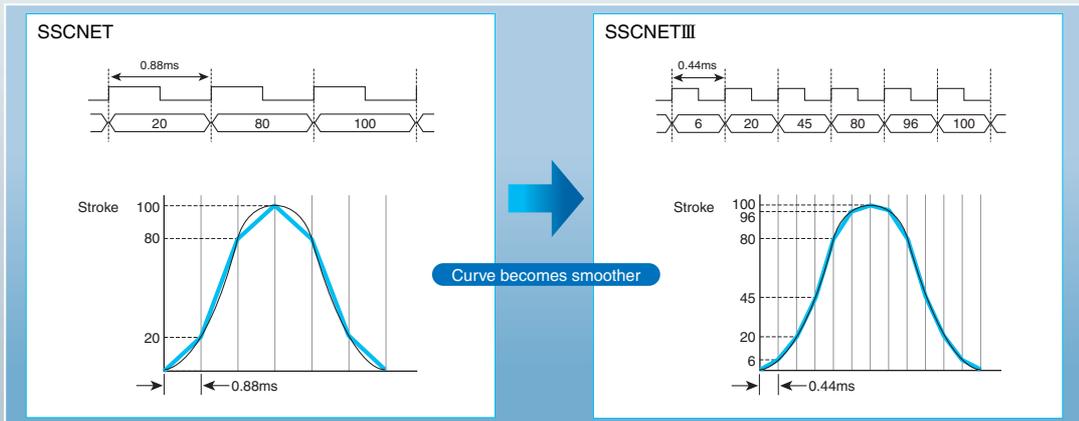
SSCNET offers a high degree of accuracy and communication reliability with its data communication. When an error occurs during communication, the current data is discarded and the following normal data is used.



SSCNETIII Features

Improved Communication Speed and Command Communication Cycle

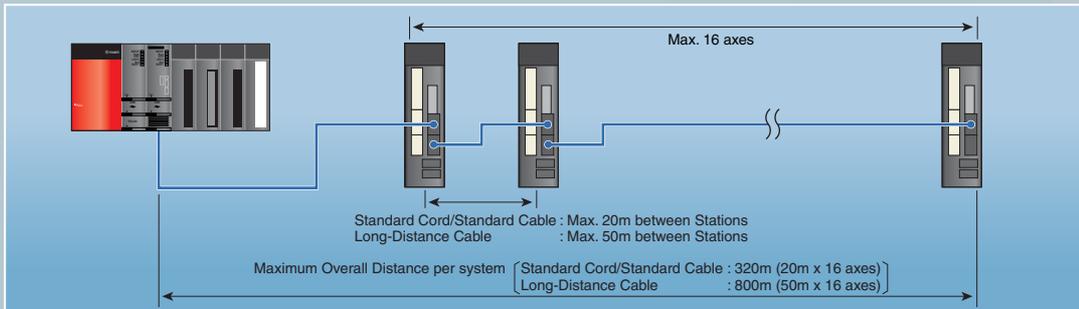
The command communication cycle (transmission communication cycle) to the servo amplifier is improved (SSCNET: 0.88ms → SSCNETIII: 0.44ms) by increasing the communication speed from 5.6Mbps to 50Mbps. This improvement also allows synchronization accuracy and speed/position accuracy to be enhanced.



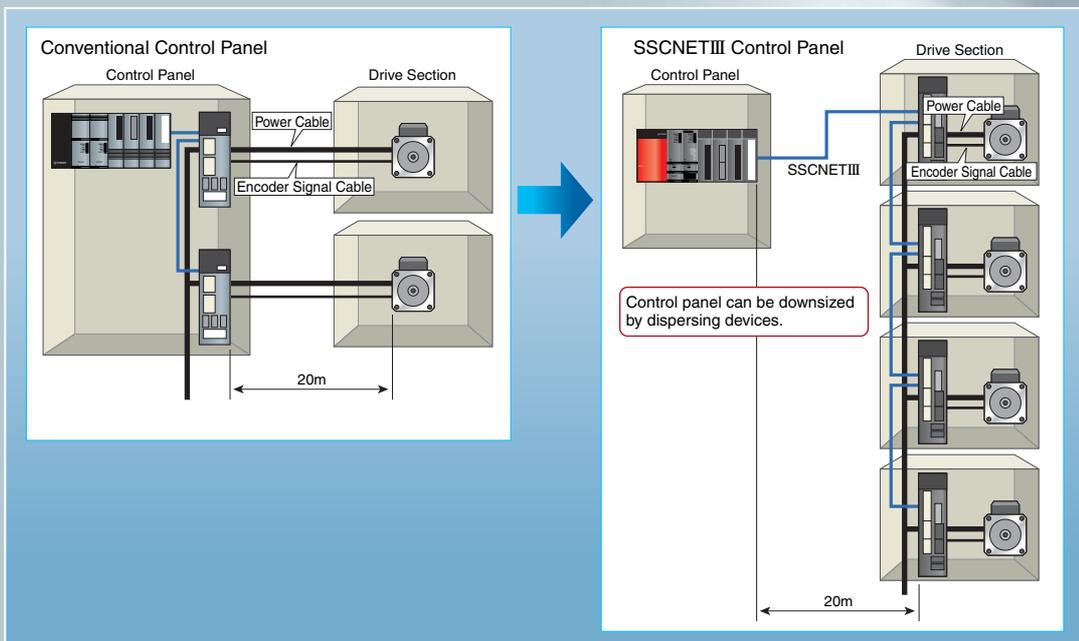
※SSCNETIII communication cycle differs according to the controller specifications.

Long-Distance Wiring

The cable length per system can be extended for long-distance wiring with SSCNETIII.



Large devices can be handled if the control panel is placed away from the drive section in a large-scale device or production line. The separable controller section and drive section can shorten the power cable wired between the servo amplifier and servo motor.

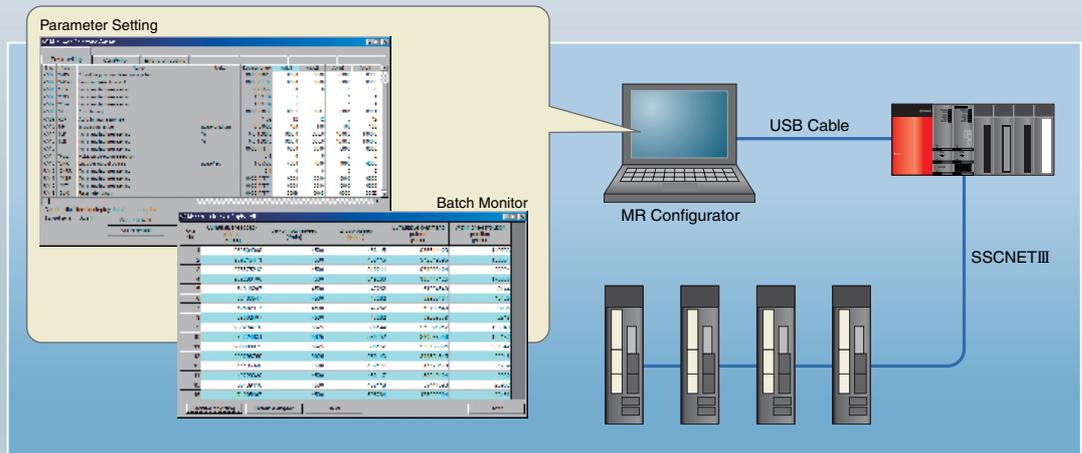


High Speed and Accuracy with Synergic Effect with MR-J3

Combined with MR-J3, SSCNETIII realizes faster and smoother operations for higher speed (maximum HF-KP motor speed: 6000r/min) and higher accuracy (HF-KP motor resolution: 262144p/rev).

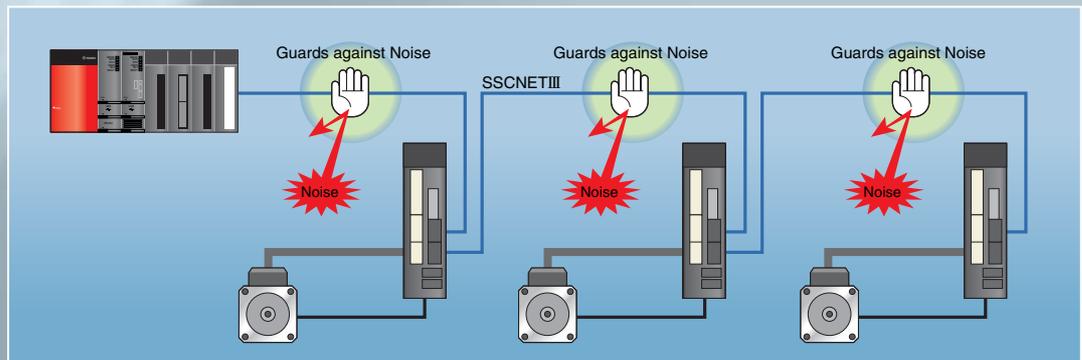
Shorter Adjustment Time with Servo Adjustment and Multiple Monitor

MR Configurator (Setup software) can be used via SSCNETIII. Parameters for the amplifier connected to SSCNETIII can be set and monitored only connecting a personal computer to the Motion controller.



Improved Noise Resistance

The optical fiber cables used for SSCNETIII dramatically improve the resistance against noise which enters from the power cable or external devices.



SSCNET Specifications

Item	SSCNETIII		SSCNETII	SSCNET
Communication Medium	Optical Fiber Cable		Metal Cable	Metal Cable
	Standard Cord for Inside Panel Standard Cable for Outside Panel	Long-Distance Cable (Note-1)		
Communication Speed	50Mbps		5.6Mbps	5.6Mbps
Communication Cycle (Note-2)	Send	0.44ms/0.88ms	0.88ms	0.88ms/1.77ms/3.55ms
	Receive	0.44ms/0.88ms	0.88ms	3.55ms
Maximum Control Axes per System	Communication Cycle 0.44ms : 8 axes/system Communication Cycle 0.88ms : 16 axes/system		6 axes/system	8 axes/system
Transmission Distance	Maximum 20m between Stations Maximum Overall Distance 320m (20m x 16 axes)	Maximum 50m between Stations Maximum Overall Distance 800m (50m x 16 axes)	Overall Distance 30m	Overall Distance 30m
Noise Resistance	◎		○	○

(Note-1) : Special-order product.

(Note-2) : Communication cycle differs according to the controller specifications.

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.
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