

Plug-in option (for communication)

CC-Link communication

FR-A8NC (A800) (A800 Plus) (F800)
 FR-A7NC (A701) FR-A7NC E kit (E700)
 Dedicated inverter FR-E700-NC (E700)

Has a maximum communication speed of 10 Mbps. Because the system employs the bus connection method, even if a module system fails due to power off, it will not affect the communication with other normal modules.

● Specifications

Item	Description
Network topology	Bus
Station type	Remote device station
Number of connectable devices	42 units maximum (occupy 1 station/unit), can be shared with other models
Supported version	Ver. 2.00 supported
Communication speed	Selectable from among 156 kbps/625 kbps/2.5 Mbps/5 Mbps/10 Mbps
Overall extension	1200 m/600 m/200 m/150 m/100 m (corresponding to the above communication speed)
Connection cable	Twisted pair cable

SSCNET III(H) communication

FR-A8NS (A800) (A800 Plus)
 FR-A7NS (A701)

By communication with the Mitsubishi Electric motion controller, inverter operation and monitoring from the program on the motion controller are enabled. (SSCNET III/H communication is supported by the FR-A8NS only.) SSCNET III(H), which is optical network, realizes reduction in wiring length, reliability improvement, synchronous control performance improvement, and multi-axis batch control using a motion controller.

To use vector control with FR-A800 series inverters, one of the following options is required: FR-A8AP, FR-A8AL, FR-A8APR, FR-A8APS, FR-A8APA, FR-A8TP. To use vector control with FR-A700 series inverters, one of the following options is required: FR-A7AP or FR-A7AL.

● Specifications

Item	SSCNET III	SSCNET III/H
Compatible options	FR-A8NS, FR-A7NS	FR-A8NS
Communication speed	50 Mbps for two-way	150 Mbps for two-way
Wiring distance between stations	Up to 50 m	Up to 100 m
Overall length	Up to 800 m	Up to 1600 m
Selectable calculation cycle	0.444 ms, 0.888 ms or more	0.222 ms, 0.444 ms, 0.888 ms or more
Number of connectable devices	16 axis maximum	
Connection cable	SSCNET III cable (refer to page 27) MR-J3BUS[]M (0.15 m, 0.3 m, 0.5 m, 1 m, 3 m): standard code for enclosure MR-J3BUS[]M-A (5 m, 10 m, 20 m): standard cable for outside enclosure MR-J3BUS[]M-B (30 m, 40 m, 50 m): long-distance cable	

There are some restrictions on the SSCNET III communication according to the setting of calculation cycle.

Calculation cycle	Restrictions for the SSCNET III communication
0.222 ms	Not applicable.
0.444 ms	Up to 8 axes controlled in a system.*1 Set the axis number between 0 to 7 using the axis number switch on the FR-A8NS/FR-A7NS. An inverter set as the axis number between 8 to F cannot be recognized.
0.888ms or more	No restriction.

*1 If this calculation cycle is set for the system requiring 9 axes or more, the calculation cycle of 0.888 ms is applied.

DeviceNet™ communication

FR-A8ND (A800) (A800 Plus) (F800)
 FR-A7ND (A701) FR-A7ND E kit (E700)

DeviceNet employs CAN (Controller Area Network) and is widely used in the automotive industry.

● Specifications

Item	Description
Network topology	Bus (trunk line · branch line)
Number of connectable devices	64 inverters (including master)
Communication speed	Selectable from among 125 kbps/250 kbps/500 kbps
Overall extension	500 m/250 m/100 m (corresponding to the above communication speed)
Connection cable	DeviceNet standard thick cable or thin cable (5 wire twisted pair cable)