Information for Replacement of FR-F500(L) Series with FR-F800 Series (375K, 450K, 530K)

Size, connection, parameters, options concerning replacement are stated on the following pages.

1. REPLACING INVERTER

The FR-F800 series inverter 355K to 560K is a separated converter type, which consists of an inverter unit (FR-F842) and a converter unit (FR-CC2).

The FR-F800 series has two specifications types: FM type and CA type.
When replacing the FR-F500L series of the Japanese specifications, select the FM type (FR-F842-[][][]K-1).
When the FR-F500L series is replaced with the FR-F800 series, the FR-F800 series does not support some FR-F500L series functions. For the unsupported functions, refer to section 4.4.

2. SIZE

When the FR-F500L series is replaced with the FR-F800 series, the FR-F800 series 355K or higher has different installation size from that of the corresponding FR-F500L series.
For more information about the product size, refer to the outline dimension drawings on the following pages.

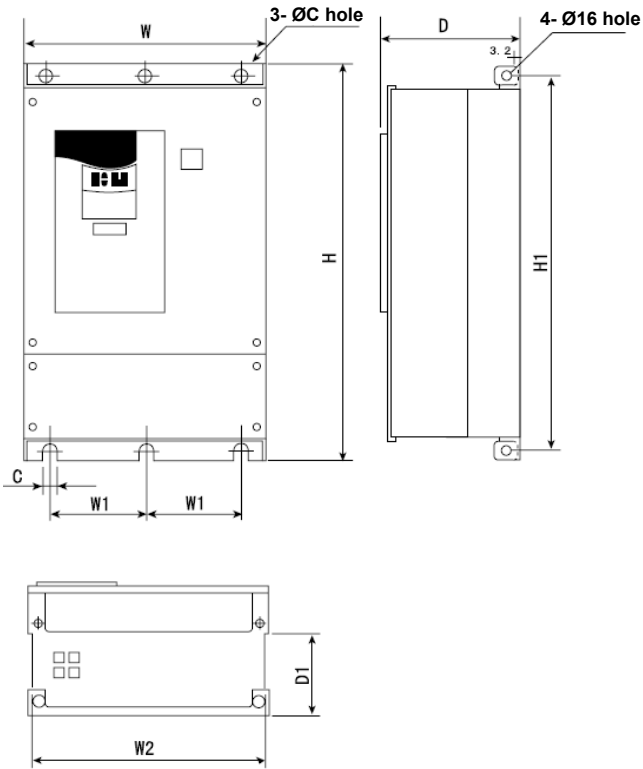| Existing inverter	Replacing inverter	Installation size
FR-F540L-375K	FR-F842-355K and FR-CC2-H355K*	Different
	FR-F842-400K and FR-CC2-H400K*	
FR-F540L-450K	FR-F842-450K and FR-CC2-H450K	
FR-F540L-530K	FR-F842-500K and FR-CC2-H500K*	
	FR-F842-560K and FR-CC2-H560K*	

* Select the inverter according to the capacity of the motor driven by the inverter.
  Consider the difference of the inverter rated currents.

Inverter	LD rated current
FR-F540L-375K	722 A
FR-F842-355K FR-CC2-H355K	683 A
FR-F842-400K FR-CC2-H400K	770 A

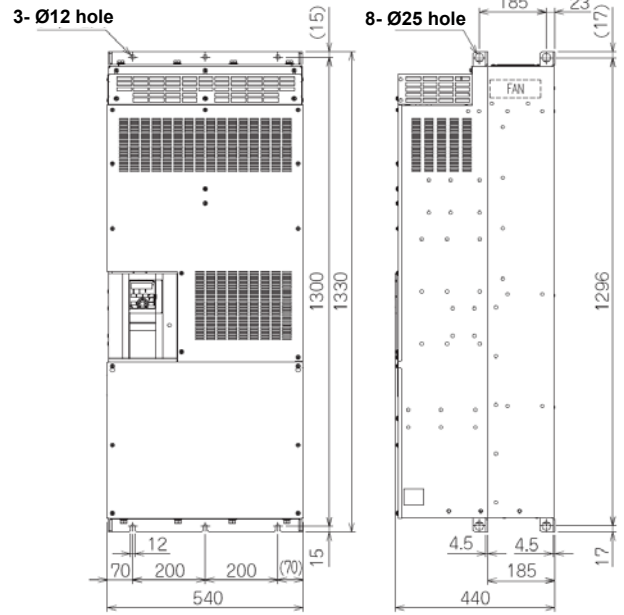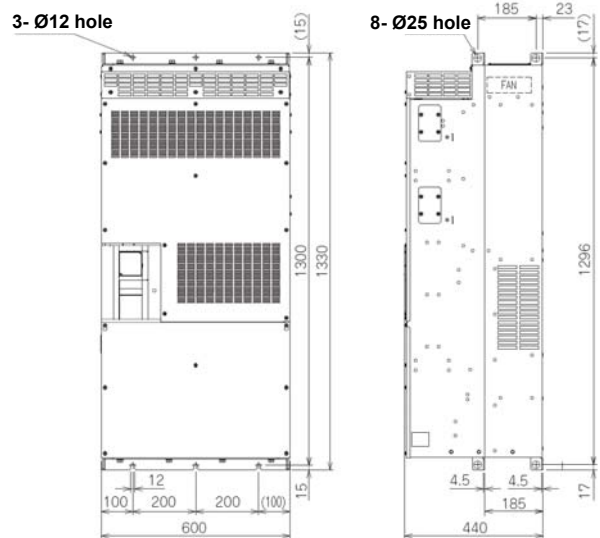| Inverter	LD rated current
FR-F540L-530K	1010 A
FR-F842-500K FR-CC2-H500K	962 A
FR-F842-560K FR-CC2-H560K	1094 A

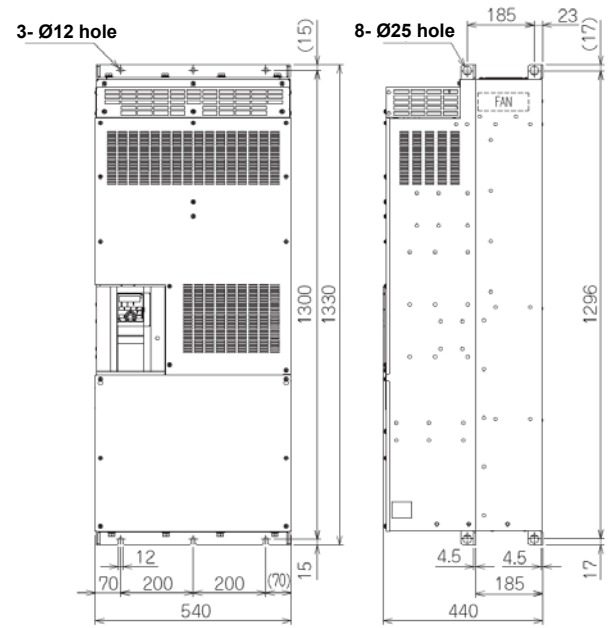Outline dimension drawings (Unit: mm)

■ FR-F540L-375K

■ FR-F842-355K
(Inverter unit)

■ FR-CC2-H355K
(Converter unit)

BCN-C21002-174B

■ FR-F842-400K
(Inverter unit)

3- Ø12 hole   (15)   **8- Ø25 hole**   185   23   (17)

FAN

1300   1330   1296

12
70   200   200   (70)   15

4.5   4.5   17
185

540   440

■ FR-CC2-H400K
(Converter unit)

3- Ø12 hole   (15)   **8- Ø25 hole**   185   23   (17)

FAN

1550   1580   1546

12
100   200   200   (100)   15

4.5   4.5   17
185

600   440
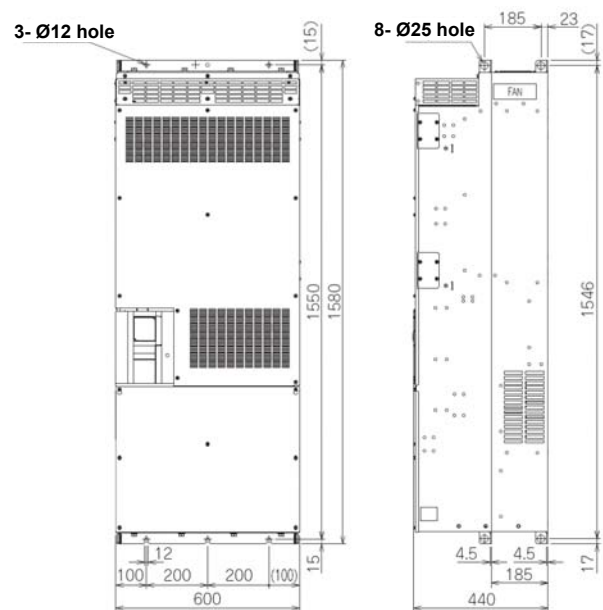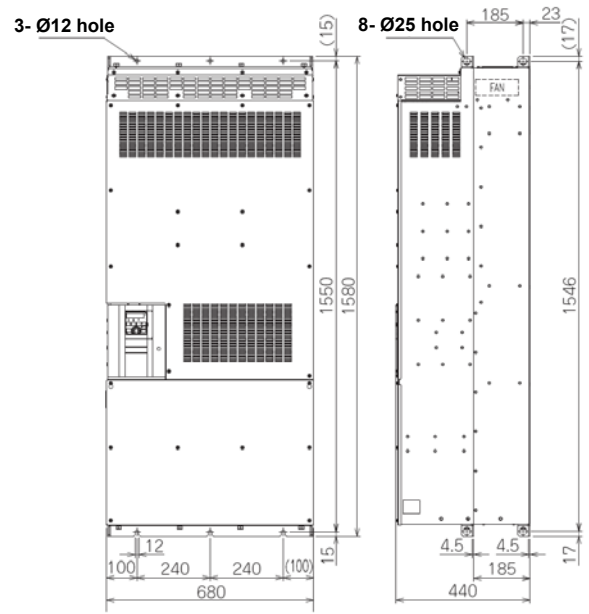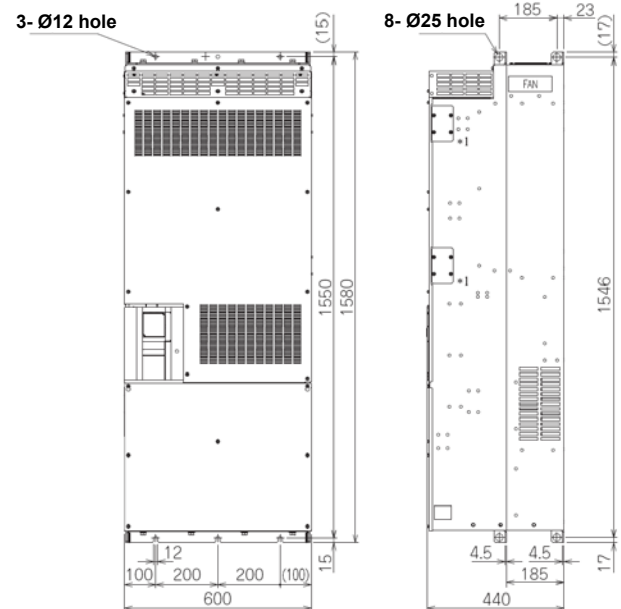
■ FR-F540L-450K, 530K
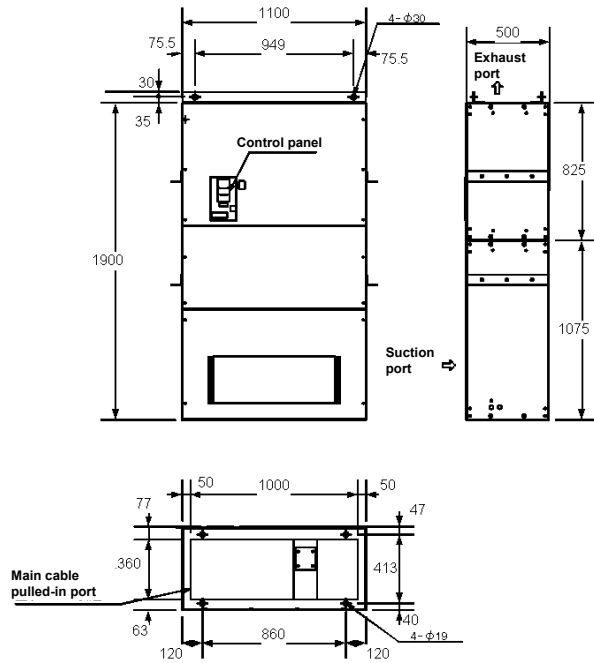
■ FR-F842-450K, 500K, 560K
  (Inverter unit)

■ FR-CC2-H450K, H500K, H560K
  (Converter unit)

When the panel through attachment is used, the enclosure cut dimensions are different. Change the dimensions according to those of the panel through attachment of the FR-F800 series.

3. CONNECTION

The terminal names are basically the same. Connect the terminals according to their names.

Type		F500L terminal name	F842 compatible terminal name	CC2 compatible terminal name
Main circuit		R, S, T	-	R/L1, S/L2, T/L3
		U, V, W	U, V, W	-
		R1, S1	R1/L11, S1/L21	R1/L11, S1/L21
		P, N	P/+, N/-	P/+, N/-
		P0, P1	-	P1*1
		⏚	⏚	⏚
Control circuit / input signal	Contact	STF	STF	-
		STR	STR	-
		STOP	STOP	-
		RH	RH	-
		RM	RM	-
		RL	RL	-
		JOG	JOG	-
		RT	RT	-
		AU	AU	-
		CS	CS	-
		MRS	MRS	-
		RES	RES	RES
		SD	SD	SD
		PC	PC	PC
Analog	Frequency setting	10E	10E	-
		10	10	-
		2	2	-
		4	4	-
		1	1	-
		5	5	-
Control circuit output signal	Contact	A, B, C	A1, B1, C1	A1, B1, C1
	Open collector	RUN	RUN	-
		SU	SU	-
		OL	OL	-
		IPF	IPF	IPF
		FU	FU	-
		SE	SE	SE
	Pulse	FM	FM	-
	Analog	AM	AM	-
Communication	RS-485	PU connector	PU connector	PU connector

*1) Connection is not available.

Main circuit terminal layout

The following shows the main circuit terminal layouts of the FR-F500L series and FR-F800 series.
The main circuit terminal layout and the position of the earth (ground) terminal may differ depending on the capacity. Check the terminal names and positions before performing wiring.
When the cable used for the FR-F500L series is too short for the FR-F800 series, prepare the longer one.
The terminal screw size may differ depending on the capacity. Check the terminal screw size before performing wiring.

[400 V class]
■ FR-F540L-375K

M12 bolt

■ FR-F540L-450K, 530K

Control panel

500

1100

4 − φ30

1900

430

T P1 | S N | R P

152 | 96 | 96 | 156

230 | 210 | 505 | 155

U | V | W | PO

108 | 96 | 96 | 96 | 104

R   P
S   N
T   P1

U
V
W
PO

Terminals R, S, T

37.5

35
40
35

45

40   17.5

Terminals U, V, W, P0, P1, P, N

40

40
17.5

37.5

17.5 | 40 | 17.5

BCN-C21002-174B
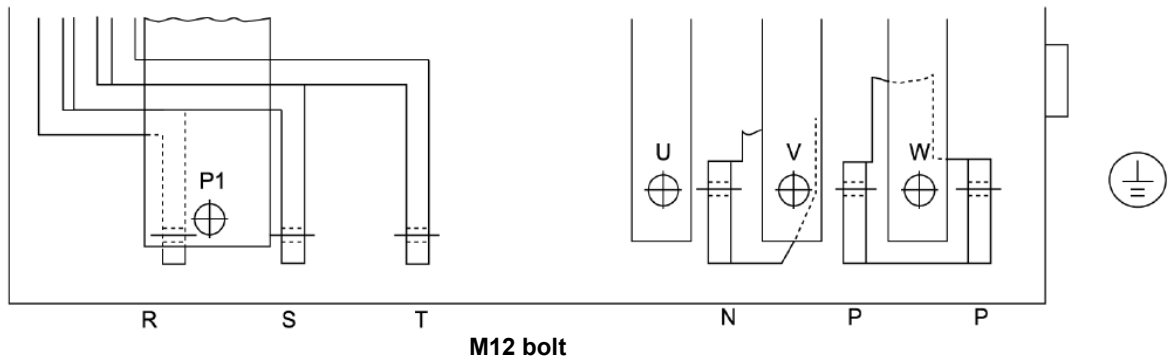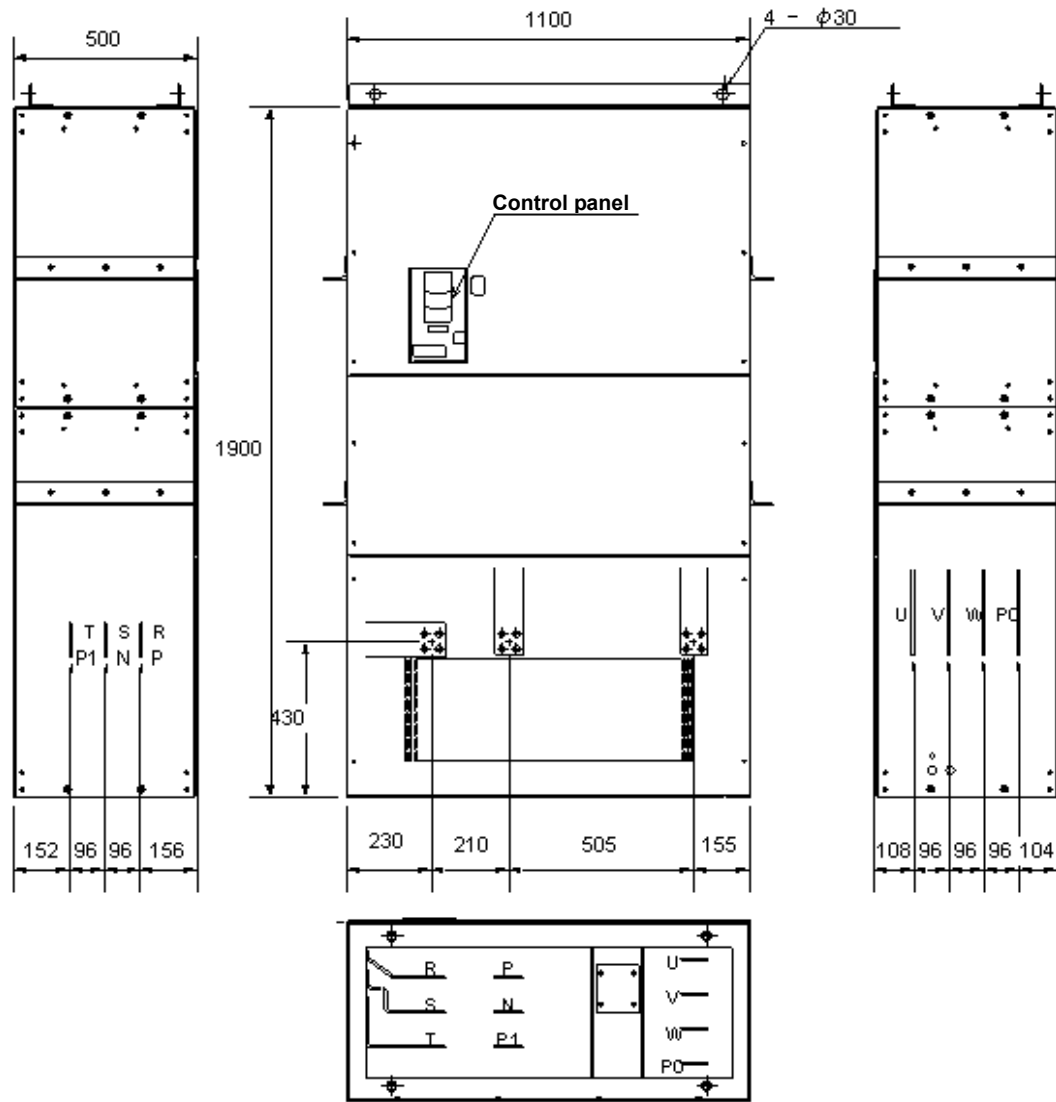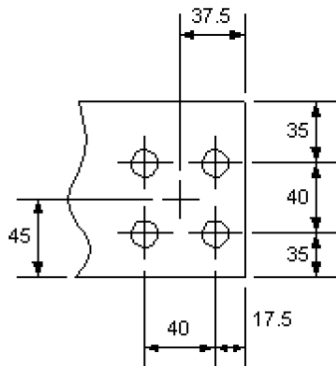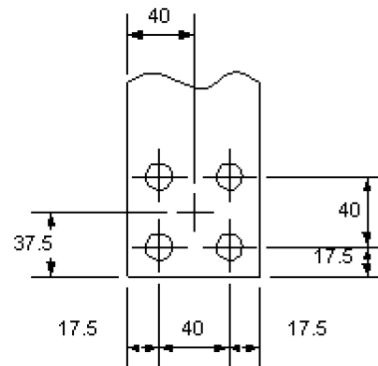
■ FR-CC2-H355K, H400K, H450K, H500K, H560K
  (Converter unit)

R1/L11 S1/L21
Charge lamp
Jumper

R/L1 S/L2 T/L3 N/- P/+

Power supply
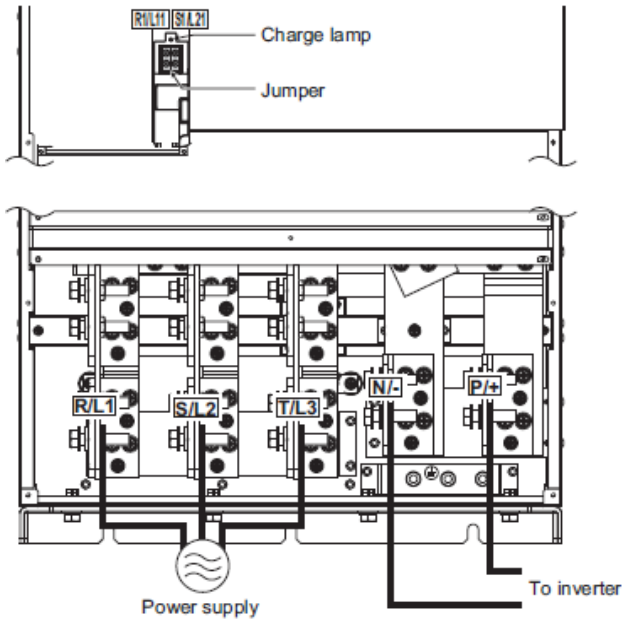
To inverter

■ FR-F842-355K, 400K, 450K, 500K, 560K
  (Inverter unit)

R1/L11 S1/L21
Charge lamp
Jumper

N/- U W
P/+ V

To
converter unit

M

Motor

BCN-C21002-174B

Converter unit (FR-CC2) / Inverter wiring diagram
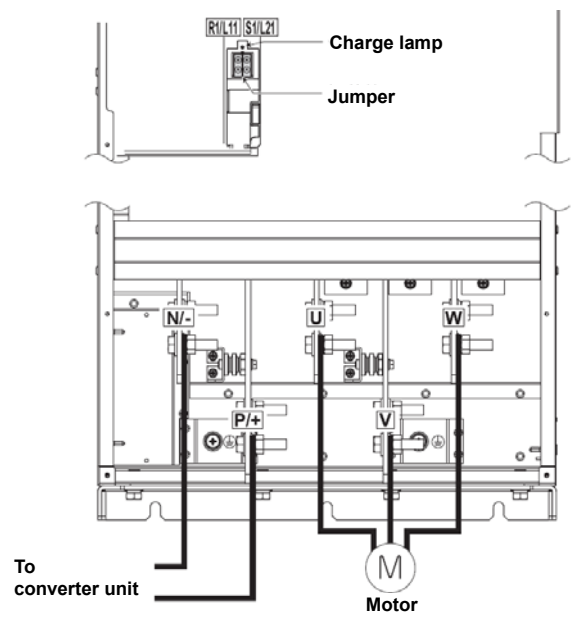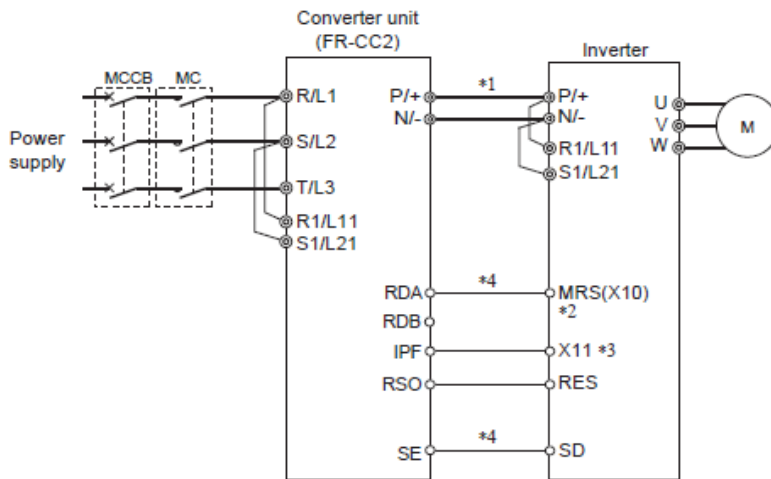
*1 Do not install an MCCB across the terminals P/+ and N/- (across terminals P and P/+ or across N and N/-). Connecting the opposite polarity of terminals N/- and P/+ will damage the inverter.

*2 For the terminal used for the X10 signal input, set "10" in any of Pr.178 to Pr.189 (input terminal function selection) to assign the function.

*3 For the terminal used for the X11 signal input, set "11" in any of Pr.178 to Pr.189 (input terminal function selection) to assign the function. For RS-485 or any other communication where the start command is only transmitted once, use the X11 signal to save the operation mode at the time of an instantaneous power failure.

*4 Always connect the terminal RDA of the converter unit and the terminal MRS (X10) of the inverter, and the terminal SE of the converter unit and the terminal SD (sink logic) of the inverter. Not connecting these terminals may damage the converter unit.

NOTE

- Make sure the power cables are connected to the R/L1, S/L2, and T/L3. (Phase need not be matched.)
- When wiring the main circuit conductor, tighten a nut from the right side of the conductor.
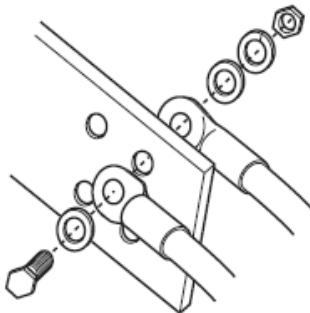 When wiring two wires, place wires on both sides of the conductor. (Refer to the drawing below.)
  For wiring, use bolts (nuts) provided with the converter unit.

- When wiring cables to the main circuit conductor (R/L1, S/L2, T/L3) of the converter unit, use the bolts (nuts) for main circuit wiring, which are provided on the front side of the conductor.

FR-CC2-H315K, H355K
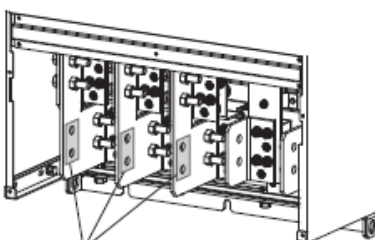
FR-CC2-H400K to H500K

Connect the cables here.
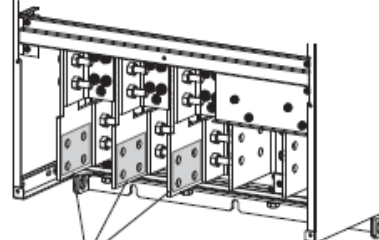
Connect the cables here.

Control circuit terminal layout

The following shows the control circuit terminal layouts of the FR-F500L series and the FR-F800 series. The control circuit terminal layout differs between the FR-F500L and the FR-F800 series. Check the terminal names and positions before performing wiring.

■Control circuit terminal layout of the FR-F500L series

A	B	C	PC	AM	10E	10	2	5	4	1
	RL	RM	RH	RT	AU	STOP	MRS	RES	SD	FM
SE	RUN	SU	IPF	OL	FU	SD	STF	STR	JOG	CS

Terminal screw size: M3.5
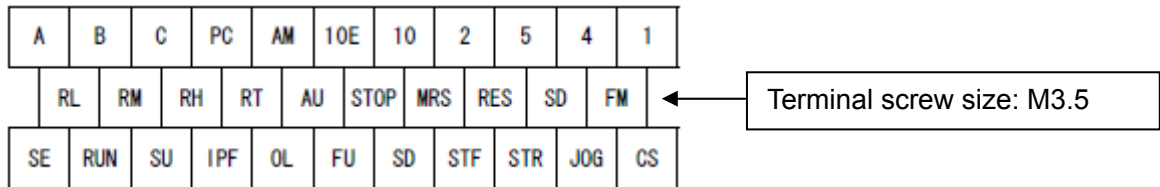
■Control circuit terminal layout of the FR-F800 series
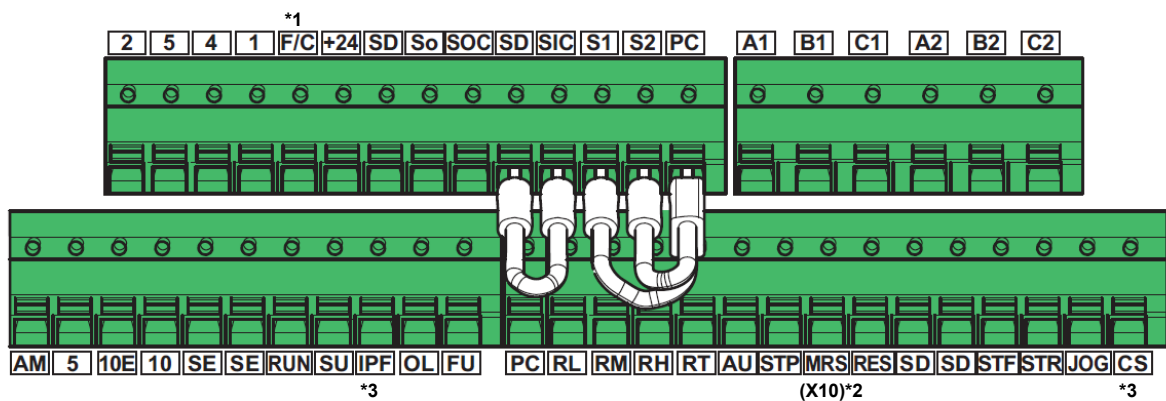
*1) This terminal operates as the terminal FM for the FM type inverter, and as the terminal CA for the CA type inverter.
*2) The X10 signal is assigned to the terminal MRS in the initial setting.
*3) No function is assigned in the initial setting.

The control circuit terminal block intercompatibility attachment (FR-A8TAT) can be used for installing control circuit terminal blocks of the FR-F500(L) series. However, some restrictions apply for the installation. Refer to the FR-F800 catalog for the descriptions on the FR-A8TAT.

◆Wiring method

• Power supply connection

For the control circuit wiring, strip off the sheath of a cable, and use it with a blade terminal. For a single wire, strip off the sheath of the wire and apply directly.

Insert the blade terminal or the single wire into a socket of the terminal.

(1) Strip off the sheath for the below length. If the length of the sheath peeled is too long, a short circuit may occur with neighboring wires. If the length is too short, wires might come off.

Wire the stripped cable after twisting it to prevent it from becoming loose. In addition, do not solder it.

Cable stripping size

10 mm

(2) Crimp the blade terminal.

Insert wires to a blade terminal, and check that the wires come out for about 0 to 0.5 mm from a sleeve.

Check the condition of the blade terminal after crimping. Do not use a blade terminal of which the crimping is inappropriate, or the face is damaged.
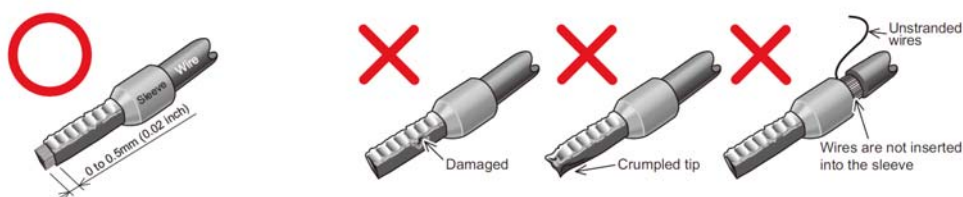
• Blade terminals commercially available (as of February 2012)

Phoenix Contact Co., Ltd.

Cable gauge (mm²)	Blade terminal model			Crimping tool name
	With insulation sleeve	Without insulation sleeve	For UL wire*1	
0.3	AI 0,5-10WH	—	—	CRIMPFOX 6
0.5	AI 0,5-10WH	—	AI 0,5-10WH-GB	
0.75	AI 0,75-10GY	A 0,75-10	AI 0,75-10GY-GB	
1	AI 1-10RD	A 1-10	AI 1-10RD/1000GB	
1.25, 1.5	AI 1,5-10BK	A 1,5-10	AI 1,5-10BK/1000GB*2	
0.75 (for two wires)	AI-TWIN 2 × 0,75-10GY	—	—	

*1 A blade terminal with an insulation sleeve compatible with the MTW wire which has a thick wire insulation.
*2 Applicable for the terminal A1, B1, C1, A2, B2, C2.

NICHIFU Co., Ltd.

Cable gauge (mm²)	Blade terminal product number	Insulation product number	Crimping tool product number
0.3 to 0.75	BT 0.75-11	VC 0.75	NH 69

(3) Insert the wires into a socket.
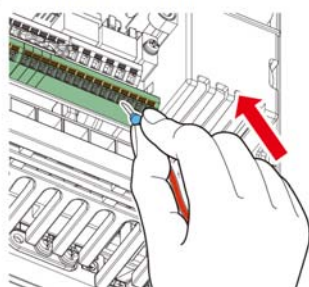
When using a single wire or stranded wires without a blade terminal, push the open/close button all the way down with a flathead screwdriver, and insert the wire.

Open/close button

Flathead screwdriver
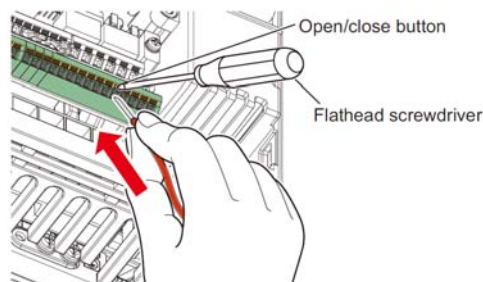
NOTE

• When using stranded wires without a blade terminal, twist enough to avoid short circuit with a nearby terminals or wires.
• Place the flathead screwdriver vertical to the open/close button. In case the blade tip slips, it may cause an inverter damage or injury.

• Wire removal
Pull the wire while pushing the open/close button all the way down firmly with a flathead screwdriver.

Open/close button

Flathead screwdriver
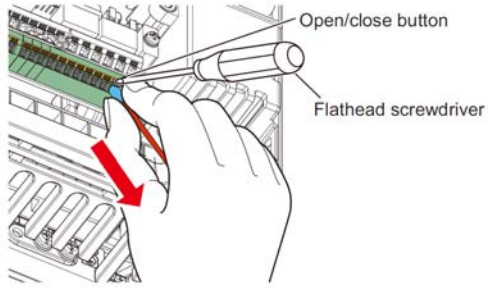
NOTE

• Pulling out the wire forcefully without pushing the open/close button all the way down may damage the terminal block.
• Use a small flathead screwdriver (tip thickness: 0.4 mm/tip width: 2.5 mm).
  If a flathead screwdriver with a narrow tip is used, terminal block may be damaged.
  Commercially available products (as of February 2012)

Name	Model	Manufacturer
Driver	SZF 0- 0,4 × 2,5	Phoenix Contact Co., Ltd.

• Place the flathead screwdriver vertical to the open/close button. In case the blade tip slips, it may cause an inverter damage or injury.

4. PARAMETER

4. 1. Parameter list

Although most parameter numbers are the same, some setting values differ. Please refer to the following table to set the parameters.

<u>List of FR-F800 series parameters compatible with the FR-F500L series</u>

The following table shows the parameter settings required when replacing an FR-F500L series inverter by an FR-F800 series inverter.

When the initial value of a parameter differs between the FR-F500L series and the FR-F800 series, set the initial value of the FR-F500L series parameter in the FR-800 series parameter according to the following table.

The parameters with Δ are used for adjustment. Set them as required.

The parameter replacement following the table below does not guarantee the inverter characteristics or performance.

The parameter number of the ▮▮▮▮ parameters differs from that of the FR-F500L series inverter.

Setting ⊙: Set the FR-F500L parameter as it is.

Δ: Change the FR-F500L parameter and set.

×: Adjust or set the FR-F800 parameter.

FR-F500L parameter list				FR-F800 compatible parameter				Parameter setting	
Function number	Name	Setting range	Initial value	Function number	Name	Setting range	Initial value	Setting	Remarks
0	Torque boost	0 to 30%	1%	0	Torque boost	0 to 30%	1%	Δ	
1	Maximum frequency	0 to 120 Hz	60 Hz	1	Maximum frequency	0 to 120 Hz	60 Hz	⊙	
2	Minimum frequency	0 to 120 Hz	0 Hz	2	Minimum frequency	0 to 120 Hz	0 Hz	⊙	
3	Base frequency	0 to 120 Hz	60 Hz	3	Base frequency	0 to 590 Hz	60 Hz	⊙	
4	Multi-speed setting (high speed)	0 to 120 Hz	60 Hz	4	Multi-speed setting (high speed)	0 to 590 Hz	60 Hz	⊙	
5	Multi-speed setting (middle speed)	0 to 120 Hz	30 Hz	5	Multi-speed setting (middle speed)	0 to 590 Hz	30 Hz	⊙	
6	Multi-speed setting (low speed)	0 to 120 Hz	10 Hz	6	Multi-speed setting (low speed)	0 to 590 Hz	10 Hz	⊙	
7	Acceleration time	0 to 3600 s/ 0 to 360 s	15 s	7	Acceleration time	0 to 3600 s/ 0 to 360 s	15 s	⊙	Changing Pr.21 after setting this parameter will change the set value.
8	Deceleration time	0 to 3600 s/ 0 to 360 s	30 s	8	Deceleration time	0 to 3600 s/ 0 to 360 s	30 s	⊙	Changing Pr.21 after setting this parameter will change the set value.
9	Electronic thermal O/L relay	0 to 3600 A	Rated output current	9	Electronic thermal O/L relay	0 to 3600 A	LD rated output current	⊙	Set the rated motor current.
10	DC injection brake operation frequency	0 to 120 Hz, 9999	3 Hz	10	DC injection brake operation frequency	0 to 120 Hz, 9999	3 Hz	⊙	
11	DC injection brake operation time	0 to 10 s, 8888	0.5 s	11	DC injection brake operation time	0 to 10 s, 8888	0.5 s	⊙	
12	DC injection brake voltage	0 to 30%	1%	12	DC injection brake operation voltage	0 to 30%	1%	Δ	
13	Starting frequency	0 to 60 Hz	0.5 Hz	13	Starting frequency	0 to 60 Hz	0.5 Hz	⊙	
14	Load pattern selection	0, 1	1	14	Load pattern selection	0, 1	1	⊙	
15	Jog frequency	0 to 120 Hz	5 Hz	15	Jog frequency	0 to 590 Hz	5 Hz	⊙	
16	Jog acceleration/deceleration time	0 to 3600 s/ 0 to 360 s	0.5 s	16	Jog acceleration/deceleration time	0 to 3600 s/ 0 to 360 s	0.5 s	⊙	Changing Pr.21 after setting this parameter will change the set value.
17	MRS input selection	0, 2	0	17	MRS input selection	0, 2, 4	0	⊙	
19	Base frequency voltage	0 to 1000 V, 8888, 9999	9999	19	Base frequency voltage	0 to 1000 V, 8888, 9999	9999	⊙	
20	Acceleration/deceleration reference frequency	1 to 120 Hz	60 Hz	20	Acceleration/deceleration reference frequency	1 to 590 Hz	60 Hz	⊙	

FR-F500L parameter list				FR-F800 compatible parameter				Parameter setting	
Function number	Name	Setting range	Initial value	Function number	Name	Setting range	Initial value	Setting	Remarks
21	Acceleration/deceleration time increments	0, 1	0	21	Acceleration/deceleration time increments	0, 1	0	⊙	
22	Stall prevention operation level	0 to 150%	120%	22	Stall prevention operation level	0 to 400%	120%*	Δ	Set this parameter after correcting the difference in the rated inverter current using the conversion equation shown in section 4.2. Adjust the parameter as required.
23	Stall prevention operation level at double speed	0 to 200%, 9999	9999	23	Stall prevention operation level compensation factor at double speed	0 to 200%, 9999	9999	Δ	Set this parameter after correcting the setting using the conversion equation shown in section 4.3. Adjust the parameter as required.
24	Multi-speed setting (speed 4)	0 to 120 Hz, 9999	9999	24	Multi-speed setting (speed 4)	0 to 590 Hz, 9999	9999	⊙	
25	Multi-speed setting (speed 5)	0 to 120 Hz, 9999	9999	25	Multi-speed setting (speed 5)	0 to 590 Hz, 9999	9999	⊙	
26	Multi-speed setting (speed 6)	0 to 120 Hz, 9999	9999	26	Multi-speed setting (speed 6)	0 to 590 Hz, 9999	9999	⊙	
27	Multi-speed setting (speed 7)	0 to 120 Hz, 9999	9999	27	Multi-speed setting (speed 7)	0 to 590 Hz, 9999	9999	⊙	
28	Multi-speed input compensation	0, 1	0	28	Multi-speed input compensation	0, 1	0	⊙	To use the terminal 1, "0 (initial value)" must be set in Pr.86.
29	Acceleration/deceleration pattern	0, 1, 2, 3	0	29	Acceleration/deceleration pattern selection	0 to 3, 6	0	⊙	
30	Regenerative function selection	0, 1, 2	0	30	Regenerative function selection	2, 10, 11, 102, 110, 111	10	⊙	
31	Frequency jump 1A	0 to 120 Hz, 9999	9999	31	Frequency jump 1A	0 to 590 Hz, 9999	9999	⊙	
32	Frequency jump 1B	0 to 120 Hz, 9999	9999	32	Frequency jump 1B	0 to 590 Hz, 9999	9999	⊙	
33	Frequency jump 2A	0 to 120 Hz, 9999	9999	33	Frequency jump 2A	0 to 590 Hz, 9999	9999	⊙	
34	Frequency jump 2B	0 to 120 Hz, 9999	9999	34	Frequency jump 2B	0 to 590 Hz, 9999	9999	⊙	
35	Frequency jump 3A	0 to 120 Hz, 9999	9999	35	Frequency jump 3A	0 to 590 Hz, 9999	9999	⊙	
36	Frequency jump 3B	0 to 120 Hz, 9999	9999	36	Frequency jump 3B	0 to 590 Hz, 9999	9999	⊙	
37	Speed display	0, 1 to 9998	0	37	Speed display	0, 1 to 9998	0	⊙	When the machine speed display is selected in the parameter frequency setting, select the frequency display to change the setting. After the setting, select the machine speed display again.
38	Automatic torque boost	0 to 200%	0%	-	-	-	-	×	For the FR-F800, automatic torque boost function is not available. As a substitute function, Advanced magnetic flux vector control is available. Refer to section 5.2.2 in the Instruction Manual (Detailed).
39	Automatic torque boost operation starting current	0 to 3600 A	0	-	-	-	-	×	
41	Up-to-frequency sensitivity	0 to 100%	10%	41	Up-to-frequency sensitivity	0 to 100%	10%	⊙	
42	Output frequency detection	0 to 120 Hz	6 Hz	42	Output frequency detection	0 to 590 Hz	6 Hz	⊙	
43	Output frequency detection for reverse rotation	0 to 120 Hz, 9999	9999	43	Output frequency detection for reverse rotation	0 to 590 Hz, 9999	9999	⊙	
44	Second acceleration/deceleration time	0 to 3600 s/ 0 to 360 s	5 s	44	Second acceleration/deceleration time	0 to 3600 s/ 0 to 360 s	5 s	⊙	Changing Pr.21 after setting this parameter will change the set value.
45	Second deceleration time	0 to 3600 s/ 0 to 360 s, 9999	9999	45	Second deceleration time	0 to 3600 s, 9999/ 0 to 360 s, 9999	9999	⊙	Changing Pr.21 after setting this parameter will change the set value.
46	Second torque boost	0 to 30%, 9999	9999	46	Second torque boost	0 to 30%, 9999	9999	⊙	
47	Second V/F (base frequency)	0 to 120 Hz, 9999	9999	47	Second V/F (base frequency)	0 to 590 Hz, 9999	9999	⊙	

* When 120% is set for the rated current of the FR-F540L-375K and 530K, set as follows: 120% × (F540L rated current) / (F842 rated current). Adjust the setting value for the FR-F842-355K and 500K, as the value calculated with the formula is large.

FR-F500L parameter list				FR-F800 compatible parameter				Parameter setting	
Function number	Name	Setting range	Initial value	Function number	Name	Setting range	Initial value	Setting	Remarks
48	Second stall prevention operation current	0 to 150%	120%	48	Second stall prevention operation level	0 to 400%	120%*	Δ	
49	Second stall prevention operation frequency	0 to 120 Hz, 9999	0 Hz	49	Second stall prevention operation frequency	0 to 590 Hz, 9999	0 Hz	⊙	
50	Second output frequency detection	0 to 120 Hz	30 Hz	50	Second output frequency detection	0 to 590 Hz	30 Hz	⊙	
52	DU/PU main display data selection	0, 5, 6, 8, 10 to 14, 17, 20, 23 to 25, 100	0	52	Operation panel main monitor selection	0, 5 to 14, 17, 18, 20, 23 to 25, 34, 38, 40 to 45, 50 to 57, 61, 62, 64, 67, 68, 81 to 96, 98, 100	0	⊙	
53	PU level display data selection	0 to 3, 5, 6, 8, 10 to 14, 17	1	-	-	-	-	-	Function not provided
54	FM terminal function selection	1 to 3, 5, 6, 8, 10 to 14, 17, 21	1	54	FM terminal function selection	1 to 3, 5 to 14, 17, 18, 21, 24, 34, 50, 52, 53, 61, 62, 67, 70, 85, 87 to 90, 92, 93, 95, 98	1	⊙	
55	Frequency monitoring reference	0 to 120 Hz	60 Hz	55	Frequency monitoring reference	0 to 590 Hz	60 Hz	⊙	
56	Current monitoring reference	0 to 3600 A	Rated output current	56	Current monitoring reference	0 to 3600 A	LD rated output current	⊙	
57	Restart coasting time	0, 0.1 to 30 s, 9999	9999	57	Restart coasting time	0, 0.1 to 30 s, 9999	9999	Δ	When Pr.57 of the FR-F500L is not set to "9999", set Pr.57 of the FR-CC2 to "0".
58	Restart cushion time	0 to 60 s	1.0 s	58	Restart cushion time	0 to 60 s	1.0 s	⊙	
59	Remote setting function selection	0, 1, 2	0	59	Remote function selection	0 to 3, 11 to 13	0	⊙	
60	Intelligent mode selection	0, 3, 4, 9	0	60	Energy saving control selection	0, 4, 9	0	Δ	According to the Pr.60 setting of the FR-F500L, set Pr.292 and Pr.60 of FR-F800 as follows. 0: Pr.60 = "0", 3: Not available for the FR-F800 4: Pr.60 = "4", 9: Pr.60 = "9"
61	Reference I for intelligent mode	0 to 3600 A, 9999	9999	-				−	Not available for the FR-F800
62	Ref. I for intelligent mode accel.	0 to 150%, 9999	9999	-				−	Not available for the FR-F800
63	Ref. I for intelligent mode decel.	0 to 150%, 9999	9999	-				−	Not available for the FR-F800
65	Retry selection	0 to 5	0	65	Retry selection	0 to 5	0	⊙	
66	Stall prevention operation level reduction starting frequency	0 to 120 Hz	60 Hz	66	Stall prevention operation reduction starting frequency	0 to 590 Hz	60 Hz	⊙	
67	Number of retries at alarm occurrence	0 to 10, 101 to 110	0	67	Number of retries at fault occurrence	0 to 10, 101 to 110	0	⊙	
68	Retry waiting time	0 to 10 s	1 s	68	Retry waiting time	0.1 to 600 s	1 s	⊙	
69	Retry count display erasure	0	0	69	Retry count display erase	0	0	⊙	
70	Special regenerative brake duty	0 to 100%	0%	70	Special regenerative brake duty	0 to 100%	0%	Δ	Setting value: 100% → 0%, 10% or more → 10%
71	Applied motor	0, 1, 2	0	71	Applied motor	0 to 6, 13 to 16, 20, 23, 24, 40, 43, 44, 50, 53, 54, 70, 73, 74, 210, 213, 214, 334, 8090, 8093, 8094, 9090, 9093, 9094	0	⊙	
72	PWM frequency selection	0, 1, 2	1	72	PWM frequency selection	0 to 6, 25	2	Δ	Set the FR-F500 parameter as it is. Set the FR-F500L parameter as follows. Setting value: 0, 1 → 0, 1 2 → 25

* When 120% is set for the rated current of the FR-F540L-375K and 530K, set as follows: 120% × (F540L rated current) / (F842 rated current). Adjust the setting value for the FR-F842-355K and 500K, as the value calculated with the formula is large.

FR-F500L parameter list				FR-F800 compatible parameter				Parameter setting	
Function number	Name	Setting range	Initial value	Function number	Name	Setting range	Initial value	Setting	Remarks
73	0-5V/0-10V selection	0 to 5, 10 to 15	1	73	Analog input selection	0 to 7, 10 to 17, 100 to 103, 114 to 117	1	⊙	
74	Filter time constant	0 to 8	1	74	Input filter time constant	0 to 8	1	⊙	
75	Reset selection/disconnected PU detection/PU stop selection	0 to 3, 14 to 17	14	75	Reset selection/ disconnected PU detection/ PU stop selection	0 to 3, 14 to 17	14	⊙	
76	Alarm code output selection	0, 1, 2	0	76	Fault code output selection	0, 1, 2	0	⊙	
77	Parameter write disable selection	0, 1, 2	0	77	Parameter write selection	0, 1, 2	0	⊙	
78	Reverse rotation prevention selection	0, 1, 2	0	78	Reverse rotation prevention selection	0, 1, 2	0	⊙	
79	Operation mode selection	0 to 4, 6 to 8	0	79	Operation mode selection	0 to 4, 6, 7	0	Δ	When the FR-F500L setting is "8", set "0" for the FR-F800.
100	V/F1 (first frequency)	0 to 120 Hz, 9999	9999	100	V/F1 (first frequency)	0 to 590 Hz, 9999	9999	⊙	
101	V/F1 (first frequency voltage)	0 to 1000 V	0	101	V/F1 (first frequency voltage)	0 to 1000 V	0	⊙	
102	V/F2 (second frequency)	0 to 120 Hz, 9999	9999	102	V/F2 (second frequency)	0 to 590 Hz, 9999	9999	⊙	
103	V/F2 (second frequency voltage)	0 to 1000 V	0	103	V/F2 (second frequency voltage)	0 to 1000 V	0	⊙	
104	V/F3 (third frequency)	0 to 120 Hz, 9999	9999	104	V/F3 (third frequency)	0 to 590 Hz, 9999	9999	⊙	
105	V/F3 (third frequency voltage)	0 to 1000 V	0	105	V/F3 (third frequency voltage)	0 to 1000 V	0	⊙	
106	V/F4 (fourth frequency)	0 to 120 Hz, 9999	9999	106	V/F4 (fourth frequency)	0 to 590 Hz, 9999	9999	⊙	
107	V/F4 (fourth frequency voltage)	0 to 1000 V	0	107	V/F4 (fourth frequency voltage)	0 to 1000 V	0	⊙	
108	V/F5 (fifth frequency)	0 to 120 Hz, 9999	9999	108	V/F5 (fifth frequency)	0 to 590 Hz, 9999	9999	⊙	
109	V/F5 (fifth frequency voltage)	0 to 1000 V	0	109	V/F5 (fifth frequency voltage)	0 to 1000 V	0	⊙	
117	Station number	0 to 31	0	117	PU communication station number	0 to 31	0	⊙	
118	Communication speed	48, 96, 192	192	118	PU communication speed	48, 96, 192, 384, 576, 768, 1152	192	⊙	
119	Stop bit length / data length	0, 1, 10, 11	1	119	PU communication stop bit length / data length	0, 1, 10, 11	1	⊙	
120	Parity check presence/absence	0, 1, 2	2	120	PU communication parity check	0, 1, 2	2	⊙	
121	Number of communication retries	0 to 10, 9999	1	121	PU communication retry count	0 to 10, 9999	1	⊙	
122	Communication check time interval	0, 0.1 to 999.8 s, 9999	0	122	PU communication check time interval	0, 0.1 to 999.8 s, 9999	9999	⊙	
123	Waiting time setting	0 to 150 ms, 9999	9999	123	PU communication waiting time setting	0 to 150 ms, 9999	9999	⊙	
124	CR·LF presence/absence selection	0, 1, 2	1	124	PU communication CR/LF selection	0, 1, 2	1	⊙	
128	PID action selection	10, 11, 20, 21	10	128	PID action selection	0, 10, 11, 20, 21, 50, 51, 60, 61, 70, 71, 80, 81, 90, 91, 100, 101, 1000, 1001, 1010, 1011, 2000, 2001, 2010, 2011	0	Δ	When "14" is not set in any parameter from Pr.180 to Pr.186 in the FR-F800, set "0" in Pr.128 in the FR-F800.
129	PID proportional band	0.1 to 1000%, 9999	100%	129	PID proportional band	0.1 to 1000%, 9999	100%	⊙	
130	PID integral time	0.1 to 3600 s, 9999	1 s	130	PID integral time	0.1 to 3600 s, 9999	1 s	⊙	

FR-F500L parameter list				FR-F800 compatible parameter				Parameter setting	
Function number	Name	Setting range	Initial value	Function number	Name	Setting range	Initial value	Setting	Remarks
131	Upper limit	0 to 100%, 9999	9999	131	PID upper limit	0 to 100%, 9999	9999	⊙	
132	Lower limit	0 to 100%, 9999	9999	132	PID lower limit	0 to 100%, 9999	9999	⊙	
133	PID action set point for PU operation	0 to 100%	0%	133	PID action set point	0 to 100%, 9999	9999	⊙	
134	PID differential time	0.01 to 10.00 s, 9999	9999	134	PID differential time	0.01 to 10.00 s, 9999	9999	⊙	
135	Commercial power supply-inverter switchover sequence output terminal selection	0, 1	0	135	Electronic bypass sequence output terminal selection	0, 1	0	⊙	
136	MC switchover interlock time	0 to 100.0 s	1.0 s	136	MC switchover interlock time	0 to 100.0 s	1.0 s	⊙	
137	Start waiting time	0 to 100.0 s	0.5 s	137	Start waiting time	0 to 100.0 s	0.5 s	⊙	
138	Commercial power supply-inverter switchover selection at alarm occurrence	0, 1	0	138	Bypass selection at a fault	0, 1	0	⊙	
139	Automatic inverter-commercial power supply switchover frequency	0 to 60.00 Hz, 9999	9999	139	Automatic switchover frequency from inverter to bypass operation	0 to 60.00 Hz, 9999	9999	⊙	
140	Backlash acceleration stopping frequency	0 to 120 Hz	1.00 Hz	140	Backlash acceleration stopping frequency	0 to 590 Hz	1.00 Hz	⊙	
141	Backlash acceleration stopping time	0 to 360 s	0.5 s	141	Backlash acceleration stopping time	0 to 360 s	0.5 s	⊙	
142	Backlash deceleration stopping frequency	0 to 120 Hz	1.00 Hz	142	Backlash deceleration stopping frequency	0 to 590 Hz	1.00 Hz	⊙	
143	Backlash deceleration stopping time	0 to 360 s	0.5 s	143	Backlash deceleration stopping time	0 to 360 s	0.5 s	⊙	
144	Speed setting switchover	0, 2, 4, 6, 8, 10, 102, 104, 106, 108, 110	4	144	Speed setting switchover	0, 2, 4, 6, 8, 10, 12, 102, 104, 106, 108, 110, 112	4	⊙	
145	PU display language selection	0 to 7	0	145	PU display language selection	0 to 7	1	⊙	The initial value is different. Japanese: 0
148	Stall prevention operation level at 0V input	0 to 150%	120%	148	Stall prevention level at 0 V input	0 to 400%	120%*	Δ	Set this parameter after correcting the difference in the rated inverter current using the conversion equation shown in section 4.2. Adjust the parameter as required.
149	Stall prevention operation level at 10V input	0 to 150%	150%	149	Stall prevention level at 10 V input	0 to 400%	150%*	Δ	
152	Zero current detection level	0 to 200%	5.0%	152	Zero current detection level	0 to 400%	5.0%*	Δ	
153	Zero current detection period	0 to 1 s	0.5 s	153	Zero current detection time	0 to 10 s	0.5 s	⊙	
154	Voltage reduction selection during stall prevention operation	0, 1	1	154	Voltage reduction selection during stall prevention operation	0, 1, 10, 11	1	⊙	
155	RT signal activated condition	0, 10	0	155	RT activated condition	0, 10	0	⊙	
156	Stall prevention operation selection	0 to 31, 100, 101	0	156	Stall prevention operation selection	0 to 31, 100, 101	0	⊙	
157	OL signal waiting time	0 to 25 s, 9999	0	157	OL signal output timer	0 to 25 s, 9999	0	⊙	
158	AM terminal function selection	1 to 3, 5 to 6, 8, 10 to 14, 17, 21	1	158	AM terminal function selection	1 to 3, 5 to 14, 17, 18, 21, 24, 34, 50, 52 to 54, 61, 62, 67, 70, 86 to 96, 98	1	⊙	
160	User group read selection	0, 1, 10,11 to 9999	9999	160	User group read selection	0, 1, 9999	9999	Δ	The user group 2 was deleted for the FR–F800.
162	Automatic restart after instantaneous power failure selection	0, 1, 10	0	162	Automatic restart after instantaneous power failure selection	0 to 3, 10 to 13	0	⊙	
163	First cushion time for restart	0 to 20 s	0 s	163	First cushion time for restart	0 to 20 s	0 s	⊙	
164	First cushion voltage for restart	0 to 100%	0%	164	First cushion voltage for restart	0 to 100%	0%	⊙	

* When 120% is set for the rated current of the FR-F540L-375K and 530K, set as follows: 120% × (F540L rated current) / (F842 rated current). Adjust the setting value for the FR-F842-355K and 500K, as the value calculated with the formula is large.

FR-F500L parameter list				FR-F800 compatible parameter				Parameter setting	
Function number	Name	Setting range	Initial value	Function number	Name	Setting range	Initial value	Setting	Remarks
165	Restart stall prevention operation level	0 to 150%	120%	165	Stall prevention operation level for restart	0 to 400%	120%*	Δ	Set this parameter after correcting the difference in the rated inverter current using the conversion equation shown in section 4.2. Adjust the parameter as required.
170	Watt-hour meter clear	0	0	170	Watt-hour meter clear	0, 10, 9999	9999	-	Operation not required for replacement.
171	Actual operation hour meter clear	0	0	171	Actual operation hour meter clear	0, 9999	9999	-	Operation not required for replacement.
173	User group 1 registration	0 to 999	0	173	User group registration	0 to 1999, 9999	9999	⊙	
174	User group 1 deletion	0 to 999, 9999	0	174	User group clear	0 to 1999, 9999	9999	⊙	
175	User group 2 registration	0 to 999	0	-	-		-	-	Not available for the FR-F800
176	User group 2 deletion	0 to 999, 9999	0	-	-		-	-	Not available for the FR-F800
180	RL terminal function selection	0 to 7, 10 to 14, 16, 9999	0	180	RL terminal function selection	0 to 8, 10 to 14, 16, 18, 24, 25, 28, 37 to 40, 46 to 48, 50, 51, 62, 64 to 67, 70 to 73, 77 to 81, 84, 94 to 98, 9999	0	⊙	The three terminals, X10, X11, and RES are required for the connection with the FR-CC2. In the initial setting, the X10 signal is assigned to terminal MRS, and the RES signal to terminal RES. When these terminals are used with the FR-F500L, use other terminals.
181	RM terminal function selection		1	181	RM terminal function selection		1	⊙	
182	RH terminal function selection		2	182	RH terminal function selection		2	⊙	
183	RT terminal function selection		3	183	RT terminal function selection		3	⊙	
184	AU terminal function selection		4	184	AU terminal function selection		4	⊙	
185	JOG terminal function selection		5	185	JOG terminal function selection		5	⊙	
186	CS terminal function selection		6	186	CS terminal function selection		9999	Δ	
-	-	-	-	187	MRS terminal function selection		10	Δ	Change the setting to "10" to enable output shutoff when disconnection occurs while the output enable signal (RDY) from the FR-CC2 is connected.
190	RUN terminal function selection	0 to 5, 8, 10, 11, 13 to 19, 25, 26 , 98 to 105, 108, 110, 111, 113 to 116, 125, 126, 198, 199, 9999	0	190	RUN terminal function selection	0 to 5, 7, 8, 10 to 19, 25, 26, 35, 39, 40, 45 to 54, 57, 64 to 68, 70 to 79, 82, 85, 90 to 96, 98 to 105, 107, 108, 110 to 116, 125, 126, 135, 139, 140, 145 to 154, 157, 164 to 168, 170 to 179, 182, 185, 190 to 196, 198 to 208, 211 to 213, 215, 300 to 308, 311 to 313, 315, 9999	0	⊙	
191	SU terminal function selection		1	191	SU terminal function selection		1	⊙	
192	IPF terminal function selection		2	192	IPF terminal function selection		9999	Δ	
193	OL terminal function selection		3	193	OL terminal function selection		3	⊙	
194	FU terminal function selection		4	194	FU terminal function selection		4	⊙	
195	ABC terminal function selection	0 to 5, 8, 10, 11, 13 to 19, 25, 26 ,98 to 105, 108, 110, 111, 113 to 116, 125, 126, 198, 199, 9999	99	195	ABC1 terminal function selection	0 to 5, 7, 8, 10 to 19, 25, 26, 35, 39, 40, 45 to 54, 57, 64 to 68, 70 to 79, 82, 85, 90, 91, 94 to 96, 98 to 105, 107, 108, 110 to 116, 125, 126, 135, 139, 140, 145 to 154, 157, 164 to 168, 170 to 179, 182, 185, 190, 191, 194 to 196, 198 to 208, 211 to 213, 215, 300 to 308, 311 to 313, 315, 9999	99	⊙	
199	User's initial value setting	0 to 999, 9999	0	-	-		-	-	Not available for the FR-F800

* When 120% is set for the rated current of the FR-F540L-375K and 530K, set as follows: 120% × (F540L rated current) / (F842 rated current). Adjust the setting value for the FR-F842-355K and 500K, as the value calculated with the formula is large.

FR-F500L parameter list				FR-F800 compatible parameter				Parameter setting	
Function number	Name	Setting range	Initial value	Function number	Name	Setting range	Initial value	Setting	Remarks
240	Soft-PWM setting	0, 1	1	240	Soft-PWM operation selection	0, 1	1	Δ	The FR-F800 settings corresponding to the FR-F500 settings are as follows. 0, 10 → 0 1,11 → 1
244	Cooling fan operation selection	0, 1	0	244	Cooling fan operation selection	0, 1, 101 to 105	1	Δ	The initial value for the FR-F800 has been changed.
251	Output phase failure protection selection	0, 1	1	251	Output phase loss protection selection	0, 1	1	⊙	
252	Override bias	0 to 200%	50%	252	Override bias	0 to 200%	50%	⊙	
253	Override gain	0 to 200%	150%	253	Override gain	0 to 200%	150%	⊙	
571	Start holding time	0 to 10 s, 9999	9999	571	Holding time at a start	0 to 10 s, 9999	9999	⊙	
900	FM terminal calibration	-	-	C0 (900)	FM terminal calibration	-	-	⊙	
901	AM terminal calibration	-	-	C1 (901)	AM terminal calibration	-	-	⊙	
902	Frequency setting voltage bias	0 to 60 Hz: 0 to 10 V	0 Hz: 0 V	C2 (902)	Terminal 2 frequency setting bias frequency	0 to 590 Hz	0 Hz	Δ	As the operation panel is changed, the setting method differs. For the details, refer to section "5.9.5 Frequency setting voltage (current) bias and gain" of the Instruction Manual (Detailed).
				C3 (902)	Terminal 2 frequency setting bias	0 to 300%	0%	Δ	
903	Frequency setting voltage gain	1 to 120 Hz: 0 to 10 V	60 Hz: 5 V	125 (903)	Terminal 2 frequency setting gain frequency	0 to 590 Hz	60 Hz	Δ	
				C4 (903)	Terminal 2 frequency setting gain	0 to 300%	100%	Δ	
904	Frequency setting current bias	0 to 60 Hz: 0 to 20 mA	0 Hz: 4 mA	C5 (904)	Terminal 4 frequency setting bias frequency	0 to 590 Hz	0 Hz	Δ	
				C6 (904)	Terminal 4 frequency setting bias	0 to 300%	20%	Δ	
905	Frequency setting current gain	1 to 120 Hz: 0 to 20 mA	60 Hz: 20 mA	126 (905)	Terminal 4 frequency setting gain frequency	0 to 590 Hz	60 Hz	Δ	
				C7 (905)	Terminal 4 frequency setting gain	0 to 300%	100%	Δ	
990	PU buzzer control	0, 1	1	990	PU buzzer control	0, 1	1	⊙	
991	PU contrast adjustment	0 to 63	53	991	PU contrast adjustment	0 to 63	58	⊙	

List of FR-A8NC parameters compatible with the FR-A5NC

The following table shows the parameter settings of the FR-F800 series inverter required when replacing an FR-A5NC by an FR-A8NC.

When an FR-F500L series parameter is set to <u>a value other than the initial value</u>, set the corresponding FR-F800 parameter according to the following table.

When an FR-F500L series parameter is set to an initial value, it is usually not necessary to change the corresponding FR-F800 parameter setting.

The parameter number of the [   ] parameters differs from that of the FR-F500L series inverter.

Setting ⊙: Set the FR-F500L parameter as it is.

Δ: Change the FR-F500L parameter and set.

×: Adjust or set the FR-F800 parameter.

FR-F500L parameter list				FR-F800 compatible parameter				Parameter setting	
Function number	Name	Setting range	Initial value	Function number	Name	Setting range	Initial value	Setting	Remarks
338	Operation command source	0, 1	0	338	Communication operation command source	0, 1	0	×	For the FR-F800 series, the command source is different from that of the FR-F500L series for terminal MRS, terminal RES, and terminal 1.
339	Speed command source	0, 1	0	339	Communication speed command source	0, 1, 2	0		
340	Link startup mode selection	0 to 2	0	340	Communication startup mode selection	0, 1, 2, 10, 12	0	⊙	
500	Communication error recognition waiting time	0 to 999.8 s	0 s	500	Communication error execution waiting time	0 to 999.8 s	0 s	⊙	
501	Communication error occurrence count display	0	0	501	Communication error occurrence count display	0	0	⊙	
502	Stop mode selection at communication error	0 to 2	0	502	Stop mode selection at communication error	0 to 3	0	⊙	
				542	Communication station number (CC-Link)	1 to 64	1	×	The station number is set with the station number setting switch for FR-F500L. Use the Pr.542 setting for FR-F800.
				543	Baud rate selection (CC-Link)	0 to 4	0	×	The baud rate is set with the transmission baud rate setting switch for FR-F500L. Use the Pr.543 setting for FR-F800. 0: 156 kbps 1: 625 kbps 2: 2.5 Mbps 3: 5 Mbps 4: 10 Mbps

4. 2. Difference in Rated Current

The rated current of the FR-F800 differs from that of the FR-F500L.
For the FR-F800 models with different rated current, set the values calculated by the following equation in the parameters related to the rated current:

F800 setting value = F500L parameter setting $\times$ F500L rated current / F800 rated current

4. 3. Setting of Stall Prevention Operation Level Compensation Factor at Double Speed

As the frequencies for Pr.23 setting are different between the FR-F500L (120 Hz) and the FR-F800 (400 Hz), set the value calculated by the following equation. However, depending on the Pr.66 setting, Pr.23 must be set within a range around 90% to 110% to keep the complete compatibility of the FR-F800 with existing models. Adjust Pr.23 again according to the target machine.

Calculate the Pr.23 setting of the FR-F800 from the Pr.22, Pr.23, and Pr.66 settings of the FR-F500L.

When Pr.23 is not "9999":
Pr.23 setting of the FR-F800 = 100 + (Pr.22 - B) $\times$ (Pr.23 - 100) / (120 Hz / 400 Hz $\times$ Pr.22 - B)
B = Pr.66 $\times$ Pr.22 / 400

Set the calculation result after clamping it at the lower/upper limit (0%/200%).

When Pr.23 is "9999":
Set "9999".

When Pr.22 is "0":
Setting is not required.

When Pr.22 $\neq$ "0" and Pr.66=120 Hz:
Set "9999".

4. 4. Restrictions for the FR-F800 Series

When the FR-F500L series is replaced with the FR-F800 series, the FR-F800 series does not support some FR-F500L series functions as shown below.

(1) Unsupported functions

No.	Item	Remarks
1	PU level display data selection	
2	User's initial value setting	
3	Program operation function	
4	User group 2	
5	Optimum acceleration/deceleration	
6	Special regenerative brake duty	
7	Electronic bypass sequence	When an error occurs in the FR-CC2, the commercial power supply operation is not activated. For the FR-CC2 manufactured in August 2014 or later, use the X95 and X96 signals.
8	Warnings and protective functions	LED indications for checking fault are not available in the FR-F842.

(2) Functions unsupported by the FR-F842 but supported by the FR-CC2

No.	Item	Remarks
1	Warnings and protective functions	With this function, the FR-CC2 can detect the instantaneous power failure (E.IPF) and the undervoltage (E.UVT).

(3) aaa

No.	Item	Remarks
1	Startup time	If the power to the main circuit of the FR-CC2 is turned ON with the control circuit power already ON, the FR-CC2 performs a reset. The inverter is reset and the startup delays.
2	Operation panel (provided for FR-CC2 only)	Install the operation panel of the A842 to set the FR-CC2.

4. 5. Compatibility of the Terminal Response Speed

The response of the input/output terminals of the FR-F800 series is improved compared to the FR-F500L series. Operation timing of the device may differ depending on the usage.
In this case, set Pr.289 (Inverter output terminal filter) and Pr.699 (Input terminal filter) to adjust the terminal response time.
Set 5 to 8 ms in Pr.289 and Pr.699 and adjust according to the system.

5. OPTION

5. 1. Option

The following table shows which FR-F500L series options are compatible with the FR-F800 series inverters and their corresponding F800 series options.

| Name		Option model	
		FR-F500L	FR-F800
Plug-in type	12-bit digital input	FR-A5AX	FR-A8AX
	Digital output, additional analog output	FR-A5AY	FR-A8AY
	Relay output	FR-A5AR	FR-A8AR
	Computer link	FR-A5NR	Built-in function of the inverter (RS-485 terminals, two relay output terminals)
	Profibus-DP	FR-A5NP	FR-A8NP
	Device Net	FR-A5ND	FR-A8ND
	CC-Link	FR-A5NC	FR-A8NC
	Modbus Plus	FR-A5NM	–
Stand-alone type	Parameter unit	FR-PU04	Not available. Use FR-PU07.
	Parameter unit connection cable	FR-CB201, 203, 205	Compatible. Prepare FR-ADP for installing the operation panel on the enclosure surface.
	EMC Directive compliant noise filter	SF	Built-in function of the inverter (EN 61800-3 2nd Environment compatible)
	Power factor improving AC reactor	MT-BAL-H	FR-HAL-H
	Radio noise filter	FR-BIF-H	Compatible
	Line noise filter	FR-BLF	Compatible
	Brake unit	FR-BU-H, FR-BU2	Compatible. MT-BU5 is not compatible.
	Resistor unit	MT-BR5-H	Compatible
	FR-HC type high power factor converter	FR-HC2-H	Compatible. When using FR-HC2-H, FR-CC2 is not required.
Manual Controller/Speed controller	Manual controller	FR-AX	Compatible
	DC tach. follower	FR-AL	Compatible
	Three speed selector	FR-AT	Compatible
	Motorized speed setter	FR-FK	Compatible
	Ratio setter	FR-FH	Compatible
	Speed detector	FR-FP	Compatible
	Master controller	FR-FG	Compatible
	Soft starter	FR-FC	Compatible
	Deviation detector	FR-FD	Compatible
	Preamplifier	FR-FA	Compatible
Others	Pilot generator	QVAH-10	Compatible
	Deviation sensor	YVGC-500W-NS	Compatible
	Frequency setting potentiometer	WA2W 1kΩ	Compatible
	Frequency meter	YM206NRI 1mA	Compatible
	Calibration resistor	RV24YN 10kΩ	Compatible

5. 2. Replacement When the FR-A5NC Is Used

The FR-A5NC (CC-Link communication option) used with the FR-F500L series cannot be used with the FR-F800 series. For the CC-Link communication with the FR-F800 series, use the FR-A8NC.

(1) Shape and installation method

The following table shows the differences in the shape and installation method.

Item	FR-A5NC	FR-A8NC	Remarks
Shape	Inverter plug-in option type, terminal block connection	Inverter plug-in option type, terminal block connection	Although the connection method is the same, the circuit board of the option has a different shape.
Connection terminal block	6-terminal terminal block (M3 × 6 mm screws)	A6CON-L5P Insertion wiring	The shape of the terminal block and wiring method differ. A terminal block is not enclosed.
Installation procedure	Installed to the slot 3 * After installing the front cover, install the terminal block.	Connected to the option connector 1. *After performing wiring to the terminal block, install the front cover.	
Terminating resistor	Terminating resistor supplied with the programmable controller	Terminating resistor selection switch	
Connection cable	CC-Link dedicated cable	CC-Link dedicated cable	

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[Shape of the FR-A5NC]
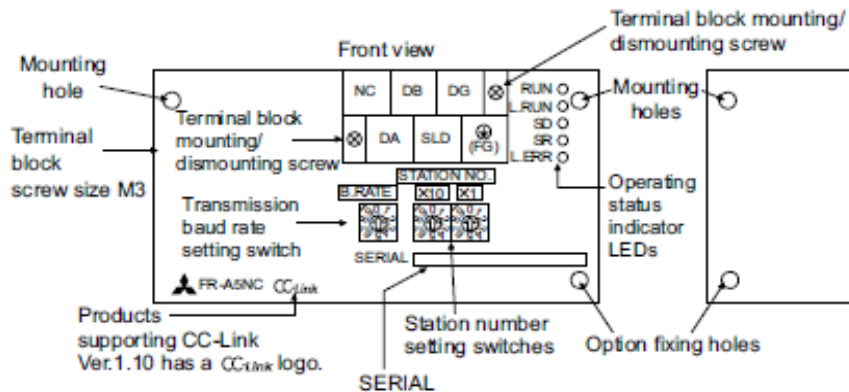
* For the FR-A8NC, the station number and the transmission baud rate are set in the inverter parameters.
  Refer to the above figure for the station number switch and the transmission baud rate switch of the FR-A5NC. Read the values set with the switches and keep a record of the values.

[Shape of the FR-A8NC]
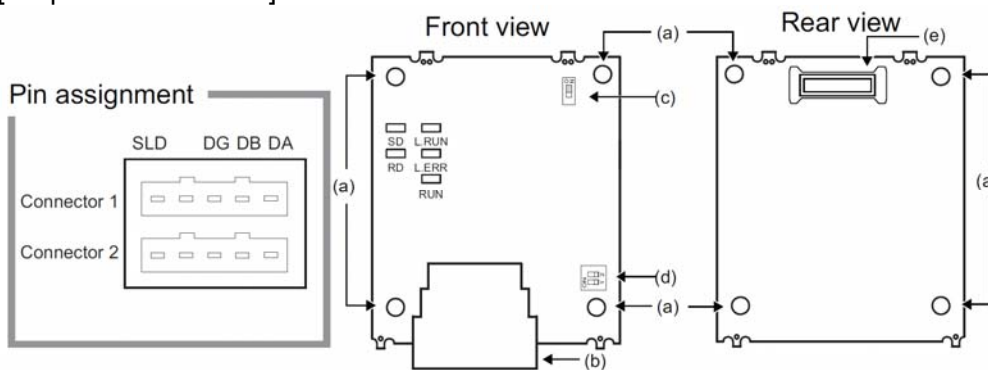
| Symbol	Name	Description
a	Mounting hole	Fixes the option to the inverter with screws, or installs spacers.
b	CC-Link communication one-touch connector	CC-Link communication can be performed with the CC-Link communication connector.
c	Switch for manufacturer setting	Switch for manufacturer setting. Do not change the initial setting (OFF).
d	Terminating resistor selection switch	Select the resistor value of the terminating resistor.
e	Connector	Connected to the option connector of the inverter.

[Installation procedure of the FR-A8NC]

◆ **Installation of the communication option LED display cover**

(1) Remove the inverter front cover. (Refer to Chapter 2 of the Instruction Manual (Detailed) of the inverter for details on how to remove the front cover.)
Mount the cover for displaying the operation status indication LED for the communication option on the inverter front cover.

(2) Cut off hooks on the rear of the inverter front cover with nipper, etc. and open a window for fitting the LED display cover.

Cut off with a nipper, etc.

Cut off with a nipper, etc.
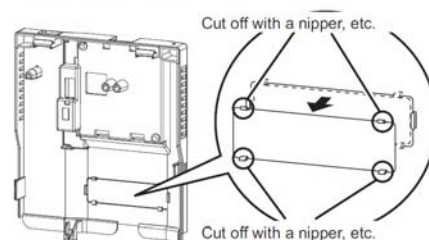
(3) Fit the communication option LED display cover to the front of the inverter front cover and push it into until fixed with hooks.

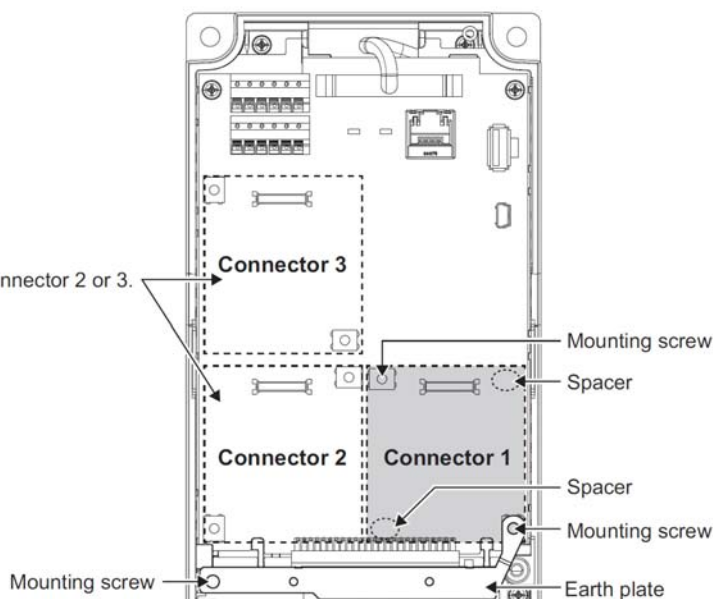* Fit it so that the position of lenses is in the upper-right of the LED display cover.
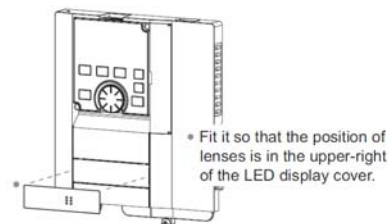
NOTE
• The protective structure (JEM1030) changes to the open type (IP00).

◆ **Installing the option**

(1) For the two mounting holes (as shown in the next page) that will not be tightened with mounting screws, insert spacers.

(2) Fit the connector of the plug-in option to the guide of the connector on the inverter unit side, and insert the plug-in option as far as it goes. (Insert it to the inverter option connector 1.)

(3) Fit the one location on the left of the earth plate (as shown in the next page) securely to the inverter unit by screwing in the supplied mounting screw. (tightening torque 0.33 N·m to 0.40 N·m)

(4) Fit the one location on the left of the plug-in option securely to the inverter unit and the right of the plug-in option to the inverter unit together with the earth plate by screwing in the supplied mounting screws. (tightening torque 0.33 N·m to 0.40 N·m) If the screw holes do not line up, the connector may not be inserted deep enough. Check the connector.

Inverter side option connector

Spacer

Spacer

Earth plate
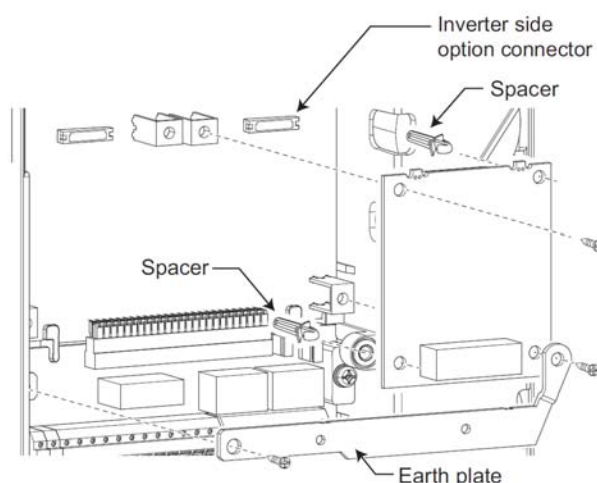
Do not insert the plug-in option to the connector 2 or 3.

Connector 3

Mounting screw

Spacer

Connector 2   Connector 1

Spacer

Mounting screw

Mounting screw

Earth plate

Insertion positions for screws and spacers

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[Connection cable of the FR-A8NC]

In the CC-Link system, use CC-Link dedicated cables.
If the cable used is other than the CC-Link dedicated cable, the performance of the CC-Link system is not guaranteed.
For the specifications of the CC-Link dedicated cable, refer to the website of the CC-Link Partner Association.
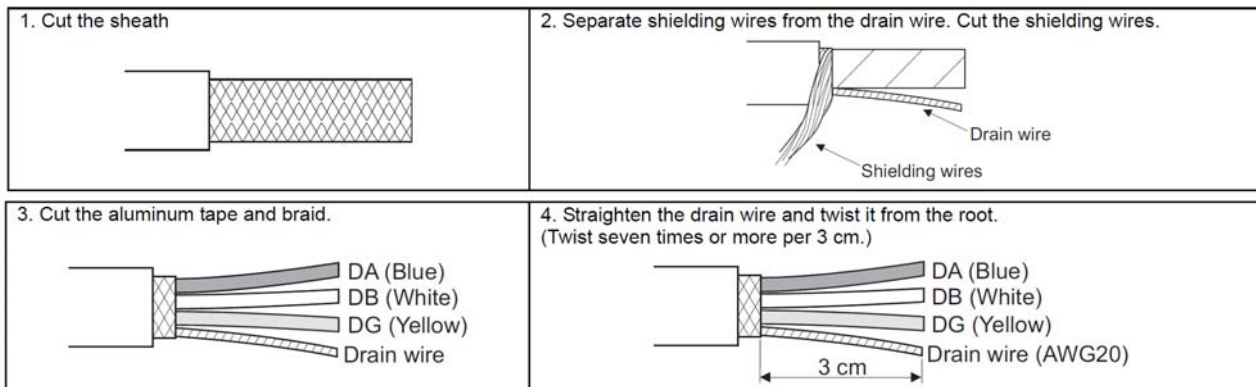* Website of the CC-Link Partner Association http://www.cc-link.org/
* One-touch communication connector plug (as of July 2013)
  Refer to the following table for the plug required to fabricate a cable on your own.

Model	Manufacturer
A6CON-L5P	Mitsubishi Electric Corporation
35505-6000-B0M GF	Sumitomo 3M Limited

(1) Cable-end treatment

Apply the following treatment to the CC-Link dedicated cable that is inserted to a one-touch communication connector plug.

1. Cut the sheath	2. Separate shielding wires from the drain wire. Cut the shielding wires.
	Drain wire Shielding wires
3. Cut the aluminum tape and braid. DA (Blue) DB (White) DG (Yellow) Drain wire	4. Straighten the drain wire and twist it from the root. (Twist seven times or more per 3 cm.) DA (Blue) DB (White) DG (Yellow) 3 cm Drain wire (AWG20)

NOTE

* Where possible, round the cable tip that is cut off with a tool such as nippers. If the cable is not rounded, it may get caught in the middle of a plug, without fully entering into the plug.
* If required, apply an insulation treatment to the shielding wire area where it is not covered by the one-touch communication connector plug.

(2) Plug cover check

Check that a plug cover is snapped into a plug

Plug

Plug cover

NOTE

* Do not push the plug cover onto the plug before inserting a cable. Once crimped, the plug cover cannot be reused.

(3) Cable insertion

Lift up the tail of the plug cover, and fully insert a cable. Insert different signal wires to the one-touch communication connector plug as shown in the right figure.

5 4 3 2 1

Signal name
DA (Blue)
DB (White)
DG (Yellow)
Not used
SLD (Drain wire)
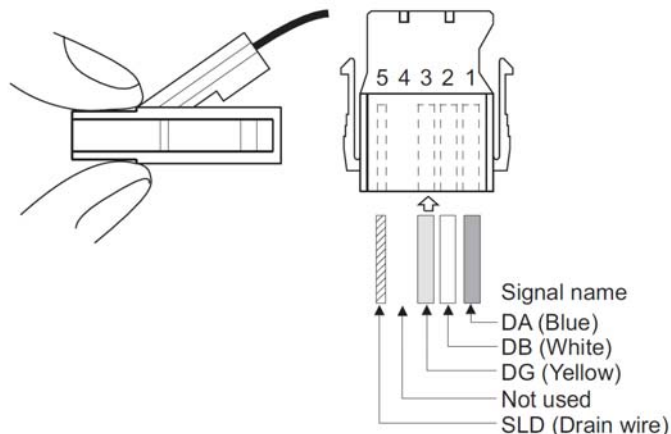
NOTE
- Insert the cable fully. Failure to do so may cause a crimping failure.
- A cable sometimes comes out of the head of the cover. In that case, pull the cable a little so that the cable stays under the plug cover.

(4) Crimping the plug cover

Push the plug cover onto the plug with a tool such as pliers. After crimping, check that the plug cover is securely snapped into the plug as shown in the right figure.

NOTE
- Misaligned latches between the plug cover and the plug may keep the cover lifted. The plug cover is not sufficiently crimped in this condition. Push the plug cover until it snaps into the plug.

Connect the CC-Link dedicated cable to the CC-Link communication connector.

CC-Link communication connector

CC-Link dedicated cable
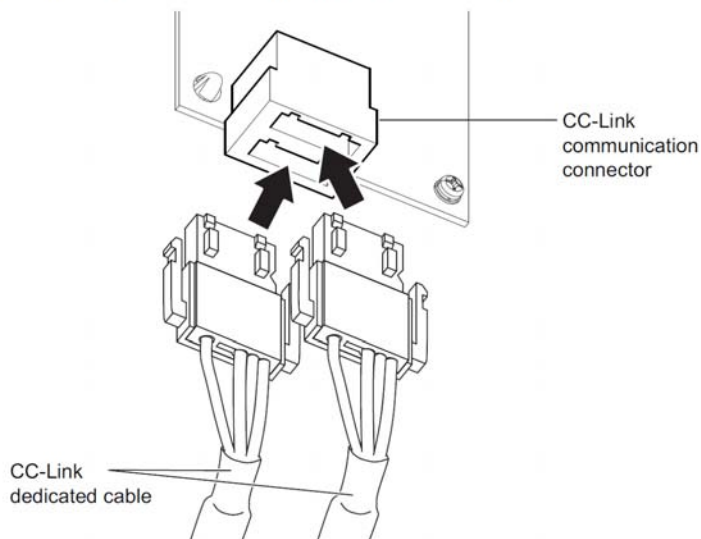
NOTE
- When wiring cables to the inverter's RS-485 terminals while a plug-in option is mounted, take caution not to let the cables touch the circuit board of the option or of the inverter. Otherwise, electromagnetic noises may cause malfunctions.

[Setting of the terminating resistor selection switch of the FR-A8NC]
For the inverter (FR-A8NC) of the end station, configure the terminating resistor selection switch setting in advance.
The following table shows the specifications of the terminating resistor selection switch.

Setting	1	2	Description
	OFF	OFF	Without terminating resistor (initial setting)
	ON	OFF	Do not use.
	OFF	ON	130 Ω (resistance value with the CC-Link Ver. 1.00 dedicated high performance cable)
	ON	ON	110 Ω