Information for Replacement of FR-F500(L) Series with FR-F800 Series

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

1. REPLACING INVERTER

The FR-F800 series has two specifications types: FM type and CA type.
When replacing the FR-F500(L) series of the Japanese specifications, select the FM type (FR-F8[]0-[][]K-1).

2. SIZE

When the FR-F500(L) series is replaced with the FR-F800 series, some FR-F800 series models have different installation size from that of the corresponding FR-F500(L) series models. Refer to the applicable outline dimension and drill new mounting holes, or use the installation interchange attachment shown in the table below.
For details of the sizes, refer to the outline dimension drawings on the following pages.

[Inverter alone]

Existing inverter	Replacing inverter	Installation size / installation interchange attachment
FR-F520-0.75K	FR-F820-0.75K	Same
FR-F520-1.5K	FR-F820-1.5K	FR-AAT21
FR-F520-2.2K	FR-F820-2.2K	Same
FR-F520-3.7K	FR-F820-3.7K	Same
FR-F520-5.5K	FR-F820-5.5K	FR-AAT22
FR-F520-7.5K	FR-F820-7.5K	Same
FR-F520-11K	FR-F820-11K	FR-A5AT03
FR-F520-15K	FR-F820-15K	FR-AAT24
FR-F520-18.5K	FR-F820-18.5K	Same
FR-F520-22K	FR-F820-22K	Same
FR-F520-30K	FR-F820-30K	FR-A5AT04
FR-F520-37K	FR-F820-37K	Same
FR-F520-45K	FR-F820-45K	Same
FR-F520-55K	FR-F820-55K	FR-A5AT05
FR-F520L-75K	FR-F820-75K	FR-F8AT01
FR-F520L-90K	FR-F820-90K	Same
FR-F520L-110K	FR-F820-110K	Same
FR-F540-0.75K	FR-F840-0.75K	Same
FR-F540-1.5K	FR-F840-1.5K	Same
FR-F540-2.2K	FR-F840-2.2K	Same
FR-F540-3.7K	FR-F840-3.7K	Same
FR-F540-5.5K	FR-F840-5.5K	FR-AAT22
FR-F540-7.5K	FR-F840-7.5K	Same
FR-F540-11K	FR-F840-11K	Same
FR-F540-15K	FR-F840-15K	FR-AAT24
FR-F540-18.5K	FR-F840-18.5K	FR-AAT24
FR-F540-22K	FR-F840-22K	Same
FR-F540-30K	FR-F840-30K	FR-AAT27
FR-F540-37K	FR-F840-37K	Same
FR-F540-45K	FR-F840-45K	Same
FR-F540-55K	FR-F840-55K	Same
FR-F540L-75K	FR-F840-75K	Different size
FR-F540L-90K	FR-F840-90K	Different size
FR-F540L-110K	FR-F840-110K	Different size
FR-F540L-132K	FR-F840-132K	Same
FR-F540L-160K	FR-F840-160K	Same
FR-F540L-185K	FR-F840-185K	Same
FR-F540L-220K	FR-F840-220K	Same
FR-F540L-280K	FR-F840-280K	Same

Use screws with the proper lengths for installation as required.

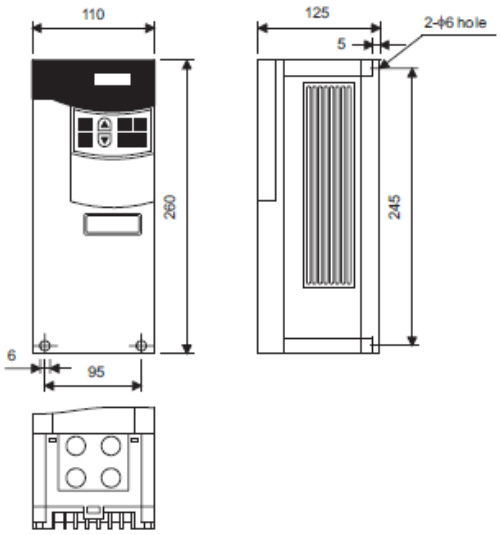
When the panel through attachment is used and the enclosure cut dimensions are different, change the dimensions according to those of the panel through attachment of the FR-F800 series.

[When used with the panel through attachment]

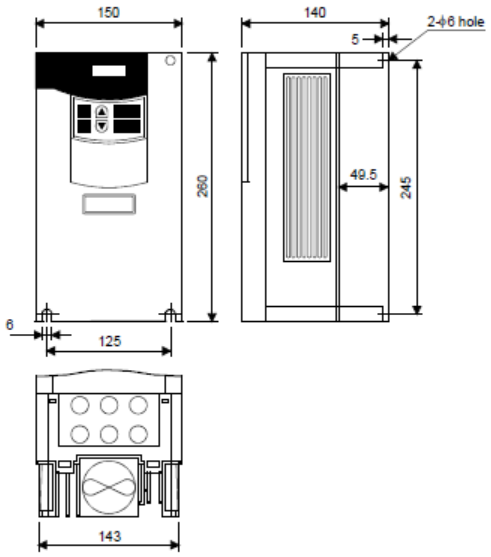
Existing inverter		Replacing inverter		Outline dimension / enclosure cut dimension
Inverter model	Panel through attachment model	Inverter model	Panel through attachment model	
FR-F520-0.75K	—	FR-F820-0.75K	—	—
FR-F520-1.5K	FR-A5CN01	FR-F820-1.5K	—	—
FR-F520-2.2K	FR-A5CN01	FR-F820-2.2K	FR-A8CN101	Same enclosure cut dimensions
FR-F520-3.7K	FR-A5CN01	FR-F820-3.7K	FR-A8CN101	Same enclosure cut dimensions
FR-F520-5.5K	FR-A5CN02	FR-F820-5.5K	FR-A8CN101 and 01	Different size
FR-F520-7.5K	FR-A5CN02	FR-F820-7.5K	FR-A8CN02	Same
FR-F520-11K	FR-A5CN03	FR-F820-11K	FR-A8CN02	Different size
FR-F520-15K	FR-A5CN04	FR-F820-15K	FR-A8CN03	Different size
FR-F520-18.5K	FR-A5CN04	FR-F820-18.5K	FR-A8CN04	Same
FR-F520-22K	FR-A5CN04	FR-F820-22K	FR-A8CN04	Same
FR-F520-30K	FR-A5CN08	FR-F820-30K	FR-A8CN04	Different size
FR-F520-37K	FR-A5CN05	FR-F820-37K	FR-A8CN05	Same enclosure cut dimensions
FR-F520-45K	FR-A5CN06	FR-F820-45K	FR-A8CN06	Same enclosure cut dimensions
FR-F520-55K	FR-A5CN07	FR-F820-55K	FR-A8CN06	Different size
FR-F520L-75K	MT-A5CN02	FR-F820-75K	FR-A8CN103 and 07 FR-F8CN01	Different size
FR-F520L-90K	MT-A5CN02	FR-F820-90K	FR-A8CN104	Minor modification required
FR-F520L-110K	MT-A5CN02	FR-F820-110K	FR-A8CN104	Minor modification required
FR-F540-0.75K	FR-A5CN01	FR-F840-0.75K	FR-A8CN101	Same enclosure cut dimensions
FR-F540-1.5K	FR-A5CN01	FR-F840-1.5K	FR-A8CN101	Same enclosure cut dimensions
FR-F540-2.2K	FR-A5CN01	FR-F840-2.2K	FR-A8CN101	Same enclosure cut dimensions
FR-F540-3.7K	FR-A5CN01	FR-F840-3.7K	FR-A8CN101	Same enclosure cut dimensions
FR-F540-5.5K	FR-A5CN02	FR-F840-5.5K	FR-A8CN101 and 01	Different size
FR-F540-7.5K	FR-A5CN02	FR-F840-7.5K	FR-A8CN02	Same
FR-F540-11K	FR-A5CN03	FR-F840-11K	FR-A8CN02	Same
FR-F540-15K	FR-A5CN04	FR-F840-15K	FR-A8CN102	Same enclosure cut dimensions
FR-F540-18.5K	FR-A5CN04	FR-F840-18.5K	FR-A8CN102	Same enclosure cut dimensions
FR-F540-22K	FR-A5CN04	FR-F840-22K	FR-A8CN04	Same
FR-F540-30K	FR-A5CN05	FR-F840-30K	FR-A8CN04	Different size
FR-F540-37K	FR-A5CN05	FR-F840-37K	FR-A8CN05	Same enclosure cut dimensions
FR-F540-45K	FR-A5CN06	FR-F840-45K	FR-A8CN06	Same enclosure cut dimensions
FR-F540-55K	FR-A5CN06	FR-F840-55K	FR-A8CN06	Same enclosure cut dimensions
FR-F540L-75K	MT-A5CN01	FR-F840-75K	FR-A8CN06	Different size
FR-F540L-90K	MT-A5CN02	FR-F840-90K	FR-A8CN105	Minor modification required
FR-F540L-110K	MT-A5CN02	FR-F840-110K	FR-A8CN105	Minor modification required
FR-F540L-132K	MT-A5CN02	FR-F840-132K	FR-A8CN104	Minor modification required
FR-F540L-160K	MT-A5CN02	FR-F840-160K	FR-A8CN104	Minor modification required
FR-F540L-185K	MT-A5CN03	FR-F840-185K	FR-A8CN107	Same enclosure cut dimensions
FR-F540L-220K	MT-A5CN03	FR-F840-220K	FR-A8CN107	Same enclosure cut dimensions
FR-F540L-280K	MT-A5CN04	FR-F840-280K	FR-A8CN108	Same enclosure cut dimensions

Outline dimension drawings (Unit: mm)

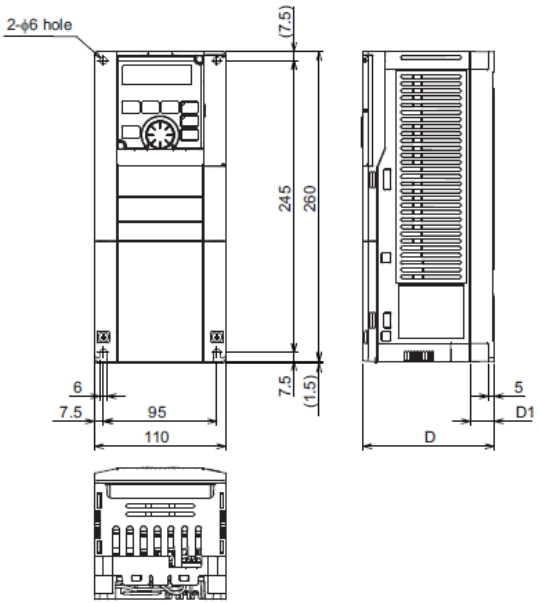
■FR-F520-0.75K



■FR-F520-1.5K

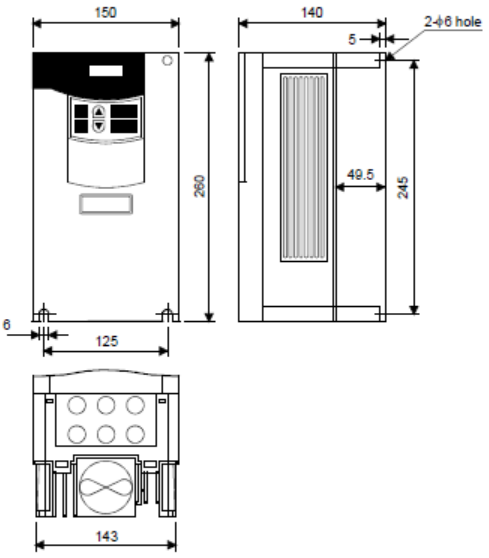


■FR-F820-0.75K, 1.5K

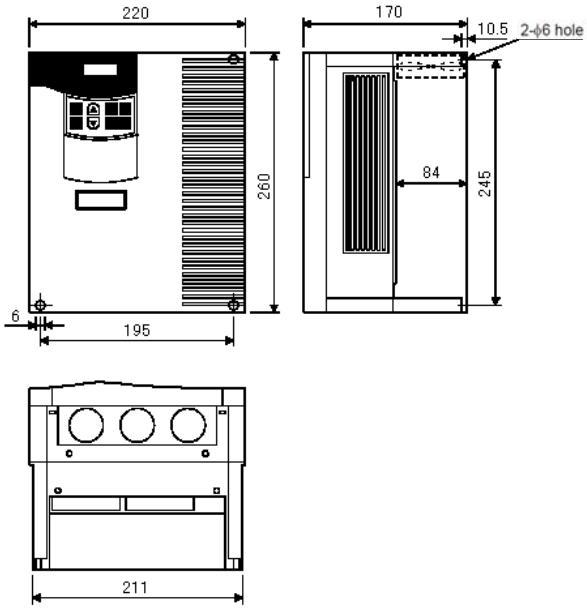


Inverter model	D	D1
FR-F820-0.75K	110	20
FR-F820-1.5K	125	35

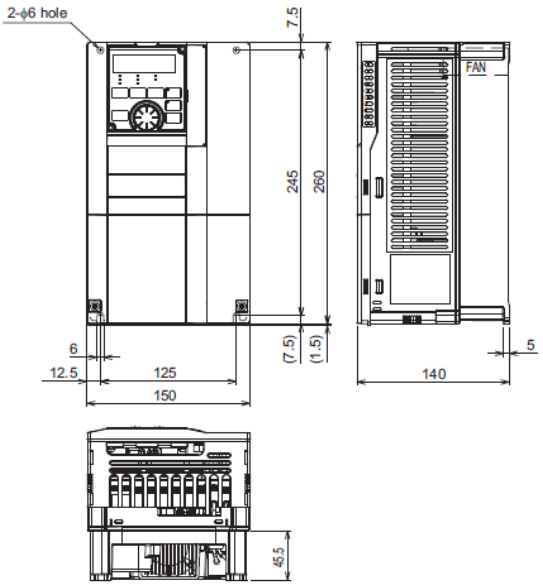
■FR-F520-2.2K, 3.7K



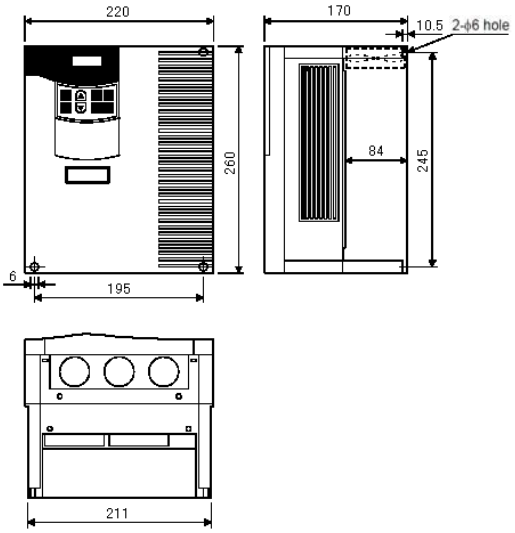
■FR-F520-5.5K



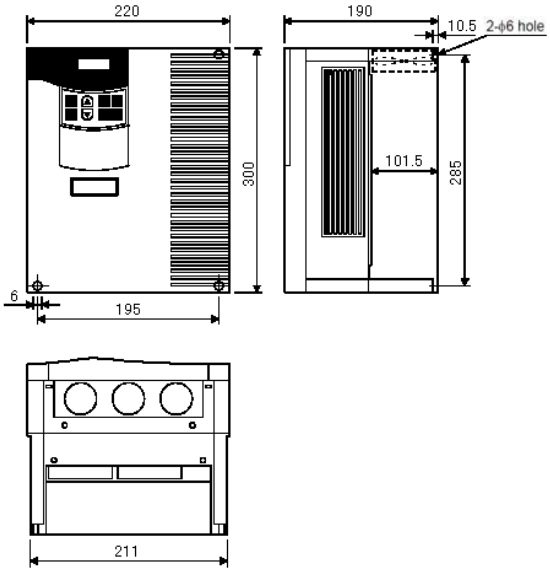
■FR-F820-2.2K, 3.7K, 5.5K



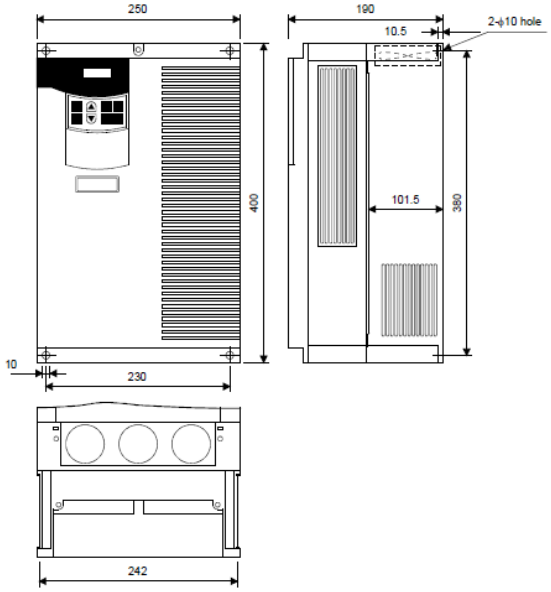
■FR-F520-7.5K



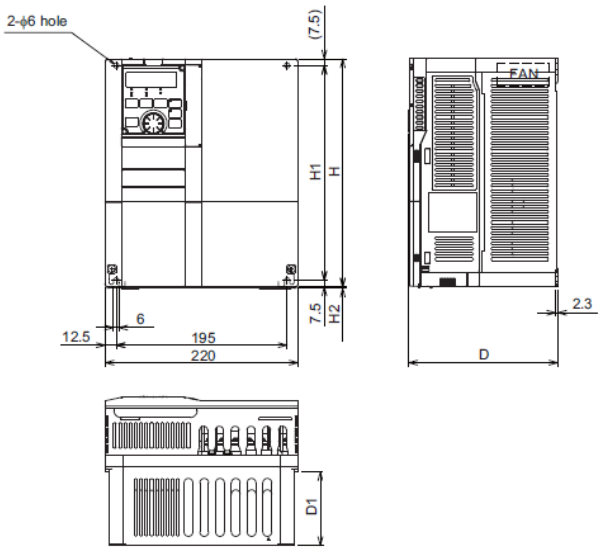
■FR-F520-11K



■FR-F520-15K

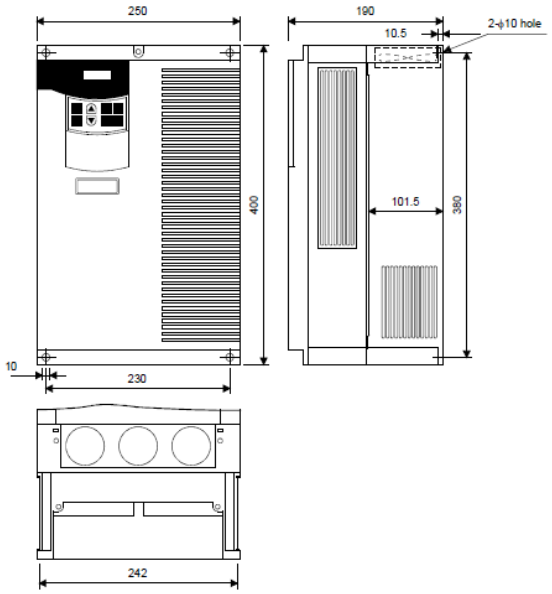


■FR-F820-7.5K, 11K, 15K

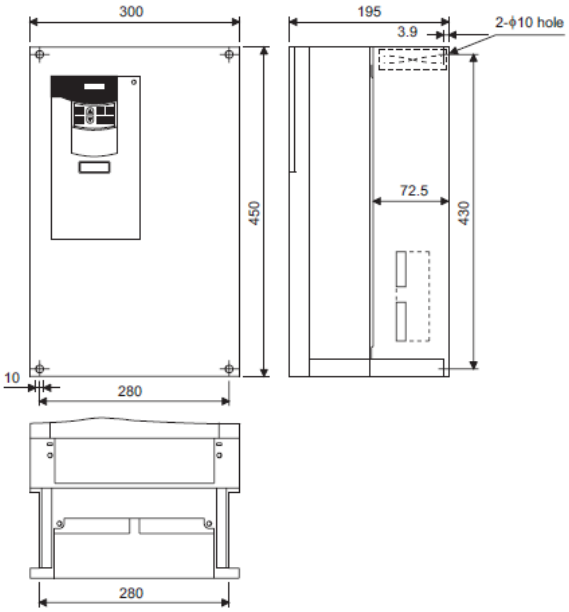


Inverter model	H	H1	H2	D	D1
FR-F820-7.5K, 11K	260	245	1.5	170	84
FR-F820-15K	300	285	3	190	101.5

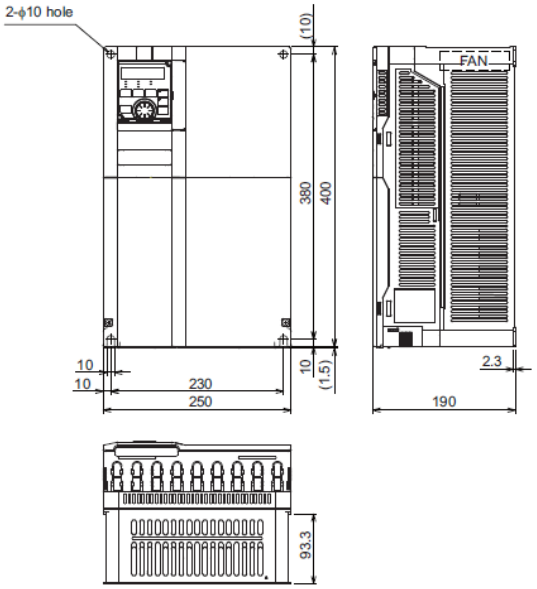
■FR-F520-18.5K, 22K



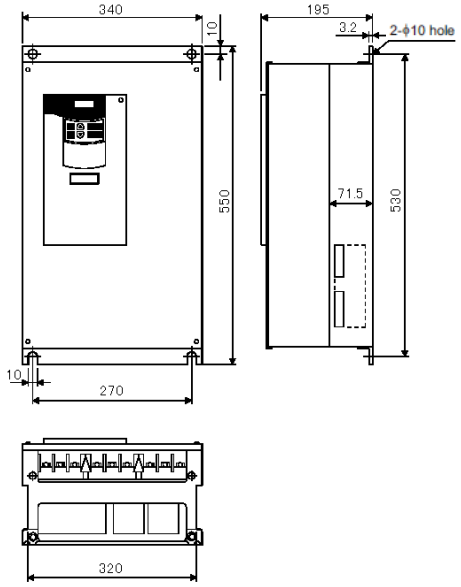
■FR-F520-30K



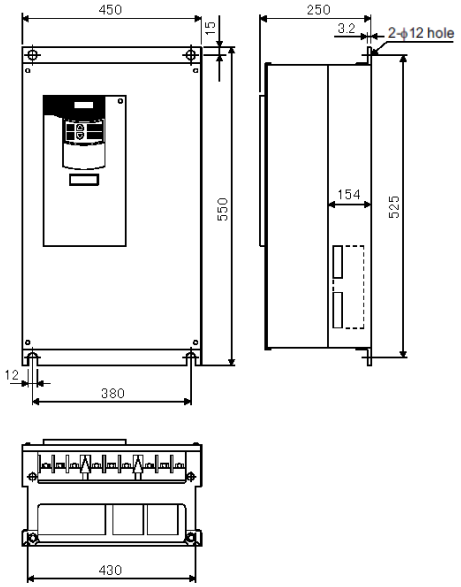
■FR-F820-18.5K, 22K, 30K



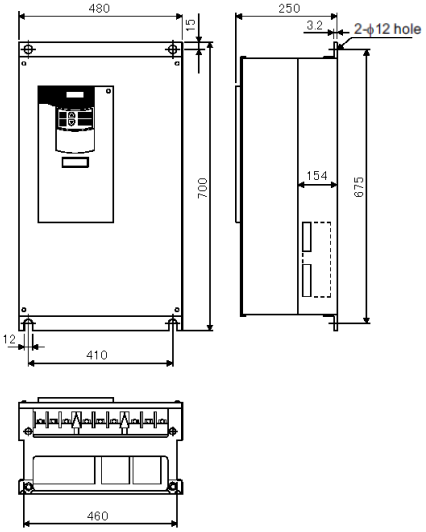
■FR-F520-37K



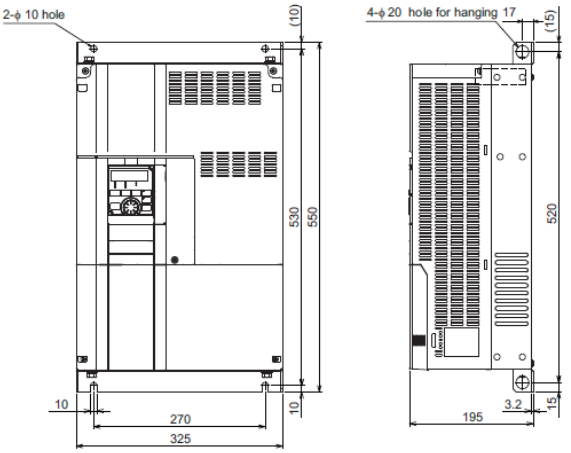
■FR-F520-45K



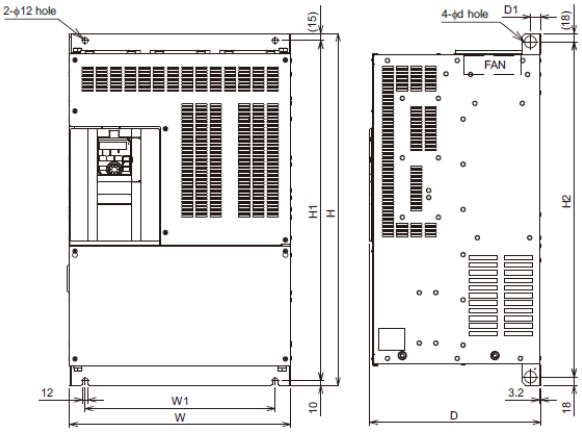
■FR-F520-55K



■FR-F820-37K



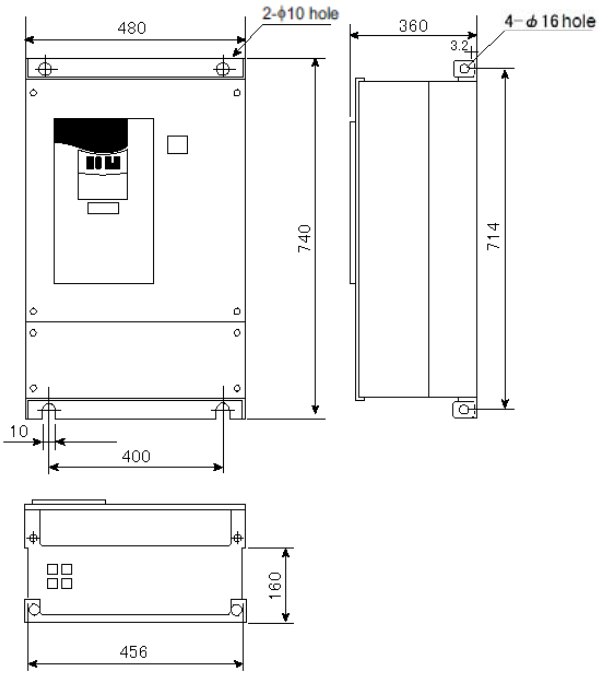
■FR-F820-45K, 55K



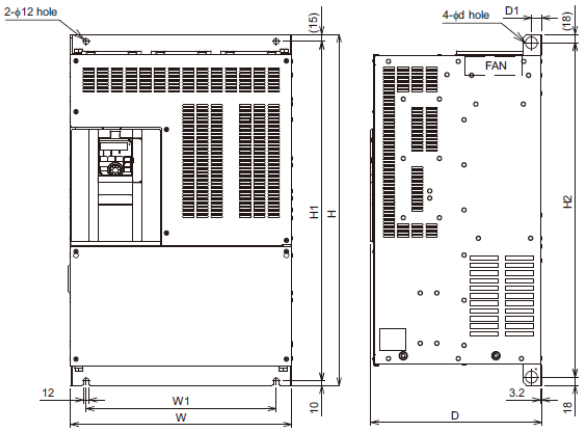
Inverter model	W	W1	H	H1	H2
FR-F820-45K, 55K	435	380	550	525	514

Inverter model	d	D	D1
FR-F820-45K, 55K	25	250	24

■FR-F520L-75K, 90K, 110K



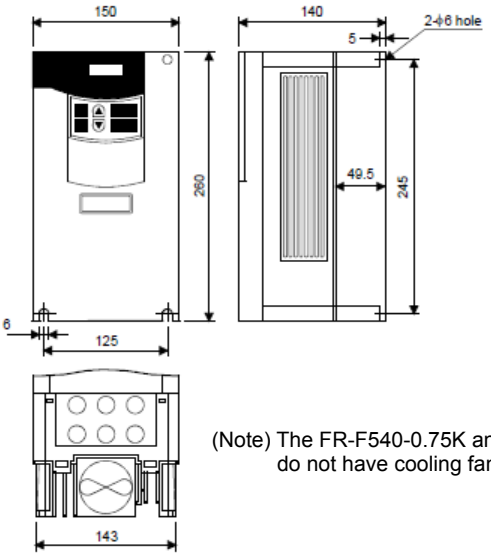
■FR-F820-75K, 90K, 110K



Inverter model	W	W1	H	H1	H2
FR-F820-75K	465	410	700	675	664
FR-F820-90K, 110K	465	400	740	715	704

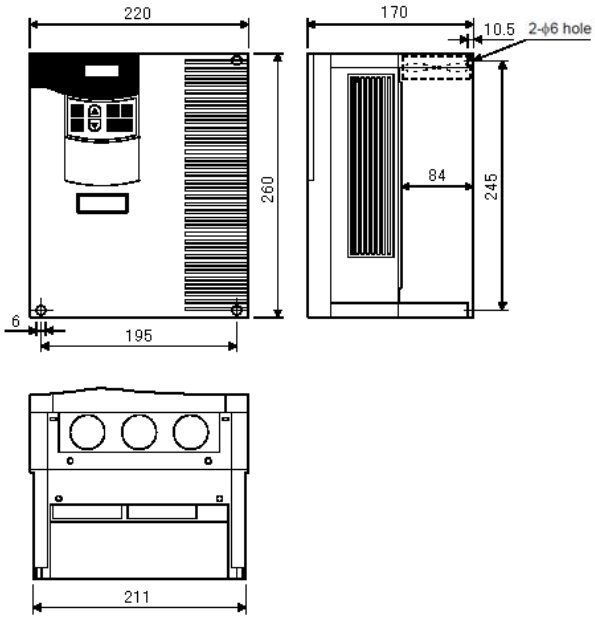
Inverter model	d	D	D1
FR-F820-75K	25	250	22
FR-F820-90K, 110K	24	360	22

■FR-F540-0.75K, 1.5K, 2.2K, 3.7K

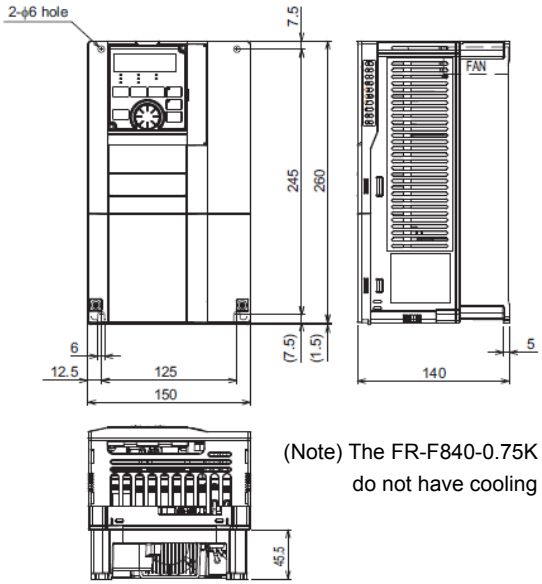


(Note) The FR-F540-0.75K and 1.5K do not have cooling fans.

■FR-F540-5.5K

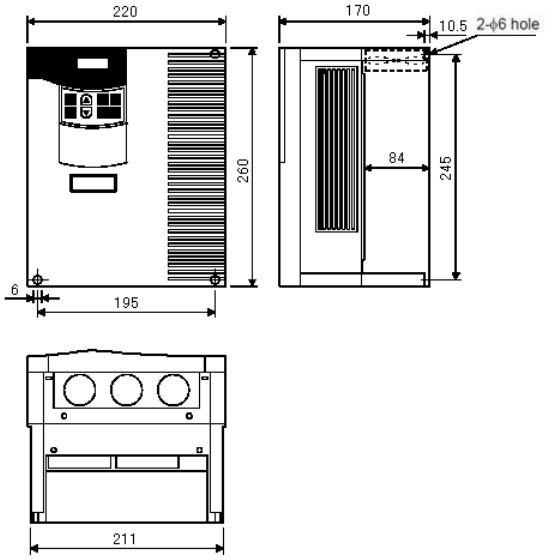


■FR-F840-0.75K, 1.5K, 2.2K, 3.7K, 5.5K

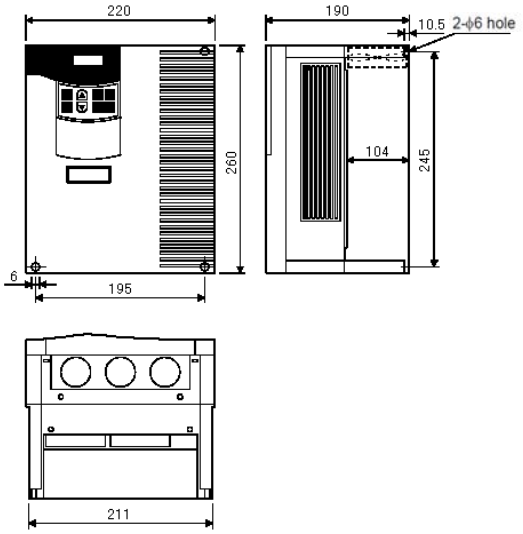


(Note) The FR-F840-0.75K to 2.2K do not have cooling fans.

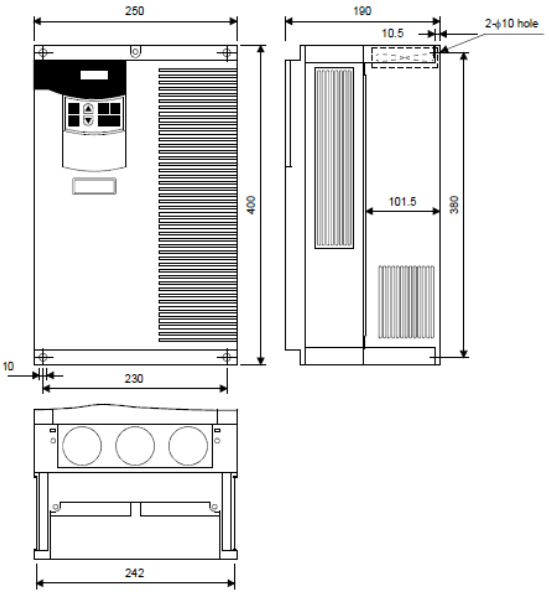
■FR-F540-7.5K



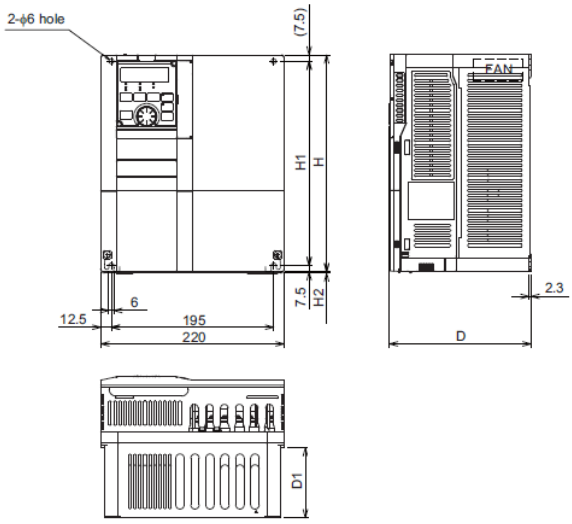
■FR-F540-11K



■FR-F540-15K, 18.5K

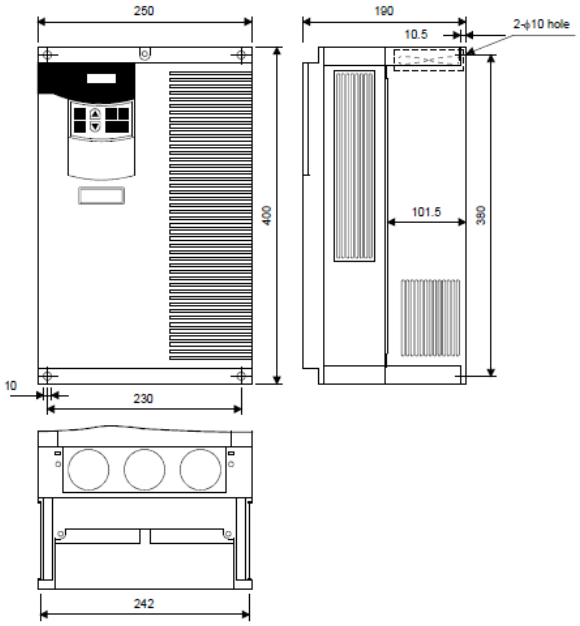


■FR-F840-7.5K, 11K, 15K, 18.5K

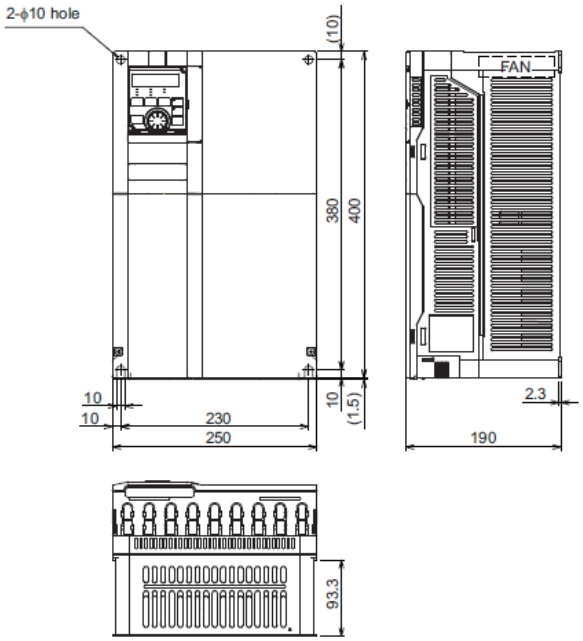


Inverter model	H	H1	H2	D	D1
FR-F840-7.5K, 11K	260	245	1.5	170	84
FR-F840-15K, 18.5K	300	285	3	190	101.5

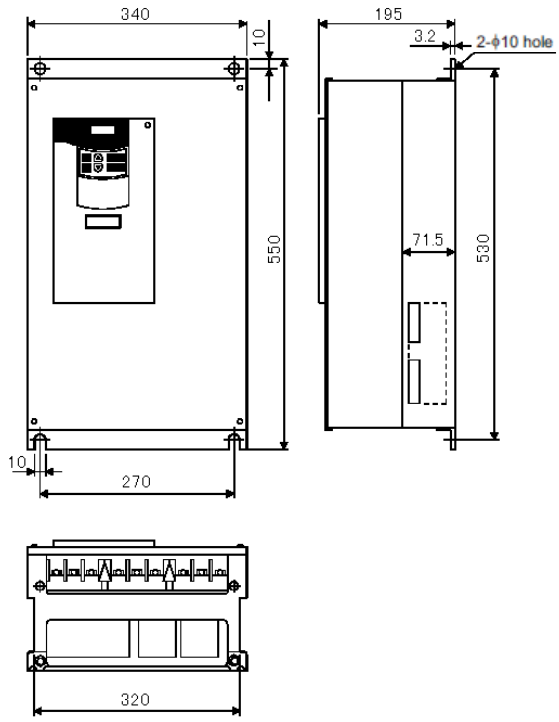
■FR-F540-22K



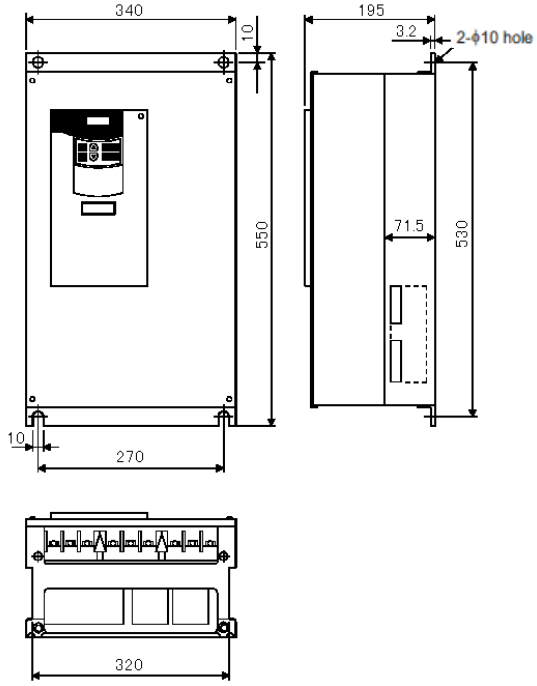
■FR-F840-22K, 30K



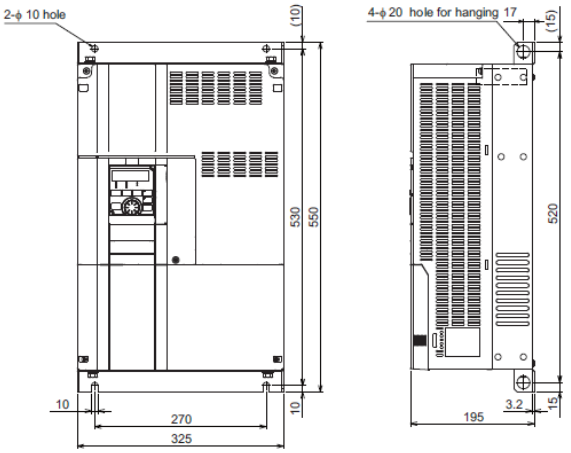
■FR-F540-30K



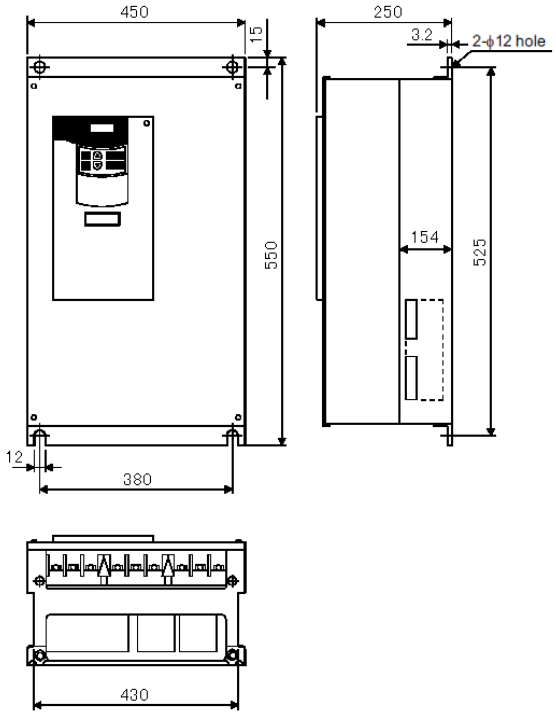
■FR-F540-37K



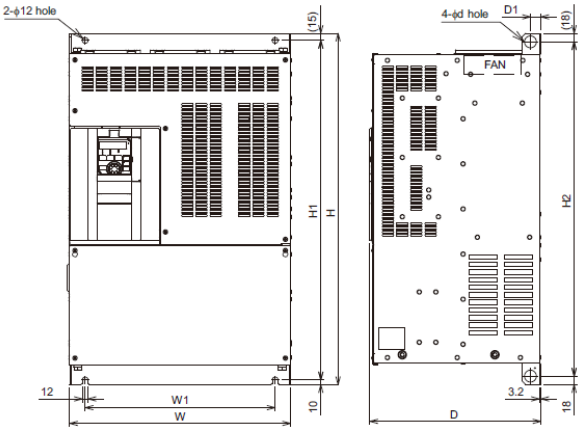
■FR-F840-37K



■FR-F540-45K, 55K



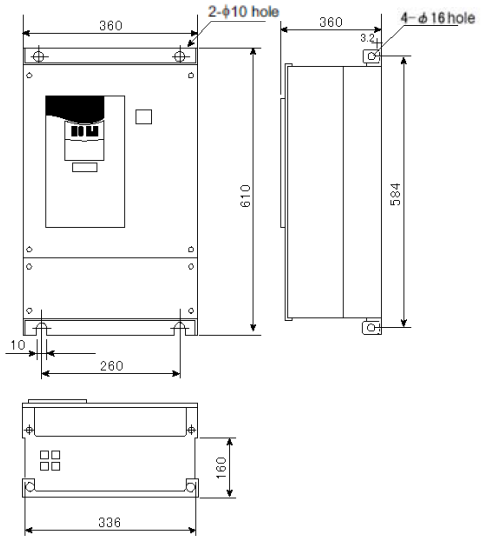
■FR-F840-45K, 55K



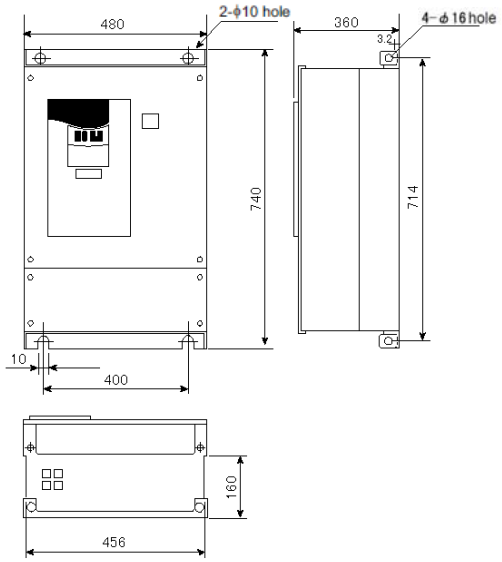
Inverter model	W	W1	H	H1	H2
FR-F840-45K, 55K	435	380	550	525	514

Inverter model	d	D	D1
FR-F840-45K, 55K	25	250	24

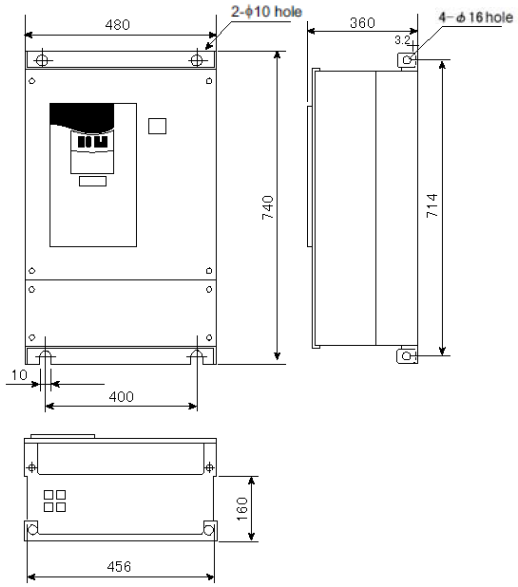
■FR-F540L-75K



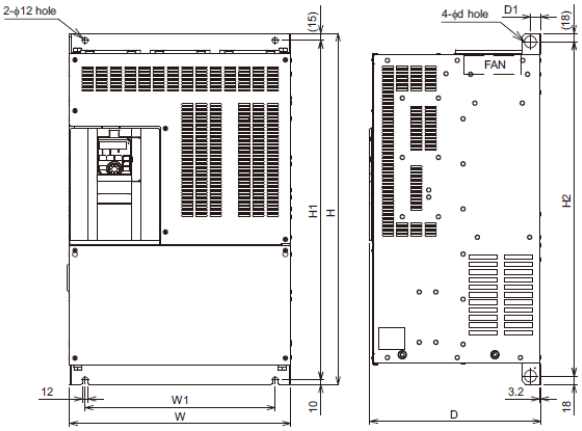
■FR-F540L-90K, 110K



■FR-F540L-132K, 160K



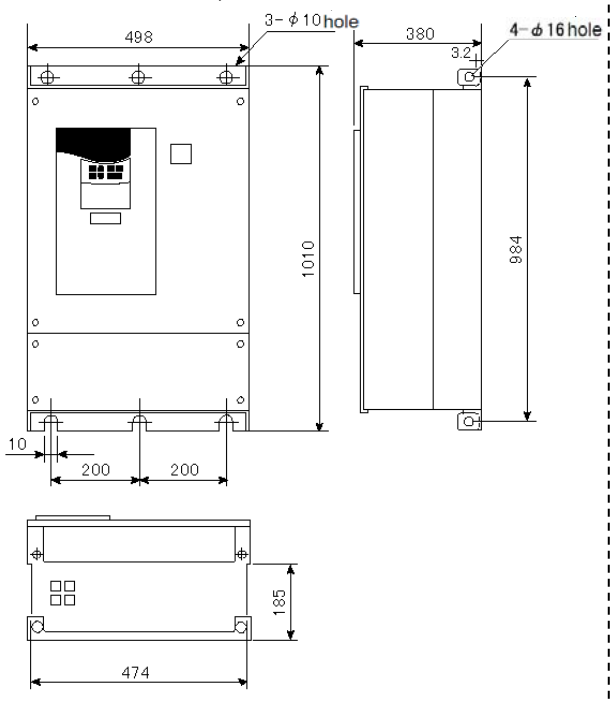
■FR-F840-75K, 90K, 110K, 132K, 160K



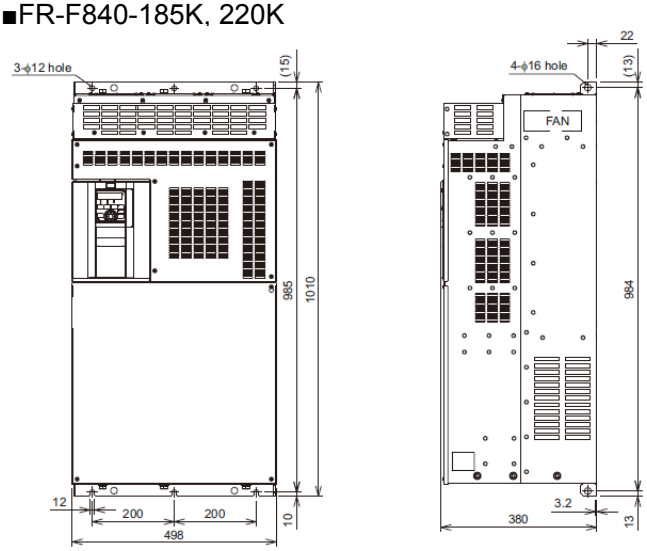
Inverter model	W	W1	H	H1	H2
FR-F840-75K	435	380	550	525	514
FR-F840-90K, 110K	465	400	620	595	584
FR-F840-132K, 160K	465	400	740	715	704

Inverter model	d	D	D1
FR-F840-75K	25	250	24
FR-F840-90K, 110K	24	300	22
FR-F840-132K, 160K	25	360	22

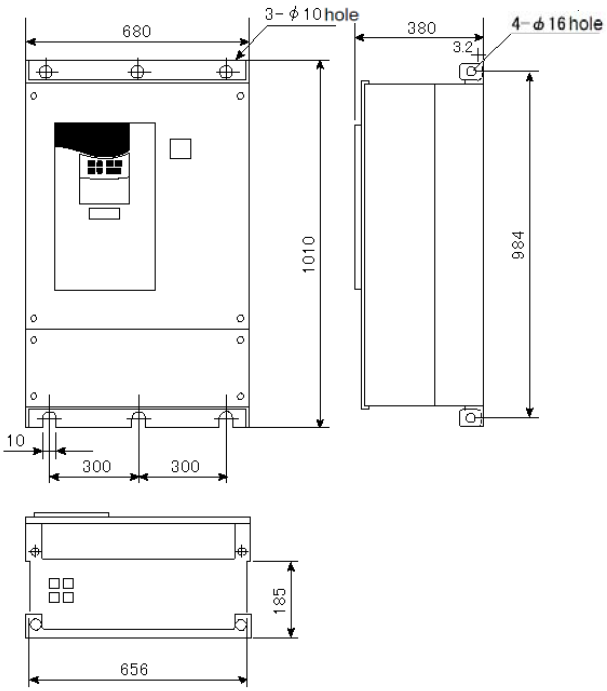
■FR-F540L-185K, 220K



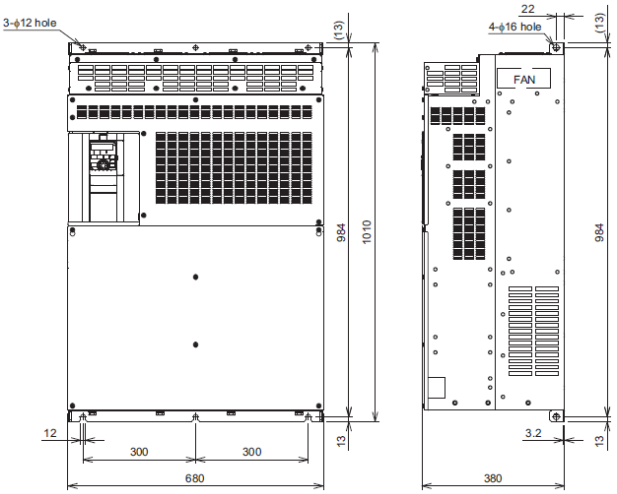
■FR-F840-185K, 220K



■FR-F540L-280K



■FR-F840-280K



3. CONNECTION

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

Type		F500(L) terminal name	F800 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
		P, N	P/+, N/- P3, N/- *1
		P, P1	P/+, P1
		PR, PX (Cannot be used)	PR, PX (Cannot be used)
		⏚	⏚
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
		SD	SD
		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
	Open collector	RUN	RUN
		SU	SU
		OL	OL
		IPF	IPF
		FU	FU
		SE	SE
	Pulse	FM	FM
	Analog	AM	AM
Communication	RS-485	PU connector	PU connector
Signal for the brake unit		CN8 (equipped in 75K or higher)	Not compatible

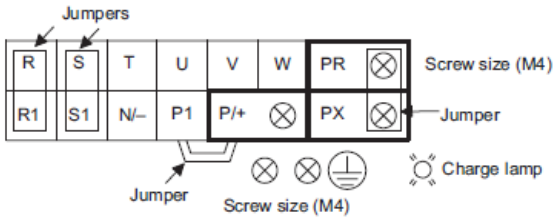
*1) For the FR-F820-18.5K to 30K and the FR-F840-22K to 75K, connect the brake unit between P3 and N/-.

Main circuit terminal layout

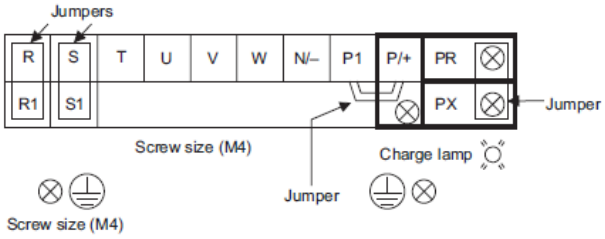
The following shows the main circuit terminal layouts of the FR-F500(L) series and the FR-F800 series.
The main circuit terminal layout and the position of the earth (ground) terminal may differ depending on the capacity. Check the terminal names and positions before performing wiring.
When the cable used for the FR-F500(L) 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.

[200 V class]

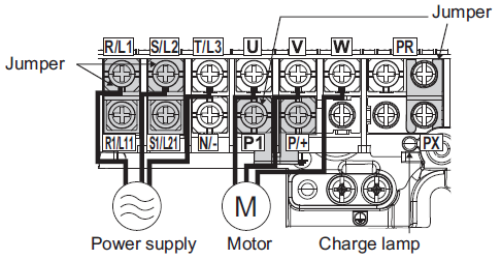
■FR-F520-0.75K



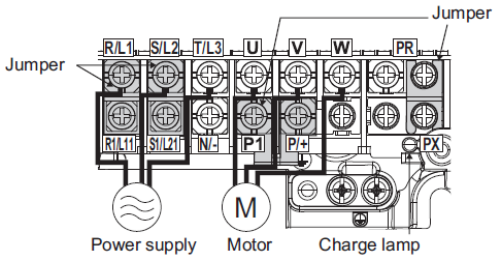
■FR-F520-1.5K, 2.2K, 3.7K



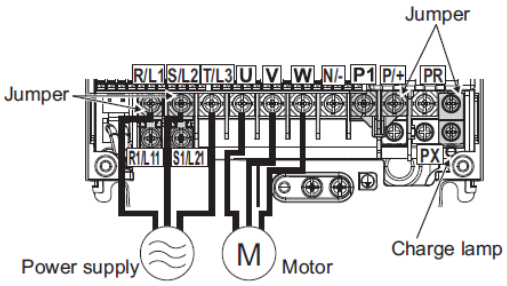
■FR-F820-0.75K



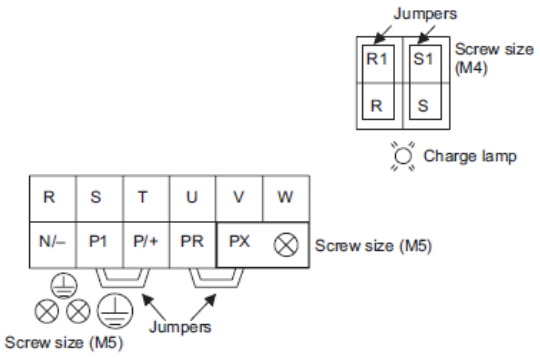
■FR-F820-1.5K



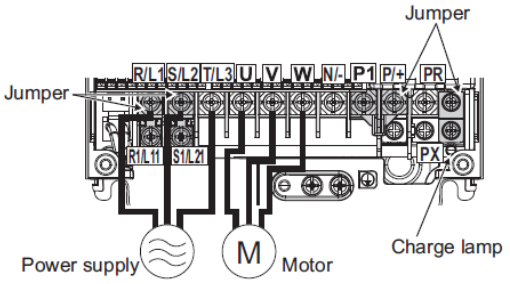
■FR -F820-2.2K, 3.7K



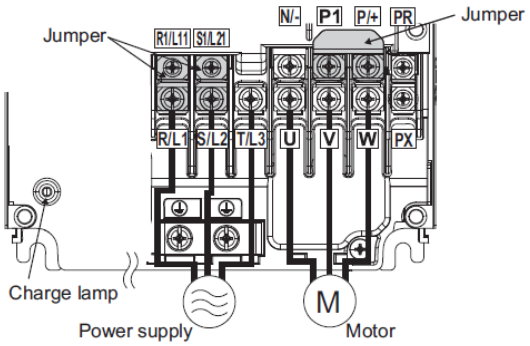
■FR-F520-5.5K, 7.5K



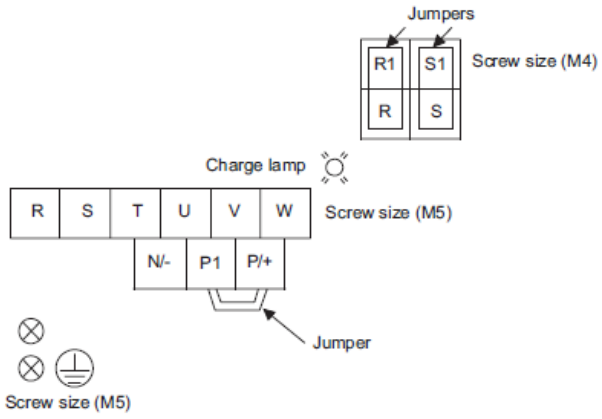
■FR -F820-5.5K



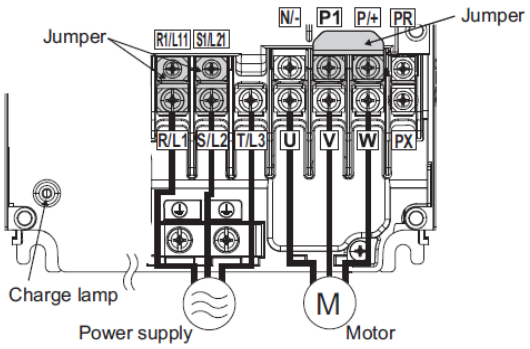
■FR-F820-7.5K



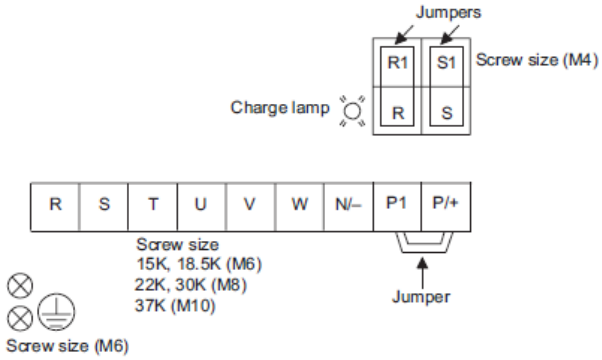
■FR-F520-11K



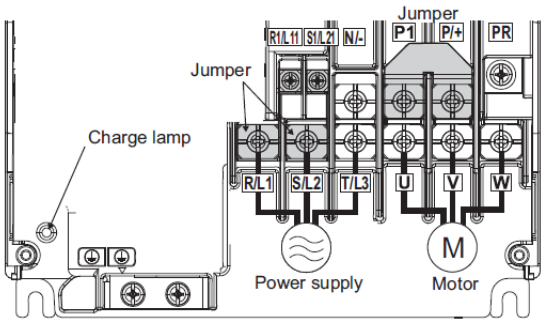
■FR-F820-11K



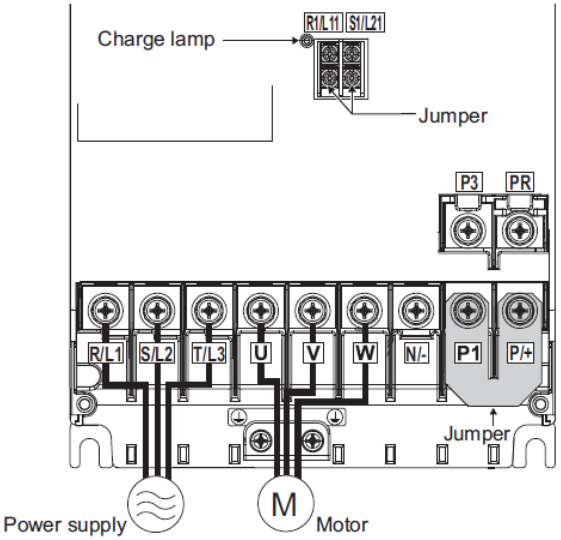
■FR-F520-15K, 18.5K, 22K, 30K, 37K



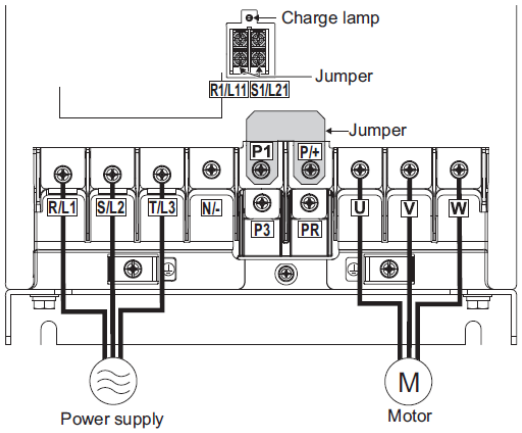
■FR-F820-15K



■FR-F820-18.5K, 22K, 30K

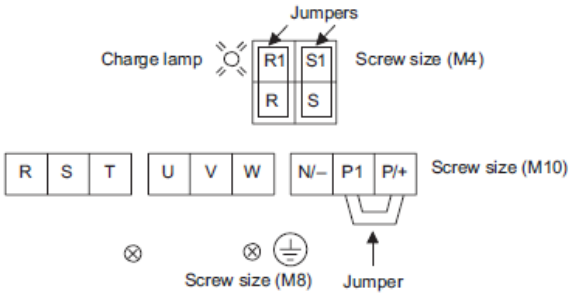


■FR-F820-37K

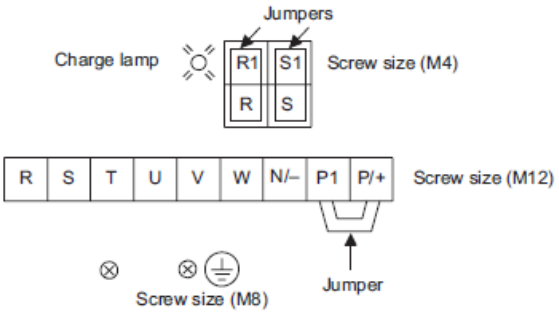


(Note) The terminals P3 and PR of the FR-F820-37K are not equipped with screws. Do not connect anything to these.

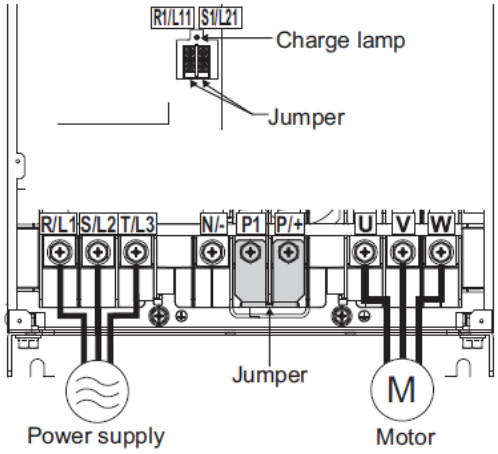
■FR-F520-45K



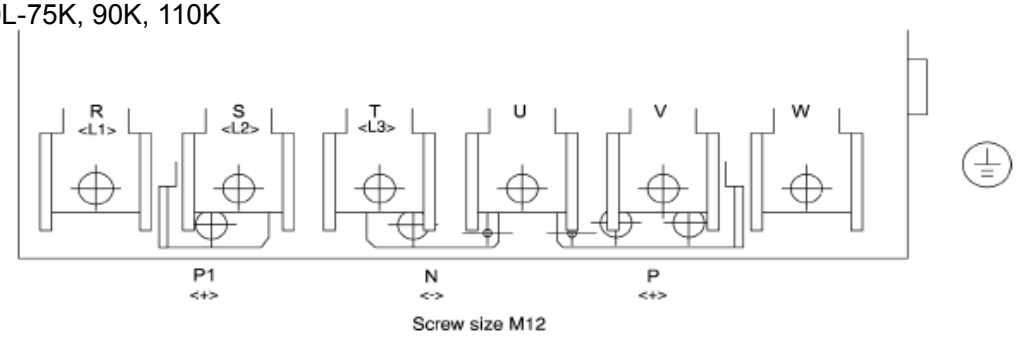
■FR-F520-55K

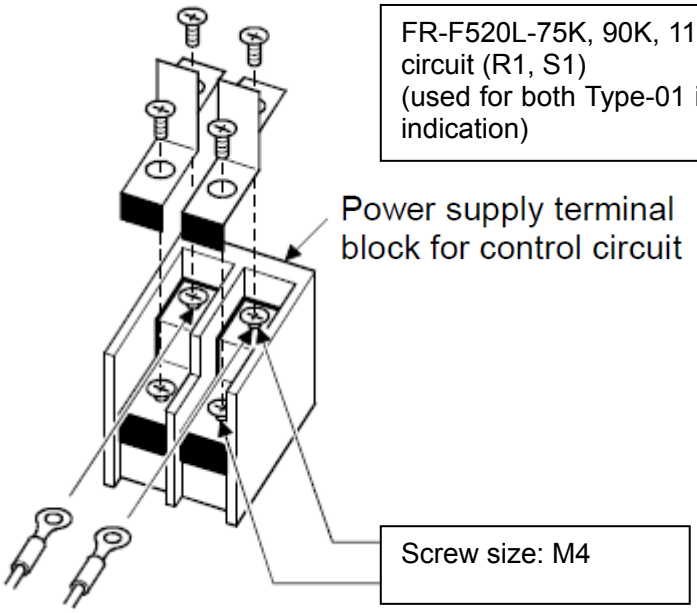


■FR-F820-45K, 55K



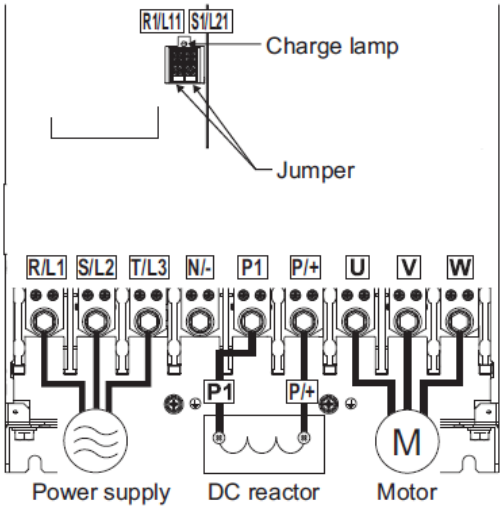
■FR-F520L-75K, 90K, 110K



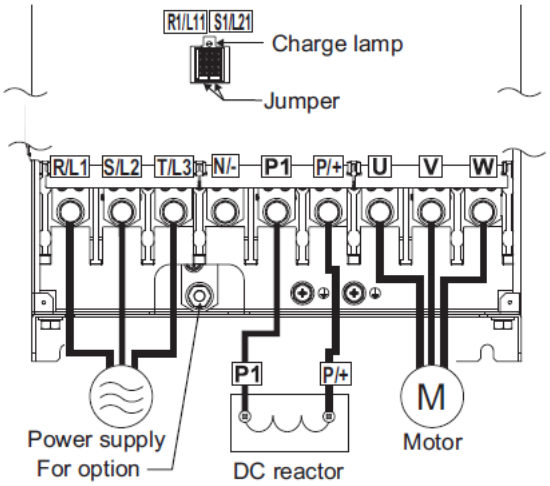


FR-F520L-75K, 90K, 110K Power terminal block for control circuit (R1, S1)
(used for both Type-01 inverters and inverters without type indication)

■FR-F820-75K

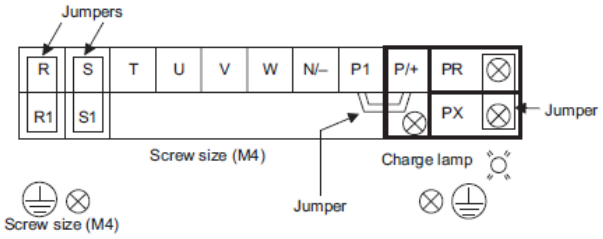


■FR-F820-90K, 110K

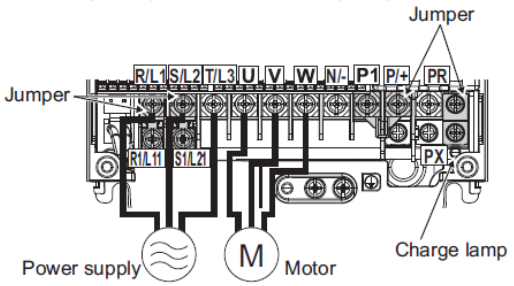


[400 V class]

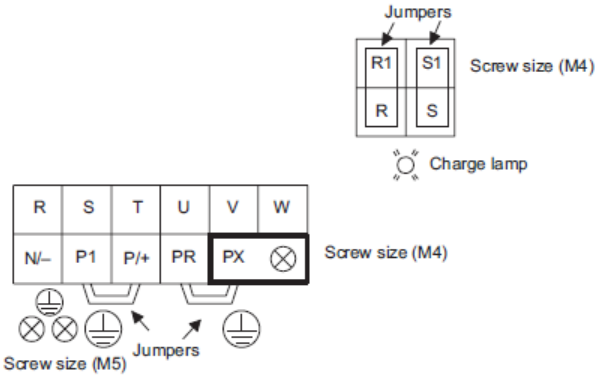
■FR-F540-0.75K, 1.5K, 2.2K, 3.7K



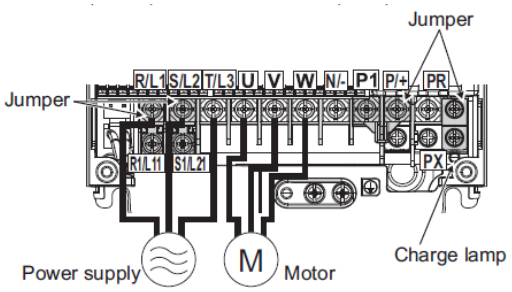
■FR-F840-0.75K, 1.5K, 2.2K, 3.7K



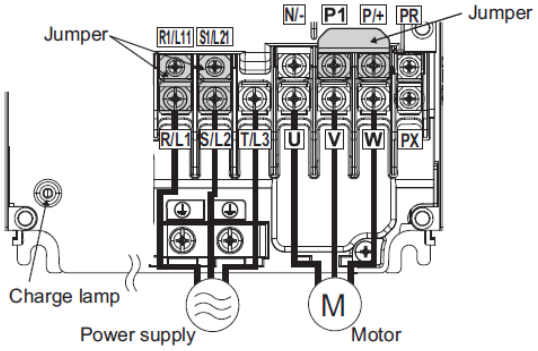
■FR-F540-5.5K, 7.5K, 11K



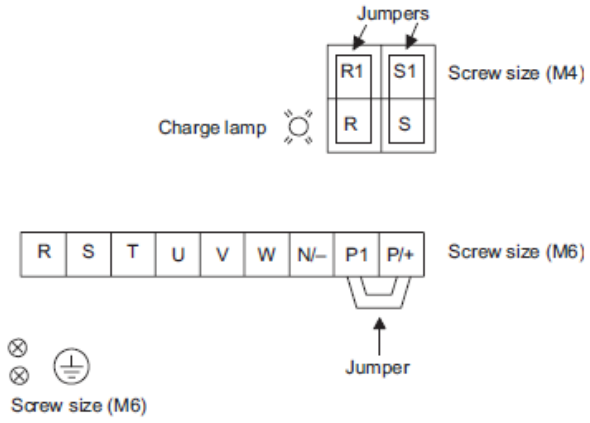
■FR-F840-5.5K



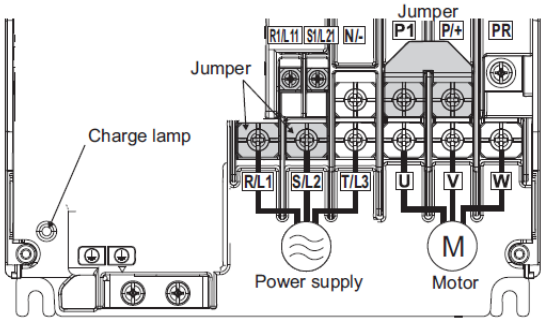
■FR-F840-7.5K, 11K



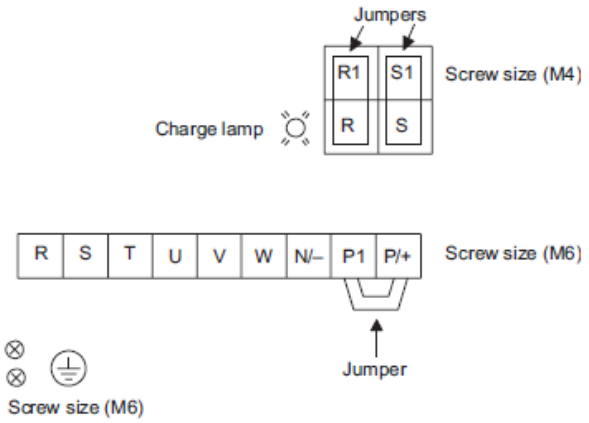
■FR-F540-15K, 18.5K



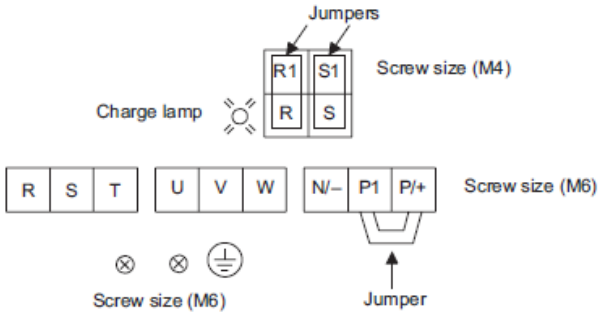
■FR-F840-15K, 18.5K



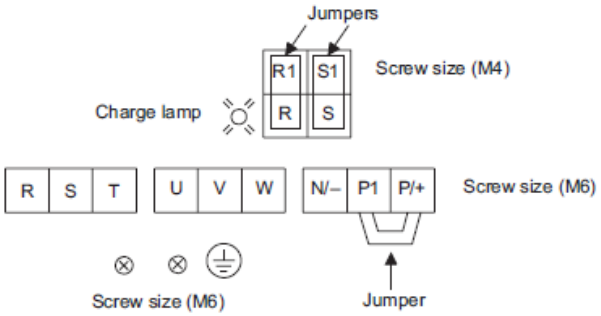
■FR-F540-22K



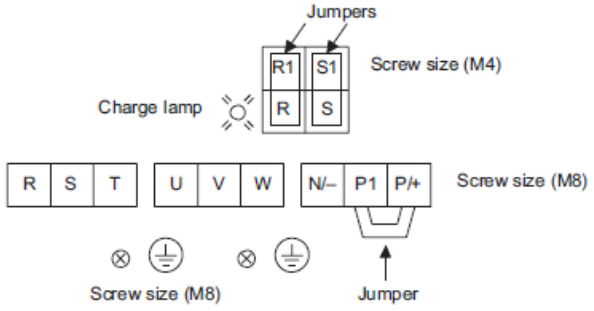
■FR-F540-30K



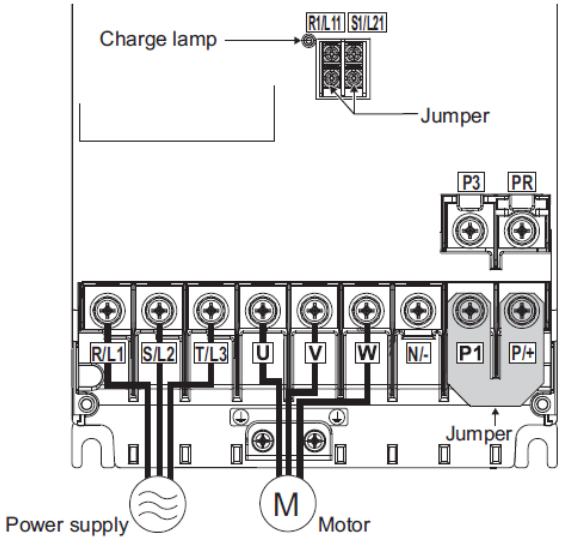
■FR-F540-37K



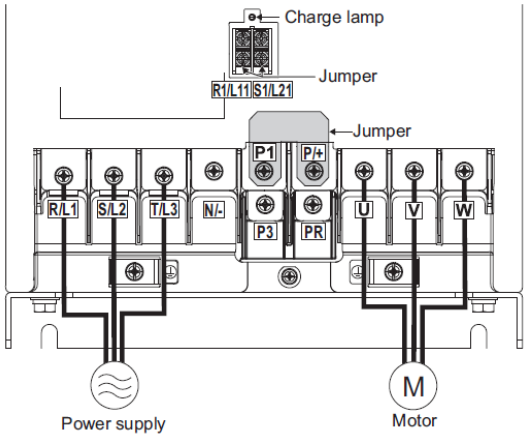
■FR-F540-45K, 55K



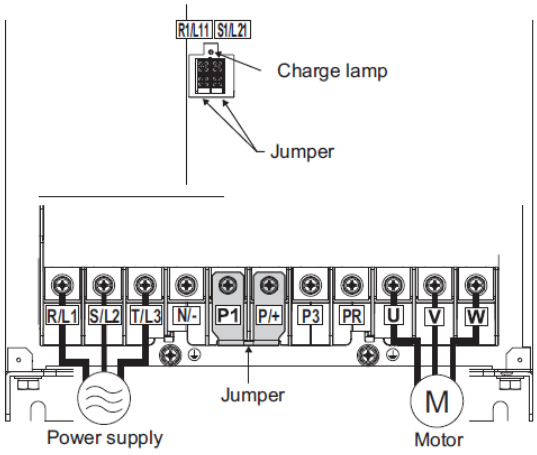
■FR-F840-22K, 30K



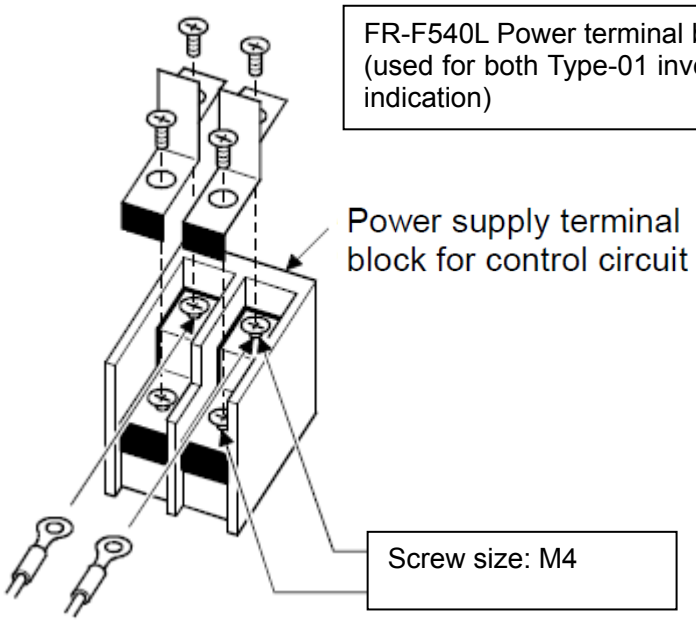
■FR-F840-37K



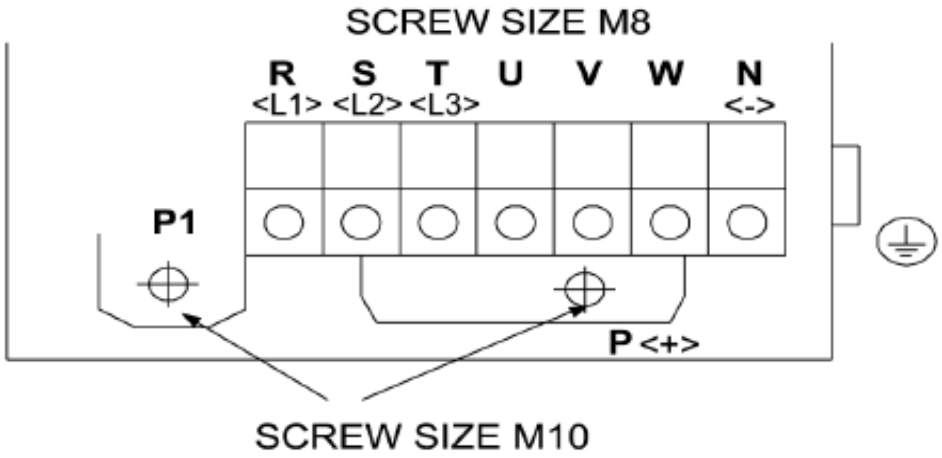
■FR-F840-45K, 55K



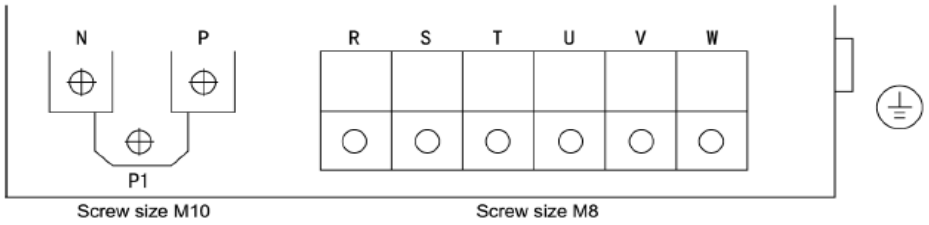
FR-F540L Power terminal block for control circuit (R1, S1) (used for both Type-01 inverters and inverters without type indication)



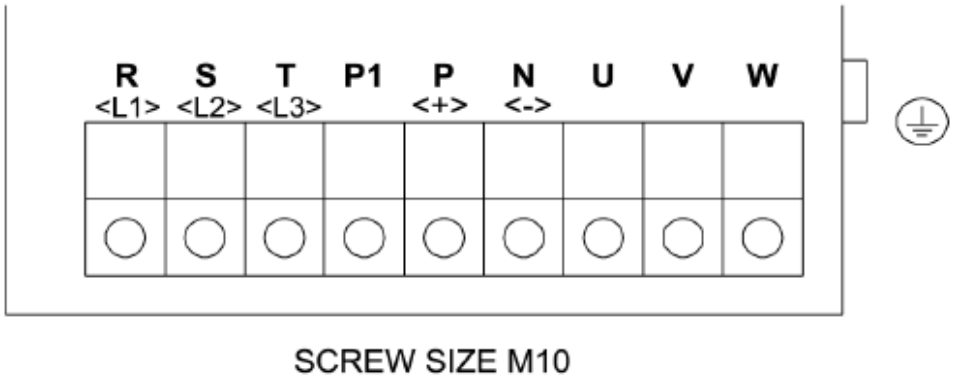
■FR-F540L-75K (Type-01)



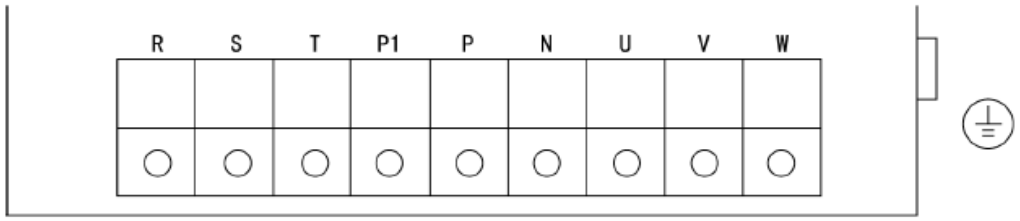
■FR-F540L-75K



■FR-F540L-90K, 110K(Type-01)

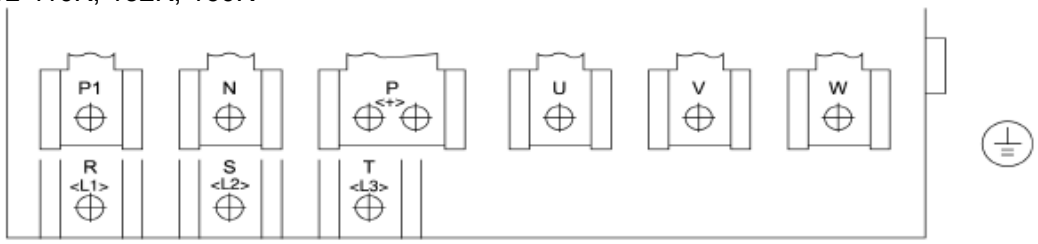


■FR-F540L-90K



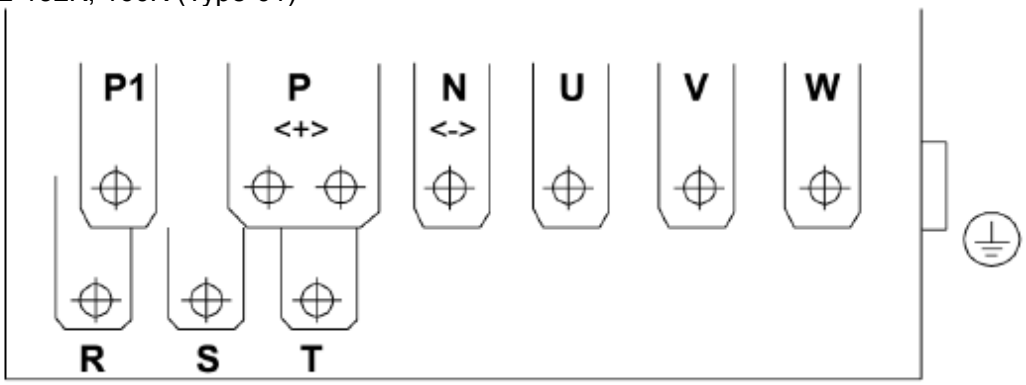
Screw size M10

■FR-F540L-110K, 132K, 160K

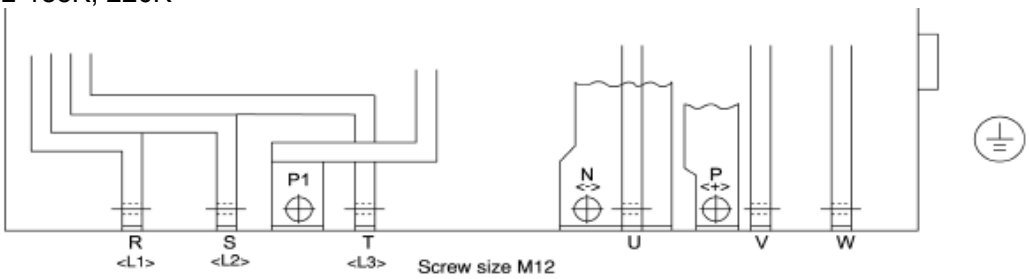


Screw size M10

■FR-F540L-132K, 160K (Type-01)

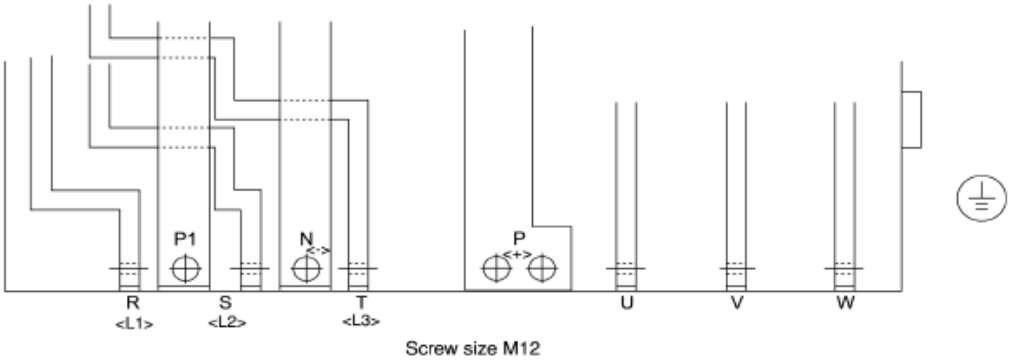


■FR-F540L-185K, 220K



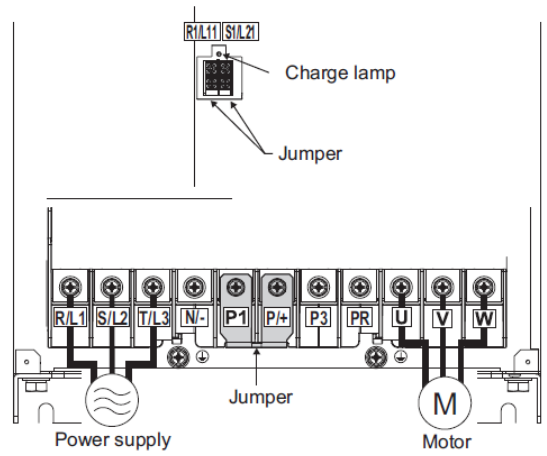
Screw size M12

■FR-F540L-280K



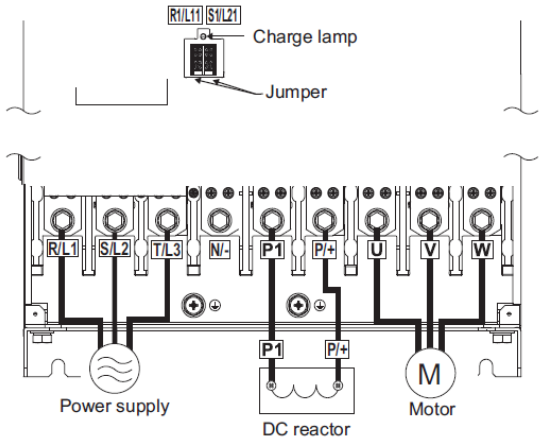
Screw size M12

■FR-F840-75K

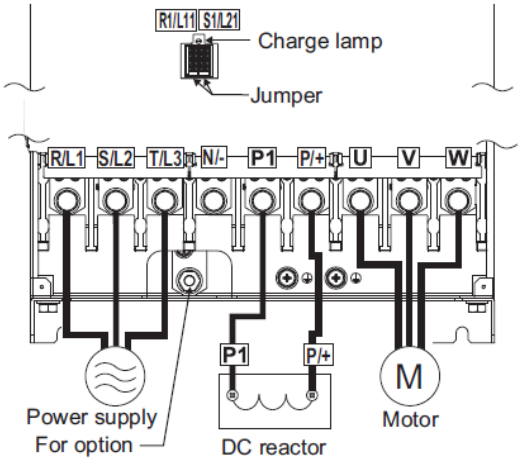


(Note) A jumper is not installed across the terminals P1 and P/+.
Always connect a DC reactor (FR-HEL), which is
available as an option, across the terminals P1 and P/+.

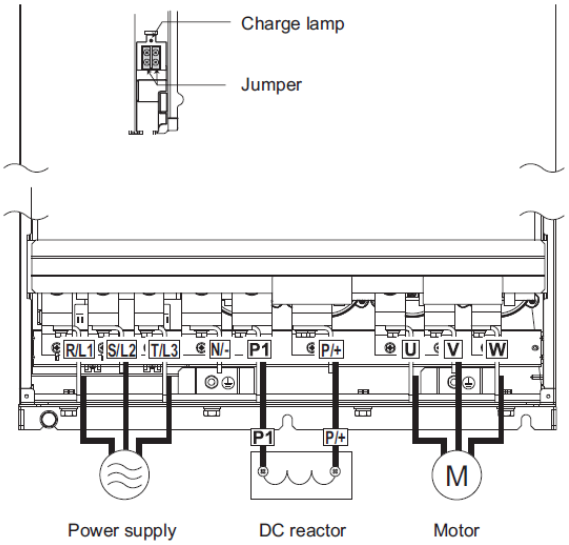
■FR-F840-90K, 110K



■FR-F840-132K, 160K, 185K, 220K



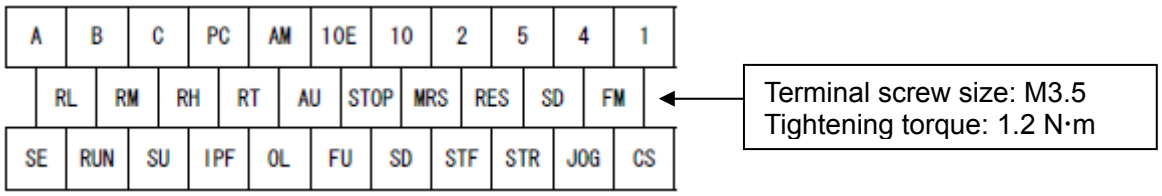
■FR-F840-250K, 280K



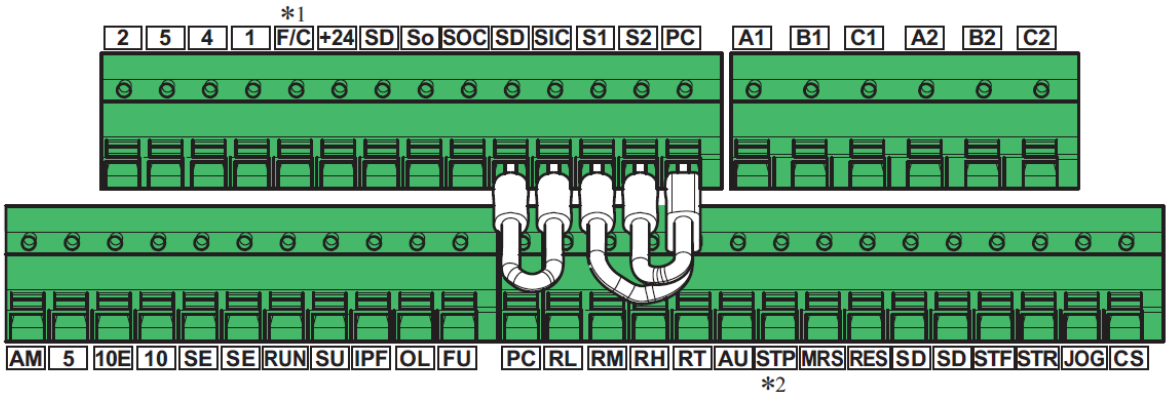
Control circuit terminal layout

The following shows the control circuit terminal layouts of the FR-F500(L) series and the FR-F800 series.
The control circuit terminal layout differs between the FR-F500(L) and the FR-F800 series. Check the terminal names and positions before performing wiring.

■Control circuit terminal layout of the FR-F500(L) series



■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) Represents the terminal STOP.

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.

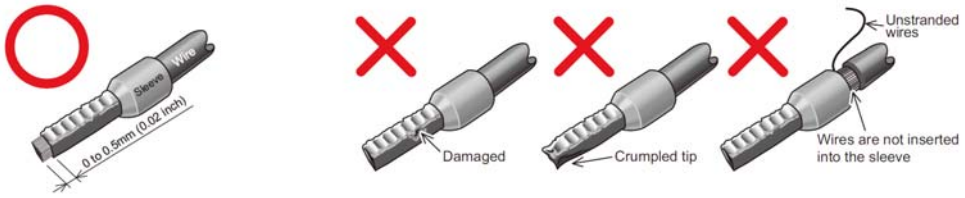
Wire the stripped cable after twisting it to prevent it from becoming loose. In addition, do not solder it.

Cable stripping size

(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 (mm^2)	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	—	—	

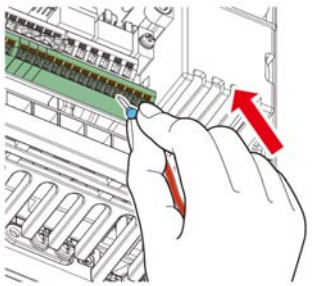
*1 A blade terminal with an insulation sleeve compatible with the MTW wire which has a thick wire insulation.

*2 Applicable for the terminal A1, B1, C1, A2, B2, C2.

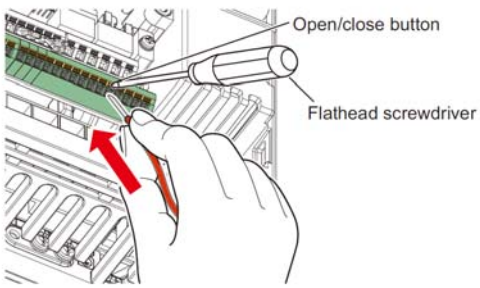
NICHIFU Co., Ltd.

Cable gauge (mm^2)	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.

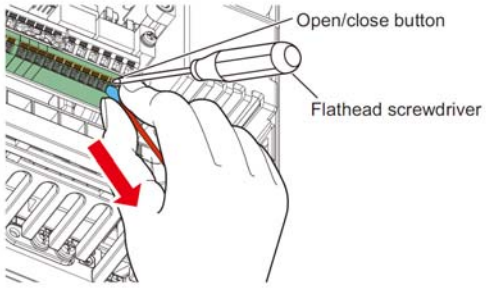


NOTE

- 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.



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

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

List of FR-F800 series parameters compatible with the FR-F500 series

The following table shows the parameter settings required when replacing an FR-F500 series inverter by an FR-F800 series inverter.
When the initial value of a parameter differs between the FR-F500 series and the FR-F800 series, set the initial value of the FR-F500 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-F500 series inverter.

Setting ⊙: Set the FR-F500 parameter as it is.
Δ: Change the FR-F500 parameter and set.
×: Adjust or set the FR-F800 parameter.

FR-F500 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%	0.75K: 6% 1.5K to 3.7K: 4% 5.5K, 7.5K: 3% 11K to 55K: 2% 75K or higher: 1%	0	Torque boost	0 to 30%	0.4 to 0.75K: 6% 1.5K to 3.7K: 4% 5.5K, 7.5K: 3% 11K to 37K: 2% 45K, 55K: 1.5 75K or higher: 1%	Δ	For 45K and 55K, set this parameter after multiplying FR-F500 setting by 3/4. Adjust the parameter as required.
1	Maximum frequency	0 to 120 Hz	[F500]: 120 Hz/ [F500L]: 60 Hz	1	Maximum frequency	0 to 120 Hz	55K or lower: 120 Hz/ 75K or higher: 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	7.5K or lower: 5 s 11K or higher: 15 s	7	Acceleration time	0 to 3600 s/ 0 to 360 s	7.5K or lower: 5 s 11K or higher: 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	7.5K or lower: 10 s 11K or higher: 30 s	8	Deceleration time	0 to 3600 s/ 0 to 360 s	7.5K or lower: 10 s 11K or higher: 30 s	⊙	Changing Pr.21 after setting this parameter will change the set value.
9	Electronic thermal O/L relay	0 to 500 A/ [F500L]: 0 to 3600 A	Rated output current	9	Electronic thermal O/L relay	55K or lower: 0 to 500 A/ 75K or higher: 0 to 3600 A	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%	7.5K or lower: 4% 11K or higher: 2% [F500L]: 1%	12	DC injection brake operation voltage	0 to 30%	7.5K or lower: 4% 11K to 55K: 2% 75K or higher: 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.

FR-F500 parameter list				FR-F800 compatible parameter				Parameter setting	
Function number	Name	Setting range	Initial value	Function number	Name	Setting range	Initial value	Setting	Remarks
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	⊙	
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, 2 / [F500L]: 0, 1, 2	0	30	Regenerative function selection	0 to 2, 10, 11, 20, 21, 100 to 102, 110, 111, 120, 121	0	⊙	
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	1 to 500 A/ [F500L]: 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.

* When 120% is set for the inverter rated current after the change, set as follows: 120% × (F500 rated current) / (F800 rated current).

FR-F500 parameter list				FR-F800 compatible parameter				Parameter setting	
Function number	Name	Setting range	Initial value	Function number	Name	Setting range	Initial value	Setting	Remarks
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	⊙	
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 500 A/ [F500L]: 0 to 3600 A	Rated output current	56	Current monitoring reference	55K or lower: 0 to 500 A/ 75K or higher: 0 to 3600 A	Rated output current	⊙	
57	Restart coasting time	0, 0.1 to 5 s, 9999/ [F500L]: 0, 0.1 to 30 s, 9999	9999	57	Restart coasting time	0, 0.1 to 30 s, 9999	9999	⊙	
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-F500, set Pr.292 and Pr.60 of FR-F800 as follows. 0: Pr.292=0, 3: Not available for the FR-F800 4: Pr.60=4, 9: Pr.60=9
61	Reference I for intelligent mode	0 to 500 A, 9999/ [F500L]: 0 to 3600 A, 9999	9999	-				–	Not available for the FR-F800
62	Ref. I for intelligent mode accel.	0 to 150%, 9999	9999	-				–	
63	Ref. I for intelligent mode decel.	0 to 150%, 9999	9999	-				–	
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	[F500L]: 0 to 100%	0%	70	Special regenerative brake duty	0 to 100%	0%	Δ	Setting value: 100% → 0%, 10% or more → 10%

* When 120% is set for the inverter rated current after the change, set as follows: 120% × (F500 rated current) / (F800 rated current).

FR-F500 parameter list				FR-F800 compatible parameter				Parameter setting	
Function number	Name	Setting range	Initial value	Function number	Name	Setting range	Initial value	Setting	Remarks
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, 8090, 8093, 8094, 9090 ,9093 ,9094	0	⊙	
72	PWM frequency selection	0 to 15 / [F500L]: 0, 1, 2	2 / [F500L]: 1	72	PWM frequency selection	55K or lower: 0 to 15/ 75K or higher: 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
73	0-5V/0-10V selection	0 to 5, 10 to 15	1	73	Analog input selection	0 to 7, 10 to 17	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	⊙	

FR-F500 parameter list				FR-F800 compatible parameter				Parameter setting	
Function number	Name	Setting range	Initial value	Function number	Name	Setting range	Initial value	Setting	Remarks
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	⊙	
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	⊙	

* When 120% is set for the inverter rated current after the change, set as follows: 120% × (F500 rated current) / (F800 rated current).

FR-F500 parameter list				FR-F800 compatible parameter				Parameter setting	
Function number	Name	Setting range	Initial value	Function number	Name	Setting range	Initial value	Setting	Remarks
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, 32 to 34, 50, 52 to 54, 61, 62, 67, 70, 87 to 90, 91 to 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 / [F500L]: 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%	⊙	
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, 10, 9999 / [F500L]: 0	9999 / [F500L]: 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 20, 22 to 28, 37, 42 to 47, 50, 51, 62, 64 to 74, 76, 77 to 80, 87, 92 ,93, 9999	0	⊙	
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	
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 8, 10 to 20, 22, 25 to 28, 30 to 36, 38 to 54, 56, 57, 60, 61, 63, 64, 68, 70, 79, 84, 85, 90 to 99, 100 to 108, 110 to 116, 120, 122, 125 to 128, 130 to 136, 138 to 154, 156, 157, 160, 161, 163, 164, 168, 170, 179, 184, 185, 190 to 199, 200 to 208, 300 to 308, 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		2	⊙	
193	OL terminal function selection		3	193	OL terminal function selection		3	⊙	
194	FU terminal function selection		4	194	FU terminal function selection		4	⊙	

* When 120% is set for the inverter rated current after the change, set as follows: 120% × (F500 rated current) / (F800 rated current).

FR-F500 parameter list				FR-F800 compatible parameter				Parameter setting	
Function number	Name	Setting range	Initial value	Function number	Name	Setting range	Initial value	Setting	Remarks
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 8, 10 to 20, 22, 25 to 28, 30 to 36, 38 to 54, 56, 57, 60, 61, 63, 64, 68, 70, 79, 84, 85, 90, 91, 94 to 99, 100 to 108, 110 to 116, 120, 122, 125 to 128, 130 to 136, 138 to 154, 156, 157, 160, 161, 163, 164, 168, 170, 179, 184, 185, 190, 191, 194 to 199, 200 to 208, 300 to 308, 9999	99	⊙	
199	User's initial value setting	0 to 999, 9999	0	-	-	-	-	-	Not available for the FR-F800
240	Soft-PWM setting	0, 1, 10, 11/ [F500L]: 0, 1	11 / [F500L]: 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	[F500L]: 0 to 10 s, 9999	9999	571	Holding time at a start	0 to 10 s, 9999	9999	⊙	
611	Acceleration time at a restart	0 to 3600 s, 9999	5 s	611	Restart acceleration time	0 to 3600 s, 9999	9999	Δ	Set Pr.7 of the FR-F800 for replacing the FR-F500L.
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	⊙	

4. 2. Difference in Rated Current

The rated current of some FR-F800 with a capacity shown in a colored cell in the table below differs from the FR-F500(L).
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 = F500(L) parameter setting × F500(L) rated current / F800 rated current

FR-F520(L)		FR-F820	
Capacity	Rated current	Capacity	Rated current
0.75K	4.1 A	0.75K	4.2 A
1.5K	7 A	1.5K	7 A
2.2K	9.6 A	2.2K	9.6 A
3.7K	15 A	3.7K	15.2 A
5.5K	23 A	5.5K	23 A
7.5K	31 A	7.5K	31 A
11K	45 A	11K	45 A
15K	58 A	15K	58 A
18.5K	70 A	18.5K	70.5 A
22K	85 A	22K	85 A
30K	114 A	30K	114 A
37K	140 A	37K	140 A
45K	170 A	45K	170 A
55K	212 A	55K	212 A
75K	288 A	75K	288 A
90K	346 A	90K	346 A
110K	432 A	110K	432 A

FR-F540(L)		FR-F840	
Capacity	Rated current	Capacity	Rated current
0.75K	2 A	0.75K	2.1 A
1.5K	3.5 A	1.5K	3.5 A
2.2K	4.8 A	2.2K	4.8 A
3.7K	7.5 A	3.7K	7.6 A
5.5K	11.5 A	5.5K	11.5 A
7.5K	16 A	7.5K	16 A
11K	23 A	11K	23 A
15K	29 A	15K	29 A
18.5K	35 A	18.5K	35 A
22K	43 A	22K	43 A
30K	57 A	30K	57 A
37K	70 A	37K	70 A
45K	85 A	45K	85 A
55K	106 A	55K	106 A
75K	144 A	75K	144 A
90K	180 A	90K	180 A
110K	216 A	110K	216 A
132K	260 A	132K	260 A
160K	302 A	160K	325 A
185K	360 A	185K	361 A
220K	432 A	220K	432 A
280K	547 A	280K	547 A

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

As the frequencies for Pr.23 setting are not the same between the FR-F500(L) (120 Hz) and the FR-F800 (400 Hz), set the values 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-F500(L).

When Pr.23 is not "9999":
Pr.23 setting of the FR-F800 = 100 + (Pr.22 - B) × (Pr.23 - 100) / (120 Hz / 400 Hz × Pr.22 - B)
B = Pr.66 × 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 ≠ "0" and Pr.66=120 Hz:
Set "9999".

4. 4. Compatibility of the Terminal Response Speed

The response of the input/output terminals of the FR-F800 series is improved compared to the FR-F500(L) 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-F500(L) series options are compatible with the FR-F800 series inverters and their corresponding F800 series options.

Name			Option model	
			FR-F500(L)	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.
	Intercompatibility attachment		FR-AAT, FR-A5AT	Compatible
	Panel through attachment		FR-A5CN, MT-A5CN	FR-A8CN1[][], FR-A8CN[][] Enclosure cut dimensions are compatible except for some capacities. The depths inside and outside the enclosure differ. For details, refer to the Instruction Manual of the FR-A8CN1[][] or the FR-A8CN[][].
	Totally enclosed structure attachment		FR-A5CV	–
	Attachment for conduit connection		FR-A5FN	–
	EMC Directive compliant noise filter		SF	Built-in function of the inverter (EN 61800-3 2nd Environment compatible)
	Surge voltage suppression filter		FR-ASF-H	Compatible
	Power factor improving DC reactor		FR-BEL-(H)	Compatible
	Power factor improving AC reactor		FR-BAL-(H), MT-BAL-(H)	Compatible
	Radio noise filter		FR-BIF-(H)	Compatible
	Line noise filter		FR-BSF01, FR-BLF	Compatible
	BU type brake unit		BU1500 to 15K, H7.5K to 30K	Compatible
	Brake unit		FR-BU-(H), FR-BU2	Compatible MT-BU5 is not compatible.
	Resistor unit		FR-BR-(H), MT-BR5-(H)	Compatible
	FR-RC type power regeneration converter		FR-RC-(H), MT-RC-(H)	Compatible
	FR- CV type power regeneration common converter		FR-CV-(H)7.5K(-AT) to 55K	Compatible
	Stand-alone reactor dedicated for the FR-CV		FR-CVL-(H)7.5K to 55K	Compatible
	FR-HC type high power factor converter		FR-HC-(H), MT-HC-(H), FR-HC2-(H)	Compatible
	Sine wave filter	Reactor	MT-BSL-(H)	Compatible
		Capacitor	MT-BSC-(H)	Compatible

Name		Option model	
		FR-F500(L)	FR-F800
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

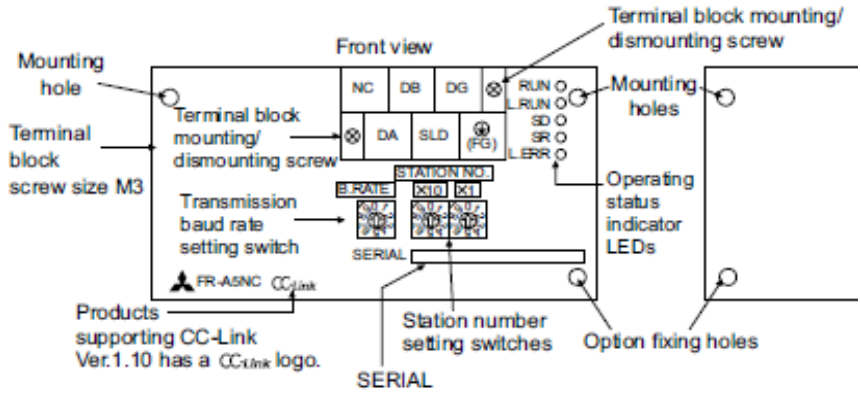
The FR-A5NC (CC-Link communication option) used with the FR-F500(L) series cannot be used with the FR-F800 series. For the CC-Link communication with the FR-F800 series, use the FR-A8NC.

(1) Shape and installation method

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

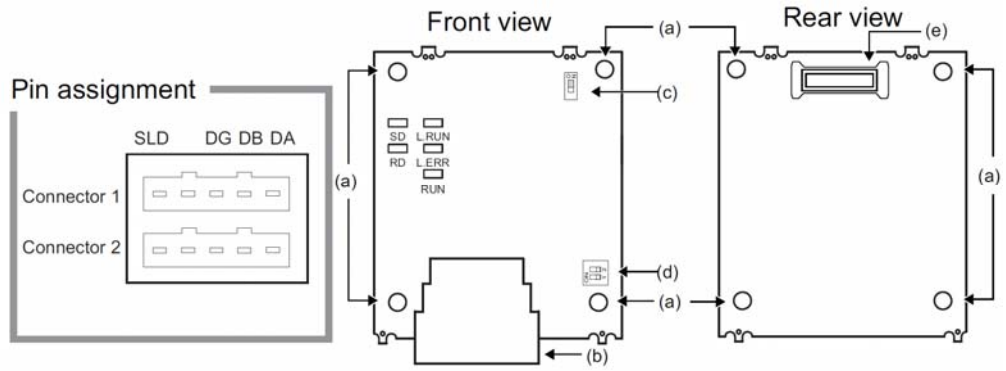
Item	FR-A5NC	FR-A8NC	Remarks
Shape	Inverter plug-in option type, terminal block connection	Inverter plug-in option type, terminal block connection	Although the connection method is the same, the circuit board of the option has a different shape.
Connection terminal block	6-terminal terminal block (M3 × 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	

[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]



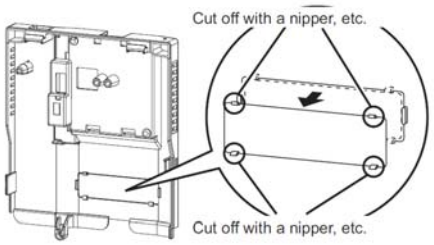
Symbol	Name	Description
a	Mounting hole	Fixes the option to the inverter with screws, or installs spacers.
b	CC-Link communication one-touch connector	CC-Link communication can be performed with the CC-Link communication connector.
c	Switch for manufacturer setting	Switch for manufacturer setting. Do 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]

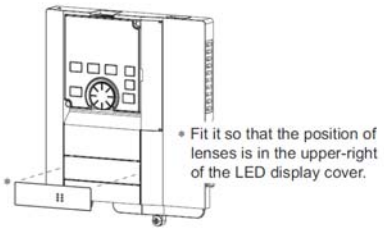
◆ **Installation of the communication option LED display cover**

(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.



(3) Fit the communication option LED display cover to the front of the inverter front cover and push it into until fixed with hooks.



NOTE

• The protective structure (JEM1030) changes to the open type (IP00).

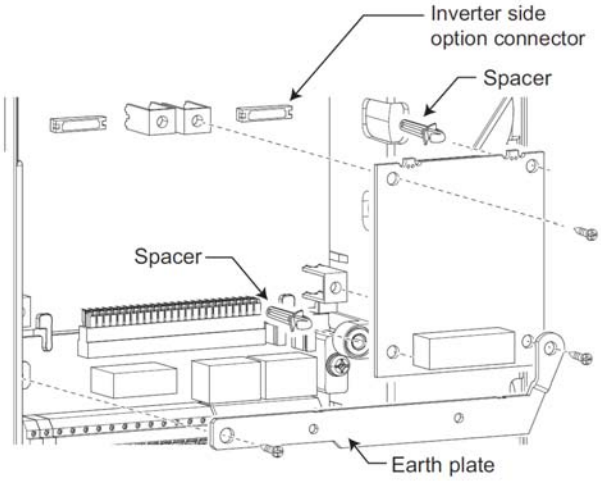
◆ **Installing the option**

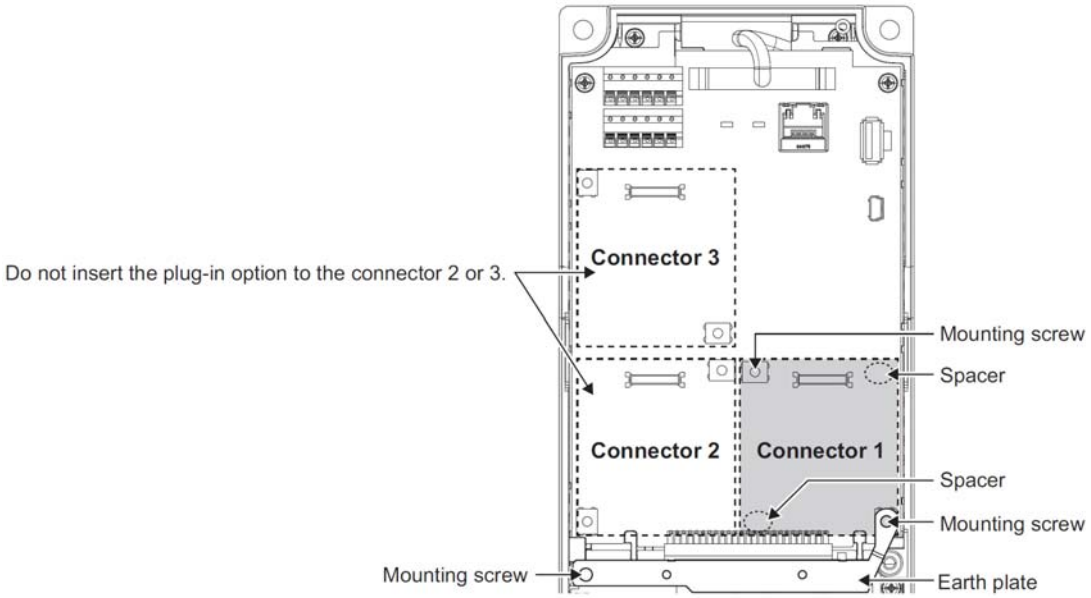
(1) For the two mounting holes (as shown in the next page) that will not be tightened with mounting screws, insert spacers.

(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.





Insertion positions for screws and spacers

[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.

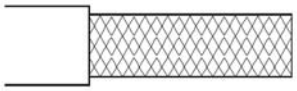
- Website of the CC-Link Partner Association http://www.cc-link.org/
- One-touch communication connector plug (as of July 2013)
  Refer to the following table for the plug required to fabricate a cable on your own.

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

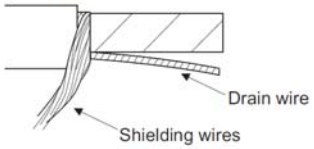
(1) Cable-end treatment

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

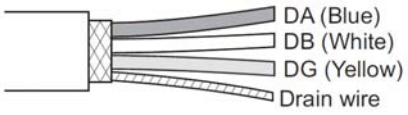
1. Cut the sheath



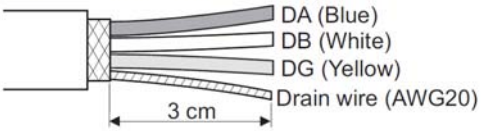
2. Separate shielding wires from the drain wire. Cut the shielding wires.



3. Cut the aluminum tape and braid.



4. Straighten the drain wire and twist it from the root.
(Twist seven times or more per 3 cm.)



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

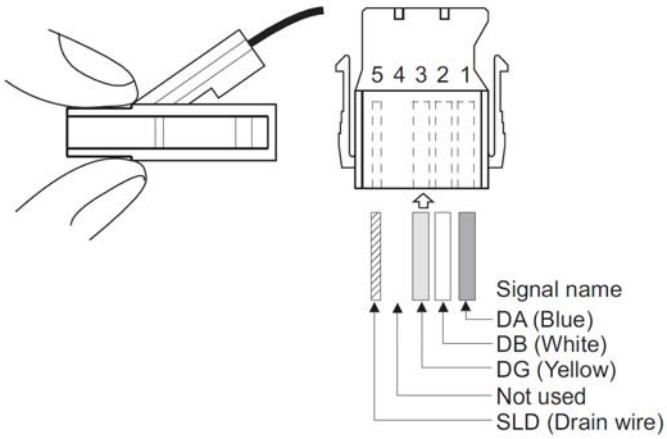
Check that a plug cover is snapped into a plug

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.

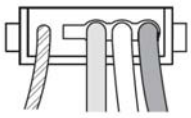


NOTE

- 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

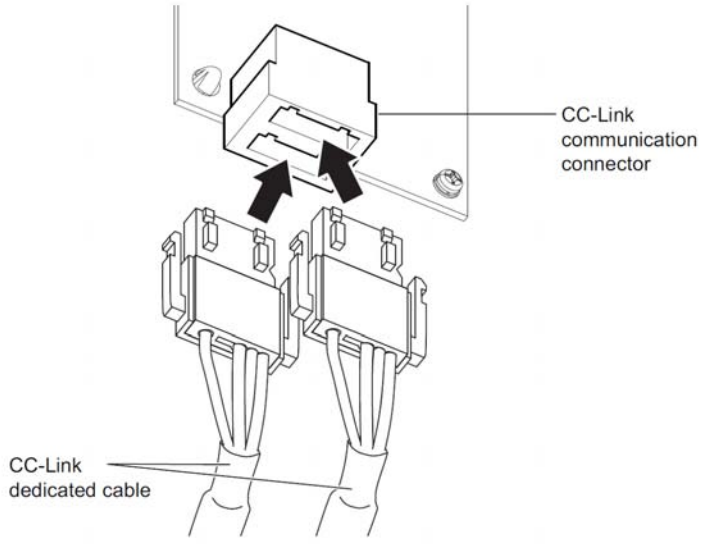
Push the plug cover onto the plug with a tool such as pliers. After crimping, check that the plug cover is securely snapped into the plug as shown in the right figure.



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.



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

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

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-F500 series parameter is set to a value other than the initial value, set the corresponding FR-F800 parameter according to the following table.
When an FR-F500 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-F500 series inverter.

Setting ⊙: Set the FR-F500 parameter as it is.
△: Change the FR-F500 parameter and set.
×: Adjust or set the FR-F800 parameter.

FR-F500 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-F500 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-F500. 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-F500. Use the Pr.543 setting for FR-F800. 0: 156 kbps 1: 625 kbps 2: 2.5 Mbps 3: 5 Mbps 4: 10 Mbps

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