

Information for Replacement of the FR-Z200 Series

Replacement with:
the FR-A700-NA series

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

1. Size

Installation sizes of the FR-Z200 series and the FR-A700-NA series are different. Use intercompatibility attachments shown in the table below to replace the FR-Z200 series with the FR-A700-NA series.

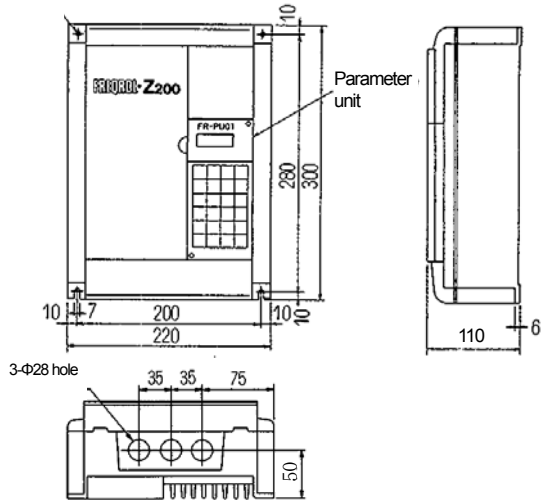
[Inverter itself]

Inverter Currently Installed	Replacement Inverter	Installation Size/ Intercompatibility Attachment
FR-Z220-0.4K	FR-A720-00030-NA	FR-AAT01
FR-Z220-0.75K	FR-A720-00050-NA	FR-AAT01
FR-Z220-1.5K	FR-A720-00080-NA	FR-AAT01
FR-Z220-2.2K	FR-A720-00110-NA	FR-AAT01
FR-Z220-3.7K	FR-A720-00175-NA	FR-AAT01
FR-Z220-5.5K	FR-A720-00240-NA	FR-AAT02
FR-Z220-7.5K	FR-A720-00330-NA	FR-AAT02
FR-Z220-11K	FR-A720-00460-NA	FR-AAT24
FR-Z220-15K	FR-A720-00610-NA	FR-AAT03
FR-Z220-22K	FR-A720-00760-NA	FR-AAT04
	FR-A720-00900-NA	FR-AAT04
FR-Z220-30K	FR-A720-01150-NA	FR-AAT05
FR-Z220-37K	FR-A720-01450-NA	FR-AAT06
FR-Z220-45K	FR-A720-01750-NA	FR-AAT07
FR-Z220-55K	FR-A720-02150-NA	FR-AAT07
FR-Z240-2.2K	FR-A740-00040-NA	FR-AAT02
	FR-A740-00060-NA	FR-AAT02
FR-Z240-3.7K	FR-A740-00090-NA	FR-AAT02
FR-Z240-7.5K	FR-A740-00120-NA	FR-AAT02
	FR-A740-00170-NA	FR-AAT02
FR-Z240-15K	FR-A740-00230-NA	FR-AAT04
	FR-A740-00310-NA	FR-AAT04
FR-Z240-22K	FR-A740-00380-NA	FR-AAT04
	FR-A740-00440-NA	FR-AAT04
FR-Z240-37K	FR-A740-00570-NA	FR-AAT06
	FR-A740-00710-NA	FR-AAT06
FR-Z240-55K	FR-A740-00860-NA	FR-AAT08
	FR-A740-01100-NA	FR-AAT08

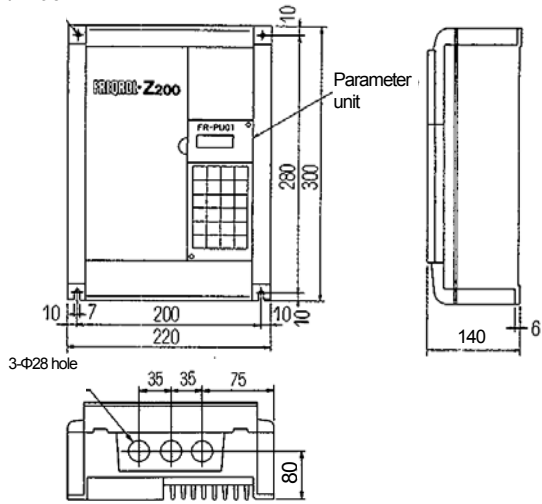
Outline dimension drawings (Unit: mm (inch))

[200V class]

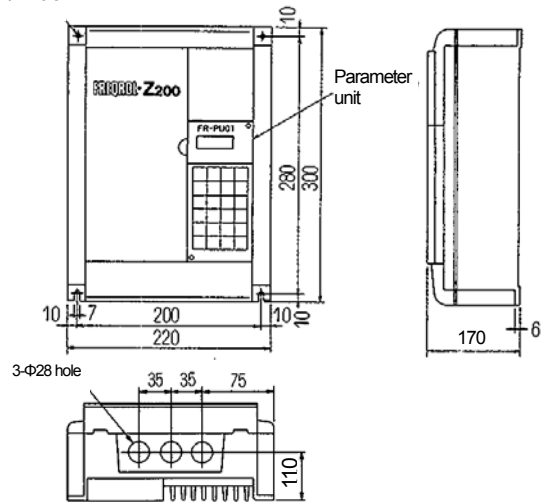
■ FR-Z220-0.4K
2-Φ7 hole



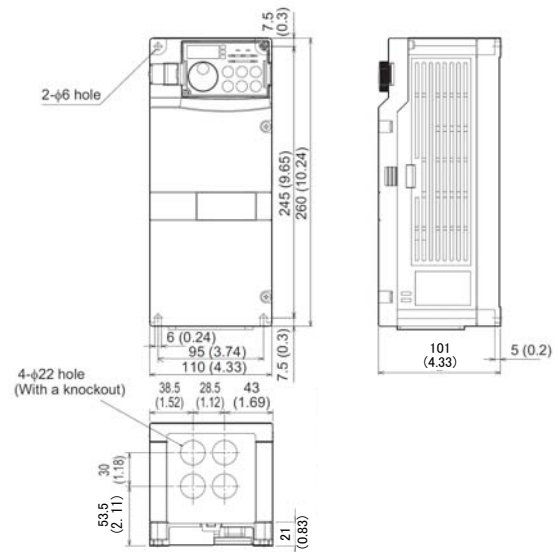
■ FR-Z220-0.75K, 1.5K
2-Φ7 hole



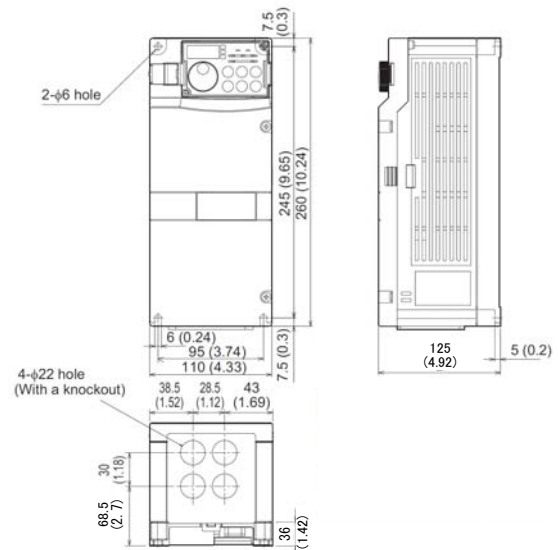
■ FR-Z220-2.2K, 3.7K
2-Φ7 hole



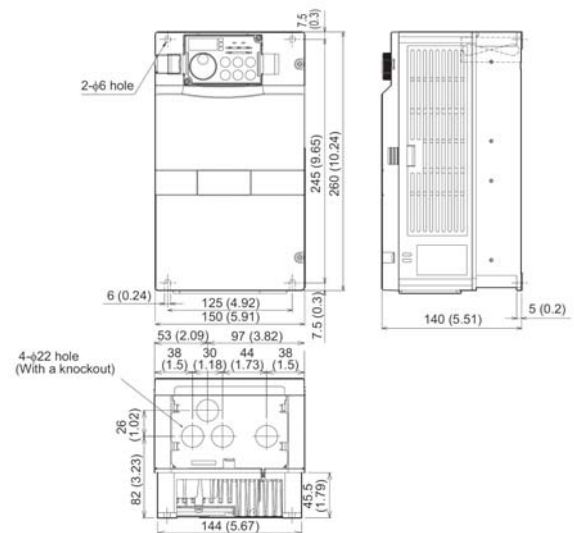
■ FR-A720-00030-NA



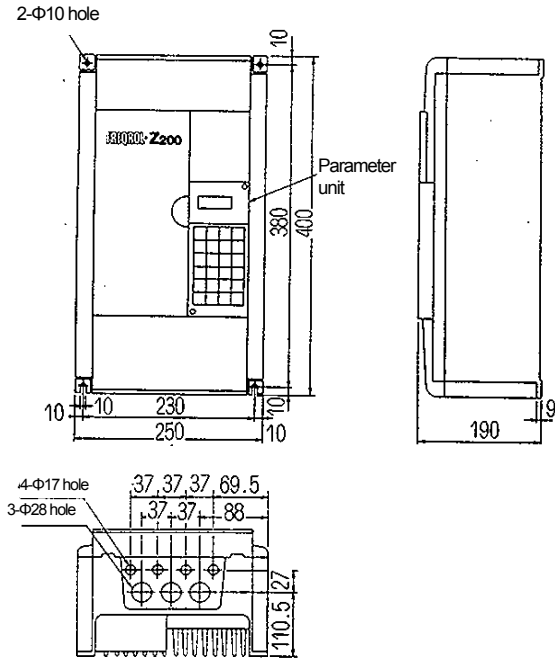
■ FR-A720-00050-NA



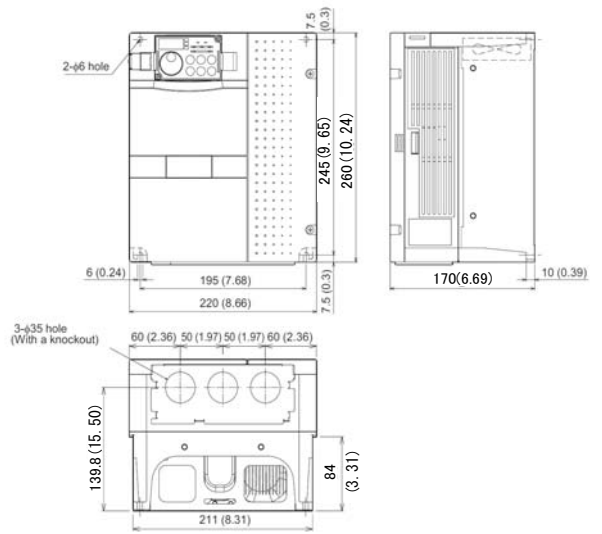
■ FR-A720-00080, 00110, 00175-NA



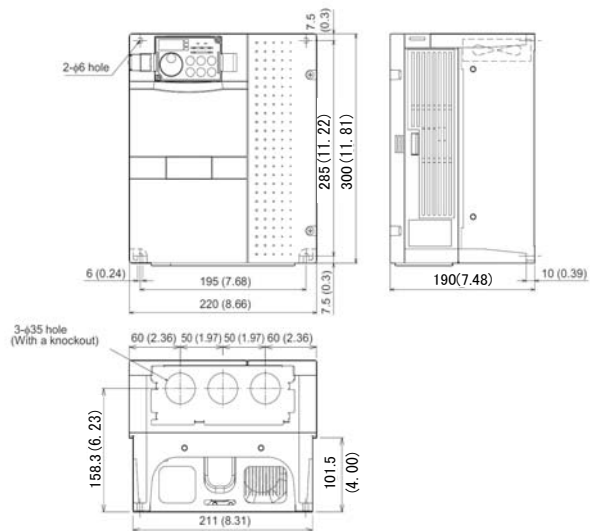
■ FR-Z220-5.5K, 7.5K, 11K



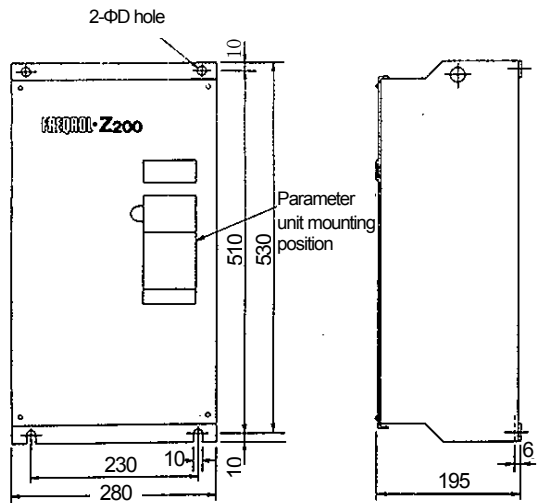
■ FR-A720-00240, 00330-NA



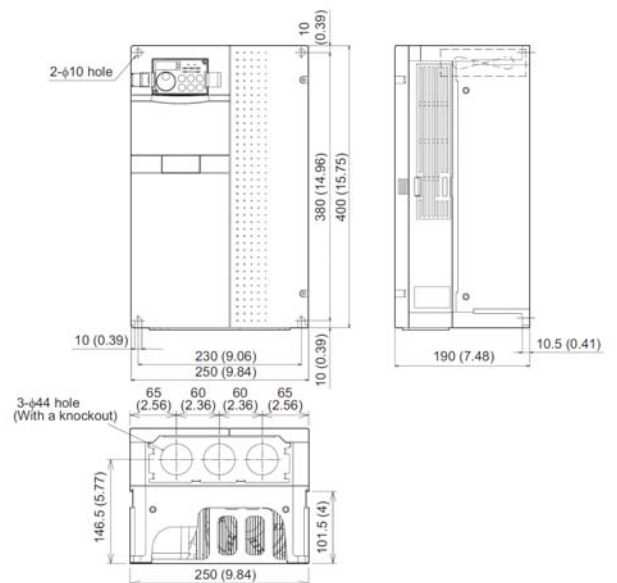
■ FR-A720-00460-NA



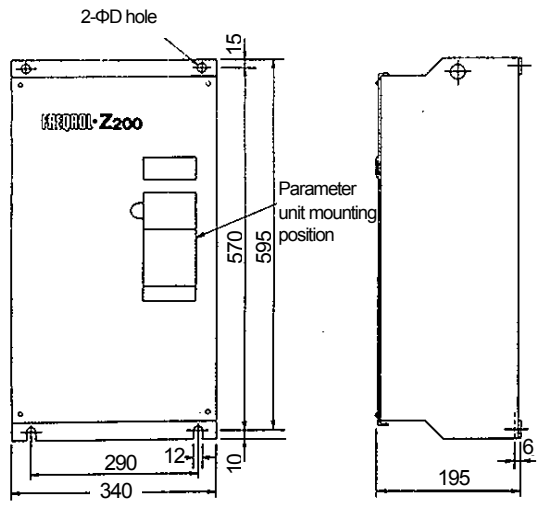
■ FR-Z220-15K



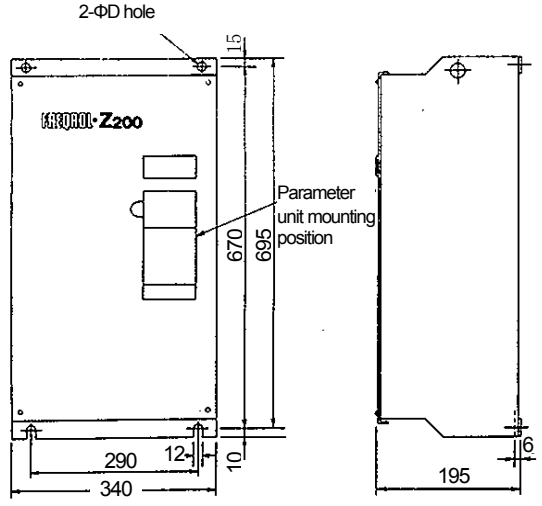
■ FR-A720-00610, 00760, 00900-NA



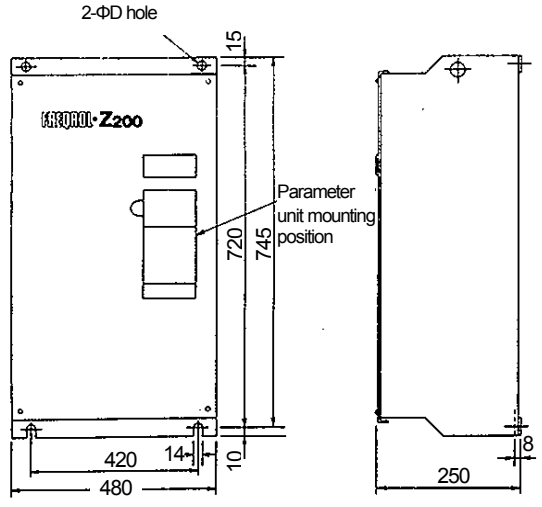
■ FR-Z220-22K



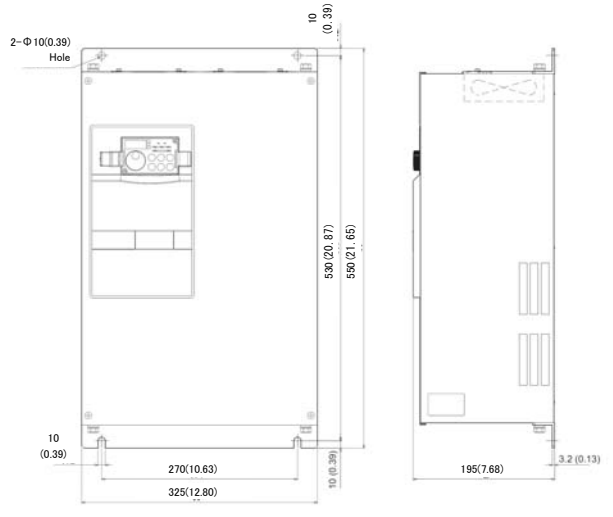
■ FR-Z220-30K



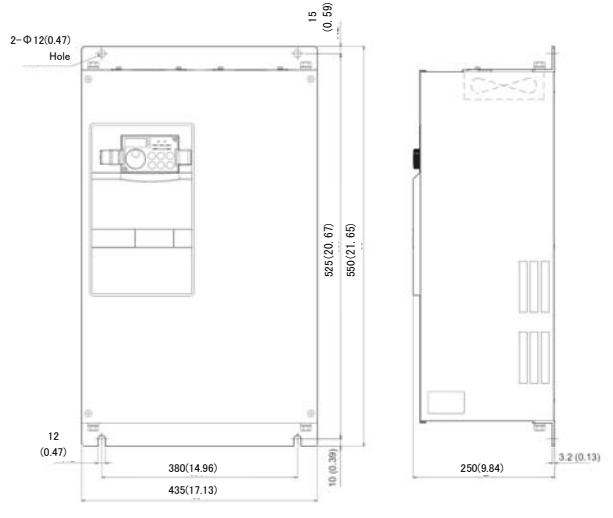
■ FR-Z220-37K



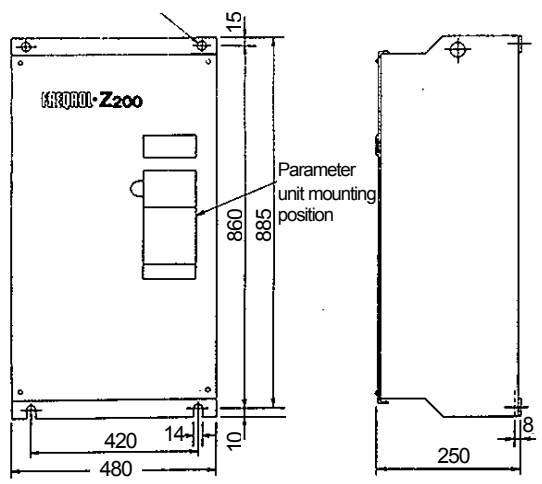
■ FR-A720-01150-NA



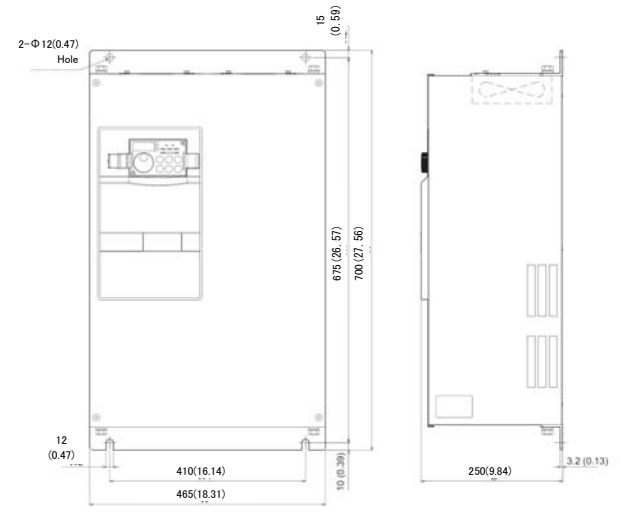
■ FR-A720-01450, 01750-NA



■ FR-Z220-45K, 55K
2-ΦD hole

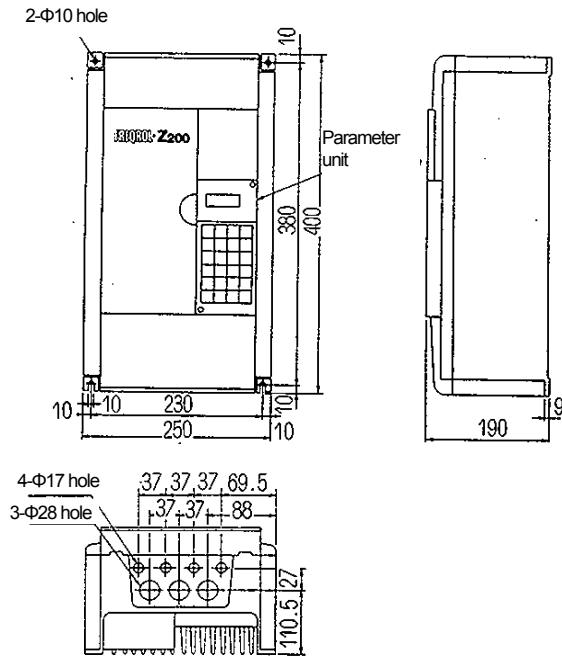


■ FR-A720-02150-NA

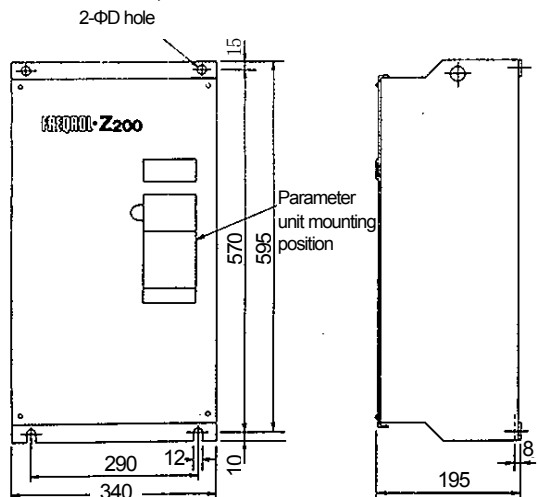


[400V class]

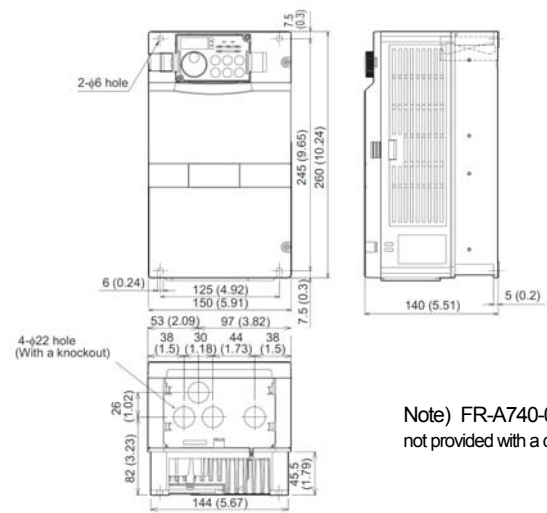
■ FR-Z240-2.2K, 3.7K, 7.5K



■ FR-Z240-15K, 22K

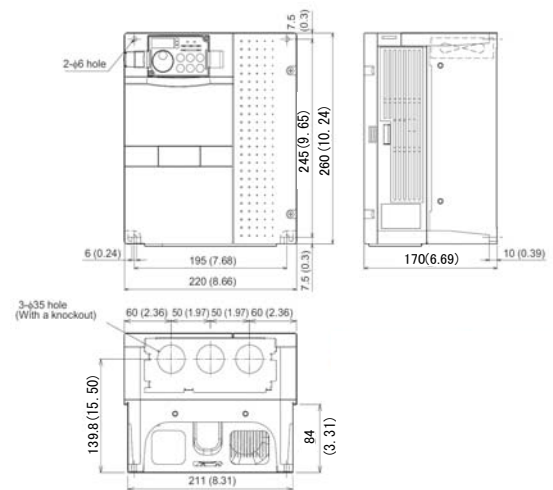


■ FR-A740-00040, 00060, 00090-NA

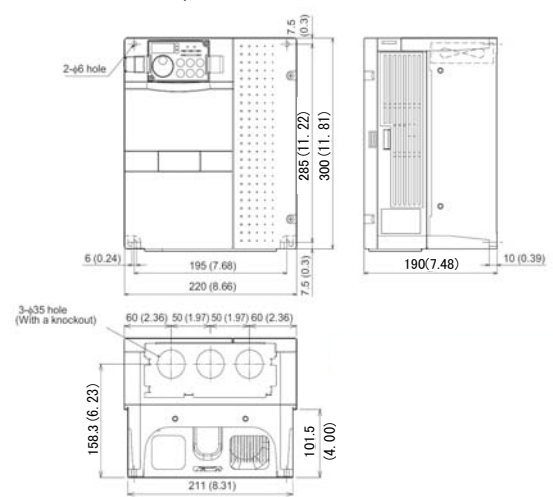


Note) FR-A740-00040-NA is not provided with a cooling fan.

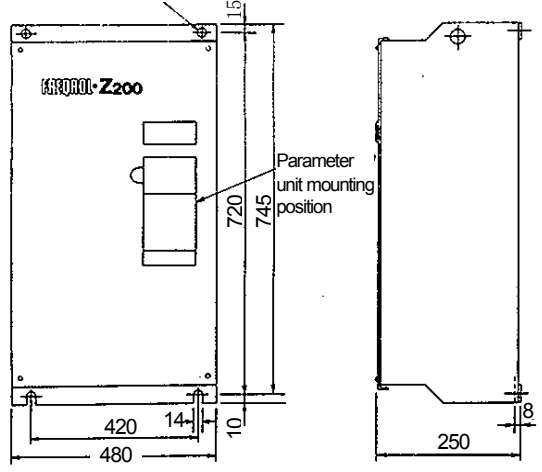
■ FR-A740-00120, 00170-NA



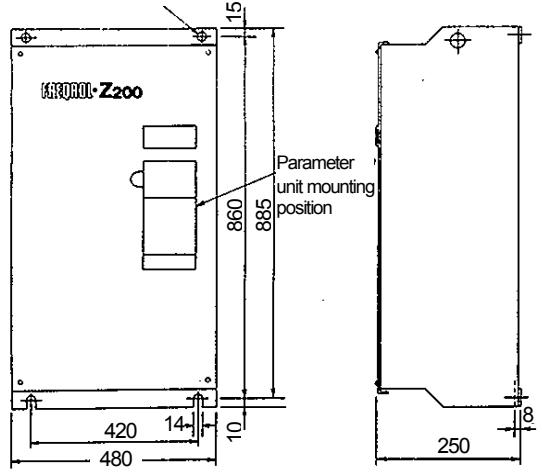
■ FR-A740-00230, 00310-NA



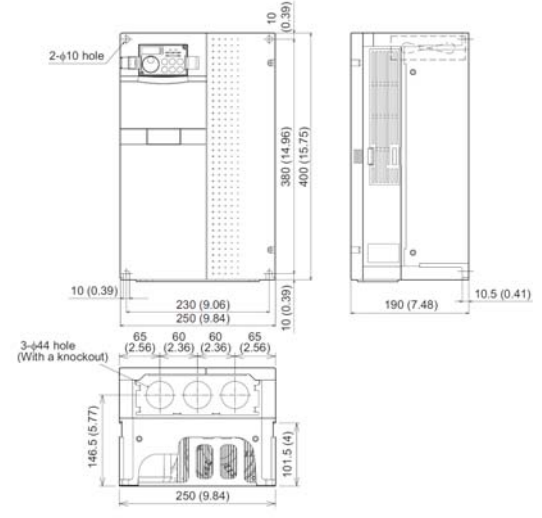
■ FR-Z240-37K
2-ΦD hole



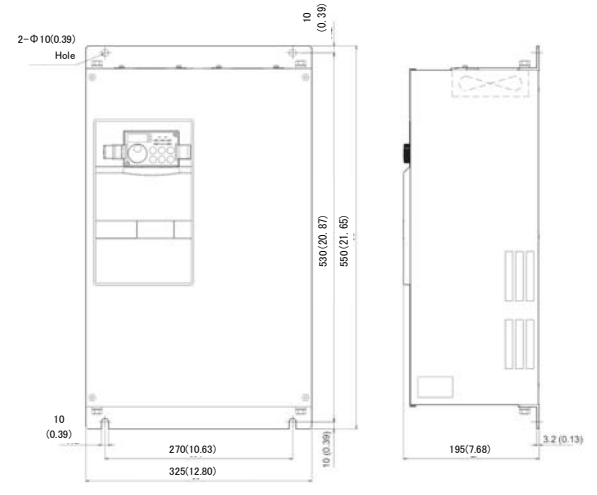
■ FR-Z240-55K
2-ΦD hole



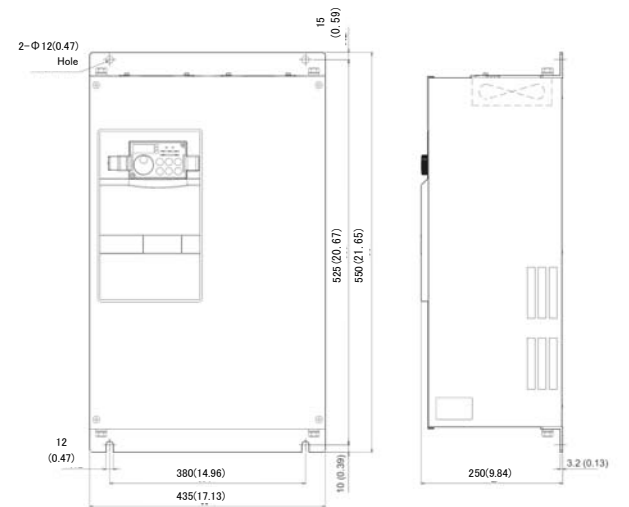
■ FR-A740-00380, 00440-NA



■ FR-A740-00570-NA



■ FR-A740-00710, 00860, 01100-NA



2. Connection

The terminal names are basically the same, so connect the terminals according to their names.

Type		Z200 Terminal Name	A700-NA Compatible Terminal Name	Remarks
Main circuit		R, S, T	R/L1, S/L2, T/L3	
		U, V, W	U, V, W	
		R1, S1	R1/L11, S1/L21	
		P, PR	P/+, PR	
		P, N	P/+, N/-	
		P, P1	P/+, P1	
		S200, R200		A700-NA does not have terminals S200 nor R200.
		⊕	⊕	
Control circuit/ input signal	Contact	STF	STF	
		STR	STR	
		STOP	STOP	
		RH	RH	
		RM	RM	
		RL	RL	
		JOG/OH	JOG	
		RT	RT	
		AU	AU	
		CS	CS	
		MRS	MRS	
		RES	RES	
SD	SD			
Analog	Frequency setting	10	10	
		2	2	
		4	4	
		1E, 1K	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		

Terminal arrangement of the main circuit terminals

This section shows the main circuit terminal arrangements of the FR-Z200 series and the FR-A700-NA series.

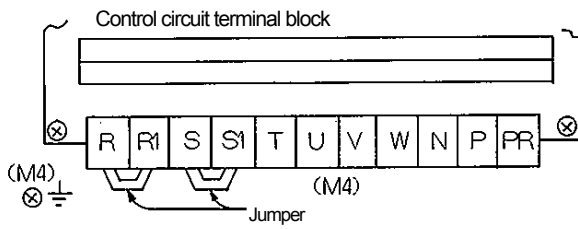
Main circuit terminal arrangements and earth (ground) terminal positions are different in some capacities. Check the terminal names and positions before wiring.

If the wiring cable, which has been used with the FR-Z200 series, is too short, change the wiring cable length.

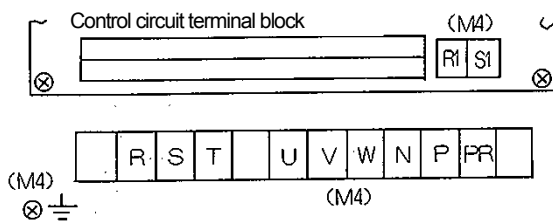
Terminal screw sizes are different in some capacities. Check the terminal screw sizes before wiring. To wire terminals CS and SD, also check the control circuit terminal arrangement.

[200V class]

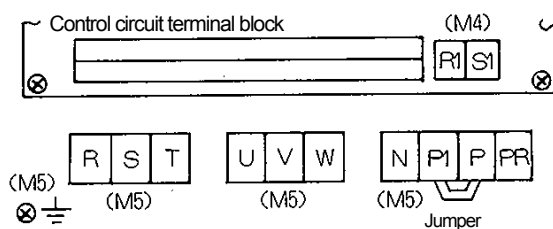
■ FR-Z220-0.4K, 0.75K, 1.5K



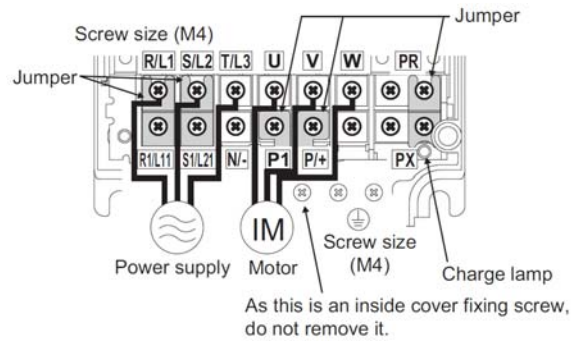
■ FR-Z220-2.2K, 3.7K



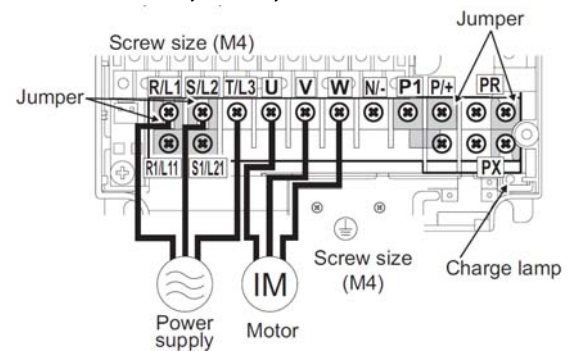
■ FR-Z220-5.5K, 7.5K



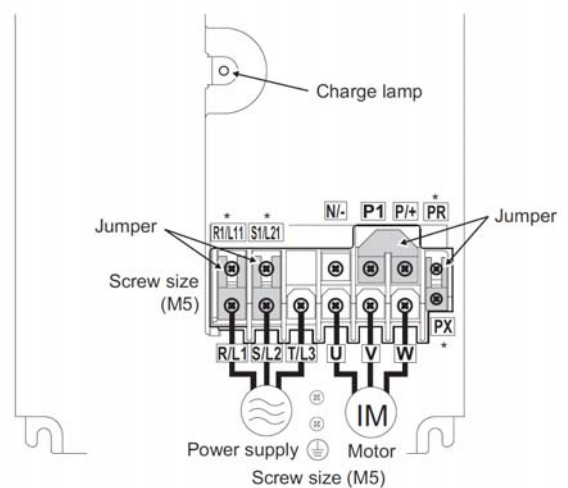
■ FR-A720-00030, 00050-NA



■ FR-A720-00080, 00110, 00175-NA

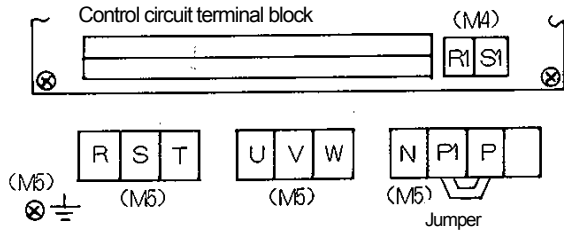


■ FR-A720-00240, 00330-NA

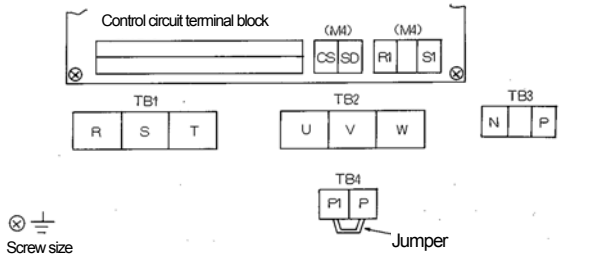


* Screw size of terminal R1/L11, S1/L21, PR, and PX is M4.

■ FR-Z220-11K

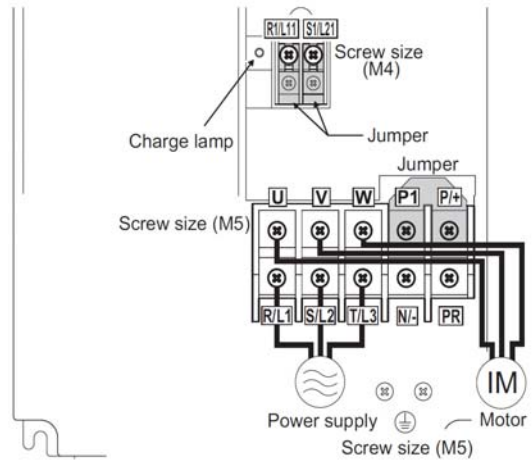


■ FR-Z220-15K, 22K, 30K, 37K, 45K, 55K

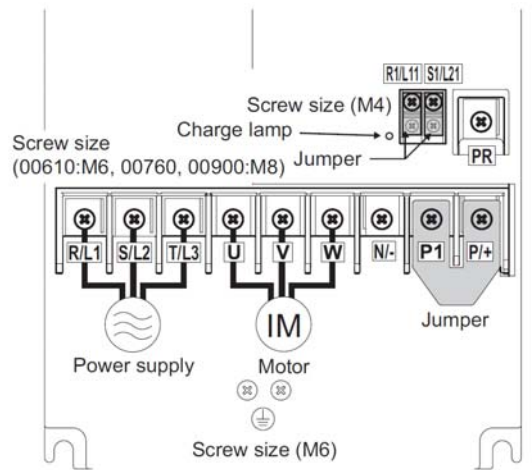


Inverter model	TB1	TB2	TB3	TB4	Earth (ground) terminal
FR-Z220-15K	M8	M8	M4	M8	M6
-22K	M8	M8	M4	M8	M6
-30K	M8	M8	M5	M8	M6
-37K	M10	M10	M5	M10	M8
-45K	M10	M10	M5	M10	M8
-55K	M12	M12	M5	M12	M8

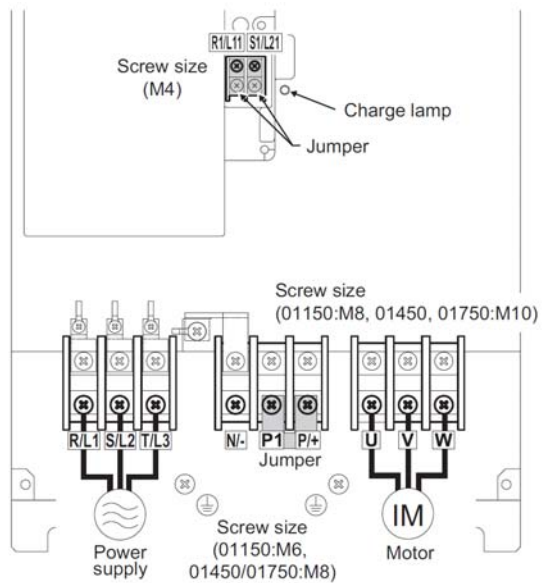
■ FR-A720-00460-NA



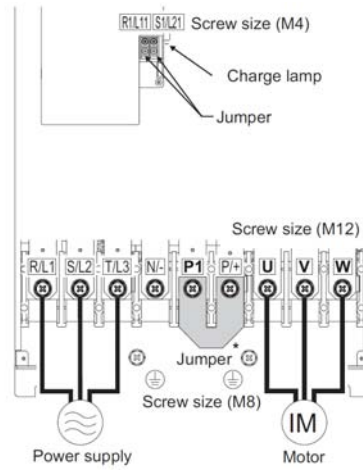
■ FR-A720-00610, 00760, 00900-NA



■ FR-A720-30K, 37K, 45K



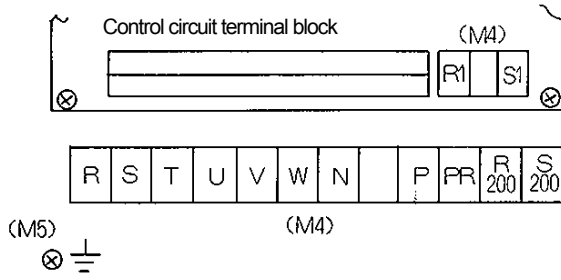
■ FR-A720-2150-NA



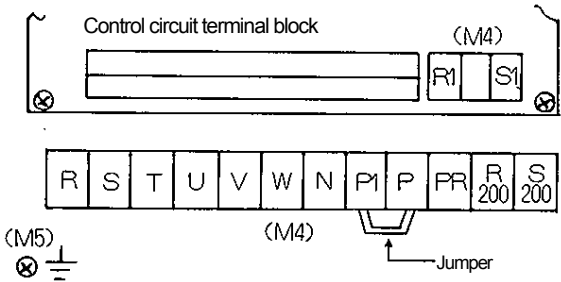
* When using the inverter with LD or SLD set, remove a jumper between P/+ and P1 and connect a DC reactor (option FR-HEL-75K).

[400V class]

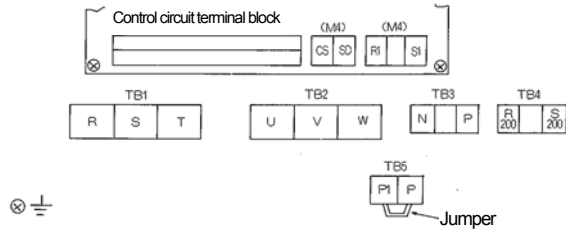
■ FR-Z240-2.2K, 3.7K



■ FR-Z240-7.5K



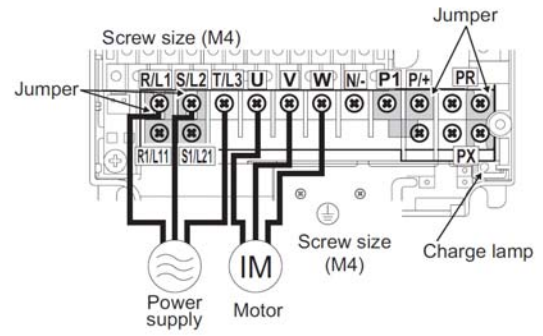
■ FR-Z240-15K, 18.5K, 22K



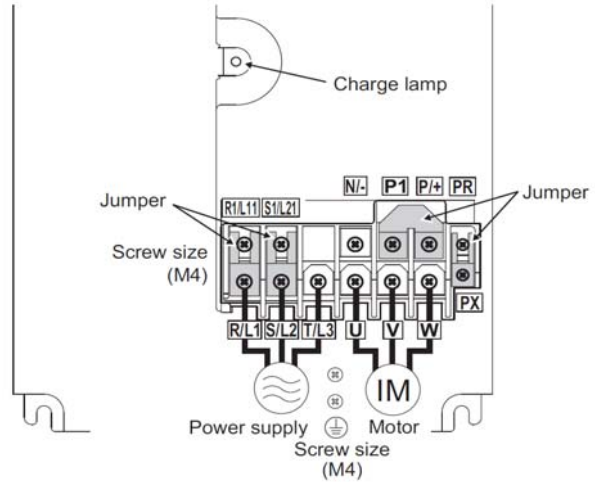
Screw size

Inverter model	TB1	TB2	TB3	TB4	TB5	Earth(ground) terminal
FR-Z240-15K	M6	M5	M5	M3.5	M6	M6
-22K	M6	M5	M5	M3.5	M6	M6
-37K	M8	M6	M5	M3.5	M8	M8
-55K	M8	M6	M5	M3.5	M8	M8

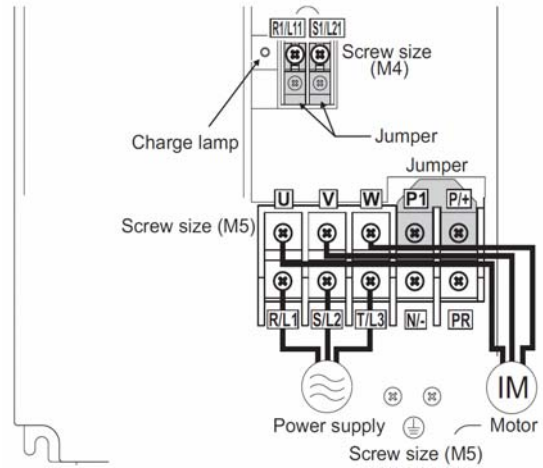
■ FR-A740-00040, 00060, 00090-NA



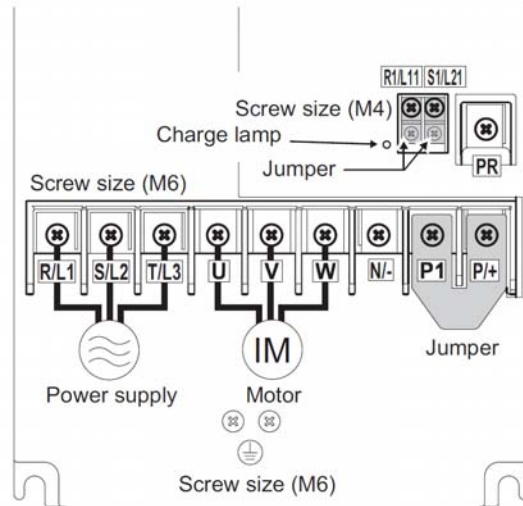
■ FR-A740-00120, 00170-NA



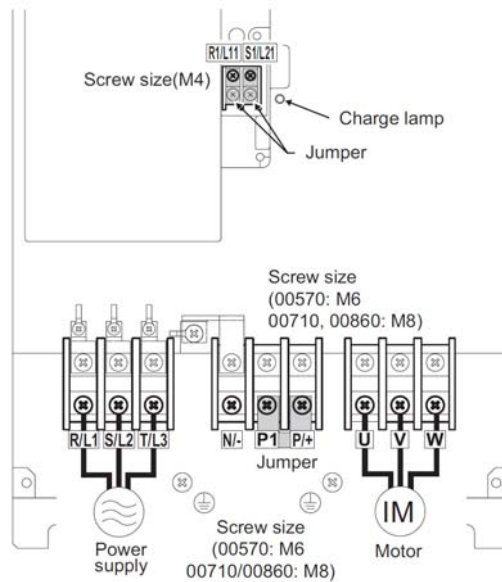
■ FR-A740-00230, 00310-NA



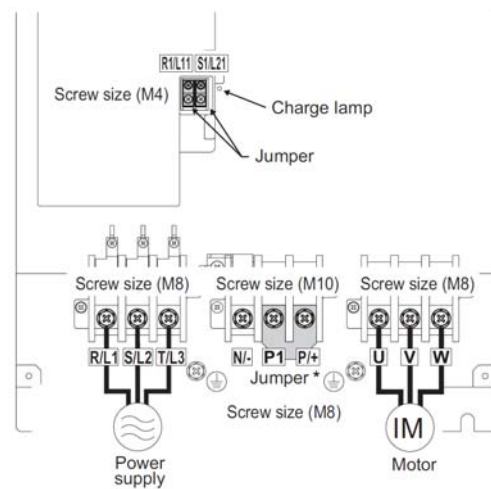
■ FR-A740-00380, 00440-NA



■ FR-A740-00570, 00710, 00860-NA



■ FR-A740-01100-NA



* When using the inverter with LD or SLD set, remove a jumper between P/+ and P1 and connect a DC reactor (option FR-HEL-H90K).

Control circuit terminal arrangement

This section shows the control circuit terminal arrangements of the FR-Z200 series and the FR-A700-NA series.

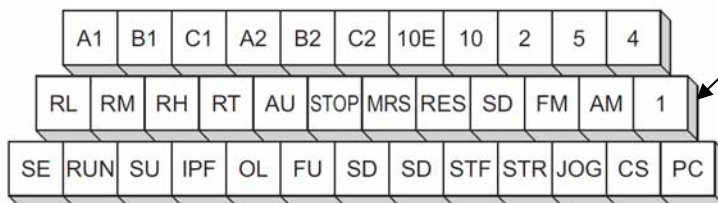
Control circuit terminal arrangements are different between the FR-Z200 series and the FR-A700-NA series. Check the terminal names and positions before wiring.

■ Control circuit terminal arrangement of the FR-Z200 series



Terminal screw size: M3.5

■ Control circuit terminal arrangement of the FR-A700-NA series



Terminal screw size: M3.5
Tightening torque: 1.2N·m

3. Parameter

Some of the parameter numbers and setting values are different. Set parameters according to the remarks.
For the parameters without remarks, set the same setting values.

FR-Z200		FR-A700-NA	
Parameter Number	Parameter Name	Parameter Number	Remarks
0	Torque boost (manual)	0	
1	Max. frequency limit	1	
2	Min. frequency limit	2	
3	V/F (base frequency)	3	
4	Multi-speed setting:1st (high speed)	4	
5	Multi-speed setting:2nd (middle speed)	5	
6	Multi-speed setting:3rd (low speed)	6	
7	Acceleration time	7	
8	Deceleration time	8	
9	Electronic thermal relay (overheat)	9	
10	PWM mode	72	Parameter number is different.
11	DC dynamic brake time	11	
12	DC dynamic brake voltage	12	
13	Starting frequency	13	
14	Load pattern selection	14	
15	JOG frequency	15	
16	JOG acceleration/deceleration time	16	
17	2nd acceleration/deceleration time	44	Parameter number is different.
18	High-speed maximum frequency limit	18	
19	Base frequency voltage	19	
20	Frequency at 5V input voltage	125	Parameter number is different.
21	Stall prevention level	22	Parameter number is different.
22	2nd stall prevention level (current)	48	Parameter number is different.
23	2nd stall prevention level (frequency)	49	Parameter number is different.
24	Multi-speed setting:4th	24	
25	Multi-speed setting:5th	25	
26	Multi-speed setting:6th	26	
27	Multi-speed setting:7th	27	
28	Multi-speed input correction	28	
29	Acceleration/deceleration pattern selection	29	
30	Regenerative brake duty	70	Parameter number is different. MYS-type brake resistor is not available. Select another braking option instead. Pr.70 (Regenerative brake duty) is valid when Pr.30 = 1(FR-ABR).

FR-Z200		FR-A700-NA	
Parameter Number	Parameter Name	Parameter Number	Parameter Name
31	Frequency jump 1A	31	
32	Frequency jump 1B	32	
33	Frequency jump 2A	33	
34	Frequency jump 2B	34	
35	Frequency jump 3A	35	
36	Frequency jump 3B	36	
37	Speed display	37	To display the rotation speed of the motor, set Pr.37 = 0 and Pr.144 = 102 to 110 (number of poles + 100).
38	FM terminal output basic frequency	55	Parameter number is different. The setting in this parameter is also valid for the terminal AM.
39	Frequency at 20mA input	126	Parameter number is different.
40	Torque boost (automatic)	-	Advanced magnetic flux vector control is available instead of the automatic torque boost. Set Pr.800 = 20, Pr.80 = motor capacity, and Pr.81 = number of motor poles to activate the Advanced magnetic flux vector control.
41	Reverse operation	73	Parameter number is different. Terminal 2 input / Terminal 1 input / Setting value (reversible polarity) 0 to 10V / 0 to ±10V / 0 (without) 10 (with) 0 to 5V / 0 to ±10V / 1 (without) 11 (with) 0 to 10V / 0 to ±5V / 2 (without) 12 (with) 0 to 5V / 0 to ±5V / 3 (without) 13 (with)
42	Up-to-frequency sensitivity	41	Parameter number is different.
43	Output frequency detection	42	Parameter number is different. The setting value 9999 is unavailable as there is no assigned function.
44	Output frequency detection during reverse operation	43	Parameter number is different.
45	DC dynamic brake frequency	10	Parameter number is different.
46	External thermal relay signal input	178 to 189	Parameter number is different. This parameter is valid when one of Pr.178 to 189 (terminal function selection) = 7. The parameter number differs according to the terminal used.
77	Parameter WRITE prohibition	77	
78	Reverse prevention	78	
79	Operation mode selection	79	
C-1	Frequency meter calibration	C0	Parameter number is different.
C-2	Bias for frequency reference voltage signal	C2	Parameter number is different.
C-3	Gain for frequency reference voltage signal	125	Parameter number is different.
C-4	Bias for frequency reference current signal	C5	Parameter number is different.
C-5	Gain for frequency reference current signal	126	Parameter number is different.

4. Option

4.1 Option

The following table shows which FR-Z200 series options are compatible with the FR-A700-NA series.

Name		Option Model	
		FR-Z200	FR-A700-NA
Plug-in type	Digital input unit	FR-ZDA (12-bit)	FR-A7AX (16-bit)
	Serial interface	FR-ZRS	Built into the inverter
	Load meter output unit	FR-ZLM	Built into the inverter
	Bypass operation / automatic restart at an instantaneous power failure unit	FR-ZNS	Built into the inverter
	Orientation control unit	FR-ZOR	FR-A7AP
	Encoder feedback unit	FR-ZPG	FR-A7AP
	PI control unit	FR-ZPI	Built into the inverter
	Relay output unit	FR-ZRA	FR-A7AR
	Data link unit	FR-ZDL	—
	Time schedule control unit/ real time clock unit	FR-ZTO FR-ZTA	—
	Torque smoothing unit	FR-ZTS	Built into the inverter
	Stand-alone type	Parameter unit	FR-PU01
Parameter unit connection cable		FR-CB01, 03, 05	FR-CB201, 203, 205
Operation panel connection connector		—	FR-ADP (This connector is used to connect FR-DU07 to the inverter with a cable.)
Power factor improving DC reactor		FR-BEL-(H)	Compatible
Power factor improving AC reactor		FR-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)	Compatible
Resistor unit		FR-BR-(H)	Compatible
FR-RC type power regeneration converter		FR-RC-(H)	Compatible
FR-CV type power regeneration common converter		FR-CV-(H)7.5K(-AT) to 55K	Compatible
FR-CV dedicated stand-alone reactor		FR-CVL-(H)7.5K to 55K	Compatible
Manual controller/speed controller	Manual controller with frequency meter	FR-AX	Compatible
	DC tach. follower	FR-AL	Compatible
	Three speed selector	FR-AT	Compatible
	Remote 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 1k Ω	Compatible
	Frequency meter	YM206NRI 1mA	Compatible
	Calibration resistor	RV24YN 10k Ω	Compatible