FR-A770 Series

Mitsubishi Electric's RSV technology gives you class-leading power, control and flexibility.

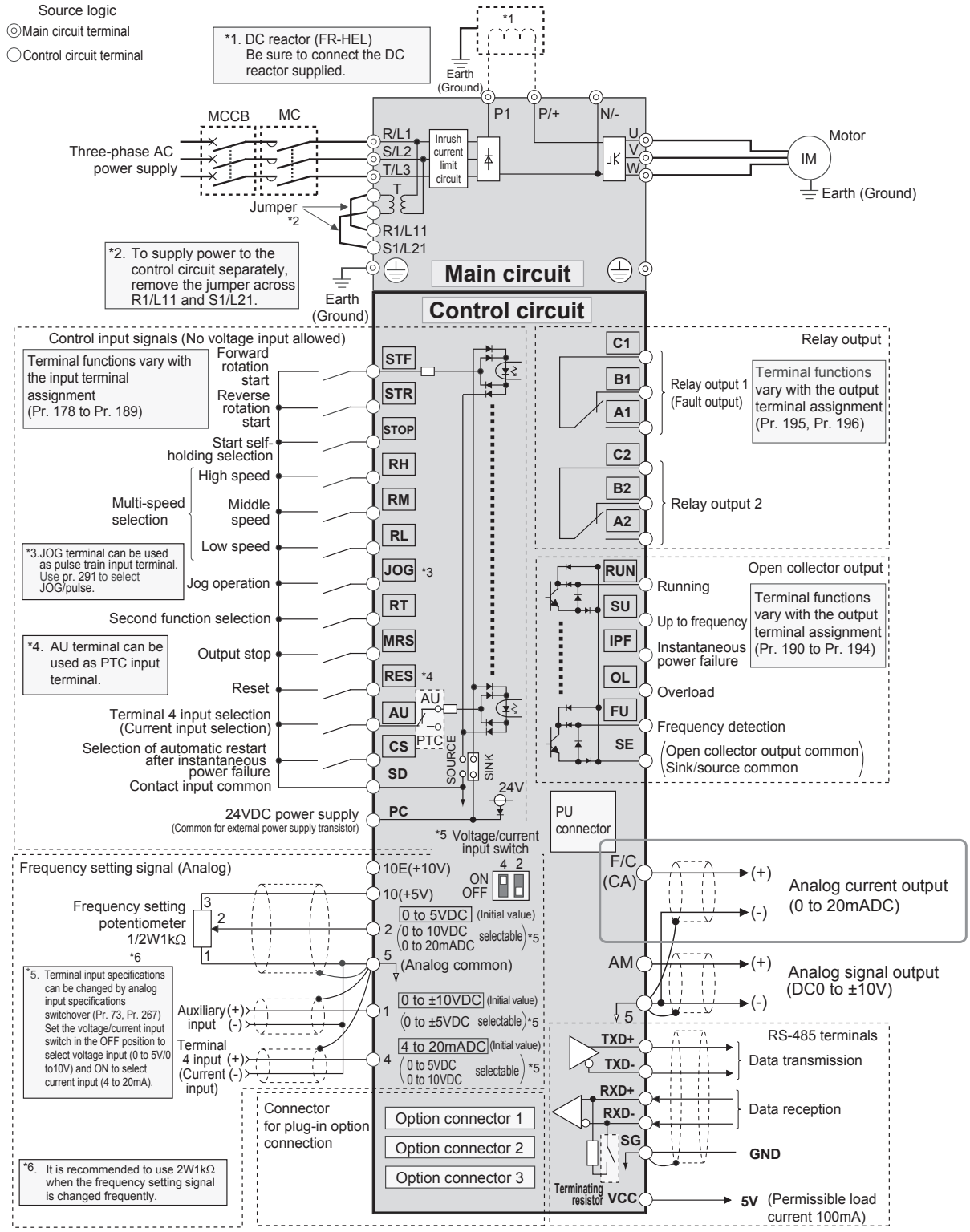
- Designed for use with 690V supplies
- **Wide Speed Range:** 200:1 operating range is possible - even when the drive is used 'open loop'
- **PLC Feature:** FR-A700 programmability provides true intelligence inside the drive – a simple solution for complex applications
- **Easy Gain Tuning:** Compensates automatically for changes in load inertia to ensure smooth and consistent operation
- **Fast Response:** Up to 300 radians / second speed response means lightning fast reaction to sudden load changes
- **USB Port:** Allows simple connection to the new FR-Configurator software for quick and easy commissioning
- **Power Down Braking:** Keeps the motor under control even if the supply power is lost
- **Remote I/O Capability:** All of the drive I/O can be read or controlled over a network
- **Integral Radio Filter:** Limits Radio Noise emissions to meet EU Directive – all sizes of drive
- **Speed Control:** With or without torque limit allows 200:1 speed range, driving or overhauling
- **Open Loop Torque Control:** Including torque at zero speed

FR-A770 Ratings 690V Class

ND (50°C)		Model Number	Frame Size	Cooling Method	Protective Rating	Regenerative Braking Torque / Max Value (Permissible Duty)	DC Link Reactor	Stocked Item
150% OL / 1 min								
200% OL / 3 sec.								
HP (*1)	FLA							
400	401 (344)	**FR-A770-79-355K**	P	Forced air cooling	IP00 (*2)	20% torque / continuous	Standard	S
700	611 (545)	**FR-A770-79-560K**						S

Notes:
1. Motor ratings shown are intended as guidelines only - based on 4 pole standard induction motors.
2. Conduit adapter option required for types 00550-03040.

FR-A770 Terminal Connection Diagram



Control Terminal Layout - FR-A770 drives have a 'CA' terminal (0-20 mA output)

A1	B1	C1	A2	B2	C2	10E	10	2	5	4	
RL	RM	RH	RT	AU	STOP	MRS	RES	SD	FM	AM	1
SE	RUN	SU	IPF	OL	FU	SD	SD	STF	STR	JOG	CS	PC

FR-A770 General Specifications

Operation Specifications	Control Method		Soft-PWM control/high carrier frequency PWM control (selectable from among V/F control, advanced magnetic flux vector control and real sensorless vector control) / vector control (when used with option FR-A7AP) (*1)
	Output Frequency Range		0.2 to 400Hz
	Frequency Setting Resolution	Analog Input	0.015Hz/0 to 60Hz (terminal 2, 4: 0 to 10V/12 bit); 0.03Hz/0 to 60Hz (terminal 2, 4: 0 to 5V/11 bit, 0 to 20mA/about 11 bit, terminal 1: 0 to ±10V/12 bit) 0.06Hz/0 to 60Hz (terminal 1: 0 to ±5V/11 bit)
		Digital Input	0.01Hz
	Frequency Accuracy	Analog Input	Within ±0.2% of the max. output frequency (25°C ±10°C)
		Digital Input	Within 0.01% of the set output frequency
	Voltage / Frequency Characteristics		Base frequency can be set from 0 to 400Hz Constant torque/variable torque pattern or adjustable 5 points V/F can be selected
	Starting Torque		200% 0.3Hz (up to frame size C), 150% 0.3Hz (Frame Size D and above) (under real sensorless vector control or vector control)
	Torque Boost		Manual torque boost
	Acceleration / Deceleration Time Setting		0 to 3600s (acceleration and deceleration can be set individually), linear or S-pattern acceleration/deceleration mode, backlash measures acceleration/deceleration can be selected.
	DC Injection Brake		Operation frequency (0 to 120Hz), operation time (0 to 10s), operation voltage (0 to 30%) variable
	Stall Prevention Operation Level		Operation current level can be set (0 to 220% adjustable), whether to use the function or not can be selected
	Torque Limit Level		Torque limit value can be set (0 to 400% variable)
	Frequency Setting Signal	Analog Input	Terminal 2: 4: 0 to 10V, 0 to 5V, 4 to 20mA can be selected • Terminal 1:-10 to +10V, -5 to +5V can be selected
		Digital Input	Input using the setting dial of the operation panel or parameter unit. Four-digit BCD or 16 bit binary (when used with option FR-A7AX)
	Start Signal		Forward and reverse rotation or start signal automatic self-holding input (3-wire input) can be selected.
	Input Signal		Select any twelve signals using Pr. 178 to Pr. 189 (input terminal function selection) from among multi speed selection, remote setting, stop-on-contact, second function selection, third function selection, terminal 4 input selection, JOG operation selection, selection of automatic restart after instantaneous power failure, flying start, external thermal relay input, inverter operation enable signal (FR-HC/FR-CV connection), FR-HC connection (instantaneous power failure detection), PU operation/external inter lock signal, external DC injection brake operation start, PID control enable terminal, brake opening completion signal, PU operation/external operation switchover, load pattern selection forward rotation reverse rotation boost, V/F switching, load torque high-speed frequency, S-pattern acceleration/deceleration C switchover, pre-excitation, output stop, start self-holding selection, control mode changing, torque limit selection, start-time tuning start external input, torque bias selection 1, 2 (*1), P/PI control switchover, forward rotation command, reverse rotation command, inverter reset, PTC thermistor input, PID forward reverse operation switchover, PU-NET operation switchover, NET-external operation switchover, and command source switchover, conditional position pulse train sign (*1), conditional position droop pulse clear (*1).
	Pulse Train Input		100kpps
	Operational Functions		Maximum/minimum frequency setting, frequency jump operation, external thermal relay input selection, polarity reversible operation, automatic restart after instantaneous power failure operation, commercial power supply-inverter switchover operation, forward/reverse rotation prevention, remote setting, brake sequence, second function, third function, multi-speed operation, original operation continuation at instantaneous power failure, stop-on-contact control, load torque high speed frequency control, droop control, regeneration avoidance, slip compensation, operation mode selection, offline auto tuning function, online auto tuning function, PID control, computer link operation (RS-485), motor end orientation (*1), machine end orientation (*1), pre-excitation, notch filter, machine analyzer (*1), easy gain tuning, speed feed forward, and torque bias (*1)
	Output Signals	Operating Status	Select any signals using Pr. 190 to Pr. 196 (output terminal function selection) from among inverter running, up-to-frequency, instantaneous power failure/undervoltage, overload warning, output frequency (speed) detection, second output frequency (speed) detection, third output frequency (speed) detection, regenerative brake prealarm, electronic thermal relay function pre-alarm, PU operation mode, inverter operation ready, output current detection, zero current detection, PID lower limit, PID upper limit, PID forward rotation reverse rotation output, commercial power supply-inverter switchover MC1, commercial power supply-inverter switchover MC2, commercial power supply-inverter switchover MC3, orientation completion (*1), brake opening request, fan fault output, heatsink overheat pre-alarm , inverter running/start command on, deceleration at an instantaneous power failure, PID control activated, during retry, PID output interruption, life alarm, alarm output 1, 2, 3 (power-off signal), power savings average value update timing, current average monitor, maintenance timer alarm, remote output, forward rotation output (*1), reverse rotation output (*1), low speed output, torque detection, regenerative status output (*1), start-time tuning completion, in-position completion (*1), minor failure output and alarm output. Open collector output (5 points), relay output (2 points) and alarm code of the inverter can be output (4 bit) from the open collector.
		Using FR-A7AY, FR-A7AR (Optional)	In addition to the above, select any signals using Pr. 313 to Pr. 319 (extension output terminal function selection) from among control circuit capacitor life, main circuit capacitor life, cooling fan life, inrush current limit circuit life (only positive logic can be set for extension terminals of the FR-A7AR).
	Pulse Train Input		500kpps
	Pulse / Analog Output		Select any signals using Pr. 54 FM terminal function selection (pulse train output) and Pr. 158 AM terminal function selection (analog output) from among output frequency, motor current (steady or peak value), output voltage, frequency setting, operation speed, motor torque, converter output voltage (steady or peak value), electronic thermal relay function load factor, input power, output power, load meter, motor excitation current, reference voltage output, motor load factor, power saving effect, regenerative brake duty, PID set point, PID measured value, motor output, torque command, torque current command, and torque monitor.
Indication	PU (FR-DU07 / FR-PU07)	Operating Status	Output frequency, motor current (steady or peak value), output voltage, frequency setting, running speed,motor torque, overload, converter output voltage (steady or peak value), electronic thermal relay function load factor, input power, output power, load meter, motor excitation current, cumulative energization time, actual operation time, motor load factor, cumulative power, energy saving effect, cumulative saving power, regenerative brake duty, PID set point, PID measured value, PID deviation, inverter I/O terminal monitor, input terminal option monitor (*2), output terminal option monitor (*2), option fitting status (*3), terminal assignment status (*3), torque command, torque current command, feed back pulse (*1), motor output
		Alarm Definition	Alarm definition is displayed when the protective function is activated, the output voltage/current/frequency/cumulative energization time right before the protection function was activated and past 8 alarm definitions are stored.
		Interactive Guidance	Operation guide/trouble shooting with a help function (*3)
Protective / Warning Function			Overcurrent during acceleration, overcurrent during constant speed, overcurrent during deceleration, overvoltage during acceleration, overvoltage during constant speed, overvoltage during deceleration, inverter protection thermal operation, motor protection thermal operation, heatsink overheat, instantaneous power failure occurrence, undervoltage, input phase failure, motor overload, output side earth (ground) fault overcurrent, output short circuit, main circuit element overheat, output phase failure, external thermal relay operation, PTC thermistor operation, option alarm, parameter error, PU disconnection, retry count excess, CPU alarm, operation panel power supply short circuit, 24VDC power output short circuit, output current detection value excess, inrush current limit circuit alarm, communication alarm (inverter), USB error, opposite rotation deceleration error, analog input error, fan fault, overcurrent stall prevention, overvoltage stall prevention, regenerative brake prealarm, electronic thermal relay function prealarm, PU stop, maintenance timer alarm (*2), brake transistor alarm, parameter write error, copy operation error, operation panel lock, parameter copy alarm, speed limit indication, encoder no-signal (*1), speed deviation large (*1), overspeed (*1), position error large (*1), encoder phase error (*1)
Environment	Ambient Temperature		-10°C to +50°C (non-freezing)
	Ambient Humidity		90%RH maximum (non-condensing)
	Storage Temperature (*4)		-20°C to +65°C
	Atmosphere		Indoors (without corrosive gas, flammable gas, oil mist, dust and dirt etc.)
	Altitude / Vibration		Maximum 1000m above sea level, 0.6 G or less (conforms to JIS C 60068-2-6) (*5)

Notes:
1. Available only when the option (FR-A7AP) is mounted
2. Can be displayed only on the operation panel (FR-DU07).
3. Can be displayed only on the parameter unit (FR-PU07).
4. Temperature applicable for a short period in transit, etc.
5. 2.9m/s^2 or less for the FR-A740-03250 or more.

FR-A770 Options

Function / Options

		Model No.	Stocked Item
Function	120VAC Control Input	FR-A7AC	S
	Analog I/O	FR-A7AN	S
	Encoder Feedback	FR-A7AP	S
	Encoder Pulse Dividing Output	FR-A7AL	S
	Relay Output	FR-A7AR	S
	12 Bit Digital Input	FR-A7AX	S
	Digital Output	FR-A7AY	S
	Ext. Analog Output		
	BiPolar Analog Output	FR-A7AZ	-
	High Res Analog Input		
	Motor Thermistor		
Communication	CC-Link®	FR-A7NC	S
	ControlNET™	FR-A7NCN	S
	DeviceNet™	FR-A7ND	S
	EtherNet/IP™	FR-A7NE	S
	LONWORKS®	FR-A7NL	S
	PROFIBUS® DP	FR-A7NP	S
	SSCNET III	FR-A7NS	S

Software

Model Number	Description	Stocked Item
FR-CONFIGURATOR	Programming and diagnostic software	S

Building Management Options

	Network Type/Model	A7NETH-2P	FR-A7N-XLT
Direct Option	BACnet®/IP	X	-
	EtherNet/IP™	X	-
	MODBUS® TCP	X	-
	PROFINET® IO	X	-
Gateway Option	BACnet® MS/TP	-	X
	Metasys® N2	-	X
	Siemens FLN (P1)	-	X
	Stocked Item	S	S

Parameter Units / Parameter Copy Units

Parameter units are used for operator control, reading and writing parameters, and drive monitoring. Parameter Copy Units also read the drive parameter settings and copy them into non-volatile memory, and can write them into other drives.

Model Number	Description	Stocked Item
FR-CB201	Extension cable straight plugs on both ends - 1M	S
FR-CB203	Extension cable straight plugs on both ends - 3M	S
FR-CB205	Extension cable straight plugs on both ends - 5M	S
FR-DU07	Control Panel for A700	S
FR-PU07	LCD Multi-lingual Parameter Copy Unit (English, French, Spanish, German, Italian, Swedish, Finnish, Japanese) for operator control, parameter read/write and monitoring. Stores settings in non-volatile memory. Built-in parameter copy capability. (F/A700 based)	S
FR-ADP	FR-DU07 panel mounting adapter	S
SC-FRPC	Serial communication cable	S
FR-PU07BB-L	Battery powered PU07	S
FR-RJ45-HUB4	Serial network hub - 2 stations	-
FR-RJ45-HUB10	Serial network hub - 8 stations	-
FR-RJ45-TR	Terminating resistor For FR-RJ45-HUB	-

FR-A701 Series

Vector VFD with built-in Line Regeneration.

- Ideal for applications with continuous overhauling or large inertia loads
- **Capacity:** up to 75HP for 240V and 480V applications
- Braking torque
  - 100% continuous
  - 150% for up to 60 sec.
- **Vector Mode with Encoder:** Allows speed, torque and position control
- **Real Sensorless Mode:** allows speed and torque control without encoder
- **Starting Torque:** 150% at 0.3Hz
- 2 serial ports (RS-485) and 1 USB port
- 3 option ports for plug-in network or function expansion options
- 12 programmable digital inputs (sink/source selectable)
- 5 programmable digital outputs (sink/source selectable)
- 2 form C relays
- 3 analog inputs
- Terminal 2 (0~5VDC, 0~10VDC, 0~20mA selectable)
- Terminal 1 (0 to ±5VDC or 0 to ±10VDC selectable)
- Terminal 4 (0~5VDC, 0~10VDC, 4~20mA selectable)
- 2 analog outputs (0~10VDC and pulse train out)
- MODBUS® RTU and Mitsubishi VFD serial protocol communications
- UL and cUL listed. CE marked (480V version only)

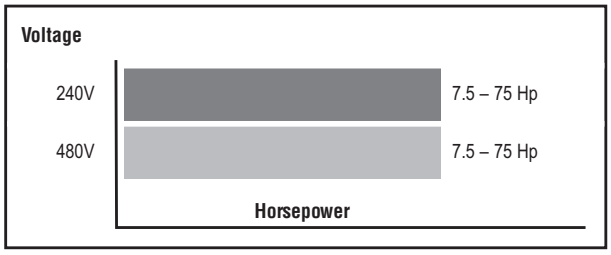
FR- ❶ **-** ❷

❶ Max Load Capacity

Symbol	Voltage Class
A721	3-phase 240V class
A741	3-phase 480V class

❷ Capacity

Symbol
Inverter capacity kW 5.5K = 5.5kW 0.746kW = 1HP



FR-A701 Ratings

Note: There is no PLC function as included in the standard FR-A700

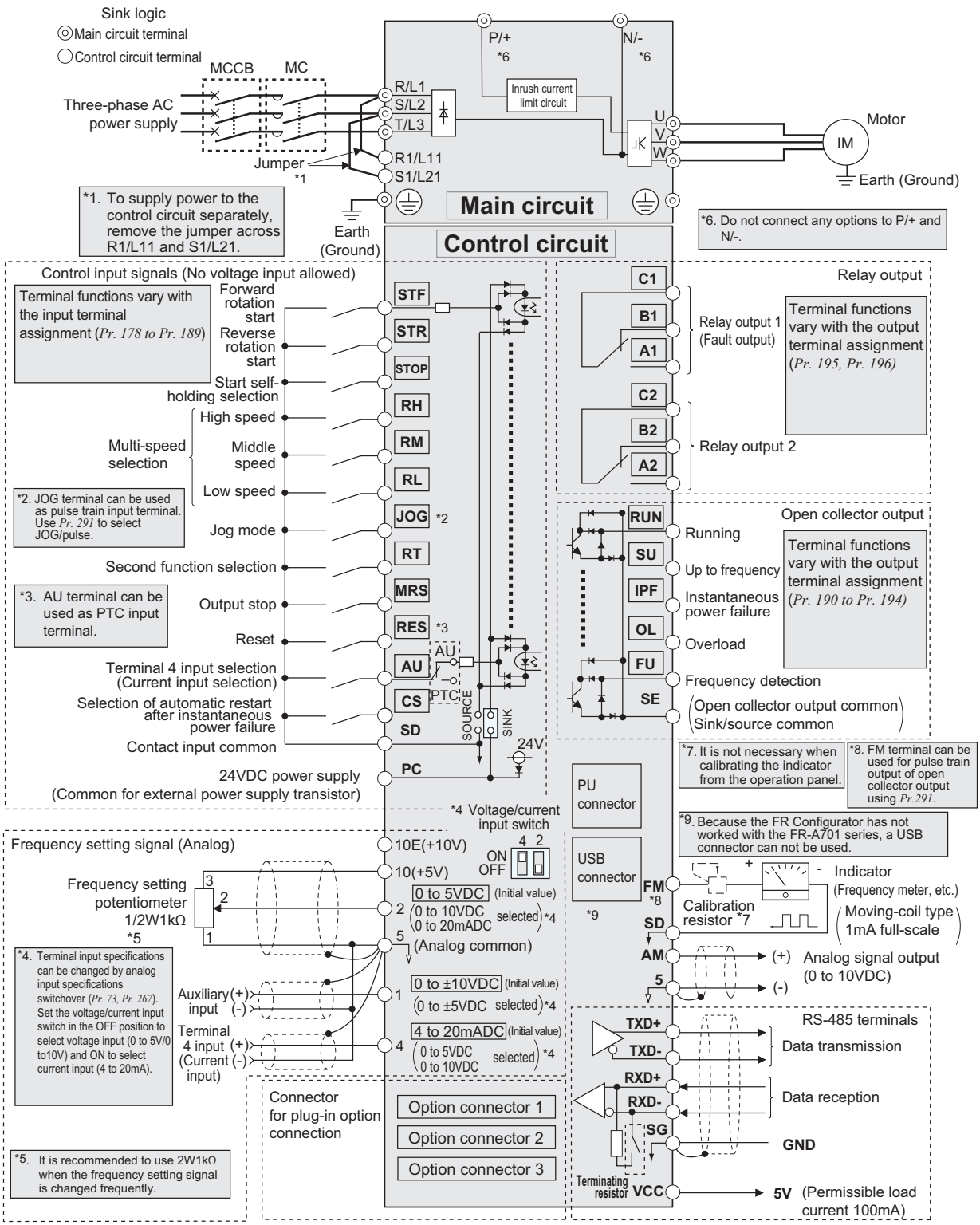
Rating (CT & VT)		IP00 Open Chassis Model Number	Dimensions in Inches (mm)			Weight Lbs (kg)	Stocked Item
HP	Rated Amps		Height	Width	Depth		
3-Phase 200~240VAC Input & Output							
7.5	24	**FR-A721-5.5K**	18.5 (470)	9.9 (250)	10.7 (270)	44.1 (20)	-
10	33	**FR-A721-7.5K**	18.5 (470)	9.9 (250)	10.7 (270)	48.5 (22)	-
15	46	**FR-A721-11K**	21.6 (540)	11.9 (300)	11.6 (294)	72.7 (33)	-
20	61	**FR-A721-15K**	21.6 (540)	11.9 (300)	11.6 (294)	77.1 (35)	-
25	76	**FR-A721-18.5K**	23.7 (600)	15.4 (390)	12.6 (320)	110.2 (50)	-
30	90	**FR-A721-22K**	23.7 (600)	15.4 (390)	12.6 (320)	114.6 (52)	-
40	115	**FR-A721-30K**	27.6 (700)	17.8 (450)	13.4 (340)	152.0 (69)	-
50	145	**FR-A721-37K**	27.6 (700)	18.5 (470)	14.5 (368)	191.7 (87)	-
60	175	**FR-A721-45K**	27.6 (700)	18.5 (470)	14.5 (368)	198.3 (90)	-
75	215	**FR-A721-55K**	35.5 (900)	23.7 (600)	16.0 (405)	264.4 (120)	-
3-Phase 380~480VAC Input & Output							
7.5	12	**FR-A741-5.5K**	18.5 (470)	9.9 (250)	10.7 (270)	55.1 (25)	-
10	17	**FR-A741-7.5K**	18.5 (470)	9.9 (250)	10.7 (270)	57.3 (26)	-
15	23	**FR-A741-11K**	21.6 (540)	11.9 (300)	11.6 (294)	81.5 (37)	-
20	31	**FR-A741-15K**	21.6 (540)	11.9 (300)	11.6 (294)	88.1 (40)	-
25	38	**FR-A741-18.5K**	23.7 (600)	14.2 (360)	12.6 (320)	105.8 (48)	-
30	44	**FR-A741-22K**	23.7 (600)	14.2 (360)	12.6 (320)	108.0 (49)	-
40	57	**FR-A741-30K**	27.6 (700)	17.8 (450)	13.4 (340)	143.2 (65)	-
50	71	**FR-A741-37K**	27.6 (700)	18.5 (470)	14.5 (368)	176.3 (80)	-
60	86	**FR-A741-45K**	27.6 (700)	18.5 (470)	14.5 (368)	182.9 (83)	-
75	110	**FR-A741-55K**	35.5 (900)	23.7 (600)	16.0 (405)	253.3 (115)	-

FR-A701 General Specifications

Operation Specifications	Control Method		Soft-PWM control/high carrier frequency PWM control (selectable from among V/F control, advanced magnetic flux vector control and real sensorless vector control) / vector control (*1)
	Output Frequency Range		0.2 to 400Hz (The maximum frequency is 120Hz under real sensorless vector control and vector control.) (*1)
	Frequency Setting Resolution	Analog Input	0.015Hz/0 to 60Hz (terminal 2, 4: 0 to 10V/12bit); 0.03Hz/0 to 60Hz (terminal 2, 4: 0 to 5V/11bit, 0 to 20mA/about 11bit, terminal 1: 0 to ±10V/12bit); 0.06Hz/0 to 60Hz (terminal 1: 0 to ±5V/11bit)
		Digital Input	0.01Hz
	Frequency Accuracy	Analog Input	Within ±0.2% of the max. output frequency (25°C ±10°C)
		Digital Input	Within 0.01% of the set output frequency
	Voltage / Frequency Characteristics		Base frequency can be set from 0 to 400Hz Constant torque/variable torque pattern or adjustable 5 points V/F can be selected
	Starting Torque		150% 0.3Hz (under real sensorless vector control or vector control) (*1)
	Torque Boost		Manual torque boost
	Acceleration / Deceleration Time Setting		0 to 3600s (acceleration and deceleration can be set individually), linear or S-pattern acceleration/deceleration mode, backlash measures acceleration/deceleration can be selected.
	DC Injection Brake		Operation frequency (0 to 120Hz), operation time (0 to 10s), operation voltage (0 to 30%) variable
	Stall Prevention Operation Level		Operation current level can be set (0 to 220% adjustable), whether to use the function or not can be selected
	Torque Limit Level		Torque limit value can be set (0 to 400% variable)
	Frequency Setting Signal	Analog Input	Terminal 2, 4: 0 to 10V, 0 to 5V, 4 to 20mA (0 to 20mA) can be selected • Terminal 1: -10 to +10V, -5 to +5V can be selected
		Digital Input	Input using the setting dial of the operation panel or parameter unit; Four-digit BCD or 16 bit binary (when used with option FR-A7AX)
	Start Signal		Forward and reverse rotation or start signal automatic self-holding input (3-wire input) can be selected.
	Input Signal		You can select any twelve signals using Pr. 178 to Pr. 189 (input terminal function selection) from among multi speed selection, remote setting, stop-on-contact, second function selection, third function selection, terminal 4 input selection, JOG operation selection, selection of automatic restart after instantaneous power failure, flying start, external thermal relay input, PU operation/external inter lock signal , external DC injection brake operation start, PID control enable terminal, brake opening completion signal, PU operation/external operation switchover, load pattern selection forward rotation reverse rotation boost, V/F switching, load torque high-speed frequency, S-pattern acceleration/deceleration C switchover, pre-excitation, output stop, start self-holding selection, control mode changing, torque limit selection, start-time tuning start external input, torque bias selection 1, 2 (*1), P/PI control switchover, forward rotation command, reverse rotation command, inverter reset, PTC thermistor input, PID forward reverse operation switchover, PU-NET operation switchover, NET-external operation switchover, and command source switchover, conditional position pulse train sign (*1), conditional position droop pulse clear (*1), magnetic flux decay output shutoff.
	Pulse Train Input		100kpps
	Operational Functions		Maximum/minimum frequency setting, frequency jump operation, external thermal relay input selection, polarity reversible operation, automatic restart after instantaneous power failure operation, electronic bypass operation, forward/reverse rotation prevention, remote setting, brake sequence, second function, third function, multi-speed operation, original operation continuation at instantaneous power failure, stop-on-contact control, load torque high speed frequency control, droop control, regeneration avoidance, slip compensation, operation mode selection, offline auto tuning function, online auto tuning function, PID control, computer link operation (RS-485), motor end orientation (*1), pre-excitation, notch filter, easy gain tuning, speed feed forward, and torque bias (*1)
	Output Signals	Operating Status	You can select any signals using Pr. 190 to Pr. 196 (output terminal function selection) from among inverter running, up-to-frequency, instantaneous power failure/undervoltage, overload warning, output frequency (speed) detection, second output frequency (speed) detection, third output frequency (speed) detection, electronic thermal relay function pre-alarm, PU operation mode, inverter operation ready, output current detection, zero current detection, PID lower limit, PID upper limit, PID forward rotation reverse rotation output, electronic bypass MC1, electronic bypass MC2, electronic bypass MC3, orientation complete (*1), brake opening request, fan fault output, heatsink overheat pre-alarm , inverter running/start command on, deceleration at an instantaneous power failure, PID control activated, during retry, PID output interruption, life alarm, fault output 1, 2, 3 (power-off signal), power savings average value update timing, current average monitor, maintenance timer alarm, remote output, forward rotation output (*1), reverse rotation output (*1), low speed output, torque detection, regenerative status output (*1), start-time tuning completion, in-position completion (*1), alarm output and fault output. Open collector output (5 points), relay output (2 points) and alarm code of the inverter can be output (4 bit) from the open collector.
		When Used with the FR-A7AY, FR-A7AR (Optional)	In addition to the above, you can select any signals using Pr. 313 to Pr. 319 (extension output terminal function selection) from among control circuit capacitor life, main circuit capacitor life, cooling fan life, inrush current limit circuit life. (only positive logic can be set for extension terminals of the FR-A7AR)
	Pulse Train Input		500kpps
	Pulse / Analog Output		Select any signals using Pr. 54 FM terminal function selection (pulse train output) and Pr. 158 AM terminal function selection (analog output) from among output frequency, motor current (steady or peak value), output voltage, frequency setting, operation speed, motor torque, converter output voltage (steady or peak value), electronic thermal relay function load factor, input power, output power, load meter, motor excitation current, reference voltage output, motor load factor, power saving effect, PID set point, PID measured value, motor output, torque command, torque current command, and torque monitor.
Indication	PU (FR-DU07 / FR-PU07)	Operating Status	Output frequency, motor current (steady or peak value), output voltage, frequency setting, running speed, motor torque, overload, converter output voltage (steady or peak value), electronic thermal relay function load factor, input power, output power, load meter, motor excitation current, cumulative energization time, actual operation time, motor load factor, cumulative power, energy saving effect, cumulative saving power, PID set point, PID measured value, PID deviation, inverter I/O terminal monitor, input terminal option monitor (*2), output terminal option monitor (*2), option fitting status (*3), terminal assignment status (*3), torque command, torque current command, feed back pulse (*1),motor output
		Fault Definition	Fault definition is displayed during the fault occurs, the output voltage/current/frequency/cumulative energization time right before the fault occurs and past 8 fault definitions are stored.
		Interactive Guidance	Operation guide/trouble shooting with a help function (*3)
Protective / Warning Function			Overcurrent during acceleration, overcurrent during constant speed, overcurrent during deceleration, overvoltage during acceleration, overvoltage during constant speed, overvoltage during deceleration, inverter protection thermal operation, motor protection thermal operation, heatsink overheat, instantaneous power failure occurrence, undervoltage, input phase failure, motor overload, output side earth (ground) fault overcurrent, output short circuit, main circuit element overheat, output phase failure, external thermal relay operation (*5), PTC thermistor operation (*5), option alarm, parameter error, PU disconnection, retry count excess (*5), CPU alarm, operation panel power supply short circuit, 24VDC power output short circuit, output current detection value excess (*5), inrush current limit circuit alarm, communication alarm (inverter), opposite rotation deceleration error*5, analog input error, fan fault, overcurrent stall prevention, overvoltage stall prevention, electronic thermal relay function prealarm, PU stop, maintenance timer alarm (*2) (*5), parameter write error, copy operation error, operation panel lock, parameter copy alarm, speed limit indication, signal loss detection (*1) (*5), speed deviation large (*1) (*5), overspeed (*1) (*5), excessive position error (*1) (*5), brake sequence error (*5), encoder phase error (*1) (*5), regeneration converter overcurrent, regeneration converter circuit fault, regeneration converter transistor protection thermal
Environment	Ambient Temperature		-10°C to +50°C (non-freezing)
	Ambient Humidity		90%RH maximum (non-condensing)
	Storage Temperature (*4)		-20°C to +65°C
	Atmosphere		Indoors (without corrosive gas, flammable gas, oil mist, dust and dirt etc.)
	Altitude / Vibration		Maximum 1000m above sea level, 5.9m/s^2 or less

Notes:
1. Available only when the option (FR-A7AP) is mounted.
2. Can be displayed only on the operation panel (FR-DU07).
3. Can be displayed only on the parameter unit (FR-PU07).
4. Temperature applicable for a short period in transit, etc.
5. This protective function does not function in the initial status.

FR-A701 Terminal Connection Diagram



FR-A701 Control Terminal Layout

A1	B1	C1	A2	B2	C2	10E	10	2	5	4	
RL	RM	RH	RT	AU	STOP	MRS	RES	SD	FM	AM	1
SE	RUN	SU	IPF	OL	FU	SD	SD	STF	STR	JOG	CS	PC

FR-A701 Options

Function/Options

		Model Number	Stocked Item
Function	120VAC Control Input	FR-A7AC	S
	Analog I/O	FR-A7AN	S
	Encoder Feedback	FR-A7AP	S
	Encoder Pulse Dividing Output	FR-A7AL	S
	Relay Output	FR-A7AR	S
	12 Bit Digital Input	FR-A7AX	S
	Digital Output	FR-A7AY	S
	Ext. Analog Output		
	BiPolar Analog Output	FR-A7AZ	-
	High Res Analog Input		
	Motor Thermistor		
Communication	CC-Link®	FR-A7NC	S
	ControlNet (*1)	FR-A7NCN	S
	DeviceNet™	FR-A7ND	S
	EtherNet/IP™ (*1)	FR-A7NE	S
	LONWORKS®	FR-A7NL	S
	PROFIBUS DP®	FR-A7NP	S
	SSCNET III	FR-A7NS	S

Note 1: FR-A701 Series supports only the above listed plug-in options. Those options not listed cannot be used with the FR-A701 Series.

Parameter Units / Parameter Copy Units

Parameter units are used for operator control, reading and writing parameters, and drive monitoring. Parameter Copy Units also read the drive parameter settings and copy them into non-volatile memory, and can write them into other drives.

Model Number	Description	Stocked Item
FR-CB201	Extension cable straight plugs on both ends - 1 meter	S
FR-CB203	Extension cable straight plugs on both ends - 3 meters	S
FR-CB205	Extension cable straight plugs on both ends - 5 meters	S
FR-DU07	Control Panel	S
FR-PU07	LCD Multi-lingual Parameter Copy Unit (English, French, Spanish, German, Italian, Swedish, Finnish, Japanese) for operator control, parameter read/write and monitoring. Stores settings in non-volatile memory. Built-in parameter copy capability. (F/A700 based)	S
FR-ADP	FR-DU07 panel mounting adapter	S
SC-FRPC	Serial Communication Cable	S
FR-PU07BB-L	Battery Powered PU07	S
FR-RJ45-HUB4	Serial Network Hub - 2 Stations	-
FR-RJ45-HUB10	Serial Network Hub - 8 Stations	-
FR-RJ45-TR	Terminating Resistor for FR-RJ45-HUB	-

Building Management Options

	Network Type/Model	A7NETH-2P	FR-A7N-XLT
Direct Option	BACnet®/IP	X	-
	EtherNet/IP™	X	-
	MODBUS® TCP	X	-
	PROFINET® IO	X	-
Gateway Option	BACnet® MS/TP	-	X
	Metasys® N2	-	X
	Siemens FLN (P1)	-	X
	Stocked Item	S	S

Software

Model Number	Description	Stocked Item
FR-CONFIGURATOR	Programming and diagnostic software (Ver. 3.20 or greater)	S