



7.1 Rating

7.1.1 Inverter rating

●200V class

Type FR-A720-□□□□-NA	00030	00050	00080	00110	00175	00240	00330	00460	00610	00760	00900	01150	01450	01750	02150	02880	03460	
Applicable motor capacity for ND (kW) *1	0.4	0.75	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90	
Rated capacity (kVA) *2	1.1	1.9	3.1	4.2	6.7	9.2	12.6	17.6	23.3	29	34	44	55	67	82	110	132	
Output Rated current (A) *3	SLD	4.6	7.7	10.5	16.7	24	34	49	63	77	93	125 ^{*10}	154	187	233	316	380 (323)	475 (403)
	LD	4.2	7.0	9.6	15.2	23	31	45	58	70	85	114 ^{*10}	140	170	212	288	346 (294)	432 (367)
	ND	3	5	8	11	17.5	24	33	46	61	76	90	115	145	175	215	288 (244)	346 (294)
	HD	1.5	3	5	8	11	17.5	24	33	46	61	76	90	115	145	175	215 (182)	288 (244)
Overload current rating *4	SLD	110% 60s, 120% 3s (inverse time characteristics) ambient temperature 40°C																
	LD	120% 60s, 150% 3s (inverse time characteristics) ambient temperature 50°C																
	ND	150% 60s, 200% 3s (inverse time characteristics) ambient temperature 50°C																
	HD	200% 60s, 250% 3s (inverse time characteristics) ambient temperature 50°C																
Voltage *5	Three-phase 200 to 240V																	
Regenerative braking torque	Maximum value/ permissible duty	150% torque/ 3%ED			100% torque/ 3%ED			100% torque/ 2%ED			20% torque/ continuous *6			20% torque/ continuous			10% torque/ continuous	
	Rated input AC voltage/frequency	Three-phase 200 to 220V 50Hz, 200 to 240V 60Hz																
Permissible AC voltage fluctuation	170 to 242V 50Hz, 170 to 264V 60Hz																	
Permissible frequency fluctuation	±5%																	
Power supply capacity (kVA) *7	1.5	2.5	4.5	5.5	9	12	17	20	28	34	41	52	66	80	100	110	132	
Protective structure *9	Open type (NEMA1)							Enclosed type (UL type1 Plenum Rated) *8				Open type (IP00)						
Cooling system	Self-cooling			Forced air cooling														
Approx. mass (kg)	1.9	2.3	3.8	3.8	3.8	7.1	7.1	7.5	13	13	14	23	35	35	58	70	70	

*1. The applicable motor capacity indicated is the maximum capacity applicable for use of the Mitsubishi 4-pole standard motor.

*2. The rated output capacity indicated assumes that the output voltage is 220V.

*3. When operating the inverter of 02880 or more with a value larger than 2kHz set in *Pr. 72 PWM frequency selection*, the rated output current is the value in parenthesis.

*4. The % value of the overload current rating indicates the ratio of the overload current to the inverter's rated output current. For repeated duty, allow time for the inverter and motor to return to or below the temperatures under 100% load.

*5. The maximum output voltage does not exceed the power supply voltage. The maximum output voltage can be changed within the setting range. However, the pulse voltage value of the inverter output side voltage remains unchanged at about $\sqrt{2}$ that of the power supply.

*6. For the 00460 to 00900 capacities, using the dedicated external brake resistor (FR-ABR) will achieve the performance of 100% torque/6%ED.

*7. The power supply capacity varies with the value of the power supply side inverter impedance (including those of the input reactor and cables).

*8. When the hook of the inverter front cover is cut off for installation of the plug-in option, the inverter changes to an open type (IP00).

*9. FR-DU07:IP40 (except for the PU connector)

*10. Protective structure of SLD and LD rating of FR-A720-00900-NA is IP00 due to vending space.

The conduit plate needs to remove at SLD and LD.

●400V class

Type FR-A740-□□□□-NA		00015	00025	00040	00060	00090	00120	00170	00230	00310	00380	00430	00570	00710	00860	01100	
Applicable motor capacity for ND (kW) *1		0.4	0.75	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55	
Output	Rated capacity (kVA) *2	1.1	1.9	3	4.6	6.9	9.1	13	17.5	23.6	29	32.8	43.4	54	65	84	
	Rated current (A)	SLD	2.3	3.8	5.2	8.3	12.6	17	25	31	38	47	62	77	93	116	180
		LD	2.1	3.5	4.8	7.6	11.5	16	23	29	35	43	57	70	85	106	144
		ND	1.5	2.5	4	6	9	12	17	23	31	38	44	57	71	86	110 ^{*10}
		HD	0.8	1.5	2.5	4	6	9	12	17	23	31	38	44	57	71	86 ^{*10}
	Overload current rating *4	SLD	110% 60s, 120% 3s (inverse time characteristics) ambient temperature 40°C														
		LD	120% 60s, 150% 3s (inverse time characteristics) ambient temperature 50°C														
ND		150% 60s, 200% 3s (inverse time characteristics) ambient temperature 50°C															
HD		200% 60s, 250% 3s (inverse time characteristics) ambient temperature 50°C															
Voltage *5		Three-phase 380 to 480V															
Regenerative braking torque	Maximum value/ permissible duty	100% torque/2%ED						20% torque/continuous *6				20% torque/continuous					
Rated input AC voltage/frequency		Three-phase 380 to 480V 50Hz/60Hz															
Permissible AC voltage fluctuation		323 to 528V 50Hz/60Hz															
Permissible frequency fluctuation		±5%															
Power supply capacity (kVA) *7		1.5	2.5	4.5	5.5	9	12	17	20	28	34	41	52	66	80	100	
Protective structure *9		Open type (IP00)						Enclosed type (Plenum Rated) *8				Open type (IP00)					
Cooling system		Self-cooling					Forced air cooling										
Approx. mass (kg)		3.5	3.5	3.5	3.5	3.5	6.5	6.5	7.5	7.5	13	13	23	35	35	37	

Type FR-A740-□□□□-NA		01440	01880	02160	02600	03250	03610	04320	04810	05470	06100	06830	07700	08660	09620	
Applicable motor capacity for ND (kW) *1		75	90	110	132	160	185	220	250	280	315	355	400	450	500	
Output	Rated capacity (kVA) *2	110	137	165	198	248	275	329	367	417	465	521	587	660	733	
	Rated current (A)*3	SLD	216 (183)	260 (221)	325 (276)	361 (306)	432 (367)	481 (408)	547 (464)	610 (518)	683 (580)	770 (654)	866 (736)	962 (817)	1094 (929)	1212 (1030)
		LD	180 (153)	216 (183)	260 (221)	325 (276)	361 (306)	432 (367)	481 (408)	547 (464)	610 (518)	683 (580)	770 (654)	866 (736)	962 (817)	1094 (929)
		ND	144 (122)	180 (153)	216 (183)	260 (221)	325 (276)	361 (306)	432 (367)	481 (408)	547 (464)	610 (518)	683 (580)	770 (654)	866 (736)	962 (817)
		HD	110 (93)	144 (122)	180 (153)	216 (183)	260 (221)	325 (276)	361 (306)	432 (367)	481 (408)	547 (464)	610 (518)	683 (580)	770 (654)	820 (697)
	Overload current rating *4	SLD	110% 60s, 120% 3s (inverse time characteristics) ambient temperature 40°C													
		LD	120% 60s, 150% 3s (inverse time characteristics) ambient temperature 50°C													
ND		150% 60s, 200% 3s (inverse time characteristics) ambient temperature 50°C														
HD		200% 60s, 250% 3s (inverse time characteristics) ambient temperature 50°C														
Voltage*5		Three-phase 380 to 480V														
Regenerative braking torque	Maximum value/ permissible duty	10% torque/continuous														
Rated input AC voltage/frequency		Three-phase 380 to 480V 50Hz/60Hz														
Permissible AC voltage fluctuation		323 to 528V 50Hz/60H														
Permissible frequency fluctuation		±5%														
Power supply capacity (kVA) *7		110	137	165	198	248	275	329	367	417	465	521	587	660	733	
Protective structure *9		Open type (IP00)														
Cooling system		Forced air cooling														
Approx. mass (kg)		50	57	72	72	110	110	175	175	175	260	260	370	370	370	

*1. The applicable motor capacity indicated is the maximum capacity applicable for use of the Mitsubishi 4-pole standard motor.
 *2. The rated output capacity indicated assumes that the output voltage is 440V.
 *3. When operating the inverter of 01440 or more with a value larger than 2kHz set in Pr. 72 PWM frequency selection, the rated output current is the value in parenthesis.
 *4. The % value of the overload current rating indicates the ratio of the overload current to the inverter's rated output current. For repeated duty, allow time for the inverter and motor to return to or below the temperatures under 100% load.
 *5. The maximum output voltage does not exceed the power supply voltage. The maximum output voltage can be changed within the setting range. However, the pulse voltage value of the inverter output side voltage remains unchanged at about $\sqrt{2}$ that of the power supply.
 *6. For the 00230 to 00430 capacities, using the dedicated external brake resistor (FR-ABR) will achieve the performance of 100% torque/6%ED.
 *7. The power supply capacity varies with the value of the power supply side inverter impedance (including those of the input reactor and cables).
 *8. When the hook of the inverter front cover is cut off for installation of the plug-in option, the inverter changes to an open type (IP00).
 *9. FR-DU07:IP40 (except for the PU connector)
 *10. DC reactor does not have to be used.



7.2 Common specifications

Control 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/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		200% 0.3Hz (0.4K to 3.7K), 150% 0.3Hz (5.5K or more) (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)		
Operation specifications	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 signals		You can select any twelve signals using <i>Pr. 178 to Pr. 189 (input terminal function selection)</i> 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		You can select any signals using <i>Pr. 190 to Pr. 196 (output terminal function selection)</i> 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.
		When used with the FR-A7AY, FR-A7AR (option)		In addition to the above, you can select any signals using <i>Pr. 313 to Pr. 319 (extension output terminal function selection)</i> 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 output		50kpps
		Pulse/analog output		You can select any signals using <i>Pr. 54 FM terminal function selection (pulse train output)</i> and <i>Pr. 158 AM terminal function selection (analog output)</i> 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/FR-PU04)	Operating status		
		Alarm definition		
		Interactive guidance		
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, 5.9m/s ² or less *5. (conforms to JIS C 60068-2-6)	

*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/FR-PU04).
 *4. Temperature applicable for a short period in transit, etc.
 *5. 2.9m/s² or less for the FR-A740-03250 or more.