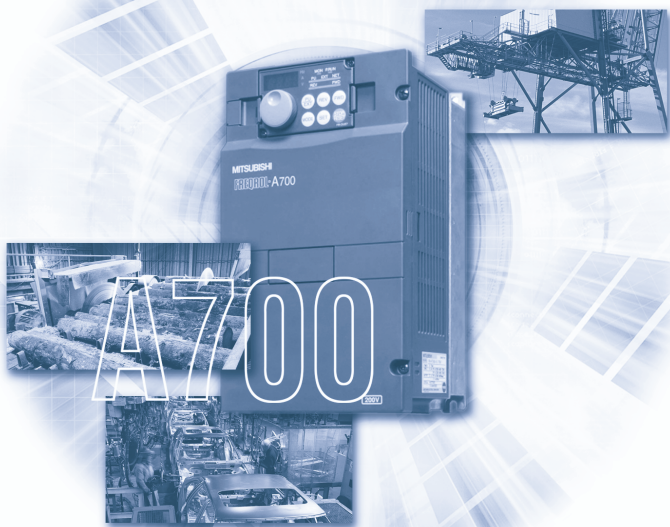


# A700 Series

## Variable Frequency Drives



A700

**POCKET REFERENCE GUIDE**

## A500 - A700 Conversion Chart

A700 Model Number	A700 Model Number
<b>240 Volt Class</b>	
FR-A520-0.4K-NA	FR-A720-00030-NA
FR-A520-0.75K-NA	FR-A720-00050-NA
FR-A520-1.5K-NA	FR-A720-00080-NA
FR-A520-2.2-NA	FR-A720-00110-NA
FR-A520-3.7K-NA	FR-A720-00175-NA
FR-A520-5.5K-NA	FR-A720-00240-NA
FR-A520-7.5K-NA	FR-A720-00330-NA
FR-A520-11K-NA	FR-A720-00460-NA
FR-A520-15K-NA	FR-A720-00610-NA
FR-A520-18.5K-NA	FR-A720-00760-NA
FR-A520-22K-NA	FR-A720-00900-NA
FR-A520-30K-NA	FR-A720-01150-NA
FR-A520-37K-NA	FR-A720-01450-NA
FR-A520-45K-NA	FR-A720-01750-NA
FR-A520-55K-NA	FR-A720-02150-NA
<b>480 Volt Class</b>	
FR-A540-0.4K-NA	FR-A740-00015-NA
FR-A540-0.75K-NA	FR-A740-00025-NA
FR-A540-1.5K-NA	FR-A740-00040-NA
FR-A540-2.2K-NA	FR-A740-00060-NA
FR-A540-3.7K-NA	FR-A740-00090-NA
FR-A540-5.5-NA	FR-A740-00120-NA
FR-A540-7.5K-NA	FR-A740-00170-NA
FR-A540-11K-NA	FR-A740-00230-NA
FR-A540-15K-NA	FR-A740-00310-NA
FR-A540-18.5K-NA	FR-A740-00380-NA
FR-A540-22K-NA	FR-A740-00440-NA
FR-A540-30K-NA	FR-A740-00570-NA
FR-A540-37K-NA	FR-A740-00710-NA
FR-A540-45K-NA	FR-A740-00860-NA
FR-A540-55K-NA	FR-A740-01100-NA
FR-A540L-G75K-NA	FR-A740-01440-NA
FR-A540L-G90K-NA	FR-A740-01800-NA
FR-A540L-G110K-NA	FR-A740-02160-NA
FR-A540L-G132K-NA	FR-A740-02600-NA
FR-A540L-G160K-NA	FR-A740-03250-NA
FR-A540L-G220K-NA	FR-A740-04320-NA
FR-A540L-G280K-NA	FR-A740-05470-NA
FR-A540L-375K-NA	FR-A740-07700-NA
FR-A540L-450K-NA	FR-A740-08660-NA

This chart shows the closest equivalent in performance between the A500 and A700 inverters. In some cases this may result in the selection of a drive with a higher rating than necessary for a specific motor size.

A500 rating of 150% current overload for 60 seconds at 50°C (ND)

## 240V Selection Chart

AMPS for Duty					HP for Duty				
FR-A720- □□□□□□ -NA	SLD	LD	ND	HD	SLD	LD	ND	HD	Frame Size
00030	4.6	4.2	3	1.5	1		0.75	0.25	A
00050	7.1	6.5	5	3	2		1	0.75	B
00080	10.5	9.6	8	5	3		2	1	C
00110	16.7	15.2	11	8	5		3	2	C
00175	25	24	17.5	11	7.5		5	3	C
00240	34	31	24	17.5	10		7.5	5	D
00330	49	45	33	24	15	20	10	7.5	D
00460	63	58	46	33	25	20	15	10	E
00610	77	70	61	46	30	25	20	15	F
00760	93	85	76	61	40	30	25	20	F
00900	125	114	90	76	50	40	30	25	F
01150	154	140	115	90	60	50	40	30	GA
01450	187	170	145	115	75	60	50	40	H
01750	233	212	175	145	100	75	60	50	H
02150	316	288	215	175	125	100	75	60	JA
02880	380	346	288	215	150	125	100	75	K
03460	475	432	346	288	200	150	125	100	K



## 480V Selection Chart

AMPS for Duty					HP for Duty				Frame Size
FR-A740- □□□□□ -NA	SLD	LD	ND	HD	SLD	LD	ND	HD	
00015	2.3	2.1	1.5	0.8	1		0.75	0.3	C
00025	3.8	3.5	2.5	1.5	2		1	0.75	C
00040	5.2	4.8	4	2.5	3		2	1	C
00060	8.3	7.6	6	4	5		3	2	C
00090	12.6	11.5	9	6	7.5		5	3	C
00120	17	16	12	9	10		7.5	5	D
00170	24	23	17	12	15		10	7.5	D
00230	31	29	23	17	20		15	10	E
00310	38	35	31	23	25		20	15	E
00380	47	43	38	31	30		25	20	F
00440	62	57	44	38	40		30	25	F
00570	77	70	57	44	50		40	30	G
00710	93	85	71	57	60		50	40	H
00860	116	106	86	71	75		60	50	H
01100	180	144	110	86	150		75	60	H
01440	216	180	144	110	175	150	100	75	J
01800	260	216	180	144	200	175	150	100	J
02160	325	260	216	180	250		175	150	K
02600	361	325	260	216	300		200	175	K
03250	432	361	325	260	350	300	250	200	L
03610	481	432	361	325	400	350	300	250	L
04320	547	481	432	361	450		350	300	M
04810	610	547	481	432	500		400	350	M
05470	683	610	547	481	550		450	400	M
06100	770	683	610	547	600	550	500	450	N
06830	866	770	683	610	650	600	550	500	N
07700	962	866	770	683	700		600	550	P
08660	1094	962	866	770	750		650	600	P
09620	1212	1094	962	820	800		700	600	P

### Key to Duty Codes

	Overload Rating		Ambient Temp
	60s	3s	
SLD	110%	120%	40°C
LD	120%	150%	50°C
ND	150%	200%	50°C
HD	200%	250%	50°C


## Dimensions - 240V and 480V Drives

Frame Size	Dimensions in inches (mm)		
	Height	Width	Depth
A	10.2 (260)	4.3 (110)	4.3 (110)
B	10.2 (260)	4.3 (110)	4.9 (125)
C	10.2 (260)	5.9 (150)	5.5 (140)
D	10.2 (260)	8.7 (220)	6.7 (170)
E	11.8 (300)	8.7 (220)	7.5 (190)
F	15.8 (400)	9.8 (250)	7.5 (190)
G	21.7 (550)	12.8 (325)	7.7 (195)
H	21.7 (550)	17.1 (435)	9.8 (250)
JA	27.6 (700)	18.3 (465)	9.8 (250)
J	24.4 (620)	18.3 (465)	11.8 (300)
K	29.1 (740)	18.3 (465)	14.2 (360)
L	39.8 (1010)	19.6 (498)	15 (380)
M	39.8 (1010)	26.8 (680)	15 (380)
N	52.4 (1330)	31.1 (790)	17.3 (440)
P	62.2 (1580)	39.2 (995)	17.3 (440)

## Details of Factory Supplied DC Link Chokes

VFD Model Number	Dimensions in inches (mm)			Approx Weight lbs (kg)
	Height	Width	Depth	
FR-A720-02880-NA	12.2 (310)	5.1 (130)	7.9 (200)	42 (19)
FR-A720-03460-NA	14.4 (365)	5.9 (150)	7.9 (200)	44 (20)
FR-A740-01440-NA	12.6 (320)	5.5 (140)	7.3 (185)	35 (16)
FR-A740-01800-NA	13.4 (340)	5.9 (150)	7.5 (190)	44 (20)
FR-A740-02160-NA	13.4 (340)	5.9 (150)	7.7 (195)	48 (22)
FR-A740-02600-NA	15.9 (405)	6.9 (175)	7.9 (200)	57 (26)
FR-A740-03250-NA	15.9 (405)	6.9 (175)	8 (205)	62 (28)
FR-A740-03610-NA	15.9 (405)	6.9 (175)	9.4 (240)	64 (29)
FR-A740-04320-NA	15.9 (405)	6.9 (175)	9.4 (240)	66 (30)
FR-A740-04810-NA	17.3 (440)	7.5 (190)	9.8 (250)	77 (35)
FR-A740-05470-NA	17.3 (440)	7.5 (190)	10 (255)	84 (38)
FR-A740-06100-NA	19.5 (495)	8.3 (210)	9.8 (250)	92 (42)
FR-A740-06830-NA	19.5 (495)	8.3 (210)	9.8 (250)	101 (46)
FR-A740-07700-NA	19.7 (500)	8.7 (220)	9.8 (250)	110 (50)
FR-A740-08660-NA	19.7 (500)	8.7 (220)	10.6 (270)	125 (57)
FR-A740-09620-NA	17.9 (455)	8.5 (215)	13.6 (345)	147 (67)

# Key to DU07 Display Codes

	Function Name	Description	Display
Error Message <sup>2</sup>	<b>Operation panel lock</b>	Appears when operation was tried during operation panel lock.	<i>HOLD</i>
	<b>Parameter write error</b>	Appears when an error occurred during parameter writing.	<i>Er1</i> to <i>Er4</i>
	<b>Copy operation error</b>	Appears when an error occurred during parameter copying.	<i>rE1</i> to <i>rE4</i>
	<b>Error</b>	Appears when the RES signal is on or the PU and inverter can not make normal communication.	<i>Err.</i>
Warnings <sup>3</sup>	<b>Stall prevention (overcurrent)</b>	Appears during overcurrent stall prevention.	<i>OL</i>
	<b>Stall prevention (overvoltage)</b>	Appears during overvoltage stall prevention. Appears while the regeneration avoidance function is activated.	<i>oL</i>
	<b>Regenerative brake prealarm</b>	Appears if the regenerative brake duty reaches or exceeds 85% of the <i>Pr.70 Special regenerative brake duty value</i> . If the regenerative brake duty reaches 100%, a regenerative overvoltage (E.OV_) occurs.	<i>rb</i>
	<b>Electronic thermal relay function prealarm</b>	Appears when the electronic thermal O/L relay has reached 85% of the specified value.	<i>TH</i>
	<b>PU stop</b>	Appears when  on the operation panel was pressed during external operation.	<i>PS</i>
	<b>Maintenance signal output</b>	Appears when the cumulative energization time has exceeded the maintenance output timer set value.	<i>nr</i>
	<b>Parameter copy</b>	Appears when parameters are copied between models with capacities of 55K or less and 75K or more.	<i>CP</i>
	<b>Speed limit display (output during speed limit)</b>	Displays if the speed limit level is exceeded during torque control.	<i>SL</i>
Minor Failure <sup>4</sup>	<b>Fan fault</b>	Appears when the cooling fan remains stopped when operation is required or when the speed has decreased.	<i>Fn</i>
Major Failures <sup>5</sup>	<b>Overcurrent shutoff during acceleration</b>	Appears when an overcurrent occurred during acceleration.	<i>EOC1</i>
	<b>Overcurrent shutoff during constant speed</b>	Appears when an overcurrent occurred during constant speed operation.	<i>EOC2</i>
	<b>Overcurrent shutoff during deceleration or stop</b>	Appears when an overcurrent occurred during deceleration and at a stop.	<i>EOC3</i>
	<b>Regenerative overvoltage shutoff during acceleration</b>	Appears when an overvoltage occurred during acceleration.	<i>EOv1</i>
	<b>Regenerative overvoltage shutoff during constant speed</b>	Appears when an overvoltage occurred during constant speed operation.	<i>EOv2</i>
	<b>Regenerative overvoltage shutoff during deceleration or stop</b>	Appears when an overvoltage occurred during deceleration and at a stop.	<i>EOv3</i>
	<b>Inverter overload shutoff (Electronic thermal relay function)<sup>1</sup></b>	Appears when the electronic thermal relay function for motor protection was activated.	<i>EΓHF</i>
	<b>Motor overload shutoff (Electronic thermal relay function)<sup>1</sup></b>	Appears when the electronic thermal relay function for motor protection was activated	<i>EΓHN</i>
	<b>Fin overheat</b>	Appears when the heatsink overheated.	<i>EFl n</i>
	<b>Instantaneous power failure protection</b>	Appears when an instantaneous power failure occurred at an input power supply.	<i>EIPF</i>
	<b>Undervoltage protection</b>	Appears when the main circuit DC voltage became low.	<i>EUvΓ</i>
	<b>Input phase failure</b>	Appears if one of the three phases on the inverter input side opened.	<i>EILF</i>
	<b>Stall prevention</b>	Appears when the output frequency drops to 0.5Hz as a result of deceleration due to the excess motor load.	<i>EOLΓ</i>
	<b>Brake transistor alarm detection</b>	This function stops the inverter output if an alarm occurs in the brake circuit, e.g. damaged brake transistors. In this case, the inverter must be powered off immediately.	<i>E. bE</i>
	<b>Output side earth (ground) fault overcurrent protection</b>	Appears when an earth (ground) fault occurred on the Inverter's output side.	<i>E. GF</i>
	<b>Output phase failure protection</b>	Appears if one of the three phases on the inverter output side opened.	<i>E. LF</i>
<b>External thermal relay operation<sup>6</sup></b>	Appears when the external thermal relay connected to the terminal OH is activated.	<i>EOHF</i>	

Function Name	Description	Display
PTC thermistor operation	Appears when the motor overheat status is detected for 10s or more by the external PTC thermistor input connected to the terminal AU.	EPFC
Operation Alarm	Appears when torque command by the plug-in option is selected using Pr. 804 when no plug-in option is mounted or an AC power supply is connected to the R/L1, S/L2, T/L3 when the high power factor converter and power regeneration common converter connection setting (Pr.30=2) is selected.	EOPF
Communication option alarm	Appears when a communication line error occurs in the communication option.	EOP3
Option alarm	Appears if a contact fault or the like of the connector between the inverter and communication option occurs or if a communication option is fitted to the connector 1 or 2. (1 to 3 indicate connector numbers for connection of the plug-in option.)	E. 1 to E. 3
Parameter storage device alarm	Appears when operation of the element where parameters stored became abnormal. (control board)	E. PE
PU disconnection	Appears when a communication error between the PU and inverter occurred, the communication interval exceeded the permissible time during the RS-485 communication with the PU connector, or communication errors exceeded the number of retries during the RS-485 communication.	EPUE
Retry count excess	Appears when the operation was not restarted within the set number of retries.	ErEr
Parameter storage device alarm	Appears when operation of the element where parameters stored became abnormal. (main circuit board)	EPE2
CPU error	Appears during the CPU and peripheral circuit errors occurred.	E. 6/ E. 7/ E.CPU
Operation panel power supply short circuit RS-485 terminals power supply short circuit	Appears when the RS-485 terminal power supply or operation panel power supply was shorted.	ECFE
24VDC power output short circuit	Appears when terminals PC-SD were shorted.	EP24
Output current detection value excess	Appears when output current exceeded the output current detection level set by the parameter.	ECd0
Inrush resistor overheat	Appears when the resistor of the inrush current limit circuit overheated.	EIOH
Communication alarm (inverter)	Appears when a communication error occurred during the RS-485 communication with the RS-485 terminals.	ESEr
Analog input error	Appears when 30mA or more is input or a voltage (7.5V or more) is input with the terminal 2/4 set to current input.	ERIE
Overspeed occurrence <sup>7</sup>	Indicates that the motor speed has exceeded the overspeed setting level (Pr.374).	EOS
Speed deviation excess detection <sup>7</sup>	Stops the inverter output if the motor speed is increased or decreased under the influence of the load etc. during vector control and cannot be controlled in accordance with the speed command value.	EOSd
Open cable detection <sup>7</sup>	Stops the inverter output if the encoder signal is shut off.	EECF
Position error large <sup>7</sup>	Indicates that the difference between the position command and position feedback exceeded the reference.	E. Od
Brake sequence error	The inverter output is stopped when a sequence error occurs during use of the brake sequence function (Pr.278 to Pr.285).	ENb1 to ENb7
Encoder phase error <sup>7</sup>	When the rotation command of the inverter differs from the actual motor rotation direction detected from the encoder, the inverter output is stopped. (detected only during tuning is performed in the 'rotation mode' of offline auto tuning)	EEP
Internal circuit error	Appears when an internal circuit error occurred.	E. 13
USB error	Appears when USB communication error occurred.	EUSb
Opposite rotation deceleration alarm	The speed may not decelerate during low speed operation if the rotation direction of the speed command and the estimated speed differ when the rotation is changing from forward to reverse or from reverse to forward under real sensorless vector control. At this time, the inverter output is stopped if the rotation direction will not change, causing overload.	E. 11

Major Failures<sup>5</sup>


**Notes:**

- \*1. Resetting the inverter initializes the internal thermal integrated data of the electronic thermal relay function.
- \*2. The error message shows an operational error. The inverter output is not shut off.
- \*3. Warnings are messages given before major failures occur. The inverter output is not shut off.
- \*4. Minor failure warns the operator of failures with output signals. The inverter output is not shut off.
- \*5. When major failures occur, the protective functions are activated to shut off the inverter output and output the alarms.
- \*6. The external thermal operates only when the OH signal is set in Pr.178 to Pr.189 (input terminal function selection).
- \*7. Appears when the FR-A7AP (option) is fitted.

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