

# Wide range of lineup

## Inverter

Standard model

**FR - F 8 2 0 - 0.75K - 1 -**

Symbol	Voltage class	Symbol	Structure, functionality	Symbol <sup>91</sup>	Description	Symbol	Type <sup>92</sup>	Communication type	Symbol	Circuit board coating (IEC60721-3-3 3C2/3S2 compatible)	Plated conductor
2	200 V class	0	Standard model	0.75K to 315K	LD rated inverter capacity (kW)	1	FM	RS-485	None	Without	Without
4	400 V class			00023 to 12120	SLD rated inverter current (A)	2	CA		60	With	Without
						E1	FM	Ethernet	06 <sup>93</sup>	With	With
						E2	CA				

Three-phase 200 V class FR-F820-[] <sup>94</sup>	0.75K	1.5K	2.2K	3.7K	5.5K	7.5K	11K	15K	18.5K	22K	30K	37K	45K	55K	75K	90K	110K
00046	00077	00105	00167	00250	00340	00490	00630	00770	00930	01250	01540	01870	02330	03160	03800	04750	
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Three-phase 400 V class FR-F840-[] <sup>95</sup>	0.75K	1.5K	2.2K	3.7K	5.5K	7.5K	11K	15K	18.5K	22K	30K	37K	45K	55K	75K	90K	110K
00023	00038	00052	00083	00126	00170	00250	00310	00380	00470	00620	00770	00930	01160	01800	02160	02600	
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	132K	160K	185K	220K	250K	280K	315K										
	03250	03610	04320	04810	05470	06100	06830										
	●	●	●	●	●	●	●										

Separated converter type

**FR - F 8 4 2 - 355K - 1 -**

Symbol	Voltage class	Symbol	Structure, functionality	Symbol <sup>91</sup>	Description	Symbol	Type <sup>92</sup>	Communication type	Symbol	Circuit board coating (IEC60721-3-3 3C2/3S2 compatible)	Plated conductor
4	400 V class	2	Separated converter type	355K to 560K	LD rated inverter capacity (kW)	1	FM	RS-485	None	Without	Without
				07700 to 12120	SLD rated inverter current (A)	2	CA		60	With	Without
						E1	FM	Ethernet	06	With	With
						E2	CA				

Three-phase 400 V class FR-F842-[] <sup>95</sup>	355K	400K	450K	500K	560K
07700	08660	09620	10940	12120	
●	●	●	●	●	●

\*1: Models can be alternatively indicated with the inverter rated current (SLD rating).

\*2: Specification differs by the type as follows.

Type	Monitor output	Initial setting				
		Built-in EMC filter	Control logic	Rated frequency	Pr.19 Base frequency voltage	Pr.570 Multiple rating setting
FM (terminal FM equipped model)	Terminal FM (pulse train output) Terminal AM (analog voltage output (0 to ±10 VDC))	OFF	Sink logic	60 Hz	9999 (same as the power supply voltage)	1 (LD rating)
CA (terminal CA equipped model)	Terminal CA (analog current output (0 to 20 mADC)) Terminal AM (analog voltage output (0 to ±10 VDC))	ON	Source logic	50 Hz	8888 (95% of the power supply voltage)	0 (SLD rating)

\*3: Available for the FR-F820-00340(7.5K) or higher, and the FR-F840-00170(7.5K) or higher.

\*4: For the FR-F820-03160(75K) or higher, and the FR-F840-01800(75K) or higher, always connect a DC reactor (FR-HEL), which is available as an option.  
Select a DC reactor according to the applied motor capacity.

\*5: Always install the converter unit (FR-CC2). (Not required when a high power factor converter (FR-HC2) is used)

## Converter unit

**FR - CC2 - H 355K - 60**

Symbol	Voltage class	Symbol	Description	Symbol	Circuit board coating (IEC60721-3-3 3C2/3S2 compatible)	Plated conductor
H	400 V class	355K to 630K	Applicable motor capacity (kW)	60	With	Without
				06	With	With

Three-phase 400 V class FR-CC2-H[] (with the built-in DC reactor)	355K	400K	450K	500K	560K	630K
	●	●	●	●	●	●

## Premium high-efficiency IPM motor

55 kW or lower

# MM-EFS 7 1M 4 -S10

Symbol	Output	Symbol	Output	Symbol	Output	Symbol	Rated speed <sup>91</sup>	Symbol	Voltage class	Symbol	Dedicated specification	Symbol	Specifications <sup>92</sup>	Symbol	Specifications <sup>92</sup>
7	0.75 kW	75	7.5 kW	30K	30 kW	1M	1500 r/min	None	200 V	None	Standard model	None	Standard model	None	Standard model
15	1.5 kW	11K	11 kW	37K	37 kW	3	3000 r/min	4	400 V	-S10	Belt drive model	Q	Class B	P1	Outdoor type
22	2.2 kW	15K	15 kW	45K	45 kW										
37	3.7 kW	18K	18.5 kW	55K	55 kW										
55	5.5 kW	22K	22 kW												

<sup>91</sup>: The motor can also be used for applications which required the rated speed of 1800 r/min.  
<sup>92</sup>: The outdoor type and class B are semi-standard models.

75 kW or higher

# MM-THE4

- The motor can be used for applications which required the rated speed of 1500 r/min and 1800 r/min.
- For dedicated motors such as the outdoor type, the long-axis type, the flange type, the waterproof outdoor type, and the corrosion proof type, contact your sales representative.

Rated output (kW)		0.75	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90	110	132	160
Motor model		7	15	22	37	55	75	11K	15K	18K	22K	30K	37K	45K	55K	-	-	-	-	-
200 V class	MM-EFS[]1M	●	●	●	●	●	●	●	●	●	●	●	●	●	●	-	-	-	-	-
	MM-EFS[]1M-S10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
400 V class	MM-EFS[]3	●	●	●	●	●	●	●	●	-	-	-	-	-	-	-	-	-	-	-
	MM-EFS[]1M4	●	●	●	●	●	●	●	●	●	●	●	●	●	●	-	-	-	-	-
200 V class	MM-EFS[]1M4-S10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	MM-EFS[]34	●	●	●	●	●	●	●	●	-	-	-	-	-	-	-	-	-	-	-
400 V class	MM-THE4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	●	●	●	●	●

- < Note >**
- The IPM motor MM-EFS/MM-THE4 series cannot be driven by the commercial power supply.
  - For IPM motors, the wiring length is 100 m maximum.
  - Only one IPM motor can be connected to an inverter.
  - For belt drive application of the 11 kW or higher MM-EFS series IPM motor with the 1500 r/min specification, use a dedicated belt drive motor. The 11 kW or higher motors with 3000 r/min specification are designed for a direct connection only.

●: Released model    -: Not applicable

## Inverter by rating

### •200 V class

Inverter model FR-F820-[]	SLD (superlight duty)		LD (light duty, initial value)		
	Motor capacity (kW) <sup>91</sup>	Rated current (A)	Motor capacity (kW) <sup>91</sup>	Rated current (A)	
0.75K	00046	0.75	4.6	0.75	4.2
1.5K	00077	1.5	7.7	1.5	7
2.2K	00105	2.2	10.5	2.2	9.6
3.7K	00167	3.7	16.7	3.7	15.2
5.5K	00250	5.5	25	5.5	23
7.5K	00340	7.5	34	7.5	31
11K	00490	11	49	11	45
15K	00630	15	63	15	58
18.5K	00770	18.5	77	18.5	70.5
22K	00930	22	93	22	85
30K	01250	30	125	30	114
37K	01540	37	154	37	140
45K	01870	45	187	45	170
55K	02330	55	233	55	212
75K	03160	75	316	75	288
90K	03800	90/110	380	90	346
110K	04750	132	475	110	432

### •400 V class

Inverter model FR-F84[]-[]	SLD (superlight duty)		LD (light duty, initial value)		Inverter model FR-F84[]-[]	SLD (superlight duty)		LD (light duty, initial value)			
	Motor capacity (kW) <sup>91</sup>	Rated current (A)	Motor capacity (kW) <sup>91</sup>	Rated current (A)		Motor capacity (kW) <sup>91</sup>	Rated current (A)	Motor capacity (kW) <sup>91</sup>	Rated current (A)		
0.75K	00023	0.75	2.3	0.75	2.1	90K	02160	110	216	90	180
1.5K	00038	1.5	3.8	1.5	3.5	110K	02600	132	260	110	216
2.2K	00052	2.2	5.2	2.2	4.8	132K	03250	160	325	132	260
3.7K	00083	3.7	8.3	3.7	7.6	160K	03610	185	361	160	325
5.5K	00126	5.5	12.6	5.5	11.5	185K	04320	220	432	185	361
7.5K	00170	7.5	17	7.5	16	220K	04810	250	481	220	432
11K	00250	11	25	11	23	250K	05470	280	547	250	481
15K	00310	15	31	15	29	280K	06100	315	610	280	547
18.5K	00380	18.5	38	18.5	35	315K	06830	355	683	315	610
22K	00470	22	47	22	43	355K	07700	400	770	355	683
30K	00620	30	62	30	57	400K	08660	450	866	400	770
37K	00770	37	77	37	70	450K	09620	500	962	450	866
45K	00930	45	93	45	85	500K	10940	560	1094	500	962
55K	01160	55	116	55	106	560K	12120	630	1212	560	1094
75K	01800	75/90	180	75	144						

### •Overload current rating

SLD	110% 60 s, 120% 3 s (inverse-time characteristics) at surrounding air temperature of 40°C
LD	120% 60 s, 150% 3 s (inverse-time characteristics) at surrounding air temperature of 50°C

<sup>91</sup>: Indicates the maximum capacity applicable with the Mitsubishi Electric 4-pole standard motor.

For selection of the DC reactor and the converter unit, refer to **page 113**.