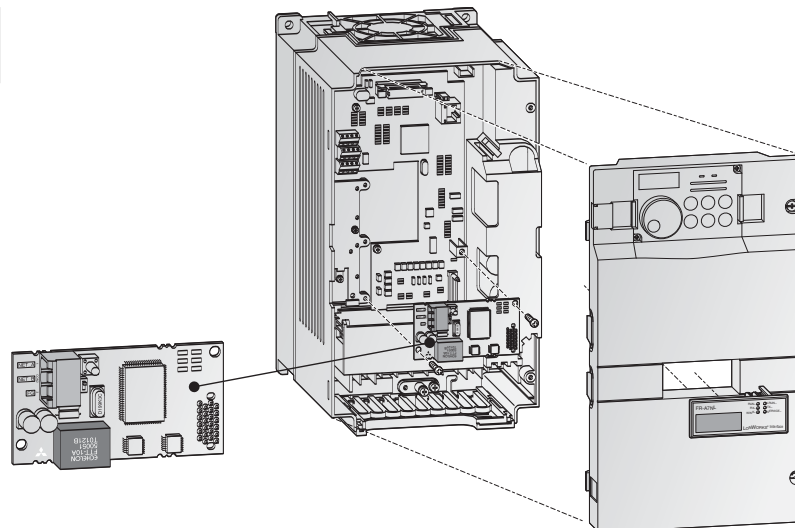


Overview Internal Options

Internal options	Description	Remarks/Specifications	Type	Applicable inverter	Art. no.	
16-bit digital input	Interface for the input of the frequency setting via 4-digit BCD or 16-bit binary code, setting of gain and bias supported.	Input: 24 V DC; 5 mA; open collector or switching signal, sink or source logic	FR-A7AX	FR-F700 FR-A700	156775	
			FR-A7AX-Ekit-SC-E	FR-E700 SC-EC	239641	
Digital output with Expansion analog output	Selectable of 43 standard output signals of the inverter can be output at the open collector. The outputs are isolated with optocouplers. Selectable 2 of 18 additional signals (e.g. output frequency, output voltage, output current) can be output and indicated at the analog output. Display on measuring gauge: 20 mA DC or 5 V (10 V) DC	Output: max. 0–10 V DC; 0–20 mA; Resolution: 3 mV at voltage output, 10 mA at current output, accuracy: ±10 %	FR-A7AY	FR-F700 FR-A700	156776	
			FR-A7AY-Ekit-SC-E	FR-E700 SC-EC	239642	
Relay output	Selectable 3 of 43 standard output signals of the inverter can be output through relay terminals.	Switching load: 230 V AC/0.3 A, 30 V DC/0.3 A	FR-A7AR	FR-F700 FR-A700	156777	
			FR-A7AR-Ekit-SC-E	FR-E700 SC-EC	239643	
Bipolar analog output	Selectable among 24 analog output signals	Bipolar analog output max. 0–(±)10 V DC Bipolar analog input (16 bit) 0–(±)10 V DC	FR-A7AZ	FR-A700	191401	
16 bit analog input	Analog input of torque and speed related data					
Motor thermistor input	Motor thermistor input for torque stability improvement					
Encoder power supply	Control terminal block with integrated power supply	12 V DC	FR-A7PS	FR-A700	191399	
Vector control with encoder feedback	Closed loop vector control with encoder can be performed. Encoder feedback enables high-precision speed, torque and position control.	5 V TTL differential 1024–4096 pulse	FR-A7AP	FR-A700	166133	
			FR-A7AL	FR-A700	191402	
Master-Slave control	Closed loop vector control with encoder can be performed. Master-Slave position and speed synchronisation are possible with command pulse scaling and position control.	11–30 V HTL complimentary	FR-A7AL	FR-A700	191402	
Communications	CC-Link	Option board for the integration of a frequency inverter into a CC-Link network. The operation, display functions, and parameter settings can be controlled by a PLC.	Maximum transfer distance: 1200 m (at 156 kBaud)	FR-A7NC	FR-F700 FR-A700	156778
				FR-A7NC-Ekit-SC-E	FR-E700 SC-EC	239644
	CC-Link IE Field	Option board for the integration of a frequency inverter into a CC-Link IE Field network	Maximum transfer rate: 1 GBaud	FR-A7NCE	FR-A700	244993
	Ethernet multi-protocol	Ethernet multi-protocol interface card, Modbus TCP, Ethernet/IP, Profinet, BACNet with Modbus RTU		FR-A7N-ETH	FR-A740 FR-F740	212369
	LonWorks	Option board for integration of a frequency inverter in a LonWorks network. Operation, display functions and parameter settings can be controlled by a computer (PC etc.) or a PLC.	Connection of up to 64 inverters supported. Maximum transfer rate: 78 kBaud	FR-A7NL	FR-F700 FR-A700	156779
				FR-A7NL-Ekit-SC-E	FR-E700 SC-EC	239645
	Profibus DP	Option board for the integration of a frequency inverter into a Profibus DP network. The operation, display functions, and parameter settings can be controlled by a computer (PC etc.) or a PLC.	Connection of up to 126 inverters supported. Maximum transfer rate: 12 MBaud	FR-A7NP	FR-F700 FR-A700	158524
				FR-A7NP-Ekit-SC-E	FR-E700 SC-EC	239646
				FR-A7NP-Ekit-SC-E-01	FR-E700 SC-EC	239647
			D-Sub9 connection adapter for FR-A7NP	FR-D-Sub9	FR-F700 FR-A700	191751
	DeviceNet™	Option board for the integration of a frequency inverter into a DeviceNet. The operation, display functions, and parameter settings can be controlled by a computer (PC etc.) or a PLC.	Maximum transfer rate: 10 MBaud	FR-A7ND	FR-F700 FR-A700	158525
				FR-A7ND-Ekit-SC-E	FR-E700 SC-EC	239648
	SSCNET III	Option board for the integration of a frequency inverter into the Mitsubishi Electric servo system network SSCNET III. The operation and display functions can be controlled by Motion Controller (Q172H CPU, Q173H CPU).	Maximum transfer rate: 50 MBaud	FR-A7NS	FR-A700	191403

Mounting example of an internal option

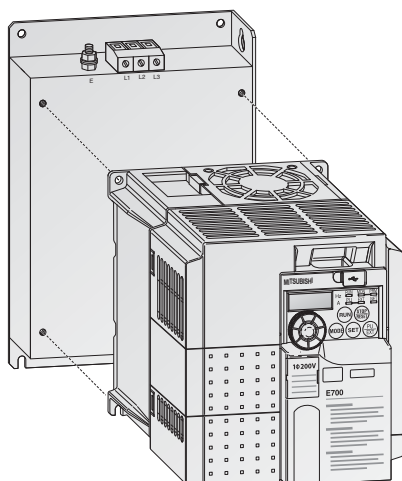


Overview External Options

External options	Description	Remarks/Specifications	Type	Applicable inverter	Art. no.
Parameter unit	Interactive parameter unit with LC display (8 languages) with copy function.	Refer to page 47 for details.	FR-PU07	All	166134
	Interactive standard parameter unit with copy function		FR-DU07	All	157514
	For mounting on the switchgear cabinet door (for instance)		FR-PA07	FR-D700 FR-E700 SC-EC	214795
	Interactive parameter unit with LC display and battery pack		FR-PU07BB-L	FR-E700 SC-EC, FR-A700	209052
Adapter	Connection adapter for FR-DU07	Required for remote connection of the FR-DU07 with FR-A5CBL	FR-ADP	FR-A700 FR-F700	157515
Connection cable for remote parameter unit	Cable for a remote connection of a parameter unit	Available length: 1; 2.5 and 5 m	FR-A5 CBL	All	1 m: 70727 2.5 m: 70728 5 m: 70729
Installation kit for external air cooling	For installation of the heatsink on the switchgear cabinet door	Reduces temperature in switchgear cabinet	FR-A7CN	FR-A700 FR-F700	refer to page 44
Distributor module for RJ45 connections	Distributor for connection of multiple inverters in a serial network	4 connections	FR-RJ45-HUB4	FR-A700	167612
	Terminating resistor for RJ45	8 connections	FR-RJ45-HUB10		167613
		120 Ω	FR-RJ45-TR	All	167614
Interface cable	Communications cable for RS232 or RS485 interface to connect an external personal computer	Length 3 m	SC-FR-PC	All	88426
USB-RS232 converter	Port converter adapter cable from RS-232 to USB	USB specification 1.1, 0.35 m long	USB-RS232	FR-D700 FR-F700	155606
FR-Configurator	Parameterization and setup software for Mitsubishi Electric inverter.	Refer to page 51 for details.	—	All	215701
EMC noise filter	Noise filter for compliance with EMC directives.	Refer to page 38 for details.	FFR-□□□, FR-, FN-□□□	All	refer to page 38
du/dt filter	Output filter for du/dt reduction	Refer to page 42 for details.	FFR-DT-□□□A-SS1	All	refer to page 42
Sinusoidal filter	Output filter for sine wave output voltage	Refer to page 43 for details.	FFR-SI-□□□A-SS1	All	refer to page 43
AC chokes	For increased efficiency, reduction of mains feedback and compensation of voltage fluctuations.	Refer to page 45 for details.	FR-BAL-B	FR-D700, FR-E700 SC-EC, FR-F700, FR-A740	refer to page 45
DC reactor ①	DC reactor for compensation of voltage fluctuations.	Refer to page 47 for details.	FR-HEL ① FFR-HEL-(H)-E		refer to page 47
Filter module	Passive harmonic filter to reduce mains pollution	THDi ≤ 10 % THDi ≤ 15%	on request		on request
Regenerative unit	Regeneration of electrical energy in short-term operation	(ED < 50 %)			
Regenerative unit	Regeneration of electrical energy in short-term operation	(ED = 100 %)			
Brake units	For an improvement of the brake capacity. For high inertia loads and active loads. Used in combination with a resistor unit.	Refer to page 48 for details.	FR-BU2, BU-UF5 + RUFC		refer to page 48
External high-duty brake resistor	To improve the brake capacity of the inverter; used in combination with the internal brake transistor	Refer to page 49 for details.	FR-ABR(H)	FR-D700 FR-E700 SC-EC FR-A740	refer to page 49
Communica-tions Profibus DP	High speed converter for Profibus DP to RS485 inverter protocol	Base unit with 8 ports	PBDP-GW-G8	All	224915
		Extension unit with 8 ports	PBDP-GW-E8	All	224916

① A DC reactor is included as standard equipment with frequency inverters FR-F740-01800 through 12120 and FR-A740-01800 through 12120. These reactors are essential for operation and must be installed.

Installing an EMC noise filter on an FR-E700 SC



Installing an EMC noise filter on an FR-F700

