MITSUBISHI ELECTRIC
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INVERTER

New Product RELEASE No.20-7E

FR-E800 Series
Release of the Plug-In Option (FR-A8AP E Kit) and Attachments (FR-E8AT04 and FR-E8CN01 to 06)

The plug-in option FR-A8AP E kit and attachments FR-E8AT04 and FR-E8CN01 to 06 are now available as new additions to the FR-E800 series inverter options.

Features

FR-A8AP E Kit:
Vector control, Encoder feedback control

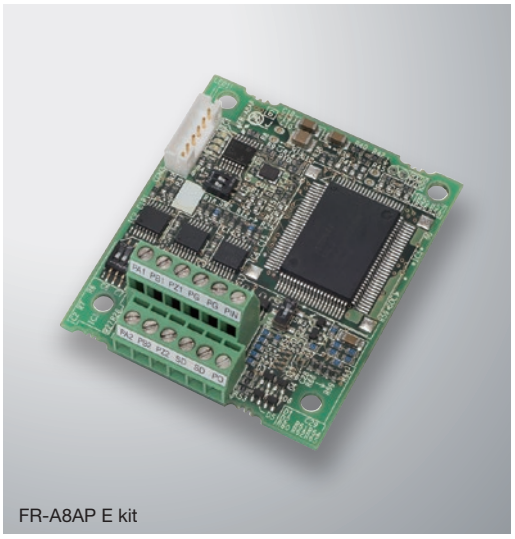
- **Vector control**

  Full-scale vector control operation of a motor with an encoder can be performed. The speed control and torque control can be performed by vector control.

- **Encoder feedback control**

  The inverter output frequency is controlled so that the motor speed is constant to the load variation by detecting the motor speed with the encoder to perform feedback to the inverter during V/F control or Advanced magnetic flux vector control.

  * Position control and orientation control are to be supported.


FR-A8AP E kit


Front cover for plug-in option


Connector, spacers, and screws


Option small cover

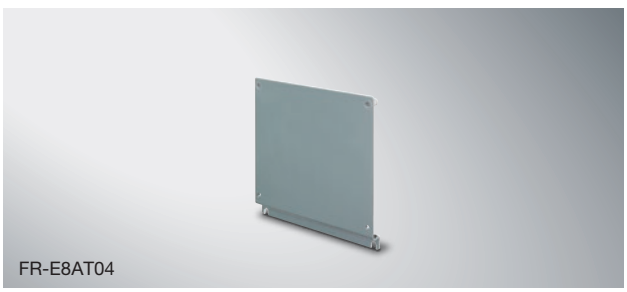
FR-E8CN: Panel Through Attachment

The heat sink of an FR-E800 series inverter can be protruded through the rear panel of an enclosure to dissipate about 70% of the heat generated by the inverter.


FR-E8CN01

FR-E8AT04: Intercompatibility Attachment

This attachment is used to install the FR-E820S-0110(2.2K) inverter using the installation holes of the FR-E720S-2.2K inverter.


FR-E8AT04

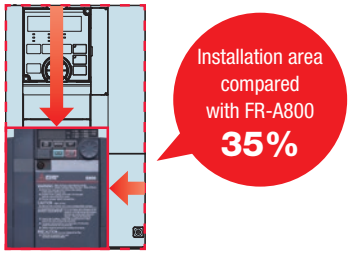
Release schedule August 2020

FR-A8AP E Kit: Vector Control, Encoder Feedback Control

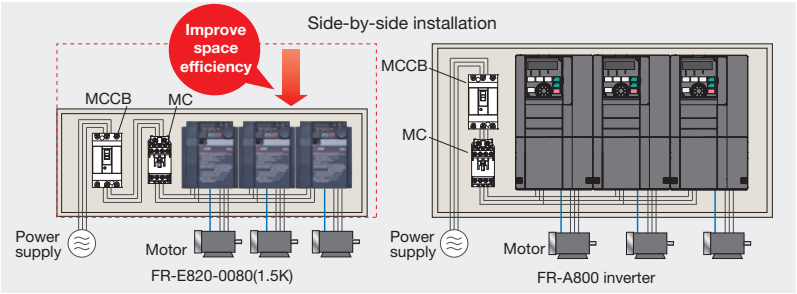
Benefit

Improve space efficiency

Using the compact inverter that support Vector control, users can select the most suitable layout in an enclosure.
Operation of the Mitsubishi Electric high-performance energy-saving motor with encoder SF-PR-SC is also available.
When the surrounding air temperature is 40°C or less, multiple inverters can be installed side-by-side.
As shown in the following example, FR-E820-0080(1.5K) inverters occupy just 35% of the space required for our FR-A800 inverters that support Vector control. (Note that the installation depth is greater for the E800 inverter.)



200 V 1.5K inverter



Applicable inverters

The FR-A8AP can be used for the inverter models listed below with the following SERIAL number or later.
Check the SERIAL number indicated on the inverter rating plate or package.
For the location of the rating plate, refer to the FR-E800 Instruction Manual (Connection).

Check the Instruction Manual. ▶

Model	Country of origin indication	SERIAL	Manufactured year and month
FR-E820-0008(0.1K) to 0330(7.5K) FR-E840-0016(0.4K) to 0170(7.5K) FR-E860-0017 to 0120 FR-E820S-0008(0.1K) to 0110(2.2K)	MADE in Japan	□□208 ○○○○○○ or later	August 2020 or later

Refer to the FR-E800 inverter catalog for the inverter model.

Specifications

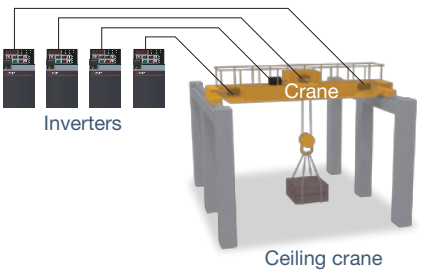
Item			FR-E800	FR-A800
Encoder feedback control	Speed variation ratio		±0.1% (100% means 3600 r/min)	
	Function		• Deceleration detection function selection • Signal loss detection enable/disable selection (protective function) • Setting of the encoder rotation direction and the number of encoder pulses • Monitoring of the position pulse / feedback pulse	
	Maximum speed		V/F control: 590 Hz, Advanced magnetic flux vector control: 400 Hz (102400 pulse/s or less encoder pulses)	
Vector control	Speed control	Speed control range	1:1500 (both driving/regeneration*1)	
		Speed variation ratio	±0.01% (100% means 3000 r/min)	
		Speed response	30 Hz	130 Hz
		Maximum speed	400 Hz (102400 pulse/s or less encoder pulses)	
	Torque control	Torque control range	1:50	
		Absolute torque accuracy	±10%*2	
		Repeated torque accuracy	±5%*2	
	Function		• Signal loss detection enable/disable selection (protective function) • Zero speed control / servo lock control selection (pre-excitation selection) • Setting of the position control gain for servo lock • Setting of the encoder rotation direction and the number of encoder pulses	

*1 Regeneration unit (option) is necessary for regeneration
*2 dedicated motor, rated load
Encoder options other than the FR-A8AP can be also selected for FR-A800 inverters according to the encoder specification or performance of the system.
For details, refer to the FR-A800 inverter catalog.

Application example

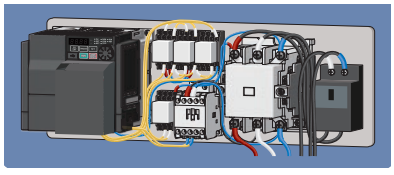
Ceiling crane

Vector control using feedback from the encoder is available for the lift axis, and Real sensorless vector control is available for the travel axis and the traverse axis.



Ceiling crane

Using compact inverters enables downsizing of the enclosure.

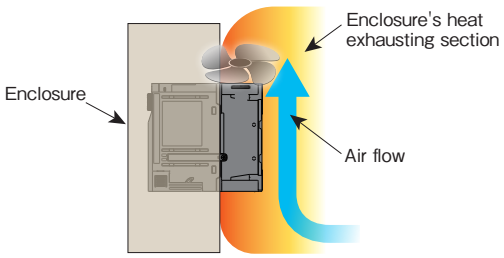


FR-E8CN: Panel Through Attachment

Benefit

Effective solution for downsizing of the enclosure

The enclosure can be downsized by protruding the heat exhausting section.



Applicable inverters

Applicable inverter		Attachment model FR-E8CN[]					
		01	02	03	04	05	06
Three-phase 200 V class	FR-E820-0080(1.5K), 0110(2.2K)	○					
	FR-E820-0175(3.7K)		○				
	FR-E820-0240(5.5K), 0330(7.5K)			○			
Single-phase 200 V class	FR-E820S-0080(1.5K)	○					
	FR-E820S-0110(2.2K)		○				
Three-phase 400 V class	FR-E840-0040(1.5K)				○		
	FR-E840-0060(2.2K), 0095(3.7K)					○	
	FR-E840-0120(5.5K), 0170(7.5K)						○
Three-phase 575 V class	FR-E860-0027, 0040					○	
	FR-E860-0061 to 0120						○

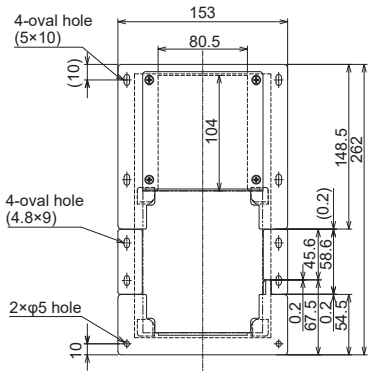
Refer to the FR-E800 inverter catalog for the inverter model.

Outline dimensions (front view)

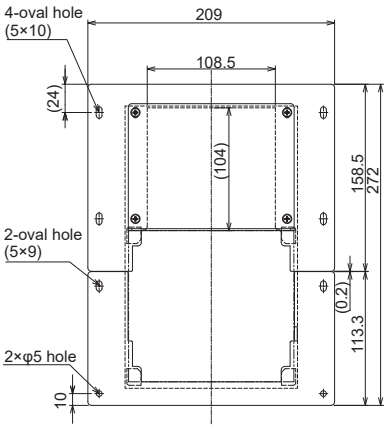
Refer to the Instruction Manual of the FR-E8CN for additional outline dimension drawings.

Check the Instruction Manual. ▶

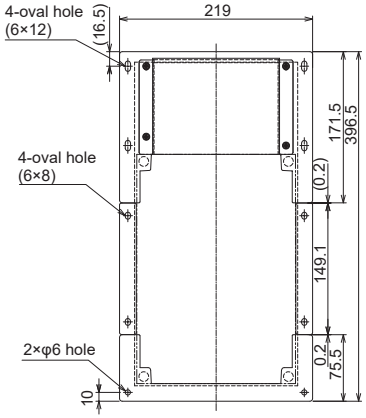
FR-E8CN01
with side covers



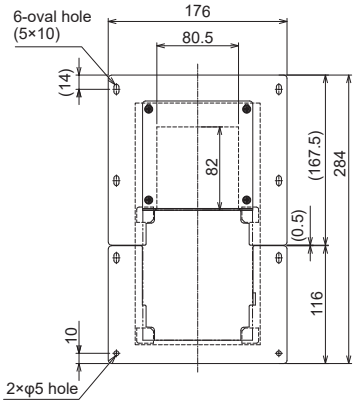
FR-E8CN02



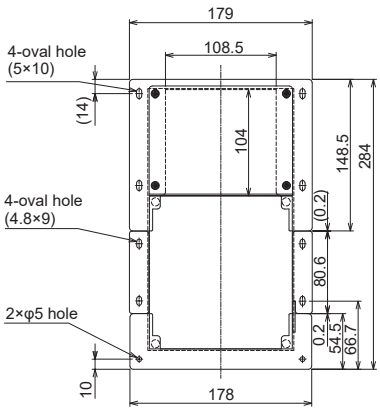
FR-E8CN03
with side covers



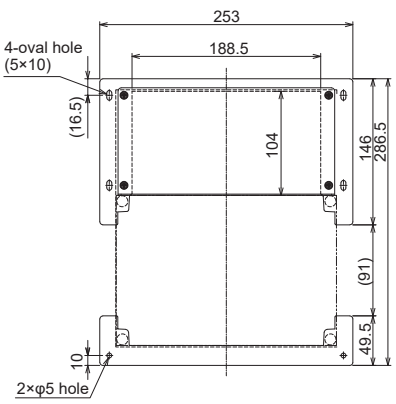
FR-E8CN04



FR-E8CN05
with side covers



FR-E8CN06



Use side covers for a rectangular cut. Side covers are not provided with the FR-E8CN02, 04, or 06.

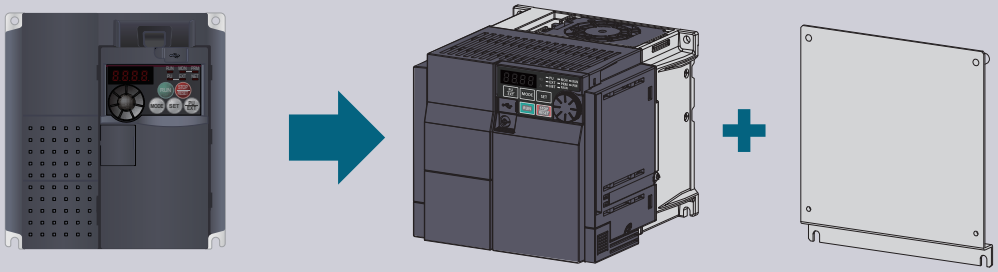
(Unit: mm)

FR-E8AT04: Intercompatibility Attachment

Benefit

Facilitate enclosure design

Installation holes for the FR-E700 series inverter can be used for the replacing FR-E800 series inverter.



FR-E720S-2.2K　　FR-E820S-0110(2.2K)　　FR-E8AT04

Fix the top of the inverter and the attachment by tightening the supplied screws into the existing installation holes.

Applicable inverters

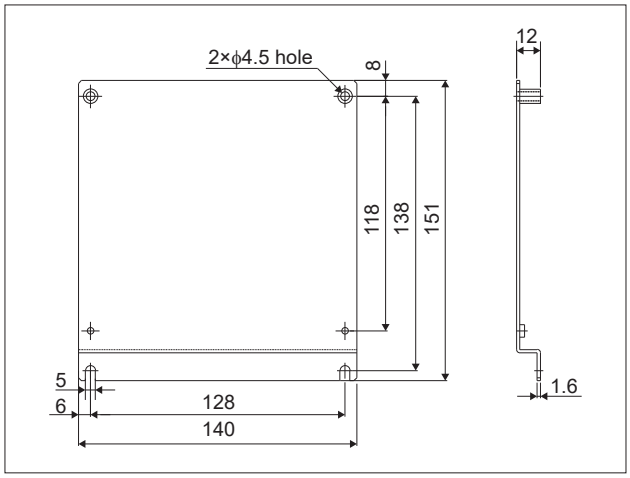
Check the Instruction Manual. ▶

• Replacing the FR-E720 inverter with the FR-E820 inverter

Compatible former model		Mountable model		Intercompatibility attachment
FR-E720S	0.1K to 1.5K	FR-E820S	0008(0.1K) to 0080(1.5K)	-
	2.2K		0110(2.2K)	FR-E8AT04

- : The attachment is not required.
Refer to the FR-E800 inverter catalog for the inverter model.

Outline dimension drawing



(Unit: mm)

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