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INVERTER TECHNICAL NEWS

NAGOYA WORKS
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MODELS: FR-D800

TITLE: Protruding the heat sink through the enclosure for the FR-D800 series
CATEGORY: Structure

1. Overview

This document describes how to protrude the heat sink through the enclosure for the FR-D800 series and provides information on the panel through attachment.
When installing the inverter in an enclosure, the heat sink of the inverter can be protruded through the rear panel of the enclosure to dissipate the heat generated by the inverter. When installing the inverter in a compact enclosure, this installation method is recommended.

2. Precautions

(1) Do not touch the inverter or attachment while the power is ON and for some time after power OFF as they will be extremely hot. Doing so may cause burns.
(2) Transport the product in the correct way according to the mass of the attachment. Failure to do so may lead to injuries.
Pay special attention to the edges of the product.
(3) Prevent foreign materials such as screws and metal fragments or flammable substances such as oil from entering this product.
(4) To prevent injury, be careful with parts such as metal sheets when installing or removing parts such as the fan cover. It is recommended to use a tool such as a flathead screwdriver. To tighten or remove the fan cover installation screws, it is recommended to use a tool such as an L-shaped screwdriver or a ratchet screwdriver.
(5) The CAD data does not guarantee the specifications of our products. We will not be liable for any loss or damages caused by using the CAD data. Before using any self-made attachment in the system, verify that the inverter can be installed without problems.

3. Applicable inverters

The panel through attachment data can be downloaded from the Mitsubishi Electric FA Website.
Select FR-D800 as a search condition.
https://www.mitsubishielectric.co.jp/fa/download/cad/search.do?mode=cad&kisyu=/inv

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The following table lists the combinations of the inverter and the panel through attachment data.

Attachment model	Applicable inverter	File data	Extension	Download file
D8CN01	FR-D820-2.2K-100 *1 FR-D820S-2.2K-100 *2 FR-D840-2.2K-050 *1 FR-D840-3.7K-081 *1	2D	dxf	d8cn01_dxf.zip
		2D	dwg	d8cn01_dwg.zip
		3D	igs	d8cn01_igs.zip
		3D	stp	d8cn01_stp.zip
D8CN02	FR-D820-3.7K-165 *2	2D	dxf	d8cn02_dxf.zip
		2D	dwg	d8cn02_dwg.zip
		3D	igs	d8cn02_igs.zip
		3D	stp	d8cn02_stp.zip
FR-E8CN06	FR-D820-5.5K-238 *1 FR-D820-7.5K-318 *1 FR-D840-5.5K-120 *1 FR-D840-7.5K-163 *1	2D	dxf	e8cn06_dxf.zip
		2D	dwg	e8cn06_dwg.zip
		3D	igs	e8cn06_igs.zip
		3D	stp	e8cn06_stp.zip
		Outline dimension drawings	pdf	C112D901_FR-E8CN06.pdf
E8CN07	FR-D820-11K-450 *1 FR-D820-15K-580 *1	2D	dxf	e8cn07_dxf.zip
		2D	dwg	e8cn07_dwg.zip
		3D	igs	e8cn07_igs.zip
		3D	stp	e8cn07_stp.zip
FR-E8CN03	FR-D840-11K-230 *2 FR-D840-15K-295 *2	2D	dxf	e8cn03_dxf.zip
		2D	dwg	e8cn03_dwg.zip
		3D	igs	e8cn03_igs.zip
		3D	stp	e8cn03_stp.zip
		Outline dimension drawings	pdf	C112D898_FR-E8CN03.pdf

*1 If the FR-E7CN is used, the FR-D800 series can be installed by using the enclosure panel as is.

*2 Since the dimensions have been changed from the FR-D700, the enclosure panel cannot be used as is. The enclosure panel must be re-cut. (For the enclosure panel cutting dimensions, refer to "5. Enclosure cut dimensions".)

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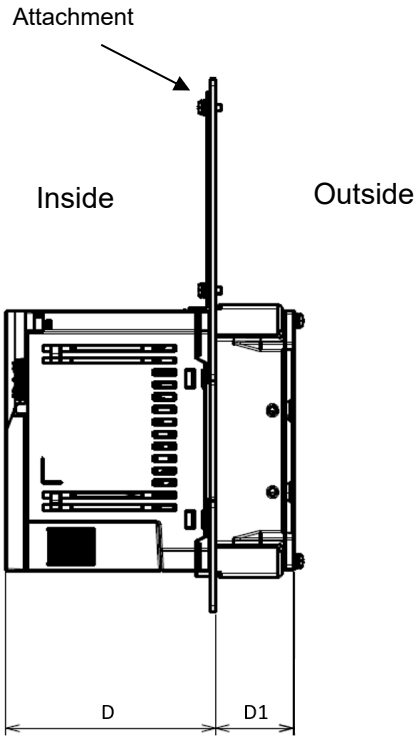
When the FR-D700 series is replaced with the FR-D800 series, the depth changes for the outside and inside of the enclosure as shown in the following table.

After				Before			
FR-D800 model	Attachment model	D (mm)	D1 (mm)	FR-D700 model	Attachment model	D (mm)	D1 (mm)
FR-D820-2.2K-100	D8CN01 *1	96.5	36	FR-D720-2.2K	FR-E7CN01	75.5	60
FR-D820-3.7K-165	D8CN02 *1	96.5	46	FR-D720-3.7K	FR-E7CN02	76	66.5
FR-D820-5.5K-238	FR-E8CN06 *2	87	68	FR-D720-5.5K	FR-E7CN05	87	68
FR-D820-7.5K-318	FR-E8CN06 *2	87	68	FR-D720-7.5K	FR-E7CN05	87	68
FR-D820S-2.2K-100	D8CN01 *1	109	36	FR-D720S-2.2K	FR-E7CN04	85	60
FR-D820-11K-450	E8CN07 *1	105.3	84.7	FR-D720-11K	FR-E7CN06	105.5	84.5
FR-D820-15K-580	E8CN07 *1	105.3	84.7	FR-D720-15K	FR-E7CN06	105.5	84.5
FR-D840-2.2K-050	D8CN01 *1	119.5	36	FR-D740-2.2K	FR-E7CN01	95.5	60
FR-D840-3.7K-081	D8CN01 *1	119.5	36	FR-D740-3.7K	FR-E7CN01	105.5	60
FR-D840-5.5K-120	FR-E8CN06 *2	87	68	FR-D740-5.5K	FR-E7CN05	87	68
FR-D840-7.5K-163	FR-E8CN06 *2	87	68	FR-D740-7.5K	FR-E7CN05	87	68
FR-D840-11K-230	FR-E8CN03 *2	118.5	71.5	FR-D740-11K	FR-E7CN06	105.5	84.5
FR-D840-15K-295	FR-E8CN03 *2	118.5	71.5	FR-D740-15K	FR-E7CN06	105.5	84.5

*1 Only CAD data is provided.
The attachment model is not a product model, but a model represented using a part of the download file name.

*2 These models use the FR-E8CN instead of the D8CN.



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4. Parts configuration and assembly example

(1) Components

The attachment consists of the following parts.

Part name	Attachment model				
	D8CN[] *2		FR-E8CN[]		E8CN *2
	01	02	03	06	07
Upper installation frame	1	1	1	1	1
Upper cover	1	1	1	1	1
Lower installation frame	1	1	1	1	1
Side cover (A)*1	1	1	2	—	—
Side cover (B)*1	1	1	—	—	—
Upper cover installation screw (size)	4 (M4 × 8)	4 (M4 × 8)	4(M4 × 8)	4 (M4 × 8)	2(M4 × 10)
Frame installation screw (size)	4 (M4 × 12)	4 (M4 × 12)	4(M4 × 20)	4 (M4 × 16)	4(M5 × 20)
Back plate (D8CN01 and D8CN02 only)	1	1	—	—	—

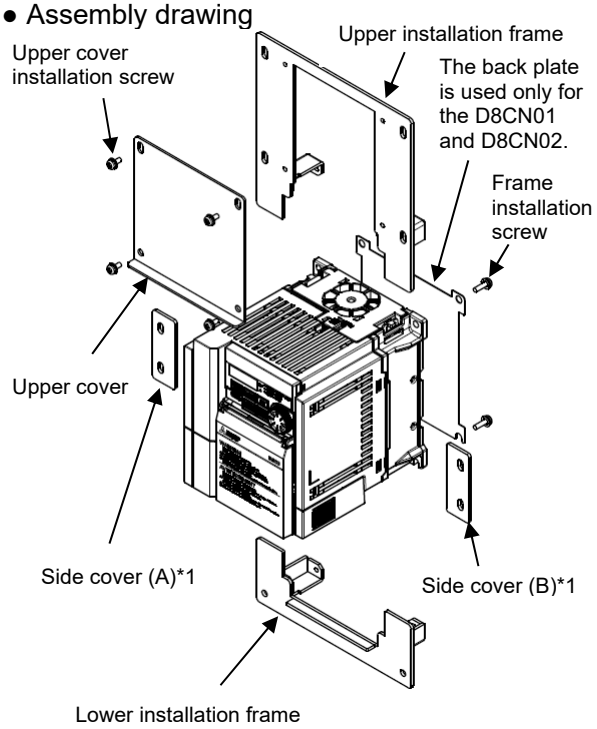
*1 Use side covers for a rectangular cut.
(For the enclosure cut dimensions, refer to "5. Enclosure cut dimensions".)

*2 Only CAD data is provided.
The attachment model is not a product model, but a model represented using a part of the download file name.

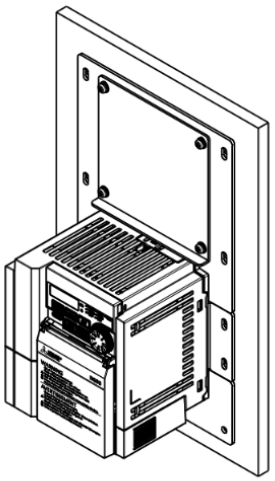
(2) Assembly example

Example: D8CN01

● Assembly drawing



● Assembly completed drawing (with side installation frames)



*1 The FR-E8CN06 does not have side covers.

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To replace the cooling fan, remove the upper cover and then replace the cooling fan through its opening.

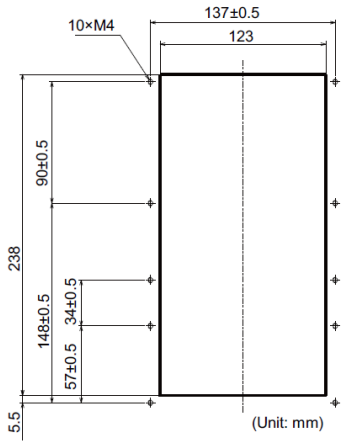
5. Enclosure cut dimensions
Cut an enclosure to the following dimensions according to the inverter capacity.

5.1. Precautions for cutting the enclosure

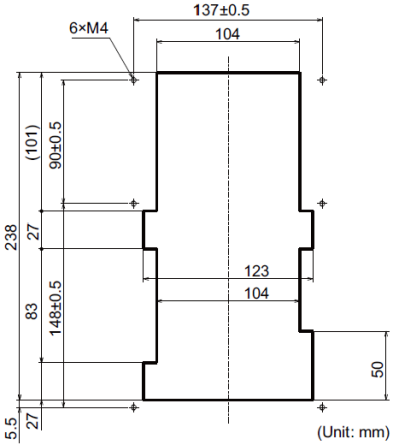
(1) As the heat sink section that protrudes through the panel includes a cooling fan, this type of installation is not suitable for environments which expose the inverter to water droplets, oil mist, dust, etc.
(2) Be careful not to drop screws, dust etc. into the inverter and cooling fan section.
(3) There is 1 mm of space between the attachment and the inverter.
(The inverter is not fully enclosed.)

5.2. When re-cutting the enclosure

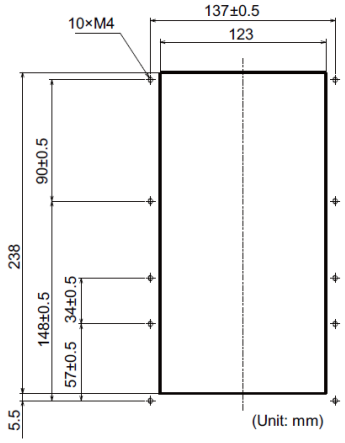
D8CN01 (with side covers)



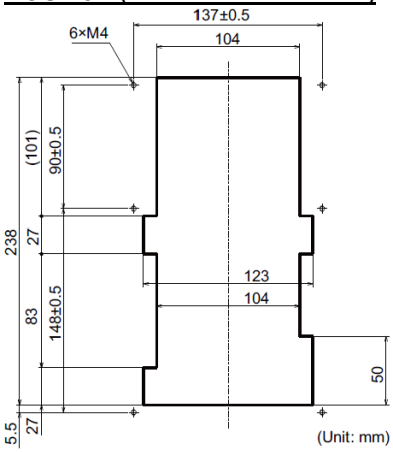
D8CN01 (without side covers)



D8CN02 (with side covers)



D8CN02 (without side covers)



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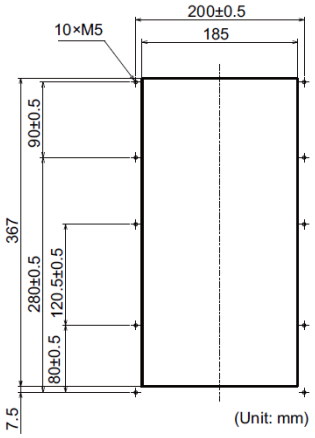
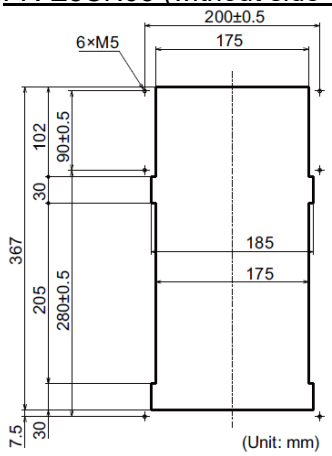
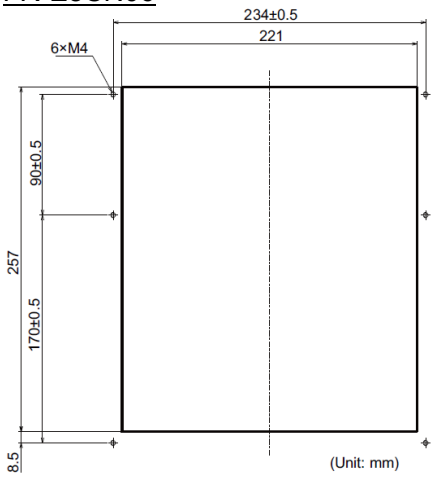
FR-E8CN03 (with side covers)



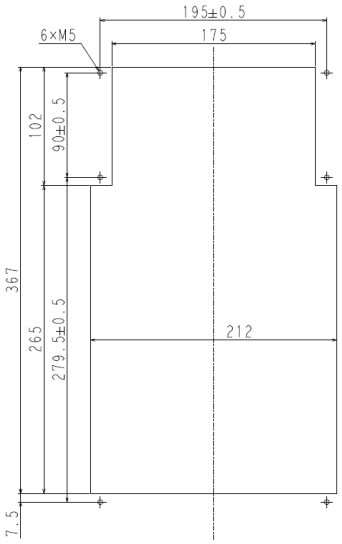
FR-E8CN03 (without side covers)



FR-E8CN06



E8CN07



(Unit: mm)

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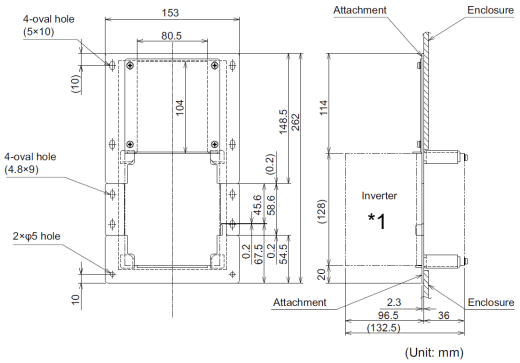
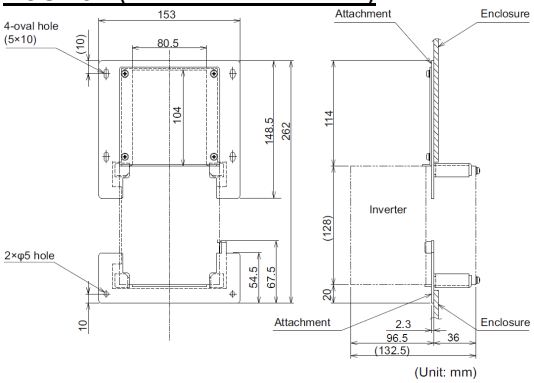
6. Outline dimensions
(------: enclosure cut lines)

D8CN01 (with side covers)

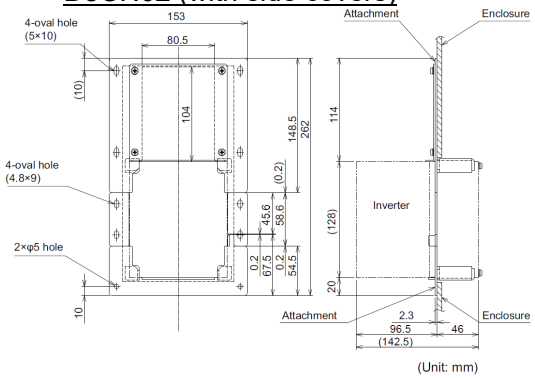


D8CN01 (without side covers)

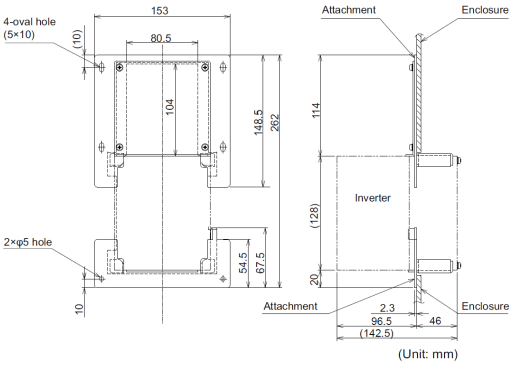


*1 Dimensions are shown for the FR-D820-2.2K-100. When using other inverter models, refer to page 3.

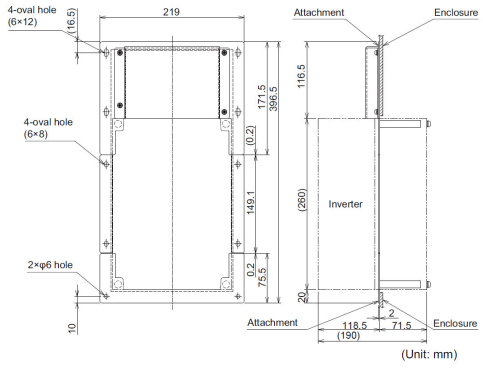
D8CN02 (with side covers)



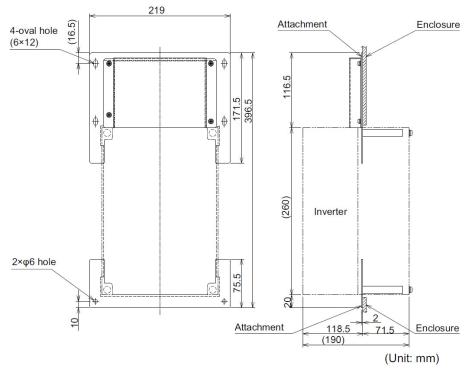
D8CN02 (without side covers)



FR-E8CN03 (with side covers)



FR-E8CN03 (without side covers)



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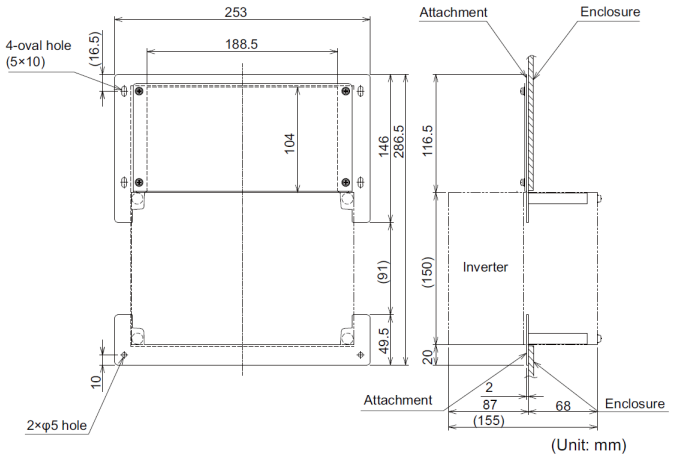
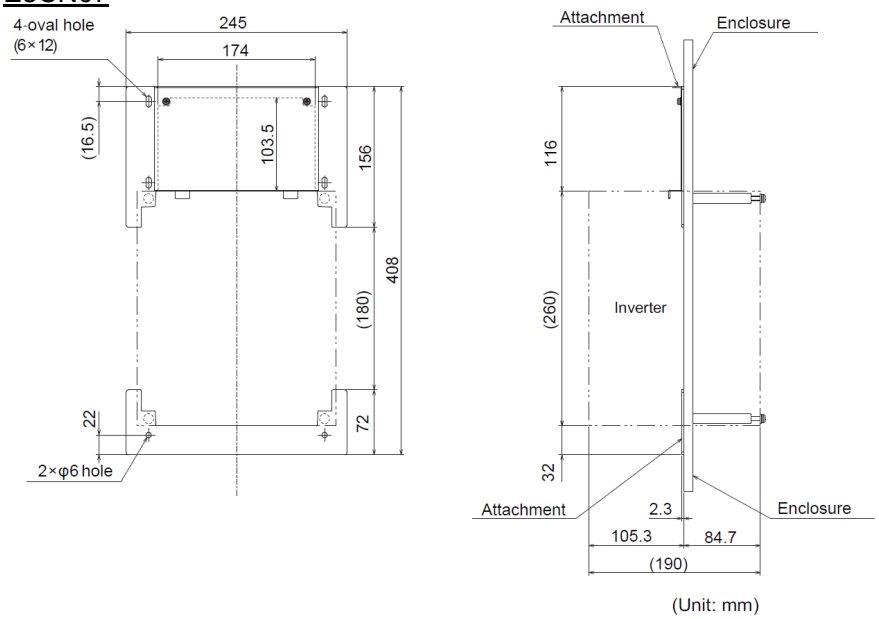
FR-E8CN06



(Unit: mm)

E8CN07



(Unit: mm)