



INVERTER

Option unit

FR-LU08

FR-LU08-01

INSTRUCTION MANUAL

LCD Operation Panel

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Thank you for choosing this Mitsubishi inverter option unit.

This Instruction Manual provides handling information and precautions for use of this product. Incorrect handling might cause an unexpected fault. Before using this product, always read this Instruction Manual carefully to use this product correctly.

Please forward this Instruction Manual to the end user.

Safety instructions

Do not attempt to install, operate, maintain or inspect the product until you have read through this Instruction Manual and appended documents carefully and can use the equipment correctly. Do not use this product until you have a full knowledge of the equipment, safety information and instructions. In this Instruction Manual, the safety instruction levels are classified into "Warning" and "Caution".



Warning

Incorrect handling may cause hazardous conditions, resulting in death or severe injury.



Caution

Incorrect handling may cause hazardous conditions, resulting in medium or slight injury, or may cause only material damage.

The



Caution

level may even lead to a serious consequence according to conditions. Both instruction levels must be followed

because these are important to personal safety.

◆ Electric shock prevention



Warning

- While the inverter power is ON, do not open the front cover or the wiring cover. Do not run the inverter with the front cover or the wiring cover removed. Otherwise you may access the exposed high voltage terminals or the charging part of the circuitry and get an electric shock.
- Do not remove the inverter front cover even if the power supply is disconnected. The only exception for this would be when performing wiring and periodic inspection. You may accidentally touch the charged inverter circuits and get an electric shock.
- Before wiring or inspection, LED indication of the inverter unit operation panel must be switched OFF. Any person who is involved in wiring or inspection shall wait for at least 10 minutes after the power supply has been switched OFF and check that there is no residual voltage using a tester or the like. For some time after the power-OFF, a high voltage remains in the smoothing capacitor, and it is dangerous.
- Any person who is involved in wiring or inspection of this equipment shall be fully competent to do the work.
- Do not touch the operation panel or handle the cables with wet hands. Otherwise you may get an electric shock.
- Do not subject the cables to scratches, excessive stress, heavy loads or pinching. Otherwise you may get an electric shock.

◆ Additional instructions

The following instructions must be also followed. If the product is handled incorrectly, it may cause unexpected fault, an injury, or an electric shock.



Caution

Transportation and mounting

- Do not install or operate the operation panel if it is damaged or has parts missing.
- Do not stand or rest heavy objects on the product.

Caution

Transportation and mounting

- The mounting orientation must be correct.
- The surrounding air temperature must be between -10 to +50°C (non-freezing). Otherwise the inverter may be damaged.
- The surrounding humidity must be 90% RH or less (non-condensing) for the FR-LU08, and 95% RH or less (non-condensing) for the FR-LU08-01. Otherwise the inverter may be damaged.
- The storage temperature (applicable for a short time, such as during transit) must be between -20 to +65°C. Otherwise the inverter may be damaged.
- The inverter must be used indoors (without corrosive gas, flammable gas, oil mist, dust and dirt etc.) Otherwise the inverter may be damaged.
- The inverter must be used at an altitude of 2500 m or less above sea level, with 5.9 m/s² or less vibration at 10 to 55 Hz (directions of X, Y, Z axes). Otherwise the inverter may be damaged.
- If halogen-based materials (fluorine, chlorine, bromine, iodine, etc.) infiltrate into a Mitsubishi product, the product will be damaged. Halogen-based materials are often included in fumigant, which is used to sterilize or disinfect wooden packages. When packaging, prevent residual fumigant components from being infiltrated into Mitsubishi products, or use an alternative sterilization or disinfection method (heat disinfection, etc.) for packaging. Sterilization or disinfection of wooden package should also be performed before packing the product.

Trial run

- Before starting operation, each parameter must be confirmed and adjusted. A failure to do so may cause some machines to make unexpected motions.

Warning

Usage

- Since pressing the STOP/RESET key of the operation panel may not stop output depending on the function setting status, separate circuit and switch that make an emergency stop (power OFF, mechanical brake operation for emergency stop, etc.) must be provided.
- OFF status of the start signal must be confirmed before resetting an inverter fault. Resetting an inverter fault with the start signal ON restarts the motor suddenly.
- Do not modify the equipment.
- Do not perform parts removal which is not instructed in this manual. Doing so may lead to fault or damage of the product.

Caution

Usage

- When parameter clear or all parameter clear is performed, the required parameters must be set again before starting operations because all parameters return to the initial value.
- Static electricity in your body must be discharged before you touch the product.

Disposal

- The inverter must be treated as industrial waste.

General instruction

- Many of the diagrams and drawings in this Instruction Manual show the inverter without a cover or partially open for explanation. Never operate the inverter in this manner. The cover must be reinstalled and the instructions in the Instruction Manual must be followed when operating the inverter.

Caution

Waterproof and dustproof performances of FR-LU08-01

- When securely fixed to the inverter with screws, the operation panel (FR-LU08-01) is rated IPX5*1 waterproof rating and IP5X*2 dustproof rating.
- The items enclosed with the FR-LU08-01 such as the Instruction Manual are not rated with the IPX5 waterproof or IP5X dustproof ratings.
- Although the FR-LU08-01 (except for the connector) is rated with the IPX5 waterproof and IP5X dustproof ratings, it is not intended for use in water. Also, the ratings do not guarantee protection of the FR-LU08-01 from needless submersion in water or being washed under strong running water such as a shower.
- Do not pour or apply the following liquids over the FR-LU08-01: water containing soap, detergent, or bath additives; sea water; swimming pool water; warm water; boiling water; etc.
- The FR-LU08-01 is intended for indoor*4 installation and not for outdoor installation. Avoid places where the FR-LU08-01 is subjected to direct sunlight, rain, sleet, snow, or freezing temperatures.
- If the screws of the FR-LU08-01 are not tightened, or if the FR-LU08-01 is damaged or deformed, the IPX5 waterproof performance and the IP5X dustproof performance are impaired. If any abnormalities are found on the FR-LU08-01, ask for an inspection and repair.
- To maintain the waterproof and dustproof performances of the FR-LU08-01, daily and periodic inspections are recommended regardless of the presence or absence of abnormalities.

- *1 IPX5 refers to protection of the operation panel functions against water jets from any direction when about 12.5-liter water*3 is injected from a nozzle with an inside diameter of 6.3 mm from the distance of about 3 m for at least 3 minutes.
- *2 IP5X refers to protection of the operation panel functions and maintenance of safety when the inverter is put into a stirring device containing dust of 75 μm or smaller in diameter, stirred for 8 hours, and then removed from the device.
- *3 Water here refers to fresh water at room temperature (5 to 35°C).
- *4 Indoor here refers to the environments that are not affected by climate conditions.

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1 PRE-OPERATION INSTRUCTIONS

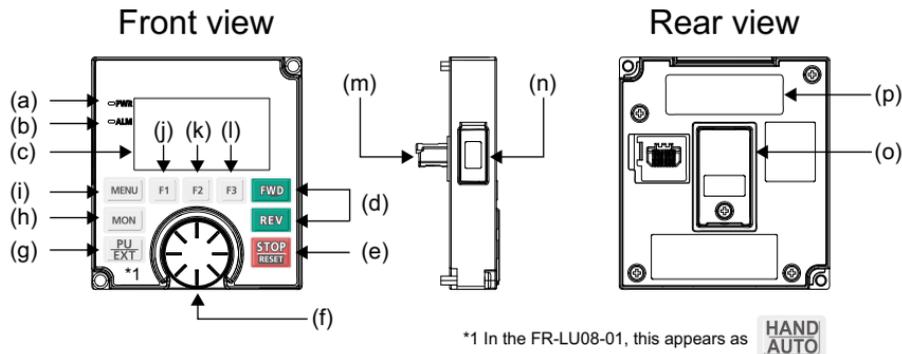
1.1 Unpacking and checking the product

Take the operation panel out of the package, and confirm that the product is as you ordered and intact.
The FR-LU08(-01) is compatible with the 800 series inverters.

1.2 Differences with the FR-LU08 and FR-LU08-01

Item	FR-LU08	FR-LU08-01
Applicable model	Standard model / Separated converter type	IP55 compatible model
Protective structure	IP40 (except for the PU connector)	IP55 (except for the PU connector)
Outline dimension (W×H×D [mm])	72×78.5×17	80×96×19
Number of fixing screws	2	4
Operation mode indicator	PU/EXT	HAND/AUTO
Operation key	PU/EXT key 	HAND/AUTO key 
Installation on the enclosure	Available	Not available

1.3 Appearance and parts name



Symbol	Name	Description
a	Power lamp	ON when the power is turned ON.
b	Alarm lamp	ON when an inverter alarm occurs.
c	Monitor	Shows the frequency, parameter number, etc. (Using Pr.52 , Pr.774 to Pr.776 , the monitored item can be changed.)
d	FWD key, REV key	FWD key: Starts the forward operation. REV key: Starts the reverse operation.
e	STOP/RESET key	Used to stop operation commands. Used to reset the inverter when the protective function is activated.
f	Setting dial	The setting dial is used to change the frequency and parameter settings. Pressing the dial shows details of the faults history mode.

Symbol	Name		Description
g	FR-LU08	PU/EXT key	Switches between the PU mode, the PUJOG mode, and the External operation mode.
	FR-LU08-01	HAND/AUTO key	Switches between the HAND mode, the HANDJOG mode, and the External operation mode.
h	MON key		Shows the first monitored item.
i	MENU key		Displays the quick menu. Pressing the key while the quick menu is displayed displays the function menu.
j	Software key (F1)		Select a guidance displayed on the monitor.
k	Software key (F2)		
l	Software key (F3)		
m	Connector		Connector connected to the inverter. Connect this connector to the PU connector of the inverter.
n	For manufacturer setting. Do not use. Do not peel off the waterproof seal that is affixed to the FR-LU08-01.		
o	Battery cover		Remove the battery cover when replacing the backup battery for the real time clock function.
p	Rating plate		-

NOTE

- Do not operate the keys with sharp tools.
- Do not press the LCD part.
- Do not peel off the waterproof seal affixed to the FR-LU08-01. If the seal is peeled off, the FR-LU08-01 does not conform to IP55.

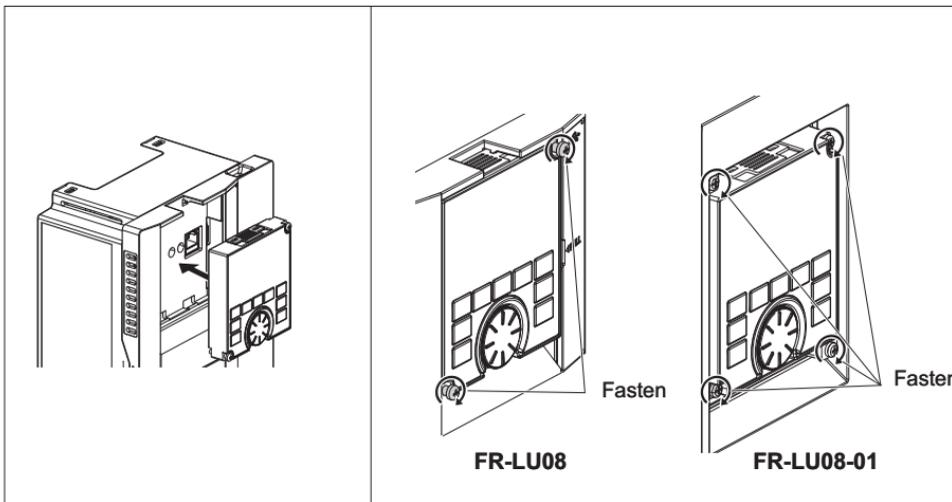
1.4 Installation and removal

For safety, turn OFF the inverter when installing or removing the operation panel.

1.4.1 Installing the operation panel to the inverter

- Installation

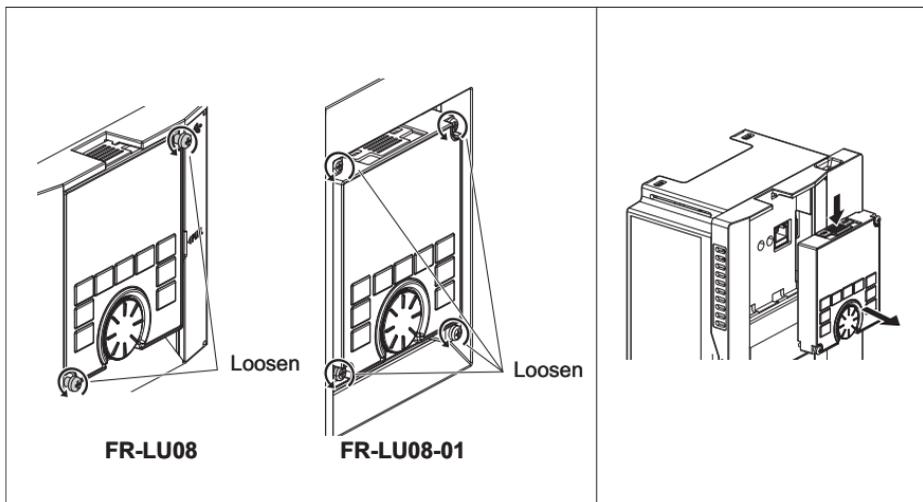
- (1) Remove the operation panel (FR-DU08(-01)) from the inverter. (For the removal of the operation panel, refer to the Instruction Manual of the inverter.)
- (2) Align the connector of the FR-LU08(-01) with the PU connector of the inverter, and insert the operation panel. After confirming that the operation panel is fit securely, tighten the screws. For the FR-LU08-01, tighten the screws in a diagonal order. (Tightening torque: 0.40 to 0.45 N•m for the FR-LU08, 0.39 to 0.49 N•m for the FR-LU08-01)



- Removal

(1) Loosen the screws on the FR-LU08(-01). (These screws cannot be removed.)

(2) Push the upper part of the FR-LU08(-01), and pull out the operation panel to remove.

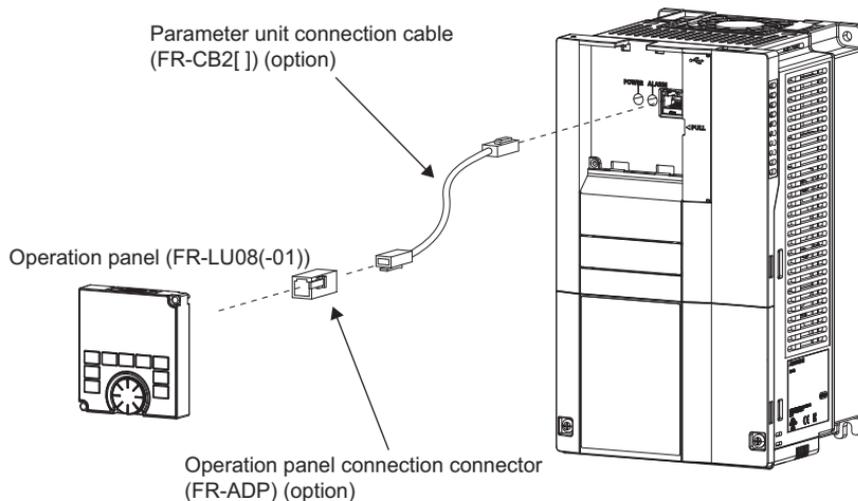


1.4.2 Connecting the operation panel using a connection cable (FR-CB2)

- Installation

To connect the FR-LU08(-01), an optional operation panel connection connector (FR-ADP) is required.

- (1) Remove the operation panel (FR-DU08(-01)) from the inverter. (For the removal of the operation panel, refer to the Instruction Manual of the inverter.)
- (2) Securely insert one end of the connection cable into the PU connector of the inverter and the other end into the connection connector of the FR-LU08(-01) along the guides until the stoppers are fixed.



- Removal

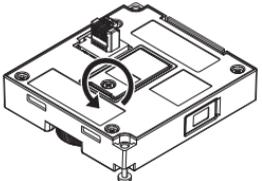
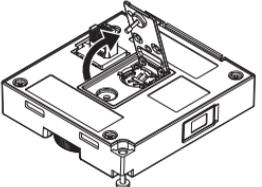
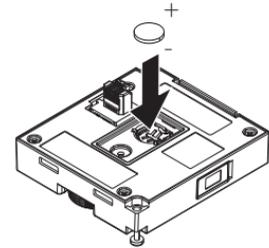
Hold down the tab (stopper) at the cable end and gently pull the plug.



- If the FR-LU08-01 is removed from the inverter and FR-LU08-01 does not conform to IP55.

1.4.3 Installation of a backup battery

With a battery (CR1216), the FR-LU08(-01) time count continues even if the main power of the inverter is turned OFF (real time clock function). For the details of the real time clock function, refer to [page 17](#).

1	Loosen the screw on the battery cover, which is located on the back side of the FR-LU08(-01).	
2	Insert a flathead screwdriver to the slot, and lift the cover to open.	
3	Place the battery as shown in the right figure.	
4	Close the battery cover, and tighten the screw. (Tightening torque: 0.1 to 0.3 N·m)	

NOTE

- Do not replace the battery of the FR-LU08(-01) while power is ON.
- Do not use batteries that have been dropped or otherwise received an impact. Battery leakage may occur. Discard the batteries.

1.5 Items to be checked first

1.5.1 Language selection

At first power ON, the language selection screen appears after the corporation logo of MITSUBISHI ELECTRIC.

Turn  to select the language, and push  to set.

The interface language can be changed from the quick menu. (Refer to [page 25](#).)



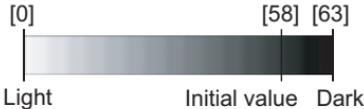
1.5.2 PU buzzer control (Pr.990)

With **Pr.990 PU buzzer control**, the buzzer can be set to "beep" when a key of the parameter unit is operated.

Pr.990 setting	Description
0	Without buzzer
1 (initial value)	With buzzer

1.5.3 PU contrast adjustment (Pr.991)

With **Pr.991 PU contrast adjustment**, the contrast of the display panel of the parameter unit can be adjusted.

Pr.991 setting	Description
0 to 63	

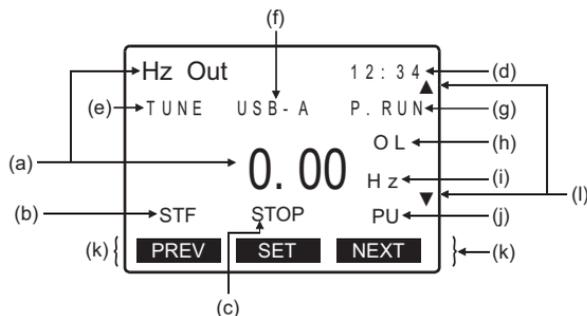


- For how to set parameters, refer to [page 21](#).

2 FUNCTION AND BASIC OPERATION

2.1 Monitor function

2.1.1 Outline of the monitor indicator

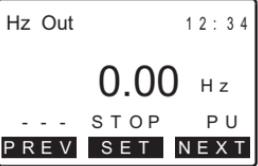


Symbol	Name	Description
a	Main monitor	Displays the output frequency, output current, output voltage, faults history, and other monitor data. Switching the main monitor data using <input type="button" value="MON"/> (Refer to page 18.) Switching the main monitor data using the function menu (Refer to page 19.) Switching the main monitor data using Pr.52 Operation panel main monitor selection (Refer to page 19.)
b	Rotation direction indicator	Displays the direction of the start command (STF: forward and STR: reverse). (---: No start command is input, or both STF and STR are ON.)

Symbol	Name	Description
c	Operating status indicator	Displays the operating status of the inverter. STOP: During stop FWD: During forward rotation REV: During reverse rotation JOGf: During JOG forward rotation JOGr: During JOG reverse rotation ALARM: At fault occurrence
d	Clock indicator	Displays time. With a battery installed, the clock keeps working even if the main circuit power supply is turned OFF. (Refer to page 17.)
e	Tuning status indicator	Displays the offline auto tuning status of the inverter. TUNE: During turning or tuning completed TUNE highlighted and flickering: Tuning error
f	USB connection/password locked	Displays the connection status of the USB A connector of the inverter and password function setting status. USB-A: USB connection recognized USB-A highlighted: USB ready USB-A flickering: During USB operation LOCK: Password locked
g	PLC function/JOG operation indicator	Displays the status of the PLC function and JOG operation. P.RUN: During stop with the PLC function enabled P.RUN highlighted: During PLC function operation P.RUN highlighted and flickering: Operation error in the PLC function JOG: JOG operation enabled
h	Warning indicator	Displays an inverter warning.
i	Unit indicator	Shows the unit of the main monitor.

Symbol	Name	Description
j	Operation mode indicator *1	Displays the operation mode. EXT: External operation mode PU: PU operation mode EXTj: External JOG operation mode PUj: PUJOG operation mode NET: Network operation mode PU+E: External/PU combined operation mode
k	Software key indicator	Displays operations performed by pressing the F1 (left), F2 (center), or F3 (right) key.
l	Scroll indicator	Displayed when the display can be scrolled by pressing  .

*1 For the FR-LU08-01, AUTO will be displayed instead of EXT, and HAND will be displayed instead of PU in the description of the operation mode indicator.

Operation mode indicator			
FR-LU08		FR-LU08-01	
Indication of EXT/PU		Indication of AUTO/HAND	
			

2

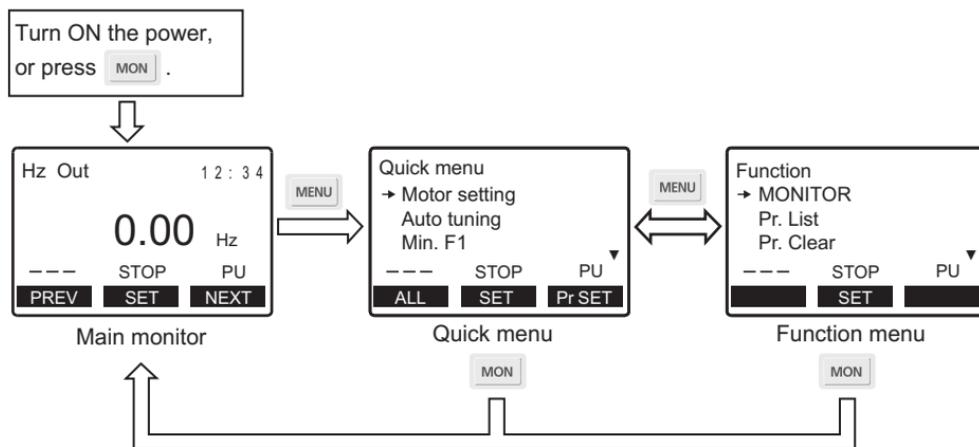
2.1.2 Using the real time clock function

With a battery (CR1216), the FR-LU08(-01) time count continues even if the main power of the inverter is turned OFF (real time clock function). For how to install the backup battery, refer to [page 12](#).

- When the battery is installed in the FR-LU08(-01), its time is written to the inverter at power-ON (except the first power-ON after the battery is installed).
- When the battery is not installed, the FR-LU08(-01) reads the time from the inverter and starts counting of the clock.

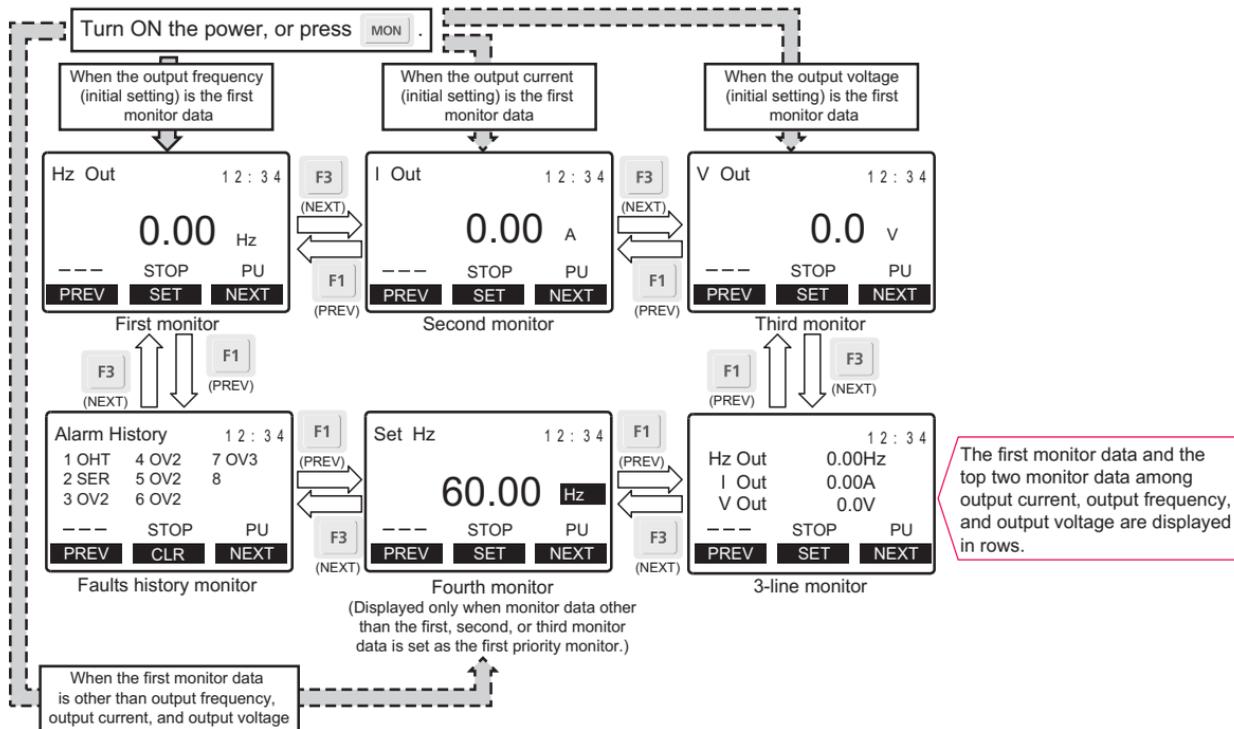
2.1.3 Switching the monitor data or the menu

Pressing **MON** or **MENU** switches the monitor data or the menu.



2.1.4 Switching the main monitor data

When **Pr.52 Operation panel main monitor selection** is set to "0", by pressing **F1** (PREV) or **F3** (NEXT) 6 types of monitor data are displayed in order.



2.1.5 Switching the main monitor data using the function menu

The monitor list is displayed when the monitor selection in the function menu is selected.

If monitor data is switched from the monitor list, the new monitor data is registered and displayed in the fourth monitor.

(For the function menu, refer to [page 26](#).)

2.1.6 Switching the main monitor data using the parameter

The monitor indicator of the output voltage monitor is switched according to the setting of **Pr.52 Operation panel main monitor selection**. When "17" (load meter), "18" (motor excitation current), or "24"(motor load factor) is set in **Pr.52**, however, the monitor indicator of the output current monitor is switched accordingly.

2.1.7 Setting of the monitor data at power-ON (first priority monitor)

Set the monitor data that is displayed first at power-ON or when  is pressed.

While monitor data other than the faults history is displayed, press  to set the monitor data to be displayed first at power-ON.



- For details on the monitor description, refer to the Instruction Manual of the inverter.

2.2 Frequency setting

The frequency applied in the PU operation mode or external/PU combined operation mode (Pr.79="3") can be set.

While the main monitor data is displayed, turn  to input a frequency setting value and press

 to confirm the setting.

Freq Set		
Current	60.00Hz	
Preset	60.00Hz	
---	STOP	PU
BACK	SET	

NOTE

- If the external start signal (STF or STR) is ON, the External operation mode cannot be switched to the PU operation mode.

2.3 Faults history indicator

Press  while the faults history is displayed to display the details of the fault.

Details of the past eight faults can be checked by pressing .

- How to clear the faults history

Press  while the faults history is displayed to display a confirmation screen for the faults

history clear. Press  to clear the faults history and  to return to the faults history.

LATEST ERR	1 2 : 3 4
OC During Dec	
2014/02/04 10:00	
Frequency 60.00Hz	▼
---	STOP PU
BACK	PREV NEXT

2.4 Setting and changing the parameter values

For details on the parameters, refer to the Instruction Manual of the inverter.

2.4.1 Specifying the parameter number to change the set value

Example: To change the **Pr.8 Deceleration time** setting from 5 s to 180 s

1 Display the quick menu and press . The parameter setting mode is activated.

Quick menu

→ Motor setting

Auto tuning

Min. F1

--- STOP PU

ALL SET Pr SET

⇒

SETTING MODE

Pr. NO.

0000

--- STOP PU

BACK SET →

↑ Parameter setting

2 Turn until 8 appears.

(Or, press to move "▲" to the target digit, and select the parameter number by turning .)

Press to display the present set value.

8 Dec. T1

Current 5.0 sec

Preset 5.0 sec

0-3600

--- STOP PU

BACK SET NEXT

3 Turn to set the value to 180.0, and press . The set value is changed.

8 Dec. T1

Current 5.0 sec

Preset 180.0 sec

Completed

--- STOP PU

BACK NEXT

4 Press to display the next parameter.

9 Set THM

Current 4.25A

Preset 4.25A

0-500

--- STOP PU

BACK SET NEXT

2.4.2 Selecting the parameter from functional list to change the set value

Example: To change the **F011 Deceleration time** setting from 5 s to 180 s

1	<p>Display the quick menu and press . The group parameter setting mode is activated.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 5px; width: 150px;"> <p>Quick menu</p> <ul style="list-style-type: none"> → Motor setting Auto tuning Min. F1 <p style="text-align: right;">--- STOP PU</p> <p style="text-align: center;">ALL SET Pr-SET</p> </div> <div style="font-size: 2em;">→</div> <div style="border: 1px solid black; padding: 5px; width: 150px;"> <p>Category Menu</p> <ul style="list-style-type: none"> → E Environment F Acc/Dec D Opr/Freq command <p style="text-align: right;">--- STOP PU</p> <p style="text-align: center;">BACK SET</p> </div> </div> <p>↙ Group parameter setting</p>
2	<p>Turn  to move the cursor to [F Acc/Dec], and press . The functional list is displayed.</p> <div style="border: 1px solid black; padding: 5px; width: 150px;"> <p>F Acc/Dec</p> <ul style="list-style-type: none"> → 0 Time 1 Pattern 2 Backlash <p style="text-align: right;">--- STOP PU</p> <p style="text-align: center;">BACK SET</p> </div>
3	<p>Turn  to move the cursor to [0 Time], and press . The functional list for time setting is displayed.</p> <div style="border: 1px solid black; padding: 5px; width: 150px;"> <p>F0 Time</p> <ul style="list-style-type: none"> → 00 Acc/DecF 01 Incr. T 02 JOG T <p style="text-align: right;">--- STOP PU</p> <p style="text-align: center;">BACK SET</p> </div>

4	<p>Turn  to move the cursor to [11 Dec. T1], and press . The present set value is displayed.</p> <div style="border: 1px solid black; padding: 5px; width: 150px;"> <p>F011 Dec. T1</p> <p style="text-align: right;">Current 5.0 sec</p> <p style="text-align: right;">Preset 5.0 sec</p> <p style="text-align: center;">0-3600</p> <p style="text-align: right;">--- STOP PU</p> <p style="text-align: center;">BACK SET</p> </div>
5	<p>Turn  to set the value to 180.0, and press . The set value is changed.</p> <div style="border: 1px solid black; padding: 5px; width: 150px;"> <p>F011 Dec. T1</p> <p style="text-align: right;">Current 5.0 sec</p> <p style="text-align: right;">Preset 180.0 sec</p> <p style="text-align: center; background-color: black; color: white;">Completed</p> <p style="text-align: right;">--- STOP PU</p> <p style="text-align: center;">BACK SET</p> </div>

2

2.4.3 Selecting the parameter from function menu to change the set value

Example: To change the **Pr.8 Deceleration time** setting from 5 s (initial value) to 180 s

1	<p>Display the function menu, turn  to move the cursor to the parameter, and press . [Set Pr.List] and [Def.Pr.List] are displayed.</p> <div data-bbox="299 282 559 451" style="border: 1px solid black; padding: 5px; margin: 10px auto; width: fit-content;"> <p>Pr. List ▶ Set Pr. List Def. Pr. List</p> <p>--- STOP PU BACK SET</p> </div>	<p>Turn  to move the cursor to [8 Dec. T1], and press . The present set value is displayed.</p> <div data-bbox="950 220 1195 381" style="border: 1px solid black; padding: 5px; margin: 10px auto; width: fit-content;"> <p>8 Dec. T1 Current 5.0 sec Preset 5.0 sec 0-3600</p> <p>--- STOP PU BACK SET NEXT</p> </div>
2	<p>Turn  to move the cursor to [Def.Pr.List], and press . [Def.Pr.List] is displayed. Press  to move the cursor ahead 100 parameters.</p> <div data-bbox="299 614 559 783" style="border: 1px solid black; padding: 5px; margin: 10px auto; width: fit-content;"> <p>Def. Pr. List → 0 Trq. Bst 6.0 1 Max. F1 120.0 2 Min. F1 0.00 ▼</p> <p>--- STOP PU BACK SET SKIP</p> </div>	<p>Turn  to set the value to 180.0, and press . The set value is changed.</p> <div data-bbox="950 484 1195 645" style="border: 1px solid black; padding: 5px; margin: 10px auto; width: fit-content;"> <p>8 Dec. T1 Current 5.0 sec Preset 180.0 sec</p> <p>Completed</p> <p>--- STOP PU BACK SET NEXT</p> </div>
5		<p>Press  to display the next parameter.</p> <div data-bbox="950 728 1195 888" style="border: 1px solid black; padding: 5px; margin: 10px auto; width: fit-content;"> <p>9 Set THM Current 4.25A Preset 4.25A 0-500</p> <p>--- STOP PU BACK SET NEXT</p> </div>

NOTE

- If the parameter setting has been changed from the initial value, the set value can be changed using the change list.

Turn  to move the cursor to the target parameter, and press  to change the set value.

2.4.4 Precautions for writing the set value

- Basically, change the parameter setting while the inverter is stopped in the PU operation mode or combined operation. The parameter setting cannot be changed in the External operation mode or during operation. (The parameter setting can be read regardless of the operation mode.) Note that some parameters can be written even in the External operation mode or during operation. Refer to the Instruction Manual of the inverter used.
- In the initial setting, "0" is set in **Pr.77 Parameter write selection**, and thus parameters can be written only while the inverter is stopped. (The parameters can be read even during the operation.) Note that some parameters can be always written. For the details of **Pr.77**, refer to the Instruction Manual of the inverter.
- In the following cases, set values cannot be written.
 - 1) When the parameter number selected does not exist in the parameter list
 - 2) When a value outside the setting range is entered
- If writing fails and [Setting Error] appears, press  to reset.

3.1 Quick menu

Frequently-used functions (parameters) can be set. For details on the parameters, refer to the Instruction Manual of the inverter.

Quick menu	Item		Parameter to be set
Motor setting	Motor type	Induction motor	Select the motor type and capacity.
		Magnet motor	Select the motor type and capacity.
	Current		Pr.9 Electronic thermal O/L relay
	Voltage	Base frequency voltage	Pr.19 Base frequency voltage
		Rated motor voltage	Pr.83 Rated motor voltage
	Frequency	Base frequency	Pr.3 Base frequency
Rated motor frequency		Pr.84 Rated motor frequency	
Auto tuning	Motor capacity		Pr.80 Motor capacity
	Number of motor poles		Pr.81 Number of motor poles
	Control method selection		Pr.800 Control method selection
	Auto tuning setting		Pr.96 Auto tuning setting/status
Minimum frequency	-		Pr.2 Minimum frequency
High speed maximum frequency	-		Pr.18 High speed maximum frequency
Acceleration time	-		Pr.7 Acceleration time
Deceleration time	-		Pr.8 Deceleration time
Operation mode selection	-		Pr.79 Operation mode selection
Language selection	-		-



- Even if the PU display language has been changed using the quick menu, the **Pr.145 PU display language selection** setting is not changed. In addition, changing the **Pr.145** setting does not affect the language of the FR-LU08(-01).

3.2 Function menu

Various functions can be executed.

Function menu	Item	Refer to page
MONITOR	Displays the monitor list. Monitor data can be switched.	19
Pr. List	Displays the parameter change list and initial value list. Set values can be changed from each list.	23
Pr. Clear	Displays the parameter clear menu. Parameter clear and all parameter clear can be executed.	27
INV. Reset	Resets the inverter.	27
Selectop	Displays the signals assigned to the I/O terminals of the control circuit and the ON/OFF status of the signals.	27
PRCpy set	Parameter copy (reading, writing, and verifying) can be performed.	28
S/W Version	Displays the software control numbers of the inverter.	-
Option Instl Mntr	Displays the connection status of the option connectors 1 to 3.	30
USB Memory Device	Parameter settings and projects of the PLC function can be copied and written to/from a USB memory device, and verified.	31

3.2.1 Parameter clear (Pr.Clear)

"Parameter clear" and "all parameter clear" can be executed. Set the PU operation mode before execution.

- Parameter clear ... The settings of parameters except for calibration parameters and terminal function selection parameters are initialized.
- All parameter clear ... The settings of all the parameters, including calibration parameters and terminal function selection parameters, are initialized.

3.2.2 Inverter reset (INV. reset)

Resets the inverter.

If the inverter's protective function has been activated and the inverter has tripped (output shutoff), inverter reset can be

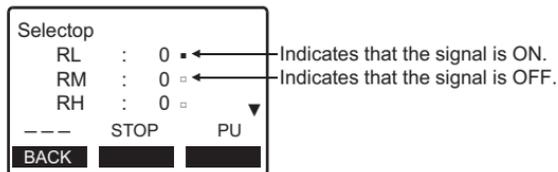
executed only by pressing  .

Inverter reset can also be executed by turning OFF and then ON the inverter or turning ON the RES signal. (For the details, refer to the Instruction Manual of the inverter.)

3.2.3 Terminal assignment (Selectop)

Displays the signals assigned to the I/O terminals of the control circuit and the ON/OFF status of the signals.

The terminal status of the plug-in option can be checked if a plug-in option FR-A8AX or FR-A8AY is installed.



3.2.4 Parameter copy (PRCpy set)

(1) Copying parameter settings

Parameter settings of an inverter can be read, and the settings of maximum three inverters can be stored in the FR-LU08(-01).

The stored parameter settings can be copied to other same-series inverters.

- Reading the parameter settings of the inverter and storing them to the FR-LU08(-01)

1	Connect the FR-LU08(-01) to the inverter that contains the parameters to be copied.
2	Display the function menu, turn  to move the cursor to [PRCpy set], and press  .
3	Turn  to move the cursor to the copy area used, and press  . <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>PRCpy set</p> <ul style="list-style-type: none"> → Copyarea1 Copyarea2 Copyarea3 <p style="text-align: right;">--- STOP PU</p> <p style="text-align: right;">BACK SET </p> </div>
4	Turn  to move the cursor to [1: Read VFD], and press  . <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Copyarea1</p> <ul style="list-style-type: none"> → 1 : Read VFD 2 : Write VFD 3 : Verifying <p style="text-align: right;">--- STOP PU</p> <p style="text-align: right;">BACK SET </p> </div>

5	<p>A name (up to 9 letters) can be entered for the selected area.</p> <p>Turn  to select "0 to 9", "A to Z", ".", "_", "/" or "(space)".</p> <p>Press  to move the cursor. Press  after completing the input.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>1 : Read VFD</p> <p style="padding-left: 20px;">Name: ABCDEFGHI</p> <p style="text-align: right;">--- STOP PU</p> <p style="text-align: right;">BACK SET </p> </div>
6	<p>A confirmation screen appears for overwriting the selected area. Press  to execute the copy.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>1 : Read VFD ABCDEFGHI</p> <p>Overwrite Area 1</p> <p>SET : Exec</p> <p>BACK : Cancel</p> <p style="text-align: right;">--- STOP PU</p> <p style="text-align: right;">BACK  SET</p> </div>

- Writing the parameter settings stored in the FR-LU08(-01) to an inverter

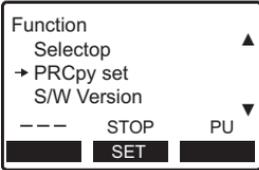
1	Connect the FR-LU08(-01) to the inverter to which the parameters are to be written.
2	Display the function menu, turn  to move the cursor to [PRCpy set], and press  .
3	Turn  to move the cursor to the copy area used, and press  . <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> PRCpy set → Copyarea1 ABCDEFGHI Copyarea2 Copyarea3 --- STOP PU BACK SET </div>
4	Turn  to move the cursor to [2: Write VFD], and press  . <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> Copyarea1 ABCDEFGHI 1 : Read VFD → 2 : Write VFD 3 : Verifying --- STOP PU BACK SET </div>
5	A confirmation screen appears for writing the parameters. Press  to write the parameters. <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> 2 : Write VFD ABCDEFGHI Area 1 to VFD SET : Exec BACK : Cancel --- STOP PU BACK SET </div>

6 Press  to reset the inverter.

2 : Write VFD ABCDEFGHI
 Writing Completed
 Please Reset
 --- STOP PU
 BACK RESET

(2) Verifying the parameters

Parameter settings can be verified between the FR-LU08(-01) and inverter.

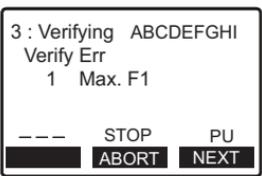
1	Copy the parameter settings of the verification-source inverter to the FR-LU08(-01). (Refer to page 28 .)
2	Connect the FR-LU08(-01) to the inverter which is to be verified.
3	<p>Display the function menu, turn  to move the cursor to [PRCpy set], and press .</p> 
4	<p>Turn  to select the copy area used, and press .</p> 
5	<p>Turn  to move the cursor to [3: Verifying], and press .</p> 
6	A confirmation screen appears for verification. Press  to execute the verification.

7

If a verification error occurs, the verification is stopped and an error screen appears.

Press  to continue the verification.

Press  to end the verification.



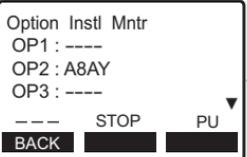
NOTE

- If an error occurs in verification on items other than parameters, such as the setting frequency, only [Verify Err] is displayed.

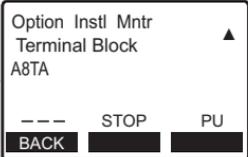
3.2.5 Option connection status monitor (Option Instl Mntr)

Displays the connection status of option connectors. (up to 6 letters). When no option is connected, [---] is displayed.

Turn  to display the connection status of the terminal block. (up to 20 letters)



Turn  to display the connection status of the terminal block. (up to 20 letters)



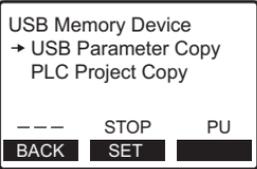
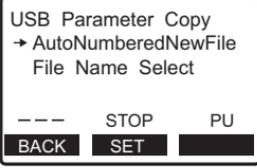
3.2.6 USB memory device (USB Memory Device)

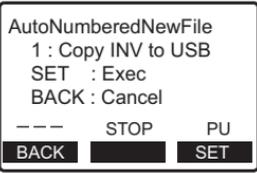
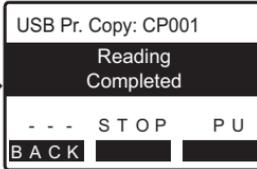
Parameter settings and projects of the PLC function can be copied from and written to a USB memory device, and verified.

NOTE

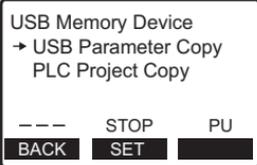
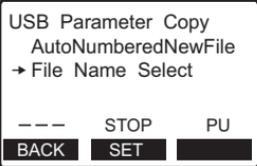
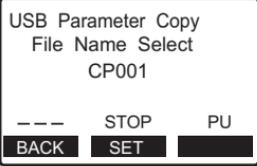
- "INV" on the screen indicates the inverter.
- "PLC" on the screen indicates the programmable controller.

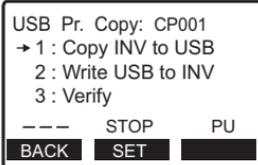
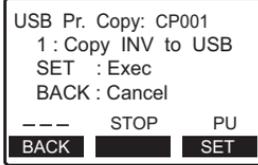
- (1) Copying parameter settings to a USB memory device
- When copying parameter settings with a new file number

1	Connect the FR-LU08(-01) and a USB memory device to the inverter that contains the parameters to be copied.
2	Display the function menu, turn  to move the cursor to [USB Memory Device], and press  (SET).
3	Turn  to move the cursor to [USB Parameter Copy], and press  (SET). 
4	Turn  to move the cursor to [AutoNumberedNewFile], and press  (SET). 

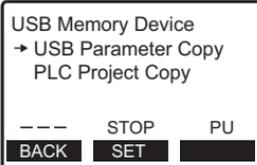
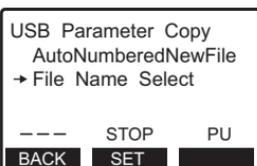
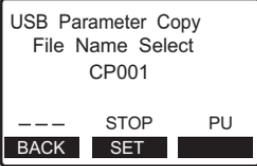
5	A confirmation screen appears for execution. 
6	If [File Name Select] has been selected, a file number selection screen appears. 
7	Press  (SET) to execute the copy. <p>The file number is automatically acquired from the inverter.</p>  

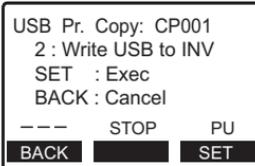
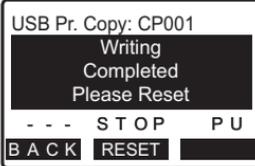
- When copying parameter settings to an existing file

1	Connect the FR-LU08(-01) and a USB memory device to the inverter that contains the parameters to be copied.
2	Display the function menu, turn  to move the cursor to [USB Memory Device], and press  (SET).
3	Turn  to move the cursor to [USB Parameter Copy], and press  (SET). 
4	Move the cursor to [File Name Select], and press  (SET). 
5	A file name selection screen appears. Turn  to move the cursor to the target file, and press  (SET). 

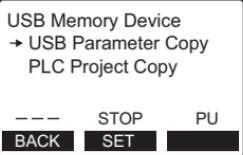
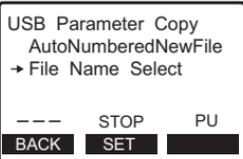
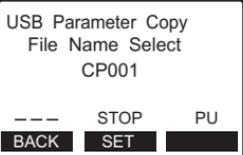
6	Turn  to move the cursor to [1: Copy INV to USB], and press  (SET). 
7	A confirmation screen appears for execution. Press  (SET) to execute the copy. 

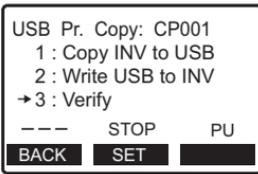
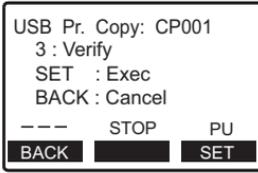
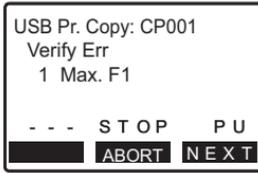
(2) Writing the parameter settings stored in a USB memory device to an inverter

1	Connect the FR-LU08(-01) and a USB memory device to the inverter to which the parameters are to be written.
2	Display the function menu, turn  to move the cursor to [USB Memory Device], and press  (SET).
3	Turn  to move the cursor to [USB Parameter Copy], and press  (SET). 
4	Move the cursor to [File Name Select], and press  (SET). 
5	A file name selection screen appears. Turn  to move the cursor to the target file, and press  (SET). 

6	Turn  to move the cursor to [2: Write USB to INV], and press  (SET). 
7	A confirmation screen appears for execution. Press  (SET) to write the parameters. 
8	Press  (RESET) to reset the inverter. 

(3) Verifying the parameter settings stored in a USB memory device with those in an inverter

1	Copy the parameter settings of the verification-source inverter to a USB memory device. (Refer to page 31.)
2	Connect the FR-LU08(-01) and USB memory device to the verification-target inverter.
3	Display the function menu, turn  to move the cursor to [USB Memory Device], and press  (SET).
4	Turn  to move the cursor to [USB Parameter Copy], and press  (SET). 
5	Move the cursor to [File Name Select], and press  (SET). 
6	A file name selection screen appears. Turn  to move the cursor to the target file, and press  (SET). 

7	Turn  to move the cursor to [3: Verify], and press  (SET). 
8	A confirmation screen appears for execution. Press  (SET) to execute the verification. 
9	If a verification error occurs, the verification is stopped and an error screen appears. Press  (NEXT) to continue the verification. Press  (ABORT) to end the verification. 

 **NOTE**

- If an error occurs in verification on items other than parameters, such as the setting frequency, only [Verify Err] is displayed.

(4) Copying a project of the PLC function to a USB memory device

1	Connect the FR-LU08(-01) and a USB memory device to the inverter that contains the project to be copied.
2	Display the function menu, turn  to move the cursor to [USB Memory Device], and press  .
3	Turn  to move the cursor to [PLC Project Copy], and press  . <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-left: 200px;"> USB Memory Device USB Parameter Copy → PLC Project Copy --- STOP PU BACK SET  </div>
4	A file name selection screen appears. Turn  to move the cursor to the target file, and press  .
5	Turn  to move the cursor to [1: Copy INV to USB], and press  . <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-left: 200px;"> PLC Prjct Copy File Name Select PRG01 --- STOP PU BACK SET  </div>

A confirmation screen appears for execution.

6 Press  to execute the copy.

PLC Prjct Copy: PRG01
 1 : Copy INV to USB
 SET : Exec
 BACK : Cancel

 --- STOP PU
 BACK  SET

(5) Writing a project of the PLC function stored in a USB memory device to an inverter

1	Connect the FR-LU08(-01) and a USB memory device to the inverter to which the project is to be written.
2	Display the function menu, turn  to move the cursor to [USB Memory Device], and press  .
3	Turn  to move the cursor to [PLC Project Copy], and press  . <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-left: 200px;"> USB Memory Device USB Parameter Copy → PLC Project Copy --- STOP PU BACK SET </div>
4	A file name selection screen appears. Turn  to move the cursor to the target file, and press  . <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-left: 200px;"> PLC Project Copy File Name Select PRG01 --- STOP PU BACK SET </div>
5	Turn  to move the cursor to [2: Write USB to INV], and press  . <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-left: 200px;"> PLC Prjct Copy: PRG01 1 : Copy INV to USB → 2 : Write USB to INV 3 : Verify --- STOP PU BACK SET </div>

6	A confirmation screen appears for execution. Press  to write the project. <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-left: 200px;"> PLC Prjct Copy: PRG01 2 : Write USB to INV SET : Exec BACK : Cancel --- STOP PU BACK SET </div>
7	Press  to reset the inverter. <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-left: 200px;"> PLC Prjct Copy: PRG01 Writing Completed Please Reset - - - S T O P P U B A C K RESET </div>

(6) Verifying the project of the PLC function stored in a USB memory device with that in an inverter

1	Copy the project of the verification-source inverter to a USB memory device. (Refer to page 36 .)
2	Connect the FR-LU08(-01) and USB memory device to the inverter which is to be verified.
3	Display the function menu, turn  to move the cursor to [USB Memory Device], and press  .
4	Turn  to move the cursor to [PLC Project Copy], and press  . <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-left: 200px;"> USB Memory Device USB Parameter Copy → PLC Project Copy --- STOP PU BACK SET </div>
5	A file name selection screen appears. Turn  to move the cursor to the target file, and press  . <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-left: 200px;"> PLC Project Copy File Name Select PRG01 --- STOP PU BACK SET </div>

6	Turn  to move the cursor to [3: Verify], and press  . <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-left: 200px;"> PLC Prjct Copy: PRG01 1 : Copy INV to USB 2 : Write USB to INV → 3 : Verify --- STOP PU BACK SET </div>
7	A confirmation screen appears for execution. Press  to execute the verification. <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-left: 200px;"> PLC Prjct Copy: PRG01 3 : Verify SET : Exec BACK : Cancel --- STOP PU BACK SET </div>
8	If a verification error occurs, the verification is stopped and an error screen appears. Press  to return to the screen of step 7. <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-left: 200px;"> PLC Prjct Copy: PRG01 Verify Err - - - S T O P P U B A C K </div>

4 CHECK FIRST WHEN YOU HAVE A TROUBLE

4.1 Troubleshooting

If a fault occurs and the product fails to operate properly, locate the cause of the fault and take proper corrective action by referring to the troubleshooting below. If the corresponding information is not found in the table, the inverter has problem, or the component parts are damaged, contact your sales representative.

Status	Possible causes	Check point	Corrective action
The LCD or backlight of the operation panel is OFF.	Connection fault of the operation panel	Check that the operation panel is properly connected. Check that the PU cable is fully inserted into the PU connector.	Check the connection of the operation panel and the PU cable.
	The setting of Pr.991 PU contrast adjustment is changed from the initial value.	Check the Pr.991 setting.	Using the FR-DU08(-01), return the setting of Pr.991 to the initial value.
During inverter reset, the following screen remains. <div style="border: 1px solid black; padding: 5px; width: fit-content;"> Ready PU to Inverter Comms, Error INV. Reset ON </div>	Connection fault of the operation panel	Check that the operation panel is properly connected. Check that the PU cable is fully inserted into the PU connector.	Check the connection of the operation panel and the PU cable.
	The RES signal is ON.	Check the terminal RES.	Turn OFF the terminal RES.

5 SPECIFICATIONS

5.1 Standard specifications

Item	Specifications	
Surrounding air temperature	-10°C to +50°C (non-freezing) *1	
Surrounding air humidity	FR-LU08	90% RH or less (non-condensing)
	FR-LU08-01	95% RH or less (non-condensing)
Storage temperature	-20°C to +65°C *2	
Atmosphere	Indoors (free from corrosive gas, flammable gas, oil mist, dust and dirt)	
Altitude/vibration	Maximum 2500 m above sea level, 5.9 m/s ² or less at 10 to 55 Hz (directions of X, Y, Z axes)	
Power supply	Power input from the inverter	
Connection	Installed to the inverter or connected to the inverter by a dedicated cable *3	
Display	Liquid crystal display (LCD)	
Data retention	Built-in EEPROM	
Number of write times	Maximum 100,000 times	
Mass	Approximately 300 g	

*1 At the low temperatures of less than about 0°C, the LCD may be slower in operation.

At high temperatures, the life of the LCD and battery may become shorter.

*2 Temperature applicable for a short time, such as in transit

*3 The FR-LU08-01 is rated IP55 only when it is installed to the inverter.

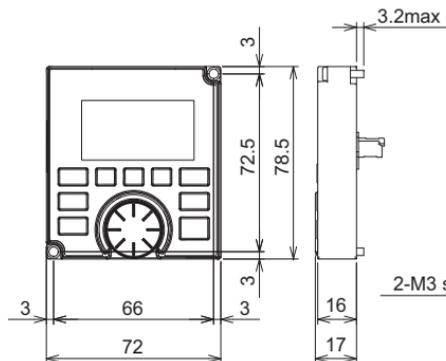
NOTE

- Do not expose the LCD to direct sunlight.
- During transportation, avoid applying load to the LCD.

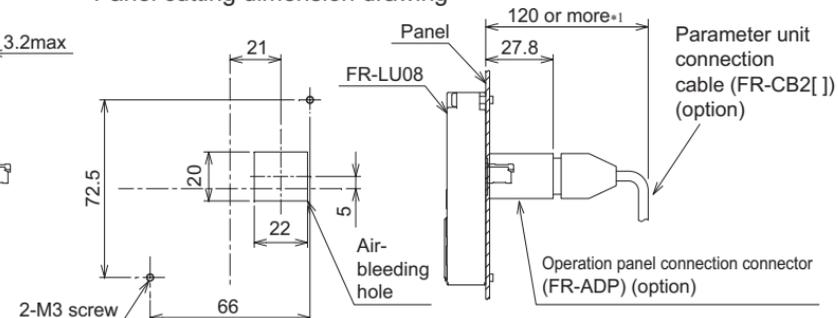
5.2 Outline and enclosure cut dimensions

◆ FR-LU08

<Outline drawing>



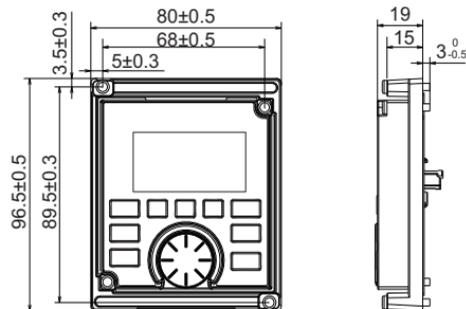
<Panel cutting dimension drawing>



*1 Denotes the space required to connect an optional parameter unit connection cable (FR-CB2[]). When using another cable, leave the space required for the cable specification.

(Unit : mm)

◆ FR-LU08-01



NOTE

- The FR-LU08-01 cannot be installed on enclosure surfaces.

(Unit : mm)

Appendix

Appendix1 Disposing of the equipment in the EU countries

- The symbol shown below, which is printed on the product for EU countries, means that electric and electronic equipment, at their end-of-life, should be disposed of separately from your household waste.
- Please, dispose of this equipment at your local community waste collection/recycling centre if it is to be disposed of in EU countries.
- In the European Union, there are separate collection systems for used electrical and electronic product.
- Please, help us to conserve the environment we live in.



NOTE

- This symbol is for EU countries only.
This symbol is according to the directive 2006/66/EC Article 20 Information for end-users, Article 21 Labelling, and Annex II.

REVISIONS

*The manual number is given on the bottom left of the back cover.

Print date	*Manual number	Revision
Jun. 2014	IB(NA)-0600539ENG-A	First edition
Dec. 2014	IB(NA)-0600539ENG-B	Addition •FR-LU08-01

INVERTER

