MITSUBISHI ELECTRIC

INVERTER
Enclosure surface operation panel
FR-PA07 INSTRUCTION MANUAL

Thank you for purchasing the enclosure surface operation panel (FR-PA07). This instruction manual gives handling information and precautions for use of this product. Incorrect handling might cause an unexpected fault. Before using this product, please read this manual carefully to use this product to its optimum performance.

Please forward this instruction manual to the end user.

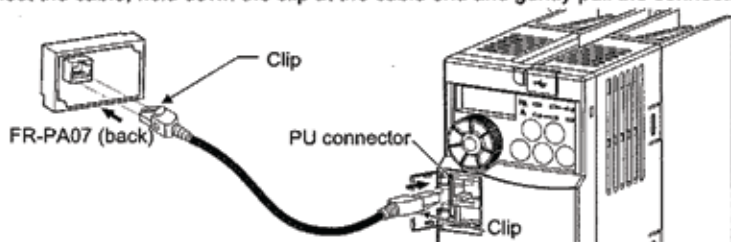This product is an option dedicated for the FR-E700/D700/F700PJ/E700EX series.

Refer to the inverter unit's Instruction manual for details on the operation panel functions, operation methods and handling methods.

⚠ Safety precautions

- Do not touch the setting dial or keys with wed hands. Doing so may cause an electric shock.
- Do not install and operate the enclosure surface operation panel (FR-PA07) if it is damaged or has parts missing.
- Provide a safety backup device, such as an emergency brake, to protect machines and product from hazardous conditions if the enclosure surface operation panel (FR-PA07) becomes faulty.
- Static electricity in your body must be discharged before you touch the product. Otherwise the product may be damaged.
- If halogens (including fluorine, chlorine, bromine, and iodine) contained in fumigants for wood packages enter this product, the product may be damaged. Prevent the entry of fumigant residuals or use an alternative method such as heat disinfection. Note that sterilization or disinfection of wood packages should be performed before packing the product.

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1. Connection

- Use the FR-CB20☐ connection cable. Insert one end of the cable into the PU connector on the inverter, and the other end into the connection connector on the FR-PA07 along the guides until the clips click into place. (For the details of the FR-CB20☐, refer to the Instruction Manual of the FR-CB20☐.)

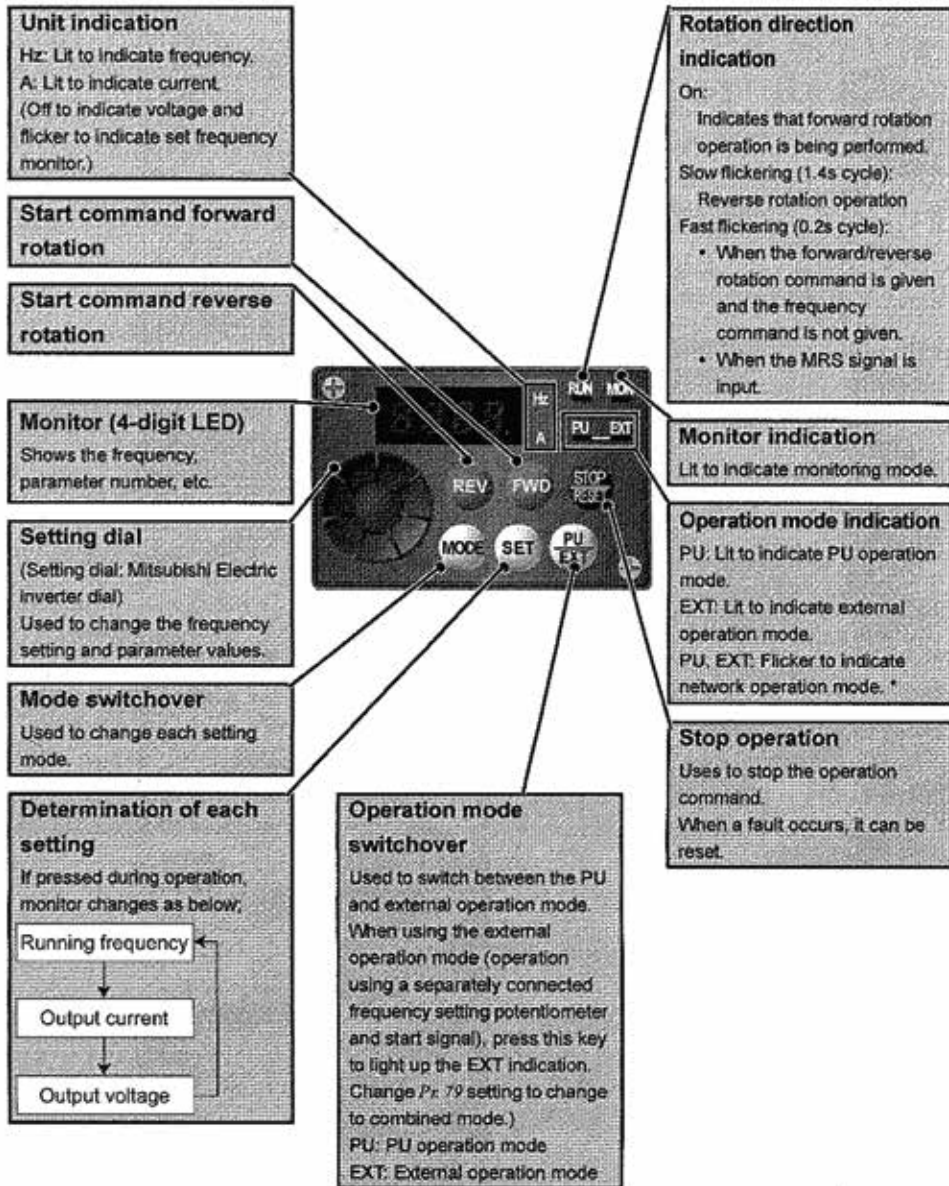- To disconnect the cable, hold down the clip at the cable end and gently pull the connector.

Clip

FR-PA07 (back)　　PU connector

Clip

Example: FR-E700

NOTE

Install the FR-PA07 only when the front cover is installed.

2. Names and functions of the operation panel (FR-PA07)

Unit indication

Hz: Lit to indicate frequency.
A: Lit to indicate current.
(Off to indicate voltage and flicker to indicate set frequency monitor.)

Start command forward rotation

Start command reverse rotation

Monitor (4-digit LED)

Shows the frequency, parameter number, etc.

Setting dial

(Setting dial: Mitsubishi Electric inverter dial)
Used to change the frequency setting and parameter values.

Mode switchover

Used to change each setting mode.

Determination of each setting

If pressed during operation, monitor changes as below;

Running frequency →
↓
Output current
↓
Output voltage

Operation mode switchover

Used to switch between the PU and external operation mode.
When using the external operation mode (operation using a separately connected frequency setting potentiometer and start signal), press this key to light up the EXT indication.
Change *Pr. 79* setting to change to combined mode.)
PU: PU operation mode
EXT: External operation mode

Rotation direction indication

On:
Indicates that forward rotation operation is being performed.
Slow flickering (1.4s cycle):
Reverse rotation operation
Fast flickering (0.2s cycle):
• When the forward/reverse rotation command is given and the frequency command is not given.
• When the MRS signal is input.

Monitor indication

Lit to indicate monitoring mode.

Operation mode indication

PU: Lit to indicate PU operation mode.
EXT: Lit to indicate external operation mode.
PU, EXT: Flicker to indicate network operation mode. *

Stop operation

Uses to stop the operation command.
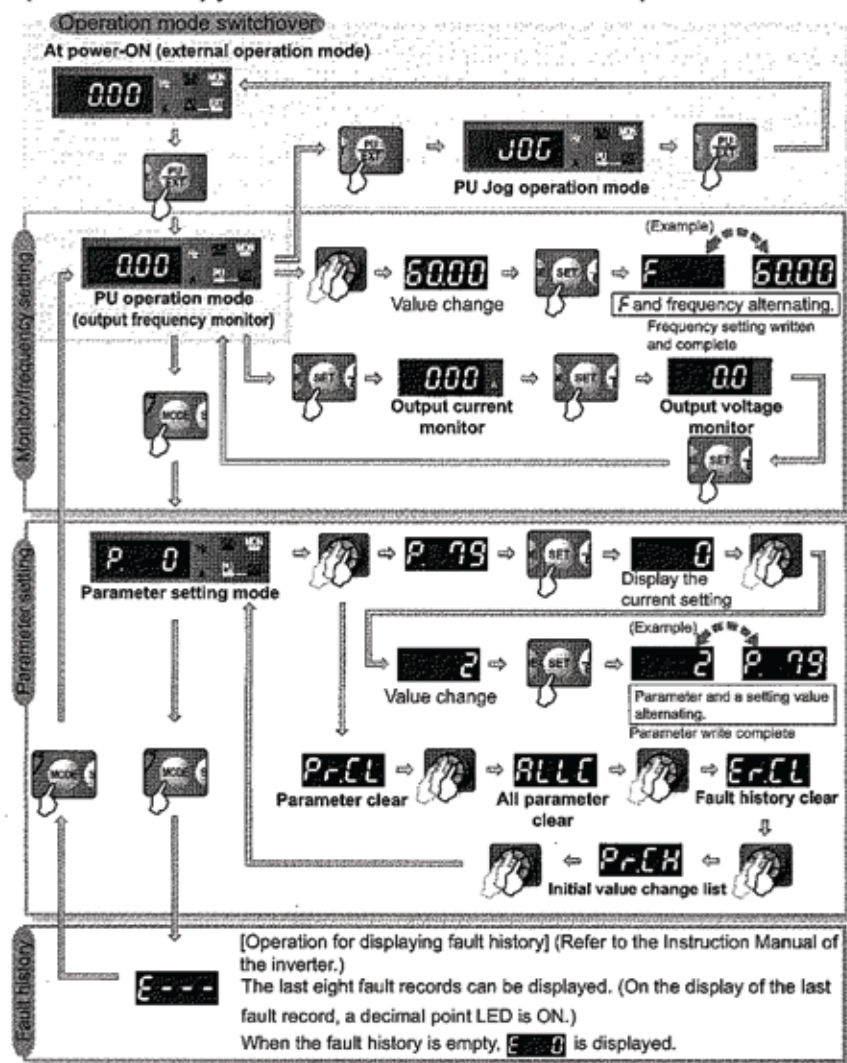When a fault occurs, it can be reset.

* Both PU and EXT are off on the inverters manufactured during or before the period shown by the serial numbers described on *page 7*.

3. Operation

3.1 Basic operation

Basic operation is as follows.

The parameter copy function is not available in this product.

Operation mode switchover

At power-ON (external operation mode)

PU Jog operation mode

PU operation mode
(output frequency monitor)

Value change

F and frequency alternating.
Frequency setting written and complete

(Example)

Output current monitor

Output voltage monitor

Parameter setting mode

Display the current setting

Value change

Parameter and a setting value alternating.
Parameter write complete

(Example)

Parameter clear

All parameter clear

Fault history clear

Initial value change list

[Operation for displaying fault history] (Refer to the Instruction Manual of the inverter.)
The last eight fault records can be displayed. (On the display of the last fault record, a decimal point LED is ON.)
When the fault history is empty, `E 0` is displayed.

REMARKS

- When *Pr.551 PU mode operation command source selection* = "9999 (initial value)", the priority of the command source in PU operation mode is defined as follows: USB connector > FR-PA07 > operation panel. (Refer to the Instruction Manual (Applied) of each inverter for the details.)

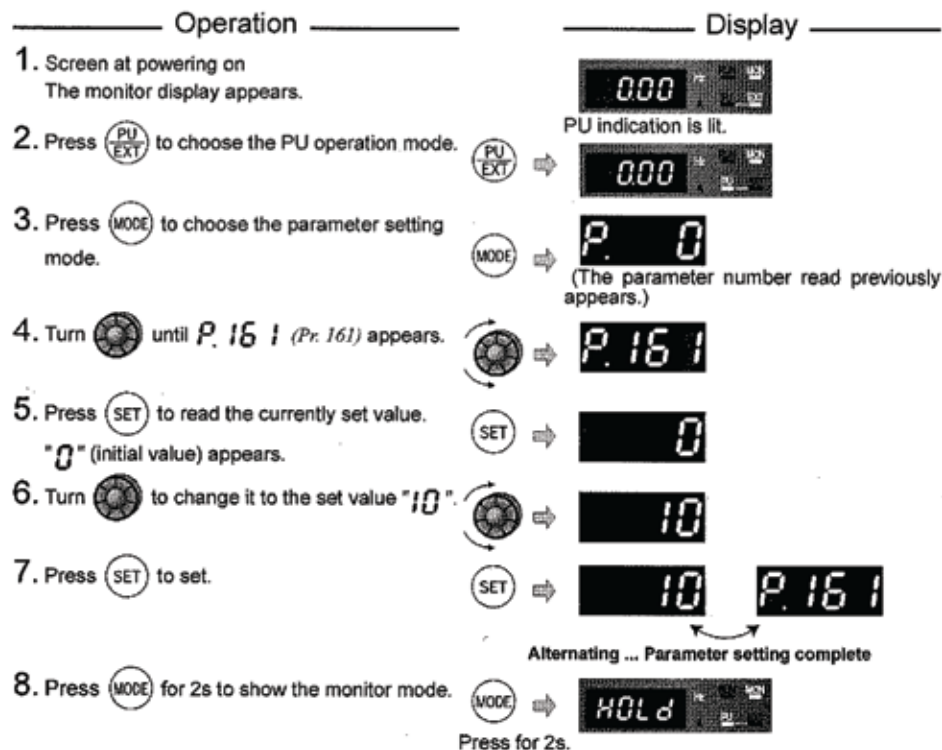## 3.2 Operation lock (Press [MODE] for a while (2s))

Operation using the setting dial and key of the FR-PA07 can be made invalid to prevent parameter change, and unexpected start or frequency setting.

- Set "10 or 11" in *Pr. 161*, then press (MODE) for 2s to make the setting dial and key operation invalid.
- When the setting dial and key operation is made invalid, $HOL\,d$ appears on the operation panel. When the setting dial and key operation is invalid, $HOL\,d$ appears if the setting dial or key operation is performed. (When the setting dial or key operation is not performed for 2s, the monitor display appears.)
- To make the setting dial and key operation valid again, press (MODE) for 2s.

POINT

Set "10 or 11" (key lock mode valid) in *Pr. 161 Frequency setting/key lock operation selection*.

--------- Operation ---------　　--------- Display ---------

1. Screen at powering on
The monitor display appears.

> 0.00

2. Press (PU/EXT) to choose the PU operation mode.

PU indication is lit.

> 0.00

3. Press (MODE) to choose the parameter setting mode.

> P. 0

(The parameter number read previously appears.)

4. Turn until $P.16\ 1$ *(Pr. 161)* appears.

> P.16 1

5. Press (SET) to read the currently set value.
"0" (initial value) appears.

> 0

6. Turn to change it to the set value "10".

> 10

7. Press (SET) to set.

> 10　　P.16 1

Alternating ... Parameter setting complete

8. Press (MODE) for 2s to show the monitor mode.

Press for 2s.

> HOL d

Functions valid even in the operation lock status

Stop and reset with (STOP/RESET).

Note
- Release the operation lock to release the PU stop by key operation.

3.3 Use the setting dial like a potentiometer to perform operation

POINT

Set "1" (setting dial potentiometer mode) in *Pr. 161 Frequency setting/key lock operation selection.*

| Changing example | Changing the frequency from 0Hz to 60Hz during operation

————————Operation————————   ————————Display————————

1. Screen at powering on
   The monitor display appears.

   `0.00`

   PU indication is lit.

2. Press (PU/EXT) to choose the PU operation mode.

   (PU/EXT) ⇨ `0.00`

3. Change the *Pr. 161* setting to "1".
   (Refer to *page 4* for change of the setting.)

   Press (MODE) twice to return the monitor to frequency monitor.

4. Press (FWD)/(REV) to start the inverter.

   (FWD) ⇨ `0.00`

   (REV)

5. Turn ⊙ until "**60.00**"(60.00Hz) appears. The blinking frequency is the set frequency.

   You need not press (SET).

   ⊙ ⇨ `0` → `60.00`
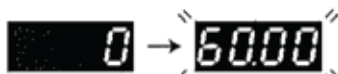
   The frequency blinks for about 5s.

REMARKS

- If blinking "60.00" turns to "0.00", the *Pr. 161 Frequency setting/key lock operation selection* setting may not be "1".

- Independently of whether the inverter is running or at a stop, the frequency can be set by merely turning the ⊙. (Use *Pr. 295 Magnitude of frequency change setting* to change the frequency setting increments of ⊙.)

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4. Specifications

4.1 Standard specifications

Item	Specifications
Surrounding air temperature	-10°C to +50°C (non-freezing)
Ambient humidity	90%RH or less (non-condensing)
Storage temperature	-20°C to +60°C*
Ambience	Indoors (free from corrosive gas, flammable gas, oil mist, dust and dirt)
Altitude, vibration	Maximum 1000m above sea level for standard operation. 5.9m/s² or less at 10 to 55Hz (diretions of X, Y, Z axes)
Power supply	Power is supplied from the inverter.
Connection method	Connection using the parameter unit connection cable (FR-CB20□)

* Temperature applicable for a short time, for example, in transit.

4.2 Outline drawing and panel cutting drawing

<Outline drawing>   <Panel cutting drawing>

2-M3 screw
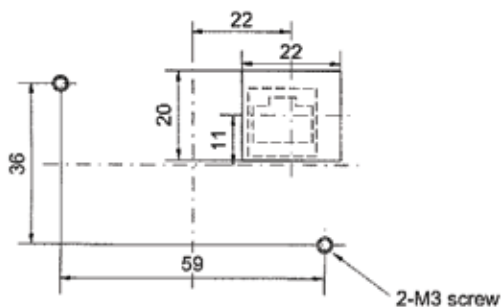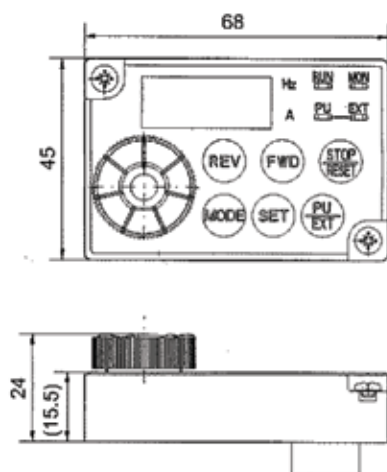
(Unit: mm)

5. Instructions

For the FR-E700 series inverters manufactured during or before the period shown by the following serial numbers, there are restrictions mentioned below.

- Parameter copy ($P\complement P\mathcal{Y}$) is displayed, but parameter copy (reading, writing, or verification) does not function. Display turns into the reading indication, but reading is not executed. If writing or verification is executed, an error occurs.
- Initial value change list ($P\;r.\complement\;H$) cannot be used.
- Easy setting mode (press (MODE) and (PU/EXT) simultaneously (0.5s)) cannot be used to change the operation mode.
- SERIAL number check
  Refer to the Instruction Manual of the inverter for the position of the rating plate.

Rating plate example

□	○	○	○○○○○○
Symbol	Year	Month	Control number

SERIAL (Serial No.)

The SERIAL consists of one symbol, two characters indicating production year and month, and six characters indicating control number.
The last digit of the production year is indicated as the Year, and the Month is indicated by 1 to 9, X (October), Y (November), or Z (December).

Type	SERIAL number
FR-E720-0.1K to 0.75K	J7OOOOOOO
FR-E720-1.5K to 5.5K	K7OOOOOOO
FR-E720-7.5K	L7OOOOOOO
FR-E720-11K, 15K	G7OOOOOOO

Type	SERIAL number
FR-E740-0.4K to 7.5K	D7OOOOOOO

* The parameter copy menu ($P\complement P\mathcal{Y}$) is not displayed on this product connected to FR-E700 series inverters manufactured after the above period.