INVERTER

PRE-OPERATION INSTRUCTIONS

FUNCTIONS

FUNCTION MENU

OPERATION

CHECK FIRST WHEN YOU HAVE A TROUBLE

SPECIFICATIONS

Parameter unit
Thank you for choosing the Mitsubishi inverter option unit.
This instruction manual gives handling information and precautions for use of this equipment. Incorrect handling might cause an unexpected fault. Before using the equipment, please read this manual carefully to use the equipment to its optimum. Please forward this manual to the end user.

1. Electric Shock Prevention

This section is specifically about safety matters

Do not attempt to install, operate, maintain or inspect this 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
Assumes that incorrect handling may cause hazardous conditions, resulting in death or severe injury.

⚠️CAUTION
Assumes that incorrect handling may cause hazardous conditions, resulting in medium or slight injury, or may cause physical damage only.

Note that the ⚠️CAUTION level may lead to a serious consequence according to conditions. Please follow the instructions of both levels because they are important to personnel safety.

⚠️WARNING
- Do not run the inverter with the front cover removed. Otherwise, you may access exposed high voltage terminals or charging devices and get an electric shock.
- Before starting wiring or inspection, check that the operation panel indicator is OFF, wait for at least 10 minutes after the power supply has been switched OFF, and check that there are no residual voltage using a tester or the like. The capacitor is charged with high voltage for some time after power OFF and it is dangerous.
- Any person who is involved in the wiring or inspection of this equipment should be fully competent to do the work.
- Always insulate exposed power terminals during wiring. Otherwise, you may get an electric shock or be injured.
- Operate the keys with dry hands to prevent an electric shock.
2. Additional Instructions
To prevent injury, damage or product failure, please note the following points.

(1) Transportation and mounting

CAUTION
- Do not install and operate the parameter unit (FR-PU07/FR-PU07BB) if it is damaged or has parts missing.
- Do not stand or rest heavy objects on this equipment.
- Check the inverter mounting orientation is correct.
- The parameter unit (FR-PU07/FR-PU07BB) is a precision device. Do not drop it or subject it to impact.
- Use the inverter under the following environmental conditions:

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<td>Surrounding air temperature</td>
<td>-10°C to +50°C (non-freezing)</td>
</tr>
<tr>
<td>Ambient humidity</td>
<td>≤90%RH or less (non-condensing)</td>
</tr>
<tr>
<td>Storage temperature</td>
<td>-20°C to +65°C</td>
</tr>
<tr>
<td>Ambience</td>
<td>Indoors (free from corrosive gas, flammable gas, oil mist, dust and dirt)</td>
</tr>
<tr>
<td>Altitude, vibration</td>
<td>Maximum 1000m above seal level, 5.0ms/s² or less at 10 to 55Hz (directions of X, Y, Z axes)</td>
</tr>
</tbody>
</table>

*Temperatures applicable for a short time, e.g. in transit.*

(2) Test operation and adjustment

CAUTION
- Before starting operation, confirm and adjust the parameters. A failure to do so may cause some machines to make unexpected motions.

(3) Usage

WARNING
- Since pressing the [key may not stop output depending on the function setting status, provide a circuit and switch separately to make an emergency stop (power OFF, mechanical brake operation for emergency stop, etc).
- Make sure that the start signal is off before resetting the inverter alarm. A failure to do so may restart 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 inverter.

CAUTION
- When parameter clear or all parameter clear is performed, each parameter returns to the factory setting. Re-set the required parameters before starting operation.

(4) Corrective actions for alarm

CAUTION
- Provide safety backup devices, such as an emergency brake, to protect machines and equipment from hazard if the parameter unit (FR-PU07/FR-PU07BB) becomes faulty.
3. Safety Precautions for Alkaline Battery
When using an alkaline battery, read the instruction manuals carefully before using them.

4. Safety Precautions for Nickel Metal Hydride Battery
When using a nickel metal hydride battery and charger, read the instruction manuals carefully before using them.
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2 FUNCTIONS

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INTRODUCTION

This product is a unit for setting inverter functions (parameters) and has the following features.

- An operation panel can be removed and a parameter unit can be connected.
- Setting such as direct input method with a numeric keypad, operation status indication, and help function are usable.
- Eight languages can be displayed.
- Parameter setting values of maximum of three inverters can be stored.

REMARKS

Features only for FR-PU07BB

- Parameter check and setting change are available without connecting a power supply to the inverter.
- Since the shape is specially designed for portable use, it is easy to work with FR-PU07BB in hand.

CAUTION

To use a parameter unit with battery pack (FR-PU07BB) outside Japan, order a "FR-PU07BB-L" (parameter unit type indicated on the package has L at the end).

Since batteries may conflict with laws in countries to be used (new EU Directive on batteries and accumulators, etc.), batteries are not enclosed with an FR-PU07BB.

The parameter unit screen displays in this instruction manual are examples used with the FR-A700 series.
# PRE-OPERATION INSTRUCTIONS

## 1.1 Supporting inverter models

- **FR-PU07/FR-PU07BB supporting models**

<table>
<thead>
<tr>
<th>Model</th>
<th>FR-PU07</th>
<th>FR-PU07BB</th>
</tr>
</thead>
</table>
| A700 series | ○ | ○ (Products assembled in and after January 2008.) *1  
(The FR-A700-EC/-CHT have not been compatible yet but will be compatible in future.) |
| F700 series | ○ | ○ (Products assembled in and after January 2008.) *1  
(The FR-F700-EC/-CHT have not been compatible yet but will be compatible in future.) |
| E700 series | ○ | ×  
(Products assembled in and after July 2007.) *2  
(The FR-E700 series have not been compatible yet but will be compatible in future.) |
| D700 series | ○ | ×  
(The FR-D700 series have not been compatible yet but will be compatible in future.) |
| 500 series | ○ | ×  
| **Notes:**

*1 If a product assembled before the above date is connected when the inverter power is OFF, "MITSUBISHI" appears on the liquid crystal display screen and it is inoperative. If a product assembled before the above date is connected when the inverter power is ON, "PU07BB/COMPATIBILITY/ERROR" appears on the liquid crystal display screen and it is inoperative.

*2 If a product assembled before the above date is connected, "PU07BB/COMPATIBILITY/ERROR" appears on the liquid crystal display screen and it is inoperative regardless of ON/OFF of the inverter power.

*3 Some parameter names displayed are different from those of the FR-PU07.

*4 The FR-PU07 cannot be directly connected to the inverter.
Unpacking and Product Confirmation

● SERIAL number
For product assembled date, check the SERIAL number indicated on the inverter rating plate or package.

● SERIAL number check
Refer to the inverter manual for the location of the rating plate.

Rating plate example

Symbol | Year | Month | Control number | SERIAL (Serial No.)
TC000A000000 | TC number

The SERIAL consists of 1 version symbol, 2 numeric characters or 1 numeric character and 1 alphabet letter indicating year and month, and 6 numeric characters indicating control number.
Month is indicated as 1 to 9, X (October), Y (November), and Z (December).
## Unpacking and Product Confirmation

### 1.2 Unpacking and Product Confirmation

Take the parameter unit out of the package, check the unit name, and confirm that the product is as you ordered and intact.

### 1.2.1 Unpacking confirmation

Check the enclosed items.

- FR-PU07/FR-PU07BB common

<table>
<thead>
<tr>
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<th>Instruction manual</th>
</tr>
</thead>
<tbody>
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<td></td>
</tr>
<tr>
<td>FR-PU07BB</td>
<td>1</td>
</tr>
</tbody>
</table>

- FR-PU07BB only

<table>
<thead>
<tr>
<th>Connection cable (FR-CB203)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
</tr>
</tbody>
</table>

*Batteries are not enclosed. Please prepare them separately.*
### Unpacking and Product Confirmation

#### 1.2.2 Appearance and parts identification

Unpack the parameter unit, check the name plate on the back, and make sure that the product has not been damaged before using.

**FR-PU07**

- **Front**
  - **POWER lamp**
    - Lit when the power turns ON.
  - **Monitor**
    - Liquid crystal display (16 characters x 4 lines with backlight)
    - Interactive parameter setting
    - Help function
    - Trouble shooting guidance
    - Monitor (frequency, current, power, etc.)
  - **ALARM lamp**
    - Lit to indicate an inverter alarm occurrence.
  - **Operation keys**
    - (Refer to page 7)

- **Rear**
  - **Connector for inverter directly**
    - Connect directly to the inverter.
  - **Connector for PU cable**
    - Connect using the connection cable (FR-CB2 <><>), (Refer to page 9)
  - **Rating plate**
    - (Refer to page 7)

- **Bottom**
Unpacking and Product Confirmation

FR-PU07BB

Top
- Connector for PU cable
  Connect using the connection cable (FR-CB2).
  (Refer to page 19, 19)

- Power supply switch
  Set to ON when using in the battery mode.

Front
- Connector for AC adapter
  Pull out the protective cover toward you to remove and then connect the AC adapter (sold separately).
  (Refer to page 15)

- POWER lamp
  Lit when the power turns ON.

- Battery exhaustion warning lamp
  When a battery is low, the lamp color changes from green to orange.
  (Refer to page 19 for details.)

Monitor
- Liquid crystal display
  (16 characters x 4 lines with backlight)
- Interactive parameter setting
- Help function
- Trouble shooting guidance
- Monitor (frequency, current, power, etc.)

Bottom
- Power supply switch
  Set to ON when using in the battery mode.

- Rating plate
- Operation keys
  - ALARM lamp
    Lit to indicate an inverter fault occurrence.

- Monitor (frequency, current, power, etc.)
  (Refer to page 91 for details.)
  (Refer to page 15, 19)
### 1.2.3 Explanation of keys

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<tr>
<th>Key</th>
<th>Description</th>
</tr>
</thead>
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<tr>
<td>[DET]</td>
<td>Used to select the parameter setting mode. Press to select the parameter setting mode.</td>
</tr>
<tr>
<td>[MON]</td>
<td>Used to display the first priority screen. Used to display the output frequency when making an initial setting.</td>
</tr>
<tr>
<td>[ESC]</td>
<td>Operation cancel key.</td>
</tr>
<tr>
<td>[INC]</td>
<td>Used to display the function menu. A variety of functions can be used on the function menu.</td>
</tr>
<tr>
<td>[SHIFT]</td>
<td>Used to shift to the next item in the setting or monitoring mode.</td>
</tr>
<tr>
<td>(↑) to (↓)</td>
<td>Used to enter a frequency, parameter number or set value.</td>
</tr>
<tr>
<td>[EXIT]</td>
<td>Used to select the External operation mode.</td>
</tr>
<tr>
<td>[PU]</td>
<td>Used to select the PU operation mode to display the frequency setting screen.</td>
</tr>
<tr>
<td>[↑ / ↓]</td>
<td>Used to keep on increasing or decreasing the running frequency. Hold down to change the frequency.</td>
</tr>
<tr>
<td></td>
<td>Press either of these keys on the parameter setting mode screen to change the parameter setting value sequentially.</td>
</tr>
<tr>
<td></td>
<td>On the selecting screen, these keys are used to move the cursor.</td>
</tr>
<tr>
<td></td>
<td>Hold down [SHIFT] and press either of these keys to advance or return the display screen one page.</td>
</tr>
</tbody>
</table>
### Unpacking and Product Confirmation

<table>
<thead>
<tr>
<th>Key</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FWD</td>
<td>Forward rotation command key.</td>
</tr>
<tr>
<td>REV</td>
<td>Reverse rotation command key.</td>
</tr>
<tr>
<td>KEY</td>
<td>Stop command key.</td>
</tr>
<tr>
<td></td>
<td>- Used to reset the inverter when a fault occurs.</td>
</tr>
<tr>
<td></td>
<td>- Used to write a set value in the setting mode.</td>
</tr>
<tr>
<td></td>
<td>- Used as a clear key in the all parameter clear or alarm history clear mode.</td>
</tr>
<tr>
<td></td>
<td>- Used as a parameter number read key in the setting mode.</td>
</tr>
<tr>
<td></td>
<td>- Used as an item select key on the menu screen such as parameter list or monitoring list.</td>
</tr>
<tr>
<td></td>
<td>- Used as an alarm definition display key in the alarm history display mode.</td>
</tr>
<tr>
<td></td>
<td>- Used as a command voltage read key in the calibration mode.</td>
</tr>
</tbody>
</table>

**CAUTION**
- Do not use a sharp-pointed tool to push the keys.
- Do not press your fingers against the display.
1.3 Installation and Removal of FR-PU07

To ensure safety, install or remove FR-PU07 after switching the power of the inverter OFF. FR-PU07 cannot be directly installed to the FR-E700, D700 inverter.

1.3.1 Direct installation to the inverter (A700/F700 series)

(1) Remove the operation panel (FR-DU07).
(2) Insert the parameter unit straight and fit it securely.
(3) Tighten the two screws on the parameter unit to fix the unit to the inverter.
Installation and Removal of FR-PU07

1.3.2 Removal from the inverter (A700/F700 series)

Loosen the fixed screws, hold down the right and left hooks of the FR-PU07, and then pull the parameter unit toward you.
1.3.3 Installation using the connection cable (FR-CB2)

For the FR-A700/FR-F700:
(1) Remove the operation panel (FR-DU07).
(2) Securely insert one end of connection cable into the PU connector of the inverter and the other end into the connection connector of FR-PU07 along the guides until the stoppers are fixed.

---

CAUTION
Do not connect the connection cable when the front cover is removed.
Installation and Removal of FR-PU07

For FR-E700

(1) Open the PU connector cover.

(2) Securely insert one end of connection cable into the PU connector of the inverter and the other end into the connection connector of FR-PU07 along the guides until the stoppers are fixed.

CAUTION
Do not connect the connection cable when the front cover is removed.

REMARKS
For details of the connection cable (FR-CB2), refer to the connection cable (FR-CB2) instruction manual.
Installation and Removal of FR-PU07

For FR-D700

(1) Remove the inverter front cover. (For the removal of the front cover, refer to the inverter manual.)

(2) Securely insert one end of connection cable into the PU connector of the inverter and the other end into the connection connector of FR-PU07 along the guides until the stoppers are fixed.

CAUTION
Do not connect the connection cable when the front cover is removed.

REMARKS
For details of the connection cable (FR-CB2), refer to the connection cable (FR-CB2) instruction manual.

1.3.4 Removal when the connection cable (FR-CB2) is used

Hold down the tab (stopper) at the cable end and gently pull the plug.
1.4 Connection and Removal of FR-PU07BB

1.4.1 Before using FR-PU07BB in the battery mode

For the power supply of FR-PU07BB, a battery and an AC adapter (sold separately) are available.

(1) When using a battery

1) Loosen the screw of the FR-PU07BB rear side.
2) Pushing the hook, slide the cover in the direction of arrow to open.
3) Place batteries as shown below.

2) Close the cover and tighten the screw.

REMARKS

- Use commercially available AA nickel metal hydride batteries or AA alkaline batteries (four pieces).
- Batteries are not enclosed. Please prepare them separately.
Connection and Removal of FR-PU07BB

(2) When using an AC adapter

1) Pull out the protective cover toward you to remove and then insert the output plug of an AC adapter (sold separately) into the AC adapter connector.

2) Connect the AC adapter (sold separately) to a AC power supply.
Connection and Removal of FR-PU07BB

**REMARKS**

- Disconnection of the connector can be prevented by catching the cable with the hook of the parameter unit.
- When using a rechargeable battery, use the rechargeable battery charged with the charger specified by the battery manufacturer. Battery charging is not available with FR-PU07BB even when using an AC adapter.
- AC adapter (option for exclusive use in Japan)
- Use the following adapter to use the FR-PU07BB with single phase 100V power supply.

<table>
<thead>
<tr>
<th>Product name</th>
<th>Model</th>
<th>Manufacturer</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC adapter</td>
<td>TAS2900-PUA</td>
<td>Mitsubishi Electric System &amp; Service Co., Ltd.</td>
</tr>
</tbody>
</table>

AC adapter cable length

<table>
<thead>
<tr>
<th>Length (mm)</th>
<th>Length (cm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>950</td>
<td>37</td>
</tr>
<tr>
<td>100</td>
<td>4</td>
</tr>
</tbody>
</table>

General specifications

Refer to the specifications below for an adapter to use the FR-PU07BB with AC power supply.

<table>
<thead>
<tr>
<th>Output specifications</th>
<th>Rated voltage</th>
<th>Rated current</th>
<th>Polarity</th>
<th>Connector</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5.0VDC ± 5% or less</td>
<td>≥ 2A</td>
<td>Plus polarity</td>
<td>Conforms to EIAJ RC-5320A</td>
</tr>
</tbody>
</table>

- If batteries are left in the FR-PU07BB when using an AC adapter, batteries may become discharged.
1.4.2 Instructions for the FR-PU07BB (battery mode)

(1) Functions available when using in the battery mode

<table>
<thead>
<tr>
<th>Parameter change</th>
<th>Description</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parameter read</td>
<td>- For monitor, only frequency setting monitor is available - PU Operation (Only switching between PU PU Jog modes is available, not operational) - Parameter (list, initial value, changed value, read) - Parameter clear - Read/clear of the faults history - Inverter reset - Troubleshooting - Read of software version - Output terminal monitor - Frequency direct setting - Copy/verification function</td>
<td>Parameter read/write for plug-in option can be done in battery mode independently of whether the plug-in option is mounted or not.</td>
</tr>
<tr>
<td>Parameter write</td>
<td>Monitor value other than frequency setting monitor is always 0. - The ON/OFF status of the input signal for the terminal assignment monitor cannot be displayed. - Option fitting status monitor cannot be displayed.</td>
<td></td>
</tr>
</tbody>
</table>

(2) FM/AM calibration parameter (Pr 990, Pr 991) cannot be set (calibrated).

(3) For following calibration parameters, only the adjusting method without application of analog voltage (current) is available.

<table>
<thead>
<tr>
<th>FR-A700</th>
<th>FR-F700</th>
<th>FR-E700</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pr 902 to Pr 905, Pr 917 to Pr 920, Pr 922, Pr 923</td>
<td>Pr 902 to Pr 905</td>
<td>Pr 902 to Pr 905, Pr 922, Pr 923</td>
</tr>
</tbody>
</table>

(4) Operation by the FR-E700 series operation panel is invalid.

Only PRM LED of the operation panel lit at this time.

(5) Do not use the FR Configurator. FR Configurator may not function properly.
1.4.3 Connecting to FR-A700/F700 using the connection cable (FR-CB2)

1. Remove the operation panel (FR-DU07).
2. Insert one end of the connection cable securely into the PU connector of the inverter and the other end into the connection connector of FR-PU07BB along the cable guides until the stoppers are fixed.
3. When using in the battery mode, turn ON the power supply switch of FR-PU07BB.
   ALARM lamp of the inverter flickers in the battery mode.

* A connection cable (FR-CB203 (wiring length is 3m)) is enclosed. The cable length when using a connection cable other than the enclosed should be 3m maximum.

**CAUTION**
- Connect the connection cable only when the front cover is installed.
- Do not subject the connection cables to scratches, excessive stress, heavy loads or pinching.
1.4.4 Connecting to FR-E700 using the connection cable (FR-CB2)

(1) Open the PU cover of the inverter.
(2) Insert one end of connection cable securely into the PU connector of the inverter and the other end into the connection connector of FR-PU07BB along the cable guides until the stoppers are fixed.
(3) When using in the battery mode, turn ON the power supply switch of FR-PU07BB.

* A connection cable (FR-CB203 (wiring length is 3m)) is enclosed. The cable length when using a connection cable other than the enclosed should be 3m maximum.

CAUTION
- Connect the connection cable only when the front cover is installed.
- Do not subject the connection cables to scratches, excessive stress, heavy loads or pinching.

1.4.5 Removal when the connection cable (FR-CB2) is used

Hold down the tab (stopper) at the cable end and gently pull the plug.
Parameters to be Checked First

1.5 Parameters to be Checked First

Change the following parameter settings as required.
For the changing procedures, refer to page 33.

1.5.1 PU display language selection (Pr. 145)

By setting the Pr. 145 PU display language selection value, you can select the language displayed on the parameter unit.

<table>
<thead>
<tr>
<th>Pr. 145 Setting</th>
<th>Display Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 (initial value)</td>
<td>Japanese</td>
</tr>
<tr>
<td>1</td>
<td>English</td>
</tr>
<tr>
<td>2</td>
<td>German</td>
</tr>
<tr>
<td>3</td>
<td>French</td>
</tr>
<tr>
<td>4</td>
<td>Spanish</td>
</tr>
<tr>
<td>5</td>
<td>Italian</td>
</tr>
<tr>
<td>6</td>
<td>Swedish</td>
</tr>
<tr>
<td>7</td>
<td>Finnish</td>
</tr>
</tbody>
</table>

* When the inverter is NA or EC model, the initial value is "1" (English).

1.5.2 PU buzzer control (Pr. 990)

By setting the Pr. 990 PU buzzer control value, you can select to either generate or mute the "beep" which sounds when you press any of the parameter unit keys.

<table>
<thead>
<tr>
<th>Pr. 990 Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>No buzzer sound</td>
</tr>
<tr>
<td>1 (initial value)</td>
<td>Buzzer sound generated</td>
</tr>
</tbody>
</table>
1.5.3  **PU contrast adjustment (Pr. 991)**

By setting the *Pr. 991 PU contrast adjustment* value, you can adjust the contrast for the display panel of the parameter unit.

<table>
<thead>
<tr>
<th><strong>Pr. 991 Setting</strong></th>
<th><strong>Description</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 63</td>
<td>Light Initial value Dark</td>
</tr>
</tbody>
</table>
2 FUNCTIONS

2.1 Monitoring Function

2.1.1 Display overview

(1) Main monitor
Shows the output frequency, output current, output voltage, alarm history and other monitor data.
- Using \( \text{next screen} \) to change to the next screen (Refer to page 25)
- Using \( \text{next screen} \) to change to the next screen (Refer to page 59)
- Using the parameter “PU main display data selection” (Refer to page 28)

(2) Rotation direction indication
Display the direction (forward rotation/reverse rotation) of the start command.
- STF : Forward rotation
- STR : Reverse rotation
- --- : No command or both STF and STR ON

(3) Operating status indication
Display the running 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
- ARAR : At fault occurrence
(4) Operation mode indication
Displays the status of the operation mode.
EXT : External operation mode
PU : PU operation mode
EXTj : External Jog mode
PUj : PU Jog mode
NET : Network operation mode
PU+E : External/PU combined operation mode

(5) Unit indication
Shows the unit of the main monitor.

(6) Warning indication
Displays an inverter warning.
The warning type varies with the inverter model.
Refer to the inverter instruction manual for details.
OL : Overcurrent stall prevention
OL : Overvoltage stall prevention
RB : Regenerative brake pre-alarm
TH : Electronic thermal relay function pre-alarm
ZC : Zero current detection
PS : PU stop
FN : Fan fault
MT : Maintenance signal output
SL : Speed limit
CF : SSCNET communication error
CP : Parameter copy
Nothing is displayed when there is no inverter warning.
Monitoring Function

REMARKS

- Standby mode function
  When FR-PU07BB gets into the standby mode, the backlight of the parameter unit turns OFF, and POWER LED remains lit.
  - <Switching conditions>
    - When the FR-PU07BB is left in the power-ON status for one minute without connecting to the inverter.
    - When FR-PU07BB is connected to the inverter and the inverter remains in the reset status for one minute.
  - <Recovery conditions>
    - When FR-PU07BB is connected to the inverter.
    - When the reset of the inverter connected to FR-PU07BB is canceled.
2.1.2 Using (SHIFT) to change the main monitor

When "0" (initial value) is set in the Pr. 52 DU/PU main display data selection, simply pressing (SHIFT) calls 6 different monitor screens in sequence.

Switch power ON or press (SHIFT)

- When output frequency is the first priority monitor (Initial setting)
  - Output frequency monitor
  - Output current monitor
  - Output voltage monitor

- When output current is the first priority monitor
  - Output current monitor
  - Output voltage monitor
  - Selective monitor

- When output voltage is the first priority monitor
  - Output voltage monitor
  - Selective monitor

First priority monitor and top two monitors among output current, output frequency, and output voltage are displayed in rows.

Example: When electric thermal relay function load factor is set as the first priority monitor

<table>
<thead>
<tr>
<th>Monitor Screen</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.00A</td>
</tr>
<tr>
<td>0.00V</td>
</tr>
<tr>
<td>0.00Hz</td>
</tr>
</tbody>
</table>

<READ>

ALARM HISTORY

OTHERS

0.0%

--- STOP EXT

READ:List
2.1.3 Setting the power-ON monitor (the first priority monitor)

Set the monitor which appears first when power is switched ON or \( \text{(not)} \) is pressed.

- When you press \( \text{(not)} \) during any monitor screen other than ALARM HISTORY being displayed, that screen is set as the power-ON screen and will be displayed first.
2.1.4 Using "READ" to change the main monitor

Press [READ] to display the monitoring list while the main monitor is displayed. Select a monitor from the monitoring list to change the main monitor.

Example: Select the output current peak value monitor.

*1 The selected monitor is not set as the first priority monitor yet when only [READ] was pressed. Hence, the selected monitor is erased from memory as soon as the power is switched OFF or another operation mode is selected. In this case, the item must be selected again. When you press [KEY] to select the first priority screen, the selected item is stored in memory.

*2 Pressing [KEY] sets the selected "output current peak" to be displayed in the first priority monitor when switched to the monitoring mode from other operation modes. To give first priority to another monitor screen, press [KEY] with that monitor screen being displayed. (Refer to page 26)

REMARKS

The setting can be also made from the function menu. For details refer to page 53.

When "Current monitor" or "Power monitor" is selected, note that any current or power not more than 5% of the rated inverter current cannot be detected and displayed. Example: When a small motor is rotated with a large-capacity inverter (a 0.4kW motor is used with a 55kW inverter), the power monitor keeps displaying 0kW and is inoperative.
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Monitoring Function

2.1.5 Using the parameter to change the monitor (Pr. 52)

To change the third monitor (output voltage monitor), set Pr. 52 DU/PU main display data selection.
(Note that setting "17" (load meter) *1, "18" (Motor excitation current) *1, and "24" (Motor load ratio) change the output current monitor.
*Output voltage monitor" monitor displays from the first priority monitor using (operator).

*1 Cannot be monitored for the FR-F700 series.
*2 Cannot be monitored for the FR-E700, D700 series.

REMARKS

Refer to the instruction manual of each inverter for monitor description.
The monitor displayed at powering ON is the first priority monitor. Refer to page 26 for the setting method of the first priority monitor.

1) For the set value of "17, 18, 24", their monitors are displayed at the second monitor instead of output current monitor.

2) For the set value of "19 to 23, 25—", their monitors are displayed at the third monitor instead of output voltage monitor.

REMARKS

The setting range of Pr. 52 DU/PU main display data selection differs according to the inverter. Refer to the inverter instruction manual for details.
2.2 Frequency Setting

The frequency in PU operation mode and External/PU combined operation mode (Pr. 79 = "3") can be set.

**REMARKS**

When changing the operation mode from External operation mode to PU operation mode, operation mode cannot be changed if the external starting signal (STF or STR) is ON.

2.2.1 Direct setting

Directly enter a frequency setting using \( \# \) to \( \$ \).

- **Operation procedure (Changing from 0Hz setting to 60Hz setting)**

1. Press \( \mathbf{m} \).
   The frequency setting screen appears.

2. Press \( \# \) and \( \$ \).
   Enter 60Hz.

3. Press \( \mathbf{m} \).
   The 60Hz setting is complete.

* If you entered an incorrect value, press \( \mathbf{ESC} \) to return to the pre-entry state.
2.2.2 Step setting

Change frequency continuously using ▲ / ▼.

You can change the frequency only while you press ▲ / ▼. Since the frequency changes slowly at first, this setting can be used for fine adjustment.

1. Press [PU].
   The frequency setting screen appears.

2. Press ▲ / ▼ to enter a desired value (60.00Hz).
   You can set any value between the maximum frequency (Pr. 1) and minimum frequency (Pr. 2).

3. Press [SET].
   The 60Hz setting is complete.

**REMARKS**

Change of frequency can be made during operation by the step setting. However, pressing ▲ / ▼ at monitor mode may cause actual set frequency to be higher/lower from the indicated frequency on the monitor. When performing the step setting at monitor mode, make sure that output frequency is following the set frequency.
**Frequency Setting**

### 2.2.3 Precautions for frequency setting

1) Pr. 79 Operation mode selection must have been set to switch to the PU operation. (Refer to the inverter instruction manual for details of Pr. 79.)

2) In the monitor mode, you cannot make the direct setting (Refer to page 30) to set the running frequency. Perform the step setting (Refer to page 31) and press \[ \text{STF FWD PU} \], or press \[ \text{PU} \] to display the frequency setting screen before frequency setting.

![Frequency setting screen](image-url)
2.3 Setting and Changing the Parameter Values

Using the FR-PU07/FR-PU07B allows you to read the parameter of inverter or change the set value easily. Refer to the inverter instruction manual for details of the parameters.

### 2.3.1 Specifying the parameter number to change the set value

**Example: When changing 5s to 180s at Pr. 8 Deceleration time setting**

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Press [P1]. The frequency setting screen appears, and operation mode changes to PU operation mode. <em>(You need not press [P1] when the parameter unit is already in the PU operation mode.)</em></td>
</tr>
<tr>
<td>2</td>
<td>Press [P2]. The parameter unit is in the parameter setting mode.</td>
</tr>
<tr>
<td>3</td>
<td>Press [P3]. Enter the desired parameter number.</td>
</tr>
<tr>
<td>4</td>
<td>Press [P4]. The present setting appears.</td>
</tr>
<tr>
<td>5</td>
<td>Direct setting. Press [P5] (\uparrow) (\downarrow) (\bullet) (\bullet) (\bullet). Enter the desired value. Or (\uparrow) (\downarrow) (\bullet) (\bullet) (\bullet). (\downarrow) (\downarrow) (\bullet) (\bullet) (\bullet). Display “180” using (\uparrow) (\downarrow).</td>
</tr>
<tr>
<td>6</td>
<td>Press [P6]. The set value is changed.</td>
</tr>
<tr>
<td>7</td>
<td>Press [P7] to display the next parameter.</td>
</tr>
<tr>
<td>8</td>
<td>If you entered an incorrect value, press [P8] to return to the pre-entry state.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dec.T1</td>
<td>180s</td>
</tr>
<tr>
<td>Pr. 8</td>
<td>8</td>
</tr>
</tbody>
</table>
### Setting and Changing the Parameter Values

#### 2.3.2 Selecting the parameter from functional list to change the set value

Example: When changing 5s to 180s at the Pr. 8 Deceleration time setting

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Press</td>
<td>The frequency setting screen appears, and operation mode changes to PU operation mode.</td>
</tr>
<tr>
<td>2</td>
<td>Press</td>
<td>The parameter unit is in the parameter setting mode.</td>
</tr>
<tr>
<td>3</td>
<td>Select the screen using and move the cursor to “Appl.Grp”.</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Press</td>
<td>The function list appears.</td>
</tr>
<tr>
<td>5</td>
<td>Select a function. Point the cursor to “Acc.Dec” using</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Press</td>
<td>A function list regarding acceleration/deceleration is displayed.</td>
</tr>
<tr>
<td>7</td>
<td>Select a function. Using , point the cursor to “Acc/Decl T”.</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Press</td>
<td>A parameter list regarding acceleration/deceleration time is displayed.</td>
</tr>
<tr>
<td>9</td>
<td>When moving the cursor to “Dec.T1” using and pressing , the present set value is called.</td>
<td></td>
</tr>
</tbody>
</table>
### Setting and Changing the Parameter Values

1. **Direct setting**
   - Press \( \text{(1)} \) \( \text{(6)} \) \( \text{(6)} \) \( \text{*} \).
   - Enter the desired value.
   - Or

2. **Step setting**
   - Press \( \text{a} \) \( \text{b} \).
   - Display "180" using \( \text{a} \) \( \text{b} \).

3. Press \( \text{c} \).

4. The set value is changed.

5. Press \( \text{d} \).

   - Press \( \text{e} \) \( \text{f} \) to display the next parameter.

   - **Completed**

---

* If \( \text{(a)} \) is pressed when an incorrect setting value is input, the display returns to the list display "8".

---

---

---
### Setting and Changing the Parameter Values

#### 2.3.3 Selecting the parameter from parameter list to change the set value

**Example:** When changing 5s to 180s at the Pr. 8 Deceleration time setting

1. Press **PU**. The frequency setting screen appears, and operation mode changes to PU operation mode.

2. Press **SET**. The parameter unit is in the parameter setting mode.

3. Change the screen using **,**. Using **,** point the cursor to "Pr.List".

4. Press **Sel**. Select the parameter list. The list of the parameters can be read appears.

5. Select the parameter. When moving the cursor using **,** and pressing **** at "Dec.T1", the present set value is called.

6. (1) Direct setting

   Press ****. Enter the desired value.

   Or

   (2)Step setting

   Press **,**. Display "180" using **,**.

7. Press ****. The set value is changed.

8. Press **** to display the next parameter.

9. Press **** to display the next parameter.

   - If **** is pressed when an incorrect setting value is input, the display returns to the list display "5".

---

**freq. Set**

**SET 0.00Hz**

**0~400Hz**

**SETTING MODE**

**0-0iker Pr.No.**

**Select Oper.**

**2 Pr.List**

**3 User List**

**1 Appl.Grp**

**4 Param Copy**

**1 Max.F1**

**2 Min.F1**

**0 Trq.Bst1**

**3 VFbaseF1**

---

**8 Dec.T1**

**5.0S**

**0~3600**

**Completed**
2.3.4 Selecting the parameter from User List to change the set value

If a parameter is registered to User List, the parameter can be read from User List and changed. (For registering the user group, refer to page 39.)

Example: When changing 5s to 180s at the Pr. 8 Deceleration time setting

1. Press \[ \text{PU} \].
   The frequency setting screen appears, and operation mode changes to PU operation mode.

2. Press \[ \text{[SET]} \].
   The parameter unit is in the parameter setting mode.

3. Change the screen using \[ \text{[\(\uparrow\downarrow\)]} \].

4. Select a User List.
   Using \[ \text{[\(\uparrow\downarrow\)]} \], point the cursor to "User List".

5. Press \[ \text{[User List]} \].
   The list of the parameters registered to User List appears.

6. Select the parameter.
   When moving the cursor using \[ \text{[\(\uparrow\downarrow\)]} \] and pressing \[ \text{[Decel]} \] at "Dec.T1", the present set value is called.

7. (1) Direct setting
   Press \[ 1 \text{[Decel]} 5 \text{[Decel]} 1 \text{[Decel]} \].
   Enter the desired value.
   Or
   (2) Step setting
   Press \[ \text{[Decel]} \text{[Decel]} \].
   Display "180" using \[ \text{[Decel]} \text{[Decel]} \].

8. Press \[ \text{[Decel]} \].
   The set value is changed.

9. Press \[ \text{[Decel]} \text{[Decel]} \] to display the next parameter.

* If \[ \text{[Esc]} \] is pressed when an incorrect setting value is input, the display returns to the list display *"."
### Setting and Changing the Parameter Values

#### 2.3.5 Precautions for setting write

- Perform parameter setting change during an inverter stop basically in the PU operation mode or combined operation mode. The parameter setting can not be changed in the External operation mode or during inverter operation. (Read is performed independently of the operation mode.) Note that some parameters can be written even in the External operation mode or during operation. Therefore, refer to the inverter manual.

- As Pr. 7 Parameter write selection = "0" in the initial setting, parameter can be written only during an inverter stop. (Read is allowed even during operation.) Note that some parameters can be written always. Refer to the inverter manual for details of Pr. 77.

- In addition to the above case, setting write cannot be performed when:
  1) The parameter number selected does not exist in the parameter list; or
  2) The value entered is outside the setting range.

- When write cannot be performed and the "Setting Err." appears, press \( \text{ESC} \) and make setting once more. (Example: For Pr. 7 Acceleration time)
2.4 User Group Function

- User group function is a function to display only parameters necessary for setting.
  Among all parameters, maximum 16 parameters can be registered to the user group. When "1" is set in Pr. 160, only parameters registered in the user group can be accessed for reading and writing. (The parameters not registered to the user group cannot be read.)

REMARKS

FR-D700 does not have the user group function.
### User Group Function

#### 2.4.1 Registering the parameters to user group

1. **Press**.  
   The parameter unit is in the parameter setting mode.

2. **Read the parameters.**  
   Enter the parameter number to be registered to the user group with the number keys and press to read the parameter setting.

3. **Set the parameters.**  
   When changing the set value, enter a new value with the number keys and press to write.  
   When not changing the setting value, press to display the setting completion screen.

4. **Press**.  
   The selecting screen appears.

5. **Register.**  
   When moving the cursor to "YES" and pressing, the registration is executed.

6. The parameter setting screen appears. To continue parameter registration, repeat the operation from step 2.
2.4.2 Deleting the parameters from user group

1. Press \( \text{SET} \).
   The parameter unit is in the parameter setting mode.

2. Select "User List".
   Using \( \text{ } / \text{ } \), point the cursor to "3 User List" and press \( \text{SET} \).

3. Select the parameter to be deleted.
   Using \( \text{ } / \text{ } \), point the cursor to the parameter to be deleted and press \( \text{SET} \).

4. Delete.
   The screen of delete confirmation appears. When pointing the cursor to "Yes" and pressing \( \text{SET} \), the parameter is deleted.

2.4.3 Confirming the parameters registered to user group

1. Press \( \text{SET} \).
   The parameter unit is in the parameter setting mode.

2. Select "User List".
   Using \( \text{ } / \text{ } \), point the cursor to "3 User List" and press \( \text{SET} \).

3. Read the parameter.
   You can confirm the parameters registered to the user group.

REMARKS
If the parameter is not registered to the user group, "User List Setting Err." will be displayed. Press \( \text{ESC} \) to return to the screen of step 1.
2.5 Calibration of the Meter (Frequency Meter)

The functions vary with the inverter. (Refer to the inverter instruction manual for details of the parameters.)

2.5.1 Calibration of the FM terminal

This section provides the way to calibrate the full-scale of meter connected to terminal FM using the parameter unit.

- Calibrating the meter at the running frequency of 60Hz

1. Press \( \text{PU} \). The frequency setting screen appears, and operation mode changes to PU operation mode.

2. Press \( \text{SET} \). The parameter unit is in the parameter setting mode.

3. Enter \( \text{FREQ} \) and press \( \text{SET} \). The preset frequency is displayed.

4. Enter \( \text{60Hz} \) and press \( \text{SET} \). 60Hz is set.

5. Press \( \text{FWD} \). Forward rotation is performed at 60Hz. You need not connect the motor.

6. Using \( \text{△} \) / \( \text{▽} \), adjust the meter pointer to a predetermined position. The meter pointer moves. (It takes a long time before the pointer moves.)
2.5.2 Calibration of the AM terminal

This section provides a way to calibrate the meter connected to terminal AM using the parameter unit.

(1) Calibration procedure 1

(Example: To calibrate the meter at the running frequency of 60Hz)

1. Press [PU]. The frequency setting screen appears, and operation mode changes to PU operation mode.

2. Press [PU]. The parameter unit is in the parameter setting mode.

3. Enter 901 and press [PU]. The preset frequency is displayed.

REMARKS

When FR-PU07BB is used in the battery mode (the inverter power is OFF), this parameter cannot be set (calibrated).
Calibration of the Meter (Frequency Meter)

(2) When calibrating output current
For the output current or another item, which does not easily point 100% value during operation, adjust the reference voltage output, then select the item to be displayed.

1. Press [PU].
   The frequency setting screen appears, and operation mode changes to PU operation mode.

2. Press [FREQ].
   The parameter unit is in the parameter setting mode.

3. Enter [158 AM set] and press [SET].
   The present Pr.158 setting appears.

   The setting of reference voltage output is complete.

5. Press [FREQ].
   The parameter unit is in the parameter setting mode.

   The reference voltage output is set.

5. Press [FREQ].
   Calibration is complete.

6. Using [▲]/[▼], adjust the meter pointer to a predetermined position.
   The meter pointer moves. (It takes a long time before the pointer moves.)

7. Press [FREQ].
   Calibration is complete.

8. Press [MON] to return to the main monitor screen.

44
Calibration of the Meter (Frequency Meter)

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Enter $9\ 8\ 1$ and press $\rightarrow$.</td>
<td>The present Pr. 901 setting appears.</td>
</tr>
<tr>
<td>7</td>
<td>Enter $6\ 0\ 0$ and press $\rightarrow$.</td>
<td>The setting of maximum running frequency is complete.</td>
</tr>
<tr>
<td>8</td>
<td>Press $\rightarrow$.</td>
<td>Forward rotation is performed at 60Hz. You need not connect the motor to make adjustment.</td>
</tr>
<tr>
<td>9</td>
<td>Using $\uparrow$/$\downarrow$, adjust the voltage across terminals AM-5 and press $\rightarrow$.</td>
<td>Setting is complete. The output voltage displayed is the value at 100% output. This voltage is not stored if you do not press $\rightarrow$.</td>
</tr>
<tr>
<td>10</td>
<td>Press $\rightarrow$.</td>
<td>The parameter unit is in the parameter setting mode.</td>
</tr>
<tr>
<td>11</td>
<td>Enter $1\ 6\ 8$ and press $\rightarrow$.</td>
<td>The present Pr. 158 setting appears.</td>
</tr>
<tr>
<td>12</td>
<td>Enter $2\ 0\ 0$ and press $\rightarrow$.</td>
<td>The setting of output current is complete. The output current for 10VDC is the setting value of Pr. 56 Current monitoring reference (initial value: rated inverter current).</td>
</tr>
</tbody>
</table>

**Remarks**
When FR-PU07BB is used in the battery mode (the inverter power is OFF), this parameter cannot be set (calibrated).
2.6 Adjustment of the Frequency Setting Signals "Bias" and "Gain"

The functions vary with the inverter model. (Refer to the inverter instruction manual for details of the functions.)

2.6.1 Adjustment procedure

There are three ways to adjust the bias and gain of the frequency setting voltage (current).

1. Adjust only the bias and gain frequencies and not adjust the voltage (current) (Refer to page 47)
2. Adjust any point by applying a voltage across terminals 2-5 (starting a current across terminals 4-5) (Refer to page 49)
3. Adjust any point without a voltage being applied across terminals 2-5 (without a current being applied across terminals 4-5) (Page 51)

REMARKS

When using FR-PU07BB in the battery mode, only Adjustment procedure (3) is available for the following calibration parameters.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>FR-A700</th>
<th>FR-F700</th>
<th>FR-E700</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pr. 902</td>
<td>Pr. 903</td>
<td>Pr. 902</td>
<td>Pr. 902</td>
</tr>
<tr>
<td>Pr. 903</td>
<td>Pr. 903</td>
<td>Pr. 903</td>
<td>Pr. 903</td>
</tr>
<tr>
<td>Pr. 904</td>
<td>Pr. 904</td>
<td>Pr. 904</td>
<td>Pr. 904</td>
</tr>
<tr>
<td>Pr. 905</td>
<td>Pr. 905</td>
<td>Pr. 905</td>
<td>Pr. 905</td>
</tr>
<tr>
<td>Pr. 902 to Pr. 905</td>
<td>Pr. 902 to Pr. 905</td>
<td>Pr. 902 to Pr. 905</td>
<td></td>
</tr>
</tbody>
</table>
Adjustment of the Frequency Setting Signals "Bias" and "Gain"

(1) Adjust only the bias and gain frequencies and not adjust the voltage

- Setting of the frequency setting voltage bias

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Press ( \text{Fw} ). The frequency setting screen appears, and operation mode changes to PU operation mode.</td>
</tr>
<tr>
<td>2</td>
<td>Press ( \text{SET}). The parameter unit is in the parameter setting mode.</td>
</tr>
<tr>
<td>3</td>
<td>Enter ( \text{0, 9, 2} ) and press ( \text{SET}). The present Pr. 902 setting appears.</td>
</tr>
<tr>
<td>4</td>
<td>Enter ( \text{1, 0} ). Voltage need not be applied across terminals 2-5.</td>
</tr>
<tr>
<td>5</td>
<td>Press ( \text{SET}). The bias frequency is set at 10Hz.</td>
</tr>
</tbody>
</table>

If the voltage is being applied across terminals 2-5 at this time, the bias setting is as shown above.
## Adjustment of the Frequency Setting Signals “Bias” and “Gain”

<table>
<thead>
<tr>
<th>Step</th>
<th>Instructions</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Press [SET]. The present setting appears.</td>
<td>903 Ext2gain (50Hz set&lt;WRITE&gt; Qst&lt;READ&gt;) 903 Ext2gain (6.5V set&lt;READ&gt;)</td>
</tr>
<tr>
<td>7</td>
<td>Enter [6] [9]. Voltage need not be applied across terminals 2-5.</td>
<td>903 Ext2gain (6.5V set&lt;READ&gt;)</td>
</tr>
<tr>
<td>8</td>
<td>Press [SET]. The bias frequency is set at 50Hz. At this time, set the gain on the assumption that the 5V (10V) in the inverter is the set voltage.</td>
<td>903 Ext2gain (6.5V set&lt;READ&gt;)</td>
</tr>
</tbody>
</table>

### REMARKS
1. The current input (Pr. 904) can also be adjusted using a similar procedure.
2. The Pr. 903 Terminal 2 frequency setting gain remains unchanged if the Pr. 20 acceleration/deceleration reference frequency setting is changed.

The adjustment of the frequency setting voltage bias and gain is complete.
Adjustment of the Frequency Setting Signals "Bias" and "Gain"

(2) Adjust any point by application of voltage to across terminals 2-5.

Setting of the frequency setting voltage bias:

1. Press [PU].
   - The frequency setting screen appears, and operation mode changes to PU operation mode.

2. Press [SET].
   - The parameter unit is in the parameter setting mode.

3. Enter [SELECT]

   - The present Pr. 902 setting appears.
   - When the set voltage is changed, the % value also changes.
   - This example assumes that a 1V voltage is applied.
   - The value selected in Pr. 71 (5V in this example) is 100%.

5. Enter 1, 4, 5.
   - Set the bias frequency at 10Hz.

6. Press [SET].
   - The cursor ( ● ) moves to the set voltage.

7. Apply a 0V voltage.
   - In this example, 0V is applied as 10Hz is set for 0V.
   - (Indicated % on the right changes.)

8. Press [SET].
   - The bias frequency is set at 10Hz for 0V input.
   - Setting is completed as shown below:
   - 0.0% of analog input value may not be displayed in some cases.
Adjustment of the Frequency Setting Signals “Bias” and “Gain”

- Setting of the frequency setting voltage gain

9. Press \( \text{SET} \), then \( \text{up} \). The present Pr. 903 setting appears. When the set voltage is changed, the % value also changes. The value selected in Pr. 73 (5V in this example) is 100%.

10. Enter \( \text{5} \). Enter.

11. Press \( \text{SET} \). The cursor ( ) moves to the set voltage.

12. Apply a 5V voltage. In this example, 5V is applied to set 50Hz for 5V input.

13. Press \( \text{SET} \). The gain frequency is set at 50Hz for 5V input. Setting is completed as shown below:

<table>
<thead>
<tr>
<th>Frequency Setting Gain</th>
<th>50Hz</th>
<th>99.6%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ext</td>
<td>50Hz</td>
<td>97.1%</td>
</tr>
<tr>
<td>Ext</td>
<td>903</td>
<td>80.0%</td>
</tr>
</tbody>
</table>

- Remarks

1. The current input (Pr. 904, Pr. 905) can also be adjusted using a similar procedure.
2. The Pr. 903 Terminal 2 frequency setting gain remains unchanged even if the Pr. 20 Acceleration/deceleration reference frequency setting is changed.
3. A narrow calibration (command) value set using Pr. 902 and Pr. 903 (Pr. 904 and Pr. 905) will result in “incr I/P” and disable write.
Adjustment of the Frequency Setting Signals "Bias" and "Gain"

(3) Adjust any point without application of voltage to across terminals 2-5

- Setting of the frequency setting voltage bias

1. Press \( \text{PU} \). The frequency setting screen appears, and operation mode changes to PU operation mode.

2. Press \( \text{etc.} \). The parameter unit is in the parameter setting mode.

3. Enter \( \text{PU} \). Setting mode \( \text{Pr.No.: } 902 \text{ Ext2bias} \text{ etc.} \)

4. Press \( \text{etc.} \) twice. The present \( \text{Pr.} \ 902 \) setting appears. When the set voltage is changed, the % value also changes. The value selected in \( \text{Pr.} \ 71 \) (5V in this example) is 100%.

5. Enter \( \text{etc.} \). Set the bias frequency at 10Hz.

6. Press \( \text{etc.} \). The cursor ( ) moves to the set voltage. Voltage need not be applied across terminals 2-5.

7. Enter \( \text{etc.} \). Input 0V to set bias.

8. Press \( \text{etc.} \). The bias frequency is set at 10Hz. Setting is completed as shown below:

\[
\begin{array}{c}
\text{Freq Set} \\
\text{SET 0.00Hz} \\
0~400Hz \\
\text{SETTING MODE} \\
0~9: \text{Ser Pr.NO.} \\
\text{Select Oper} \\
\text{SETTING MODE} \\
\text{Pr.No.} <\text{READ}> \\
902 \\
\text{Ext2bias} \\
\text{Ext  -0.5\%} \\
\end{array}
\]

\[
\begin{array}{c}
902 \text{ Ext2bias} \\
10.00Hz \\
-0.5\% \\
\text{ext -0.5\%} \\
\end{array}
\]
Adjustment of the Frequency Setting Signals "Bias" and "Gain"

- Setting of the frequency setting voltage gain

9. Press \( \text{Set} \), then \( \text{Out} \).
   - The present Pr. 903 setting value appears.
   - When the set voltage is changed, the \% value also changes.
   - The value selected in Pr. 73 (5V in this example) is 100%.

10. Enter \( \text{Set} \).
    - Set the gain frequency at 50Hz.

11. Press \( \text{Out} \).
    - The cursor \( \rightarrow \) moves to the set voltage.
    - Voltage need not be applied across terminals 2-5.

12. Enter \( \text{Set} \).
    - Input 5V to set gain.

13. Press \( \text{Set} \).
    - The gain frequency is set at 50Hz.
    - Setting is completed as shown below.

REMARKS:
1. The current input (Pr. 904, Pr. 905) can also be adjusted using a similar procedure.
2. The Pr. 903 Terminal 2 frequency setting gain remains unchanged even if the Pr. 20 Acceleration/deceleration reference frequency setting is changed.
3. A narrow calibration (command) value set using Pr. 902 and Pr. 903 (Pr. 904 and Pr. 905) will result in "Incr I/P" and disable write.
### 3 FUNCTION MENU

#### 3.1 Overview of Function Menu

Press (F1) in any operation mode to call the function menu, on which you can perform various functions.

#### 3.1.1 Function menu

<table>
<thead>
<tr>
<th>Function Menu</th>
<th>Description</th>
<th>Refer To</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. MONITOR</td>
<td>FR-PU07</td>
<td>Page 59</td>
</tr>
<tr>
<td>2. PU Oper</td>
<td>FR-PU07</td>
<td>Page 60</td>
</tr>
</tbody>
</table>

**Note:**

- **1. MONITOR FR-PU07**
  - The monitor list appears, and you can change from one monitor to another and set the first priority monitor.

- **2. PU Oper FR-PU07**
  - You can select the PU operation mode via direct input (direct setting with the number keys) or select the Jog operation mode from the PU, and displays how to operate the keys.

---

Press any of the MONITOR, PUOper, Pr.list, and PU keys to switch to the corresponding mode.
## Overview of Function Menu

<table>
<thead>
<tr>
<th>Function Menu</th>
<th>Description</th>
<th>Refer To</th>
</tr>
</thead>
<tbody>
<tr>
<td>3. Pr.List</td>
<td>The parameter menu appears, and you can perform &quot;parameter setting&quot;, &quot;list display&quot;, &quot;parameter change list display&quot; and &quot;initial value list display&quot;.</td>
<td>Page 62</td>
</tr>
<tr>
<td>4. Pr.Clear</td>
<td>The parameter clear menu appears, and you can perform &quot;parameter clear&quot; and &quot;all clear&quot;.</td>
<td>Page 65</td>
</tr>
<tr>
<td>5. Alarm Hist</td>
<td>This function displays history of past eight faults (alarms).</td>
<td>Page 67</td>
</tr>
<tr>
<td>6. AlarmClear</td>
<td>This function clears all the fault (alarm) history.</td>
<td>Page 68</td>
</tr>
<tr>
<td>7. Inv.Reset</td>
<td>This function resets the inverter.</td>
<td>Page 69</td>
</tr>
<tr>
<td>8. T/SHooting</td>
<td>The inverter displays the cause of mismatch between inverter operation and control setting or the cause of an inverter fault.</td>
<td>Page 69</td>
</tr>
<tr>
<td>9. S/W</td>
<td>This function displays the software control number of the inverter.</td>
<td>-</td>
</tr>
<tr>
<td>10. Selectop</td>
<td>FR-PU07 This function displays the signals assigned to the I/O terminals of the control circuit and the ON/OFF states of the signals.</td>
<td>Page 74</td>
</tr>
<tr>
<td></td>
<td>FR-PU07BB battery mode This function displays the signals assigned to the I/O terminals of the control circuit. The ON/OFF states of the input signal are not displayed.</td>
<td></td>
</tr>
<tr>
<td>11. Option</td>
<td>FR-PU07 This function displays the option fitting states of the option connectors 1 to 3.</td>
<td>Page 75</td>
</tr>
<tr>
<td></td>
<td>FR-PU07BB battery mode Option cannot be displayed since it cannot be recognized.</td>
<td></td>
</tr>
<tr>
<td>12. FRCpy set</td>
<td>The function can perform the &quot;parameter copy&quot; (read, write, verification).</td>
<td>Page 76</td>
</tr>
</tbody>
</table>

**REMARKS**

The functions vary with the inverter model and may be invalid for some inverters.
3.1.2 Function menu transition

*1 Cannot be monitored for the FR-E700 and FR-D700 series.

*2 Cannot be monitored for the FR-F700 and FR-D700 series.

*3 Can be monitored for the FR-F700 series with the 75K or more.
Overview of Function Menu

Terminal Name

Settings of Pr. 178 to Pr.196 are displayed.

- MAX

Select Char
Name: 000

READ: Decide Char
WRITE: Decide Name

11 Option

2

3

4

5

6

7

8

10 Select op

12 PRCpy set

RM: 1
RL: 0
RH: 2
RT: 3
OP1: ----
OP2: ----
OP3: A7NC

2 Copy area 2
1 Copy area 1
3 Copy area 3

ççççççççççç

1 Read VFD
Copy area 1
2 Write VFD
3 Verifying

000

Overwrite area 1
WRITE: Executing
ESC: Cancel

000

Area 1 to VFD
WRITE: Executing
ESC: Cancel

000

Verify Area 1
WRITE: Executing
ESC: Cancel

Param Copy
Reading
Reading
Completed

Param Copy
Writing
Completed

Please Reset

Param Copy
Verifying
Verifying
Completed

Settings of Pr. 178 to Pr.196 are displayed.
3.2 Operation Procedures for Functions

3.2.1 Monitor function

The monitoring list appears and you can change from one monitor screen to another and set the first priority screen.

1. Press \( \text{PR} \). The function menu is called.

2. Make sure that the cursor is located at "1 MONITOR". If not, move the cursor with \( \uparrow/ \downarrow \).

3. Press \( \text{PR} \). The monitoring list is called.

4. Press \( \uparrow/ \downarrow \) to move the cursor to the desired item. Hold down \( \text{PR} \) and press \( \uparrow/ \downarrow \) to shift one screen.

5. Press \( \text{PR} \). The monitor screen selected by the cursor appears.

Press \( \uparrow/ \downarrow \) to give the first priority to this monitor screen.

REMARKS
- The monitoring list can be called only with pressing \( \text{PR} \) in the monitoring mode. (Refer to page 27)
- "4 Alarm His" cannot be set to the first priority monitor.
- When FR-PU07BB is used in the battery mode (the inverter power is OFF), only frequency setting monitor is available. (The monitor value other than frequency setting monitor is always "0".)
- Some monitoring items are not displayed depending on the connected inverter. To check the available monitoring items, refer to the setting range of Pr.52 DU/PU main display data selection of the inverter.
Operation Procedures for Functions

3.2.2 Selection of PU operation (direct input)

You can select the PU operation mode to set PU operation frequency.

1. Press . The function menu is called.

2. Using \( \downarrow \), move the cursor to “2 PU Oper”.

3. Press . The menu on the right appears.

4. Make sure that the cursor is located at “1 PU: Directly”. If not, move the cursor with \( \uparrow \downarrow \).

5. Press . The PU operation mode is selected and the frequency setting screen appears.

6. Enter the set frequency using \( \rightarrow \) to \( \leftarrow \) and press . The frequency setting is complete.

7. Press \( \rightarrow \leftarrow \) to perform forward or reverse rotation with the set frequency.

REMARKS

Press \( \uparrow \downarrow \) to call the frequency setting screen any time.
### 3.2.3 Selection of the PU Jog operation mode

You can select the PU Jog operation mode to set PU jog frequency.

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Press (FNC). The function menu is called.</td>
</tr>
<tr>
<td>2.</td>
<td>Using ⇧, move the cursor to &quot;2 PU Oper&quot;.</td>
</tr>
<tr>
<td>3.</td>
<td>Press [.] The menu on the right appears.</td>
</tr>
<tr>
<td>4.</td>
<td>Using ⇧, move the cursor to &quot;2 JOG: Jogging&quot;.</td>
</tr>
<tr>
<td>5.</td>
<td>Press [.] The PU Jog operation mode is selected, and the frequency setting screen appears.</td>
</tr>
<tr>
<td>6.</td>
<td>Enter the set frequency using ⇧ to ⇧ and press [SET]. The PU Jog frequency setting is complete.</td>
</tr>
<tr>
<td>7.</td>
<td>Hold down [M][][F] to perform forward or reverse rotation with the PU Jog set frequency.</td>
</tr>
</tbody>
</table>

**REMARKS**

- Press [SET] to call the PU Jog frequency setting screen any time after pressing PU.
### Operation Procedures for Functions

#### 3.2.4 Parameters

When selecting the parameter on the function menu, the parameter menu is displayed, and you can perform the following operations for the parameters.

<table>
<thead>
<tr>
<th>Display</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Setting Mode</td>
<td>Switches to the parameter setting mode to read and write the parameter setting.</td>
</tr>
<tr>
<td>2 Pr. List</td>
<td>Displays the parameters list. You can select the parameter from the list to read and write the parameter setting.</td>
</tr>
<tr>
<td>3 Set Pr. List</td>
<td>Lists the parameters whose setting is changed from initial value. You can select the parameter from the list to read and write the parameter setting.</td>
</tr>
<tr>
<td>4 Def.Pr. List</td>
<td>Displays the parameters and initial value list. You can select the parameter from the list to read and write the parameter setting.</td>
</tr>
</tbody>
</table>
### Operation Procedures for Functions

#### (1) “1 Setting Mode”

1. **Press** [FUNC].
   - The function menu is called.

2. **Using**, move the cursor to “3 Pr. List”.

3. **Press**.
   - The parameter menu appears.

4. **Press**.
   - The parameter unit switches to the setting mode. Refer to page 33 to set the parameters.

#### (2) “2 Pr. List”

1. Call the parameter menu similarly to above steps 1 to 3.

2. **Using**, move the cursor to “2 Pr. List”.

3. **Press**.
   - The parameter menu appears.

4. **Press** (↑/↓) to move the cursor to the desired parameter.
   - Press (↑) and (↓) together to shift to the next page.

5. **Press**.
   - The parameter indicated by the cursor is read, and the parameter unit is in the parameter setting mode. Refer to page 33 to set the parameters.

   - **Press** [SET] to move to the next parameter.
### Operation Procedures for Functions

#### (3) Display of “3 Set Pr.List”

1. Call the parameter menu similarly to steps 1 to 3 of page 63.

2. Using ▲/▼, move the cursor to “3 Set Pr. List”.

3. Press . The change list appears.

4. Press . The parameter indicated by the cursor is read, and the parameter unit is in the parameter setting mode. Refer to page 33 to set the parameters.

#### (4) Display of “4 Def.Pr.List”

1. Call the parameter menu similarly to steps 1 to 3 of page 63.

2. Using ▲/▼, move the cursor to “4 Def. Pr. List”.

3. Press . The initial value list appears.

4. Press . The parameter indicated by the cursor is read, and the parameter unit is in the parameter setting mode. Refer to page 33 to set the parameters.
3.2.5 Parameter clear

You can perform the "parameter clear" and "all parameter clear". Switch to the PU operation mode before performing any operation.

- Clear Pr. ............... Returns (initializes) the parameters to the factory settings with the exception of the some parameters (Pr. 75 and calibration values in Pr. 900 to 905).
- Clear All................... Initializes all parameters with the exception of Pr. 75.

(1) Parameter clear

1. Press [Func]. The function menu is called.
2. Using [△]/[▼], move the cursor to "4 Pr. Clear".
3. Press [Func,Mon]. The parameter menu appears.
4. Select the "Clear Pr.". Using [△]/[▼], move the cursor to "1" and press the [Func].
5. "Clear Pr." is selected, and the confirmation screen for clearing execution is displayed.
6. Press [Exe]. The parameters are initialized. When canceling the initialization, press [ESC] on the confirmation screen.

 Exec<WRITE> Cancel<ESC>
### Operation Procedures for Functions

#### (2) All parameter clear

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
</table>
| 1    | Call the parameter menu similarly to steps 1 to 3 of page 65.  
|      | ![Clear Pr.](2 Clear All) |
| 2    | Select the "Clear All".  
|      | Using ▲/▼, move the cursor to "2 Clear All" and press the .  
|      | ![Clear Pr.](2 Clear All) |
| 3    | "Clear All" is selected, and the confirmation screen for clearing execution is displayed.  
|      | ![Clear Pr.](Clear All Pr., Exec<WRITE>, Cancel<ESC>) |
| 4    | Press .  
|      | The parameters are initialized.  
|      | When canceling the initialization, press (ESC) on the confirmation screen.  
|      | ![Clear Pr.](Clear All Pr., Cancel<ESC>) |

Completed

Completed
3.2.6 Alarm history

Shows the history of past eight faults.

1. Press \textit{FNC}.
   The function menu is called.

2. Using \textit{\uparrow}/\textit{\downarrow}, move the cursor to "5 Alarm His".
   Hold down \textit{[HST]} and press \textit{\uparrow}/\textit{\downarrow} to shift one screen.

3. Press \textit{\uparrow}.
   The fault history appears.

4. Press \textit{\downarrow}.
   The running frequency at fault occurrence is displayed.

5. Press \textit{\downarrow}.
   The output current, output voltage and cumulative energization time at fault occurrence is displayed.

6. Press \textit{\uparrow} when displaying the operation mode for fault occurrence in steps 4 and 5 to display the operation data for the preceding fault occurrence.
### Operation Procedures for Functions

#### 3.2.7 Alarm clear

Clears all the fault history.

1. Press **FNC**. The function menu is called.

2. Using ▲ / ▼, move the cursor to "6 AlarmClear". Hold down **EF** and press ▲ / ▼ to shift one screen.

3. Press **FNC**. "AlarmClear" is selected, and the confirmation screen for clearing is displayed.

4. Press **EXEC**. The fault history is cleared. When canceling the clear, press **ESC** on the confirmation screen.
3.2.8 Inverter reset

Resets the inverter.

1. Press \text{FNC}. The function menu is called.
2. Using \text{△/▽}, move the cursor to "7 INV. Reset". Hold down \text{FNC} and press \text{△/▽} to shift one screen.
3. Press \text{Inv. Reset}. "INV. Reset" is selected, and the confirmation screen for reset is displayed.
4. Press \text{EXE}. The inverter is reset, and the parameter unit switches to the monitoring mode. When canceling the inverter reset, press \text{ESC} on the confirmation screen.

**Remark**

- If the inverter's protective function is activated to bring the inverter to trip (output shutdown), execute the inverter reset only by pressing \text{Inv. Reset}.
- A similar reset operation may also be performed by switching power ON again or by switching the RES signal ON. (Refer to the inverter instruction manual for details.)
3.2.9 Troubleshooting

If the inverter appears to operate improperly, perform the following operation to display the most likely cause of the fault.

This operation may also be performed during inverter operation (PU operation, External operation) or during trip (protection activated).

1. Press ![button](#). The function menu is called.

2. Using ![arrow up](#) and ![arrow down](#), move the cursor to "8 T/Shooting". Hold down ![button](#) and press ![arrow up](#) and ![arrow down](#) to shift one screen.

3. Press ![button](#). The fault menu appears.

4. Press ![arrow left](#) or ![arrow right](#) to move the cursor to the desired item.

5. Press ![button](#). The estimated cause of the fault is displayed. (Refer to page 71)
Troubleshooting guidance

1) M.NOT RUNNING (Motor does not run)

- The protective function is activated to bring the inverter to trip. Press \( \text{[F4]} \) to display the cause of the trip.
- The inverter's main circuit power has decreased or a phase in the power supply is lost. Check the power supply.
- Both start signals STF and STR are OFF or ON.
- MRS signal is ON.
- The inverter starting frequency (Pr. 13) setting is higher than the current set frequency.
- The current input select signal AU remains OFF. (not ON)
- Neither of \( \text{[F2]} \) and \( \text{[F3]} \) are pressed in the PU operation mode.

- The inverter cannot start because the inverter starting frequency (Pr. 13) is higher than the maximum frequency (Pr. 7). Check the power supply.
- The inverter cannot start because you attempted to run the motor in the direction in which forward or reverse rotation is inhibited as set in Pr. 78.
- The inverter cannot start since the current limit function is activated. Press \( \text{[F5]} \) to display the estimated cause that the current limit function was activated.
- The inverter does not start because the inverter need not start the motor as a result of the arithmetic operation of PID control.
- The inverter will not restart since the automatic restart after instantaneous power failure select signal CS is OFF. It is estimated that an instantaneous power failure has occurred or the inverter in the commercial power supply switch-over operation mode.
2) M.SPEED ERROR
(Speed does not match the running frequency setting)

Since the running frequency setting is higher than the maximum frequency (Pr.1) setting, the running frequency remains at the maximum frequency.

M. SPEED ERROR
SetF MinF1/F2 60.00 Hz Pr.1/18

Since the running frequency setting is lower than the minimum frequency (Pr.2) setting, the running frequency has been increased to the minimum frequency.

M. SPEED ERROR
Fjump Working
See Pr. 31 36
SetF= 60.00Hz

Since the running frequency setting is within the frequency jump setting range (Pr.31 to 36), the running frequency has jumped.

The current limit function was activated and forced the running frequency to reduce. Press [M] to display the cause that the current limit function was activated.

As a result of arithmetic operation of PID control, the running frequency differs from the set value.

3) M.A/Dec Err
(Actual acceleration/deceleration time is longer than the Pr. 7/Pr. 8 setting)

Acceleration time setting
Pr. 7 is displayed
Frequency reached in the above set time (Pr. 20 acceleration/deceleration reference frequency) is displayed.

Deceleration time setting
Pr. 8 is displayed.
Frequency from which deceleration is made in the above set time (Pr. 20 acceleration/deceleration reference frequency) is displayed.

Estimated cause that actual acceleration/deceleration time is longer than the setting is displayed.
4) M.Curr.High
(Inverter output current is larger than normal)

First, the running frequency, output current and output voltage of the inverter are displayed.
Press to display the estimated cause of large output current.

INV.Output 60.00Hz 10A 182.4V

- **Low Impedance Motor?**
  - Related parameters: Pr. 0, 46, 112

- **Motor in use may be a special motor other than the general-purpose 3-phase induction motor. If so, reduce the torque boost setting.**
  - Related parameters: Pr. 0, 46, 112

- **Load Too Big?**
  - Related parameters: Pr. 0, 46, 112

**REMARKS**

<When the fault could not be identified>

When the cause of the fault is not specified even after performing the operation mentioned above, the current running frequency, output current and output voltage at the point are displayed on the screen.

Press (SHIFT) to display the estimated cause related.
3.2.10 Terminal assignment (Selectop)

The signals assigned to the control circuit terminals and their ON-OFF state are displayed. If the plug-in options FR-A7AX, FR-A7AY and FR-A7AR are mounted, the terminal state of the plug-in option can be also confirmed.

1. Press Func.
   The function menu is called.

2. Using ▲/▼, move the cursor to "10 Selectop".
   Hold down SET and press ▲/▼ to shift one screen.

3. Press Enter.
   The signals assigned to the control circuit terminals and their ON-OFF states are displayed.

REMARKS
- When FR-PU07BB is used in the battery mode, the ON/OFF state of the input signal for the terminal assignment monitor are not displayed.
- Plug-in options cannot be mounted to FR-D700.
3.2.11 Option
Displays what options are fitted to the option connectors.

1. Press .
   The function menu is called.

2. Using 
   move the cursor to "11 Option".
   Hold down and press 
   to shift one screen.

3. Press .
   Numbers OP1 to OP3 correspond to numbers 1 to 3 of the option slot on the inverter side.
   For the inverter with only one option slot, mounted option is displayed next to OP1.
   The plug-in option which is mounted on the inverter is displayed.

**CAUTION**
Option fitting status monitor is not available in battery mode.

**REMARKS**
Plug-in options cannot be mounted to FR-D700.
3.2.12 Multiple copies

(1) Copying the parameter settings
Parameter settings of an inverter can be read. The settings of maximum three inverters can be stored in the FR-PU07. You can also copy the stored parameter settings to another inverter of the same series.

---

**Confirm for setting**

- Is the PU operation mode selected? → If not, press \( \Rightarrow \) to select the PU operation mode.
- Is the inverter stopped? → If it is running, press \( \Rightarrow \) to stop it.
- Is the \( Pr. \ 77 \) setting of the copy destination inverter correct? → Set "0 or 2" in \( Pr. \ 77 \).
- Is the inverter of the copy destination the same series as that of the copy source? → Select the inverter of the same series.

Example:
- FR-A720-0.4K → FR-A720-0.75K
- FR-A720-0.4K → FR-F720-0.75K

Parameters can be copied only to the same series inverters.

---

**CAUTION**

Turning power OFF during parameter copy (read, write) as below, processing is not completely ended. Perform parameter copy again.
- Turn OFF the inverter power.
- The FR-PU07BB (battery mode) power is OFF or battery exhaustion.
- Remove the FR-PU07 from the inverter.
- Pull out the PU cable.
Operation Procedures for Functions

- Reading the parameter settings of the inverter and storing them to FR-PU07.

1. Connect the FR-PU07 to the copy source inverter.

2. Press \( \text{F0} \).
The function menu appears.

3. Select the "PRCpy set".
   Using \( \uparrow / \downarrow \), move the cursor to "12 PRCpy set" and press \( \text{F0} \).

4. Select the copy area.
The copy area selection screen is displayed. Then, move the cursor to any one of 1 to 3 and press \( \text{F0} \).
   (Parameter settings of each inverter (three inverters in total) can be copied to the area 1, 2 or 3.)

5. Select the "READ".
   Using \( \uparrow / \downarrow \), move the cursor to "1 Read VFD" and press \( \text{F0} \).

6. Give a name.
   You can name each of copy areas 1 to 3. Select the characters with \( \uparrow / \downarrow \) and set them with \( \text{F0} \).
   Press \( \text{F0} \) to set the name for the area.

7. Write to the copy area of FR-PU07.
The screen for confirming the overwriting of the data in the FR-PU07 is displayed.

8. Press \( \text{F0} \).
The parameter settings of the inverter are stored.
   When canceling, press \( \text{ESC} \).
**Operation Procedures for Functions**

- Writing the parameter setting stored in FR-PU07 to the inverter

1. Connect the FR-PU07 to the copy destination inverter.
2. Press the **Set** key. The function menu appears.
3. Select the "PRCpy set". Using the up and down keys, move the cursor to "12 PRCpy set" and press the **Set** key.
4. Select the copy area. Point the cursor to the copy area that stores the parameter settings to be written to the inverter, and press the **Set** key.
5. Select the "WRITE". Using the up and down keys, point the cursor to "2 Write VFD" and press the **Set** key.
6. Writing the parameter settings is selected, and the confirmation screen for writing is displayed.
7. Press the **Set** key. The parameter settings stored in the FR-PU07 are copied to the copy destination inverter.
8. Read the inverter. (Refer to page 69)

---

**CAUTION**
- Overwriting the data of the FR-PU07 deletes the previous data.

**REMARKS**
- The parameter settings of three inverters can be stored in areas 1 to 3.
- Read and write cannot be stopped during execution. If power is switched OFF, parameter data stored in the parameter unit remains unerased.
(2) Verifying the parameters
All the parameter settings stored in the FR-PU07 are verified with those which are stored in the inverter.

REMARKS
Verification cannot be performed between different inverter series.

1. Refer to page 77 and copy the parameter settings of the verify source inverter to the FR-PU07.
2. Connect the FR-PU07 to the inverter to be verified.
3. Press \( \text{[FNC]} \). The function menu appears.
4. Select the "multiple copies". Using \( \text{[\^]}/\text{[\_]} \), move the cursor to "12 PRCpy set" and press \( \text{[ENT]} \).
5. Select the copy area. Point the cursor to the copy area that stores the parameter settings required verification, and press \( \text{[ENT]} \).
6. Select the "Verifying". Using \( \text{[\^]}/\text{[\_]} \), point the cursor to "3 Verifying" to press \( \text{[ENT]} \).
7. Verification of the parameter settings is selected, and the confirmation screen for verification is displayed.
8. Press \( \text{[ENT]} \). Start verification of parameter settings stored in the FR-PU07 and parameter settings of the inverter.
Operation Procedures for Functions

9 If an error is detected during verification, the corresponding Pr. is shown. Note that only "Verify Err" will be displayed if an incorrect value has been entered directly (f setting) or set in either Pr. 173 or Pr. 174.

10 Press . When verification is stopped with verification error, press ( ) to continue verification.

11 Verification is complete.
3.3 Other Precautions

3.3.1 Precautions for parameter unit operation

Note the following items when operating the parameter unit to prevent setting from being disabled or incorrect values from being entered.

- **Precautions for the digit count and decimal point of input value**

  The maximum number of input digits is six including a decimal point. If you enter a value in excess of 6 digits, the most significant digit is ignored.

  12345.6 → 2345.6
  (Input) → Ignored
4 OPERATION

4.1 How to Select the Operation Mode

4.1.1 Switching from External operation mode [EXT] to PU operation mode [PU]

Pressing [PU] switches to the PU operation mode and changes the operation mode indication to [PU].

4.1.2 Switching from PU operation mode [PU] to External operation mode [EXT]

Pressing [EXT] switches to the External operation mode and changes the operation mode indication to [EXT].

Confirmation
Make sure that the external input signal (STF, STR) is OFF.

Make sure that the external input signal (STF, STR) is OFF and that the operation command indication is "- - -".

0.00Hz
--- STOP PU
Freq Set
SET 0.00Hz 0-400Hz
--- STOP EXT
0.00Hz
READ:List
READ:List
4.1.3 Switching to the External / PU combined operation mode

Changing the Pr. 79 Operation mode selection setting to "3" or "4" switches to the External / PU combined operation mode. "PU+E" is displayed in the operation mode indication position.

The relationship between the running frequency and the start signal is as indicated in the following table.

<table>
<thead>
<tr>
<th>Pr. 79 Setting</th>
<th>Running frequency setting</th>
<th>Start signal</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Parameter unit</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Direct setting and ▲/▼ key setting</td>
<td></td>
</tr>
<tr>
<td></td>
<td>External signal input</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Multi-speed selection (Pr. 4 to Pr. 6, Pr. 24 to Pr. 27)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4 to 20mA DC across terminals 4-5</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>External signal input</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0 to 510V DC across terminals 2-5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4 to 20mA DC across terminals 4-5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Multi-speed selection (Pr. 4 to Pr. 6, Pr. 24 to Pr. 27)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>JOG frequency (Pr. 15)</td>
<td></td>
</tr>
</tbody>
</table>

**REMARKS**

If the operation mode cannot be switched properly, check the following:
- Make sure that the external input signal is OFF. If it is ON, the operation mode (STF or STR signal) cannot be switched properly.
- Confirm the Pr. 79 Operation mode selection setting.
- Refer to page 82 and the inverter instruction manual.
4.2 How to Operate PU Operation

4.2.1 Normal operation

During motor operation, the speed can be changed by simply executing Step 2.

<table>
<thead>
<tr>
<th>Step</th>
<th>Operation Procedure</th>
<th>Image</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Switch power ON. Make sure that the monitor appears.</td>
<td>![Image]</td>
</tr>
<tr>
<td>2</td>
<td>Set the running frequency. Set the running frequency using direct setting or step setting. (Refer to page 30)</td>
<td>![Image]</td>
</tr>
<tr>
<td>3</td>
<td>Press \textbullet or \textbullet. The motor starts running. The parameter unit automatically enters the monitoring mode and shows the output frequency.</td>
<td>![Image]</td>
</tr>
</tbody>
</table>

4

Press \textbullet. The motor is decelerated to a stop. | ![Image] |

REMARKS

- When performing PU operation to run the motor, pressing the start key (\textbullet or \textbullet) after setting the running frequency switches to monitor mode automatically.
- When FR-PU07BB is used in the battery mode (the inverter power is OFF), the operation is not available.
4.2.2 PU Jog operation

Hold down [PU] or [REV] to perform operation, and release it to stop.

Jog operation cannot be performed in the following cases:
· During motor operation
· The Pr. 15 Jog frequency is less than the Pr. 13 Starting frequency.

Example: To operate at the PU Jog running frequency of 8Hz

Step | Operation Procedure | Image
--- | --- | ---
1 | Switch to the PU operation mode. If the operation mode is not [PU], refer to page 82 and switch to the PU operation mode. | ![PU operation](image1.png)
2 | The frequency for Jog operation can be set with Pr. 15 Jog frequency and the acceleration/deceleration time with Pr. 16 Jog acceleration/deceleration time both in the parameter unit. (Refer to page 33 for the parameter setting method.) | ![Jog frequency setting](image2.png)
3 | Press [PU], then [SET]. The PU Jog operation mode is selected, and the PU Jog frequency setting screen appears on the display. To change the frequency, enter the value and press [SET]. | ![PU Jog frequency setting](image3.png)
4 | Press [PU] or [REV]. The display changes to the monitor screen. Hold down the key to perform operation and release it to stop. | ![PU Jog operation](image4.png)
5 | Press [PU]. The inverter exits from the Jog operation mode and returns to the ordinary PU operation mode. | ![PU operation](image5.png)

**Remarks**

The Jog operation mode may also be selected from [FNC]. (Refer to page 61)

When FR-PU07BB is used in the battery mode (the inverter power is OFF), the operation is not available.
4.3 Combined Operation (Operation Using External Input Signals and PU)

4.3.1 Entering the start signal from outside and setting the running frequency from the PU (Pr. 79 = 3)

The external frequency setting signals and \( \text{Pr.} 75 \) and \( \text{Pr.} 76 \) of the parameter unit are not accepted.

Stop with \( \text{Pr.} 75 = \text{A} \) is valid when \( \text{Pr.} 75 \) Reset selection/disconnected PU detection/PU stop selection = "14 to 17".

<table>
<thead>
<tr>
<th>Step</th>
<th>Operation Procedure</th>
<th>Image</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Switch the power ON.</td>
<td><img src="image1.png" alt="Image" /></td>
</tr>
<tr>
<td>2</td>
<td>Set &quot;3&quot; in Pr. 79 Operation mode selection. The External/PU combined operation mode is selected and the operation mode indication on the display changes to &quot;PU + E&quot;.</td>
<td><img src="image2.png" alt="Image" /></td>
</tr>
<tr>
<td>3</td>
<td>Set the running frequency. Set the running frequency using direct setting or step setting. (Refer to page 18)</td>
<td><img src="image3.png" alt="Image" /></td>
</tr>
<tr>
<td>4</td>
<td>Set the start switch (STF or STR) to ON. The operation command indication changes to &quot;STF&quot; or &quot;STR&quot; and the operation status indication changes to the output (FWD or REV) indication. If the forward and reverse rotation switches are both set to ON, the inverter will not start. Also, if these switches are both set to ON during operation, the motor is decelerated to a stop.</td>
<td><img src="image4.png" alt="Image" /></td>
</tr>
<tr>
<td>5</td>
<td>Set the start switch (STF or STR) to OFF. The motor stops running.</td>
<td><img src="image5.png" alt="Image" /></td>
</tr>
</tbody>
</table>

**REMARKS**

When FR-PU07BB is used in the battery mode (the inverter power is OFF), the operation is not available.
Combined Operation (Operation Using External Input Signals and PU)

4.3.2 Entering the running frequency from outside and making start and stop from the PU (Pr. 79 = 4)

<table>
<thead>
<tr>
<th>Step</th>
<th>Operation Procedure</th>
<th>Image</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Switch the power ON.</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Set “4” in Pr. 79 Operation mode selection. The External/PU combined operation mode is selected and the operation mode indication on the display changes to “PU + E”.</td>
<td><img src="image1.png" alt="Image" /></td>
</tr>
<tr>
<td>3</td>
<td>Enter the external frequency command. Select the multi-speed signal or turn the frequency setting potentiometer.</td>
<td><img src="image2.png" alt="Image" /></td>
</tr>
</tbody>
</table>

**Operation Procedure**
- **Step 4**: Press (MV) or (MV) of the parameter unit. The motor starts running, and the state of the output frequency is shown on the display. The starting terminals (STF, STR) of the inverter are invalid. The inverter may also be started by pressing the PU (MV) or (MV) and then inputting the frequency command.
- **Step 5**: Press (MV) of the parameter unit. The motor is decelerated to a stop.

**Remarks**
- When FR-PU07BB is used in the battery mode (the inverter power is OFF), the operation is not available.
### Combined Operation (Operation Using External Input Signals and PU)

#### 4.3.3 Entering the start signal and multi-speed signal from outside and setting multiple speeds from the parameter unit

<table>
<thead>
<tr>
<th>Step</th>
<th>Operation Procedure</th>
<th>Image</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Switch the power ON.</td>
<td><img src="switch_power_on.png" alt="Image" /></td>
</tr>
<tr>
<td>2</td>
<td>Select the multi-speed signal required for operation. Switch the RH, RM or RL signal ON.</td>
<td><img src="select_multi_speed_signal.png" alt="Image" /></td>
</tr>
<tr>
<td>3</td>
<td>Set the start switch (STF or STR signal) to ON. The operation command indication changes to &quot;STF&quot; or &quot;STR&quot;, the operation status indication changes to the output (FWD or REV) indication, and the motor starts running. If the forward and reverse rotation switches are both set to ON, the inverter will not start. Also, if these switches are both set to ON during operation, the motor is decelerated to a stop.</td>
<td><img src="set_start_switch.png" alt="Image" /></td>
</tr>
<tr>
<td>4</td>
<td>Change the multi-speed frequency during operation from the parameter unit. When high speed has been selected (RH signal ON), changing the Pr. 4 Multi-speed setting (high speed) value varies the speed. The other multi-speed settings not being used may also be changed during operation.</td>
<td><img src="change_multi_speed_frequency.png" alt="Image" /></td>
</tr>
<tr>
<td>5</td>
<td>Switch off the multi-speed signal (RH, RM or RL signal) and set the start switch (STF or STR signal) to OFF. The motor stops running.</td>
<td><img src="switch_off_multi_speed_signal.png" alt="Image" /></td>
</tr>
</tbody>
</table>

#### REMARKS

- When FR-PU07BB is used in the battery mode (the inverter power is OFF), the operation is not available.
## 5 CHECK FIRST WHEN YOU HAVE A TROUBLE

### 5.1 Troubleshooting

If a fault occurs and the inverter 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.

<table>
<thead>
<tr>
<th>Status</th>
<th>Possible causes</th>
<th>Check point</th>
<th>Corrective action</th>
</tr>
</thead>
<tbody>
<tr>
<td>The LCD or backlight of the parameter unit does not light.</td>
<td>Connection fault of the parameter unit</td>
<td>Check that the parameter unit is connected properly. Or check that the PU cable is inserted far into the PU connector.</td>
<td>Check the connection of the parameter unit and the PU cable.</td>
</tr>
<tr>
<td></td>
<td>The setting of Pr. 991 PU contrast adjustment is changed from the initial value.</td>
<td>Check the Pr. 991 setting.</td>
<td>Return the Pr. 991 setting to the initial value using the operation panel.</td>
</tr>
<tr>
<td></td>
<td>The inverter is in the standby status.</td>
<td>Check whether the PU cable is disconnected.</td>
<td>Check the connection of the PU cable.</td>
</tr>
<tr>
<td></td>
<td>Battery exhaustion of FR-PU07BB, disconnection of the AC adapter</td>
<td>Check whether the battery of FR-PU07BB is run down.</td>
<td>Change the battery.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Check whether the AC adapter is disconnected.</td>
<td>Check for connection of the AC adapter.</td>
</tr>
</tbody>
</table>
## Troubleshooting

<table>
<thead>
<tr>
<th>Status</th>
<th>Possible causes</th>
<th>Check point</th>
<th>Corrective action</th>
</tr>
</thead>
<tbody>
<tr>
<td>The &quot;MITSUBISHI&quot; display remains on and it will not accept operation.</td>
<td>During inverter reset</td>
<td>Check whether RES signal is ON</td>
<td>Turn OFF the RES signal.</td>
</tr>
<tr>
<td></td>
<td>Connection fault of a cable or connector</td>
<td>Check that no cable damage nor connection fault of a connector is found.</td>
<td>Replacement of a cable connection</td>
</tr>
<tr>
<td>FR-PU07BB is connected to a FR-D700 series inverter or an incompatible FR-A700/F700 series inverter. (Refer to page 2 for supporting models.)</td>
<td>Check the manufacture date of inverters. Check the SERIAL number indicated on the inverter rating plate or package.</td>
<td>—</td>
<td></td>
</tr>
<tr>
<td>The &quot;PU07BB/COMPATIBILITY/ERROR&quot; display remains on and it will not accept operation.</td>
<td>FR-PU07BB was connected to an incompatible FR-E700 series inverter. (Refer to page 2 for supporting models.)</td>
<td>Check the manufacture date of inverters. Check the SERIAL number indicated on the inverter rating plate or package.</td>
<td>—</td>
</tr>
<tr>
<td>FR-PU07BB cannot be operated in the battery mode.</td>
<td>Battery exhaustion of FR-PU07BB, disconnection of the AC adapter</td>
<td>Check whether the battery of FR-PU07BB is run down. Check whether the AC adapter is disconnected.</td>
<td>Change the battery. Check for connection of the AC adapter.</td>
</tr>
</tbody>
</table>
### SPECIFICATIONS

#### 6.1 Standard Specifications

<table>
<thead>
<tr>
<th>Item</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FR-PU07</strong></td>
<td><strong>FR-PU07BB</strong></td>
</tr>
<tr>
<td><strong>Surrounding air temperature</strong></td>
<td>-10°C to +50°C (non-freezing) *1</td>
</tr>
<tr>
<td><strong>Ambient humidity</strong></td>
<td>90%RH or less (non-condensing)</td>
</tr>
<tr>
<td><strong>Storage temperature</strong></td>
<td>-20°C to +55°C *2</td>
</tr>
<tr>
<td><strong>Ambience</strong></td>
<td>Indoors (free from corrosive gas, flammable gas, oil mist, dust and dirt)</td>
</tr>
<tr>
<td><strong>Altitude, vibration</strong></td>
<td>Maximum 1000m above sea level for standard operation. 5.9m/s² or less at 10 to 55Hz (directions of X, Y, Z axes)</td>
</tr>
<tr>
<td><strong>Power supply</strong></td>
<td>Power is supplied from the inverter. Power is supplied from the inverter, a battery or an AC adapter (sold separately).</td>
</tr>
<tr>
<td><strong>Connection</strong></td>
<td>Installed to the inverter or connected to the inverter by the cable. Connected by the dedicated cable.</td>
</tr>
<tr>
<td><strong>Display</strong></td>
<td>LCD (liquid crystal display, 16 characters 4 lines)</td>
</tr>
<tr>
<td><strong>Data retention</strong></td>
<td>Onboard EEPROM</td>
</tr>
<tr>
<td><strong>Number of write times</strong></td>
<td>Maximum 100,000 times</td>
</tr>
<tr>
<td><strong>Mass</strong></td>
<td>Approx. 200g (not including the battery weight)</td>
</tr>
<tr>
<td></td>
<td>Approx. 300g</td>
</tr>
</tbody>
</table>

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

*2 Temperatures applicable for a short time, e.g. in transit.

**CAUTION**

1. Do not expose the liquid crystal screen to direct sunlight.
2. During transportation, avoid applying load to the liquid crystal display.
### Standard Specifications

**FR-PU07BB dedicated specifications**

<table>
<thead>
<tr>
<th>Item</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Battery life</strong> *</td>
<td></td>
</tr>
<tr>
<td><em>The battery life is a reference value. It differs depending on the battery and the usage.</em></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Alkaline battery</th>
<th>Nickel metal hydride battery</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A700/F700</td>
<td>E700</td>
</tr>
<tr>
<td>Battery life</td>
<td>Approx. 90 min</td>
<td>Approx. 150 min</td>
</tr>
<tr>
<td>Battery exhaustion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>warning lamp color</td>
<td></td>
<td></td>
</tr>
<tr>
<td>changing start time</td>
<td></td>
<td></td>
</tr>
<tr>
<td>From green to orange</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(at lowering of battery power)</td>
<td>Approx. 50 min before</td>
<td>Approx. 10 min before</td>
</tr>
</tbody>
</table>
6.2 Outline Drawing and Panel Cutting Drawing

6.2.1 FR-PU07 outline dimension drawings

*1 When installing the FR-PU07 on the enclosure, etc., remove screws for fixing the FR-PU07 to the inverter or fix the screws to the FR-PU07 with M3 nuts.

*2 Select the installation screws of which length will not exceed the effective depth of the installation screws threads.
6.2.2 FR-PU07BB outline dimension drawings

* FR-PU07BB cannot be installed to the enclosure and such.

(Unit: mm)
Appendix 1 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.

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