INVERTER

Option unit
FR-PU07
FR-PU07BB
INSTRUCTION MANUAL

Parameter unit

PRE-OPERATION INSTRUCTIONS 1
FUNCTIONS 2
FUNCTION MENU 3
OPERATION 4
CHECK FIRST WHEN YOU HAVE A TROUBLE 5
SPECIFICATIONS 6

MITSUBISHI ELECTRIC CORPORATION
HEAD OFFICE: TOKYO BUILDING 2-7-3, MARUNOUCHI, CHIYODA-KU, TOKYO 100-8310, JAPAN

IB(NA)-0600240ENG-G(1509) KWIX Printed in Japan Specifications subject to change without notice.
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

<table>
<thead>
<tr>
<th>WARNING</th>
<th>CAUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assumes that incorrect handling may cause hazardous conditions, resulting in death or severe injury.</td>
<td>Assumes that incorrect handling may cause hazardous conditions, resulting in medium or slight injury, or may cause physical damage only.</td>
</tr>
</tbody>
</table>

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.

### SAFETY INSTRUCTIONS

<table>
<thead>
<tr>
<th>WARNING</th>
</tr>
</thead>
<tbody>
<tr>
<td>While the inverter power is ON, do not open the front cover. Do not run the inverter with the front cover removed. Otherwise you may access the exposed high voltage terminals or the charging part of the circuitry and get an electric shock.</td>
</tr>
<tr>
<td>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.</td>
</tr>
<tr>
<td>Any person who is involved in the wiring or inspection of this equipment should be fully competent to do the work.</td>
</tr>
<tr>
<td>Always install the inverter before wiring. Otherwise, you may get an electric shock or be injured.</td>
</tr>
<tr>
<td>Operate the keys with dry hands to prevent an electric shock.</td>
</tr>
</tbody>
</table>
To prevent injury, damage or product failure, please note the following points.

1. Transportation and mounting

- 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:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surrounding air temperature</td>
<td>-10°C to +50°C (non-freezing)</td>
</tr>
<tr>
<td>Ambient humidity</td>
<td>95%RH or less (non-condensing)</td>
</tr>
<tr>
<td>Ambient temperature</td>
<td>-20°C to +65°C</td>
</tr>
<tr>
<td>Altitude, vibration</td>
<td>Max. 1000m above seal level,</td>
</tr>
<tr>
<td></td>
<td>5.9m/s or less at 10 to 55Hz (directions of X, Y, Z axes)</td>
</tr>
</tbody>
</table>

2. Test operation and adjustment

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

3. Usage

- Since pressing the key may not stop output depending on the function settings, 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.

4. Corrective actions for alarm

- Provide safety backup devices, such as an emergency brake, to protect human life and property from hazard if the parameter unit (FR-PU07/FR-PU07BB) becomes faulty.
(5) Disposal

---

**CAUTION**

- Treat as industrial waste.

All illustrations given in this manual may have been drawn with covers or safety guards removed to provide in-depth descriptions. Before operating the device, always return the covers and guards to their original positions as specified and operate the equipment in accordance with the manual.

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.
# CONTENTS

## 1 PRE-OPERATION INSTRUCTIONS

1.1 Supporting inverter models ................................................. 2

1.2 Unpacking and Product Confirmation ........................................ 4
  1.2.1 Unpacking confirmation ................................................ 4
  1.2.2 Appearance and parts identification ....................................... 5
  1.2.3 Explanation of keys .......................................................... 7

1.3 Installation and Removal of FR-PU07 ........................................ 9
  1.3.1 Direct installation to the inverter .......................................... 9
  1.3.2 Removal from the inverter ............................................... 10
  1.3.3 Installation using the connection cable (FR-CB2) ....................... 11
  1.3.4 Removal when the connection cable (FR-CB2) is used ................ 13

1.4 Connection and Removal of FR-PU07BB .................................. 14
  1.4.1 Before using FR-PU07BB in the battery mode ......................... 14
  1.4.2 Instructions for the FR-PU07BB (battery mode) ...................... 17
  1.4.3 Connecting to FR-A700/F700(FR-A800/F800 using the connection cable (FR-CB2) ................. 18
  1.4.4 Connecting to FR-E700/FR-E700EX using the connection cable (FR-CB2) ................. 19
  1.4.5 Removal when the connection cable (FR-CB2) is used ................ 19

1.5 Parameters to be Checked First .................................................. 20
  1.5.1 PU display language selection (Pr. 145) ................................. 20
1.5.2 PU buzzer control (Pr. 990) ............................................................................................... 21
1.5.3 PU contrast adjustment (Pr. 991) ...................................................................................... 21

2 FUNCTIONS .......................................................................................................................... 22

2.1 Monitoring Function ......................................................................................................... 22
  2.1.1 Display overview ........................................................................................................ 22
  2.1.2 Using "SHIFT" to change the main monitor ................................................................. 25
  2.1.3 Setting the power-ON monitor (the first priority monitor) ............................................. 26
  2.1.4 Using "READ" to change the main monitor ................................................................. 27
  2.1.5 Using the parameter to change the monitor (Pr. 52) ...................................................... 28

2.2 Frequency Setting .......................................................................................................... 30
  2.2.1 Direct setting ............................................................................................................ 30
  2.2.2 Step setting ............................................................................................................. 31
  2.2.3 Precautions for frequency setting ............................................................................. 32

2.3 Setting and Changing the Parameter Values ..................................................................... 33
  2.3.1 Specifying the parameter number to change the set value ............................................ 33
  2.3.2 Selecting the parameter from functional list to change the set value .............................. 34
  2.3.3 Selecting the parameter from parameter list to change the set value ............................. 36
  2.3.4 Selecting the parameter from User List to change the set value .................................... 37
  2.3.5 Precautions for setting write .................................................................................... 38

2.4 User Group Function ....................................................................................................... 39
  2.4.1 Registering the parameters to user group ................................................................. 40
  2.4.2 Deleting the parameters from user group ................................................................. 41
  2.4.3 Confirming the parameters registered to user group .................................................. 41
2.5 Calibration of the Meter (Frequency Meter) ............................................................................. 42
2.5.1 Calibration of the FM terminal ........................................................................................... 42
2.5.2 Calibration of the AM terminal ........................................................................................... 43
2.6 Adjustment of the Frequency Setting Signals "Bias" and "Gain" ............................................. 46
2.6.1 Adjustment procedure ....................................................................................................... 46

3 FUNCTION MENU .................................................................................................................. 53
3.1 Overview of Function Menu ................................................................................................. 53
3.1.1 Function menu .................................................................................................................. 53
3.1.2 Function menu transition .................................................................................................. 55
3.2 Operation Procedures for Functions ..................................................................................... 59
3.2.1 Monitor function .............................................................................................................. 59
3.2.2 Selection of PU operation (direct input) ........................................................................... 60
3.2.3 Selection of the PU Jog operation mode .......................................................................... 61
3.2.4 Parameters ....................................................................................................................... 62
3.2.5 Parameter clear ............................................................................................................... 65
3.2.6 Alarm history ................................................................................................................... 67
3.2.7 Alarm clear ....................................................................................................................... 68
3.2.8 Inverter reset ................................................................................................................... 69
3.2.9 Troubleshooting .............................................................................................................. 70
3.2.10 Terminal assignment (Selectop) .................................................................................... 74
3.2.11 Option ............................................................................................................................ 75
3.2.12 Multiple copies .............................................................................................................. 76
3.3 Other Precautions ................................................................................................................. 81
3.3.1 Precautions for parameter unit operation ................................................................. 81

4 OPERATION ................................................................. 82

4.1 How to Select the Operation Mode ................................................................................ 82
  4.1.1 Switching from External operation mode [EXT] to PU operation mode [PU] ................. 82
  4.1.2 Switching from PU operation mode [PU] to External operation mode [EXT] .................. 82
  4.1.3 Switching to the External / PU combined operation mode ............................................ 83

4.2 How to Operate PU Operation ...................................................................................... 84
  4.2.1 Normal operation ......................................................................................................... 84
  4.2.2 PU Jog operation ......................................................................................................... 85

4.3 Combined Operation (Operation Using External Input Signals and PU) ...................... 86
  4.3.1 Entering the start signal from outside and setting the running frequency from the PU (Pr. 79 = 3) .... 86
  4.3.2 Entering the running frequency from outside and making start and stop from the PU (Pr. 79 = 4) .... 87
  4.3.3 Entering the start signal and multi-speed signal from outside and setting multiple speeds from the parameter unit ................................................................. 88

5 CHECK FIRST WHEN YOU HAVE A TROUBLE ..................................................... 89

5.1 Troubleshooting ........................................................................................................... 89

6 SPECIFICATIONS ........................................................................................................... 91

6.1 Standard Specifications ............................................................................................... 91

6.2 Outline Drawing and Panel Cutting Drawing ............................................................... 93

/IV
6.2.1 FR-PU07 outline dimension drawings ................................................................. 93
6.2.2 FR-PU07BB outline dimension drawings ............................................................. 94

APPENDIX 95

Appendix 1 Disposing of the equipment in the EU countries ................................................. 95
Appendix 2 Instructions for UL and cUL ........................................................................... 96
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.
1 / 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>
<tbody>
<tr>
<td>A800 series</td>
<td>*1, 4</td>
<td>*3</td>
</tr>
<tr>
<td>F800 series</td>
<td>*1, 4</td>
<td>*3</td>
</tr>
<tr>
<td>A700 series</td>
<td>*1</td>
<td></td>
</tr>
<tr>
<td>F700 series</td>
<td>*1</td>
<td></td>
</tr>
<tr>
<td>F700F series</td>
<td>*1</td>
<td></td>
</tr>
<tr>
<td>F700FU series</td>
<td>*4</td>
<td>*5</td>
</tr>
<tr>
<td>E700 series</td>
<td>*4</td>
<td></td>
</tr>
<tr>
<td>D700 series</td>
<td>*4</td>
<td></td>
</tr>
<tr>
<td>E700EX series</td>
<td>*4</td>
<td></td>
</tr>
<tr>
<td>D700-G series</td>
<td>*4</td>
<td></td>
</tr>
<tr>
<td>500 series</td>
<td>*4</td>
<td></td>
</tr>
</tbody>
</table>

*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 battery mode is not available. Functions other than the battery mode are the same as those of FR-PU07.

*5 The FR-PU07 cannot be directly installed to the inverter unit.

1.2 FR-PU07/FR-PU07BB supported models

- Products assembled in and after January 2008.

- Products assembled in and after January 2009.

- Products assembled in and after July 2007.

- Products assembled in and after July 2008.

*: supported

*: not supported
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**

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Year</th>
<th>Month</th>
<th>Control number</th>
<th>SERIAL (Serial No.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TC</td>
<td>000</td>
<td>00000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The SERIAL consists of one symbol, two characters indicating production year and month, and six characters indicating control number. The last digit of the production year is indicated as the Year, and the Month is indicated by 1 to 9, X (October), Y (November), or Z (December).
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
- Parameter unit ................................................. 1
- Connection cable (FR-CB203) .................................. 1

* 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.

<table>
<thead>
<tr>
<th>Front</th>
<th>Rear</th>
</tr>
</thead>
<tbody>
<tr>
<td>POWER lamp</td>
<td>Connector for inverter directly</td>
</tr>
<tr>
<td>Lit when the power turns ON.</td>
<td>Connector to the inverter. Connect directly to PU connector of the inverter. (Refer to page 9)</td>
</tr>
<tr>
<td>Monitor</td>
<td>Connector for PU cable</td>
</tr>
<tr>
<td>Liquid crystal display (16 characters × 4 lines with backlight)</td>
<td>Connect using the connection cable (FR-CB2). (Refer to page 11)</td>
</tr>
<tr>
<td>Interactive parameter setting</td>
<td>Operation keys (Refer to page 7)</td>
</tr>
<tr>
<td>Help function</td>
<td>ALARM lamp</td>
</tr>
<tr>
<td>Trouble shooting guidance</td>
<td>Rating plate</td>
</tr>
<tr>
<td>Monitor (frequency, current, power, etc.)</td>
<td></td>
</tr>
<tr>
<td>ALARM lamp</td>
<td>Rating plate</td>
</tr>
<tr>
<td>Lit to indicate an inverter alarm occurrence.</td>
<td></td>
</tr>
</tbody>
</table>

Bottom
### Unpacking and Product Confirmation

**FR-PU07BB**

<table>
<thead>
<tr>
<th>Top</th>
<th>Rear</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Connector for PU cable</strong></td>
<td><strong>Power supply switch</strong></td>
</tr>
</tbody>
</table>
| Connect using the connection cable (FR-CB2) | **ON**
| (Refer to page 18, 19) | **OFF** |
| **Connector for AC adapter** | **Power supply switch** |
| Pull out the protective cover toward you to remove and then connect the AC adapter (sold separately). | Set to **ON** when using in the battery mode. |
| (Refer to page 15) | |
| **POWER lamp** | **Rating plate** |
| Lit when the power turns ON. | |
| **Battery exhaustion warning lamp** | **Monitor** |
| When a battery is low, the lamp color changes from green to orange. | Liquid crystal display |
| (Refer to page 19 for details.) | (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 fault occurrence. |
| **Bottom** | **Operation keys** |
| | |
| | **READ:** List |
## 1.2.3 Explanation of keys

<table>
<thead>
<tr>
<th>Key</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DST'</td>
<td>Press to select the parameter setting mode.</td>
</tr>
<tr>
<td>WD</td>
<td>Used to display the first priority screen.</td>
</tr>
<tr>
<td>ESC</td>
<td>Operation cancel key.</td>
</tr>
<tr>
<td>FNC</td>
<td>Used to display the function menu.</td>
</tr>
<tr>
<td>SFT</td>
<td>Used to shift to the next item in the setting or monitoring mode.</td>
</tr>
<tr>
<td>4 to 9</td>
<td>Used to enter a frequency, parameter number or set value.</td>
</tr>
<tr>
<td>XV</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 (SFT) 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>PW1</td>
<td>Forward rotation command key.</td>
</tr>
<tr>
<td>PW2</td>
<td>Reverse rotation command key.</td>
</tr>
</tbody>
</table>
| ST1 | Stop command key.  
- Used to reset the inverter when a fault occurs. |
| SW1 | - Used to write a set value in the setting mode.  
- Used as a clear key in the all parameter clear or alarm history clear mode. |
| CT1 | - Used as a decimal point when entering numerical value.  
- Used as a parameter number read key in the setting mode.  
- Used as an item select key on the menu screen such as parameter list or monitoring list.  
- Used as an alarm definition display key in the alarm history display mode.  
- Used as a command voltage read key in the calibration mode. |

**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

FR-PU07 can be directly installed to the FR-A700/F700(P) series inverters. To ensure safety, install or remove the FR-PU07 only after switching the power of the inverter OFF.

1.3.1 Direct installation to the inverter

(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.
1.3.2 Removal from the inverter

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(P)/FR-A800/FR-F800

1. Remove the operation panel.
2. Securely insert one end of the connection cable into the PU connector of the inverter and the other end into the connection connector of 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/FR-E700EX

1. Open the PU connector cover.
2. Securely insert one end of the connection cable into the PU connector of the inverter and the other end into the connection connector of 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-F700PJ/FR-D700/FR-D700-G
(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.

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.

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.
1.4 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.
4) 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.
- Do not use batteries that have been dropped or otherwise received an impact. Battery leakage may occur. Discard the batteries.
(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</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>950mm</td>
<td>± 100</td>
</tr>
<tr>
<td>1500mm</td>
<td>± 50</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>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated voltage</td>
<td>5.0VDC ± 5% or less</td>
</tr>
<tr>
<td>Rated current</td>
<td>2A or more</td>
</tr>
<tr>
<td>Polarity</td>
<td>Plus polarity in the center</td>
</tr>
<tr>
<td>Connector</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>Description</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parameter change</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>
</tbody>
</table>

- 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

Monitor value other than frequency setting monitor is always "0".

- The ON/OFF status of the input/output signal for the terminal assignment monitor cannot be displayed.
- Option fitting status monitor cannot be displayed.

(2) FM/AM calibration parameter (Pr.900, Pr.901) cannot be set (calibrated).

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

Pr.992 to Pr.995, Pr.917 to Pr.920, Pr.932, Pr.933

The parameters may or may not be available depending on the inverter. For details, refer to the instruction manual of each inverter.

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

(5) Do not use the FR Configurator/FR Configurator2. FR Configurator/FR Configurator2 may not function properly.
1.4.3 Connecting to FR-A700/F700(P)/FR-A800/F800 using the connection cable (FR-CB2)

(1) Remove the operation panel.
(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/FR-E700EX 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</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>
### 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>

**REMARKS**

- Inverter alert faults with beep sounds when this parameter is set to activate the buzzer.

### 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>Pr. 991 Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 63</td>
<td></td>
</tr>
</tbody>
</table>

- Light: Initial value
- Dark
2 FUNCTIONS

2.1 Monitoring Function

2.1.1 Display overview

(1) Main monitor
Shows the output frequency (Hz Out), output current (I Out), output voltage (V Out), alarm history and other monitor data.
- Using [Up] to change to the next screen (Refer to page 25)
- Using [Down] 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
**Monitoring Function**

(4) **Indication of the 24V external power supply operation**
Appears during the 24V external power supply operation (only for the inverters that support the 24V external power supply operation).

(5) **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

(6) **Unit indication**
Shows the unit of the main monitor.

(7) **Warning indication**
Displays an inverter warning. The warning type varies with the inverter model. Refer to the inverter instruction manual for details. Nothing is displayed when there is no inverter warning.
### 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.

- **Output frequency monitor**
- **Output current monitor**
- **Output voltage monitor**
- **Alarm history monitor**
- **Selective monitor**
- **3-step monitor**

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

When the first priority monitor is other than output frequency, output current and output voltage (Example: When electric thermal relay function load factor is set as the first priority monitor)
2.1.3 Setting the power-ON monitor (the first priority monitor)
Set the monitor which appears first when power is switched ON or [ON/STANDBY] is pressed.
- When you press [ON] 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 \[ \text{READ} \] to change the main monitor

Press \[ \text{READ} \] 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 \[ \text{READ} \] 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 \[ \text{WRITE} \] to select the first priority screen, the selected item is stored in memory.

2. Pressing \[ \text{WRITE} \] 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 \[ \text{WRITE} \] 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.
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), "18" (Motor excitation current), and "24" (Motor load ratio) change the output current monitor. "Output voltage monitor" monitor displays from the first priority monitor using [MODE].

REMARKS
The monitor items depend on the inverter. For the monitor items and descriptions, refer to the instruction manual of each inverter.
**Factory setting**

* 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.
### Frequency Setting

#### 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)

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
<th>Screen</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Press</td>
<td>SET 0.00Hz</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The frequency setting screen appears.</td>
</tr>
<tr>
<td>2</td>
<td>Press and .</td>
<td>Enter 60Hz.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SET 0.00Hz</td>
</tr>
<tr>
<td></td>
<td></td>
<td>60.00Hz</td>
</tr>
<tr>
<td>3</td>
<td>Press</td>
<td>SET 60.00Hz</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The 60Hz setting is complete.</td>
</tr>
</tbody>
</table>

* If you entered an incorrect value, press to return to the pre-entry state.
2.2.2 Step setting

Change frequency continuously using \( \uparrow \)/\( \downarrow \). You can change the frequency only while you press \( \uparrow \)/\( \downarrow \). Since the frequency changes slowly at first, this setting can be used for fine adjustment.

1. Press \( \uparrow \).
   The frequency setting screen appears.

2. Press \( \uparrow \)/\( \downarrow \) 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 \( \longrightarrow \).
   The 60Hz setting is complete.

**REMARKS**

- Change of frequency can be made during operation by the step setting. However, pressing \( \uparrow \)/\( \downarrow \) 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.
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 [MFn] or press [PU] to display the frequency setting screen before frequency setting.
2.3 Setting and Changing the Parameter Values

Using the FR-PU07/FR-PU07BB 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 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. (You need not press when the parameter unit is already in the 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>Press</td>
<td>Enter the desired parameter number.</td>
</tr>
<tr>
<td>4</td>
<td>Press</td>
<td>The present setting appears.</td>
</tr>
<tr>
<td>5</td>
<td>Direct setting</td>
<td>Press (1) Enter the desired value. Or (2) Step setting. Press . Display “180” using .</td>
</tr>
<tr>
<td>6</td>
<td>Press</td>
<td>The set value is changed.</td>
</tr>
<tr>
<td>7</td>
<td>Press</td>
<td>The set value is changed. * If you entered an incorrect value, press to return to the pre-entry state.</td>
</tr>
<tr>
<td>8</td>
<td>Set THM</td>
<td>Enter the desired value.</td>
</tr>
</tbody>
</table>

8 Dec.T1

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>180s</td>
<td>Completed</td>
</tr>
<tr>
<td>2.55A</td>
<td>0~500</td>
</tr>
<tr>
<td>50s</td>
<td>0~3600</td>
</tr>
<tr>
<td>2.95A</td>
<td>0~1600</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

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

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

3. Select the screen using ▲▼ and move the cursor to "Appl.Grp".

4. Press . The function list appears.

5. Select a function. Point the cursor to "Acc.Dec" using ▲▼.

6. Press . A function list regarding acceleration/deceleration is displayed.

7. Select a function. Using ▲▼, point the cursor to "Accl/Decl T".

8. Press . A parameter list regarding acceleration/deceleration time is displayed.

9. When moving the cursor to "Dec.T1" using ▲▼ and pressing , the present set value is called.
Setting and Changing the Parameter Values

10. (1) Direct setting
    Press \( \text{[6]} \). "
    Enter the desired value.
    Or
    (2) Step setting
    Press \( \text{[A]/[V]} \).
    Display "180" using \( \text{[A]/[V]} \).

11. Press \( \text{[L]} \).
    The set value is changed.

12. Press \( \text{[M]} \) to display the next parameter.

* If \( \text{[6]} \) is pressed when an incorrect setting value is input, the display returns to the list display "8".

REMARKS
- The FR-PU07 does not support the functional list for the FR-A800/F800 series inverters.
### 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

<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>Press</td>
<td>Change the screen using .</td>
</tr>
<tr>
<td>4</td>
<td>Press</td>
<td>Select a parameter list. Using , point the cursor to &quot;Pr.List&quot;.</td>
</tr>
<tr>
<td>5</td>
<td>Press</td>
<td>Select the parameter list. The list of the parameters can be read appears.</td>
</tr>
<tr>
<td>6</td>
<td>Press</td>
<td>Select the parameter. When moving the cursor using and pressing at &quot;Dec.T1&quot;, the present set value is called.</td>
</tr>
<tr>
<td>7</td>
<td>Press</td>
<td>(1) Direct setting Press . Enter the desired value. Or (2) Step setting Press . Display &quot;180&quot; using .</td>
</tr>
<tr>
<td>8</td>
<td>Press</td>
<td>The set value is changed.</td>
</tr>
<tr>
<td>9</td>
<td>Press</td>
<td>Press to display the next parameter.</td>
</tr>
</tbody>
</table>

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

---

Freq Set SET 0.00Hz SETTING MODE 0~9:Ser Pr.NO. Select Oper. 2 Pr.List 3 User List 1 Appl.Grp 4 Param Copy 1 Max.F1 2 Min.F1 3 FVbaseF1 4 Trq.Bst1

---

8 Dec.T1 5.0S 8 Dec.T1 180S
Setting and Changing the Parameter Values

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

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

3. Change the screen using .

4. Select a User List.
   Using , point the cursor to "User List".

5. Press .
   The list of the parameters registered to User List appears.

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

   (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".
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. 77 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 [ESC] and make setting once more.

(Example: For Pr. 7 Acceleration time)

```
7 Acc.T1 Setting Error
20000S
<ESC>
```
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

The function may or may not be available depending on the inverter. Refer to the Instruction Manual of the inverter for details.
## User Group Function

### 2.4.1 Registering the parameters to user group

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1.</strong></td>
<td>Press (SET), The parameter unit is in the parameter setting mode. Set Oper.</td>
</tr>
<tr>
<td><strong>2.</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>3.</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>4.</strong></td>
<td>Press (SET). The selecting screen appears.</td>
</tr>
<tr>
<td><strong>5.</strong></td>
<td>Register. When moving the cursor to “YES” and pressing , the registration is executed.</td>
</tr>
<tr>
<td><strong>6.</strong></td>
<td>The parameter setting screen appears. To continue parameter registration, repeat the operation from step 2.</td>
</tr>
</tbody>
</table>
2.4.2 Deleting the parameters from user group

1. Press (SET). The parameter unit is in the parameter setting mode.

2. Select "User List". Using (►/▼), point the cursor to "3 User List" and press (SET).

3. Select the parameter to be deleted. Using (►/▼), point the cursor to the parameter to be deleted and press (SET).

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

2.4.3 Confirming the parameters registered to user group

1. Press (SET). The parameter unit is in the parameter setting mode.

2. Select "User List". Using (►/▼), point the cursor to "3 User List" and press (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 (EXIT) to return to the screen of step 1.
### Calibration of the Meter (Frequency Meter)

#### 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**

<table>
<thead>
<tr>
<th>Parameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pr. 900 FM terminal calibration</td>
</tr>
<tr>
<td>Pr. 54 FM terminal function selection</td>
</tr>
<tr>
<td>Pr. 55 Frequency monitoring reference</td>
</tr>
</tbody>
</table>

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

2. **Press** `PAR/ESC`.
   - The parameter unit is in the parameter setting mode.

3. Enter `-9999` and press `SET`.
   - The preset frequency is displayed.

4. Enter `60Hz` and press `WRIT`.
   - 60Hz is set.

5. Press `PMO`.
   - Forward rotation is performed at 60Hz. You need not connect the motor.

6. Using `▲`/`▼`, 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 \( \text{PU} \). 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 \( \text{PU} \). The preset frequency is displayed.

REMARS
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 \(\text{PU}\). 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 \(158\) and press \(\text{ACCEPT}\). The present Pr. 158 setting appears.

4. Enter \(1\) and press \(\text{ACCEPT}\). The setting of reference voltage output is complete.

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

4. Enter \(6\) and press \(\text{ACCEPT}\).

6. Forward rotation is performed at 60Hz. You need not connect the motor.

7. Using \(\Delta\) and \(\nabla\), adjust the meter pointer to a predetermined position. The meter pointer moves. (It takes a long time before the pointer moves.)

8. Press \(\text{ACCEPT}\). Calibration is complete.

9. Press \(\text{RETURN}\) to return to the main monitor screen.
Calibration of the Meter (Frequency Meter)

6. Enter 9 8 1 and press.
The present Pr. 901 setting appears.

7. Enter 9 8 and press.
The setting of maximum running frequency is complete.

8. Press.
Forward rotation is performed at 60Hz.
You need not connect the motor to make adjustment.

The output voltage displayed is the value at 100% output.
This voltage is not stored if you do not press.

10. Press.
The parameter unit is in the parameter setting mode.

11. Enter 1 5 8 and press.
The present Pr. 158 setting appears.

12. Enter 1 5 8 and press.
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).

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.
Pr.902 to Pr.905, Pr.917 to Pr.920, Pr.932, Pr.933

The parameters may or may not be available depending on the inverter. For details, refer to the instruction manual of each inverter.

Parameter
Pr. 902 Terminal 2 frequency setting bias frequency
Pr. 903 Terminal 2 frequency setting gain
Pr. 904 Terminal 4 frequency setting bias frequency
Pr. 905 Terminal 4 frequency setting gain
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 [PU] The frequency setting screen appears, and operation mode changes to PU operation mode.</td>
</tr>
<tr>
<td>2.</td>
<td>Press [SET] The parameter unit is in the parameter setting mode.</td>
</tr>
<tr>
<td>3.</td>
<td>Enter 0 0 0 and press [SET] The present Pr. 902 setting appears.</td>
</tr>
<tr>
<td>4.</td>
<td>Enter 1 0 0. Voltage need not be applied across terminals 2-5.</td>
</tr>
<tr>
<td>5.</td>
<td>Press [WRITE] The bias frequency is set at 10Hz. If the voltage is being applied across terminals 2-5 at this time, the bias setting is as shown above.</td>
</tr>
</tbody>
</table>

Completed
**Adjustment of the Frequency Setting Signals “Bias” and “Gain”**

- Setting of the frequency setting voltage gain

6. Press (SET). The present setting appears.

7. Enter ( ). Voltage need not be applied across terminals 2-5.

8. Press ( ). 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.

The adjustment of the frequency setting voltage bias and gain is complete.

**REMARKS**
- The current input (Pr. 904) can also be adjusted using a similar procedure.
- The Pr. 903 Terminal 2 frequency setting gain remains unchanged if the Pr. 20 acceleration/deceleration reference frequency setting is changed.
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 **902**
   The parameter unit is in the parameter setting mode.

4. Press **902** twice.
   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 **10Hz**, **0.00Hz**
   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**

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>Press (SET) then .</td>
<td>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%.</td>
</tr>
<tr>
<td>10</td>
<td>Enter</td>
<td>903 Ext2gain 60.0Hz 97.1% Ext 80.0%</td>
</tr>
<tr>
<td>11</td>
<td>Press Mod</td>
<td>The cursor ( ) moves to the set voltage.</td>
</tr>
<tr>
<td>12</td>
<td>Apply a 5V voltage.</td>
<td>In this example, 5V is applied to set 50Hz for 5V input.</td>
</tr>
<tr>
<td>13</td>
<td>Press Mod</td>
<td>The gain frequency is set at 50Hz for 5V input. Setting is completed as shown below: The value displayed may not be just 100% in some cases.</td>
</tr>
</tbody>
</table>

**REMARKS**
- The current input (Pr. 904, Pr. 905) can also be adjusted using a similar procedure.
- The Pr. 903 Terminal 2 frequency setting gain remains unchanged even if the Pr. 20 Acceleration/deceleration reference frequency setting is changed.
- A narrow calibration (command) value set using Pr. 902 and Pr. 903 (Pr. 904 and Pr. 905) will result in “incr Incr fr” 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 P1:
The frequency setting screen appears, and operation mode changes to PU operation mode.

2. Press [SET] (P001):
The parameter unit is in the parameter setting mode.

3. Enter [0][0][2][SELECT OPER]:

4. Press [SET] twice:
The present Pr. 902 setting appears.
The value selected in Pr. 71 (5V in this example) is 100%.

   1) The previous setting is displayed.
   2) The present set voltage across terminals 2-5 is displayed in %.

5. Enter [1][0][4][0][0][0][0][H]:
Set the bias frequency at 10Hz.

6. Press [SET]:
The cursor (►) moves to the set voltage.
Voltage need not be applied across terminals 2-5.

7. Enter [0][0][2][SELECT OPER]:
Input 0V to set bias.

8. Press [SET]:
The bias frequency is set at 10Hz.
Setting is completed as shown below:

9. Enter [1][0][4][0][0][0][0][COMPLETED]:

Adjustment of the Frequency Setting Signals "Bias" and "Gain"

1. Setting of the frequency setting voltage gain

9 Press [SET].
   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 [5].
    Set the gain frequency at 50Hz.

11 Press [SET].
    The cursor moves to the set voltage.
    Voltage need not be applied across terminals 2-5.

12 Enter [5].
    Input 5V to set gain.

13 Press [SET].
   The gain frequency is set at 50Hz.
   Setting is completed as shown below:

<table>
<thead>
<tr>
<th>EXT2Gain</th>
<th>Ext 80.0%</th>
</tr>
</thead>
<tbody>
<tr>
<td>50Hz</td>
<td>97.1%</td>
</tr>
</tbody>
</table>

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

3.1 Overview of Function Menu

Press \( \text{FUNCTION} \) 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>The monitor list appears, and you can change from one monitor to another and set the first priority monitor.</td>
</tr>
<tr>
<td></td>
<td>FR-PU07BB</td>
<td>Monitor is available. (However, the monitored value other than the value of the frequency setting monitor is displayed as 0.)</td>
</tr>
<tr>
<td></td>
<td>battery mode</td>
<td></td>
</tr>
<tr>
<td>2. PU Oper</td>
<td>FR-PU07</td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>FR-PU07BB</td>
<td>The PU operation mode and the PU Jog operation mode can be switched. (The operation is not available.)</td>
</tr>
<tr>
<td></td>
<td>battery mode</td>
<td></td>
</tr>
</tbody>
</table>
### Overview of Function Menu

#### Description

<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 63</td>
</tr>
<tr>
<td>6. Alarm Clear</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 Frequency | Output frequency [Hz] |
| 2 Current | Output current [A] |
| 3 Voltage | Output voltage [V] |
| 4 Fault description | The latest 8 faults are displayed |
| 5 Command | Frequency setting [shows the frequency already set [Hz]] |
| 6 Jog | Jogging speed [shows the motor speed or moving speed [r/min]] |
| 7 Shaft Trq | Motor torque [torque produced by the motor [%]] |
| 8 DC Link | Converter output voltage [DC voltage in converter output] [V] |
| 9 Br. Duty | Regenerative brake duty [%] |
| 10 Therm O/L | Electronic thermal relay function load factor [%] |
| 11 Peak | Output current peak [A] |
| 12 DC Link | Converter output voltage peak [maximum value of converter output voltage] [V] |
| 13 I/P Power | Input power [input side power amount currently used] [kW] |
| 14 O/P Power | Output power [output side power amount currently used] [kW] |
| 15 I/P Signal | Input signal [ON-OFF] states of STF, STR, etc. [ON/OFF] |
| 16 O/P Signal | Output signal [ON-OFF] states of RUN, STOP, etc. [ON/OFF] |

Operation in PU operation mode at running frequency set by numeric keys:
- PU Jog operation mode

REMARKS

The functions vary with the inverter model and may be invalid for some inverters.
Overview of Function Menu

- Setting Mode
  - 0~9: Set Pr.No.
  - Select Oper

- 2 Pr.List
  - 1 Appl.Grp
  - 3 User List

- 4 Def.Pr.List
  - 1 Max.F
  - 2 Min.F
  - 3 VFbaseF1

- SET Pr.LIST
  - 15 JOG F 15.00Hz
  - 79 Oper 1
  - 125 2Freq 50.00

- DEF.Pr.LIST
  - 0 Trq B 6.0
  - 1 Max.F 120.00
  - 2 Min.F 0.00

- 15 JOG F
  - 15.00Hz 0~400

- 1 Clear All Pr.
  - Exec<WRITE>
  - Cancel<ESC>

- 1 OHT 5 OV2
  - 2 SER 6 0V3
  - 4 OV2 8 OV3
  - 3 OV2 7 OV3

- ALARM CLEAR
  - Exec<WRITE>
  - Cancel<ESC>

* The latest 8 faults are displayed.
Overview of Function Menu

- Select Char
- Name: 000
- READ: Decide Char
- WRITE: Decide Name

- Option
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 0
- Select
- 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

- 000
- Read VFD
- Copy area 1
- 2  Write VFD
- 3  Verifing

- 000
- Overwrite area 1
- WRITE: Executing
- ESC: Cancel
- 000
- Verify Area 1
- WRITE: Executing
- ESC: Cancel

- 000
- Param Copy
- Reading
- Completed
- Param Copy
- Writing
- Completed
- Param Copy
- Verifying
- Completed

- Please Reset
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 .
   The function menu is called.

2. Make sure that the cursor is located at "1 MONITOR".
   If not, move the cursor with 

3. Press .
   The monitoring list is called.

4. Press (▲) or (▼) to move the cursor to the desired item.
   Hold down (▲) and press
   (▲) to shift one screen.

5. Press .
   The monitor screen selected by the cursor appears.
   Press (▲) to give the first priority to this monitor screen.

REMARKS

- The monitoring list can be called only with pressing 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 \( \text{[MONITOR]} \). The function menu is called.
2. Using \( \text{[PU Oper]} \), move the cursor to "2 PU Oper".
3. Press \( \text{[List]} \). The menu on the right appears.
4. Make sure that the cursor is located at "1 PU: Directly". If not, move the cursor with \( \text{[FWD]} / \text{[BWD]} \).
5. Press \( \text{[Freq Set]} \). The PU operation mode is selected and the frequency setting screen appears.
6. Enter the set frequency using \( \text{[FWD]} / \text{[BWD]} \) and press \( \text{[SET]} \). The frequency setting is complete.
7. Press \( \text{[FWD]} \) or \( \text{[BWD]} \) to perform forward or reverse rotation with the set frequency.

**REMARKS**

Press \( \text{[FWD]} \) 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.

1. Press \( \text{PU/JOG} \).
   The function menu is called.

2. Using \( \text{PU/JOG} \), move the cursor to "2 PU Oper".

3. Press \( \text{PU/JOG} \).
   The menu on the right appears.

4. Using \( \text{PU/JOG} \), move the cursor to "2 JOG: Jogging".

5. Press \( \text{PU/JOG} \).
   The PU Jog operation mode is selected, and the frequency setting screen appears.

6. Enter the set frequency using \( \text{PU/JOG} \) to \( \text{PU/JOG} \) and press \( \text{SET} \).
   The PU Jog frequency setting is complete.

7. Hold down \( \text{PU/JOG} \) to perform forward or reverse rotation with the PU Jog set frequency.

**REMARKS**

- Press \( \text{PU/JOG} \) to call the PU Jog frequency setting screen any time after pressing \( \text{PU/JOG} \).


### 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</td>
<td>Setting Mode</td>
</tr>
<tr>
<td>2</td>
<td>Pr. List</td>
</tr>
<tr>
<td>3</td>
<td>Set Pr. List</td>
</tr>
<tr>
<td>4</td>
<td>Def Pr. List</td>
</tr>
</tbody>
</table>
### Operation Procedures for Functions

#### (1) “1 Setting Mode”

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Press <strong>1</strong>. The function menu is called.</td>
</tr>
<tr>
<td>2</td>
<td>Using <strong>▼</strong>, move the cursor to “3 Pr. List”.</td>
</tr>
<tr>
<td>3</td>
<td>Press <strong>▲</strong>. The parameter menu appears.</td>
</tr>
<tr>
<td>4</td>
<td>Press <strong>▼</strong>. The parameter unit switches to the setting mode. Refer to page 33 to set the parameters.</td>
</tr>
</tbody>
</table>

#### (2) “2 Pr. List”

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Call the parameter menu similarly to above steps 1 to 3.</td>
</tr>
<tr>
<td>2</td>
<td>Using <strong>▼</strong>, move the cursor to “2 Pr. List”.</td>
</tr>
<tr>
<td>3</td>
<td>Press <strong>▲</strong>. The parameter menu appears.</td>
</tr>
<tr>
<td>4</td>
<td>Press <strong>▼</strong> to move the cursor to the desired parameter. Press <strong>▼</strong> and <strong>▲</strong> together to shift to the next page.</td>
</tr>
<tr>
<td>5</td>
<td>Press <strong>▼</strong>. 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.</td>
</tr>
</tbody>
</table>

Press **▲** 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.

   When the parameter has been changed from the initial value, the new value is displayed.

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 [EXEC].
   The function menu is called.

2. Using [△]/[▼], move the
cursor to "4 Pr. Clear".

3. Press [EXEC].
The parameter menu appears.

4. Select the "Clear Pr.",
Using [△]/[▼], move the
cursor to "1" and press the

5. "Clear Pr." is selected, and
the confirmation screen for
clearing execution is displayed.

6. Press [EXEC].
The parameters are initialized.
When canceling the
initialization, press [ESC] on
the confirmation screen.
### 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](image) |
| 2    | Select the "Clear All".  
|      | Using 
|      | move the cursor to "2 Clear All" and press the .  
|      | ![Clear Pr.](image) |
| 3    | "Clear All" is selected, and the confirmation screen for clearing execution is displayed.  
|      | ![Clear All Pr., Exec<WRITE> Cancel<ESC>](image) |
| 4    | Press .  
|      | The parameters are initialized.  
|      | When canceling the initialization, press (ESC) on the confirmation screen.  
|      | ![Clear All Pr.](image) |
3.2.6 Alarm history

Shows the history of past eight faults.

1. Press ( Func ). The function menu is called.

2. Using ( ▲ )/ ( ▼ ), move the cursor to "5 Alarm His". Hold down ( Menu ) and press ( ▲ )/ ( ▼ ) to shift one screen.


4. Press ( ). The running frequency at fault occurrence is displayed.

5. Press ( ▼ ). The output current, output voltage and cumulative energization time at fault occurrence is displayed.

6. Press ( ) when displaying the operation mode for fault occurrence in steps 4 and 5 to display the operation data for the preceding fault occurrence.

Press ( Func ) when displaying the operation mode for fault occurrence in steps 4 and 5 to display the operation data for the preceding fault occurrence.

2nd Prev. ERR
PU Leave Out
0.00Hz

PU Leave Out
0.00Hz
### Operation Procedures for Functions

#### 3.2.7 Alarm clear
Clears all the fault history.

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
</table>
| 1    | Press \( \text{FNC} \).  
The function menu is called. |
| 2    | Using \( \text{ } \rightarrow \), move the cursor to "6 AlarmClear".  
Hold down \( \text{SET} \) and press \( \text{ } \rightarrow \) to shift one screen. |
| 3    | Press \( \text{EXEC} \).  
"AlarmClear" is selected, and the confirmation screen for clearing is displayed. |
| 4    | Press \( \text{EXEC} \).  
The fault history is cleared.  
When canceling the clear, press \( \text{ESC} \) on the confirmation screen. |
3.2.8 Inverter reset

Resets the inverter.

1. Press \( \text{[INV]} \).
   The function menu is called.

2. Using \( \text{[ ]} \), move the cursor to "7 INV. Reset".
   Hold down \( \text{[ESC]} \) and press \( \text{[ ]} \) to shift one screen.

3. Press \( \text{[ESC]} \).
   "INV. Reset" is selected, and the confirmation screen for reset is displayed.

4. Press \( \text{[ESC]} \).
   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.

**Remarks**
- If the inverter's protective function is activated to bring the inverter to trip (output shutoff), execute the inverter reset only by pressing \( \text{[ESC]} \).
- 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.)
### Operation Procedures for Functions

#### 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 (..........)**
   - The function menu is called.

2. **Using (........) move the cursor to “8 Troubleshooting”. Hold down (........) and press (........) to shift one screen.**

3. **Press (........)**
   - The fault menu appears.

4. **Press (........) or (........) to move the cursor to the desired item.**

5. **Press (........)**
   - The estimated cause of the fault is displayed. (Refer to page 71)

<table>
<thead>
<tr>
<th>MONITOR</th>
<th>Pr.List</th>
<th>Pr.Clear</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 MONITOR</td>
<td>2 Pr.Oper</td>
<td>3 Pr.List</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pr.F</th>
<th>Pr.U</th>
<th>Pr.S</th>
<th>Pr.T</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 M.MONITOR</td>
<td>2 M.SPD Error</td>
<td>3 M.A/Dec Err</td>
<td>4 M.Not Run</td>
</tr>
<tr>
<td>5 M.Speed Error</td>
<td>6 Alarm His</td>
<td>7 Alarm Clear</td>
<td>8 Troubleshooting</td>
</tr>
</tbody>
</table>

---

<table>
<thead>
<tr>
<th>SetF&gt;Max.F1/F2</th>
<th>60.00Hz</th>
<th>M.SPEED ERROR</th>
<th>60.00Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pr.1/18</td>
<td>Pr.1/18</td>
<td>Pr.1/18</td>
<td>Pr.1/18</td>
</tr>
</tbody>
</table>

70
Troubleshooting guidance

1) M NOT RUNNING (Motor does not run)

The protective function is activated to bring the inverter to trip. Press \( \text{[SHIFT]} \) to display the cause of the trip.

- NO I/P Power or Phase Loss

- M NOT RUNNING

- Both STF and STR are OFF or ON

- MRS signal is ON

- The inverter starting frequency (Pr. 13) setting is higher than the frequency currently set.

- AU is OFF

- NO Command From PU

- Max. F1 < StartF (Pr. 1, Pr. 13)

- EnableFR Set See Pr. 78

- Current Limit Activated \( \text{[SHIFT]} \)

- Under PID Control

- CS is OFF See Pr. 57

- Neither of \( \text{[SHIFT]} \) and \( \text{[DOWN]} \) 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).

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 \( \text{[SHIFT]} \) to display the estimated cause that the current limit function was activated.

The inverter will not restart after instantaneous power failure since 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.

The inverter does not start because the inverter starting frequency (Pr. 13) setting is higher than the frequency currently set.

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 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 because you attempted to run the motor in the direction in which forward or reverse rotation is inhibited as set in Pr. 78.
2) M.SPEED ERROR
(Speed does not match the running frequency setting)

- M.SPEED ERROR setF MinF1 60.00Hz Pr.2
  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 MaxF1/F2 60.00Hz 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
  Since the running frequency setting is within the frequency jump setting range (Pr.31 to 36), the running frequency has jumped.

- M.SPEED ERROR Current Limit Activated <SHIFT>
  The current limit function was activated and forced the running frequency to reduce. Press [SET] to display the cause that the current limit function was activated.

- M.SPEED ERROR under <control>
  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. if setting)

- M.A/Dec Err Acceleration time setting
  (Pr.7) is displayed.
  Frequency reached in the above set time (Pr.20 acceleration/deceleration reference frequency) is displayed.
  Acceleration time setting
  (Pr.7) is displayed.
  Frequency from which acceleration 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.

- M.A/Dec Err Deceleration time setting
  (Pr.8) 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 [SHIFT] to display the estimated cause of large output current.

**INV. Output**

60.00Hz
0.00A 182.8V

**Low Impedance Motor?**
Reduce Trq Bst Pr. 0,46,112

Low Trq Motor?
Reduce Trq Bst Pr. 0,46,112

The 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

The motor in use may be a constant-torque motor (motor for inverter). If so, reduce the torque boost setting. Related parameters: Pr. 0, 46, 112

Since the torque boost setting may be inappropriate, check the following relevant parameters: Related parameters: Pr. 0, 46, 112

Since the V/F pattern setting may be inappropriate, check the following relevant parameters: Related parameters: Pr. 3, 14, 19, 47, 113

Load Too Big?
Open Phase?

The load may be too heavy. An open phase may have occurred between the inverter and motor.

**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-A8AX, FR-A8AY, FR-A8AR, FR-A7AX, FR-A7AY, and FR-A7AR are mounted, the terminal state of the plug-in option can be also confirmed.

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Press ( [\text{FNC}] ). The function menu is called.</td>
</tr>
<tr>
<td>2</td>
<td>Using ( [\uparrow]/[\downarrow] ), move the cursor to &quot;10 Selectop&quot;. Hold down ( [\text{SET}] ) and press ( [\uparrow]/[\downarrow] ) to shift one screen.</td>
</tr>
<tr>
<td>3</td>
<td>Press ( [\text{MONITOR}] ). The signals assigned to the control circuit terminals and their ON-OFF states are displayed.</td>
</tr>
</tbody>
</table>

#### 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.
3.2.11 Option
Displays what options are fitted to the option connectors.

1. Press \( \text{OP}_{10} \).
   The function menu is called.

2. Using \( \text{UP} / \text{DOWN} \), move the cursor to "11 Option".
   Hold down \( \text{UP} / \text{DOWN} \) and press \( \text{UP} / \text{DOWN} \) to shift one screen.

3. Press \( \text{OP}_{10} \).
   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.
3.2.12 Multiple copies

(1) Copying the parameter settings

Inverter parameter settings can be read. The settings of a maximum of three inverters can be stored in FR-PU07 (in case of the A800/F800 series, parameter settings of one inverter can be stored.). You can also copy the stored parameter settings to another inverter of the same series.

<table>
<thead>
<tr>
<th>Confirm for setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is the Pr. 77 setting of the copy destination inverter correct? → Set “0” or “2” in Pr. 77.</td>
</tr>
<tr>
<td>Is the inverter of the copy destination the same series as that of the copy source? → Select the inverter of the same series.</td>
</tr>
</tbody>
</table>

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 (VAC).**
   - The function menu appears.

3. **Select the "PRCpy set".**
   - Using (Select), move the cursor to "12 PRCpy set" and press (Set).

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 (Set). (Parameter settings of each inverter (three inverters in total) can be copied to the area 1, 2 or 3.)
   - The copy area is fixed to the copy area 1 for the FR-A800/F800 series inverters.

5. **Select the "READ".**
   - Using (Select), move the cursor to "1 Read VFD" and press (Set).

6. **Give a name.**
   - You can name each of copy areas 1 to 3. Select the characters with (Select) and set them with (Set).
   - Press (Set) 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 (ESC).**
   - The parameter settings of the inverter are stored. When canceling, press (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.
   - Is the PU operation mode selected? → If not, press to select the PU operation mode.
   - Is the inverter stopped? → If it is running, press to stop it.

2. Press .
   The function menu appears.

3. Select the "PRCpy set".
   Using , move the cursor to "12 PRCpy set" and press .

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 .

5. Select the "WRITE".
   Using , point the cursor to "2 Write VFD" and press .

6. Writing the parameter settings is selected, and the confirmation screen for writing is displayed.

7. Press .
   The parameter settings stored in the FR-PU07 are copied to the copy destination inverter.

8. Reset the inverter. (Refer to page 69)
Operation Procedures for Functions

(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 (FNC). The function menu appears.
4. Select the "multiple copies". Using (▲) (▼), move the cursor to "12 PRCpy set" and press (FNC).
5. Select the copy area. Point the cursor to the copy area that stores the parameter settings required verification, and press (FNC).

REMARKS
- Overwriting the data of the FR-PU07 deletes the previous data.
- The parameter settings of three inverters can be stored in areas 1 to 3. When the FR-PU07 is used with the FR-A800/F800 series inverters, parameter settings of one inverter can be stored in the area 1. In this case, parameter settings of another inverter (other than the FR-A800/F800 series inverter) can be stored in the area 3. When the area 1 stores parameter settings of an FR-A800/F800 inverter, storing parameter settings of another inverter in the area 2 will delete the parameter settings stored in the area 1.
- Read and write cannot be stopped during execution.
- If power is switched OFF, parameter data stored in the parameter unit remains unerased.
- Verification cannot be performed between different inverter series.

- Refer to page 77 and copy the parameter settings of the verify source inverter to the FR-PU07.
- Connect the FR-PU07 to the inverter to be verified.
- Press (FNC). The function menu appears.
- Select the "multiple copies". Using (▲) (▼), move the cursor to "12 PRCpy set" and press (FNC).
- Select the copy area. Point the cursor to the copy area that stores the parameter settings required verification, and press (FNC).
### Operation Procedures for Functions

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Select the &quot;Verifying&quot;. Using ▲▼, point the cursor to &quot;Verifying&quot; to press ( \text{[Esc]} ).</td>
</tr>
<tr>
<td>7</td>
<td>Verification of the parameter settings is selected, and the confirmation screen for verification is displayed.</td>
</tr>
<tr>
<td>8</td>
<td>Press ( \text{[Esc]} ). Start verification of parameter settings stored in the FR-PU07 and parameter settings of the inverter.</td>
</tr>
<tr>
<td>9</td>
<td>If an error is detected during verification, the corresponding ( \text{Pr.}) is shown. Note that only &quot;Verify Err&quot; will be displayed if an incorrect value has been entered directly (f setting) or set in either ( \text{Pr. 173} ) or ( \text{Pr. 174} ).</td>
</tr>
<tr>
<td>10</td>
<td>Press ( \text{[Esc]} ). When verification is stopped with verification error, press ( \text{[Esc]} ) to continue verification.</td>
</tr>
<tr>
<td>11</td>
<td>Verification is complete.</td>
</tr>
</tbody>
</table>
3 Other Precautions

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 \( \text{PU} \) 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 \( \text{EXT} \) 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.

Confirmation

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

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>Parameter unit</td>
</tr>
<tr>
<td></td>
<td>0 to 5/10VDC 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.

0.00Hz
--- STOP PU+E
READ: List Hz Out
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></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></td>
</tr>
<tr>
<td>3</td>
<td>Press ( \text{STOP} ) or ( \text{START} ). The motor starts running. The parameter unit automatically enters the monitoring mode and shows the output frequency.</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Press ( \text{STOP} ). The motor is decelerated to a stop.</td>
<td></td>
</tr>
</tbody>
</table>

**REMARKS**
- When performing PU operation to run the motor, pressing the start key (\( \text{START} \) or \( \text{STOP} \)) 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 \( \text{PU} \) or \( \text{JOG} \) 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

<table>
<thead>
<tr>
<th>Step</th>
<th>Operation Procedure</th>
<th>Image</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Switch to the PU operation mode. If the operation mode indication is not [PU], refer to page 2 and switch to the PU operation mode.</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>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.)</td>
<td><img src="PU/JOG_SET_8.00Hz.png" alt="Image" /></td>
</tr>
</tbody>
</table>

REMARKS

- The Jog operation mode may also be selected from \( \text{(PG)} \). (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 \[\text{PU} \\text{and} \ \text{E}\] of the parameter unit are not accepted.

Stop with \[\text{PU} \ \text{and} \ \text{E}\] is valid when 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" alt="Image" /></td>
</tr>
<tr>
<td>2</td>
<td>Set “3” 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="image2" 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 30)</td>
<td><img src="image3" alt="Image" /></td>
</tr>
<tr>
<td>4</td>
<td>Set the start switch (STF or STR) to ON. The operation command indication changes to “STF” or “STR” 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" 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" 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><img src="image1.png" alt="Image" /></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="image2.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="image3.png" alt="Image" /></td>
</tr>
</tbody>
</table>

**REMARKS**
- When FR-PUD7BB is used in the battery mode (the inverter power is OFF), the operation is not available.

<table>
<thead>
<tr>
<th>Step</th>
<th>Operation Procedure</th>
<th>Image</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Press [ \text{H} ] or [ \text{L} ] 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 [ \text{H} ] or [ \text{L} ] and then inputting the frequency command.</td>
<td><img src="image4.png" alt="Image" /></td>
</tr>
<tr>
<td>5</td>
<td>Press [ \text{STOP} ] of the parameter unit. The motor is decelerated to a stop.</td>
<td><img src="image5.png" alt="Image" /></td>
</tr>
</tbody>
</table>
### 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="image1" 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="image2" 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;, 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="image3" alt="Image" /></td>
</tr>
</tbody>
</table>

4 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 multiple-speed settings not being used may also be changed during operation.

5 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.

#### REMARKS

When FR-PDU07BB 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></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></td>
<td>FR-PU07BB was connected to an incompatible inverter. (Refer to page 2 for compatible 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>The &quot;PU07BB/COMPATIBILITY/ERROR&quot; display remains on and it will not accept operation.</td>
<td>FR-PU07BB was connected to an incompatible inverter. (Refer to page 2 for compatible 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.</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>
### 6.1 Standard Specifications

<table>
<thead>
<tr>
<th>Item</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Surrounding air temperature</strong></td>
<td>0°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 +65°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>Protective structure</strong></td>
<td>UL type 1 *3</td>
</tr>
<tr>
<td><strong>Mass</strong></td>
<td>Approx. 200g (not including the battery weight)</td>
</tr>
<tr>
<td><strong>FR-PU07</strong></td>
<td></td>
</tr>
<tr>
<td><strong>FR-PU07BB</strong></td>
<td></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.

*3 UL Type 1 Enclosure - Suitable for installation in a Compartment Handling Conditioned Air (Plenum)
Standard Specifications

CAUTION

- Do not expose the liquid crystal screen to direct sunlight.
- During transportation, avoid applying load to the liquid crystal display.

FR-PU07BB dedicated specifications

<table>
<thead>
<tr>
<th>Item</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Battery life</td>
<td>Alkaline battery</td>
</tr>
<tr>
<td></td>
<td>A800/F800</td>
</tr>
<tr>
<td>Battery life</td>
<td>Approx. 70 min</td>
</tr>
<tr>
<td>Battery exhaustion warning lamp color changing start time From green to orange (at lowering of battery power)</td>
<td>Approx. 50 min before</td>
</tr>
<tr>
<td>Nickel metal hydride battery</td>
<td>A800/F800</td>
</tr>
<tr>
<td>Battery life</td>
<td>Approx. 90 min</td>
</tr>
<tr>
<td>Battery exhaustion warning lamp color changing start time From green to orange (at lowering of battery power)</td>
<td>Approx. 10 min before</td>
</tr>
</tbody>
</table>

* The battery life is a reference value. It differs depending on the battery and the usage.
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 Labeling, and Annex II.
Appendix 2 Instructions for UL and cUL

(Standard to comply with UL 508C, CSA C22.2 No.14)

The FR-PU07 have been approved as parameter display accessory for a UL type1 enclosure that is suitable for installation in a Compartment Handling Conditioned Air (Plenum).

The FR-PU07 is to be used only with the following UL listed inverter models.

<table>
<thead>
<tr>
<th>Parameter Unit</th>
<th>Applicable Inverter Models</th>
</tr>
</thead>
<tbody>
<tr>
<td>FR-PU07</td>
<td>FR-A800, FR-F800, FR-E700, FR-D700, FR-A700 and FR-F700</td>
</tr>
</tbody>
</table>
MEMO
<table>
<thead>
<tr>
<th>Print Date</th>
<th>Manual Number</th>
<th>Revision</th>
</tr>
</thead>
<tbody>
<tr>
<td>May 2007</td>
<td>IB(NA)-0600240ENG-B</td>
<td>Addition</td>
</tr>
<tr>
<td></td>
<td></td>
<td>FR-PU07BB</td>
</tr>
<tr>
<td>Mar. 2008</td>
<td>IB(NA)-0600240ENG-C</td>
<td>Partial changes</td>
</tr>
<tr>
<td>Jan. 2009</td>
<td>IB(NA)-0600240ENG-D</td>
<td>Addition</td>
</tr>
<tr>
<td>Oct. 2014</td>
<td>IB(NA)-0600240ENG-E</td>
<td>Addition</td>
</tr>
<tr>
<td>Dec. 2014</td>
<td>IB(NA)-0600240ENG-F</td>
<td>Modification</td>
</tr>
<tr>
<td>Sep. 2015</td>
<td>IB(NA)-0600240ENG-G</td>
<td>Modification</td>
</tr>
</tbody>
</table>

The manual number is given on the bottom left of the back cover.
Please make a correction to the following error in this manual.

3.2.10 Terminal assignment (Selectop)

Incorrect:
The signals assigned to the control circuit terminals and their ON-OFF state are displayed.
If the plug-in options FR-A8AX, FR-A8AY, FR-A8AR, FR-A7AX, FR-A7AY, and FR-A7AR are mounted, the terminal state of the plug-in option can be also confirmed.

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