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1. Introduction

“PCM001Z-0” is a MS-Windows application that has the following functions so that parameter setting and setting data can be simplified and stored by connecting an inverter with a personal computer (PC) by using RS-232C. Carefully read this manual together with the Inverter Instruction manual for correct use.

- Parameter off-line setting
- Write the parameters saved in the PC to an inverter
- Read inverter parameters and save them in the PC
- Check changed parameters
- Print the parameter table
- Operation panel
- Display the inverter information
- Graphical display of status monitors

* For the “PCM001Z-0” support inverter and CPU versions, refer to the Help | About PCM001Z-0 in the menu of this application.
Performance environment

- CPU ...................... Intel® Pentium®-233MHz or more
- OS ........................ MS-Windows® 98 / Xp / 2000
- Memory ................ 32 MB or more
- HDD ...................... Space area About 10 MB
- Display .................. 640 x 480 dot / 256 colors or more
- Others .................... Equipped with a CD-ROM drive or internet, a serial ports and a mouse

* When a USB-Serial Converter is used, start the PCM001Z while the converter is connected. Please do not pull the converter out, and do not insert it during execution of the PCM001Z.
* When a RS232 / 485 converter is used, 2 lines type communication cannot be performed.

* Specifications for this software may change without prior notice.
* We shall not be liable for any direct and indirect damages that are caused by use or disability to use of this software product.
* Pentium is the registered trademark of Intel Corporation in U.S.A
* MS-Windows is the registered trademark of Microsoft Corporation in U.S.A.

Symbols used in this text have the following meaning.

- " ": Items and messages of the PCM001Z
- []: Buttons on the screen of the PCM001Z
- *Italic*: Menus of the PCM001Z and Windows
- ☐: Keys of the PC
2. Installation procedure

- If other applications are working, end their operation.
- If you update a version of the PCM001Z, uninstall* the older version.
  (The version of PCM001Z can be checked with Help | About PCM001Z-0 (Section 3.6.2).)

* When uninstalling, use My Computer | Control Panel | Add / Remove Programs. If user data
  (initial file PCM001Z.ini, skip parameter file, etc.) are remained, delete them using the
  Windows Explorer.
3. Menu description

Each setting menu is described here.

Starting of PCM001Z displays the selection screen of a language, a inverter type-form, and a CPU version to be used. As for the language, "Japanese" is displayed at the first execution after installation., and as for the inverter type-form, "VFAS1-2004P" is displayed. Please choose the language, the inverter type-form and the CPU version from a down-list, and push the [OK] button.

* The inverter type-form can be made to recognize automatically when it can communicate at the starting. (Related article Environment Options (Section 3.5.1)) However, depending on a communication port of the PC setup and the inverter type-form and the CPU version, even when it can communicate, recognition may be impossible.

If you select the inverter model different from the model connected to, the parameters on the PCM001Z side differ from those on the inverter side, and errors will occur at communication.

![Figure 3-1 Startup screen](image)

When the language, the model and the CPU version are selected and the [OK] button is pressed, the main menu and Parameter Table are displayed.

![Figure 3-2 Main Menu screen](image)

When communication is impossible, some menus and buttons required for communication are displayed inactive (in gray) and cannot be used. When communication becomes possible by pressing RS-232C Setup or Communication Check buttons, the menus and buttons become available.
Tool bars

Check communication each time when this button is pressed (the communication is possible).

* : When communication is impossible.  Communicating.

Execute File | New. (Refer to Section 3.1.1.)
Execute File | Open. (Refer to Section 3.1.2.)
Execute File | Save. (Refer to Section 3.1.3.)
Execute File | Save As (Refer to Section 3.1.4.)
Execute File | Page Setup. (Refer to Section 3.1.5.)
Execute File | Print. (Refer to Section 3.1.6.)
Start File | RS-232C Setup. (Refer to Section 3.1.7.)

Execute Parameter | Parameter Table. (Refer to Section 3.2.1.)
Execute Parameter | Undo. (Refer to Section 3.2.2.)
Execute Parameter | Redo. (Refer to Section 3.2.2.)
Execute Parameter | Parameter Import. (Refer to Section 3.2.4.)
Execute Parameter | Parameter Export. (Refer to Section 3.2.4.)
Execute Parameter | Selected Parameter Import. (Refer to Section 3.2.5.)
Execute Parameter | Selected Parameter Export. (Refer to Section 3.2.5.)
Execute Parameter | Parameter Comparison. (Refer to Section 3.2.6.)
Execute Parameter | Find. (Refer to Section 3.2.13.)

Start Key Pad. (Refer to Section 3.3.)
Execute Monitoring | Inverter Info.. (Refer to Section 3.4.1.)
Start Monitor. (Refer to Section 3.4.2.)

Start Tools | Environment Options. (Refer to Section 3.5.1.)
Display Help. (Refer to Section 3.6.1.)

* Blank (gray) display means unavailable.
3.1. File

File operations and print are executed.

3.1.1. New

The present parameter setting is discarded, and parameter setting files are newly created. The selection of the inverter type starts again. Language change is possible only when PCM001Z starts. The selected inverter type is displayed on the title bar of the main menu.

3.1.2. Open

Open "PCM001Z Parameter Data (*.pcm)" file. A dialog box to select files is displayed. Then specify a file name and press the [Open] button. The name of the file is displayed on the title bar of the main menu.
When the file saved for a different inverter type is chosen, the following message is displayed.

![Confirmation message](image)

Figure 3-5 *File* | *Open* error message screen

When the file saved for a different inverter capacity is chosen, the following message is displayed.

When button [No] is clicked, the file is read except the data specific to the inverter type (As for the inverter form parameter data, default data is read).

![Confirmation message](image)

Figure 3-6 *File* | *Open* confirmation message screen

When the file saved by a different inverter software (CPU) version is chosen, the following message is displayed (Only *.pcm format file).

When [Cancel] button is clicked, stops reading.

![Confirmation message](image)

Figure 3-7 *File* | *Open* confirmation message screen

When a parameter is missing during opening, the message below is displayed.

![Confirmation message](image)

Figure 3-8 *File* | *Open* confirmation message screen
3.1.3. Save

The present parameter setting is overwritten in the existing files. If there is no file to be overwritten, the parameter setting will be a blank display and cannot be selected. “PCM001Z Parameter Data (*.pcm)” only can be overwritten.

3.1.4. Save As

If you select “PCM001Z Parameter Data (*.pcm)”, the present parameter setting will be saved. When the file save dialog is displayed, specify a directory, and save as.

* In the status of default, the parameter settings only displayed as “Changed” in the parameter table are saved. (Related article Environment Options - File/Parameter (Section 3.5.1.2.))

![Figure 3-9 File | Save As screen](image)

If you select “Parameter Table Data (*.csv)” as the file type, Parameter table will be saved in a csv form.

* If you select the “Parameter Table Data (*.csv)” on the ‘Changed’ Only or Blind, the parameters only being displayed are output.

* The saved file name is displayed on the title bar of the main menu.
3.1.5. Page Setup

When printing the parameter table, specify the paper size and other items for PCM001Z.

1) Paper
Specify the size of paper to use and orientation. You can select the size from A3, A4, A5, B4 and B5.

2) Items
Select the items to be printed together with the parameter table. If you check “Comments”, the characters entered in the writing space below will be printed. Comments are 90 character strings. If “Comments” is not checked, the comments will be displayed in gray.
If you check “Shipment Value”, the factory default value will be added and printed as the “Default” item on the left side of the “Set Val.” column in the parameter table.
The color of characters of “Set Val.” can be specified by “Value Color” at printing.

3) Detail
Spaces other than spaces in the parameter table, with respect to the paper, are specified by “Margin”. For example, if you open punch holes in the printed paper, set the left margin to about 20 mm. The height of cells of the parameter table is specified by “Height of Cells”.
When printing in a sheet of large paper, you can adjust “Height of Cells” and “Font size” so that print becomes natural.
The style and font size to use for print can be specified by “Font” and “Font size” (cannot be applied to “Title”).
3.1.6. Print

Print the parameter table. A print image can be checked on the preview screen.

![Figure 3-11 File | Print screen](image)

1) Preview Multiplication

The scale factor of the displayed preview is changed.

2) Page Selection

The previous page and the next page can be previewed with the [<] and [>] buttons, respectively.

3) Print execution

If you click the [Print] button, the preview contents will be sent to a printer for print.

* [Print] can be selected after preview process is complete.
### 3.1.7. RS-232C Setup

The setup of the RS-232C (serial port) on the computer side is executed. Set to the communication setting of the inverter you use. Improper setting does not allow the correct data communications.

![Image of RS-232C Setup screen]

**Figure 3-12 File | RS-232C Setup screen**

If the baud rate is low, such as 1,200 bps or 2,400 bps, it is necessary to specify "Time out" to be longer.

*1 The “Broadcast” function does not support communications by group units that use the wild card (*) described in “VFA7 Serial Communications Function Manual”.

*2 When a USB-Serial Converter is used, start the PCM001Z while the converter is connected.

### 3.1.8. Exit

Close this application.
3.2. Parameters

Parameter setting, Import, and Export are executed.

Figure 3-13 Parameter menu screen (Parameter table display)

When the parameter table is not displayed, the menu below is displayed.

Figure 3-14 Parameter menu screen (Parameter table non display)
3.2.1. Parameter Table

Parameters are listed in the table.

![Parameter Table]

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AL1</td>
<td>Acceleration/deceleration</td>
</tr>
<tr>
<td>AL2</td>
<td>Acceleration boost</td>
</tr>
<tr>
<td>AL4</td>
<td>Automatic function setting</td>
</tr>
<tr>
<td>CMD1</td>
<td>Command mode selection</td>
</tr>
<tr>
<td>CMD2</td>
<td>Frequency setting mode selection 1</td>
</tr>
<tr>
<td>CMD3</td>
<td>Frequency setting mode selection 2</td>
</tr>
<tr>
<td>F005</td>
<td>Motor selection</td>
</tr>
<tr>
<td>F006</td>
<td>Meter adjustment</td>
</tr>
<tr>
<td>F007</td>
<td>Default setting</td>
</tr>
<tr>
<td>F008</td>
<td>Forward/reverse run selection (Operation parameter)</td>
</tr>
<tr>
<td>F009</td>
<td>Acceleration time 1</td>
</tr>
<tr>
<td>F010</td>
<td>Deceleration time 1</td>
</tr>
<tr>
<td>F011</td>
<td>Maximum frequency</td>
</tr>
<tr>
<td>F012</td>
<td>Upper limit frequency</td>
</tr>
<tr>
<td>F013</td>
<td>Lower limit frequency</td>
</tr>
<tr>
<td>F014</td>
<td>Base frequency 1</td>
</tr>
<tr>
<td>F040</td>
<td>Base frequency voltage 1</td>
</tr>
<tr>
<td>F015</td>
<td>V/F control mode setting 1</td>
</tr>
<tr>
<td>F016</td>
<td>Torque boost 1</td>
</tr>
<tr>
<td>F030</td>
<td>Motor electronic thermal protection level 1</td>
</tr>
<tr>
<td>F017</td>
<td>Electric thermal protection characteristic select 1</td>
</tr>
<tr>
<td>F018</td>
<td>Preset-speed operation frequency 1</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 3-15 Parameter Table screen

If a parameter column is clicked, parameters can be entered in "Set Val." cells (white). The contents of other cells (yellow) cannot be changed.

The setting values that are different from the factory defaults are displayed as "Changed" on the right side of columns. Setting values of the parameters not written in the inverter after the change are displayed in bold.

Key enter

- **Enter** key: ....... Determines the value entered as a setting value.
- **Esc** key: .......... Sets the setting value of selected parameters to the factory default value.
- **Del** key: ......... Returns to the setting value that was not changed when pressed during changing.
- **F3** key: ........... Imports the setting value of selected parameters from the inverter.
- **F2** key: ........... Exports the setting value of selected parameters in the inverter.

Numeric value input by hexadecimal code: a numeric value entered with a "h" first is regarded as a hexadecimal code.

Display color

- **Bold in gray:** Parameters ("Set Val." only) for which writing to the inverter by using the **F2** key failed.
- Display in gray:** Parameters skipped when import from the inverter.
- Display in red:** Parameters unable to set to the inverter.
3.2.2. Undo / Redo

The operation executed by the Enter key is undone. The undo count can be specified with Tools | Environment Options (Section 3.5.1.)

When you redo the operation undone, execute “Redo”.

3.2.3. Copy

Fix cells (cells in gray) corresponding to the range selected with the mouse are transferred to a clipboard. “Paste” by MS-Excel or other software allows for paste in each cell.

3.2.4. Parameter Import / Parameter Export

Each parameter setting value is imported from the inverter, or the values specified in the parameter table are exported in the inverter. Note that [Cancel] cannot be executed during the operation.

If communications are impossible, communication errors will occur. Please confirm the connection or RS-232C Setup. If the CPU version of the inverter that communicates with the PCM001Z support CPU version is different, communication errors may occur (this is because parameters corresponding to the communication numbers specified on the PCM001Z side for import do not exist on the inverter side). In this case, press the [OK] button to skip, and continue parameter import.

The parameter communication number and function name skipped at Parameter Import is named as a file name showing “DD/HH/MM/SS”, and can automatically be saved in a folder where this application was installed. (Related article Environment Options (Section 3.5.1.)) (Example: When read is complete at 2:21:43 p.m. on 25th, it shows 25d14h21m43s.txt.)

---

![Figure 3-16 Communication Error screen](image)

If parameters are written in the different model from the model selected at PCM001Z startup, there is possibility of incidents which may cause damage to inverters or motors.
3.2.5. Selected Parameter Import / Export

The only parameters selected in Select are import or export from / in the inverter.

3.2.6. Parameter Comparison

PCM001Z side parameter setting value is compared with the inverter side parameter setting value. When a different setting value is found, the following message is displayed.

(Related article Environment Options | Startup/Comm. tab page (Section 3.5.1.1.))
3.2.7. 'Changed' Only

Only the parameters different from the factory default are displayed in the table. All parameters will be displayed by executing either 'Changed' Only again or All Parameters.

3.2.8. Select / Select Clear

Parameters with the cursor presented or parameters in the range selected with the mouse are parameters to be selected. This function can be performed only when cursor is in the "Set Val." column.

The background color of cells for the parameter setting values selected are displayed in blue.

Following functions are target selected parameters.

- Selected Parameter Import
- Selected Parameter Export
- Blind
- Hex.
- Dec.
- Shipment

If it is executed again, Select is cleared only that parameter.

To clear, execute Select Clear. The Select Clear is executed for all selected parameters.

Figure 3-19 Comparison result screen
3.2.9. Blind
The selected parameters are not displayed. (It is necessary that parameters of Blind be executed with Select in advance before the execution of Blind.) If "PCM001Z Parameter Datas (*.pcm, and *.dat)" saved in this status is open with File | Open, the parameters of Blind will not be displayed.
* If Parameter Import / Export is executed, parameters of Blind will also be executed.

3.2.10. All Parameters
The parameters being performed with 'Changed Only or Blind are all displayed.

3.2.11. Hex. / Dec.
The selected parameters only are displayed in hexadecimal codes or decimal codes. When entering in hexadecimal codes, enter a "h" first, then enter setting values in hexadecimal codes.
The value to be entered in hexadecimal codes is a value divided by the minimum setting unit.

Example: When setting the acceleration time to 10.2 seconds by VFS9

   Since the minimum setting unit is 0.1, an expression is 10.2 / 0.1=102
   When this is converted into hexadecimal codes, the product becomes 66, so the value to be entered is "h66".
   * For VFA7, the minimum setting unit of the acceleration time is 0.01, so, the product becomes “h3FC”.
3.2.12. Shipment
Factory default values of the selected parameters are displayed.

3.2.13. Find
When the [Find] button is clicked, the find window below is opened. So, enter character strings to be found, and click on the [Find Next] button. If a parameter matching the character string is found, the cursor will move to the applicable parameter. Items to be found are either a function name or a communication number.

If the cursor is on a cell in the parameter table, the content of that cell will be automatically displayed in “Find what” when the find window is opened.

![Find dialog box]

Figure 3-20 Parameter | Find screen

3.2.14. Parameter Information
If a parameter information file is prepared, individual parameter information can be displayed. Double-click on the parameter table can also implements the same function.
### 3.2.15. Other functions

#### (1) Popup menu

Click on the parameter table with the mouse right button, a popup menu will be displayed.

![Parameter popup menu screen](image)

**Figure 3-21 Parameter popup menu screen**

#### (2) Column width change

Drag the right-side border line of fix cells (the cells in gray on the top of the column) until you get the desired width.

![Parameter Table VEaC1-2001P (CPU Ver.106)](image)

**Figure 3-22 Column width change**
### 3.2.16. Precautions when exporting

Exporting process with the All parameters or two or more parameters selected is executed in the order of communication numbers. Therefore, individually Export the parameter setting value (“\textit{typ} = 3”) by which the inverter communication process becomes temporary impossible at the time of exporting process.

<table>
<thead>
<tr>
<th>PCM001Z</th>
<th>INV</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Export</td>
</tr>
<tr>
<td></td>
<td>(F\alpha 5 L = 0)</td>
</tr>
<tr>
<td></td>
<td>(F\alpha = 512)</td>
</tr>
<tr>
<td></td>
<td>(\textit{typ} = 3)</td>
</tr>
<tr>
<td></td>
<td>(F_r = 0)</td>
</tr>
<tr>
<td></td>
<td>(RCC = 10)</td>
</tr>
<tr>
<td></td>
<td>(DEC = 10)</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In case where all parameters are exported, write “\textbf{Changed}” only parameters as for the parameters (“\textit{sr} 1 - \textit{sr} 7” of VFS7 and “\textit{thr}” of VFS9) regarded as the same value inside the inverter. (Related article \textit{Environment Options- Startup/Comm.} (Section3.5.1.1.))

Example: In the case of VFS7/S7 e/S9

<table>
<thead>
<tr>
<th>PCM001Z</th>
<th>INV</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Export</td>
</tr>
<tr>
<td></td>
<td>(5r1 = 10)</td>
</tr>
<tr>
<td></td>
<td>(5r2 = 20)</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(F280 = 0)</td>
</tr>
<tr>
<td></td>
<td>(F281 = 0)</td>
</tr>
</tbody>
</table>
3.3. **Key Pad**

Same operations as for the inverter operation panel can be executed on the computer. To end the operation, click on the “Close” right below the operation panel.

![Key Pad screen](image)

*Figure 3-23 Key Pad screen (The right figure: in case of the VFAS1.)*

Click on the Key Pad with the right mouse button, the popup menu will be displayed.

![Key Pad popup menu](image)

*Figure 3-24 Key Pad popup menu screen*

If you double click (or select FC Direct input from the popup menu) on the LED display, you can directly enter the operation frequency command by keys.

After entering any frequency, specify by pressing the Enter key. (In this case, it is necessary that the setting of the “Frequency setting mode selection (Fmod)” parameter of the inverter be “Operation panel”.)

Press the Enter key, then the Operation Panel display will appear after “F” is alternatively displayed. If the Esc key is pressed while the operation frequency command value is being entered, the input will be cancelled and the Operation Panel display will appear.

* The setting value written to the inverter by using Key Pad is not reflected on the parameter table. Execute Parameter Import at request.
3.4. Monitoring

3.4.1. Inverter Info.

The information of the connecting inverter is displayed. If the inverter misses a parameter value, “Err” is displayed.

Figure 3-25 Monitoring | Inverter Info. screen
3.4.2. Monitor

Up to 10 parameters can be displayed in graphs on the inverter status monitor.

Figure 3-26 Monitoring - Display tab page screen

Figure 3-27 Monitor - Setting tab page screen
**Screen description**

1) **Monitor Channel**
   When "Use level trigger (9)" is checked, click to choose the trigger source. Chosen channel (CH) is displayed in a red bold character.

2) **Monitor value**
   The monitored value of the inverter is displayed with the selected monitor item (14). The color of characters shows the color of the graph. When "Unit Chg. (15)" in a "Setting" tab page is checked, it changes and displays on the value for which it was suitable.

3) **Unit of the monitor value**
   The unit of the monitor value is displayed. When "Unit Chg. (15)" is checked, it changes to "A (ampere)" or "V (volt)."

4) **Monitoring screen**
   The value read from the inverter is displayed graphically. Even when "Unit Chg. (15)" is checked, the graph indication of the value before unit conversion is given to a monitoring screen.
   Move the mouse while clicking the right button to make it scroll.
   If you click on the graph with the left button, details will be displayed.
   * As for the displayed data, neither "Multi. (16)" nor "Offset (17)" is added.

![Figure 3-28 Monitor - Data display screen](image)

5) **Max.**
   The Y-axis maximum of graph is set up. Adjustment range is 100 to 500.
6) Time axis setting

The maximum value of the adjustment range is 30s/div. The minimum value changes with communication rate and number of selected CHs (13). The minimum time-axis setting value and the maximum number of samplings when it can communicate become as shown in the following table.

* Depending on the conditions, such as PC processing speed, it may become longer than the following table.

<table>
<thead>
<tr>
<th>Number of CH</th>
<th>Baud rate (bps)</th>
<th>Max. Number of Samplings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1,200 2,400 4,800 9,600 19,200 38,400</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>1.25 0.75 0.75 0.5 0.5 0.5</td>
<td>1250</td>
</tr>
<tr>
<td>2</td>
<td>2.5 1.5 1.5 1 1 1</td>
<td>625</td>
</tr>
<tr>
<td>3</td>
<td>3.75 2.25 2.25 1.5 1.5 1.5</td>
<td>417</td>
</tr>
<tr>
<td>4</td>
<td>5 3 3 2 2 2</td>
<td>313</td>
</tr>
<tr>
<td>5</td>
<td>6.25 3.75 3.75 2.5 2.5 2.5</td>
<td>250</td>
</tr>
<tr>
<td>6</td>
<td>7.5 4.5 4.5 3 3 3</td>
<td>208</td>
</tr>
<tr>
<td>7</td>
<td>8.75 5.25 5.25 3.5 3.5 3.5</td>
<td>179</td>
</tr>
<tr>
<td>8</td>
<td>10 6 6 4 4 4</td>
<td>156</td>
</tr>
<tr>
<td>9</td>
<td>11.25 6.75 6.75 4.5 4.5 4.5</td>
<td>139</td>
</tr>
<tr>
<td>10</td>
<td>12.5 7.5 7.5 5 5 5</td>
<td>125</td>
</tr>
</tbody>
</table>

* Gray: Default Value

7) Scope

The scale of the monitoring screen (4) is displayed and set up. Changing this, the graph can be stored in one screen or can be expanded.

8) Zoom

When this is checked, the graph can expanded by clicking the left button in a monitoring screen (4), and can be reduced by a right button click.

* The data detailed display function and scroll function are unavailable.

9) Use level trigger

(Refer to 3.4.2.3.)

10) Start/Stop

When [Start] button is clicked, starts to read the selected monitor item (14) from the inverter.
When [Stop] button is clicked, stops reading.

* The menu items which disturbs the communication are unavailable during monitoring.

11) Open / Save As

(Refer to 3.4.2.1.)

12) Print

(Refer to 3.4.2.2.)
13) CH selection
The checked monitor items (14) are monitored by graph.
* Environment Options | "Display Alarm" and "Display Trip" are respectively treated as one of
the monitor items. Therefore, when these are checked, selectable CHs become 9 or 8.
For example, if "Display Alarm" and "Display Trip" on Environment Options are checked
with 5CHs on Monitoring selected, 7CHs will be monitored.
(The minimum setting value of a time-axis also becomes the same as the time of 7CH
selection).

14) Monitor item
Select the monitor items from down list in the inverter status monitors.

15) Unit selection
The monitoring value is converted and displayed on voltage (V) and current (A). When the
selected item is not convertible or CH selection (13) is not checked, this selection becomes
unselectable.

16) Multiplication
The monitoring value can be multiplied by the value set up here, and indicated on the graph.
When this value is changed, it is reflected to the graph except during operation.
The adjustment range is 0.1 to 10.

17) Offset
The monitoring value can be added to the value set up here, and indicated on the graph.
When this value is changed, it is reflected to the graph except during operation.
The adjustment range is 0 to 500.

18) Graph color
The displayed graph color is set up. When color sample is double-clicked, the color dialog
will be displayed. Select any color.

19) Trigger level/Trigger delay
(Refer to 3.4.2.3.)

20) Time axis
When [Open] button is clicked and *.mon file is opened, the time-axis at the time of the file
last save is displayed. Change of "time axis setting (6)" or CH selection (13) displays the
same value as a time axis setting.
3.4.2.1. Open/Save as

The displayed graph and the opened file can be saved/read (only *.mon format) in the following file formats. The opened file name is displayed on the title bar of the Monitor.

1) “PCM001Z Monitor Data (*.mon)"
   This save format is only for PCM001Z, graph can be displayed again to the monitoring screen with the [Open] button of a "Display" tab page.
   If the file that was saved by the different inverter type is chosen, it can not be opened.

2) Monitor Data (*.csv)
   The csv format file can be opened with a spreadsheet application.
   * As for the saved data, neither "Multi. (16)" nor "Offset (17)" is added.

3) Monitor Picture (*.bmp)
   The currently displayed graph on the monitoring screen is saved in picture form. The saved picture corresponds to the part currently displayed on the screen. When you need to record a given area, please scroll or zoom so that the required area is displayed on the screen. Moreover, when you need to save the whole graph, please save with “Scope” set to "100 (%)".
   Save format can be chosen from the following:
   - bmp format: Color information is not lost by compress but the file size is large.
   - jpg format: File is made smaller using compression but some color information is lost.
   - wmf format: This format is aimed at expansion/reduction.
   These files can be read with image-processing application.
3.4.2.2. Print

The monitor picture is printed. The image to print can be checked on the preview screen. Clicking on [Print] button starts printing. Paper size is A4 and the orientation is portrait by default.

Those parameters can be set in File | Page Setup (refer to 3.1.5).
* As for the printed data (minimum value, maximum value, start value, and last value) of each graph, neither "Multi. (16)" nor "Offset (17)" is added.
* When the trigger is not used, "-" is displayed to “Trigger Source” and soon.

Figure 3-29 Monitor | Print screen
3.4.2.3. Use level trigger

If "Use Level Trigger (1)" of the "Display" tab page is checked, a trigger level marker (5), "Source (2)", and "Slope (3)" will be displayed, and trigger source CH (4) is displayed in red.

**Trigger source** can be chosen by clicking "CH (4)" or double-clicking "Source (2)".

**Trigger level** can be set dragging the trigger level marker (5) with the mouse, or is set up using "Trigger Setting" - “Level (figure 3-26 (19))”.

**Trigger slope** changes as follows when double-clicking the “Slope (3)”.

![Diagram showing Up, Down, and Both slopes](image)

If the [Start] button is clicked, the graph will be displayed after the monitored value of the trigger source CH exceeds trigger level (when a trigger slope is on "standup").

Trigger delay is the rate to the maximum samplings by the number of selected CH.

![Figure 3-30 Monitor - Print screen](image)

When checking Environment Options - “Continuous”, “Continuous Monitoring” is displayed on the position of "Use Level Trigger" (Refer to 3.5.1.3).
3.5. Tools

3.5.1. Environment Options

PCM001Z option setup is executed.

3.5.1.1. Startup/Comm.

![Figure 3-31 Environment Options - Startup/Comm. tab page screen](image)

**Startup Options**

1. **Display the last selected Language**
   
   When the check box of this item is checked, the lastly selected language automatically appears when PCM001Z is started. If not checked, Japanese language is selected.

2. **Display the last selected Inverter**
   
   If the check box of this item is checked when PCM001Z is started, the previously selected model is automatically selected regardless of whether communication is enabled or disabled. If this check box is not checked, the system examines ports on the PC when started and if a port is available, the system checks the communication settings on the inverter and displays the corresponding model type. (It may take about 1 minute.)
(3) Check the Printer connection
   If the check box of this item is checked when PCM001Z is started, if no printer is available, the menu about printing becomes unselectable.
   If this check box is not checked, the printing menus are enabled regardless of whether a printer is available.

Communication Options
(1) Check the Inverter Type-Form
   When the check box of this item is checked, connected inverter type-form is checked at the time of Parameter Import / Export / Comparison selection. If it differs from the PCM001Z side, a message is displayed.
   * Type and Form are separately checked, and a message is displayed even when only Forms differ.

   Figure 3-32 Check Inverter Type-Form result screen

(2) Export to EEPROM
   If Parameter Export and Selected Parameter Export are executed with this item checked, the setting value will also be exported to EEPROM. (The setting value written will be retained even if the inverter power supply is turned off.)
   If a check is cleared from this item, the setting value will be exported only to the RAM of the inverter, consequently, the setting value exported will be lost when the inverter power supply is turned off.

(3) Export ‘Change’ Parameters only
   If Parameter Export is executed with this item checked, the parameters only changed from the factory default values will be exported to the inverter. If this item is not checked, all parameters will be exported to the inverter.
   (Reference article Precautions when exporting (Section 3.2.16).)
(4) Display Communication Error

If this item is checked, the message will be displayed if a communication error occurs at the time of Parameter Import / Export / Comparison. If this check box is not checked, even if the communication error occurs, the message is not displayed.

Figure 3-33 Communication error screen

(5) Display Communication Result

If this item is checked, the communication result is displayed Parameter Import / Export / Comparison finished.

Figure 3-34 Display Communication Result screen
(6) Display Comparison Message

If this item is checked, if PCM001Z side value differs from inverter side value at the time of Parameter Comparison, the message will be shown.

(7) Display Comparison Result

If this item is checked, the communication result is shown by list at the time that Parameter Comparison finishes (refer to 3.2.6).

(8) Use Maintenance Mode

When this box is checked, Parameter Import / Export / Comparison will be done for the inverter control parameter area as well as for the user parameter area. When the check box of this item is not checked, Parameter Import / Export / Comparison will be done for the user parameter area (parameters described in the Inverter instruction manual).

* This is a maintenance function for our service man. Please do not check. However, only the user parameter area (described in the inverter instruction manual) will be displayed on the Parameter Table display.

3.5.1.2. File/Parameter

![Image of Environment Options - File/Parameter tab page screen]

Figure 3-35 Environment Options - File/Parameter tab page screen
File Options

(1) Save ‘Change’ Parameters only
If this item is checked, only the parameters changed from the factory default value are saved (“PCM001Z Parameter Data (*.pcm)”). If this item is not checked, all parameters will be saved in files.

(2) Save Comm./Comp. Result
If this item is checked, the parameters skipped by Parameter Import / Export, or Result of Parameter Comparison will automatically be saved.
(Reference article Parameter Import / Parameter Export / Parameter Comparison (Section 3.2.4 / 3.2.6).)

(3) Register PCM001Z file-type
If this item is checked, *.pcm format file is related with PCM001Z. Double-clicking on a *.pcm file in the Windows Explorer, PCM001Z will start and open the saved inverter type-form and CPU version. If this check is unchecked, correlation will be canceled.

Parameter Options

(1) Move to Cell on Enter key
If this check is cleared, the cursor will not move to the cell below when pressing the Enter key in the Parameter table.

(2) Max. Times of Undo
Maximum “Undo” count specification.
3.5.1.3. Key Pad/Monitor

Figure 3-36 Environment Options - Key Pad/Monitor tab page screen

[Key Pad] Option

LED Display Timer

If this value is decreased, time interval of the display led blinking will be shortened.

[Monitoring] Options

(1) Back Color

Graph background color specification. If you double click on the color sample, the color dialog box will be displayed. Select any color.

(2) Terminal Signal Level

Value displayed in the graph as a terminal high level.

(3) Use Free Unit

If this item is checked, the value displayed in the Monitor is multiplied by the value of this setting.

* Priority is given over "Unit Chg." in "Display" tab page.

(4) Continuous

If this item is checked to execute Monitor, monitoring is possible 24 hours max. Specify a recording time and a sampling time. The “Record Time” and the “Sampling Time” field will become accessible for setting.
If Monitor is started with this item checked, the approximate space area required to save the data read from the inverter will be displayed.

![Continuous monitoring confirmation screen](image)

Figure 3-37 Continuous monitoring confirmation screen

If the [OK] button is clicked, a file selection window will appear. Specify the file where to save data, and close the window. Data are saved in a form of csv when [Start] button is pressed.

If the [Start] button is pressed after "Maximum value" is specified at request, data read will begin. (The value converted to the value for graph display is displayed on "Time axis".)

* The data saved in a csv form are the values with "Display Multiplication" and "Offset" not added.

(5) Display Alarm

If this item is checked, the alarm is displayed on a monitoring screen when alarm is generated at the inverter side.

(6) Display Trip

If this item is checked, the trip is displayed on a monitoring screen when trip is generated at the inverter side.

![Display Alarm/Trip screen](image)

Figure 3-38 Display Alarm/Trip screen
(7) Display Data at Trip
If this item is checked, monitoring is stopped when trip is generated at the inverter side, and all monitor item, value, are displayed.
When "Display Trip" is not checked, this check box is unselectable.

(8) Inverter RUN/STOP control
If this item is checked, run/stop of inverter is possible from PC during Monitor.
* "Operation command mode selection" parameter of inverter needs to set "Panel".
  RUN....... [Shift] + [F9]
  STOP..... [F9]

(9) Keep Monitor Setup
If this item is checked, settings related to Monitoring (setting contents of Environment Options and Monitoring) will be saved, and monitoring can be performed with the same setting at the next setup.

3.5.2. Maintenance mode
The maintenance mode is a service support-specific mode that allows for the display and editing of parameter regions related to inverter control.

Caution
Users are not allowed to change setting values other than user parameter regions.
This may cause accidents or damages to the inverter or the motor.
3.6. Help

3.6.1. Help
The PCM001Z online help file is not prepared.

3.6.2. About PCM001Z-0
The PCM001Z version number and corresponding inverters, and CPU versions are displayed.

* If the CPU version of the inverter currently used is newer than the version displayed in "Version information", obtain the latest parameter data.

Figure 3-40 About PCM001Z-0 screen
## 4. Standard specification

<table>
<thead>
<tr>
<th>Items</th>
<th>Contents</th>
<th>Page</th>
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<td>English</td>
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<td>VFA7/P7 series: 311, V312, V315</td>
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<td>VFnC1 series: 106, V111, V116, V117</td>
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<td>VFS7 series: 121</td>
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<td>VFS7e series: 121</td>
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<td>PCM001Z parameter data (*.pcm)</td>
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<td>PCM001Z monitor data (*.mon)</td>
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<td>Output file</td>
<td>PCM001Z parameter data (*.pcm)</td>
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<td>Monitor data (*.csv)</td>
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<td>Monitor image (*.bmp, *.jpg, *.wmf)</td>
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<td>Parameter table output</td>
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<td>Print item selection, Comment simultaneous print</td>
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<td>Preview</td>
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<td>Communication setting</td>
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<td>Broadcast, Inverter number support</td>
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<td>Parameter Import: User and maintenance parameter*2</td>
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<td>Parameter Comparison: User and maintenance parameter*2</td>
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<td>Parameter table</td>
<td>User and maintenance parameter display*3</td>
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<td>Hexadecimal code / Decimal code display</td>
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<td>Import / Export/Comparison</td>
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<td>Factory default display</td>
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<td>Display changed parameters only</td>
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<td>Communication number/function name find</td>
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<tr>
<td>Key Pad function</td>
<td>UP / DOWN / MON / ENT / RUN / STOP key support</td>
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<td>4-digit 7-segment LED display</td>
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<tr>
<td>Items</td>
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<td>Sampling rate: 100 – 5000 ms</td>
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<td>Automatic scroll function</td>
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<td>Automatic roll back at completion function</td>
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<td>Trigger function, pre-trigger function</td>
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<td>Long-time recording (24 hours max.) function</td>
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<td>Monitoring value unit change (A/V) function</td>
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<td>Zoom function, Data display function</td>
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<td>Inverter alarm/trip display function</td>
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<td>All monitor item value display on trip function</td>
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<td>Print function</td>
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<td>Graph backcolor, Forecolor setting function</td>
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<td>Inverter information display function</td>
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<tr>
<td>Others</td>
<td>Tool bar, On-line help, Version information, Parameter help*1</td>
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</tbody>
</table>

*1 Can be added by external data creation/change.

*2 Switched by Environment Options option.

*3 Maintenance parameter display is executed only in the maintenance mode.

*4 Differs from the number of channels to be read.
5. Using example
A example using PCM001Z is introduced.

5.1. Parameter back-up operation
It is recommendable that the parameter setting of the inverter currently used be saved for regular maintenance and failures.

[Procedure]
(1) Start PCM001Z and select the inverter used.
(2) From Tools | Environment Options, clear a check from the “Export ‘Change’ Parameters only” and make “Use Maintenance Mode” to be checked.
(3) Select Parameter | Parameter Import, and import the setting value specified in the inverter into the computer. “Communication error” may be displayed while reading from the inverter. Press the [OK] button and continue import.
   * If errors occur frequently, other causes can be considered. Refer to Troubleshooting of Help.
(4) Select File | Save As, and save the parameters import in the computer.

The parameter setting of the inverter will be saved with the above.
5.2. Inverter / Control board replacement operation

When an inverter or a control board is replaced, follow the procedure below, and write the parameter previously saved to the inverter. It is necessary to initialize a inverter format following the procedure (5) after writing.

[Procedure]

(1) Select the inverter connected.

(2) From Tools | Environment Options, clear a check from “Export ‘Change’ Parameters only” and make “Export to EEPROM” and “Use Maintenance Mode” to be checked.

(3) Select File | Open and specify any file.
    * The open file can be checked in the parameter table.

(4) Select Parameter | Parameter Export, and export setting value from the computer to the inverter. “Communication error” may be displayed while writing. Press the [OK] button and continue export.
    * If errors occur frequently, other causes can be considered. Refer to Troubleshooting of Help.

(5) From the parameter table, enter “6” in “Set Val.” for the parameter “Standard setting mode selection (IYP)”, then press the Enter key. Next, press the F2 key, then the inverter is automatically initialized.
    * After the initialization, the parameters written are valid. Communications cannot be accepted while the inverter is being initialized.

Parameter setting for the inverter is complete with the above after a inverter unit or a control board has been replaced.