

3

INPUT AND OUTPUT OF DATA

Replacing a printed circuit board may require re-setting data. The boot system can be used to save and restore all SRAM data in one lump. Restoring all SRAM data in one lump can make it easy to re-set the SRAM data when a printed circuit board is replaced. It is recommended to make a backup copy of SRAM data at regular intervals. See Appendix C, "BOOT SYSTEM," for descriptions of the boot system.





This chapter explains how to input or output data, such as parameters, part programs, and tool offset values, with external I/O devices such as floppy disk units.

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
3.1 SETTING PARAMETERS FOR INPUT/OUTPUT

Setting procedure of parameters


Parameter writing is enabled with following steps 1 to 3.

- 1 Set to MDI mode or emergency stop state.
- 2 Press function key  several times or press soft key [SETTING] to display SETTING (HANDY) screen.
- 3 Set the cursor to PARAMETER WRITE and, press  and  keys in this order. Here alarm 100 will be displayed.
- 4 Press function key  several times to display the following screen.



PARAMETER	(SETTING)	O1234 N12345			
0000	SEQ	INI	ISO	TVC	
		0	0	0	0
0001		FCV			
		0	0	0	0
0012	RMV				MIR
X		0	0	0	0
Y		0	0	0	0
Z		0	0	0	0
B		0	0	0	0
0020	I/O CHANNEL				
		S	0	T0000	
REF	**** ** *		10: 15: 30		
[PARAM]	[DGNOS]		[SYSTEM]	[OPRT]	


To make the cursor display in bit unit, press the cursor key  or .

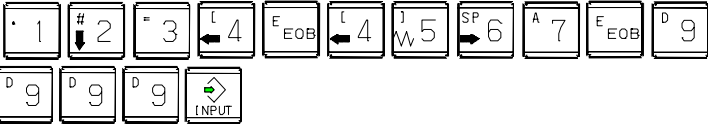
- 5 Press soft key [(OPRT)] and the following operation menu is displayed.
 - <1> Soft key [NO. SRH] :
Searched by number.
Examination) → [NO. SRH].
 - <2> Soft key [ON : 1] :
Item with cursor position is set to 1 (bit parameter)
 - <3> Soft key [OFF : 0] :
Item with cursor position is set to 0 (bit parameter)
 - <4> Soft key [+INPUT] :
Input value is added to the value at cursor
 - <5> Soft key [INPUT] :
Input value is replaced with the value at cursor
 - <6> Soft key [F INPUT] :
Parameters are input from reader/puncher interface.
 - <7> Soft key [F OUTPUT] :
Parameters are output to reader/puncher interface.

6 After the parameters have been input, set PARAMETER WRITE on the SETTING screen to 0. Press  key to release alarm 100.

7 Convenient method

<1> To change parameters in bit unit, press cursor key  or , then the cursor becomes bit length and you can set parameters bit by bit (Bit parameter only).

<2> To set data consecutively, use  key.

(Ex.1) 

This key sequence sets data as follows:

```


0      1234
0 => 4567
0      9999
0      0
    
```

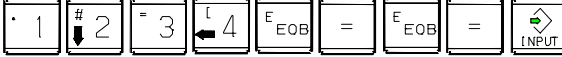
(Ex.2) 

This key sequence sets data as follows:

```

0      1234
0 => 0
0      9999
0      0
    
```

<3> To set the same data sequentially, press .

(Ex.1) 

This key sequence sets data as follows:

```

0      1234
0 => 1234
0      1234
0      0
    
```

<4> Bit parameters can be set as follows:

(Ex.1) 

This key sequence sets data as follows:

```

00000000 00011000
00000000 => 00011000
00000000 00011000
00000000 00000000
    
```

8 After the required parameters are set, set PARAMETER WRITE to 0.

3.2 INPUTTING/ OUTPUTTING DATA

The CNC memorized the following data.

Outputting the data I/O device while the CNC is running normally.

- (1) CNC parameter
- (2) PMC parameter
- (3) Pitch error compensation amount
- (4) Custom macro variable values
- (5) Tool compensation amount
- (6) Part program (machining program, custom macro program)

3.2.1 Confirming the Parameters Required for Data Input/Output

Be sure that data output cannot be done in an alarm status.

The following parameters are needed to input/output data with a reader or puncher:

In addition, (*) indicates the standard setting for input/output devices made by FANUC. Change these settings according to the unit you actually use.

(Parameter can be changed in MDI mode or emergency stop status.)

	#7	#6	#5	#4	#3	#2	#1	#0
0000							ISO	

ISO

0: Output with EIA code

1: Output with ISO code (for RS-232-C serial port 1 or 2)

	#7	#6	#5	#4	#3	#2	#1	#0
0020	Selection of I/O channel							

(*) 0: Channel 1 (RS-232-C serial port 1: JD36A of main board)

1: Channel 1 (RS-232-C serial port 1: JD36A of main board)

2: Channel 2 (RS-232-C serial port 2: JD36B of main board)

4: Memory card interface

5: Data Server interface

NOTE

In the operation examples in this chapter, data input/output is done with an I/O device connected to JD36A. (I/O channel = 0)

	#7	#6	#5	#4	#3	#2	#1	#0
0101	NFD				ASI			SB2

NFD

0: Feed is output when data is output.

1: Feed is not output when data is output.

ASI (*) 0: EIA or ISO code is used for input/output data.

(input: automatic detection, output: setting of bit 1 (ISO) of parameter No. 0000)

1: ASCII code is used.

(To use the ASCII code, set bit 1 (ISO) of parameter No. 0000 to 1.)

SB2 0 : No. of stop bits is 1.
 (*) 1 : No. of stop bits is 2.

0102	Number specified for the input/output device
-------------	---

Set value	Input/output device
0	RS-232-C (Used control codes DC1 to DC4)
1	FANUC CASSETTE ADAPTOR 1 (FANUC CASSETTE B1/B2)
2	FANUC CASSETTE ADAPTOR 3 (FANUC CASSETTE F1)
3	FANUC PROGRAM FILE Mate, FANUC FA Card Adaptor FANUC FLOPPY CASSETTE ADAPTOR, FANUC Handy File FANUC SYSTEM P-MODEL H
4	RS-232-C (Not used control codes DC1 to DC4)
5	Portable tape reader
6	FANUC PPR FANUC SYSTEM P-MODEL G, FANUC SYSTEM P-MODEL H

0103	Baud Rate
-------------	------------------

1: 50 7: 600 11: 9600
 3: 110 8: 1200 12: 19200 [BPS]
 4: 150 9: 2400
 6: 300 (*)10: 4800



0139	#7	#6	#5	#4	#3	#2	#1	#0
ISO								ISO

0: ASCII code input/output
 1: ISO code input/output (with memory card)

0908	#7	#6	#5	#4	#3	#2	#1	#0
ISO								ISO




0: ASCII code input/output
 1: ISO code input/output (with Data Server)

3.2.2 Outputting CNC Parameters

- 1 Enter EDIT mode or the emergency stop condition.
- 2 Press function key  and soft key [PARAMETER] to select a parameter screen.
- 3 Press soft key [(OPRT)] and continuous menu key .
- 4 Press soft keys [F OUTPUT] and [EXEC], and the parameters are started to be output.




3.2.3 Outputting Pitch Error Compensation Amount

If pitch error compensation is enabled, a pitch error compensation amount is output.



- 1 Select EDIT mode.
- 2 Press the function key .
- 3 Press continuous menu key  several times, then press soft key [PITCH] to select the pitch error compensation setting screen.
- 4 Press soft key [(OPRT)] and continuous menu key .
- 5 Press soft keys [F OUTPUT] and [EXEC], then pitch error compensation amount is started to be output.

3.2.4 Outputting Custom Macro Variable Values

When custom macro function is valid, values of variable No. 500 and later are output.

- 1 Press function key .
- 2 Press continuous menu key  several times, then press soft key [MACRO] to select custom macro variable screen.
- 3 Press soft key [(OPRT)] and then continuous menu key .
- 4 Press soft keys [F OUTPUT] and [EXEC], then custom macro variable values are output.

3.2.5 Outputting Tool Compensation Amount




- 1 Select EDIT mode.
- 2 Press function key  and soft key [OFFSET] to display the tool compensation amount screen.
- 3 Press soft key [(OPRT)] and continuous menu key .
- 4 Press soft keys [F OUTPUT] and [EXEC], and the tool compensation amount is started to be output.

3.2.6 Outputting Part Program




- 1 Confirm the following parameters. If their setting does not match those indicated with the asterisk, select the MDI mode and re-set them and keep them re-set only while this work is being done.

However, if you changed the parameter setting, restore the original value after finishing this work.

	#7	#6	#5	#4	#3	#2	#1	#0
3202				NE9				NE8




- NE9 (*) 0: Programs of 9000s are edited.
1: Programs of 9000s can be protected.
(Protected programs are not output.)
- NE8 (*) 0: Programs of 8000s are edited.
1: Programs of 8000s can be protected.
(Protected programs are not output.)
- 2 Select EDIT mode.
 - 3 Press the function key  and then the soft key [PROGRAM] to select the program content display screen.
 - 4 Press soft key [(OPRT)] and press continuous menu key .
 - 5 Input a program number to be output. To output all programs input as:

 - 6 Press soft keys [F OUTPUT] and [EXEC], then program output is started.

3.2.7 Inputting CNC Parameters

- 1 Set to the emergency stop state.
- 2 Press the function key  and then the soft key [SETTING] to select the setting screen. Confirm "PARAMETER WRITE=1" on the setting screen.
- 3 Press function key  and soft key [PARAMETER] to select the parameter screen.
- 4 Press soft key [(OPRT)] and continuous menu key .
- 5 Press soft keys [F INPUT] and [EXEC]. Then input of parameters are started.
- 6 Upon completion of parameter input, turn off the power then turn on the power again.
- 7 Alarm 300 is issued if the system employs an absolute pulse coder. In such a case, perform reference position return again.




3.2.8 Inputting Pitch Error Compensation Amount

If pitch error compensation is enabled, a pitch error compensation amount is input.



- 1 Select EDIT mode.
- 2 Confirm that PARAMETER WRITE=1 on the setting screen.
- 3 Press the function key .
- 4 Press continuous menu key  several times, then press soft key [PITCH] to select the pitch error compensation setting screen.
- 5 Press soft key [(OPRT)] and continuous menu key .
- 6 Press soft keys [F INPUT] and [EXEC], then pitch error compensation amount is started to be input.
- 7 After a pitch error compensation amount is input, display the setting screen and reset "PARAMETER WRITE" to "0" on the setting screen.

3.2.9 Inputting Custom Macro Variable Values

When custom macro function is valid, input the variable values.

- 1 Select EDIT mode.
- 2 Turn off the program protect (KEY2=1).
- 3 Press the function key .
- 4 Press continuous menu key  several times, then press soft key [MACRO] to select the custom macro variable screen.
- 5 Press soft key [(OPRT)] and continuous menu key .
- 6 Press soft keys [F INPUT] and [EXEC], then custom macro variable values is started to be input.

3.2.10 Inputting Tool Compensation Amount

- 1 Select EDIT mode.
- 2 Turn off the program protect (KEY=1).
- 3 Press the function key .
- 4 Press soft key [OFFSET] to display the tool compensation amount display screen.
- 5 Press soft key [(OPRT)] and continuous menu key .
- 6 Press soft keys [F INPUT] and [EXEC], then tool compensation amount is started to be input.

3.2.11 Inputting Part Programs

- 1 Confirm the following parameters. If their setting does not match those indicated with the asterisk, select the MDI mode and re-set them and keep them re-set only while this work is being done.

However, if you changed the parameter setting, restore the original value after finishing this work.

	#7	#6	#5	#4	#3	#2	#1	#0
3201		NPE					RAL	

NPE When programs are registered in part program storage area, M02,M30 and M99 are:

- 0: Regarded as the end of program.
- (*) 1: Not regarded as the end of program.

RAL When programs are registered:

- (*) 0: All programs are registered.
- 1: Only one program is registered.

	#7	#6	#5	#4	#3	#2	#1	#0
3202				NE9				NE8


NE9 (*) 0: Programs of 9000s can be edited.
1: Programs of 9000s are protected.

NE8 (*) 0: Programs of 8000s can be edited.
1: Programs of 8000s are protected.

2 Select EDIT mode.

3 Turn off the program protect (KEY3=1).

4 Press the function key  and then the soft key [PROGRM] to select the program content display screen.

5 Press soft key [(OPRT)] and press continuous menu key .

6 Press soft keys [F INPUT] and [EXEC], then program input is started.