FR830

Control Module For Flash Microcomputer ProgrammerNET IMPRESS
(NETIMPRESS next)

Instruction Manual

DTS INSIGHT CORPORATION

FR830
INSTRUCTION MANUAL
No. M2392DN-10

Revision History

Edition	Date of Issue	Description
First Edition	2013.09.22	Initial publication
Second Edition	2013.12.16	Specification modified
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Ninth Edition	2017.03.06	YDD file selecting flow is changed
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1 Overview

The FR830 is the Definition Program for NETIMPRESS on-board flash microcomputer programmer.

The Definition Program FR830 supports the programming the flash ROM that has the same programming algorithm and protocol as RH850/F1L series.

The Control Module consists of the Compact Flash Card containing the programming control software FR830.

We have four types of Standard Target Probe Cable, AZ410, AZ411, AZ412, and AZ413.

For other types of target probe cable, contact your local distributor or us.

NOTES:

With the Definition Program FR830, you can program microcomputers built in flash memory which have the same programming algorithm and protocol as the virtual target microcomputer.

Check once again if your microcomputer is supported by the Definition Program FR830, or if your microcomputer has the same algorithm and protocol as those of the target microcomputer.

Using this product to microcomputers which are not supported may destroy the microcomputer and a user system.

2 Specifications

2.1 Target Microcomputer and Specifications

For any items that are not specifically noted here, the standard specifications of NETIMPRESS are applied.

Model name	FR830
Target Microcomputer	Defined by Micom Packs FR830Mxx
Code Flash Memory Capacity	Same as above.*1
User Boot Area Capacity	Same as above.*1
Data Flash Capacity	Same as above.*1
Code Flash Memory Address	Same as above.*1
User Boot Area Address	Same as above.*1
Data Flash Address	Same as above.*1
Object File Format	Intel HEX Motorola S Binary
Default	Motorola S
Target Interface	UART (asynchronous communication) interface (one-wire/two-wire) 2400/4800/9600/19200/31250/ 38400/62500/76800/10400/ 115200/125000/153600/230400/ 250000/307200/460800/500000/ 614400/1000000/2000000 bps □ MBS first ■ LSB first CSI (synchronous communication) interface 62.5K/125K/250K/500K/850K 1.25M/2.5M/3.3M/5Mbps ■MBS first □ LSB first
Default	CSI 5Mbps
Verify Mode	■ Full Verify ■ SUM Verify
Default	SUM Verify
MCU Clock during programming	Defined by Micom Packs FR830Mxx
Voltage of target interface during programming	Same as above

For details of the target microcomputer, please refer to the instruction manual of the relevant Micom Pack.

*1: Some of the target microcomputer of FR830 have more than one memory area not only Code Flash but also such as User Boot Area or Data Flash.

The programmer converts each memory data into virtual address and retains it. The programmer does not configure the buffer memory by using the address region of each memory to avoid the buffer memory becomes too large.

The converted address is reconverted into original address when you programming into microcomputer.

The following shows the examples of the address conversion.

Address	Object File	Address	NET IMPRESS Buffer Memory	Address	Target Memory
#00000000	Code Flash	#00000000	Code Flash	#00000000	Code Flash
#001FFFFF		#001FFFFF		#001FFFFF	
		#00200000	User Boot Area		
		#00207FFF			
#01000000	User Boot Area	#00208000	Data Flash	#01000000	User Boot Area
#01007FFF		#0020FFFF		#01007FFF	
#FF200000	Data Flash			#FF200000	Data Flash
#FF207FFF				#FF207FFF	
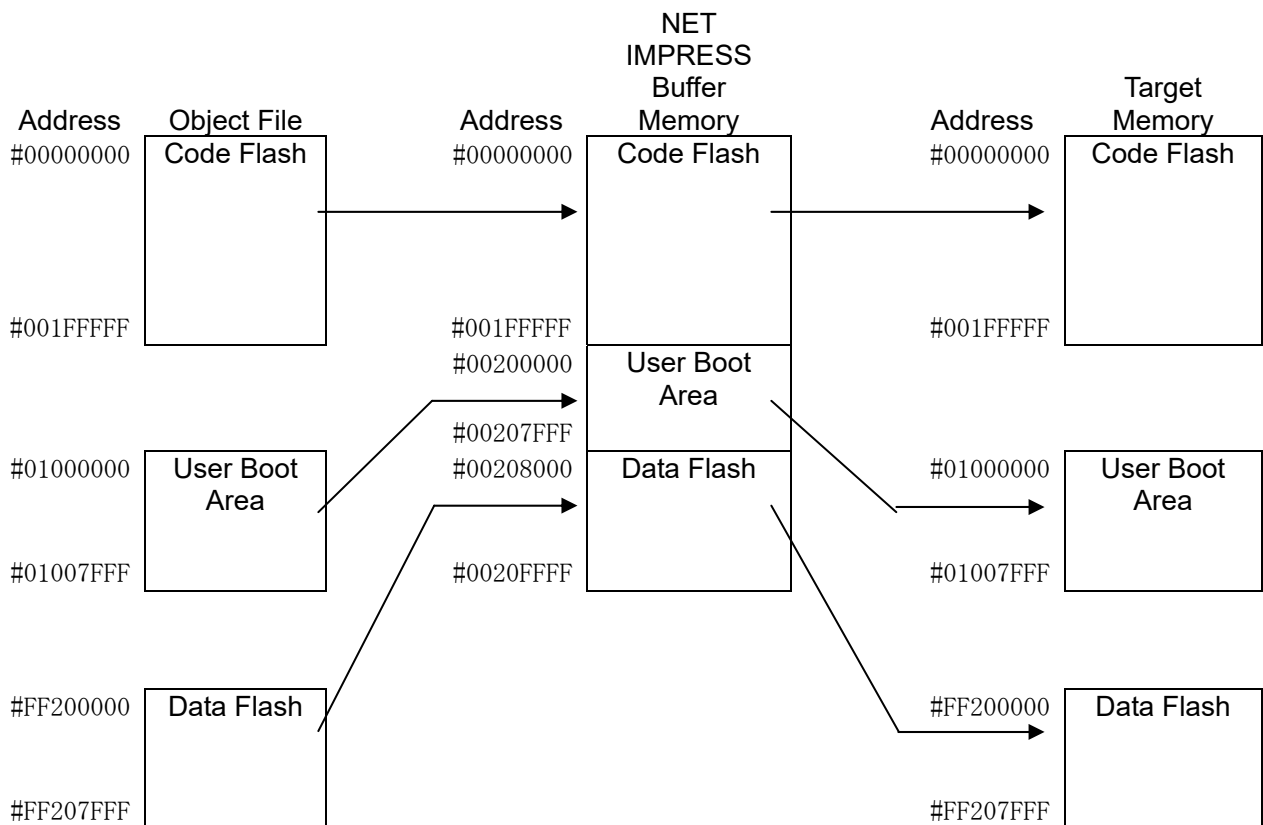
The following table shows the appearance of the buffer memory for NET IMPRESS.

Memory Name	Example of Original Start Address	Example of Buffer Memory Start Address for NET IMPRESS
Code Flash	#00000000	#00000000
User Boot Area	#01000000	#00200000
Data Flash	#FF200000	#00208000

When you do the following operation, please note the points below to replace the address.

・When you specify the address as [FUNC 0], [FUNC F5], or [FUNC D6], make sure to replace them with the buffer memory addresses.

・Replace the address displayed or specified with edit function with the buffer memory address.

2.2 Setting Up Parameters Specific to Target MPU

Complete initial setup by using AZ490, the remote controller running on Windows.

For the operating instruction of AZ490, see the AZ490 Instruction Manual.

2.2.1 Parameter Table1 Tab

Set up the parameters for your target microcomputer with the Parameter Table 1 tab.

(1) TVcc Threshold [FUNC D3]

Set up a value about 10% lower than the minimum operation voltage of the target microcomputer.

NET IMPRESS senses the operation voltage (TVcc) of the target microcomputer and executes the Device Functions when the TVcc gets higher than the specified value.

For the operation procedure to set up TVcc threshold on NET IMPRESS main unit, see the NET IMPRESS next Instruction Manual at section 5. 4. 5 "TVcc Threshold Setting".

(2) Flash ROM (First Address, Last Address) [FUNC D6]

Set up the flash memory area (First Address, Last Address) embedded in the microcomputer.

You cannot set up Flash ROM area for NET IMPRESS with key operation (FUNC D6), which only displays it.

For details, see the NETIMPRESS next instruction Manual at Section 5. 4. 8 "Flash Memory Area Display".

(3) ROM Block Configuration

Set up the block configuration of flash memory.

<Block Data Table>

The block data table consists of three kinds of information: Group No., Start Address and Block Size.

Group No.:   You can specify up to 14 groups (Group1 to Group 14).

A block group consists of memory blocks that have the same one block size on linear address. Group number is determined by the address order starting from lower address.

Start Address: A start address of a block group.

Block of the size specified in the Block Size sequentially continues, forming one block group.

Block Size: NET IMPRESS understands that the blocks of a size specified in the Block Size are placed sequentially until a next block group address.

When the Block Size is set at 1, the block is designated as access forbidden area. Programming or Erasing is not executed in Access forbidden area even the area is located within the area to execute the device functions.

Example:

Group No.	Start Address	Block Size
1	#00F80000	#00008000
2	#00FA0000	#00010000
3	#00000000	#00000000

Block Start Address

#F80000 →	
#F88000 →	**Block Group 1** The above example shows a flash memory block which has 32K block size from #F80000 continues until a next block group starts (#FA0000).
#F90000 →	
#F98000 →	
#FA0000 →	
#FB0000 →	**Block Group 2** The above example shows a flash memory block that has 64K block sizes from #FA0000 continues until the last address (#FFFFFF) of the flash memory.
#FC0000 →	
#FD0000 →	
#FE0000 →	
#FF0000 →	
#FFFFFF →	

(4) MCU Clock Frequency [FUNC DF]

Set up the input clock frequency of the target microcomputer.

Programmer refers this value when executing the device function to determine the baud rate with microcomputer. If this is not set correctly, the communication between the programmer and microcomputer is not established.

For setting clock frequency for NET IMPRESS, see the NETIMPRESS next Instruction Manual at section 5.4.12. "MCU Operating Frequency Setting".

Note: The operation clock for the target microcomputer is calculated using this value and the setting value of Parameter Table 2.

For detail, see the section 2.2.4. Setting Up Multiplication and Clock Division.

(5) MCU Operation Mode [FUNC D4]

Set enable or disable security and option byte at programming.

Value at AZ490	LCD display when operating keys on the programmer	
0000	St'd	Disable security, disable option byte
0001	Opt.0	Enable security, disable option byte
0010	Opt.1	Disable security, enable option byte
0011	Opt.2	Enable security, enable option byte

For detail, see Chapter 4.

(6) WDT Clock Period [FUNC D5]

NET IMPRESS has the function to output periodic clock pulses during programming. To use this function, it is required to setup the WDT Clock Period.

The periodic clock pulse is output from the WDT signal (No. 18 pin) that is listed in the target probe list of section 3.1 "Signal List".

For the operation procedure to set up WDT on NETIMPRESS main unit, see the NETIMPRESS next Instruction Manual at section 5. 4. 7 "Watchdog Timer Setting".

(7) Data Communication

This is the field to make communication settings between NET IMPRESS and the target microcomputer.

For FR830, make complete settings as follows.

・Selection of communication channel [FUNC D 1]

Choose UART (Asynchronous communication) or CSI (Synchronous communication).

For the operation procedure to set up communication channel on NETIMPRESS main unit, see the NETIMPRESS next Instruction Manual at section 5. 4. 2 "Communication Channel Setting".

・Channel No. [FUNC D7]

Select one-wire or two-wire mode when you select UART (Asynchronous communication).

TGT CHANNEL 0: two-wire mode

TGT CHANNEL 1: one-wire mode

・UART Baud Rate [FUNC D2]

Set the baud rate for UART communication.

Select from 2400 / 4800 / 9600 / 19200 / 31250 / 38400 / 62500 / 76800 / 10400 / 115200 / 125000 / 153600 / 230400 / 250000 / 307200 / 460800 / 500000 / 614400 / 1000000 / 2000000 bps.

For the procedure of setting the UART baud rate on NET IMPRESS main unit, see the NETIMPRESS next Instruction Manual at section 5.4.3. "UART Baud Rate Setting".

When you use the baud rate higher than 115200 bps with a programmer other than NETIMPRESS next, see the section 2.2.5. "High Speed UART Baud Rate Setting" in this manual.

For two-wire UART, 1000000/2000000 bps is available for NET IMPRESS next (AF430 Rev.C or later (HARD VER 40.04 or later, HARD2 VER 40.26 or later)) only.

For one-wire UART, 1000000/2000000bps is available for NET IMPRESS next (AF430 or later (HARD VER 40.05 or later, HARD2 VER 40.28 or later)) only. Also, when 1000000/2000000 bps is set for one-wire UART, TTXD signal is open drain output.

・CSI Baud Rate [FUNC D9]

Set the baud rate for CSI communication.

Select from 62.5K/125K/250K/500K/850K/1.25/2.5M/3.3M/5M bps.

For the procedure of setting the CSI baud rate on NET IMPRESS, see NETIMPRESS next Instruction Manual at section 5.4.4. "CSI Baud Rate Setting".

(8) MCU Type [FUNC D8]

The setting here will be displayed in the MCU Type field located at the top left of the Remote Controller window and NET IMPRESS main unit.

You can enter any characters up to 16 characters such as microcomputer's model name or device name you are using.

For how to change displayed model name, see the NETIMPRESS next Instruction Manual at section 5.4.10. "Customize Displayed Model Name".

(9) OK

By clicking this OK button, you can send the settings on the Parameter Table 1 tab to the Control Module. Be sure to click the OK button before moving to other tabs so that you can make the changes of (1) – (8) valid.

If you do not click the OK button, the changes will not be sent to the Control Module.

2.2.2. Basic Operation Tab

With the Basic Operation tab, you have the three features to work with as described below.
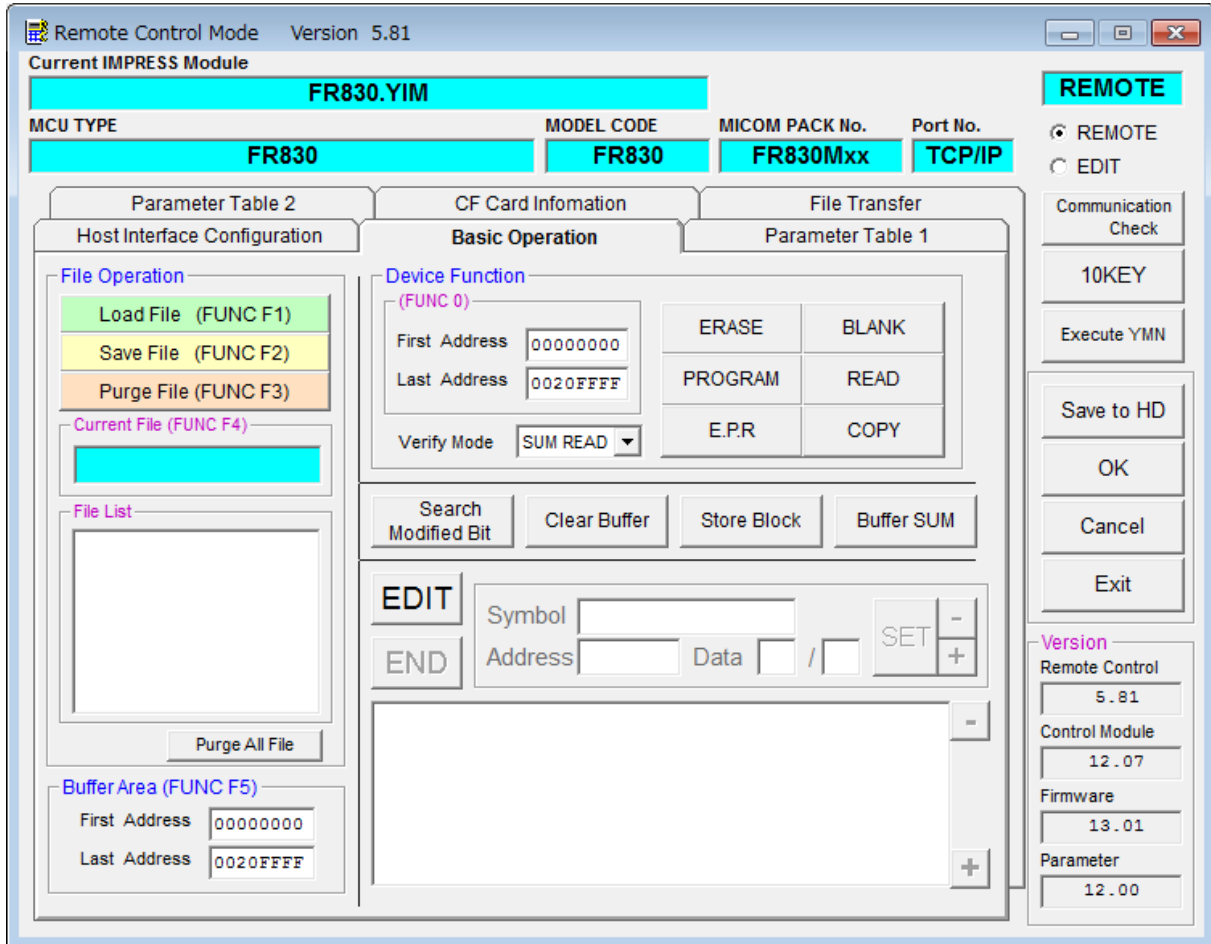
(1) Device Function [FUNC 0]

Set up a target area to execute the Device Functions such as reading, programming, etc.

Normally, set up the same areas as those you set up for the Flash ROM described in the Section 2.2.1 (2).

The Device Function [FUNC 0] is automatically aligned with the block boundary address of a flash memory by its specified address as shown in Figure 2-2-2-1.

The device functions will be executed to this automatically aligned area.

(2) Buffer Area [FUNC F5]

Set up an area to save the data or to load the file to be programmed on the buffer memory of NET IMPRESS.

Normally, set up the same areas as those you set up for the Flash ROM described in the Section 2.2.1 (2).

Figure 2-2-2-2 shows how the Device Function [FUNC 0], Buffer Area [FUNC F 5] and Flash ROM Area [FUNC D 6] relate with each other.

(3) Verify Mode

Set up the Verify Mode when executing E. P. R and PROGRAM.

For the settings and operation of the Verify Mode, see the Section 2.3. Device Functions and Their Operation.

(4) OK

Click this "OK" button to send the settings on the Basic Operation tab into the Control Module.

When you made changes to the above (1) to (3) settings, be sure to click the OK button before moving to other tabs.

If you do not click the OK button, the changes will not be sent to the Control Module.

Targer MCU Memory Area First Addr

Block Boundary →

FUNC 0
Set up address

FUNC D6
Displays flash memory area

Last Addr

Area to execute Device Functions
(Target area to program)

Flash Memory:
Consists of a group of small flash memory blocks, which can be erased on in a unit of a block, not in a unit of 1 byte

Use AZ490 to set up block configuration

Actual target area will be automatically aligned with block boundary.
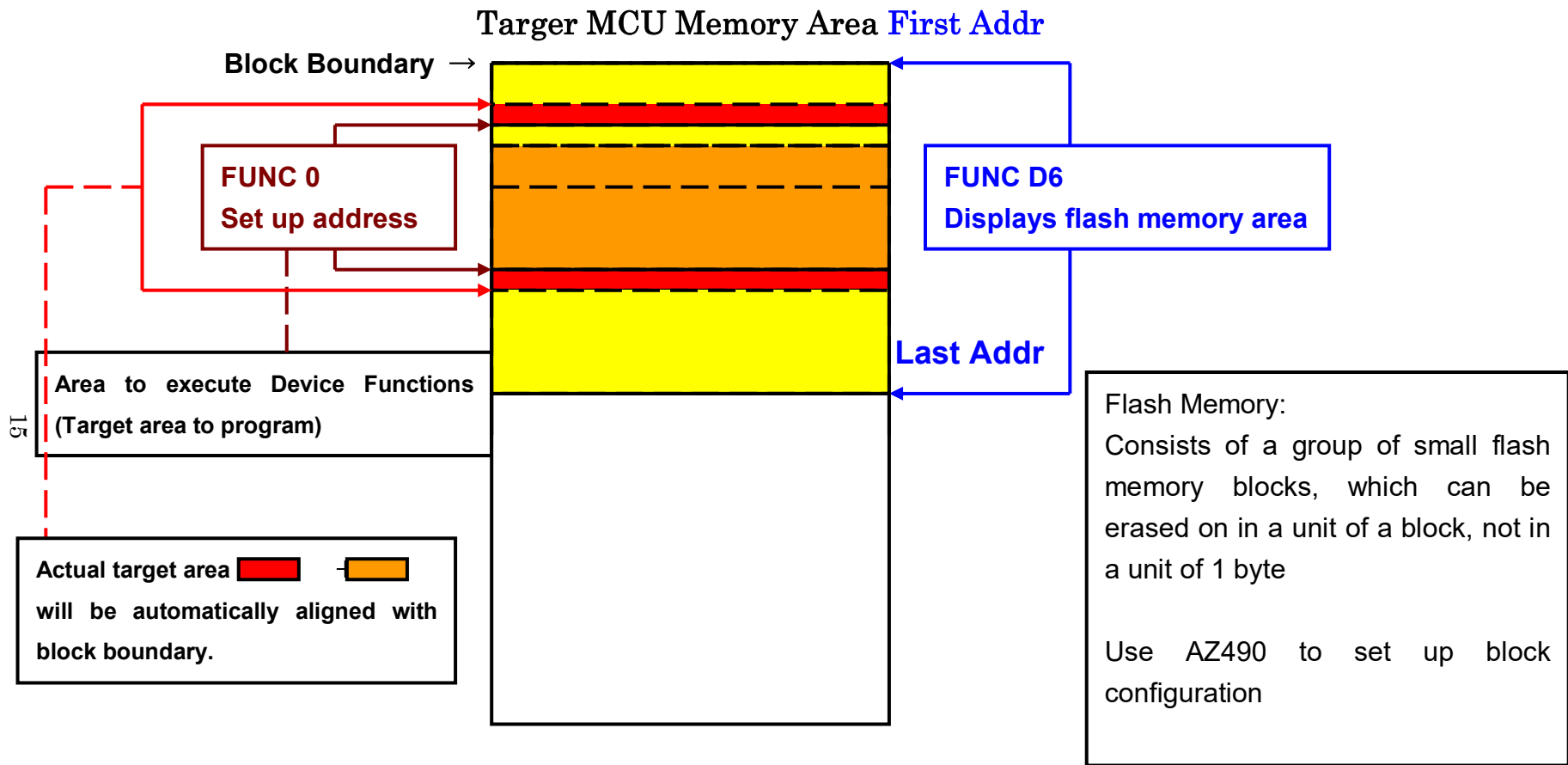
FUNC 0   Address Setup & Address Alignment

Figure 2-2-2-1

Target MCU Memory Area   **First Addr** ← Address Range when loading a file.

→**Address range when saving**

Flash Memory Area

FUNC　0
Set up address

FUNC　D 6
Displays Flash memory

FUNC　F 5
Sets address to send

Last Addr

Area to execute Device Function
(Ex. Area you want to program)

FUNC　0
FUNC D 6   same setting
FUNC　F 5

In case the settings of FUNC 0, D6 and F5 are not matching, NETIMPRESS beeps when powered.

Caution

Make First Address and Rom First same setting.

Binary File

0001020
3040506
070809
...

The Area loads a file.

Address Setup Function

Figure 2-2-2-2

2.2.3. Parameter Table 2 Tab

The Parameter Table 2 contains the parameters specific to the microcomputer.

Therefore, be sure not to change any value in this widow other than the settings described in section 2.2.4 "Setting Up Multiplication and Clock Division", 4.2.4. "Serial Programming Inhibition Setting", and Chapter 6 "Object File Programming Function".

2.2.4. Setting Up Multiplication and Clock Division

The operation clock for the target microcomputer is calculated and set using the specified values of C6 and C8 at MCU Clock Frequency [FUNC FD] and [Parameter Table2] display.

Calculation Method:
Operation clock = MCU Clock Frequency ×Multiplication/Clock Division

*Set the value within the settable range of the target microcomputer.
For the setting range, see the hardware manual for the microcomputer.

How to set:
The following window is displayed when you select Parameter Table2 tab. Enter "AF200" and then click the OK button.   (The password which you entered is masked with "*".)

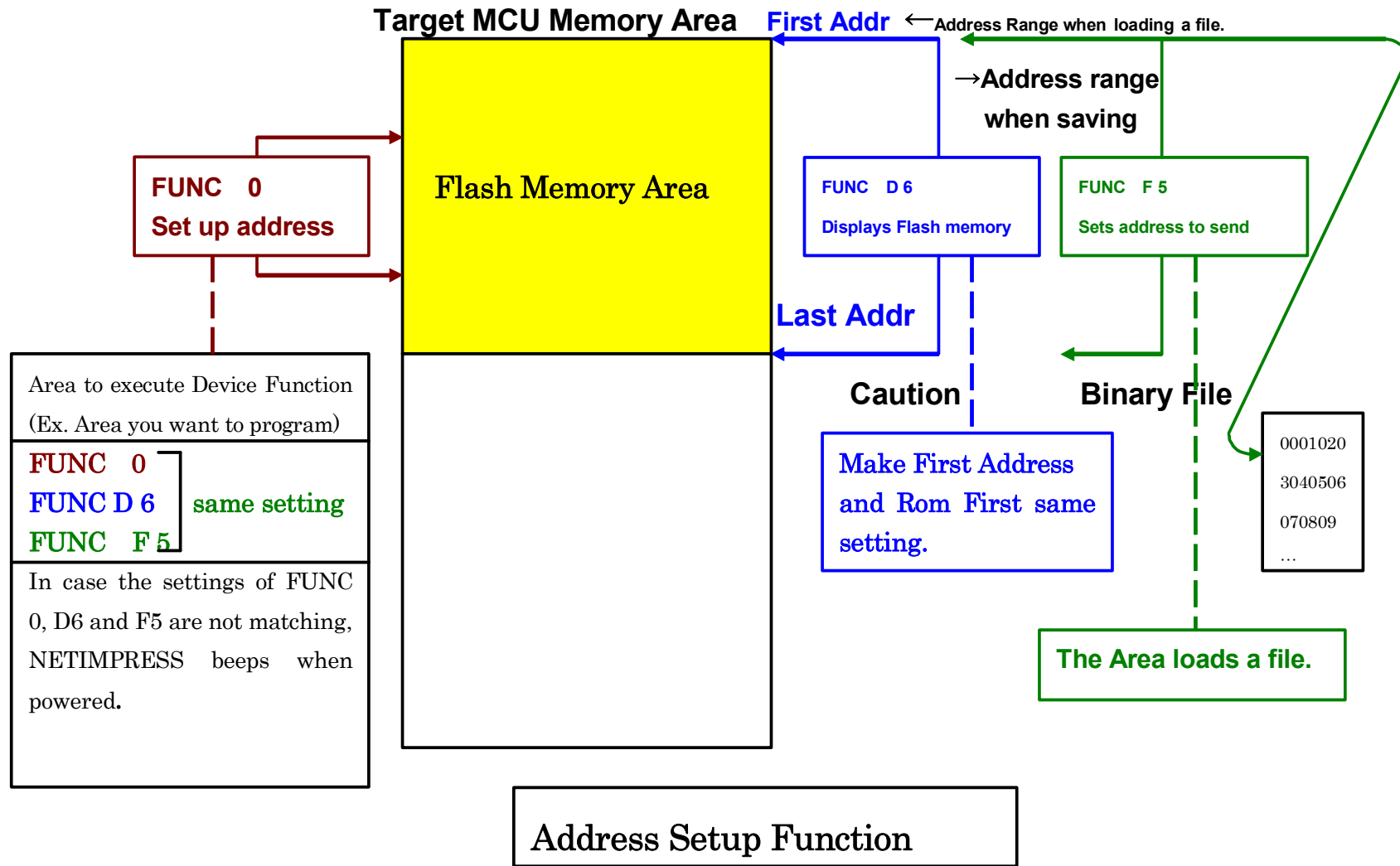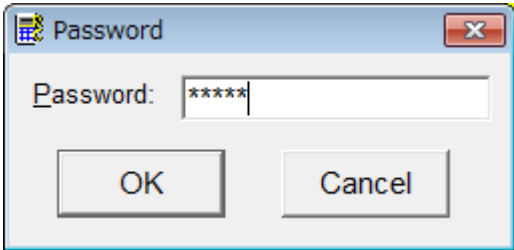(1) Multiplication
Enter the multiplication value at C6 in hexadecimal.

	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	
0C0:	00	00	E0	07	00	03	0A	00	00	00	00	00	A1	AA	1A	60	...............`
0D0:	01	00	00	10	04	00	20	00	00	00	04	00	00	40	02	00	....@..
0E0:	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	....
0F0:	52	37	46	37	30	31	30	33	35	20	20	20	20	20	20	20	R7F701035
140:	13	88	00	0A	00	02	00	01	00	C8	00	C8	00	02	00	01	....
600:	00	00	00	00	00	00	00	00	00	00	00	00	80	00	00	24	...............$
610:	00	00	00	00	00	20	00	00	00	20	80	00	00	00	00	00	....
620:	00	00	00	00	01	00	00	00	FF	20	00	00	00	00	00	00	....
630:	00	20	00	00	00	00	80	00	00	00	80	00	00	00	00	00	. ...

Specific Parameter for this Control Module (FUNC 8X)

(2) Clock Division

Enter the clock division value at C8 in hexadecimal.

*Clock division value is enabled in case the value is greater than 1.

Example:

When MCU Clock Frequency is 24.0 MHz and operation clock is 80.0MHz, C6 (multiplication) = 0Ah, C8 (clock division) = 03h.

2.2.5 High Speed UART Baud Rate Setting

If your programmer is not NET IMPRESS next, and you want to use UART baud rate higher than 115200bps, change the setting by following the steps below.

You can set baud rate higher than 115200bps with [FUNC D2] by using NET IMPRESS next as well as when you set baud rate lower than 115200bps.

Select baud rate with baud rate setting function shown as below.

FUNC	8	1
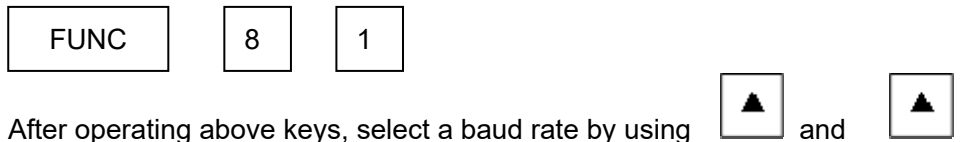
After operating above keys, select a baud rate by using ▲ and ▲ .
After selecting baud rate,

SET	FUNC	SET
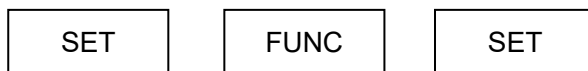
operate the above keys, and the setting is completed.

Please note some baud rate that cannot communicate depending on the clock peripheral microcomputer.

If you set the not connectable baud rate, "112D　UART BAUDRATE SETTING ERR" is displayed when executing the device function.

2.3. Device Functions and Their Operation

The table below lists the operations to the flash memory that are executed when NET IMPRESS starts the device functions.

Device Function		ERASE	BLANK	PROG RAM	READ	E.P.R	COPY
Target Memory Area	A partial areas of flash memory by [FUNC 0] command	Executed	Executed	Executed	Executed	Executed	Executed
	Entire area of flash memory by [FUNC D6] command	Executed	Executed	Executed	Executed	Executed	Executed
	Prevention of execution by setting access forbidden area	Prevented	Prevented	Prevented	Prevented	Prevented	Prevented
Operation to Flash Memory		■Erase ■Blank	■Blank	□Erase □Blank ■Program ■Read*1	■Read	■Erase ■Blank ■Program ■Read*1	■Copy ■Read
Notes		■Supported □Unsupported					

*1: For the Read Verify operation that is executed by the Device Functions "E.P.R" and "PROGRAM", the Read Verify set up with the Read Mode Switching (FUNC 99) is executed.

To set up the Verify mode with NETIMPRESS, see section 5.5.14 "Verify Mode Switching" on NETIMPRESS next instruction manual.

・SUM READ VERIFY: FR830 reads CRC value of an area where the device function Program is executed and compares with CRC value of programmed data that is previously transferred when the Program is executed.

・FULL READ VERIFY: Data of the area where the Device Function "PROGRAM" is executed is read from the microcomputer and compared with programmed data transferred by NETIMPRESS when the Device Function "PROGRAM" is executed.

3. Connecting to a Target System and Connector

3.1. Signal List

The following table shows the signal list of the target end of the target probe connector when you use FR830.

Microcomputer Signal	NET IMPRESS Standard Signal				Microcomputer Signal
EVSS	GND	(15)	(1)	GND	EVSS
	TVpp1	16	(2)	TVccd	EVCC
	TVpp2	17	3	Vcc	
Watchdog pulse	WDC	(18)	(4)	TRES	Positive/TRES
	TAUX3 TVpp1c	19	(5)	/TRES	/RESET
FLMD0	TAUX4 TVpp2c	(20)	(6)	TCK	FPCK (JP0_2)
	reserved	21	7	reserved	
	reserved	22	8	reserved	
	TAUX	23	9	TAUX2 (TRW)	
	TBUSY	24	(10)	/TICS	Multiplexer
	TI0	25	11	TAUX5 (/TOE)	
	TVccs	26	(12)	TMODE	FLMD1
FPDT (JP0_1)	TRXD	(27)	(13)	TTXD	FPDR (JP0_0)
EVSS	GND	(28)	(14)	GND	EVSS

Target Probe Signal List (FR830)

1. Be sure to connect all the signals marked with a circle "○ " to the target system.
2. For the signals in parentheses, connect them only when necessary.
3. For the signals not marked with " ○ " or not in parentheses, be sure not to connect them to a circuit of the target system.
   For inquiry about the detail information, please contact our Support Center.
4. For interface circuits of each signal, see "Instruction Manual" of the NET IMPRESS main unit.

3.2. The typical connection example of the target system and main unit

Connecting with Target System / Example
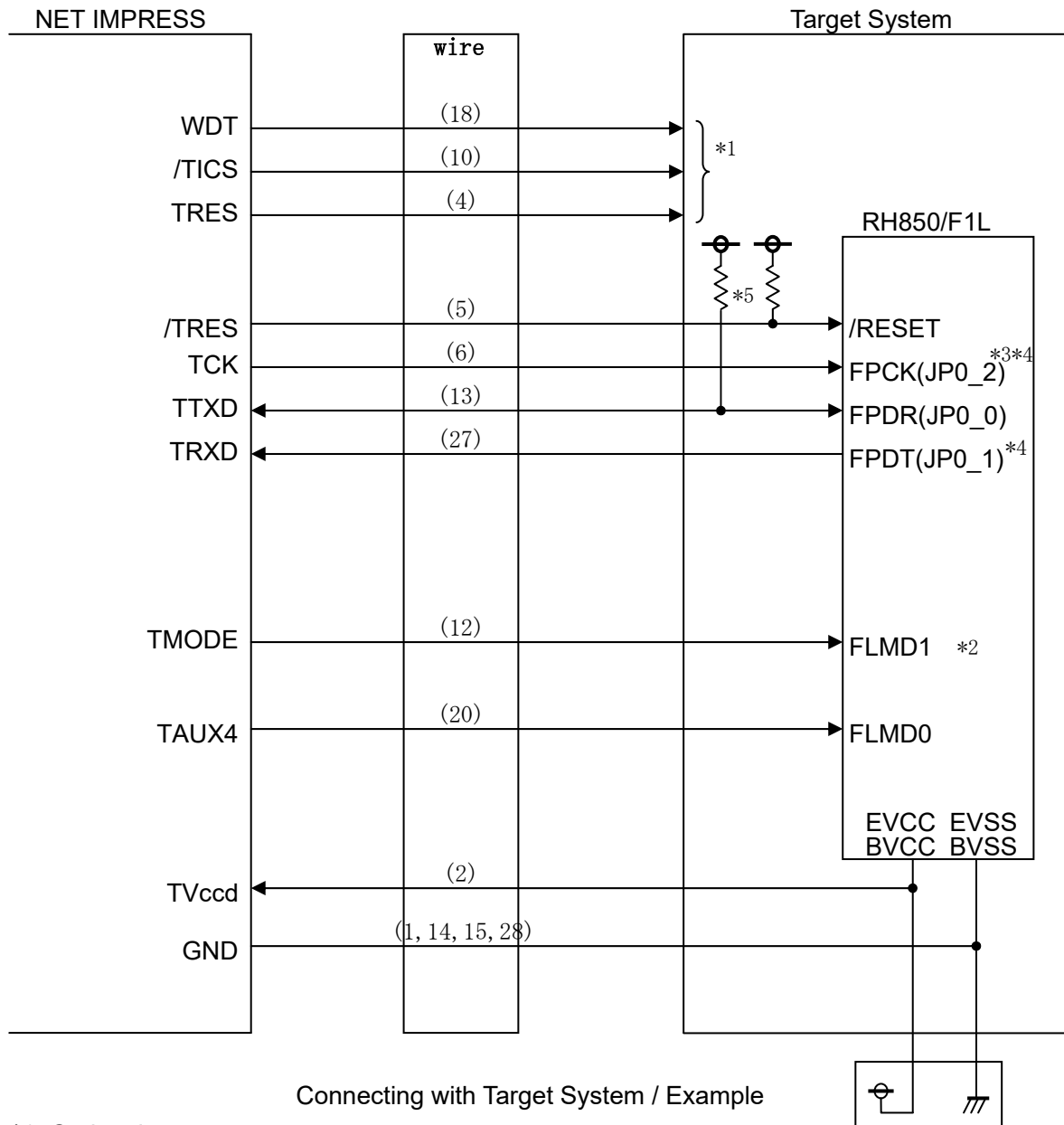
*1: Optional

*2: The signal is not required to be connected when it set up to the specified logic values on a target system.

The table below lists how to set up the MODE signal

Signal Name	Value
FLMD1	EVSS

*3: Connecting is not necessary for UART.

*4: Connecting is not necessary for one-wire UART.

*5: Use pull-up on the target for one-wire UART. Check the microcomputer's manual, configuration of the circuit of the programmer and the target, and communication waveform before you set the pull-up resister value

(1) When a signal to use for programming including "programming mode signal" is defined by the terminal with the user system for common use, implement the multiplex circuit of those signals for a user system.

/TICS signal is asserted only when NETIMPRESS is performing the Device Functions.

Using this signal, common use terminals is selected for programming.

Inserting the multiplexing circuit into the user system can produce the same conditions with a state where NETIMPRESS is not connected (i.e., the connector is unplugged) while /TICS signal is being negated (when the Device Functions are not executed).

Multiplexing circuits are not required for a target system where these signals for write control are defined as the control signals for the flash microcomputer.

(2) WDT Signal: The clock signal defined with the WDT Clock Period [FUNC D 5] is constantly output from WDT signal terminal by NETIMPRESS. (Continuously output) (Open collector output)

Connect this signal to the user circuit that requires the appropriate clock signal when programming the flash memory.

(3) TRES Signal:

NETIMPRESS is provided with /TRES signal in the standard probe, which is an open collector type output so that it can make wired-or connection in the target system and be connected to /RESET signal of your microcomputer using the user circuit.

TRES signal can be used when the target system requires a reset signal of positive logic. TRES signal is a totem pole output signal.

3.3. Waveform of Control Signal
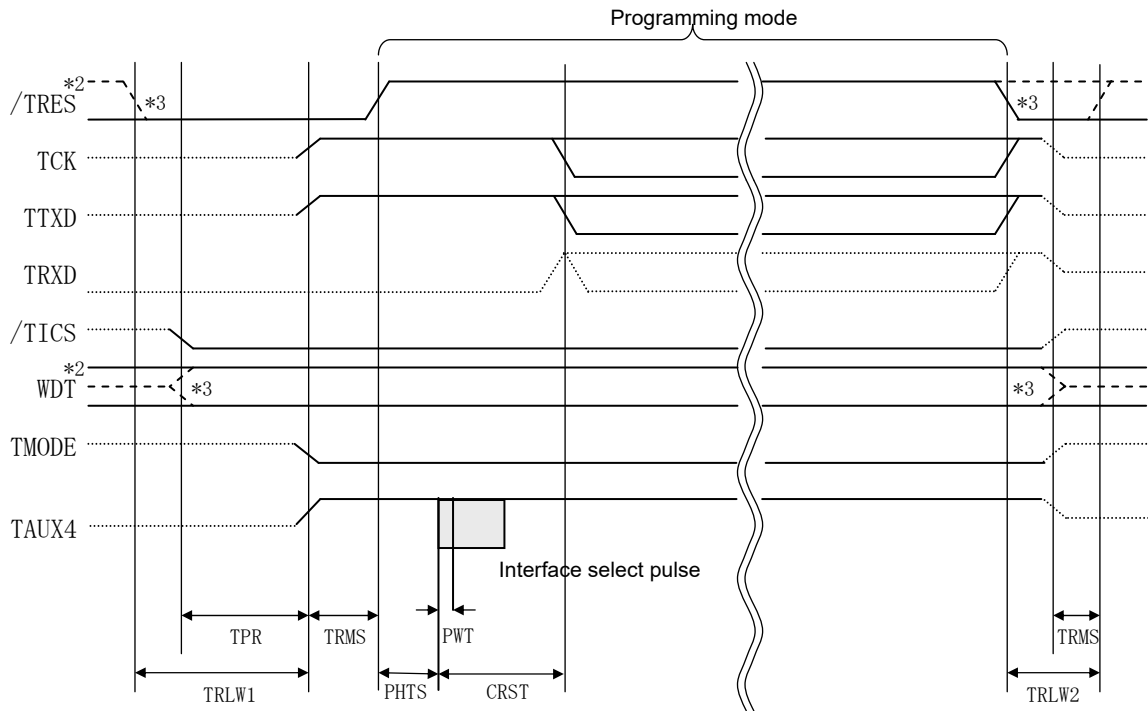
	MCU Specifications	NETIMPRESS Specification
TPR		250ms (min.)
TRLW1		300ms (min.)
TRLW2		100ms (min.)
TRMS		50ms (min.)

	Parameter	MAX	MIN	Meanings
PHTS	0144	11.5ms	1.5ms	Pulse lead-in timing
PWT	0146	——	0.8us	Pulse width
CRST	UART 0148		200ms	Communication start timing
	CSI 014A		200ms	

*1:   "‧‧‧‧‧‧‧‧‧‧‧‧‧‧‧‧‧‧ The dotted line "   " indicates hi-Z state.

*2:   /TRES and WDT are open collector output.

*3:   Optional

[Operating Procedure]

(1) Turn on power of NETIMPRESS first and then the target system.
 Then, NETIMPRESS asserts /TRES signal after its power is turned on. Also, it starts outputting periodic pulse of the WDT signal.

(2) /TICS is asserted by executing the device function, and communication channel for programming is connected to NETIMPRESS on the target system.
 (Multiplexing with this /TICS signal is not required for a system where communication channel and related signals for programming are exclusively used by NETIMPRESS, independently from other user circuit.)

(3) The programming mode of the microcomputer, upon being executed, starts communicating with NET IMPRESS using a specified communication circuit. The communication is executed under the condition set to NET IMPRESS.

(4) When the device function completes, NETIMPRESS negates /TICS signal.
 NETIMPRESS continues asserting /TRES signal while the device functions are not executed. Also, it continues generating periodic pulse of WDT signal.

3.4. Probe

As the standard probes, four types of the probe (AZ410, AZ411, AZ412 and AZ413) are available for an additional order. Please contact us or your local distributor for ordering the probe.

For the connection specification of each probe, see the NETIMPRESS next Instruction Manual, Section 8. 5. "Target Interface".

AZ411/AZ413

Most of I/O lines of NETIMPRESS have 1MΩ pull-down resistors between the GND line and signal lines. Also, control lines from NETIMPRESS that are used on the target system must be kept negated not to disturb the target system when connectors for NETIMPRESS are removed.

It is recommended to either pull up the power or pull down the GND signal for these control lines with about 10KΩ resistors on the user system.

In case the pull-up resistor of about 10KΩ cannot be added to the control signals within the user system, use AZ411/AZ413.

AZ411/AZ413 enables you to optionally add pull-up/pull-down resistors to the control lines running from NETIMPRESS.

IC clip

or

Untreated cable end

NET IMPRESS   AZ411/AZ413   Target system

AZ411/AZ413

NET IMPESS Side		User Target Side
TVccd (2)		TVccd(20)
/TRES(5)		/TRES(14)
TCK(6)		TCK(12)
TRW(9)		TRW(10)
/TICS(10)	10KΩ	/TICS(8)
/TOE(11)	Pull up short plug (to be prepared by a user)	/TOE(6)
TMODE(12)		TMODE(4)
TTXD(13)	1 to 1 connection	TTXD(2)
WDT(18)		WDT(15)
AUX(23)		AUX(9)
TBUSY(24)		TBUSY(7)
TI0(26)		TI0(5)
TI1(25)		TI1(3)
TRXD(27)		TRXD(1)

TRES(4)	1 to 1 connection	TRES(16)
TVpp1C(19)		TVpp1C(13)
TVpp2C(20)	Pull down short plug (to beprepared by a user)	TVpp2C(11)
	10KΩ	

Vcc(3)		Vcc(18)
TVpp1(16)		TVpp1(19)
TVpp2(17)		TVpp2(17)
GND (1,14,15,28)		GND (Clip)

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4. YDD File

4.1.　Overview

The target microcomputer of FR830 has the functions mentioned below. To use the functions, create and setup YDD file.

4.2. How to Set Up

The extension of the configuration file has to be YDD (Motorola S format). Place it in YIM folder of the control module. Each YIM folder has only one configuration file. You cannot place multiple files in one folder or use the folder without placing a configuration file.

To create a configuration file, use AZ481 (KEY file generator).

YDD sample file is included in the Micom-pack provided by us.
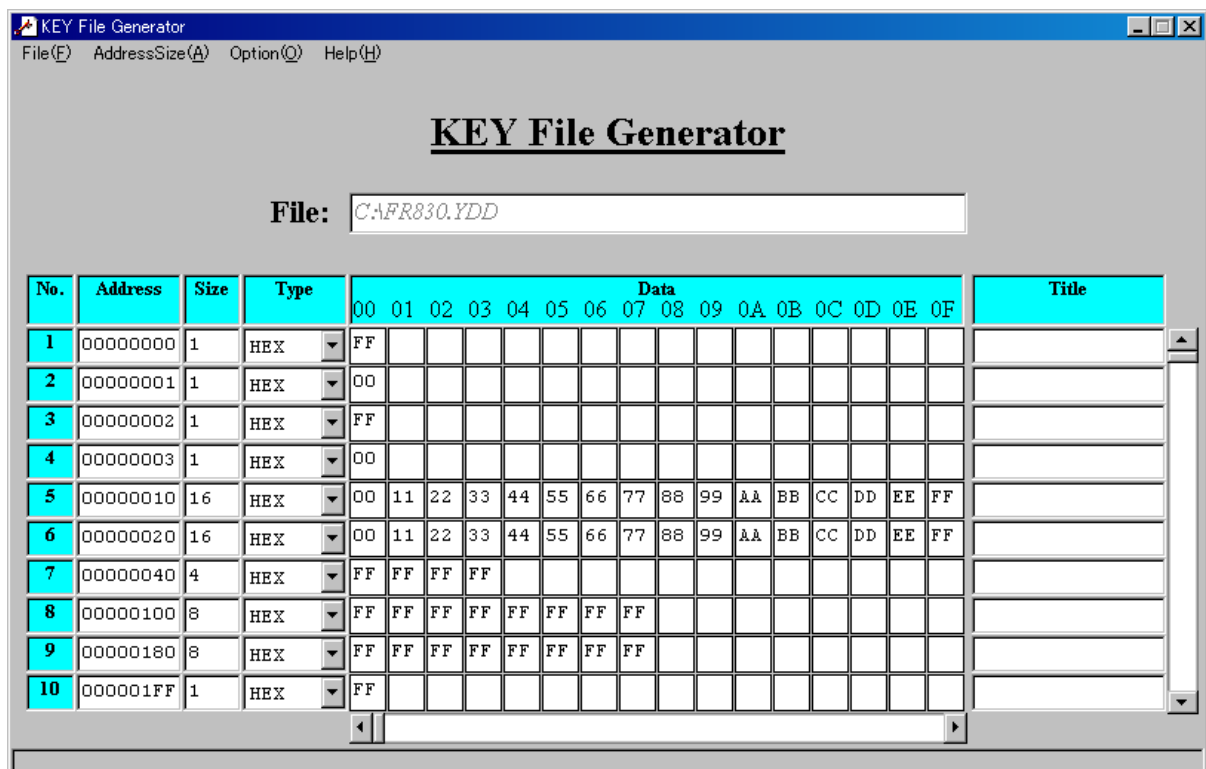
Example to create a configuration file by using AZ481.

4.2.1. Setting Up Serial Programming Operation Mode

Required

Set the operation mode of serial programming for the next operation.

Address	: Fixed to #00000000
Size	: Fixed to 1
Data	: 00h ID authentication mode
	: FFh command protection mode

・ID Authentication Mode

Set the data described in section 4.2.6. "Set Up the Serial Programming ID for Setting" as ID for serial programing, OCD, test, and self-programming. ID authentication mode is activated from next operation after you reset microcomputer.

・Command Protection Mode

Command protection mode is activated from next time operation after you reset microcomputer.

4.2.2. Setting Up OCD ID

(You do not need to make this setting if you do not use OCD ID.)

When you use the ID for OCD, test, and self-programming, set the following values.

Address	: Fixed to #00000001
Size	: Fixed to 1
Data	: 00h

・When you set the above values, the data mentioned in section 4.2.6 "Set Up the Serial Programming ID for Setting" is set for the ID for OCD, test, and self-programing.

  *When Data is not 00h, the error is output, and the device function is stopped.
  * Regardless above setting, when you place the serial programming operation mode in ID authentication, the serial programming ID which is required to set the microcomputer in ID authentication mode are automatically allocated to OCD, test, and self-programming.

4.2.3. Security Setting

You do not need set up this for ID authentication mode.

The following is the setting value to set security.

Address	: Fixed to #00000002
Size	: Fixed to 1
Data	: See the table 4.2.1 "Security Setting Value"

4.2.1. Security Setting Value

Item		
bit7	Read inhibition flag ("1" permit, "0" inhibit")	*2
Bit6	Program inhibition flag ("1" permit, "0" inhibit")	*2, 3
Bit5	Erase inhibition flag ("1" permit, "0" inhibit")	*2, 4
Bit4-0	Fixed to "1"	*1

* Set these items when command protection mode described in the section 4.2.1. "Setting Up Serial Programming Operation Mode" is selected and the security is enabled at [FUNC D4].

*1: If "0" is set, file format error occurs.

*2: When you disable the security setting at [FUNC D4] and set "inhibit" to the setting shown in the above table, an error is output then the device function is stopped.

*3: When programming inhibition is set, the programmer cannot erase the flash memory in a partial area.

*4: Please be aware that the flash programmer is impossible to program the flash memory when you set erase inhibition.

4.2.4. Serial Programming Inhibition Setting
(Not required this setting when you do not use serial programming inhibition.)
To inhibit serial programming, set the items as the following.

Address   : fixed to #00000003
Size   : Fixed to 1
Data   : 00h serial programming inhibited

*When Data is not 00h, the error is output, and the device function is stopped.
*Serial programming inhibition is executed when most significant bit of the parameter "#C0" is "1".
* Please note that when you set serial programming inhibition setting, the flash programmer becomes impossible to program flash memory.

4.2.5. Setting Up Serial Programming ID for Authentication
(This setting can be omitted by condition.)
This is serial programming ID for authentication when microcomputer is placed in ID authentication mode.

Address   : Fixed to #00000010
Size   : Fixed to 16
Data   : ID for authentication

* You do not need to set up this when microcomputer is placed in command protection mode.

* When the microcomputer is currently placed in ID authentication mode, this setting is required
   even if you want to set the serial programming operation mode to command protection mode,

4.2.6. Set Up the Serial Programming ID for Setting
(Not required this setting when you do not use serial programming ID.)
This is serial programming ID for setting to place microcomputer in ID authentication mode.

Address   : Fixed to #00000020
Size   : Fixed to 16
Data   : ID for setting

  * This ID is applied for the ID for OCD, test, and self-programming.
  * When microcomputer has been placed in ID authentication mode, and you want to use the
     same ID, set the same value as authentication ID.

4.2.7. Set Up Option Byte
(Not required this setting when you do not use option byte.)
The following is the setting value to set option byte.

Address   : Fixed to #00000040
Size   : 4~32
Data   : Option byte setting value

  * Above is set when you enable option byte setting with FUNC-D4.
  * For the setting value of option byte, please refer the hardware manual for the microcomputer.
  * Set option byte in little-endian format in a unit of option byte register (32 bit). When there is
     more than one register and those addresses are apart from each other, describe the
     sequential address data from the start option byte register. For undefined address data, use
     FFFFFFFFh. Make sure to describe whole option byte registers in one line.

Option Byte Setting Example

　　OPBT0: 0xFFCD0030

　　OPBT2: 0xFFCD0038

　　* 0xFFCD0034 is undefined.

　　The following figure shows the configuration of AZ481 (KEY file generator).
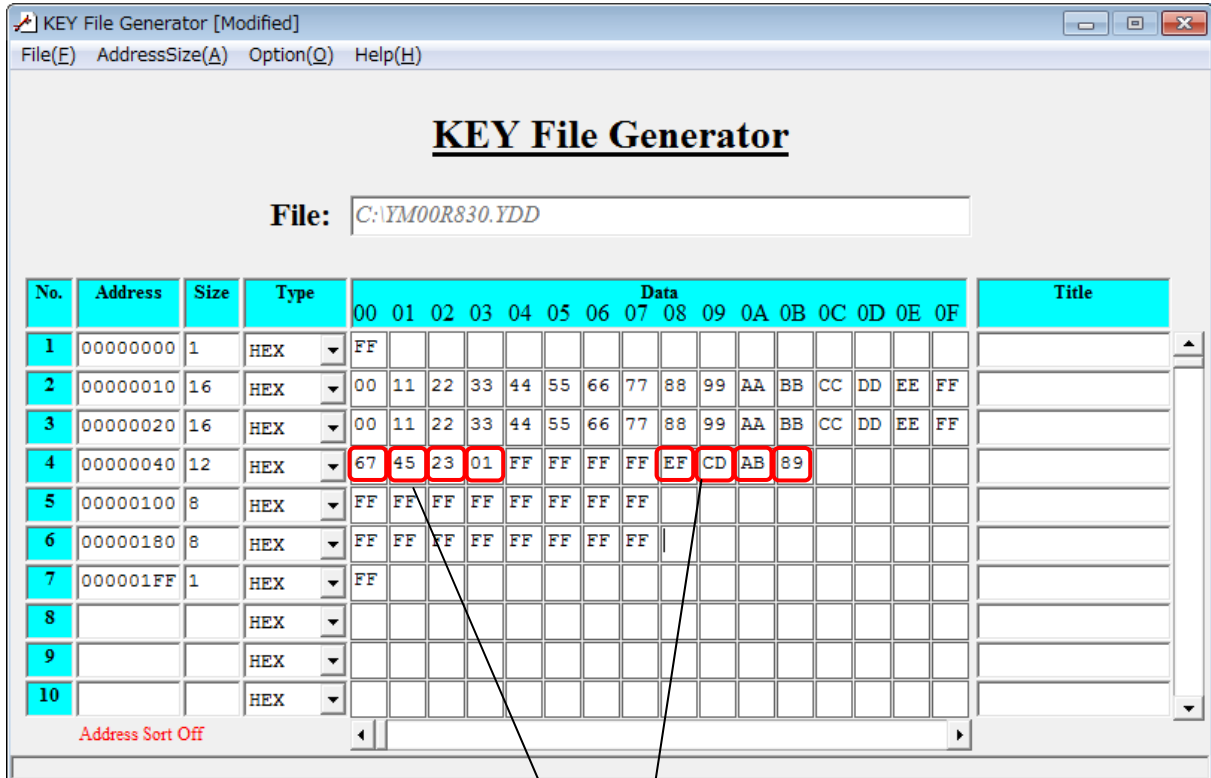
BIT31-24	BIT23-16	BIT15-8	BIT7-0
0x01	0x23	0x45	0x67

(Target) OBPT0 – Option byte 0 register

BIT31-24	BIT23-16	BIT15-8	BIT7-0
0x89	0xAB	0xCD	0xEF

(Target) OBPT2 – Option byte 2 register

4.2.8. Setting Up CodeFlash1　LockBit/OTP

(You do not need to make this setting if you do not use LockBit or OTP i.e. One Time Programing for CodeFlash1.)

The following is the setting value when you set LockBit or OTP for CodeFlash1. (Up to 65 byte)

Address　　　　　　　: Fixed to #00000100

Size　　　　　　　　: 1~65

Data　　　　　　　　: Enter "0" to the bit for the block which you want to set LockBit or OTP. Other than that, enter "1".

　　　　　　　　　　　 For how to set, see the table 4.2.2. LockBit Setting Value.

　* Invalidity, LockBit setting or OTP setting is selected depends on the setting of parameter. For how to set parameter, see Chapter 5 "LockBit/OTP function".

4.2.9. Setting Up CodeFlash2　LockBit/OTP

(You do not need to make this setting if you do not use LockBit or OTP i.e. One Time Programing for CodeFlash2.)

The following is the setting value when you set LockBit or OTP for CodeFlash for CodeFlash2. (Up to 32 byte)

Address　　　　　　　: Fixed to #00000180

Size　　　　　　　　: 1~32

Data　　　　　　　　: Enter "0" to the bit for the block which you want to set LockBit or OTP. Other than that, enter "1".

　　　　　　　　　　　 For how to set, see the table 4.2.2. LockBit Setting Value.

　* Invalidity, LockBit setting or OTP setting is selected depends on the setting of parameter. For how to set parameter, see Chapter 5 "LockBit/OTP function".

4.2.10. Setting Up UserBootArea LockBit/OTP

(You do not need to make this setting if you do not use LockBit or OTP i.e. One Time Programing for User Boot Area.)

The following is the setting value when you set LockBit or OTP for User Boot Area.

Address   : Fixed to #000001FF

Size   : Fixed to 1

Data   : Enter "0" to the bit for the block which you want to set LockBit or OTP. Other
                   than that, enter "1".
                   For how to set, see the table 4.2.2. LockBit Setting Value.

   * Invalidity, LockBit setting or OTP setting is selected depends on the setting of parameter. For
     how to set parameter, see Chapter 5 "LockBit/OTP function".
   * The block for User Boot Area is BITO.

Table 4.2.2. LockBit Setting Value

	BIT7	BIT6	BIT5	BIT4	BIT3	BIT2	BIT1	BIT0
1st byte	BLOCK 7	BLOCK 6	BLOCK 5	BLOCK 4	BLOCK 3	BLOCK 2	BLOCK 1	BLOCK 0
2nd byte	BLOCK 15	BLOCK 14	BLOCK 13	BLOCK 12	BLOCK 11	BLOCK 10	BLOCK 9	BLOCK 8
3rd byte	BLOCK 23	BLOCK 22	BLOCK 21	BLOCK 20	BLOCK 19	BLOCK 18	BLOCK 17	BLOCK 16

.   .
.   .
.   .

   * Maximum number of blocks varies depending on microcomputer.
     Enter "0" to the bit for the block which you want to set . Other than that, enter "1".
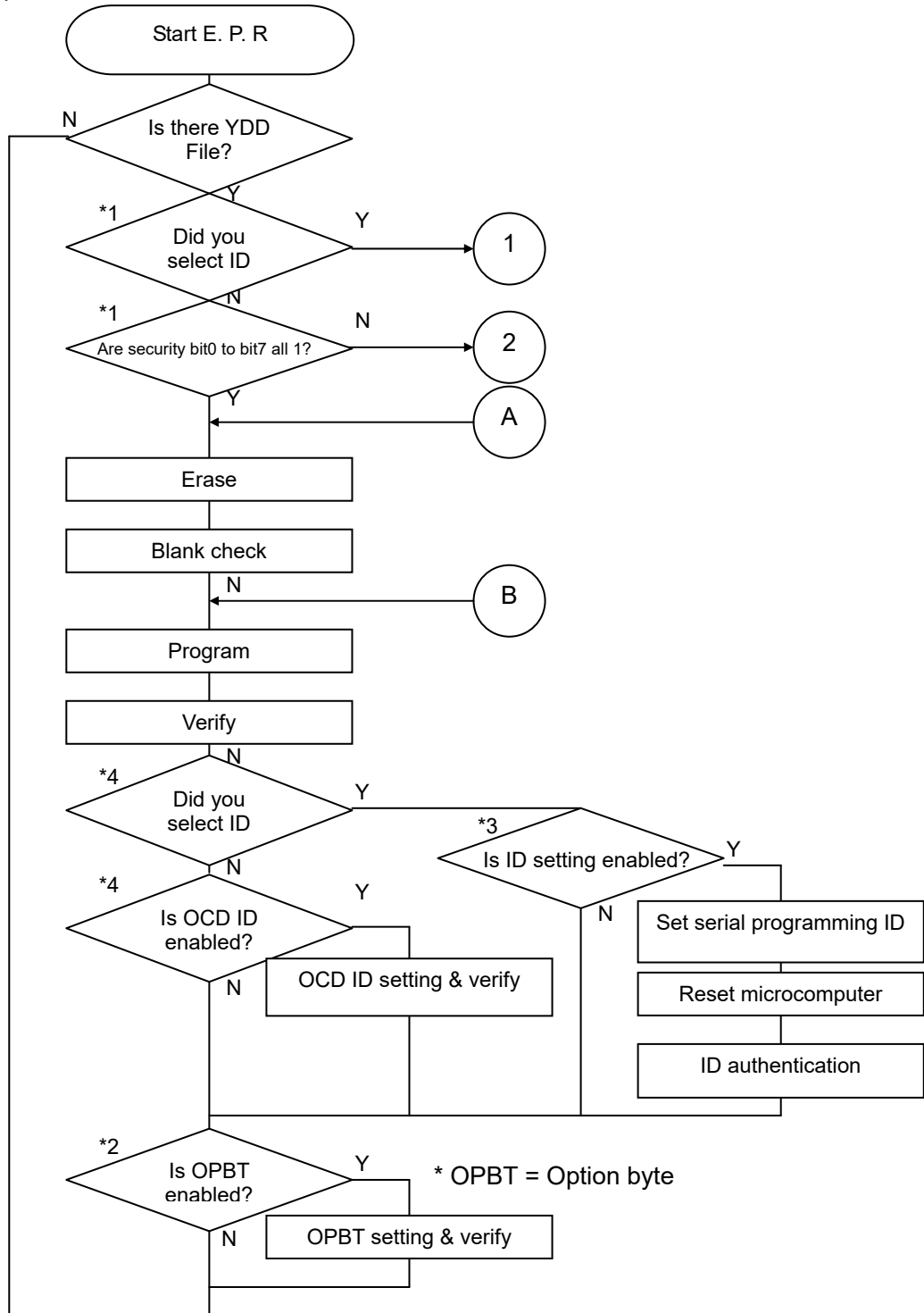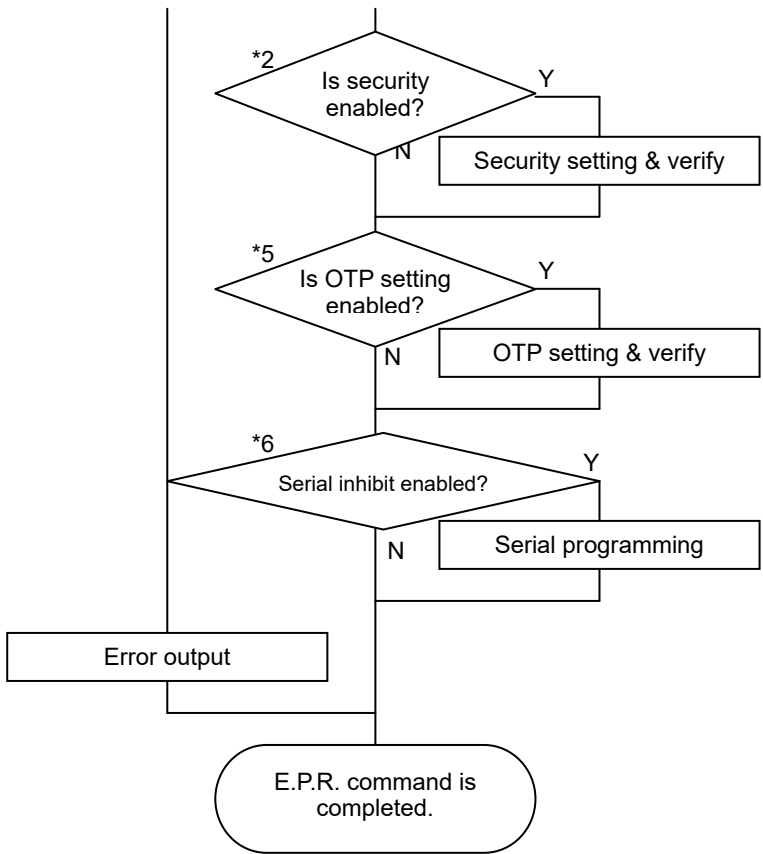   * Set in a unit of 8-bit (1byte).
     (Enter "1" when there are fractions smaller than 8-bit.)

4.3. Setting Process Flow

When you execute the Device Function E. P. R, this function is enabled according to the setting information of YDD file.

When an error occurs in each process, NETIMPRESS stops the process, outputs the error, and ends the process.

```
                  *2
                    Is security          Y
                    enabled?  ───────────┐
                        │ N         ┌──────────────────────┐
                        │           │ Security setting & verify │
                        │           └──────────────────────┘
                        │◄──────────────────────┘
                  *5
                    Is OTP setting      Y
                    enabled?  ───────────┐
                        │ N         ┌──────────────────────┐
                        │           │ OTP setting & verify │
                        │           └──────────────────────┘
                        │◄──────────────────────┘
                  *6
                    Serial inhibit enabled?  Y
                        │ N         ┌──────────────────────┐
                        │           │ Serial programming   │
                        │           └──────────────────────┘
                        │◄──────────────────────┘
  ┌──────────────┐      │
  │ Error output │      │
  └──────────────┘      │
        │               │
        └───────────────┤
                  ┌──────────────────┐
                  │ E.P.R. command is │
                  │   completed.      │
                  └──────────────────┘
```

Configuration clear is executed when the condition of microcomputer before executing the device function is in command protection mode with any inhibition setting. It is also executed when the microcomputer is in ID authentication mode and YDD file operation setting is command protection mode.

Configuration clear is the function that is available when the whole area of the flash memory has been erased. Therefore, when the device function execution area (FUNC 0) is not set to whole area, NETIMPRESS outputs an error and ends the device function.

```
        (2)                                    (1)
         |                                      |
         |                          ┌───────────────────────┐
         |                          │   ID authentication    │
         |                          └───────────────────────┘
         |                                      |
         |                            N   *4    ◇ Did you select
         |              ◄─────────────────────── ID
         |                                      |
    N    ◇ Is the whole                         Y
 ◄───────  area set?                            |
 |         |                                    |
 |         Y                                     |
 |   ┌──────────────┐                           |
 |   │    Erase     │                           |
 |   └──────────────┘                           |
 |         |                                    |
 |   ┌──────────────────┐                       |
 |   │ Configuration    │                       |
 |   │ clear            │                       |
 |   └──────────────────┘                       |
 |         |                                    |
 |   ┌──────────────────┐                       |
 |   │ Reset            │                       |
 |   │ microcomputer    │                       |
 |   └──────────────────┘                       |
 |         |                                    |
 |   ┌──────────────┐                           |
 |   │ Blank check  │                           |
 |   └──────────────┘                           |
 |         |                                    |
┌──────────────┐  ┌──────────────────┐          |
│ Error output │  │ Blank check in   │          |
└──────────────┘  │ configuration    │          |
      |           │ area             │          |
      |           └──────────────────┘          |
 (E.P.R. command is)    |                       |
                       (B)                     (A)
```
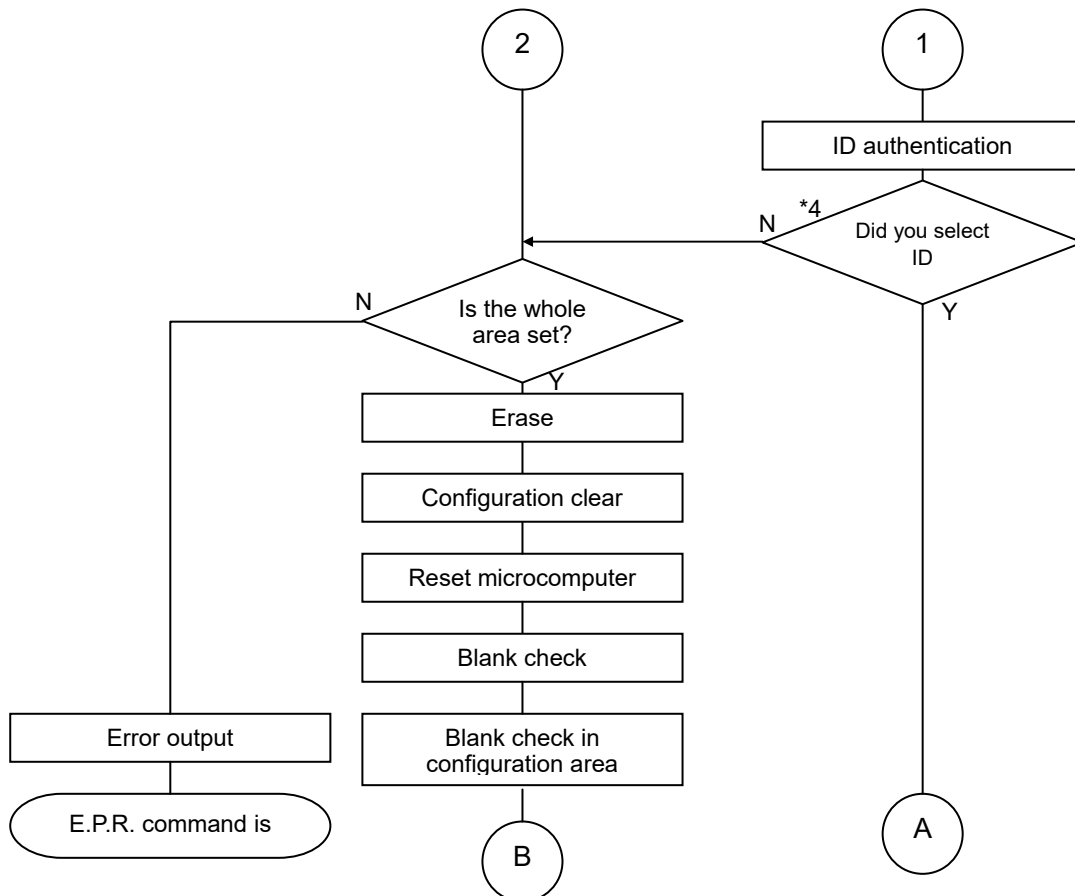
*1 The state of microcomputer before executing the device function.

*2 The settings in YDD file and FUNC D4 (see table 4.3.1 "Operation Mode").

*3 ID setting is enabled when; (1) the setting values for YDD file and current microcomputer is different, (2) the status of microcomputer is in command protection mode, or (3) configuration clear is executes.

*4 Setting of YDD file.

*5 Settings of YDD file and parameter (see Chapter 5 "LockBit/OTP Function).

*6 Serial programming inhibition setting and parameter setting for YDD file.

Table 4.3.1. Operation Mode [FUNC D4]

LCD Display for NET IMPRESS	Mode			
	St'd (default)	Opt.0	Opt.1	Opt.2
Setting Value on Remote Controller	0000	0001	0010	0011
Security Setting	Disable	Enable	Disable	Enable
Option Byte Setting	Disable	Disable	Enable	Enable

4.4. Notes and Points for Using YDD File

(1) Target area when setting ID authentication mode and security
In the following cases, if the target area of the device function is a part of flash, an error occurs.

・Operation mode setting
When current status of microcomputer is in ID authentication mode, and you select command protection mode in YDD setting.

・Security setting
When current status of microcomputer is in any inhibition setting.

(2) Limitations after setting OTP
If any of the blocks is set OTP, please note that it makes impossible to set operation mode, change security setting or clear LockBit.
Also, you cannot set LockBit to the block that is set OTP.

(3) Limitation after setting serial programming inhibition
Please note that when you set serial programming inhibition setting, the flash programmer becomes impossible to program flash memory.

(4) The information you set at YDD file is set to the configuration area. All value of configuration area will be "0xFF" by executing configuration clear. Please note that those setting values may vary from the factory default setting values of the microcomputer.

5. LockBit/OTP Function

5.1. Overview

FR830 has the feature to enable LockBit function and OTP function for microcomputer during programming. (This feature is available when the microcomputer has LockBit function or OTP function.)

After programming, FR830 enables LockBit function or OTP function by following LockBit/OTP operation mode setting. (Setting data is necessary for YDD file.)

For details of LockBit function and OTP function, see the hardware manual for the microcomputer.

5.2. Setup LockBit/OTP Setting Mode

You can set up OTP and LockBit when EPR is executed.

Select LockBit/OTP setting mode with [FUNC 80].

There are three types of LockBit/OTP setting mode as shown below.

NO SET : Disable LockBit/OTP setting (default)

LockBit : Enable LockBit Setting

OTP : Enable OTP Setting

[NETIMPRESS Operation]   **[NETIMPRESS Display]**

Key Operations   LCD Display (Whole)

| FUNC | 8 | 0 |

LockBit/OTP Setting Mode

F	R	8	3	0											
				/	x	x	x	x		/					
F	8	0	/	L	o	c	k	B	i	t		M	O	D	E
N	O		S	E	T										

4th line

| ▲ | ▼ |

Select Setting Mode

4th line

4th line

| N | O | | S | E | T | | | | | | | | | | |

4th line

| L | o | c | k | B | i | t | | | | | | | | | |

| O | T | P | | | | | | | | | | | | | |

(Setting operation mode will change by pressing ▲ or ▼.)

| SET | FUNC | SET |

Set the Setting of Setting Mode

* You can set the setting mode by using AZ490 (Remote Controller).

For how to set with it, please contact our Support Center.

6. Object File Programming Function

6.1. Overview

NET IMPRESS has virtual memory for the target microcomputer in the control module folder.

Usually NET IMPRESS downloads the data to be programmed to the buffer memory inside the control module in object file download function, and programs the contents of the buffer memory to the target microcomputer following program range setting.

The buffer memory data is programmed into microcomputer without any changes, therefore, the data without the address in the object file is also programmed. (Normal Mode)

This control module has the function to program only the address which object file data is existed. (Object File Programming Mode)

The smallest unit of programming into microcomputer for Code Flash1/2 or User Boot Flash is 256 byte. For Data Flash is 16 byte. You cannot omit to program smaller than the units.

6.2. Setting Object File Programming Function

When you use the object file programming function with FR830, change the parameter setting by following steps below.

How to set:

The following window is displayed when you select Parameter Table2 tab. Enter "AF200" and then click the OK button.   (The password which you entered is masked with "*").

(1) Enable the object file programming function.

Set to enable/disable the function with the value for #60C on [Parameter Table2].

The value for #60C must be

   80: Normal Mode   or

   C0: Object File Programming Mode

Make sure not to set the value other than these.

(2) Set the target area of the object file programming mode.

　　You can select Code Flash1/2, User Boot Flash, and Data Flash for target area.

　　Set the target area with the value for #60D on [Parameter Table2].

　　To set the value and behavior of the bit location for #60D, follow the table below.

Bit Location	Setting Value	Behavior
Bit0	0	Normal program into Code Flash 1
	1	Object file program into Code Flash 1
Bit1	0	Normal program into User Boot Flash
	1	Object file program into User Boot Flash
Bit2	0	Normal program into Data Flash
	1	Object file program into Data Flash
Bit3	0	Normal program into Code Flash 2
	1	Object file program into Code Flash 2

　　For example, when you make target only Data Flash as object programming, set #60D to 04.

(3) Be sure to click the OK button before moving to other tabs so that you can make the changes of above (1) – (2) valid.

　　If you do not click the OK button, the changes will not be sent to the Control Module.

(4) Download an object file by using the object download function of NET IMPRESS.
Initialize the buffer memory before you download an object file (See the section 6.3.
"Restrictions"). When you use the remote soft, use [Load Object Data] function.
(Make sure not to use [Copy File] function. When you copy an object file once into the control
module folder with [Copy File], execute object file download with [FUNC F1].
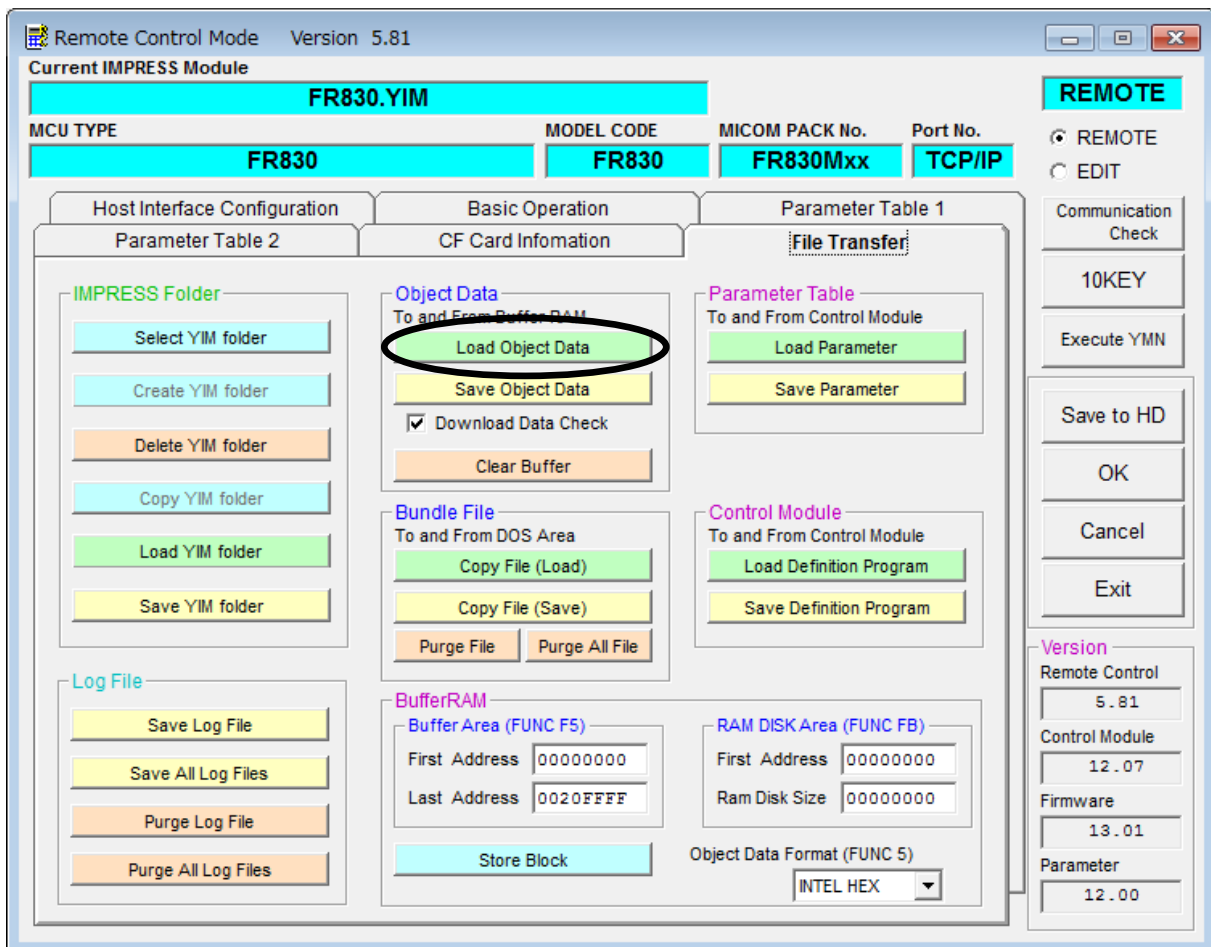
(5) Execute E. P. R function to program flash memory.
The available functions for object file programming function are E. P. R, PROGRAM, and
READ.
Regarding ERASE, BLANK, and COPY, the function is common with normal operation.
When you continuously program to other chip, you do not need to set (1) to (4) again.
Please note that an error occurs if you try to program after executing COPY because there is
no target object file in the selected YIM folder.

6.3. Restrictions

(1) Programming unit

The address for Code Flash1/2 and User Boot Flash is programmed in unit of 256 Byte from 256 Byte boundaries. The address for Data Flash is programmed in unit of 16 Byte from 16 Byte boundaries.

Data in the buffer memory are programmed in about the short part of 256Byte or 16Byte by the data setting of the object file.

Make sure to initialize the buffer memory before downloading the object file.

To initialize the buffer memory, execute buffer clear [FUNC 2].

When you embed specified data other than 0xFF in the part smaller than the boundary of each programming unit, use the block store function [FUNC1] after buffer clear.

(2) Verify mode

Regardless of verify mode setting [FUNC 99], FULL read verify is executed on the area set against the target of object file programming.

The address to be verified is only the address executed programming.

When executing FULL verify of the object file programming mode setting area, the programmer reads the data programmed from the microcomputer and compare it with the buffer memory value.

An error occurs when you set read inhibition at security setting.

(3) When loading object files repeatedly

When you load object files repeatedly after buffer clear, the loaded data is effective until next buffer clear or copy is executed (while current file name is registered). However, when you download the files in the same address, the data loaded at last is effective in the address.
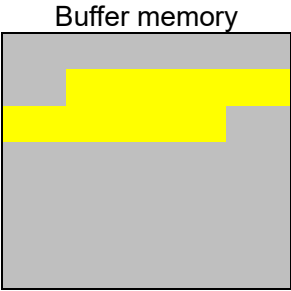
Object File Programming Example
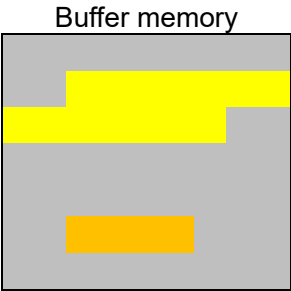 1. Execute buffer clear [FUNC D2]

Buffer memory

The buffer memory will be all 0xFF, and current file name is cleared.
When you embed 0xFF specified data in the part smaller than the boundary of programming
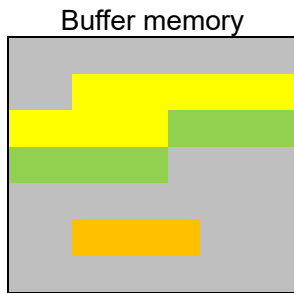unit, use the block store function [FUNC1].

  2. Download object file 1

Buffer memory

The data in object file 1 [ ] is load to the buffer memory.

  3. Download object file 2

Buffer memory

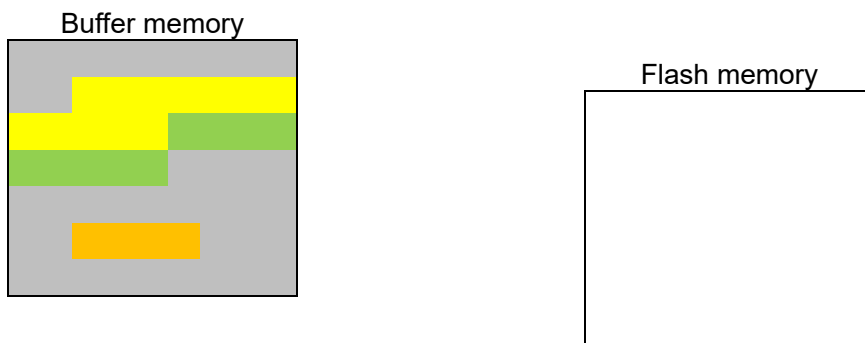The data in object file 2 [ ] is load to the buffer memory.

4. Download object file 3

Buffer memory

The data in object file 3 ▢ is load to the buffer memory.
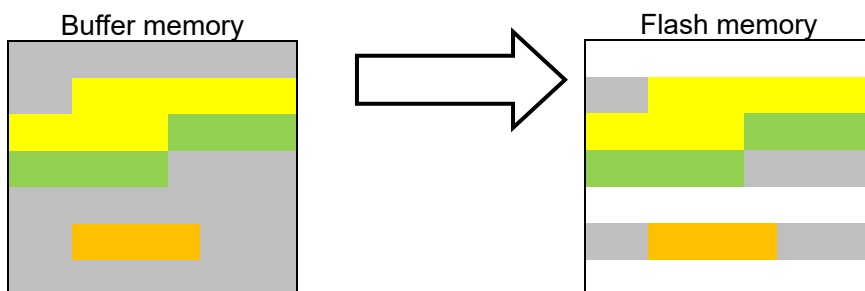When there are data with the same address, the data loaded later is effective.

5. Execute program
   Erase

Buffer memory

Flash memory

The flash memory contents have been erased.

   Program

Buffer memory

Flash memory

The data of the loaded object file ▢▢▢ are programmed in the flash memory.
For the data in the area smaller than ▢ (buffer memory value) is programmed.
the programming unit
For the part where the programming is not executed, remain it has been erased.

7. Option Byte Reading Function

7.1.　Overview

　FR830 has the function to read and save the option byte of the microcomputer during programming.
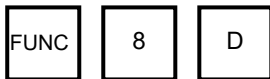
　You can specify the original format or S record format to save the option byte.

7.2. How to Read or Save Option Byte

　To execute the functions, connect NET IMPRESS with the target same as when executing the device function and follow the steps below.

[NETIMPRESS Operation]

　　Key Operations

| FUNC | 8 | D |

Execute option byte reading command

| ▲ | ▼ |

Select the format of saving

[NETIMPRESS Display]

LCD Display (Whole)

```
F R 8 3 0
        / x x x x     /
F 8 D / O P T I O N   B Y T E
  S A V E             T E X T
```

4th line
```
  S A V E             T E X T
```
Saving format is the original.

4th line
```
  S A V E       S - R E C O R D
```
Saving format is S record.

4th line
```
  S A V E             N O N E
```
Do not save (displays on LCD).

(Format will change by pressing ▲ or ▼.)

| SET | FUNC | SET |

Execute option byte reading

　PASS is displayed when the reading and saving is completed.

```
F R 8 3 0
        / x x x x   /
  P A S S   P /
            R /
```

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When you select "Do not save (displays on LCD)", PASS is not displayed and the view is switched to the following screen.

Option byte is displayed in the order of "register name" and "read value (in hexadecimal) in the 4th line.

F	R	8	3	0												
					/	x	x	x	x		/					
F	8	D	/	O	P	T	I	O	N		B	Y	T	E		
O	P	B	T	0		0	x	7	F	9	F	F	F	C	F	

▲ ▼

Select option byte register number.

4th line

O	P	B	T	n		0	x	X	X	X	X	X	X	X	X

（n＝0～7）

Register number will be change by pressing ▲ or ▼.

* Option byte reading is fixed to 32 byte (32 bit x 8 register).
  Therefore the register data not existed at the microcomputer is also shown in the line.

7.3. Option Byte Saving Format

The name for the option byte saving file is fixed to "YOPTDAT.TXT", and it is saved into YIM folder.

If "YOPTDAT.TXT" file has been existed in YIM folder already, the old file is deleted once when option byte reading function is executed. Then a new file is created in specified format by the user. (When you select "Do not save (displays on LCD)", only the file is deleted, and a new file is not created.)

* Option byte reading is fixed to 32 byte (32 bit x 8 register).
  Therefore the register data not existed at the microcomputer is also saved.

(1) When selecting the original format

Each option byte register name and setting value are saved with ASCII string on every line.

Register name and setting value (hexadecimal)

Output example:

OPBT0 0x7F9FFFCF

OPBT1 0xFFFFC9F8

OPBT2 0xBFFFFFFC

OPBT3 0x7FFFFFFF

Above option byte register names and setting values will be output as follows.

```
OPBT0 0x7F9FFFCF
OPBT1 0xFFFFC9F8
OPBT2 0xBFFFFFFC
OPBT3 0x7FFFFFFF
OPBT4 0xFFFFFFFF
OPBT5 0xFFFFFFFF
OPBT6 0xFFFFFFFF
OPBT7 0xFFFFFFFF
```

(2) When selecting S record format

Output is the same as in the YDD file format.

Address	: Fixed to #00000040
Size	: Fixed to 32 byte
Data	: Option byte set value

Output example:

OPBT0 0x7F9FFFCF

OPBT1 0xFFFFC9F8

OPBT2 0xBFFFFFFC

OPBT3 0x7FFFFFFF

Above option byte register names and setting values will be output as follows.

```
S32500000040CFFF9F7FF8C9FFFFCFFFFBFFFFFFF7FFFFFFFFFFFFFFFFFFF
FFFFFFFFFFFFFFFFCA
```

8. Error Messages

Special error messages are output during executing the device function to the wrong signal line connection or parameter setting.

For the error messages other than described in this chapter, please refer to NETIMPRESS next Instruction Manual.

8.1 List of Error Messages

Table 8.1. List of Error Messages Specific to FR830

Error Message		Causes & Measures
1120 YDD FILE NOT FOUND	Cause	There is no YDD file, or there is more than one YDD files are placed.
	Measure	Check if YDD file is placed correctly. For YDD file, see Chapter 4.
1121 YDD FILE OPEN ERROR	Cause	Failed to open YDD file.
	Measure	Check if YDD file is placed correctly. For YDD file, see Chapter 4.
1122 YDD FILE FORMAT ERROR	Cause	There is a problem in YDD file setting value.
	Measure	Check the contents of YDD file. For YDD file, see Chapter 4.
1123 WARNNING SECURITY SETTING	Cause	In the operation mode with invalid security setting, any of the security setting value of YDD file is set to inhibit.
	Measure	Turn on the operation mode with valid security setting or change the security setting value of YDD file. For YDD file, see Chapter 4.
1124 S ID NOMATCH ERR	Cause	Serial programming ID set to the device and the serial programming ID in YDD file for authentication are different.
	Measure	Check the contents of YDD file. For YDD file, see Chapter 4.
1125 SIG NOMATCH ERR	Cause	Signature is not correct.
	Measure	Check if the parameter file is for the target microcomputer.
1126 NO SID ERR	Cause	Serial programming ID for authentication is not set to YDD file.
	Measure	Check the contents of YDD file. For YDD file, see Chapter 4.

Error Message		Causes & Measures
1127 PROTECT ERR	Cause	The operation is executed under the following security condition of the device. (1) Erasing or programing is executed when erase inhibition is set to the device. (2) Erasing or programming is executed to the partial area when erase inhibition is set to the device. (3) Reading is executed when read inhibition is set to the device.
	Measure	(1) You cannot program the flash memory with the flash programmer. (2) Program after Erasing whole area. (3) Program after setting to permit the security setting of YDD file. For YDD file, see Chapter 4.
1128 NO ALL AREA ERR	Cause	The area of executing the device function is not whole area when executing E. P. R. in the following conditions. (1) Any of the security setting is set to inhibit when the device is in command protection mode. (2) The serial programming ID for the device and the serial programming ID for YDD file setting are different when the device is in ID authentication mode. (3) YDD file serial programming operation mode setting is in command protection mode when the device is in ID authentication mode.
	Measure	Refer to any of the following or set the area to execute the device functions to the whole area. (1) You cannot execute E・P・R command in the partial area. (2) Set the serial programming ID for YDD file setting same as the serial programming ID for the device. (3) Set YDD file serial programming operation mode setting to ID authentication mode.
1129 NO SET ID ERR	Cause	Serial programming ID for setting is not set to YDD file.
	Measure	Check the contents of YDD file. For YDD file, see Chapter 4.
112A NO SEC DATA ERR	Cause	Security setting is not set to YDD file.
	Measure	Check the contents of YDD file. For YDD file, see Chapter 4.
112B NO OPT DATA ERR	Cause	Option byte setting is not set to YDD file.
	Measure	Check the contents of YDD file. For YDD file, see Chapter 4.
112C FREQ SETTING ERR	Cause	The frequency is out of the operation range.
	Measure	Check the input frequency, multiplication, and clock division. For how to set, see the section 2.2.4.

Error Message	Causes & Measures	
112D UART BAUDRATE SETTING ERR	Cause	You cannot use the specified baud rate.
	Measure	Change the baud rate setting.
112E UNSUPPORTED BAUD RATE	Cause	Programmed with the programmer that does not support UART communication baud rate higher than 1000000bps.
	Corrective action	UART communication baud rate higher than 1000000bps can be used with only NETIMPRESS next. Change the communication baud rate.
112F UNSUPPORTED BAUD RATE	Cause	Programmed with NETIMPRESS next that does not support UART communication baud rate higher than 1000000bps. The version of NETIMPRESS next may be old.
	Corrective action	Please contact our Support Center.
113E OBJECT FILE NOT DOWNLOAD	Cause	Object file is not downloaded in object file programming mode.
	Measure	Download the object file.

9. Adapting to Derivative Microcomputers

Modifying Parameters

9.1. Minor Parameter Modification through the Keyboard of NET IMPRESS

For the parameters that are defined by the function commands (FUNCTION D1 to FUNCTION DF) as described in the Section 5.4 "Parameters Settings" of the NETIMPRESS next Instruction Manual, you can modify them through the keyboard of NETIMPRESS.

Parameters for communication interface with the target system, voltage of the target system, etc., for example, are the ones you can modify through the keyboard of NETIMPRESS.

Note:

You cannot modify wide-ranging parameters and settings of the target microcomputer such as ROM block configuration (FUNCTION D6) through the keyboard of NETIMPRESS. (Use the remote controller AZ490.)

Also, the parameter list of actual microcomputers is available at our Web site in some cases.

For more information, contact us or your local distributor.

9.2. Modifying Parameters for Target Microcomputer using the Remote Controller

We provide the remote controller software (AZ490) for controlling NETIMPRESS remotely from a PC. The remote controller can be downloaded from our home page. This remote controller has the function to set up and confirm parameters besides the remote control capability.

With the remote controller, you can set up and modify parameters including the following.

(1) MCU Type: Name of a target microcomputer
                       The name of a microcomputer displayed on the LCD of NETIMPRESS
                       can be customized.
(2) Flash ROM Area: Flash memory area of a target microcomputer
(3) ROM Block: Flash memory block alignment can be set up with address and size for
                       each ROM group, enabling you to use the Control Module with
                       derivative microcomputers.
(4) MCU Clock: MCU clock frequency can be set up.
(5) Communication Interface: A communication interface with a target system can be setup.
(6) Other: Microcomputer-specific information

9.3. How to Modify Parameters Using Remote Controller Software (AZ490)

ETHERNET

NET IMPRESS

PC
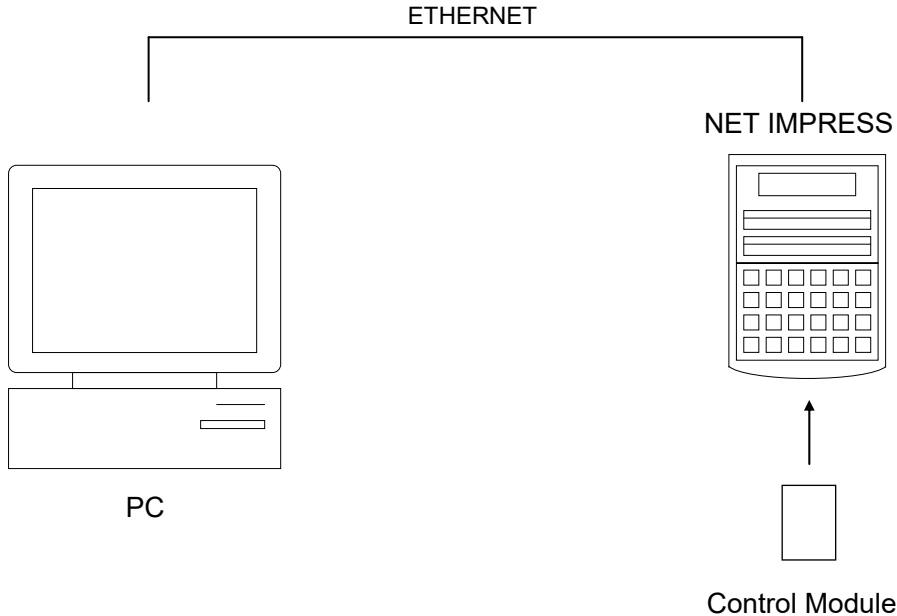
Control Module

Connect a PC (IBM-PC) and NET IMPRESS using ETHERNET cable.

Insert the Control Module supporting the target microcomputer into NETIMPRESS' card slot.

By running the Remote Controller on a PC in the Windows environment, you can modify or check parameter tables of the Control Module inserted in NET IMPRESS.

With the Remote Controller AZ490, you can load and save all parameters.

By saving parameter information generated with the Remote Controller in a PC, you can easily modify parameter tables for various derivative microcomputers of the same family.

Also, using this function, you can easily load the Micom Pack, which you download from our Web site, into the Control Module.

10. Managing YIM Folder

10.1. Setup and Change by YIM folder

Our programmer is designed to manage write control program (BTP file) in YIM folder inside the CF card.

Therefore, even for the microcomputer that has different series of programming specification, quick setup and changes are realized by using YIM folder select function of the remote controller without changing CF card.

To use this function, load the definition file or file to be used for each programming in YIM folder in advance.
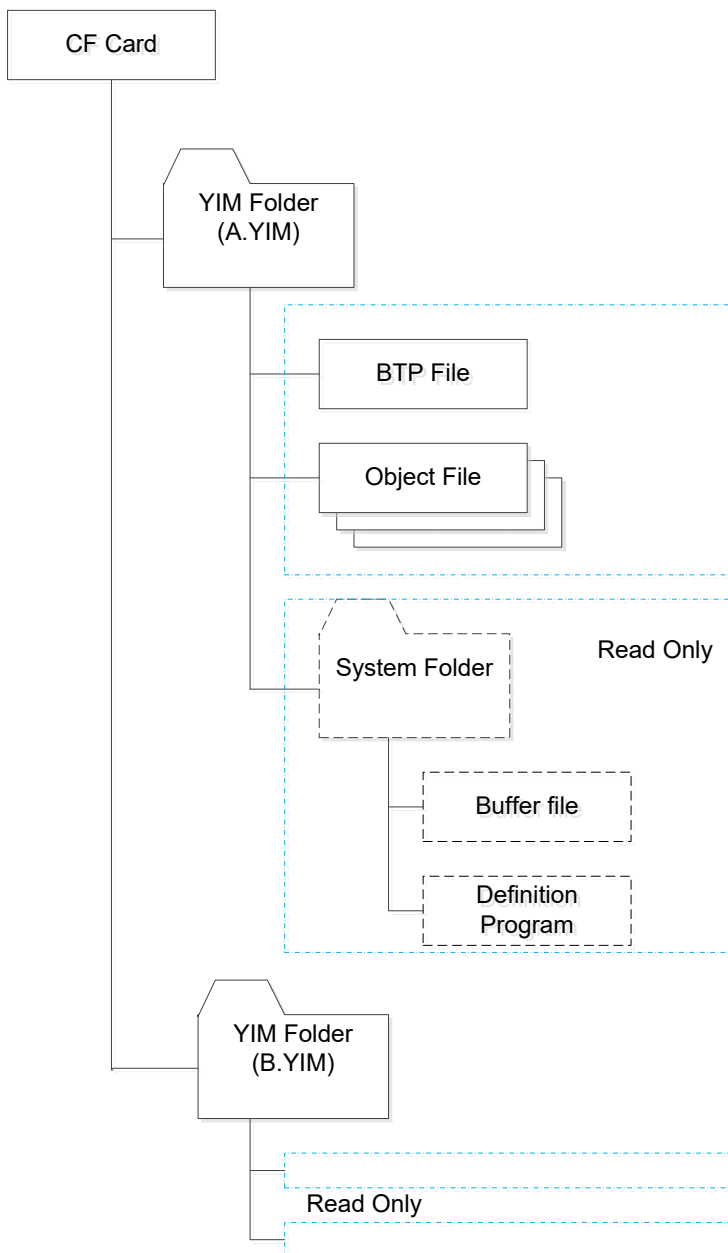
10.2. How to Replace Definition Program

By setting the CF card added with a definition program license into NET IMPRESS, you can replace the definition program of the Control Module using the definition program download function of the Remote Controller AZ490 (Control Module Load Definition Program button on the File Transfer tab). (Note that you cannot use this function if you are using NETIMPRESS as stand-alone.)

When you purchase the definition program license, download the definition program file ("xxx.CM"), which is in the CD provided with the definition program license, into YIM folder.
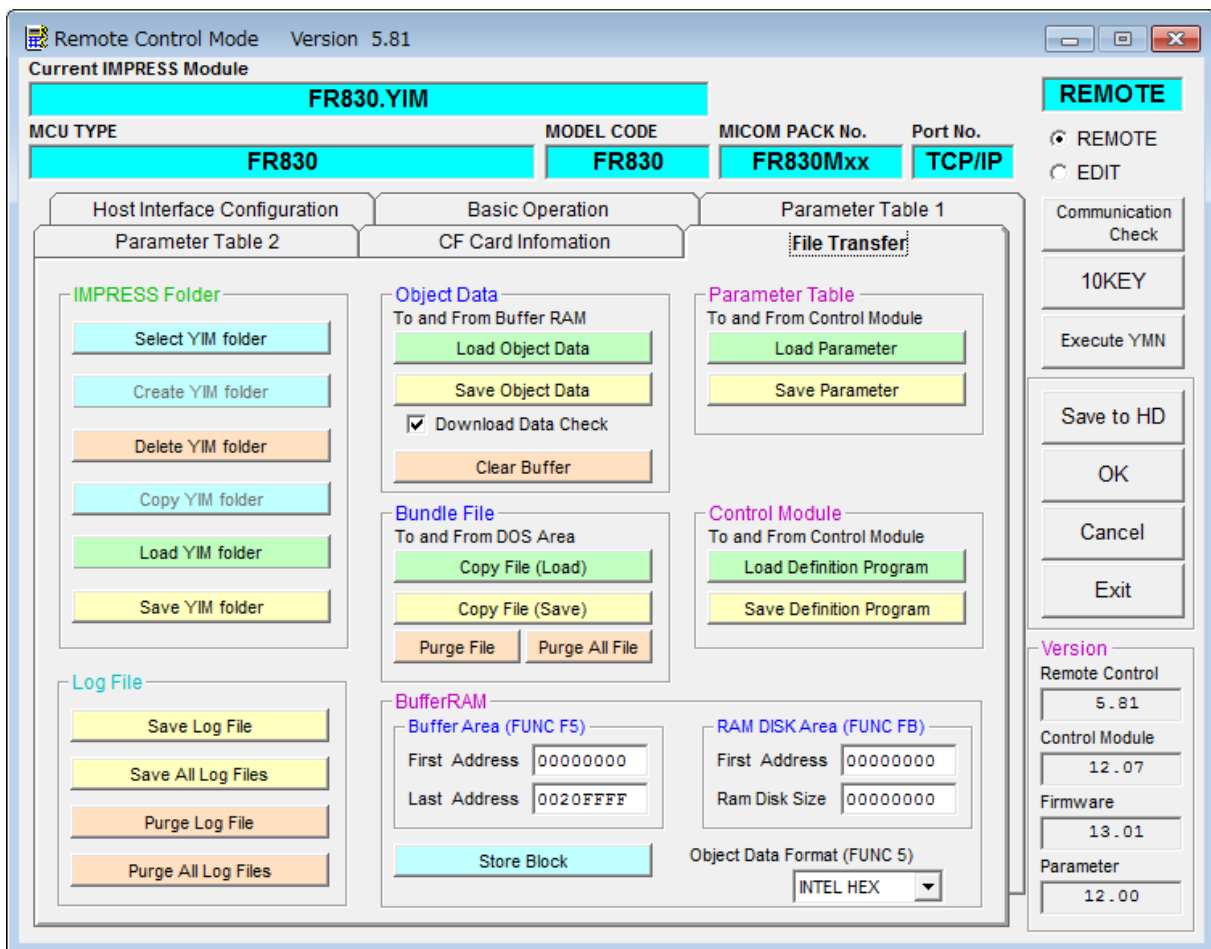
11. Notes and Cautions for Using FR830

(1) The Control Module FR830 is built for NETIMPRESS.　DO NOT use this Control Module for any flash microcomputer programmers other than the NETIMPESS series.

(2) The Control Module FR830 is designed for the specific microcomputer.
Do not use this Control Module for programming microcomputers other than the specified microcomputer. Using this definition program for microcomputers other than the specified microcomputer would damage your target system.

(3) NETIMPRESS consumes power of several mA from Tvccd terminal to drive the interface IC with the target system (IC inside NETIMPRESS).

(4) DO NOT insert or remove the Control Module while the Device Functions or the Function operation is being executed.
Ejecting the Control Module during the operation would cause a serious damage to the data in the Control Module.

(5) Use NETIMPRESS with the Control Module inserted into it.