

Control Module Instruction Manual

**Control Module
For
Flash Microcomputer Programmer
NETIMPRESS**

FR802

Target Microcomputer: R8C/23 R5F21238

DTS INSIGHT CORPORATION

FR802 (R5F21238)
INSTRUCTION MANUAL
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1 Overview

FR802 is the Control Module for NETIMPRESS, an advanced on-board flash microcomputer programmer.

FR802 supports programming the microcomputer (R5F21238) of 64K + 2K type flash ROM size of R8C/23 Group of Renesas Technology and other equivalent flash microcomputers that have the same programming algorithm and protocol as such 64K + 2K type flash ROM of R8C/23 Group.

The Control Module FR802 consists of a Compact Flash Card containing the programming control information.

The free area of the Compact Flash Card can be used as the DOS file area to temporarily store your object file created on a host computer.

The Control Module FR802 is available in two types for your choice: /D128 and /D512. Choose an appropriate type according to capacity of the Compact Flash Card. /D128 supports up to 128Mbyte of the Compact Flash Card, while /D512 supports up to 512Mbyte of the Compact Flash Card.

The probe cable is available in four types as the standard; AZ410, AZ411, AZ412 and AZ413. For probe cables of other types, contact your local distributor or us.

IMPORTANT:

With this Control Module, you can program the target microcomputer and other equivalent flash microcomputers that have the same programming algorithm and protocol as the target microcomputer. When you use this Control Module for microcomputers other than the target microcomputer and its equivalent microcomputers, you need to modify some of parameters in the Control Module using the optional Remote Controller AZ490. For modifying parameters, see Chapter 5 “Adapting to Derivative Microcomputers – Modifying Parameters” of this manual.

FR802 is designed to support programming microcomputers of a wide range and you can program a microcomputer of different programming voltage (Vpp) by changing parameters. Be sure to have good understanding on signal connection by carefully reading Chapter 4 “Connecting to the Target System and Connector” before you use the Control Module.

For a timing to supply the power to the microcomputer, follow the instruction described in Chapter 4 “Connecting to a Target System and Connector” of this manual.

Check once again with the below listed checkpoints if your microcomputer is supported by this Control Module, or if your microcomputer has the same algorithm and protocol as those of the target microcomputer.

- (1) Is a programming method of your microcomputer same as the one of the target microcomputer?
- (2) Are the programming voltage (Vpp) and write control algorithm of your microcomputer the same as those of the target microcomputer?
- (3) Is the communication protocol for programming control of your microcomputer the same as the one of the target microcomputer?

- (4) For a microcomputer that uses the RAM loading type Write Control Program, does it have an appropriate Write Control Program? Also, are the specifications of the Write Control Program same as those of the target microcomputer?

Contact your local distributor or us for any questions or unclear points.

CAUTION:

Using the Control Module that does not support the programming method of your microcomputer would lead to serious damage to your microcomputer and target system.

2 Specifications

2.1 Target microcomputer and specifications

The table below lists the specifications of the Control Module FR802. For any items that are not specifically described here, the standard specifications of NETIMPRESS are applied.

Control Module	FR802
Target microcomputer	R5F21238JFP *1, R5F21238KFP
Flash memory capacity	64 KB + 2 KB
Flash memory address	#002400 to #002BFF *2 #004000 to #013FFF
Programming voltage (Vpp)	Not applied.
Default	—
Target's minimum voltage when the Vpp is applied	—
Object file format	Motorola S Binary
Default	Motorola S
Target interface	UART mode (clock asynchronous serial communication interface) *3 Special clock asynchronous serial interface 9600/19200/38400/57600/76800/115200/230400/460800 bps *4 *5 <input type="checkbox"/> MSB first <input checked="" type="checkbox"/> LSB first
Data transfer format between Flash Microcomputer Programmer and Target System	Binary
Memory status when erased	#FF
MCU clock during programming	1MHz to 20MHz
Target interface voltage during programming	2.7V to 5.25V

*1: 64 KB + 2 KB type flash ROM of R8C/23 Group is supported.

*2: The area #002C00 to #003FFF is a non-ROM area. As a result, it is a write-prohibited area.

*3: UART mode (clock asynchronous serial communication interface) and the special clock asynchronous serial interface are supported, which can be switched with the parameter file. For details about the parameter file, see the relevant Micom Pack Manual.

*4: These baud rates may not be able to be used depending on a target frequency. For details, see Section 2.4 "Baud rate".

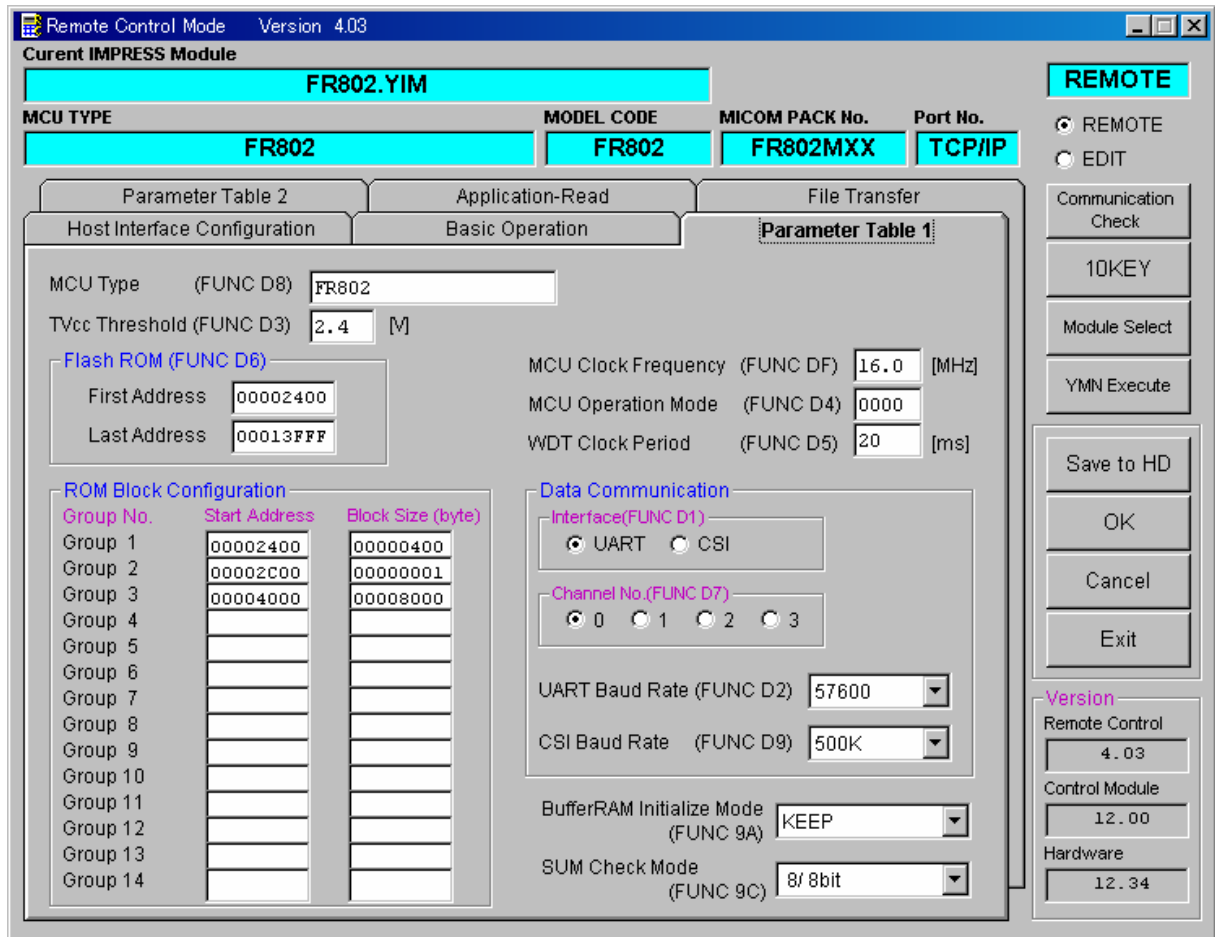
*5: 230400 bps and 460800 bps are only supported with the special clock asynchronous serial interface.

2.2 Setting up specific parameters

Make the initial settings by using the AZ490, the Remote Controller running on Windows. For how to use the AZ490, see the AZ490 Instruction Manual.

2.2.1 Settings with the Parameter Table 1 tab

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



(1) TVcc threshold [FUNC D 3]

Set up a value about 10% lower than the minimum operation voltage of the target microcomputer. NETIMPRESS senses the operating voltage (TVcc) of the target microcomputer and executes the Device Function when the TVcc gets higher than the specified value. For setting up TVcc threshold at the side of NETIMPRESS, see NETIMPRESS Instruction Manual, Section 5. 4. 5 “TVcc Threshold Setting”.

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

Set up the flash ROM area (First Address, Last Address) of the microcomputer. You cannot set up flash ROM with NETIMPRESS and this is only for display.

For details, see NETIMPRESS Instruction Manual, Section 5. 4. 8 “Flash Memory Area Display”.

(3) ROM Block Configuration

Set up the block configuration of flash memory.

Block Data Table:

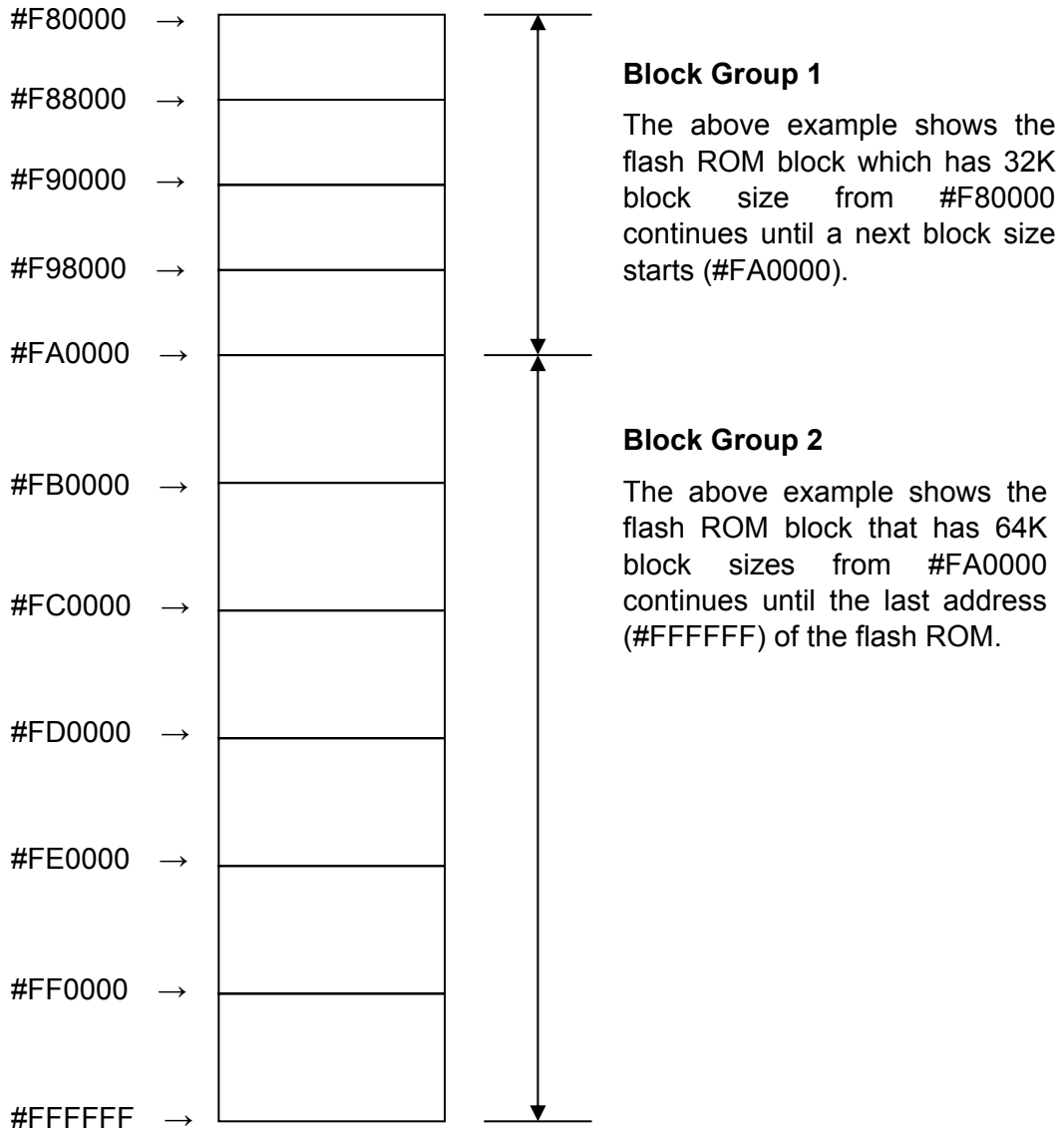
The block data table consists of information of three kinds: Group No., Start Address and Block Size.

- 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 starting address of a block group.
The flash ROM of a size specified in the Block Size sequentially continues, forming one block group.
- Block Size: NETIMPRESS understands that the flash ROM blocks of a size specified in the Block Size are placed sequentially until a next block group address.

Example:

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

Block Start Address



(4) MCU Clock Frequency [FUNC D F]

This is to set up a clock frequency for the target microcomputer.

- When using the parameter of the UART mode, you need to make this setting. Set up a clock frequency you are using.
- When using the parameter of the special clock asynchronous serial interface, do not make this setting.

For how to set up a clock with NETIMPRESS, see NETIMPRESS Instruction Manual.

(5) MCU Operation Mode [FUNC D 4]

With FR802, you do not need to make this setting.

(6) WDT Clock Period [FUNC D 5]

NETIMPRESS has the function to output cyclic clock pulse during programming. To use this function, you need to set up WDT Clock Cycle.

The periodic clock pulse will be output from the WDT pin (No.18) listed in Table 4-1 and Table 4-2 "Target Probe Signal List" in Section 4.1 "Signal List".

For setting up the WDT for NETIMPRESS, see the MegaNETIMPRESS/ C"arNETIMPRESS Instruction Manual, Section 5.5.7 "Setting Watch Dog Timer".

(7) Data Communication

Set up a communication channel between NETIMPRESS and the target microcomputer. With FR802, make the settings as follows:

- **Communication Channel [FUNC D 1]**

Select "UART" mode (clock asynchronous serial communication interface). For setting up a communication method with NETIMPRESS, see the MegaNETIMPRESS/ C"arNETIMPRESS Instruction Manual, Section 5. 5. 2. "Communication Channel Setting".

- **Channel No. [FUNC D 7]**

With FR802, you do not need to make this setting. For setting up the communication channel with NETIMPRESS, see the MegaNETIMPRESS/C"arNETIMPRESS Instruction Manual, Section 5. 5. 9. "Set Communication Channel".

- **UART Baud Rate [FUNC D 2]**

This command is not used when setting UART baud rate with FR802.

With FR802, baud rate is set up with [FUNC 88].

The range of baud rate you can set up with [FUNC 88] will be 9600/10200/38400/ 57600/76800/115200/230400/460800 bps.

- **CSI Baud Rate [FUNC D 9]**

With FR802, you do not need to make this setting.

(8) MCU Type [FUNC D 8]

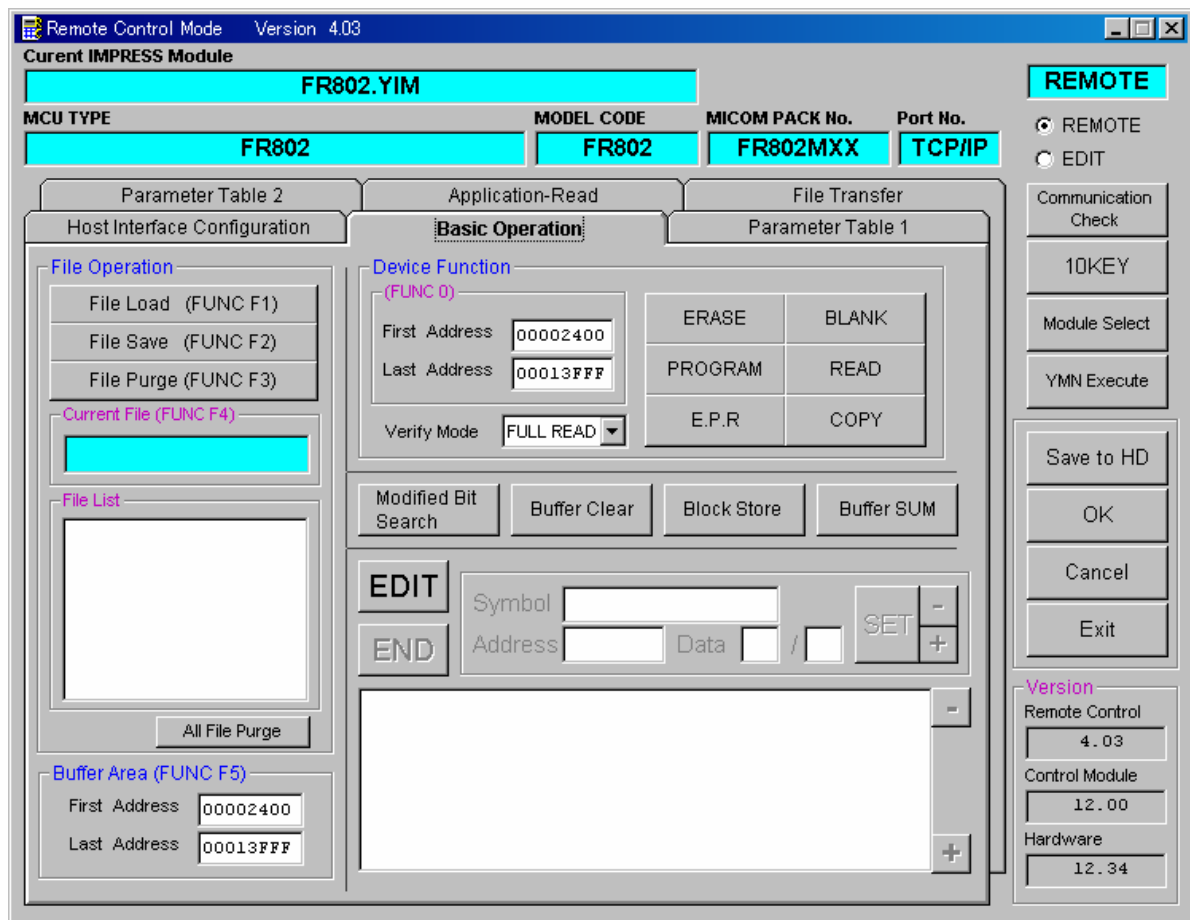
The setting made here will be displayed in the MCU TYPE field located at the top left of the Remote Control Mode window and NETIMPRESS. You can enter any characters up to 16 characters such as microcomputer's model name or device name you are using.

(9) OK

By clicking this OK button, you can send the settings on the Parameter Table 1 tab into 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 Settings with the 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 area as those you set up for the Flash ROM as described in the Section 2.2.1, Item (2).

The Device Function Address [FUNC 0] is automatically aligned with the block boundary address of the flash ROM with its specified address as shown in Figure 2-1. The Device Functions will be executed to thus automatically aligned area.

(2) Buffer Area [FUNC F 5]

Set up an area to save and load the data on the buffer memory of NETIMPRESS (when you have a binary file). Normally, set the same areas as those for the flash ROM as described in the Section 2.2.1 (2).

Figure 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) 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) and (2) 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 reflected.

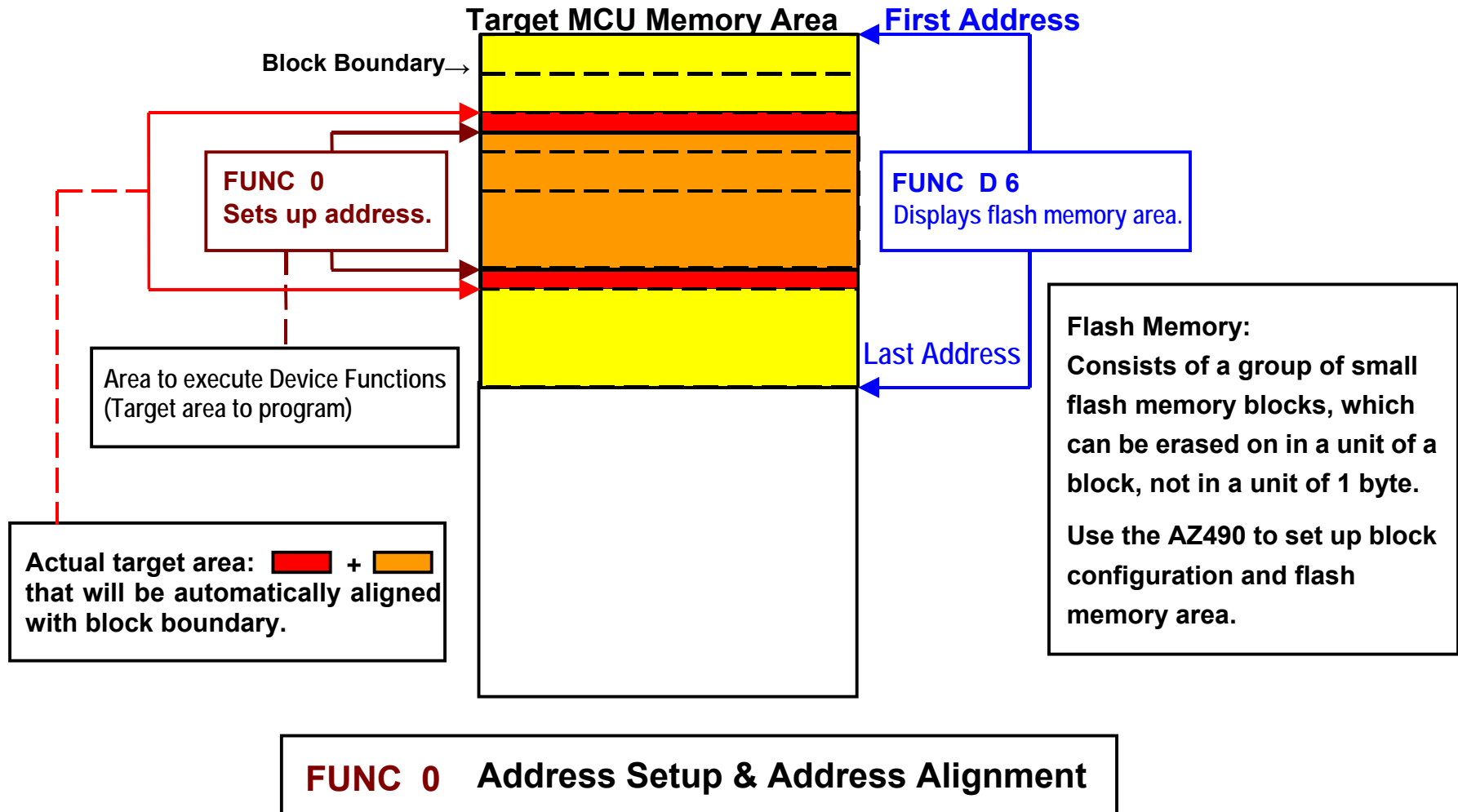


Figure 2-1

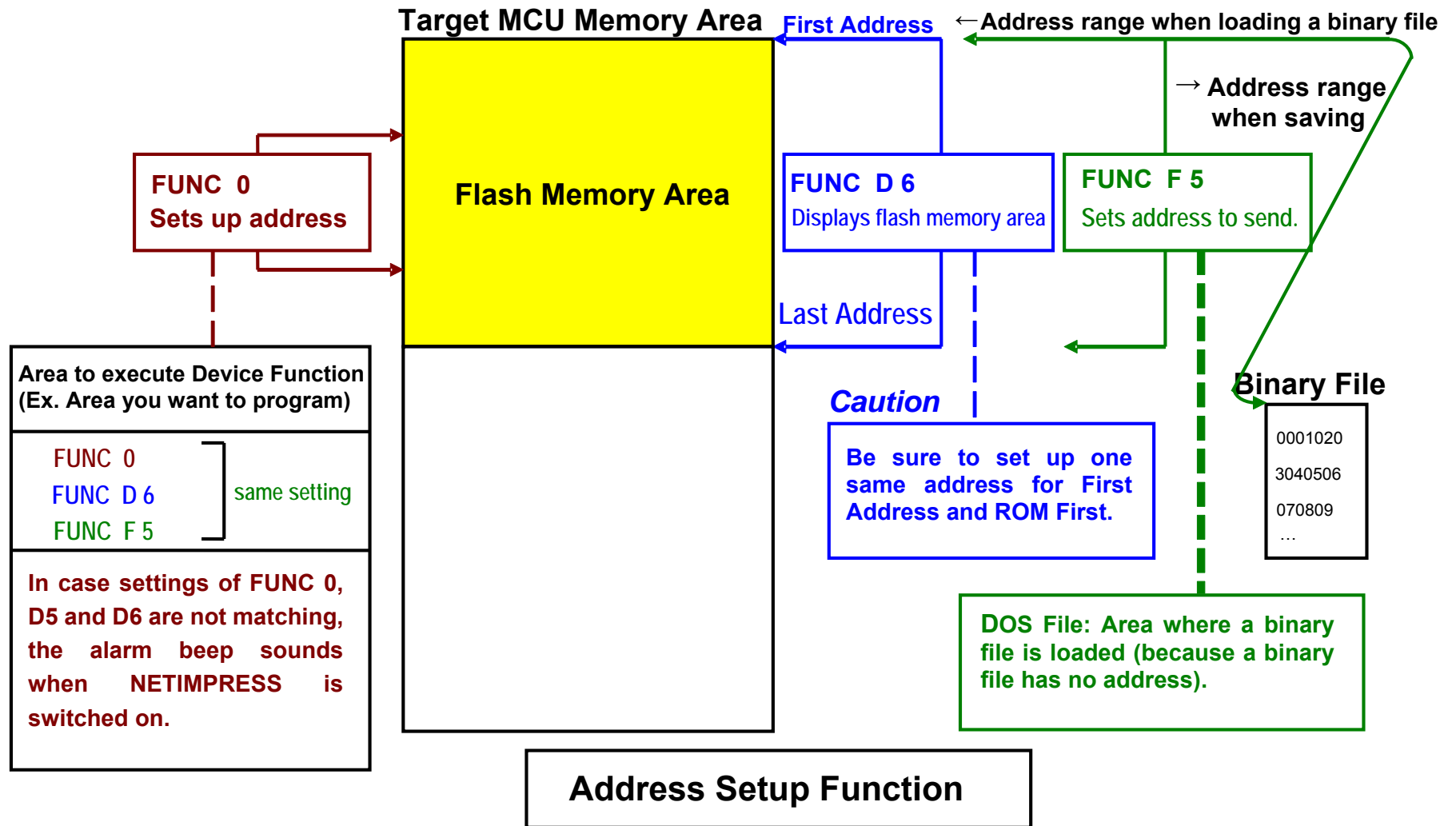
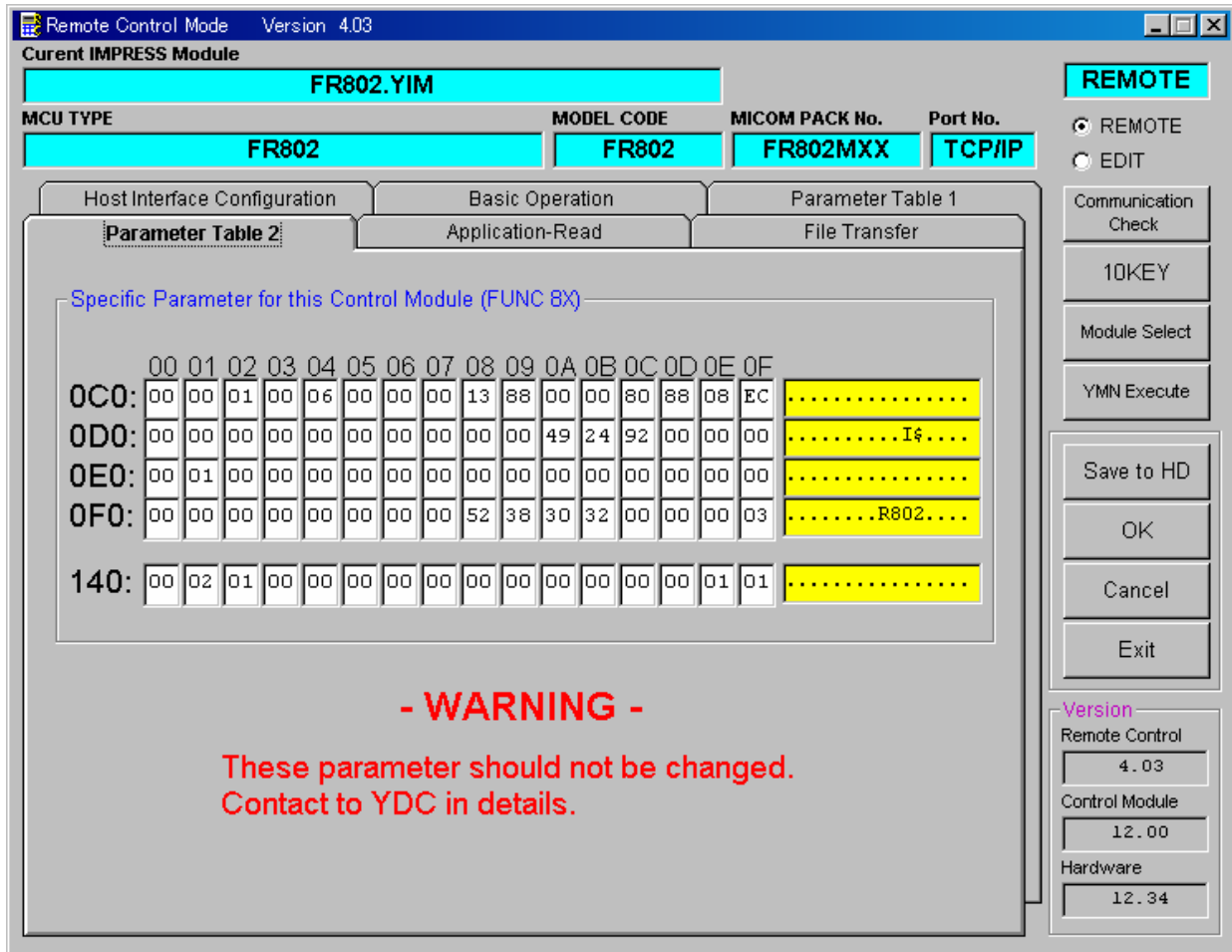


Figure 2- 2

2.2.3 Parameter Table 2 Tab

The Parameter Table 2 tab contains the parameters specific to the microcomputer. Therefore, be sure not to change any value in this window. In case you need to change them, be sure to contact us in advance.



Remote Control Mode Version 4.03

Current IMPRESS Module: **FR802.YIM**

MCU TYPE: **FR802** MODEL CODE: **FR802** MICOM PACK No.: **FR802MXX** Port No.: **TCP/IP**

Host Interface Configuration Basic Operation Parameter Table 1

Parameter Table 2 Application-Read File Transfer

Specific Parameter for this Control Module (FUNC 8X)

	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	
0C0:	00	00	01	00	06	00	00	00	13	88	00	00	80	88	08	EC
0D0:	00	00	00	00	00	00	00	00	00	49	24	92	00	00	00	I\$....
0E0:	00	01	00	00	00	00	00	00	00	00	00	00	00	00	00	
0F0:	00	00	00	00	00	00	00	00	52	38	30	32	00	00	00	03R802....
140:	00	02	01	00	00	00	00	00	00	00	00	00	00	01	01	

- WARNING -

These parameter should not be changed.
Contact to YDC in details.

REMOTE

REMOTE
 EDIT

Communication Check

10KEY

Module Select

YMN Execute

Save to HD

OK

Cancel

Exit

Version

Remote Control: 4.03

Control Module: 12.00

Hardware: 12.34

2.3 Device Functions and Their Operation

The table below shows the operation that is to be executed to the flash ROM when NET IMPRESS starts the Device Functions.

Device Function		Erase	Blank Check	Program	Read	E.P.R *3	Copy
Target Memory Area	A partial area of flash memory with [FUNC 0] command (with Block Alignment)	OK	OK	OK	OK	OK	No
	Entire flash memory area with [FUNC D 6] commands	OK	OK	OK	OK	OK	OK
Operation to Flash Memory		<input checked="" type="checkbox"/> Erase <input checked="" type="checkbox"/> Blank *2	<input checked="" type="checkbox"/> Blank *2	<input type="checkbox"/> Erase <input type="checkbox"/> Blank <input checked="" type="checkbox"/> Program <input checked="" type="checkbox"/> Read *1	<input checked="" type="checkbox"/> Read	<input checked="" type="checkbox"/> Erase <input checked="" type="checkbox"/> Blank <input checked="" type="checkbox"/> Program <input checked="" type="checkbox"/> Read *1	<input checked="" type="checkbox"/> Copy <input checked="" type="checkbox"/> Read

*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. (Check if your microcomputer supports this Read Verify command. If not, this Read Verify command can not be executed.) To set up the Read mode with NETIMPRESS, see NETIMPRESS Instruction Manual, Section 5. 5. 16. "Read Mode Switching".

- (1) SUM READ VERIFY: A SUM value (1's complement of a value added with 8 bit ignoring overflow exceeding 16 bit) of the area where the Device Function Program is executed is read from the microcomputer and compared with a SUM value of the programmed data transferred by NETIMPRESS when the Device Function Program is executed.
- (2) 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

*2: Blank Check

For blank checking, the Blank Check set up with the Blank Check mode switching (FUNC 86) is executed. (Check if your microcomputer supports this blank check. If not, this blank checking can not be executed.)

- (1) Blank check by Programmer : NETIMPRESS reads data of the flash memory from the target microcomputer and checks if the flash memory area is blank.
- (2) Blank check by Microcomputer : NETIMPRESS sends the Blank Check command to a microcomputer and performs blank checking at the MCU side and sends back checking result to NETIMPRESS.

2.4 Baud rate

The Control Module FR802 supports the baud rates 9600, 19200, 38400, 57600, 76800, 115200, 230400 and 460800 (bps). However, please note that these baud rates may not be able to be used because of baud rate variances caused by a target frequency.

2.4.1 Setup range of baud rate

- When using the special clock asynchronous serial interface mode, a target microcomputer runs in 8MHz. Therefore, the baud rates you can select will be 9600, 19200, 38400, 57600, 230400 and 460800.
- Variance of baud rate caused by a clock frequency when using the UART mode can be calculated as follows.

(1) Calculate an actual baud rate.

$$A = \frac{\text{Target frequency (MHz)} \times 10^6}{\text{Baud rate set up} \times 16}$$

Important: A is an integer value rounding off a calculation result.

$$\text{BAUD} = \frac{\text{Target frequency (MHz)} \times 10^6}{A \times 16}$$

(2) Calculate a variance.

$$\text{Variance (\%)} = \frac{\text{BAUD} - \text{Baud rate set up}}{\text{Baud rate set up}} \times 100$$

It is recommended to keep a variance not to surpass 3%.

For a target frequency (MHz), use a value that is set up for MCU Clock Frequency [FUNC D F]. The accuracy you can set up is up to one place of decimal. Be sure to set up a target frequency with [FUNC D F]. For details about MCU Clock Frequency, see Section 2.2.1 (4) "MCU Clock Frequency".

For example, when you have 16MHz for a target frequency and 57600 bps for baud rate, A = 17, BAUD = 58823.53 and the variance = 2.12%.

2.4.2 Baud rate setup function

With the Control Module FR802, use [FUNC 88] to set up baud rate. Note that the standard baud rate setup function [FUNC D2] of NETIMPRESS is not used with FR802.

3 ID Code Protect Function

3.1 Overview

The Control Module FR802 has the function to send an ID code to a microcomputer. A microcomputer that communicates with NETIMPRESS has the function to receive and read an ID code. By sending an ID code to a microcomputer, you can guard against illegal writing and reading of data.

Also, an ID code is sent to a microcomputer whenever the Device Functions are executed, and the microcomputer performs ID code checking.

3.2 Entering ID Code

Figure 3-1 on Page 16 shows the ID code processing flow of the flash programmer NETIMPRESS. You can enter an ID code in the following two ways.

- (1) Enter an ID code by saving an ID file that has the extension “xxx.KEY”, in the DOS area of the Control Module in advance.

Note that the ID file name with “.KEY” extension should be the same as the current file name (*i.e.*, the file name that is transferred to the buffer RAM of NETIMPRESS).

- (2) Enter an ID code from the keyboard of NETIMPRESS.

You can use the ID Address Guidance function to enter an ID code from the keyboard by saving a master key file (YMxxR802.AMK) in the DOS area of the Control Module.

(A master key file is in the CD provided with the Control Module. Also, the specific master key file for your microcomputer is provided.)

When you use NETIMPRESS as a stand-alone, you can use both ID code entry methods. When you use NETIMPRESS by remotely controlling from a personal computer, use the Method (1) using an ID file.

You can easily generate an ID file by using the Key File Generator AZ481 that is available for an additional order.

The table below summarizes the entry methods of ID code.

ID Code Entry Method	NETIMPRESS is used by remotely controlling from a PC.	NETIMPRESS is used as a stand-alone.
Enter ID code using an ID file.	Yes	Yes
Enter ID code from keyboard of NETIMPRESS.	No	Yes

The master key file (YMxxR802.KEY) is placed in an appropriate Micom Pack that you can download from our Web site at the following URL address:

<https://www.dts-insight.co.jp/en/product/netimpress-next/index.html>

<ID CODE Process Flow>

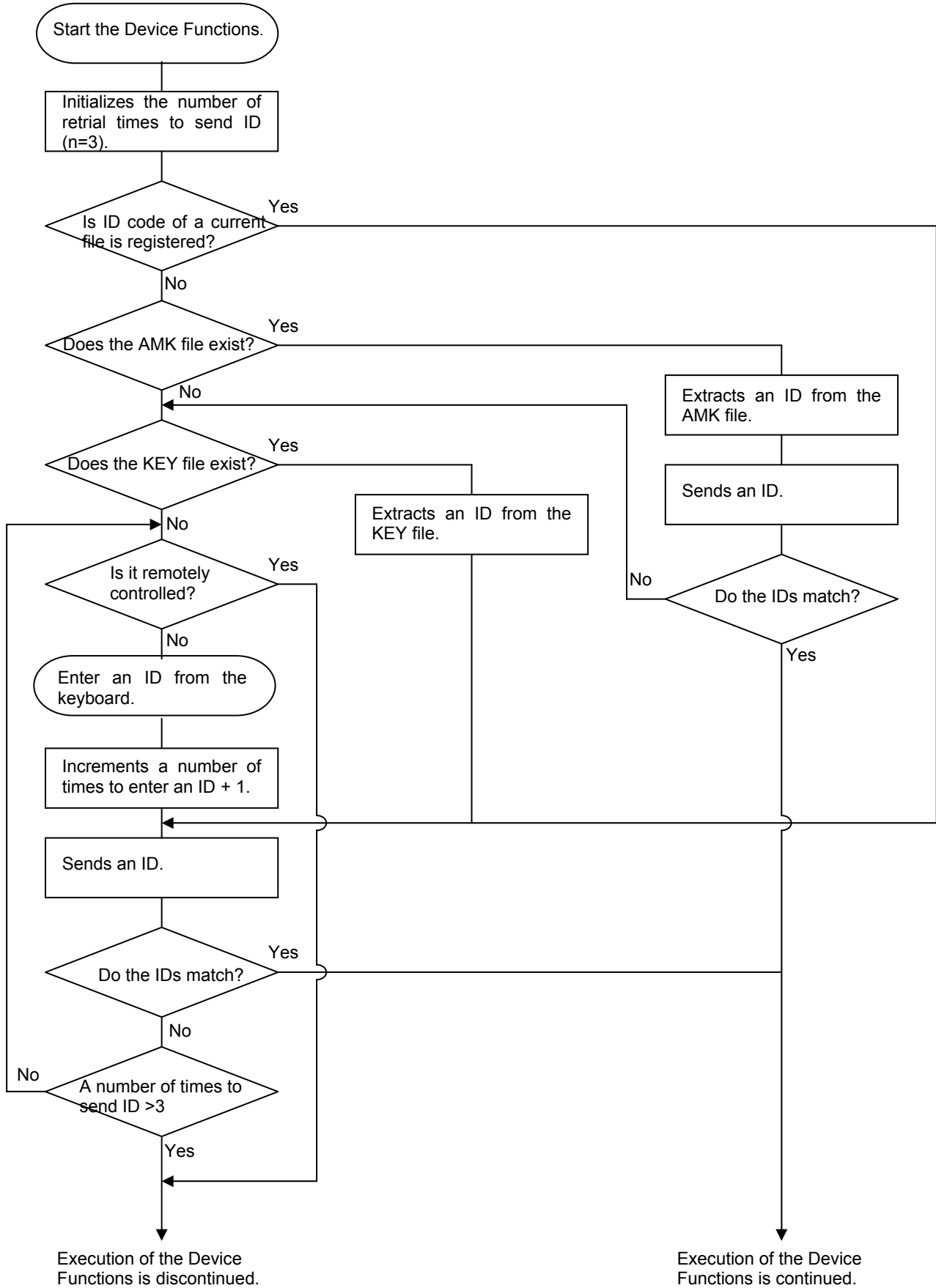


Figure 3-1: ID Code Process Flow

3.3 How to enter ID code from the Keyboard (Stand-Alone Mode)

When you enter an ID code from the keyboard of NETIMPRESS, place the master key file (YMxxR802.AMK) in the DOS area of the Control Module. If an ID file of a current object file does not exist in the DOS area of the Control Module, a key word address you should enter will be displayed on the LCD based on the key address information in the master key file.

<Steps to enter ID code>

- (1) When an ID file of a current object file does not exist in the DOS area of the Control Module, or when the ID file exists in the DOS area of the Control Module but an ID code does not match with an ID code in the microcomputer, address guidance information for an ID code you should enter will be displayed on the LCD of NETIMPRESS.

FR802
/ /COPY /
A=00000084 /D=FF

- (2) Enter an ID data in the Data field ("D= ") and press the SET key of NETIMPRESS. When the SET key is pressed, NETIMPRESS displays the following ID code address on the LCD.

FR802
/ /COPY /
A=00000085 /D=FF

- (3) Enter an ID code of an appropriate size repeating the above step (2).

When all ID codes are entered, ID code address on the LCD becomes blank.

When you need to change an ID code, use the keys to check and change it.

When you click the SET key after confirming the ID code you entered, the ID code entered using the 10-key is registered as the current ID code in NETIMPRESS and sent to the microcomputer.

This current ID code remains valid until you turn off NETIMPRESS or another new current ID code is registered.

- (4) For the ID code sent to the microcomputer, when NETIMPRESS receives a response from the microcomputer telling that the ID code is illegal, NETIMPRESS starts the password entry sequence again from the beginning.

If NETIMPRESS receives three illegal ID code responses, it discontinues the Device Functions' sequence.

3.4 ID File

When an ID file corresponding to an object to program is placed in the DOS area, you do not have to enter an ID from the keyboard of NETIMPRESS.

Also, when you perform programming with the Remote Controller (AZ490), you need an ID file as a must. Therefore, create an ID file and place it in the DOS area of the Control Module. Describe an ID file in Motorola S format, while describing the top address of the ID area in the address section and ID data in the data section.

You can create an ID file using the Key File Generator (AZ481).

The following is an example to create an ID file.

- R8C/23 Group series
S3060000FFDFFF1C
S3060000FFE3FF18
S3060000FFE8FF10
S3060000FFEFFF0C
S3060000FFF3FF08
S3060000FFF7FF04
S3060000FFFBFF00
S70500000000FA

Note: The ID data section is described with "FF" in the above example.

3.5 Processing ID Program

When you program the flash ROM with this Control Module FR802, you can select either to program an ID code or not to program an ID code, that is, to send out an ID code with “FF”, so that you can prevent programming an ID code erroneously.

However, when you send out an ID code with “FF”, you need to place the YIA file with extension “.YIA” in the DOS area of the Control Module. If there is no YIA file placed in the DOS area of the Control Module, the error message “YIA FILE NOT FOUND” is output and execution of the Device Functions is discontinued.

A YIA file specific to your microcomputer is contained in the Micom Pack, which you can download from our Web site.

To set up an ID code programming mode with NETIMPRESS, do as follows.

(1) Press keys.

(2) Use the Down Arrow or Up Arrow key to choose the ID PROGRAM ON or OFF.

(3) Press keys to fix the selection.

Note: When you use the ID Program function by setting to “OFF”, keep in mind that a SUM value of a programming object differs from the one at the time of writing.

4 Connecting to the Target System and Connector

4.1 Signal List

The table below lists signal example at the side of the target probe connector when using the Control Module FR802.

(1) Special clock asynchronous serial communication interface mode

CPU Signal	NET IMPRES Standard Signal				CPU Signal
Vss	GND	15	1	GND	Vss
	TVpp1	16	2	TVccd	Vcc
	TVpp2	17	(3)	Vcc	
Watchdog timer output	WDT	(18)	(4)	TRES	Positive /TRES
	TAUX3 (TVpp1c)	19	5	/TRES	/RESET
	TAUX4 (TVpp2c)	20	6	TCK	
	Reserved	21	7	Reserved	
	Reserved	22	8	Reserved	
	TAUX	23	9	TAUX2 (TRW)	
	TBUSY	24	(10)	/TICS	For Multiplexer
	TI0	25	11	TAUX5 (/TOE)	
	TVccs	26	(12)	TMODE	
	TRxD	27	13	TTxD	MODE
Vss	GND	28	14	GND	Vss

Table 4-1: Target Probe Signal List (R8C/23 Group)

- Be sure to connect all the signals marked with “○” to the target system.
- The signals in parentheses are to be connected as required.
- For the signals not circled or enclosed with parenthesis, be sure not to connect to a circuit of a target system.

(2) UART mode

CPU Signal	NET IMPRES Standard Signal				CPU Signal
Vss	GND	15	1	GND	Vss
	TVpp1	16	2	TVccd	Vcc
	TVpp2	17	3	Vcc	5V Power Supply
Watchdog timer output	WDT	(18)	(4)	TRES	Positive /TRES
	TAUX3 (TVpp1c)	19	5	/TRES	/RESET
	TAUX4 (TVpp2c)	20	6	TCK	
	Reserved	21	7	Reserved	
	Reserved	22	8	Reserved	
	TAUX	23	9	TAUX2 (TRW)	
	TBUSY	24	(10)	/TICS	For Multiplexer
	TI0	25	11	TAUX5 (/TOE)	
	TVccs	26	(12)	TMODE	MODE
TxD1	TRxD	27	13	TTxD	RXD1
Vss	GND	28	14	GND	Vss

Table 4-2: Target Probe Signal List (R8C/23 Group)

- Be sure to connect all the signals marked with “○” to the target system.
- The signals in parentheses are to be connected as required.
- For the signals not circled or enclosed with parenthesis, be sure not to connect to a circuit of a target system.

4.2 Typical Connection Example

(1) Special clock asynchronous serial communication interface mode

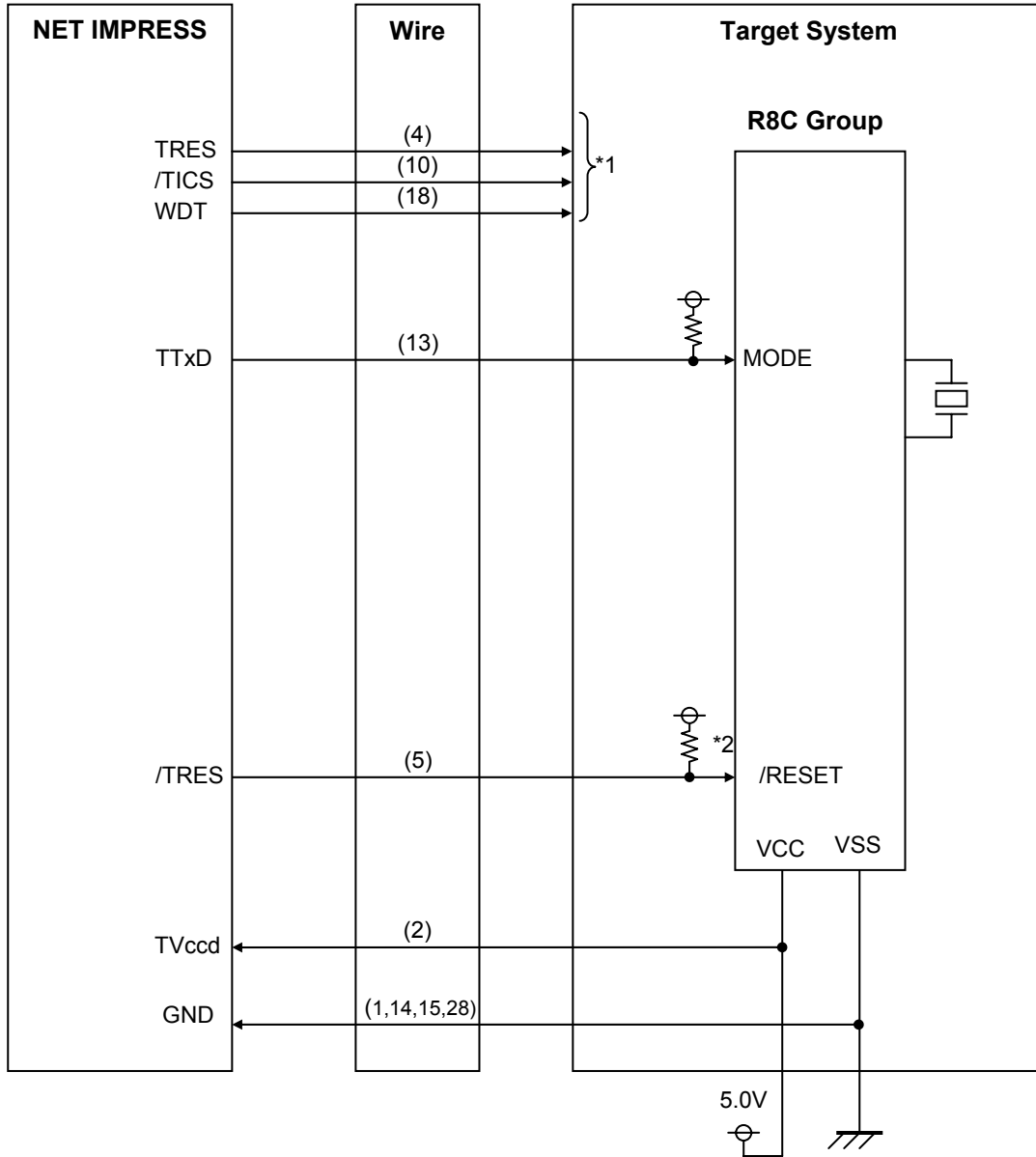


Figure 4-1: Example of connecting with a target system

*1: They are optional.

*2: Be sure to keep the reset signal not to be delayed.

(2) UART mode

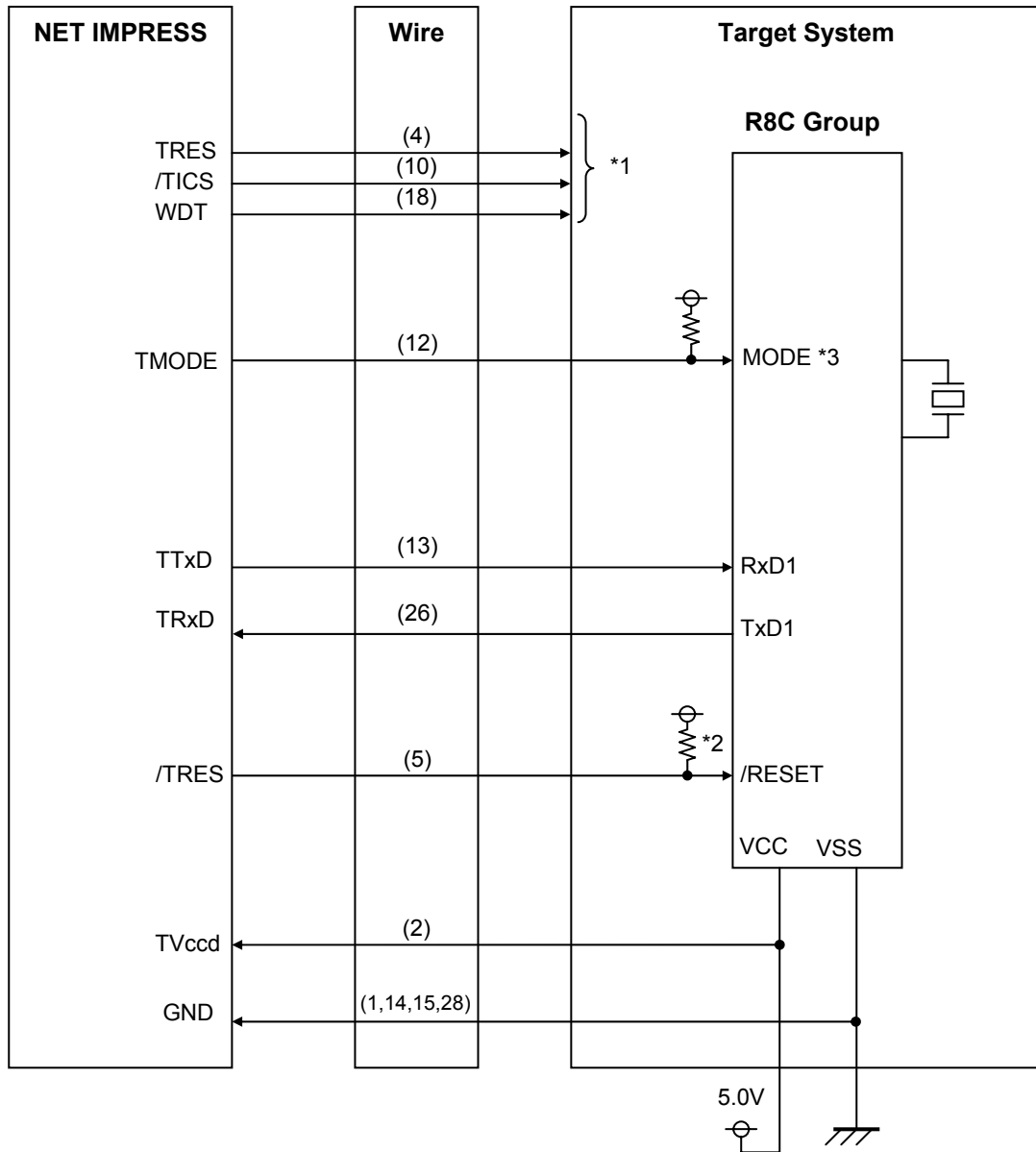


Figure 4-2: Example of connecting with a target system

*1: They are optional.

*2: Be sure to keep the reset signal not to be delayed.

*3: This signal is not required to be connected when it is set to the specified logic value (Vss) on a target system.

The table below lists how to set up the MODE signal.

Signal Name	Value
MODE	Vss

(1) For the signals defined as shared terminals, multiplexing circuit of these signals must be provided from a user system.

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

/TICS signal multiplexes the signals connected to these shared terminals.

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.

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

(2) WDT Signal:

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

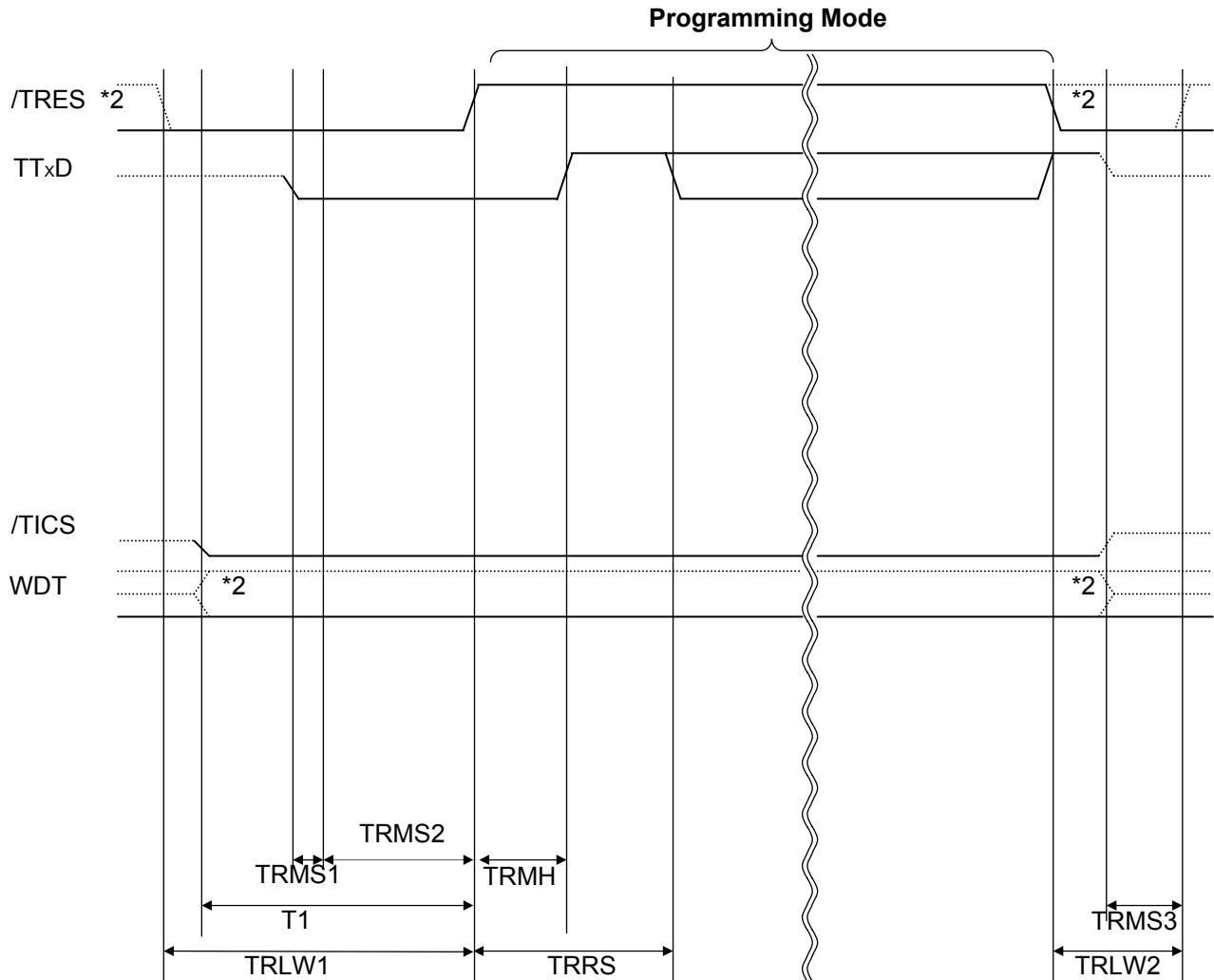
Connect this signal to a user circuit that requires the appropriate clock signal when programming the flash memory.

(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 a target system and be connected to /RESET signal of your microcomputer using a user circuit. /TRES signal can be used when a target system requires a reset signal of positive logic. TRES signal is a totem pole output signal.

4.3 Waveform of Control Signal

(1) Special clock asynchronous serial interface mode

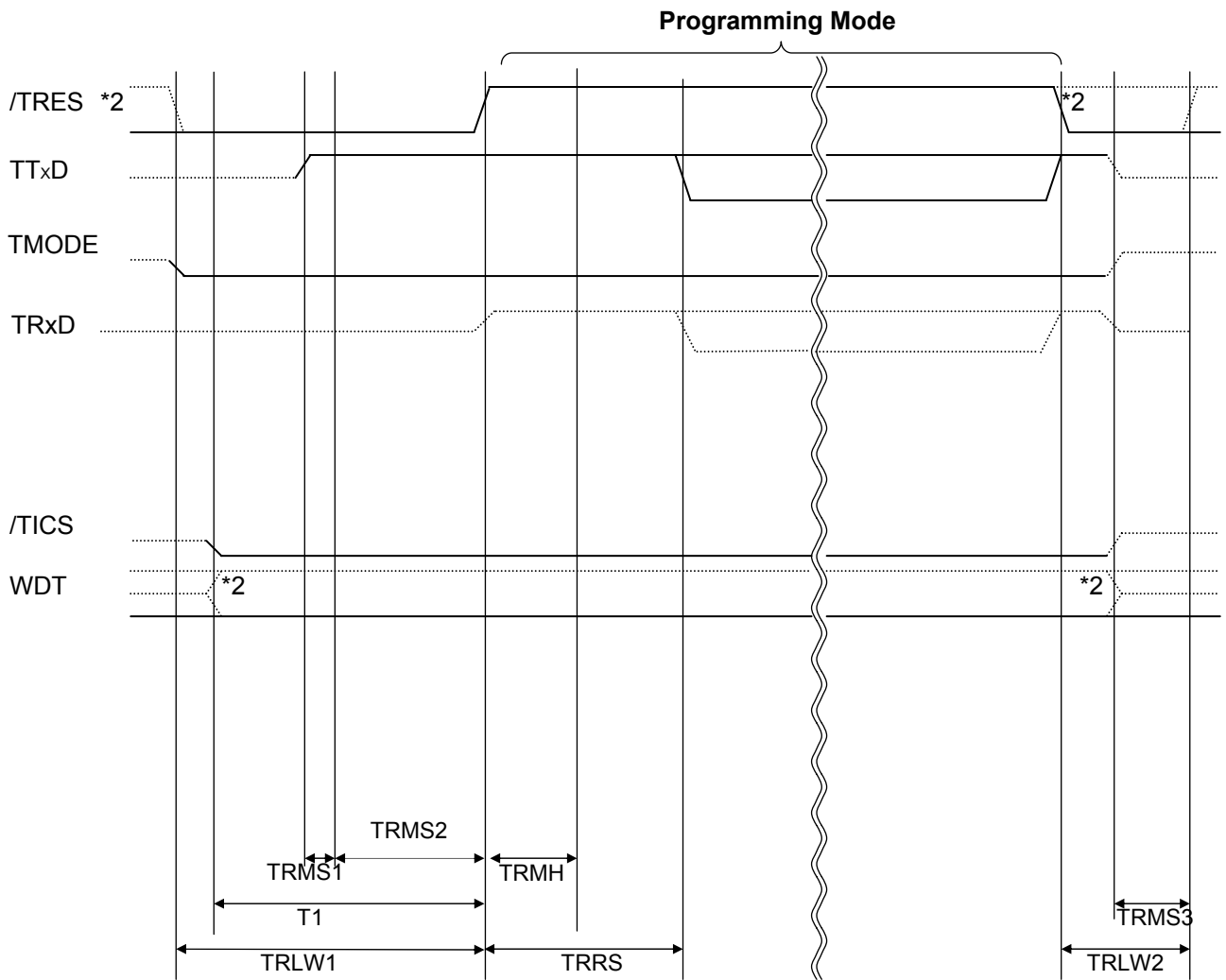


	MCU Specifications	NET IMPRESS Specifications
TRLW1		300ms (Min.)
TRLW2		100ms (Min.)
TRMS1		10ms (Min.)
TRMS2		200ms (Min.)
TRMS3		50ms (Min.)
TRMH	100ms (Max.)	100ms (Max.)
TRRS	200msx (Min.)	300ms (Min.)
T1		290ms (Min.)

*1: The dotted line “ ” indicates HIZ state.

*2: Optional function

(2) UART mode



	MCU Specifications	NET IMPRESS Specifications
TRLW1		300ms (Min.)
TRLW2		100ms (Min.)
TRMS1		10ms (Min.)
TRMS2		200ms (Min.)
TRMS3		50ms (Min.)
TRMH	100ms (Max.)	100ms (Max.)
TRRS	200msx (Min.)	300ms (Min.)
T1		290ms (Min.)

*1: The dotted line " " indicates HIZ state.

*2: Optional function

- (1) Turn on the power of NETIMPRESS first and then a target system. Then, NETIMPRESS asserts /TRES right after its power is turned on. Also, it starts outputting periodic pulse of the WDT signal.
- (2) /TICS signal is asserted by execution of the program command, and communication channel for flash programming is connected to NETIMPRESS on a target system. (Multiplexing with this /TICS signal is not required for a system where communication channel and related signals for flash programming are exclusively used by NETIMPRESS, independently from other user circuit.)
- (3) NETIMPRESS raises TVpp to a specified voltage.
- (4) The programming mode is started and communication with NETIMPRESS is started using a specified communication circuit. Communication is performed in conditions set up in advance.
- (5) When programming completes, NETIMPRESS automatically completes applying TVpp.
- (6) NETIMPRESS negates /TICS signal too.
- (7) NETIMPRESS continues asserting a reset signal even while the device functions are not executed. Also, it continues generating periodic pulse of WDT signal.

4.4 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 diagram of each probe, see the MegaNETIMPRESS/C"arNETIMPRESS Instruction Manual, Section 8. 5. "Target Interface" or our Web site.

AZ411/AZ413

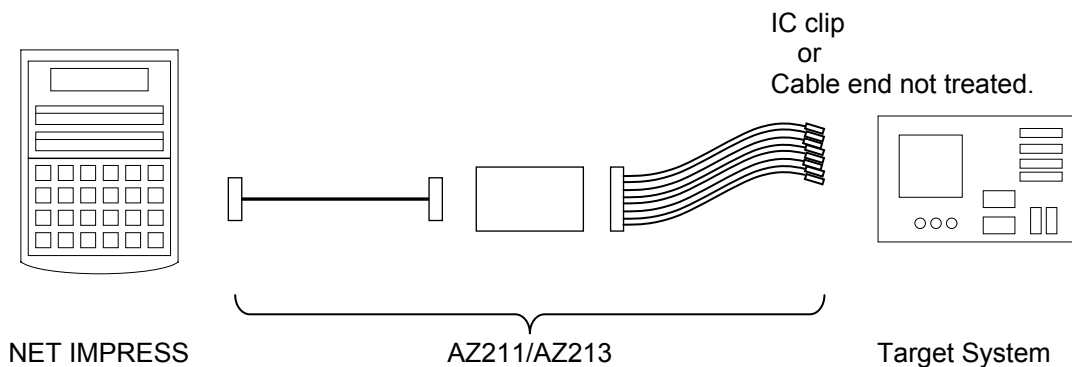
Most of I/O lines of NETIMPRESS have $1M\Omega$ pull-down resistors between the GND line and signal lines.

Also, control lines from NETIMPRESS, which are used on a target system, must be kept negated not to disturb a 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 $10K\Omega$ resistors on a user system.

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

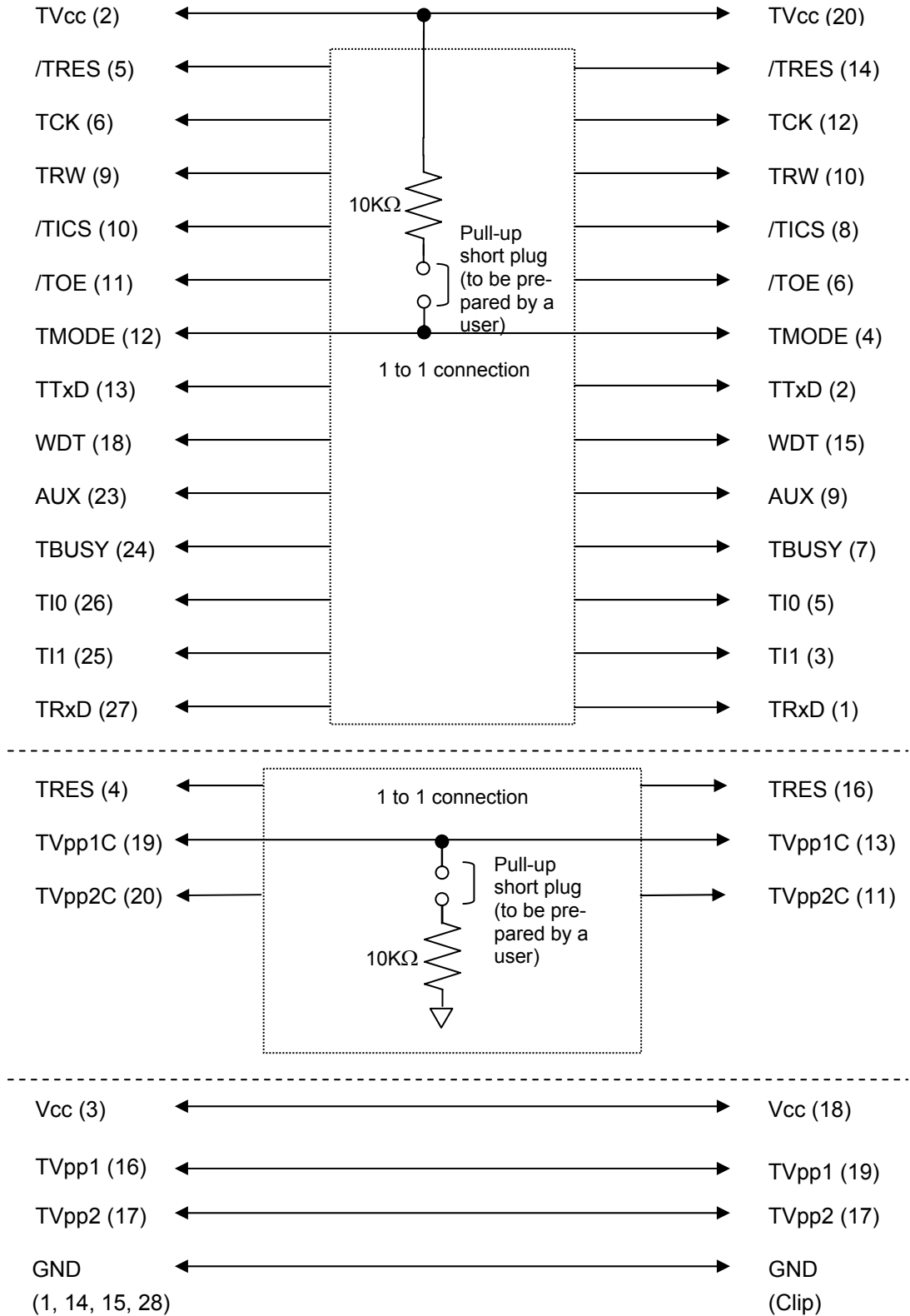
AZ411/AZ413 enables you to optionally add pull-up/pull-down resistors to the control lines running from NETIMPRESS.



AZ411/AZ413

NETIMPRESS' side

User Target's side



5 Adapting to Derivative Microcomputers – Modifying Parameters

5.1 Minor Parameter Modification through the Keyboard of NETIMPRESS

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 MegaNETIMPRESS/C”arNETIMPRESS Instruction Manual, you can modify them through the keyboard of NETIMPRESS. Parameters for communication interface with a target system, voltage of a target system, etc., for example, are included in those you can modify through the keyboard of NETIMPRESS.

IMPORTANT:

You cannot modify wide-ranging parameters and settings of the target microcomputer such as ROM block configuration of flash ROM address (FUNCTION D6) through the keyboard of NETIMPRESS. For modifying them, it is recommended to use the Remote Controller AZ490 that is available for an additional order.

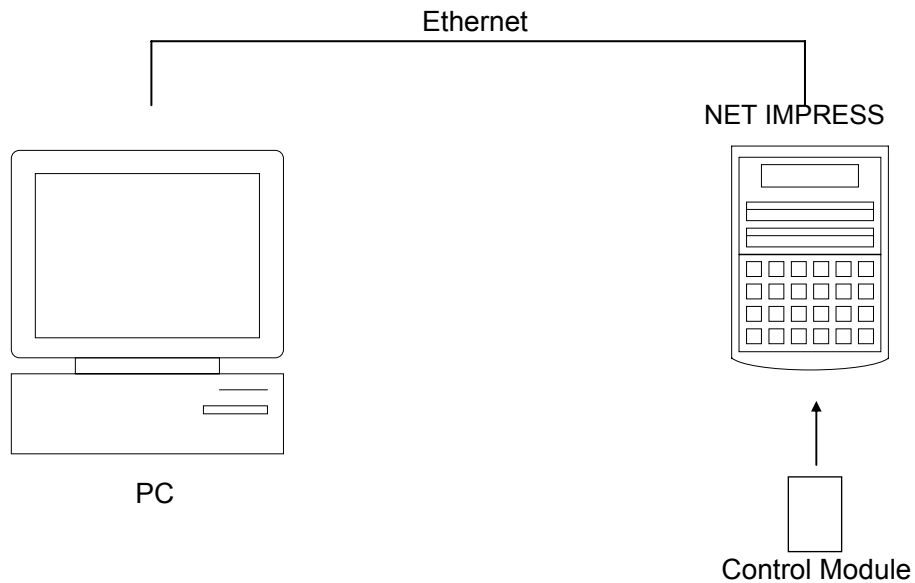
Also, the parameter list of actual microcomputers is available at our Web site. For details, contact your local distributor or us.

5.2 Modifying Parameters for Target Microcomputer using the Remote Controller

The Remote Controller AZ490 for controlling NETIMPRESS remotely from a PC is available for an additional order. 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.

- **MCU Type:** Name of a target microcomputer displayed on the LCD of NETIMPRESS
- **Flash ROM Area:** Flash memory area of the target microcomputer
- **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.
- **MCU Clock:** MCU clock frequency
- **Communication Interface:** Communication interface with a target system.
- **Other:** Microcomputer-specific information defined by the Control Module

5.3 How to Modify Parameters Using Remote Controller Software (AZ490)



Connect a PC and NETIMPRESS using Ethernet cable (10BASE-T).

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

By running the Remote Controller AZ490 on a PC, you can check or modify parameter tables of the Control Module inserted in NETIMPRESS.

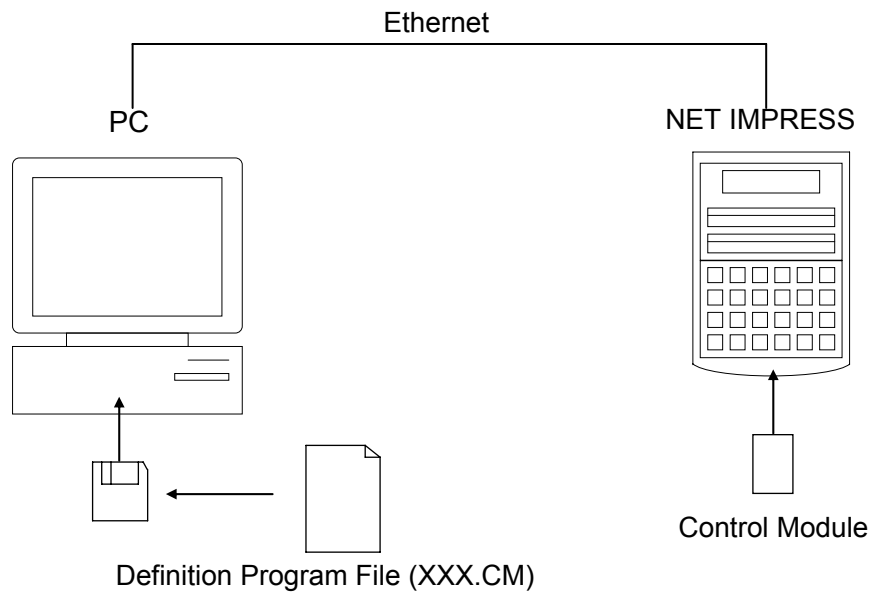
With the Remote Controller AZ490, you can load and save parameters all at once. By saving parameter information generated with the Remote Controller in a PC, you can easily modify parameter tables for various derivative microcomputers of the same family.

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

6 Replacing Definition Program

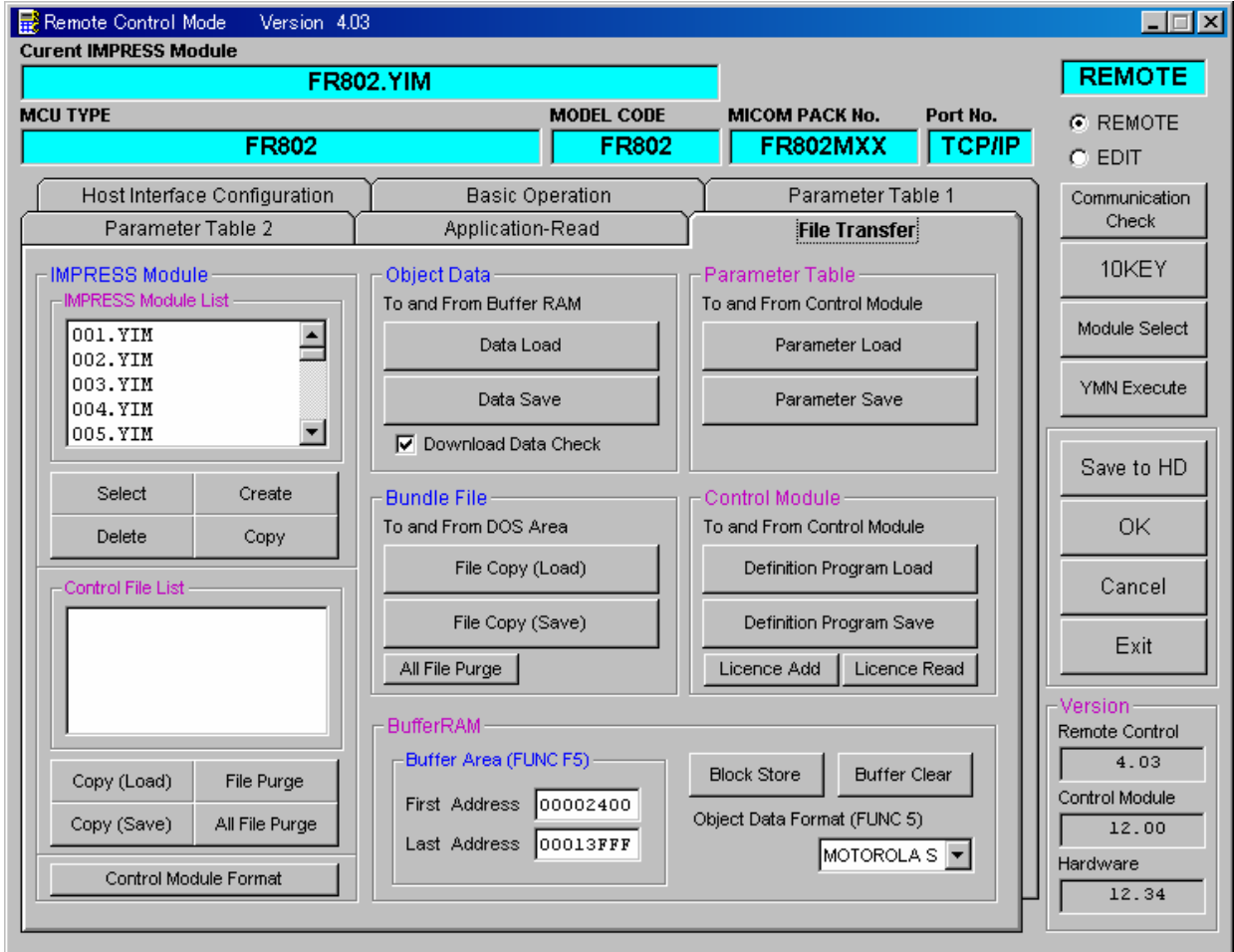
6.1 Overview

The Control Module has the function to support programming microcomputers that have different programming specifications from those of the target microcomputer. You can quickly replace the definition program using the definition program download function of the Remote Controller AZ490, without changing the Control Module. With this definition program replacement function, you can change with other Control Module to program microcomputers of different programming specifications by adding the definition program license to the Control Module. The definition program license is available for your additional order. For any questions, contact your local distributor or us.



6.2 How to Replace Definition Program

By setting the Control Module added with a definition program license into NETIMPRESS, you can replace the definition program of the Control Module using the definition program download function of the Remote Controller AZ490 (Control Module Load to HD button on the File Transfer tab). (Note that you cannot use this function when you are using NETIMPRESS as a stand-alone.) When you purchase the definition program license, download the definition program file (“xxx.CM”), which is in the floppy disk provided with the definition program license, into the Control Module.



7 Notes and Cautions for Using Control Module

- (1) The Control Module FR802 is built for NETIMPRESS. *DO NOT* use this Control Module for any flash microcomputer programmers other than NETIMPRESS series.
- (2) The Control Module FR802 is designed for the specific microcomputer. Do not use this Control Module for programming microcomputers other than the specified microcomputer. Using this Control Module 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 a target system (IC inside NETIMPRESS).
- (4) *Be sure NOT to* initialize (format) the Control Module (Compact Flash Card). The Control Module contains the definition program (the control program), besides the DOS area where you can save your files. Initializing the Control Module results in destroying this control program.
- (5) *DO NOT insert or remove* the Control Module while the Device Functions or the Function key operation is being executed. Be sure not to insert the Control Module into or remove it from the flash microcomputer programmer while accessing it.
- (6) Use NETIMPRESS with the Control Module inserted into it.