

**Control Module
Instruction Manual**

**Control Module
For
Flash Microcomputer Programmer**

**NET IMPRESS
(MegaNETIMPRESS/C"arNETIMPRESS)**

FH820

DTS INSIGHT CORPORATION

FH820 (SH72115)
Instruction Manual
No. M2388AL-05

Revision History

| Edition | Date of issue | Description |
|----------------|----------------------|--|
| First Edition | September 25, 2006 | Initial publication |
| 2nd Edition | December 21, 2006 | EEPROM added Operation frequency changed |
| 3rd Edition | January 24, 2007 | Errata corrected |
| 4th Edition | September 18, 2008 | ID code protect feature added ID code address added |
| 5th Edition | March 27, 2009 | ID code process flow changed |

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1 Overview

The FH820 is the Control Module for MegaNETIMPRESS or C"arNETIMPRESS (collectively "NET IMPRESS"), the advanced on-board flash microcomputer programmer.

The Control Module FH820 supports programming the flash ROM inside Renesas Electronics SH72115 and other equivalent flash microcomputers that have the same programming algorithm and protocol as Renesas Electronics SH72115.

The Control Module FH820 consists of the Compact Flash Card containing the programming control software.

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

The Control Module FH820 is available in three types for your choice: /P128, /D128, and /D512. Choose an appropriate type according to capacity of the Compact Flash Card. /P128 and /D128 support up to 128 Mbyte of the Compact Flash Card, and /D512 is for up to 512Mbyte.

With the D type, you can switch between YIM folders in the Control Module.

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 Control Module FH820, 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 Control Module FH820, 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.

Check the item below.

- (1) Is the microcomputer you are about to use listed on the supported microcomputer list of the Control Module?

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

2 Specifications

2.1 Target Microcomputer and Specifications

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

| | |
|---|--|
| Control Module | FH820 |
| Target Microcomputer | Defined by Micom Packs FH820Mxx *1 |
| User Flash Memory Capacity | Same as above *1 |
| User Flash Memory Address | Same as above *1 |
| User Boot Flash Memory Capacity | Same as above *1 |
| User Boot Flash Memory Address | Same as above *1 |
| EEPROM Flash Memory Capacity | Same as above *1 |
| User Boot Flash Memory Address | Same as above *1 |
| Programming Voltage (Vpp) | Not applied |
| Default | — |
| Vccp (Minimum voltage during programming) | — |
| Object File Format | Intel HEX, Motorola S, Binary |
| Default | Motorola S |
| Target Interface | UART Interface (Asynchronous communication) 2400/4800/9600/19200/31250/38400/62500/76800/ 10400 bps <input type="checkbox"/> MSB first <input checked="" type="checkbox"/> LSB first CSI Interface (Synchronous communication) 62.5 K/125 K/250 K/500 K/850 K/1.25 M/2.5 M/3.3 M bps <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 | — |
| Voltage of target interface during programming | Defined by Micom Packs FH820Mxx *1 |

*1: FH820 supports three types of flash ROM memory, user memory, EEPROM, and user boot memory. For details, please refer to the instruction manual of the Micom Pack.

*2: The internal clock frequency (multiplying ratio) during programming varies depending on the clock mode. See section 2.2 Setting Up Specific Parameters for the clock mode.

2.2 Setting Up Specific Parameters

Complete initial setup by using AZ490, the remote controller running on Windows. For the operating instructions of AZ490, see the AZ490 Instruction Manual.

2.2.1 Parameter Table1 Tab

Set up the parameters for your target microcomputer with the Parameter Table1 tab.

The screenshot shows the 'Remote Control Mode' software interface, Version 5.40. The current module is 'FH820.YIM'. The MCU Type is 'FH820', Model Code is 'FH820', MICOM PACK No. is 'FH820Mxx', and Port No. is 'TCP/IP'. The interface is divided into several tabs: 'Parameter Table 2', 'Application-Read', 'File Transfer', 'Host Interface Configuration', 'Basic Operation', and 'Parameter Table 1'. The 'Parameter Table 1' tab is active, showing various configuration parameters.

Parameter Table 1 Configuration:

- MCU Type (FUNC D8): FH820
- TVcc Threshold (FUNC D3): 2.7 [V]
- Flash ROM (FUNC D6):
 - First Address: 00000000
 - Last Address: 0021FFFF
- ROM Block Configuration:

| Group No. | Start Address | Block Size (byte) |
|-----------|---------------|-------------------|
| Group 1 | 00000000 | 00002000 |
| Group 2 | 00010000 | 00010000 |
| Group 3 | 000A0000 | 00020000 |
| Group 4 | 00200000 | 00020000 |
| Group 5 | | |
| Group 6 | | |
| Group 7 | | |
| Group 8 | | |
| Group 9 | | |
| Group 10 | | |
| Group 11 | | |
| Group 12 | | |
| Group 13 | | |
| Group 14 | | |
- MCU Clock Frequency (FUNC DF): 20.0 [MHz]
- MCU Operation Mode (FUNC D4): 0000
- WDT Clock Period (FUNC D5): 20 [ms]
- Data Communication:
 - Interface (FUNC D1): UART CSI
 - Channel No. (FUNC D7): 0 1 2 3
 - UART Baud Rate (FUNC D2): 76800
 - CSI Baud Rate (FUNC D9): 500K
 - BufferRAM Initialize Mode (FUNC 9A): KEEP
 - SUM Check Mode (FUNC 9C): 8/8bit

On the right side, there are buttons for 'REMOTE' (selected), 'EDIT', 'Communication Check', '10KEY', 'Select Module', 'Execute YMN', 'Save to HD', 'OK', 'Cancel', and 'Exit'. A 'Version' section at the bottom right shows 'Remote Control 5.40', 'Control Module 12.00', and 'Hardware 12.38'.

(1) TVcc Threshold [FUNC D 3]

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 NETIMPRESS main unit, see the MegaNETIMPRESS/C"arNETIMPRESS 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) built in the microcomputer.

You cannot set up flash ROM for NET IMPRESS and this is only for display.

For details, see the MegaNETIMPRESS/C"arNETIMPRESS 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>

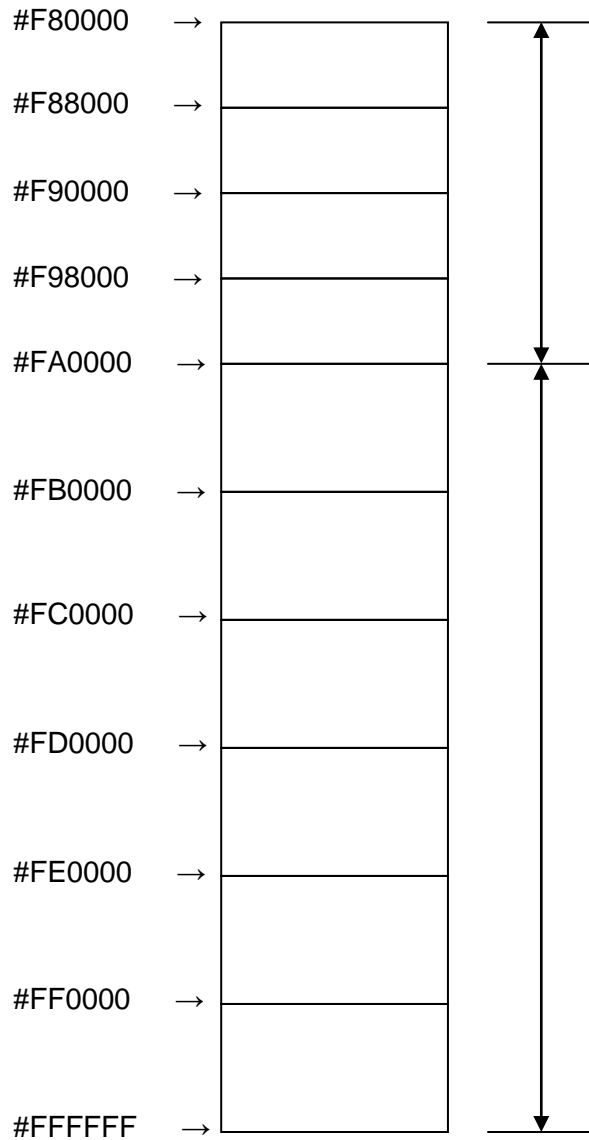
The block data table consists of information of three kinds: Group No., Start Address and Block Size.

- | | |
|----------------|---|
| 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 memory of the size specified in the Block Size sequentially continues, forming one block group. |
| Block Size: | NET IMPRESS understands that the flash memory blocks of a size specified in the Block Size are placed sequentially until a next block group address. Also, by setting the block size to "1", the block will become an access inhibited area. In the access inhibited area, device function is not executed even if it is a device function execution area. |

Example:

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

Block Start Address



Block Group 1

The above example shows the flash memory blocks which have 32K block size from #F80000 continues until a next block size starts (#FA0000).

Block Group 2

The above example shows the flash memory block that has 64K block sizes from #FA0000 continues until the last address (#FFFFFF) of the flash memory.

(4) MCU Clock Frequency [FUNC D F]

Sets up the input clock frequency of the target microcomputer.

For the procedures of setting the clock frequency on NETIMPRESS, see the MegaNETIMPRESS/C"arNETIMPRESS Instruction Manual.

(5) MCU Operation Mode [FUNC D 4]

Sets up microcomputer-specific operation mode.

Set the clock mode to which you use.

(Not required when there is no clock mode on your target microcomputer.)

Example:

Set to "1" when the clock mode to use is 1, and set to "2" when the clock mode to use is "2"
If the right clock mode is not chosen, communication with your target microcomputer will not be established.

(6) WDT Clock Period [FUNC D 5]

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 signal list of section 3.1 "Signal List".

See the MegaNETIMPRESS/C"arNETIMPRESS Instruction Manual, section 5.5.7 "Set Watch Dog Timer" for setting the WDT signal with NET IMPRESS.

(7) Data Communication

This is the field to make communication settings between NETIMPRESS and the target microcomputer. For the FH820, make complete settings as follows.

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

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

For the procedures of setting the communication channel on NETIMPRESS, see section 5.5.2. Communication Channel Setting on the MegaNETIMPRESS/C"arNETIMPRESS Instruction Manual.

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

Not required.

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

Sets baud rate for UART communication.

Select from 2400/4800/9600/19200/31250/38400/62500/76800/10400 bps.

For the procedures of setting baud rate on NETIMPRESS, see section 5.5.3. UART Baud Rate Setting on the MegaNETIMPRESS/C"arNETIMPRESS Instruction Manual.

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

Sets baud rate for CSI communication.

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

For setting up the CSI baud rate with NET IMPRESS, see the MegaNETIMPRESS/C"arNETIMPRESS Instruction Manual, section 5. 5. 4. "Set CSI Baud Rate".

(8) MCU Type [FUNC D 8]

The setting here will be displayed in the MCU Type field located at the top left of the Remote Control Mode window and NETIMPRESS main unit.

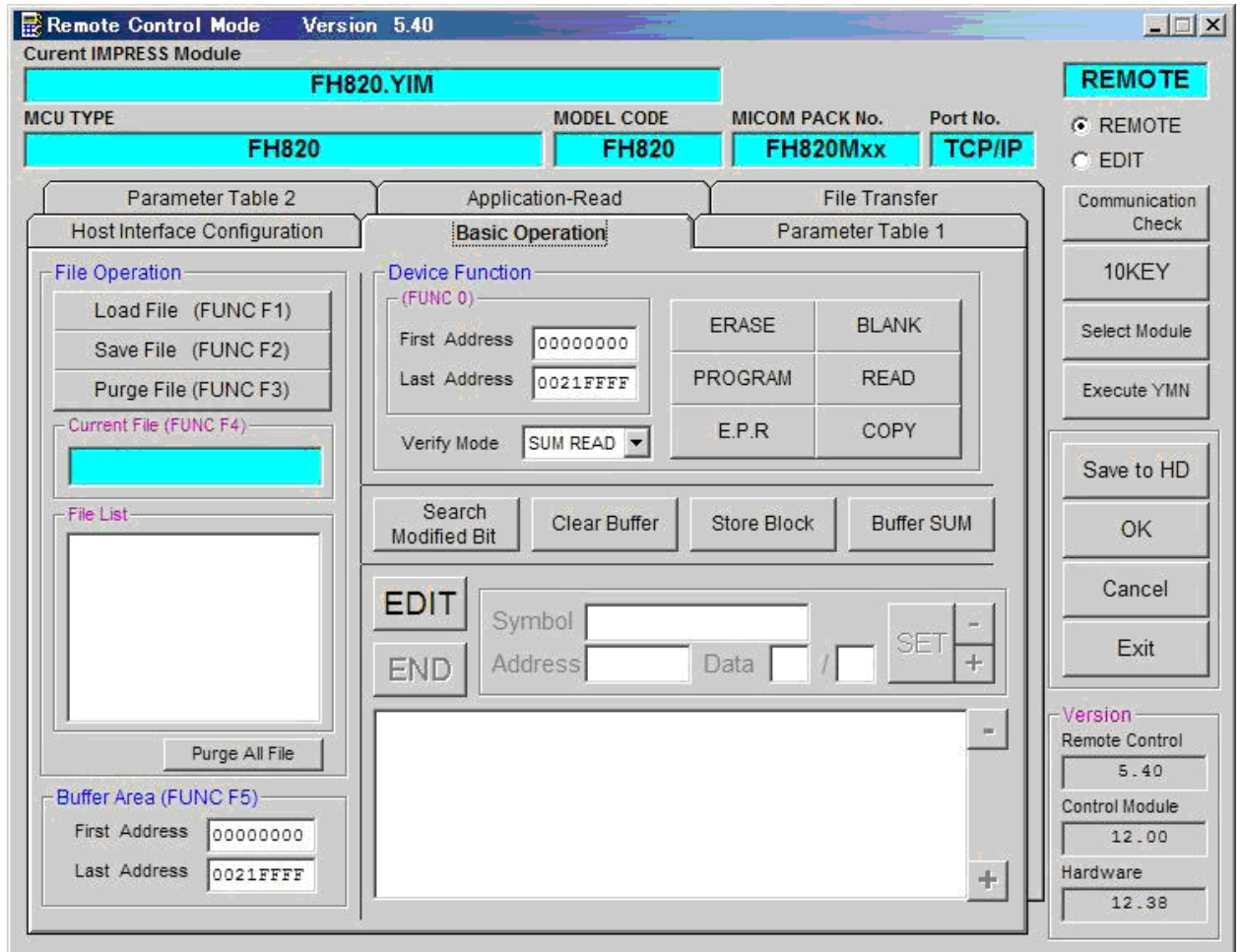
You can enter any characters up to 16 characters such as microcomputer's model name or device name you are using.

(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 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 (2).

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

(2) Buffer Area [FUNC F 5]

Set up an area to save and load the data on the buffer memory of NET IMPRESS (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.

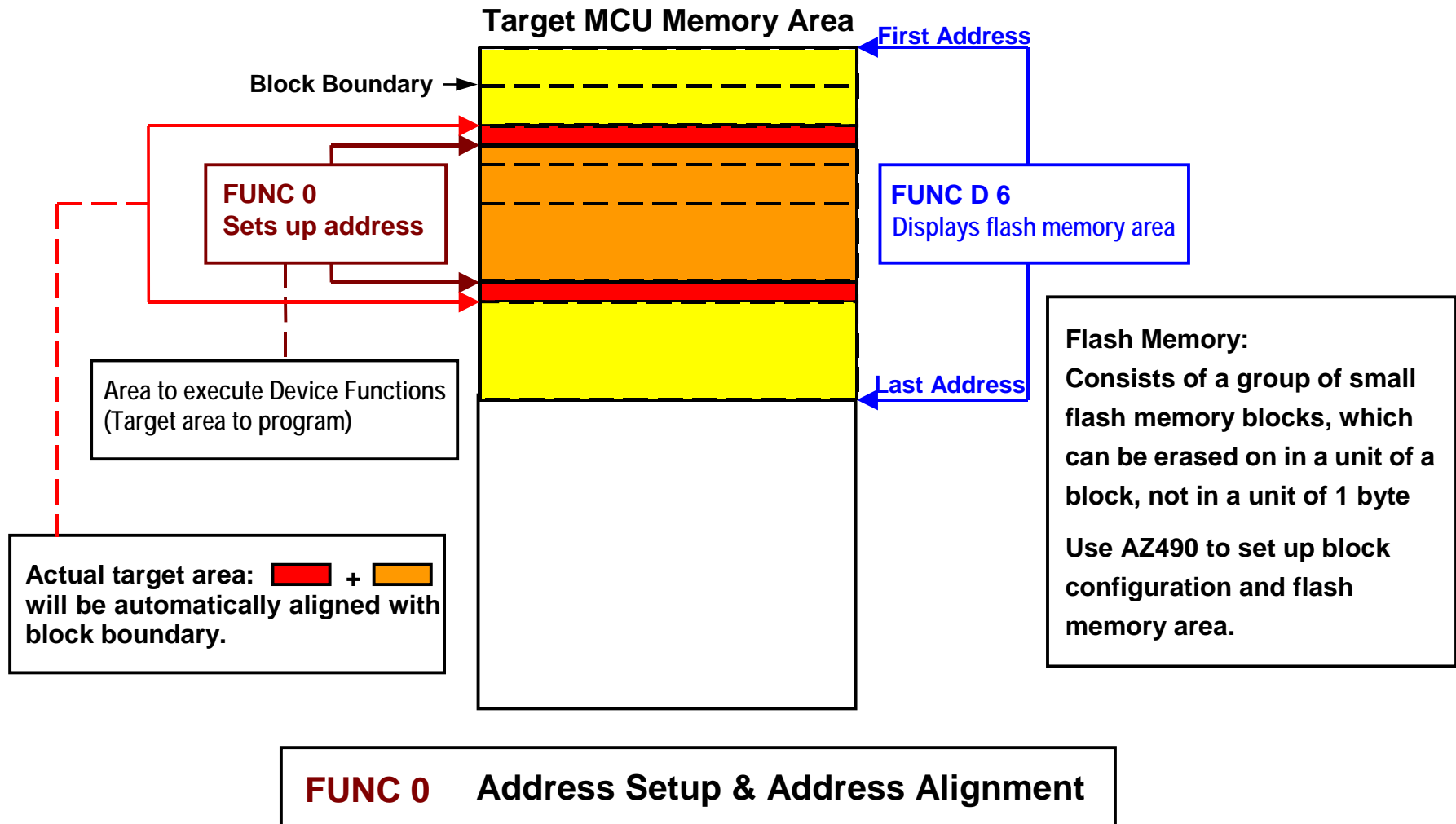


Figure 2-2-2-1

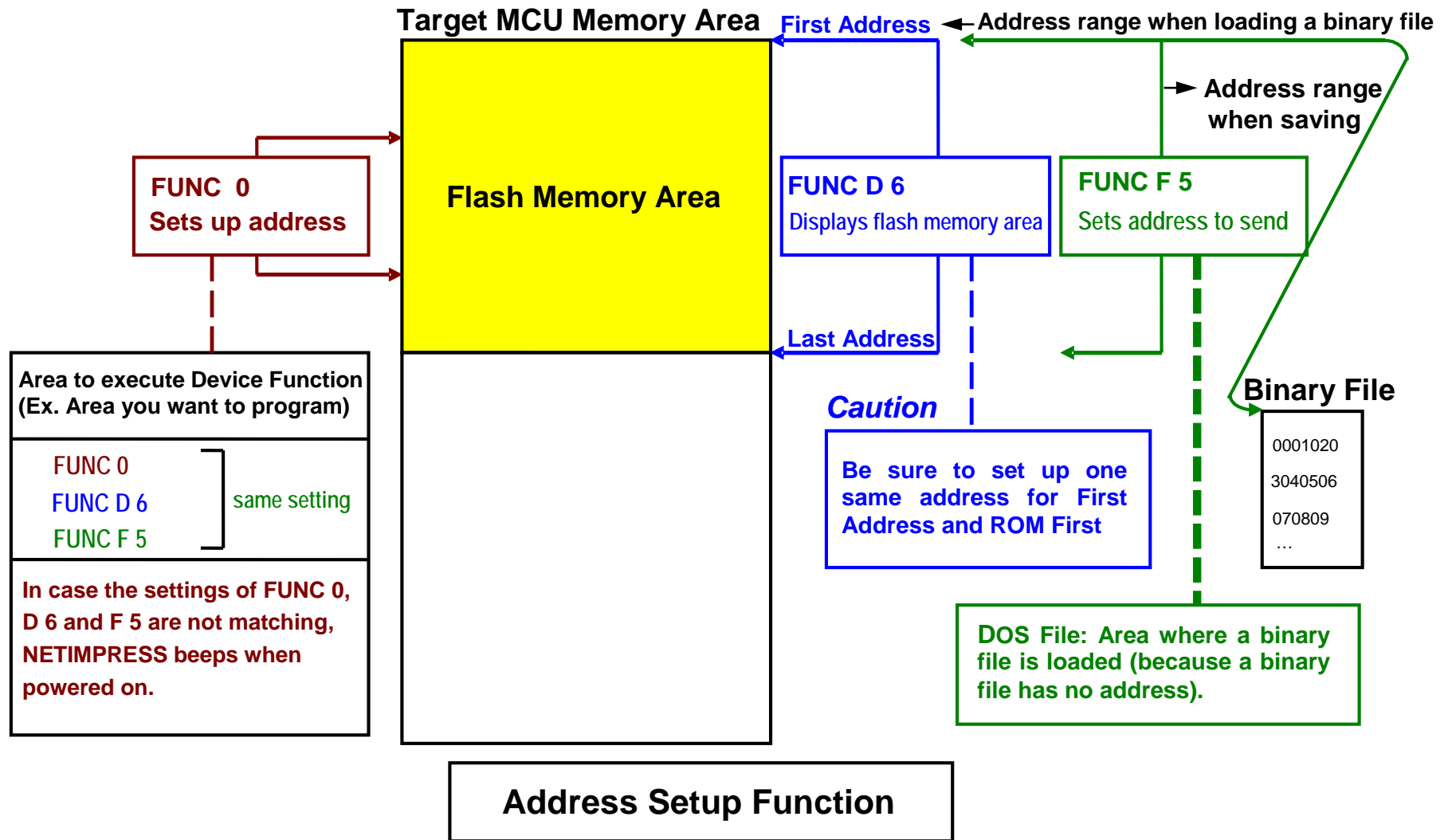


Figure 2- 2-2-2

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 the settings, be sure to consult our support center in advance.

Remote Control Mode Version 5.40

Current IMPRESS Module: FH820.YIM

MCU TYPE: FH820 MODEL CODE: FH820 MICOM PACK No.: FH820Mxx 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 | 08 | 00 | 00 | 02 | 00 | 00 | 13 | 88 | 01 | 00 | F3 | FF | 3F | 00 |
| 0D0: | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 |
| 0E0: | 00 | 00 | 00 | 00 | 30 | 36 | 30 | 31 | 03 | 00 | 00 | 00 | 80 | 10 | 00 | 00 |
| 0F0: | 00 | 10 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 40 | 00 | 00 | 64 | 00 | 64 |
| 140: | 00 | 1E | 00 | 00 | 00 | 00 | 00 | 00 | FF | FF | 18 | 00 | 00 | 00 | 00 | 00 |

- WARNING -

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

Version: Remote Control 5.40, Control Module 12.00, Hardware 12.38

2.3 Device Functions and Their Operation

The table below lists the operations to the flash memory that are executed when NETIMPRESS starts the Device Functions.

| Device Function | | ERASE | BLANK CHECK | PROGRAM | READ | E.P.R | COPY |
|------------------------------------|--|--|--------------------------------|---|-------------------------------|---|--|
| Target Memory Area | A partial areas of flash memory by [FUNC 0] command (with Block Alignment) | — | — | Executed | — | Executed | — |
| | Entire area of flash memory by [FUNC D6] command | — | — | Executed | — | Executed | — |
| Operation executed to Flash Memory | | <input type="checkbox"/> Erase <input type="checkbox"/> Blank | <input type="checkbox"/> Blank | <input checked="" type="checkbox"/> Erase <input type="checkbox"/> Blank <input checked="" type="checkbox"/> Program <input checked="" type="checkbox"/> Read *1 | <input type="checkbox"/> Read | <input checked="" type="checkbox"/> Erase <input type="checkbox"/> Blank <input checked="" type="checkbox"/> Program <input checked="" type="checkbox"/> Read *1 | <input type="checkbox"/> Copy <input 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. To set up the Read mode with NETIMPRESS, see section 5.5.16 Read Mode Switching (Function 99) on NETIMPRESS instruction manual.

(1) SUM READ VERIFY: A SUM value 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.

3 Copying Write Control Program into Microcomputer

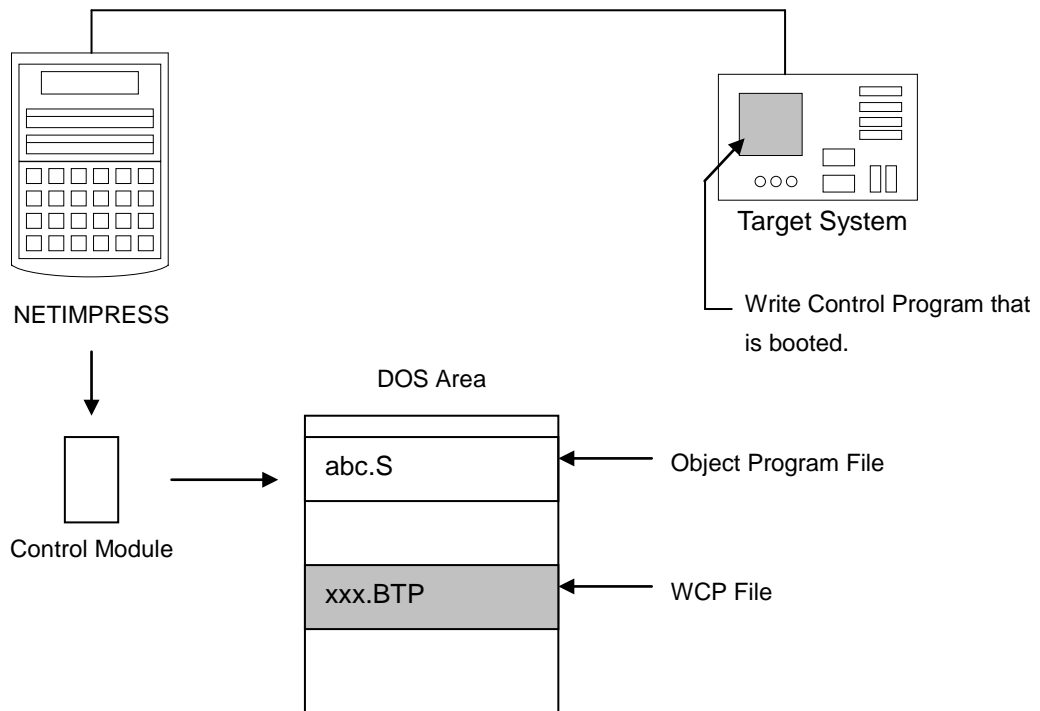
3.1 Overview

With this control module, before executing commands, the Write Control Program (WCP) is sent to a microcomputer on a target system. The microcomputer executes the programming sequence under this write control program.

Copy the write control program into the DOS area of the control module and save it under a file name with an extension ".BTP" beforehand.

Only one BTP file can be placed in the DOS area of the control module.

More than two BTP file can not be placed, or if there is no BTP file NETIMPRESS do not operate.



3.2 Copying the Write Control Program File

Save a write control program file (BTP file) into the DOS area of this control module by following the procedures below.

- (1) Set this control module in a PC that has a PCMCIA card slot. Make sure that the PC card driver has been properly installed in advance.
- (2) Copy the write control program (xxx. BTP) downloaded into the DOS area of the control module.

4 ID Code Protect Function

4.1 Overview

The control module FH820 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.

4.2 Entering ID Code

The figure 4.1 shows the ID code processing flow of the flash microcomputer 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.

Please 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 (YMxxH820.AMK) in the DOS area of the control module.

(A master key file is in the floppy disk provided with the control module. Also, the specific master key file for your microcomputer is provided.)

When you use NETIMPRESS as 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.

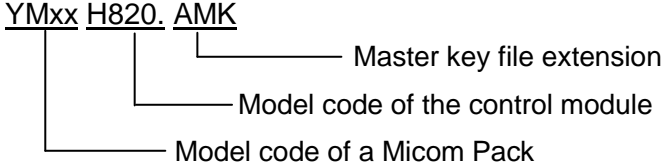
You can easily generate an ID file by using the file generator AZ481 that is available for an additional order.

The below table summarizes the entry methods of ID code.

| ID Code Entry method | NETIMPRESS is remotely controlled from a PC. | AF200 is operating in the stand-alone mode |
|---------------------------------|--|--|
| Enter ID code using an ID file. | ○ | ○ |
| Enter ID code from keyboard. | × | ○ |

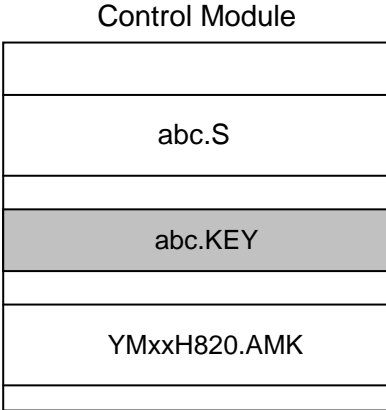
The master key file (YMxxH820.KEY) is placed in an appropriate Micom Pack, that you can download from our Web site.

A master key file name is formed as follows.

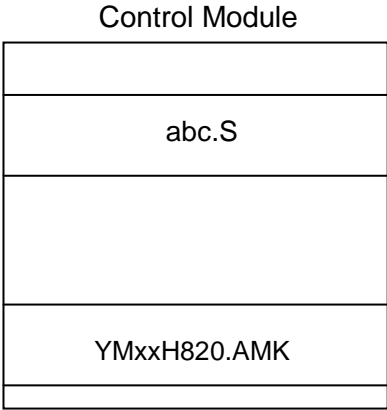


You can place multiple master key files in the control module.

To use the master key file, download an appropriate Micom Pack from our Web site and save the YMxxL816.AMK in the DOS area of the control module.



When a key file (abc.KEY) of the current object file (abc.S) exists in the control module, NETIMPRESS treats this abc.KEY file as an ID file and sends an ID code from this file to the microcomputer.



When no key file (abc.KEY) of the current object file (abc.S) exists in the control module, NETIMPRESS displays an ID code address as a guidance on the LCD using the master key file (YMxxH820.AMK).

<ID CODE Process Flow>

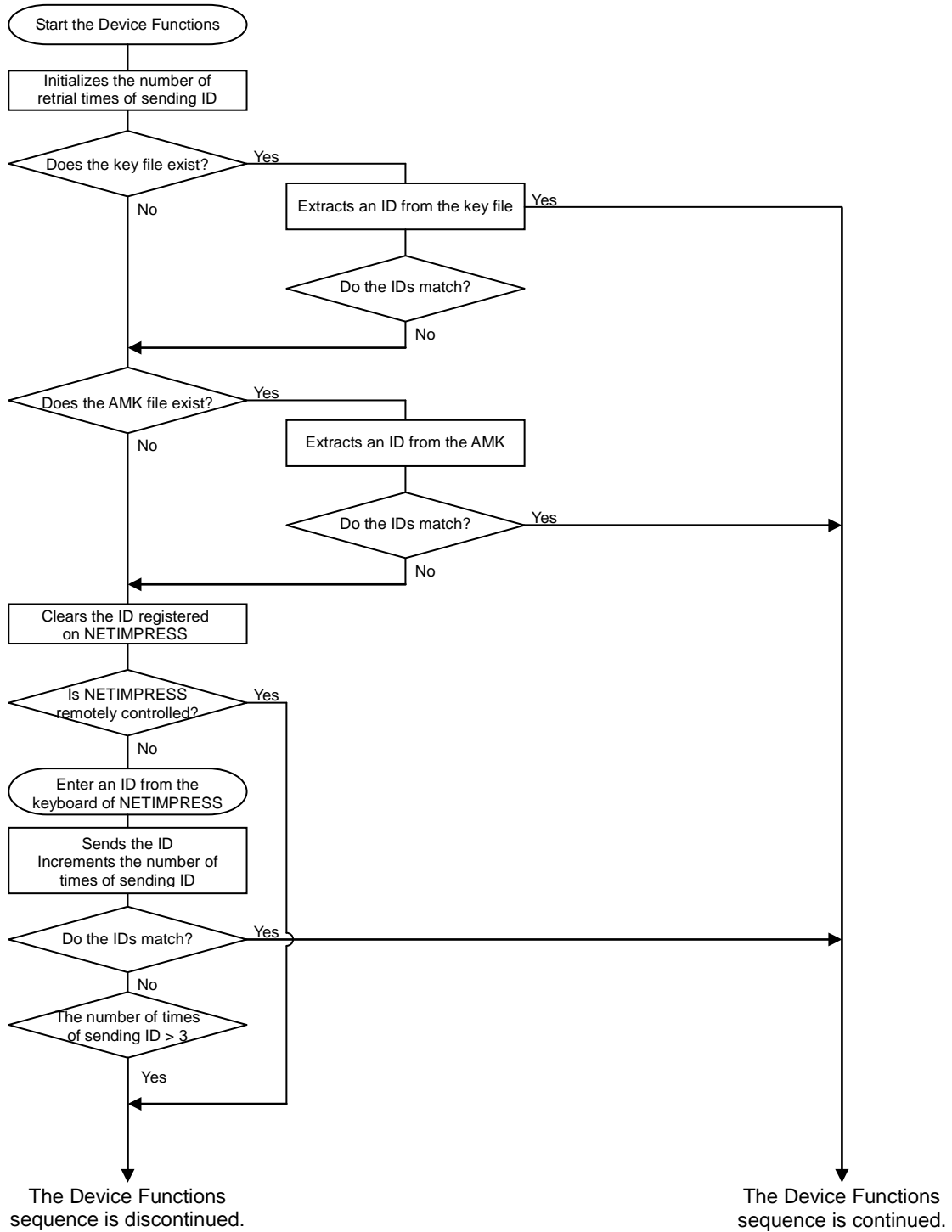


Figure 4.2.1

4.3 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 (YMxxH820.AMK) into the DOS area of the control module. If an ID file of the 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 the 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.

| | |
|------------|---------|
| FH820 | |
| / | /COPY / |
| A=00000060 | /D=FF |

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

| | |
|------------|---------|
| FH820 | |
| / | /COPY / |
| A=00000061 | /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 again the password entry sequence from the beginning.

If NETIMPRESS receives three illegal ID code responses, it discontinues the device functions sequence.

4.4 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 the 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.

```
S30600000060FF9A
S30600000061FF99
S30600000062FF98
S30600000063FF97
S30600000064FF96
S30600000065FF95
S30600000066FF94
S30600000067FF93
S70500000000FA
```


4.5 Processing ID Program

When you program the flash ROM with this control module FH820, 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 use the ID PROGRAM function, 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, an error message "YIA FILE NOT FOUND" will be shown and the Device Function will be 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 by setting to “OFF”, keep in mind that a SUM value of a programming object differs from the one at a time of writing.

5 Connecting to the Target System and Connector

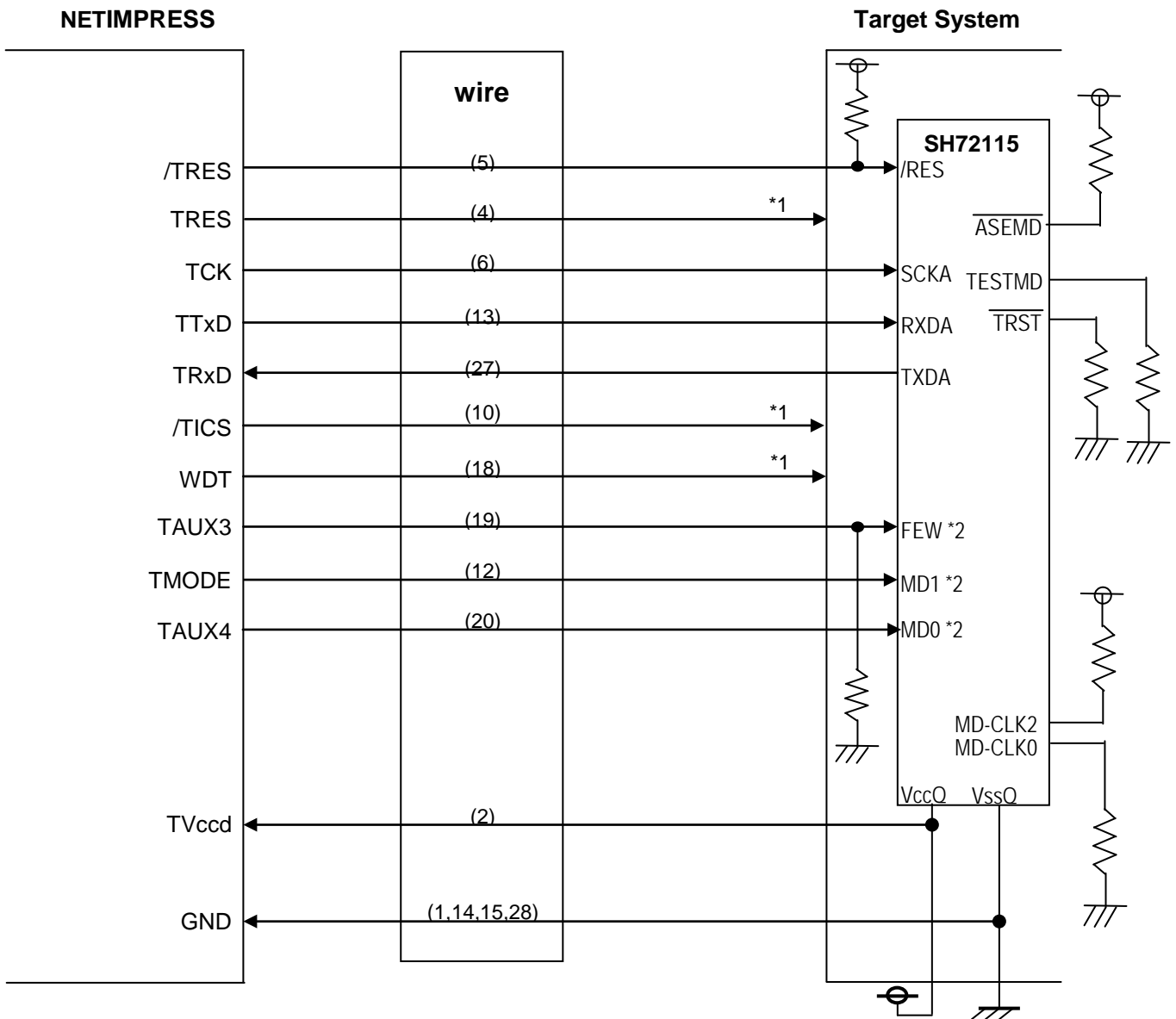
5.1 Signal List

| Microcomputer | NETIMPRESS Standard Signal | | | | Microcomputer |
|----------------|----------------------------|------|------|-------------|----------------|
| GND | GND | (15) | (1) | GND | GND |
| | TVpp1 | 16 | (2) | TVccd | Vcc |
| | TVpp2 | 17 | 3 | Vcc | |
| Watchdog pulse | WDT | (18) | (4) | TRES | Positive /TRES |
| FWE | TAUX3 (TVpp1C) | (19) | (5) | /TRES | /RES |
| MD0 | TAUX4 (TVpp2C) | (20) | (6) | TCK | SCKA |
| | Reserved | 21 | 7 | Reserved | |
| | Reserved | 22 | 8 | Reserved | |
| | TAUX | 23 | 9 | TAUX2 (TRW) | |
| | TBUSY | 24 | (10) | /TICS | |
| | TIO | 25 | 11 | /TOE | |
| | TVccs | 26 | (12) | TMODE | MD1 |
| TXDA | TRXD | (27) | (13) | TTXD | RXDA |
| GND | GND | (28) | (14) | GND | GND |

Target Probe Signal List (FH820)

- Be sure to connect the signals marked with “○” to the target system.
- For the signals in parentheses, connect them only when necessary.
- For the signals not marked with “○” or not in parentheses, be sure not to connect them to a circuit of the target system.

5.2 Model Connection to Target System



*1: Use if necessary.

*2: They are not required to be connected when they are set up to the specified values as listed below on a target system.

| Signal Name | Value |
|-------------|-------|
| FWE | Vcc |
| MD0 | Vss |
| MD1 | Vss |

When connecting them to NETIMPRESS, add proper pull-up or pull-down resistor.

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

/TICS signal is asserted only when NETIMPRESS is performing 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 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).

(2) WDT Signal:

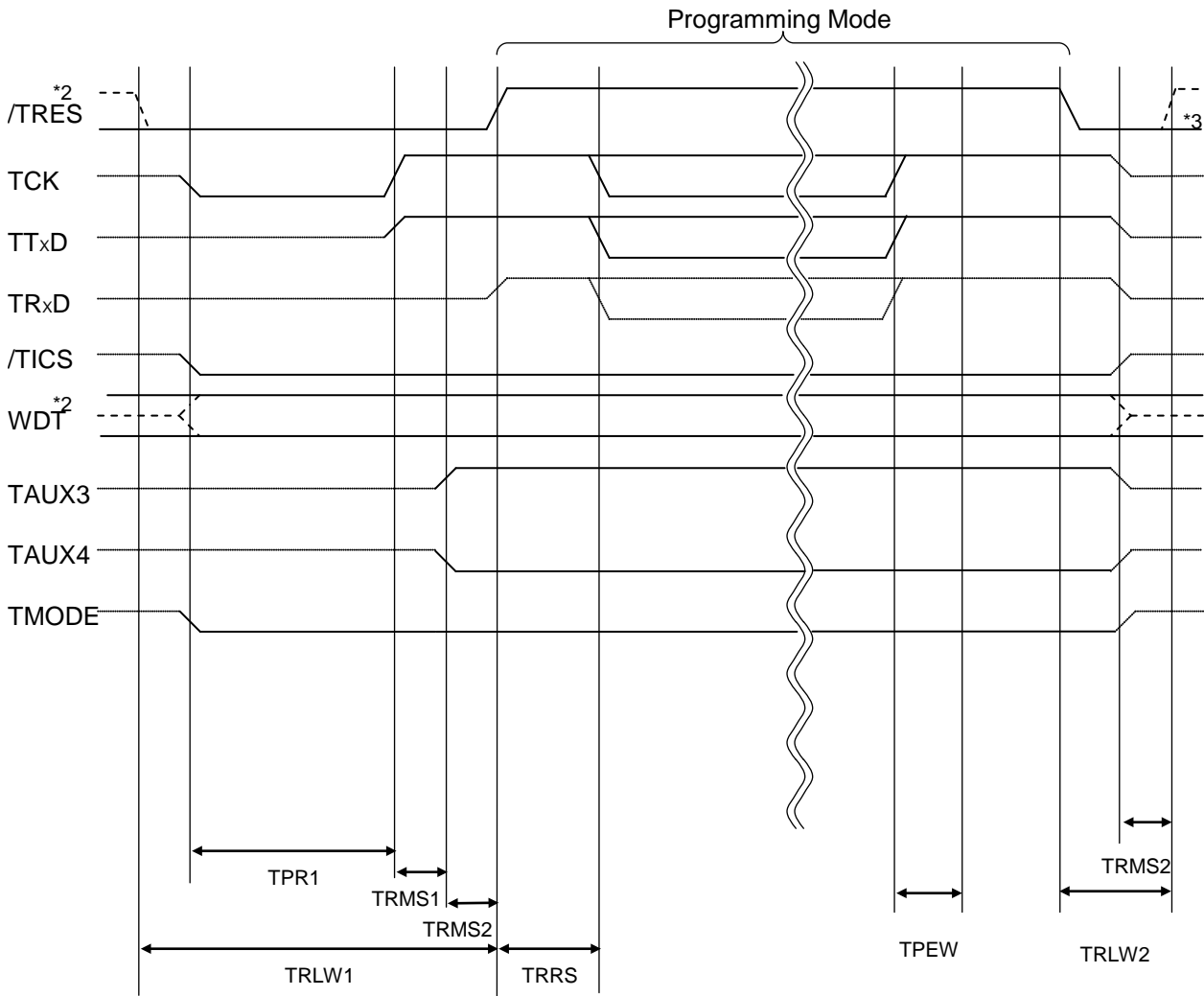
The clock signal defined with the WDT Clock Period [FUNC D 5] is constantly output from WDT signal terminal by NETIMPRESS. (It is output only during /TICS is asserted: Open collector output)

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.

5.3 Waveform of Control Signal



| NETIMPRESS Specification | |
|--------------------------|--------|
| TPR1 | 200 ms |
| TPR2 | 100 ms |
| TRLW1 | 350 ms |
| TRLW2 | 100 ms |
| TRMS1 | 50 ms |
| TRMS2 | 50 ms |
| TRMH | 5 ms |

*1: The dotted line “-----” indicates hi-Z state.

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

*3: Optional function

- (1) Turn on power of NETIMPRESS first and then the target system. Then, NETIMPRESS asserts a reset signal and periodic pulse is output from the WDT signal (output).
- (2) NETIMPRESS asserts a reset signal to switch a target microcomputer to programming mode.
- (3) /TICS signal is asserted by execution of the program command, 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.).
- (4) The programming mode, upon being executed, starts communicating with NETIMPRESS using a specified communication circuit.

Channels specified at the MPU Clock Frequency [FUNC D F] in advance will be selected for communication circuit.

- (6) NETIMPRESS also negates /TICS signal. While /TICS signal is asserted, WDT signal continues to generate periodic pulse signal (the clock to input to a watchdog timer of the target system).

5.4 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”.

AZ411/AZ413

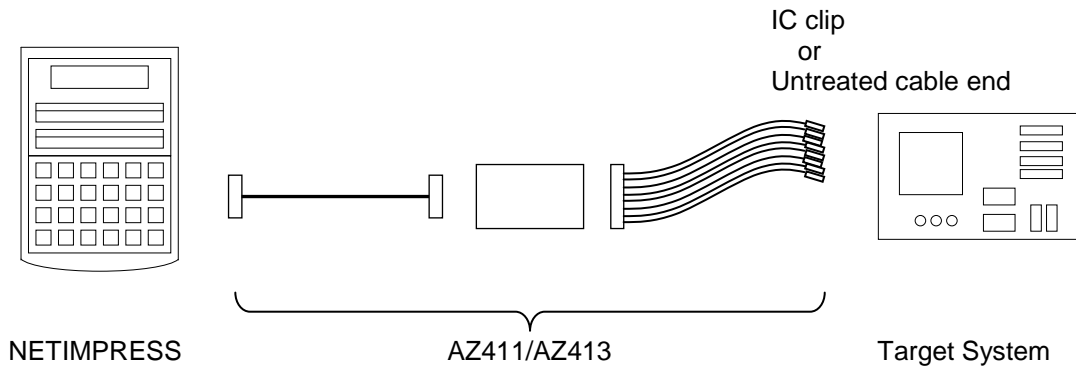
Most of I/O lines of NETIMPRESS have $1M\Omega$ pull-down resistors between the GND line and signal lines.

Also, control lines from NETIMPRESS that are used on the target system must be kept negated not to disturb the target system when connectors for NETIMPRESS are removed.

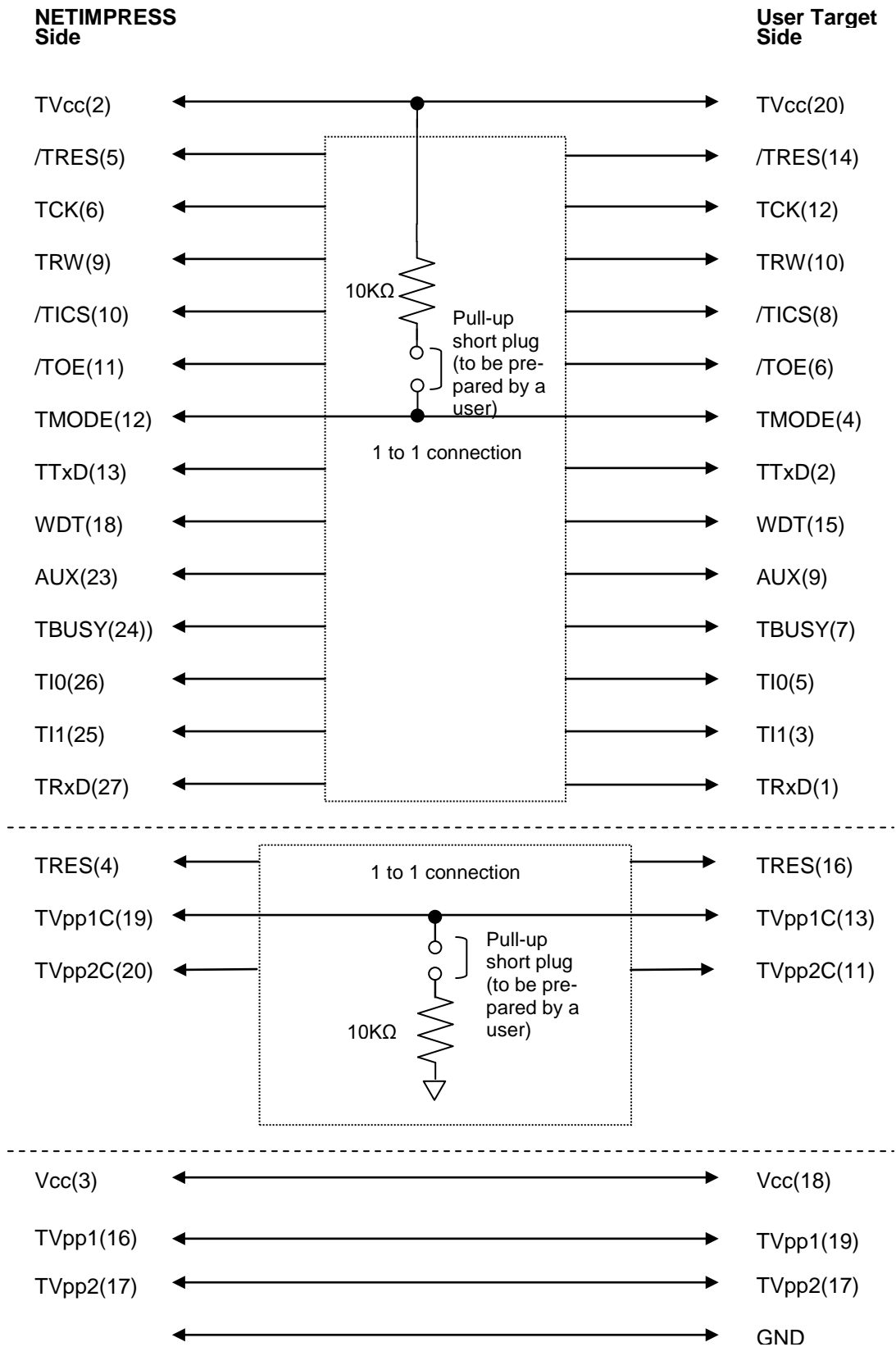
It is recommended to either pull up the power or pull down the GND signal for these control lines with about $10K\Omega$ resistors on the user system.

In case the pull-up resistor of about $10K\Omega$ 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.



AZ411/AZ413



6 Adapting to Derivative Microcomputers – Modifying Parameters

6.1 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 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 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.

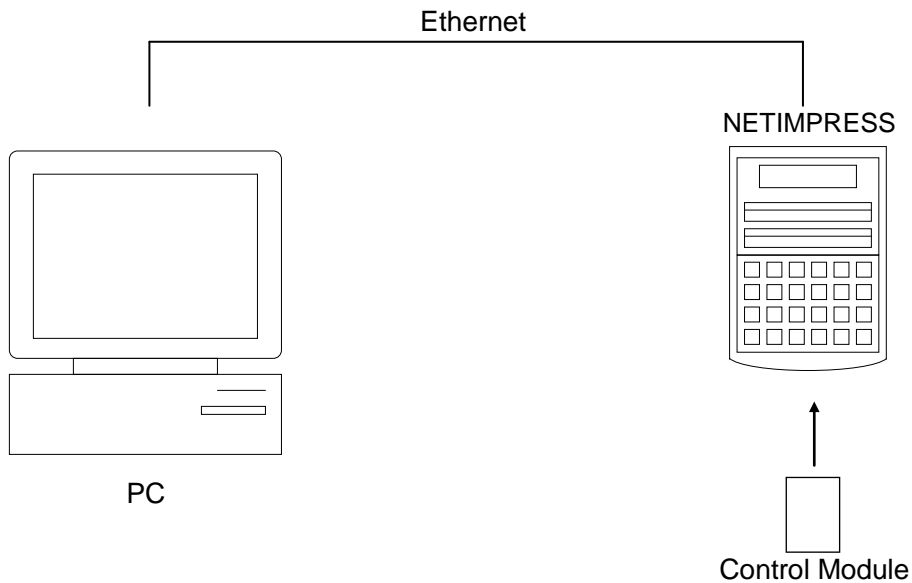
Also, the parameter list of actual microcomputers is available at our Web site. For details, contact your local distributor or us.

6.2 Modifying Parameters for Target Microcomputer using the Remote Controller

The remote controller software 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
The name of a microcomputer displayed on the LCD of NETIMPRESS can be customized.
- Flash ROM Area: Flash memory area of a 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: You can set up a communication interface with a target system.
- Other: Microcomputer-specific information defined by the Control Module (i.e., parameters specified by pressing → →)

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



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

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

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

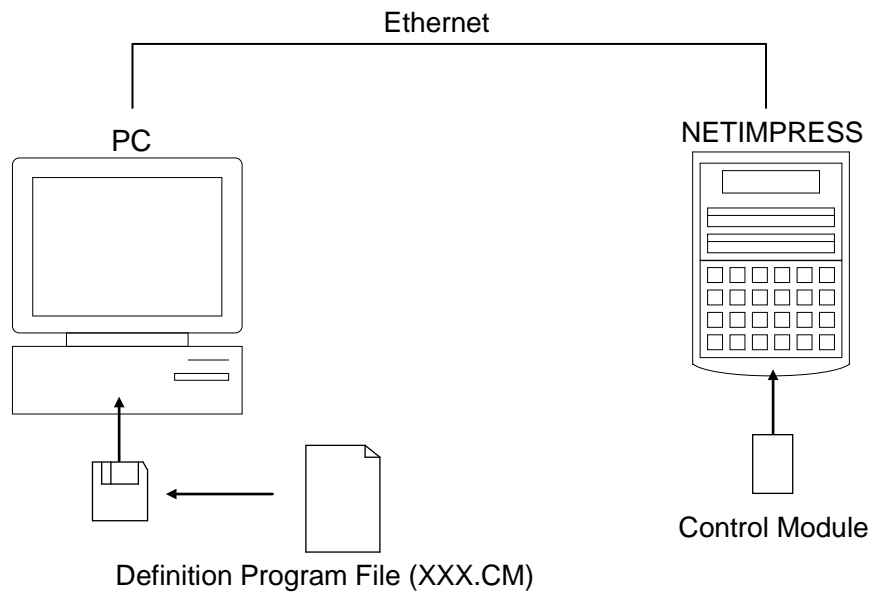
With the Remote Controller AZ490, you can load and save parameters all at once. By saving parameter information generated with the Remote Controller in a PC, you can easily modify parameter tables for various derivative microcomputers of the same family.

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

7 Replacing Definition Program

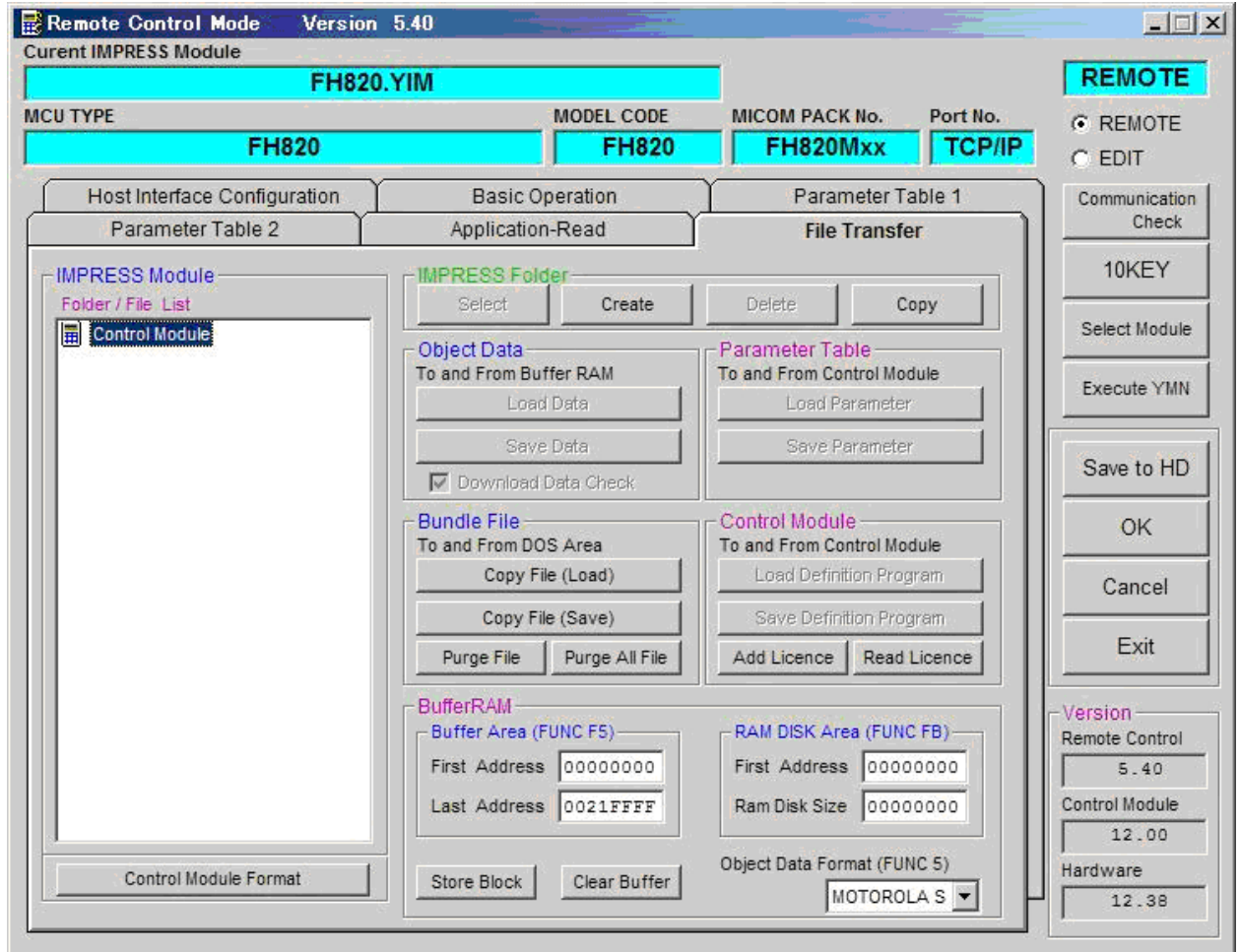
7.1 Overview

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, instead of changing the Control Module. With this definition program replacement function, you can replace 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.



7.2 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 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 floppy disk provided with the definition program license, into the Control Module.



8 Programming Target

8.1 Overview

This Control Module supports programming on three areas of a target microcomputer, a user memory area, a user boot memory area, and an EEPROM area. By choosing a suitable parameter file, programming target area can be selected.

For details, refer to the instruction manual of a Micom Pack.

8.2 User Boot Memory

Copy data to be programmed on a user boot memory with extension “.BOT” into the DOS area of the Control Module. It is necessary when using a parameter file which is configured to program data on a user boot memory. Only one .BOT file can be saved in the DOS area.

The supported data formats are Intel HEX, Motorola S, and binary.

Either file format, the file extension has to be “.BOT”.

*Programming on a user memory area can be done by standard operation.

8.3 Parameter File

There are four types of parameter file designed each for programming target area.

| Parameter File Name *1 | Programming Target Area |
|------------------------|--|
| VXXXMXXH820_ueb.prm | User memory + EEPROM + User boot memory *2 |
| VXXXMXXH820_u.prm | User memory |
| VXXXMXXH820_b.prm | User boot memory |
| VXXXMXXH820_e.prm | EEPROM |

*1: The “ueb”, “u”, “b”, and “e” before the extension “.prm” indicate where to program.

*2: It is required the buffer memory size is more than the sum of user memory and EEPROM and user boot memory.

8.4 Notes

Once programming is executed, a user memory area, an EEPROM area, and a user boot area are all erased. If you wish to program all areas, make sure to use the parameter file which is configured for programming all areas, a user memory, an EEPROM, and a user boot memory.

9 Notes and Cautions for Using Control Module

- (1) The Control Module FH820 is built for NETIMPRESS. *DO NOT* use this Control Module for any flash microcomputer programmers other than the NETIMPRESS series.
- (2) The Control Module FH820 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 the 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 or remove the Control Module from the flash microcomputer programmer while accessing it.
- (6) Use NETIMPRESS with the Control Module inserted into it.