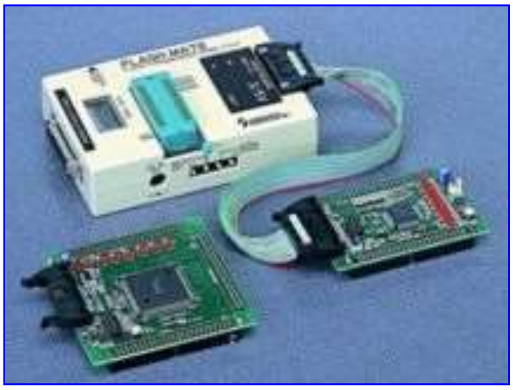
Hokuto Electronic Flash memory **MCU** PROGRAMMER

FLASHMATE5V1



USER'S MANUAL

For the Operation Procedures

Windows Japanese Environment

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Other Expendable Supplies エラー! ブックマークが定義されていません。

FLASHMATE5V1 control software requires Windows95, Windows98, WindowsMe, WindowsNT, Windows2000 & WindowsXP Japanese version as OS environment, Microsoft products.

株式会社北斗電子 (ck++)
HOKUTO DENSHI CO,.LTD.

IMPORTANT

Do not use the FLASH MATE 5V1 before reading this user's manual.

MATTERS ON SAFETY:

Make sure that you fully understood this user's manual, before using the **FLASH MATE 5V1** and power adapter. Reading the manual is the responsibility of the **FLASH MATE 5V1** users to fully understand all the matters.

THINGS OF IMPORTANCE

The **FLASH MATE 5V1** and attached software are products made by HokutoDenshi Co., Ltd.

The FLASH MATE 5V1 is made up of a programming writer which rewrites programs to a Flash ROM built-in microcomputer made by Renesas Electronics Corp. The FLASH MATE 5V1 is not to be used for any other purpose other than what is specified in this manual.

THE **FLASH MATE 5V1** MUST NOT BE ALTERED IN ANY CASE.

HokutoDenshi Co., Ltd. is always improving the product design and performance. These changes will be notified with releases of future product releases.

Users of **FLASH MATE 5V1:** Users only who have fully read and understood the manual should use the **FLASH MATE 5V1**.Users who have not read and not fully understood the manual must not use the **FLASH MATE 5V1**.

Possession/Ownership/Copyright**:** The **FLASH MATE 5V1** described in the manual is protected by copyright and this copyright is the property of HokutoDenshi Co., Ltd

Product Diagrams**:** There may be cases where a product diagram in the manual differs from the product.

HokutoDenshi Co., Ltd. has no responsibility for damages and dangers that may come about from incorrect use of the **FLASH MATE 5V1**. All incorrect usage's and subsequent warnings against these usages, that may not have been thought, are the responsibility of the users of **FLASH MATE 5V1** who use the **FLASH MATE 5V1** according to the usage as is specified in the manual.

WARNINGS

Failure to adhere to the following warnings may result in possible heat, smoke and fire damage to the **FLASH MATE 5V1** and surrounding systems.

1. Don't disconnect and don't reconnect power cables while power is on.
2. Don't remove and don't replace any circuit while power is on.
3. Don't use power voltages other than what is specified in circuit diagram.
4. Be sure to use the correct connector cables when connecting between the **FLASH MATE 5V1**, MCU and peripheral systems.

LIMITED GUARANTEE

HokutoDenshi Co., Ltd. guarantees that the **FLASH MATE 5V1** can be used by the usage described in this manual by HokutoDenshi Co., Ltd., and guarantees that the **FLASH MATE 5V1** has been produced correctly and is free of any defects per the products specification. The **FLASH MATE 5V1** is guaranteed for 1 year after purchase of the **FLASH MATE 5V1**.

WHAT THIS GUARANTEE DOES NOT INCLUDE

HokutoDenshi Co., Ltd. guarantees the product only when the product is used correctly as described in this manual. This guarantee is not valid if the product is misused for purposes other than that specified in this manual. The guarantee is valid only for the materials used to construct the product.

HokutoDenshi Co.,Ltd accepts no responsibility for whatever costs associated directly(or indirectly) with damaged(or faulty) goods. This guarantee is valid for only the original purchaser of the product.

For the damages arose cumulatively, when the guarantee explicitly covers the damages, the guarantee is limited to received value of the product price no matter what the reasonsare.

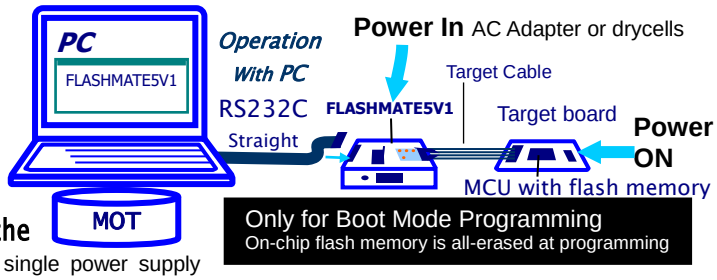
Any application for retailing the product by a third party can not be accepted. The purchaser of the product assumes all responsibility after the **FLASH MATE 5V1** purchase.

This guarantee is not valid in the following cases.

1. Fire, earthquake, flood, an accident caused by a third party, etc.
2. Incorrect use, misuse, abuses user mistake and / or use in an improper environment.
3. The product has been altered in any way or tampered with.
4. The method of use has resulted in damage to the product, or a defect with the product.

FLASH MATE 5V1 Features

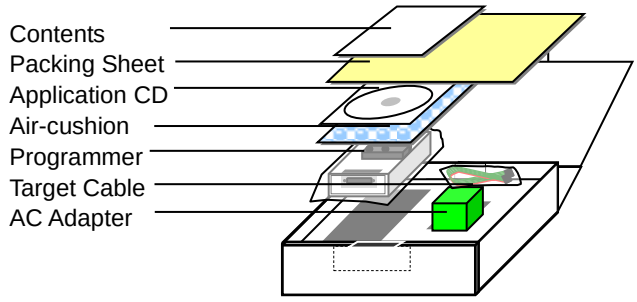
FLASH MATE 5V1 has been designed for Renesas Electronics enhanced Flash memory MCU Microcomputers as its "On-board" programmer.



- **Its internal 1.5MB flash memory** brings several choices. And ROM socket on its body can provide another choice as for your master ROM.
- **Clock synchronous communication** realizes quick programming. 600Kbps is the maximum setpoint from FLASHMATE5V1 to target MCU.
- **Supplementing source with only upgrading the firmware,** FLASH MATE 5V1 can adapt to every new single power supply MCU . We present the new version for all Flash memory MCU releasing one after another.
- **The secondary area can be programmed.** FLASHMATE5V1 can program the on-chip E2PROM of H8/3664N, the User Boot mat of H8/3069F and SH7058F. And also it progress to the expanded flash memory of H8SX/1650, ROM-less MCU.
- **The debugging interface is able to use for the on-chip emulation type one** in H8/Tiny and Super Low Power series MCU. That interface is in common to our debugger LILAC-T and Renesas Electronics's E7.

◆ Product and contained accessories

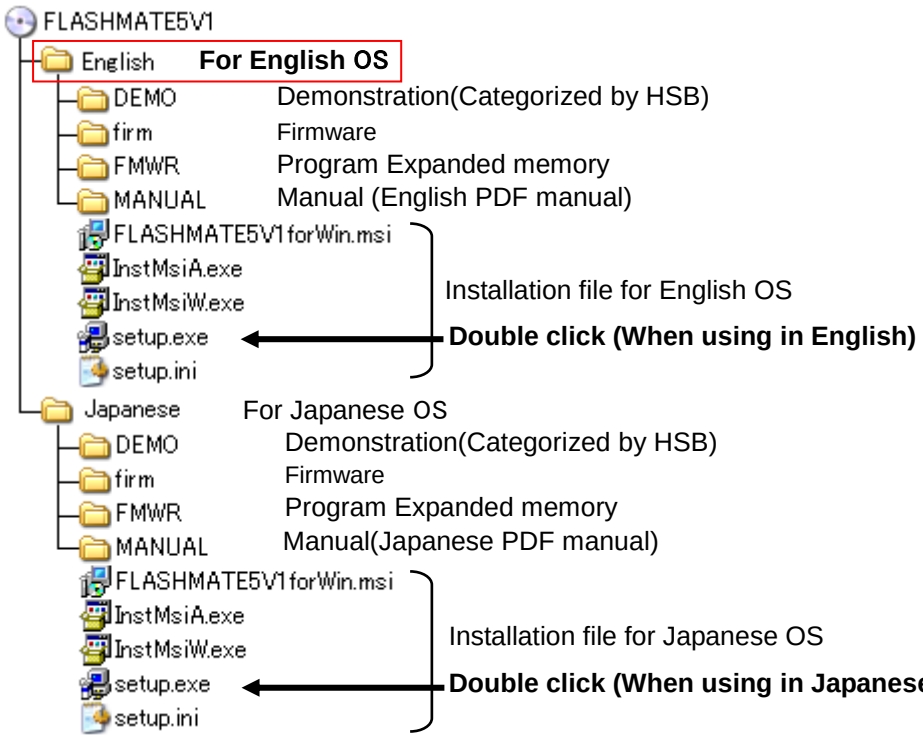
Package Style Corrugated carton **size 212 x 277 x 62 mm**



This AC adaptor is restricted only for Japanese domestic use. For direct shipping abroad, AC adapter is taken off for safety.

＊Instruction manual (how to use) and Information book is supposed to be recorded in an attached CD from Mar.05.2008.

◆ The provided CD includes



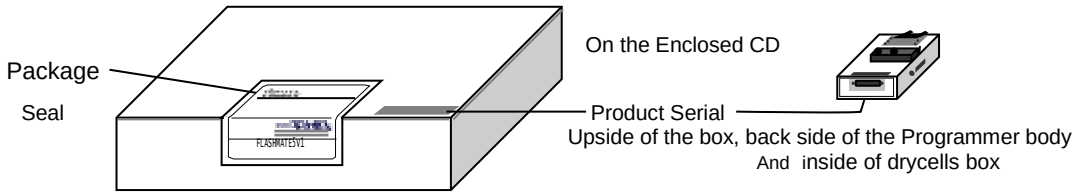
About Demonstration Program

In the demo folder, there are LED's blinking programs with reference sources. MOT file among them is realized quick evaluation of each board.

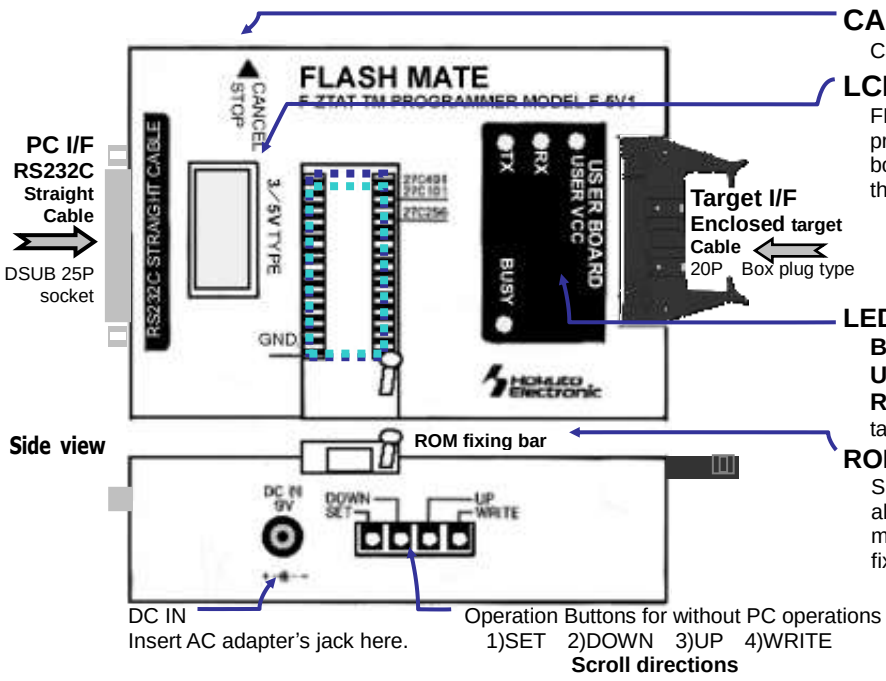
◆ Specifications

MCU available:	Renesas Electronics's Flash memory MCU of single power supply And Expanded memory of H8SX/1650 and H8SX/1651. *See the available type name list at the end.* ** MCU that appears in this document is the flash memory edition.* *(H8SX/1650, H8SX/1651 group is excluded.)*
Available file format:	MOT format with ".mot" extension (Motorola S files)
PC interface:	RS232C-serial-port (the straight cable is required for the connection.) The DUSB 25 pins socket is equipped as the programmer's PC interface connector. See the note in the "User's Guide" about the connection in the straight cable.
Power Supply:	AC adapter (DC9V) or 2 alkaline drycells (LR6/1.5 volt) The provided AC adapter is verified for Japanese domestic use only. Specifications of AC adapter Input Voltage :AC100～240V Frequency :50～60Hz Electric current: Under 300mA Output Voltage :DC9V Maximum electric current :1.33A Jack Form :Center-minus Dimension :Outside diameter ϕ5.5mm /Inside diameter ϕ2.0mm In use with drycells, we recommend to exchange the drycells in every 1 hour for successively programming.
Programming Voltage:	5V or 3.3V (depend on "VIN", that is target Vcc power supply to Interface 20th)
PC available:	Windows95, 98, Me, NT, 2000 and XP Japanese version - Some types are not available -
Internal Memory	1.5MB Flash memory for user's program storage
DATA ROM:	27C256, 27C101, 27C4001, 28F101
Body Case Size:	89 mm x 134 mm x 36 mm
Weight:	260g (without drycells)

Package Seal and Products Serial Number



◆ Parts Name



PC I/F
RS232C
Straight
Cable
DSUB 25P socket

Target I/F
Enclosed target Cable
20P Box plug type

DC IN
Insert AC adapter's jack here.

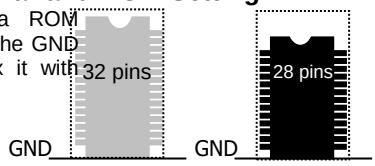
Operation Buttons for without PC operations
1)SET 2)DOWN 3)UP 4)WRITE
Scroll directions

CANCEL･STOP
Cancel stop button for operations without PC

LCD display
FLASHMATE5V1 status shows on this LCD while programmer is power on. Both power supply into the body and from the target (UserVcc into the 20th of the interface) is necessary to make it on.

LED Status of Body
BUSY…Apply voltage to ROM socket
USERVCC…Supply Vcc from target board
RX/TX…Data transfer between programmer and target

ROM Fixing Bar and ROM Setting
Set the data ROM aligning with the GND mark, and fix it with fixing bar.

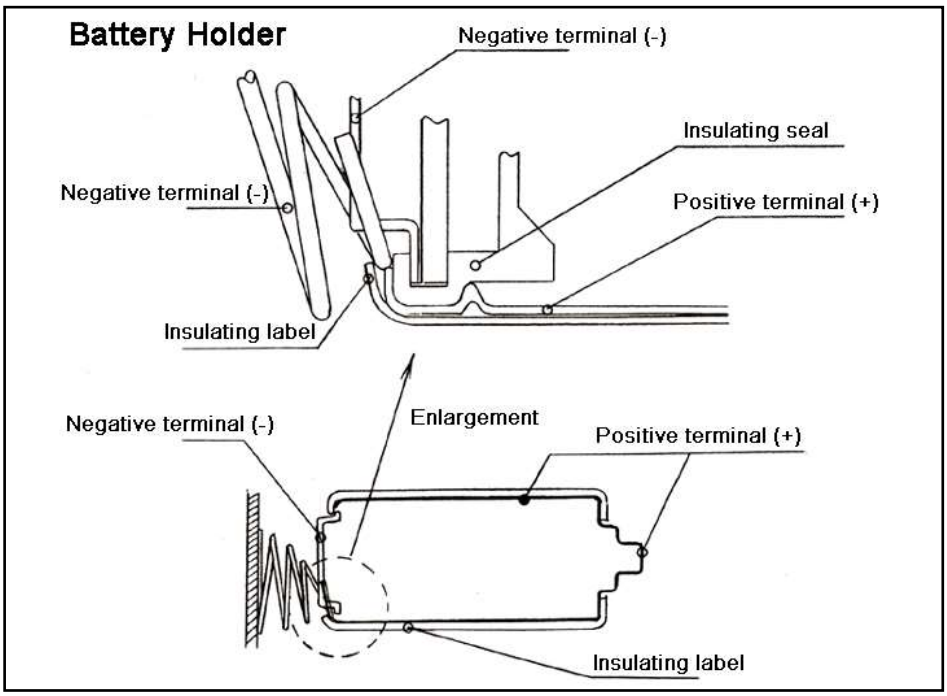


Attention!
At the data ROM set or release, be careful about the LED status; it must be light-out.
And also, the cleaness of the contact part is important to program smoothly.

☐ Using with Drycells
Confirm the pole of drycells, and set drycells at correct position. When you don't use **FLASHMATE5V1**, remove the batteries to avoid expending of the batteries by leak current.

Please read <Precaution> before placing the batteries into the battery holder.

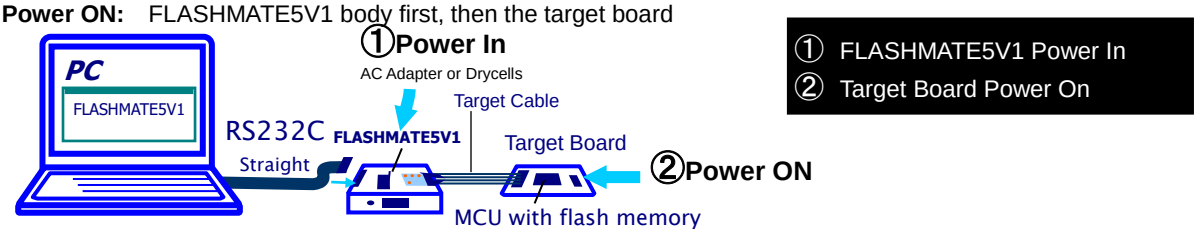
＜Precaution＞
Some of the alkaline batteries contain flexible insulating label to it. When placing that kind of batteries into the battery holder, negative terminal (-) of the battery holder could come into contact with positive terminal (+) inside of the flexible insulating label as shown in the diagram below. It causes electrical short-circuit.
Please do not use the batteries described above. Electrical short-circuit may cause smoke and fire.



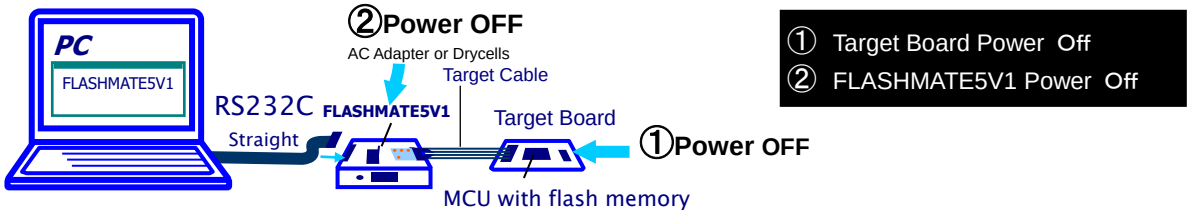
☐ **Recommendations about the Order of Power Supply**

We recommend the order like following.

● **Power ON:** FLASHMATE5V1 body first, then the target board



● **Power OFF:** The target board first, then FLASHMATE5V1 body. -

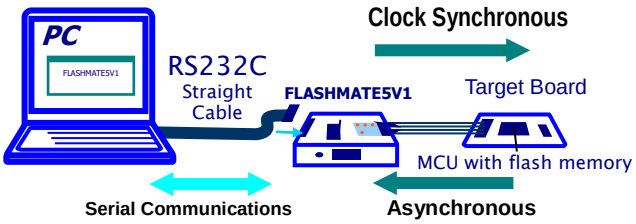


◆ Connector & Cable

Refer to the “User’s Guide” about the connectors and the signal-names.

◆ Rapid Programming with Clock Synchronous Communication

FLASHMATE5V1 can transfer the target program with clock Synchronous communications **from programmer to its target.** In this programming, **SCK port connections** is necessary to the interface 19th. (Refer to the reference circuit diagram in User’s Guide) The maximum setpoint 600Kbps is adapted only from programmer to target MCU. Be careful about the opposite direction, from the target to programmer, is progress with asynchronous communications, if you need to assumpt the programming time. Between PC and programmer, the maximum rate is 38400bps generally. If the communication rate is set at more than this, in this part, it is restricted in this level. On LCD display, clock sysnchronous is descrived as “sync”, and asynchronous is as “async”, too.



◆ Upgrading Internal Firmware

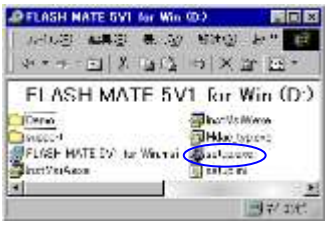
Supplementing source of new released MCU, with only upgrading the firmware, FLASH MATE 5V1 can adapt to every new single power supply MCU of Flash memory MCU. Please feel free to ask our support desk, support@hokutodenshi.co.jp. Upgrading is easy operations with the newest control software. See the details in “Other Operations” in followings.

Preparation - Installation of Control Software -

See the PC's Windows manual to install properly for each PC.
Before this install, we recommend closing all the other application as possible, or the install must be uncompleted with the access refusal from the required files. Please be careful that Install failure is sometimes difficult to be recovered. This control software is generated with VB6.0 and PDQCOMM, so it must be cared about the confliction if the install environment has the other version.

<Procedure>

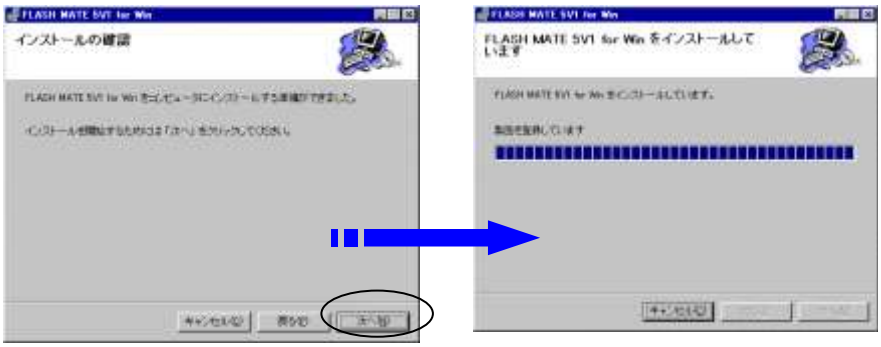
1. Open the enclosed CD, double click the "setup.exe".



2. The starting dialogue of the installer is appeared, then confirm the message and click the "**次へ**" (next).
If the MDAC install message is appeared, see the right guidance to install the MDAC before redo from 1.

3. In the next dialogue "**インストールフォルダの選択**"(select install folder), confirm the folder where this FLASHMATE5V1 for Win install to. If it is necessary to change the default directory, click the "**参照**" (refer to) and select the folder as it is needed. The file size information is indicated below. Click the "次へ"(next) to progress.

4. In the next dialogue"**インストールの確認**" (confirm to start), the install will start to click "次へ" (next). The progress is indicated in the dialogue.



5. The dialogue "**インストールが完了しました**" (install completed) is the successful complete message, then click the "閉じる" (close the installer) to finish the procedure.
If there is the message of the PC reset, it is necessary to reset the PC before "FLASHMATE5V1 for windows" open.

Attention !

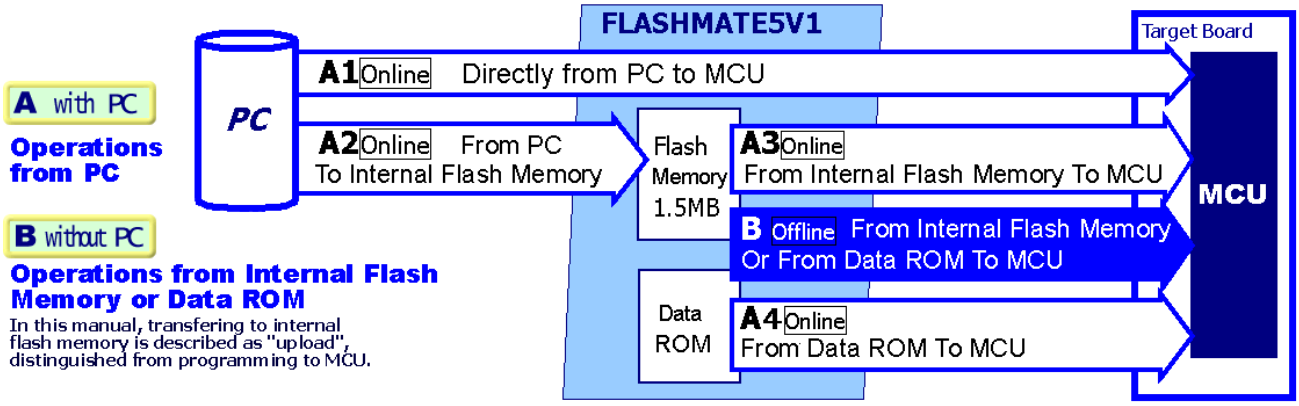
While the install, it is necessary to overwrite the required files, if the message is appeared. "FLASHMATE5V1 for Win" needs all the required files to execute properly. Please be careful about the overwrite influence for your present environment.

If you have questions, our support desk is
Support@hokutodenshi.co.jp.

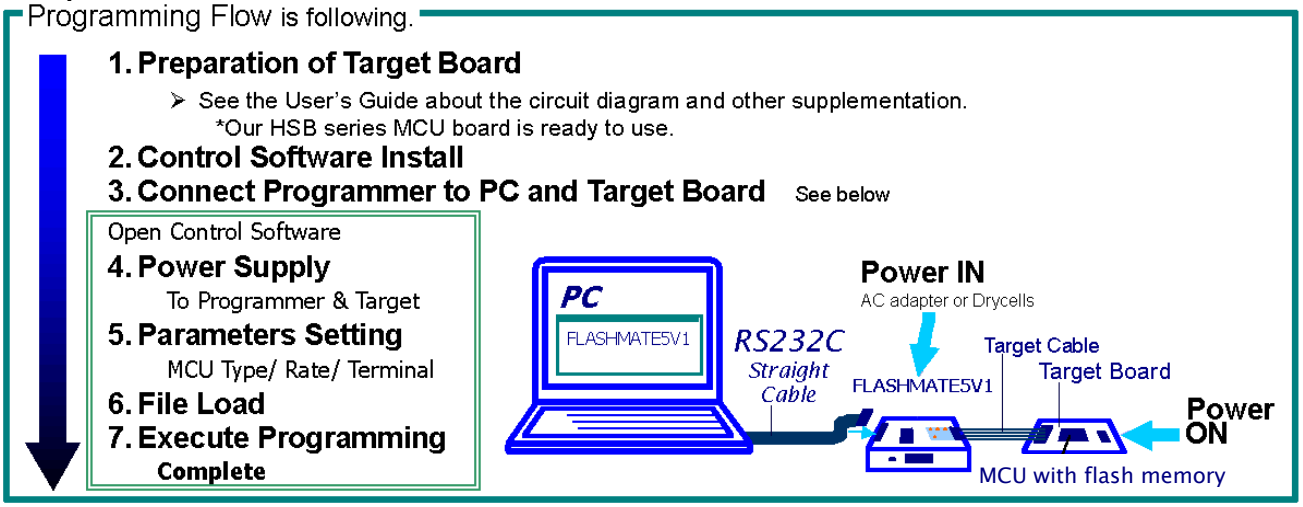
Operation Procedure

☐ Fundamental 5 ways of operations

In following explanations of this User' Manual are based on these 5 fundamental methods described in below.



☐ Operation Flow



☐ Parameters

Data Name — **Data name of uploaded source** — It is displayed in the operation window and LCD on the programmer.

Secondary file for the special MCU

Some MCU have secondary area like On-chip EEPROM in H8/3664N or User Boot Mat in H8/3069F. When you set 2 files in writing or uploading, control software loads them as one source. At the beginning of boot mode, be careful about the first area called user-mat of on-chip ROM must be all-cleared, even if the main file is not selected. And also the over writing must be cared in EEPROM verify because the on-chip EEPROM cannot be cleared in boot mode writing.

Note — **Comment for uploaded data** — This note is not displayed on LCD of FLASHMATE5V1.

MCU Type — **Target MCU group & type name** *1 — It is unable to program into un-displayed MCU type. Please select from group at first, then from the type name pull-down list. About the GENERIC, see the following chapter about it. Be careful about this name, if error 603***, 604*** or 611*** often occurred. Especially, some MCU has mask versions, those are required different programming algorithm. It is distinguished like "H8/3062" and "H8/3062A" in this MCU lists, in that case.

Initial Rate — **Select rate to begin with boot mode** — Select the proper rate according to MCU and target clock to begin boot mode. It is important to be selected proper rate, to begin the communication. See MCU Hardware Manual in "ROM" chapter.

Maximum Rate — **Select max rate for user program** — After proper communication of the boot mode beginning and transfer programming control program, programmer automatically raises the rate until the maximum in the environment.If error 612*** often occurs, please reselect lower rate at this maximum rate. Sometimes to change the combination of initial rate and maximum rate is affective for successful programming.

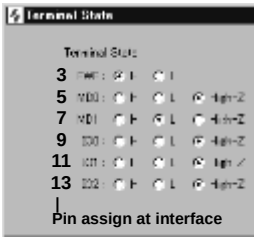
This automatic calculation system was changed from firmware version 2.54. There is a difference at the selected rate from the previous versions, however the actual rate is same.

*1 Because the MCU which FLASHMATE5V1 can support increased, this firmware is divided into two pieces. About the details, please see page 21. (List of MCU for firm OLD)

Clocked Synchronous Mod **Rapid transfer** Select the rate for rapid communication with clocked synchronous mode from programmer to MCU. It is necessary to be connected with SCK of MCU terminal as line 19th of target interface to realize this mode. At this time, it is necessary to select asynchronous rate for reply of MCU.
See the detail about circuit diagram in our reference circuit diagram of User's Guide and explanation in **"Rapid Programming with Clock Synchronous Communication"** of this manual.

MAXSYNC (Asynchronous) ; BOOT/19200 bps / 38400 bps / 76800bps
MAX SYC (Clocked Synchronous) ;
OFF/600kbps/300kbps/200kbps/100kbps/50kbps/25kbps/10kbps

Terminal State **Auto-control into boot mode** At the beginning of programming, FLASHMATE5V1 can control MCU specified terminal into boot mode automatically. For this optional function, select terminal state of the connected line from displayed level. If this boot mode control is well arranged on the target board, don't connect these lines, and select Hi-Z for the signals names. The default setting is followed in our reference circuit diagram. Click User modification to show Terminal State window, If different setting is needed.



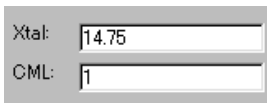
MD0,MD1,I/O0,I/O1,I/O2 have H/L/Hi-Z, FWE has H / L only.
Be careful about that displayed name are interface signals names for convenience. It is able to connect with different name MCU terminal, if it is connected properly.

Options **Verify** (CSUM/BYTE/BOTH/OFF) *2 In verify, Check sum/ Byte Unit /Checksum and Byte unit, the data comparison with loaded file is executed after completion of writing. The check sum value is indicated in lower 1 byte unit, if CSUM or Both is selected. In the operation without PC, the checksum display is kept until cancel button is pushed.
Renesas Electronics specified algorithm does not include this optional verify. The result must be adapted by user's own idea.

Erase Check Check conditions after loading transfer program.
FFSkip Skipping 'FF in writing
Fast Boot (Off this, if error often occurs.) Shorten the boot start (some cases are not available)

*2 It is recommended to do Verify to enhance the reliability of the programming.

Xtal and CML The input dialogue of the target board clock frequency is appeared, if it is necessary. The frequency input must be until 2 dismals, and also the required CML is fixed like the following example. Especially, The MCU in Generic group can be programmed with common boot control program. Please confirm the proper CML according to the Hard ware Manual of the target MCU.



SH7058 4 2 x (System 4 Peripheral 2)
H8/3069RF 1 x x (No Multiplied)
OE All Don't care

PROM Type **Select data ROM type** If "PROM" is selected in Source Select page, pull-down box is appeared. Be careful about the available ROM type; 27C256, 27C101, 27C4001, 28F101.

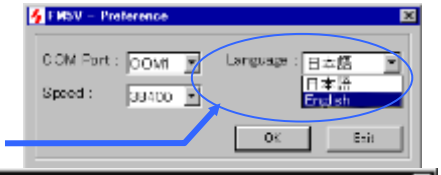
For M16C・R8C series MCU, see the section concerning functional Restrictions for the Specified MCU.

◆ A: Online Operations with Control Software

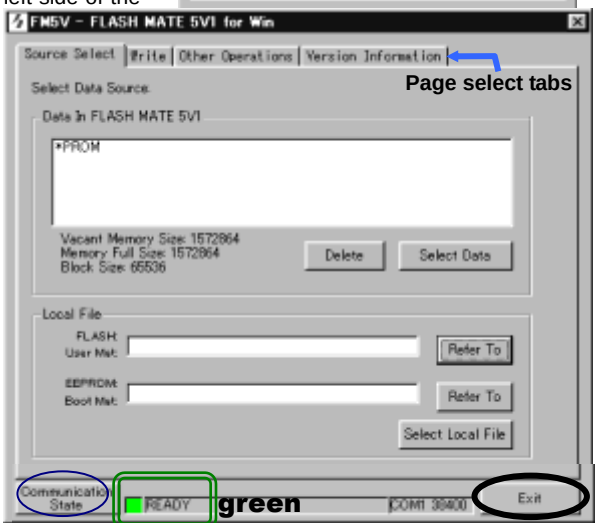
☐ Start Window and Communication Status

The first window of "FLASH MATE 5V1 for Win" is for the reference setting about COM Port, Speed and Display Language.

From the pull-up menu of "スタート(start)", you can select the "FLASHMATE5V1" short cut to start "FLASH MATE 5V1 for Win", if installing is normally completed. Double clicking of execution file "fm5v.exe" in Explore is no problem.When the starting window appears (on the right), select COM Port, Speed(bps) and Language(日本語/English) from those pull-down menu. This Preference window can be showed when you click "Communication State" at the left side of the bottom status bar. After all, Click Ok, then the next operating window will appear.



Operation Window is consisted with 4 pages, **Source select, Write, Other Operations** and **Version Information**. To show the each pages, click the page tab under the main window's title bar. (See the right)



Communication Status indicator

Because MCU information source is in the programmer internal memory, this control software always communicates with programmer. To communicate with the programmer, it is necessary to turn it on with both power supplies, those are AC adapter or drycells to programmer own and UserVcc from the target board.

The Green indicator "READY" means successful communication with the programmer.

If this indicator turns to red "Disconnected", check the followings;

- COM port setting
- Power level of both programmer own and UserVcc from the target board. UserVcc LED indicates the target power supply.
- Cable disconnection in both RS232C and target cable

Click this "Communication State", and the Preference window appears.

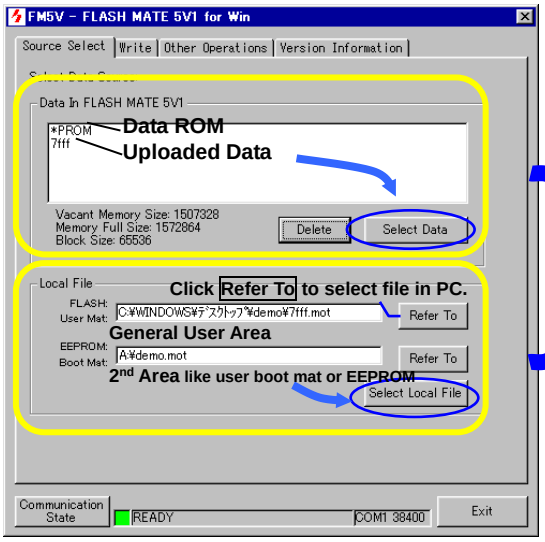
To close this control software, click "Exit" / "終了" on the bottom of this window.

☐ Procedure

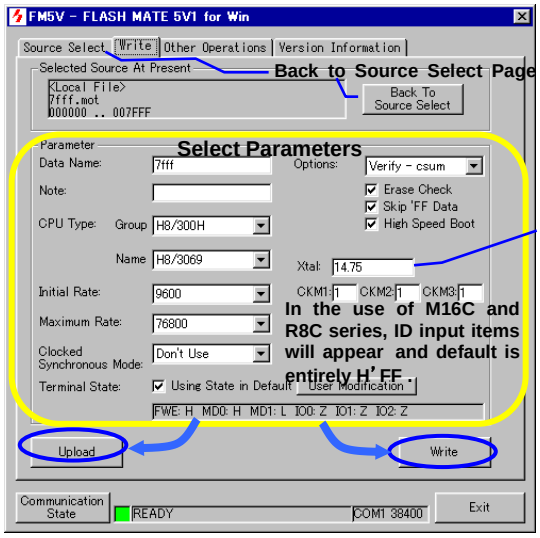
Method / Window	A-1 From PC To MCU Directly	A-2 Upload From PC To Internal Memory*	A-3 Uploaded File With PC Operation	A-4 Data ROM File With PC Operation**
1. Source Select ↓	Click Refer To to select target MOT file from local files. Click Select Local File after confirming the file name in the box.	The second file name box is appeared when specified MCU. The selected 2 files in each box are combined as 1 file while transferring.	Select Uploaded data name from "Data In FLASHMATE5V1" box in Source select page, and click Select Data It is able to store the plural files until the memory size.	Select "PROM" from "Data In FLASHMATE5V1" box in Source select page, and click Select Data It is unable to check program size suited for the selected MCU. In the case that is bigger than target MCU on-chip ROM, the programming must be completed without any warnings.
2. Write Parameters ↓ **Execute**	See the each parameter below.	See the each parameter below. Data name is necessary	Change the parameter, if it is needed.	See the each parameter below.
	Click **Write**	Click **Upload**	Click **Write**	Click **Write**

***Upload operation needs some target to supply power as UserVcc.**
****For H8/3069F and SH7058F, unable to program from data ROM**

1. Source Select Page



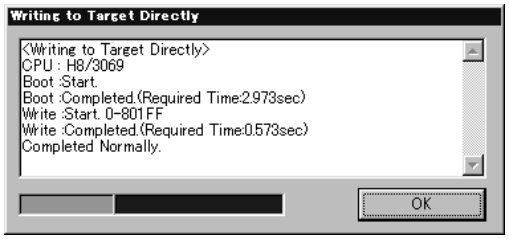
2. Write Page



To click Select Local File or Select Data, operation windows change into "write" page automatically.

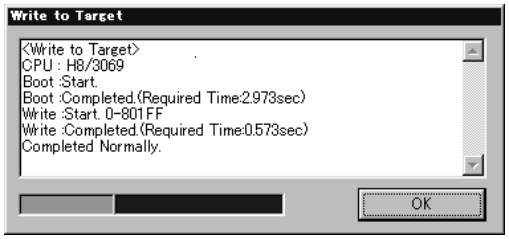
Writing progress is indicated in log window like followings;

A-1 From PC To MCU Directly



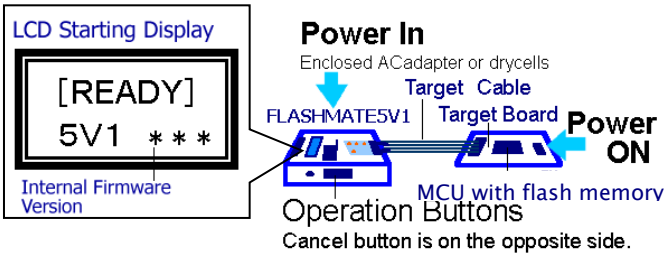
A-2 Upload From PC To Internal Memory

A-3 Uploaded File With PC Operation



※ As for M16C・R8C series, refer to restrictions for specified MCU, too. (page 16)

B: Off Line Operations without PC



☐ From Internal Memory or Data ROM

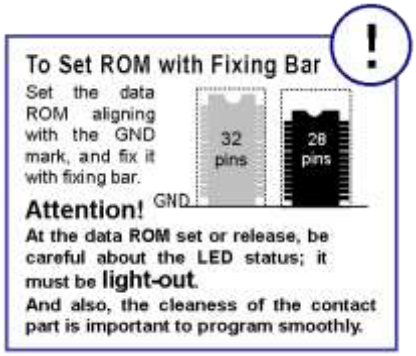
At Start

Connect target board to programmer, and supply power to 1:programmer then 2:target board, message “READY” is appeared on LCD of programmer body: "READY" shows instead of "ONLINE", off-line operation is available. At the programming with data ROM, put the ROM on the ROM socket and fix it with the bar down.

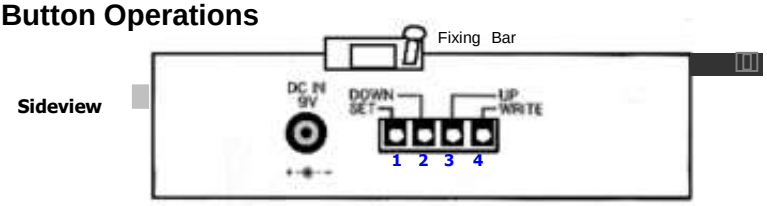
“ON LINE” indicates communications between PC and programmer is active. Release RS232C straight cable from programmer, to start off-line operations. At the beginning of the communications above, the version information of internal firmwares are indicated with massage “READY”.

Available ROM type as data ROM … 27C256·27C101·27C4001·28F101

FLASHMATE5V1 can’t confirm the data size in this data ROM. Please make sure the program size is less than MCU on-chip ROM size.



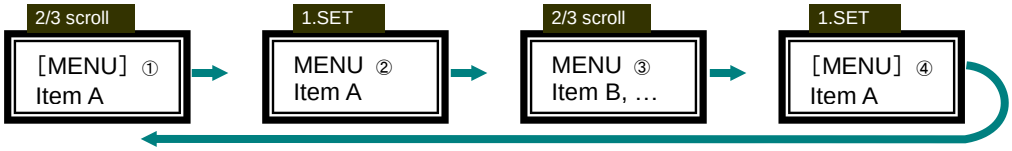
Button Operations



All the Menu selection can be done by the steps follows;

①2.DOWN and 3.UP	Scroll of Menu	[*Menu*]	With bracket [ ]
②1.SET	Select of Menu	Menu	Bracket disappears, current item is shows
③2.DOWN and 3.UP	Scroll of item in Menu	Menu	item scrolls one after another
④1.SET	Select of item in Menu.	[*Menu*]	item selected, returns to Menu with bracket [ ]

Returns to ①



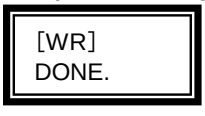
MENU	ITEM	Explanations
MCU	- adaptable MCU -	
FILE	- selectable file name-	Uploaded files and mounted ROM in socket as “*PROM”
PROM	27C101/27C4001/27C256	Mounted ROM type
PIN	DEFAULT/ USER	Terminal States; modify each pin in “USER” **FWE(High/Low) ・ MD0 ・ MD1 ・ I/O0 ・I/O1 ・I/O2 (High/Low/Hi-Z)**
WRMODE	Verify(CheckSum/ByteUnit/None)/ EraseCheck/SkipFF/FastBoot	Options can be select with Yes or No. When 1verify with “check sum value” or “both” is selected, lower 1 byte of check sum value is indicated with the complete message, and it is kept until cancel button is pushed.
TGCOMM	Boot(1200/2400/4800/9600/19200) MaxSync(=Boot/19200/38400/76800) Max Syc (Off/600k/300k/200k/100k/50k/25k/10k)	To use clocked synchronous writing, both MaxSync(Asynchronous mode) and MaxSyc(Clocked Synchronous mode) is necessary to be set.

- See the minute explanation about these parameters in “ with PC operations”.
- As for restrictions for some MCU, refer to those for specified MCU, too (page 15)

☐ Programming Execution

① CANCEL	Back to Initial Display	[READY]	With bracket [ ]
② 4.Write	Confirmation appears	WR OK?	Current source name shows below
③ 4.Write	Start Writing, log appears	boot＊.＊	＊.＊ means initial rate
		ERCK****	Erase Check
		VEFY****	Verify in option
		[WR]DONE	means completed →

Completion message



Attentions!

When the correct programming is completed, ”[WR]DONE” message is appeared for 1 second and automatically back to the default message “READY”. It is very convenient for programming one after another.

If the optional function, “verify with check sum value (indicated as CSUM)” or “both” is selected, the lower 1 byte of check sum value is indicated with the complete message, and it is kept until cancel button is pushed.

Completion message with check sum value.

The writing with data ROM isn’t available for SH7058F, and H8/3069F, programming through on-chip emulation I/F, and the expanded memory with H8SX/1650, H8SX/1651. Please use the internal flash memory of FLASHMATE5V1 for these target programming, if the without PC operation is necessary.

◆ Programming GENERIC group MCU in common boot

All the 0.18μFlash memory MCU have the common boot control program called “GENERIC Boot”. FLASHMATE5V1 supports this programming as in the “GENERIC” group. When the GENERIC as its type name in the GENERIC group is selected, the programming is controlled with common boot program for all the GENERIC MCU. At the MCU selecting, the automatically appeared CMK input boxes must be filled as the proper value, according to the Hardware Manual of the MCU. The examined MCU’s are added in the Type Name pull-down list, following “GENERIC”. The unlisted MCU of the 0.18μFlash memory MCU are controlled with the common boot program specified with the Renessas Technology. Be careful about the address in the program, because the data to the wrong address that exist out of the internal flash ROM are all ignored at the programming without warning. In this common type name “GENERIC” pre-uploading programming, MCU type name can’t be changed. And also, in the Clock synchronous transfer, our original way of data transfer, each programming control program must be added for the new MCU, those can’t be programmed by in common boot. If the unlisted MCU is selected with the clock synchronous bit rate, the error #605xxxx must be indicated.

◆ Programming Expanded Memory of ROM-less MCU

FLASHMATE5V1 can program the expanded memory of the following ROM-less MCU.

Available MCU Type **H8SX/1650, H8SX/1651** or equivalents

Specified Expanded ROM **MBM29LV800BA-70 (Fujitsu)**

*TC58FVM5T2AFT-65(TOSHIBA)

*S29GL032M90TFIR4(SPANSION)

finished the confirmation

- The programming control program must be differed appropriately according to the flash memory expanded of the MCU.
- If the flash memory is different from the specified one, it is able to generate the appropriate MOT file from the source recompiling in the FMWR folders with rearranging the tables and so on.
- For the specified flash memory above, there is appropriate MOT file as a content of this product.
- Please feel free to ask more information about the minute specifications for the other types expanded memories. And we can provide the MOT file for the different flash memory. But we can’t support the user’s original programming control program.

Programming

- Start Boot Mode
- Call "write_init" routine
- Bus initializing and clear up flash memory
- Start programming
- Call "write_flash" routine 128 byte unit
- Programming complete
- End Boot Mode

Each routine is contained in the MCU type named folder of the enclosed CD, with its source files. See the directory descriptions below.

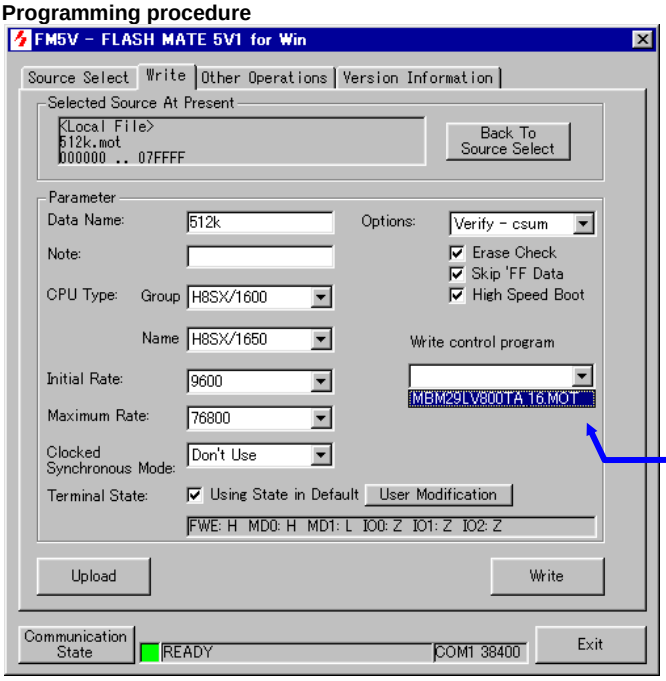
The programming control program must be in the specified folder.

MCU Type Name	Base Address	User program area
H8SX/1650	FF6800h	FF6800h～FFBFFFh
H8SX/1651		

Base Address+0h ～+3h	Top of the flash memory (put 0 into here)
Base Address+4h ～+7h	Bottom of the flash memory (put the last address into here)
Base Address+8h ～+Fh	Version of the programming control program
Base Address+10h	"write_init" routine
Base Address+100h	"write_flash" routine

Restriction: In the offline operation without PC, it is necessary to upload the target program at first. (The data ROM can’t be used for offline programming.) And also the MCU selection can’t be changed to ROM-less MCU in offline operation, because the appropriate programming control program must be uploaded with target program those must be combined as one file. If uploaded programming control program must be changed, it is necessary to restart from the selecting local file and upload them again.

☐ Programming procedure



Operation for uploading and writing

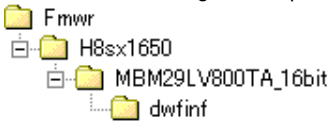
The program steps is same except selecting the write control program.

1. Select the source at the Source select page.
2. Select the MCU type name from the list.
3. Select the transfer rate for boot mode start, maximum at the target program transfer and Clocked Synchronous mode.
4. Select the appropriate terminal state
5. Select options for verify erase, skip, fast boot.
6. **Select the write control program from the pull-down list.**
   - **The write control program must be selected when the upload/write button is cliked. Without select this write control program, the uploading or writing is out of guarantee.**
7. Click the button to start upload/write.

☐ The Directory for the Original Programming Control Program

The programming control program can’t be selected, if the MOT file doesen’t exist in the appropriate folders like in the right description.

Ex. C:¥Program Files¥FLASH MATE 5V1¥FMWR¥H8Sx1650¥



☐ The interface of the target board

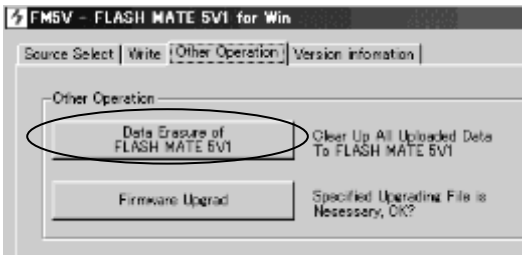
See the description in H8SX/1650 in the User’s Guide.

Other Operations

◆ Data Erasure

In order to dispose unnecessary data in programmer internal flash memory, all the data clear at once to click this button.

If it is necessary to choose relevant data, use “delete” button in “Source Select” window.

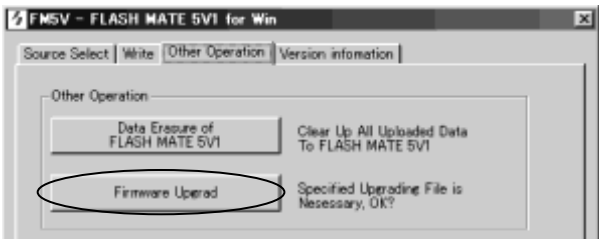


◆ Upgrading Firmware

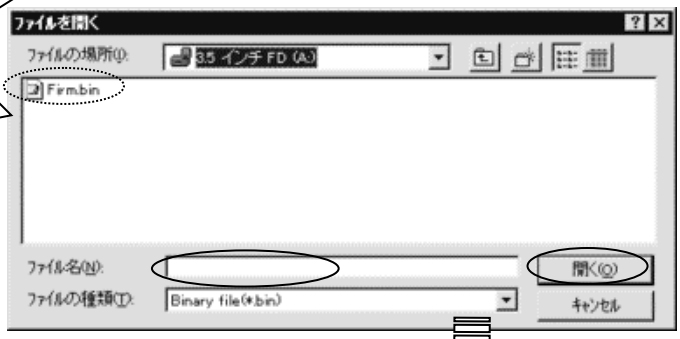
Before starting this operation, prepare the new version of FLASH MATE 5V1 firmware.

Refer to the section "Upgrading" of this manual about preparing firmware.

New version firmware sometimes occurs communication error with previous version of control software. Please ask the detail about the versions to our support, if you need.



Insert the "Firmware Upgrading Disk" into the CD drive. Click on the "Firmware upgrading" button in “Other Operations”.



Operate according to indication in the display.

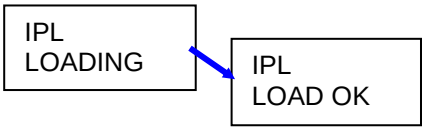
When upgrading the firmware, the stored data or setting information in FLASH MATE 5V1 may be deleted. Take measures necessary.

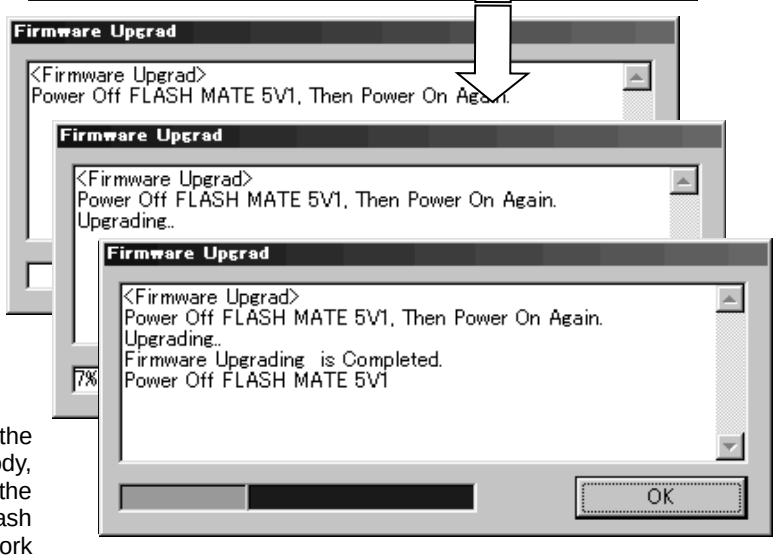
Depending on the transporting condition, it may take about 10 minutes for completing operation.

Open the firm***.bin in "Firmware Upgrading Disk"

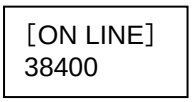
Do power on and off of programmer FLASH MATE 5V1. Operate according to indication window.

Upgrading… Loading message appears on LCD





Do power off of programmer. At this time, the initial state appears on the LCD after operation completing.

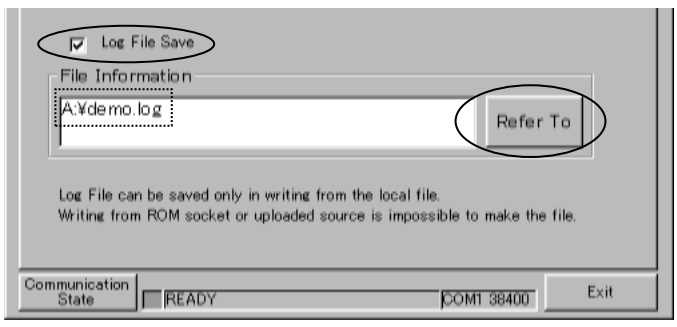


Upload completed

If the “DataEraseOK?” appears on the LCD of the FLASHMATE5V1, take off the RS232C cable from the body, and push the set button on the side of the body. This is the confirmation massage for clearing up the internal flash memory. The previous version data isn’t guaranteed to work under new version. We recommend the all clear off before firmware upgrading or push the set button at this message.

◆ Log File Saving

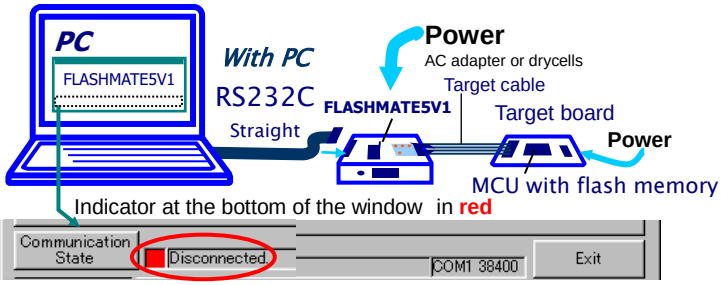
Only writing from PC local files, log file can be made as text format. Check the box, click the “Refer to” to select directory , and write the file name to make new file.



Dealing with Error

◆ Communication Error with PC

FLASHMATE5V1 has MCU information source data in the internal flash memory of the programmer body. It brings the superiority to use it without PC, but it means FLASHMATE5V1 must be always connected correctly in PC operations. At the bottom of the operation window, the connection always shows with green, yellow and red indicators.
When the control software is opened, please check this and wait to turn into green with a message “Ready”. It must be take some time to confirm the connection. If the green “Ready” is never appeared, please check the right guidance on this page.



<Check points>

USER VCC LED is lighting.
Programmer body power is ON.
PC⇔FLASHMATE5V1 is wrong
RS232C straight cable connections, Disconnecting,

USER VCC LED is not lighting.
Programmer body power is OFF.
Power supply to the programmer is wrong.
AC adapter (or drycells), or power to board and target cable disconnections.

◆ Frequent Error in Programming

Programming Start	Communication with MCU	Error # (Error Number…The first 3 figures that appeared at the log window/LCD.)	
【Boot mode starts】 Bit rate adjusting	*Before transfer*	***#601*** Buffer clear error***	Problem at the control into boot mode; incompletion to clear up the receive buffer from target MCU after RESET control.
	H ‘00→ ←H ‘00	***#602*** No reply***	Failure or mistake at parameter setting to control into boot mode. Or ’00 signals don’t reach to MCU. Selected transfer rate doesn’t fit with target clock. For Generic group MCU (0.18 micro), confirm the proper rate. See more at the end of this chapter at “Error #602”
Complete adjusting	H‘55→ ←H ‘AA	***#605***No reply or besides ‘AA***	‘55 echo back caused by signal line-short. （’00 signal doesn’t reach to MCU.） Failure or mistake to control into boot mode.
File size transfer	H‘xx, ‘xx→ ←H ‘xx,‘xx	***#603*** Receive error code ‘FF***	MCU gives an error code ‘FF. (Wrong in MCU type/circuit arrange, or unexpected)
Programming control program transfer The last byte sends	H ‘xx→ ←H ‘xx H ‘xx→ ←H ‘xx	***#604***Receive some signals be sides echo back***	MCU reset with voltage drop, WDT or else. Turning into wrong signals by some bad conditions in communications. Wrong value at the frequency input.
Erase all the on-chip ROM			
Receive completing Code from MCU	←H ‘AA	***#603*** Receive error code ‘FF***	MCU gives an error code ‘FF. (Wrong in MCU type/circuit arrange, or unexpected)
		#605 No reply or besides ‘AA***	Mistake at MCU selecting.（Programming control program doesn’t work properly） MCU reset for UserVcc / power supply voltage descending, or WDT. Disconnecting, miss-mounting in MCU port arrange. Alteration with bad condition to communicate.
		#611Receive wrong signals***	Error occurred with wrong boot program.（Wrong MCU type name is selected） Disconnecting, miss-mounting in MCU port arrange.
【User program transfer】 Transfer rate adjusting User program transfer	H ‘xx→ ←H ‘xx	***#612*** Receive wrong signals*** ***#613***Receive Invalid signals*** ***#614***No reply***	MCU reset for UserVcc / power supply voltage descending, or WDT. Disconnecting, miss-mounting in MCU port arrange.
		#615Receive error code*** ***#616** Receive error code***	If it happens frequently, please confirm to our support address with serial number and version#.
		#680 Wrong reply or none*** ***#681*** Wrong reply or none*** ***#682*** Wrong reply or none***	MCU in device fatigue. MCU reset for UserVcc / power supply voltage descending, or WDT. Disconnecting, miss-mounting in MCU port arrange. Alteration with bad condition to communicate.
【Optional Verify】 ※If it is selected.	H ‘xx→ ←H ‘xx	***#691***, #692*** Receive wrong signals***	If it happens frequently, please confirm to our support address with serial number and version#
Programming Start	Communication with MCU	Error # (Error Number…The first 3 figures that appeared at the log window/LCD.)	

※ In the use of R8C and M16C series, a content is a little different from above table.

＜Other Errors＞
#6C0* User’s break with cancel button on the body side.*** ***#6C1**** FLASHMATE5V1 stops process.***
#640* No reply from the target MCU.*** ***#641****～#645****, #648****, #700**** Receive invalid signals***
#800*, #801**** Error occurred in the internal memory of FLASHMATE5V1.***
#1607* Baud rate setting error.*** ***#1608****ID checking error.*** ***#1609**** Download error.***

◆ Other Important Points For Operations

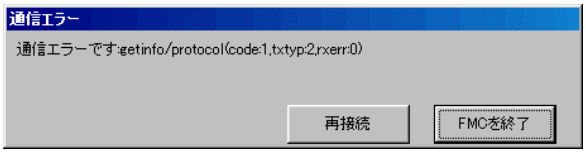
■ Checksum value is displayed when optional verify is selected in “CSUM” or “BOTH”. While operation without PC, at the end of verify the checksum value must be kept until cancel button is pushed. The operation procedure is different from the other ordinary no-verify writing; when checksum is not displayed, completion message “Writing OK” is automatically disappeared after 1 second in order to start next writing soon.

■ The optional “fast boot” is original function. It is not always available. If the communication error frequently occurs with this option, we recommend using in ineffective.

■ New version firmware sometimes fails to communicate with previous version control software. After the firmware update it is necessary to be careful about the control software’s version. Please ask the details to our support desk with versions and serial number on the body.

<Sample message of disagreement>

The internal firmware after version 2.46 is connected with previous control software before version 1.3.7, the communication does not start with the message on the right. It is necessary to update the control software.



■ Trouble of the internal flash memory

If FLASHMATE5V1 power off happens while accessing to the internal flash memory, FLASHMATE5V1 must be disable to start again with the memory acccess invalid intruption, at that time, the error message will display like the right figure.

Error display

[IPLMON]
PROGERR

■ Check the internal memory clear up (Be carefull about that all the file are erased at this operation)

1. Connect the target board with FLASHMATE5V1 only.
2. The power supply to FLASHMATE5V1 body at first.
3. While push the stop button on the side of FLASHMATE5V1 body, the power supply to the target.
4. The internal memory clear up start, and then the usual default message display at the LCD if it is suceeded.
   - ✧ If the display message does not change, please contact to our support address, support@hokutodenshi.co.jp.

◆ About programming onto R8C,M16C,740 series

It's possible to program onto devices (shown as below) with an optional conversion unit.

Format…MOT

【Outlines of each unit】 （new elements will be added.）

Cable Name	**20-10pin FoUSB***1	**20-14pin R8C***2	**20-14pin M16C**	**20-14pin 740**
Conversion unit	20<->10pin FoUSB 	20<->14pin R8C 	20<->14pin M16C 	20<->14pin 740 
Included	10pins straight cable is attached	14pins straight cable is attached	14pins straight cable is attached	14pins straight cable is attached
Specification	ex: connection USB Writer(M3A-0665) M16C Flash Starter(M3A-0806)*3	Emulator E7(HS0007TCU01H) *3	Pin assign to connect with E8a*4	Pin assign to connect with E8a*4
Group of supported MCU	R8C/10～13, R8C/18,19,1A,1B R8C/20～29 R8C/2A,2B,2C,2D R8C/2E,2F,2K,2L R8C/32A,32C,32D,32M,33A R8C/33C,33D,33M,33T,34C R8C/34E,34F,34G,34H R8C/34K,34M,34U,34W,34X R8C/34Y,34Z,35A,35C R8C/35D,35M,36A,36E,36F R8C/36G,36H,36W,36X R8C/36Y,36Z,38A,38C R8C/38E,38F,38G,38H R8C/38W,38X,38Y,38Z R8C/3GA,3GC,3GD R8C/3JA,3JC,3JT R8C/3MK,3MU R8C/L35A,35B,35C R8C/L36A,36B,36C R8C/L38A,L38B,38C R8C/L3AA,L3AB,L3AC R8C/LA6A,LA8A R8C/M11A,M12A,M13B M16C/26,26A,28,29,1N M16C/30P,57,5M,5L M16C/62P,62A,62N,62M M16C/63,64,64A,65 M32C/83,84,85,86,87 R32C/111,120,121 R32C/152,153,156	R8C/10～13	M16C/26,26A,28,29,1N M16C/30P,57,5M,5L M16C/62P,62A,62M M16C/63,64,64A,65	740/3803,38D5
Price	¥2,000	¥2,000	¥2,000	¥2,000

Notes:

*1 The Window's software on FLASHMATE5V1 needs to be newer than 1.5.1.

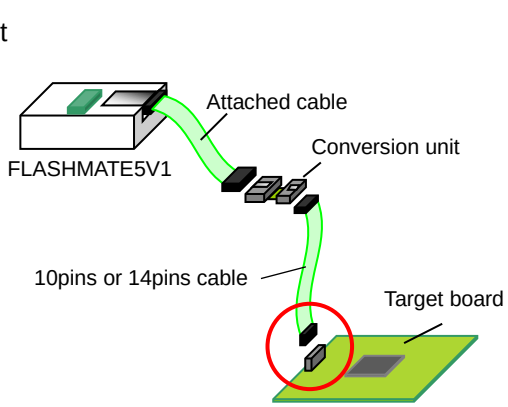
*2 Please output TX and RX to program.

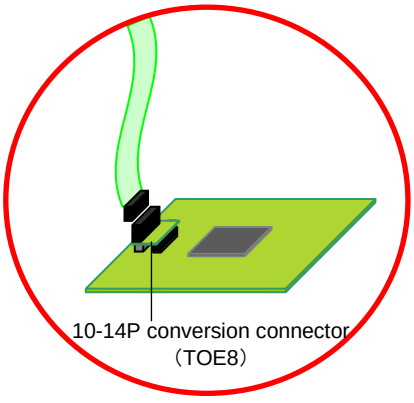
*3 Please refer to MCU hardware manual for examples of connection Serial Programmer and MCU.

*4 Please refer to "E8a Emulator user's manual" for this pin assign.

Please use programming tools with appropriate version of control software.
Please refer to the instruction manual for each connection on the target board.

how to connect





Some of the boards needs attached
10-14P conversion connector.

Restrictions for Specified MCU

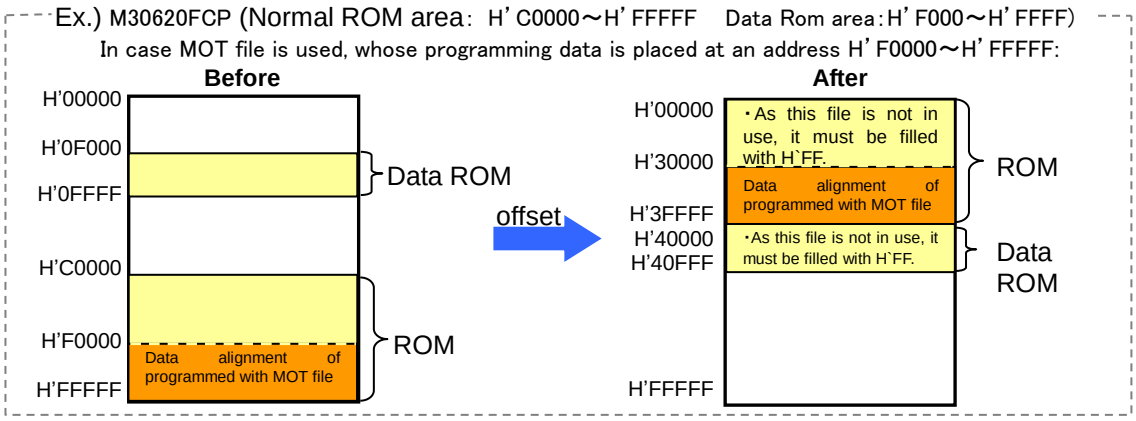
- The GENERIC group MCU and H8SX/1650, H8SX/1651 with expanded memory can't be programmed from data ROM in offline operation (without PC operation). The communication error must be happened if it started.
- H8S/2172F always uses the frequency input value "in double of the real mounted clock frequency".
- The clock synchronous mode programming is not avairable for H8S/2172F. The communication error must be happened if it started.
- Pay attention to optional verify at H8/3664N on-chip EEPROM programming. Its on-chip EEPROM can't be erased in whole area with this FLASHMATE5V1 programming operations. If the target program has un-used area at the programming, those area keep in same status before programming. This causes error if the optional verify is selected. Also, if the un-used area are prepared into 'FF, there will be a writing error to select with the optional "'FF skip".
- Regarding products, whose ROM space and area is more than 1 MB, programming is impossible.
- Functional restrictions of M16C and R8C series of MCU are as follows:
  - Boot rate shall be fixed at 9600bps.
  - A maximum rate shall be 38400bps.
  - The erase check function in the option and the high speed boot cannot be selected.
  - In the use of R8C series MCU, the checksum in the verify among the option cannot be selected.
  - On selecting types of MCU, ID input items will appear on the operation screen of control software, and default is entirely H'FF.
  - R8C series of MCU do not correspond to a clock synchronizer.
  - Writing restriction by on-chip oscillator of R8C group.

    ※ The following items of MCU group cannot be written by an on-chip oscillator:

    ✧ R8C10、R8C11、R8C12、R8C13、R8C18、R8C19、R8C1A、R8C1B、R8C20、R8C21、R8C22、R8C23、R8C24、R8C25、R8C28、R8C29、R8C2A、R8C2B、R8C2C、R8C2D、R8C2E、R8C2F
  - In programming with PROM, note the following points:

    When a program to be written in is placed at PROM, be sure to add an offset so that the normal ROM area may start at address 0.Also, the data ROM area needs to start at an end + 1 as a result of offsetting of ROM area.

    Improper ROM alignment will run a risk of programming an unknown value at the ID code area.



  - When ID is authenticated, ID codes are all fixed at H'FF. At the time of programming with ROM, be sure to set the ID code at H'FF beforehand.

◆ Timing Chart For Boot Mode Controll

FLASHMATE5V1 has 2 function, those are the auto cotroll for boot mode and the user program reset-start after the completion. These function are not mandatory for programming operations, but be careful that our documents always described these 2 function are used in the operations.

At the start of programming

Auto controll for boot mode: **Connected ports of 3rd/5th/7th/9th/11th/13th are controlled as selected status at "terminal state".**

Because the mode control operation is just out-put, it is not necessary this function for programming. If this function is ignored with user's convenience, the user's circuit diagram must carry on the boot mode control before the programming, for examples, the target board start as boot mode with the switch selection before the power supply. Be careful this boot mode auto control is necessary; reset activating is also necessary in proper timing. Please refer the reset circuit diagram in our descriptions.

At the end of programming

Auto start of user program: **User program just starts after successful programming at reset activating.**

At the end of programming, programmer controlls the programming mode (boot mode) into the previous status with the reset activation of this cotroll, the user program must smoothly run if the proper mode is selected.

■ Serial channel selecting

For the on-board programming, serial communications must be used with the spesified serial channel in the MCU hardware manual. The other channels are not able to use as the interface.

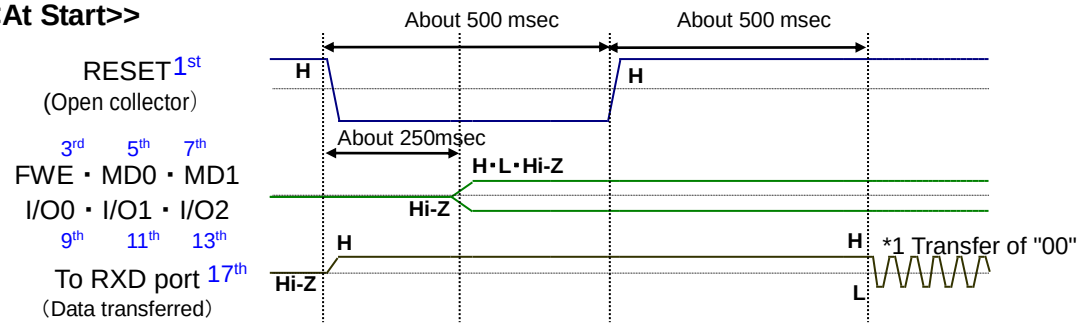
■ About the connecting ommisions

Our reference circuit diagrams are always described with all operatiing modes for the target MCU. If only one mode is nessesary, the connection can be ommit as user's convenience. The Hi-Z is always selected for no-connecting line as the terminal state.

■ Our products, HSB series as the target board

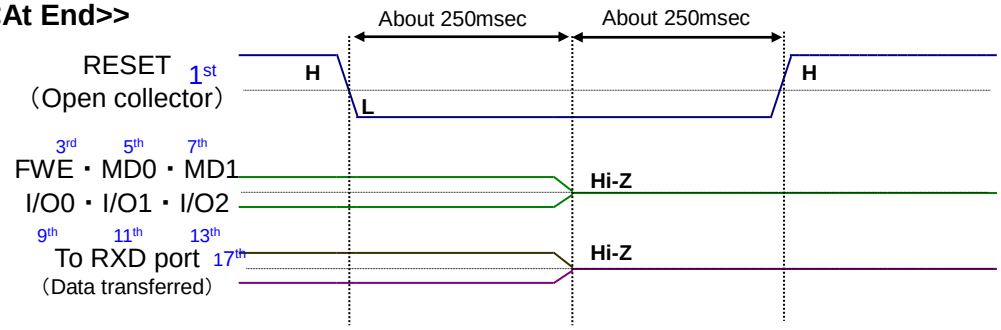
Our HSB series MCU boards, especially Type-F, are prepared as the on-board programming targets. The proper interface is mounted as for immediate use and the programmings are examined at the shippments. Be careful about the specified explanations are on the reference circuit diagrams in the User's Guide, the terminal state selecting are sometimes indicated as unusual case.

<<At Start>>



***1 From the 17th line of the interface transfer of "00" is repeated within the 512 times limit until reply from the target. When nothing reply from the target MCU at the 15th line of the interface, the job is canceled as an error.**

<<At End>>



For the target board clock, 0.16% or less is recommended as the serial communication error rate. Refer to the table of the bit-rate-register in the chapter of "Serial Communications" of Renesas Electronics hardware manual for the concerned MCU. If this error rate is more than above recommended 0.16%, the rate can't be raised at the target program transfer.

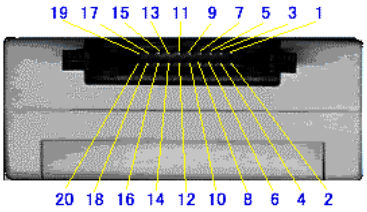
FLASHMATE5V1 Interface Signal Names And Control Directions

No.	Signal Names	At the Programming Control	No.	Signal Names
1	**RES**	Open Collector (To target)	2	
3	**FWE**	To Target : H / L	4	
5	**MD0**	To Target : H / L / Hi-Z	6	
7	**MD1**	To Target : H / L / Hi-Z	8	**GND**
9	**I/O0**	To Target : H / L / Hi-Z	10	
11	**I/O1**	To Target : H / L / Hi-Z	12	
13	**I/O2**	To Target : H / L / Hi-Z	14	
15	**TXD**	From Target:receiv signals from the specified serial port.	16	
17	**RXD**	To Target : transfer signals to the specified serial port.	18	**(VIN)** UserVcc
19	**SCK/NC**	To Target : transfer signals to the specified serial port.	20	**VIN** UserVcc

Control as the selected status at "Terminal State". No-connection: Hi-Z

Pin Numbers Array

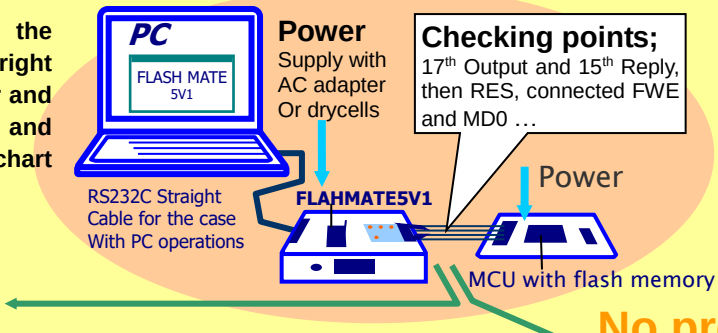
At side view



【Hints for Error#602】

#602xxxx often appears especially at the first examinations of the target, or the programmer internal disorder. It indicates the first handshake doesn't complete correctly. Please check all the points described below.

Check the waveform with the oscilloscope at the point of the right figure, between the programmer and the target at the interface, and compare it with the correct chart described in above.



Different

Correct waveform doesn't appear.
FLASHMATE5V1 internal disorder,
mistake at terminal state selecting,
the influence of PC environment,
COM port doesn't avirable to use,
RS232C cable disconnection
or Target MCU is mounted improperly.

No problems in waveforms

Every line has correct wave form to transfer.
Descrepancy between port arrangement for boot mode,
or Target MCU is mounted improperly.
(Target MCU reply nothing means failure to enter boot mode)

The supported MCU of the newest firm

Firmware: ver.9.0x (The number on “x” varies among “0 to 2” depending on the programmer’s firmware version.)

We recommend to use the newest control software ver.1.5.16.
Please contact us for the details of other versions.

WS･･･Evaluation by MCU of sample ※The specs of the sample may be different from the product.
Marked MCU (**) are supported by **WS** on FLASHMATE5v1.

【SH , H8SX, H8S, H8S Tiny, M16C, R8C/1x, R8C/2x】

SH Series	SH7055S	SH70845	SH71242	SH71374	SH71475	SH72855
	SH7058S	SH70854	SH71243	SH71424	SH71476	SH72856
	SH70834	SH70855	SH71251A	SH71426	SH7149	SH72865
	SH70835	SH70865	SH71253	SH7146	SH72433	SH72866
	SH70844	SH71241A	SH71364	SH71474	SH72434	SH72867

H8SX Series	H8SX/1544	H8SX/1634	H8SX/1644	H8SX/1652	H8SX/1655M	H8SX/1664R
	H8SX/1582	H8SX/1635	H8SX/1644A	H8SX/1653	H8SX/1658R	H8SX/1665
	H8SX/1622	H8SX/1638	H8SX/1644L	H8SX/1653R	H8SX/1662	H8SX/1668R
	H8SX/1631	H8SX/1638L	H8SX/1648	H8SX/1654	H8SX/1663	H8SX/1725
	H8SX/1632	H8SX/1642	H8SX/1648A	H8SX/1654R	H8SX/1663R	
	H8SX/1633	H8SX/1642A**	H8SX/1648L	H8SX/1655	H8SX/1664	

※FLASHMATE5V1 can use only the main flash of H8SX/1725,H8S/24245,H8S/24248,H8S/24249.

H8S Series	H8S/2117	H8S/2364	H8S/24268	H8S/24278R**	H8S/2472	
	H8S/2134B	H8S/2372	H8S/24268R	H8S/24279**	H8S/2602	
	H8S/2164	H8S/24245**	H8S/24269	H8S/24279R**	H8S/2604	
	H8S/2211	H8S/24248 **	H8S/24269R	H8S/24545	H8S/2607	
	H8S/2215R	H8S/24249 **	H8S/24275**	H8S/24548	H8S/2609	
	H8S/2319C	H8S/24255	H8S/24275R**	H8S/24549	H8S/2630	
	H8S/2360	H8S/24259	H8S/24276**	H8S/24569	H8S/2635	
	H8S/2361	H8S/24265	H8S/24276R**	H8S/24569R	H8S/2649	
	H8S/2362	H8S/24265R	H8S/24278	H8S/2462		

H8S Tiny Series	H8S/20102	H8S/20103	H8S/20114	H8S/20115	H8S/20202	H8S/20203

M16C Series	M30262F3	M30281F8	M30623F8P	M30625FGM	R5F364AM	M3030RFCP
	M30262F6	M30281F8T	M30624FGP	M3062LFGP	R5F36506	M3030RFDP
	M30262F8	M30281FA	M30625FGP	R5F35L2E	R5F3650E	M3030RFEP
	M30260F3A	M30281FC	M30626FHP	R5F35L3E	R5F3650K	M3030RFGP
	M30260F6A	M30290FA	M30626FJP	R5F35L7E	R5F3650M	M30302FAP
	M30260F8A	M30290FC	M30627FHP	R5F363A6	R5F3650N	M30302FCP
	M30263F3A	M30290FCT	M30627FJP	R5F363AE	R5F3650R	M30302FEP
	M30263F6A	M30291FA	M30620FCA	R5F363AK	R5F3650T	M301N2F8T
	M30263F8A	M30291FC	M30621FCA	R5F363AM	R5F3651E	M306S0FA
	M30280F6	M30291FCT	M30624FGA	R5F36406	R5F3651K	
	M30280F8	M30620FCP	M30625FGA	R5F3640D	R5F3651M	
	M30280FA	M30621FCP	M30620FCM	R5F3640M	R5F3651N	
	M30280FC	M30621FCT	M30621FCM	R5F364A6	R5F36526	
	M30281F6	M30622F8P	M30624FGM	R5F364AE	M3030RFAP	

R8C/1x Series	R5F21102	R5F21123	R5F21144	R5F21172	R5F21191	R5F211A4
	R5F21103	R5F21124	R5F21152	R5F21173	R5F21192	R5F211B1
	R5F21104	R5F21132	R5F21153	R5F21174	R5F21193	R5F211B2
	R5F21112	R5F21133	R5F21154	R5F21181	R5F21194	R5F211B3
	R5F21113	R5F21134	R5F21162	R5F21182	R5F211A1	R5F211B4
	R5F21114	R5F21142	R5F21163	R5F21183	R5F211A2	
	R5F21122	R5F21143	R5F21164	R5F21184	R5F211A3	

R8C/2x Series	R5F21206	R5F21227	R5F21246	R5F21266	R5F212B7	R5F212DC
	R5F21207	R5F21228	R5F21247	R5F21272	R5F212B8	R5F212E2
	R5F21208	R5F2122A	R5F21248	R5F21274	R5F212BA	R5F212E4
	R5F2120A	R5F2122C	R5F21254	R5F21275	R5F212BC	R5F212F2
	R5F2120C	R5F21236	R5F21255	R5F21276	R5F212C7	R5F212F4
	R5F21216	R5F21237	R5F21256	R5F21284	R5F212C8	R5F212K2
	R5F21217	R5F21238	R5F21257	R5F21294	R5F212CA	R5F212K4
	R5F21218	R5F2123A	R5F21258	R5F212A7	R5F212CC	R5F212L2
	R5F2121A	R5F2123C	R5F21262	R5F212A8	R5F212D7	R5F212L4
	R5F2121C	R5F21244	R5F21264	R5F212AA	R5F212D8	
	R5F21226	R5F21245	R5F21265	R5F212AC	R5F212DA	

※ Some of the items of MCU group cannot be written by an on-chip oscillator. For more information, refer to <Writing restriction by on-chip oscillator of R8C＞on page 16.

Firmware: ver.9.0x (The number on “x” varies among “0 to 2” depending on the programmer’s firmware version.)

We recommend to use the newest control software ver.1.5.16.
Please contact us for the details of other versions.

WS･･･Evaluation by MCU of sample ※The specs of the sample may be different from the product.
Marked MCU (**) are supported by **WS** on FLASHMATE5v1.

【R8C/3x, R8C/Lx, R8C/Mx, 740, H8/300H, H8/300H Tiny, H8/300L, H8/300&500, OE I/F, External ROM】

R8C/3x Series	R5F21321A	R5F21344C	R5F21346H	R5F21366A	R5F21386A	R5F213G1C
	R5F21322A	R5F21345C	R5F21347H	R5F21367A	R5F21387A	R5F213G2C
	R5F21324A	R5F21346C	R5F21348H	R5F21368A	R5F21388A	R5F213G4C
	R5F21321C	R5F21346E	R5F2134AH	R5F2136AA	R5F2138AA	R5F213G5C
	R5F21322C	R5F21347E	R5F2134CH	R5F2136CA	R5F2138CA	R5F213G6C
	R5F21324C	R5F21348E	R5F2134CW	R5F2136CC	R5F21388E	R5F213J2A
	R5F21324D	R5F2134AE	R5F21354A	R5F21368E	R5F2138AE	R5F213J4A
	R5F21334A	R5F2134CE	R5F21355A	R5F2136AE	R5F2138CE	R5F213J5A
	R5F21335A	R5F21346F	R5F21356A	R5F2136CE	R5F21388F	R5F213J6A
	R5F21336A	R5F21347F	R5F21357A	R5F21368F	R5F2138AF	R5F213J2C
	R5F21331C	R5F21348F	R5F21358A	R5F2136AF	R5F2138CF	R5F213J4C
	R5F21332C	R5F2134AF	R5F2135AA	R5F2136CF	R5F21388G	R5F213J5C
	R5F21334C	R5F2134CF	R5F2135CA	R5F21368G	R5F2138AG	R5F213J6C
	R5F21335C	R5F21346G	R5F21354C	R5F2136AG	R5F2138CG	
	R5F21336C	R5F21347G	R5F21355C	R5F2136CG	R5F21388H	
	R5F21334T	R5F21348G	R5F21356C	R5F21368H	R5F2138AH	
	R5F21335T	R5F2134AG	R5F21364A	R5F2136AH	R5F2138CH	
	R5F21336T	R5F2134CG	R5F21365A	R5F2136CH	R5F213G6A	

R8C/Lx Series	R5F2L38CA **	R5F2L387B	R5F2L3A8A **	R5F2L3AAA **	R5F2L3ACA	R5F2L3A7B

R8C/Mx Series	R5F2M110A	R5F2M111A	R5F2M112A	R5F2M120A	R5F2M121A	R5F2M122A

740 Series	M38039FF	M38D59FF

H8/300H Series	H8/3062R	H8/3069R	H8/38086R	H8/38602R	H8/38776	H8/38537
	H8/3067R	H8/38076R	H8/38099	H8/38606	H8/38524	

H8/300H Tiny Series	H8/36064	H8/36077	H8/36079	H8/36094	H8/3687N	
	H8/36074	H8/36078	H8/36087	H8/36109	H8/36902	

H8/300L Series	H8/38024	H8/38324	H8/38344	H8/38424	H8/38444	
	H8/38102	H8/38327	H8/38347	H8/38427	H8/38447	

OE I/F	H8/36064	H8/36079	H8/36902	H8/38102	H8/38347	H8/38447
	H8/36074	H8/36087	H8/38024	H8/38324	H8/38424	H8/38524
	H8/36077	H8/36109	H8/38076R	H8/38327	H8/38427	H8/38602R
	H8/36078	H8/3687N	H8/38086R	H8/38344	H8/38444	

External ROM	H8SX/1651	*TC58FVM5T2AFT-65	*S29GL032M90TFIR4	*MBM29LV800BA-70

※ Some of the items of MCU group cannot be written by an on-chip oscillator. For more information, refer to <Writing restriction by on-chip oscillator of R8C＞on page 16.

List of MCU for firmOLD

Because the MCU which FLASHMATE5V1 can support increased, this firmware is divided into two pieces.
Please use「firmOLDx.bin (x=numbers)」in using MCU of the following list.

Some of the MCU is usable in both firmware.
In replacing firmware,please see page 11.(「Upgrading firmware」)

SH Series	SH7017	SH7044	SH7046	SH7050	SH7052	SH7054	SH7058	SH7144
	SH7018	SH7045	SH7047	SH7051	SH7053	SH7055	SH7065	SH7145
H8S Series	H8S/2110B	H8S/2144	H8S/2161B	H8S/2218	H8S/2315	H8S/2357	H8S/2551	H8S/2638
	H8S/2128	H8S/2144A	H8S/2166	H8S/2227	H8S/2318	H8S/2366	H8S/2552	H8S/2639
	H8S/2132	H8S/2145B	H8S/2168	H8S/2238	H8S/2319	H8S/2367	H8S/2556	H8S/2643
	H8S/2132R	H8S/2147N	H8S/2169Y	H8S/2239	H8S/2326	H8S/2368	H8S/2612	H8S/2646
	H8S/2134	H8S/2147A	H8S/2172	H8S/2258	H8S/2328	H8S/2376	H8S/2615	H8S/2648
	H8S/2134A	H8S/2148	H8S/2194	H8S/2265	H8S/2328B	H8S/2377	H8S/2623	H8S/2667
	H8S/2138	H8S/2148A	H8S/2194C	H8S/2266	H8S/2329	H8S/2378	H8S/2626	H8S/2676
	H8S/2138A	H8S/2148B	H8S/2199	H8S/2268	H8S/2329B	H8S/2398	H8S/2628	
	H8S/2140B	H8S/2149Y	H8S/2212	H8S/2277(RF)	H8S/2338	H8S/2437	H8S/2633	
	H8S/2141B	H8S/2158	H8S/2214	H8S/2282	H8S/2339	H8S/2505	H8S/2633R	
	H8S/2142R	H8S/2160B	H8S/2215	H8S/2314	H8S/2345	H8S/2506	H8S/2636	
H8/300Hseries	H8/3022	H8/3028	H8/3048B	H8/3062	H8/3064	H8/3067R	H8/3090	
	H8/3024	H8/3029	H8/3052	H8/3062A	H8/3064B	H8/3068		
	H8/3026	H8/3039	H8/3052B	H8/3062B	H8/3067	H8/3069R		
Tiny series	H8/36012	H8/36024	H8/36037	H8/36054	H8/3664	H8/3670	H8/3684	H8/3694
	H8/36014	H8/36034	H8/36049	H8/36057	H8/3664N	H8/3672	H8/3687	H8/36912
H8/300Lseries	H8/38002	H8/38004	H8/38024	H8/38104	H8/38124	H8/3854	H8/3857	
H8/300series	H8/3337S	H8/3437S						
H8/500series	H8/539S	H8/539A						
H8SXseries	H8SX/1527	H8SX/1657						
ExternalROM	H8SX/1650	*TC58FVM5T2AFT-65, *S29GL032M90TFIR4, *MBM29LV800BA-70						
OE I/F	H8/36012	H8/36034	H8/36054	H8/3664N	H8/3684	H8/38002	H8/38104	
	H8/36014	H8/36037	H8/36057	H8/3670	H8/3687	H8/38004	H8/38124	
	H8/36024	H8/36049	H8/3664	H8/3672	H8/36912	H8/38024		

How to Purchase the Upgrading Firmware

Only upgrading the firmware, **FLASH MATE 5V1** can adapt to every new Flash memory MCU Microcomputers. For the series of single power supply, we present the new version for all Flash memory MCU Microcomputers releasing one after another. If you need your firmware to upgrade, please refer our URL and send E-mail to our company. Our homepages helps you to confirm the adapted MCU types in the newest version.

URL：http://www.hokutodenshi.co.jp E-mail：support@hokutodenshi.co.jp

○ Refer to the section of " Upgrading Firmware

- Ordinarily upgrading of PC control software is not necessary for supplementing MCU source.
- When upgrading PC control software, it is necessary to uninstall the current version of control software. Refer to the uninstalling step described in the windows manual, and uninstall.
- Both each , the stored data or setting information may be deleted. Take measures necessary.

Optional items

The followings are the optional items for FLASHMATE5V1.

Name	Price	Notes
OE Adapter and Cable（20⇒14P）	¥2000	20P Interface Adapted Into 14P OE Programming
20-10pin FoUSB	¥2000	A conversion unit for R8C/M16C and a 10pins target cable.
20-14pin R8C	¥2000	A conversion unit for R8C and a 14pins target cable.
20-14pin M16C	¥2000	A conversion unit for R16C and a 14pins target cable.
20-14pin 740	¥2000	A conversion unit for 740 and a 14pins target cable.

Includes

Name	Price	Notes
AC 100 volt Adapter	¥2500	The provided AC adapter is verified for Japanese domestic use only.
FLASH MATE 5V1 Target Cable(20p)	¥1000	Available for FLASH2
CD	¥6000	Please purchase version up software.

Please reconfirm about the charges for above.

FLASH MATE 5V1 USER'S MANUAL

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