

OPERATION MANUAL

MODEL500 SERIES PROGRAMMER

Revision

2016/09/29	Rev.1.00
2017/02/03	Rev.2.00 Corrected description of connected USB during hardware setup (USB2.0->USB3.0)
2017/04/08	Rev.3.00 Corrected typographical error in the operation after power on.
2017/04/12	Rev.4.00 Added description of how to upgrade software version.
2017/06/16	Rev.5.00 Corrected Recommended PC requirements. Added specifications and photos of M504,M508.
2017/09/22	Rev.6.00 Added about Protect function.
2018/05/09	Rev.7.00 Name change of company. Added the note that project file created in M400 programmer can be used.
2018/05/09	Rev.8.00 Name change of company. Added the description of eMMC 4 sockets unit in Module chapter.
2018/02/15	Rev.9.00 Added the note about operation of module. Added the description of new function and note about load file/save buffer.
2019/10/29	Rev.10.00 Added Windows10 to OS requirements.
2022/01/17	Rev.11.00 Added FPGA update behaviour.
2022/06/30	Rev.12.00 Change of business address. Added note on Self test execution.

Preview

Preview

Dear Customer,

We are pleasure to see you purchasing Minato Gang Programmer MODEL500 Series. This manual explains how to use MODEL500 Series correctly, so please read this manual before operation.

Register for Warranty

MINATO ADVANCED TECHNOLOGIES INC. will implement support for our products, please register all the information on our web.

Before register please check below 3 items about the programmer:

MODEL

Serial Number (see Rear Panel)

Version (see operation manual CD-ROM)

The warranty does not apply to some problem, please read "[Warranty terms](#)" for details.

MINATO ADVANCED TECHNOLOGIES INC.

<http://www.minatoat.co.jp>

PC Requirements for control MODEL500

OS requirements

- Windows Vista
- Windows 7 (32bit, 64bit)
- Windows 8, 8.1 (32bit, 64bit)
- Windows10

Recommended PC requirements

- CPU 32bit(x86)or64bit(x64) 1GHz or Higher
If possible, dual core or higher performance CPU is recommended.
- RAM 1GB or Higher(32bit), 2GB or Higher(64bit)
- Hard disk 50GB or Higher for OS/Application software +
maximum data file size to store
- Interface USB2.0 or Higher
- USB More than 1
- CD Driver CD-ROM

The free space of Hard disk depends on the target device which should be programmed. Please prepare enough space for large capacity device programming. First time connecting M500 Series to PC, please read below notice items.

[[Notice for first time connecting to PC](#)]

Simple Guide

Simple Guide

Preview

Installation 27
• Software 27
• Hardware 30
Notice for first time connecting to PC 33

Hardware

PC Requirements	...3
Outline	...15
• Outline	
• Features	
• Specifications	
Element & function	...16
Module & Adapter	...23

Reference

• Quick start	...117
• Trouble shooting	...119
• Terminology	...128
• Contacts	...132
• Revision	...133

Software

Outline	...35
• Outline	...35
• Start	...36
• Description of the main screen	...38
Basic operation	...51
• Description	...51
• Select device	...52
• COPY	...58
• ERASE	...60
• BLANK	...62
• PROGRAM	...64
• VERIFY	...66
• CONT	...68
• Contact Check, ID Check	...71
• Protection	...72
Function	...73
• Load file/save buffer	...74
• Buffer Editor	...81
• Project management	...97
• Lot management	...99
• Status of operation	...102
• Auto start	...106
Setting of programmer	...109
About operation	...111

MODEL500 Series Packing list

Before installing your programmer, please carefully check that your package include all next mentioned parts. If you find any discrepancy or if any of these items are damaged, please contact distributor or Minato directly.

[Packing list]

- MODEL500 Series
(MODEL504*, MODEL508*, MODEL516)
- Interface
(4 for MODEL504, 8 for MODEL508 and 16 for MODEL516)
- Power Cable
- USB Cable
- CD (MODEL500 Series control software, USB driver, Operation manual
[PROGRAMMER operation manual])



MODEL504



MODEL508



MODEL516

Warranty Terms

Warranty Terms

Minato gives a guarantee on programmer for one-year from the date of purchase (Just for customer who has registered their programmer). The warranty does not apply to products on some conditions, so please read below contents.

Warranty Period

One-year from the date of purchase.

Warranty Items

1. Less than one-year after purchasing.
2. Having registered your programmer.
3. Does not caused by abnormal operation.
4. MODEL500 Series Hardware is defective.
5. This warranty is valid only in Japan.

Pay for repair

Even during warranty period, warranty is invalid for below items:

1. Programmer has not been registered.
2. Have not registered the full information.
3. Damage caused by inappropriate use.
4. Damage caused by natural disaster.

Exempt of Warranty

Minato is not liable for:

1. IC and data to program.
2. Direct and indirect cost due to damage of programmer.
3. Programmer be used oversea (not in Japan).
4. Damage caused by using third party items(example: adapter, software).
5. Repair or modification by unauthorized party.
6. Damage caused by inappropriate use or handling.
7. Version up of MODEL500 Series.

Version-up for new device is not free. Please see "[maintainance of M500 Series](#)" for details.

Special notes

1. Register will be ok after you sending all the information to Minato.
2. You should pay for the transportation fee from you to Mianto.
3. Please keep the box provided by Minato which can be reused while transportation for repair. Please make sure the package is strong, otherwise you should pay for the damage of programmer.
4. Minato will pay for the transportation fee after repairing.
5. This manual will be updated without notice.
6. In case of any incomprehension, please contact us.

Maintenance of M400 Series

Maintenance of M500 Series

To ensure that your programmer continue to meet good performance and your request.

Warranty of M500 Series

One-year warranty from the date of purchase from Minato (Just for customer who has registered their programmer). Please see “[warranty terms](#)” for details.

Version up for M500 (IC/software support)

New IC can be supported by updating the software of programmer. Version-up to add new IC support is not free of charge even within warranty period.

* If there's defective of our software, the update is free.

Calibration

M500 Series is mass production equipment, please maintain the programmer every day and calibrate the programmer per year.

About repair, calibration and version up

Minato does not provide on-the-spot service no matter free charge or not. And we can not provide spare programmer, please understand. Customer should pay for the transportation fee from you to minato for repair, calibration and version up. Minato will bear the transportation cost for return.



Safety Precaution

Warning and Cautions

This operation manual includes safety precautions for safely use M500 Series programmer. To prevent the operator or others people from injury and property damage, please following below pictographs to operate.

Before reading this manual, fully understand these pictographs and the meanings. Keep this manual at hand and refer to it while necessary.

Explanation of Pictographs

 Warning	Indicates a potential hazardous situation in which the operator would be killed or seriously injured unless this precaution is observed.
 Cautions	Indicates a potential situation in which the operator would be injured or property would be damaged unless this precaution is observed.

Contents

WARNING



Compulsion

Making sure to follow warnings and cautions while operation the programmer.



Do Not
Disassembled

Do not disassemble or modify the programmer. It may cause a fire or electric shock.



Unplug Power
Cord

When finding a smoke, abnormal smell or sound, please remove the power plug immediately. Otherwise it may cause a fire or electric shock due to short-circuit.



Unplug Power
Cord

If the programmer is dropped or shocked, please remove the power plug immediately. Otherwise it may cause a fire or electric shock due to short-circuit.

Consult with Minato or distributor.



Unplug Power
Cord

If any liquid or foreign matter enters the programmer, please remove the power plug immediately. Otherwise it maybe will be caused a fire or electric shock due to short-circuit.

Consult with Minato or distributor.



Cautions



Compulsion

The operator should fully understand the manual before operation.
Miss operation may damage the programmer or ICs.



Compulsion

Before touching the programmer, please touch a nearby large metal to remove static electricity from your body.
Static electricity may damage the programmer or ICs.



Compulsion

Please clean the surfaces, the socket and the air filter screen of programmer.
Dusts may cause a fire or breakdown, so please clean them at regular intervals.



Compulsion

Do not program IC when Empty Socket (red LED) is indicated. It means the contact check is failed and programming maybe damage the ICs or programmer caused by the heat.



Compulsion

Please confirm the CheckSum for PASS/FAIL.
Avoiding NG ICs are mixed with OK ICs.

Contents



Compulsion

Caution for accessories

Standard power cable complies with Japanese regulation.

If you will use this programmer in others country, please follow the local safety Standard.



Compulsion

Before you execute Programmer Self test, please remove device and adapter from socket unit.

Otherwise device or adapter might be damaged.

Contents

Contents

PREVIEW	2
PC REQUIREMENTS FOR CONTROL MODEL500	3
SIMPLE GUIDE.....	4
MODEL500 SERIES PACKING LIST.....	5
WARRANTY TERMS	6
Warranty Period.....	6
Warranty Items.....	6
Pay for repair.....	6
Exempt of Warranty	6
Special notes.....	7
MAINTAINANCE OF M500 SERIES.....	8
Warranty of M500 Series	8
Version up for M500 (IC/software support)	8
Calibration.....	8
About repair, calibration and version up	8
SAFETY PRECAUTION	9
Warning and Cautions	9
Explanation of Pictographs	9
CONTENTS.....	12
OUTLINE	15
Outline.....	15
Features	15
Specification.....	15
MODEL500 SERIES ELEMENT AND FUNCTION	16
MODULE POSITION	17
REAR PANEL	18
MODULE.....	20
OPTIONAL ITEMS	22
ABOUT VARIOUS ADAPTERS	23
Various adapters	23
ABOUT ADAPTER.....	24
INSTALLATION	27
Installation of Software	27
Installation for Hardware.....	30

Contents

NOTICE FOR FIRST TIME CONNECTING TO PC	33
MODEL500 SERIES CONTROL SOFTWARE (UNIVERSAL CONTROL PROGRAM)	35
Outline	35
Start Running the Universal Control Program	36
Description of the main screen	38
BASIC OPERATION	51
Select Device	52
COPY	58
ERASE	60
BLANK	62
PROGRAM	64
VERIFY	66
CONT	68
Contact check, ID check	71
Protect	72
FUNCTION DESCRIPTION	73
Load file	74
Save buffer	79
Buffer Editor (Edit)	81
Project Management	97
Lot Management	99
Operation Status	102
Auto Start	106
PROGRAMMER SETTING	109
Buffer Setting of PC	110
OPERATION	111
QUICK START	117
TROUBLESHOOTING	119
TERMINOLOGY	128
CONTACTS	132
REVISION	133

Outline

Outline

M500 Series are Gang Programmer which can be controlled by PC (windows OS) software through USB Port. It is also can be used independently as program files has been saved in the independent version. (The independent version hasn't been launched on market.)

M500 Series are equipped with 128GByte (1024Gbit) Buffer Memory and can flexibly support advanced PROM IC devices with large capacity, specially designed for small scale production and circuit design technicians,

This series product has high reliability and high-speed action and provides high performance for mass programming.

Features

- Improved for Operating environment.
- High programming speed.
- Equipped with 128Gbyte Buffer Memory (SSD).
- Supporting various devices.
- Sharing the adapters with another MODEL.

Specification

Item	MODEL504*	MODEL508*	MODEL516	Note
Simultaneous programming	4	8	16	
Buffer Memory	1024Gbit	1024Gbit	1024Gbit	
Interface	USB	USB	USB	Rev.2.0 or Rev.3.0
Operating Temperature	5~35 [°C]	5~35 [°C]	5~35 [°C]	
Operating Humidity	20~80% (No condensation)	20~80% (No condensation)	20~80% (No condensation)	
Power	AC100~240 [V] 50~60 [Hz]	AC100~240 [V] 50~60 [Hz]	AC100~240 [V] 50~60 [Hz]	
Power dissipation	100 [VA] (max.)	200[VA] (max.)	400[VA] (max.)	
Fuse	3.36[A]	6.62[A]	14.7[A]	
Size	235(W)x240(D)x 130(H) [mm]	375(W)x240(D)x 130(H) [mm]	375(W)x380(D)x 130(H) [mm]	hight includes socketunit
Weight	3.5 [kg]	5.0 [kg]	9.0 [kg]	

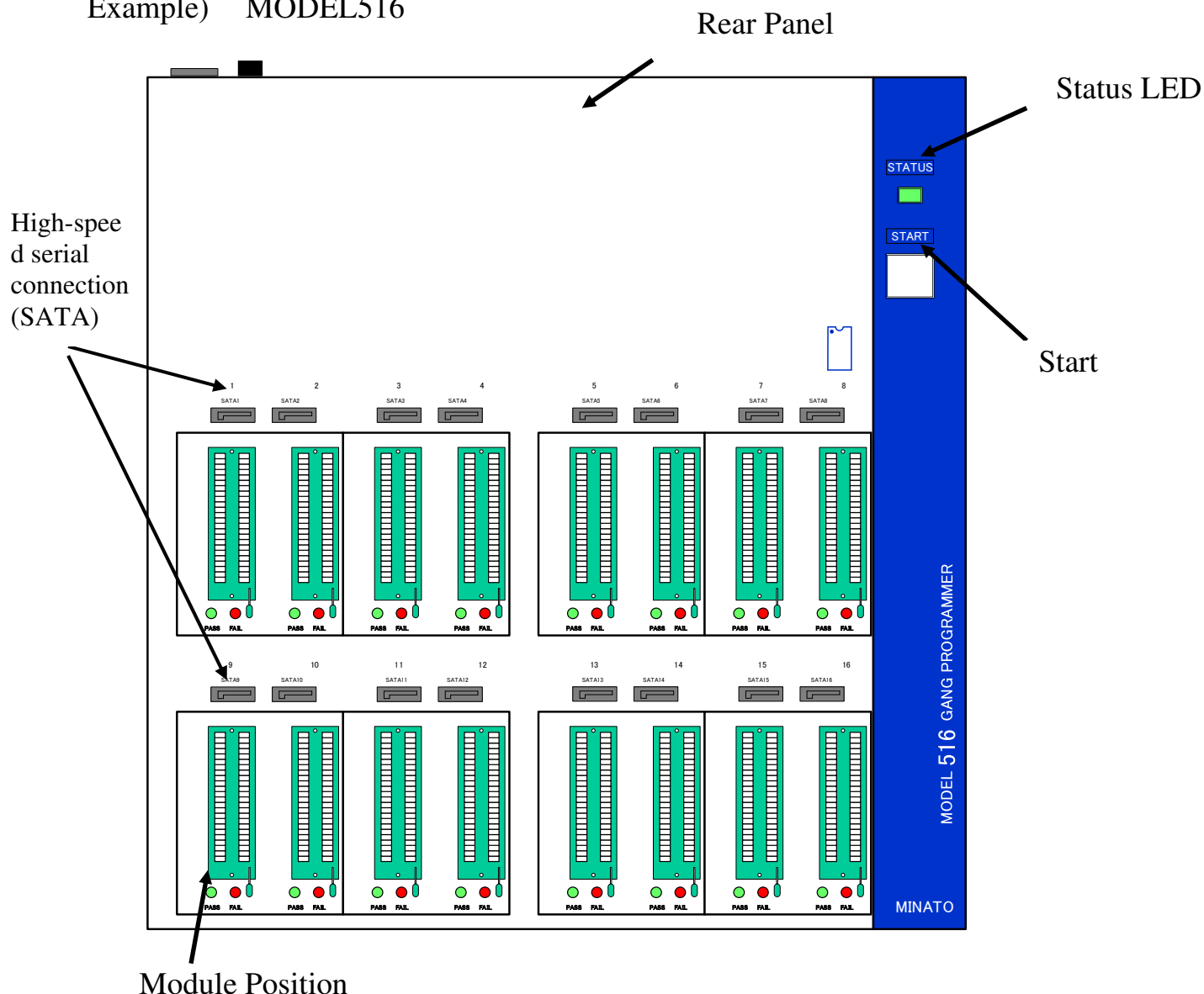
M400 Series Element and Function

MODEL500 Series Element and Function

In order to operate MODEL500 Series properly, please understand the function of each part and its name. The details are described in following pages.

When used, MODEL 500 series of products shall be accompanied by dedicated control software and socket unit. Please note that the startup would fail if software other than special control software is used. For further information about detailed description of special control software, please refer to the Operation Instructions for “[Control Software of Model 500 Series](#)” in this manual. Please refer to “[About socket unit](#)” for detailed description of socket unit.

Example) MODEL516

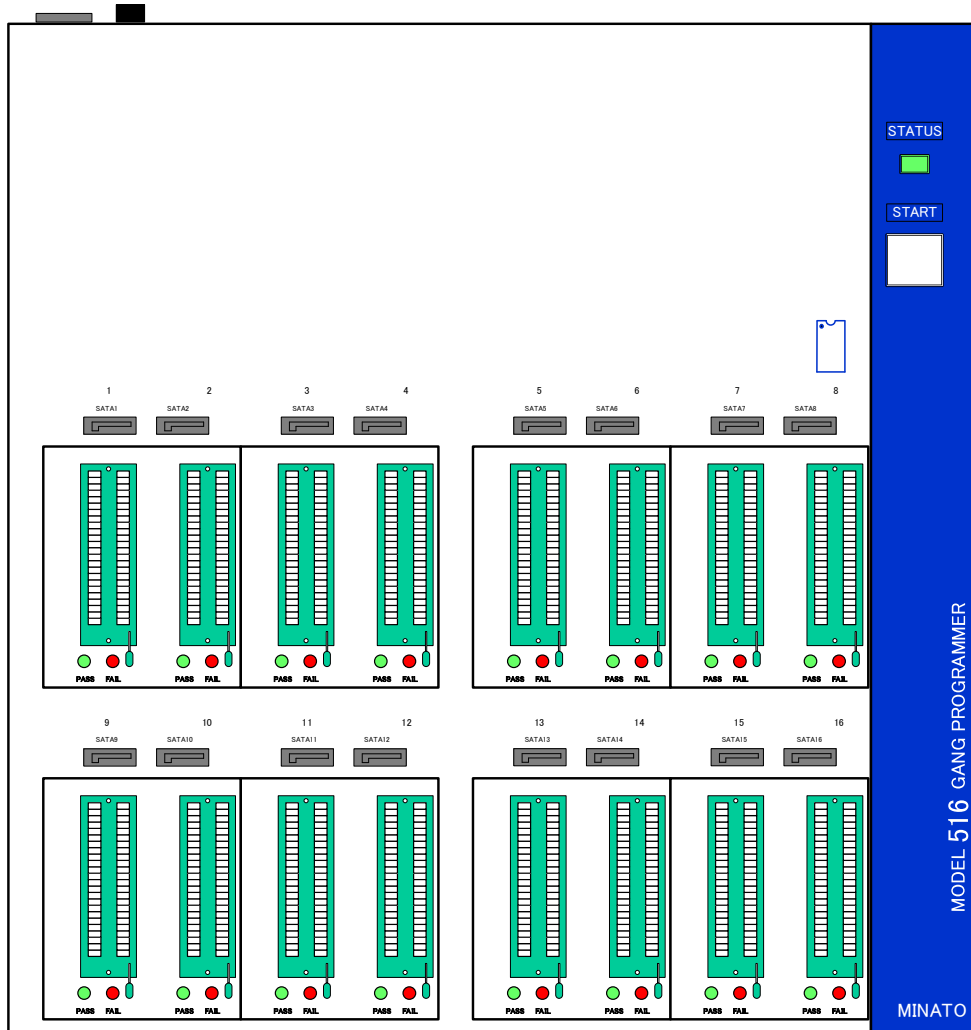


High-speed serial connection (SATA)
For SATA and IC connections.

16
M500-011A-K6

Module Position

Example) MODEL516



SOCKET Number

Each SOCKET has a corresponding number. And we use “#+number” to express it in this manual.

Example)

SOCKET 2 is described as “#2”

Socket LED (Indicating PASS/FAIL)

Different color means the operating result.

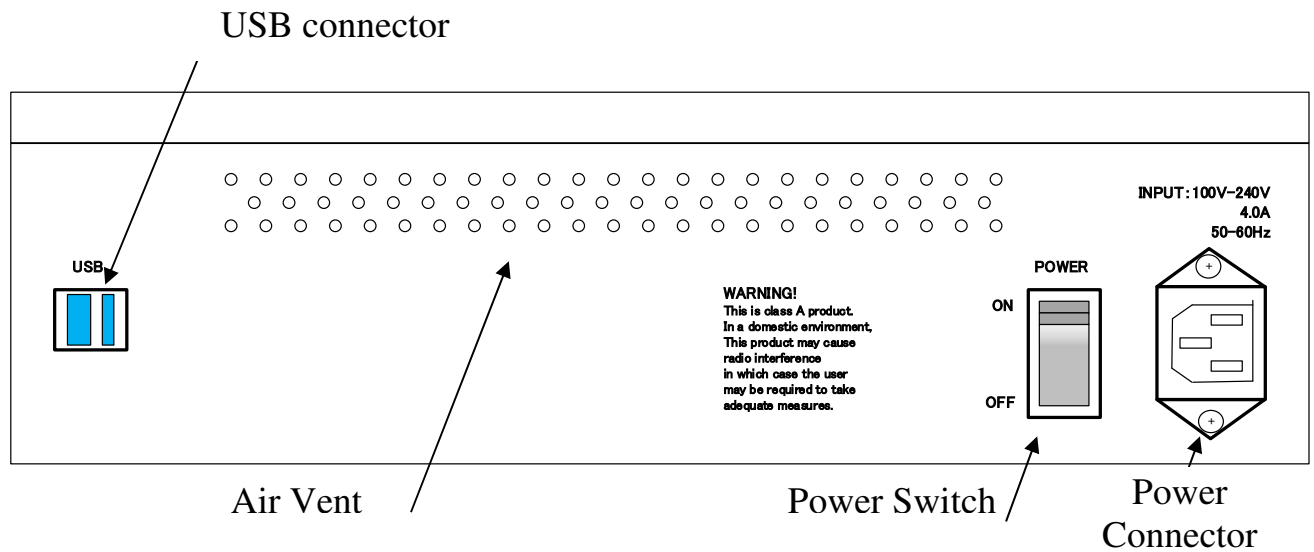
PASS Green

FAIL Red

M500-011A-K6

Side Panel

Rear Panel



Power Connector

AC power supply connector.

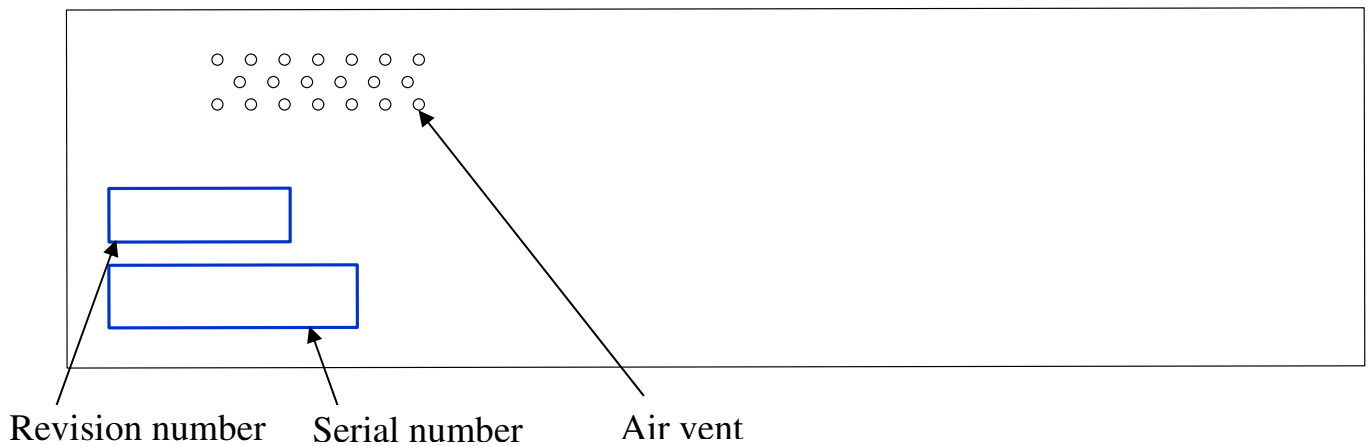
Power Switch

Power switch

USB Connector

USB connector

Side Panel

**Air vent**

Air vent is designed for the external air sucked for cooling the interior of MODEL500 series. Please keep the vent unblocked. Please use dust collector etc. to remove apparent dust (if any) in air filter.

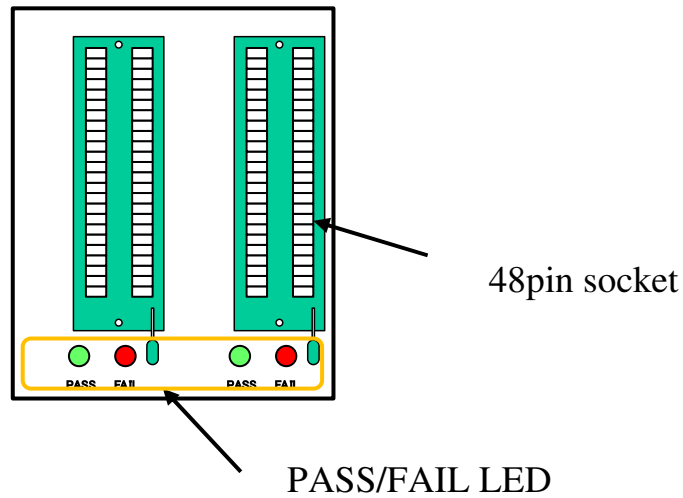
Serial Number

Each programmer has a unique Serial Number and it will be required for service.

Revision Number

Revision Number of Hardware and it will be required for service.

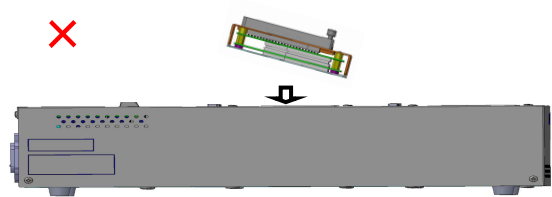
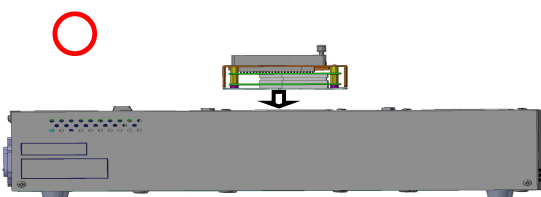
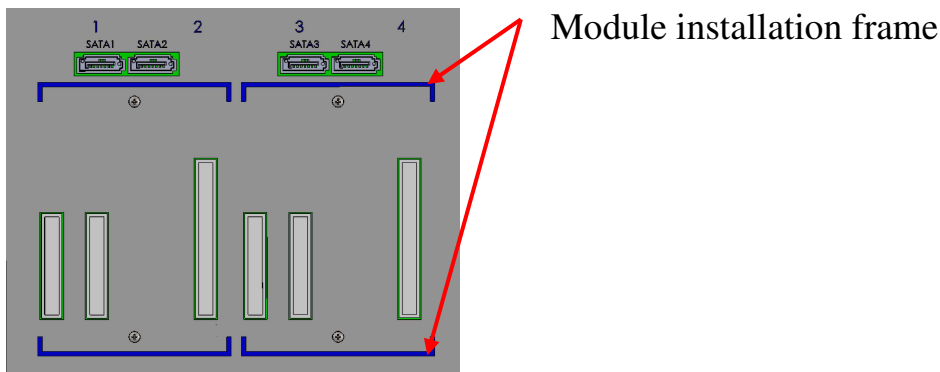
Side Panel Module



Installed on PC and equipped with IC or adapter.
The PC is equipped with a module with 48pin socket.

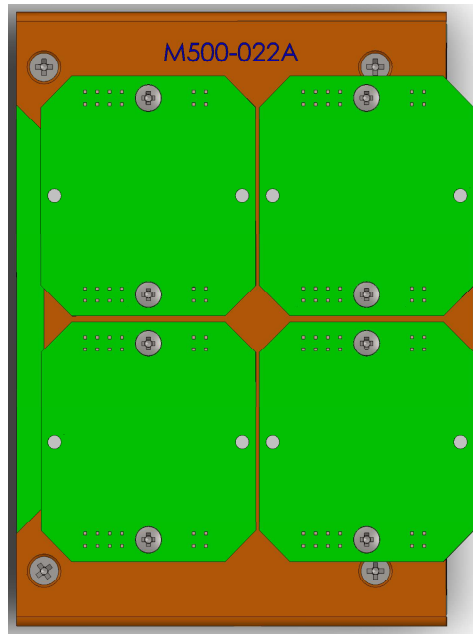
Pay attention to the following content when installing the module on PC.

- Please power off before removal or insertion of module to prevent internal fuse failure.
- Please align with the module installation frame of PC; otherwise, the connector terminal at the PC side may be damaged.
- Do not insert the module sideways. Be sure to insert vertically.



4 sockets unit is provided for eMMC as option module. Maximum 32 devices can be programmed simultaneously in M516.

Please select the suitable adaptor for device.

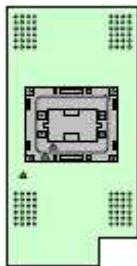


Optional Items

MODEL 500 series of products are supplied with standard socket unit (48Pin DIP).
In addition to standard socket unit, user may optionally use the following socket units and adapters.

Please make sure the socket unit and adapter are matched with the device used.

Various Adapters (Hxx-xxxx)



About Various Adapters

Various adapters

Adapters can be using in corresponding software of M1940,M1950,M400 can also be used in M500 series.

※Refer to “[About Adapter](#)” for details.

About Adapter

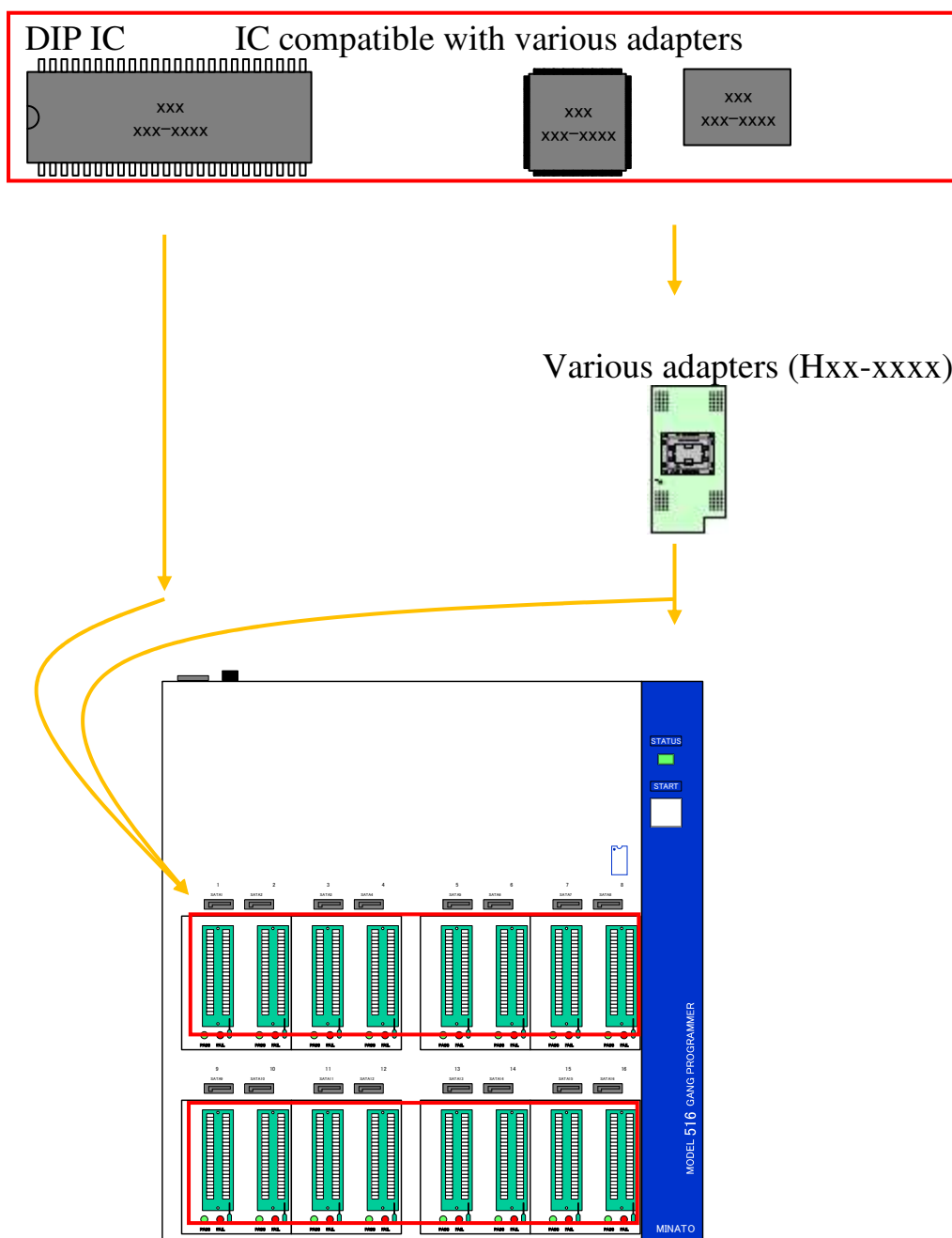
About Adapter

This chapter describes adapters for MODEL500 Series

Definition of adapters in this manual...

1. Just adapters which have been supported by MODEL500 Series.
2. Some others adapter can be supported by MODEL500 Series after version up. (Not all)
3. Due to too many types adapters, we call them “Various Adapters”

IC



About Installation

(Software and Hardware)

※Matters needing attention when connecting MODEL500 series of products to PC for the first time

(Important)

Installation

The CD-ROM contains M500 Series Control software (Universal Control Program), USB drive and operation manual.

In order to control the programmer by software, you must correctly install the USB driver and software first.

※The software must be installed before connecting the programmer with PC.

Installation of Software

Please insert the CD-ROM to install below software.

OS	Windows Vista/7/8 (32bit)	Windows Vista/7/8 (64bit)	Windows10
	M500installer_vxxxx.exe (MODEL500series control software)		
USB drive	Folder name of “Vista or later OS” M500_USB_driver32.exe	Folder name of “Vista or later OS” M500_USB_driver64.exe	–

It will start to install after double click above software.

For M500 Series, all above software must be installed before operation.

Please follow below installation method to install software.

[Installation Method]

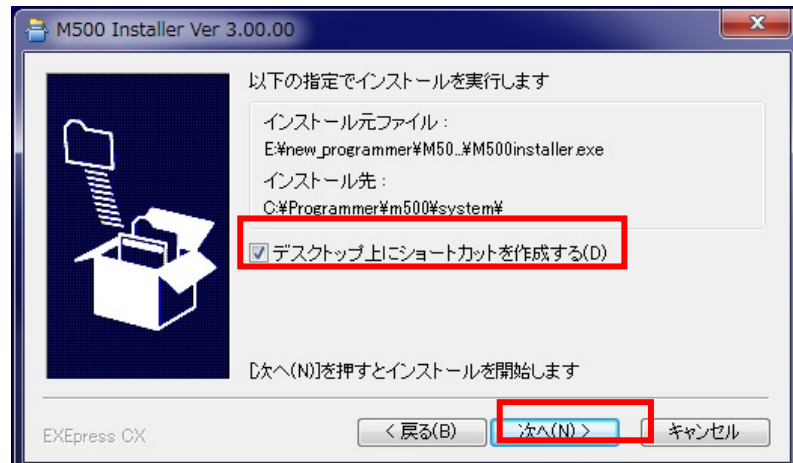
Installation of MODEL500 series control software

Double click “M500installer_vxxxx.exe”

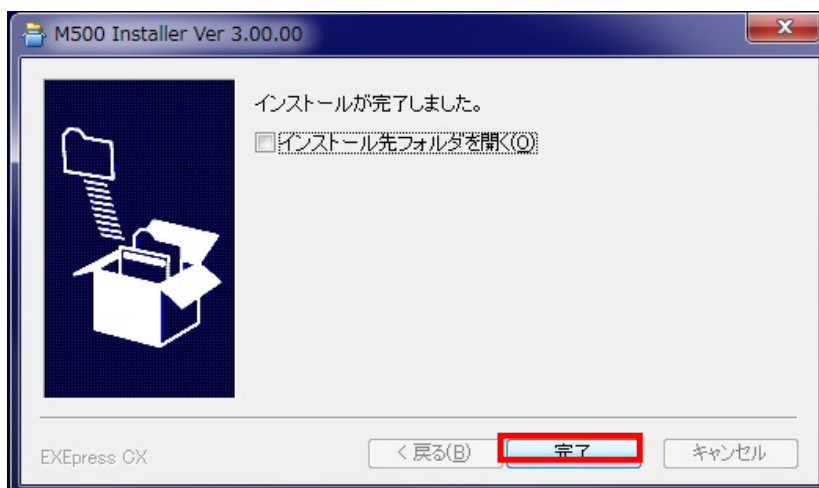


Click next [next (N) >]

Installation



Creating a short-cut on the desktop after selecting ☒ Auto installation



This screen means the installation has been finished.
Please click (finish)

※ Installing the USB driver.exe by the same method.

※ Note ※

When running the applications developed by using [Visual C++ 2010], the installation packet is required. If your PC cannot install [Visual C++ 2010] or above, please install [vcredist_x86.exe].

For smooth installation, the following OS are required.

Windows XP Service Pack3 or above

Windows Vista Service Pack2 or above

Windows 7

Windows10

Or download the packet from the following URL.

<http://www.microsoft.com/ja-jp/download/details.aspx?id=8328>

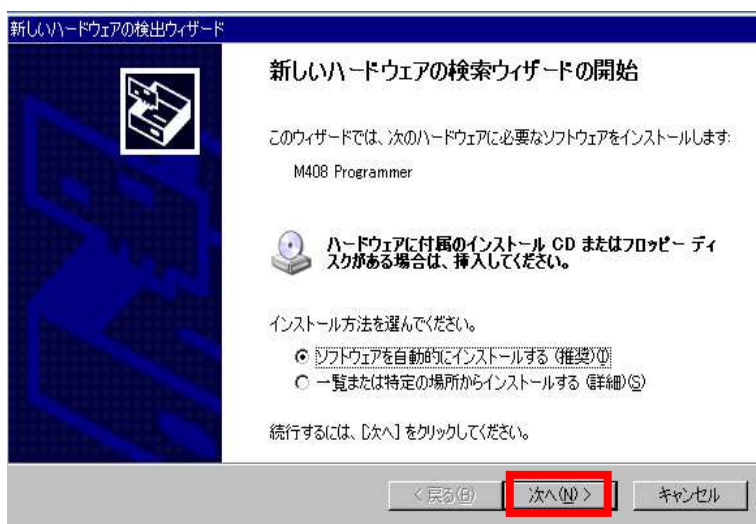
Installation

Installation for Hardware

Before start the Universal Control Program, please connecting M500 Series to PC by USB cable.

Windows will detect new hardware, please follow below method to install the driver. M500 Series will be detected by windows and installation will start automatically. Please insert the CD-ROM.

- Setup 1** Connecting the USB cable to programmer (do not use extension cord).
- Setup 2** Connecting USB cable to adapter.
- Setup 3** Connecting the USB cable to PC
(Recommend Super-Speed USB 3.0)
- Setup 4** Power on the M500 Series and make sure the status of LED is red and fan has a turn.
- Setup 5** Windows will start with “ Found New hardware Wizard”

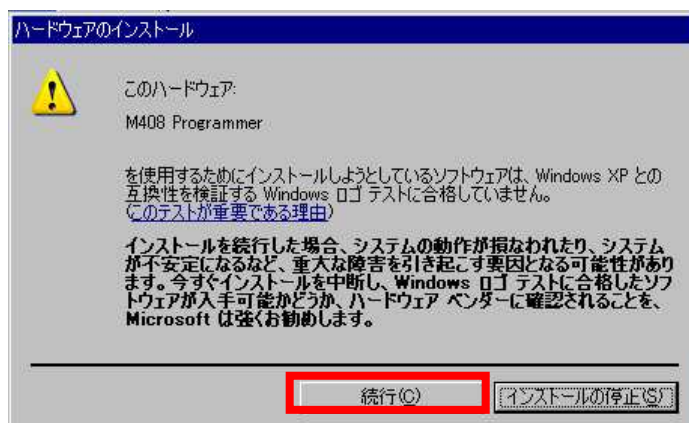


Please select.

Selecting “Install the software automatically (Recommended) Start to install.



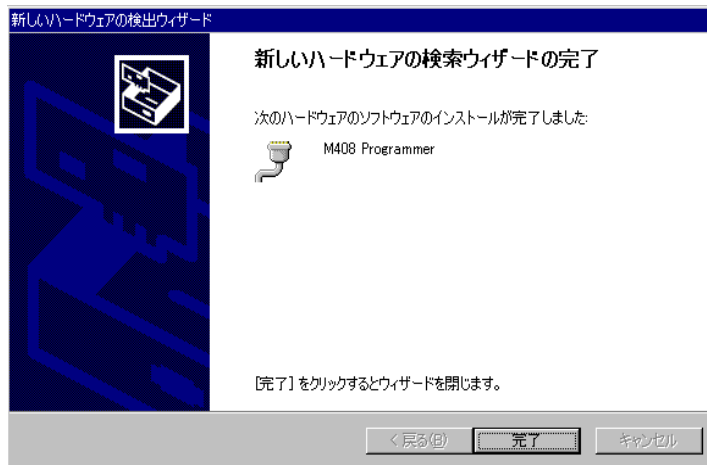
Confirming the installation.



Please select continue.

Installation

After successfully installing you will see following window:



Click “Finish” button to finish the setup.

※ Notice ※

In addition, MODEL 500 series of products will detect the new hardware in the connected unit (COM port), and programmers M516 and M508 will perform hardware installation for 4 times and 2 times, respectively.

Notice for first time connecting to PC

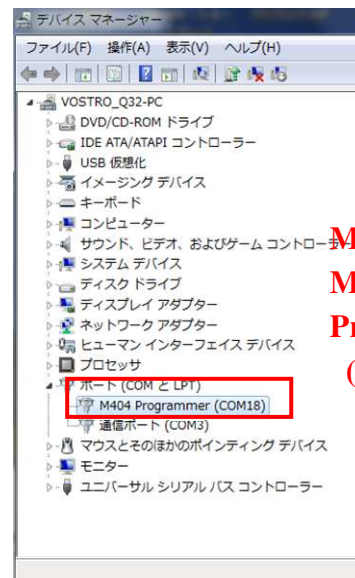
After installing the hardware driver

Please perform the following operations when using Windows XP (SP3). Where the following operation is not performed, PC would be unable to identify MODEL500 series of products. (Not required for Windows Vista/7/8/10)

- ① Copy file “**usbser.sys**” in below folder.
“C:\Windows\ServicePackFiles\i386” or “D:\Windows\ServicePackFiles\i386”
- ② Paste “**usbser.sys**” to below folder.
“C:\Windows\system32\drivers” or “D:\Windows\system32\drivers”
- ③ Power on the programmer. Perform hardware installation again. Check if programmer has been identified upon the completion of installation.
- ④ [Start] → [Setting] → [Control Panel] → [System] → [Hardware]
→[Device Manager]

If you can find the the Model of M500 Series,
it means the Programmer has been recognized
and please remember the USB port.

Please click the icon to run the control Software.



**MODEL516:
M500
Programmer
(COMxx)**

M500 Series Control Software (Universal Control Program) Operation Manual

This chapter explains how to use this Universal Control Program of M500 Series. This Control Software will be updated without giving notice due to improvement. Any effects will be fixed by new software.

MODEL500 Series Control Software (Universal Control Program)

MODEL500 Series Control Software (Universal Control Program)

Outline

M500 Series Control Software is suitable for MODEL504, MODEL508, MODEL516.

Main features:

- ① MODEL504, MODEL508, MODEL516 can be controlled by the same software.
- ② All the information of programming can be found on the main screen.
- ③ According to the GUI, you can easily program IC, edit buffer and set the parameter including the Partition for NAND.
- ④ You can quickly reload all the programming settings by project file.
- ⑤ You can set the lot number and get the report by lot function.
- ⑥ You can clearly confirm the operation status by log function.
- ⑦ With newly-developed 'Con-current programming method' start to program devices per site. Programming time is significantly shortened by this method for auto handler.

※ Operating Environment ※

Please follow the “Recommended PC Requirements” to use this software, otherwise we can not guarantee all the function is correct.

※ Notice ※

- ① Please close the control software before power off the programmer while the job is finished. Otherwise the communicating will be failed and maybe cause a wrong operation.
- ② Please install the suitable Module before running the control software and the Modules must be same for M508 and M516 to avoid breakdown.

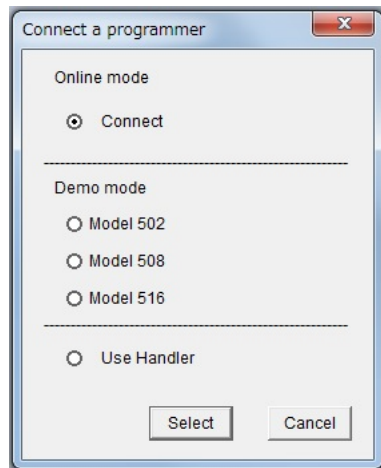
MODEL500 Series Control Software (Universal Control Program)

Start Running the Universal Control Program

After installation was finished, please double click the icon on the desktop.



And below dialog box will display.



[Connect a programmer Dialog box]

Automatically detect and connect the programmer (Online mode)

On the dialog box [Connect a programmer], choose [Connect] and click [Select]. If the programmer already has been connected to PC correctly, it will be automatically detected and the main screen of software will show **[ONLINE]**, otherwise it will be **[OFFLINE]**.

In Demo mode, control software performs simulation operation with programmer not connected. Do not activate Demo mode when operating programmer.

Demo mode for MODEL 508

On the dialog box [Connect a programmer], choose [Model 508] and click [Select], the control software will be forced to MODEL 508 Demo mode and [DEMO] will be showed on the main screen of software.

Demo mode for MODEL 516

MODEL500 Series Control Software (Universal Control Program)

On the dialog box [Connect a programmer], choose [Model 516] and click [Select], the control software will be forced to MODEL 516 Demo mode and [DEMO] will be showed on the main screen of software.

AutoHandler mode

On the dialog box [Connect a programmer], choose [Use handler] and click [Select], the control software will be forced to handler mode and the status of programmer is [OFFLINE] until you start the Autohandler software to control it.

Do not connect programmer

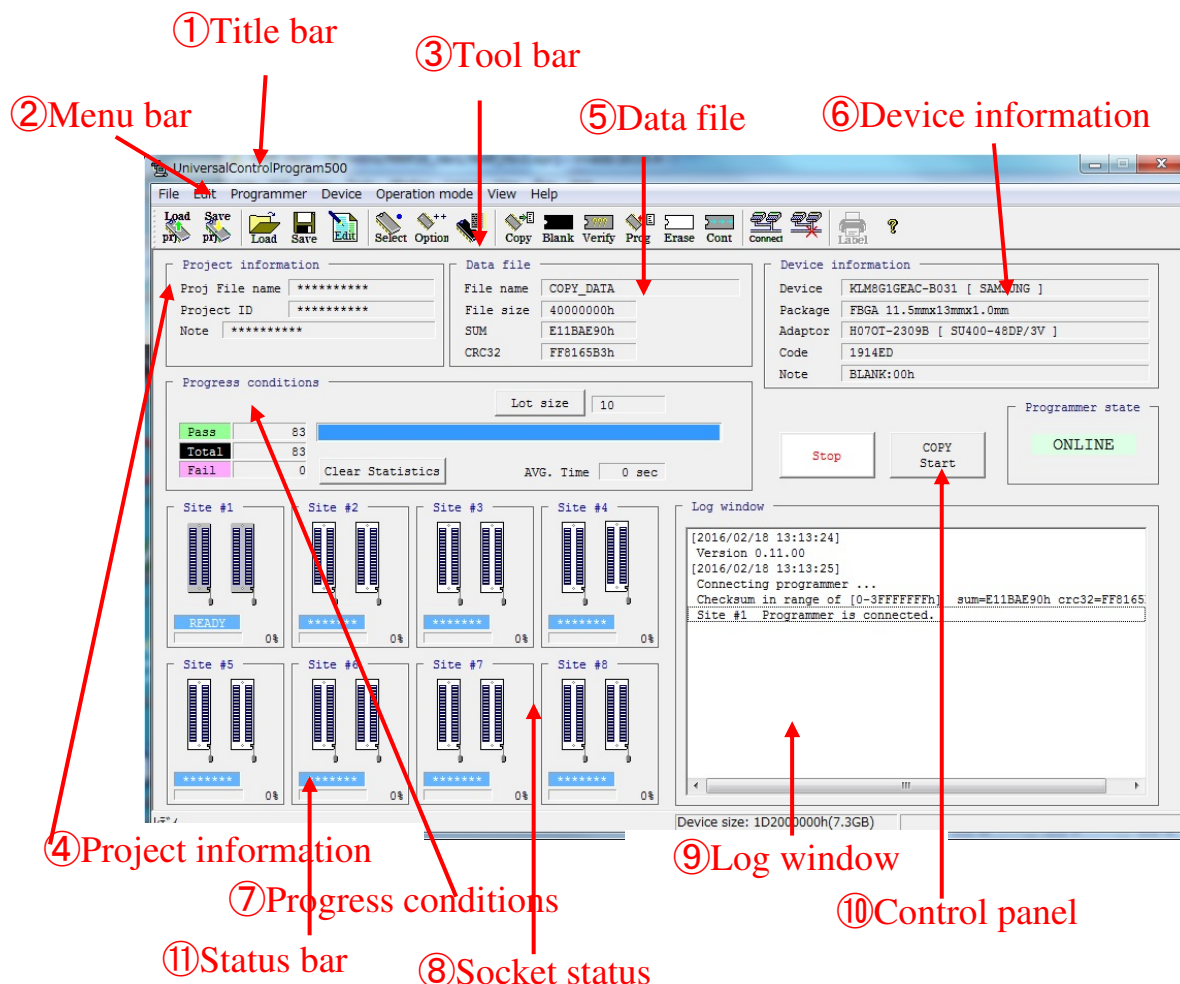
On the dialog box [Connect a programmer], click [Cancel], the control software will force to [OFFLINE] mode (Demo mode for M516).

MODEL500 Series Control Software (Universal Control Program)

Description of the main screen

Here will introduce the function of the main screen and the sample is MODEL500 (It's the same for MODEL508 and MODEL516 except the programmer's Model.)

Description of the main screen (MODEL516 Main Screen)



* This is an example.

① Title bar

Display the version of the software.

② Menu bar

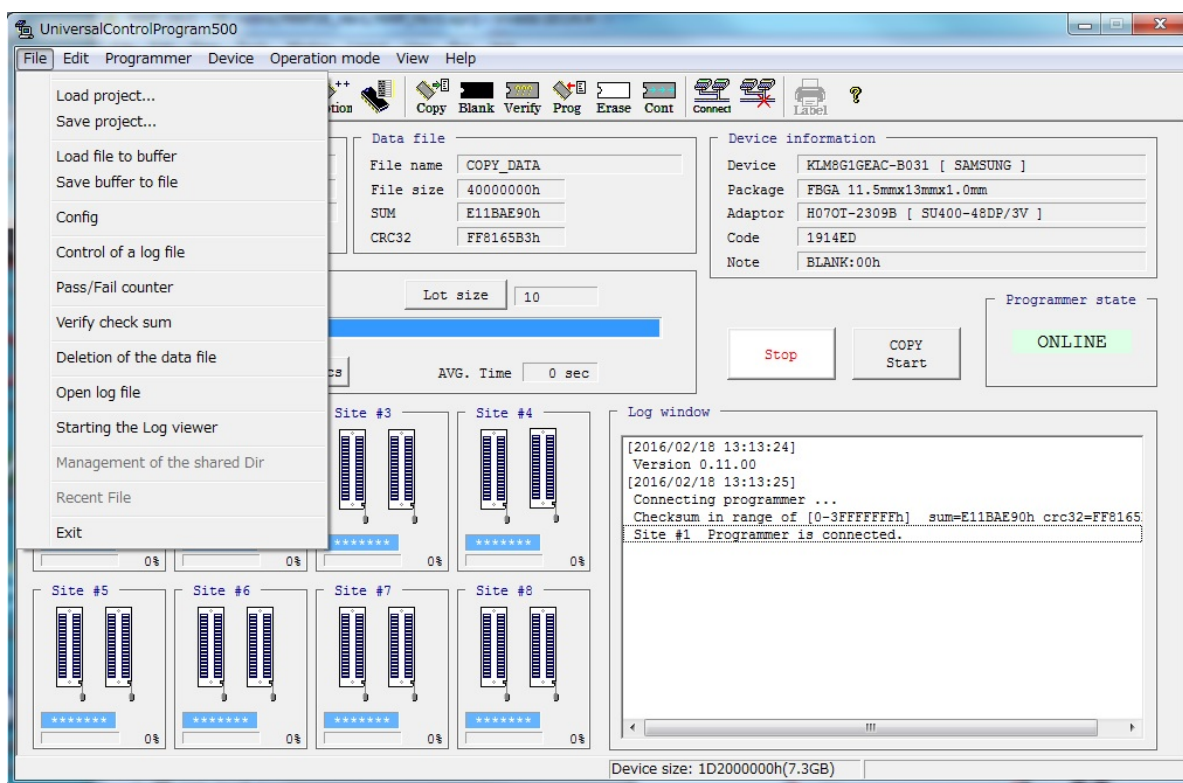
There are below 7 menus, [File], [Edit], [Programmer], [Device], [Operation mode], [View], [Help].

Each menu contains many functions for operation, example you can select IC by click [Select device...] under [Device] menu.

MODEL500 Series Control Software (Universal Control Program)

[File]

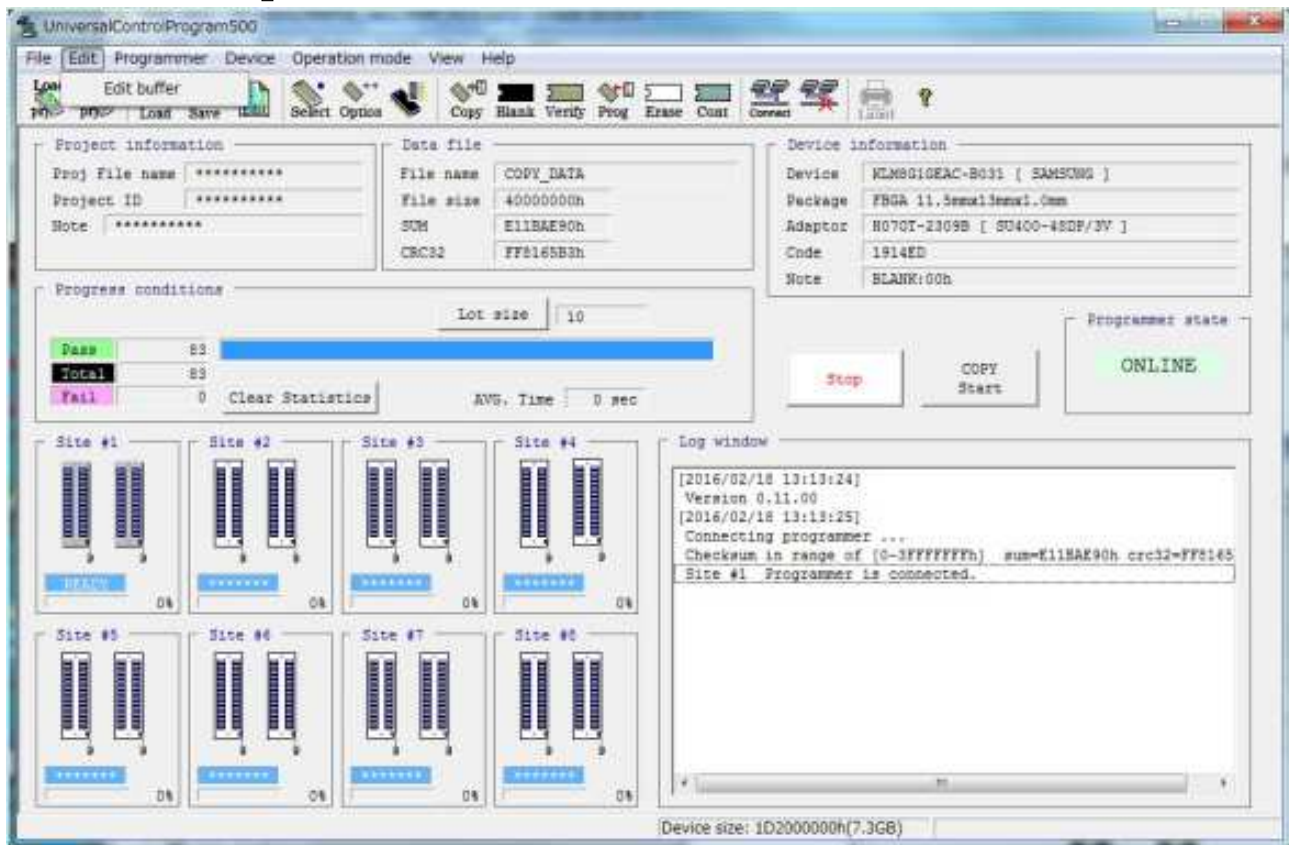
- 「Load Project..」
- 「Save Project..」
- 「Load file to buffer」
- 「Save buffer to file」
- 「Config」(Initial setup for system and password is required)
- 「Control of a log file」(Setting of log file)
- 「Pass/Fail counter」(setting of counter)
- 「Verify check sum」(confirm the check sum)
- 「Deletion of the data file」
- 「Open log file」
- 「Recent File」
- 「Exit」



MODEL500 Series Control Software (Universal Control Program)

[Edit]

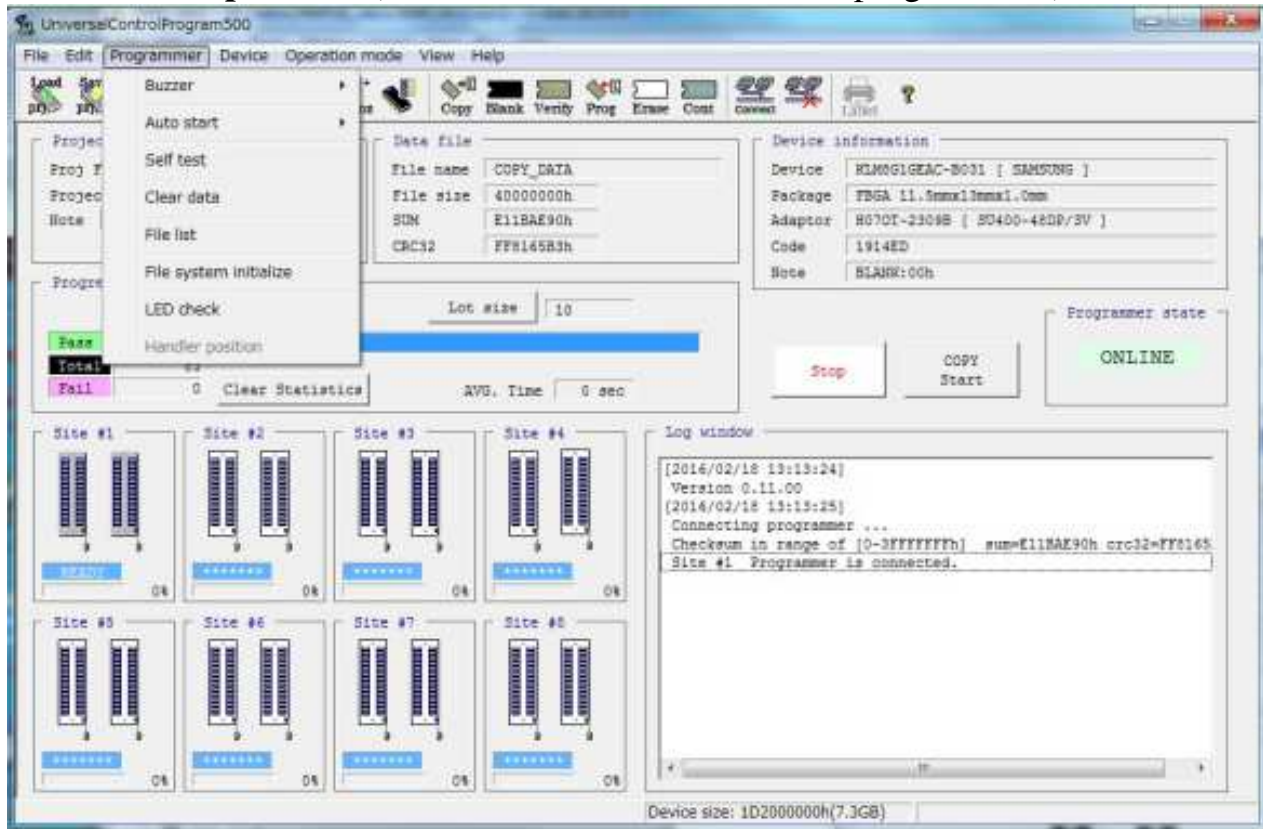
- 「Edit buffer」



MODEL500 Series Control Software (Universal Control Program)

[Programmer]

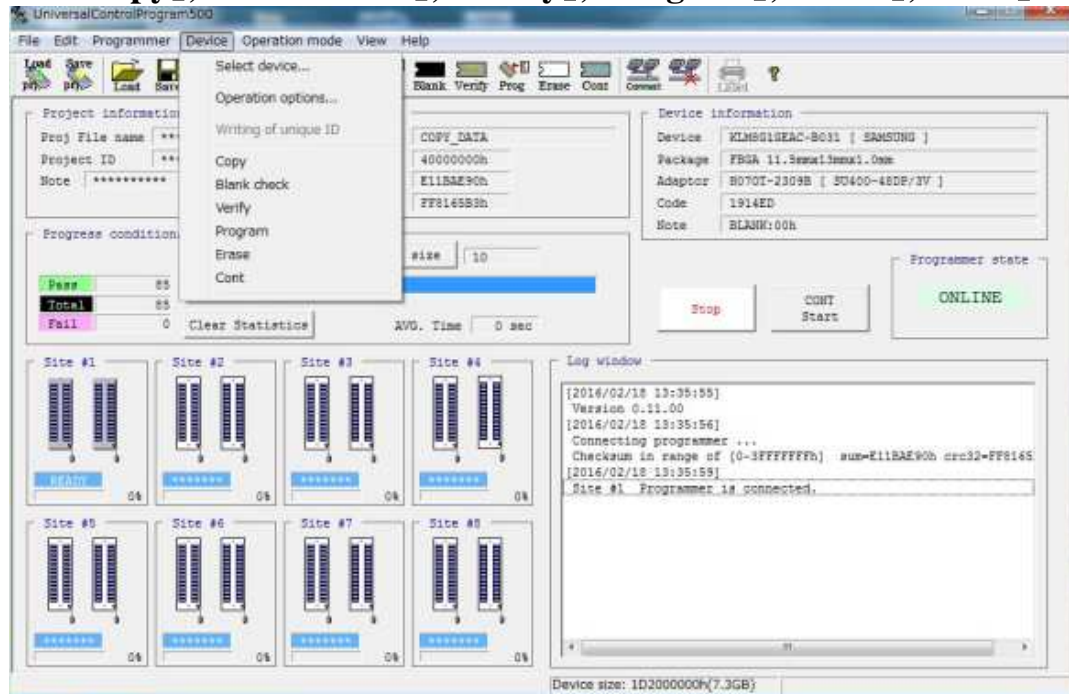
- 「Buzzer」
- 「Self test」
- 「Clear data」 (clear the BufferData of programmer)
- 「File list」 (File list in buffer)
- 「LED check」
- 「Handler position」(For Auto Handler: Number the programmers)



MODEL500 Series Control Software (Universal Control Program)

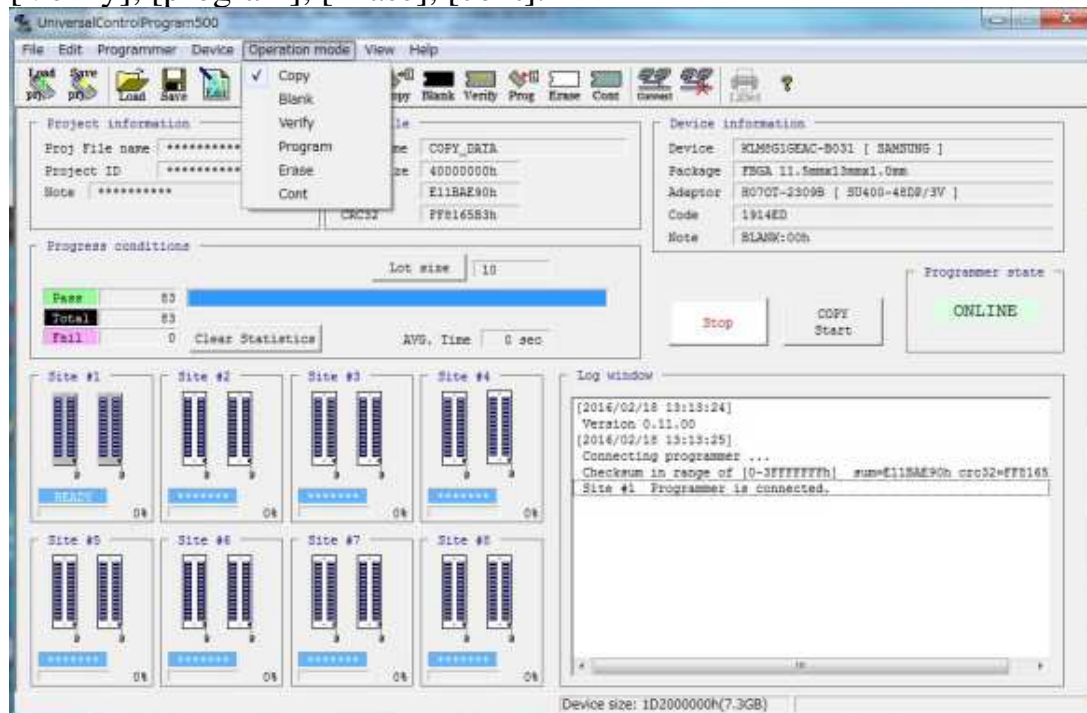
[Device]

- 「Select device」
- 「Operation options..」
- 「Writing of unique ID」(For Auto Handler)
- 「Copy」,「Blank check」,「Verify」,「Program」,「Erase」,「Cont」



[Operation mode]

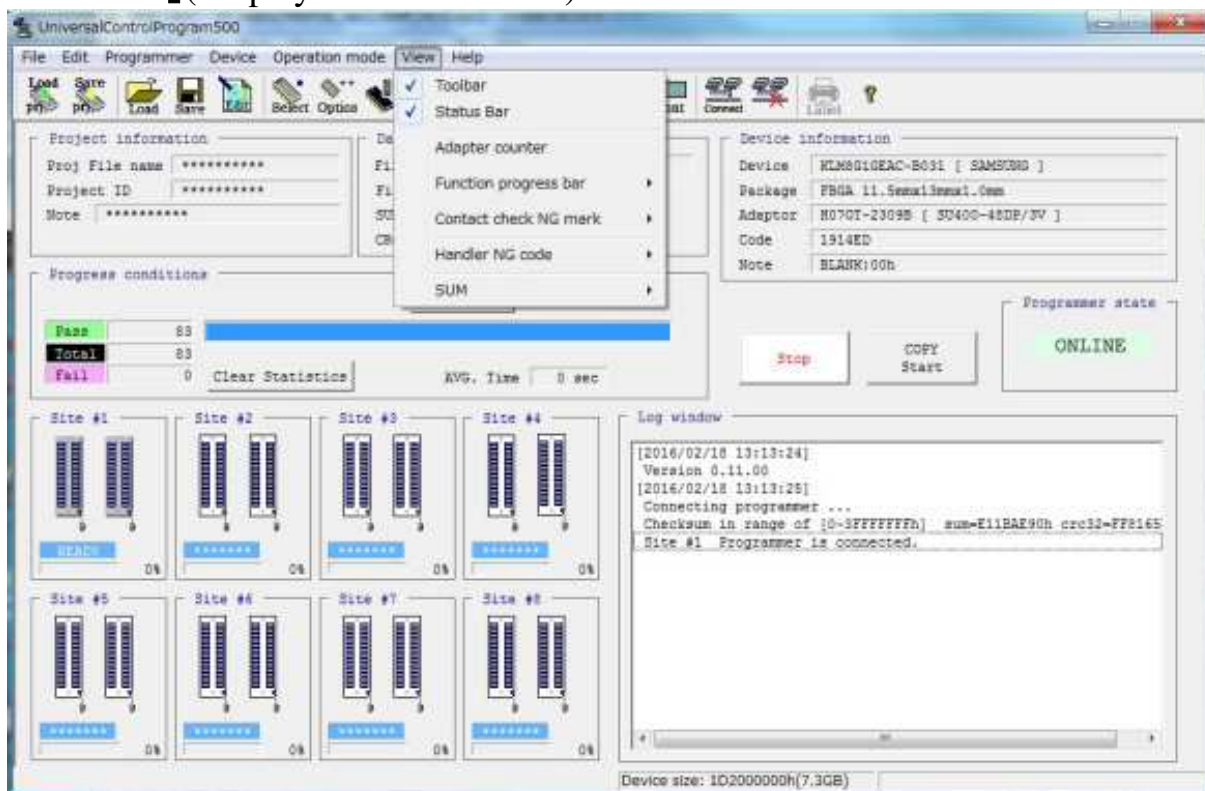
For mass production and the function can be changed by click [Copy], [Blank check], [Verify], [program], [Erase], [cont].



MODEL500 Series Control Software (Universal Control Program)

[View]

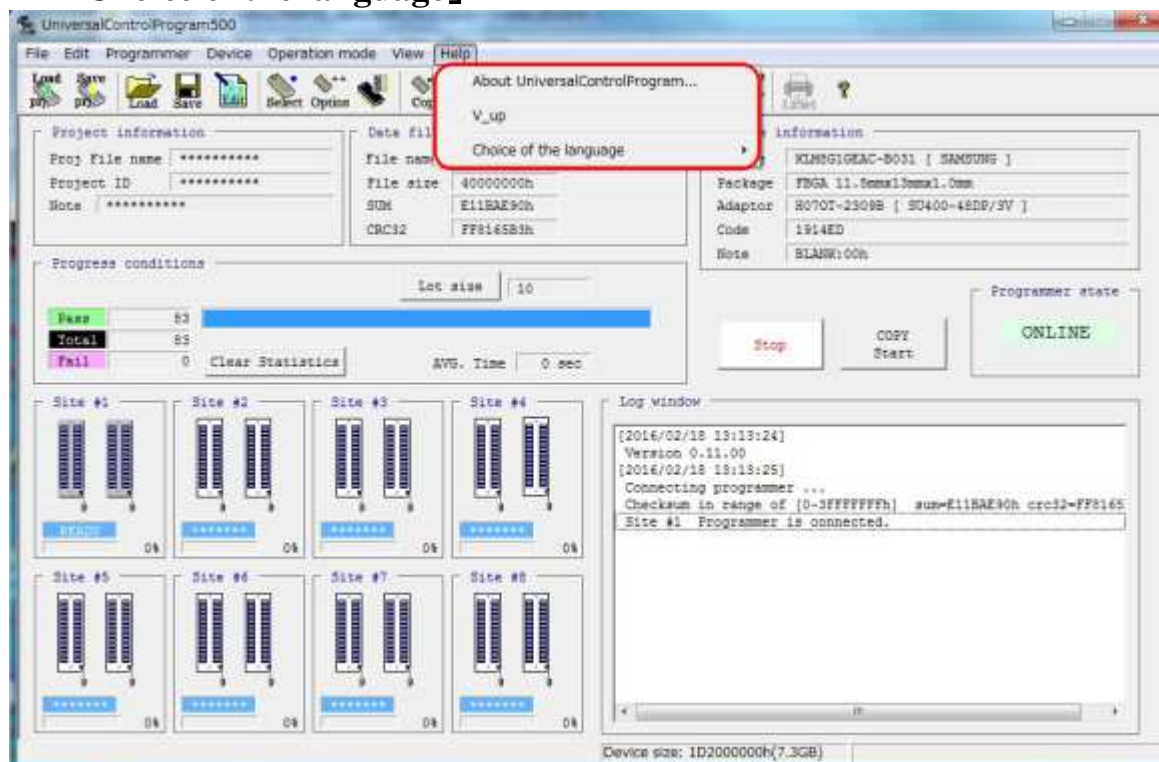
- 「Toolbar」
- 「Status Bar」
- 「Function progress bar」(Special : Show the progress at the time point when error occurs)
- 「Contact check NG mark」(Show/hide error mark in the case of Contact error)
- 「Handler NG code」(For Auto Handler : OFF state normally)
- 「SUM」(Display method of SUM)



MODEL500 Series Control Software (Universal Control Program)

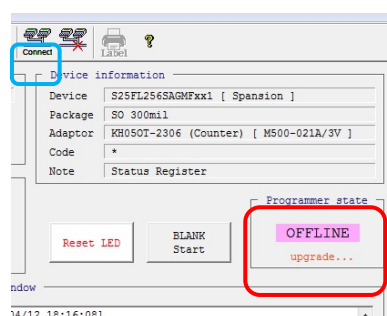
[Help]

- 「About Universal Control Program....」
- 「V_up」 (Version up) (Password is required)
- 「Choice of the language」



Procedure of software version up

1. Select V_up in Help.
2. It will be indicated that the dialog to input Filename, please only select OK without changing Filename.
3. It will be indicated that the message “The upgrade of M5xx is done. Is it good?”, please select OK.
4. File transfer will be done, then Programmer State will turn to OFF LINE and software version up will be started.
5. If upgrade indication below OFFLINE will be disappeared, software version will be done. Please re-connect communication with programmer to select Connect button.



MODEL500 Series Control Software (Universal Control Program)

③ Tool bar

17 tools were divided to 6 groups [Project], [Data], [Device], [Operation], [Connection], [Version].

[1] Project



Load Project

Open the Project file which already exists.



Save Project

Save all the setting to a new Project file.

[2] Data



Load file

Load the programming file to the buffer of programmer.



Save file

Save the contents from the buffer to PC as a file.



Buffer Editor

Open Buffer Editor

[3] Device



Select IC

Select the IC P/N



Option

Custom-tailor the operation of device



Access Method

Set the partition.

[4] Operation



COPY

Copy data from IC to buffer.



BLANK

M500-011A-K6

MODEL500 Series Control Software (Universal Control Program)

Check whether the IC is empty.



VERIFY

Compare the data of IC with Buffer.



PROG

Write the data of Buffer to IC.



ERASE

Clear all the contents of IC



CONT

It's a continuous function of ERASE, PROG and VERIFY.

[5] Connection



Connect

Connect the programmer with to PC.



Disconnect

Force the programmer be offline.

[6]Version



Version

Show the version and copyright of software.

④ Project information (main interface function description)

Display the file name, Project ID and note.

Project ID and Note are used as random identification information.

Project information	
Proj File name	minato
Project ID	project_001
Note	Test Version

* This is an example.

⑤ Data File

Show the file name, Memory size, CheckSUM and CRC.

(CheckSUM and CRC are calculated according to the buffer not file, so they will be changed after loading another file or editing the buffer)

MODEL500 Series Control Software (Universal Control Program)

Data file

File name	COPY_DATA
File size	40000000h
SUM	E11BAE90h
CRC32	FF8165B3h

* This is an example.

⑥ Device Information

Show the P/N and package of Device, and the adapter P/N which should be used.

Device information

Device	KLM8G1GEAC-B031 [SAMSUNG]
Package	FBGA 11.5mmx13mmx1.0mm
Adaptor	H070T-2309B [SU400-48DP/3V]
Code	1914ED
Note	BLANK:00h

* This is an example.

⑦ Progress Condition

Show the counter of Pass/fail/total and all the numbers can be cleared by click [Clear Statistics] button.

Clicking [lot size] button you can set all the parameter about the lot.

Progress conditions

Lot size

10

Pass	3	
Total	4	
Fail	1	

Clear Statistics

AVG. Time

0 sec

* This is an example.

⑧ Socket status

Show the Site number and the status of each socket.

MODEL508 is showed 2 sites (8 Sockets).

Site #1

READY

0%

Site #2

READY

0%

Site #3

READY

0%

Site #4

READY

0%

* This is an example.

MODEL500 Series Control Software (Universal Control Program)

MODEL516 is showed 4 sites (16 Sockets).



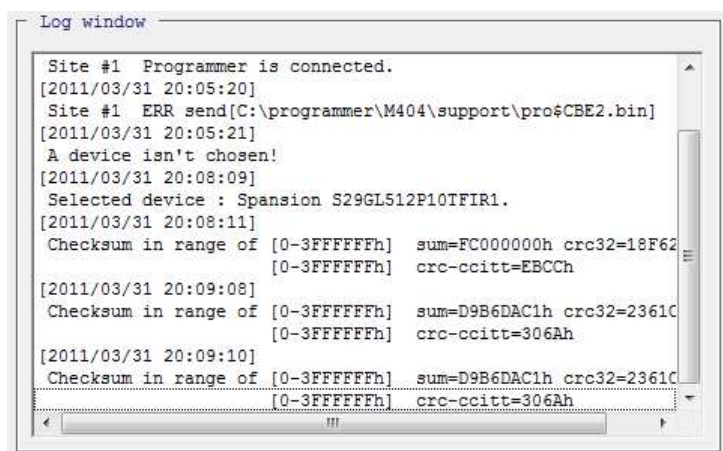
* This is an example.

The Progress bar shows the status of every operation.

Example: while you run PROG, it will show PROGRAMMING 0→100%,
VERIFYING 0→100%.

⑨ LogWindows

Log window contains the flow-control progress information about almost every operation and the log information will be saved automatically. (You can define where or how long it will be saved)

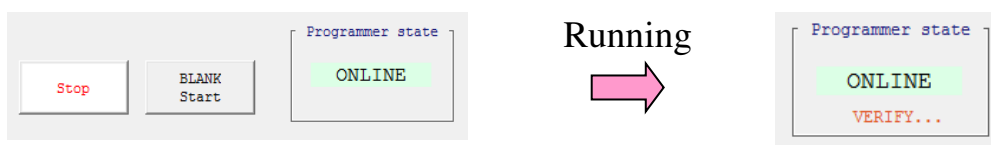


* This is an example.

MODEL500 Series Control Software (Universal Control Program)

⑩ Control Panel

Additionally, the in-service operation mode will be displayed in **ONLINE** state during operating process, and the normal display status would be restored upon the completion of operation. You can confirm whether it is running by not only the “Programmer state” but also the “Socket status”.



* This is an example.

For more information, please refer to Socket in 「[About Operation](#)」

⑪ Status bar

It's a simple description of menu or function and it will be displayed by moving mouse to certain button. It also can be hidid by selecting [View -> Status Bar]

Basic Operation

This chapter will describe below operations.

- Power Setting
- Select device
- Download data file
- Copy
- Erase
- Blank check
- Program
- Verify
- Cont
- Contact and ID check

For M500 Series you must use the special control software to operate.

Here just describe the operation of M516 (It's the same for M504 and M508 except for the programmer model.)

Basic Operation

Power setting

Here will describe the sequence of power on.

You should avoid the noise caused by another machine like electric generator and welding machine.

※ Notice

Making sure to put M500 Series at a level place, no shocking

Using dedicated plug seat as AC power

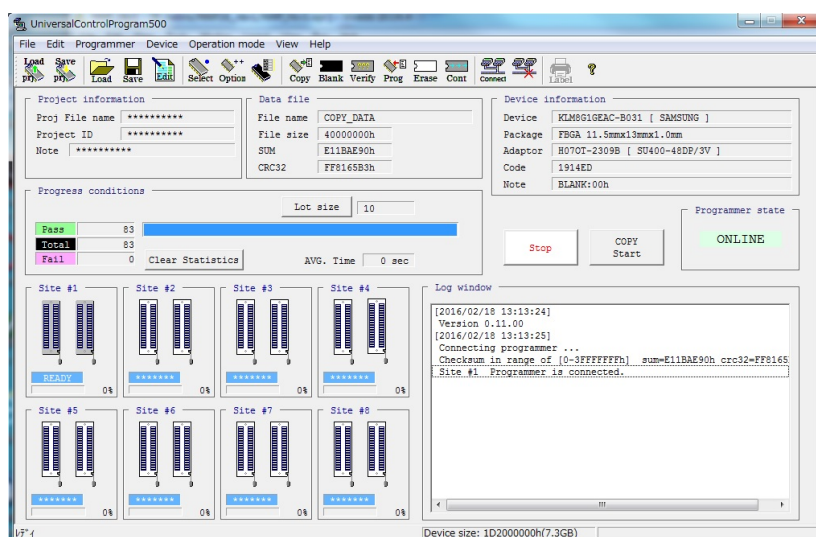
Recommended using 3P plug seat which contains GND

Making sure the power switch are off, then connect the power cable to plug seat.

No IC and Adapter are inserting the programmer while power on. (Avoiding be damaged)

Power on sequence

- ① Making sure no IC is in the SOCKET, then turn the power switch to on.
- ② The status LED will turn red, and it's ready for connecting to PC. Please make sure to see the COM port in device manager.(8 port will be seen in M516, 4 in M508, 2 in M502)
- ③ Click the icon of M500 control software. Normally choose[Connect] to automatically connect to PC.
- ④ The IC which is selected last time will be called out automatically on the primary screen. The status LED will turn green, and buzzer will ring.
- ⑤ Primary Screen



Example: This screen displays the status of the MODEL516 connection.

Basic Operation

Select Device

Click [Select device] to choose target IC.

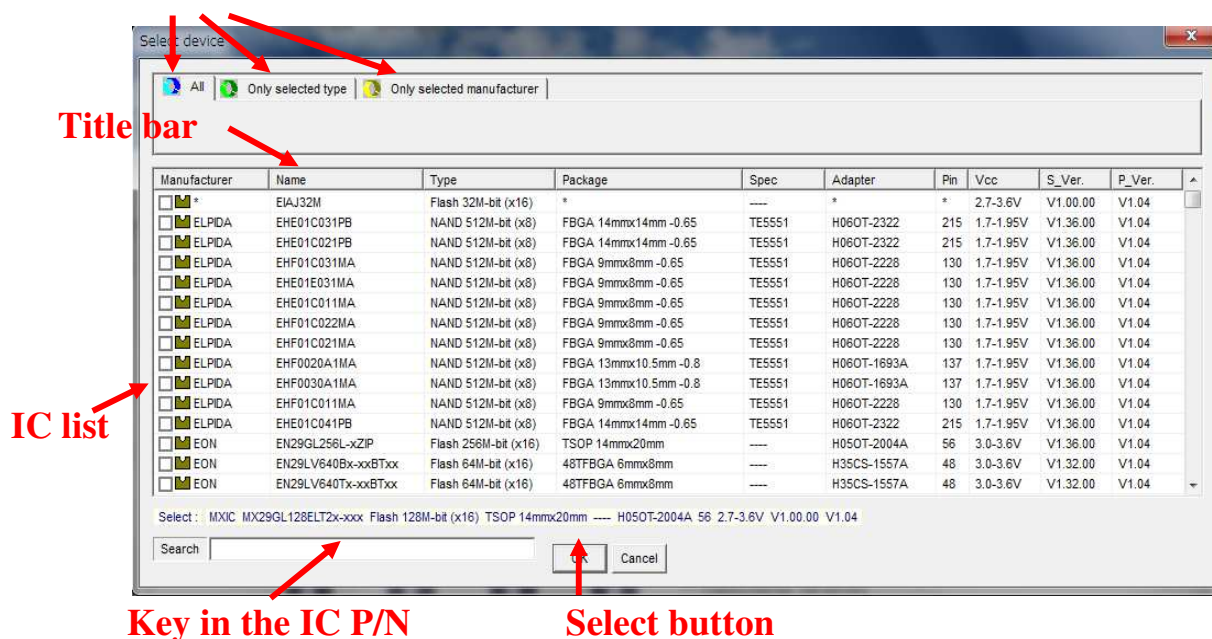
You can select device by choosing [Device] → [Select device] or click below button



on the tool bar.

The window for selecting device

Tab (① All ② Only selected type ③ Only selected manufacturer)



Show devices in order

Clicking title bar the device will be put in alphabetical order.

Click to change the order.

Scroll bar for device list

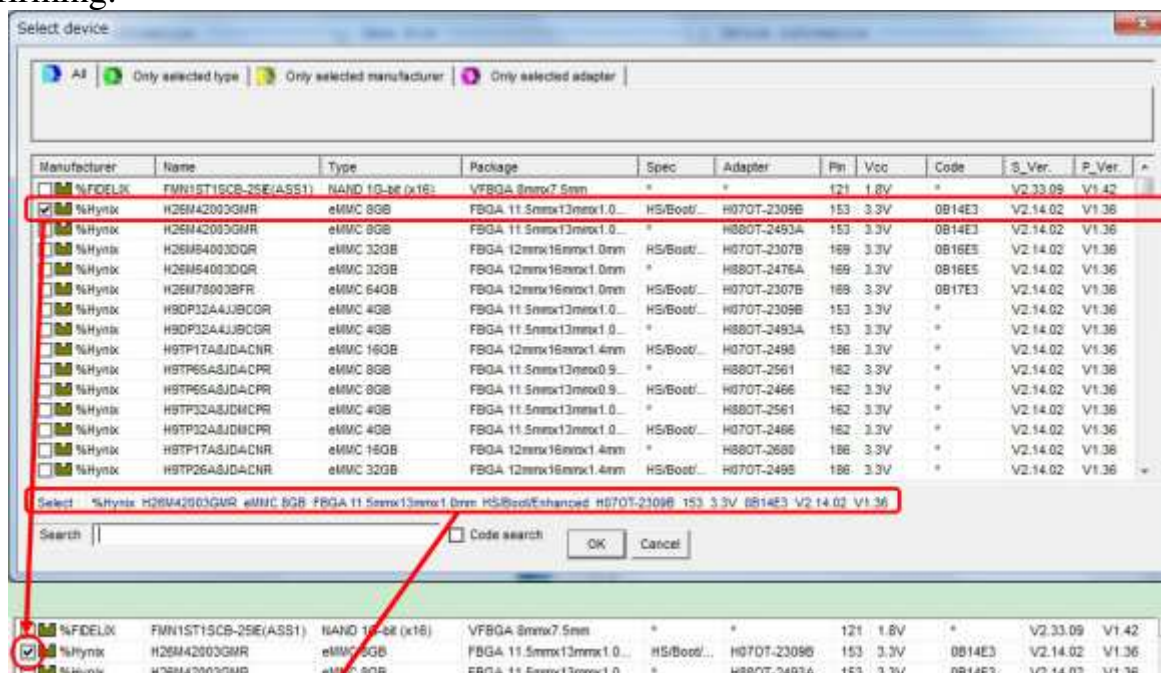
You can find all the supported devices by moving the scroll bar on the right sidebar.

Cancel selecting

Clicking [Cancel] button to give up your selecting.

Confirm the device

While you clicking the device, all the information will be displayed for your confirming.



All the information of the device you have selected are displayed.

Select: %Hynix H26M42003GMR eMMC 8GB FBGA 11.5mmx13mmx1.0mm HS/Boot/Enhanced H07OT-2309B 153 3.3V 0B14E3 V2.14.02 V1.36

Click [OK] button to confirm your selected device and then the device will be called out and all the settings are updated.

※Notice※

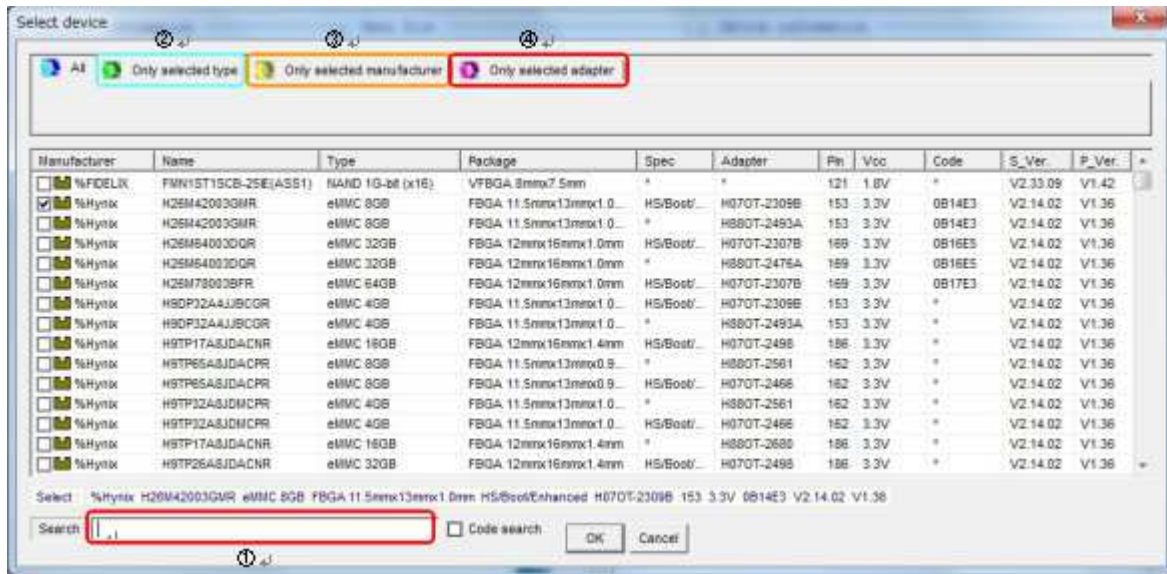
The buffer memory will be initialized after selecting device.

Use the following method to narrow the search scope.

Basic Operation

Methods for searching device

(Screen of select IC Windows)



① Key in part of the device name

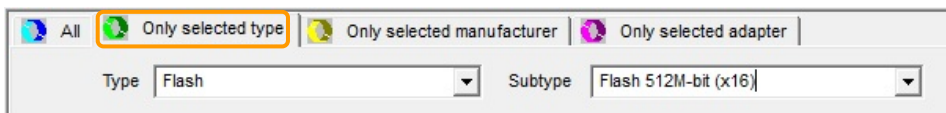
Key in the device P/N in [Search] Box, the searching will be narrowed down. (example: key in "29GL" then just ICs containing "29GL" will be listed)



[Search] Box is suitable for all Tabs ([All] [Only selected type] [Only selected manufacturer]) and it's case insensitive.

② Only selected type

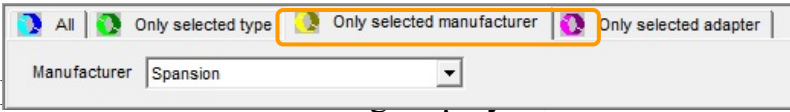
Click the tab of [Only selected type], you can more easily find the device by select the [Type] and [Sub type], because just the type you have defined will be listed. (example: Set [Type] as "Flash", and [Sub type] "512M-bit (x16)", then just 512Mbit Flash will be listed)



If there is no device being displayed, it means this type has not been supported.

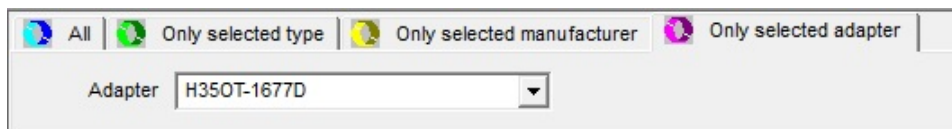
③ Only selected manufacturer

Click the tab of [Only selected manufacture], you can choose the manufacturer of device, and then just devices produced by this manufacturer will be listed.

 ※: No device for this manufacturer has not been supported.

④ Only selected adapter

Click [Only selected adapter] in Windows to change the selection mode. The [Adapter] List Box will be displayed in the searching area. Use [Adapter] to designate the manufacturer name.



Close the Select device window

Click [Cancel] button or  to close this window and no device has been selected.

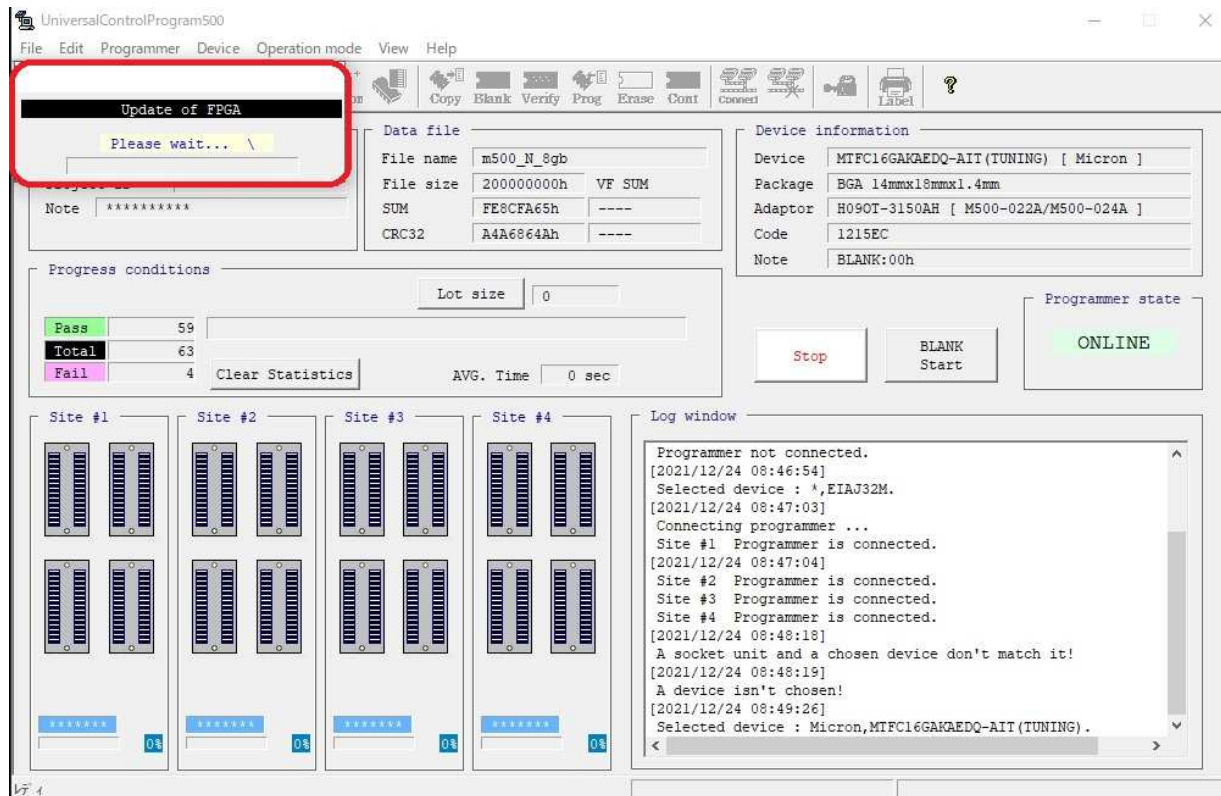
FPGA update

When FPGA to use for a device note is different, at the time of a device choice, FPGA update is carried out. **Please never turn off the power supply of the programmer during FPGA update.** FPGA never stands up.

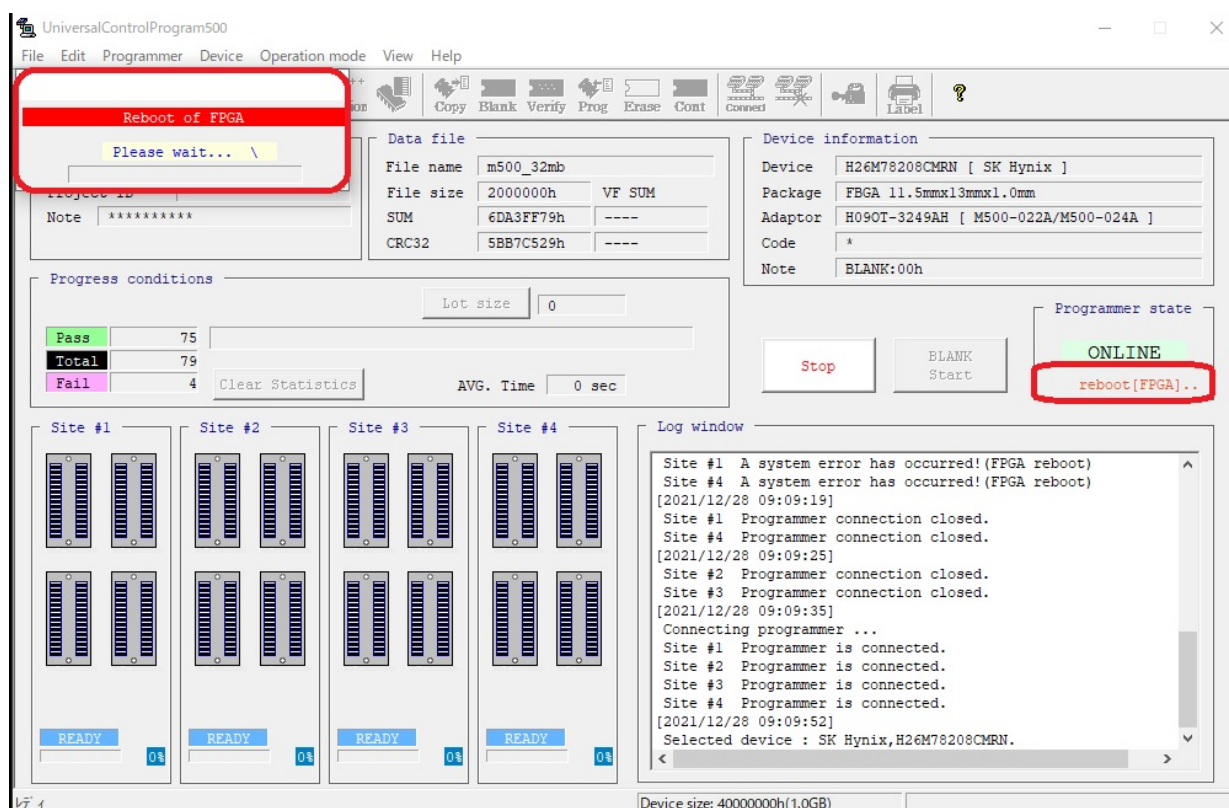
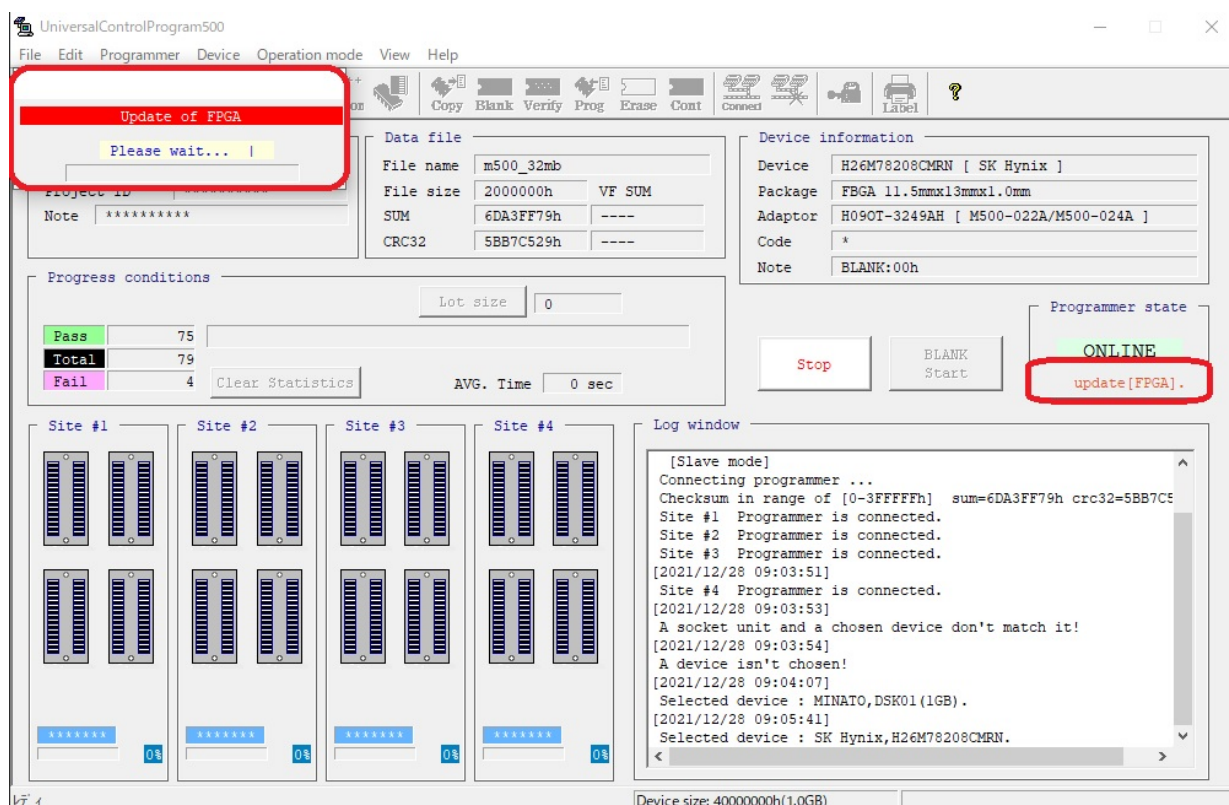
Basic Operation

As update(FPGA) is displayed during FPGA update on the left of the screen of UCP by popup message and Programmer state, please operate the next after waiting until these indication disappears.

In case of UCP version is before V1.44.00



In case of UCP version is before V1.44.00



Basic Operation

COPY

Using the COPY button to copy data from IC to buffer of M500 Series.

Notice before COPY !

1. Please calculate the checksum before copy to confirm whether it is correct.
2. Just #1Socket can be used for COPY and make sure no IC in others Socket.
3. If the direction of IC is not corrected, the device may be damaged.

The operation Sequence for COPY

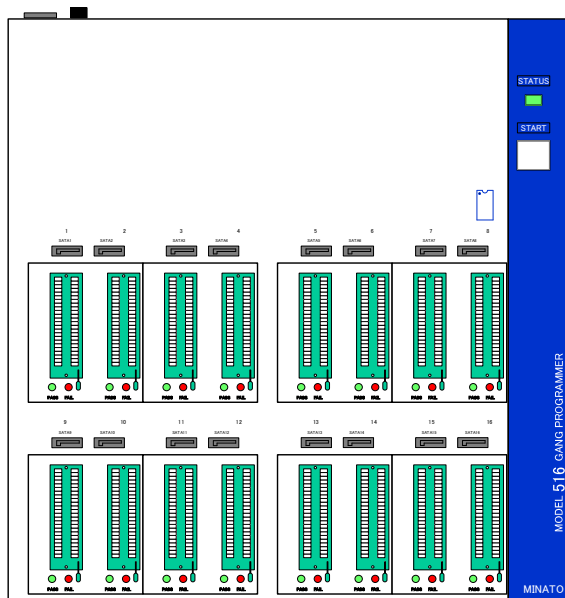
Example) For M504

1. Select the correct device
2. Put IC into #1Socket

3. Click COPY button

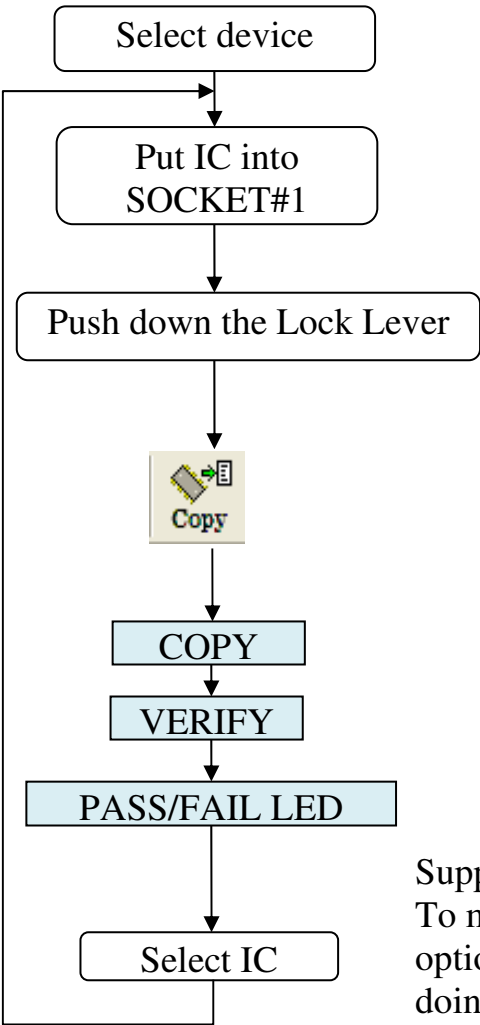


Click START (COPY) button, then it will run and while it's finished the LED turn green or red (Copy ok: Green; Copy fail: Red).



In regard to unused, #2, #3 and #4 sockets, the red LED goes ON.

Flow chart of COPY



Supplement
To modify the setting in "Device operation option", skip the VERIFY after COPY. When doing so, please be sure to perform data validation using SUM and CRC32.

Basic Operation

ERASE

For EE-PROM and FLASH devices, the data can be erased by click ERASE button.

Notice before ERASE !

The device which is failed by contact checking or ID checking must be removed from the module before ERASE, otherwise may damage.

The operation Sequence for ERASE

Example) For M504

1. Select the correct device
2. Put the device into #1 ~ #8 Socket.

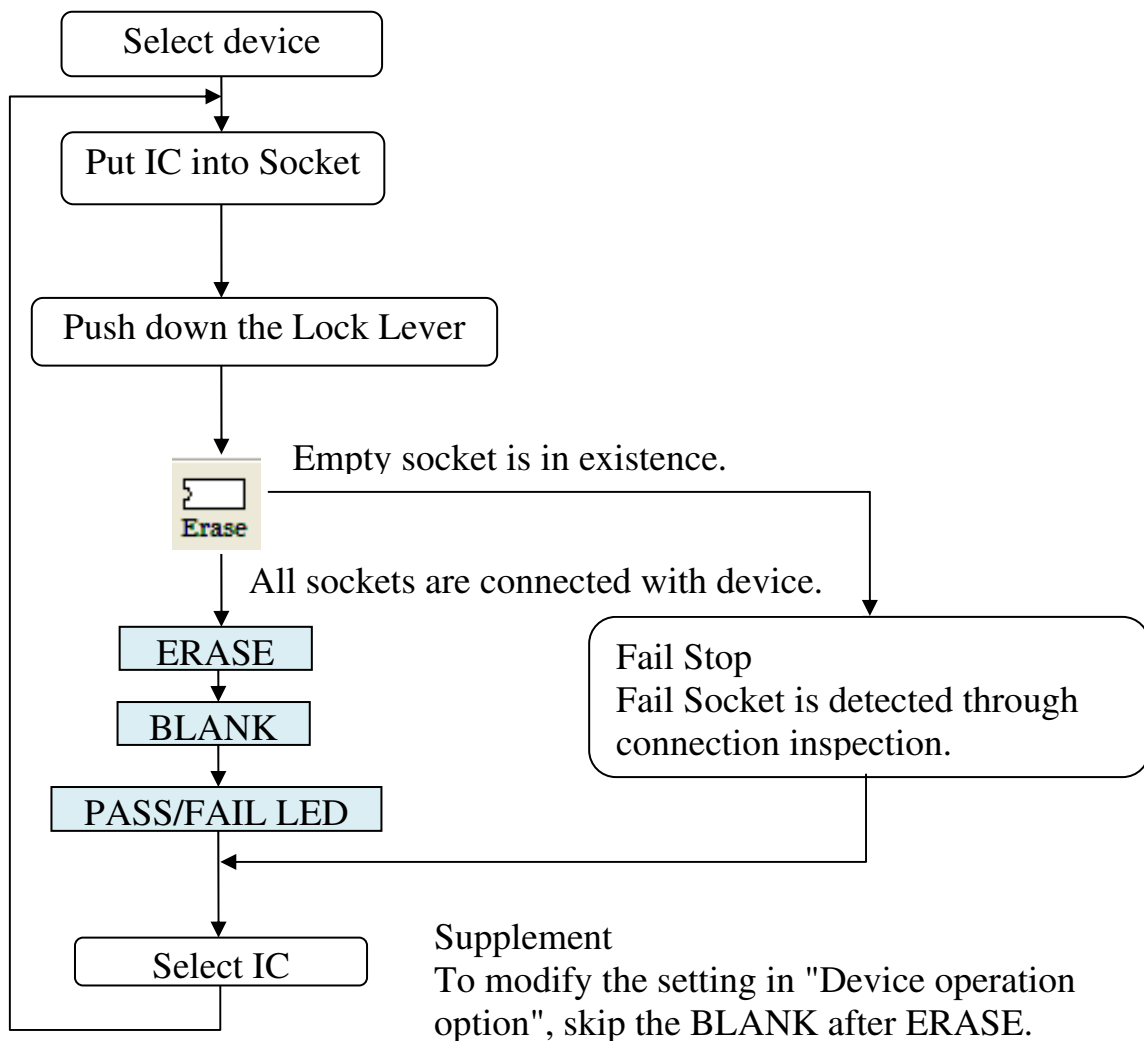
3. Click **Erase** button 

※ This function will start automatically if you have put devices into all the #1 ~ #8 Socket. If there is no IC in some socket, the warning message “Fail Socket” will display and the SOCKET LED turn red, the operation is discontinued.

4. If you want to continue this operation, Please click **Erase** button again.
5. While it's finished the LED turn green or red (PASS: Green; FAIL: Red)
6. Upon the replacement of device connected to socket, the ERASE Start button on screen or the START button on the body of programmer could be used in addition to above-noted toolbar buttons when performing ERASE operation again. Please use appropriate operation method.

Flow chart of ERASE

Please following the below process for M500 series.



Basic Operation

BLANK

Click BLANK button to confirm whether the content of IC is empty.

Notice before BLANK !

The device which is failed by contact checking or ID checking must be removed from the module before blank check, otherwise maybe be damaged.

The operation Sequence for BLANK

Example) For M516

1. Select the correct device.
2. Put the device into #1 ~ #8 Socket.

3. Click **BLANK** button



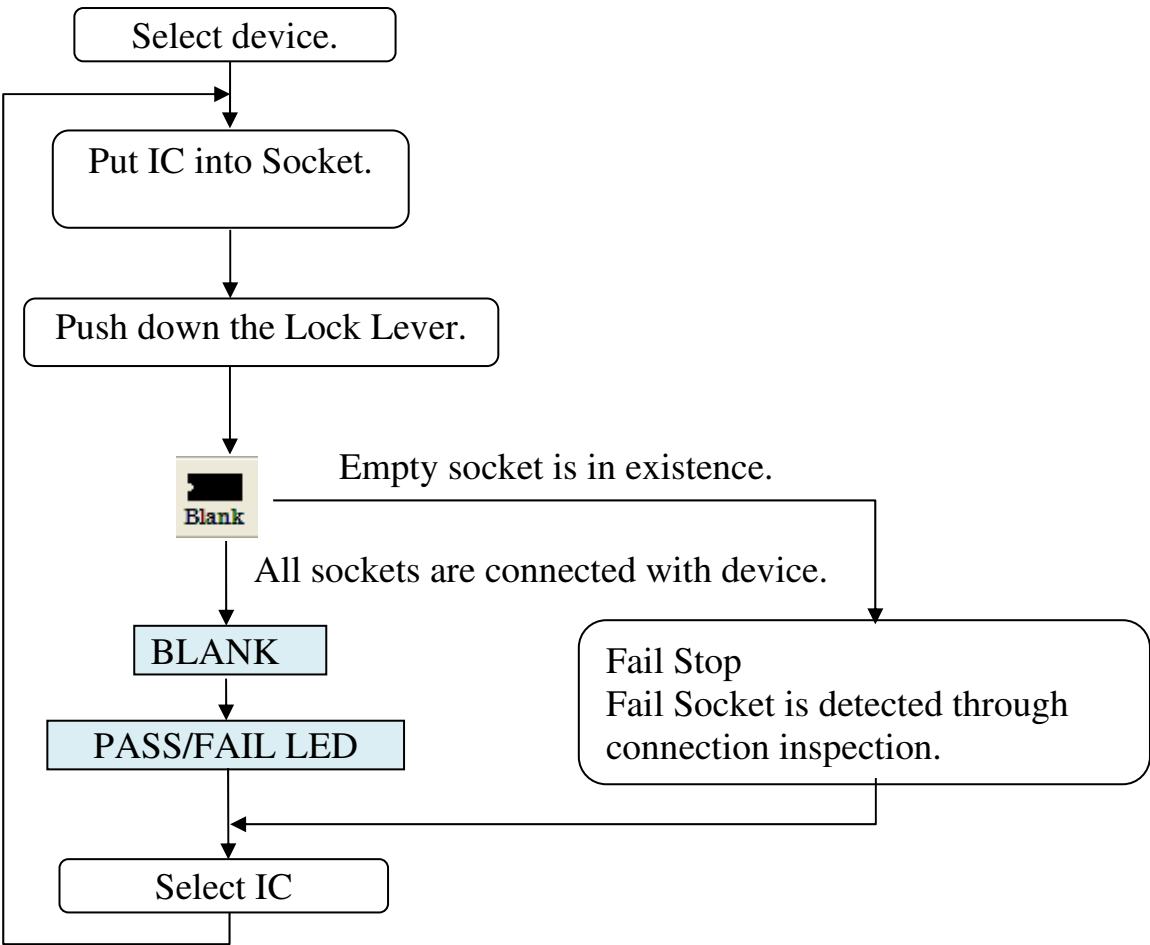
※ This function will start automatically if you have put devices into all the #1 ~ #8 Socket.

If there is no IC in some socket, the warning message “Fail Socket” will display and the SOCKET LED turn red, the operation is discontinued.

4. If you want to continue this operation, Please click **Blank** button again.
5. While it's finished the LED turn green or red (PASS: Green; FAIL: Red)
6. Upon the replacement of device connected to socket, the BLANK Start button on screen or the START button on the body of programmer could be used in addition to above-noted toolbar buttons when performing BLANK operation again. Please use appropriate operation method.

Flow chart of BLANK

Please following the below process for M500 series.



Basic Operation

PROGRAM

Use PROGRAM to write the data from buffer to IC.

Notice before PROGRAM !

The device which is failed by contact checking or ID checking must be removed from the module before program function, otherwise may be damaged.

The operation Sequence for PROGRAM

Example) For M504

1. Select the correct device
2. Put the device into #1 ~ #8 Socket

3. Click **PROG** button



※ This function will start automatically if you have put devices into all the #1 ~ #8 Socket.

If there is no IC in some socket, the warning message “Fail Socket” will display and the SOCKET LED turn red, the operation is discontinued.

4. If you want to continue this operation, Please click **Program** button again.
5. While it's finished the LED turn green or red (PASS: Green; FAIL: Red)
6. Upon the replacement of device connected to socket, the PROGRAM Start button on screen or the START button on the body of programmer could be used in addition to above-noted toolbar buttons when performing PROGRAM operation again. Please use appropriate operation method.

About the PROG operation supported by MODEL500

MODEL500 enables programmer user to designate appropriate linkage operation function.

This function could be designated with "Device->operation option" selection menu.

Example 1: BLANK->PROG->VERIFY

Example 2: ERASE->PROG->VERIFY

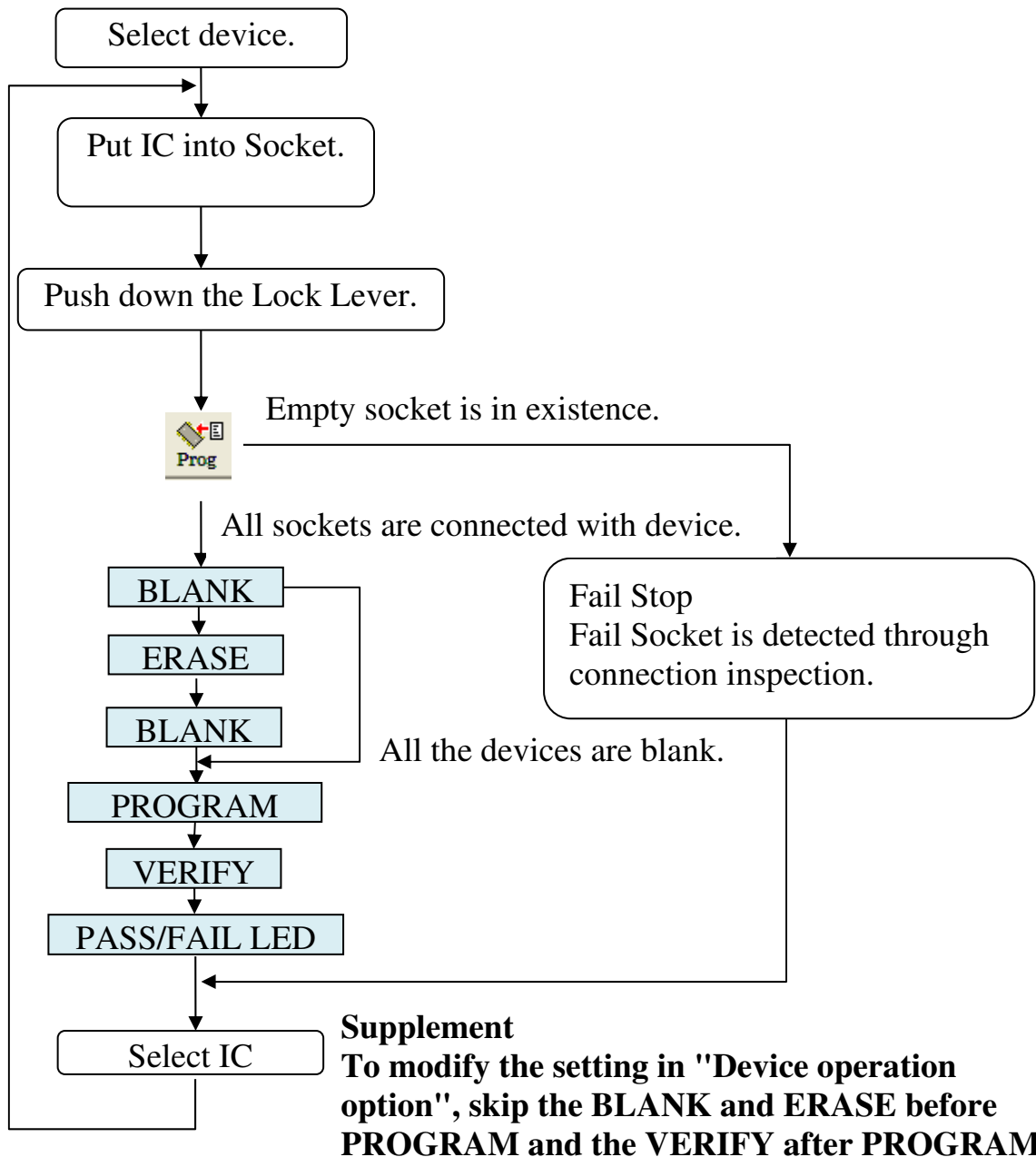
(Initial setting of PROG operation is

BLANK->ERASE->BLANK->PROG->VERIFY)

Please establish the setting following the operating instruction on Page 105.

Flow chart of PROGRAM

Please following the below process for M500 series.



Basic Operation

VERIFY

Compare the data between IC and buffer of M500 Series.

Notice before VERIFY !

The device which is failed by contact checking or ID checking must be removed from the module before verify function, otherwise maybe be damaged.

The operation Sequence for VERIFY

Example) For M516

1. Select the correct device
2. Put the device into #1 ~ #8 Socket

3. Click **VERIFY** button



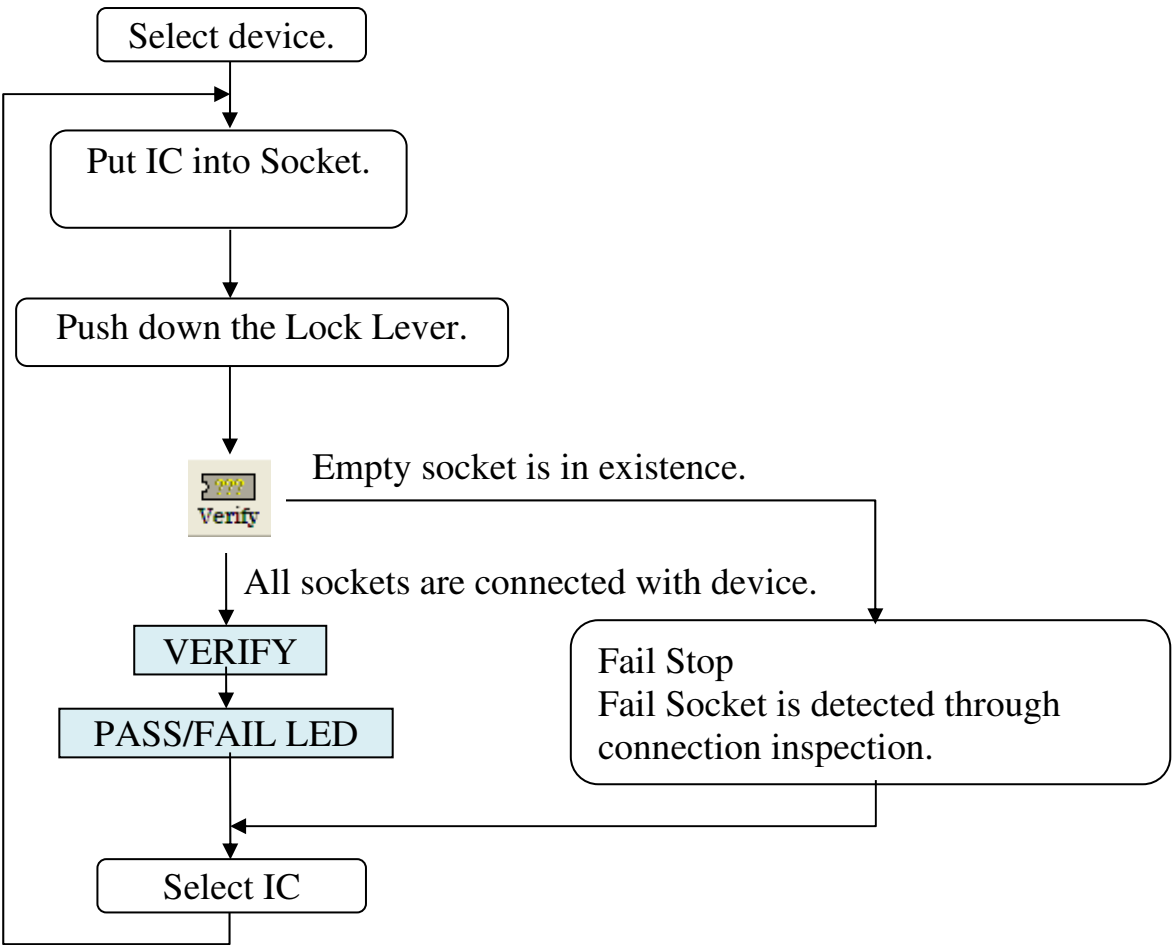
※ This function will start automatically if you have put devices into all the #1 ~ #8 Socket.

If there is no IC in some socket, the warning message “Fail Socket” will display and the SOCKET LED turn red, the operation is discontinued.

4. If you want to continue this operation, Please click **Verify** button again.
5. While it's finished the LED turn green or red (PASS: Green; FAIL: Red)
6. Upon the replacement of device connected to socket, the VERIFY Start button on screen or the START button on the body of programmer could be used in addition to above-noted toolbar buttons when performing VERIFY operation again. Please use appropriate operation method.

Flow chart of VERIFY

Please following the below process for M500 series.



Basic Operation

CONT

After clicking CONT button, programmer will carry out ERASE -> BLANK -> PROGRAM -> VERIFY automatically. The operation flow is different between EEPROM & Flash and EPROM which can not be erased electrically.

Notice before CONT !

The device which is failed by contact checking or ID checking must be removed from the module before cont function, otherwise may be damaged.

The operation Sequence for CONT

Example) For M516

1. Select the correct device
2. Put the device into #1 ~ #8 Socket

3. Click **CONT** button

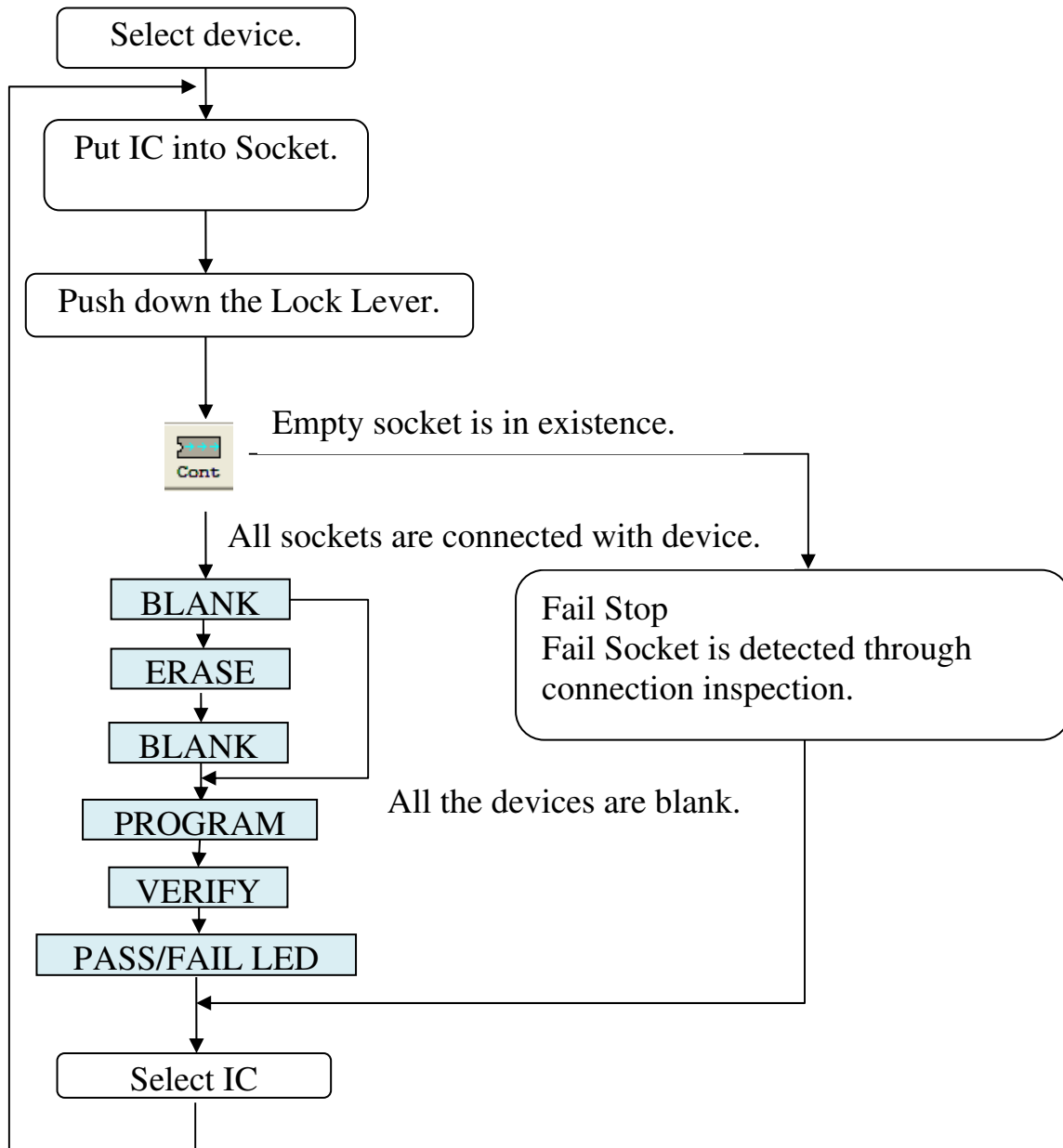


※ This function will start automatically if you have put devices into all the #1 ~ #8 Socket. If there is no IC in some socket, the warning message “Fail Socket” will display and the SOCKET LED turn red, the operation is discontinued.

4. If you want to continue this operation, Please click **cont** button again.
5. While it's finished the LED turn green or red (PASS: Green; FAIL: Red)
6. Upon the replacement of device connected to socket, the CONT Start button on screen or the START button on the body of programmer could be used in addition to above-noted toolbar buttons when performing CONT operation again. Please use appropriate operation method.

Flow chart of CONT (For FLASH/EEPROM)

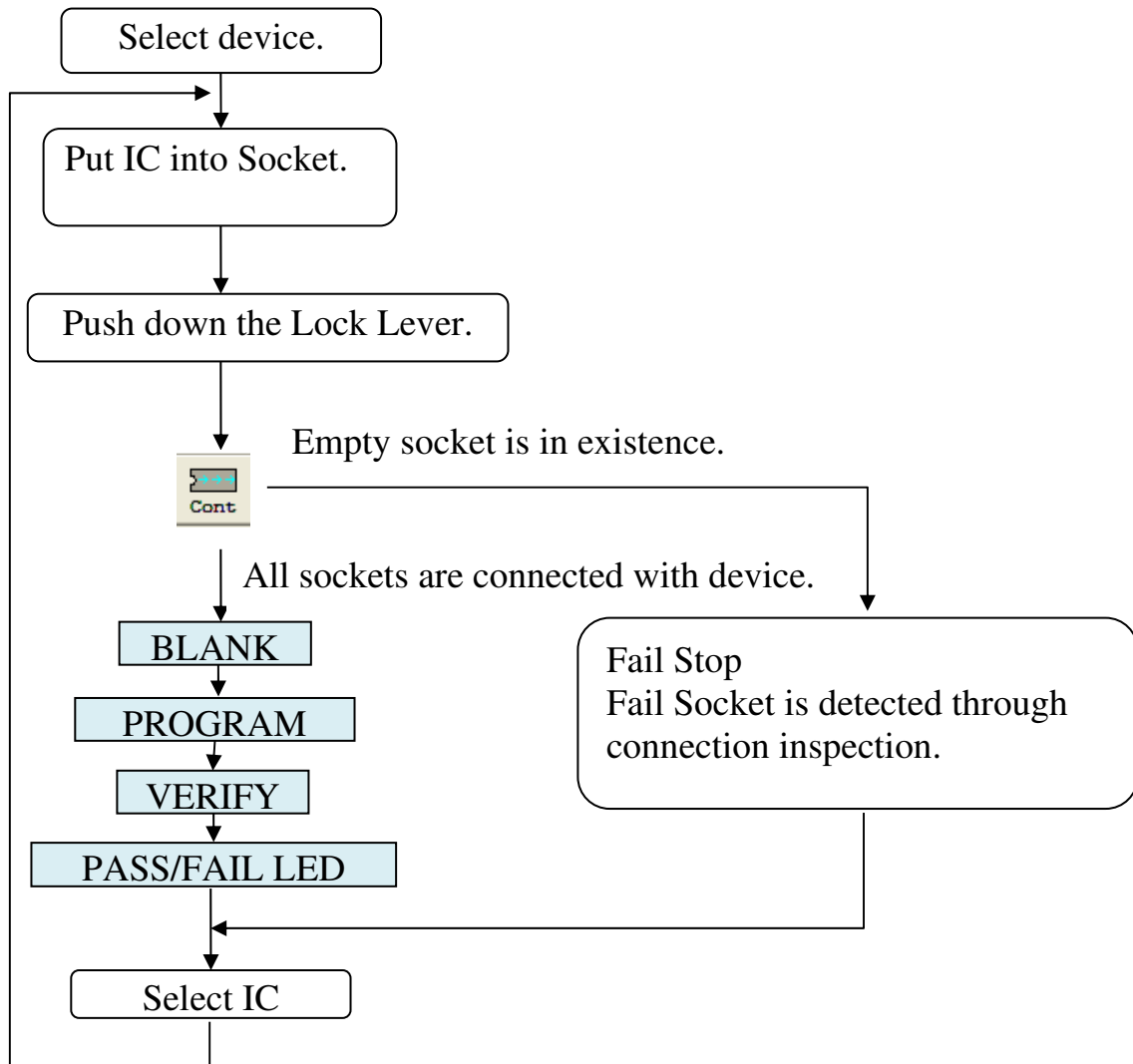
Please following the below process for M500 series.



Basic Operation

Flow chart 2 of CONT (for EPROM)

Please following the below process for M500 series.



Contact check, ID check

Contact check

Contact check is to detect whether the position (direction) of device is correct or the device is not damaged ,and this function is carried out before others operation. Since there are various specifications of devices, some devices including micro-controller does not allow carrying out a contact check, we will define it according to IC and there is no menu setting or button for Contact check.

ID check

ID check is to judge whether selected device is matches the actual device. For standard device which has ID, this function will be added automatically and there is no menu setting or button for ID check.

Basic Operation

Protect

Protect

The case, selected device has the lock-bit / sector-protect etc..., is able to set by [Device operation options].

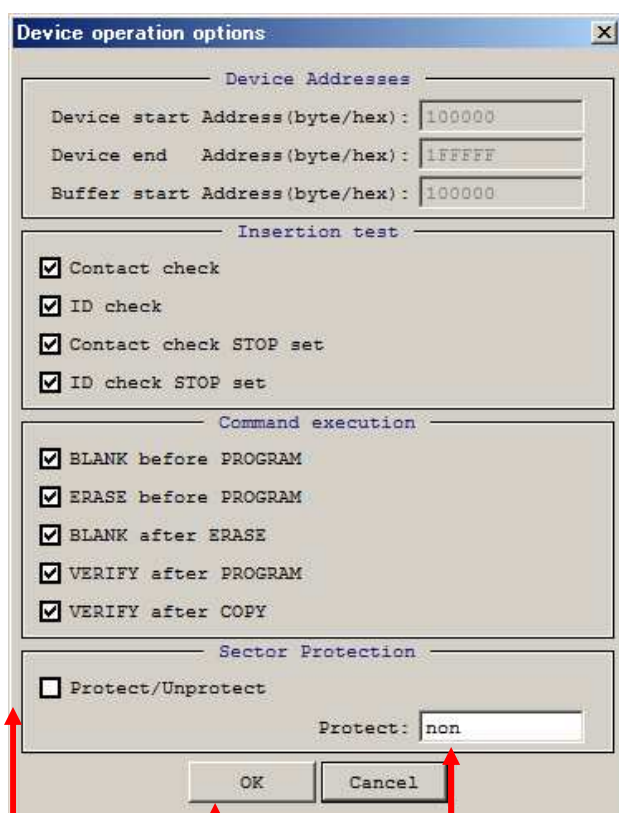
•How to use PROTECT

[Device operation options] is opened by clicked [Device] -> [Operation option...] or



on toolbar.

Then, Display on the [Device operation options] window.



1. Protection checkbox

2. Setting Protection Editor

3. Select Button

1. Check the checkbox of [Protect/Unprotect] in Sector Protection.
2. Write the sector number you want to protect in the setting protection editor.([non] is default and protect sector is nothing)(Example : when you want to protect the sector number 2,3,15,16,17, you write [2,3,15-17] in the Setting Protection Editor.)
3. Push [OK] Button.

Function Description

This chapter will describe below functions.

- Load file
- Save buffer
- Buffer editor (Edit)
- Project management
- Lot management
- Status of operation
- Setting of programmer
- Operation of programmer

The performance of M500 Series is excellent due to above functions.


Here will introduce the operation and functions of software for M516.
(It's the same for M504 and M508 except the programmer model.)

Function Description

Load file

You must edit the data of PC and programmer before operation and device must be selected before loading data.

Load file

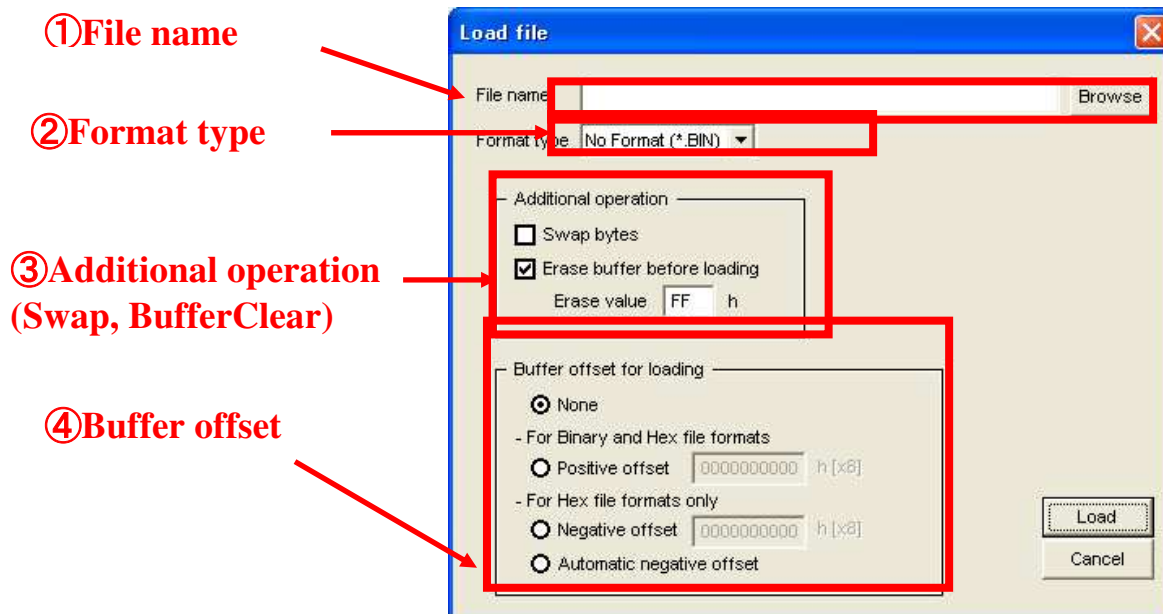
Choose menu [File] -> [Load file to buffer] or click [Load] button  , then below dialog box will be displayed.

Click [Browse] button, you can choose the file for operation and the file name will be displayed.

The data will be loaded to buffer by clicking [Load] button.

Operation for Load file dialog box

Load file dialog box



① Select file name

Set the file name to [File name] Box by clicking [Browse] button.

※ Default folder

The folder which you chose last time will be set as default.

② Format type

Indicate the file format which you will load to buffer by drop-down list of [Format type].

You can choose Motorola (*.MOT), Intel HEX (*.HEX) and NO format (*.Bin).

③ Additional operation

▪ Swap bytes

Before File loading the data will be swapped by bytes. (Both WordSwap and Bit Swap are developing)

▪ Erase buffer before loading

Clear all the contents of BufferMemory (PC) before loading file and you can set the value which you need to clear (The default value is FFh).

Function Description

④ Buffer Offset [Default as (None)]

Use buffer offset function to specify the offset address for adding the data read from the file to buffer zone. The standard setting is "None". User needs to set the compensation value when in use. The following settings are available. To specify the start address of loading file by set the [buffer offset for loading].

None: The read file will be put into buffer memory without offset.

Positive offset: Store the data to buffer address where the read file address is provided with offset.

Buffer address = Formatting address + Offset address

Negative offset: Store the data to buffer address where the offset is subtracted from the read file address.

Buffer address = Formatting address - Negative offset

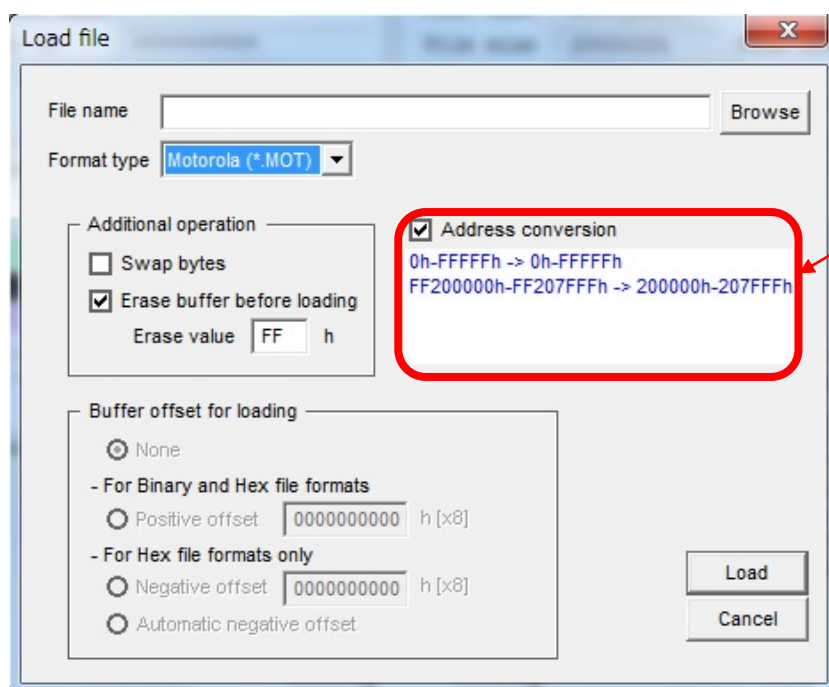
Automatic negative offset: Offset could be detected from the read file automatically when this setting is enabled.

Buffer address = Formatting address - Negative offset

⑤ Address Conversion

If you select the format of *.MOT or *.HEX, you can use address conversion function in some devices. This function is that the conversion from memory address of device to buffer address and loading data. For example, file data is loaded appropriately in Microcontroller that includes discontinuous address.

This function can be enabled to turn on check box of Address Conversion. Address conversion is performed indicated manner.(indication is device address -> buffer address)



⑤Address Conversion

Additional for File Load

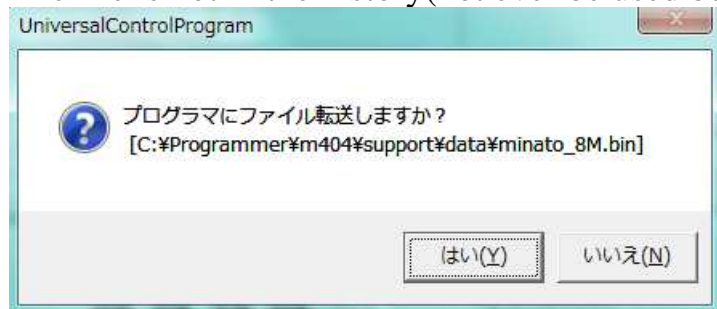
After loading file, the value of SUM and CRC32 will be updated on the main screen and a message will be displayed for whether transferring the data to programmer [Yes]/[No].

For SD buffer Memory, the data file can be saved as history and also can be cleared. So there will be 2 kinds message:

※ Minato has no warranty for the data be saved in BufferMemory.

2 kinds message about Data File Load

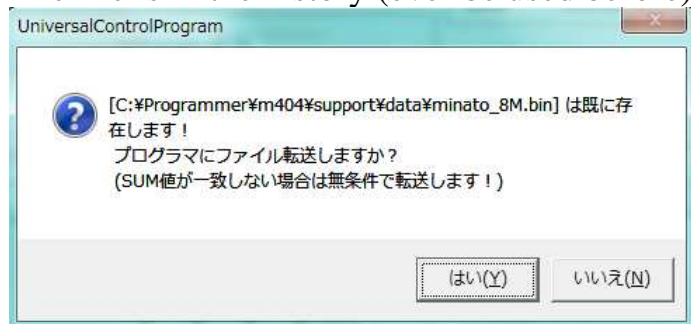
The file is not in the history(not ever be used before).



The message means this file did not been used before and you want to transfer the data to programmer, please click [Yes] button.


This message will also be displayed while you want to clear the history.

The file is in the history (ever be used before).




The message means this file had been used before and please click [No] button without loading data to programmer again. So it will save the setting time. If you want to transfer again, please click [Yes] button.

Close the Load file window

Click [Cancel] button or  to close this window without change of the data.

Save buffer

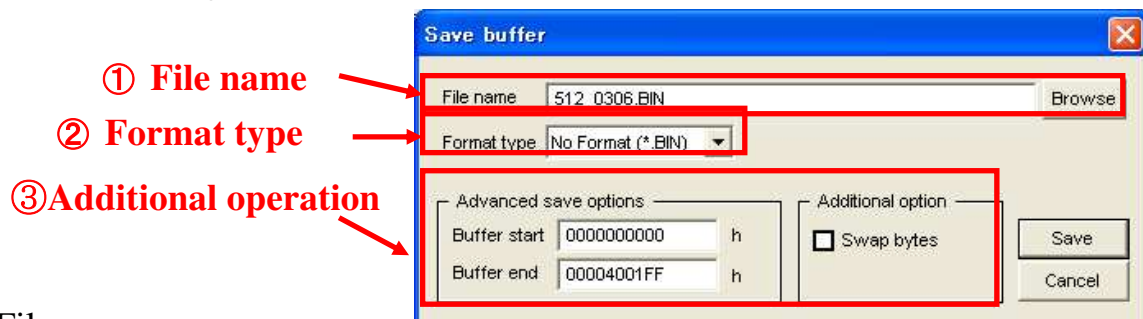
The data in buffer editor or copied from IC can be saved to PC as a file.

Choose menu [File] -> [Save buffer to file] or click [Save] button , then the dialog box will be displayed as below.

Click [Browse] to set the file name and folder to save.

According your request to set [File name], [Fomat type], [Advanced save options], [Additional option].

Save buffer dialog box



① File name

Set the file name in the [File name] Box by clicking [Browse] button to a folder.

※The folder which you chose will be set as default.

② Format type

Indicate the format of file which will be saved by drop-down list of [Format type].
You can choose Motorola (*.MOT), IntelHEX (*.HEX) and NO format (*.Bin).

③ Additional operation

Save Buffer

Swap bytes

Before saving File, the data will be swapped by bytes. This can be achieved by setting the [Swap byte] Check Box through Save buffer.

Buffer start/end

If you just want to save part of the buffer data to a file, you should set the address of [Buffer start] and [Buffer end]. And the address should be byte address.


Save buffer

Click [Save] button to save file and the (SUM/CRC32) value will be updated on the main screen.

A message will be displayed for whether transferring the data to programmer [Yes]/[No].

And there will be 2 kinds message about the history.(Refer to Load file)

Close the Save buffer window

Click [Cancel] button close or  to this window without change of the data file.

※ Address conversion function is not supported in save buffer. You shall not use this function even if this function is indicated. Object format error will occur.

Buffer Editor (Edit)

By clicking Editor button you can choose various tool including Intialize buffer, find text and edit, etc.



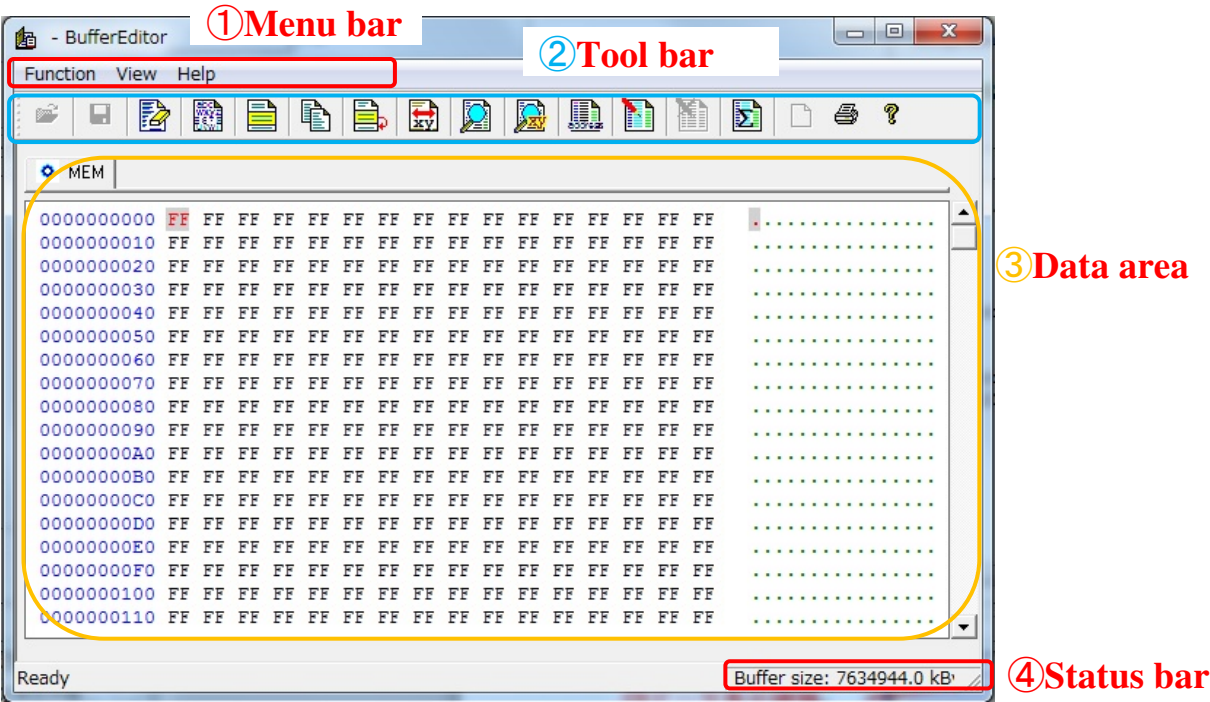
Menu	[Function] [View] [Help]
Toolbar	[Initialize] [Edit] [Find • Replace] [Jump] [Mode] [Check SUM] [Version]

Notice about data transfer

Buffer Editor is a tool of Buffer Memory operation. During actual operation of device, it's essential to transfer the data to the body of programmer upon the completion of buffer edition.

Please referring to「[COPY](#)」 or 「[Load File](#)」.

Editor Window



Buffer Editor

① Menu bar

There are 3 menus about Buffer Editor: [Function], [View], [Help] and each menu are defined as group.

[Function]

Contains all the related tools

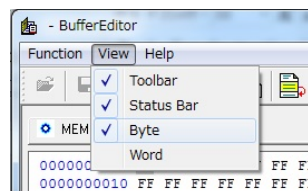
[View]

To change the Toolbar, status bar, Byte&Word displaying status.(Toolbar can not be changed)

View as Byte

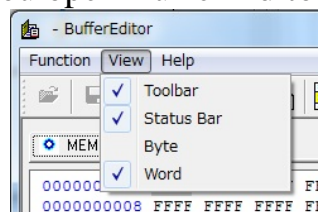
Using byte as the unit to view the content of buffer by choosing [View] -> [Byte] and the data will not be changed.

The default unit of Buffer Editor is byte.



View as Word

Using word as the unit to view the content of buffer by choosing [View] -> [Word] without changing the data. It will return byte mode while you open Buffer Editor again.



② Tool bar ([Editor Window](#))

There are total 13 tools be divided into 7 groups. The groups are [Initialize], [Edit], [Find•Replace], [Jump], [Mode], [CheckSUM], [Version].

The toolbar can be displayed or not through [View -> Toolbar] .

Refer to the “Toolbar Description” for more details of toolbar.

[1] Initialize



Erase buffer

The data of BufferMemory will be cleared as“FFh”.



Fill random data

To fill random data to Buffer Memory.



Fill block

Using indicated data to fill the Buffer Memory of block.

[2] Edit



Copy block

Copy data from one block to another block.



Move block

Cut data of Buffer Memory from one block to another block.



Swap data in block

Swap the data of Buffer Memory.

[3] Find • Replace



Find text

To search certain content.



Replace text

To search certain contents and change them with other contents.

[4] Jump



Go to Address

Jump to indicated address.

[5] Mode



Edit buffer

The data can be changed in Edit mode.



View buffer

The data can not be changed in View mode.

[6] Checksum



Check SUM

To calculate the SUM • CRC .

[7] Version



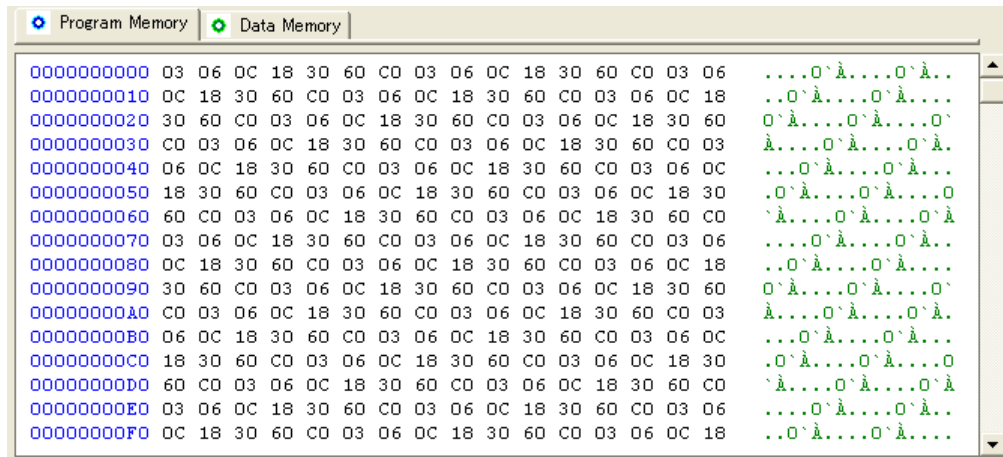
About

Buffer Editor

Indicate the version and copyright.

③ Data area ([Editor Window](#))

Display the contents of BufferMemory and the default unit is Byte. There are at most 3 Tabs according to IC type. Clicking Tab to switch and the data of each Tab is independent.



④ Status bar

It's a simple description of menu or tool and it will be displayed by moving mouse to certain button. It also can be hid by selecting [View -> Status Bar] .

Toolbar Description

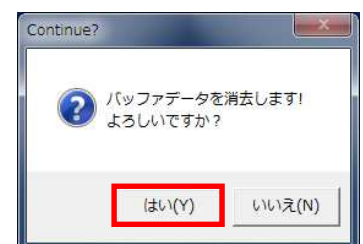
Erase BufferMemory (Editor [window](#))

Clear the contents of BufferMemory by choosing [Function] -> [Erase buffer] or

[Erase] button  .


Then click [Yes] button to continue this operation and all the data will be cleared as FF.

Click [No] button to cancel this operation .



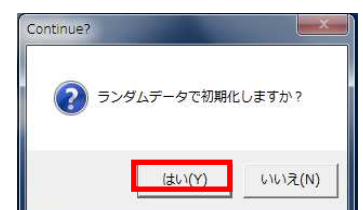
Fill random data

Replace Buffer Memory by Random Data by choosing [Function] -> [Fill random

data] or clicking [RandomData] button  .


Then click [Yes] button to continue this operation and all the data will be replaced with Random Data.

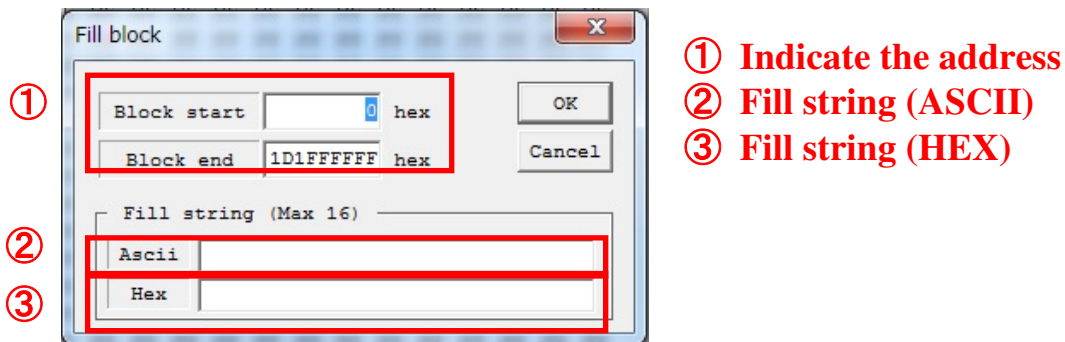
Click [No] button to cancel this operation.



Fill block with indicated data .

Initialize BufferMemory with indicated data by choosing [Function] -> [Fill block] or clicking [Fill block] .

button  . And the buffer memory will be initialized by clicking [OK] button .



You can indicate the address and data (ASCII or Hex) for filling on the Fill block dialog box.

① Indicate the address

Key in the address at [Block start] and [Block end]Box.

② Fill string(ASCII)

Key in the ASCII data at [ASCII] (Max 16)

③ Fill string(Hex)

Key in the Hex data at [Hex] Box (Max 16)

Buffer Editor

Copy (Editor Window)

Copy data from one block to a indicated address.

Choose [Function] -> [Copy block] or click [Copy block] button  and the operation will start by clicking [OK] button.



① Block area

Indicate the address at [Block start] and [Block end] box.

② Destination address

Indicate the start address at [Destination] Box.


Close [Copy block] dialog box.

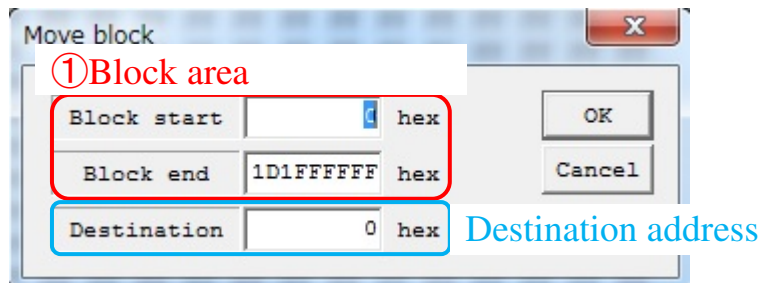
Click [Cancel] button to close this box without changing the buffer data.

※The data beyond buffer capacity cannot be copied.

Move (Editor Window)

Cut Buffer data from one block to another block by choosing [Function] -> [Move block] or clicking.

[Move block] button  and data will be moved by clicking [OK] button.



The block area and address should be indicated before operation and the block data will be replaced by FF.

①Block area

Indicate the address at [Block start] and [Block end] box.

②Destination address

Indicate the start address at [Destination] Box and the unit is byte.

Close [Move block] dialog box

Click [Cancel] button to close this box without changing the buffer data.

※The data beyond buffer capacity cannot be copied.

Buffer Editor

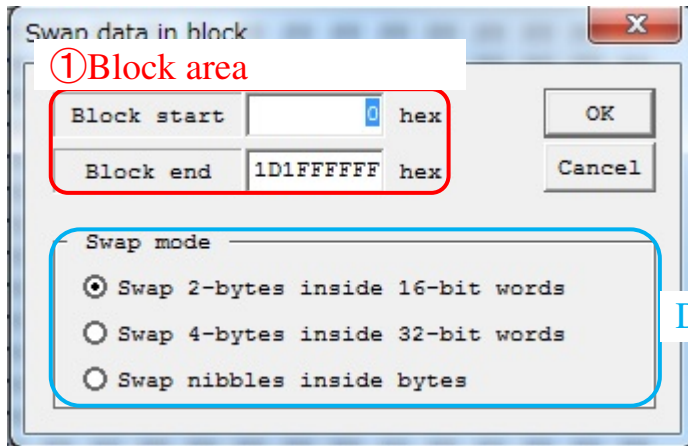
SWAP (Editor Window)

Swap buffer data due to different request of byte order.

- ① Choosing [Function] -> [Swap data in block] or clicking [SwapData] button



.and the operation will start by clicking [OK] button.



- ② Indicate the block area at [Block start] and [Block end] box.

- ③ Swap mode

Byte mode (change the byte order)

Exchange the data in buffer memory in Byte by choosing [Swap 2-bytes inside 16-bit words]

Example: [A],[B], [C],[D] →byte swap→ [B],[A], [D],[C] : []ByteSize

Word mode (change the byte order)

Change the order of data in buffer memory with 4 bytes as a unit by choosing [Swap 4-bytes inside 32-bit words]

Example: [A],[B], [C],[D] →word swap→ [C],[D], [A],[B] : []Byte Size

Nibble mode(Four-bit bytes exchange)


Swap of high- and low- nibbles inside each byte by choosing [Swap nibbles inside byte].

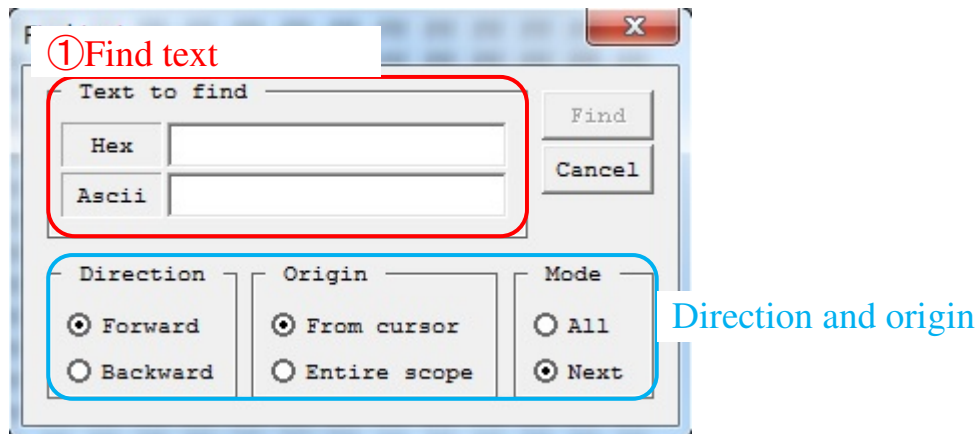
Example: [00101101] →swap nibbles→ [11010010] : [] Byte Size

Close [Swap data in block] dialog box

Click [Cancel] button to close this box without changing the buffer data.

Find text (Editor Window)

Search data by choosing [Function] -> [Find text] or clicking [Find text] button  and it will start to find by clicking [Find] button.



You can indicate the text (Hex or ASCII) to find, direction and origin.

① Find text

Enter retrieval data.

To Hex-side dialog box: Enter the data to be retrieved using hex data column.

To Ascii-side dialog box: Enter the data to be retrieved using Ascii character strings.

②

Direction

Indicate the search direction by choosing [Forward] or [Backward].

Forward Search from top address to bottom address.

Backward Search from bottom address to top address.

Origin

Indicate the start address by choosing [From cursor] or [Entire scope].

From cursor, From current cursor to search

Entire scope, Search all the buffer from top to bottom address.


Close [Find text] dialog box

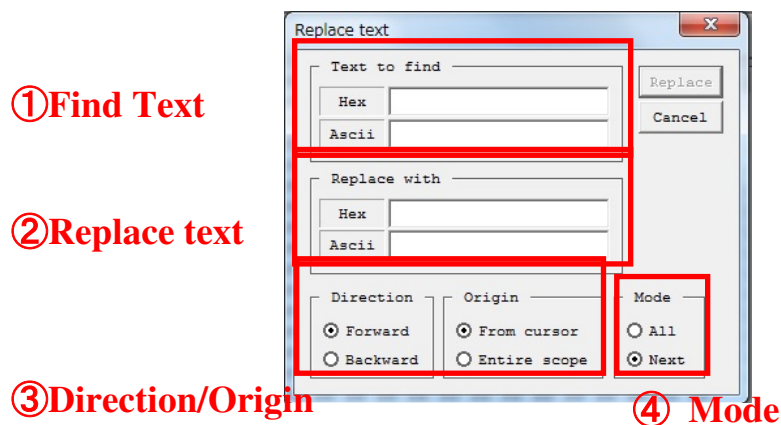
Click [Cancel] button to close this box without searching.

Buffer Editor

Replace text (Editor Window)

Search some data and replace them by indicated data.

Choosing [Function] -> [Replace text] or clicking [Replace text] button  and clicking [Replace] button to replace the text.



① Find text

Enter retrieval data.

To Hex-side dialog box: Enter the data to be retrieved using hex data column.

To Ascii-side dialog box: Enter the data to be retrieved using Ascii character strings.

② Replace text

Enter replacement data.

To Hex-side dialog box: Enter the data to be replaced using hex data sequence.

To Ascii-side dialog box: Enter the data to be replaced in the form of Ascii character string.

③ Direction / Origin

Direction

Indicate the search direction by choosing [Forward] or [Backward].

Forward Search from top address to bottom address.

Backward Search from bottom address to top address.

Origin

Indicate the start address by choosing [From cursor] or [Entire scope].

From cursor : From current cursor to search.

Entire scope : Search all the buffer from top to bottom address.

④ Mode

90

M500-011A-K6

Next : Display the confirmation screen once for every round of replacement. the message reading "start next replacement?" will be displayed at the end of each round of replacement. To proceed with the replacement, click [Yes]; to stop the procedure, click [No].


All : Full replacement is to be performed without confirmation message.

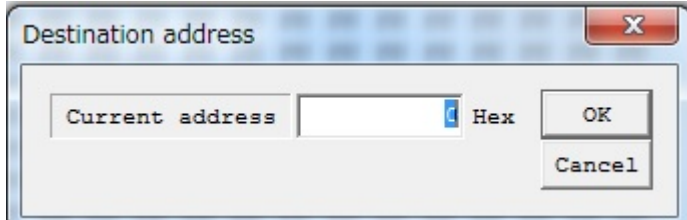
Close [Replace text] dialog box

Click [Cancel] button to close this box without changing the buffer data.

Buffer Editor

Jump (Editor Window)


Jump to a indicated address by choosing [Function] -> [Go to Address] or clicking [Go to address] button  and after clicking [OK] button it will go to the indicated address.



Indicate the address.

Key in the address at [Current address] Box and the Unit of address should be byte.

EDIT MODE


Change the Buffer Editor to Edit mode by choosing [Function] -> [Edit buffer] or clicking [Edit buffer] button .

The [Edit buffer] menu and button will be locked and the data at the cursor can be edited. The data should be Hex (0-9, A-F)

The cursor can be moved by [↑] [↓] [←] [→] button or mouse directly and the data will be changed directly after editing without confirming message. The default mode is [view] while opening [Buffer Editor] again.

Buffer Editor

View mode (Editor Window)

Change the Buffer Editor to view mode by choosing [Function] -> [View buffer] or clicking [View buffer] button .

The [View buffer] menu and button will be locked.




The default mode is [view] while opening [Buffer Editor] again.

Check SUM , CRC and XOR

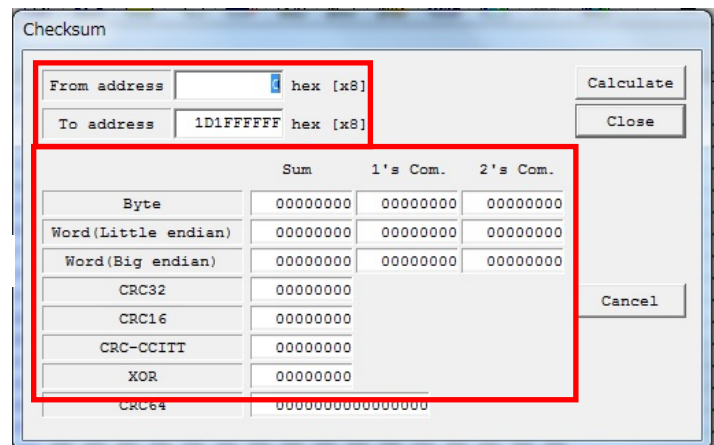
There are 7 types about SUM or CRC.([ByteSUM](#)、[WordSUM \(Little endian\)](#)、[WordSUM \(Big endian\)](#)、[CRC16](#)、[CRC32](#)、[CRC-CCITT](#)、[XOR](#))

SUM , CRC and XOR are useful to confirm whether the data loaded to buffer or write to IC is correct.

Choosing [Function] -> [Check sum] or clicking [Checksum] button  to open the calculate window and clicking [Calculate] button to calculate.

① Calculate range

② SUM , CRC or XOR display



※ The calculate range must be indicated first.

① Calculate range

Key in the address at [From address] and [To address] Box. Default address is for whole range and you can calculate them directly by clicking [Calculate] button.

② SUM, CRC and XOR display

After indicating the calculate range, clicking [Calculate] button to calculate the SUM , CRC and XOR.

※ Default address is whole range.

Close [Checksum] dialog box

Click [Cancel] button or  to close this box.

Close [BufferEditor]

Choosing [Function -> Exit] or clicking [Alt]+[F4] button to close this window.

Buffer Editor

Only Buffer Edit

After Buffer editing please pay attention to below message:

“A buffer memory is being updated! Do you do data transmission?” It means whether you will update the data to programmer after edit. And the data will be saved in Editor before you load another file.

Please note that the data displayed for buffer edition would be inconsistent with the data imported/written into the device from programmer if such data are not transferred to programmer. Imported/written-in data from programmer is the data acquired before edition (transferred to programmer).

Save data to file

If you want to save the data to a file after edit, please Choose menu [File] -> [Save buffer to file] or click [Save] button .

(([Save buffer](#)))

Project Management

You can save IC P/N, data and settings to a project file for M500 control software and you can reload all of them for next operation.

Load Project File

Load project file to software by choosing [File] -> [Load project] or clicking [Load project] button .


Then click [Open] button to load Project File.

Project file created in M400 programmer can be used. Please ask us about support device.

Filename extension

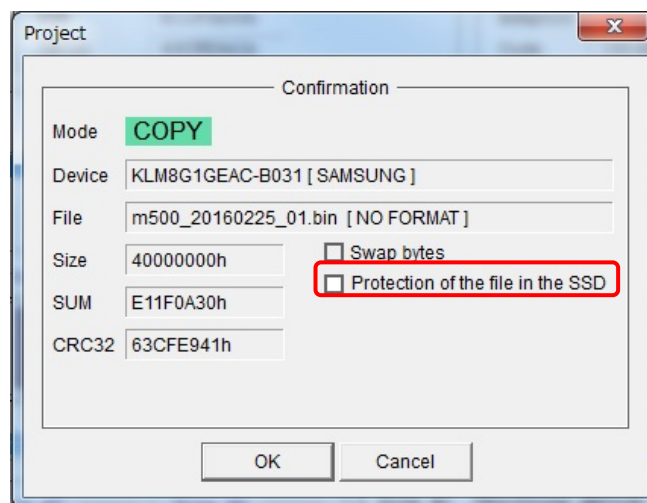
It's **xxxx.ppf** for project file.

Save as Project file

Save all the settings as a project file by choosing [File] -> [Save project] or clicking [Save project] button  and a [Project information] dialog box will be displayed.

The current programmer operation mode, device name, data file name and check sum value etc. will be displayed in "Project->Confirmation" dialog box.

Protection of the file in the SD: When the file is written into programmer, the previously read files will be deleted if there is not enough SD memory capacity in programmer. However, no file would be deleted if 「Protection of the file in the SD」 is enabled.



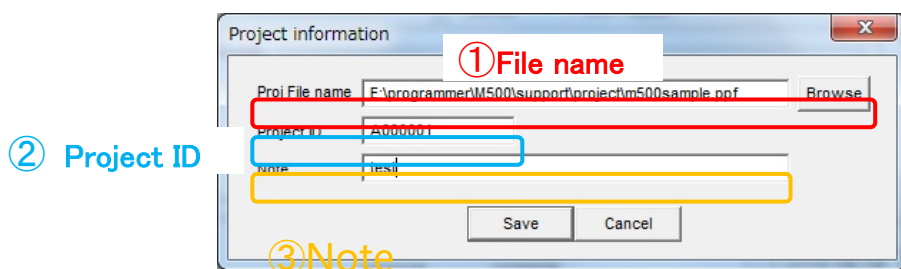
Function Description

Please click on "OK" button after the confirmation of content.

The "Project information" dialog box will be displayed.

The procedure for operation of "Project information" dialog box screen is described as follows.

[Project information] dialog box



① Project file name

Key in the Project file name at [Proj file name]Box and it will be saved in the default folder. The default folder is "C:\programmer\m500\support\data". And the default folder will be changed as you selected last time.

② Project ID

Key in Project ID at [Project ID] Box and it's useful to confirm the project information.

Max 16 Half-width characters is acceptable.

③ Note

Key in Note at [Note] Box and it's useful to confirm the project information.

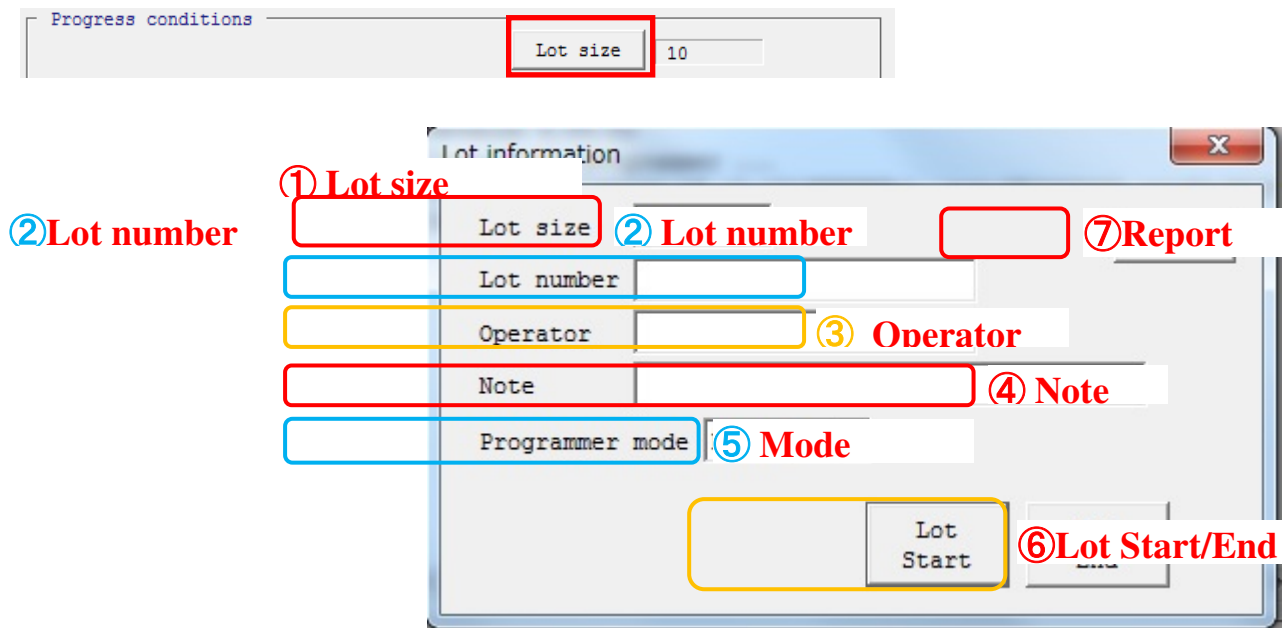
Max 28 Half-width characters is acceptable.

Lot Management

It's easy to confirm the quantity and others status of operation according to Lot management and a report can be created.

Lot Size

Click [Lot size] button to open [lot information] dialog box.



① Lot size

Enter the PASS number of devices (target value of operation batch) into [Lot size] dialog box under "Lot information" dialog box.

② Lot number

Additional confirmation of Lot. Key in it at [Lot number] Box. Max 23 Half-width characters is acceptable. And the Lot Number will be used as the name of report.

③ Operator

Operator information for confirmation. Key in it at [Operator] Box. Max 23 Half-width characters is acceptable.

④ Note

Additional note for confirmation. Key in it at [Note] Box. Max 35 Half-width characters is acceptable.

Project Management

⑤ Programmer mode

Choose the operation mode of operation programmer from "Programmer mode" in batch management mode.

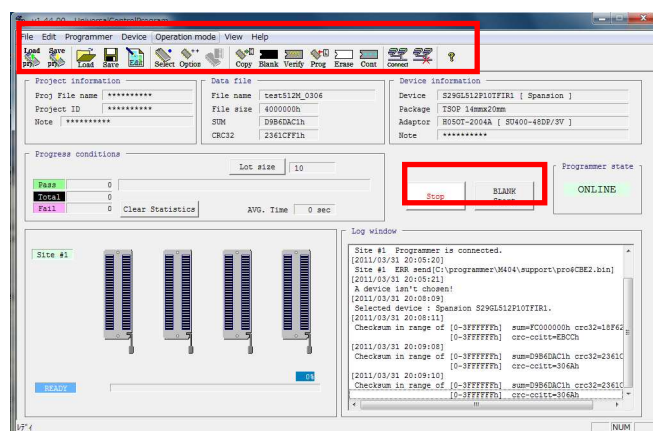
⑥ Lot Start & End

[1] Lot Start

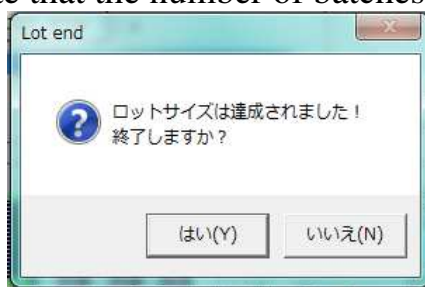
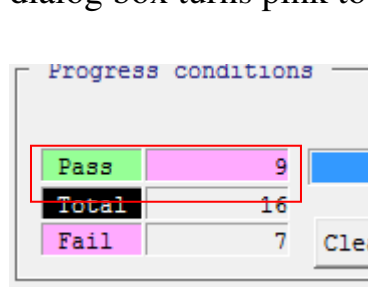
Click [Lot start] button to begin and a message “Are you sure to reset statistics counters” will be displayed, according to your request to choose [Yes] or [No]. And except [Lot end]&[Report] button, all other items will be locked.

※Notice

- ① Upon the start of "Lot Start", the menu option/tool buttons would get into "unable-to-select" (selection prohibition) state. Programmer operation is performed through the [Start] button in operation board set of main screen or the "Start" button of programmer body.
- ② All the tools button will be locked while the operation is running, until it is finished or clicking the 「Lot end」 button.

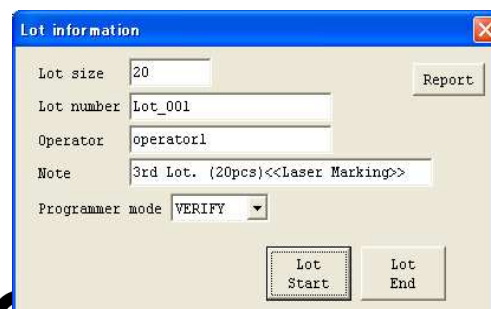


When the number of PASS devices reaches the batch size as set forth in "Lot information" dialog box, the operation will come to an end; in such a case, the counter dialog box turns pink to indicate that the number of batches is reached.



[2] Lot End

Click [Lot End] button to stop Lot function and a message




100

M500-011A-K6

“Do you deal with an end?” will be displayed. If you choose yes then a report will be created automatically.

Close [Lot information] dialog box



Clicking  to close this dialog box.

If you close this dialog box while Lot function is running, then except [Lot End] button all others item are locked while you click [Lot Size] again.

Report

A report will be created automatically after a Lot is finished. The data and programmer will be created in one report and different operation will be saved in the same report for same day.

The folder for log report "C:\programmer\m500\support\log"

Report name "(Lot No).Log"

Single report during operation

Clicking [Report] button to create single report.

The folder for log report "C:\programmer\m500\support\log"

Report name "(Lot No)_repXXX.log" (XXX is consecutive numbers start from 000)

Auto Start

Operation Status

The counter and Progress can be checked easily. You also can check the elapsed time of operation.

Count

You can find the PASS, FAIL, TOTAL counter on the Progress Condition Window. And the count will be added up.

Progress Condition Window

The screenshot shows a software window titled "① Count". It contains a table with three rows: "Pass" (green background, value 4), "Total" (black background, value 4), and "Fail" (pink background, value 0). To the right of the table is a blue progress bar. Above the progress bar is a "Lot size" input field with the value "3". Below the progress bar is a "Clear Statistics" button. To the right of the button is "AVG. Time" with the value "16 sec".

① Count	
Pass	4
Total	4
Fail	0

Lot size: 3

Clear Statistics

AVG. Time: 16 sec

The counter shows the number of IC which have been Contact/ID check passed before operation, otherwise the counter will not update. And just count for indicated operations as your setting.

Clicking [Clear Statistics] button to clear the counter and confirming information will display. [Yes] or [No].

You also can clear the counter for indicated operation.

Indicated counter

According to your request to set the counter for indicated operation by choosing [File] -> [Pass/Fail counter].

Pass/Fail counter dialog box.

Pass/Fail counter dialog box

Enable	<input checked="" type="checkbox"/> COPY	<input checked="" type="checkbox"/> BLANK	<input checked="" type="checkbox"/> VERIFY	<input checked="" type="checkbox"/> PROG	<input checked="" type="checkbox"/> ERASE	<input checked="" type="checkbox"/> CONT	Total
Pass	0	0	0	0	0	2	2
Fail	0	0	0	0	0	0	0
Total	0	0	0	0	0	2	2
	Clear	Clear	Clear	Clear	Clear	Clear	

All clear OK Cancel

Operation Mode

Select the operation mode at <Enable> bar by corresponding CheckBox.

Add up the counter

When the operation value selected in dialog box after the <Enable> operation is checked, the total would be displayed in both "Total" counter section and the PASS/FAIL/Total in main screen.

Cancel the checkbox of Blank

Enable	<input checked="" type="checkbox"/> COPY	<input type="checkbox"/> BLANK	<input checked="" type="checkbox"/> VERIFY	<input checked="" type="checkbox"/> PROG	<input checked="" type="checkbox"/> ERASE	<input checked="" type="checkbox"/> CONT	Total
Pass	0	0	0	0	0	2	0
Fail	0	0	0	0	0	0	0
Total	0	0	0	0	0	2	0
	Clear	Clear	Clear	Clear	Clear	Clear	

All clear OK Cancel

After canceling the checkbox of BLANK Check, the [Total] quantity will be changed to 0 and they will be displayed while you choose the checkbox again.

① Clear the counter individual

Clicking the corresponding [Clear] button to clear the counter individually.

Enable	<input checked="" type="checkbox"/> COPY	<input checked="" type="checkbox"/> BLANK	<input checked="" type="checkbox"/> VERIFY	<input checked="" type="checkbox"/> PROG	<input checked="" type="checkbox"/> ERASE	<input checked="" type="checkbox"/> CONT	Total
Pass	0	0	0	0	0	2	2
Fail	0	0	0	0	0	0	0
Total	0	0	0	0	0	2	2
	Clear	Clear	Clear	Clear	Clear	Clear	

All clear OK Cancel

M500-011A-K6

Auto Start

②Clicking [All clear] button to clear all the counter.

Close Pass/Fail counter dialog box

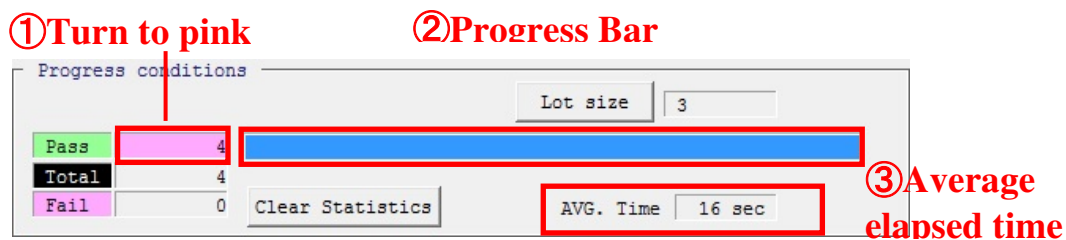
Clicking [Cancel] button or  to close this dialog box and no setting is changed.

Others information

① PASS counter indication with specified lot size

Showing on the main screen while operation is finished.

While the PASS quantity exceed the LotSize, the PassBox will turn to pink automatically. And the operation still can be continued with Pink PASSBOX until the statistics is cleared.



②Progress Bar

The progress bar shows the status of operation on the Progress Conditon Window. It is composed by Pass quantity and Lotsize and while the Pass quantity equal to Lotsize, the percentage will be 100% until statistics is cleared.

③Average elapsed time

The average elapsed time will be showed at [AVG. Time] Box and the unit is (s) and it will be cleared while the mode is changed.

Every operation elapsed time

The single operation elapsed time will be showed as “time: xx s”on the LogWindows.

Log Record

All the information of operation will be showed on the LogWindows and the default folder of saving the record is:

“C:\programmer\m500\support\log” or ”D:\programmer\m500\support\log”

① If you change the folder, the new folder will be set as default.

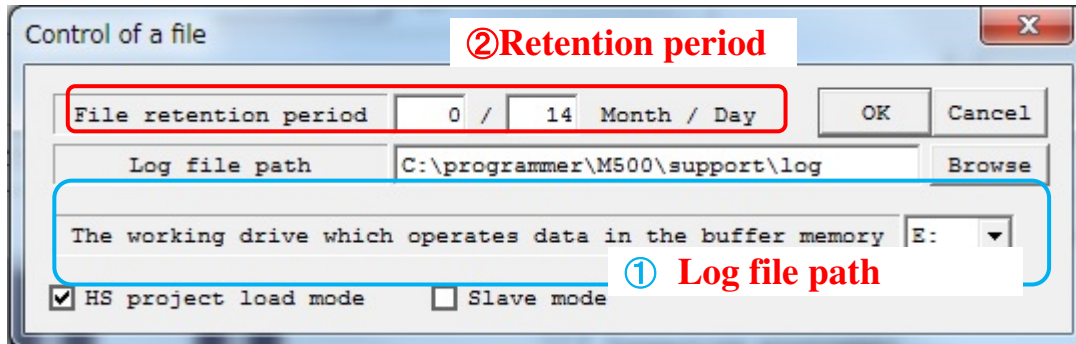
② Retention period of Log file

You can change the retention period of log file by choosing [File] -> [Control of a log file] -> [file retention period] Box. From left to right is [Month] / [Day].

Example) you hope to save it 10days, you should key in [0]/[10].

File name, "multp(XXXXXXX).log" (XXXXXXX is 6 number of the year.month.day)

The default retention period is 7days.



Close [Control of a log file] dialog box

Choosing [File] -> [Control of a log file] and clicking [OK] button on Control of a file dialog box to save settings and close the dialog box.

Auto Start

Auto Start

"Automatic startup" means that the operation would be automatically started without pressing START button upon the completion of device setup. Recovering the device without pressing START button helps to prevent such error as ingression of semi-manufactured goods.

※Note

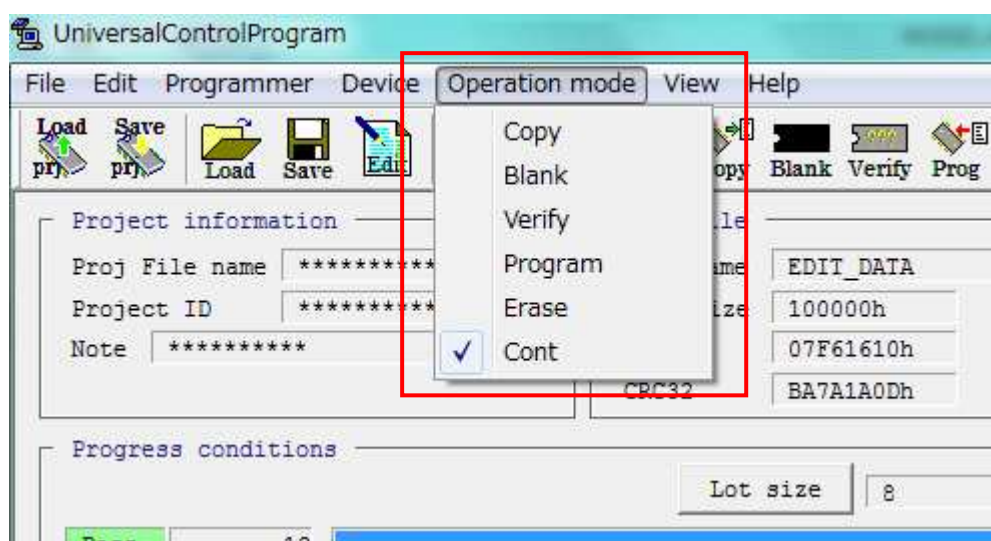
Please have adapter mounted or removed after removing the device, or the device may be damaged.

Version

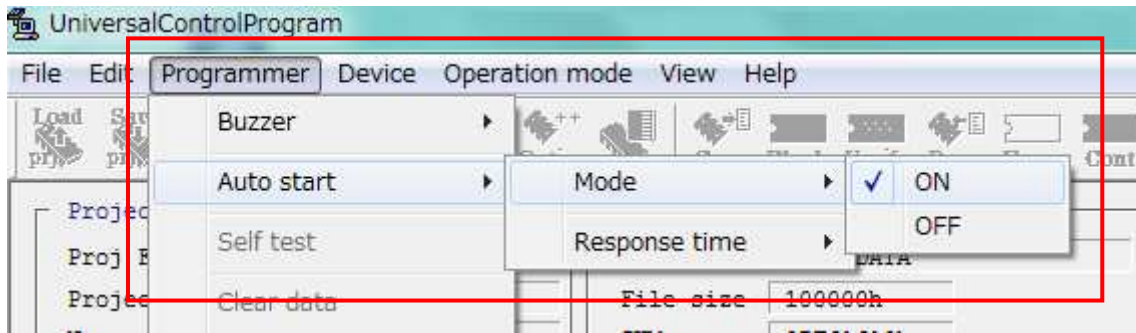
UniversalControlProgram ···V0.14 or above

MODEL500 Series Firmware ···V054

1. Mount adapter and choose device in the same way as routine operation.
2. Select operation mode. Please choose operation mode from the list of [Operation mode] in menu.



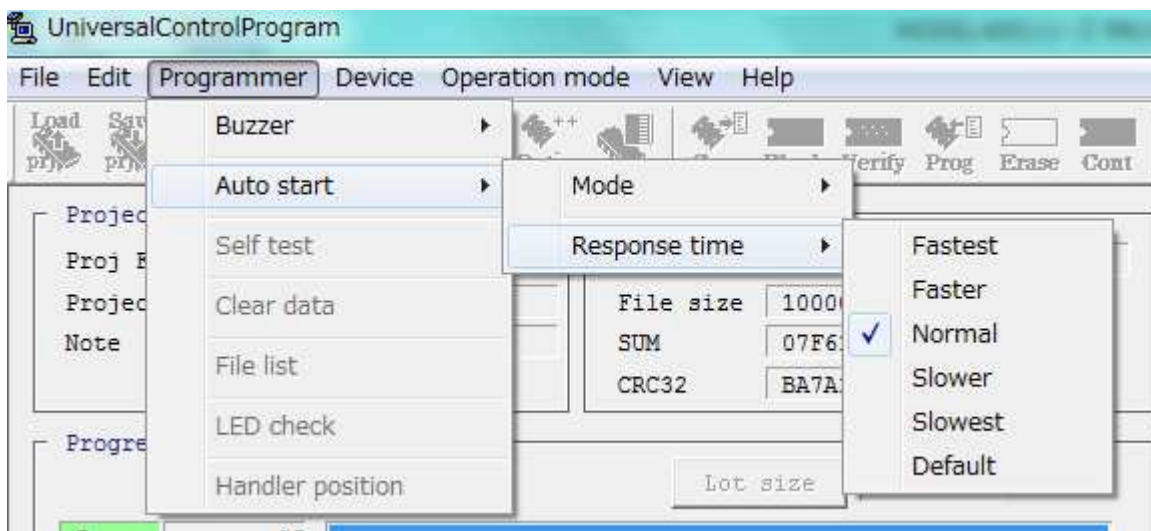
3. Choose auto start mode ON. Please make choice in the menu —[Programmer] – [Auto Start]- [Mode] - [ON].



4. Once the adapter is properly mounted, the socket LED would flash red. The failure to flash red after the installation of adapter may be the result of poor contact. Please re-install the adapter. If it doesn't work, please confirm version about "Universal Control Program" and MODEL 500 firmware.

※Where auto start mode is 「ON」, the START key of programmer body is disabled.

5. Set response time. The so-called response time refers to 「the time required to achieve stabilization after the loading of device」, 「the time required to remove the device」, and 「the time required to remove adapter」. Please make choice in the menu —[Programmer] - [Auto Start]- [Response time] - [ON].



6. Set the device on adapter. Upon the completion of setting, LED would stop flashing red but flash green.

Auto Start



(Flash)

Please set the device.



(Flash)

The device has been set.

If the device flashes red upon the completion of device set up, the cause may be poor contact. Please set the device up again.

7. **Auto start would be performed if "red flashing" turns into "green flashing" for each site.**
8. If there are a small number of devices, please take down the adapter that is not in use or press the START button on screen.
9. Upon the completion of read-in, LED would turn green (PASS) or red (FAIL).



(LED ON)

FAIL



(LED OFF)

PASS

10. Remove the device.
11. Please go back to "6." when the following device is used for operation.
12. Cease the auto start mode. Please make choice in the menu —[Programmer] – [Auto Start]- [Mode] - [OFF].

Programmer Setting

Buzzer

Switch the buzzer of programmer to ON/OFF and the setting will be saved.

※ If you choose DEMO or OffLine MODE, the buzzer will not work.

Open Buzzer

Choosing [Programmer] -> [Buzzer] -> [ON] to open.

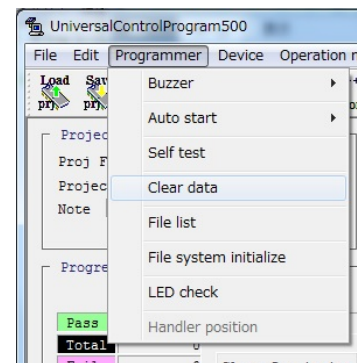
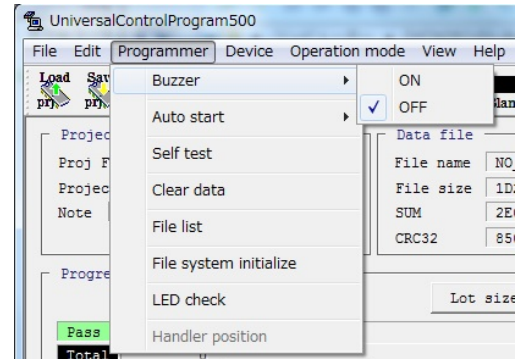
Close Buzzer

Choosing [Programmer] -> [Buzzer] -> [OFF] to close.

Clear Buffer

You can clear the contents of buffer (SD) by choosing [Programmer] -> [Clear data].

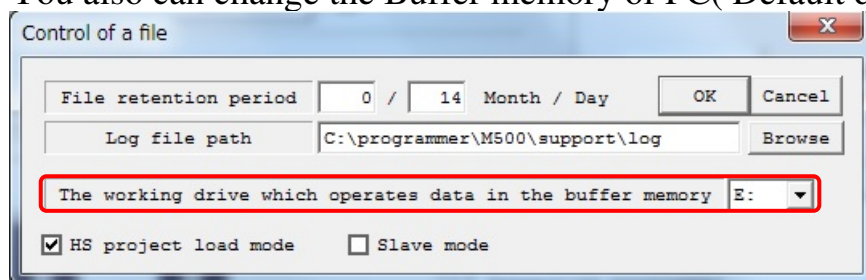
And for next operation you should load file to buffer again.



Programmer Setting

Buffer Setting of PC

You also can change the Buffer memory of PC(Default driver is C: or D:)



If the space of C: or D: is not enough for IC, you can use removable device as buffer memory.

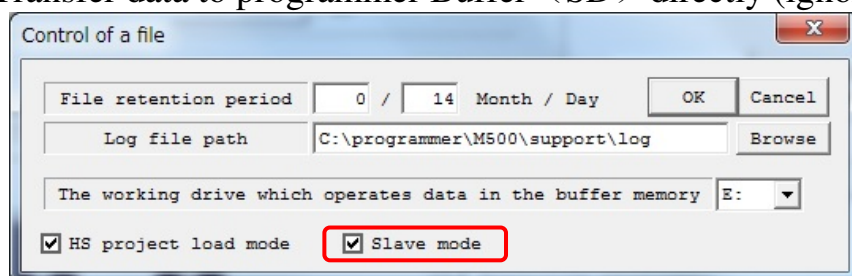
(Recommend to use C: or D: as buffer memory.)

※Notice

- ① Do not remove the removable device before changing to C: or D:, otherwise the data maybe be damaged.
- ② If you will use removable device, you must sure this device has been detected.

Slave Mode

Transfer data to programmer Buffer (SD) directly (ignore Buffer Memory).



Example)

Normally we transfer data through PC Buffer to programmer buffer (SD) for large density IC. If you choose Slave Mode, the data will be transferred to Programmer buffer (SD) directly. (Save time)

(Recommend to use normal mode)

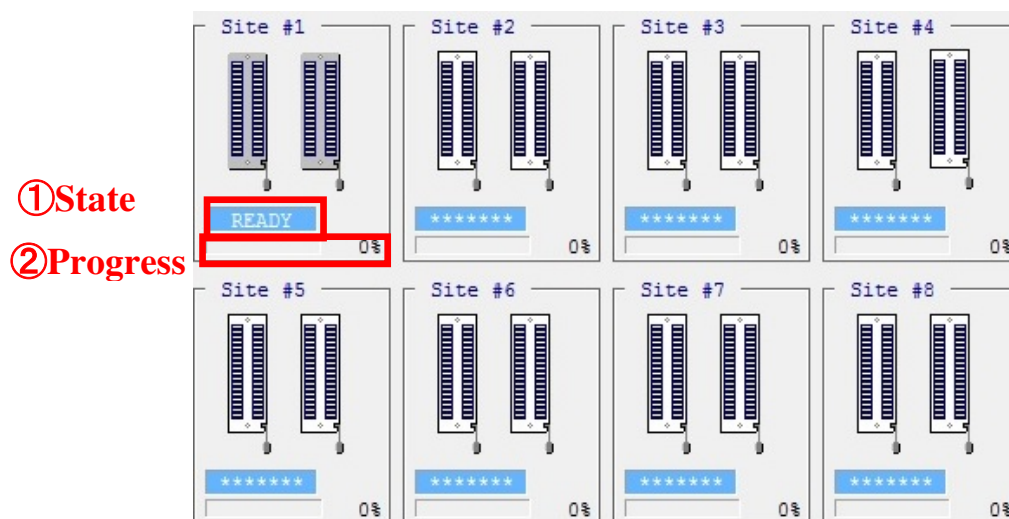
※ Notice

- The Buffer Editor can not be viewed or edited. (Editor Window)
- The Copy function of Buffer editor can not be used.
- Making sure you understand slave mode before using this mode.

Operation

① Operation Mode (Description of the main screen)

You can check the operation mode at the box of SOCKET Status Window. If no operation is running, it shows [TEND].



② Progress Status

The progress status of operation is showed as % at the ProgressBar on the Socket status window. And last status is showed while no operation is running.

Check operation/SOCKET Status/ End Result

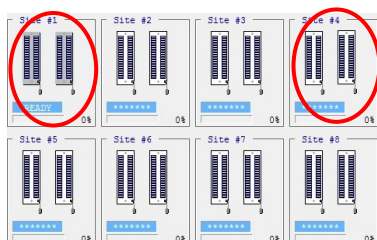
Check the operation and result by SOCKET Status and LogWindow.

The end result also can be checked by buzzer and LED of programmer.

※Buzzer does not work on DEMO and OffLine mode.

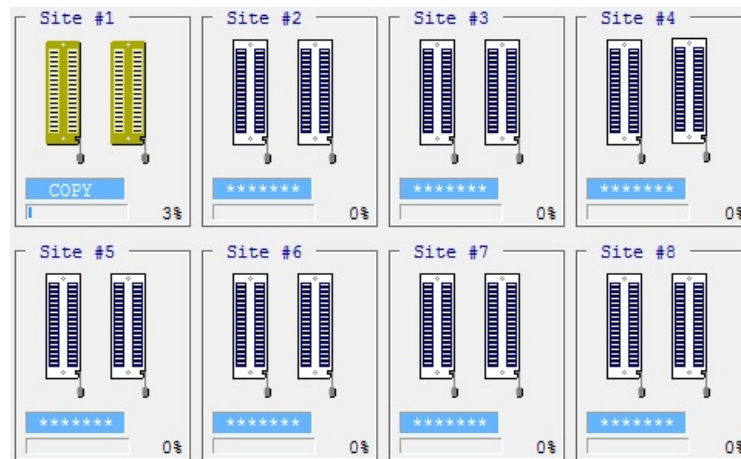
※The color of socket is gray while contact checking is OK and white contact checking is fail..

(Example: MODEL 516)



Connect (SOCKET color is gray) Not connect (SOCKET color is white)

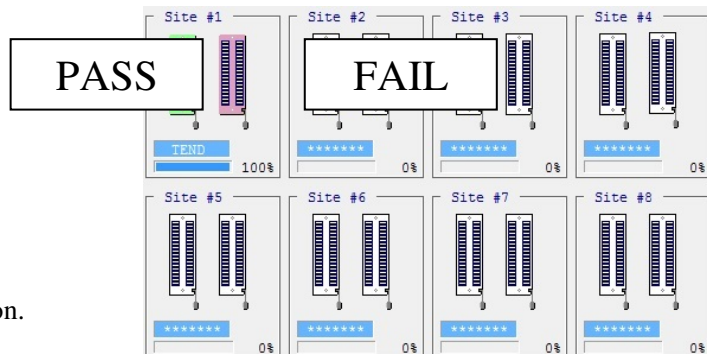
Operation



SOCKET on Progress

While running, the socket color changes to yellow.

The socket color changes according to PASS/FAIL information after the operation is finished.



Green: Pass

Red: Fail

The socket color is green for successful operation.

The socket color is red for failed operation.

SOCKET result

Check by LogWindow

You can check the operation mode, site number, time, etc on log window.

Other status

According to the menu /Tool bar to check the status of operation.

While operation is running the menu/tool bar is locked and will be released till operation is finished.



Check by buzzer

Using buzzing to indicate the result.

Single long pi (—) :PASS(Socket color is green or gray)

Short pi pi pi (····) :Fail(Socket color is red)

112

M500-011A-K6

※No buzzing on DEMO or Offline mode.

Others operation

Stop

Clicking  button to stop an operation and below status can be checked.

Socket color : All red

Buzzer : short pi pi pi(••••)

LED color: All red

Counter : No change

* Recommend not to stop operation while running, because IC may be damaged.

Operation

Operation options

It's possible to designate the operations for "option yes/no" and "write-in" to the device.

To preset the operation, please choose "Device->Device operation options" menu option.

[Device Address]

Device start Address (Word/hex) (fixed value)

Device end Address (Word/hex) (fixed value)

Buffer start Address (byte/hex) (fixed value)

[Insertion test] * Additional test (valid)

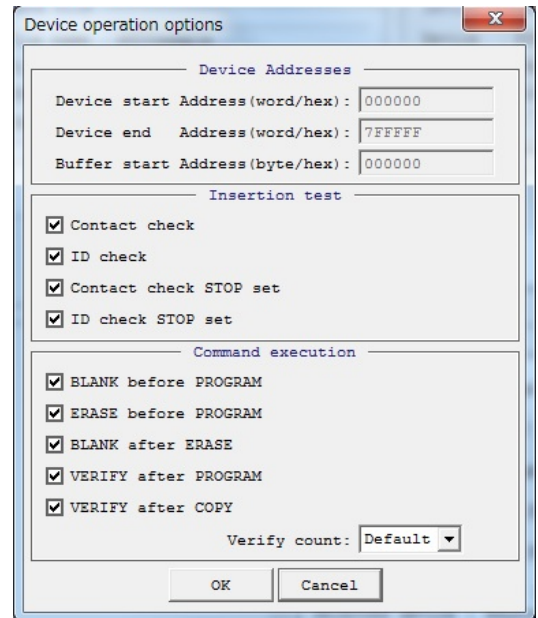
Contact check (valid/invalid)

ID check (valid)

ID check

ID check (valid/invalid)

* Default to valid.



Option setting interface

The image is for reference only. Different devices may have different interfaces.

Contact check STOP set

While Contact check Fail the operation will STOP. The operation will continue if you do not choose it.

ID check STOP set

While ID check Fail the operation will STOP. The operation will continue if you do not choose it.

[Command execution]

BLANK before PROGRAM

* Default to valid.

ERASE before PROGRAM

* Default to valid.

BLANK after ERASE

* Default to valid.

VERIFY after PROGRAM

114

M500-011A-K6

* Default to valid.

VERIFY after COPY

* Default to valid.

VERIFY COUNT

Default.....VERIFY twice ※ Depends on the IC type

Once.....VERIFY once

[Programming parameters]

Set the part/s which should be programmed

[Erase parameters]

Set the part/s which should be erased.

About System

Help

Language

You can choose English or Japanese for this control software. And all the information & error message will be displayed using this language.

※ Default language is English.

Set as English

Choosing [Help] -> [Choice of the language] -> [English] and the main screen will be English.

Quick Start

Install software and USB driver

Run the installation program in the CD:

- M500installer_vxxxx.exe (MODEL500 Series Control Software)
- M500_USB_driver.exe (USB driver)

Install them one by one according to the prompt message.

Install the programmer •hardware

Connect the programmer to PC by the USB cable.

※The software must be installed before connecting.

Start the control software

Double click the icon on the desktop  and the software will detect the programmer.

Change the language

Clicking TOP menu Help - > Choice of the language -> English or Japanese

Quick Start

IC Operation (Program)

①Select device.

click ---- >



②Load data to buffer.

a) From file

click----- >



b) From IC ----- >Put IC into ZIF SOCKET and click



③Put IC into the DIP Socket.

④click----->



- a) Unwritten status (BLANKING) is selected.
- b) Delete (ERASE) data from the device to which the data have been written.
- c) Write data (PROG) into the device.
- d) Compare the read-in data with buffer data (VERIFY).

For detailed description of control software, refer to “Description of the Main Screen”.

Troubleshooting

Q.1

The programmer can not be recognized by PC or USB connecting is fail.

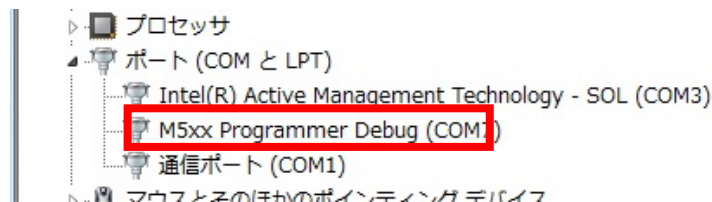
A.1

Confirm below items:

- ① **Whether M500installer and USB_driver are installed correctly ?**
- ② **Whether the USB and power cable are connected correctly ?**
- ③ **Whether the programmer is recognized by PC?**
- ④ **Is it first time connecting the programmer to PC?**

For WINDOWS XP

[Start] → [Control Panel] → [System] → [Device Manage] → [Port] to check the connecting status and if you find below item it means the connecting is ok.





Example) MODEL 516

- ※ It's just a example because there will be different Port number .
If you changed the USB port number, please restart the programmer.
Still can not be connected, please contact with Minato.

Message

Message

Number	message	guide error / notice / dispose	Note
001	C:\ no enough space Current space: ***MB Required space : ***MB	dispose	The blank space of harddisk is not enough, please increase it.
002	Site # connecting fail	error	Communication fail Please close the software and power off the programmer. Then power on programmer again and open the software.
003	Communication fail with programmer	error	Communication fail Please close the software and power off the programmer. Then power on programmer again and open the software.
004	Communication fail between software and programmer.	error	Communication fail Please close the software and power off the programmer. Then power on programmer again and open the software.
005	Load file fail	error	Load file again.
006	Read data from SD fail	error	Read again
007	SRAM MemoryCheck fail	error	Error occurred for Memory Please close the software and power off the programmer. Then power on programmer again and open the software.
008	Read CRC fail	error	Read CRC fail Please read it again
009	Clear SD fail	error	Please clear it again.
010	Illegal command	error	Command again
011	Communication fail between software and programmer. Please set programmer again.	error	Communication fail Please close the software and power off the programmer. Then power on programmer again and open the software.

Number	message	Guide / error / notice / dispose	Note
012	Read setting fail	error	Read setting again
013	Contact check Fail of Socket. SOCKET: Red	error	Please check IC. If you want to continue the operation, please take the IC from SOCKET.
014	ID check Fail of Socket 	error	Please check IC. If you want to continue the operation, please take the IC from SOCKET.
015		error	Please restart the software and programmer.
016	LogFile path is invalid.	error	Please check the folder
017	LotSzie is illegal	notice	LotSize setting is not correct,please check it.
018	Communication error and transfer bin data again?	dispose	Communication is interrupted Please follow the prompt.
019	Overcurrent (message) 	error	Please remove the IC from socket and check it.

version

Confirm the version

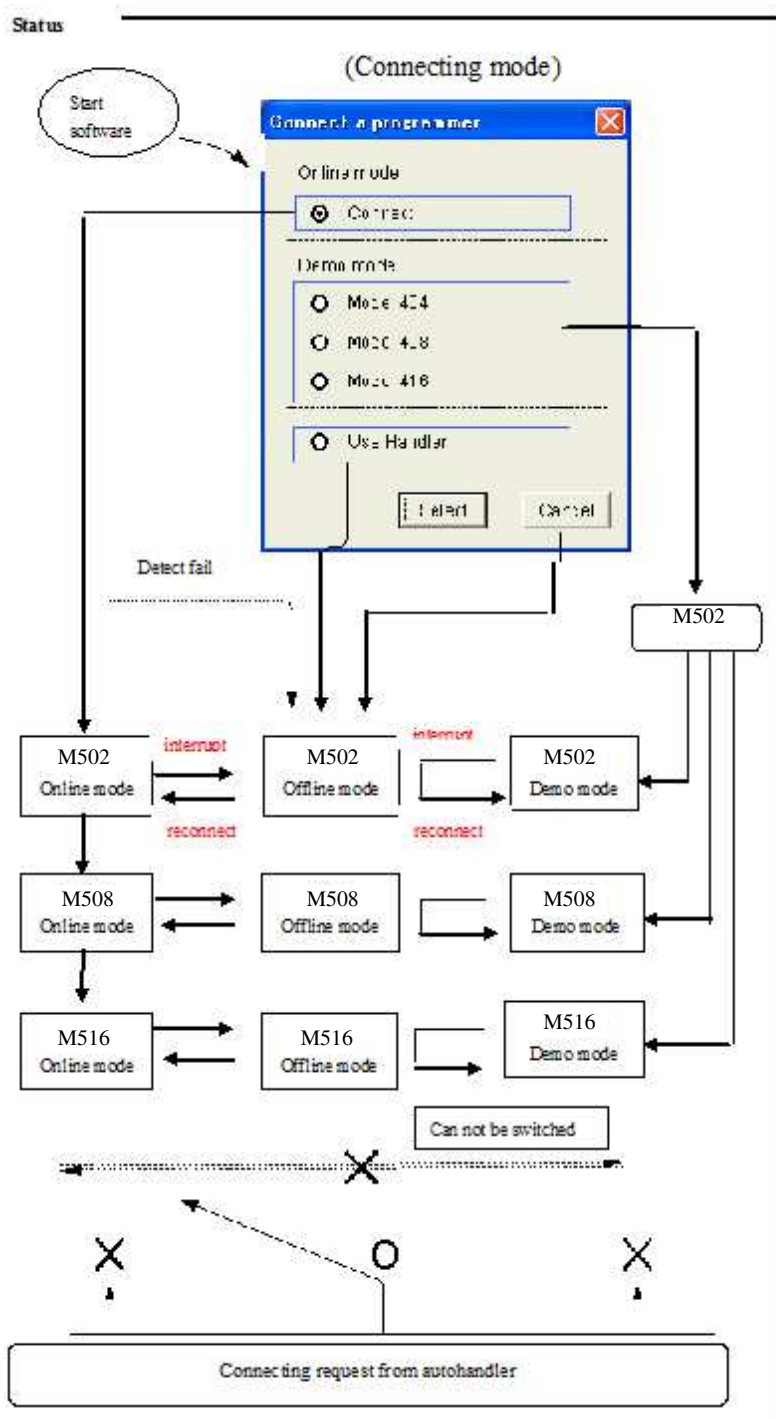
You can confirm the version of control software by clicking Help -- > About Universal Control Program Version.

Version up

Minato will release new version software while new device is added and you just need to install the new software.

Please contact with Minato for the new version M500 Control software (Universal Control Program.)

Connecting mode



If Use Handler is selected automatically, the programmer will be started offline.
Any connection requirements from the processor after will change the state to online.

Buzzing situation

Buzzing situation	Note
Power ON	Irrelevant to setting
UniversalControlProgram Start finished	
Changed the device	
Operation selected	
Operation finished	Different buzzing due to operation result

Items saved in Project File





Type	Items	Description	Save	Note
	Project ID	Confirmation of Project	○	Key in before saving
	Project Note	Confirmation of Project	○	Key in before saving
IC	IC P/N		○	
	Package		○	
	Adapter		○	
DATA	File	path・file name	○	
	data	Binary data	×	
	File format		○	
	Buffer range	Start・End address	×	
	Byte SUM		○	
	Word SUM(Little)	Little Endian	×	
	Word SUM(Big)	Big Endian	×	
	CRC32		○	
	CRC16		×	
	CRC-CCITT		×	
	SWAP		×	
	Clear option ENA		×	
	Cleared data		×	
	Offset option		×	
Operation	Operation	Select operation	○	
	Option		○	
Counter	Counter value	Pass, Fail, Total	×	
	Setting	Record which counter	×	
Time	Average elapsed time		×	Cleared by blank function
	Operation elapsed time	Operate once	×	
Lot	Lot Size		×	
System	Data folder	Browse folder	×	
	Log file folder	Browse folder	×	
	Log file keeping period			
	Buzzer	ON / OFF	×	










	Tool bar	Display or not	×	
	Status bar	Display or not	×	
	Language	Displayed language	×	

Items saved in log file














Type	Item	Description	Save	Note
Title	Version	UniversalControlProgrammer	○	
	Model	504 / 508 / 516	○	
	Programmer P/N		×	
	Lot number	Lot information	○	Key in before operation
	Operator	Lot information	○	Key in before operation
	Note	Lot information	○	Key in before operation
	IC	Maker IC P/N	○	
	Package		○	
	Adapter		○	
	Project	File name	○	
	Data file	File name	○	
	Byte SUM		○	
	CRC32		○	
	Start time		○	
	End time		○	
Operation	mode	Select the mode	○	
	Select	Address range setting	○	
Counter	Setting	Count	×	
Time	Average elapsed time		×	
Result	Lot Size		○	
	Pass number		○	
	Fail number		○	
	Total number		○	
	Yield	PASS÷Pass Fail total	○	Not ÷LotSize

Main menu

Menu	select	Tool button	Description
File	Load project...		Load Project file
	Save project...		Save Projectfile
	Load file to buffer		Load file
	Save buffer to file		Save file
	Config		System modification (accessible only to designer)
	Control of a log file		Log file management

	Pass/Fail counter		Counter setting
	Verify check sum		Comparison between check sum and expected value.
	Deletion of the data file		Deletion of data files for operation.
	Open log file		Open log file
	(Recent file)		Recent project file
	Exit		Exit
Edit	Edit buffer		Buffer Editor
Programmer	Buzzer		Buzzer setting
	Self test		Check programmer
	Clear data		Delete the data.
	File list		Summary of files in buffer data of programmer
	LED Check		LED check
	Handler position		Programmer number cannot be set unless the operator performs the operation.
Device	Select device...		Select IC
	Operation options...		Operation setting
	Writing of unique ID		The write-in of unique ID is available only when operator performs the operation.
	Access method		Operation mode
	Copy		COPY
	Blank check		BLANK
	Verify		VERIFY
	Program		PROG
	Erase		ERASE
	Cont		CONT
View	Toolbar		Toolbar display / not
	Status Bar		Status bar display / not
	Function progress bar		Special : Show the progress at the time point when fault occurs.
	Contact check NG mark		Show/hide fault mark in the case of contact error.
	Handler NG code		Only when operator is performing the operation: OFF normally
	SUM		Display method of SUM
Help	About Universal...		Version
	V_up		Update
	Choice of the lang...		Set the language

Main Menu(Buffer Editor)

Menu	Select	Tool button	Description
Function	Erase buffer		Clear Buffer
	Fill random data		Clear buffer with random data
	Fill block		Initialize the buffer with indicated data
	Copy block		Copy partial data
	Move block		Move partial data
	Swap data in block		Swap
	Find text		Search data
	Replace text		Replace data
	Go to Address		Go to indicated address
	Edit buffer		Edit mode
	View buffer		View mode
	Check SUM		Check SUM / CRC
	Exit		Quit the editor
View	Toolbar		Toolbar display/not
	Status Bar		Status bar display / not
	Byte		View as Byte data
	Word		View as Word data
Help	About BufferEditor		Version display
	Choice of the lang...		Select language

Terminology

Endian

For device which data is more than 9bit, which order will be used to write BufferData (Byte=8bit) to IC?

Refer to Little endian and Big endian

※ Default is Little endian.

<Little endian>

"Little Endian" means that the low-order byte of the number is stored in memory at the lowest address, and the high-order byte at the highest address.

※ Default is Little endian.

<Big endian>

"Big Endian" means that the high-order byte of the number is stored in memory at the lowest address, and the low-order byte at the highest address.

SUM

A number that results by adding up every element of Buffer data and it is a quick way to identify data. Below is the description of SUM

Byte sum

The number by adding up Byte (8bit) by byte.

※ It's a simple adding at Buffer Edit [CHECKSUM]

Word sum (Little endian)

The number by adding up Word (2Byte) by word. It's a Little endian SUM.

128

M500-011A-K6

Example: Buffer Data is 01,02,03,04(hex), and the sum is $0201+0403=0604$ (hex)

Word sum (Big endian)

The number by adding up Word (2Byte) data. It's a Big endian SUM.

Example: BufferData is 01,02,03,04(hex), and the sum is $0102+0304=0406$.

XOR

As one of the logical operations, it is used to check if the data for which the mean value is the same as the value obtained from buffer data through this operation.

CRC (Cyclic Redundancy Check, CRC)

It is another quick way to identify data. CRC is different for endian and SUM may be the same for different ($1+2 = 2+1$).

It will be safer by checking SUM and CRC.

Below is the description of CRC.

※Displayed at Buffer Editor [Check SUM]

CRC16

Method : $X^{16}+X^{15}+X^2+1$

Result : 2Byte

CRC-CCITT

Method : $X^{16}+X^{12}+X^5+1$

Result : 2Byte

CRC32

Method : $X^{32}+X^{26}+X^{23}+X^{22}+X^{16}+X^{12}+X^{11}+X^{10}+X^8+X^7+X^5+X^4+X^2+X^1$

M500-011A-K6

Terminology

Result :4Byte

File format

MOT, HEX, NO Format (BIN)

< Motorola (*.MOT)>

It's a Motorola file format containing Record Type, Address, SUM, etc.

S4, S5, S6 have not been supported.

<Intel HEX (*.HEX)>

It's a Intel file format containing Record Type, Address, SUM, etc.

<NO Format (*.BIN)>

Just binary data.

Swap

Swap a high- and low- order of byte in current buffer

Buffer offset

Normal the start address of IC is 0, but some Micro tool creates a file from another address, so we should set the offset for some file format.

One Time<OTP>

One-time programmable. The characteristic of device that can be programmed once but cannot be erased.

<Protect>

One function of IC to prevent changing the content by abnormal operation.

<Security>

130

M500-011A-K6

One function of IC to avoid reading out the contents.

<Configuration>

One function of IC and You may set any options that are available for a specific device.

<Partition>

It's main for NAND IC to divide the data and IC space to some parts.

<Bad block>

The standard specification for the NAND allows for the existence of bad blocks in a certain percentage.

<ECC>

The use of an error correcting code is essential in order to maintain the integrity of stored code. And ECC code will be written to IC too.

<Site>

Every 4 Sockets as one site for M500 series programmer.

<Lot>/Lot size

The unit for production quantity.

Revision

Contacts

MINATO ADVANCED TECHNOLOGIES INC.

Headquarters

4105, Minami Yamata-cho, Tsuzuki-ku, Yokohama-shi, Kanagawa, 224-0026, Japan

TEL: +81-45-591-5611 / FAX: +81-45-591-6451

E-mail: et-sales@minato.co.jp

Osaka sales office

9F, Kotera Plaza Bldg., 2-5-23, Kitahama, Chuo-ku, Osaka-shi, Osaka 541-0041 ,

Japan

TEL: 06-6453-8911 / FAX: 06-6453-8912

Fukuoka sales office

2F, PS-Bldg., 4-22-16, Shimizu, Minami-ku, Fukuoka-shi, Fukuoka 815-0031, Japan

TEL: 092-553-2540 / FAX: 092-553-2541

Minato(Shanghai)Co.,Ltd

2F, Building I, Plainvim Industrial Park, 76th Zhen'an East Road,

Xiaobian'Community, Chang'an Town, Dongguan City, Guangdong Province, China

TEL: +86-137-1218-5385

E-mail: c-assistant@minato.co.jp

MINATO HOLDINGS INC.

7-2, Nihonbashi-Kodenmacho, Chuo-ku, Tokyo, 103-0001, Japan

TEL: +81-3-5847-2030 / FAX: +81-3-5847-2040

Revision

Rev	DATE	Contents
Rev1	2016/09/29	First edition
Rev2	2017/02/03	Corrected description of connected USB during hardware setup (USB2.0->USB3.0)
Rev3	2017/04/08	Corrected typographical error in the operation after power on.
Rev4	2017/04/12	Added description of how to upgrade software version.
Rev5	2017/06/16	Corrected Recommended PC requirements. Added specifications and photos of M504,M508.
Rev6	2017/09/22	Added about Protect function.
Rev7	2018/05/09	Name change of company. Added the note that project file created in M400 programmer can be used.
Rev8	2018/09/26	Name change of company. Added the description of eMMC 4 sockets unit in Module chapter.
Rev9	2018/02/15	Added the note about operation of module. Added the description of new function and note about load file/save buffer.
Rev10	2019/10/29	Added Windows10 to OS requirements.
Rev11	2022/01/17	Added FPGA update behaviour.
Rev12	2022/06/30	Change of business address. Added note on Self test execution.