

OPERATION MANUAL

MODEL400 SERIES PROGRAMMER



		Revision
2010/06	M400-020A-K1	Rev.1.0
2010/11	M400-020A-K2	Rev.2.0
2011/03	M400-020A-K3	Rev.3.0
2013/10	M400-020A-K4	Rev.4.0
2015/07	M400-020A-K5	Rev.5.0
2017/06	M400-020A-K5	Rev.5.1
2017/09	M400-020A-K6	Rev.6.0
2018/05	M400-020A-K6	Rev.6.1
2018/10	M400-020A-K6	Rev.6.2

Preview

Preview

Dear Customer,

We are pleasure to see you purchasing Minato Gang Programmer MODEL400 Series. This manual explains how to use MODEL400 Series correctly, so please read this manual before operation.

Register for Warranty

MINATO ADVANCED TECHNOLOGIES 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 detail.

MINATO ADVANCED TECHNOLOGIES INC. (Home Page)

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

PC Requirements for control M400

OS requirements

- Windows XP (SP3 higher)
- Windows Vista
- Windows 7 (32bit, 64bit)
- Windows 8, 8.1 (32bit, 64bit)

Recommended PC requirements

- CPU Pentium4 1GHz or Higher
- RAM 512MB or Higher
- Hard disk 1GB or Higher free space
- 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 M400 Series to PC, please read below notice items.

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

Simple Guide

Simple Guide

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MODEL400 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]

- MODEL400 Series
(MODEL404, 404e+ MODEL408,408e+ MODEL416,416e+)
 - MODULE (SU400-48DP/3v)
- ※The MODULE number for each MODEL
(MODEL404, 404e+ / 1pcs, MODEL408, 408e+ / 2pcs , MODEL416, 416e+ / 4pcs)
- Power Cable
 - USB Cable
 - CD (MODEL400 Series control software, USB driver, Operation manual)



MODEL404, 404e+



MODEL408, 408e+



MODEL416, 416e+

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. MODEL400 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 MODEL400 Series.

Version-up for new device is not free. Please see "[maintainance of M400 Series](#)" for detail.

Special note

1. Register will be ok after you sending all the informations to Minato.
2. You should pay for the transportation fee from you to Mianto.

Warranty Terms

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. Any incomprehension please contact us.

Maintainance of M400 Series

Maintainance of M400 Series

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

Warranty of M400 Series

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

Version up for M400 (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

M400 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 M400 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.

Safety Precaution

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



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 may 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.

Compulsion

Safety Precaution



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.

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Outline

Outline

M400 Series are Gang Programmer which can be controlled by PC (windows OS) software through USB Port and supports large capacity devices. M400 Series are equipped with 32GByte (256Gbit) SD Memory or 64GByte (512Gbit) microSD Memory and provide high performance for mass programming .

Features

- Improved for Operating environment.
- High programming speed.
- Equipped with 256Gbit SD Memory. (M404,M408,M416)
- Equipped with 512Gbit microSD Memory. (M404e+,M408e+,M416e+)
- Supporting various devices.
- Sharing the adapters with another MODEL.

Specification

Item	MODEL404 MODEL404e+	MODEL408 MODEL408e+	MODEL416 MODEL416e+	Note
Simultaneous programming	4	8	16	
Buffer Memory	256Gbit e+ : 512Gbit	256Gbit e+ : 512Gbit	256Gbit e+ : 512Gbit	Option 512Gbit(max.) e+ : 1024Gbit(max.)
Interface	USB	USB	USB	Rev.2.0
Operating Temperature	5—35 [°C]	5—35 [°C]	5—35 [°C]	
Operating Humidity	—	—	—	
Power/Frequency	AC100-240[V] 50-60 [Hz]	AC100-240[V] 50-60 [Hz]	AC100-240[V] 50-60 [Hz]	
Power dissipation	60 [VA] (max.)	100[VA](max.)	200[VA](max.)	
Fuse	3 [A]	3 [A]	3 [A]	
Size	230(W)x260(D))x110(H) [mm]	380(W)x260(D))x110(H) [mm]	380(W)x390(D))x120(H) [mm]	
Weight	2.4 [kg]	5.2 [kg]	9.0 [kg]	

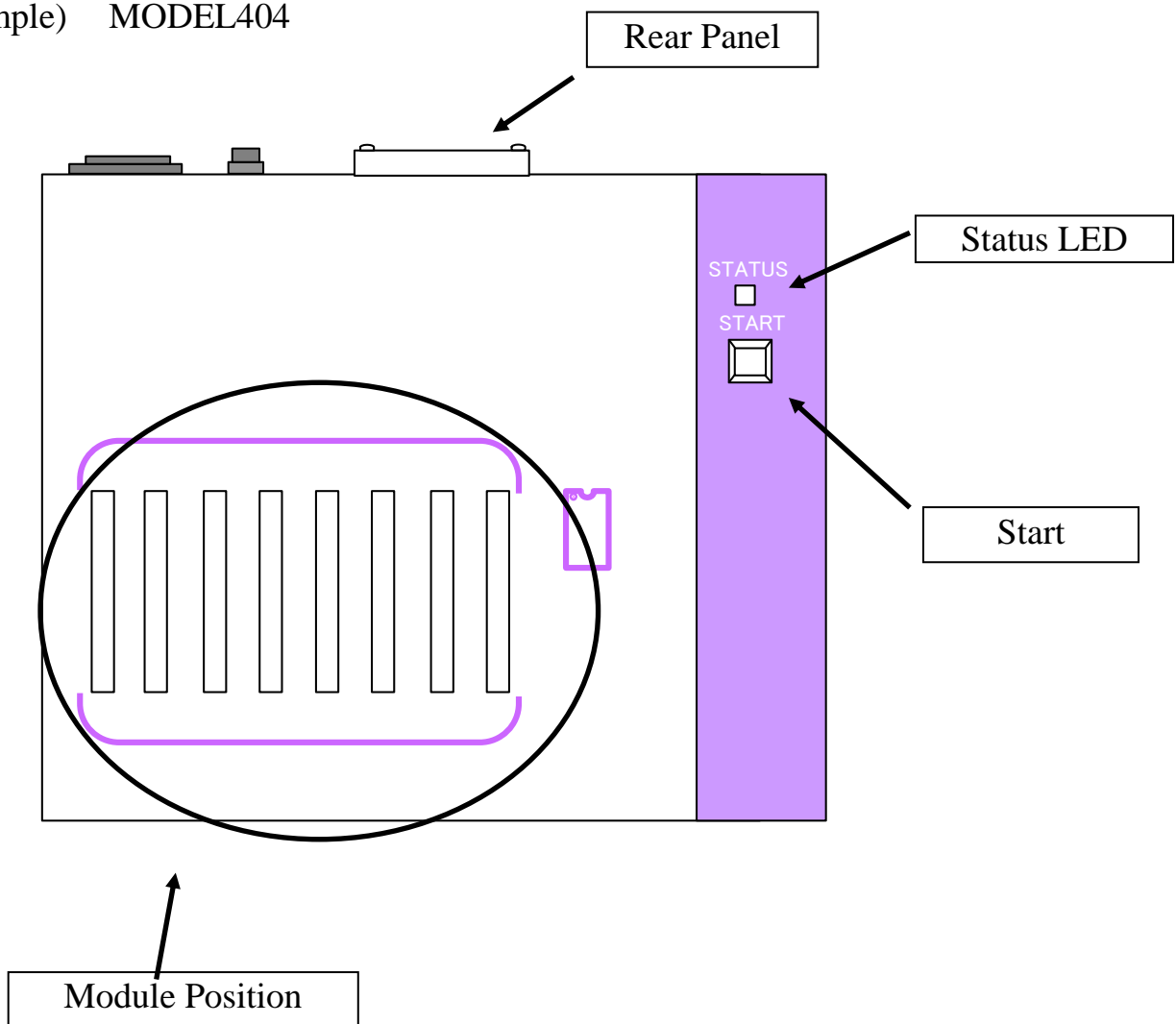
M400 Series Element and Function

MODEL400 Series Element and Function

In order to operate MODEL400 Series properly, please understand the function of each part and its name. The details are described in following pages.

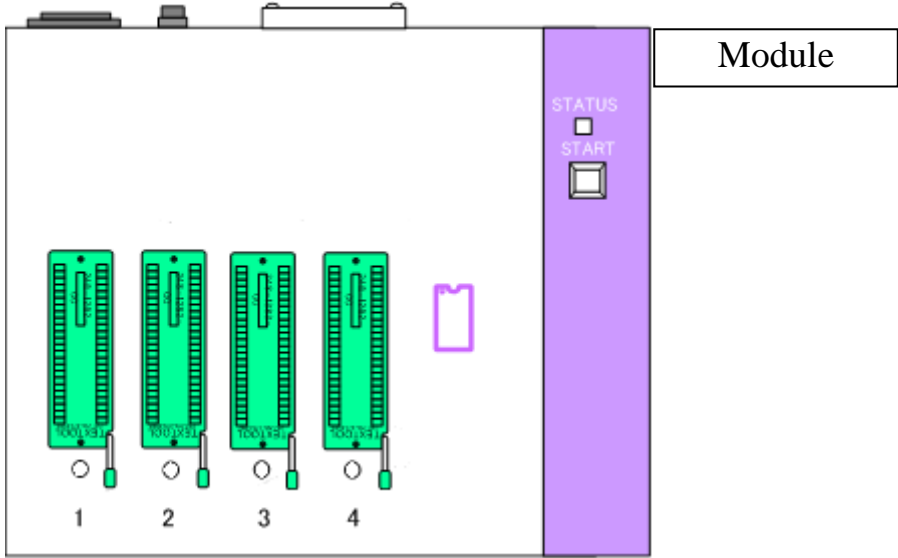
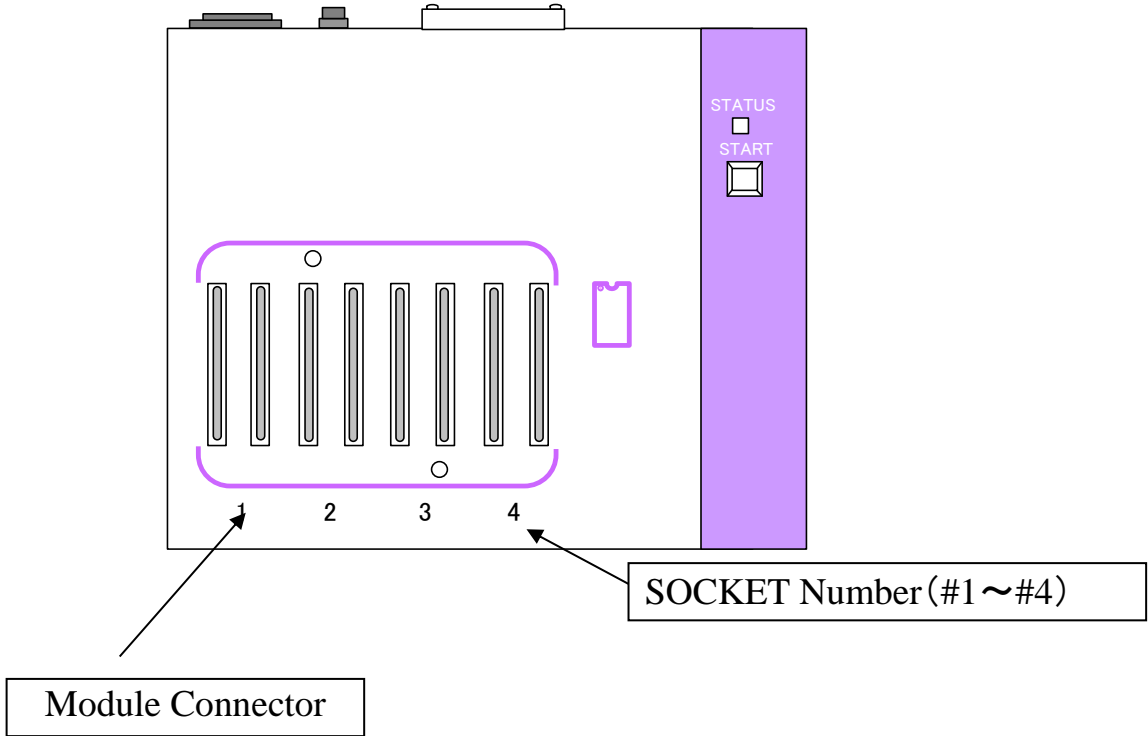
When used, MODEL 400 series of products shall be accompanied by dedicated control software and socket unit. Please note that the startup would fail if software other than special control software is used. For further information about detailed description of special control software, please refer to the Operation Instructions for “[Control Software of Model 400 Series](#)” in this manual. Please refer to “[About socket unit](#)” for detailed description of socket unit.

Example) MODEL404



Module Position

Example) MODEL404



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”

Module Position

Module Connector

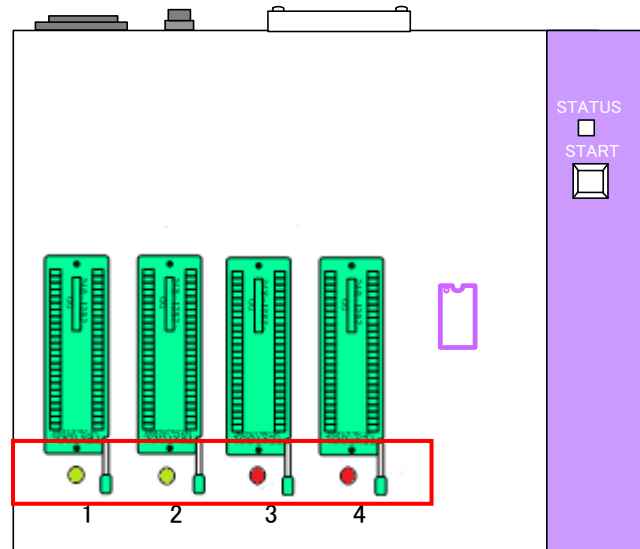
Module Interface Connector

Socket LED (Indicating PASS/FAIL)

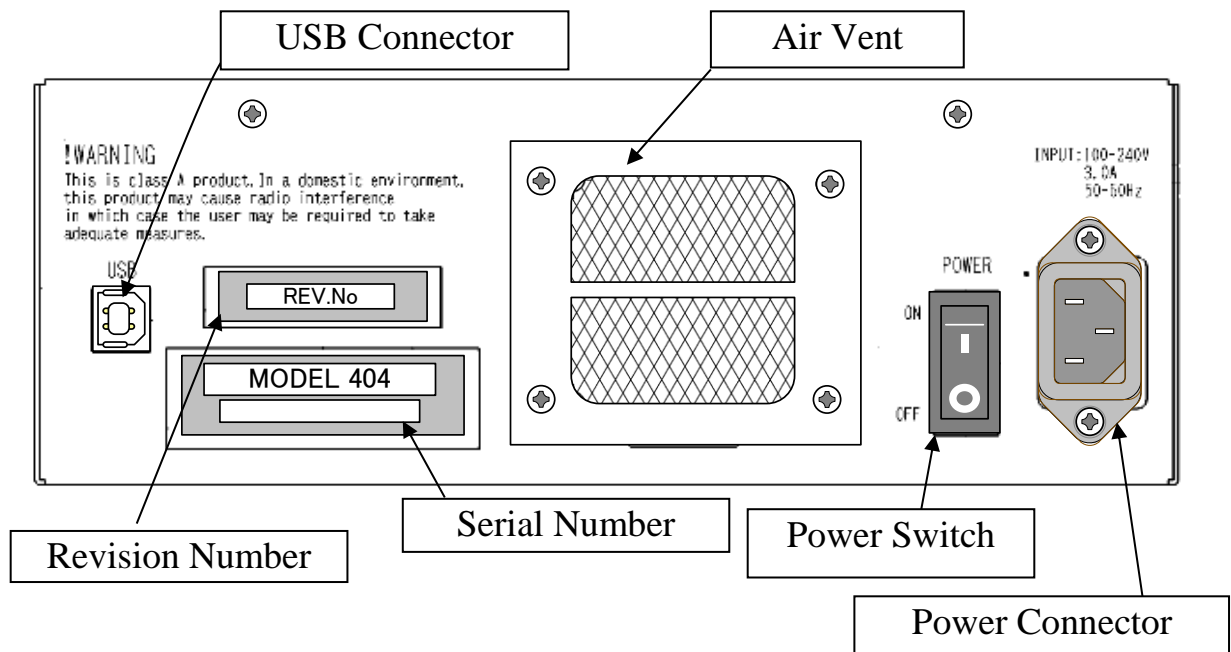
Different color means the operating result.

PASS Green

FAIL Red



Rear Panel



Power Connector

AC power supply connector with (3A)FUSE.

Power Switch

USB Connector

Air vent

Air vent is designed for the external air sucked for cooling the interior of MODEL 400 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.

Optional Items

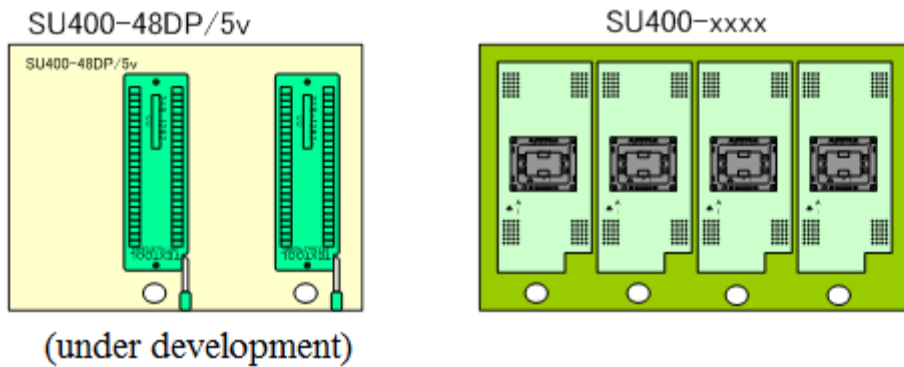
Optional Items

MODEL 400 series of products are supplied with standard socket unit.

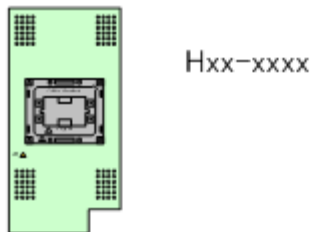
In addition to standard socket unit, user may optionally use the following socket units and adapters.

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

Module



Adapter



※Special adapters for Auto handler

Please contact with our sales department for detail.

About Module

There are various Modules. Here just introduce several typical modules and describe how to install them on M400 Series.

For others Module installation, please contact with Minato or distributor.

※Never fail to mount socket unit in the body. No operation would be activated even if the product is mounted when the power supply for body is turned on.

To this end, please properly mount the socket unit before the power supply for body is turned on.

Please note that the device would not run if out socket unit is not mounted when operating the body with our special control software.

Types of Module

There are various Modules for M400 Series and here just introduce below three types.

① SU400-48DP/3v

Special purpose module for 3V.

Many different adapters can be used on this module.

② SU400-48DP/5v (Under development, Optional part)

Special purpose module for 5V.

Many different adapters can be used on this module.

③ SU400-xxxx

This Module is suitable for some special package which can not be supported by above modules.

Various Adapters

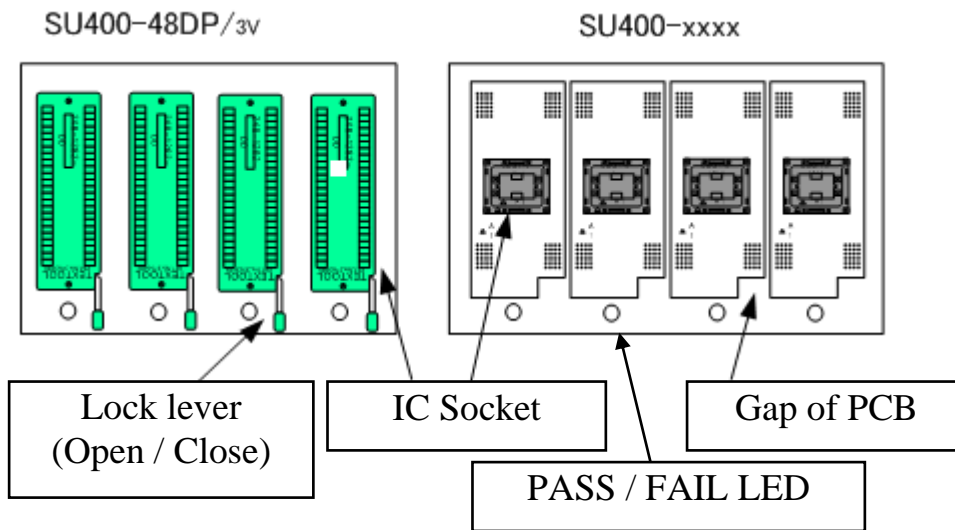
All the adapters for M1940 and M1950 also can be used on M400 Series. And above Modules are necessary.

※Please see “[About Module](#)” for detail.

About Module

Module Position

Describe the direction of Module installation.



Lock lever (open/close)

Before inserting device, push up the lever (open)

After inserting device, push down the lever (close)

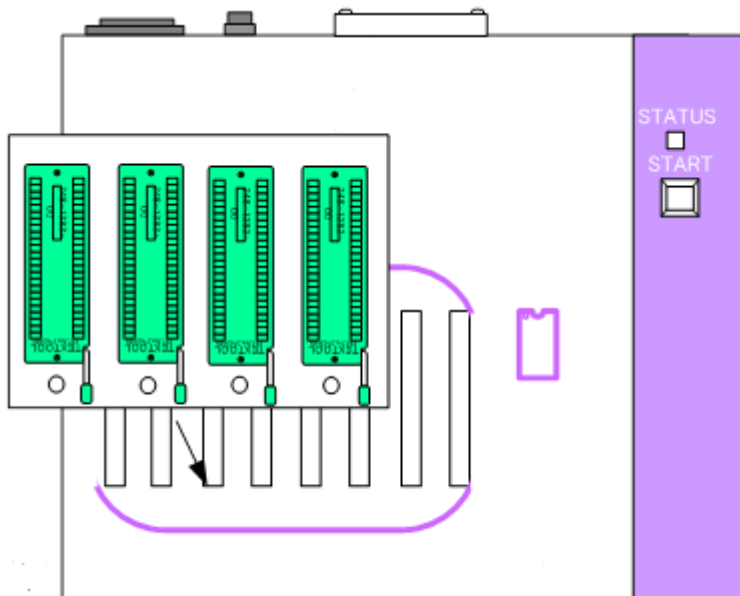
IC SOCKET

Most modules (TSOP, BGA, etc) except DIP can be opened or closed by pressing the socket.

Gap of PCB

To making sure the direction of adapter is correct according to the gap.

Direction of Module installation



In the case of socket unit with locking rod, the locking rod shall be mounted at a neighboring point.

As for socket unit with base plate notch, the notch shall be mounted at a neighboring point.

PASS/FAIL indication LED shall be mounted at a neighboring point in the case of locking unit without locking rod and base plate notch.

About Various Adapters

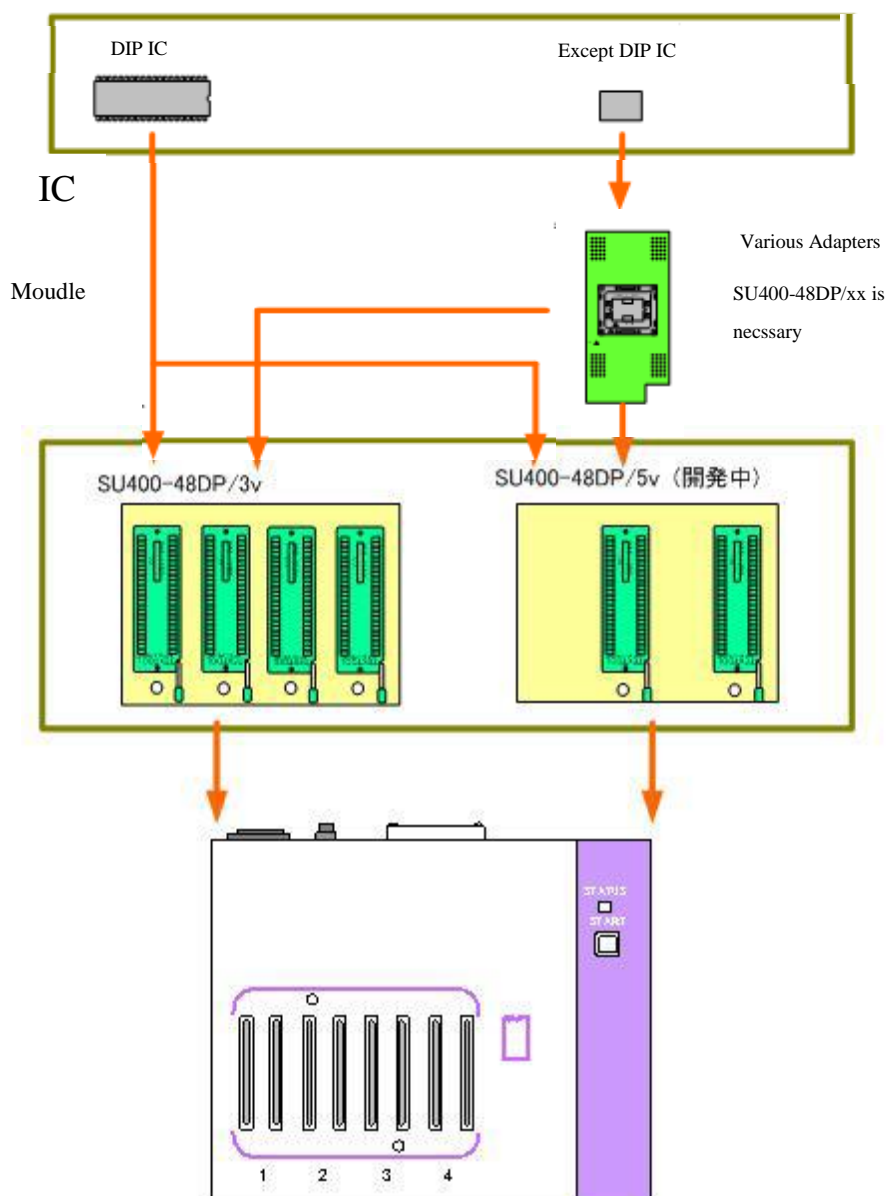
About Various Adapters

This chapter describes adapters for M400 Series

1. Just adapters which have been supported by M400 Series.
2. Some others adapter can be supported by M400 Series after version up. (Not all)
3. Due to too many types adapters, we call them “Various Adapters”

Notice!

Module SU400-48DP/3v is necessary for adapters. And SU400-48DP/3v is between the adapter and M400 Series.



About Installation

(Software and Hardware)

※Matters needing attention when connecting MODEL400 series of products to PC for the first time

(Important)

Installation

Installation

The CD-ROM contains M400 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.

- **M400 installer.exe** (**M400 Series Control software**)
- **USB_driver.exe** (**USB Driver**)

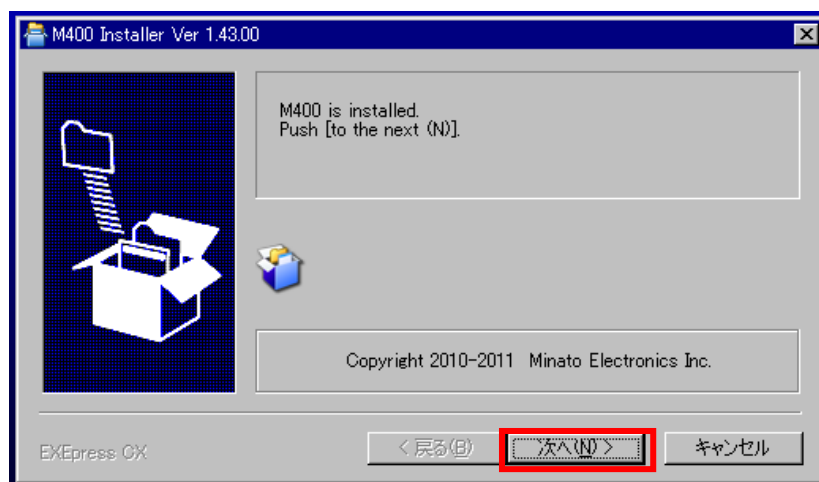
It will start to install after double click above software.

For M400 Series, all above software must be installed before operation.

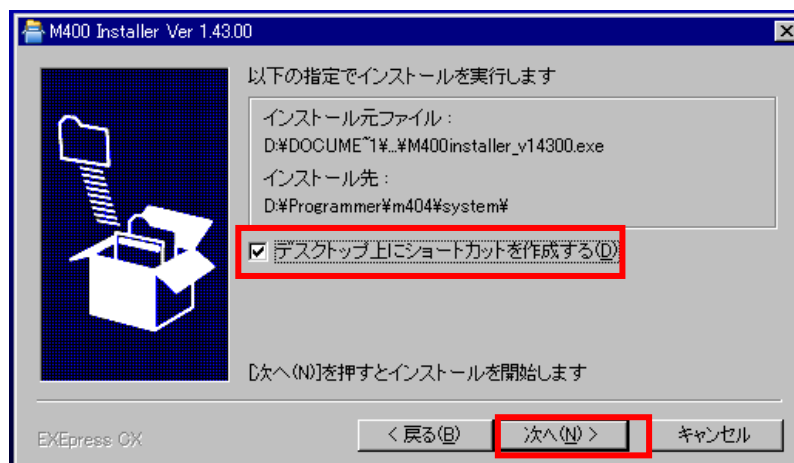
Please follow below installation method to install software.

[Installation Method]

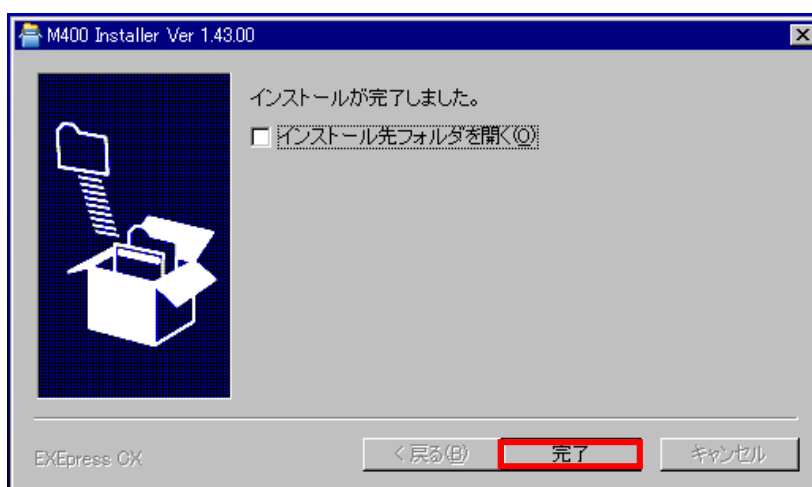
Example) Installation for application program
Double click “M400 installer.exe”



Click next [next (N) >]



Creating a short-cut on the desktop after selecting



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

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

Installation

Installation for Hardware

Before start the Universal Control Program, please connecting M400 Series to PC by USB cable.

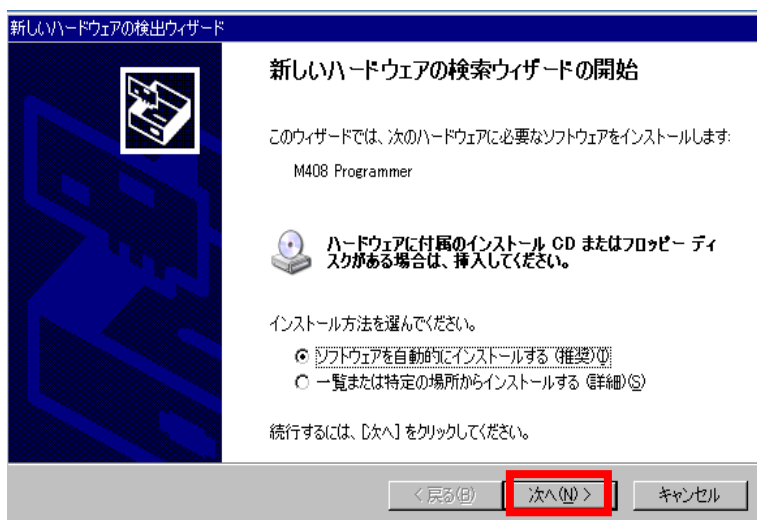
Windows will detect new hardware, please follow below method to install the driver. M400 Series will be detected by windows and installation will start automatically. Please insert the CD-ROM.

Setup1 Connecting the USB cable to programmer

Setup2 Connecting the USB cable to PC
(Recommant High-Speed USB 2.0)

Setup3 Power on the M400 Series and make sure the buzzer and status of LED are correct.

Setup4 Windows will start with “ Found New hardware Wizard”

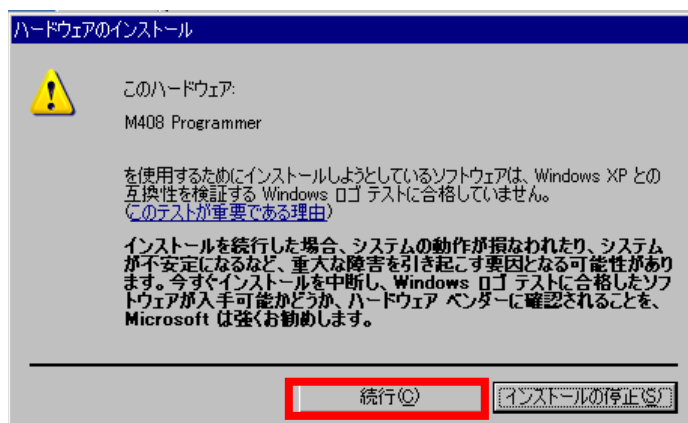


Selecting “Install the software automatically (Recommended)”

Wizard start searching programmer and install driver automatically.



Confirming the installation.



Installation

After successfully installing you will see following window:



Click “Finish” button to finish the setup.

※ Notice ※

In addition, MODEL 400 series of products will detect the new hardware in the connected unit (COM port), and programmers M416 and M408 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 after hardware installation. Where the following operation is not performed, PC would be unable to identify MODEL400 series of products.

[For Windows XP (SP3)]

- 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”

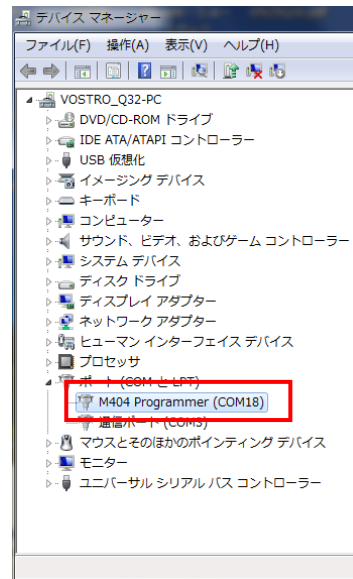
- ③ Power on the programmer. Perform hardware installation again. Check if programmer has been identified upon the completion of installation.

Notice for first time connecting to PC

④ [Start] → [Setting] → [Control Panel] → [System] → [Hardware] → [Device Manager]

If you can find the the Model of M400 Series, it means the Programmer has been recognized and please remember the USB port.

Please click the icon to run the control Software.

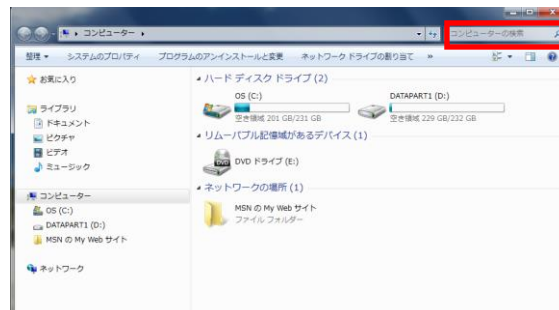


[For Windows 7]

① [Start] → [Computer] → [Search] to serach “usbser.sys”.



Keyin “usbser.sys”

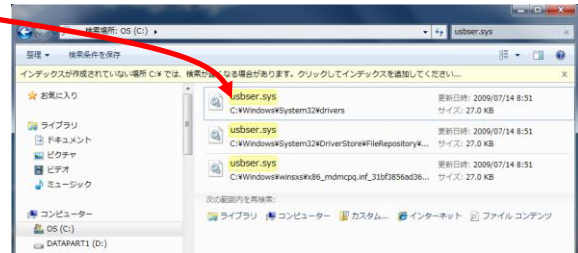


Notice for first time connecting to PC

② "usbser.sys" will be found and copy this file to below folder.

C:/Windows/system32/drivers

or **D:/Windows/system32/drivers**

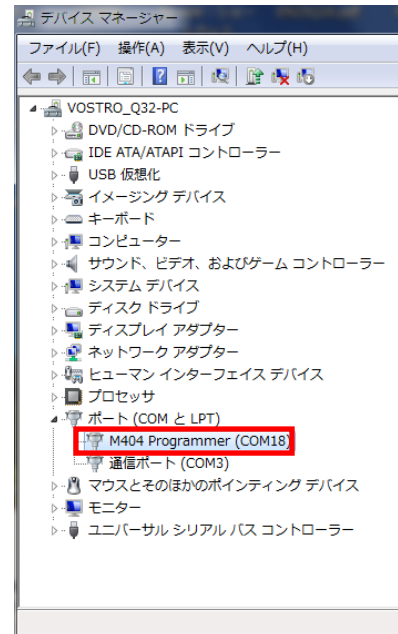
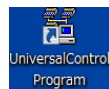


③ Power on both the M400 Series and the PC

[Start] → [Setting] → [Control Panel] →
→ [System] → [Hardware]
→ [Device Manager]

If you can find the the Model of M400 Series,
it means the Programmer has been recognized
and please remember the USB port.

Please click the icon to run the control Software.



M400 Series Control Software (Universal Control Program) Operation Manual

This chapter explains how to use this Universal Control Program of M400 Series. This Control Software will be updated without giving notice due to improvement. Any effects will be fixed by new software.

MODEL400 Series Control Software (Universal Control Program)

Outline

M400 Series Control Software is suitable for MODEL404, MODEL408, MODEL416.

Main features:

- ① MODEL404, MODEL408, MODEL416 can be controlled by the same software.
- ② All the informations 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 Partiton 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 shortend by this method for auto handler.

※ Operating Environment ※

Please follow the “Recommanded PC Requirments” 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 M408 and M416 to avoid breakdown.

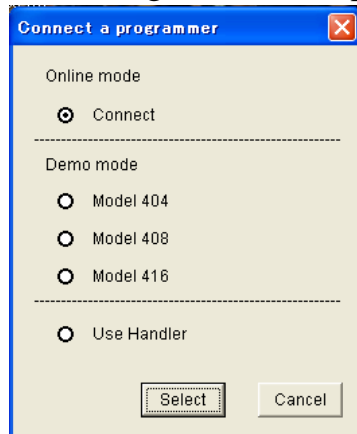
MODEL400 Series Control Software (Universal Control Program)

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 404

On the dialog box [Connect a programmer], choose [Model 404] and click [Select], the control software will be forced to MODEL 404 Demo mode and [DEMO] will be showed on the main screen of software.

Demo mode for MODEL 408

On the dialog box [Connect a programmer], choose [Model 408] and click [Select], the control software will be forced to MODEL 408 Demo mode and [DEMO] will be showed on the main screen of software.

MODEL400 Series Control Software (Universal Control Program)

Demo mode for MODEL 416

On the dialog box [Connect a programmer], choose [Model 416] and click [Select], the control software will be forced to MODEL 416 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

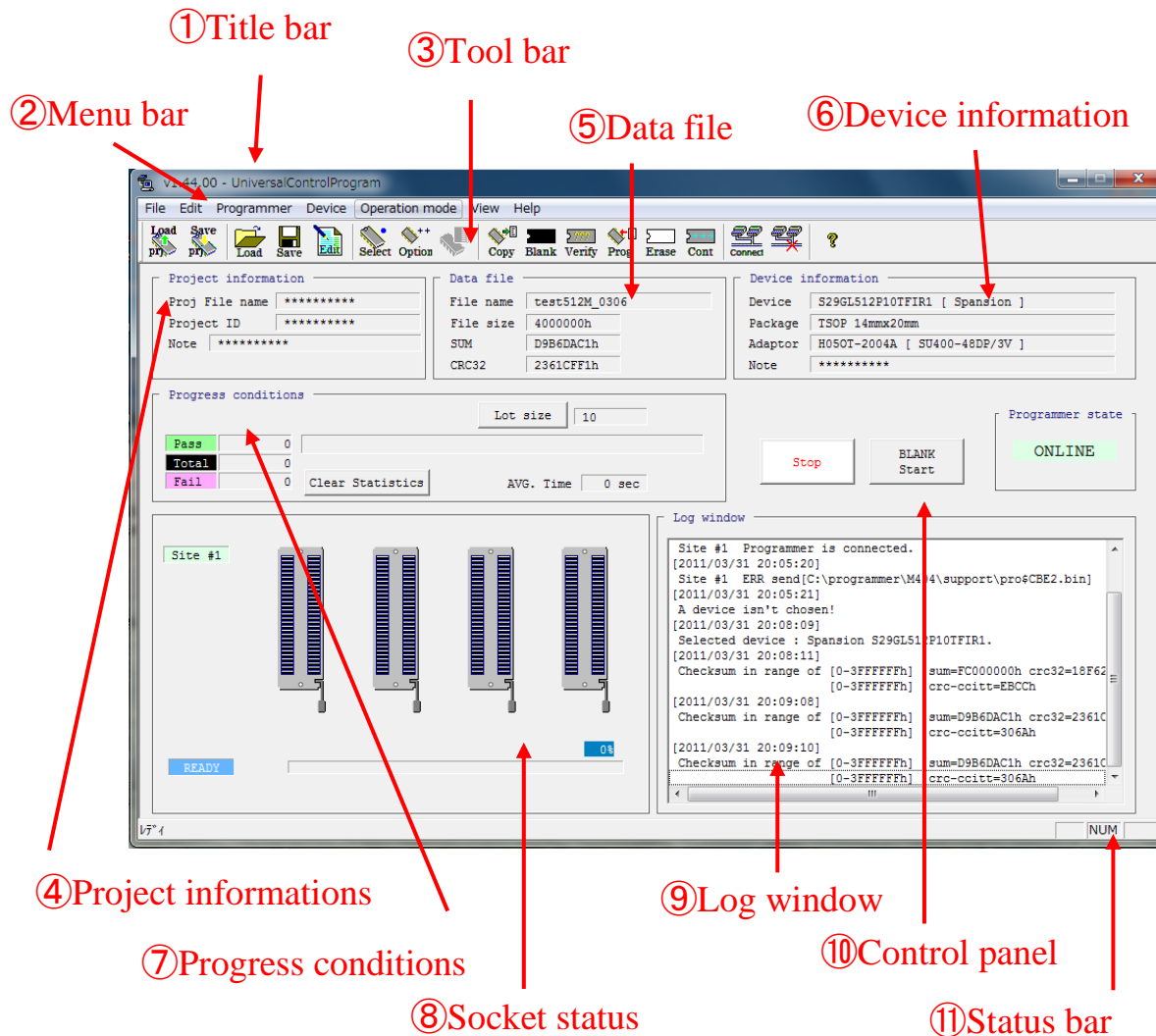
On the dialog box [Connect a programmer], click [Cancel], the control software will force to [OFFLINE] mode (Demo mode for M404).

MODEL400 Series Control Software (Universal Control Program)

Description of the main screen

Here will introduce the function of the main screen and the sample is MODEL404(It's the same for MODEL408 and MODEL416 except the programmer's Model.)

Description of the main screen (MODEL404 Main Screen)



① Title bar

Display the version of the software.

MODEL400 Series Control Software (Universal Control Program)

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.

[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 checksum)
- 「Deletion of the data file」
- 「Open log file」
- 「Recent File」
- 「Exit」

[Edit]

- 「Edit buffer」

[Programmer]

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

[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].

MODEL400 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)

[Help]

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


MODEL400 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**

[4] Operation

 **COPY**
Copy data from IC to buffer.

 **BLANK**
Check whether the IC is empty.

MODEL400 Series Control Software (Universal Control Program)



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

They are useful for project management.

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

MODEL400 Series Control Software (Universal Control Program)

⑤ Data File

Show the file name, 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)

Data file	
File name	test512M_0306
File size	4000000h
SUM	D9B6DAC1h
CRC32	2361CFF1h

⑥ Device Information

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

Device information	
Device	S29GL512PxxTFx01 [Spansion]
Package	TSOP 14mmx20mm
Adaptor	H050T-2004A [SU400-48DP/3V]
Note	*****

⑦ Progress Condition

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

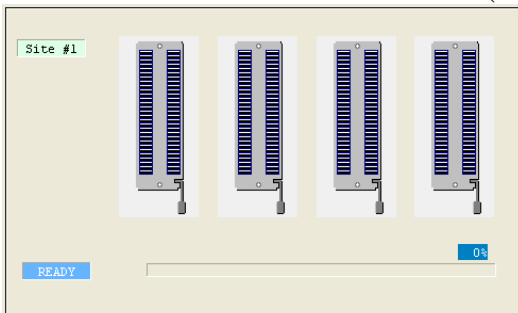
Clicking [lot size] button you can set all the parameter about the lot.

Progress conditions	
Lot size	10
Pass	3
Total	4
Fail	1
Clear Statistics	
AVG. Time	0 sec

⑧ Socket status

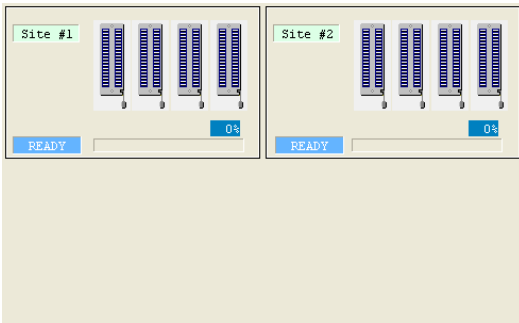
Show the Site number and the status of each socket.

MODEL404 is showed one site (4 Sockets).

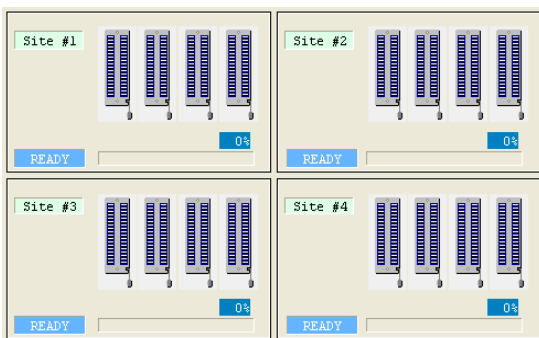


MODEL400 Series Control Software (Universal Control Program)

MODEL408 is showed 2 sites (8 Sockets).



MODEL416 is showed 4 sites (16 Sockets).

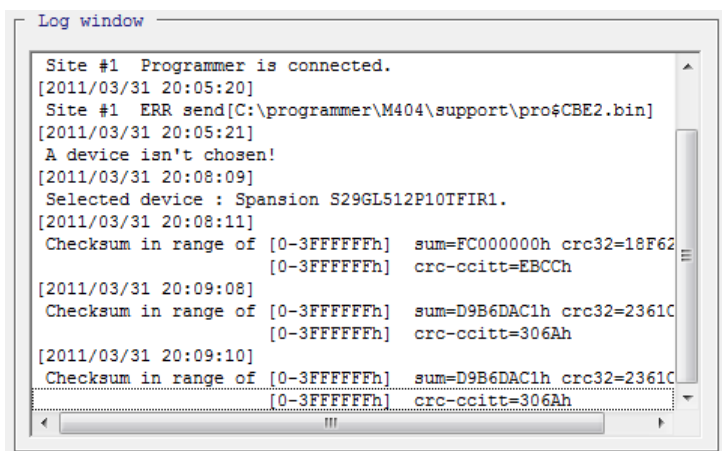


The Progress bar shows the status of every operation.

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

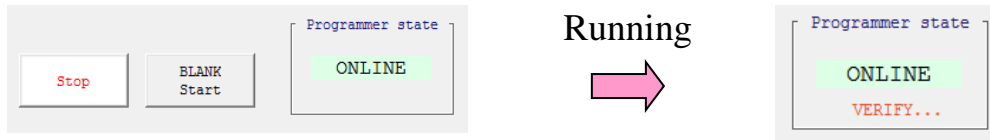
⑨ Log Windows

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)



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”.

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 hided by selecting [View -> Status Bar]

Basic Operation

This chapter will describe below operations.

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

For M400 Series you must use the special control software to operate.

Here just describe the operation of M404 (It's the same for M408 and M416 except the programmer model.)

Basic Operation

Power setting

Here will describe the sequence of power on.

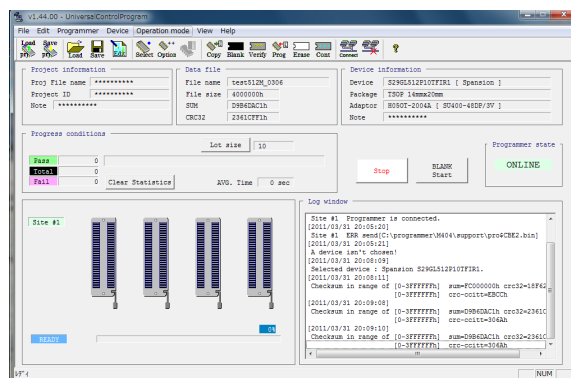
You should avoid the noise caused by other machine like electric generator and welding machine.

※ Notice

1. Making sure to put M400 Series at a level palce, no shocking
2. Using dedicated plug seat as AC power
3. Recommended using 3P plug seat which contains GND
4. Making sure the power switch are off, then connect the power cable to plug seat.
5. No IC and Adapter 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 About 1 minute later the status LED will turn green and it's ready for connecting to PC.
- ③ Click the icon of M400 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 basic screen.
- ⑤ Basic Screen



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)

Title bar

IC list

Key in the IC P/N

OK

Manufacturer	Name	Type	Package	Spec	Adapter	Pin	Vcc	S_Ver.	P_Ver.
*	EIAJ32M	Flash 32M-bit (x16)	*	----	*	*	2.7-3.6V	V1.00.00	V1.04
ELPIDA	EHE01C031PB	NAND 512M-bit (x8)	FBGA 14mmx14mm -0.65	TE5551	H060T-2322	215	1.7-1.95V	V1.36.00	V1.04
ELPIDA	EHE01C021PB	NAND 512M-bit (x8)	FBGA 14mmx14mm -0.65	TE5551	H060T-2322	215	1.7-1.95V	V1.36.00	V1.04
ELPIDA	EHF01C031MA	NAND 512M-bit (x8)	FBGA 9mmx8mm -0.65	TE5551	H060T-2228	130	1.7-1.95V	V1.36.00	V1.04
ELPIDA	EHE01E031MA	NAND 512M-bit (x8)	FBGA 9mmx8mm -0.65	TE5551	H060T-2228	130	1.7-1.95V	V1.36.00	V1.04
ELPIDA	EHE01C011MA	NAND 512M-bit (x8)	FBGA 9mmx8mm -0.65	TE5551	H060T-2228	130	1.7-1.95V	V1.36.00	V1.04
ELPIDA	EHF01C022MA	NAND 512M-bit (x8)	FBGA 9mmx8mm -0.65	TE5551	H060T-2228	130	1.7-1.95V	V1.36.00	V1.04
ELPIDA	EHF01C021MA	NAND 512M-bit (x8)	FBGA 9mmx8mm -0.65	TE5551	H060T-2228	130	1.7-1.95V	V1.36.00	V1.04
ELPIDA	EHF0020A1MA	NAND 512M-bit (x8)	FBGA 13mmx10.5mm -0.8	TE5551	H060T-1693A	137	1.7-1.95V	V1.36.00	V1.04
ELPIDA	EHF0030A1MA	NAND 512M-bit (x8)	FBGA 13mmx10.5mm -0.8	TE5551	H060T-1693A	137	1.7-1.95V	V1.36.00	V1.04
ELPIDA	EHF01C011MA	NAND 512M-bit (x8)	FBGA 9mmx8mm -0.65	TE5551	H060T-2228	130	1.7-1.95V	V1.36.00	V1.04
ELPIDA	EHE01C041PB	NAND 512M-bit (x8)	FBGA 14mmx14mm -0.65	TE5551	H060T-2322	215	1.7-1.95V	V1.36.00	V1.04
EON	EN29GL256L-xZIP	Flash 256M-bit (x16)	TSOP 14mmx20mm	----	H050T-2004A	56	3.0-3.6V	V1.36.00	V1.04
EON	EN29LV640Bx-xxBTxx	Flash 64M-bit (x16)	48TFBGA 6mmx8mm	----	H35CS-1557A	48	3.0-3.6V	V1.32.00	V1.04
EON	EN29LV640Tx-xxBTxx	Flash 64M-bit (x16)	48TFBGA 6mmx8mm	----	H35CS-1557A	48	3.0-3.6V	V1.32.00	V1.04

Select: MXIC MX29GL128ELT2x-xxx Flash 128M-bit (x16) TSOP 14mmx20mm ---- H050T-2004A 56 2.7-3.6V V1.00.00 V1.04

Show devices in order

Clicking title bar the device will be put in alphabetical 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.

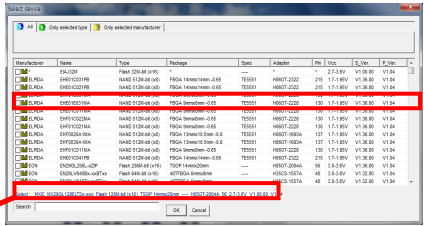
Confirm the device

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

Spansion	S29GL512PxxTFx01	Flash 512M-bit (x16)	TSOP 14mmx20mm	H05-2004A	56	3.0-3.6V
Spansion	S29GL512PxxTFx02	Flash 512M-bit (x16)	TSOP 14mmx20mm	H05-2004A	56	3.0-3.6V

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

Select : Spansion S29GL512PxxTFx02 Flash 512M-bit (x16) TSOP 14mmx20mm H05-2004A 56 3.0-3.6V

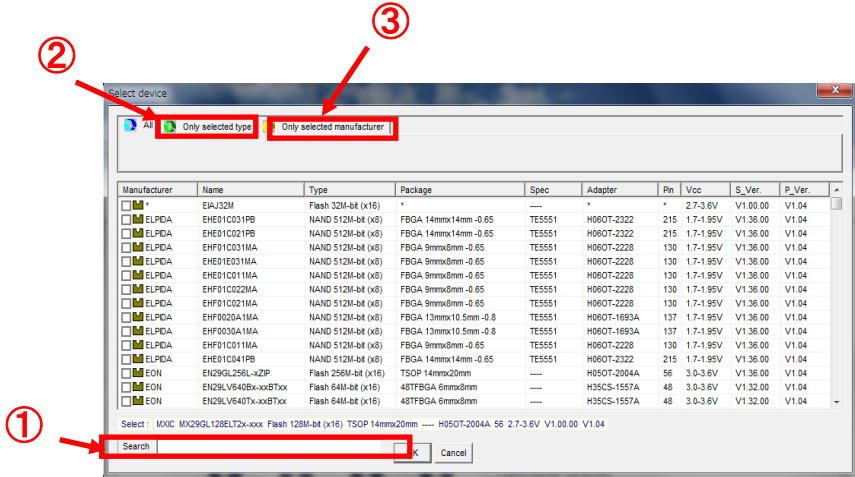


Clicking [OK] button to confirm your selected device and then the device will be called out and all the settings are updated.

※Notice※

The buffer memory will be initialized after selecting device.

Methods for searching device



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

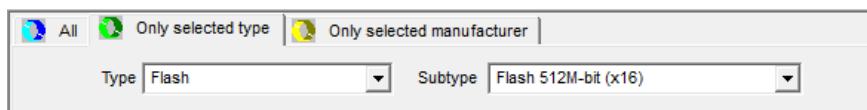
[Search] Box is suitable for all Tabs ([All] [Only selected type] [Only selected manufacture]) and it's case insensitive.

② Only selected type

M400-020A-K6

Basic Operation

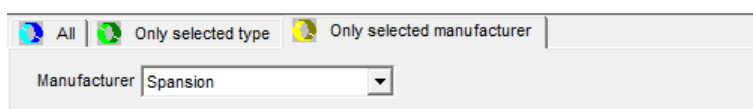
Click the tab of [Only selected type], you can more easily find the device by select the [Type] and [Sub type], because just the type you have defined will be listed. (example: Set [Type] as "Flash", and [Sub type] "512M-bit (x16)", then just 512Mbit Flash will be listed)



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

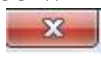
③ Only selected manufacturer

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.



※If there is no device being displayed, it means Device for this manufacturer has not been supported .

④ Close the Select device window

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

COPY

Using the COPY button to copy data from IC to buffer of M400 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.

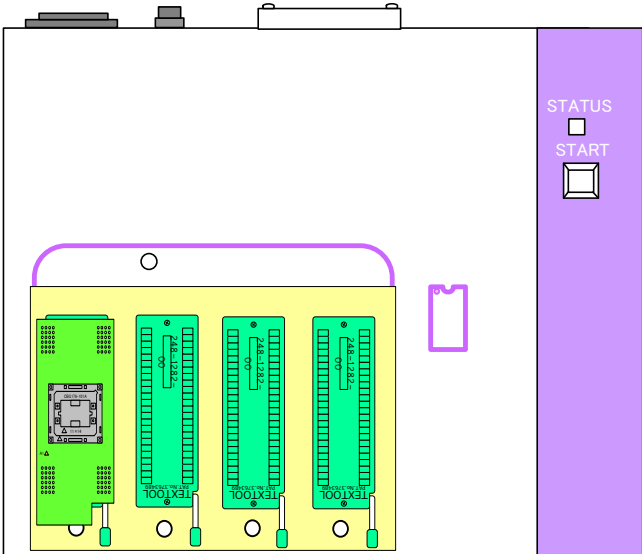
The operation Sequence for COPY

Example) For M404

- 1. Select the correct device
- 2. Put IC into #1Socket
- 3. Click COPY button



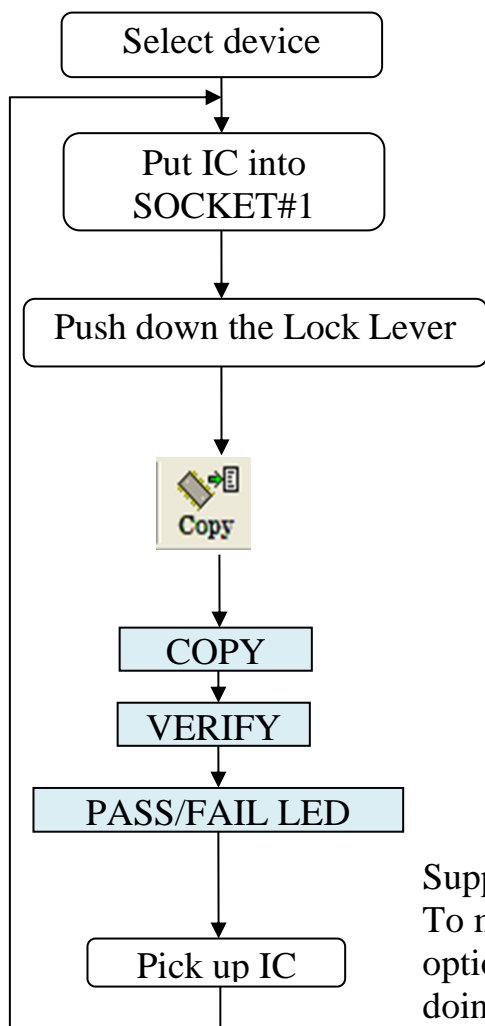
Click START (COPY) button, then it will run and while it's finished the LED turn green or red (Copy ok: Green; Copy fail: Red).



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

Basic Operation

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.

ERASE

For EEPROM 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 M404

1. Select the correct device
2. Put the device into #1 ~ #4 Socket.

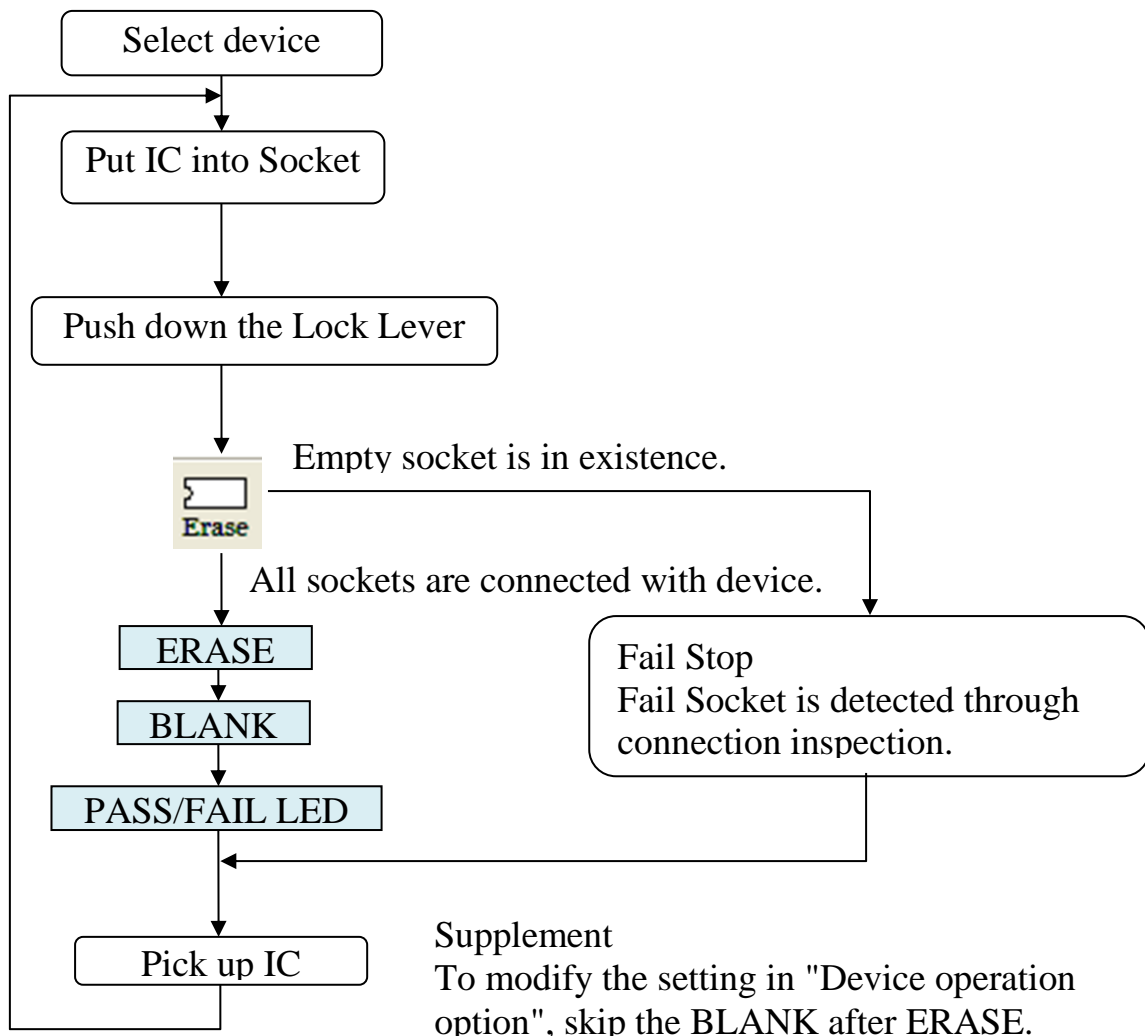
3. Click **Erase** button 

※ This function will start automatically if you have put devices into all the #1 ~ #4 Socket. If there is no IC in some socket, the warning message “contact fail” 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.

Basic Operation

Flow chart of ERASE



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 M404

1. Select the correct device.
2. Put the device into #1 ~ #4 Socket.

3. Click **BLANK** button 

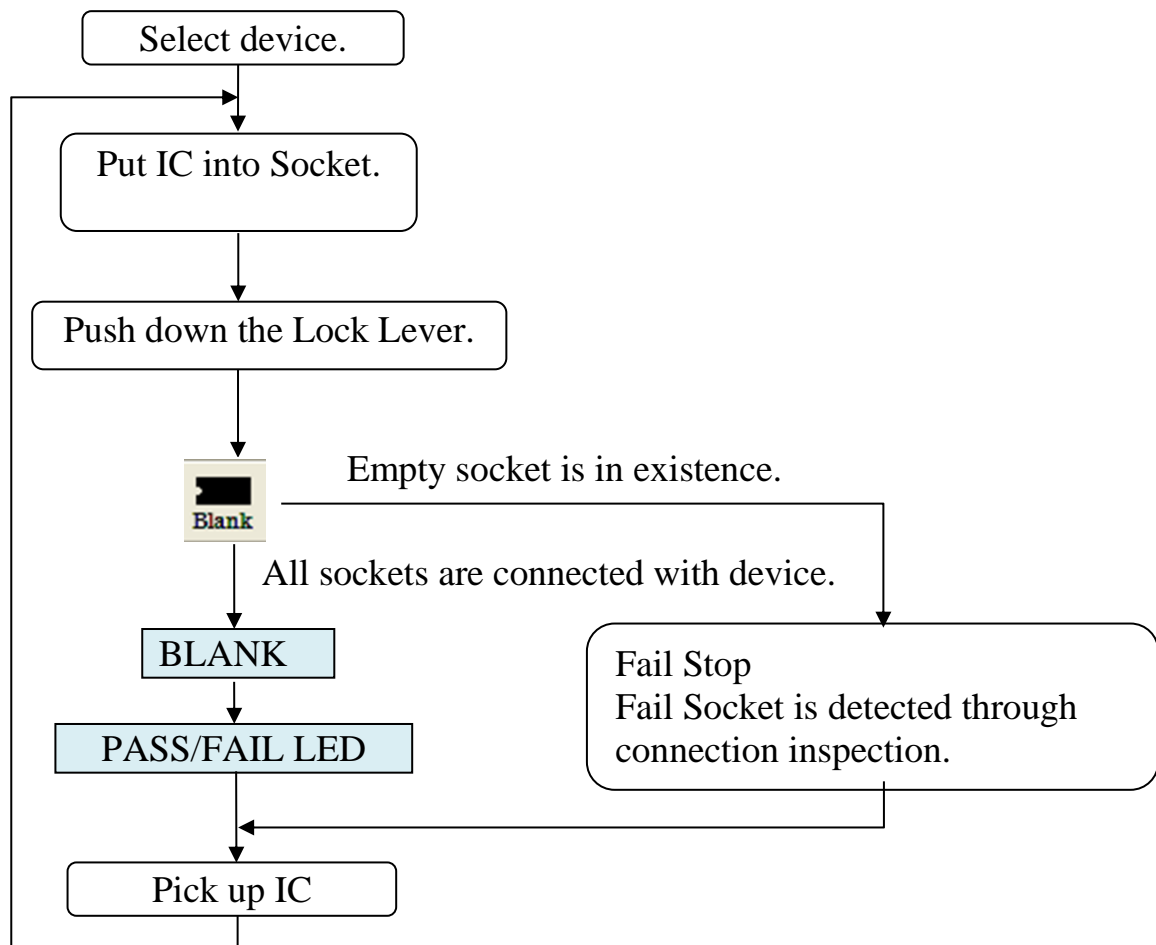
※ This function will start automatically if you have put devices into all the #1 ~ #4 Socket.

If there is no IC in some socket, the warning message “contact fail” 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.

Basic Operation

Flow chart of BLANK



PROGRAM

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 M404

1. Select the correct device
2. Put the device into #1 ~ #4 Socket

3. Click **PROG** button



※ This function will start automatically if you have put devices into all the #1 ~ #4 Socket.

If there is no IC in some socket, the warning message “contact fail” 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 MODEL400

MODEL400 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

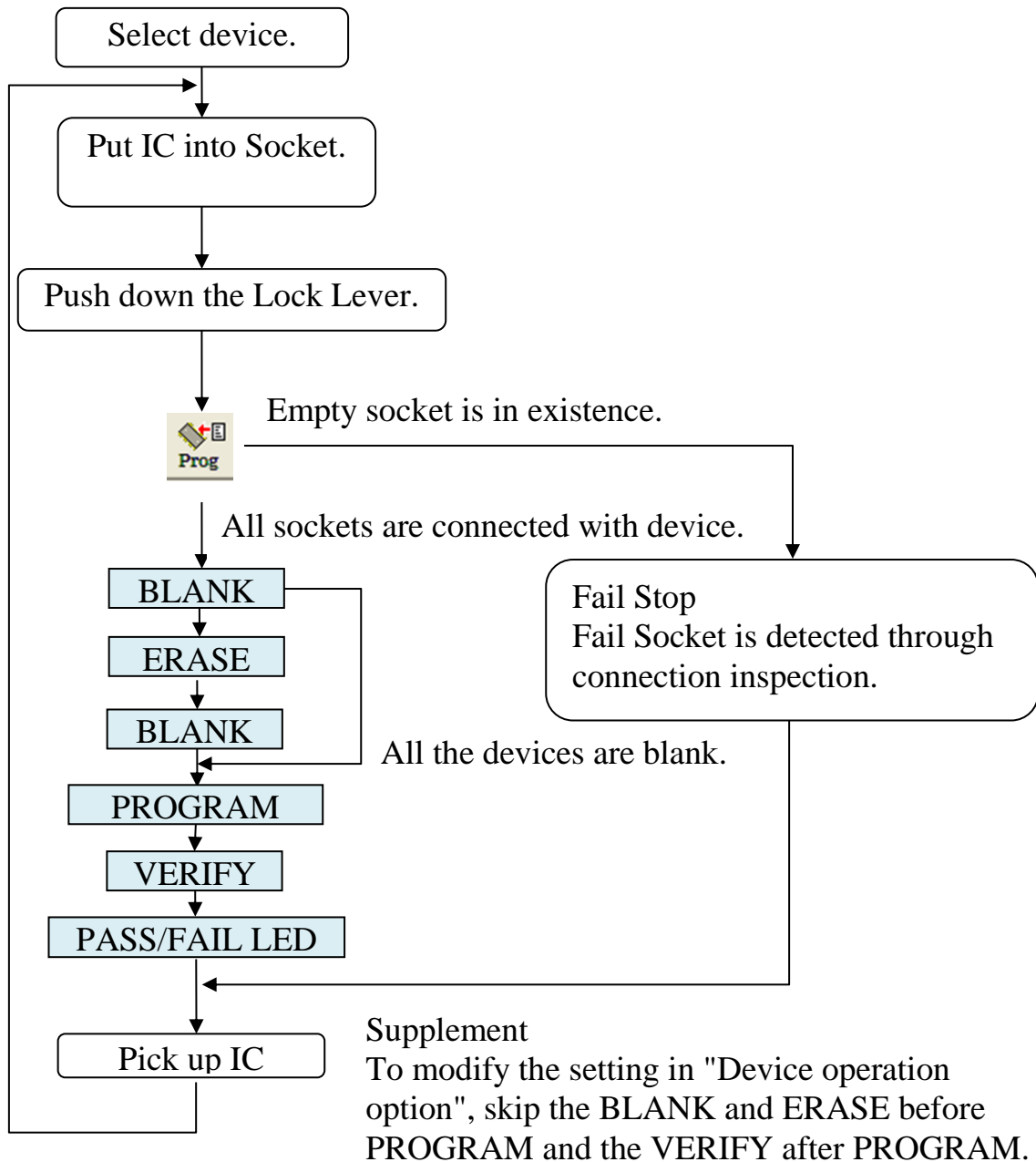
(Initial setting of PROG operation is

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

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

Basic Operation

Flow chart of PROGRAM



VERIFY


Compare the data between IC and buffer of M400 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 M404

1. Select the correct device
2. Put the device into #1 ~ #4Socket
3. Click **VERIFY** button 

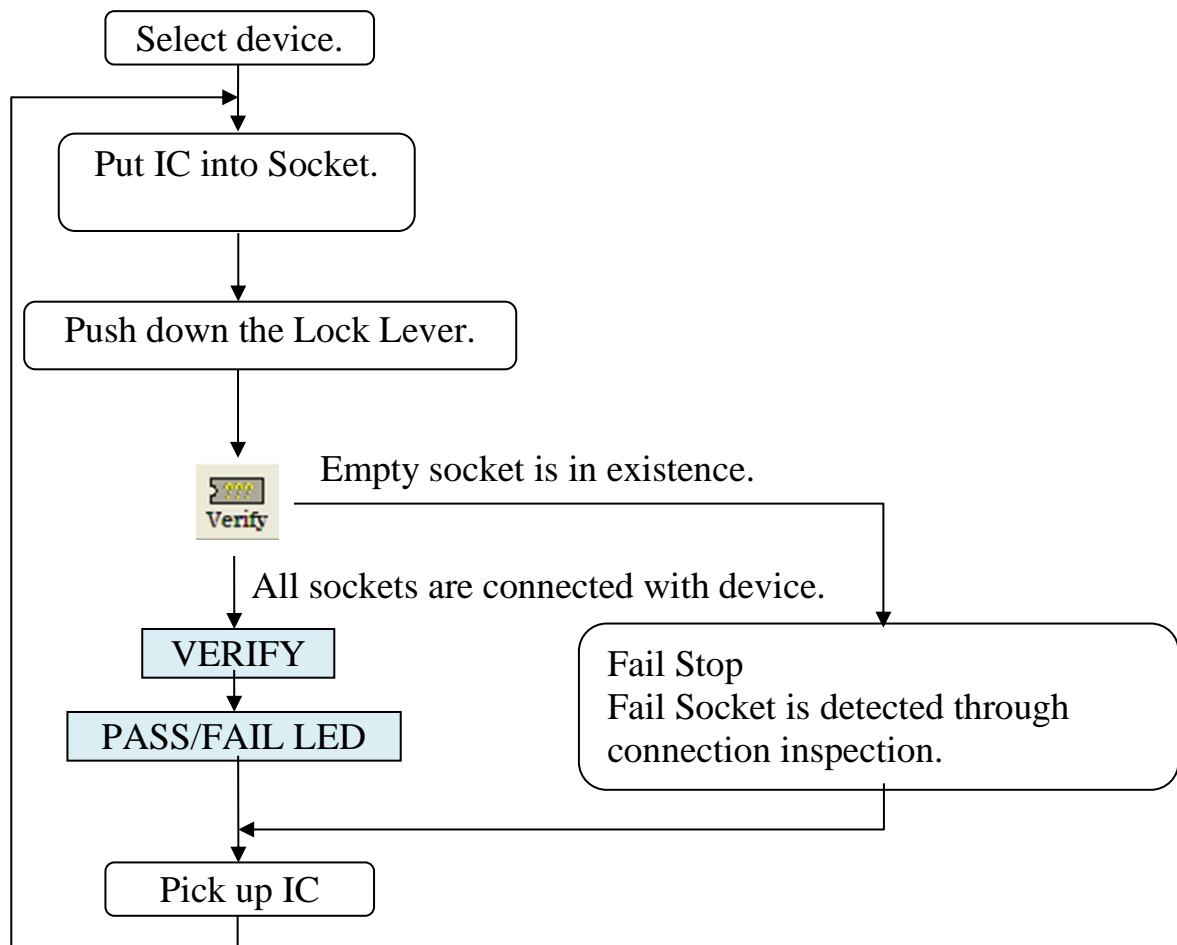
※This function will start automatically if you have put devices into all the #1 ~ #4Socket.

If there is no IC in some socket, the warning message “contact fail” 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.

Basic Operation

Flow chart of VERIFY



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 M404

1. Select the correct device
2. Put the device into #1 ~ #4 Socket

3. Click **CONT** button

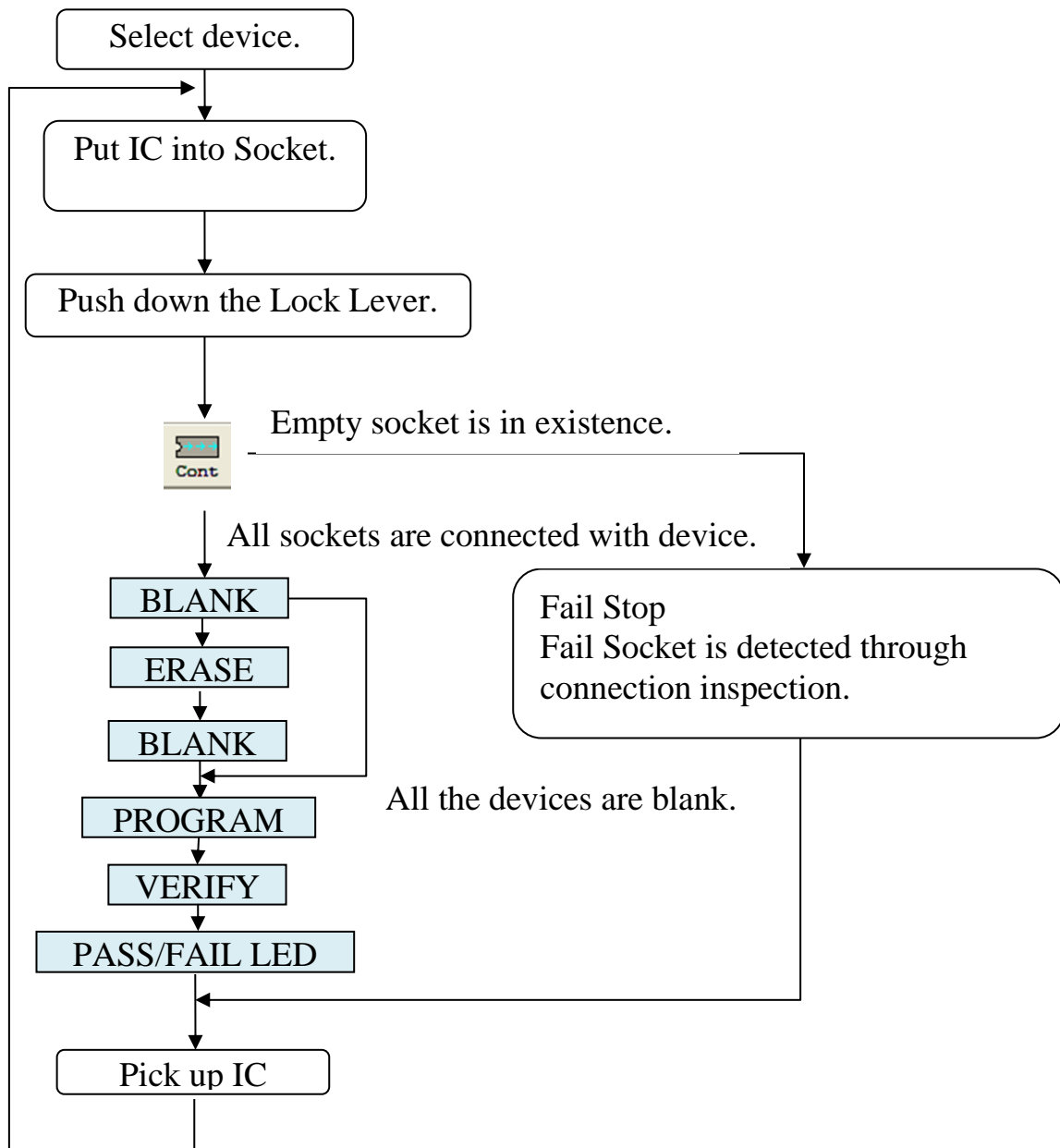


※ This function will start automatically if you have put devices into all the #1 ~ #4 Socket. If there is no IC in some socket, the warning message “contact fail” will display and the SOCKET LED turn red, the operation is discontinued.

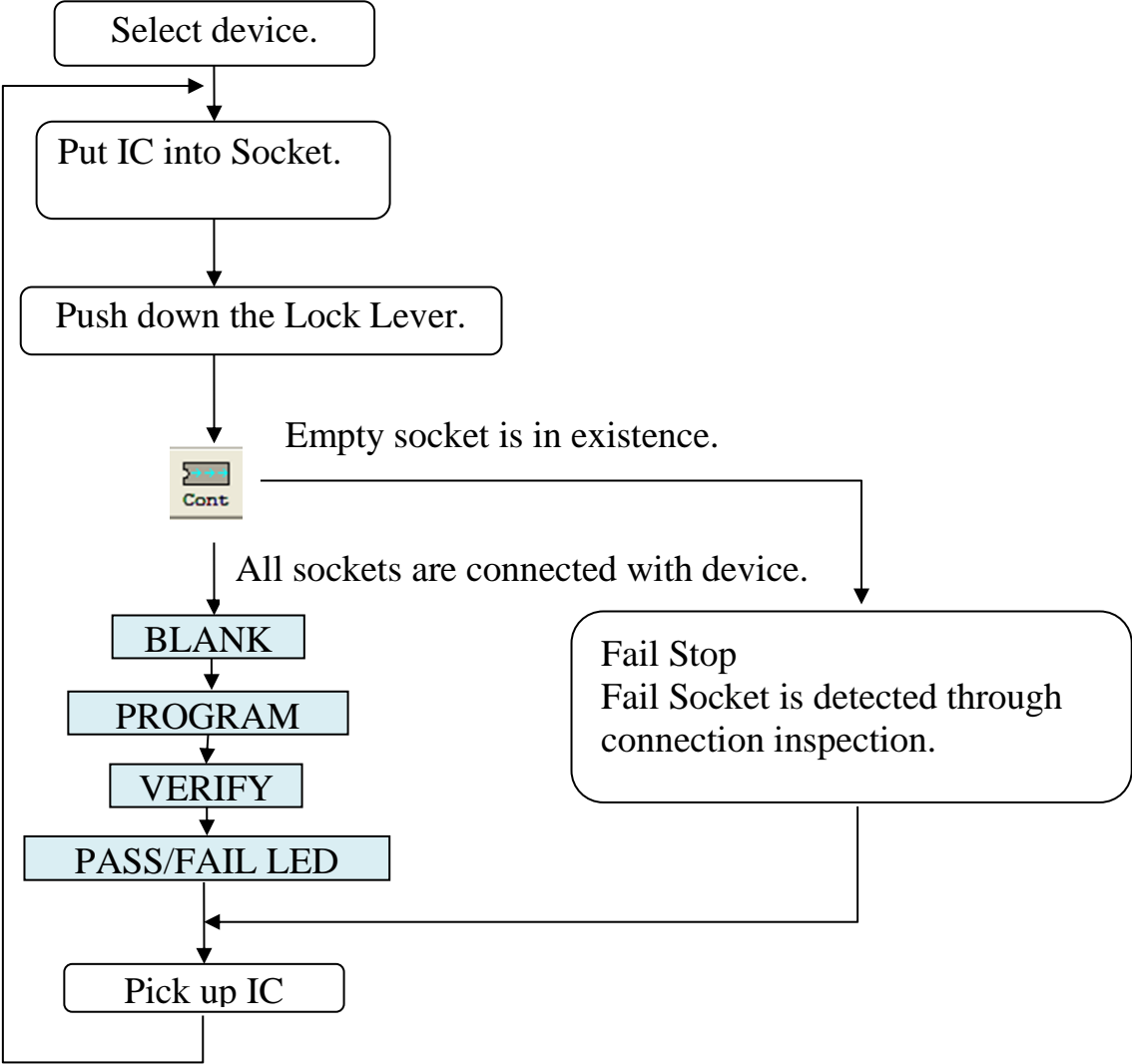
4. If you want to continue this operation, Please click **cont** button again.
5. While it's finished the LED turn green or red (PASS: Green; FAIL: Red)
6. Upon the replacement of device connected to socket, the CONT Start button on screen or the START button on the body of programmer could be used in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

Basic Operation

Flow chart of CONT (For FLASH/EEPROM)



Flow chart of CONT (for EPROM)



Basic Operation

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 microcontroller 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

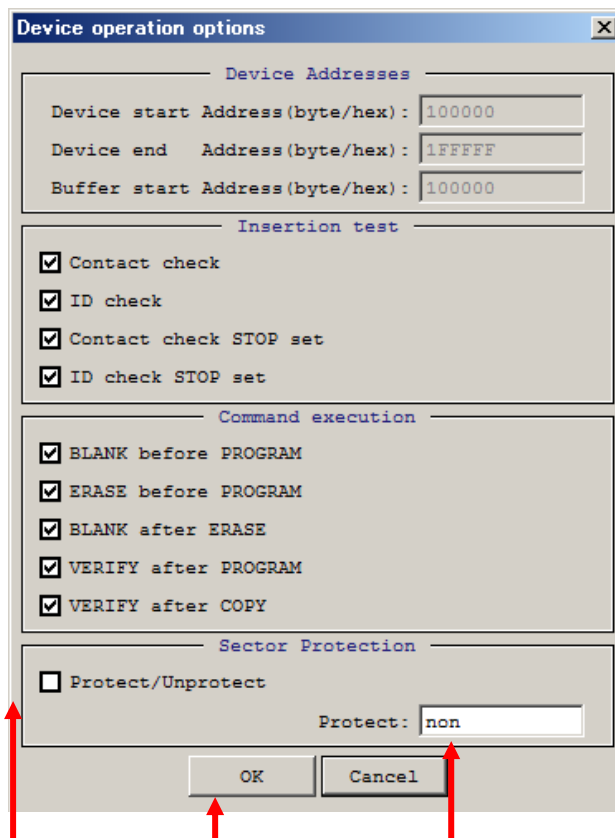
The case, selected device has the lock-bit / sector-protect etc..., is able to set by [Device operation options].

•How to use PROTECT

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

 on toolbar.

And, 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

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 M400 Series is excellent due to below functions.

Here will introduce the operation and functions of software for M404.
(It's the same for M408 and M416 except the programmer model.)

Load file

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

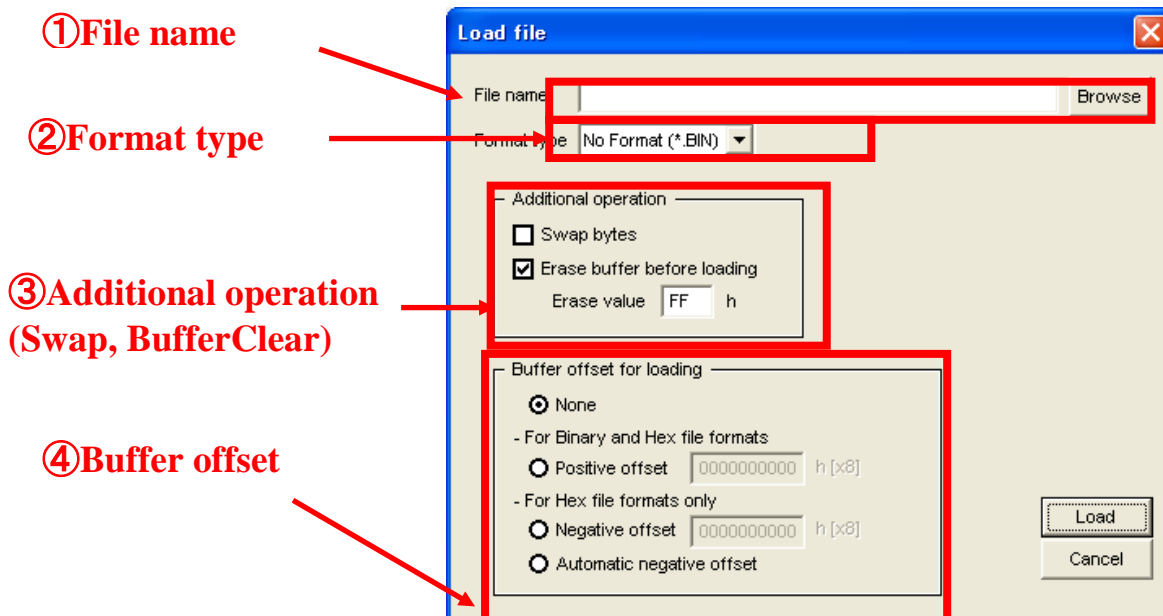
Load file

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



Function Description

① Select file name

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

※ Default folder

The folder which you choosed 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 FF)

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

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].

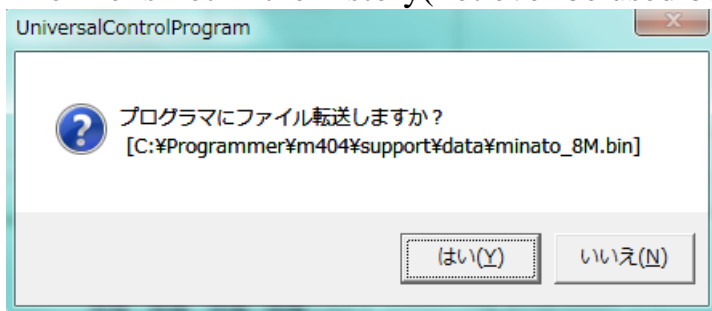
For SD buffer Memory, the data file can be saved as history and also can be cleared. So there will be 2 kinds message:

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

Function Description

2 kinds message about Data File Load

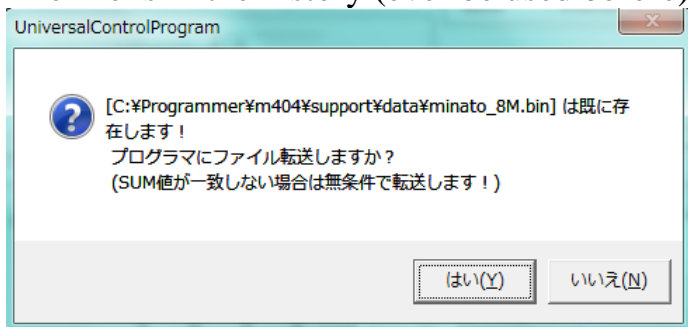
The file is not in the history(not ever be used before).



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

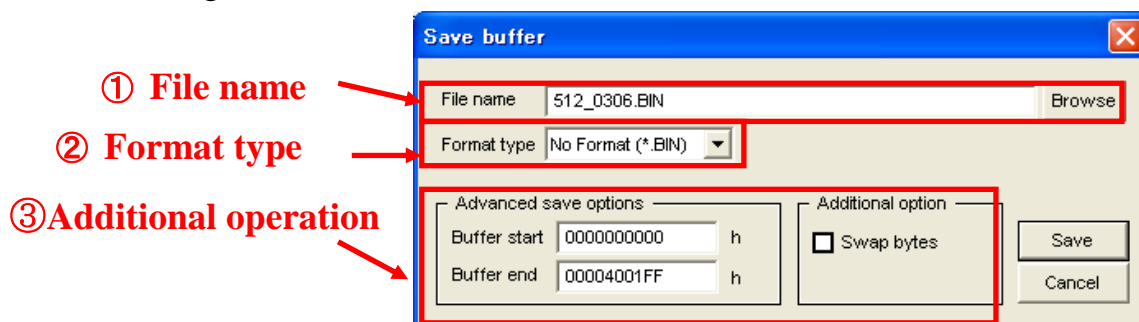
The data in buffer editor or copied from IC can be saved to PC as a file.

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 choosed 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

Swap bytes

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

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.

Function Description


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.

Buffer Editor (Edit)

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



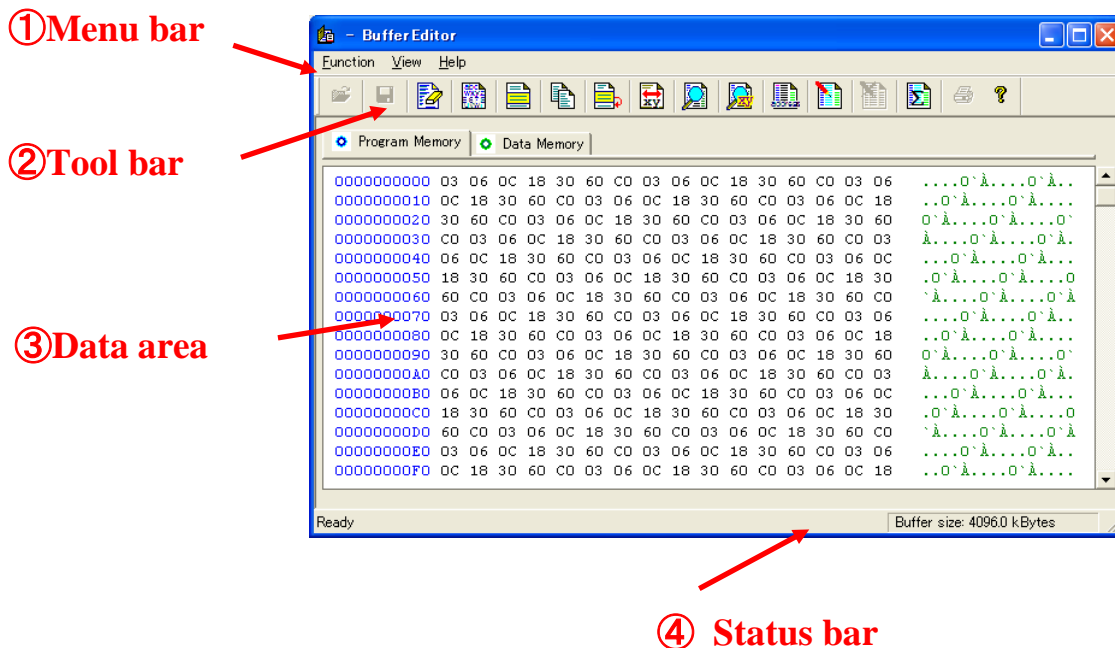
Menu	[Function] [View] [Help]
Toolbar	[Initialize] [Edit] [Find • Replace] [Jump] [Mode] [Check SUM] [Version]

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



Function Description

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

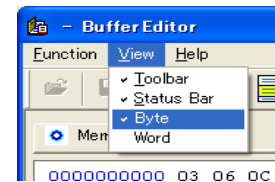
[View]

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

View as Byte

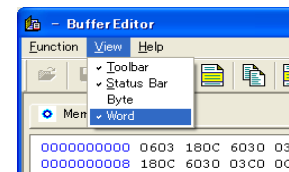
Using byte as the unit to view the content of buffer by choosing [View] -> [Byte] and the data will not be changed.

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 ([EditWindow](#))

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

[1] Initialize



Erase

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



Fill random data

To fill random data to Buffer Memory.



Fill block

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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 .

Function Description

[7] Version

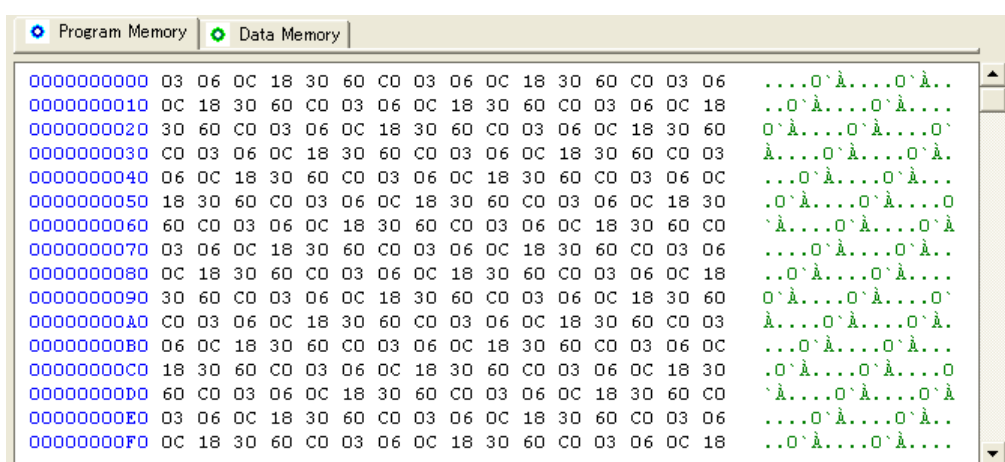


About

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 hidden by selecting [View -> Status Bar] .

Description of tool bar

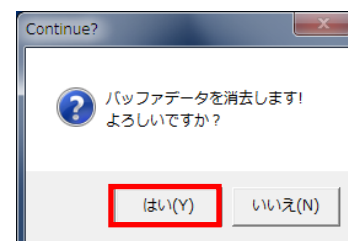
Erase BufferMemory (Editor [window](#))

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

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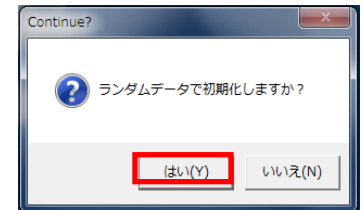
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Function Description

data] or clicking [RandomData] button .


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

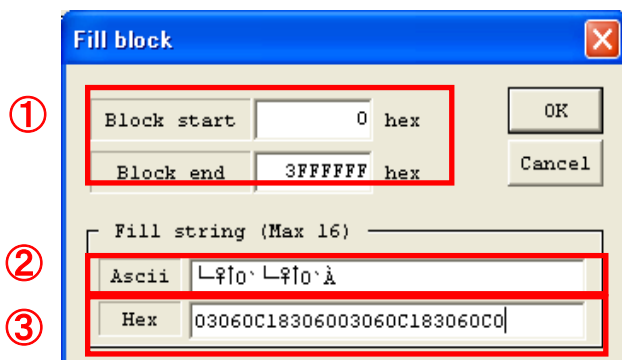
Click [No] button to cancel this operation.



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 .



① Indicate the address

② Fill string (ASCII)

③ Fill string (HEX)

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)

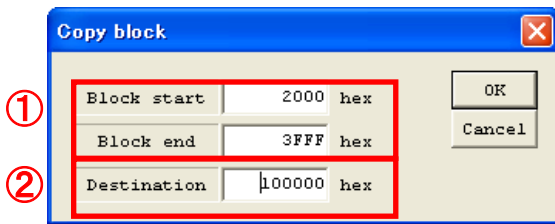
Key in the Hex data at [Hex] Box (Max 16)

Function Description

Copy

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.

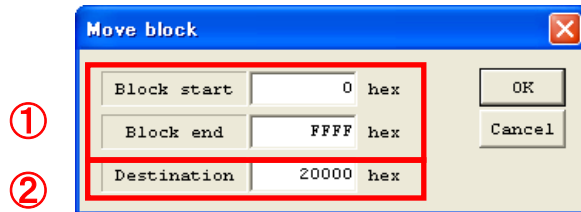
Click [Cancel] button to close this box without changing the buffer data.

※The data beyond buffer capacity cannot be copied.

Move

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.

②Destinaton 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.

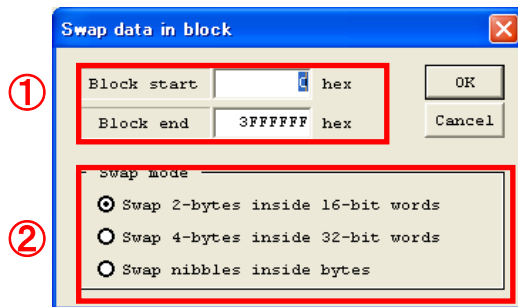
※The data beyond buffer capacity cannot be copied.

Function Description

SWAP

Swap buffer data due to different request of byte order.

Choosing [Function] -> [Swap data in block] or clicking [SwapData] button .and the operation will start by clicking [OK] button.



① Indicate the block area at [Block start] and [Block end] box.

② 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].

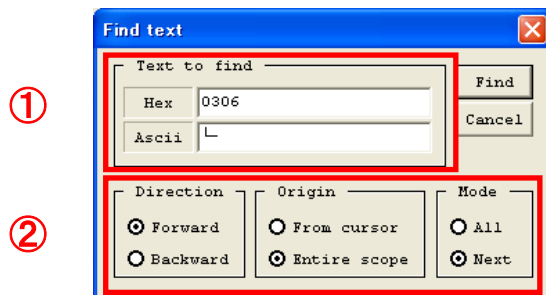
Example: [00101101] →swap nibbles→ [11010010] :[] Byte Size

Close [Swap data in block] dialog box

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

Find text

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

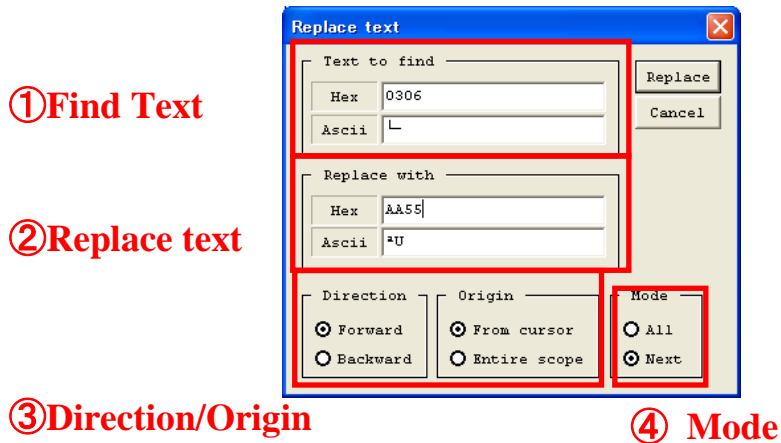
Click [Cancel] button to close this box without searching.

Function Description

Replace text

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

Next : Display the confirmation screen once for every round of replacement.

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Function Description

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

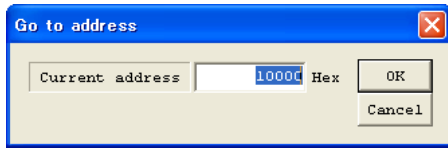
Click [Cancel] button to close this box without changing the buffer data.

Function Description

Jump

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.

Function Description

View mode

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

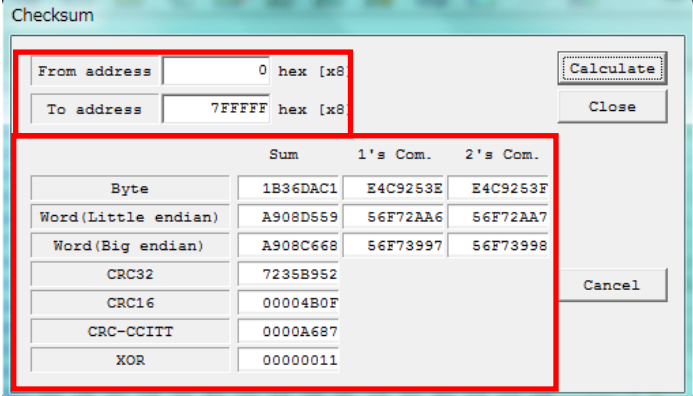
There are 7 types about SUM or CRC.([ByteSUM](#)、[WordSUM \(Little endian\)](#)、[Word SUM \(Big endian\)](#)、[CRC16](#)、[CRC32](#)、[CRC-CCITT](#)、[XOR](#))

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



	Sum	1's Com.	2's Com.
Byte	1B36DAC1	E4C9253E	E4C9253F
Word(Little endian)	A908D559	56F72AA6	56F72AA7
Word(Big endian)	A908C668	56F73997	56F73998
CRC32	7235B952		
CRC16	00004B0F		
CRC-CCITT	0000A687		
XOR	00000011		

※ 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.

Only Buffer Edit

Function Description

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 M400 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.

Filename extension

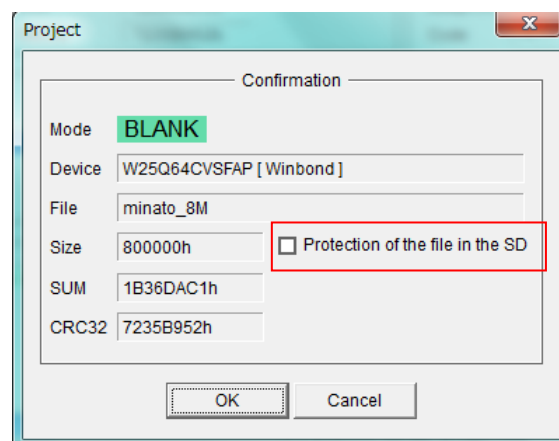
It's **xxxx.ppf** for project file.

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.



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

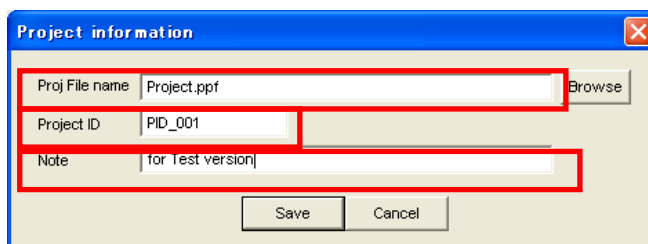
The "Project information" dialog box will be displayed.

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

Function Description

[Project information] dialog box

- ① Project file name
- ② Project ID
- ③ Note



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\m404\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.

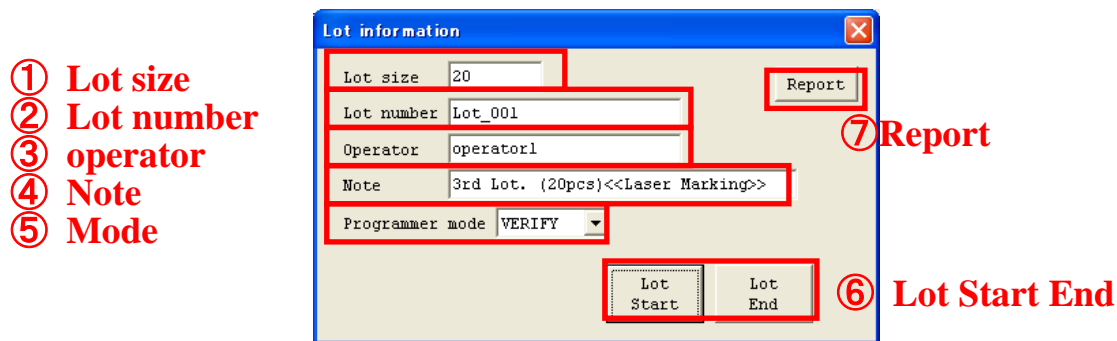
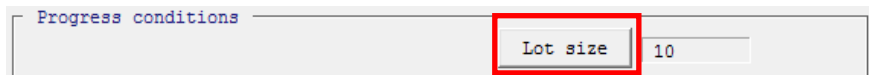
Max 28 Half-width characters is acceptable.

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.

⑤ Programmer mode

Function Description

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

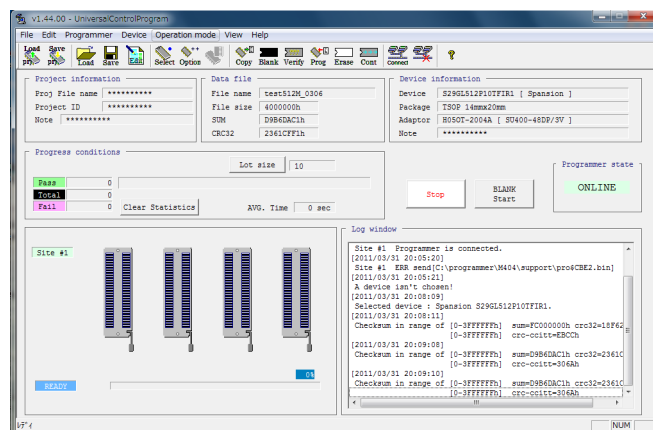
⑥ Lot Start & End

[1] Lot Start

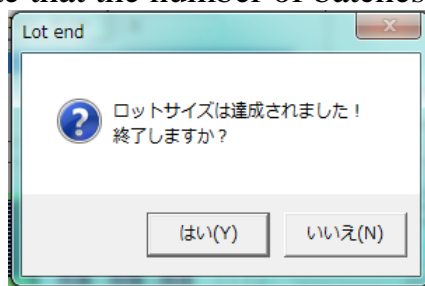
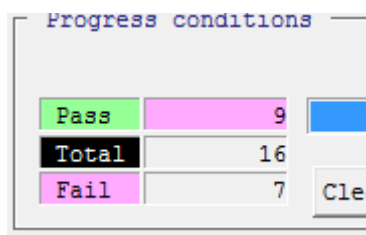
Click [Lot start] button to begin and a message “Are you sure to rest statistics counters” will be displayed, according to you request to choose [Yes] or [No]. And except [Lot end]&[Report] button, all others item be locked.

※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.



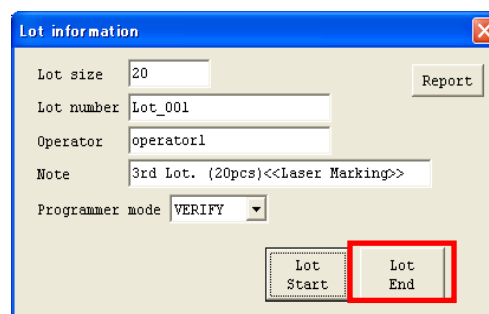
When the number of PASS devices reaches the batch size as set forth in "Lot information" dialog box, the operation will come to an end; in such a case, the counter dialog box turns pink to indicate that the number of batches is reached.




[2] Lot End

Click [Lot End] button to stop Lot function and a message “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\m404\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\m404\support\log"

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

Function Description

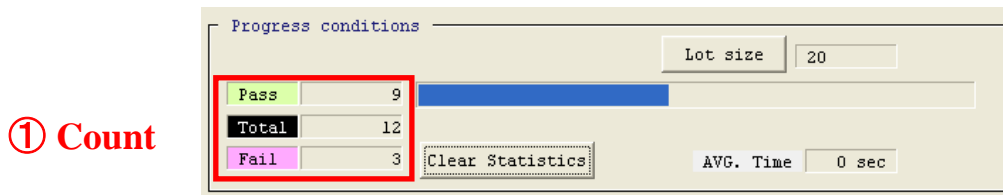
Operation Status

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 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].

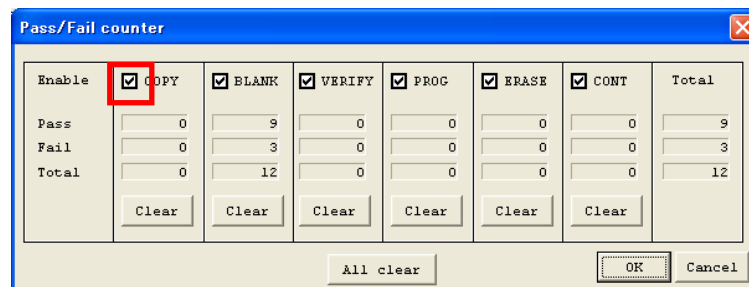
You also can clear the counter for indicated operation.

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



Operation Mode

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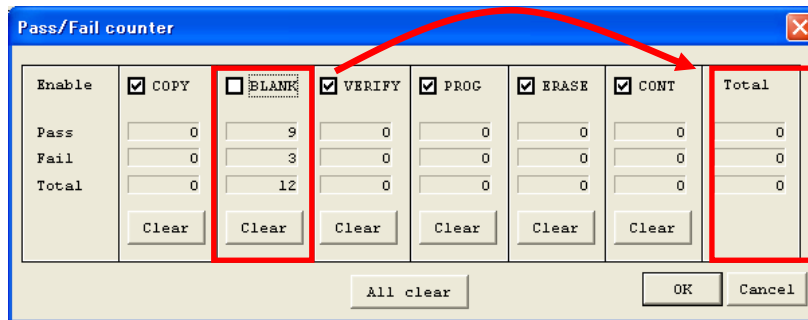
Function Description

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.

Example: Cancel the checkbox of Blank

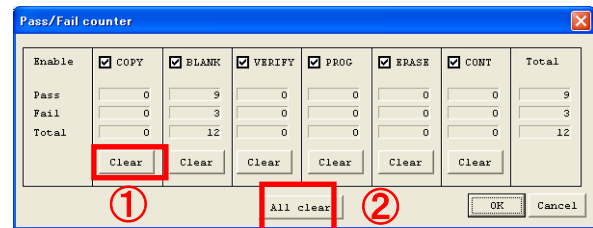


After canceling the checkbox of BLANK Check, the [Total] quantity will be changed to 0 and they will be 9, 3, 12 while you choose the checkbox again.


① Clear the counter individual

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

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



Close Pass/Fail counter dialog box

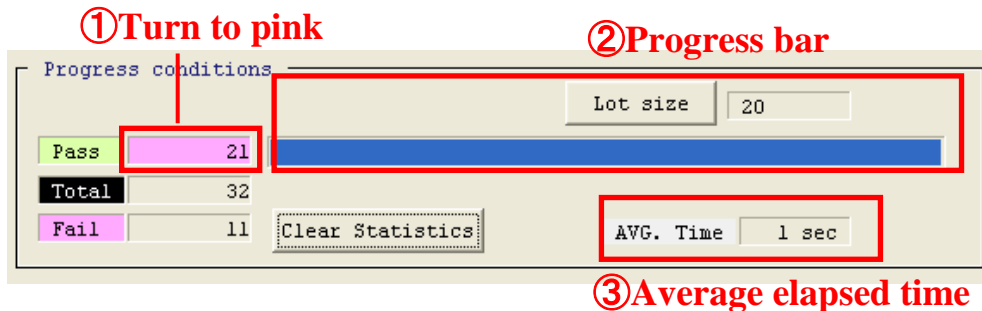
Clicking [Cancel] button or  to close this dialog box and no setting is changed.

Function Description

Others information

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.



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.

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 operaton 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\m404\support\log” or ”D:\programmer\m404\support\log”

- ① If you change the folder, the new folder will be set as default.
- ② Retention period of Log file

You can chage 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(XXXXXX).log” (XXXXXX is 6 number of the year.month.day)

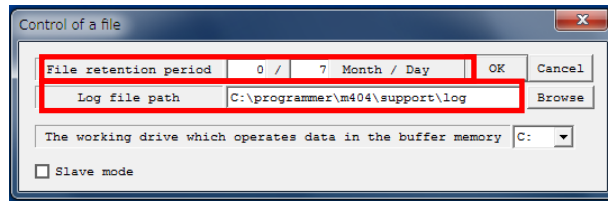
The default retention period is 7days.

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② Retention period

① Log file path



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.

Function Description

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 ingestion of semi-manufactured goods.

※Note

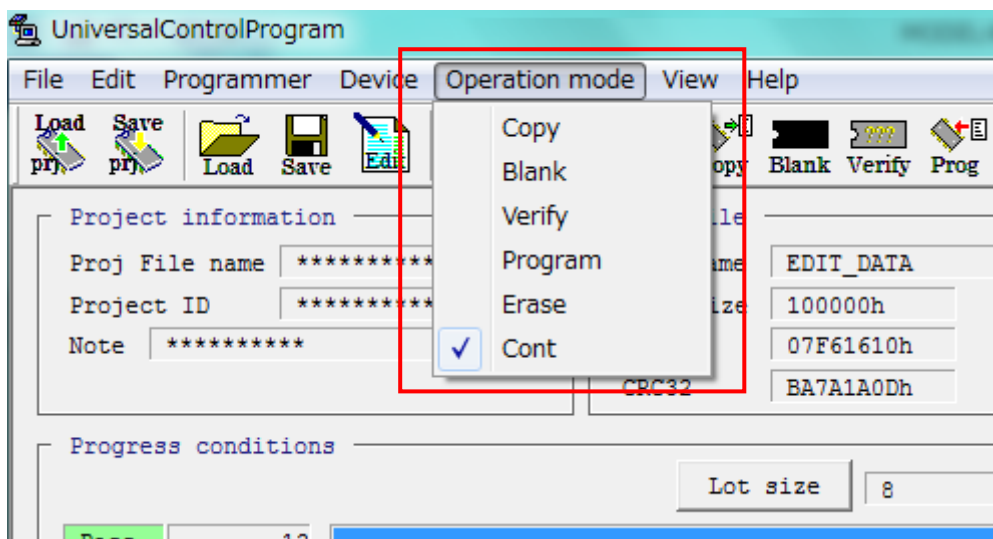
Please have adapter mounted or removed after removing the device, or the device may be damaged.

Version

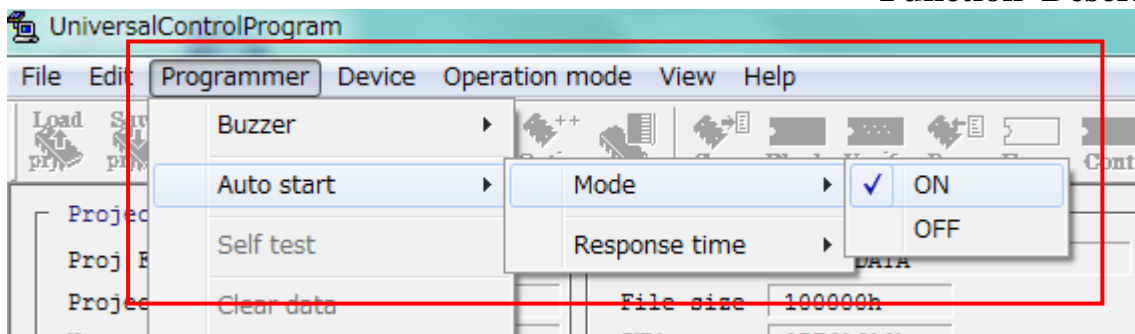
UniversalControlProgram ...V2.06

MODEL400 Series Firmware ...V1.25

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.



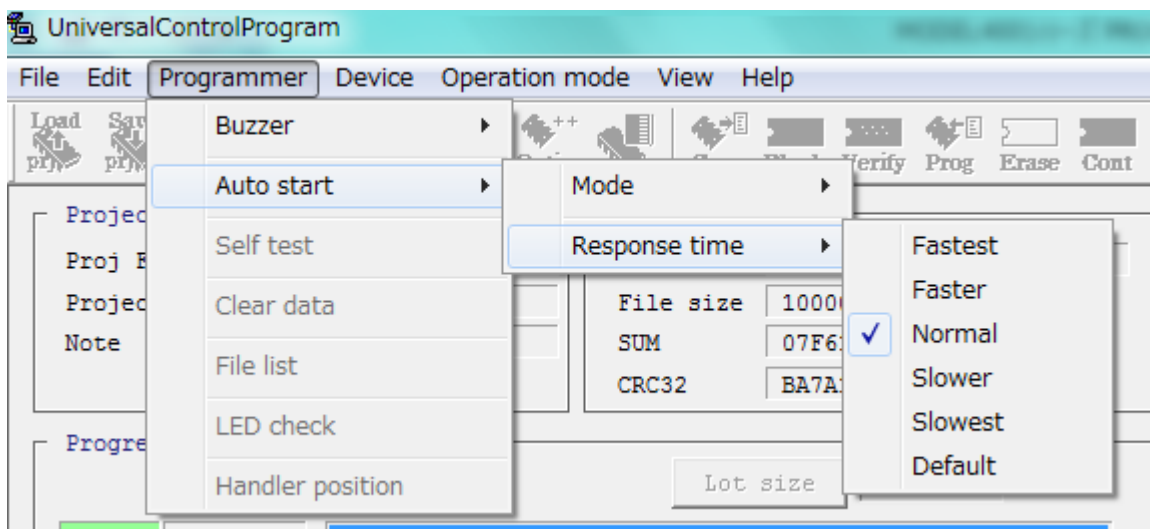
3. Choose auto start mode ON. Please make choice in the menu —[Programmer] – [Auto Start]- [Mode] - [ON].



- 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 400 firmware.

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

- 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].



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

Function Description



(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

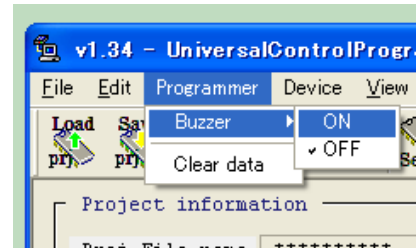
Buzzer

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.



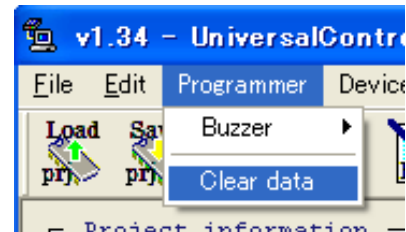
Close Buzzer

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

Clear Buffer

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

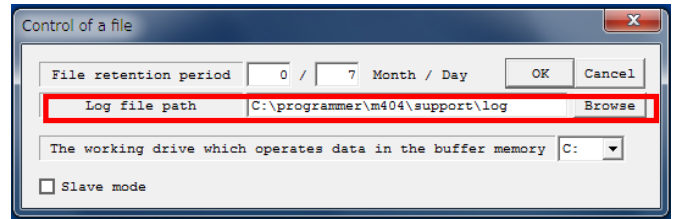
And for next operation you should load file to buffer again.



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

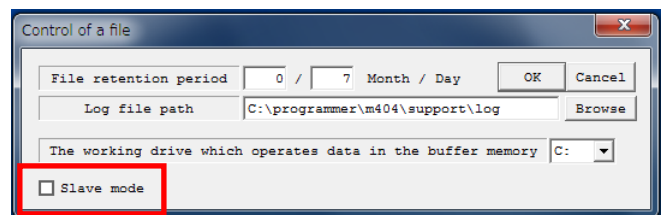
- ① Do not remove the removable device before changing to C: or D:, otherwise the data may be damaged.
- ② If you will use removable device, you must sure this device has been detected.

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)



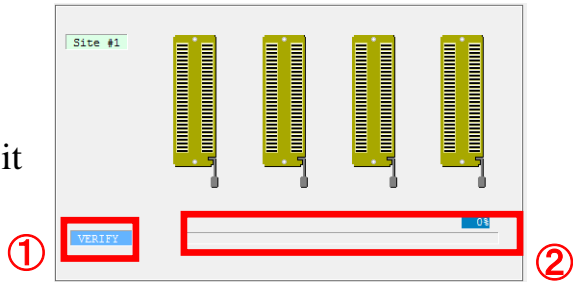
※ Notice

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

Operation

① Operation Mode

You can check the operation mode at the box of SOKET 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

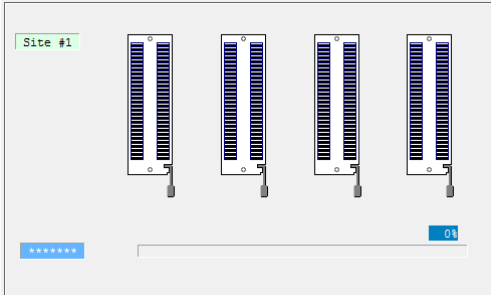
Check the operation and result by SOCKET Status and LogWindow.

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

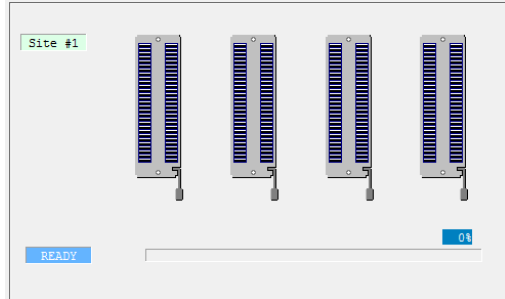
※Buzzer does not work on DEMO and OffLine mode.

※The colour of socket is gray while contact checking is ok and white contact checking is fail..

(Example : MODEL 404)

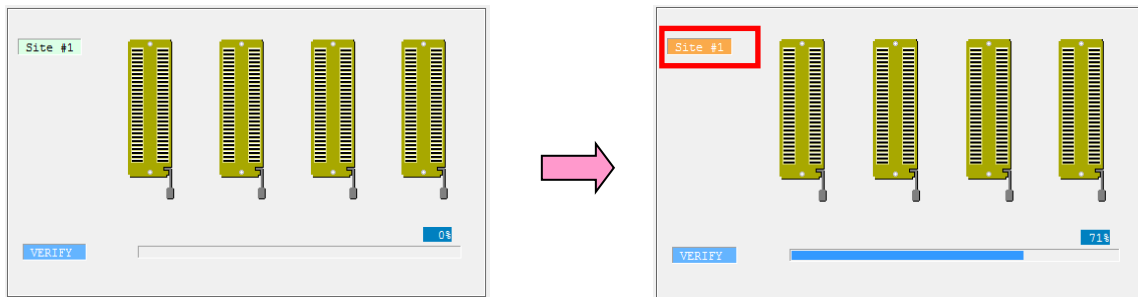


Not connect (SOCKET colour is white)



Connect (SOCKET colour is gray)

Operation

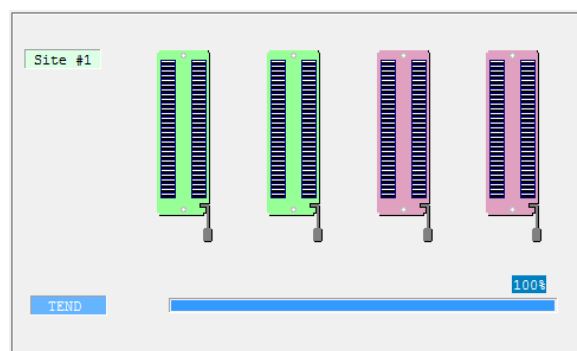


SOCKET on Progress

While running, the Site #1 is flashed on and off with orange color and baby blue while operation is finished.

Green: Pass

Red: Fail



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 colour is green or gray)

Short pi pi pi (••••) :Fail(Socket colour is red)

※No buzzing on DEMO or Offline mode.

Others operation

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Stop

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

Socket colour : All red

Buzzer : short pi pi pi(••••)

LED cloure : 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]

Contact check

ID check

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

ERASE before PROGRAM

BLANK after ERASE

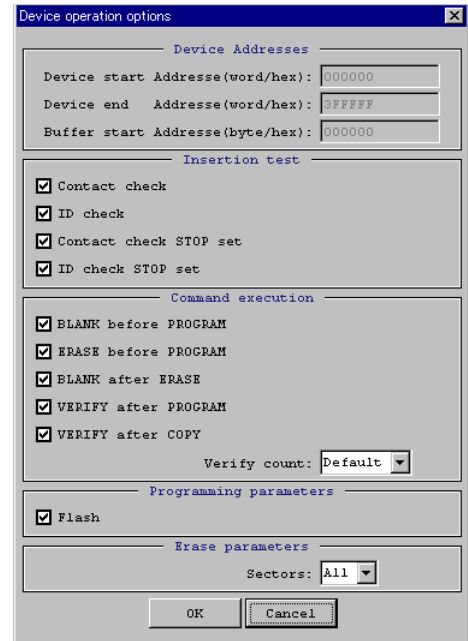
VERIFY after PROGRAM

VERIFY after COPY

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.

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:

- M400installer_vxxxx.exe (MODEL400 Series Control Software)
- M400_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)

① Select device.

click ---- >



② Load data to buffer.



a) From file

click----- >

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



③ Put IC into the DIP Socket.

④ click----- >



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

Troubleshooting

Q.1

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

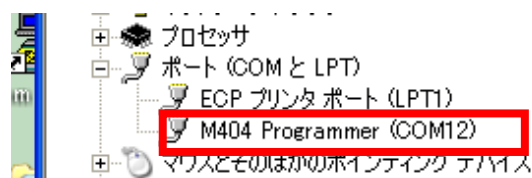
A.1

Confirm below items:

- ① Whether M400installer 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 404

※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 	error	Please remove the IC from socket and check it.

バージョン

Confirm the version

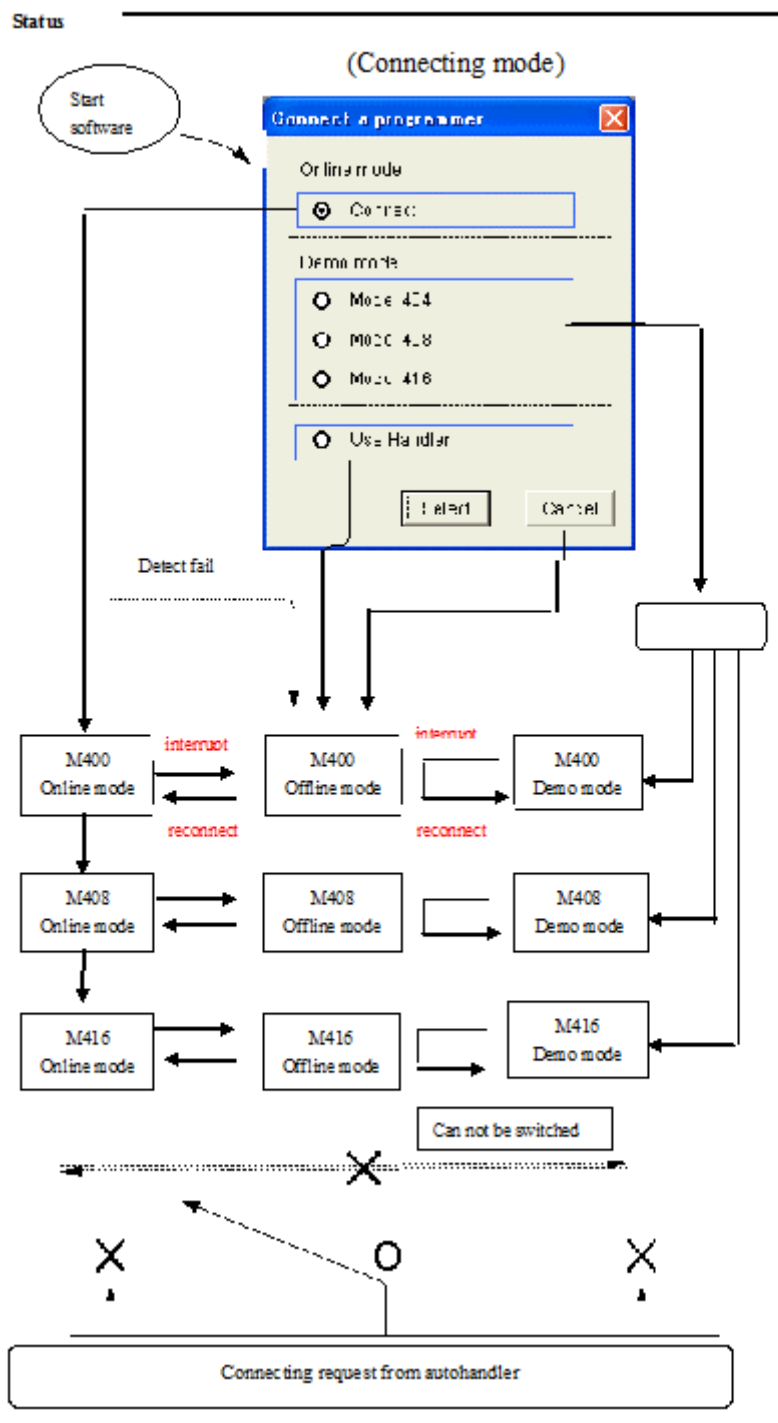
You can confirm the version of control software by clicking Help -- > About Universal Control Program Version.

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 M400 Control software (Universal Control Program.)

Connecting mode



Buzzing situation

Buzzing situation	Note
Power ON	
UniversalControlProgram Strart 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	Reacord which counter	×	
Time	Average elapsed time		×	Cleared by blank function
	Operation elapsed time	Operate once	×	
Lot	LotSzie		×	
System	Data folder	Browse folder	×	
	Log file folder	Browse folder	×	
	Log file keeping period			
	Buzzer	ON / OFF	×	
	Tool bar	Lock/Unlock	×	












	Status bar	Display or not	×	
	language	Displayed language	×	

Items saved in log file

Type	Item	Description	Save	Note
Title	Version	UniversalControlProgrammer	○	
	Model	404 / 408 / 416	○	
	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	LotSize		○	
	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...	
	V_up		Update
	Choice of the lang...		Set the language














Main Menu(Buffer Editor)

Menu	select	Tool button	Description
------	--------	-------------	-------------

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MINATO ADVANCED TECHNOLOGIES INC.

Function	Erase buffer		Clear Buffer
	Fill random data		Clear buffer with random data
	Fill block		Intianalized 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

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.

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 $0102+0304=0406$.

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

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.

Terminology

<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>

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 4SOCKET as one site for M400 series programmer.

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<Lot>/Lot size

The unit for production quantity.

Revision

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MINATO ADVANCED TECHNOLOGIES INC.

Revision Revision

Rev	DATE	Contents
Rev1	2010/06/25	—
Rev2	2010/11/01	Added & revised
Rev3	2011/03/31	Changed the name of the manual and added & revised
Rev4	2013/10/08	Added & revised
Rev5	2015/07/01	Added & revised
Rev5.1	2017/06/29	Changed the name of the business establishment.
Rev6	2017/09/28	Added the Protect in the contents.
Rev6.1	2018/05/07	Changed the name of the business establishment.
Rev.6.2	2018/10/01	Changed the name of the Company.