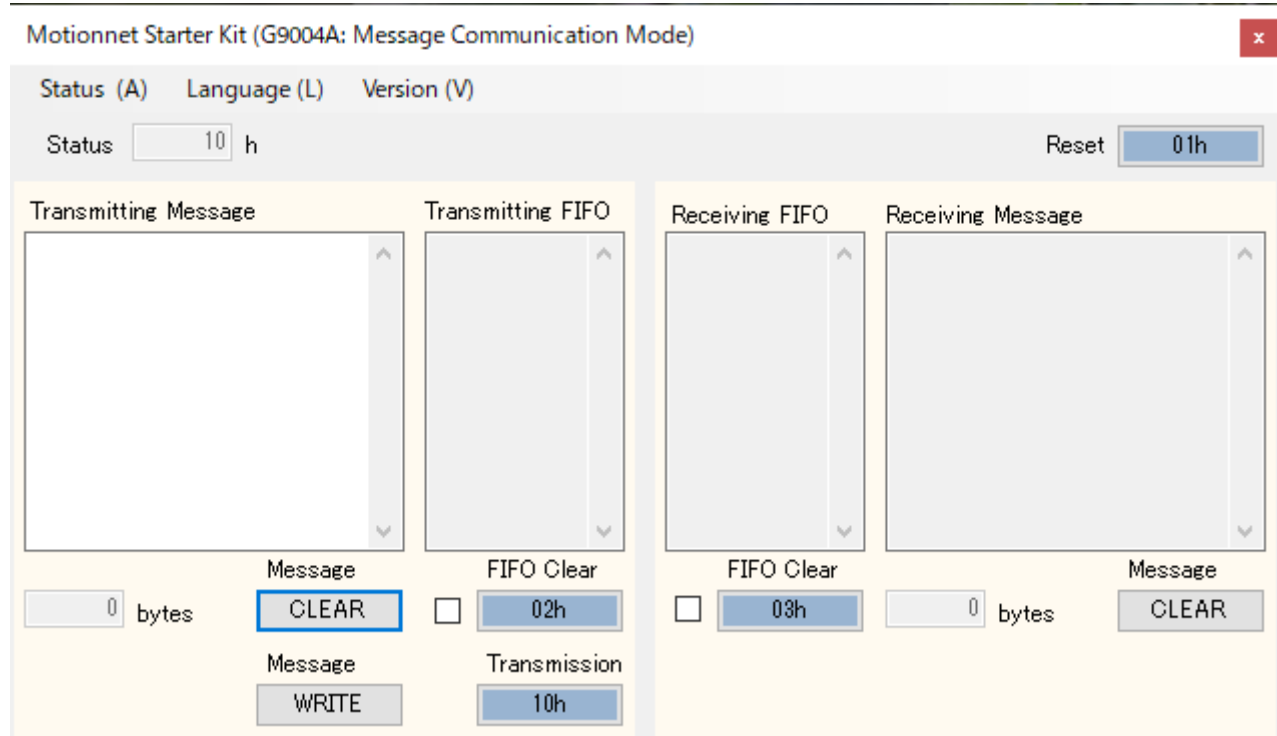


Motionnet Starter Kit

G9004A-EX

User's Manual

Message Software



INDEX

1. Introduction	1
1.1 How to use this manual.....	1
1.1.1 Symbol description.....	1
1.2 Product Warranty.....	3
1.2.1 Warranty period	3
1.2.2 Warranty scope	3
1.3 Notice.....	3
1.4 Confirmation	3
2. Information	4
2.1 Operating environment.....	4
3. Install the device driver	5
3.1 Folder structure.....	5
3.2 Installation	5
4. Basic operations of software.....	6
4.1 Start-up software	6
4.1.1 Main Screen.....	6
4.1.2 Transmission	8
4.1.3 Receive	9
4.2 “Status (A)” menu	11
4.3 “Language (L)” menu	11
4.4 “Version (V)” menu	11

1. Introduction

This manual describes the specifications, functions, connections, and usages of our Motionnet Starter G9004A-EX application software (MNET-STK_Message.exe).

Be sure to read this manual thoroughly and keep it handy in order to use the product appropriately.

1.1 How to use this manual

1. Reproduction of this manual in whole or in part without permission is prohibited by the Copyright Act.
2. The contents of this manual are subject to change without the prior notice along with the improvement of performance and quality.
3. Although this manual is produced with the utmost care, if there are any questions, errors or omissions, please contact our sales representative.

1.1.1 Symbol description

1.1.1.1 Physical damage level

In this manual, the physical damage level is defined as follows.

- Serious injury

Those that might cause aftereffects such as loss of sight, wound, burn, electric shock, fracture, poisoning, or those requiring hospitalization or long-term outpatient treatment.

- Minor injury

Those not requiring hospitalization or long-term outpatient treatment. (Other than "serious injury" above)

1.1.1.2 Hazardous level

The product is designed with the top priority for the safety of operators. However, due to the nature of the product, there are risks that cannot be eliminated. In this manual, the seriousness and level of these risks are divided into three categories: "Danger," "Warning," and "Caution." Be sure to read and understand the symbols descriptions thoroughly before operating or performing maintenance work on the product.

"Danger", "Warning", and "Caution" are indicated in the order of severity of hazard: (danger > warning > caution), and the meanings are described underneath.



D a n g e r

"Danger" indicates that it might cause an imminent risk that could result in the death or serious injury of the operator during operations of this product.




W a r n i n g

"Warning" indicates that it may result in the death or serious injury of the operator during operations of this product.

⚠ C a u t i o n

"Caution" indicates that it may result in minor injury of the operator during operations of this product.

C a u t i o n

"Caution" without warning symbol  indicates that the operator is not likely to be injured, but it can cause damage or result in a malfunction to this product, your equipment, or your instruments.

In addition to the hazardous level classifications described above, the following notations are also used.

I m p o r t a n c e

"Importance" indicates the information and contents that must be known particularly in operations and maintenance works of this product.

R e m a r k s

"Remarks" initiates the useful information or contents for operations and maintenance works of this product.

1.1.1.1 Warning symbol

In this manual, the following symbols are added along with the notations "Danger," "Warning," "Caution," and "Importance" to indicate the warning contents in an easy-to-understand manner.



Indicates that a high voltage may be applied.
Failure to confirm safety or mishandling of this product might cause a risk of electric shock, burn, or death.



Indicates that some parts have a high surface temperature, and the mishandling can cause a risk of burns.



Indicates that mishandling may cause a fire.



This symbol indicates "prohibited" actions that must not be performed in the operation and the maintenance work of this product.



This symbol indicates "mandatory" actions that must be performed in the operation and the maintenance work of this product.

1.2 Product Warranty

This content is the warranty of the product purchased from Nippon Pulse Motor.

When the product is purchased from a supplier other than NPM, please contact that supplier regarding the product's warranty.

1.2.1 Warranty period

The warranty period is one year after delivery of the product to the designated location.

1.2.2 Warranty scope

If any defect is found in a product during the warranty period under the normal use following this document, NPM will repair or replace the product without charge.

However, the following cases are not covered by the warranty even during the warranty period.

- 1) Products modified or repaired by anyone other than NPM or a person authorized by NPM.
- 2) Defects that result from dropping after the delivery or mishandling in transit.
- 3) Natural deterioration, wearing, and fatigue of components.
- 4) Defects result from any usage other than the original described in this manual.
- 5) Defects result from natural disaster or force majeure such as fires, earthquakes, lightning strikes, winds, floods, salts or electrical surges.
- 6) Defects or damages result from a cause that is not the fault of NPM.

Free repairs will only be conducted at NPM locations; no repairs will be made by business trips.

Warranty period of repaired product is the same as the warranty period before repair.

This warranty covers the product itself. The detriments or damages induced by the product failure etc. will not be covered by the warranty.

1.3 Notice

This document aims to describe the details of functions of the product. It does not warrant fitness for a particular purpose of the customer. Also, the examples of applications and circuit diagrams in this manual are included only for your reference. Please confirm the features and the safety of device or equipment before use.

1.4 Confirmation

Please do not use this product in the following conditions. If you need to use in the following conditions, please contact our sales representatives:

1. Any equipment that may require a high reliability or a safety, such as nuclear facilities, electricity or gas supply systems, transportation facilities, vehicles, various safety systems, medical equipment, etc.
2. Any equipment that may directly affect human survival or property.
3. Usages under conditions or circumstances that are not specified in the catalog, manual, etc.

For applications that may cause serious damages to a human life or property due to failure of this product, ensure high reliability and safety by redundant design.

2. Information

This manual is the user's manual of G9004A-EX Application software (MNET-STK_Message.exe).

By using this software and Motionnet Starter Kit (G9001A-EV, G9004A-EX), you can learn the communication control functions using the center device, G9001A and the local devices, G9004A.

Please refer to the following manuals along with this manual.

(x: revision)

	Manual Name [Outline]	Document File name	Software File name	Document No.
Hardware Manual	Motionnet Starter Kit User's Manual (Hardware)	Motionnet Starter Kit _Hardware Manual _VerxE.pdf	—	TA600036-ENx/x
	Motionnet Starter Kit User's Manual (Simple Manual)	Motionnet Starter Kit _Simple Manual _VerxJE.pdf	—	TA600035-ENx/x
	Motionnet Starter Kit G9004A-EX User's Manual (Hardware)	Motionnet Starter Kit _G9004A-EX_Hardware Manual_VerxE.pdf		TA600140-ENx/x
Application Software Manual	Motionnet Starter Kit User's Manual (Application Software) [Display of all registers]	Motionnet Starter Kit _Application Manual _VerxE.pdf	Motionnet Starter Kit _Application _VxxxJE.zip	TA600037-ENx/x
	Motionnet Starter Kit G9004A-EX User's Manual (Application Software)	Motionnet Starter Kit _G9004A-EX_Application Manual_VerxE.pdf	Motionnet Starter Kit _Message _VxxxJE.zip	TA600141-ENx/x (This document)
Reference	G9001A/G9002A User's Manual	—	—	DA70109-4/xE
	G9004A User's Manual	—	—	DA70120-1/xE

Please download application software and related materials from our NPM website.

2.1 Operating environment

We have confirmed the operation of this software with Windows 7 and Windows10 (both 32 bit and 64 bit).

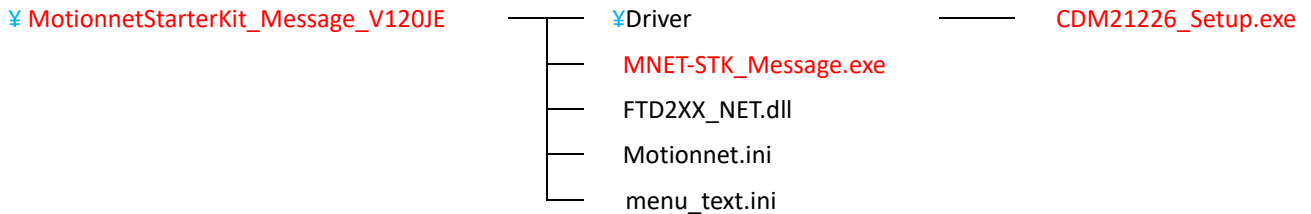
(Not confirmed to operate with OS other than the above.)

Change the power saving setting in your PC so as not to move to "sleep mode" during operation.

3. Install the device driver

3.1 Folder structure

When unzipping the compressed file (**MotionnetStarterKit_Message_V120JE.zip**), the following folders are generated.



"MNET-STK_Message.exe" is an executable file of the software and "CDM21226_Setup.exe" is a device driver installer. "Motionnet.ini", "menu_text.ini" are the text files for MNET-STK.

3.2 Installation

Double-click "**CDM21226_Setup.exe**" to launch the installer and follow the instructions on the screen to complete the installation.

If you have already installed it, you do not need to install it again.

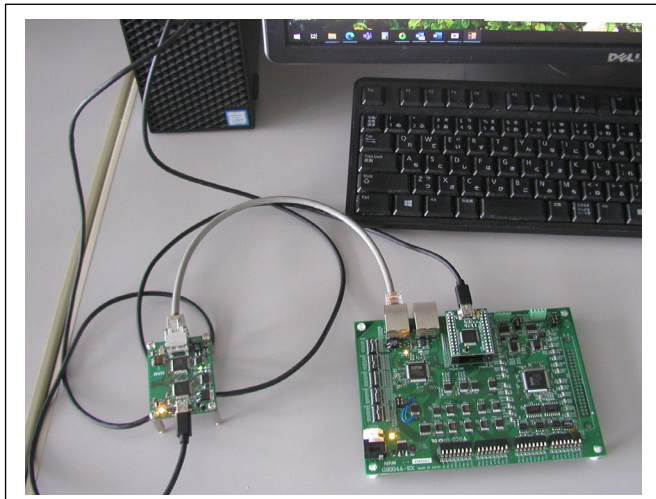


Note: Please download the latest version of the device driver on FTDI's website: (<http://www.ftdichip.com/Drivers/D2XX.htm>).

4. Basic operations of software

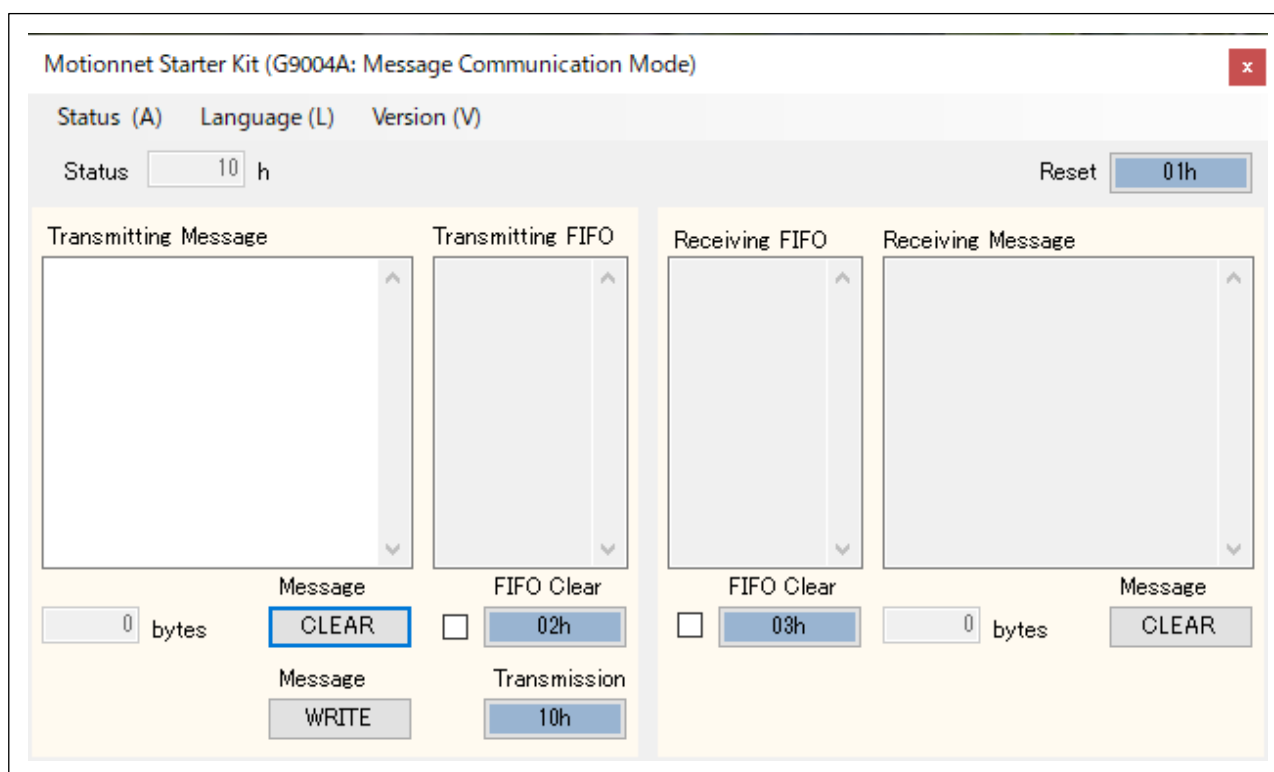
4.1 Start-up software

Make sure that the Motionnet Starter Kit (G9001A-EV, G9004A-EX) is properly connected to your PC. Also, use Motionnet cables to connect the center device board (G9001A-EV) and the local device board (G9004A-EX).



Double-click the executable file, "[MNET-STK_Message.exe](#)" to open the "main screen" as follows.

4.1.1 Main Screen



Transmitting message column: The maximum number of characters that can be entered in transmitting messages (alphanumeric characters) is limited to 254 bytes.

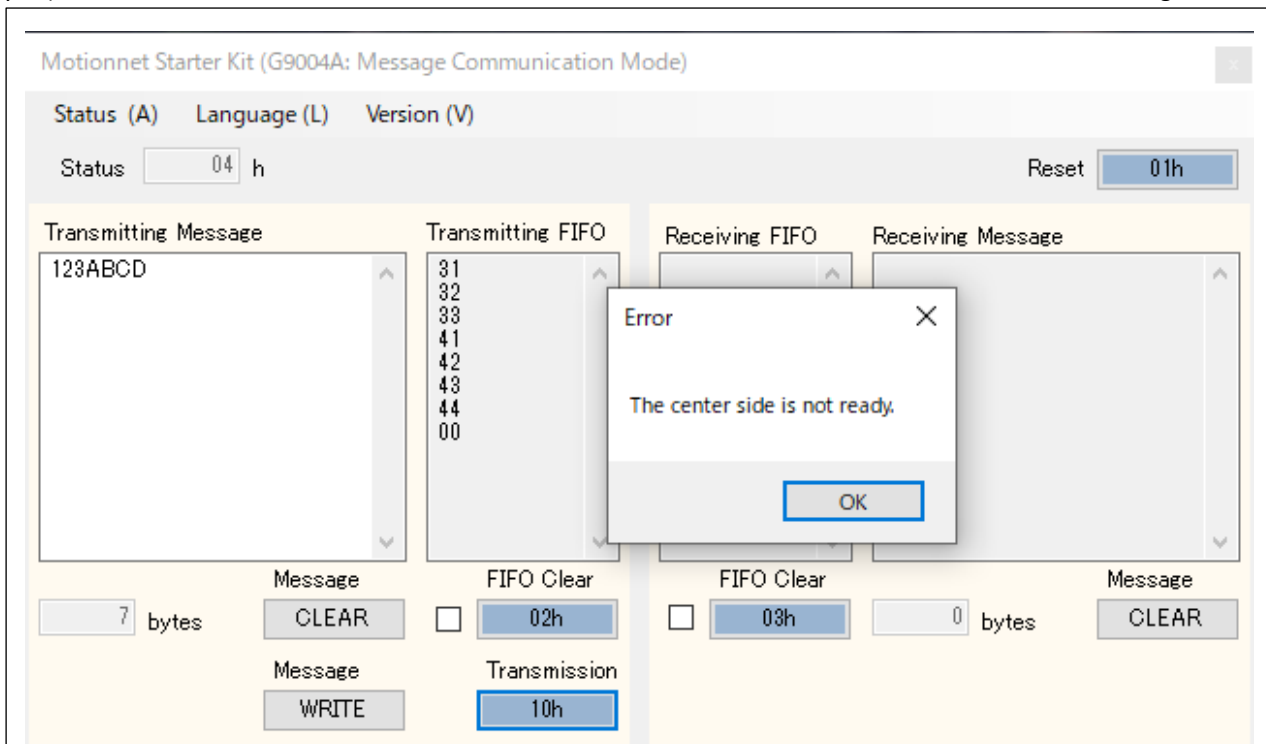
Displays the number of characters entered below the transmitting message column.

Message "CLEAR" button:

Deletes all the characters entered in the transmitting message column and sets the number of entered characters to "0".

Message "WRITE" button:	Converts the entered characters to ASCII code and writes each byte to the transmission FIFO frame.
Transmitting FIFO column:	It is displayed every 1 byte. If the number of characters in the message is an odd number, add "00" to the last character and display it.
FIFO clear "02h" button:	Deletes the data written in the transmitting FIFO column and resets the transmitting FIFO buffer.
FIFO clear check box:	By sending the contents of the FIFO buffer with checking the checkbox <input checked="" type="checkbox"/> , the data written in the Transmission FIFO column is deleted and the transmission FIFO buffer is reset.
Send "10h" button:	Sends the contents of the send FIFO column. Maximum number of messages sent is 256 bytes. If the checkbox in left of FIFO clear "02h" button is checked, Transmitting FIFO column is cleared.
Receive FIFO column:	Receives message communication from G9001A-EV and displays ASCII code for each 1 byte.
Received message column:	The data displayed in the received FIFO column is converted into a message and displayed. (Maximum number of display characters: 32767 bytes) Displays the number of displayed characters at the bottom of the received message column.
FIFO clear "03h" button:	Deletes the received data in the receiving FIFO column and resets the receiving FIFO buffer.
FIFO clear check box:	By sending the contents of the FIFO buffer with checking the checkbox <input checked="" type="checkbox"/> , the data written in the Transmission FIFO column is deleted and the transmission FIFO buffer is reset.
Message "Clear" button:	Deletes all the characters displayed in the receiving message column and sets the number of displayed characters to "0".
Read message button:	Normally not displayed, but is displayed by receiving a message communication from the G9001A-EV (Status "30h"). By pressing this button, the FIFO buffer is read and the received data is displayed in the received FIFO column and the received message column. After reading all received data, it will not be displayed.

If the status is 04h (communication link disconnection interrupt), enter a transmitting message (maximum number of 254 bytes), click the "WRITE" button, and then click the "Send" button, but it cannot be sent, and an error message is shown.



When the message communication mode is activated on the center device side, the status will be 10h (during communication link) and you can send a transmitting message (maximum number 254 bytes).

You can receive receiving messages (up to 32767 bytes).

4.1.2 Transmission

If you enter alphanumeric characters in the transmitting message column, the entered number will be displayed at the bottom of the column.

Delete the entered data by pressing the Message "CLEAR" button. The input number displays "0".

By pressing the Message "WRITE" button, the data entered in the transmitting FIFO column is displayed in ASCII code.

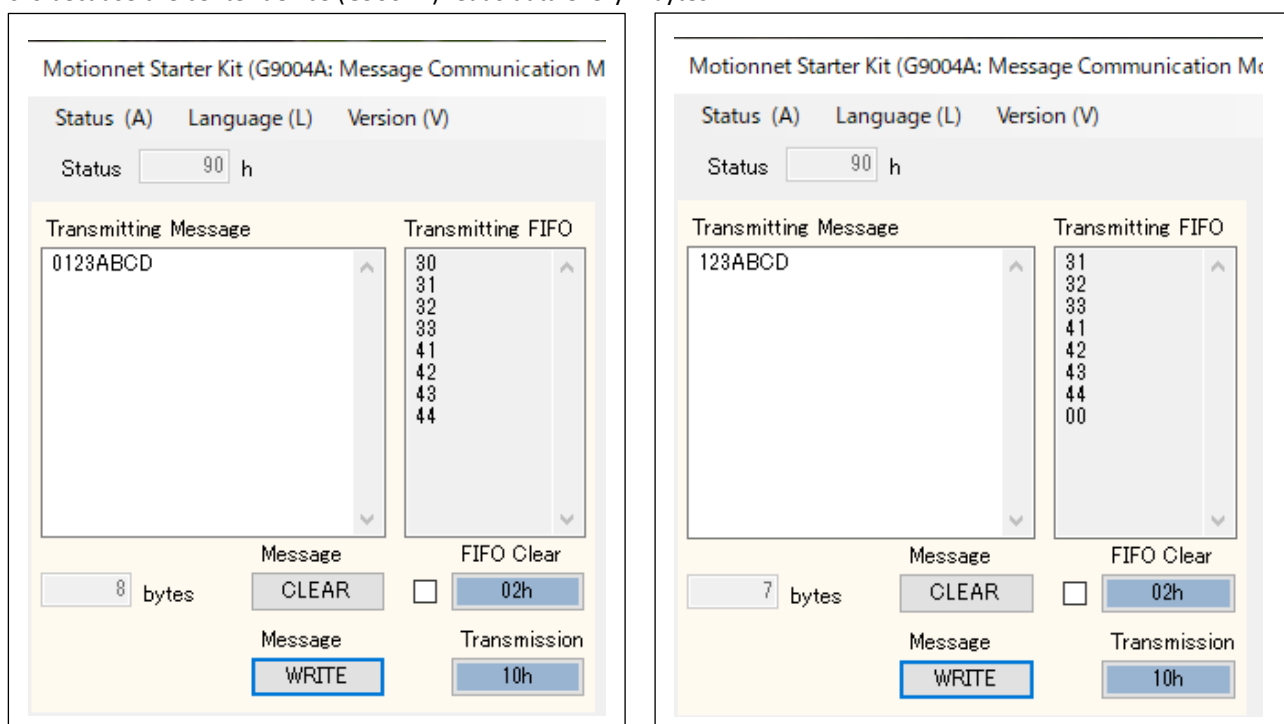
When the Send "10h" button is clicked, the transmitting message is written to G9004A's local bus address 02h (transmitting FIFO) every byte. By receiving the information command "0001h" from the center device (G9001A), the data in the FIFO is sent to the center device (G9001A).

After the center device (G9001A) has completed receiving, it will send an information command "0002h" to notify normal receipt.

FIFO Clear "02"

If the number of messages to be sent is an odd number, add "00h" at the end of writing to the local bus address 02h (transmission FIFO) of the G9004A to make it an even number.

This is because the center device (G9001A) reads data every 2 bytes.



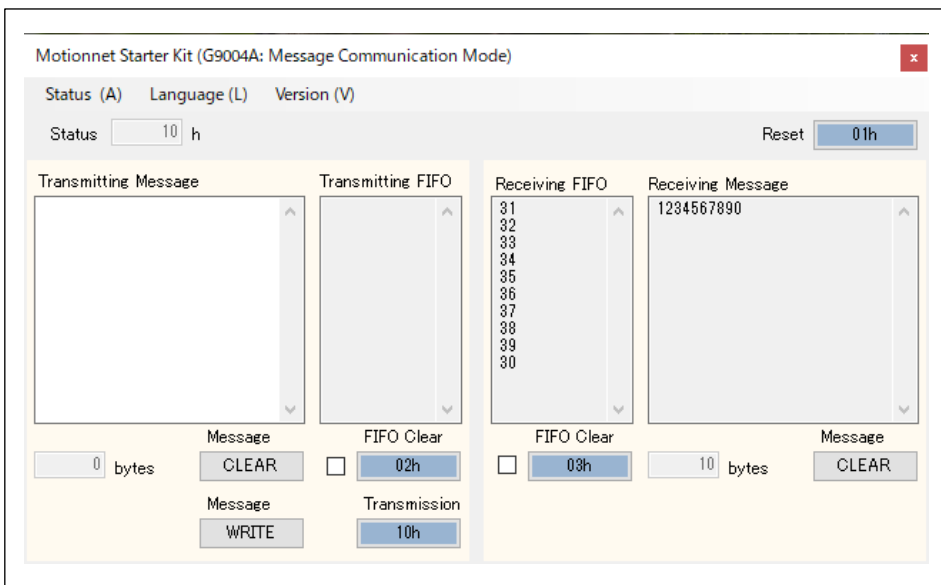
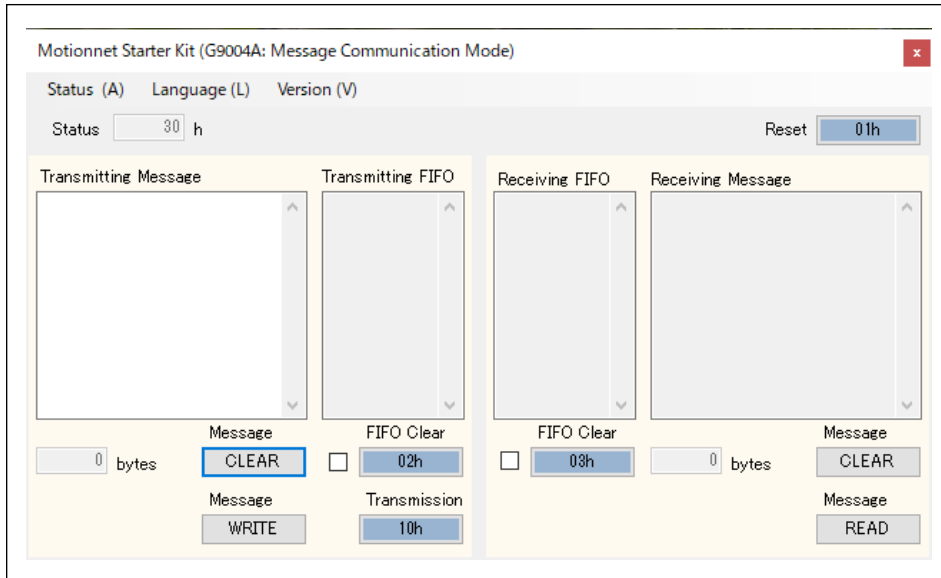
4.1.3 Receive

When a transmitting message is received from the center device (G9001A), each byte is read from address 02h (reception FIFO) for the local bus of G9004A, and the ASCII code is displayed in the receiving FIFO column. Then display the converted message in the receiving message column.

However, if there are the first 2 bytes "0001h" (information command) and the last "00h", the data will not be displayed.

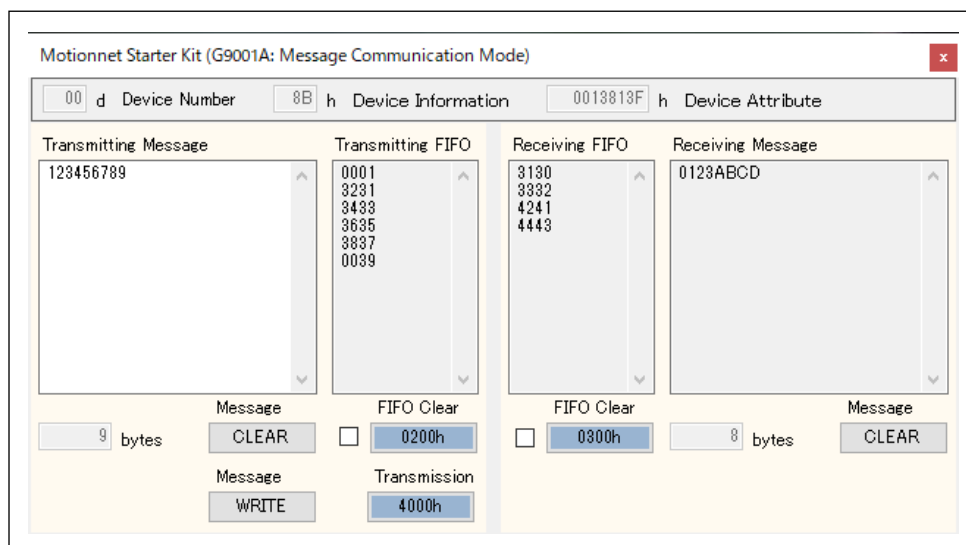
Clicking the "CLEAR" button of the sent message clears the entered message.

Receiving messages are displayed up to a maximum of 32767 bytes unless the "CLEAR" button is pressed.



This is the display screen when the G9001A-EV and G9004A-EX transmitting and receiving messages.

G9001A-EV message communication mode



G9001A-EX message communication mode



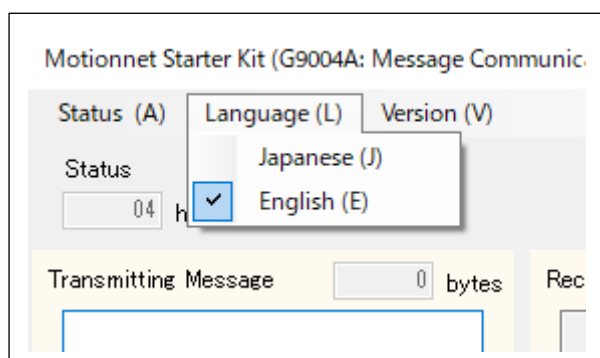
4.2 “Status (A)” menu

Click this menu to display the following status screen. You can check the details of each Status and Interrupt Status bit.

Status		
Status = 04 h		
bit 0	0	Interrupt due to the data receipt
bit 1	0	Interrupt due to the data transmission process being complete
bit 2	1	Interrupt due to a communication link disconnection
bit 3	0	CPU access error
bit 4	0	While establishing a communication link
bit 5	0	Reception data exists
bit 6	0	Sending process active
bit 7	0	Transmission data exists

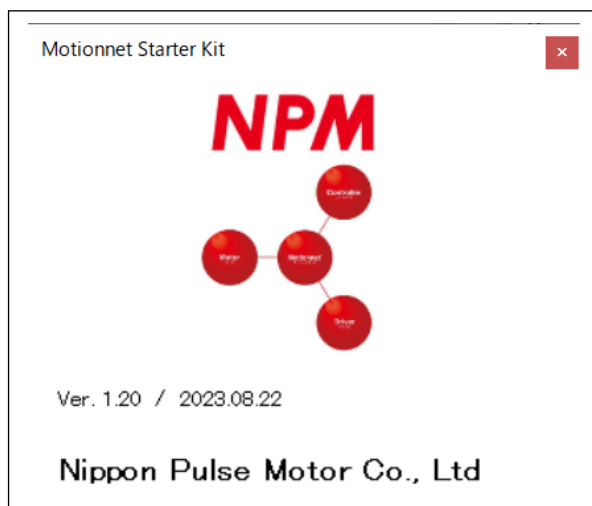
4.3 “Language (L)” menu

You can choose Japanese and English by default.



4.4 “Version (V)” menu

You can check the software version.



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Revision

Revision	Date	Contents
1st	May 31, 2023	New document
2nd	October 11,2023	P6-P7 Added FIFO clear checkbox and its explanation



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Information

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