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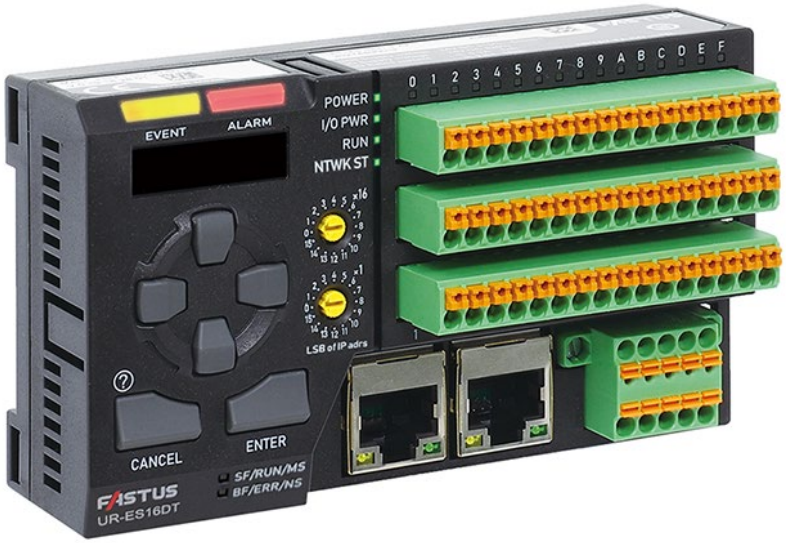
*FASTUS is a product brand of OPTEX FA.

IO-Link Master

UR-MS16DT / UR-ME16DT

UR-ES16DT / UR-EE16DT

Firmware Update Procedure Manual



OPTEX FA CO., LTD.

Introduction

Thank you for purchasing the IO-Link Master UR-ES16DT / UR-ME16DT / UR-ES16DT / UR-EE16DT.

This manual describes the firmware update procedure for the IO-Link Master UR Series.
Read this manual thoroughly before using the product to ensure correct product use with full understanding of the functions and performance of the product. Also, after you have finished reading this manual, store it safely for future reference.

How to Read this Manual

This manual describes the firmware update procedure for the IO-Link Master UR Series.

It does not cover the functions or specifications of the IO-Link Master UR Series, so please refer to the Related Manuals below.

■ Related Manuals

Manual number	Manual name	Details
UR-MS_UM-xxx-xxxx	IO-Link Master UR-MS16DT / UR-ME16DT User's Manual	Describes this product's functions and performance as well as operation. Be sure to read these documents.
UR-ES_UM-XXX-XXXX	IO-Link Master UR-ES16DT/-EE16DT User's Manual (Common Edition) (Referred to herein as the “Common Edition.”)	Describes this product's common functions and performance as well as operation. Be sure to read these documents.

Notations Used in this Manual

These are the notations used in this manual.

CAUTION

This indicates particularly important points to observe during operation.

MEMO

This information is useful for operation.

Contents

1 Introduction

1-1 Update Overview

The firmware version update method for the IO-Link Master varies depending on the model.

■ UR-MS16DT / UR-ME16DT

● For CC-Link IE Field connection (refer to page 9)

The update is performed via CC-Link IE Field communication.

The firmware is transferred using Mitsubishi Electric Corporation's engineering software (GX Works3) through a network unit of Mitsubishi Electric Corporation's iQ-R Series programmable controller.

● For CC-Link IE TSN connection

The update can be performed using any of the following methods.

・ Via CC-Link IE TSN communication (refer to page 9)

The firmware is transferred using Mitsubishi Electric Corporation's engineering software (GX Works3) through a network unit of Mitsubishi Electric Corporation's iQ-R Series programmable controller.

・ Direct connection to a computer (refer to page 17)

The firmware is transferred by connecting this product directly to a computer via a LAN cable and using an update tool.

CAUTION

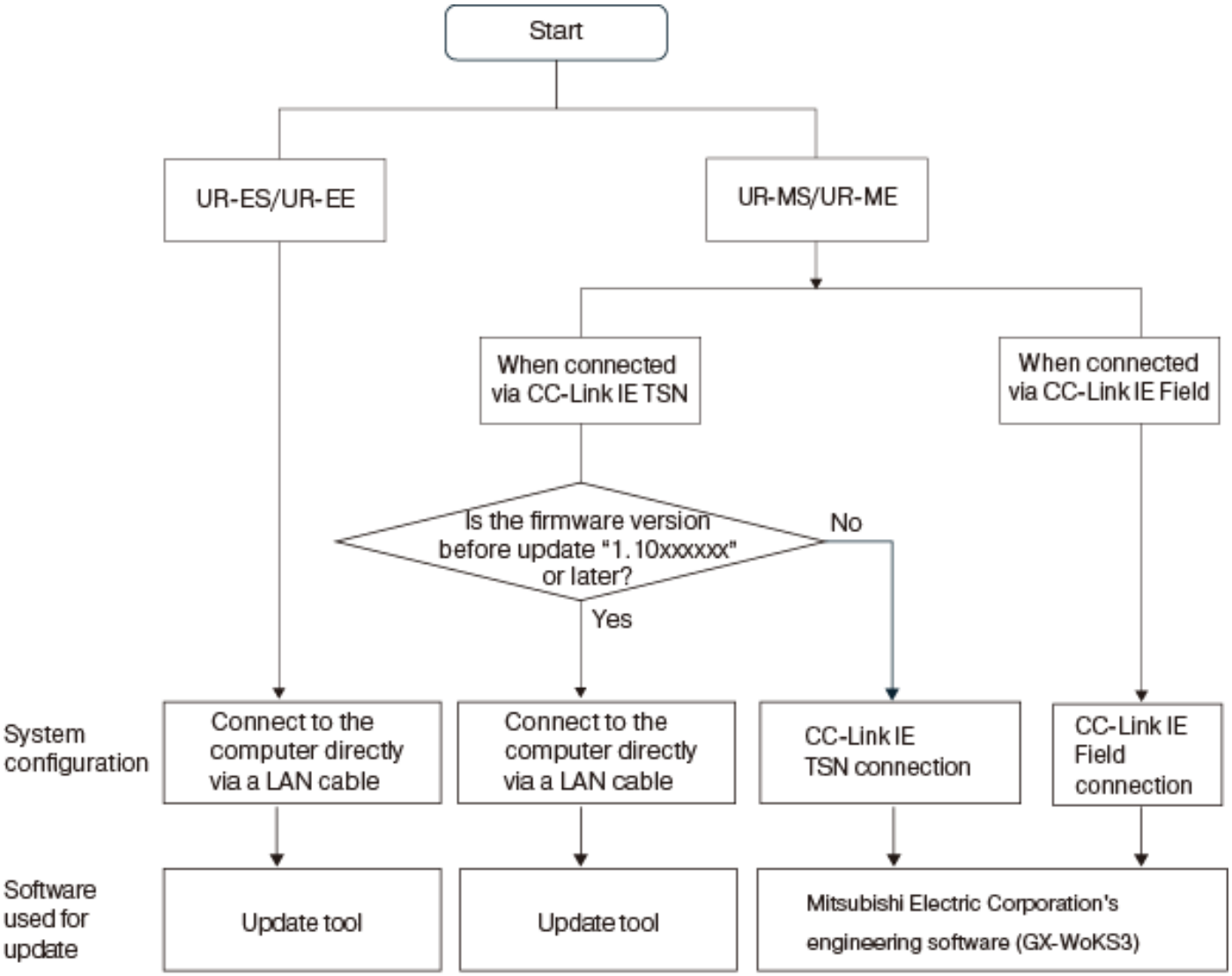
If the firmware version is lower than 1.10xxxxxx, the firmware cannot be updated via direct LAN connection. Perform the update via CC-Link IE TSN communication.

■UR-ES16DT / UR-EE16DT (refer to page 25)

The firmware is transferred by connecting this product to a computer via a LAN cable and using an update tool.

1-2 Selection of Update Method

Select the appropriate update tool and system environment based on the flowchart below.



CAUTION

Read the included instruction manual and user's manual carefully before use, and use the product correctly.

Please be aware that we cannot provide any warranty for the use of this document and related files.

Table: Differences in firmware update specifications by model

Model / Update Specifications	UR-ES / EE	UR-MS / ME		
		When connected via CC-Link IE Field	When connected via CC-Link IE TSN	
			Firmware version 1.10 or later	Firmware version lower than 1.10xxxxxx
Software used for update	Update tool (Ver.1.39 or later)	Mitsubishi Electric Corporation's engineering software (GX Works3)	Update tool (Ver.1.39 or later)	Mitsubishi Electric Corporation's engineering software (GX Works3)
System configuration device during update	Connect this product to the computer via a LAN cable.	Connect this product through a network unit of Mitsubishi Electric Corporation's iQ-R Series programmable controller. < Example of connected devices> ・MELSEC iQ-R Series: RnCPU / RnENCPU ・CC-Link IE Field Master/Local Module: RJ71GF11-T2	Connect this product to the computer (*) via a LAN cable. * A computer with a LAN port that supports 1000BASE-T.	Connect this product through a network unit of Mitsubishi Electric Corporation's iQ-R Series programmable controller. < Example of connected devices> ・MELSEC iQ-R Series: RnCPU / RnENCPU ・CC-Link IE TSN Master/Local Module: RJ71GN11-T2, RJ71GN11-EIP
File for update	Firmware (XXX.ufw) (XXX.uew)	CSV file - Basic firmware (XXX.firm.csv) -FPGA data (XXX.fpga.csv)	Firmware (XXX.ufw)	CSV file - Basic firmware (XXX.firm.csv) - FPGA data (XXX.fpga.csv) ・Network firmware (XXX.itsn.csv)

2 Firmware Update Procedure for UR-MS16DT / UR-ME16DT

The firmware is updated using either the update tool or Mitsubishi Electric Corporation's engineering software (GX Works3).

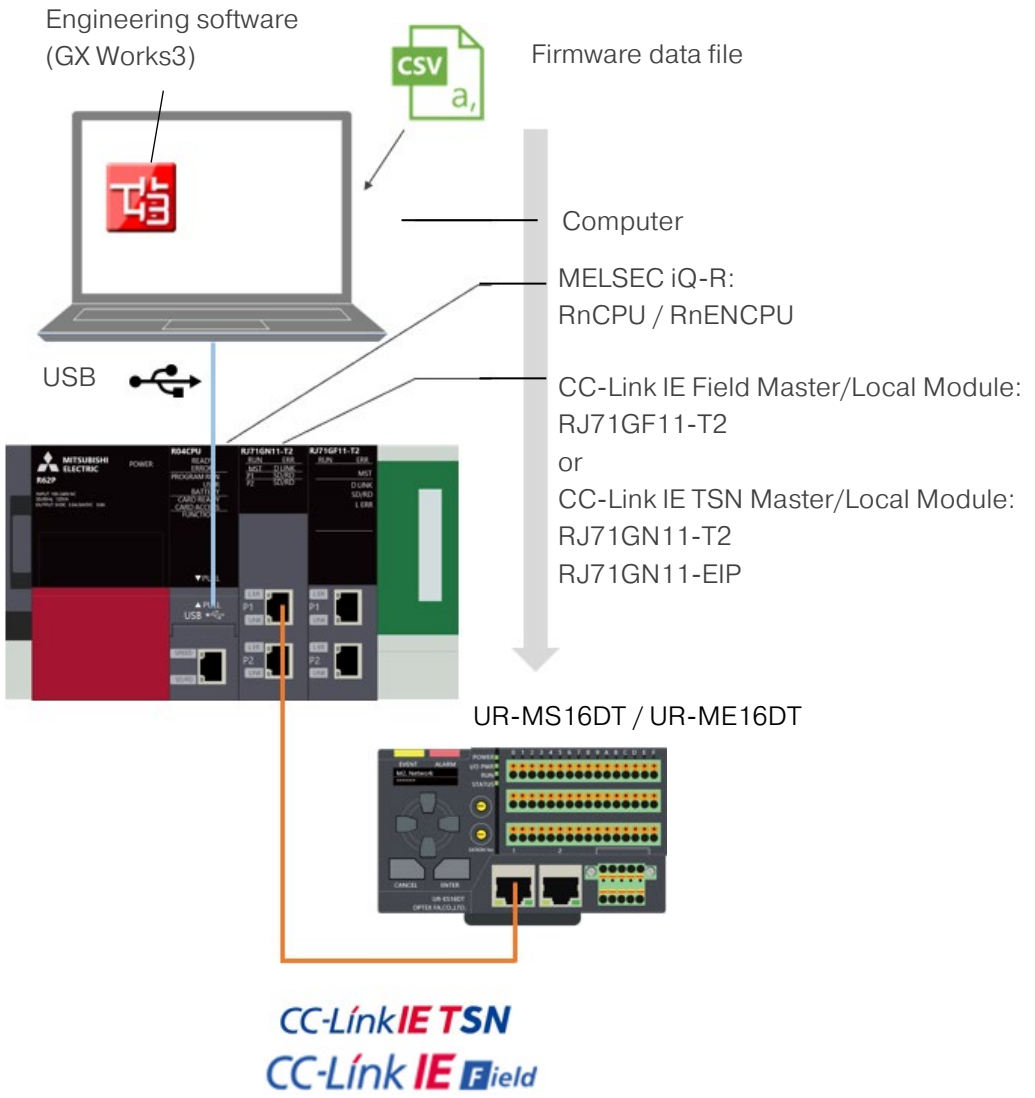
The update method depends on conditions such as the type of connected network and the firmware version being updated. Refer to "1-2 Selection of Update Method" (page 6) for selection of update method.

2-1 Updating with Mitsubishi Electric Corporation's engineering software (GX Works3)

The firmware is transferred via CC-Link IE TSN Master/Local Module or CC-Link IE Field Master/Local Module without directly connecting the computer to UR-MS16DT.

Connect this product to the computer while the product is connected to CC-Link IE TSN or CC-Link IE Field and exchanging process data.

System configuration



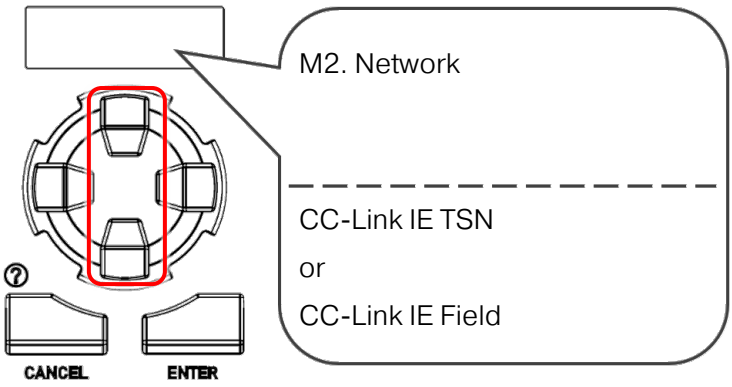
2-1-1 Operations in engineering software (GX Works3)

■ Preconfiguration in UR-MS16DT/UR-ME16DT

Switch the network type of UR-MS16DT / UR-ME16DT to the network type to be connected to the sequencer CPU or network unit (CC-Link IE TSN or CC-Link IE Field).

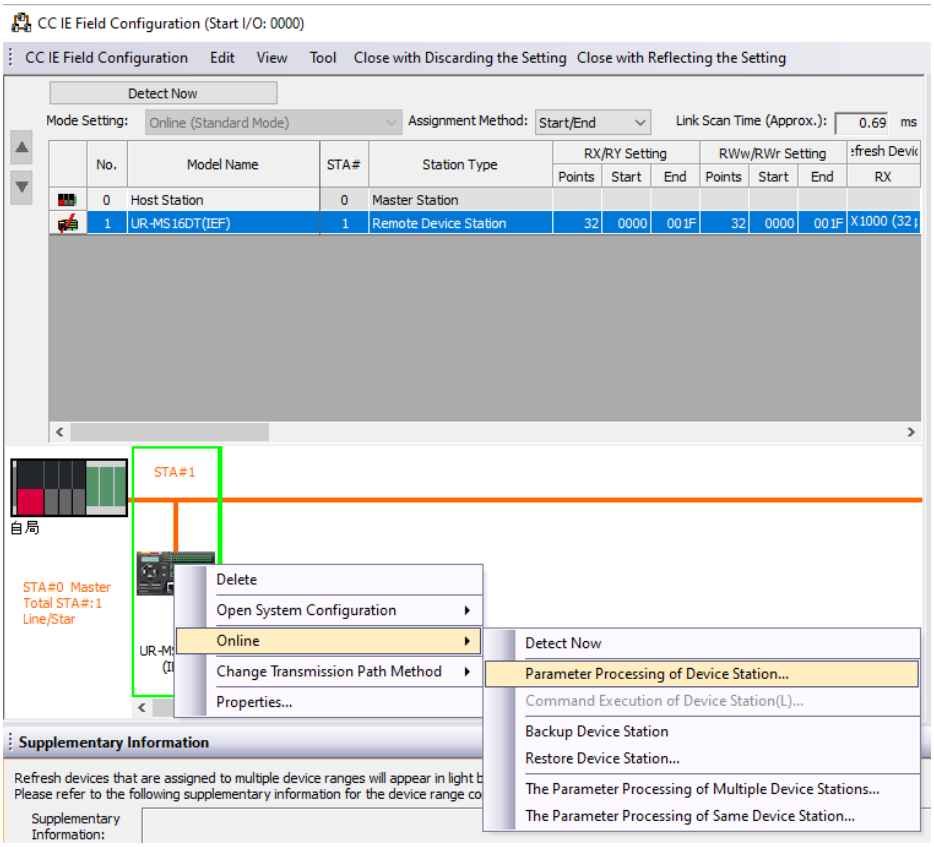
This enables updates and reading/writing of setting values through the network selected on the computer.

Select [CC-Link IE TSN] or [CC-Link IE Field] in [M2. Network] under the master parameters menu.

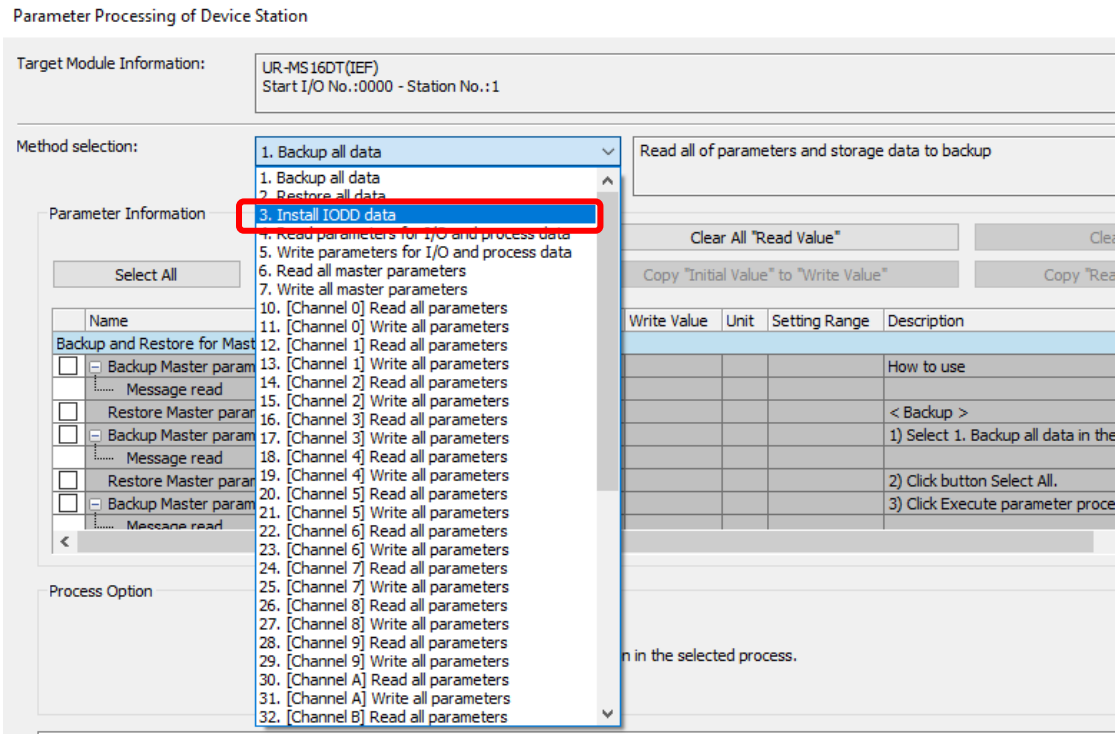


■Execute parameter processing from the network configuration settings.

1. Execute parameter processing for UR-MS16DT to be updated from the network configuration settings of GX Works3.

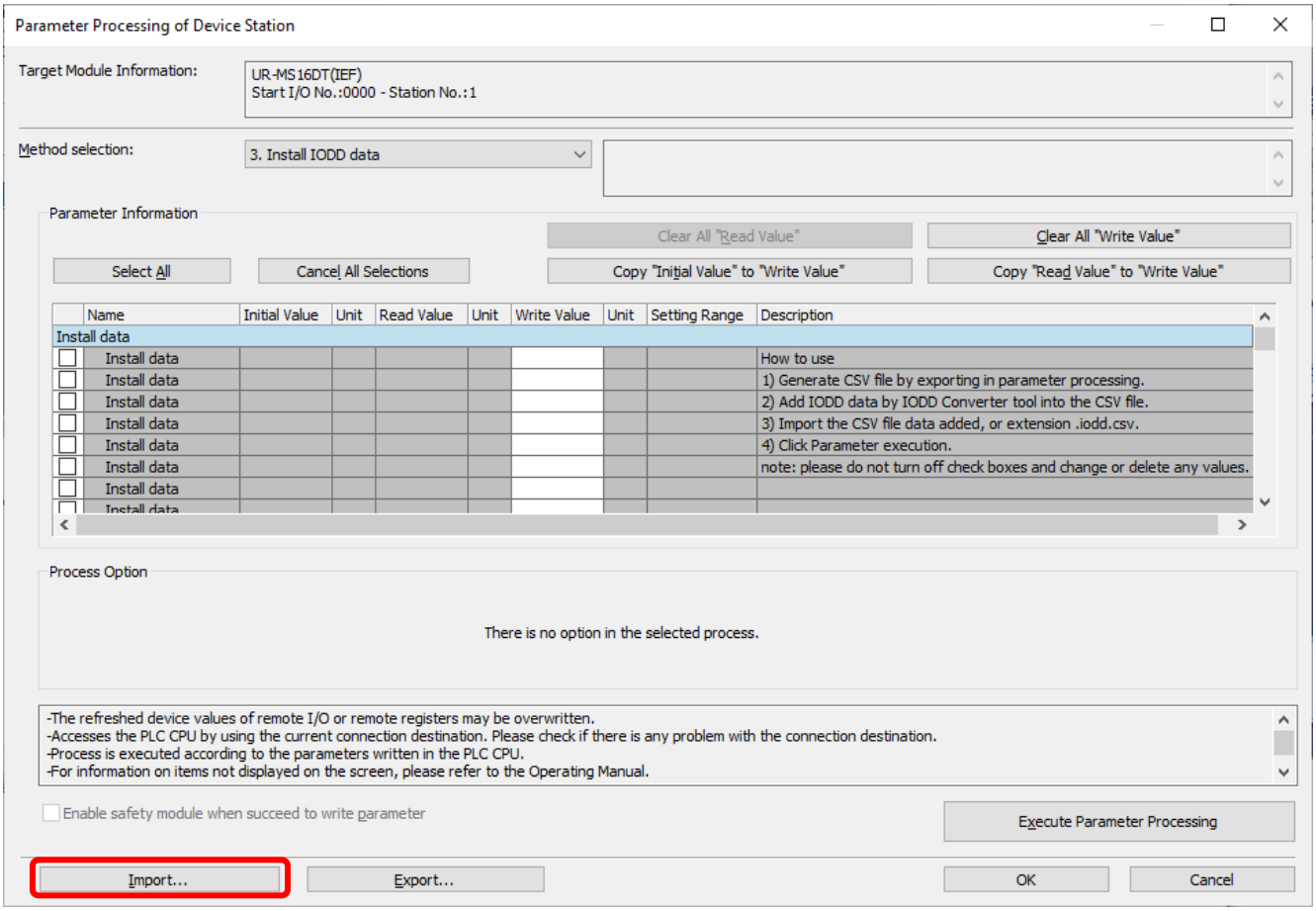


2. Select [3. Install IODD data] from Method selection on the “Parameter Processing of Device Station” screen.



■ Firmware update

3. “Import” at the bottom left of the screen will be enabled, then click it.

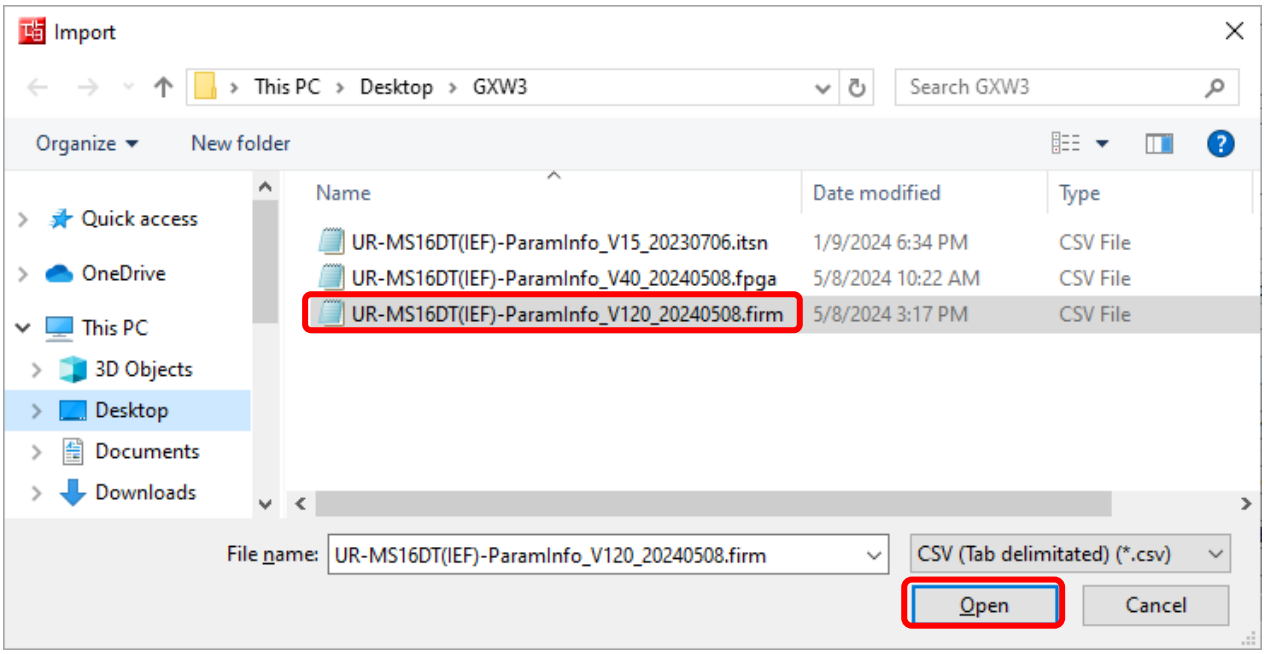


4. Select the firmware file to be updated and click “Open”.

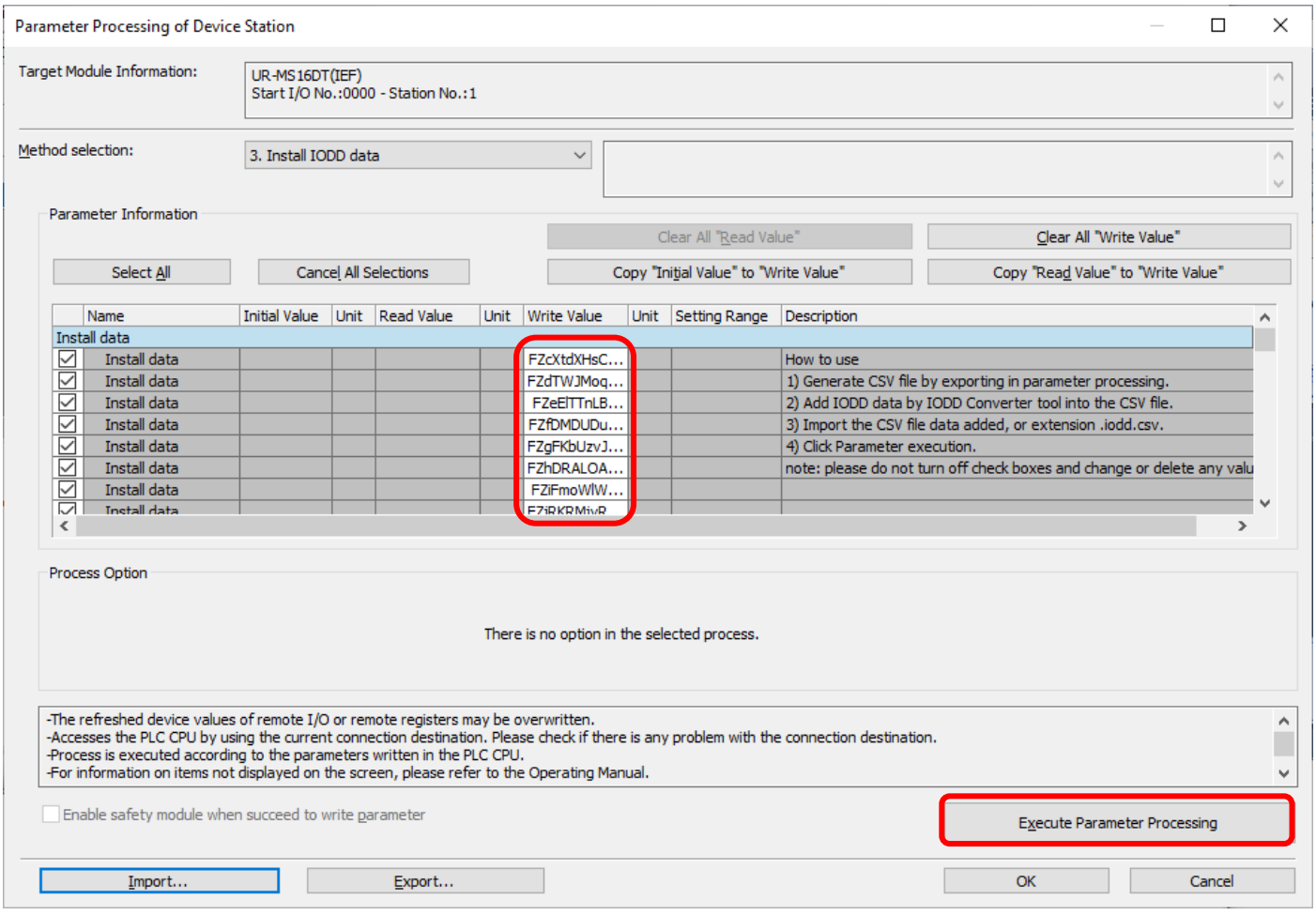
   Select the firmware file to be updated from the following depending on the connected network.

   • When connected via CC-Link IE TSN: UR-MS16DT(IEF)-ParamInfo_Vxxx_xxxxxxxx.firm.csv

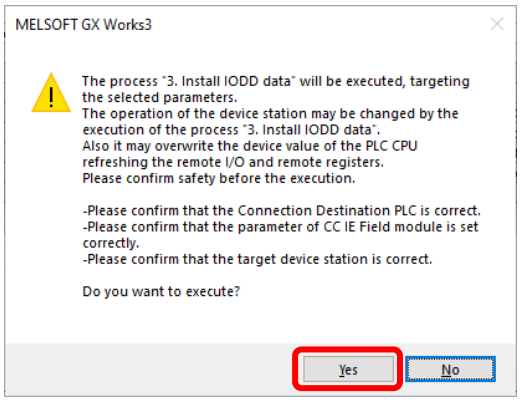
   • When connected via CC-Link IE Field: UR-MS16DT(TSN)-ParamInfo_Vxxx_xxxxxxxx.firm.csv



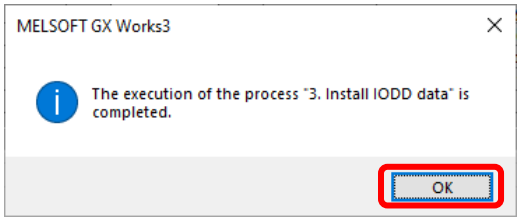
5. Confirm that data is stored in “Write Value” on the screen, then click “Execute Parameter Processing”.



6. When a confirmation message is displayed, click “Yes”.

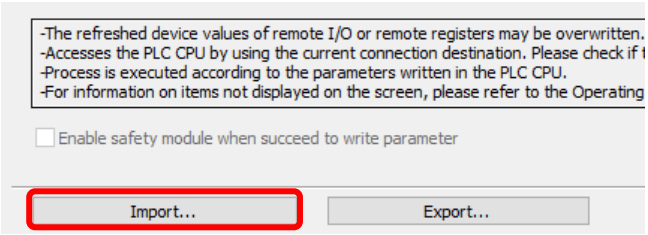


7. When a completion message is displayed after the writing process is complete, click “OK”.

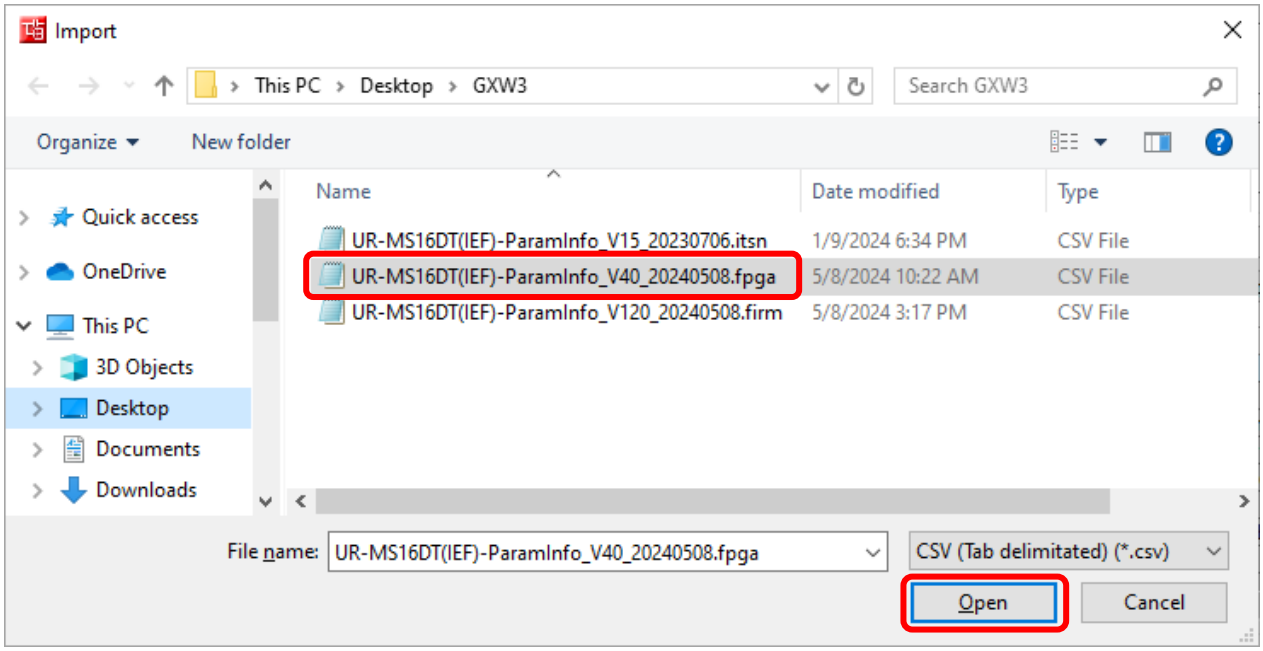


■ FPGA data update

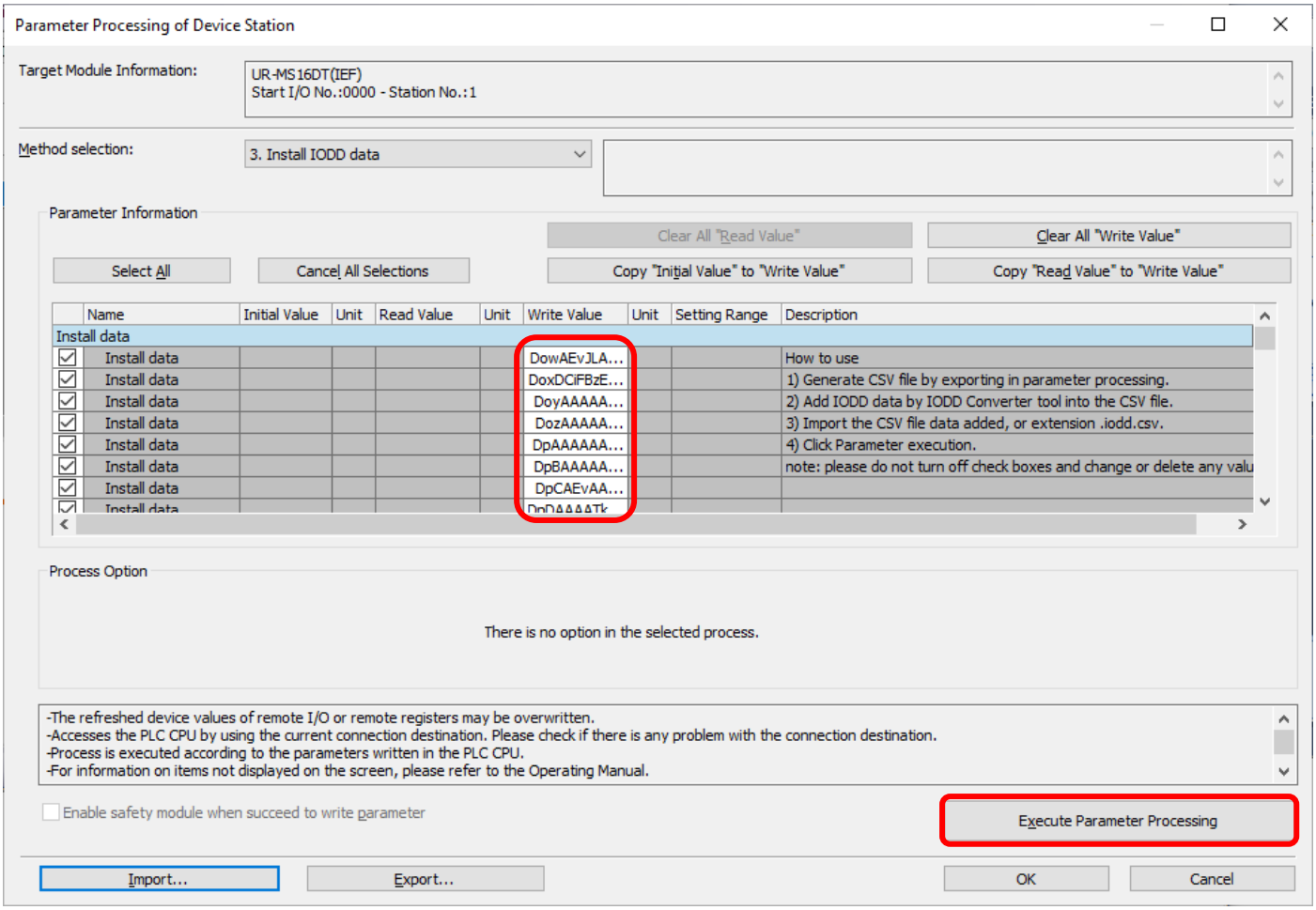
8. Click “Import” at the bottom left of the screen again.



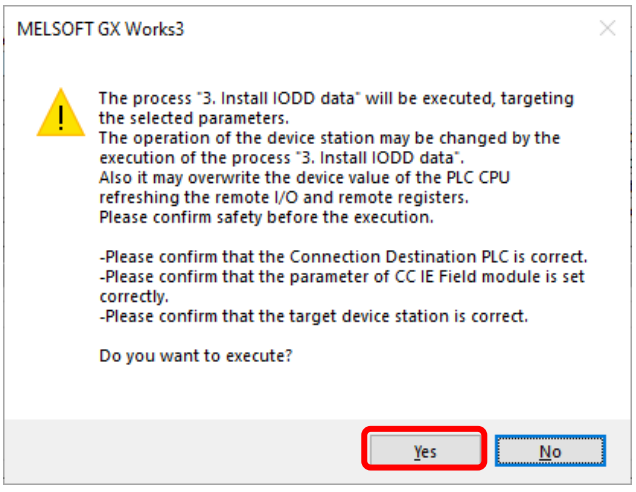
9. Select the FPGA data “UR-MS16DT(IEF)-ParamInfo_Vxx_xxxxxxxx.fpga.csv” to be updated, and click “Open”.



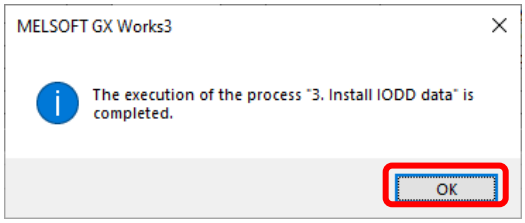
10. Confirm that data is stored in “Write Value” on the screen, then click “Execute Parameter Processing”.



11. When a confirmation message is displayed, click “Yes”.



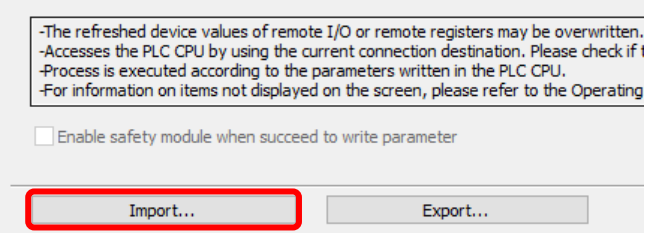
12. When a completion message is displayed after the writing process is complete, click “OK”.



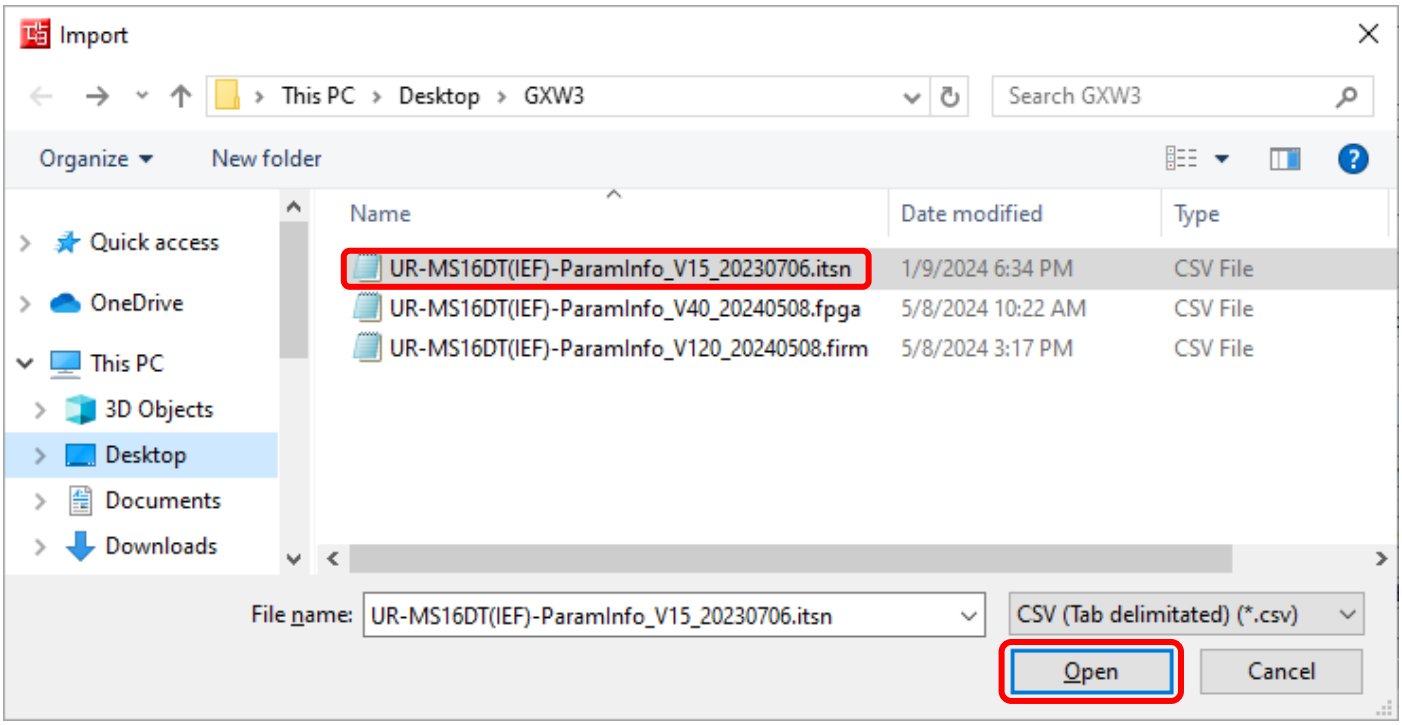
■ Network firmware update for CC-Link IE TSN (only for CC-Link IE TSN)

CC-Link IE TSN has network firmware for reading and writing setting values through an Ethernet connection to a computer. Update the network firmware for CC-Link IE TSN.

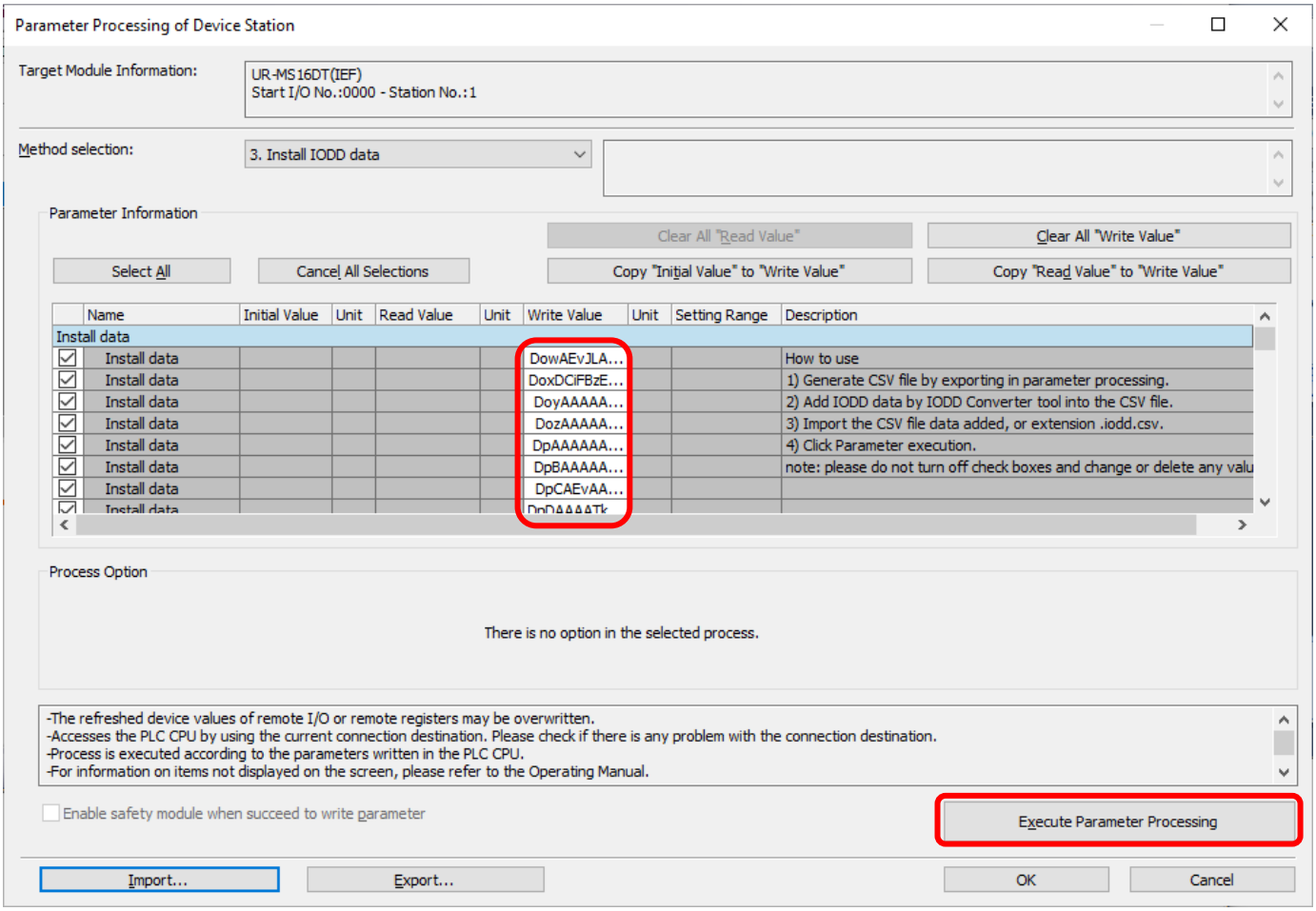
13. Click “Import” at the bottom left of the screen.



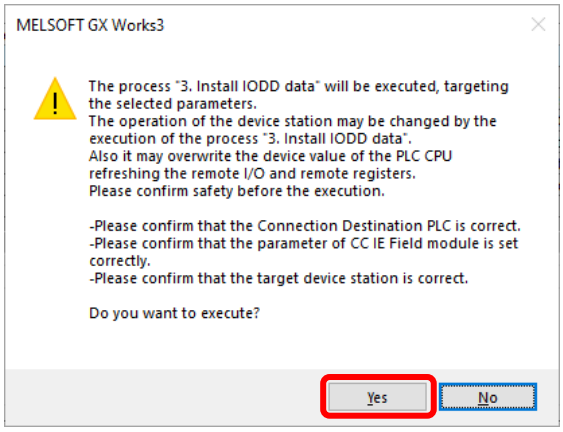
14. Select the CC-Link IE TSN network firmware file “UR-MS16DT(IEF)-ParamInfo_Vxx_xxxxxxxx.itsn.csv” to be updated, and click “Open”.



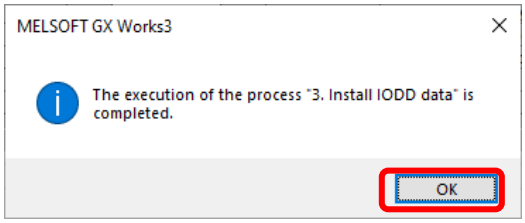
15. Confirm that data is stored in “Write Value” on the screen, then click “Execute Parameter Processing”.



16. When a confirmation message is displayed, click “Yes”.

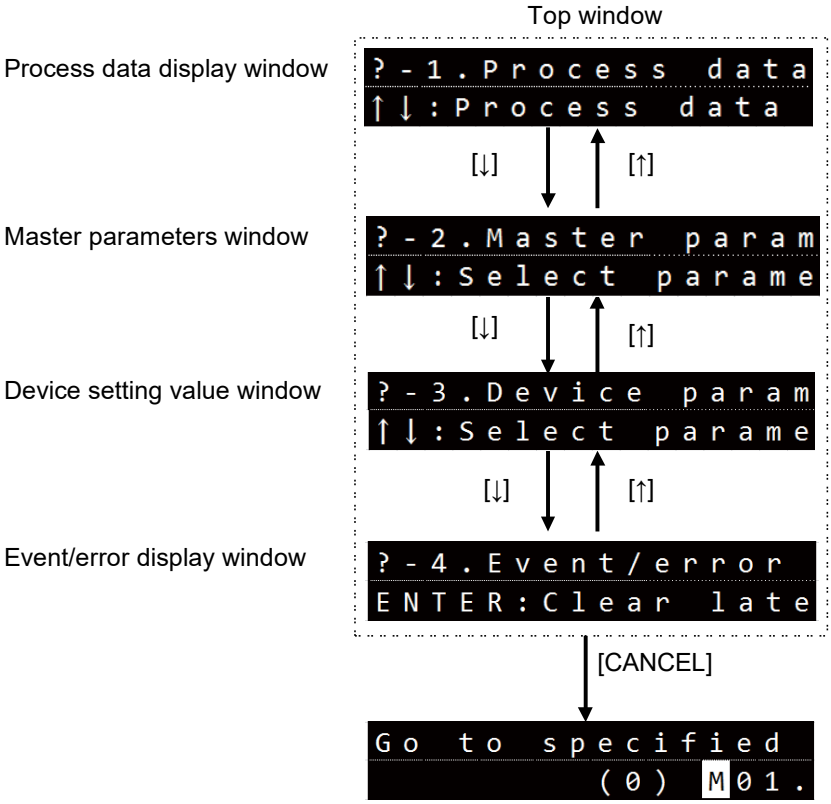


17. When a completion message is displayed after the writing process is complete, click “OK”.

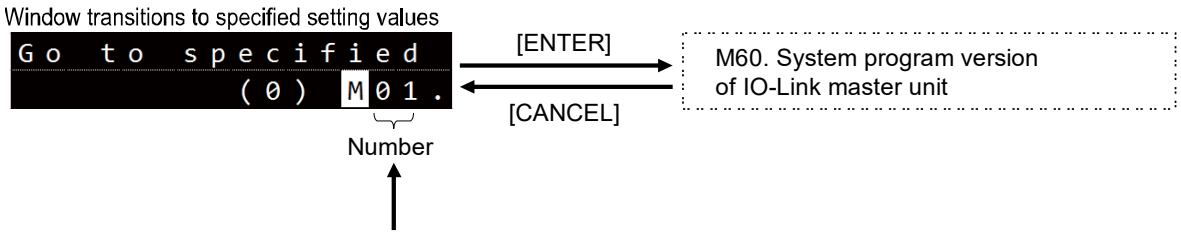


18. Check the current version on UR-MS16DT / UR-ME16DT to verify if the firmware has been updated.

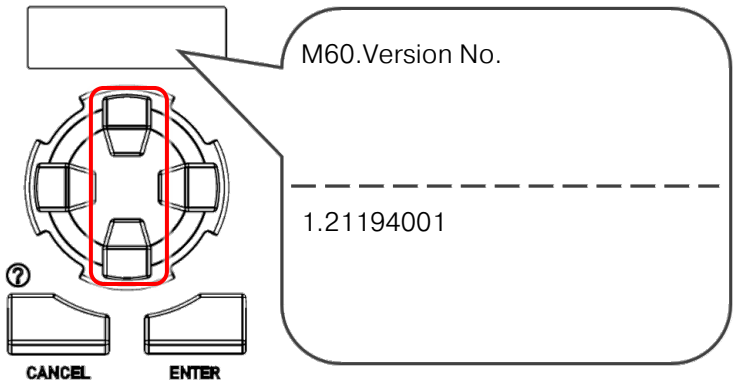
① Display “Go to specified parameter” in the Title Window of this product.



② In the “Go to specified parameter” window, specify “M60. System program version of IO-Link master”.



③ Select [M60.Version No.] on the master parameters menu to check it.



2-2 Updating with an update tool (only for CC-Link IE TSN communication)

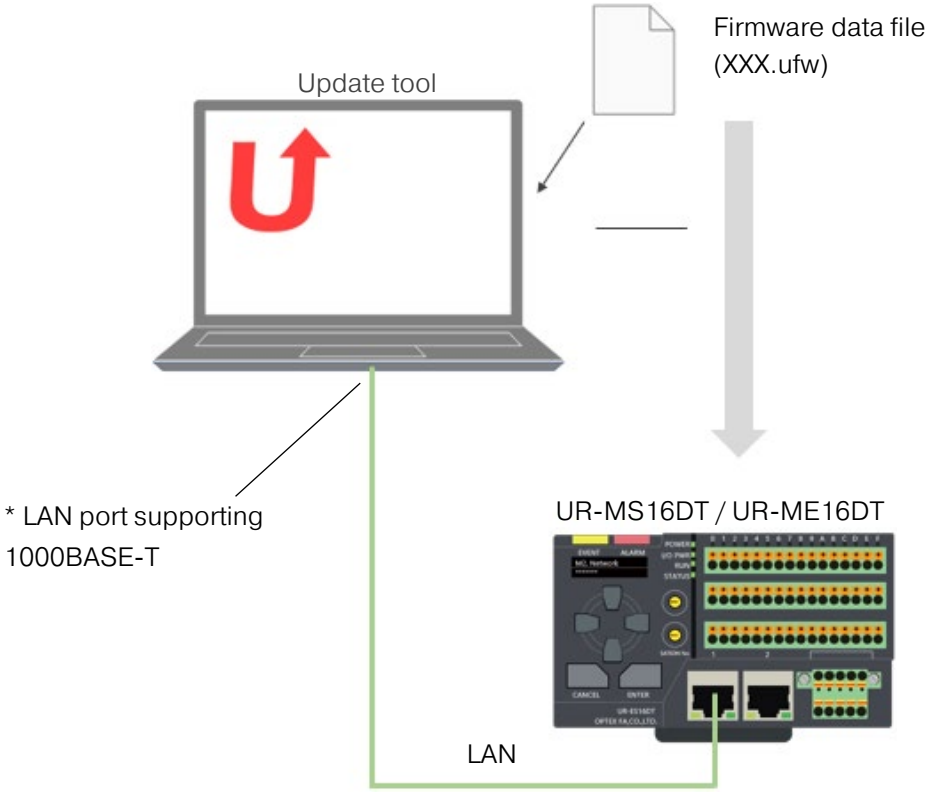
The firmware is transferred by connecting this product to a computer via a LAN cable and using an update tool.

CAUTION

If the firmware version is lower than 1.10xxxxxx, the firmware cannot be updated via direct LAN connection.

Perform the update via CC-Link IE TSN communication (refer to “2-1Updating with Mitsubishi Electric Corporation's engineering software (GX Works3)” (page 8).

System configuration



CAUTION

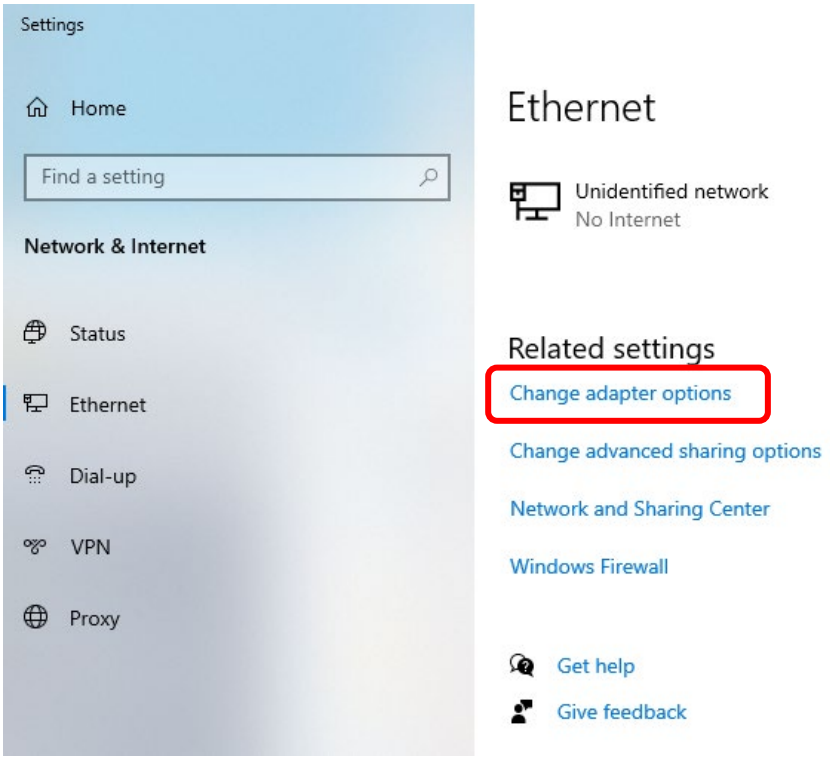
- Perform firmware update in the environment where the power does not turn off during the update process.
  If the power turns off during the update, there is a risk that this product may stop functioning.
  In that case, please contact an OPTEX FA sales representative.
- Depending on the states and conditions of each configuration device, communication may not be established.
  In that case, check the <Confirmation items> below, and if no issues are found, try the method described in <Connection method>.
  <Confirmation items>
  - Is the cable end damaged, or is there any dust or contamination on the end?
  - Does the computer LAN port support 1000BASE-T?

  <Connection method>
  - Connect via a Switching Hub that supports 1000BASE-T.
  - Replace the LAN cable with a crossover cable and connect.

2-2-1 Computer Ethernet port settings

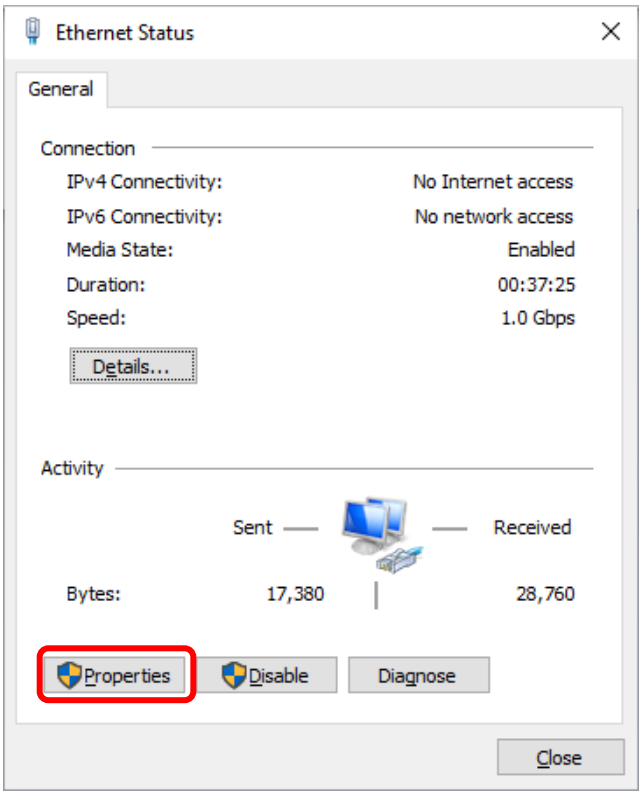
To update the firmware, connect this product to the computer using an Ethernet cable. In this process, set the Ethernet setting of the computer to a fixed IP address.

1. From Windows “Network status” (enter “Network status” in the bottom left search bar to display a list), click on “Change adapter options”.

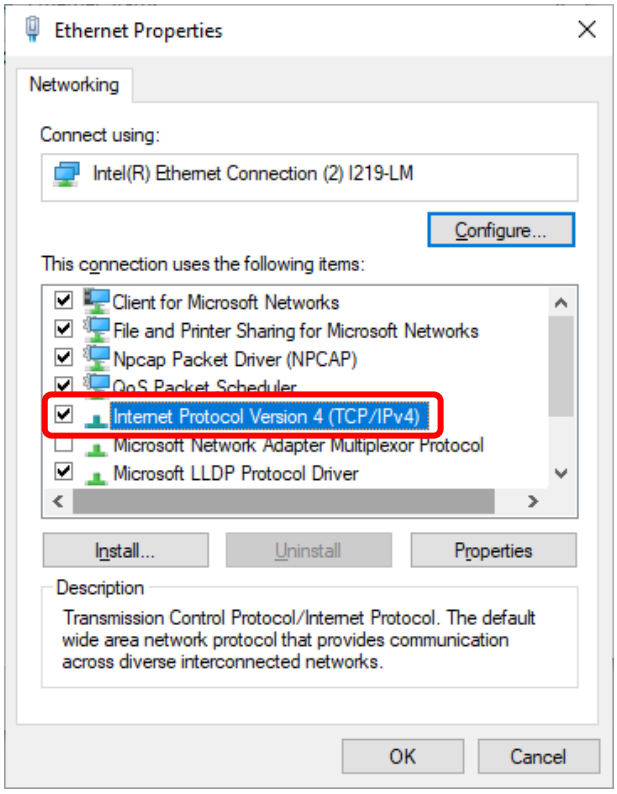


2. Double-click the connected network adapter. Select (double-click) the “Ethernet” wired LAN here.

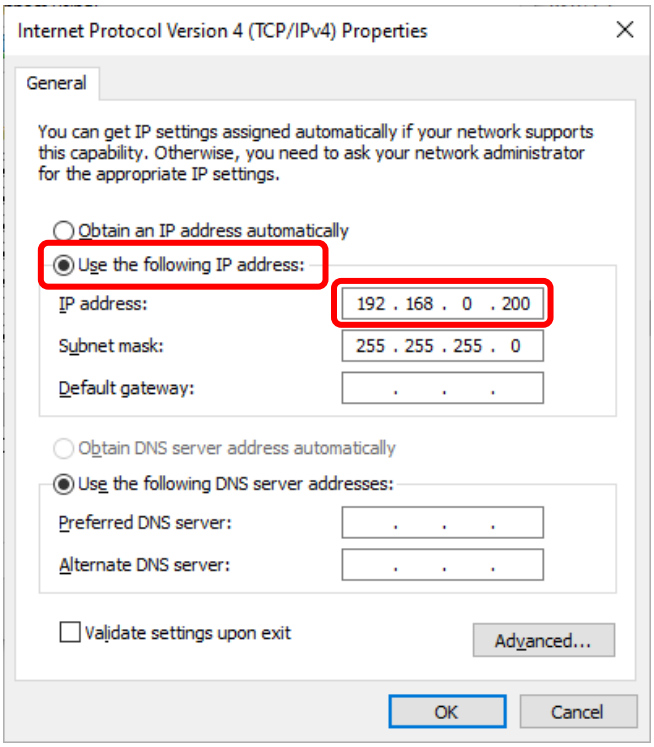
3. The Ethernet status screen is displayed. Click on “Properties”.



4. Double-click “Internet Protocol Version 4 (TCP/IPv4)”.



5. Click on “Use the following IP address” and enter the following IP address as shown below.
   After entering it, click the “OK” button (or “Close”) and close the window.



192.168.0.200

UR-MS16DT / UR-ME16DT
The same IP address as 16DT

A different IP address from UR-MS16DT / UR-ME16DT

MEMO

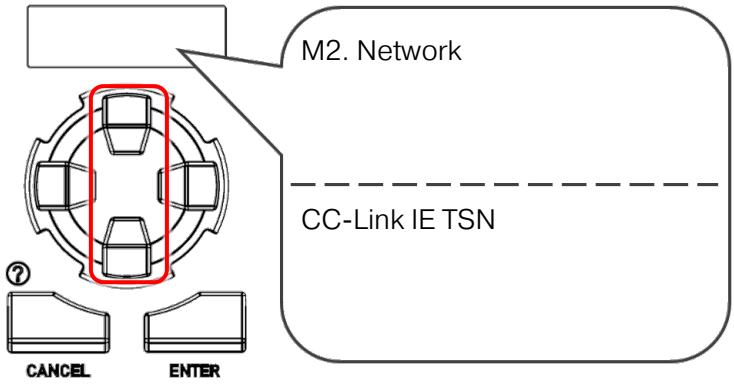
Note that communication with UR-MS16DT / UR-ME16DT will not be established in the following situations.

- If the first three digits of the IP address is different from that of UR-MS16DT / UR-ME16DT.
- If another device on the network connected to UR-MS16DT / UR-ME16DT has the same IP address.

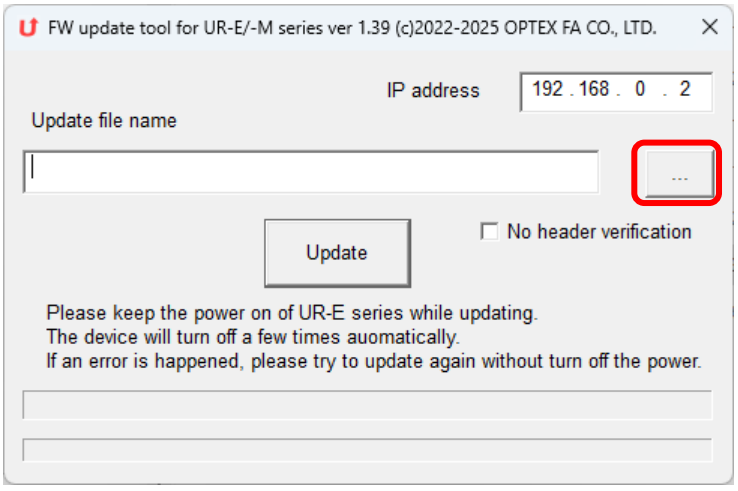
2-2-2 Update Operation Using the Update Tool

1. Switch the network type of UR-MS16DT / UR-ME16DT to CC-Link IE TSN.
   This enables updates and reading/writing of setting values by connecting the computer via Ethernet.

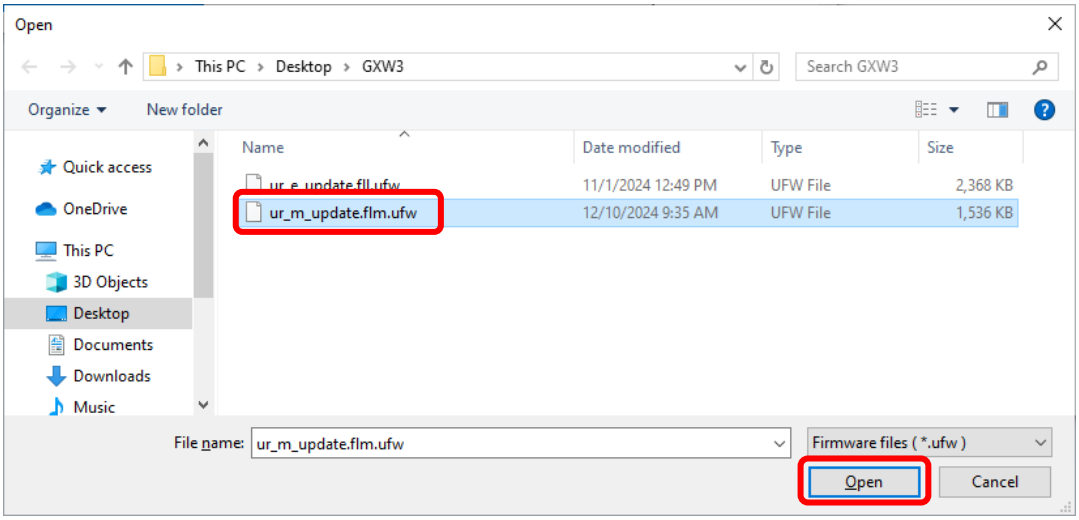
   Select [CC-Link IE TSN] in [M2. Network] under the master parameters menu.



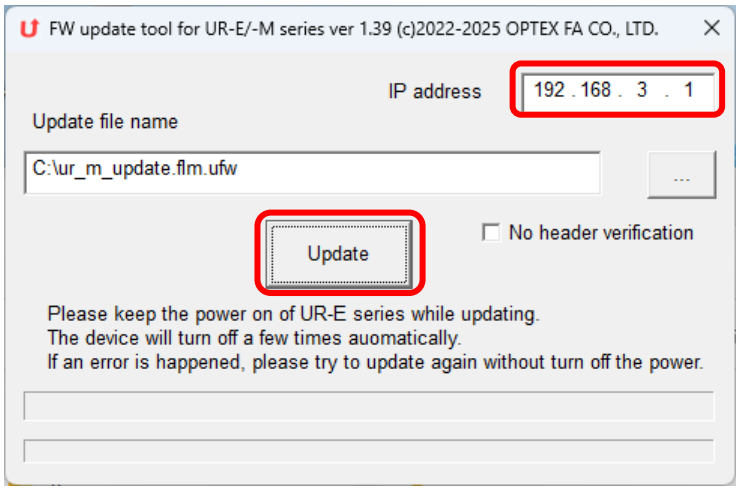
2. Start “UR_E_Updater.exe” of the update tool.
   After the system starts normally, click on “...”, then select the file to be installed.



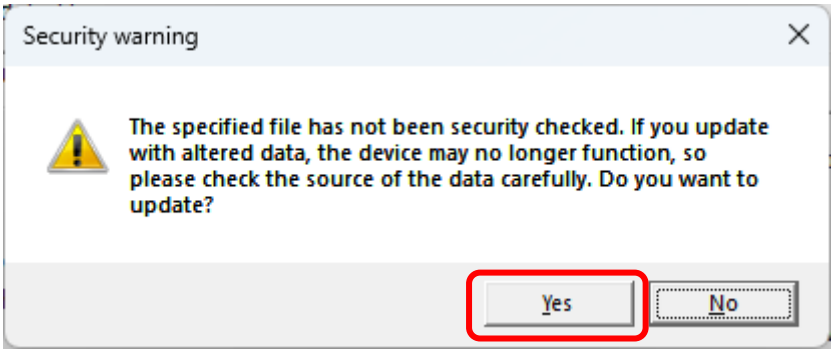
3. Select the file “ur_m_update.flm.ufw” to be updated and click “Open”.



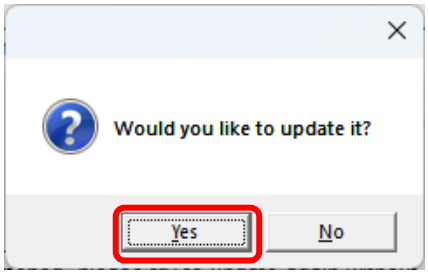
4. Set the IP address to “192.168.3.” and match it with the station number (values of the rotary switch) of this product to be updated, then click the “Update” button.
   In this example, the station number of this product is set to 1 (the rotary switch is set to 0 on the upper and 1 on the lower).



5. If the following message box appears, click the “Yes” button.



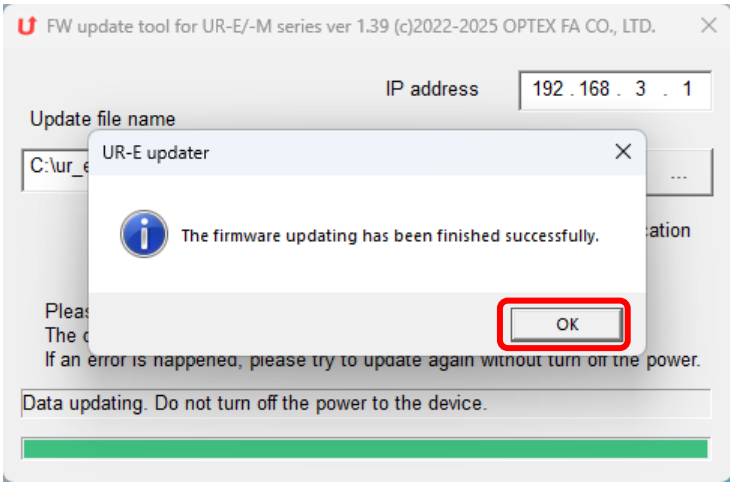
6. When a confirmation message is displayed, click “Yes”.
   Once the firmware data is transferred to this product, it will reboot.



CAUTION

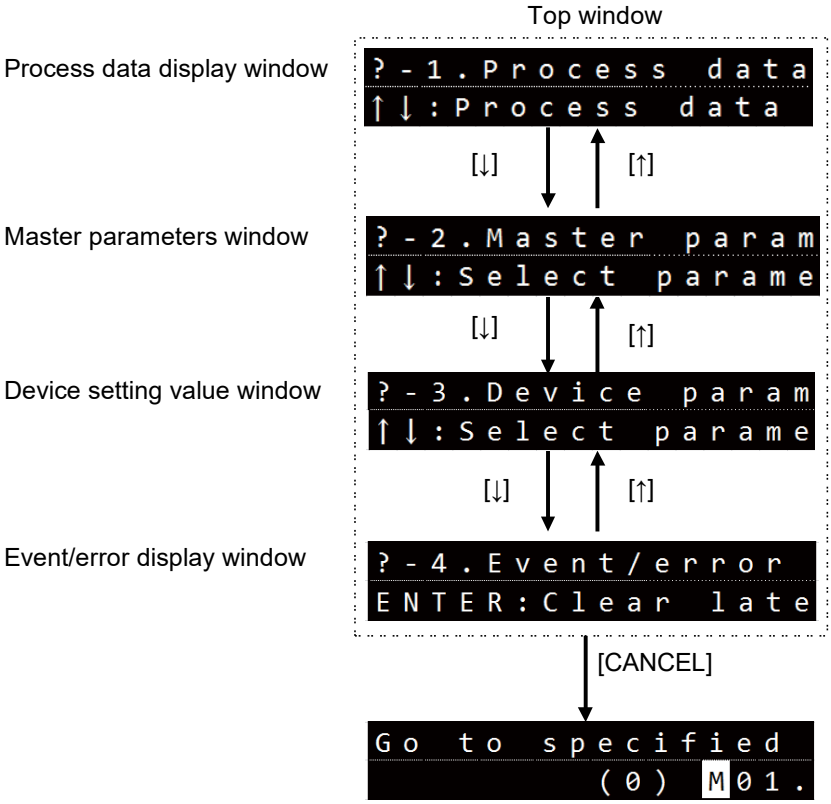
- During the reboot, the EVENT and ALARM indicators on this product will light up. Do not turn off the power during that time.
- If an Ethernet communication error occurs during the update, do not turn off the power of the this product. Instead, perform the update again.
- If the power turns off, there is a risk that this product may stop functioning. In that case, please contact an OPTEX FA sales representative.

7. When the message is displayed after the update is complete, click “OK”.

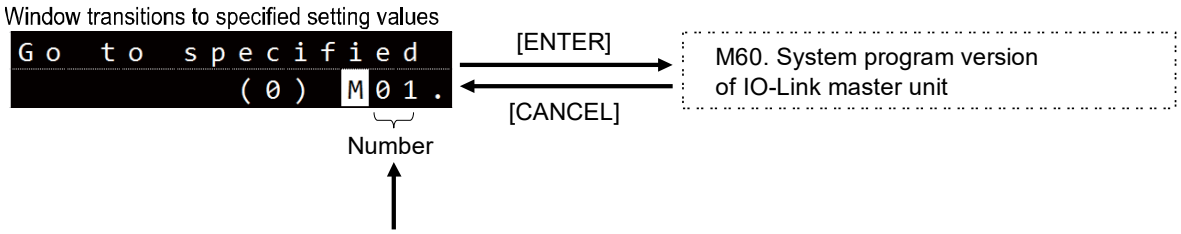


8. Check the current version on UR-MS16DT / UR-ME16DT to verify if the firmware has been updated.

① Display “Go to specified parameter” in the Title Window of this product.

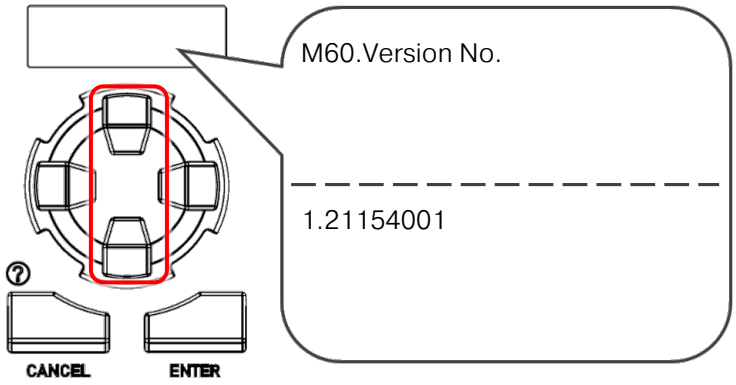


② In the “Go to specified parameter” window, specify “M60. System program version of IO-Link master”.



Use the [←][→] keys to move the cursor to the [number section],
and use the [↑][↓] keys to change the number to “60.”

③ Select [M60.Version No.] on the master parameters menu to check it.



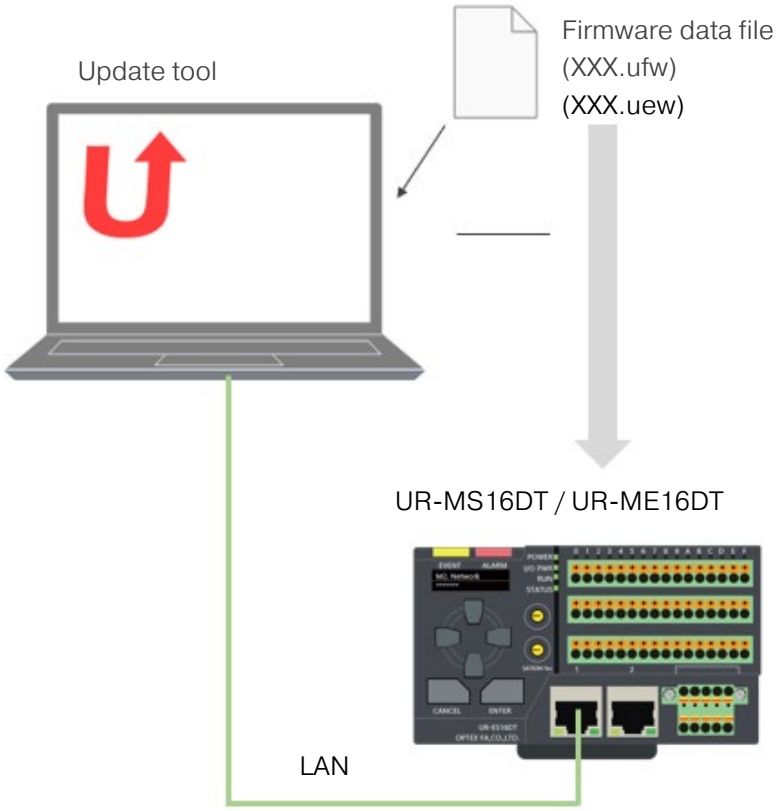
3 Firmware Update Procedure for UR-ES16DT / UR-EE16DT

The firmware is transferred by connecting this product to a computer via a LAN cable and using an update tool.

CAUTION

When updating the firmware to version "1.15xxxxxx" or later, use update tool "Ver. 1.39" or later.

System configuration



CAUTION

Perform firmware update in the environment where the power does not turn off during the update process.

If the power turns off during the update, there is a risk that this product may stop functioning.

In that case, please contact an OPTEX FA sales representative.

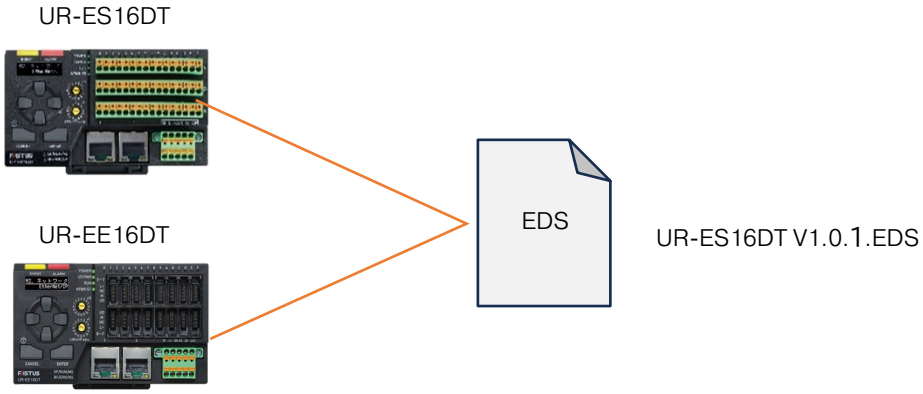
MEMO

Note when using EtherNet/IP connection

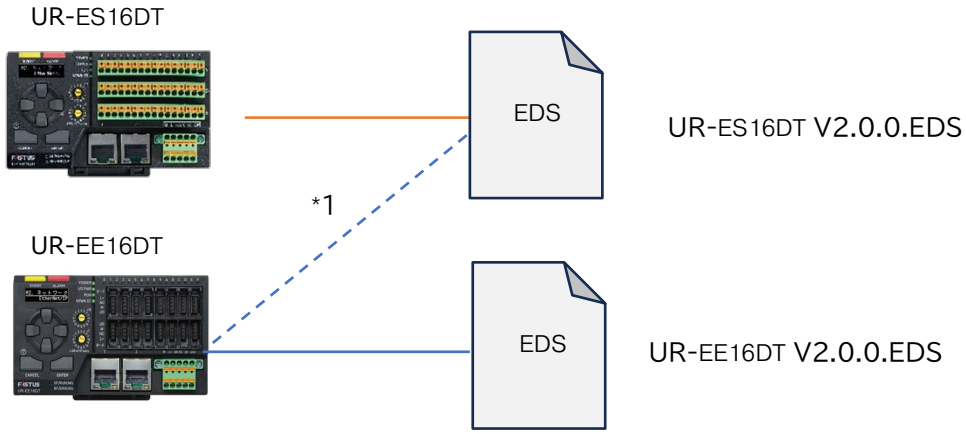
When the firmware version is updated to “1.1220xxxx” or later, the EDS file used will change.

If you have configured the EtherNet/IP connection settings with firmware version “1.1119xxxx” or earlier, you will need to reconfigure the connection settings based on the changed EDS file.

■ Firmware version “1.1119xxxx” or earlier



■ Firmware version “1.1220xxxx” or later



*1: If the Lot No. is “2429L” or lower, use “UR-ES16DT V2.0.0.EDS.”

However, for models with firmware version “1.15xxxxxx” or later, depending on the settings in the Master Parameters menu's “M2. Network Type,” you can continue to use the existing connection settings used before the update without replacing the EDS file.

In that case, change the “M2. Network Type” settings as follows to match the EDS file registered in the existing connection settings (not the corresponding EDS file shown in the figure above).

・If registered with “UR-ES16DT V2.0.0.EDS”: “EtherNet/IP”

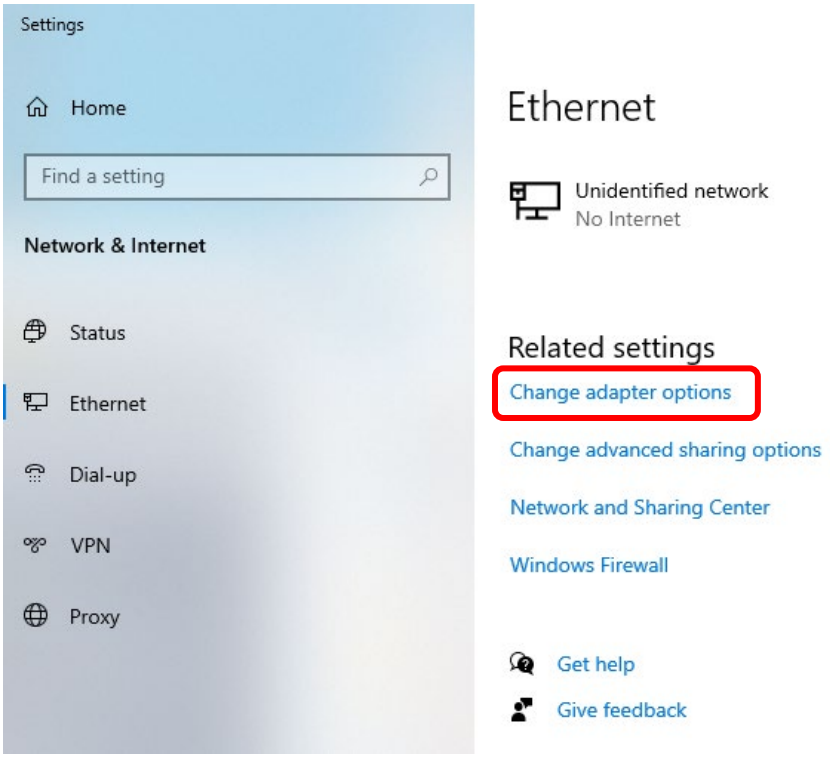
・If registered with “UR-EE16DT V2.0.0.EDS”: “EtherNet/IP”

・If registered with “UR-ES16DT V1.0.1.EDS”: “EtherNet/IP 1.0.1”

3-1 Computer Ethernet port settings

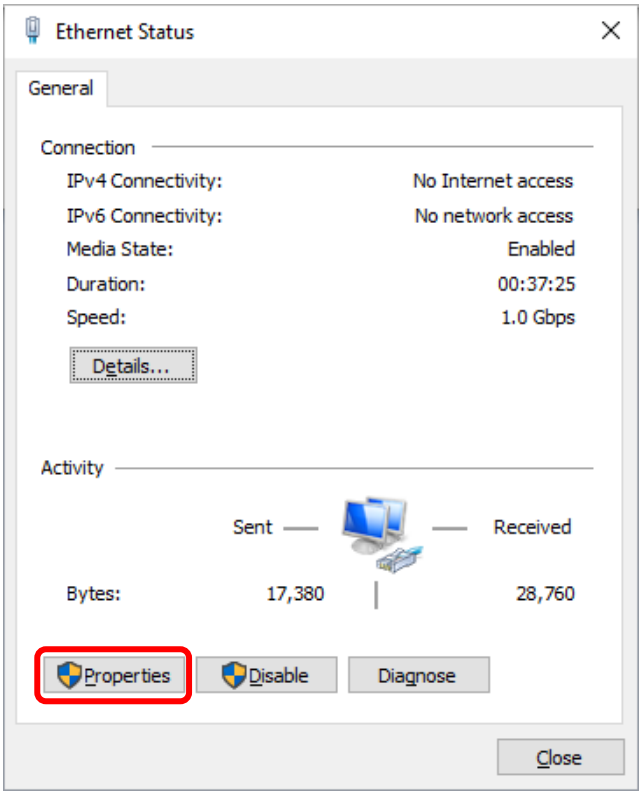
To update the firmware, connect this product to the computer using an Ethernet cable. In this process, set the Ethernet setting of the computer to a fixed IP address.

1. From Windows “Network status” (enter “Network status” in the bottom left search bar to display a list), click on “Change adapter options”.

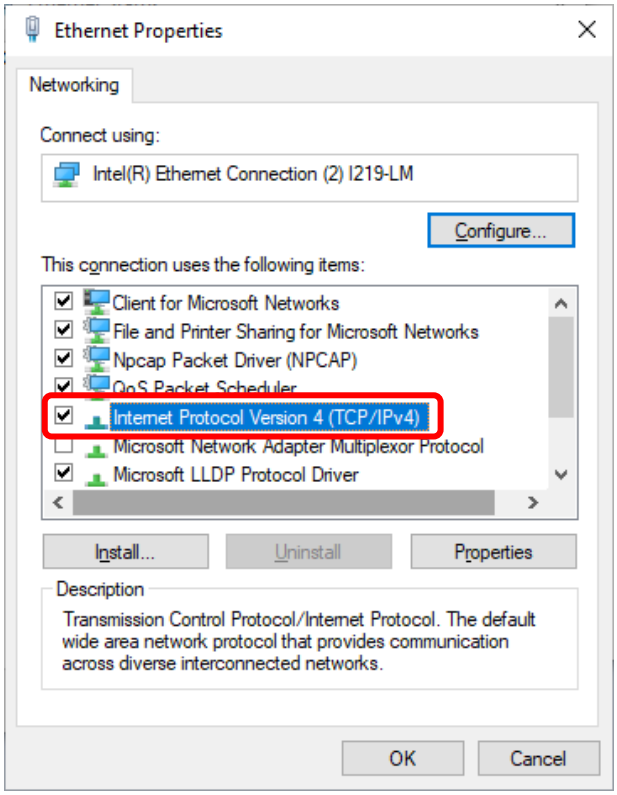


2. Double-click the connected network adapter. Select (double-click) the “Ethernet” wired LAN here.

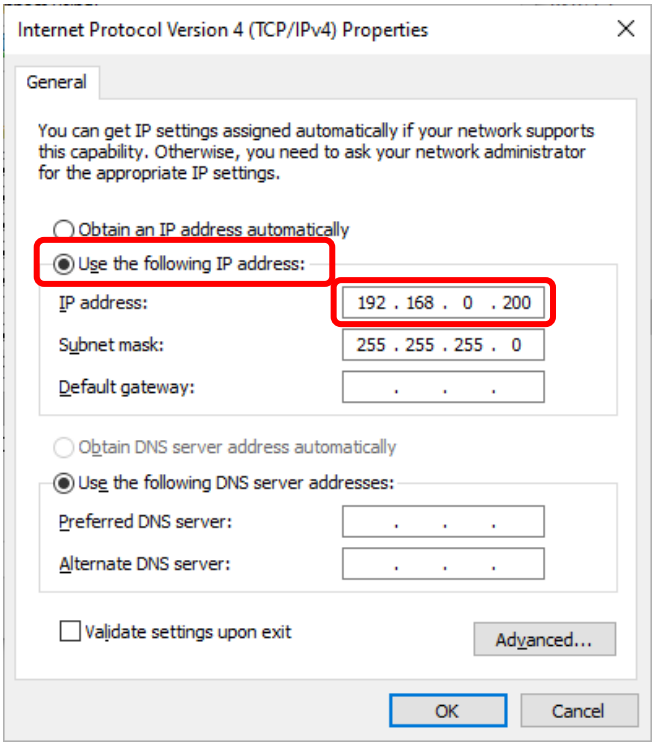
3. The Ethernet status screen is displayed. Click on “Properties”.

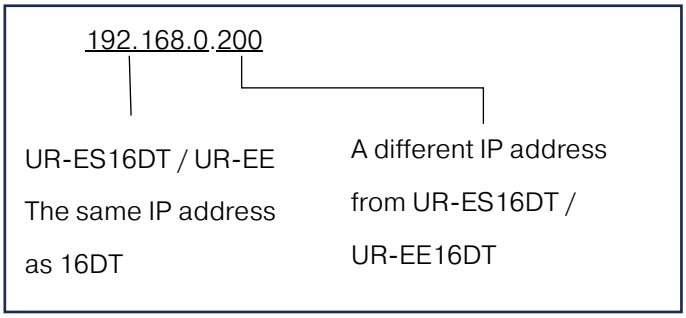


4. Double-click “Internet Protocol Version 4 (TCP/IPv4)”.



5. Click on “Use the following IP address” and enter the following IP address as shown below.
   After entering it, click the “OK” button (or “Close”) and close the window.





MEMO

Note that communication with UR-ES16DT / UR-EE16DT will not be established in the following situations.

- If the first three digits of the IP address is different from that of UR-ES16DT / UR-EE16DT.
- If another device on the network connected to UR-ES16DT / UR-EE16DT has the same IP address.

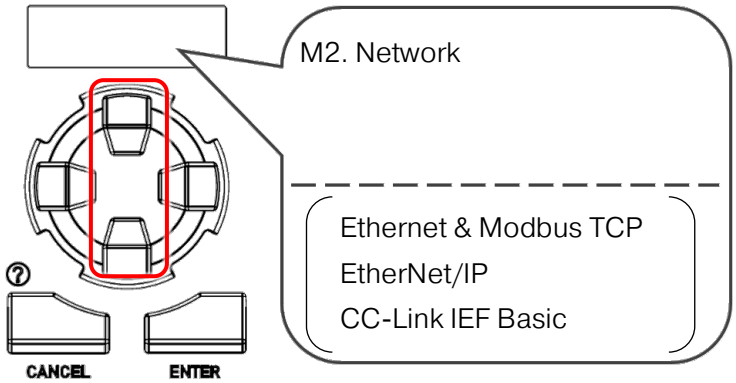
3-2 Update Operation Using the Update Tool

1. Check the network type set on the UR-ES16DT / UR-EE16DT.

   If “EtherCAT” is set, change it to a different network type.

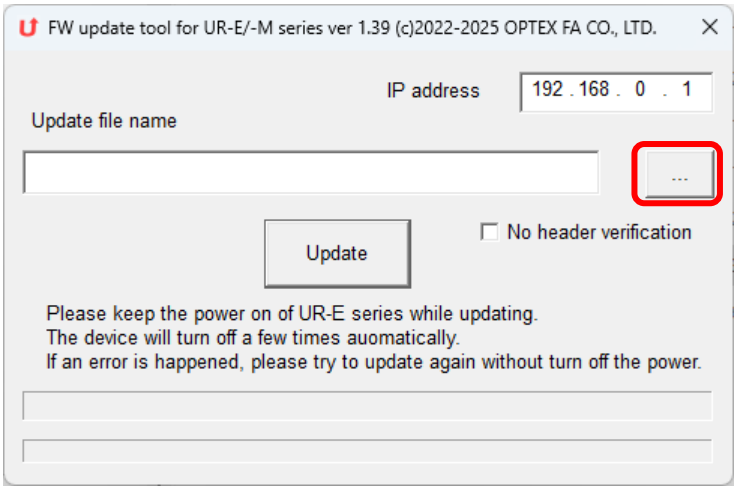
   This enables updates and reading/writing of setting values by connecting the computer via Ethernet.

   Select a network type other than [EtherCAT] in [M2. Network] under the master parameters menu.

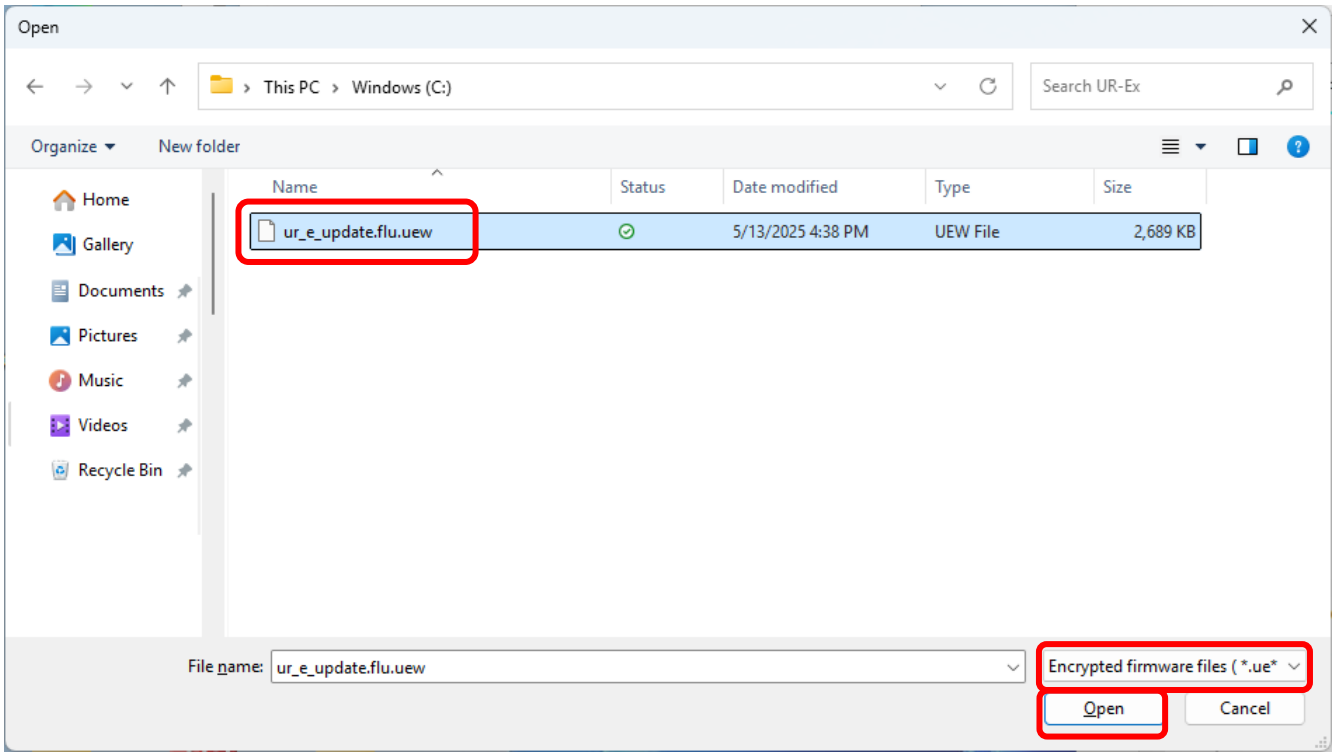


2. Start “UR_E_Updater.exe” of the update tool.

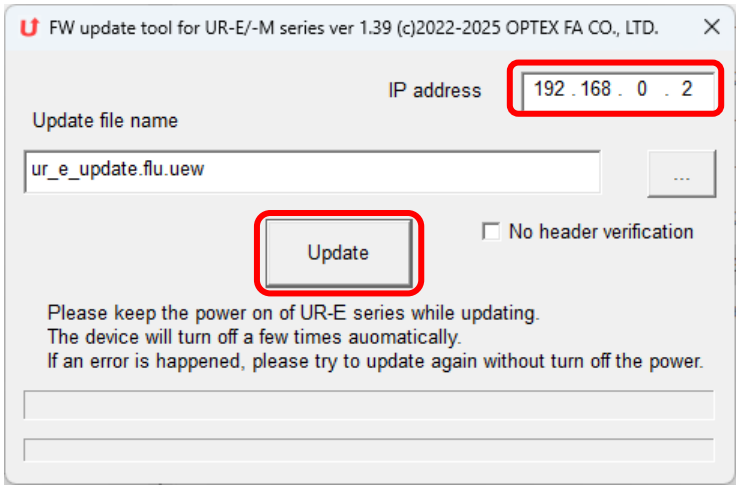
   After the system starts normally, click on “...”, then select the file to be installed.



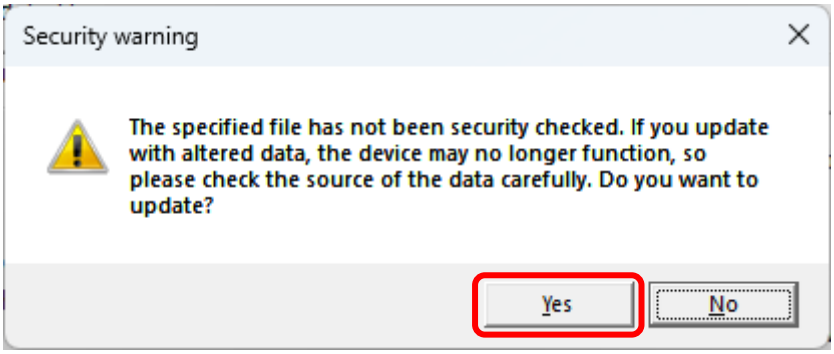
3. Depending on the type of file to be updated (“ur_e_update.xxx.ufw” or “ur_e_update.xxx.uew”), select the file type in “File Name” and click “Open.”



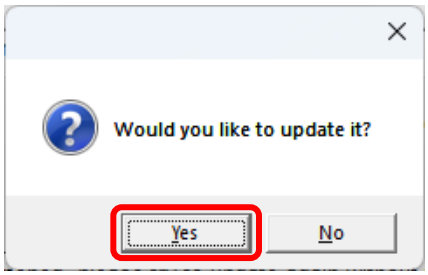
3. Set the IP address to match the value of this product to be updated, then click the “Update” button.
In this example, the rotary switch of this product is set to 0 on the upper and 2 on the lower.



5. If the following message box appears, click the “Yes” button.



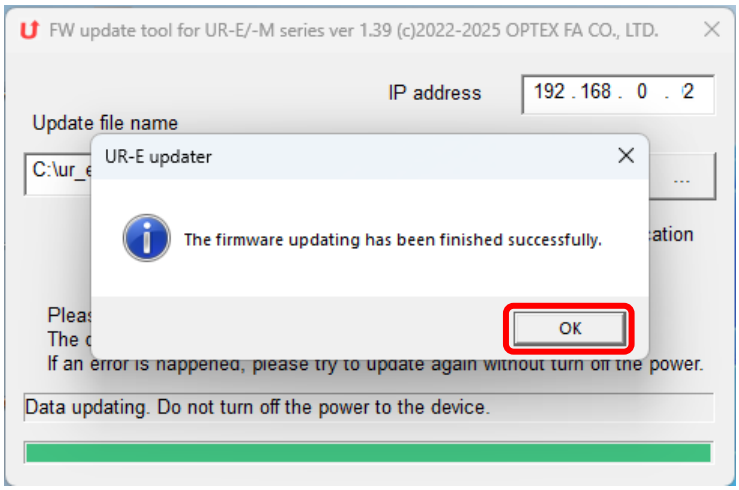
6. When a confirmation message is displayed, click “Yes”.
   Once the firmware data is transferred to this product, it will reboot twice.



CAUTION

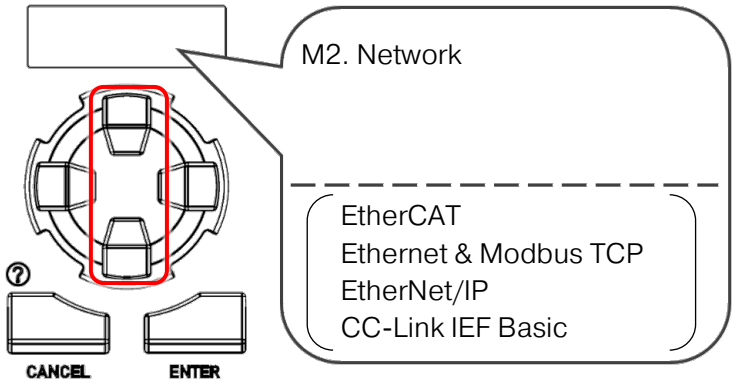
- During the reboot, the EVENT and ALARM indicators on this product will light up. Do not turn off the power during that time.
- If an Ethernet communication error occurs during the update, do not turn off the power of the this product. Instead, perform the update again.
- If the power turns off, there is a risk that this product may stop functioning. In that case, please contact an OPTEX FA sales representative.

7. When the message is displayed after the update is complete, click “OK”.



8. After executing the firmware update, switch the network type of UR-ES16DT / UR-EE16DT to the network that will actually be used.

In [M2. Network] under the master parameters menu, select the network that will actually be used.



4 Additions and changes to functions by firmware update

The availability of the functions and specifications varies depending on the firmware version.

■UR-MS16DT, UR-ME16DT

Firmware version	Additional function
1.10xxxxxx	Supports firmware version upgrade via direct LAN connection with a PC. (CC-Link IE TSN connection)
1.21xx40xx	Supports 16ch counter function.

■UR-ES16DT, UR-EE16DT

Firmware version	Additional function
1.12xx41xx	Counter function supported (expanded to 16 channels, high frequency response)
1.1220xxxx	The Ethernet/IP process data length has been changed from fixed allocation to variable allocation (input: 0 to 504 bytes, output: 0 to 92 bytes).
1.1521xxxx	Added “EtherNet/IP 1.0.1” to “M2. Network Type” in the Master parameters menu. When connecting via EtherNet/IP, you can now connect without reconfiguring the connection settings specified in the EDS file “UR-ES16DT V1.0.1.EDS” in the connection settings.

5 Revision History

The revision number is listed in the bottom right corner of the back cover of the instruction manual.

UR_UPDATE_UM_XXX_YYYY

(XXX: revision number, YYY: revision date)

Revision number	Revision date	Details
1	February 2023	First edition
2	January 2025	The document has been fully revised according to the update specifications of the following firmware version. ・UR-MS16DT, UR-ME16DT: 1.21xx41xx ・UR-ES16DT, UR-EE16DT: 1.12xx41xx
3	June 2025	Function descriptions have been changed to match the downloadable firmware version. ・UR-MS16DT, UR-ME16DT ：1.12xx41xx → 1.12xx40xx Added downloadable firmware version ・UR-ES16DT, UR-EE16DT ： 1.1521xxxx

● Specifications are subject to change without prior notice. Please be aware of this in advance.

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The information in this user's manual is correct as of June 2025.

UR_UPDATE_UM_003_2506