

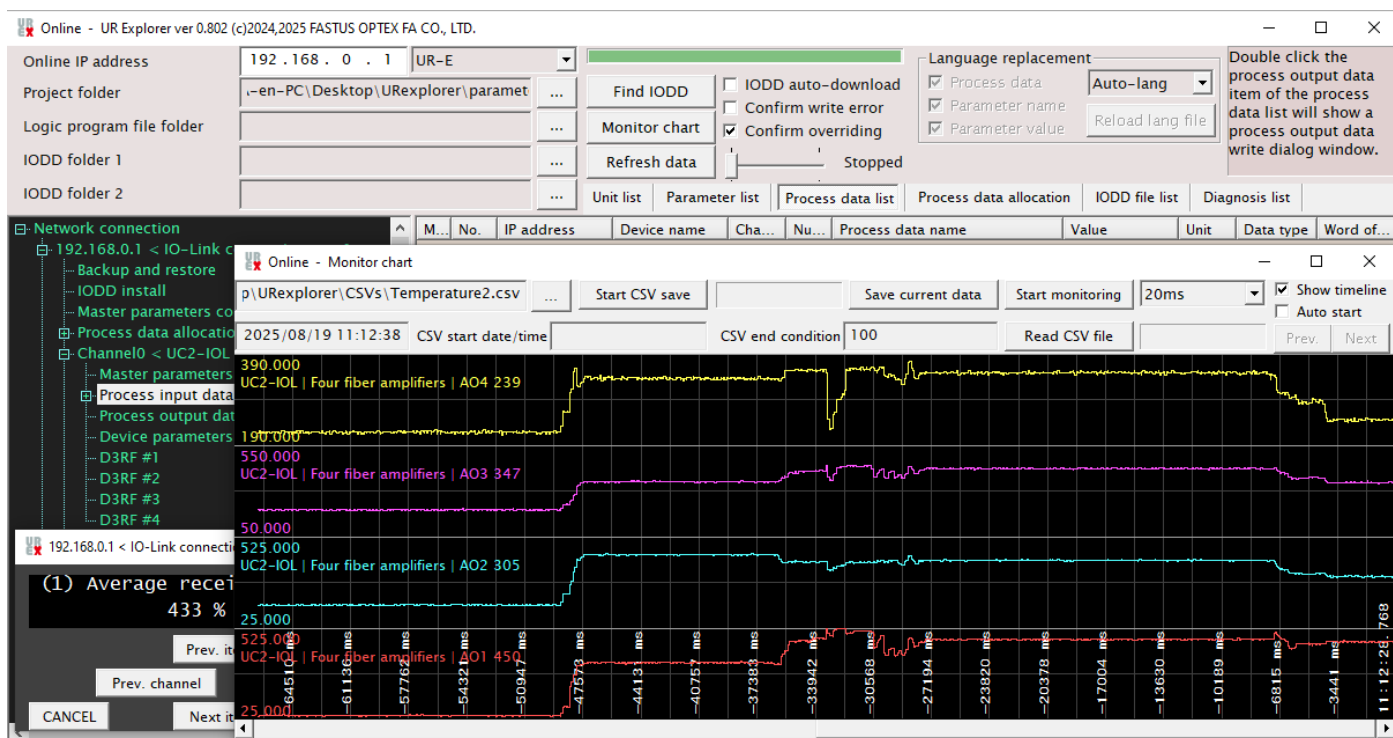


Good Thinking, Good Future

The FASTUS is a product brand by OPTEX FA.

Setup tool for IO-Link Master UR series UR Explorer

User's manual



OPTEX FA CO., LTD.

Introduction

Thank you for downloading the application software “UR Explorer” (hereinafter referred to as this tool) for the IO-Link master UR-MS/-ME/-ES/-EE16DT (hereinafter referred to as this device).

This manual describes the basic usage information for this tool.

Please read this manual carefully before use and use it correctly after fully understanding the functions and performance. After reading it, please keep this manual in a safe place and keep it close at hand.

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*The IO-Link device names and model names that appear in this manual belong to their respective companies.

Related Manuals

The related manuals for this manual are as follows. Please also read them.

Common manual of this unit

This describes the common functions regardless of the type of field network used.

Manual number	Manual name	Contents
UR-MS_UM-000-XXXX	IO-Link Master UR-MS/-ME16DT User's Manual	This describes the functions, performance and operation of this unit. Please read them.
UR-ES_UM-000-XXXX	IO-Link Master UR-ES/-EE16DT User's Manual Common (Abbreviated as "Common manual" in this manual)	This describes the common functions, performance and operation of this unit. Please read them.

Revision History

2025.1.20	First edition translated from Japanese version
2025.1.22	For version 0.431
2025.2.12	For version 0.501
2025.4.22	For version 0.601
2025.6.30	Compatible with firmware version "1.15xxxxxx" or later of the IO-Link Master UR Series. UR Explorer description to "Ver.0.605". Update Tool to "Ver.1.39".
2025.7.1	For version 0.700 Add a feature project file management.
2025.8.19	For version 0.802 Add a feature I/O check and process data check.
2026.4.22	Add following items for version 1.000. 2-1-3-6 Display of OP+ File List 2-2-8-1 Display the Remote Control Dialog Screen 2-2-8-2 Read/Write Manual Setting Value 2-2-10 Configure Options for Parameter File Transfer 2-2-10-1 Display the Option Settings Dialog 2-2-10-2 List of Selectable Items in "Set option" (When Transferring Parameter Files) 2-2-10-3 Checking the Write Error Log 2-2-11 Summary of Changes from Ver. 1.000 2-2-11-1 Unicode Support and "Only specified IP address"

Manual Structure

This manual consists of the following sections.

1. Before Use	Explain how to update the firmware of this unit and how to set up the Ethernet settings of your computer.
2. Let's Use	Explain how to use this tool in a simple way.
3. Information	This section explains error messages and how to deal with them, as well as the specifications of the language replacement function.

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Notation used in this manual

Explain the notation used in this manual.

Caution

Informs you about things you should pay special attention to when operating the device.

●●● MEMO ●●●

Informs you about useful information to know when operating the device.

1

Before Use

This section explains how to update the firmware of this unit and how to set up the Ethernet settings on your computer.

1-1 Operations required to update the unit's firmware

This tool can be used without updating, except for older versions of the UR-MS/-ME/-ES/-EE16DT.

However, we recommend updating the firmware to make better use of the latest functions.

This section explains the operations required to update the firmware of this unit.

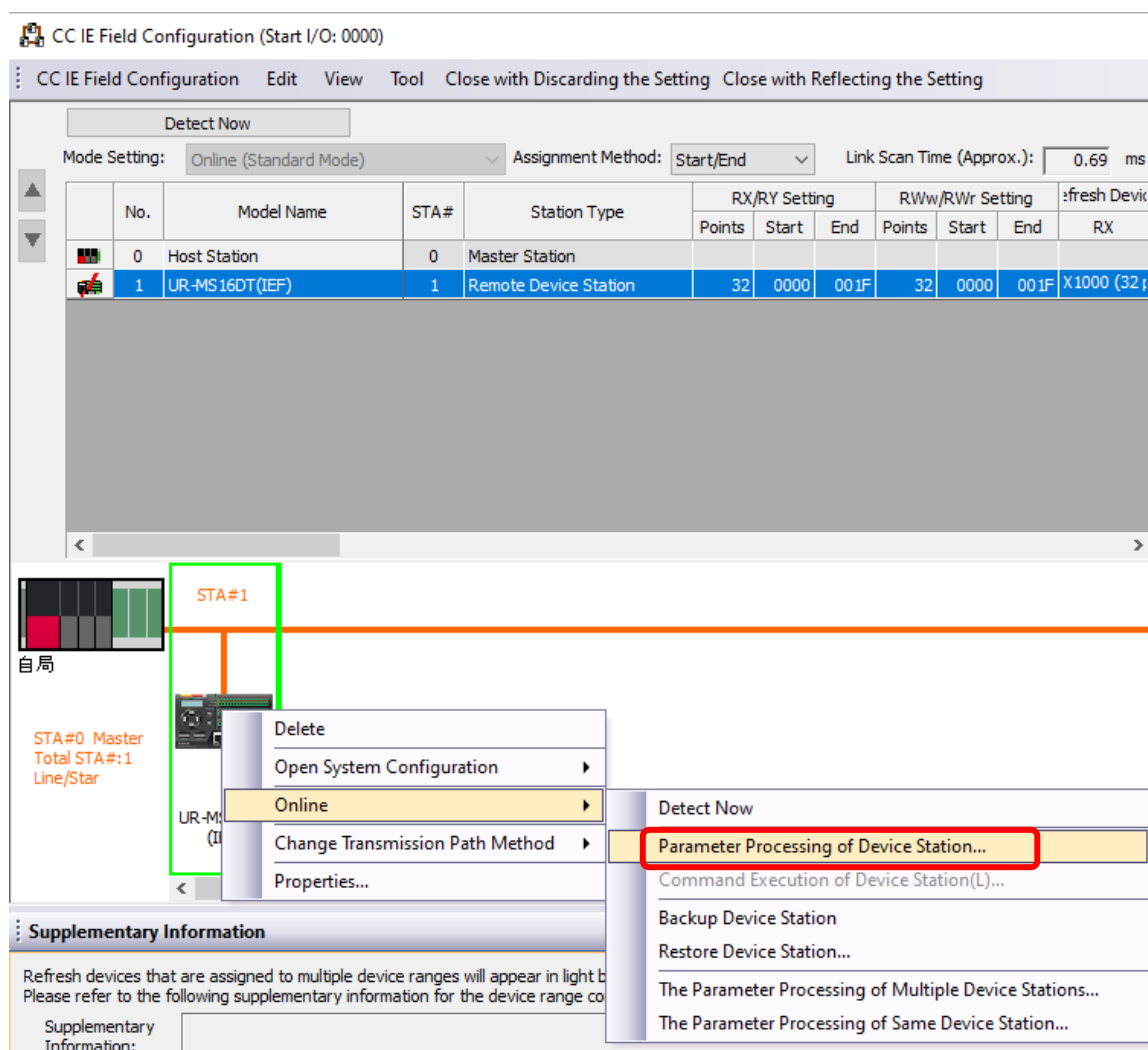
1-1-1 Updating UR-MS/-ME16DT from the Engineering Tool

If the firmware version of this product (UR-MS/-ME16DT) is earlier than 1.10xxxxxxx, connect this product to CC-Link IE TSN Master Local Unit or CC-Link IE Field Master Local Unit, transfer the firmware by an engineering tool.

If the version is 1.10xxxxxxx or later, the firmware can be easily updated by the update tool only when connected to CC-Link IE TSN. See “1-1-2 “(page 17)

● 1-1-1-1 Execute parameter processing from network configuration settings

From the network configuration settings of GX Works 3, execute the parameter processing for the UR-MS/-ME16DT to be updated.



Next, select “3. Install IODD data” from the Process to be performed (M) on the device station parameter processing screen.

Parameter Processing of Device Station

Target Module Information: UR-MS16DT(IEF)
Start I/O No.:0000 - Station No.:1

Method selection:

Parameter Information

Select All

Backup and Restore for Master

Process Option

1. Backup all data
2. Restore all data
3. Install IODD data
4. Read parameters for I/O and process data
5. Write parameters for I/O and process data
6. Read all master parameters
7. Write all master parameters
10. [Channel 0] Read all parameters
11. [Channel 0] Write all parameters
12. [Channel 1] Read all parameters
13. [Channel 1] Write all parameters
14. [Channel 2] Read all parameters
15. [Channel 2] Write all parameters
16. [Channel 3] Read all parameters
17. [Channel 3] Write all parameters
18. [Channel 4] Read all parameters
19. [Channel 4] Write all parameters
20. [Channel 5] Read all parameters
21. [Channel 5] Write all parameters
22. [Channel 6] Read all parameters
23. [Channel 6] Write all parameters
24. [Channel 7] Read all parameters
25. [Channel 7] Write all parameters
26. [Channel 8] Read all parameters
27. [Channel 8] Write all parameters
28. [Channel 9] Read all parameters
29. [Channel 9] Write all parameters
30. [Channel A] Read all parameters
31. [Channel A] Write all parameters
32. [Channel B] Read all parameters

Read all of parameters and storage data to backup

Clear All "Read Value"

Copy "Initial Value" to "Write Value"

Copy "Read Value" to "Write Value"

Write Value	Unit	Setting Range	Description
			How to use
			< Backup >
			1) Select 1. Backup all data in the
			2) Click button Select All.
			3) Click Execute parameter proce

in the selected process.

● 1-1-1-2 Firmware Update

“Import” will become active at the bottom left of the screen, so click it.

Parameter Processing of Device Station

Target Module Information: UR-MS16DT(IEF)
Start I/O No.:0000 - Station No.:1

Method selection: 3. Install IODD data

Parameter Information

Select All Cancel All Selections Clear All "Read Value" Clear All "Write Value"
Copy "Initial Value" to "Write Value" Copy "Read Value" to "Write Value"

Name	Initial Value	Unit	Read Value	Unit	Write Value	Unit	Setting Range	Description
Install data								How to use
Install data								1) Generate CSV file by exporting in parameter processing.
Install data								2) Add IODD data by IODD Converter tool into the CSV file.
Install data								3) Import the CSV file data added, or extension .iodd.csv.
Install data								4) Click Parameter execution.
Install data								note: please do not turn off check boxes and change or delete any values.
Install data								
Install data								

Process Option

There is no option in the selected process.

-The refreshed device values of remote I/O or remote registers may be overwritten.
-Accesses the PLC CPU by using the current connection destination. Please check if there is any problem with the connection destination.
-Process is executed according to the parameters written in the PLC CPU.
-For information on items not displayed on the screen, please refer to the Operating Manual.

☐ Enable safety module when succeed to write parameter

Execute Parameter Processing

Import... Export... OK Cancel

Select the firmware file to be updated, “UR-MS16DT(IEF)-ParamInfo_V**_*****.firm.csv”, and click “Open”. (The version and date of “V**_*****” in the file may be different from the screen shot. Same below)

If the connected network is IE TSN, select “UR-MS16DT(TSN)-...”. Same below.

Import

This PC > Desktop > GXW3

Search GXW3

Organize New folder

Name	Date modified	Type
UR-MS16DT(IEF)-ParamInfo_V15_20230706.itsn	1/9/2024 6:34 PM	CSV File
UR-MS16DT(IEF)-ParamInfo_V40_20240508.fpga	5/8/2024 10:22 AM	CSV File
UR-MS16DT(IEF)-ParamInfo_V120_20240508.firm	5/8/2024 3:17 PM	CSV File

File name: UR-MS16DT(IEF)-ParamInfo_V120_20240508.firm

CSV (Tab delimited) (*.csv)

Open Cancel

The data will then be stored in the write value on the screen, so simply click “Execute Parameter Processing”.

Parameter Processing of Device Station

Target Module Information: UR-MS16DT(IEF)
Start I/O No.:0000 - Station No.:1

Method selection: 3. Install IODD data

Parameter Information

Select All Cancel All Selections Clear All "Read Value" Clear All "Write Value"
Copy "Initial Value" to "Write Value" Copy "Read Value" to "Write Value"

Name	Initial Value	Unit	Read Value	Unit	Write Value	Unit	Setting Range	Description
Install data								
☒ Install data					FZcXtdXHsC...			How to use
☒ Install data					FZdTWJMoq...			1) Generate CSV file by exporting in parameter processing.
☒ Install data					FZeETtnLB...			2) Add IODD data by IODD Converter tool into the CSV file.
☒ Install data					FZfMDUDU...			3) Import the CSV file data added, or extension .iodd.csv.
☒ Install data					FZgFKbUzvJ...			4) Click Parameter execution.
☒ Install data					FZhDRALOA...			note: please do not turn off check boxes and change or delete any valu
☒ Install data					FZfMoWlW...			
☒ Install data					FZfKRMivR			

Process Option

There is no option in the selected process.

-The refreshed device values of remote I/O or remote registers may be overwritten.
-Accesses the PLC CPU by using the current connection destination. Please check if there is any problem with the connection destination.
-Process is executed according to the parameters written in the PLC CPU.
-For information on items not displayed on the screen, please refer to the Operating Manual.

☐ Enable safety module when succeed to write parameter

Execute Parameter Processing

Import... Export... OK Cancel

A confirmation message box will appear, so click “Yes”.

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 The process "3. Install IODD data" will be executed, targeting the selected parameters.
The operation of the device station may be changed by the execution of the process "3. Install IODD data".
Also it may overwrite the device value of the PLC CPU refreshing the remote I/O and remote registers.
Please confirm safety before the execution.

-Please confirm that the Connection Destination PLC is correct.
-Please confirm that the parameter of CC IE Field module is set correctly.
-Please confirm that the target device station is correct.

Do you want to execute?

Yes No

When writing is complete, a completion message box will appear, so click “OK”.

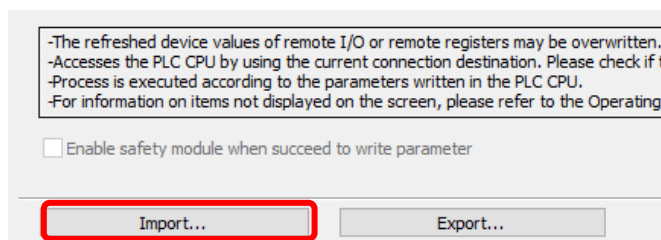
MELSOFT GX Works3

 The execution of the process "3. Install IODD data" is completed.

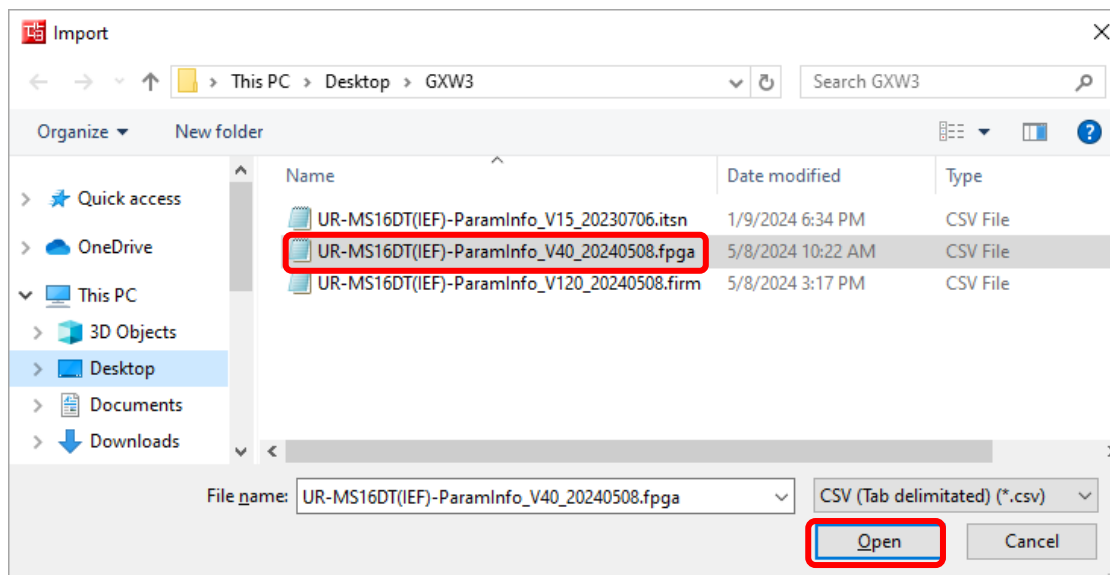
OK

● 1-1-1-3 Update FPGA data

Next, update the FPGA data. Once you update the FPGA, you will be able to use up to 16 channels of pulse input functionality. Click “Import” at the bottom left of the screen, just like in the previous section.



Select the FPGA data file to be updated, “UR-MS16DT(IEF)-ParamInfo_V**_*****.fpga.csv”, and click “Open”.



The data will then be stored in the write value on the screen, so simply click “Execute Parameter Processing”.

Parameter Processing of Device Station

Target Module Information: UR-MS16DT(IEF)
Start I/O No.:0000 - Station No.:1

Method selection: 3. Install IODD data

Parameter Information

Select All Cancel All Selections Clear All "Read Value" Clear All "Write Value"
Copy "Initial Value" to "Write Value" Copy "Read Value" to "Write Value"

Name	Initial Value	Unit	Read Value	Unit	Write Value	Unit	Setting Range	Description
Install data								
☒ Install data					DowAEvJLA...			How to use
☒ Install data					DoxDCIFBzE...			1) Generate CSV file by exporting in parameter processing.
☒ Install data					DoyAAAAA...			2) Add IODD data by IODD Converter tool into the CSV file.
☒ Install data					DozAAAAA...			3) Import the CSV file data added, or extension .iodd.csv.
☒ Install data					DpAAAAA...			4) Click Parameter execution.
☒ Install data					DpBAAAA...			note: please do not turn off check boxes and change or delete any valu
☒ Install data					DpCAEvAA...			
☒ Install data					DpDAAAA...			

Process Option

There is no option in the selected process.

-The refreshed device values of remote I/O or remote registers may be overwritten.
-Accesses the PLC CPU by using the current connection destination. Please check if there is any problem with the connection destination.
-Process is executed according to the parameters written in the PLC CPU.
-For information on items not displayed on the screen, please refer to the Operating Manual.

☐ Enable safety module when succeed to write parameter

Execute Parameter Processing

Import... Export... OK Cancel

A confirmation message box will appear, so click "Yes".

MELSOFT GX Works3

 The process "3. Install IODD data" will be executed, targeting the selected parameters.
The operation of the device station may be changed by the execution of the process "3. Install IODD data".
Also it may overwrite the device value of the PLC CPU refreshing the remote I/O and remote registers.
Please confirm safety before the execution.

-Please confirm that the Connection Destination PLC is correct.
-Please confirm that the parameter of CC IE Field module is set correctly.
-Please confirm that the target device station is correct.

Do you want to execute?

Yes No

When writing is complete, a completion message box will appear, so click "OK".

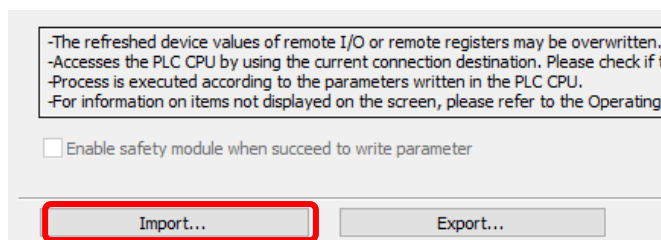
MELSOFT GX Works3

 The execution of the process "3. Install IODD data" is completed.

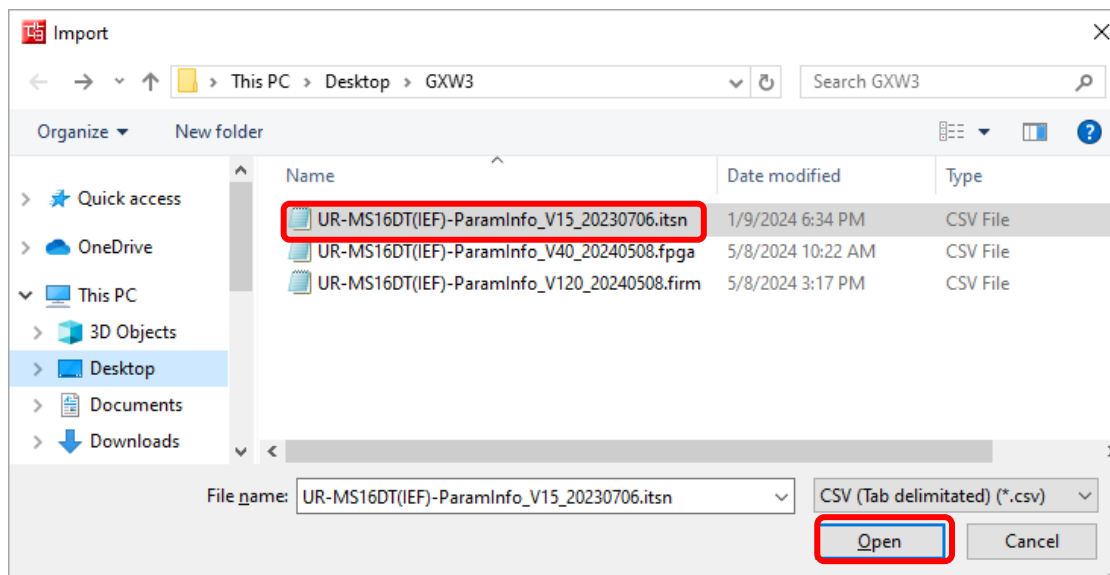
OK

● 1-1-1-4 CC-Link IE TSN network firmware update

With CC-Link IE TSN, you can connect to a PC via Ethernet to read and write settings. Take this opportunity to update the CC-Link IE TSN network firmware. Similarly, click “Import” at the bottom left of the screen.



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



The data will then be stored in the write value on the screen, so simply click “Execute Parameter Processing”.

Parameter Processing of Device Station

Target Module Information: UR-MS16DT(IEF)
Start I/O No.:0000 - Station No.:1

Method selection: 3. Install IODD data

Parameter Information

Select All Cancel All Selections Clear All "Read Value" Clear All "Write Value"
Copy "Initial Value" to "Write Value" Copy "Read Value" to "Write Value"

	Name	Initial Value	Unit	Read Value	Unit	Write Value	Unit	Setting Range	Description
Install data									
☒	Install data					FUGAADBk...			How to use
☒	Install data					FUhBcADGa...			1) Generate CSV file by exporting in parameter processing.
☒	Install data					FUXbXSJOJ...			2) Add IODD data by IODD Converter tool into the CSV file.
☒	Install data					FUJjHFDEIX...			3) Import the CSV file data added, or extension .iodd.csv.
☒	Install data					FUKLZEAJzP...			4) Click Parameter execution.
☒	Install data					FUILJATkIL...			note: please do not turn off check boxes and change or delete any valu
☒	Install data					FUmAAAAA...			
☒	Install data					FI InYMRBnf			

Process Option

Install data

There is no option in the selected process.

-The refreshed device values of remote I/O or remote registers may be overwritten.
-Accesses the PLC CPU by using the current connection destination. Please check if there is any problem with the connection destination.
-Process is executed according to the parameters written in the PLC CPU.
-For information on items not displayed on the screen, please refer to the Operating Manual.

☐ Enable safety module when succeed to write parameter

Execute Parameter Processing

Import... Export... OK Cancel

A confirmation message box will appear, so click “Yes”.

MELSOFT GX Works3

 The process "3. Install IODD data" will be executed, targeting the selected parameters.
The operation of the device station may be changed by the execution of the process "3. Install IODD data".
Also it may overwrite the device value of the PLC CPU refreshing the remote I/O and remote registers.
Please confirm safety before the execution.

-Please confirm that the Connection Destination PLC is correct.
-Please confirm that the parameter of CC IE Field module is set correctly.
-Please confirm that the target device station is correct.

Do you want to execute?

Yes No

When writing is complete, a completion message box will appear, so click “OK”.

MELSOFT GX Works3

 The execution of the process "3. Install IODD data" is completed.

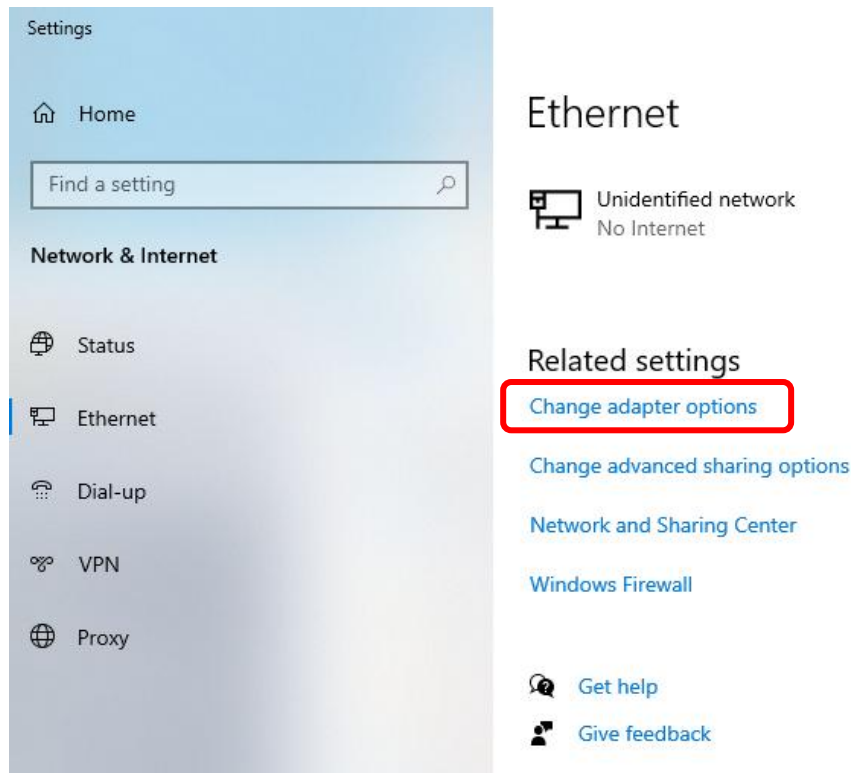
OK

1-1-2 Updating UR-MS/-ME/-ES/-EE16DT from the Update Tool

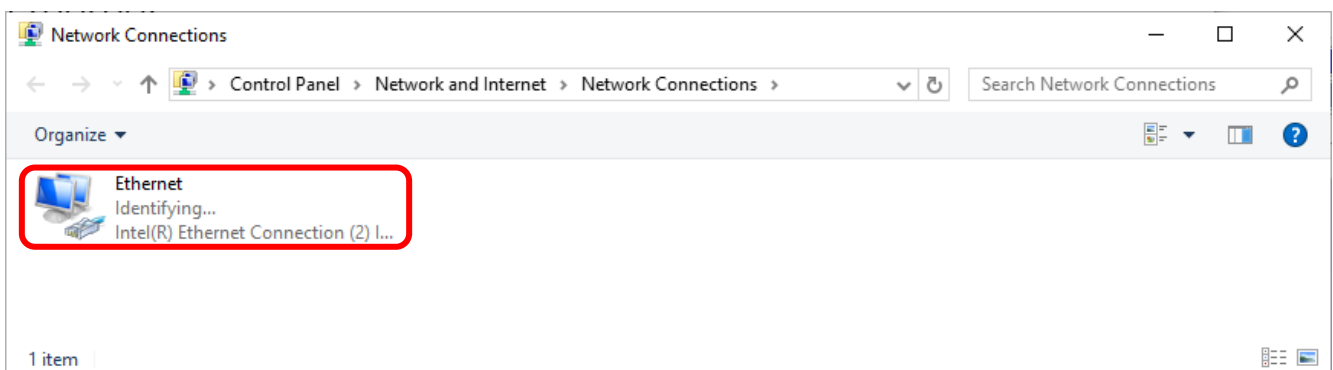
• 1-1-2-1 Setting up the Ethernet port on your computer

To update the firmware, connect the unit to a computer with an Ethernet cable and set the computer's Ethernet settings to a static IP address.

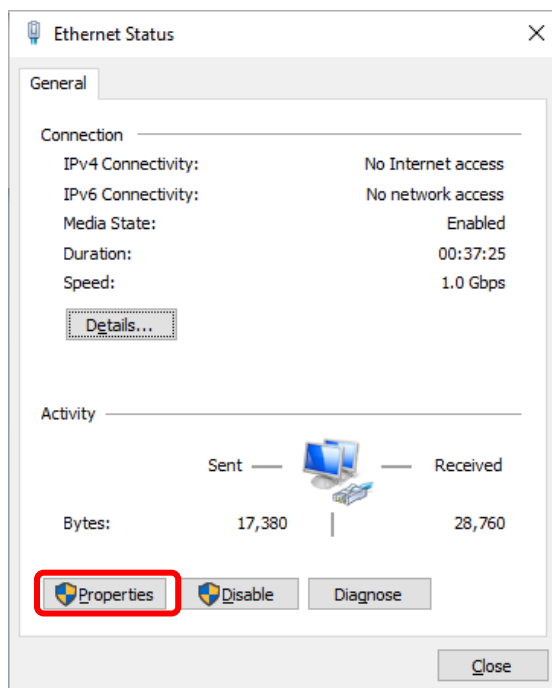
From Windows Network Status (type “network status” in the search bar at the bottom left to display a list), click “Change adapter options”.



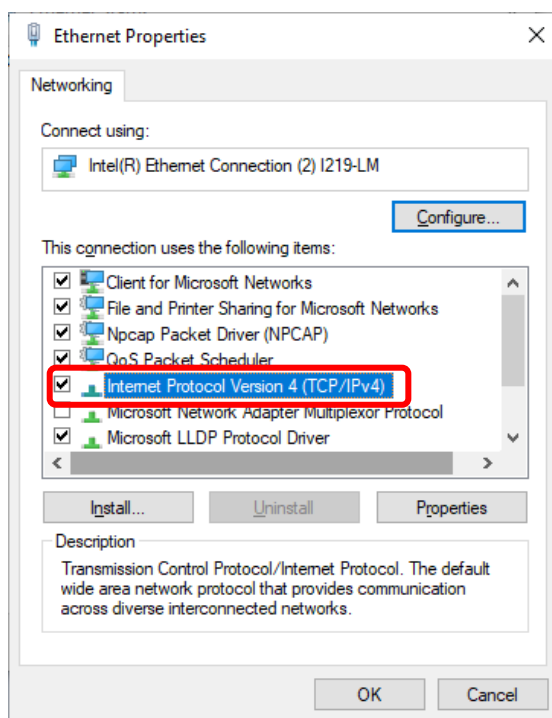
Now, double-click the connected network adapter. In this example, select (double-click) the wired LAN called "Ethernet".



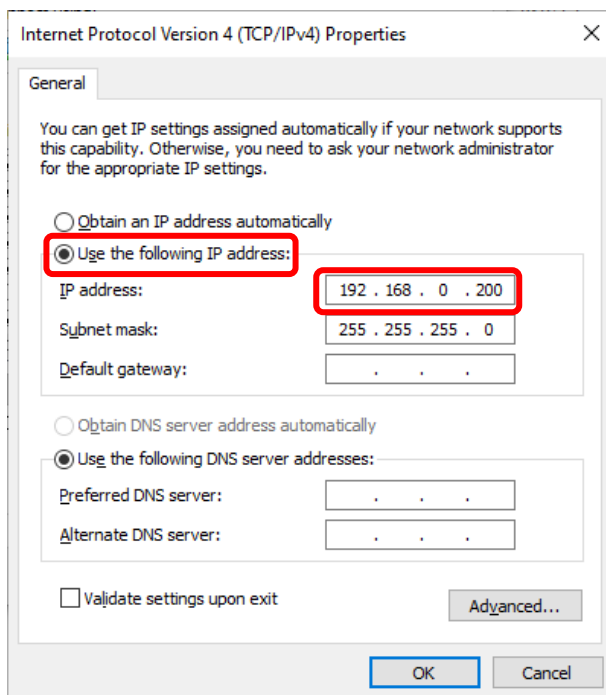
The Ethernet Status screen will appear, so click [Properties].



Then double-click "Internet Protocol Version 4 (TCP/IPv4)".



Finally, click "Use the following IP address" and enter an IP address in the IP address displayed below, where the first three digits of the UR-MS/-ME/-ES/-EE's IP address are the same, but the last four digits are different, then click the OK button (or Close) to close the window.



Please note that if the first three digits of the IP address are different from those of the -MS/-ME/-ES/-EE 16DT, or if the same IP address exists on the -MS/-ME/-ES/-EE 16DT network, communication will not be possible.

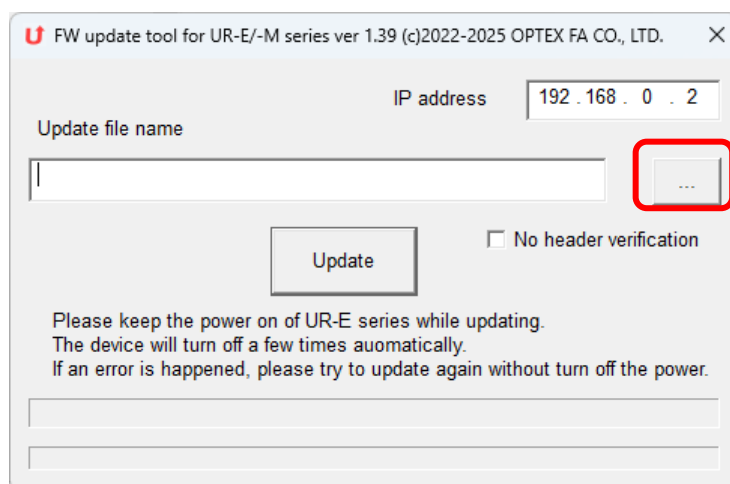
- 1-1-2-2 Update the UR-MS/-ME16DT using the update tool

If the unit's version is 1.10xxxxxx or later, you can connect to a PC without connecting to CC-Link IE TSN. For earlier versions, transfer the firmware via CC-Link IE TSN Master Local Unit or CC-Link IE Field Master Local Unit instead of this procedure. See "1-1-1 Updating UR-MS/-ME16DT from the Engineering Tool"(page 9).

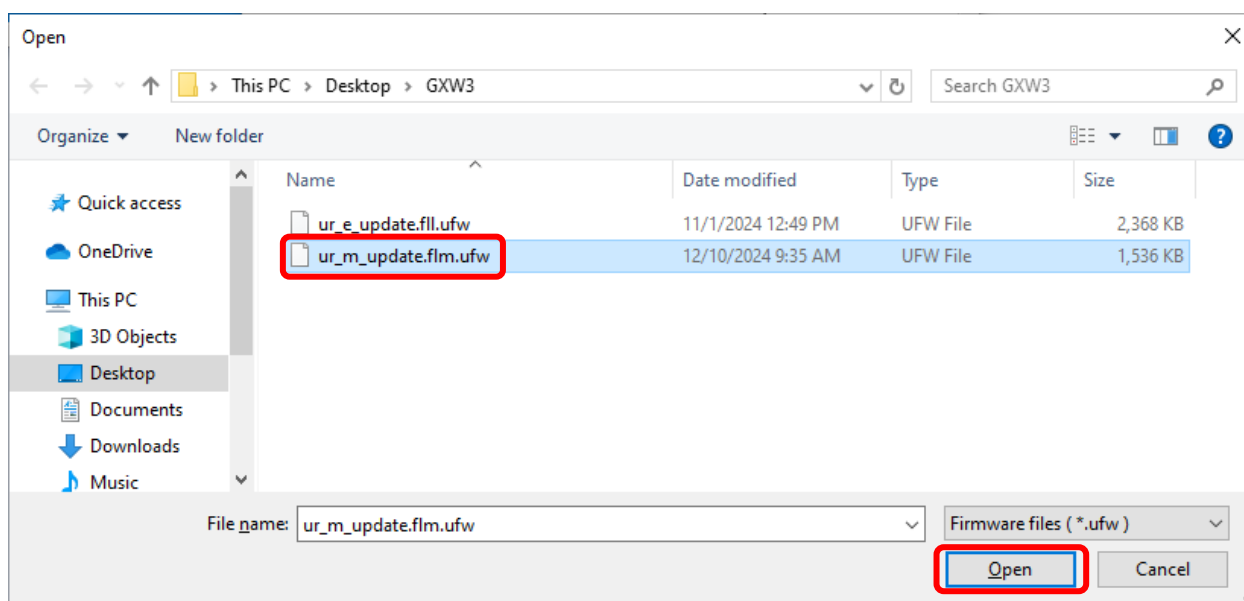
Switching the network type of this product to CC-Link IE TSN, you will be able to connect to a PC via Ethernet to update and read/write settings.(For UR-MS/ME16DT switch to "CC-Link IE TSN", and for UR-ES/EE16DT switch to "Network other than EtherCAT".)

Launch the update tool "UR_E_Updater.exe".

Once it launches successfully, click the "..." button to select the file to install.

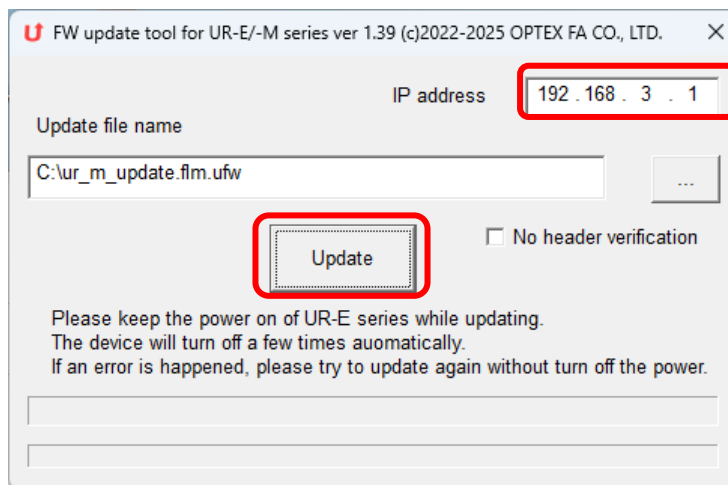


Select the file to update, "ur_m_update.flm.ufw", and click "Open".

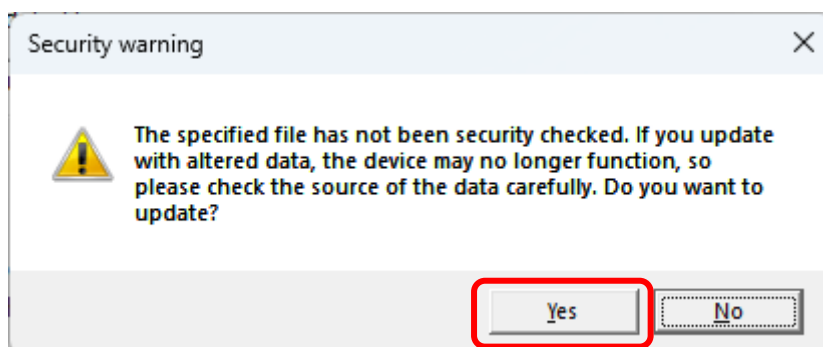


Set the IP address to “192.168.3.”, the station number of the unit you want to update (the value of the rotary switch), and then click the “Update” button.

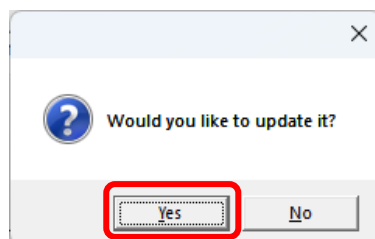
Here, the station number of this unit is set to 1 (rotary switch up is 0, down is 1).



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



A confirmation message box will appear; click “Yes”.

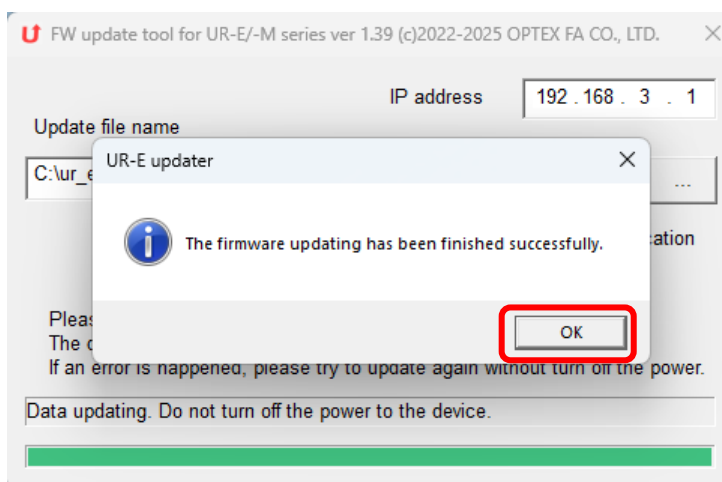


Once the firmware data has been transferred to the unit, it will restart once. The unit's EVENT and ALARM indicators will light up during the restart, so please do not turn off the power during this time.

Also, if an Ethernet communication error occurs during the update, run the update again without turning off the unit's power.

If the power goes out, the unit may not start up. If it does not start up, please contact OPTeX FA (with the information at the back of this user's manual).

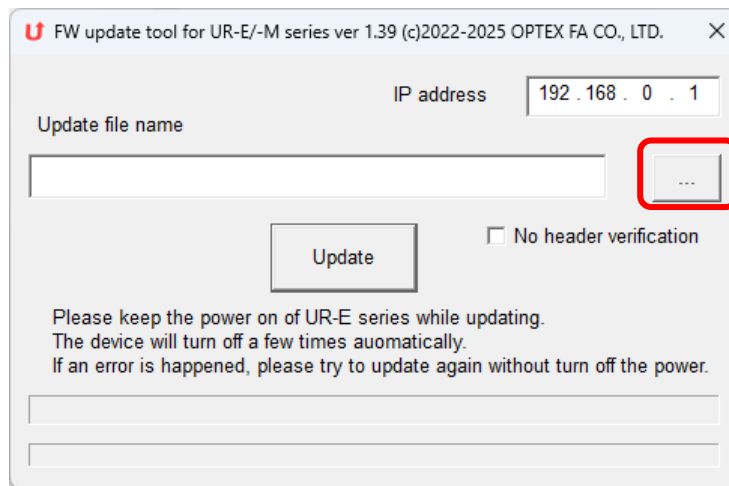
When the update is complete, a message box will appear. Click "OK" to complete the process.



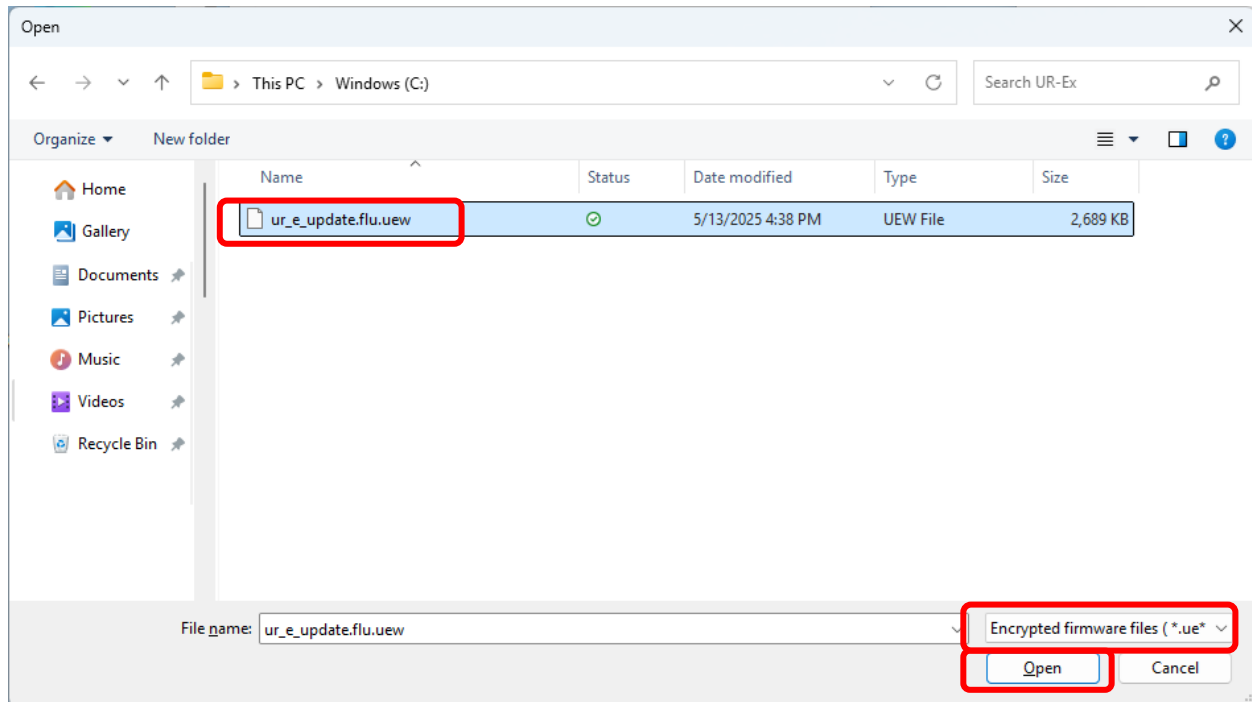
- 1-1-2-3 Update the UR-ES/-EE16DT using the update tool

Launch “UR_E_Updater.exe”.

Once it is launched successfully, click the “...” button to select the file to install.

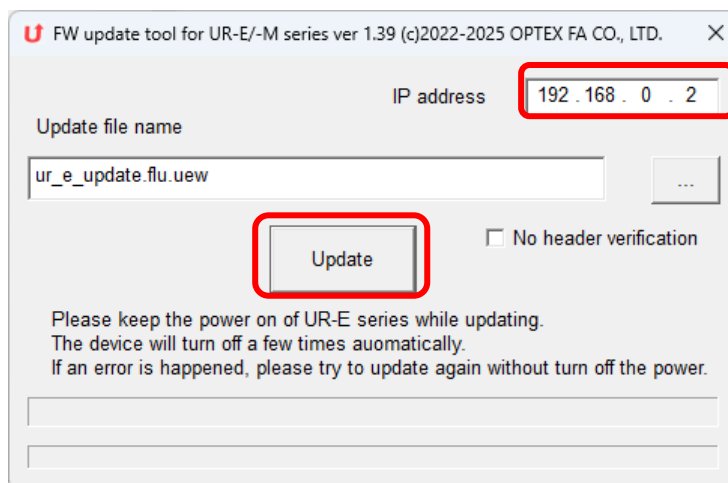


Depending on the type of file to be updated (“ur_e_update.xxx.ufw” or “ur_e_update.xxx.uew”), select the file type in “File Name” and click “Open.”

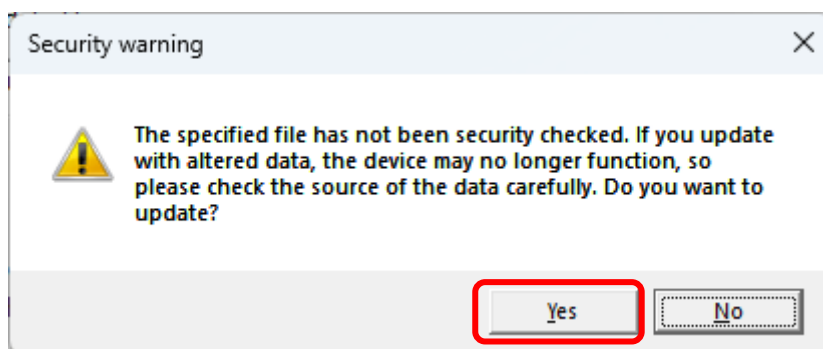


Once you have matched the IP address to the value of the unit you want to update, click the "Update" button.

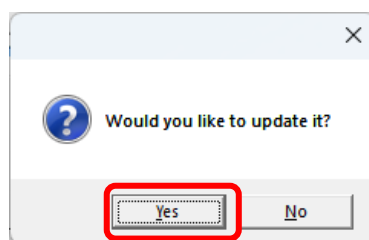
Here, the rotary switch on this unit is set to 0 up and 2 down.



If the following message box appears, click the "Yes" button.



A confirmation message box will appear; click "Yes".

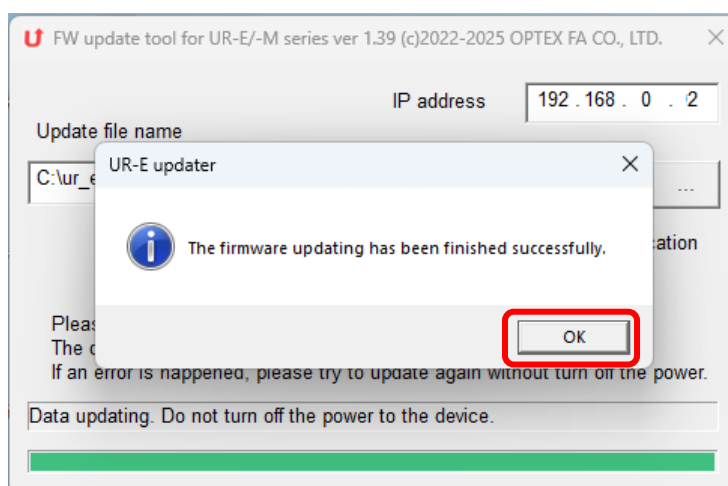


Once the firmware data has been transferred to the unit, it will restart twice. The unit's EVENT and ALARM indicators will light up during the restart, so please do not turn off the power during this time.

Also, if an Ethernet communication error occurs during the update, run the update again without turning off the unit's power.

If the unit's power goes off during the update, it may not start up. If it does not start up, please contact our customer support at the end of this manual.

When the update is complete, a message box will appear. Click "OK" to complete the process.



2

Let's use

This chapter explains how to use this tool in a simple way.

2-1 Try using it offline

2-1-1 Installing the software

This tool consists of only two files: the executable file UR_Explorer.exe and the language replacement file URname_**.csv. In English Windows the URname_**.csv is not imported. Copy it to any folder and use it.

Therefore, a dedicated installer is not provided.

Double-click UR_Explorer.exe to start the software.

Various settings on this tool are saved in a configuration file called UR_Explorer.ini. These files should be stored in the same folder.

Caution

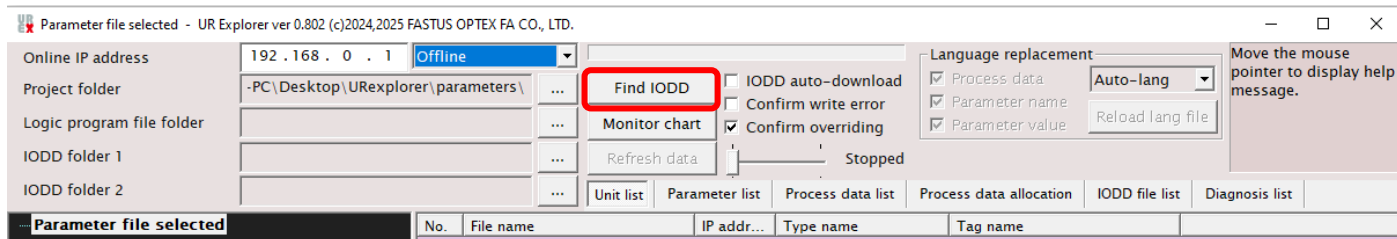
When connecting to UR-ES16DT/-EE16DT with firmware version "1.15xxxxxx" or later, use this tool version "0.605" or later.

2-1-2 Using IODD

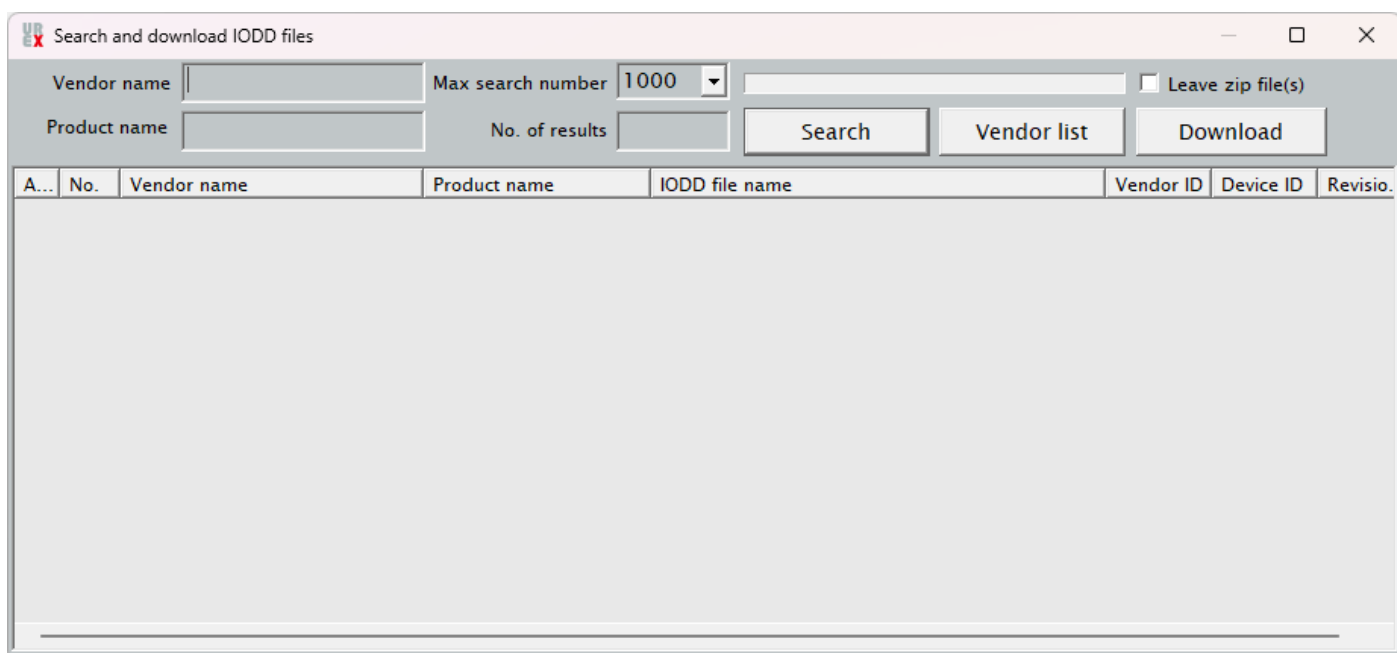
If you want to connect an IO-Link device and refer to or write parameters, you need an IODD file. This tool supports the IODD Finder API, and allows you to search and download. You can also manually download IODD files from IODDfinder (<https://ioddfinder.io-link.com/#/>) or from the website of each device manufacturer as before.

● 2-1-2-1 Searching for IODD

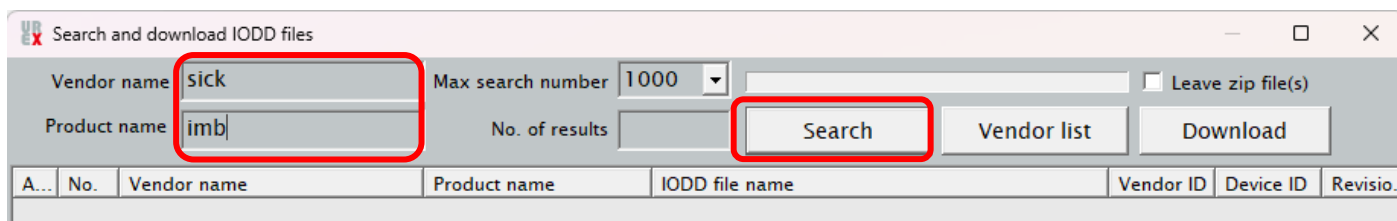
To search for and download IODDs from this tool, click "Find IODD" at the top center of the screen. This uses the Internet-based IODDfinder, so please use a computer with an Internet connection.



The "Search and download IODD files" dialog will then appear.



Here, we will search for the IODD of SICK's IMB series. Enter "sick" in "Vendor name" and "imb" in "Product name", and click the "Search" button or press the ENTER key.



The number of searched items is displayed as "52". There are 52 IODD files.

Search and download IODD files

Vendor name: Sick Max search number: 1000 Leave zip file(s): ☐

Product name: imb No. of results: 52 Search Vendor list Download

A...	No.	Vendor name	Product name	IODD file name	Vendor ID	Device ID	Revis
☐	1	SICK AG	IMB08-02BPSVT05	SICK-IMB-1070168-20150508-IODD1.0.1	26	1070168	1.0
☐	2	SICK AG	IMB08-04NPSVC05	SICK-IMB-1070170-20150508-IODD1.0.1	26	1070170	1.0
☐	3	SICK AG	IMB12-08NPSVC05	SICK-IMB-1070171-20150508-IODD1.0.1	26	1070171	1.0
☐	4	SICK AG	IMB18-12NPSVC05	SICK-IMB-1070173-20150508-IODD1.0.1	26	1070173	1.0
☐	5	SICK AG	IMB30-15BPSVC0K	SICK-IMB-1070176-20150508-IODD1.0.1	26	1070176	1.0
☐	6	SICK AG	IMB12-04BPSVU2S	SICK-IMB-1072455-20150508-IODD1.0.1	26	1072455	1.0
☐	7	SICK AG	IMB30-15BPSVU2K	SICK-IMB-1072457-20150508-IODD1.0.1	26	1072457	1.0
☐	8	SICK AG	IMB08-04NPSVT05	SICK-IMB-1072592-20150508-IODD1.0.1	26	1072592	1.0
☐	9	SICK AG	IMB30-15BPSVC05	SICK-IMB-1072602-20150508-IODD1.0.1	26	1072602	1.0
☐	10	SICK AG	IMB08-02BPSVC05	SICK-IMB-1072673-20150508-IODD1.0.1	26	1072673	1.0
☐	11	SICK AG	IMB08-02BPSVU2S	SICK-IMB-1072683-20150508-IODD1.0.1	26	1072683	1.0
☐	12	SICK AG	IMB08-04NPSVU2S	SICK-IMB-1072687-20150508-IODD1.0.1	26	1072687	1.0
☐	13	SICK AG	IMB08-02BPSVT0K	SICK-IMB-1072691-20150508-IODD1.0.1	26	1072691	1.0
☐	14	SICK AG	IMB08-04NPSVT0K	SICK-IMB-1072694-20150508-IODD1.0.1	26	1072694	1.0
☐	15	SICK AG	IMB08-02BPSVU2K	SICK-IMB-1072697-20150508-IODD1.0.1	26	1072697	1.0
☐	16	SICK AG	IMB08-04NPSVU2K	SICK-IMB-1072701-20150508-IODD1.0.1	26	1072701	1.0

Click the "Product name" column bar to sort by product model name. An "*" will be added to the sorted column.

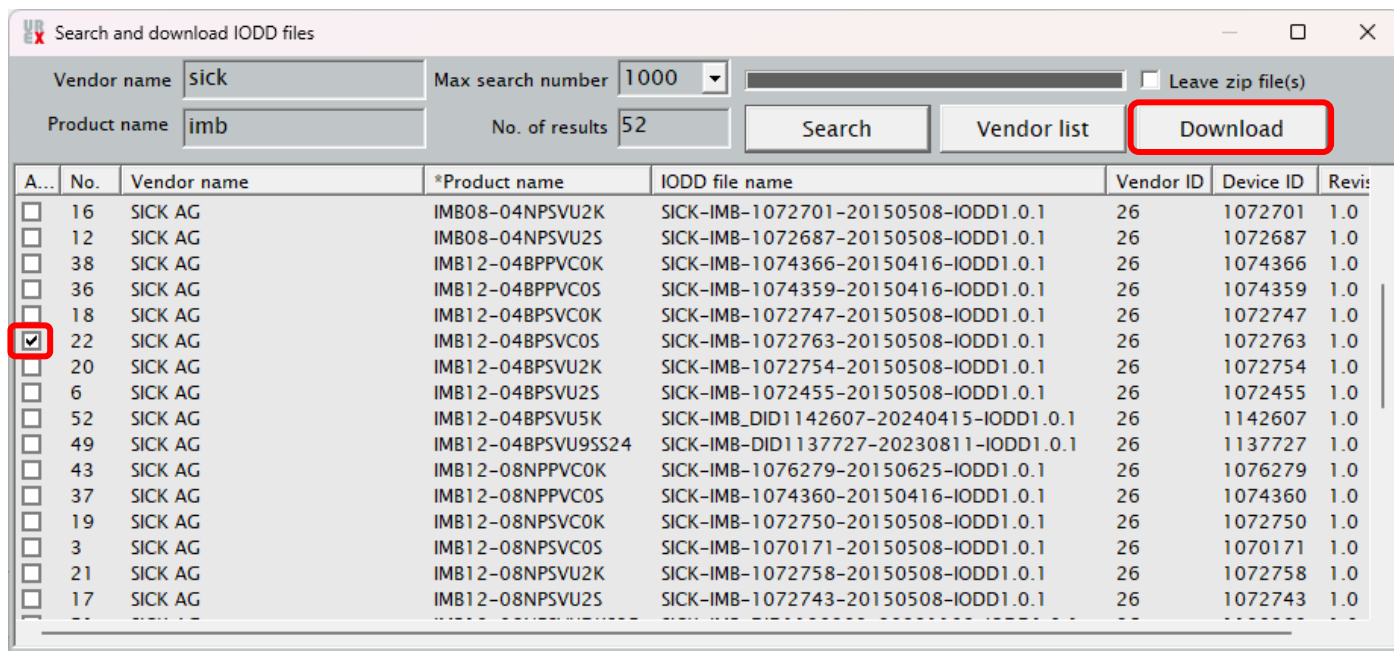
Search and download IODD files

Vendor name: Sick Max search number: 1000 Leave zip file(s): ☐

Product name: imb No. of results: 52 Search Vendor list Download

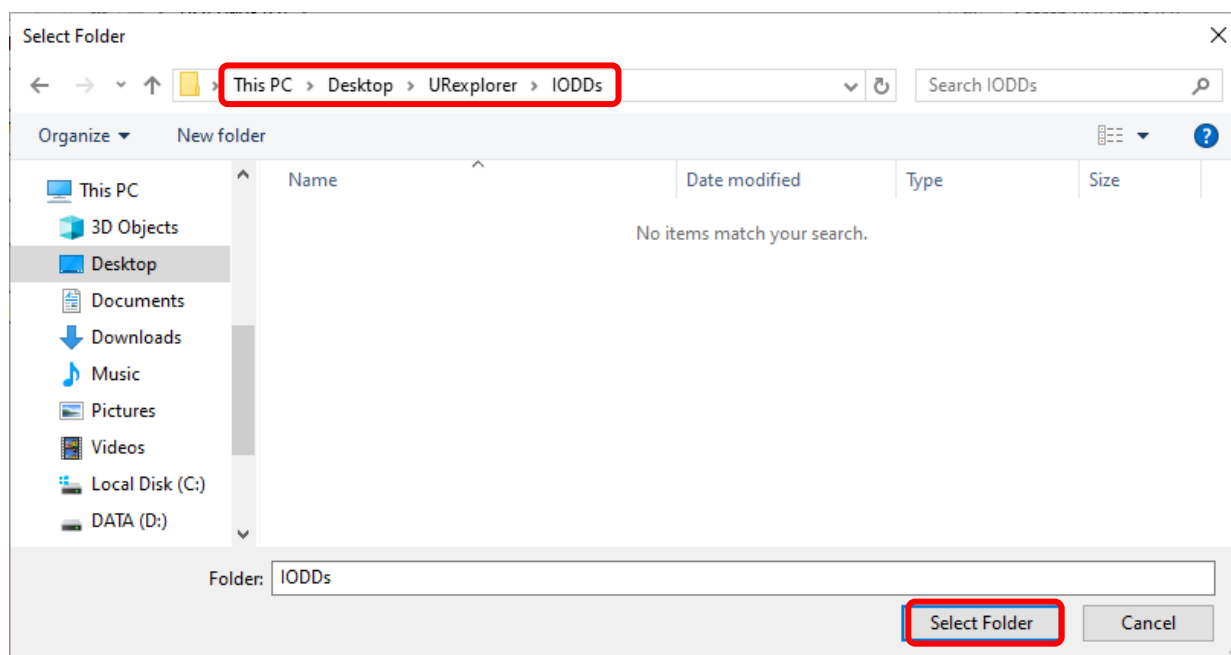
A...	No.	Vendor name	*Product name	IODD file name	Vendor ID	Device ID	Revis
☐	35	SICK AG	IMB08-02BPPVC05	SICK-IMB-1074349-20150416-IODD1.0.1	26	1074349	1.0
☐	10	SICK AG	IMB08-02BPSVC05	SICK-IMB-1072673-20150508-IODD1.0.1	26	1072673	1.0
☐	13	SICK AG	IMB08-02BPSVT0K	SICK-IMB-1072691-20150508-IODD1.0.1	26	1072691	1.0
☐	1	SICK AG	IMB08-02BPSVT05	SICK-IMB-1070168-20150508-IODD1.0.1	26	1070168	1.0
☐	15	SICK AG	IMB08-02BPSVU2K	SICK-IMB-1072697-20150508-IODD1.0.1	26	1072697	1.0
☐	46	SICK AG	IMB08-02BPSVU2KS05	SICK-IMB-1089548-20170614-IODD1.0.1	26	1089548	1.0
☐	11	SICK AG	IMB08-02BPSVU2S	SICK-IMB-1072683-20150508-IODD1.0.1	26	1072683	1.0
☐	47	SICK AG	IMB08-02BPSVU2SS06	SICK-IMB-1089550-20170614-IODD1.0.1	26	1089550	1.0
☐	48	SICK AG	IMB08-02BPSVU5KS12	SICK-IMB-1126252-20220216-IODD1.0.1	26	1126252	1.0
☐	2	SICK AG	IMB08-04NPSVC05	SICK-IMB-1070170-20150508-IODD1.0.1	26	1070170	1.0
☐	14	SICK AG	IMB08-04NPSVT0K	SICK-IMB-1072694-20150508-IODD1.0.1	26	1072694	1.0
☐	8	SICK AG	IMB08-04NPSVT05	SICK-IMB-1072592-20150508-IODD1.0.1	26	1072592	1.0
☐	16	SICK AG	IMB08-04NPSVU2K	SICK-IMB-1072701-20150508-IODD1.0.1	26	1072701	1.0
☐	12	SICK AG	IMB08-04NPSVU2S	SICK-IMB-1072687-20150508-IODD1.0.1	26	1072687	1.0
☐	38	SICK AG	IMB12-04BPPVC0K	SICK-IMB-1074366-20150416-IODD1.0.1	26	1074366	1.0
☐	36	SICK AG	IMB12-04BPPVC05	SICK-IMB-1074359-20150416-IODD1.0.1	26	1074359	1.0

Here, we will use "IMB12-04BPSVC0S" as an example. Scroll down the IODD list a little and check the check box at the left end of the IMB12-04BPSVC0S row. Then click "Download".

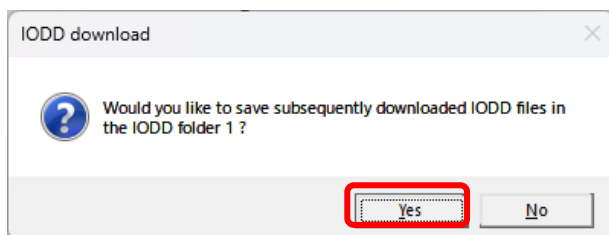


If this is the first time you use this tool, the IODD folder will remain blank, so a dialog box will appear prompting you to specify IODD folder 1.

Specify the desired folder in which to save the IODD file and click "Select Folder".



Next, a confirmation message will appear asking if you want to save the files in the same folder; click "Yes."



Once the download is complete, the check box will be automatically unchecked.

A...	No.	Vendor name	*Product name	IODD file name
☐	16	SICK AG	IMB08-04NPSVU2K	SICK-IMB-1072701-20150508-IODD1.0.1
☐	12	SICK AG	Information	IODD1.0.1
☐	38	SICK AG	Information	IODD1.0.1
☐	36	SICK AG	Information	IODD1.0.1
☐	18	SICK AG	Information	IODD1.0.1
☒	22	SICK AG	Information	IODD1.0.1
☐	20	SICK AG	Information	IODD1.0.1
☐	6	SICK AG	Information	IODD1.0.1
☐	52	SICK AG	Information	S-IODD1.0.1
☐	49	SICK AG	Information	IODD1.0.1



The 1 of IODD file(s) are downloaded and converted.

OK

The downloaded file will be automatically added to the IODD file list, and a csv file will be generated by interpreting and converting the contents of the xml file.

IODD folder 1	c:\tmp\UR_Explorer\IODDs\	...	Refresh data	Stopped					
IODD folder 2		...	Unit list	Parameter list	Process data list	Process data allocation	IODD file list	Diagnosis list	
— Parameter file selected		Not	No	Exp	IODD file name	Vendor ID	Device ID	Revision ID	Result of conversion
		☐	1	1	SICK-IMB-1072763-20150508-IODD1.0.1.xml	26	1072763	1.0	The conversion was

●●● MEMO ●●●

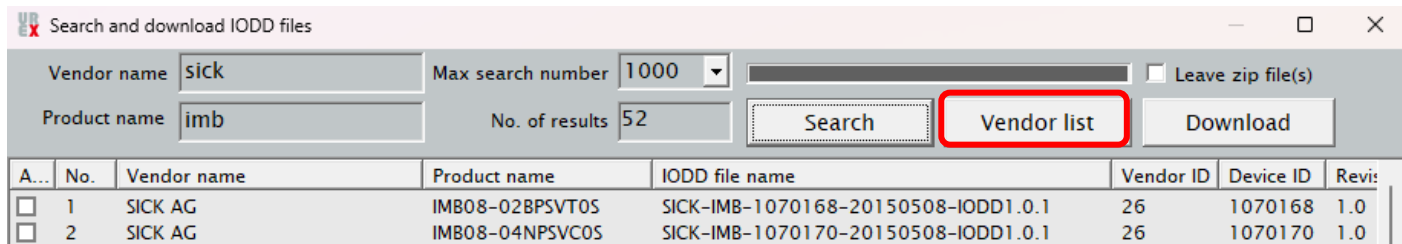
You can check multiple IODD files and download them all at once.

Checked lines will not be erased when searching again, but will be moved to the top and displayed.

• 2-1-2-2 Displaying the vendor list

You can read and display a list of IO-Link device vendor names from IODDfinder on the Internet.

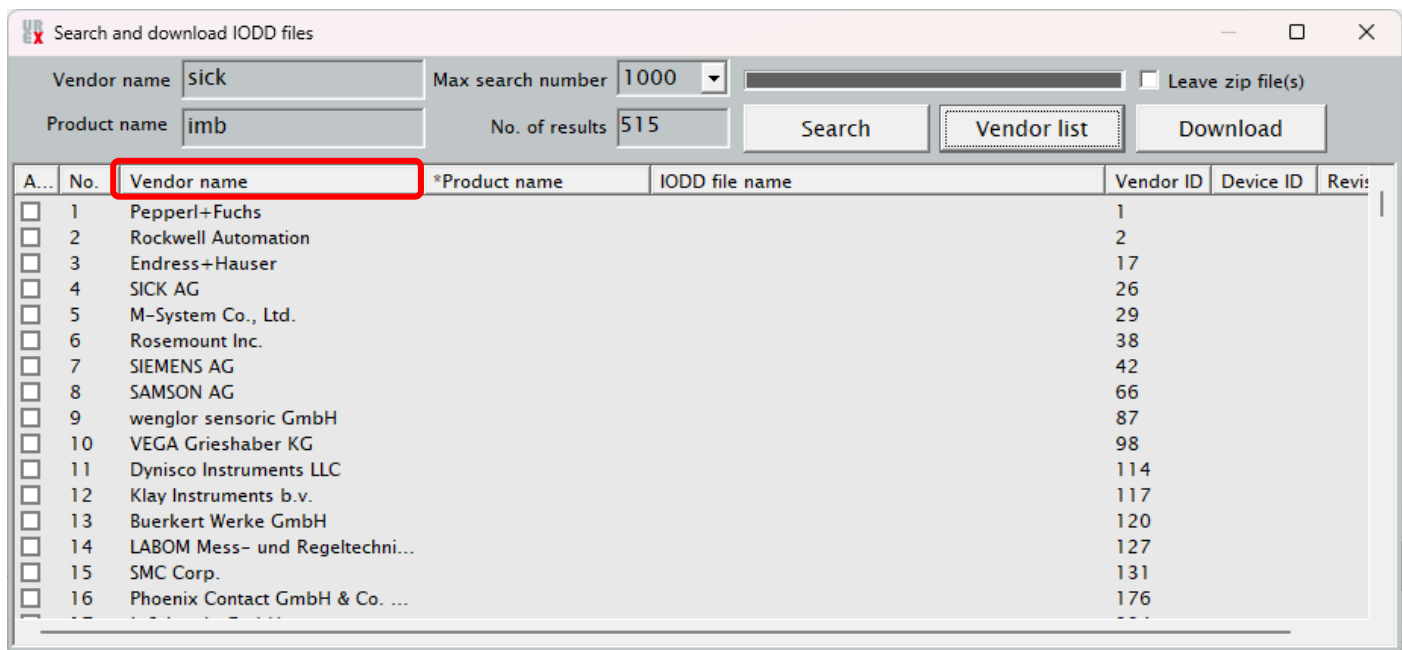
Click "Vendor list" on the screen to display the list. The search criteria are disabled, and all vendors are displayed.



The screenshot shows the IODDfinder search interface. The search criteria are set to Vendor name: sick, Product name: imb, and Max search number: 1000. The number of results is 52. The "Vendor list" button is highlighted with a red box. Below the search bar, a table displays the search results.

A...	No.	Vendor name	Product name	IODD file name	Vendor ID	Device ID	Revis
☐	1	SICK AG	IMB08-02BPSVT05	SICK-IMB-1070168-20150508-IODD1.0.1	26	1070168	1.0
☐	2	SICK AG	IMB08-04NP5VC05	SICK-IMB-1070170-20150508-IODD1.0.1	26	1070170	1.0

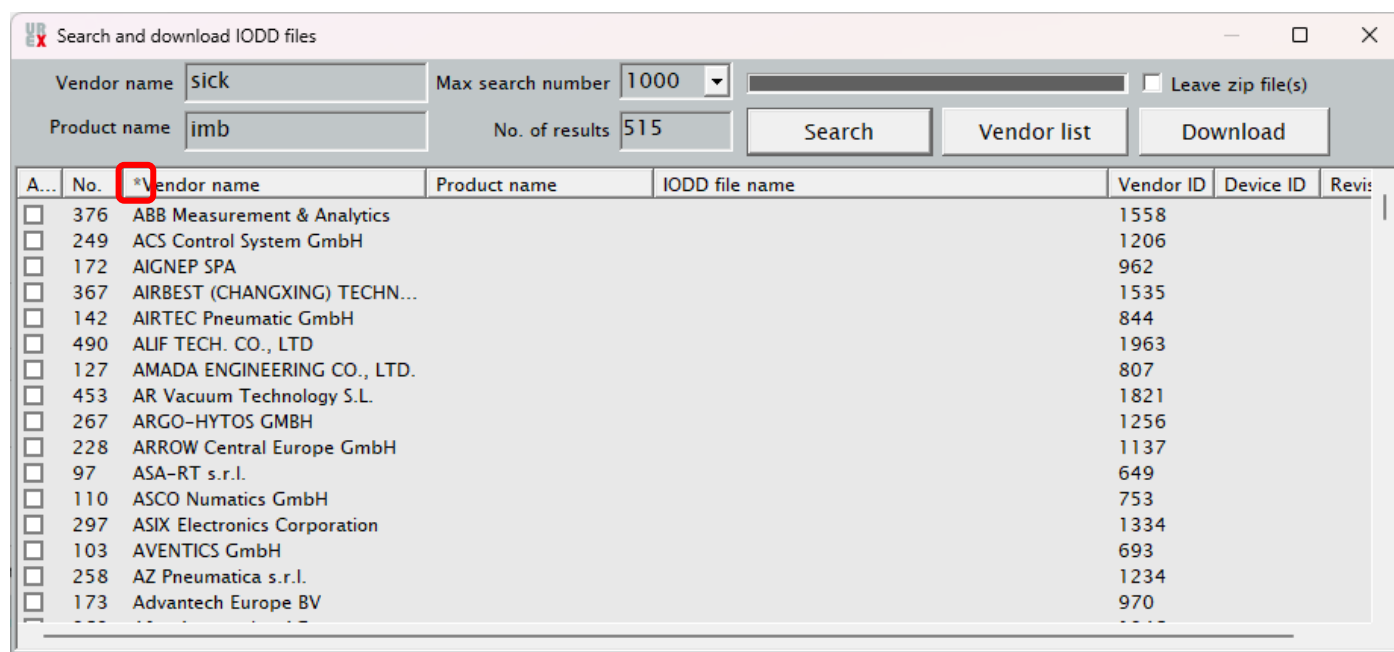
The vendor list is sorted by vendor ID. Click the "Vendor name" column bar to sort by vendor name.



The screenshot shows the IODDfinder search interface with the "Vendor list" button highlighted. The search criteria are the same as in the previous screenshot. The table below shows the vendor list sorted by vendor name, with the "Vendor name" column header highlighted by a red box.

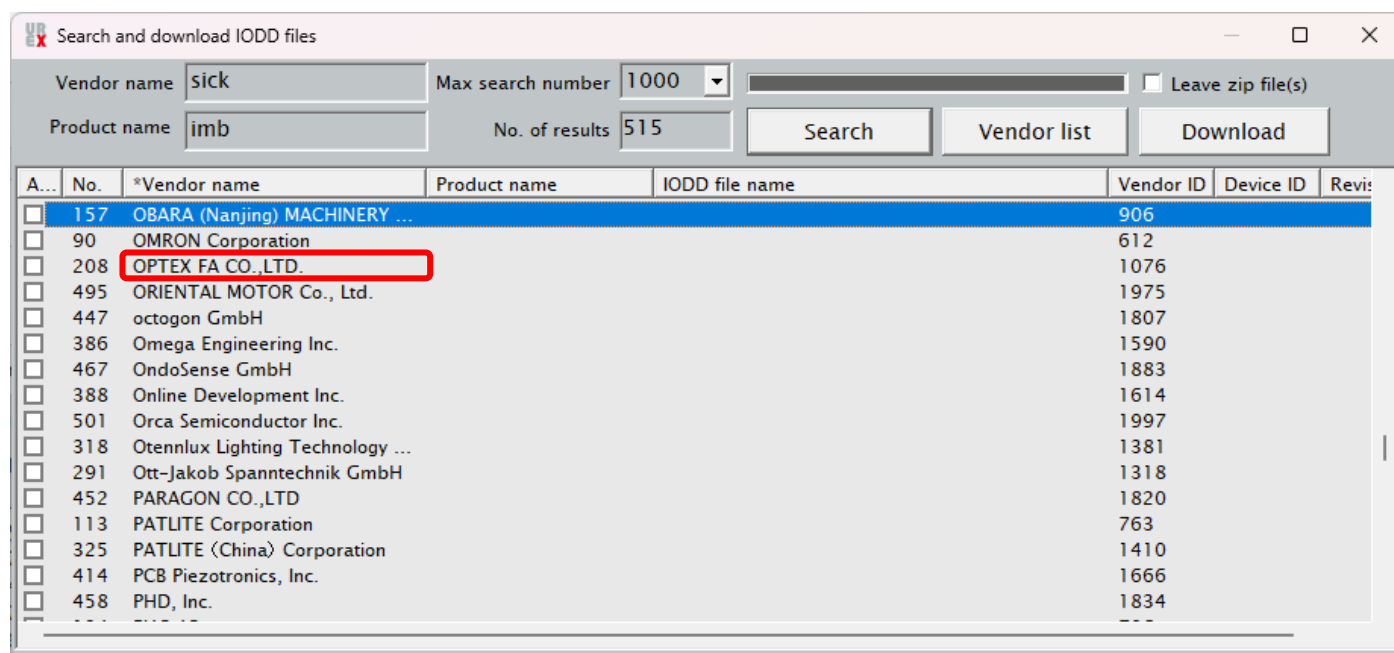
A...	No.	Vendor name	*Product name	IODD file name	Vendor ID	Device ID	Revis
☐	1	Pepperl+Fuchs			1		
☐	2	Rockwell Automation			2		
☐	3	Endress+Hauser			17		
☐	4	SICK AG			26		
☐	5	M-System Co., Ltd.			29		
☐	6	Rosemount Inc.			38		
☐	7	SIEMENS AG			42		
☐	8	SAMSON AG			66		
☐	9	wenglor sensoric GmbH			87		
☐	10	VEGA Grieshaber KG			98		
☐	11	Dynisco Instruments LLC			114		
☐	12	Klay Instruments b.v.			117		
☐	13	Buerkert Werke GmbH			120		
☐	14	LABOM Mess- und Regeltechni...			127		
☐	15	SMC Corp.			131		
☐	16	Phoenix Contact GmbH & Co. ...			176		

When sorting by vendor name, an "*" will be added to the beginning.



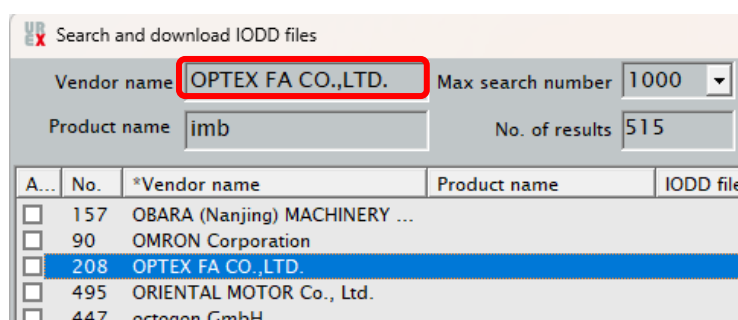
A...	No.	*Vendor name	Product name	IODD file name	Vendor ID	Device ID	Revis
☐	376	ABB Measurement & Analytics			1558		
☐	249	ACS Control System GmbH			1206		
☐	172	AIGNEP SPA			962		
☐	367	AIRBEST (CHANGXING) TECHN...			1535		
☐	142	AIRTEC Pneumatic GmbH			844		
☐	490	ALIF TECH. CO., LTD			1963		
☐	127	AMADA ENGINEERING CO., LTD.			807		
☐	453	AR Vacuum Technology S.L.			1821		
☐	267	ARGO-HYTOS GMBH			1256		
☐	228	ARROW Central Europe GmbH			1137		
☐	97	ASA-RT s.r.l.			649		
☐	110	ASCO Numatics GmbH			753		
☐	297	ASIX Electronics Corporation			1334		
☐	103	AVENTICS GmbH			693		
☐	258	AZ Pneumatica s.r.l.			1234		
☐	173	Advantech Europe BV			970		

For example, if you are searching for OPTEX FA, press "O" on the keyboard and vendor names starting with "O" will be displayed on the top line.



A...	No.	*Vendor name	Product name	IODD file name	Vendor ID	Device ID	Revis
☐	157	OBARA (Nanjing) MACHINERY ...			906		
☐	90	OMRON Corporation			612		
☐	208	OPTEX FA CO.,LTD.			1076		
☐	495	ORIENTAL MOTOR Co., Ltd.			1975		
☐	447	octogon GmbH			1807		
☐	386	Omega Engineering Inc.			1590		
☐	467	OndoSense GmbH			1883		
☐	388	Online Development Inc.			1614		
☐	501	Orca Semiconductor Inc.			1997		
☐	318	Otennlux Lighting Technology ...			1381		
☐	291	Ott-Jakob Spanntechnik GmbH			1318		
☐	452	PARAGON CO.,LTD			1820		
☐	113	PATLITE Corporation			763		
☐	325	PATLITE (China) Corporation			1410		
☐	414	PCB Piezotronics, Inc.			1666		
☐	458	PHD, Inc.			1834		

Double-click the desired "OPTEX FA CO., LTD." line and it will be copied to the vendor name you are searching for.



A...	No.	*Vendor name	Product name	IODD file
☐	157	OBARA (Nanjing) MACHINERY ...		
☐	90	OMRON Corporation		
☐	208	OPTEX FA CO.,LTD.		
☐	495	ORIENTAL MOTOR Co., Ltd.		
☐	447	octogon GmbH		

The product model name is not necessary for this search, so leave the "Product name" blank and press ENTER or click "Search" to display a list of IODD files made by OPTEX FA.

Search and download IODD files

Vendor name: OPTEX FA CO.,LTD. Max search number: 1000 Leave zip file(s): ☐

Product name: No. of results: 33 Search Vendor list Download

A...	No.	Vendor name	Product name	IODD file name	Vendor ID	Device ID	Revis
☐	1	OPTEX FA CO.,LTD.	TOF-DL250GC	OPTEX_FA-TOF-DL250G-20230413-IODD1.1	1076	65539	1.1
☐	2	OPTEX FA CO.,LTD.	UC2-IOL	OPTEX_FA-UC2-IOL-20230522-IODD1.1	1076	86017	1.1
☐	3	OPTEX FA CO.,LTD.	CD2H-30	OPTEX_FA-CD2H-30-20221021-IODD1.1	1076	77825	1.1
☐	4	OPTEX FA CO.,LTD.	CD2H-30	OPTEX_FA-CD2H-30-20221021-IODD1.1	1076	77825	1.1
☐	5	OPTEX FA CO.,LTD.	CD2H-50	OPTEX_FA-CD2H-50-20221021-IODD1.1	1076	77826	1.1
☐	6	OPTEX FA CO.,LTD.	CD2H-50	OPTEX_FA-CD2H-50-20221021-IODD1.1	1076	77826	1.1
☐	7	OPTEX FA CO.,LTD.	CD2H-245	OPTEX_FA-CD2H-245-20221021-IODD1.1	1076	77827	1.1
☐	8	OPTEX FA CO.,LTD.	CD2H-245	OPTEX_FA-CD2H-245-20221021-IODD1.1	1076	77827	1.1
☐	9	OPTEX FA CO.,LTD.	CD2H-350	OPTEX_FA-CD2H-350-20221021-IODD1.1	1076	77828	1.1
☐	10	OPTEX FA CO.,LTD.	CD2H-350	OPTEX_FA-CD2H-350-20221021-IODD1.1	1076	77828	1.1
☐	11	OPTEX FA CO.,LTD.	CD2H-700	OPTEX_FA-CD2H-700-20221021-IODD1.1	1076	77829	1.1
☐	12	OPTEX FA CO.,LTD.	CD2H-700	OPTEX_FA-CD2H-700-20221021-IODD1.1	1076	77829	1.1
☐	13	OPTEX FA CO.,LTD.	D4RF-TD	OPTEX_FA-D4RF-TD-20230420-IODD1.1	1076	65546	1.1
☐	14	OPTEX FA CO.,LTD.	D4RF-T	OPTEX_FA-D4RF-T-20230420-IODD1.1	1076	65545	1.1
☐	15	OPTEX FA CO.,LTD.	D4RF-TC4	OPTEX_FA-D4RF-T-20230420-IODD1.1	1076	65545	1.1
☐	16	OPTEX FA CO.,LTD.	CD2H-30	OPTEX_FA-CD2H-30-20221021-IODD1.1	1076	77825	1.1

To download a file, check the box to the left of the file and click the "Download" button.

Search and download IODD files

Vendor name: OPTEX FA CO.,LTD. Max search number: 1000 Leave zip file(s): ☐

Product name: No. of results: 33 Search Vendor list Download

A...	No.	Vendor name	Product name	IODD file name	Vendor ID	Device ID	Revis
☐	1	OPTEX FA CO.,LTD.	TOF-DL250GC	OPTEX_FA-TOF-DL250G-20230413-IODD1.1	1076	65539	1.1
☒	2	OPTEX FA CO.,LTD.	UC2-IOL	OPTEX_FA-UC2-IOL-20230522-IODD1.1	1076	86017	1.1
☐	3	OPTEX FA CO.,LTD.	CD2H-30	OPTEX_FA-CD2H-30-20221021-IODD1.1	1076	77825	1.1

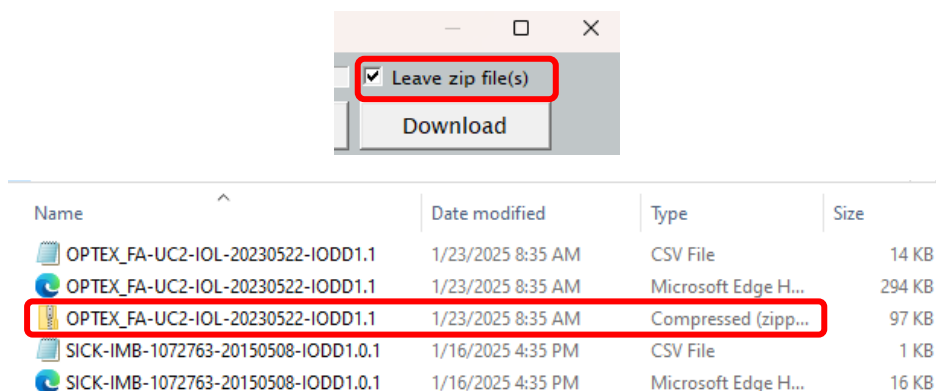
Once the download is complete, the contents of the IODD file (*.xml) will be automatically converted and stored in the same folder as the IODD conversion file (*.csv). This tool references this IODD conversion file.

Not ...	No.	Fol...	IODD file name	Vendor ID	Device ID	Revision ID	Result of conversion
☐	1	1	SICK-IMB-1072763-20150508-IODD1.0.1.xml	26	1072763	1.0	The conversion was su
☐	2	1	OPTEX_FA-UC2-IOL-20230522-IODD1.1.xml	1076	86017	1.1	The conversion was su

If you check the contents of the folder, you will see that it contains the downloaded IODD file and the converted IODD conversion file.

Name	Date modified	Type	Size
OPTEX_FA-UC2-IOL-20230522-IODD1.1	1/16/2025 4:45 PM	CSV File	21 KB
OPTEX_FA-UC2-IOL-20230522-IODD1.1	1/16/2025 4:45 PM	Microsoft Edge H...	294 KB
SICK-IMB-1072763-20150508-IODD1.0.1	1/16/2025 4:35 PM	CSV File	1 KB
SICK-IMB-1072763-20150508-IODD1.0.1	1/16/2025 4:35 PM	Microsoft Edge H...	16 KB

If you check "Leave zip file(s)", the downloaded compressed file will not be deleted but will remain in the same folder.



This compressed file also contains image data. If you can use the IODD file in other tools to access this image data, you can save the time of downloading it again from IODDfinder by keeping the ZIP file.

Some devices have IODD files that support multiple languages. When you download the file, the IODD file itself (***-IODD1.1.xml) and additional language files (***-IODD1.1-ja.xml, etc.) will be extracted.

At the moment, these additional language files only support Japanese, but we plan to gradually release them.

Name	Date modified	Type	Size
ifm-000294-20240604-IODD1.1	1/23/2025 8:43 AM	CSV File	3 KB
ifm-000294-20240604-IODD1.1	1/23/2025 8:43 AM	Microsoft Edge H...	48 KB
ifm-000294-20240604-IODD1.1	1/23/2025 8:43 AM	Compressed (zipp...	97 KB
ifm-000294-20240604-IODD1.1-de	1/23/2025 8:43 AM	Microsoft Edge H...	11 KB
ifm-000294-20240604-IODD1.1-es	1/23/2025 8:43 AM	Microsoft Edge H...	11 KB
ifm-000294-20240604-IODD1.1-fr	1/23/2025 8:43 AM	Microsoft Edge H...	11 KB
ifm-000294-20240604-IODD1.1-it	1/23/2025 8:43 AM	Microsoft Edge H...	11 KB
ifm-000294-20240604-IODD1.1-ja	1/23/2025 8:43 AM	Microsoft Edge H...	11 KB
ifm-000294-20240604-IODD1.1-ko	1/23/2025 8:43 AM	Microsoft Edge H...	11 KB
ifm-000294-20240604-IODD1.1-pt	1/23/2025 8:43 AM	Microsoft Edge H...	11 KB
ifm-000294-20240604-IODD1.1-ru	1/23/2025 8:43 AM	Microsoft Edge H...	13 KB
ifm-000294-20240604-IODD1.1-zh	1/23/2025 8:43 AM	Microsoft Edge H...	10 KB

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The previous IODD conversion and installation tool "IODD_Converter.exe" also generated IODD binary files (*.bin and *.com.bin) for installation and saved them as files, but this tool generates these IODD binary files internally but no longer saves them as files.

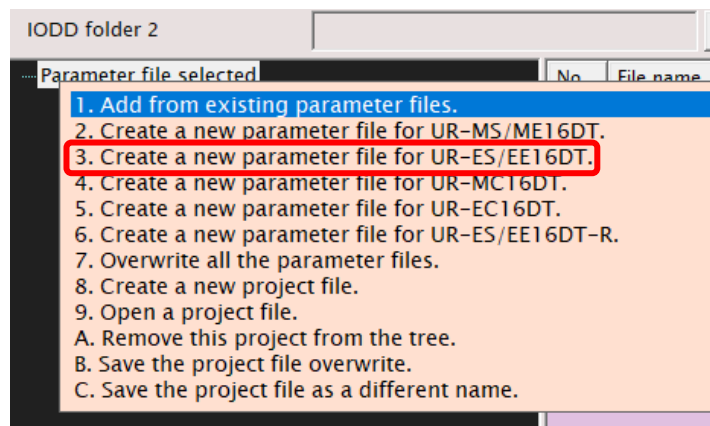
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For details on the "Result of conversion" during IODD conversion, see "3-1 Error Messages List".

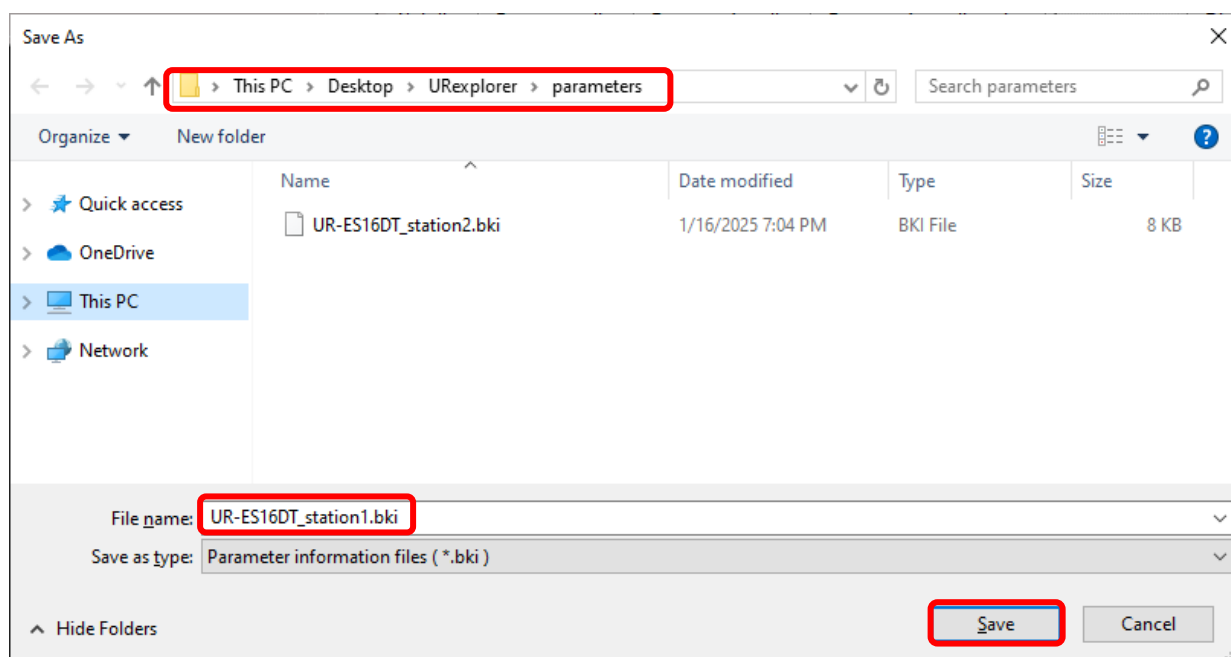
2-1-3 Create a new parameter file

2-1-3-1 Creating a new parameter file

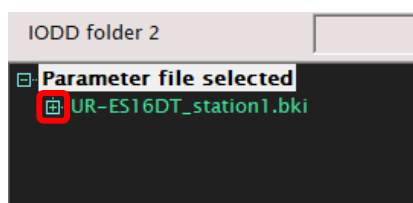
Right-click on "Parameter file selected" in the tree on the upper left of the screen to display the context menu. Here, select the third one, UR-ES/EE16DT, as the model for the new file to be created.

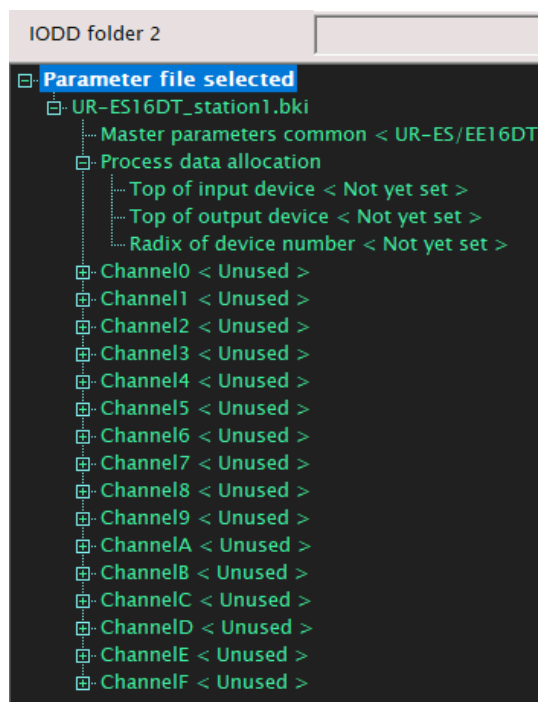


A dialog box will appear where you can specify the folder and file name to store the new parameter file, so select a folder, enter a file name, and click "Save".



The data for the specified file name will then be added under the tree. Clicking the expand button to the left of the file name will display a list of the configured settings, etc.





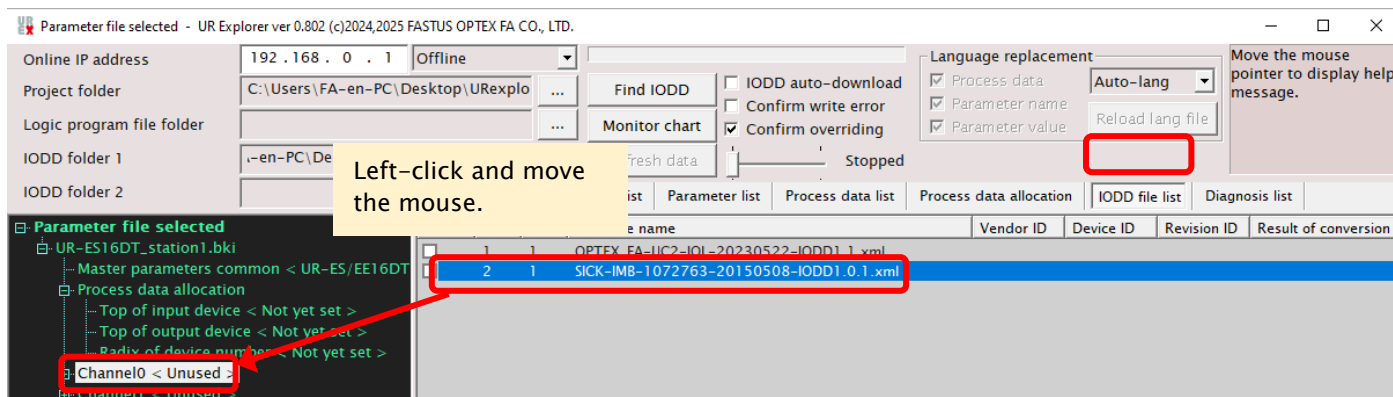
The items displayed here are listed and explained.

Name		Contents
Master parameter common		Among the master parameters of this unit, these are common parameters that are not individual to each channel.
Process data allocation	Top of input device	Specifies the first device as seen from the PLC when creating a process input data allocation list.
	Top of output device	Specifies the first device as seen from the PLC when creating a process output data allocation list.
	Radix of device number	Specifies whether the above device number is in decimal or hexadecimal notation.
Channel 0 to F		These are the master parameters for each channel. If an IO-Link device is connected, its parameters and process I/O data are also added.

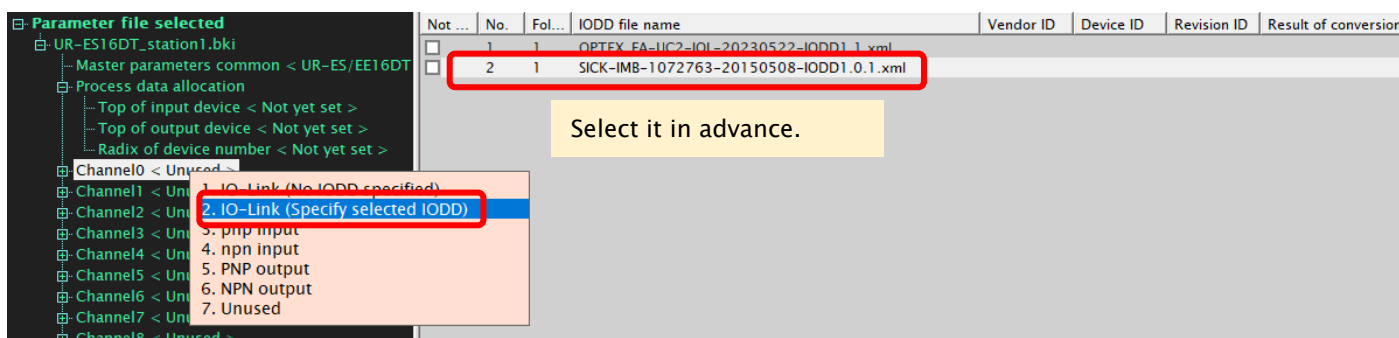
- 2-1-3-2 Specify the IODD file of the IO-Link device for the channel.

Here, we will set up channel 0 to use the IO-Link device whose IODD file was registered in 2-1-2.

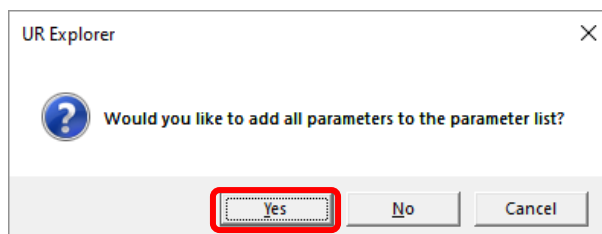
Left-click "SICK-IMB-107263..." in the IODD file list, move it to "Channel 0" in the tree, and release the left mouse button. (Drag and drop operation)



Alternatively, you can perform the same operation by selecting "SICK-IMB-107263..." in the IODD file list with the mouse, right-clicking on "Channel 0" in the tree to display the context menu, selecting "2. IO-Link (Specify selected IODD)," and releasing the right button.



The following message will then be displayed, so click "Yes".



The IODD file name is enclosed in "< >" for channel 0, and the setting changes to IO-Link. The parameters for this IO-Link device are then displayed in the parameter list.

IODD folder 2		...	Unit list	Parameter list	Process data list	Process data allocation	IODD file list	Diagnosis list			
Parameter file selected UR-ES16DT_station1.bki Master parameters common < UR-ES/EE16DT... > Process data allocation Top of input device < Not yet set > Top of output device < Not yet set > Radix of device number < Not yet set > Channel0 < SICK-IMB-1072763-20150508-IC... Channel1 < Unused > Channel2 < Unused > Channel3 < Unused > Channel4 < Unused > Channel5 < Unused > Channel6 < Unused > Channel7 < Unused > Channel8 < Unused >		M...	No.	IP address	Cha...	Device name	Nu...	Parameter name	Value	Unit	Data type
		☐	1	UR-ES16DT...	0	SICK-IMB-10...	S16	Vendor name	---		String
		☐	2	UR-ES16DT...	0	SICK-IMB-10...	S17	Vendor text	---		String
		☐	3	UR-ES16DT...	0	SICK-IMB-10...	S18	Product type	SICK-IMB-10...		String
		☐	4	UR-ES16DT...	0	SICK-IMB-10...	S19	Product ID	---		String
		☐	5	UR-ES16DT...	0	SICK-IMB-10...	S20	Product function	---		String
		☐	6	UR-ES16DT...	0	SICK-IMB-10...	S21	Serial number	---		String
		☐	7	UR-ES16DT...	0	SICK-IMB-10...	S22	Hardware revision	---		String
		☐	8	UR-ES16DT...	0	SICK-IMB-10...	S23	Firmware revision	---		String
		☐	9	UR-ES16DT...	0	SICK-IMB-10...	S24	User tag name	---		String
		☐	10	UR-ES16DT...	0	SICK-IMB-10...	D1	Output function	---		Item selection
		☐	11	UR-ES16DT...	0	SICK-IMB-10...	D2	Delay mode	---		Item selection
		☐	12	UR-ES16DT...	0	SICK-IMB-10...	D3	Delay timer time base	---		Item selection
		☐	13	UR-ES16DT...	0	SICK-IMB-10...	D4	Time base multiplier	---		Unsigned int...
		☐	14	UR-ES16DT...	0	SICK-IMB-10...	D5	Detection counter LSB	---		Unsigned int...
		☐	15	UR-ES16DT...	0	SICK-IMB-10...	D6	Detection counter MSB	---		Unsigned int...

All the "Value" on the screen are displayed as "---" except the product type, which means that no initial values are set in the IODD file.

Here, if you are using a version of Windows other than English, it is possible to display the parameter names of IO-Link devices in another language. This is done by replacing words with the language replacement file "URname_**.csv" stored in the same folder as "UR_Explorer.exe".

This function can be turned on or off using a checkbox on the screen, but since we are using English Windows here, this cannot be done.

Language replacement

☐ Process data

Auto-lang

☐ Parameter name

Reload lang file

☐ Parameter value

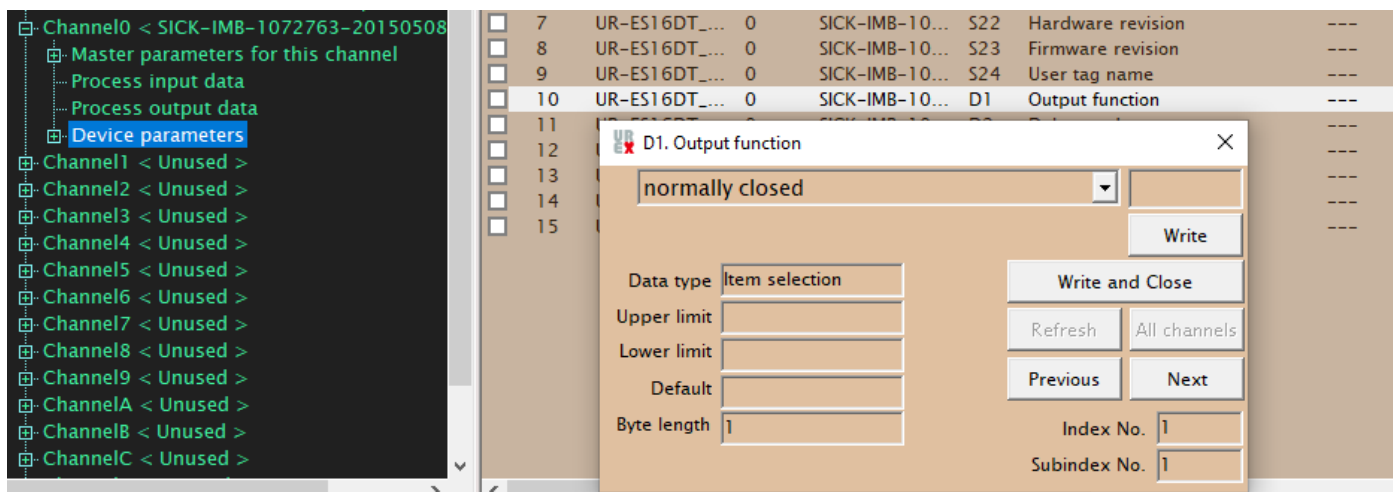
● 2-1-3-3 Contents displayed in the parameter list

Column Name	Contents
Monitor	Checked items will be subject to current value updates in the "Refresh cycle" slider settings. Checked items will also be added as items for waveform display on the monitor chart.
No.	Numbers are assigned in the order they are added to the parameter list. Used for sorting purposes.
IP address	The parameter file name is followed by the IP address of the target unit.
Channel	This is the target channel number for this unit. Master parameters common to all channels are displayed as "----".
Device name	The master parameter common to all channels displays the model name of the target unit. The master parameter for each channel displays the model name of the IO-Link device or the input/output function. The parameter for IO-Link device displays the model name of that IO-Link device. The parameter for a module connected to UC2-IOL displays the model name of the module and the connection number counted from the left.
Number	The master parameter number (M...), IO-Link device parameter number (S... or D...), and UC2-IOL module parameter number (U...) are displayed.
Parameter name	The name of the parameter.
Value	If online, the current value read is displayed. To update the display, move the "Refresh cycle" slider to the right. If offline (parameter file), the initial value is displayed. If the initial value is not set in the IODD file, "----" is displayed.
Unit	The unit of the parameter.
Data type	This is the format for displaying and editing the parameter. It will be unsigned decimal, signed decimal, item selection, floating point, string, hexadecimal, and IP address.
Minimum	This is the minimum value that can be set.
Maximum	This is the maximum value that can be set.
Offset	This is the value to be added when displaying the parameter handled on the device.
Multiply	Similarly, this is the value to be multiplied after addition.
Divide	Similarly, this is the value to be multiplied and then divided.
Decimal point	When displaying a decimal integer, divide it by the number of digits (powers of 10) and display the decimal point.
Default	This is the initial parameter.
Selection items	This is a list in which the numbers in () are replaced with the following string and displayed.
Index No.	This is the index number for accessing the parameter.
Subindex No.	This is the subindex number for accessing the parameter.
Bit offset	This is the start bit position when extracting the parameter.
Bit width	This is also the effective bit width when extracting.

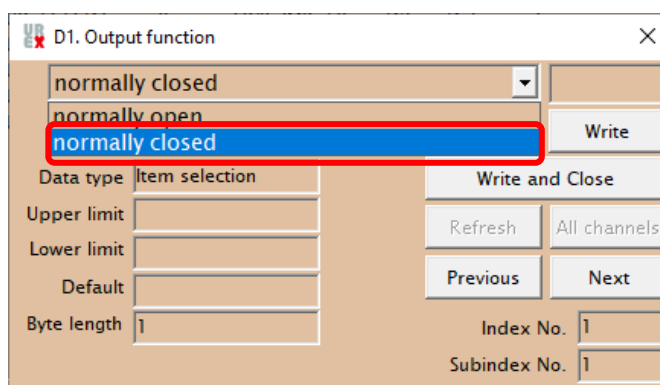
- 2-1-3-4 Changing the parameter value

Clicking a row in the parameter list will display a dialog screen for changing the parameter. If multiple rows are selected, the dialog screens for the selected parameters will be displayed in succession.

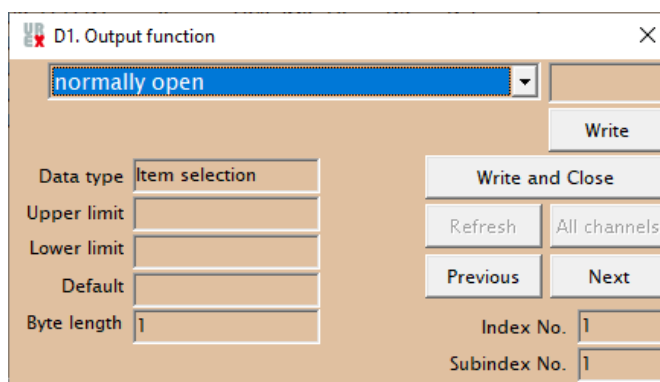
To close this dialog screen, press the "ESC" key or click the "X" in the upper right corner.



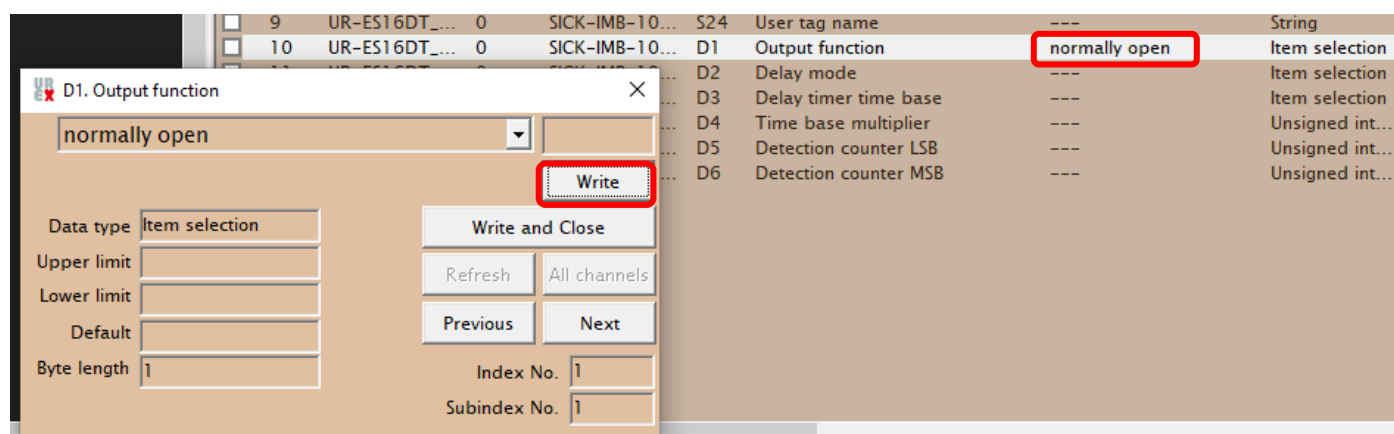
To change a parameter value, for example in the case of this item selection, click the list to expand the options.



For example, here we select "normally open" from the settings.

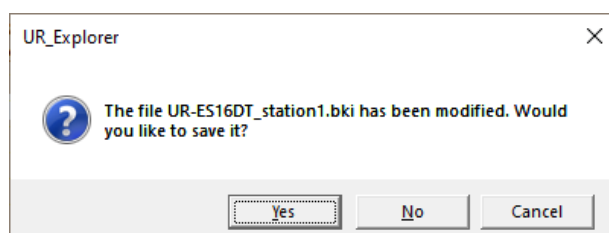


To write the parameter value, click the "Write" button. The parameter list display will then be updated.



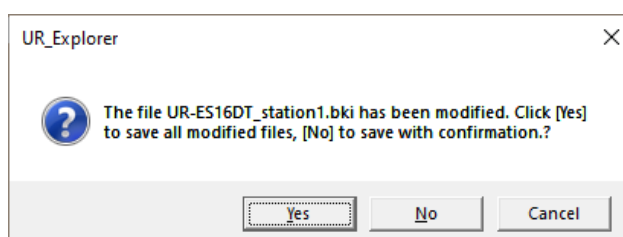
● 2-1-3-5 Saving parameters or settings

If you change any parameters or settings, a message will appear asking you to confirm that you want to save them to a parameter file when you exit the application or switch from offline editing to online.



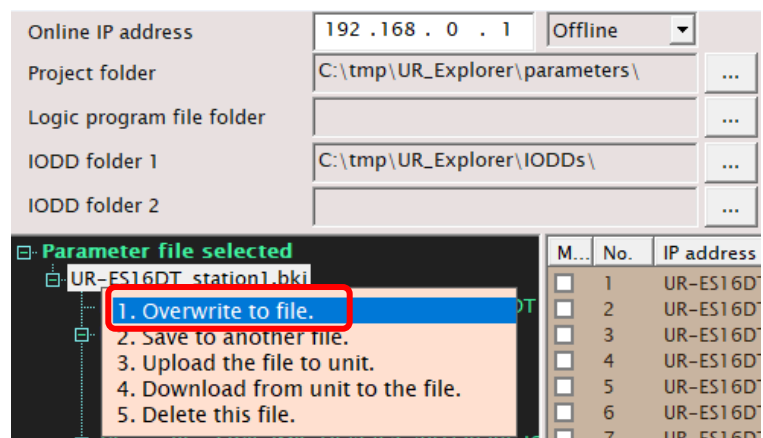
If you click "Yes" here, the file will be overwritten and saved, and you will exit. If you click "No", the changes will be discarded and you will exit, and if you click "Cancel", you will return to the original screen without exiting.

If there are changes made to multiple parameter files, the following message will be displayed.



If you click "Yes", all changed setting files will be overwritten and saved, and then the program will exit. If you click "No", a confirmation message will be displayed for each file, and you can choose whether to save it or not.

Right-clicking on the setting file name in the tree will display a context menu for file operations. To save the changed parameter or setting, select "1. Overwrite to file." and release the right-click, or left-click, or press "1" on the keyboard.

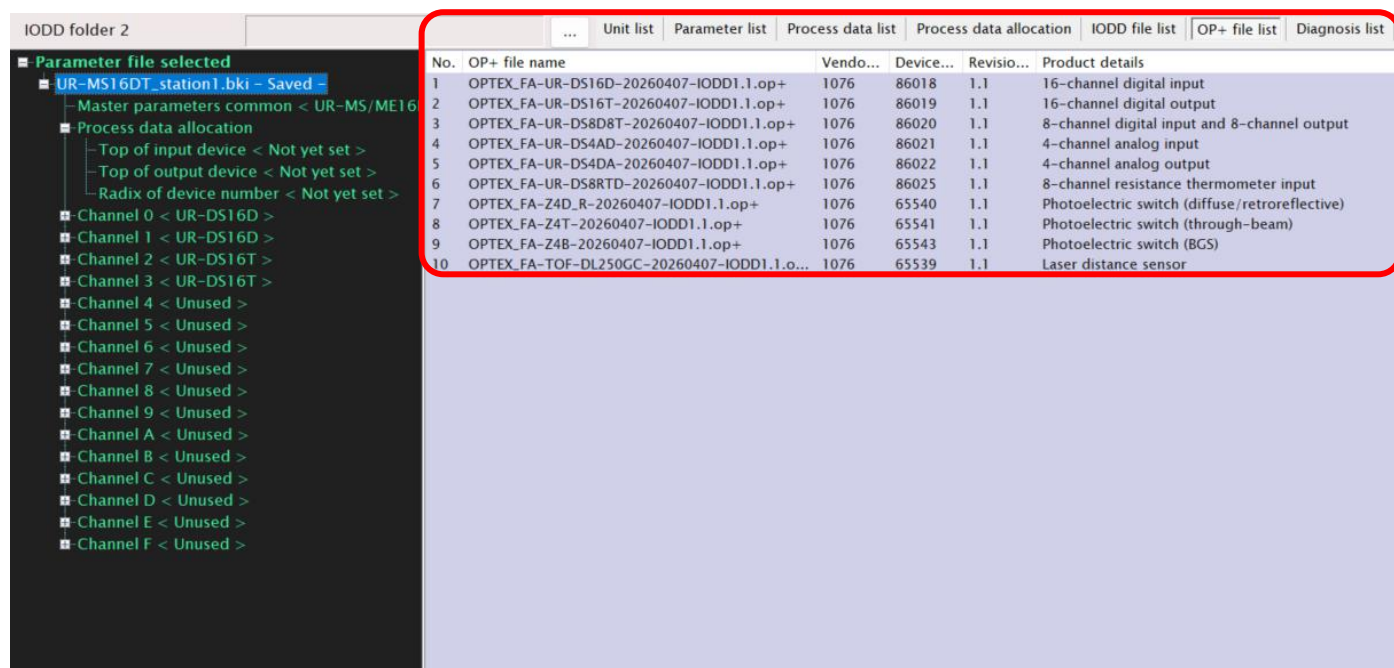


● 2-1-3-6 Display of OP+ File list

Some devices, such as our IO-Link devices, have IODD information preinstalled in the device itself (OP+).

Therefore, when using this tool, it is not necessary to install a separate IODD file for the corresponding IO-Link device.

However, even in an offline environment—such as when no actual device is connected—and it is necessary to edit or review parameter settings, the tool enables configuration and verification using “OP+”-based IODD information. For this purpose, the “OP+ file list” tab has been added starting from Version 1.000.



No.	OP+ file name	Vendo...	Device...	Revisio...	Product details
1	OPTEX_FA-UR-DS16D-20260407-IODD1.1.op+	1076	86018	1.1	16-channel digital input
2	OPTEX_FA-UR-DS16T-20260407-IODD1.1.op+	1076	86019	1.1	16-channel digital output
3	OPTEX_FA-UR-DS8D8T-20260407-IODD1.1.op+	1076	86020	1.1	8-channel digital input and 8-channel output
4	OPTEX_FA-UR-DS4AD-20260407-IODD1.1.op+	1076	86021	1.1	4-channel analog input
5	OPTEX_FA-UR-DS4DA-20260407-IODD1.1.op+	1076	86022	1.1	4-channel analog output
6	OPTEX_FA-UR-DS8RTD-20260407-IODD1.1.op+	1076	86025	1.1	8-channel resistance thermometer input
7	OPTEX_FA-Z4D_R-20260407-IODD1.1.op+	1076	65540	1.1	Photoelectric switch (diffuse/retroreflective)
8	OPTEX_FA-Z4T-20260407-IODD1.1.op+	1076	65541	1.1	Photoelectric switch (through-beam)
9	OPTEX_FA-Z4B-20260407-IODD1.1.op+	1076	65543	1.1	Photoelectric switch (BGS)
10	OPTEX_FA-TOF-DL250GC-20260407-IODD1.1.o...	1076	65539	1.1	Laser distance sensor

OP+ files can be freely assigned to each channel by drag-and-drop operation, in the same manner as standard IODD files.

The contents of these OP+ files are equivalent to the IODD information embedded in actual “OP+”-compatible IO-Link devices.

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The OP+ file List is available only in offline mode and cannot be used while online.

2-1-4 Process Data Allocation

● 2-1-4-1 Specify the top address of the process data allocation

You can create a list that shows where the process data of which IO-Link device is assigned when viewed from the PLC.

When you expand the parameter file name in the tree, the "Process data allocation" item is displayed.

The screenshot shows a software interface with a tree view on the left and a table on the right. The tree view is titled 'Parameter file selected' and contains the following items:

- UR-ES16DT_station1.bki
 - Master parameters common < UR-ES/EE16DT
 - Process data allocation (highlighted with a red box)
 - Top of input device < Not yet set >
 - Top of output device < Not yet set >
 - Radix of device number < Not yet set >

The table on the right has columns: M..., No., and IP address. It contains the following data:

M...	No.	IP address
☐	1	UR-ES16DT
☐	2	UR-ES16DT
☐	3	UR-ES16DT
☐	4	UR-ES16DT
☐	5	UR-ES16DT
☐	6	UR-ES16DT

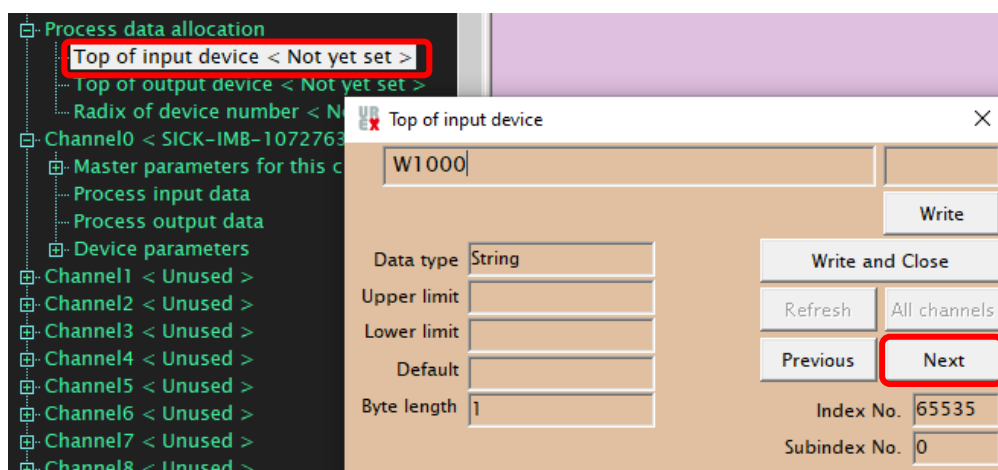
In this "Top of input device ", specify the top address of the variable (word device) to which the process input data will be assigned as seen from the PLC. Double-click this "Top of input device" to display the settings screen.

Initially it is blank, so enter "W1000" here as the input head device name. Once you have entered the information, click "Write".

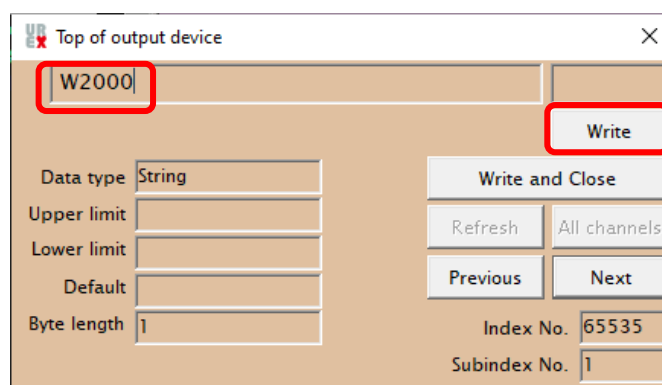
The screenshot shows a dialog box titled 'Top of input device'. It contains the following fields and buttons:

- Text field: W1000 (highlighted with a red box)
- Text field: Data type: String
- Text field: Upper limit
- Text field: Lower limit
- Text field: Default
- Text field: Byte length: 1
- Buttons: Write (highlighted with a red box), Write and Close, Refresh, All channels, Previous, Next
- Text field: Index No. 65535
- Text field: Subindex No. 0

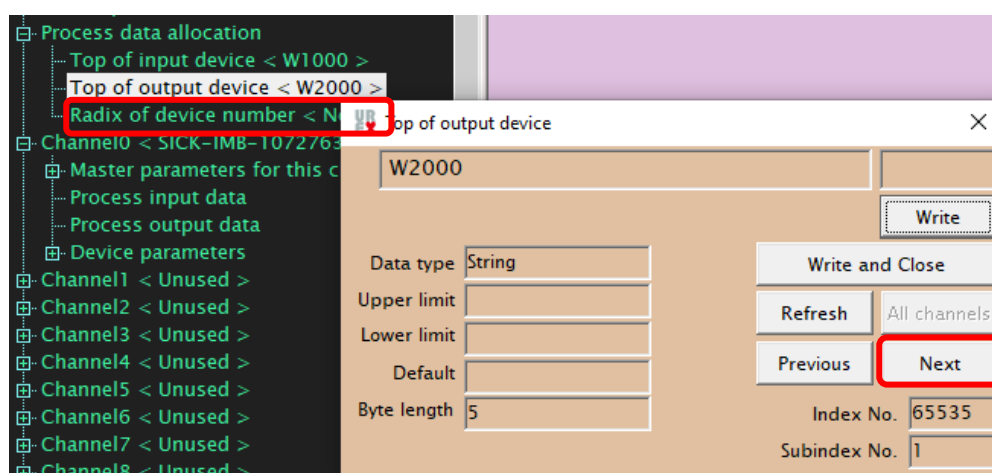
Once you have finished entering the information, the name <W1000> will be added to the tree. Next, double-click "Top of Output device". Instead, you can click the button "Next".



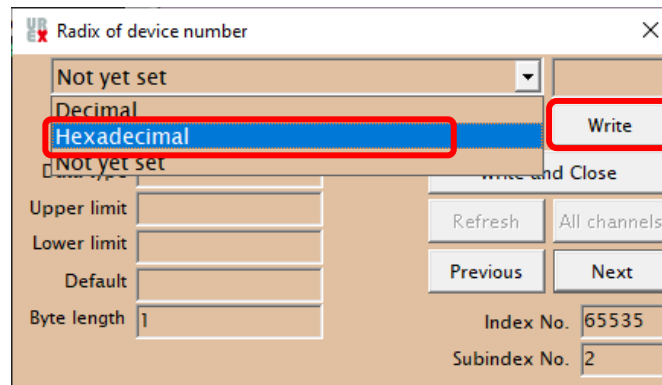
The setting screen has switched to "Top of output device", so enter "W2000" as the output first device name. Once you have entered the name, click "Write".



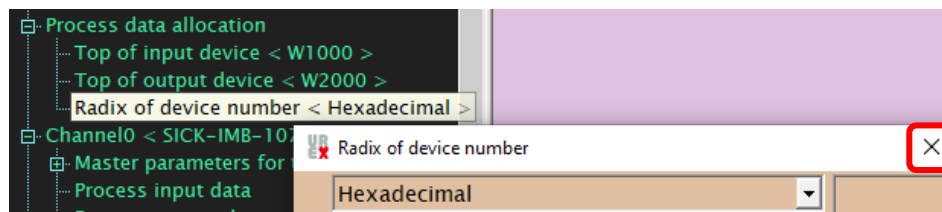
Finally, double-click "Radix of output device". Instead, you can click the button "Next".



The devices "W1000" and "W2000" entered up to this point will be counted in hexadecimal and treated as W1000 to W1FFF, W2000 to W2FFF. Select "Hexadecimal" as the device number base and click "Write".

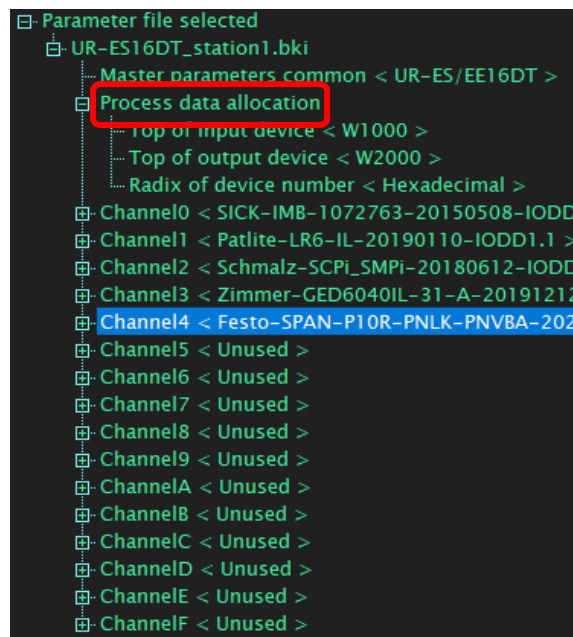


Now that you have finished entering the information, click "X" to close the settings screen.



For testing purposes, drag and drop the IODD file to register it on other channels as well.

To create a process data allocation, click the "Process data allocation" item.



A list will then be displayed on the Process data list screen. The information required for reference from the PLC is the "Word offset", "Bit offset", and "Bit width" in the red frame. Below we can see that the process output data for No. 55 starts from bit 1 of W2004 and is 1-bit wide data, so writing 2 to W2004 will turn this data on.

IODD folder 2		Unit list		Parameter list		Process data list		Process data allocation		IODD file list		Diagnosis list	
Parameter file selected		No.	IP address	Di...	Word of...	Bit offset	Bit width	Cha...	IODD file name	Data type	Unit	P	
UR-ES16DT_station1.bki		46	UR-ES16DT_...	Out	W2003	8	1	1	Patlite-LR6-IL-20190110-IO...	Boolean		B	
Master parameters common < UR-ES/EE16D		47	UR-ES16DT_...	Out	W2003	8	1	1	Patlite-LR6-IL-20190110-IO...	Boolean		B	
Process data allocation		48	UR-ES16DT_...	Out	W2003	12	3	1	Patlite-LR6-IL-20190110-IO...	Unsigned int...		B	
Top of input device < W1000 >		49	UR-ES16DT_...	Out	Out of a...	0	1	1	Patlite-LR6-IL-20190110-IO...	Boolean		V	
Top of output device < W2000 >		50	UR-ES16DT_...	Out	Out of a...	0	1	1	Patlite-LR6-IL-20190110-IO...	Boolean		V	
Radix of device number < Hexadecimal >		51	UR-ES16DT_...	Out	Out of a...	4	3	1	Patlite-LR6-IL-20190110-IO...	Unsigned int...		V	
Channel0 < SICK-IMB-1072763-20150508-		52	UR-ES16DT_...	Out	Out of a...	8	1	1	Patlite-LR6-IL-20190110-IO...	Boolean		B	
Channel1 < Patlite-LR6-IL-20190110-IODD		53	UR-ES16DT_...	Out	Out of a...	12	1	1	Patlite-LR6-IL-20190110-IO...	Boolean		I	
Channel2 < Schmalz-SCPi_SMPi-20180612-		54	UR-ES16DT_...	Out	W2004	0	1	2	Schmalz-SCPi_SMPi-2018061...	Boolean		V	
Channel3 < Zimmer-GED6040IL-31-A-2019		55	UR-ES16DT_...	Out	W2004	1	1	2	Schmalz-SCPi_SMPi-2018061...	Boolean		B	
Channel4 < Festo-SPAN-P10R-PNLK-PNVBA		56	UR-ES16DT_...	Out	W2006	0	16	3	Zimmer-GED6040IL-31-A-2...	Unsigned int...		V	
Channel5 < Unused >		57	UR-ES16DT_...	Out	W2007	0	16	3	Zimmer-GED6040IL-31-A-2...	Unsigned int...		T	
Channel6 < Unused >		58	UR-ES16DT_...	Out	Out of a...	0	16	3	Zimmer-GED6040IL-31-A-2...	Unsigned int...		S	
Channel7 < Unused >		59	UR-ES16DT_...	Out	Out of a...	0	16	3	Zimmer-GED6040IL-31-A-2...	Unsigned int...		B	
Channel8 < Unused >		60	UR-ES16DT_...	Out	Out of a...	0	8	3	Zimmer-GED6040IL-31-A-2...	Unsigned int...		C	
Channel9 < Unused >		61	UR-ES16DT_...	Out	Out of a...	8	8	3	Zimmer-GED6040IL-31-A-2...	Unsigned int...		C	
ChannelA < Unused >		62	UR-ES16DT_...	Out	Out of a...	0	8	3	Zimmer-GED6040IL-31-A-2...	Unsigned int...		P	
ChannelB < Unused >		63	UR-ES16DT_...	Out	Out of a...	8	8	3	Zimmer-GED6040IL-31-A-2...	Unsigned int...		R	
ChannelC < Unused >		64	UR-ES16DT_...	Out	Out of a...	0	8	3	Zimmer-GED6040IL-31-A-2...	Unsigned int...		V	
ChannelD < Unused >		65	UR-ES16DT_...	Out	Out of a...	8	8	3	Zimmer-GED6040IL-31-A-2...	Unsigned int...		C	
ChannelE < Unused >		66	UR-ES16DT_...	Out	Out of a...	0	16	3	Zimmer-GED6040IL-31-A-2...	Unsigned int...		C	
ChannelF < Unused >		67	UR-ES16DT_...	Out	W2008	0	32	4	Festo-SPAN-P10R-PNLK-PNV...	Out of allocat...			
		68	UR-ES16DT_...	Out	W200A	0	32	5	Unused	Out of allocat...			
		69	UR-ES16DT_...	Out	W200C	0	32	6	Unused	Out of allocat...			
		70	UR-ES16DT_...	Out	W200E	0	32	7	Unused	Out of allocat...			
		71	UR-ES16DT_...	Out	W2010	0	32	8	Unused	Out of allocat...			
		72	UR-ES16DT_...	Out	W2012	0	32	9	Unused	Out of allocat...			
		73	UR-ES16DT_...	Out	W2014	0	32	A	Unused	Out of allocat...			
		74	UR-ES16DT_...	Out	W2016	0	32	B	Unused	Out of allocat...			
		75	UR-ES16DT_...	Out	W2018	0	32	C	Unused	Out of allocat...			
		76	UR-ES16DT_...	Out	W201A	0	32	D	Unused	Out of allocat...			
		77	UR-ES16DT_...	Out	W201C	0	32	E	Unused	Out of allocat...			
		78	UR-ES16DT_...	Out	W201E	0	32	F	Unused	Out of allocat...			

Expand the application screen horizontally or scroll to the right to see what function the process data serves.

54	UR-ES16DT_...	Out	W2004	0	1	2	Schmalz-SCPi_SMPi-2018061...	Boolean	Vaccum On
55	UR-ES16DT_...	Out	W2004	1	1	2	Schmalz-SCPi_SMPi-2018061...	Boolean	Blow-Off

Right-click here to display the context menu and select "5. Export to a csv file from all items." to save this table as a CSV file.

No.	IP address	Di...	Word of...	Bit offset	Bit width	Cha...	IODD file name
46	UR-ES16DT_...	Out	W2003	8	1	1	Patlite-LR6-IL-20190110-IC
47	UR-ES16DT_...	Out	W2003	8	1	1	Patlite-LR6-IL-20190110-IC
48	UR-ES16DT_...	Out	W2003	12	3	1	Patlite-LR6-IL-20190110-IC
49	UR-ES16DT_...	Out	Out of a...	0	1	1	Patlite-LR6-IL-20190110-IC
50	UR-ES16DT_...	Out	Out of a...	0	1	1	Patlite-LR6-IL-20190110-IC
51	UR-ES16DT_...	Out	Out of a...	4	3	1	Patlite-LR6-IL-20190110-IC
52	UR-ES16DT_...	Out	Out of a...	8	1	1	Patlite-LR6-IL-20190110-IC
53	UR-ES16DT_...	Out	Out of a...	8	1	1	Patlite-LR6-IL-20190110-IC
54	UR-ES16DT_...	Out	Out of a...	8	1	1	Patlite-LR6-IL-20190110-IC
55	UR-ES16DT_...	Out	Out of a...	8	1	1	Patlite-LR6-IL-20190110-IC
56	UR-ES16DT_...	Out	Out of a...	8	1	1	Patlite-LR6-IL-20190110-IC
57	UR-ES16DT_...	Out	Out of a...	8	1	1	Patlite-LR6-IL-20190110-IC
58	UR-ES16DT_...	Out	Out of a...	8	1	1	Patlite-LR6-IL-20190110-IC
59	UR-ES16DT_...	Out	Out of a...	8	1	1	Patlite-LR6-IL-20190110-IC

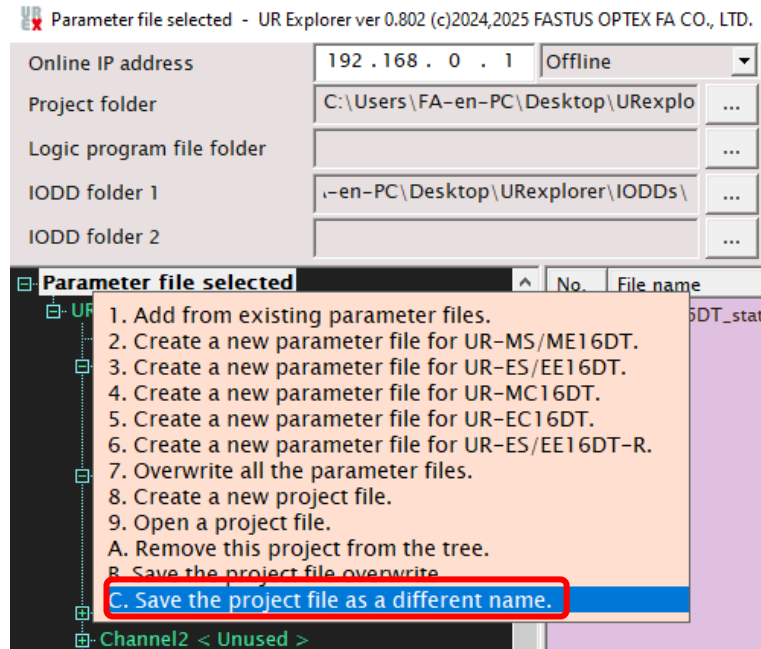
1. Delete selected item(s) from the list. (Del)
2. Delete selected item and above from the list. (Shift+Del)
3. Delete selected item and below from the list. (Ctrl+Del)
4. Export to a csv file from selected item(s).
5. Export to a csv file from all items.
6. Select or deselect all (Ctrl+A).

2-1-5 Project management

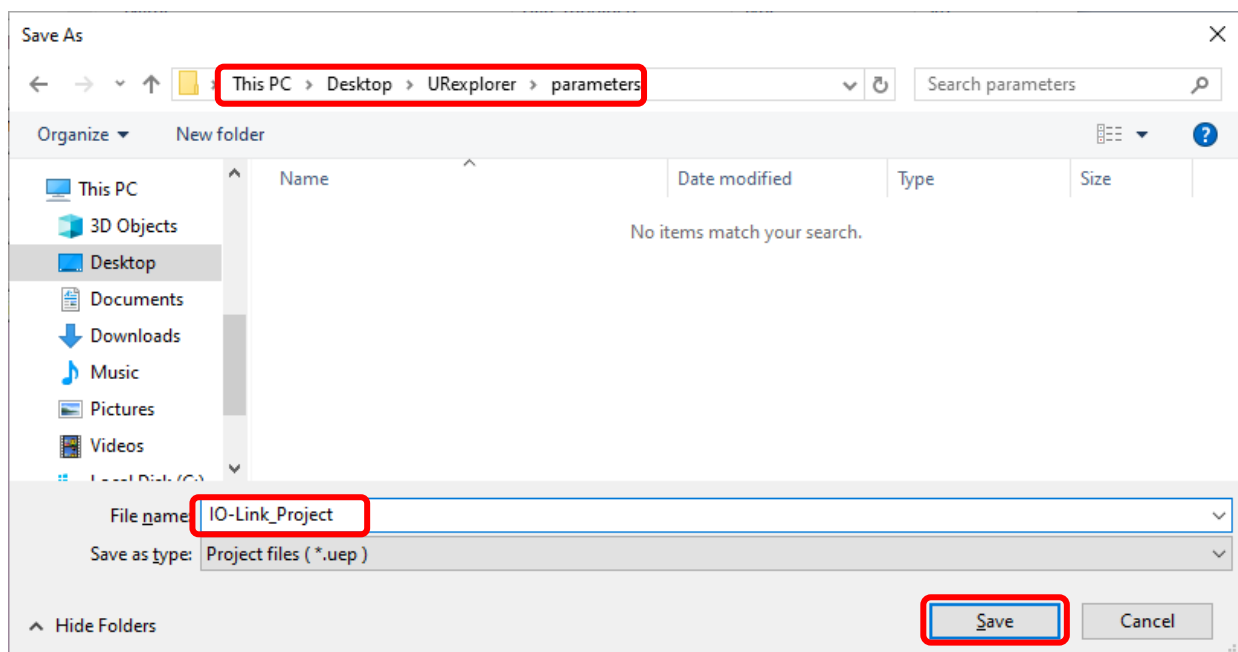
When offline, you can use a project file that manages multiple parameter files together.

● 2-1-5-1 Saving a Project File

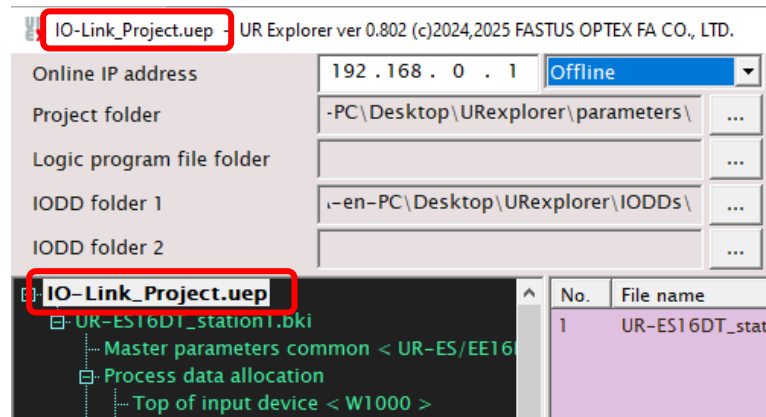
Save the current state of the parameter file to a project file. Right-click "Parameter file selected" at the top of the tree, and click "Save the project file as different name." from the context menu that appears.



The project file and the parameter file must be in the same folder, so in the parameter file folder, enter the project name in the file name and click "Save".

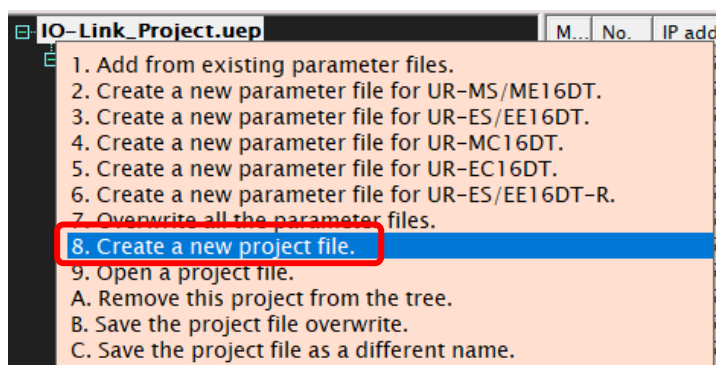


Once saved, the name at the top of the tree will change to the project file name specified, "IO-Link _Project.uep", and the title on the screen will also change.



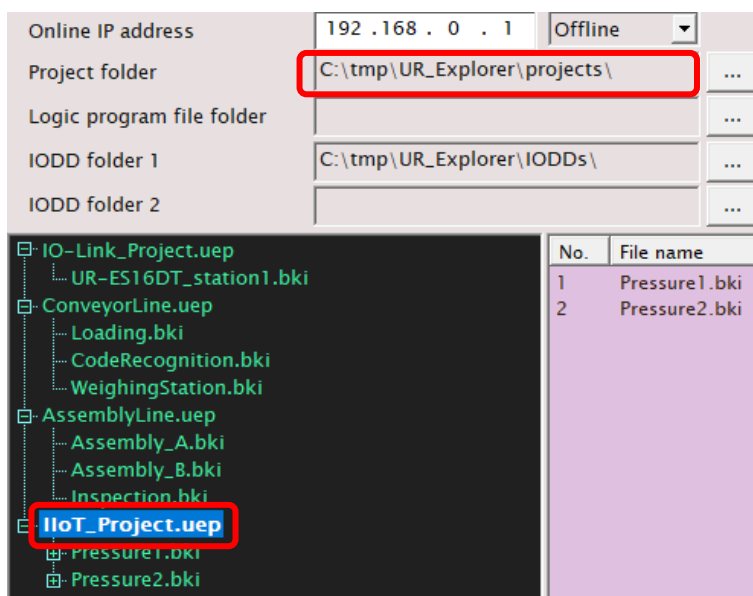
● 2-1-5-2 Creating a New Project

It is also possible to add multiple project files to the tree. Right-click on any project name in the tree to display the context menu and select "Create a new project file." to add a project.



A project name that is in bold is called the active project. Left-clicking on a project name will make that project to the active project.

Each project can specify a different folder, and the folder of the active project will be displayed in "Project folder".



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When you switch the active project, the parameter list and process data list are all cleared.

A maximum of 256 projects can be registered on the screen.

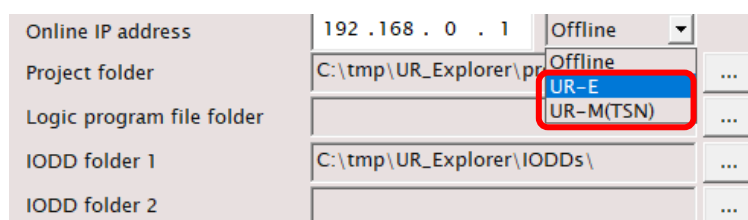
2-2 Try it online

You can directly access and change the parameters of the device while it is running, without using a parameter file, and you can also monitor process data and parameters.

2-2-1 Switch online

● 2-2-1-1 Selecting the network type

From the offline and network type switch list in the upper left of the screen, select “UR-E” or “UR-M (TSN)” depending on the model of this unit you are using.



Depending on the network type settings of this unit, it may not be possible to connect. In that case, temporarily change to a network type that can be connected.

Model	Network type	Selection
UR-MS/ME16DT	CC-Link IE Field	EtherCAT / IEF via PLC *
	CC-Link IE TSN	UR-M(TSN)
		UR-M(TSN via PLC) *
	CC-Link IE Field (256)	EtherCAT / IEF via PLC *
	CC-Link IE TSN (256)	UR-M(TSN)
		UR-M(TSN via PLC) *
UR-MC16DT	CC-Link IE Field	EtherCAT / IEF via PLC *
	CC-Link IE TSN	UR-M(TSN)
		UR-M(TSN via PLC) *
UR-ES/EE/EC16DT	EtherNet/IP	UR-E
	EtherCAT	EtherCAT / IEF via PLC *
	PROFINET	UR-E
	Ethernet&Modbus	UR-E
	CC-Link IEF Basic	UR-E
UR-ES16DT-R	Automatic detection	UR-E

The table includes models that are scheduled to be released and network types that are scheduled to be supported, but does not guarantee current compatibility.

Caution

* It is necessary to add a dedicated function block to the PLC that connects the unit to the network in order to run the CPU unit.

● 2-2-1-2 Specifying an IP address

Specify the IP address to connect to multiple units. Ignore the fourth octet (the rightmost number) of the IP address, and search for units with matching values in the first to third octets and expand them in the tree. After specifying the connected IP address, click “Network Connection” on the tree.

Online IP address	192 . 168 . 0 . 1	UR-E
Project folder	C:\tmp\UR_Explorer\projects\	
Logic program file folder		
IODD folder 1	C:\tmp\UR_Explorer\IODDs\	
IODD folder 2		
Network connection		No. File name

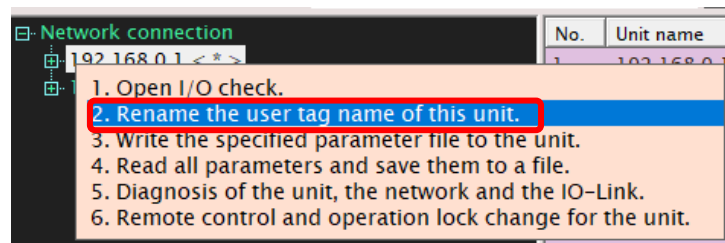
When you click this, a list of the IP addresses + <Tag names> of the connected units will be displayed on this tool.

Online IP address	192 . 168 . 0 . 1	UR-E	Language replacement		Move the mouse pointer to display help message.		
Project folder	...en-PC\Desktop\URexplorer\paramet	...	Find IODD	☐ IODD auto-download			
Logic program file folder	...	...	Monitor chart	☐ Confirm write error			
IODD folder 1	...s\FA-en-PC\Desktop\URexplorer\IOD	...	Refresh data	☒ Confirm overriding			
IODD folder 2	...	...	Unit list	Parameter list	Process data list	Process data allocation	
Network connection		No.		Unit name	IP addr...	Type name	Tag name
192.168.0.1 < * >		1		192.168.0.1 < * >	192.16...	UR-ES16DT	*
192.168.0.2 < * >		2		192.168.0.2 < * >	192.16...	UR-EE16DT	*

2-2-2 Information about this unit

• 2-2-2-1 Change the user tag name

If you right-click on this name, a context menu will appear.



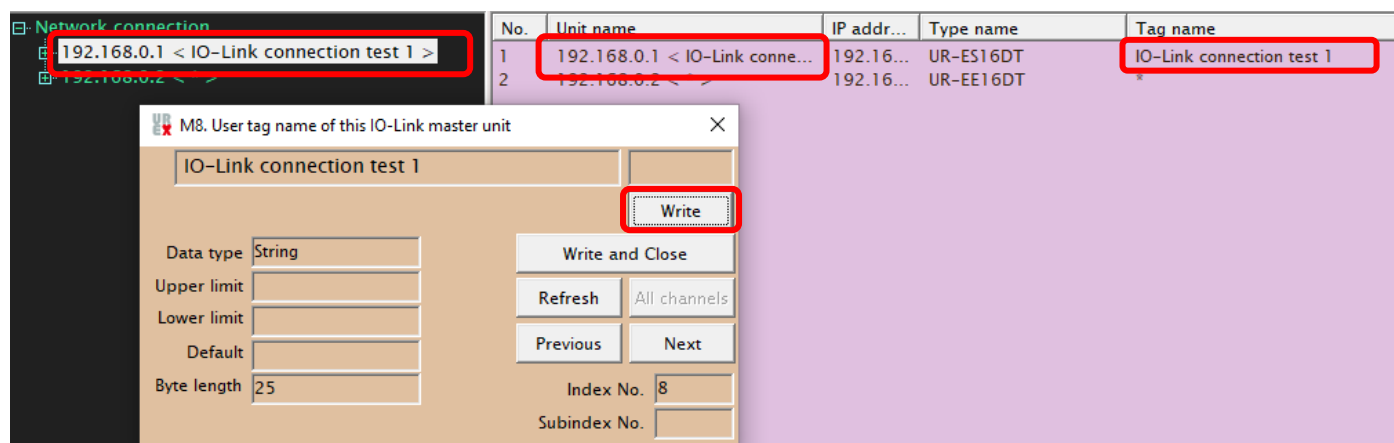
The initial value of the unit tag name is “*”, so let's change this name to make it easier to identify the unit. Select “1. Rename the user tag name of this unit.” and release the right-click or left-click to display the setting change dialog screen.

A screenshot of a dialog box titled 'M8. User tag name of this IO-Link master unit'. It features a text input field at the top containing the character '*'. Below this are several input fields: 'Data type' (set to 'String'), 'Upper limit', 'Lower limit', 'Default', and 'Byte length' (set to '1'). On the right side, there are buttons for 'Write', 'Write and Close', 'Refresh', 'All channels', 'Previous', and 'Next'. At the bottom right, there are fields for 'Index No.' (set to '8') and 'Subindex No.'.

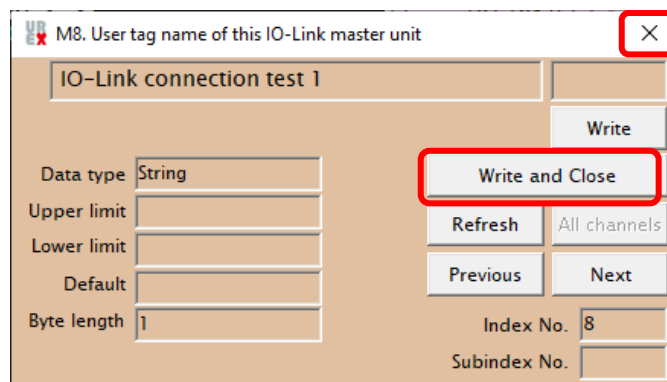
The parameter is a string, you can enter the text you want to change into the part that displays “*” on the screen. The maximum length of the user tag name is 32 characters.

A screenshot of the same dialog box as before, but the text input field now contains 'IO-Link connection test 1'. This text is enclosed in a red rectangular box. The other elements of the dialog, including the 'Data type' field set to 'String' and the 'Index No.' field set to '8', remain the same.

Once you have finished entering the information, click the “Write” button, which will write the information into the parameter and update the information displayed on the screen.

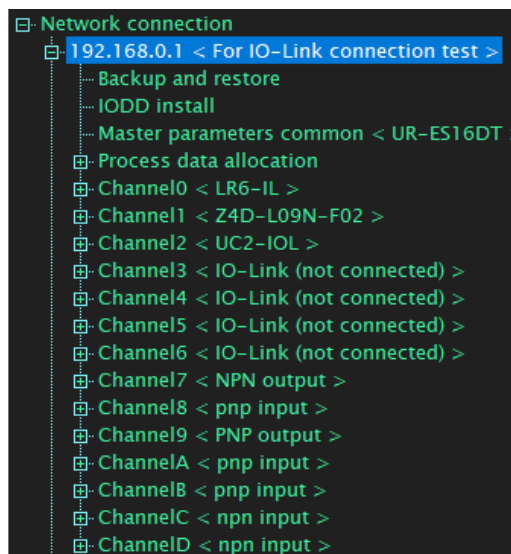
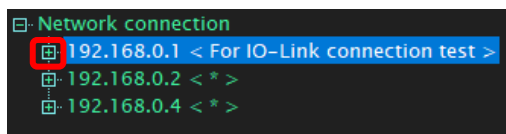


To close this parameter write dialog screen, click the “X” mark in the upper right, press the [ESC] key, or click “Write and Close” when writing.

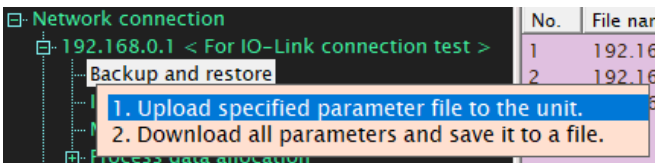
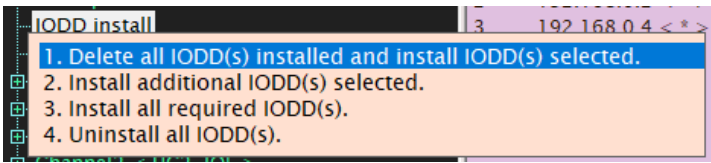
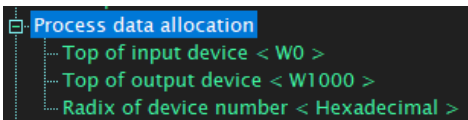
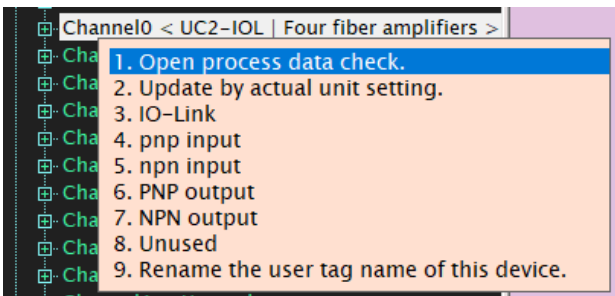


● 2-2-2-2 Expanding the tree

Clicking the tree expansion box displays a tree that shows the parameters for each channel, the model name of the connected IO-Link device, backup information, and information about the installed IODD.



The tree items displayed are:

Tree name	Contents
Backup and restore	Left-clicking will display a list of the backed-up data (storage data) of the IO-Link devices stored in this unit. (*1) Right-clicking will display a context menu that allows you to upload parameters from a file or download parameters and save them to a file. 
IODD install	Left-click to display information about the IODD files installed on this unit. Right-click to add and install IODD files, or delete installed IODD files. 
Master parameter common	Left-clicking will add a channel-common parameter item from the master parameters to the tree, and add a list of those parameters to the parameter list.
Process data allocation	Left-clicking will add a list of process data allocations to the list. Clicking the expand button on the left will expand the tree to include items that specify the device start address of the process I/O data as seen from the field network. (*2) 
Channel 0 to F	Clicking the expand button on the left will expand the parameters and process data items for each channel in a tree. Right-clicking will display a context menu for changing the I/O allocation parameter for the channel. 

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*1 Only channels for which the master parameter “M10. I/O setting” is set to “IO-Link” are displayed.

*2 The device head value is not saved in the unit, but is saved in the application configuration file for each station number.

2-2-3 Changing the setting

2-2-3-1 Automatic download of IODD for IO-Link devices other manufacturers

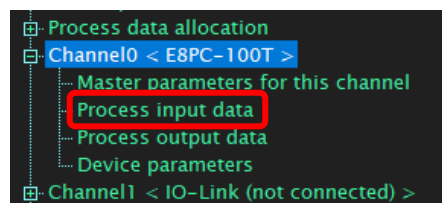
If an IO-Link device is connected to this unit and the IODD file has not yet been downloaded, it can be automatically downloaded from IODDfinder. The computer must be connected to the Internet.

As an example, we will explain the case where an “E8PC-100T” is connected and the IODD file has not been downloaded or installed.

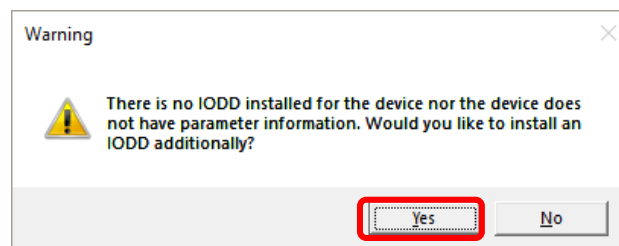
First, click the expand button to the left of the relevant channel.

IODD folder 2		Unit list Parameter list Process data list Process data allocation IODD file list Diagnosis list							
Network connection		Not ...	No.	Fol...	IODD file name	Vendor ID	Device ID	Revision ID	Result of convers
192.168.0.1 < For IO-Link connection test >		☐	1	1	Festo-SPAN-P10R-PNLK-PNVBA-20200723-IODD1.1....	333	146	1.1	
192.168.0.2 < * >		☐	2	1	Patlite-LR6-IL-20190110-IODD1.1.xml	763	80001	1.1	
Backup and restore		☐	3	1	Schmalz-SCPi_SMPi-20180612-IODD1.0.1.xml	234	100230	1.0	
IODD install		☐	4	1	SICK-AHM36_IO-Link_Basic-20180313-IODD1.1.xml	26	8389078	1.1	
Master parameters common < UR-ES16DT >		☐	5	1	SICK-IMB-1072763-20150508-IODD1.0.1.xml	26	1072763	1.0	
Process data allocation		☐	6	1	SICK-MLG-2Prime-20140321-IODD1.1.xml	26	8388711	1.1	
Channel0 < E8PC-100T >		☐	7	1	Zimmer-GED6040IL-31-A-20191212-IODD1.1.xml	836	66823	1.1	
Channel1 < IO-Link (not connected) >									
Channel2 < pnp input >									
Channel3 < UR-DS16D >									

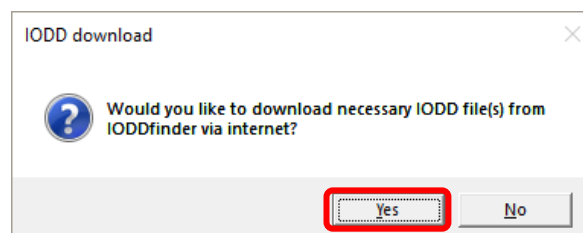
Once the item is expanded, click on “Process input data” or “Device parameters”.



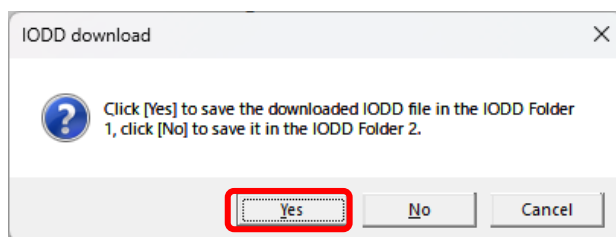
You will then be asked to confirm whether you want to install IODD since it is not installed; click “Yes”.



Since there is no corresponding file in the IODD folder yet, a message will appear asking if you want to download it from IODDfinder. Click “Yes” again.

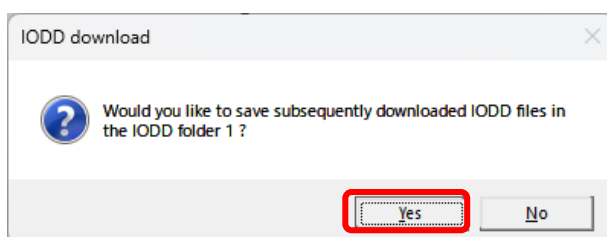


Next, a confirmation message will appear asking you to specify the folder in which to save the downloaded IODD file. Here, we will save it in IODD Folder 1, so follow the message and click “Yes”.

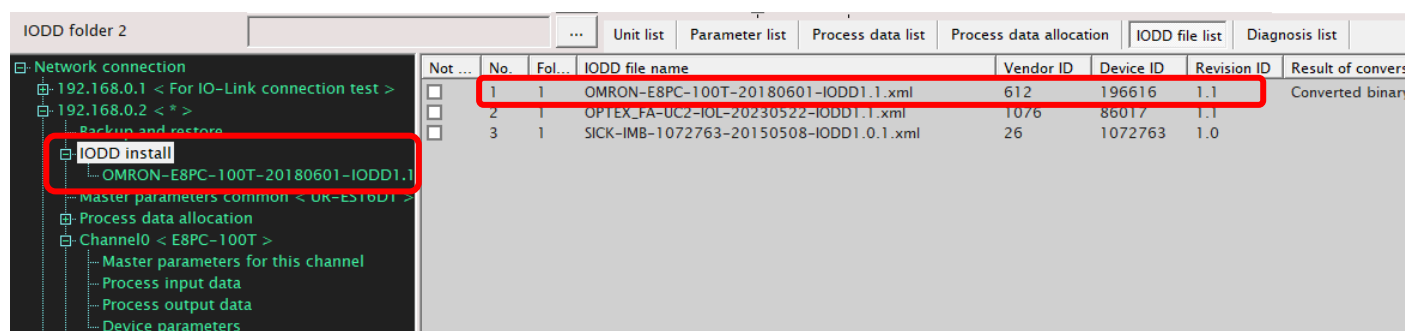


After this, click “Yes” so that you don't have to specify the storage folder each time you continue to download from IODDfinder.

(If you want to split the folders to save IODD files into IODD folder 1 and 2, click “No.”)

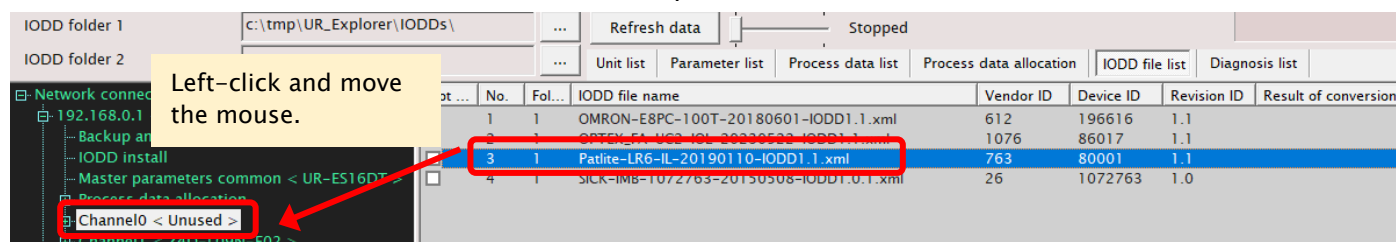


Once the download is complete, the IODD file will be automatically converted and an IODD conversion file (*.csv) will be generated. The IODD file list will display the installed IODD file and the conversion result. The name of the installed IODD file will also be added to the IODD installation in the tree and expanded.

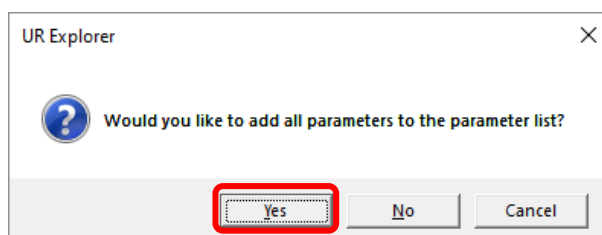


- 2-2-3-2 Changing the I/O setting parameter (when using IO-Link devices other manufacturers)

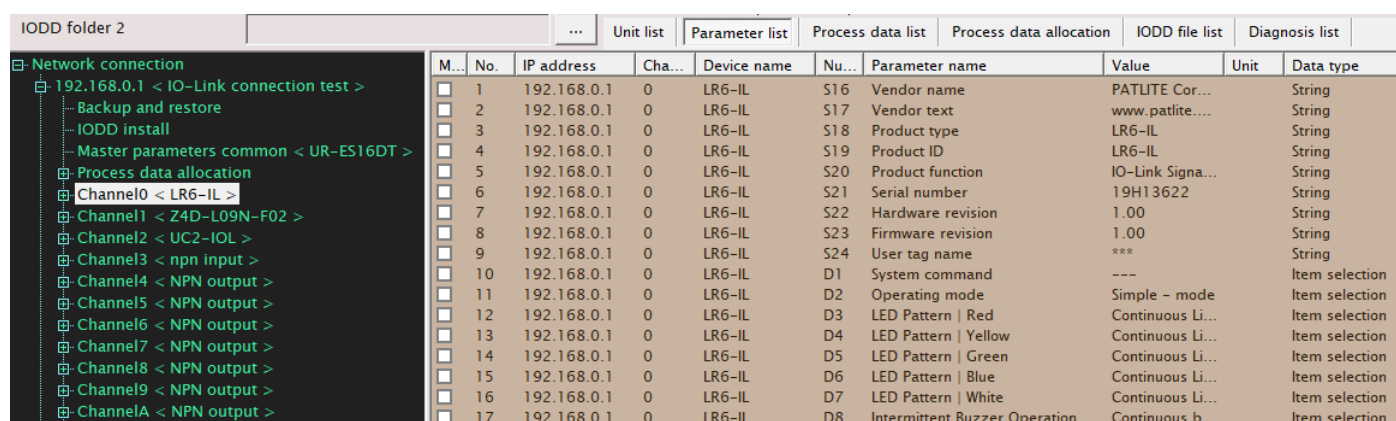
Click the “IODD file list” tab to display the list of IODD files, then drag and drop the IODD file of the IO-Link device to be used and release the left click on the specified channel.



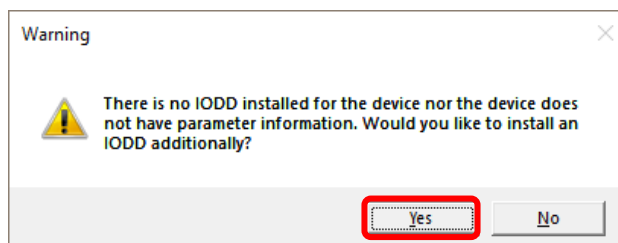
When the I/O setting parameter is changed, the following message will be displayed. Click “Yes”.



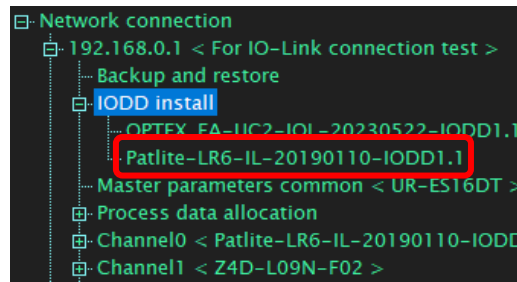
The parameters for this IO-Link device (defined in the IODD file) will then be added to the Parameter list.



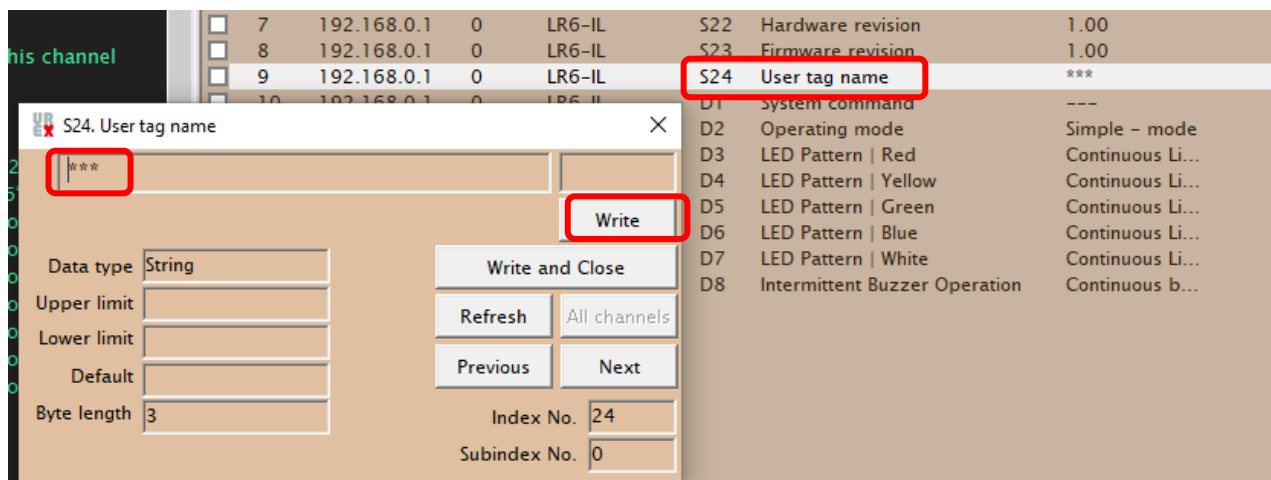
If the IODD file for this unit is not installed, the following message will be displayed prompting you to install it. Click “Yes”.



When the installation is complete, the name of the installed IODD file will be displayed under the expanded tree “IODD install”.



You can change a parameter by double-clicking the corresponding parameter in the parameter list. Change the write value and click the “Write” button to immediately reflect the parameter in this unit or IO-Link device.



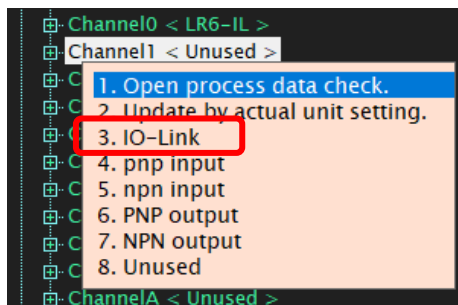
Note:

To view or change the parameters of an IO-Link device online, the device must be connected to this unit. If the device is not connected, please operate offline.

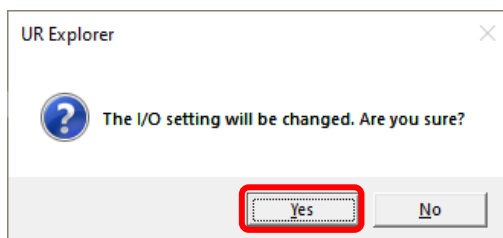
- 2-2-3-3 Changing the I/O setting parameter (when using our IO-Link device)

When using our IO-Link devices, all information regarding parameters and process data is stored on the device side (parameter information). Therefore, there is no need to install IODD data, and there are no compatibility issues with IODD files depending on the device version. (Use an IODD file when editing the parameters of an IO-Link device in advance with an offline parameter file)

Connect an IO-Link device to this unit in advance, and right-click on the channel in the tree to display the I/O allocation setting context menu. Select “2. IO-Link” here and release the right-click or left-click.



A confirmation message will be displayed, so click “Yes”.



After reading the parameter information, the IO-Link device model will be displayed in the channel name. If you click “Device parameters” below it, a confirmation message will appear. Click “Yes” and the parameter of the IO-Link device will be added to the parameter list.

IODD folder 2		...	Unit list	Parameter list	Process data list	Process data allocation	IODD file list	Diagnosis list			
Network connection		M...	No.	IP address	Cha...	Device name	Nu...	Parameter name	Value	Unit	Data type
192.168.0.1 < IO-Link接続テスト 1 >			12	192.168.0.1	0	LR6-IL	D3	LED Pattern Red	Continuous Li...		Item selection
Backup and restore			13	192.168.0.1	0	LR6-IL	D4	LED Pattern Yellow	Continuous Li...		Item selection
IODD install			14	192.168.0.1	0	LR6-IL	D5	LED Pattern Green	Continuous Li...		Item selection
Master parameters common < UR-ES16DT >			15	192.168.0.1	0	LR6-IL	D6	LED Pattern Blue	Continuous Li...		Item selection
Process data allocation			16	192.168.0.1	0	LR6-IL	D7	LED Pattern White	Continuous Li...		Item selection
Channel0 < LR6-IL >			17	192.168.0.1	0	LR6-IL	D8	Intermittent Buzzer Operation	Continuous b...		Item selection
Master parameters for this channel			18								
Process input data			19	192.168.0.1	1	Z4D-L09N-F...	S16	Vendor name	OPTEX FA		String
Process output data			20	192.168.0.1	1	Z4D-L09N-F...	S17	Vendor text	www.optex-f...		String
Device parameters			21	192.168.0.1	1	Z4D-L09N-F...	S18	Product type	Z4D-L09N-F...		String
Channel1 < Z4D-L09N-F02 >			22	192.168.0.1	1	Z4D-L09N-F...	S19	Product ID	Z4_Diffuse		String
Master parameters for this channel			23	192.168.0.1	1	Z4D-L09N-F...	S20	Product function	IO-Link PE S...		String
Process input data			24	192.168.0.1	1	Z4D-L09N-F...	S21	Serial number	213042100...		String
Process output data			25	192.168.0.1	1	Z4D-L09N-F...	S22	Hardware revision	1.00		String
Device parameters			26	192.168.0.1	1	Z4D-L09N-F...	S23	Firmware revision	1.03		String
Channel2 < UC2-IOL >			27	192.168.0.1	1	Z4D-L09N-F...	S24	User tag name	***		String
Channel3 < npn input >			28	192.168.0.1	1	Z4D-L09N-F...	D1	Maintain Required by	27.33	years	Integer
Channel4 < NPN output >			29	192.168.0.1	1	Z4D-L09N-F...	D2	Maintain Event Days	100	day	Integer
Channel5 < NPN output >			30	192.168.0.1	1	Z4D-L09N-F...	D3	Operated Hours	553.5	hour	Integer
Channel6 < NPN output >			31	192.168.0.1	1	Z4D-L09N-F...	D4	Detection Margin	9999	%	Integer
Channel7 < NPN output >			32	192.168.0.1	1	Z4D-L09N-F...	D5	Indicator	Stable		Item selection
Channel8 < NPN output >			33	192.168.0.1	1	Z4D-L09N-F...	D6	Find Me	No		Item selection
Channel9 < NPN output >			34	192.168.0.1	1	Z4D-L09N-F...	D7	Device Lock	No		Item selection
ChannelA < NPN output >			35	192.168.0.1	1	Z4D-L09N-F...	D8	Process Data Selection	Avg. Rec. Level		Item selection
ChannelB < NPN output >			36	192.168.0.1	1	Z4D-L09N-F...	D9	Sensitivity	Panel	%	Integer
ChannelC < NPN output >			37	192.168.0.1	1	Z4D-L09N-F...	D10	Actual Sensitivity	100.0	%	Integer
ChannelD < NPN output >			38	192.168.0.1	1	Z4D-L09N-F...	D11	Switching Hysteresis	Medium		Item selection
ChannelE < NPN output >			39	192.168.0.1	1	Z4D-L09N-F...	D12	Light/Dark on Selection	Panel		Item selection
ChannelF < NPN output >			40	192.168.0.1	1	Z4D-L09N-F...	D13	Timer Selection	None		Item selection
ChannelG < NPN output >			41	192.168.0.1	1	Z4D-L09N-F...	D14	On Delay Timer	10	ms	Integer
ChannelH < NPN output >			42	192.168.0.1	1	Z4D-L09N-F...	D15	Off Delay Timer	10	ms	Integer
192.168.0.2 < * >			43	192.168.0.1	1	Z4D-L09N-F...	D16	Synchronous Mode	Async	us d...	Integer
192.168.0.4 < * >			44	192.168.0.1	1	Z4D-L09N-F...	D17	System Command	---		Item selection

If you double-click “D12 Light/Dark on Selection” in the parameter list here, a dialog screen for changing the parameter will be displayed.

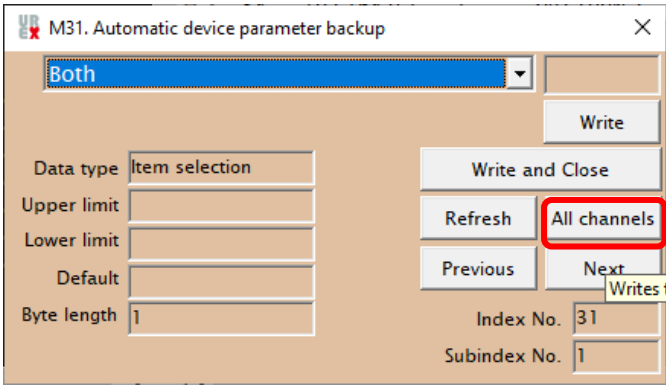
When you click on “Master parameter for this channel” for each channel on the tree, a confirmation message will be displayed. Clicking “Yes” will add the master parameter related to that channel to the parameter list.

Here, double-click the parameter to change “M31 Automatic device parameter backup,” which automatically backs up the parameters of IO-Link devices.

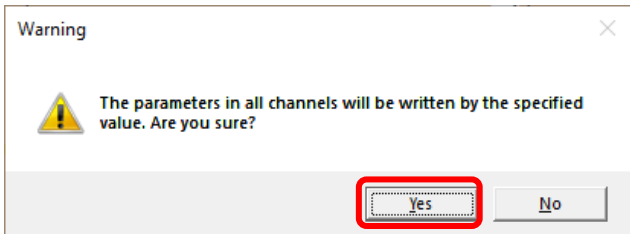
From the setting change dialog screen that appears, expand the list of parameter and select “Both” (backup and restore).

65

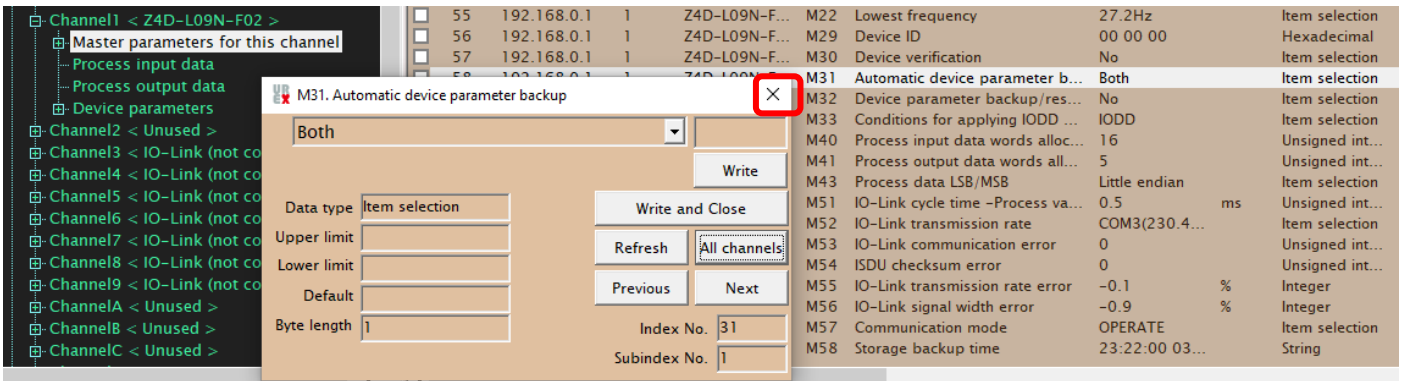
If you click “Write” here, only the parameter for that channel will be written, but if you click “All Channels”, the same value will be written to “M31 Automatic device parameter backup “ for all channels 0 to F.



When you click, a confirmation message will be displayed; click “Yes”.

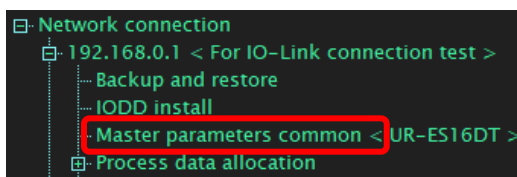


The parameter displayed in the parameter list has also changed to “Both.” Please check if the other channels have also been overwritten. Click the “X” button on the parameter write dialog screen to close the window.



● 2-2-3-5 Changing the master parameter (common to all channels)

Common master parameters that are not related to each channel are added to the parameter list by clicking “Master parameters common” on the tree.



The master parameter will be added as shown below. Double-click the row of the parameter you want to change and a confirmation message will be displayed. Click “Yes” and the parameter change dialog screen will be displayed.

	M...	No.	IP address	Cha...	Device name	Nu...	Parameter name	Value	Unit	Data type
Network connection										
192.168.0.1 < For IO-Link connection test >										
Backup and restore										
IODD install										
Master parameters common < UR-ES16DT >										
Process data allocation										
Channel0 < LR6-IL >										
Channel1 < Z4D-L09N-F02 >										
Master parameters for this channel										
Process input data										
Process output data										
Device parameters										
Channel2 < UC2-IOL >										
Channel3 < IO-Link (not connected) >										
Channel4 < IO-Link (not connected) >										
Channel5 < IO-Link (not connected) >										
Channel6 < IO-Link (not connected) >										
Channel7 < NPN output >										
Channel8 < pnp input >										
Channel9 < PNP output >										
ChannelA < pnp input >										

The method for changing the parameter is the same, but the “All Channels” button is disabled because the parameter is common to all channels.

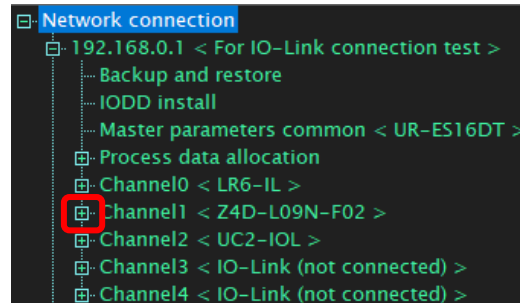
Master parameters common < UR-ES16DT										
Process data allocation										
Channel0 < LR6-IL >										
Channel1 < Z4D-L09N-F02 >										
Master parameters for this channel										
Process input data										
Process output data										
Device parameters										
Channel2 < Unused >										
Channel3 < IO-Link (not connected) >										
Channel4 < IO-Link (not connected) >										
Channel5 < IO-Link (not connected) >										
Channel6 < IO-Link (not connected) >										
Channel7 < IO-Link (not connected) >										
Channel8 < IO-Link (not connected) >										
Channel9 < IO-Link (not connected) >										
ChannelA < Unused >										
ChannelB < Unused >										

2-2-4 Viewing process data

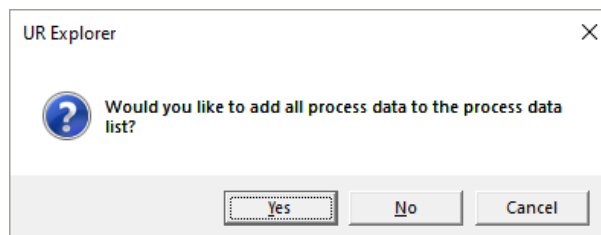
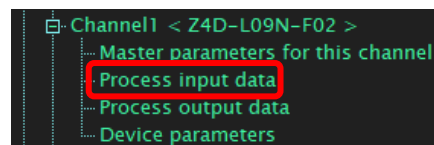
2-2-4-1 View process data from IO-Link devices

Here, we will expand the process input data of the IO-Link device connected to channel 1 in the process data list.

Click the Expand button to the left of the relevant channel in the tree.



This will expand the tree with the parameters and process data items related to Channel 1. Clicking "Process input data" will display a confirmation message, and clicking "Yes" will add the item to the process data list.



IODD folder 2		...								
		Unit list			Parameter list		Process data list		Process data allocation	
		M...	No.	IP address	Device name	Cha...	Nu...	Process data name	Value	Unit
		☐	1	192.168.0.1	Z4D-L09N-F...	1	P3	Average received light level	66	%
		☐	2	192.168.0.1	Z4D-L09N-F...	1	P4	Real received light level	---	%
		☐	3	192.168.0.1	Z4D-L09N-F...	1	P5	Detect Margin	---	%
		☐	4	192.168.0.1	Z4D-L09N-F...	1	P6	Maintain Days	---	day
		☐	5	192.168.0.1	Z4D-L09N-F...	1	P7	Switching output	ON	Boolean
		☐	6	192.168.0.1	Z4D-L09N-F...	1	P8	Process input data	00 85	Hexade...

The process input data displayed here are the current values when they were added to the table and have not been updated. Slide the “Refresh cycle” slider at the top of the screen to the right to update the values periodically.



Click and hold the mouse and slide to the right



The actual update cycle is displayed on the right. If you click again without sliding, you can stop and restart the update while keeping the slider position.



The process data list shows the following:

Column name	Contents
Monitor	Checked items will be added as items for waveform display on the monitor chart.
No.	Numbers are assigned in the order they are added to the process data list and are used for sorting purposes.
IP address	The IP address of the target unit is displayed.
Device name	The name of the target IO-Link device or I/O setting parameter of this unit.
Channel	This is the target channel number for this unit.
Number	The process input data number (P...) and process output data number (Q...) are displayed.
Process data name	The name of the process data.
Value	If it is online, the current value that has been read is displayed. To update the display, move the “Refresh cycle” slider to the right. Items that do not match the conditions for displaying process data will show “---”. If it is offline (parameter file), “---” will always be displayed.
Unit	The unit of process data.
Data type	The format in which process data is displayed. It will be Boolean, unsigned decimal, signed decimal, floating point, string, and hexadecimal.
Word offset	This is the word offset as seen from the field network side.
Bit offset	Similarly, the bit offset within the word.
Bit width	The bit width used by the process data.
Alignment	The word offset where the process data is assigned is displayed with a leading +0. Data outside the assigned range is displayed as “---”.
Valid when	The conditions under which the process data is valid are displayed in the format “(Index number.Subindex number = value)”.

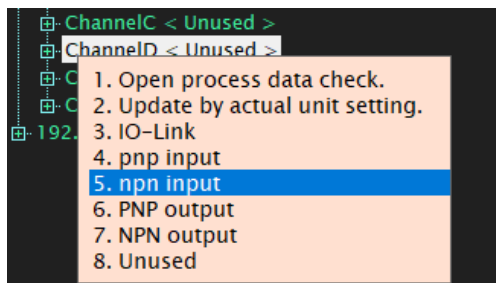
Note:

To view the process data of an IO-Link device online, the device must be connected to this unit. If the device is not connected, please operate offline.

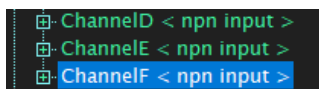
● 2-2-4-2 Displays the pulse input counter value

Using the 16-channel counter function added to the UR-M/E series, you will set up to monitor the count value as process data. Here, you will connect an incremental encoder with ABZ-phase open collector output as NPN input to channels D, E, and F.

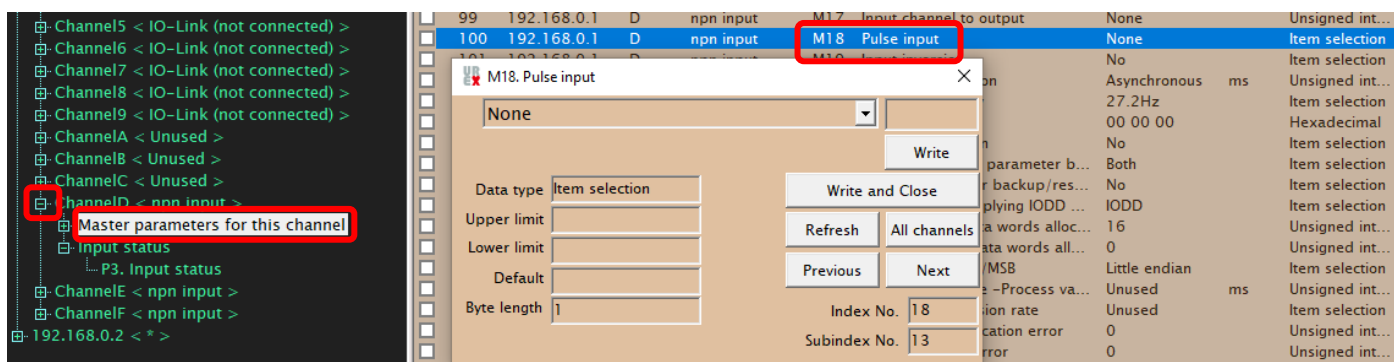
Right-click on channel D in the tree to display the context menu, select "4. npn input" and release the right-click.



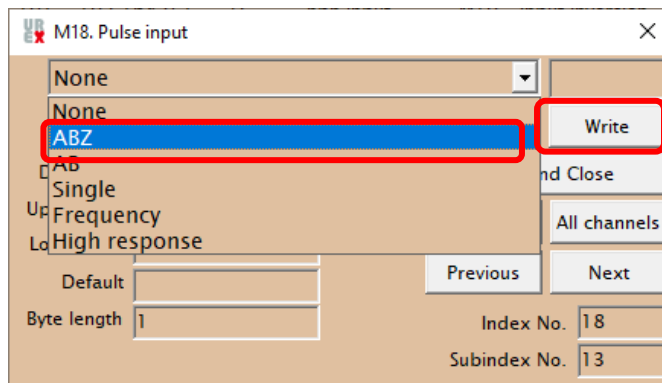
Set the remaining channels E and F in the same way, and confirm that the three channels are npn inputs.



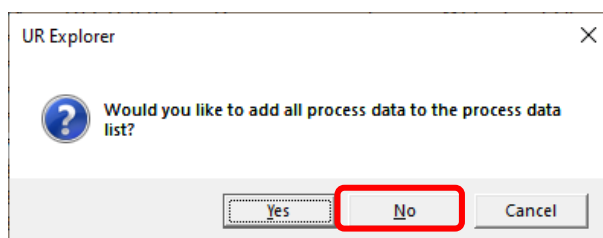
Next, click the expand button to the left of "Channel D," and then click "Master parameters for this channel" below that. A confirmation message will appear, and if you click "Yes," the parameters will be expanded in the parameters list. Then, click the setting for "M18. Pulse input" to display a dialog screen for changing the parameter.



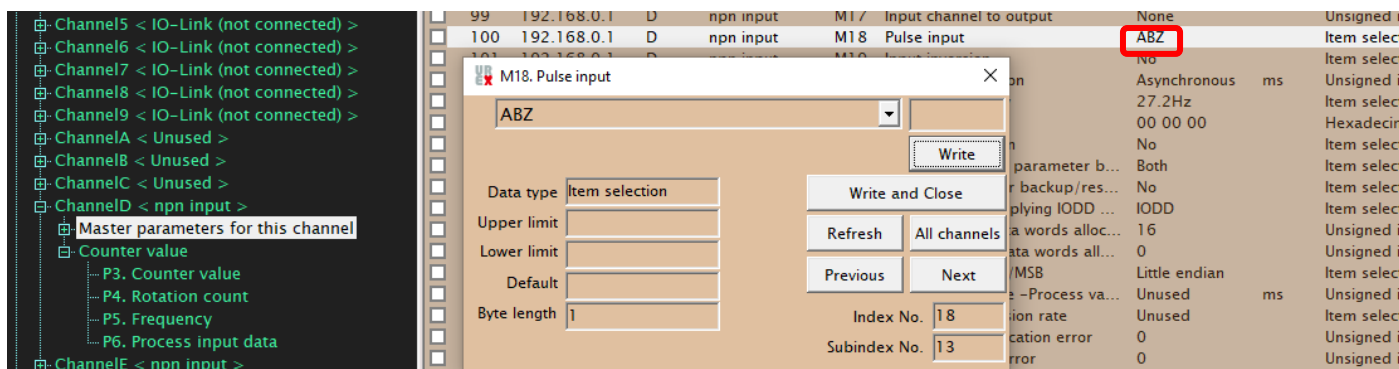
Select "ABZ" from the setting options and click "Write".



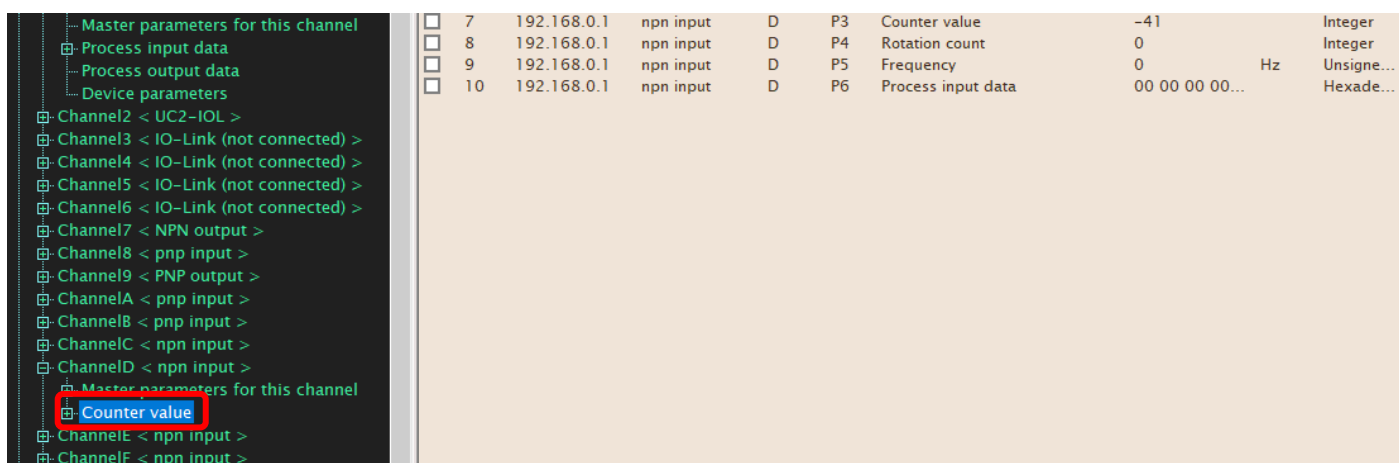
Changing the pulse input parameter has changed the contents of the process input data corresponding to this channel, so the following confirmation message is displayed. Since we do not want to check the contents of the process input data right now, click “No”.



You can see that the values in the parameter list have also been updated.



Next, click “Counter value” on the tree. The confirmation message will be displayed again. Click “Yes” and the current counter value and other information will be displayed in the process data list.



Moving the “Refresh cycle” slider to the right will cause the current values of the counter and frequency to be updated periodically.

...

Monitor chart

☐ Confirm write error

☐ Parameter value

Reload lang file

DDs\

...

Refresh data

124 ms |

...

Unit list

Parameter list

Process data list

Process data allocation

IODD file list

Diagnosis list

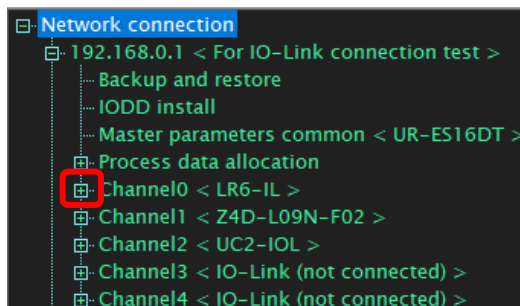
M...	No.	IP address	Device name	Cha...	Nu...	Process data name	Value	Unit	Data type
☐	1	192.168.0.1	Z4D-L09N-F...	1	P3	Average received light level	264	%	Integer
☐	2	192.168.0.1	Z4D-L09N-F...	1	P4	Real received light level	---	%	Integer
☐	3	192.168.0.1	Z4D-L09N-F...	1	P5	Detect Margin	---	%	Integer
☐	4	192.168.0.1	Z4D-L09N-F...	1	P6	Maintain Days	---	day	Integer
☐	5	192.168.0.1	Z4D-L09N-F...	1	P7	Switching output	OFF		Boolean
☐	6	192.168.0.1	Z4D-L09N-F...	1	P8	Process input data	02 10		Hexade...
☐	7								
☐	8	192.168.0.1	npn input	D	P3	Counter value	1766		Integer
☐	9	192.168.0.1	npn input	D	P4	Rotation count	29		Integer
☐	10	192.168.0.1	npn input	D	P5	Frequency	1425	Hz	Unsigne...
☐	11	192.168.0.1	npn input	D	P6	Process input data	00 00 05 91		Hexade...

2-2-5 Force writing of process output data

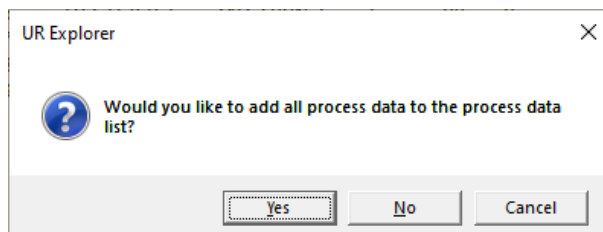
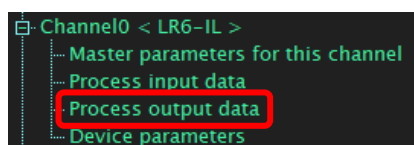
2-2-5-1 View the process output data of an IO-Link device

Here, we will expand the process output data of the IO-Link device connected to channel 0 in the process data list.

Click the Expand button to the left of the relevant channel in the tree.



This will expand the tree with the parameters and process data items related to channel 0. Clicking “Process output data” will display a confirmation message, and clicking “Yes” will add the item to the process data list.



IODD folder 2

...

Unit list

Parameter list

Process data list

Process data allocation

IODD file list

Dia

Network connection

192.168.0.1 < For IO-Link connection test >

Backup and restore

IODD install

Master parameters common < UR-ES16DT >

Process data allocation

Channel0 < LR6-IL >

Master parameters for this channel

Process input data

Process output data

Device parameters

Channel1 < Z4D-L09N-F02 >

Channel2 < UC2-IOL >

Channel3 < IO-Link (not connected) >

Channel4 < IO-Link (not connected) >

Channel5 < IO-Link (not connected) >

Channel6 < IO-Link (not connected) >

Channel7 < NPN output >

Channel8 < npn input >

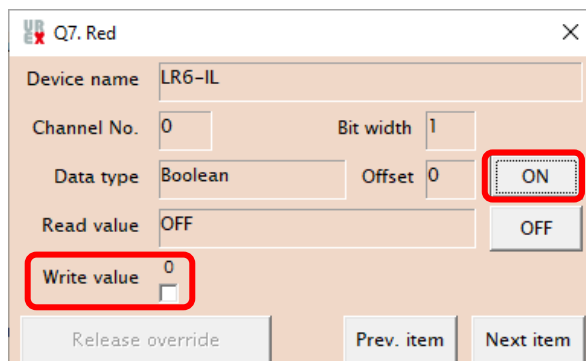
M...	No.	IP address	Device name	Cha...	Nu...	Process data name	Value	Unit
☐	1	192.168.0.1	LR6-IL	0	Q2	Buzzer	OFF	
☐	2	192.168.0.1	LR6-IL	0	Q3	White	OFF	
☐	3	192.168.0.1	LR6-IL	0	Q4	Blue	OFF	
☐	4	192.168.0.1	LR6-IL	0	Q5	Green	OFF	
☐	5	192.168.0.1	LR6-IL	0	Q6	Yellow	OFF	
☐	6	192.168.0.1	LR6-IL	0	Q7	Red	OFF	
☐	7	192.168.0.1	LR6-IL	0	Q8	Intermittent Buzzer Operation	---	
☐	8	192.168.0.1	LR6-IL	0	Q9	WhitePattern	---	
☐	9	192.168.0.1	LR6-IL	0	Q10	WhiteOn/Off	---	
☐	10	192.168.0.1	LR6-IL	0	Q11	BluePattern	---	
☐	11	192.168.0.1	LR6-IL	0	Q12	BlueOn/Off	---	
☐	12	192.168.0.1	LR6-IL	0	Q13	GreenPattern	---	
☐	13	192.168.0.1	LR6-IL	0	Q14	GreenOn/Off	---	
☐	14	192.168.0.1	LR6-IL	0	Q15	YellowPattern	---	
☐	15	192.168.0.1	LR6-IL	0	Q16	YellowOn/Off	---	
☐	16	192.168.0.1	LR6-IL	0	Q17	RedPattern	---	
☐	17	192.168.0.1	LR6-IL	0	Q18	RedOn/Off	---	
☐	18	192.168.0.1	LR6-IL	0	Q19	Process output data	00 00 00 00...	

Here, double-click the “Q7 Red” item to display the dialog screen where you can write the value.

Note:

Process data values that are displayed as “---” are not displayed in the current parameters of the IO-Link device. Although you can write to them, it is likely that the value will be unexpected.

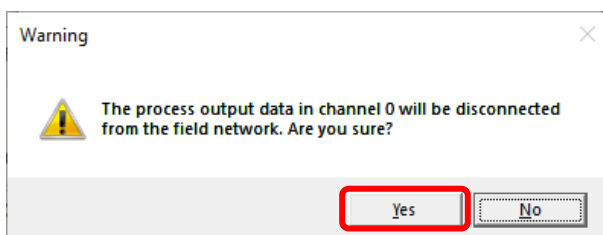
This process output data handles on/off states with a bit width of 1, so it can be directly controlled with the “ON” and “OFF” buttons on the right of the screen. Click the “ON” button here. Instead, you can click the check box on the bottom of the screen.



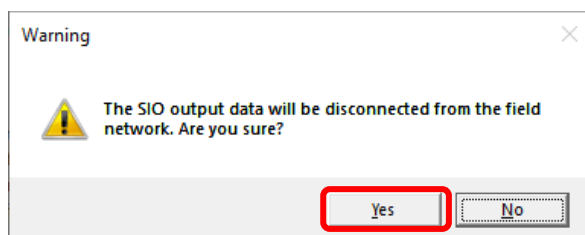
The following confirmation message will then be displayed. The SIO output of all channels of this unit will be disconnected from the field network and will become controllable with this tool. The current output status will be maintained, but output control from the field network will be ignored, so be sure to click “No” to cancel if the device is operating.

The process output data of the IO-Link device on the corresponding channel will be disconnected from the field network and will become controllable with this tool. The current output status will be maintained, but output control from the field network will be ignored, so be sure to click “No” to cancel if the device is running.

Click “Yes” only if you have confirmed that the device is not running and that it is okay for output control from the field network to be disconnected.



If the network type is EtherNet/IP, all channels of the device, including the SIO output, will be disconnected from the host network to forcibly establish a connection. Click “Yes” only if you have confirmed that the device is not operating and that it is okay for output control from the field network to be disconnected.



The written ON will then be displayed as a “ON” in the “Read Value” column of the dialog screen and in the “Value” column of the process data list. Check that the ON state is also on in the actual IO-Link device; in this case, the red light on the LR6-IL is lit.

M...	No.	IP address	Device name	Cha...	Nu...	Process data name	Value	Unit	Data type
☐	1	192.168.0.1	LR6-IL	0	Q2	Buzzer	OFF		Boolean
☐	2	192.168.0.1	LR6-IL	0	Q3	White	OFF		Boolean
☐	3	192.168.0.1	LR6-IL	0	Q4	Blue	OFF		Boolean
☐	4	192.168.0.1	LR6-IL	0	Q5	Green	OFF		Boolean
☐	5	192.168.0.1	LR6-IL	0	Q6	Yellow	OFF		Boolean
☐	6	192.168.0.1	LR6-IL	0	Q7	Red	ON		Boolean
☐	7	192.168.0.1	LR6-IL	0	Q8	Intermittent Buzzer Operation	Invalid		Boolean
☐	8	192.168.0.1	LR6-IL	0	Q9				Boolean
☐	9	192.168.0.1	LR6-IL	0	Q10				Boolean
☐	10	192.168.0.1	LR6-IL	0	Q11				Boolean
☐	11	192.168.0.1	LR6-IL	0	Q12				Boolean
☐	12	192.168.0.1	LR6-IL	0	Q13				Boolean
☐	13	192.168.0.1	LR6-IL	0	Q14				Boolean
☐	14	192.168.0.1	LR6-IL	0	Q15				Boolean
☐	15	192.168.0.1	LR6-IL	0	Q16				Boolean
☐	16	192.168.0.1	LR6-IL	0	Q17				Boolean
☐	17	192.168.0.1	LR6-IL	0	Q18				Boolean
☐	18	192.168.0.1	LR6-IL	0	Q19				Boolean

Q7. Red

Device name

LR6-IL

Channel No.

0

Bit width

1

Data type

Boolean

Offset

0

ON

OFF

Read value

ON

Write value

0

☒

Release override

Prev. item

Next item

To return to output control from the field network, click the “X” in the upper right corner to close the dialog screen.

Q7. Red

X

Device name

LR6-IL

Channel No.

0

Bit width

1

Data type

Boolean

Offset

0

ON

OFF

Read value

ON

Write value

0

☒

Release override

Prev. item

Next item

A confirmation message will then be displayed, so click “Yes”.

Warning

X

Warning

Would you like to return the all process output data to be controlled by the field network?

Yes

No

You can also see that the current value display in the process data list has returned to normal.

M...	No.	IP address	Device name	Cha...	Nu...	Process data name	Value	Unit
☐	1	192.168.0.1	LR6-IL	0	Q2	Buzzer	OFF	
☐	2	192.168.0.1	LR6-IL	0	Q3	White	OFF	
☐	3	192.168.0.1	LR6-IL	0	Q4	Blue	OFF	
☐	4	192.168.0.1	LR6-IL	0	Q5	Green	OFF	
☐	5	192.168.0.1	LR6-IL	0	Q6	Yellow	OFF	
☐	6	192.168.0.1	LR6-IL	0	Q7	Red	OFF	

2-2-6 Monitor chart

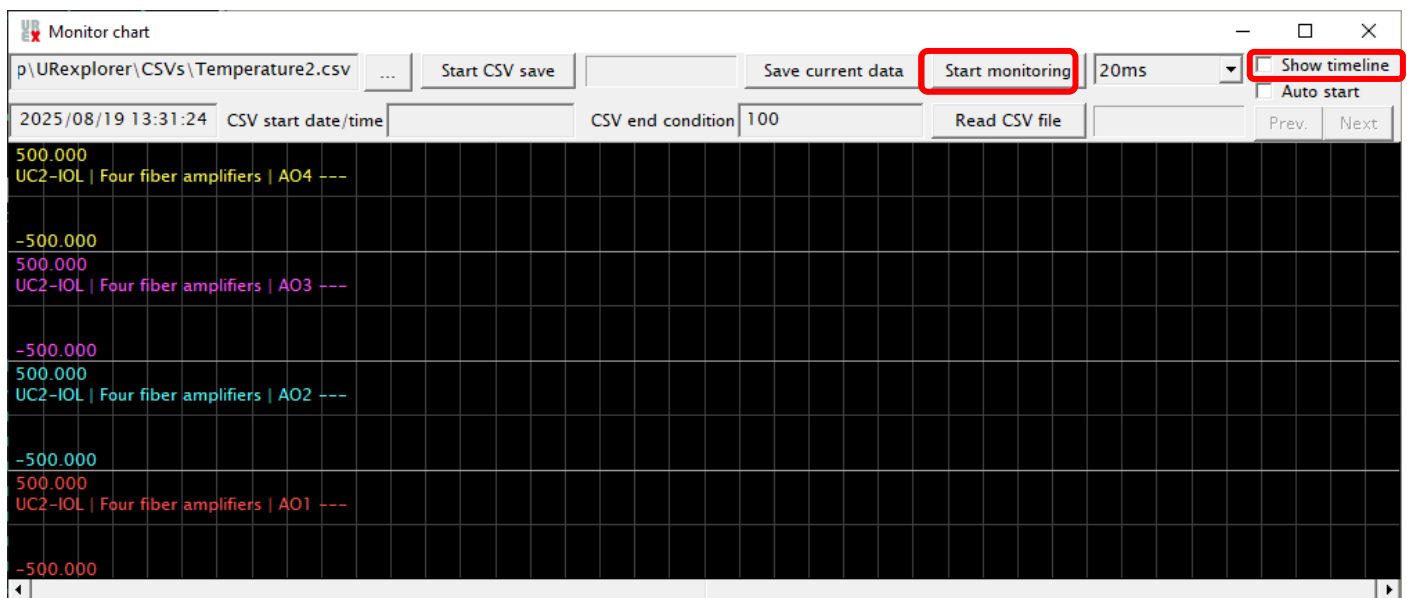
2-2-6-1 Monitoring process data

This is an example of monitoring the light receiving amount of our UC2-IOL and the D3RF (four units) fiber amplifiers connected to it on a UR-ES16DT connected online.

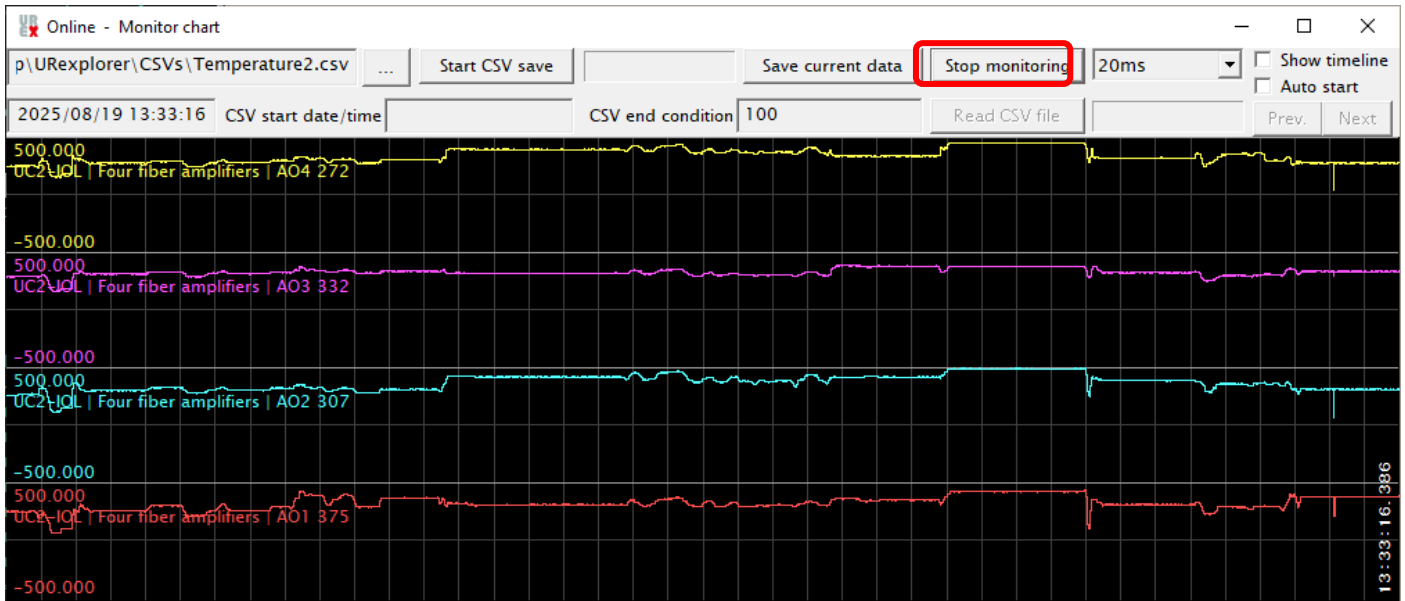
Check the “Monitor” column of the process data for the light receiving amount of the four units from the process data list.

The screenshot shows the UR-ES16DT software interface. At the top, there are fields for Online IP address (192.168.0.1), Project folder (C:\tmp\UR_Explorer\projects\), Logic program file folder, IODD folder 1 (C:\tmp\UR_Explorer\IODDs\), and IODD folder 2. There are buttons for Find IODD, IODD auto-download, Monitor chart (highlighted with a red box), Confirm write error, Refresh data, and Stopped. A language replacement section shows English selected. A note on the right says: "Double click the process output data item of the process data list will show a process output data write dialog window." Below this is a table with columns: M..., No., IP address, Device name, Cha..., Nu..., Process data name, Value, Unit, Data type, Word of... The table lists 17 items. Items 12 through 15 are checked in the 'M...' column, and their corresponding 'Process data name' values are highlighted in the 'Value' column. Item 12: UC2-IOL, P4, Module1-8, 0. Item 13: UC2-IOL, P5, Module9-16, 0. Item 14: UC2-IOL, P6, AO13, 440. Item 15: UC2-IOL, P7, AO12, 778. Item 16: UC2-IOL, P8, AO11, 884. Item 17: UC2-IOL, P9, AO10, 1356. Item 18: UC2-IOL, P10, AO9, 0. Item 19: UC2-IOL, P11, AO8, 0. Item 20: UC2-IOL, P12, AO7, 0. Item 21: UC2-IOL, P13, AO6, 0. Item 22: UC2-IOL, P14, AO5, 0. Item 23: UC2-IOL, P15, AO4, 0. Item 24: UC2-IOL, P16, AO3, 0. Item 25: UC2-IOL, P17, AO2, 0. Item 26: UC2-IOL, P18, AO1, 0. Item 27: UC2-IOL, P19, Process input data, 05 4C 03 74...

Then, click the “Monitor chart” button to display the monitor chart screen in a separate window. Click the “Start monitoring” button to start displaying the chart of the current values. To display time on the horizontal axis, check “Show timeline”



If you want to stop drawing, click “Stop monitoring”.

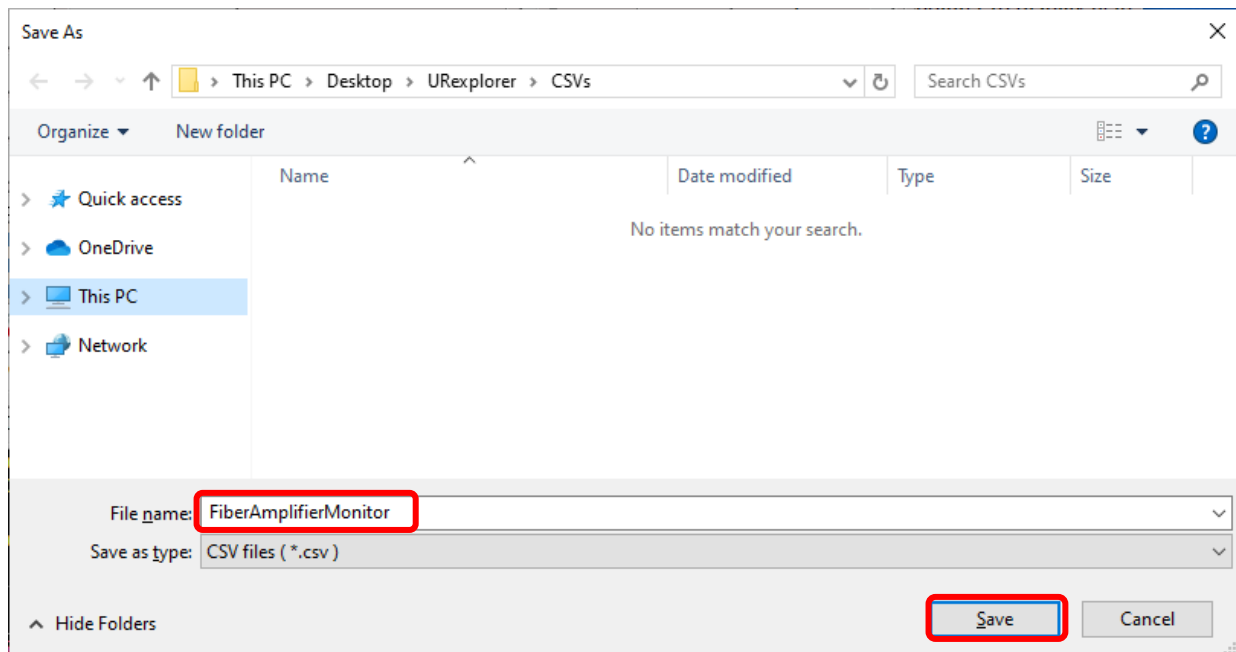


At the bottom of the screen, the current time is displayed on the right, and to the left of that is the time (in ms) to the vertical grid line. If you find the display distracting, you can remove it by unchecking “Show timeline” in the upper right.

If you want to save the data to a CSV file for later use, click the file selection “...” to the left of “Start CSV save”.



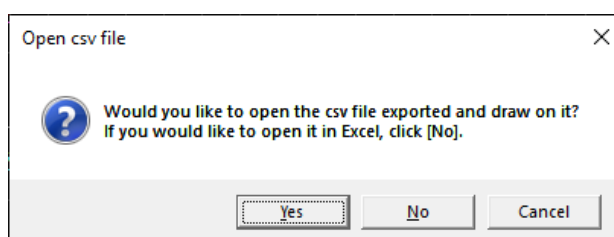
Enter the folder and file name in which you want to save the CSV file, and then click “Save.”



Check that the file name is displayed and click “Start CSV save” to start saving the monitored data to the specified file. The number of data lines in the CSV file is displayed next to the button.



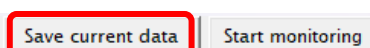
To stop saving, click “Stop CSV save”. A message will then appear asking if you want to open the file in the monitor chart or an application. Click “Yes” to open the file by the monitor chart and “No” to open the file by the application like the Excel.



The waveforms on the monitor chart can be scaled and moved.

Operation	Contents
[←]	Show the previous waveform.
[→]	Show the new waveform.
[↑] or mouse wheel up	Show the high-value side of the waveform under the mouse cursor.
[↓] or mouse wheel down	Show the low-value side of the waveform under the mouse cursor.
Ctrl + [←]	Reduces the time axis.
Ctrl + [→]	Enlarges the time axis.
Ctrl + ([↑] or mouse wheel up)	Enlarges the display of the waveform values indicated by the mouse cursor.
Ctrl + ([↓] or mouse wheel down)	Reduces the display of the waveform values indicated by the mouse cursor.
Alt + [↑]	Increase the font size.
Alt + [↓]	Decrease the font size.
[Page Up]	Draws upper monitored data.
[Page Down]	Draws lower monitored data.
Ctrl + [Page Up]	Enlarge the drawn data vertically.
Ctrl + [Page Down]	Reduce the drawn data vertically.
[Del]	Deletes the drawn data.
[Back space]	Hides the cursor display.
Left-click of mouse	Moves the vertical cursor and displays the current value at the cursor position. (Only when monitoring is stopped.)
Right-click of mouse	Moves the position of another vertical cursor and displays the current value and time difference at the cursor position. (Only when monitoring is stopped.)
Left double click of mouse	Adjust the vertical axis of the data at the cursor position to the optimal value.
Right double click of mouse	Adjust the vertical axis of all data to the optimal value.

To save the monitor data being drawn to a CSV file, stop drawing and then click “Save current data.” A dialog box will appear, allowing you to specify the name of the file to save.



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Since the bit data only has values of 0 and 1, the drawing height is low and zooming or moving on the vertical axis is disabled.

2-2-6-2 Monitor the parameters

It is possible to monitor not only the process data but also the parameter value at the same time. Here, we will monitor the average received light level (process data) and the detection margin (parameter) of the photoelectric switch (Z4D-L09N-F02) on channel 1.

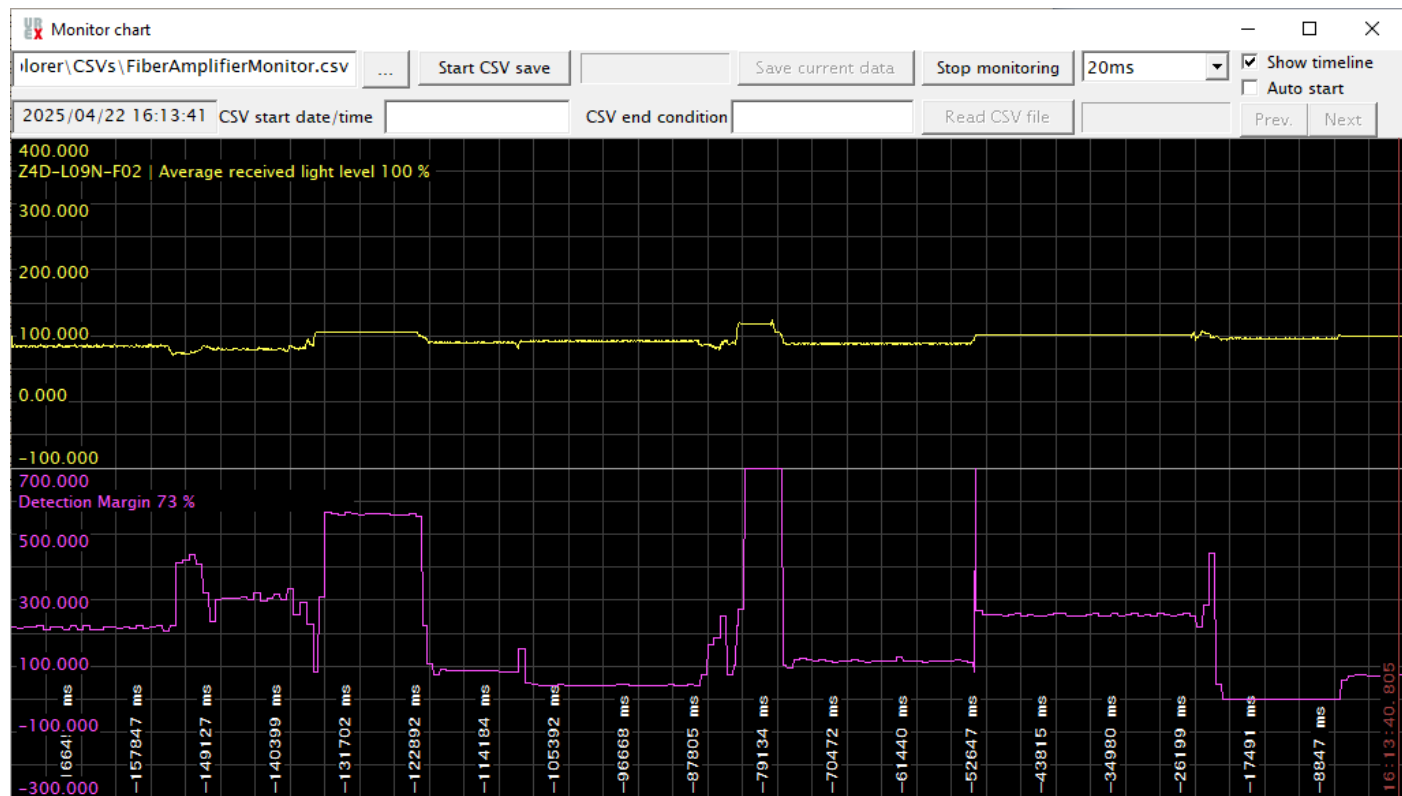
Check “P3 Average received light level” from the process data list.

IODD folder 2				Unit list		Parameter list		Process data list		Process data allocation		IODD file list		Diagnosis list	
Network connection		M...	No.	IP address	Device name	Cha...	Nu...	Process data name	Value	Unit	Data type	Word			
192.168.0.1 < For IO-Link connection test >		☒	1	192.168.0.1	Z4D-L09N-F...	1	P3	Average received light level	63	%	Integer	0			
Backup and restore		☐	2	192.168.0.1	Z4D-L09N-F...	1	P4	Real received light level	---	%	Integer	0			
IODD install		☐	3	192.168.0.1	Z4D-L09N-F...	1	P5	Detect Margin	---	%	Integer	0			
Master parameters common < UR-ES16DT >		☐	4	192.168.0.1	Z4D-L09N-F...	1	P6	Maintain Days	---	day	Integer	0			
Process data allocation		☐	5	192.168.0.1	Z4D-L09N-F...	1	P7	Switching output	ON		Boolean	0			
Channel0 < LR6-IL >		☐	6	192.168.0.1	Z4D-L09N-F...	1	P8	Process input data	00 7F		Hexade...	0			
Channel1 < Z4D-L09N-F02 >															
Master parameters for this channel															
Process input data															
Process output data															
Device parameters															

Also check “D4 Detection margin” from the parameter list.

IODD folder 2		...	Unit list	Parameter list	Process data list	Process data allocation	IODD file list	Diagnosis list			
		M...	No.	IP address	Cha...	Device name	Nu...	Parameter name	Value	Unit	Data type
Network connection											
192.168.0.1 < For IO-Link connection test >			1	192.168.0.1	1	Z4D-L09N-F...	S16	Vendor name	OPTEX FA		String
Backup and restore			2	192.168.0.1	1	Z4D-L09N-F...	S17	Vendor text	www.optex-f...		String
IODD install			3	192.168.0.1	1	Z4D-L09N-F...	S18	Product type	Z4D-L09N-F...		String
Master parameters common < UR-ES16DT >			4	192.168.0.1	1	Z4D-L09N-F...	S19	Product ID	Z4_Diffuse		String
Process data allocation			5	192.168.0.1	1	Z4D-L09N-F...	S20	Product function	IO-Link PE S...		String
Channel0 < LR6-IL >			6	192.168.0.1	1	Z4D-L09N-F...	S21	Serial number	213042100...		String
Channel1 < Z4D-L09N-F02 >			7	192.168.0.1	1	Z4D-L09N-F...	S22	Hardware revision	1.00		String
Master parameters for this channel			8	192.168.0.1	1	Z4D-L09N-F...	S23	Firmware revision	1.03		String
Process input data			9	192.168.0.1	1	Z4D-L09N-F...	S24	User tag name	*		String
Process output data			10	192.168.0.1	1	Z4D-L09N-F...	D1	Maintain Required by	27.35	years	Integer
Device parameters			11	192.168.0.1	1	Z4D-L09N-F...	D2	Maintain Event Days	100	day	Integer
Channel2 < UC2-IOL >			12	192.168.0.1	1	Z4D-L09N-F...	D3	Operated Hours	407.2	hour	Integer
Channel3 < IO-Link (not connected) >		✓	13	192.168.0.1	1	Z4D-L09N-F...	D4	Detection Margin	636	%	Integer
			14	192.168.0.1	1	Z4D-L09N-F...	D5	Indicator	Stable		Item selection

Click “Monitor Chart” and then “Start monitoring” to draw the two data simultaneously.



● 2-2-6-3 Start or Stop saving to CSV at the specified date and time

This function allows you to automatically start saving to CSV at a specified date and time. If you specify a date and time, or just a time, in "CSV start date/time" and click "Start CSV save", the function will wait until that date and time before starting saving to CSV.

2025/04/23 09:43:19 CSV start date/time 2025/4/23 10:00:00 CSV end condition 10:59:59

The current date and time is displayed in the red frame.

In the green frame, specify the date and time or the time to start saving to CSV. If left blank, saving will start immediately when you click the "Start CSV save" button.

In the blue frame, specify the date and time or the time to end saving to CSV, or the number of data items (number of rows) to save.

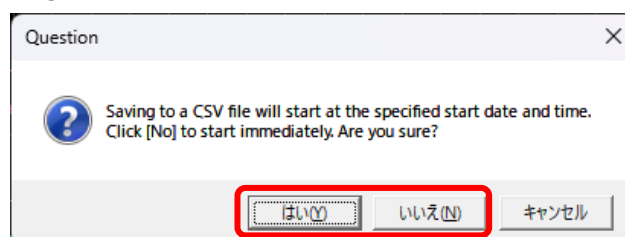
The date and time and number of rows are specified using the following method.

Expression	Format	Item	Content
Date and time	Year/month/day Hour/minute/second	Year	Specify the actual year, not a two-digit year, such as "2025".
		Separator	The separator between the year and month is a slash "/".
		Month	Specify the month using one or two digits.
		Separator	The separator between the month and day is a slash "/".
		Day	Specify the day using one or two digits.
		Separator	The separator between the day and hour is a space " ".
		Hour	Specify the hour using one or two digits.
		Separator	The separator between the hour and minute is a colon ":".
		Minutes	Specify the minutes using one or two digits.
		Separator	The separator between the minutes and seconds is a colon ":".
Time	Hour/minute/second	Seconds	Specify the seconds using one or two digits.
		Hour	Specify the hour using one or two digits.
		Separator	The separator between the hour and minute is a colon ":".
		Minutes	Specify the minutes using one or two digits.
		Separator	The separator between the minutes and seconds is a colon ":".
Quantity	Quantity	Seconds	Specify the seconds using one or two digits.
		Quantity	Specify a number from 1 to 10 digits.

*Month/day/year and day/month/year formats are not supported.

If you specify a start date and time and it is set before the current date and time, saving will start immediately when you click the "Start CSV save" button.

If it does not start immediately, the following message box will be displayed. If you click "No", saving will start immediately without waiting.



While waiting for the CSV save to start, the button changes to "Cancel waiting". Clicking this will stop the save without starting.

The frame showing the number of saved rows will also have a yellow background.

C:\tmp\UR_Explorer\CSVs\4TC_en.csv	...	Cancel waiting	
2025/04/23 09:49:20	CSV start date/time	2025/4/23 10:00:00	CSV end condition

If you specify a start date and time for saving the CSV file, the file name will end with the format "_year/month/date/time/minute/second.csv".

- 2-2-6-4 Stop saving to CSV at the specified number of data or rows

Instead of a date and time, you can also specify the number of data items to be saved (the number of data rows in the CSV file) as the CSV saving end condition. In that case, you can also use it in combination with the CSV saving start date and time. In the example below, the save will automatically end after saving 1,000 data items from 10:00 a.m. on April 23, 2025.

2025/04/23 09:43:57	CSV start date/time	2025/4/23 10:00:00	CSV end condition	1000
---------------------	---------------------	--------------------	-------------------	------

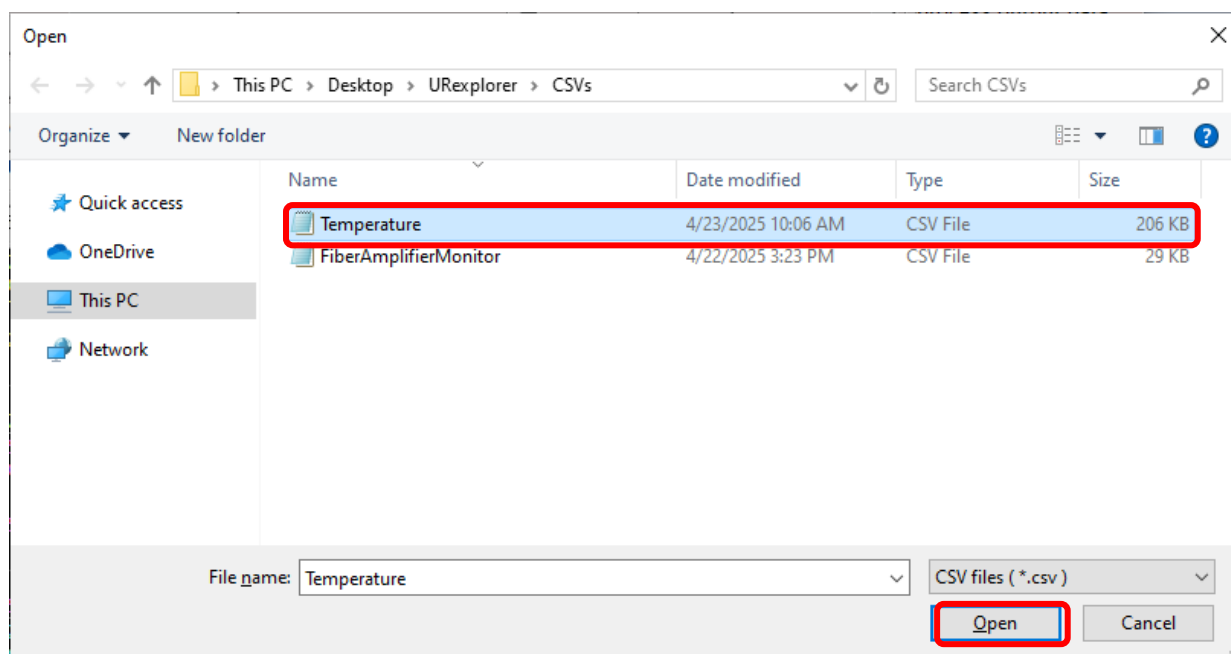
- 2-2-6-5 Load saved CSV data and display the waveform

You can load saved CSV files and display the waveforms. Up to 2048 pieces of data can be loaded at one time, so if the number of pieces exceeds that, you can load and display them in units of 1000 lines.

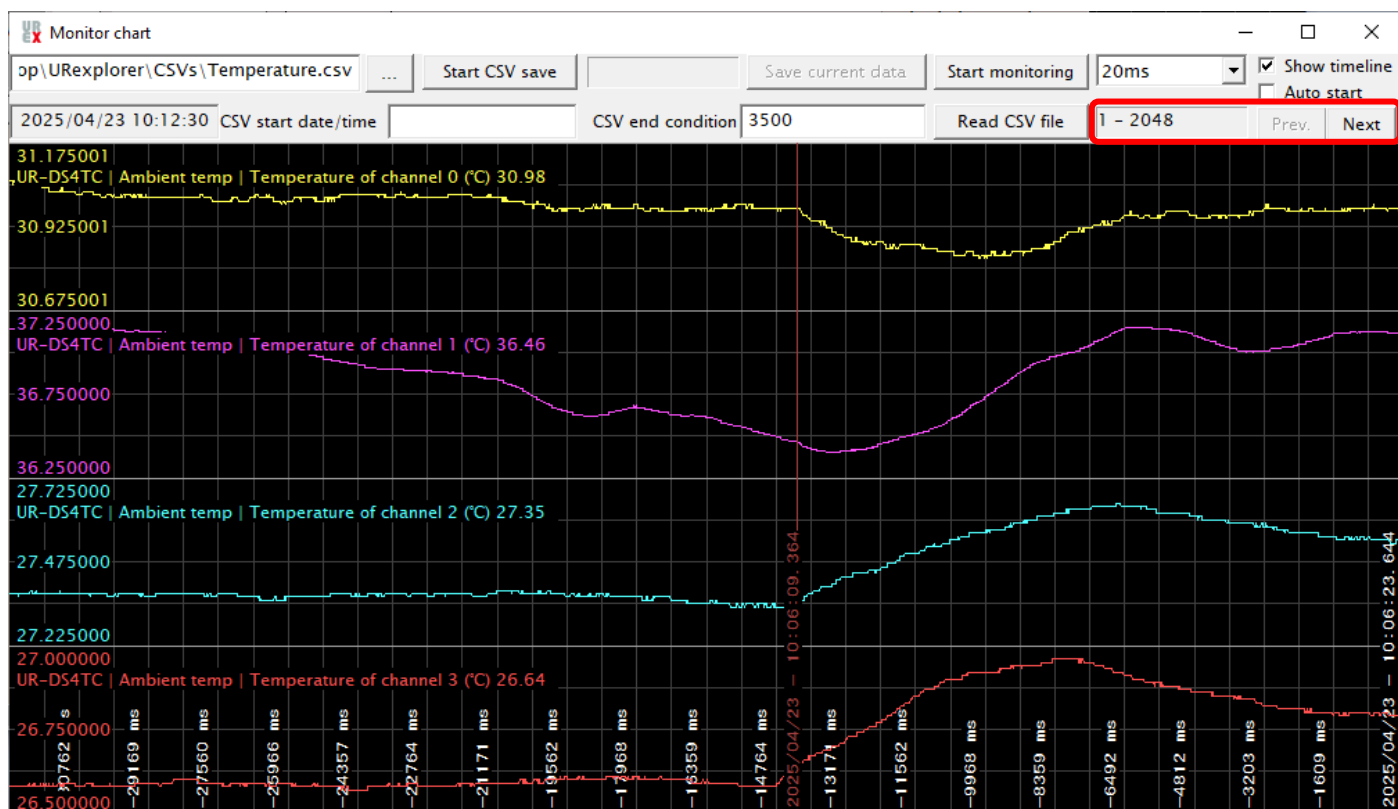
Save current data	Start monitoring	20ms	☒ Show timeline
			☐ Auto start
	Read CSV file	Prev.	Next

When you click the "Read CSV file" button on the screen, a dialog box will appear allowing you to select the file to import.

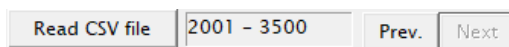
Select the file you want to import and click "Open."



When loading is complete, the waveform and the line number that was loaded will be displayed on the screen. If the number of data items loaded exceeds 2048, the [Next] button will be enabled and 2048 data items will be loaded starting from 1000 items ahead (the past on the time axis).



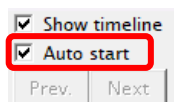
If there is no further data (newer in terms of the timeline), the [Next] button will be disabled.



● 2-2-6-6 Automatically start saving to CSV when the application starts

If you check "Auto start" and then close the application, the next time you start the application it will automatically restore the process data and parameter value lists, start the monitor chart, and start CSV saving according to the CSV saving start date and time.

If you set a CSV saving end condition, CSV saving will end when the specified time or number of data items is reached.



When starting the application, the units to be monitored must be powered on and Ethernet communication must be established. If Ethernet communication is not possible, an error message will be displayed when restoring the process data and list of settings.

● 2-2-6-7 Specifications of the monitor chart

The monitor chart specifications are as follows:

Items	Values
Number of process data that can be monitored simultaneously	100 items
Number of parameters that can be monitored simultaneously	100 items
Drawing buffer capacity	2048 points
Number of data items that can be saved in CSV format	Depends on the free space on the destination disk

Note:

The interval for acquiring monitored data varies depending on the number of process data channels, the number of parameters, the load of other application software, etc.

The specified monitor interval indicates the waiting time and is not guaranteed.

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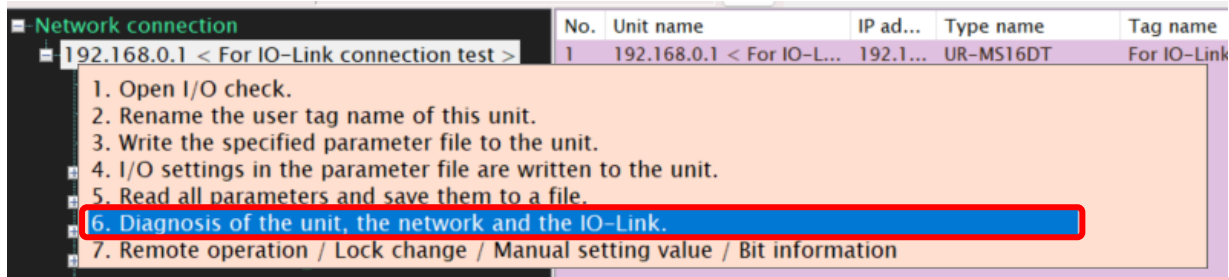
It is possible to add or remove items to be drawn while drawing, but if the selected item is changed during the drawing, the data will be deleted.

To avoid data columns increasing or decreasing while saving as CSV, changes to the items to be monitored will only be reflected after the CSV has been saved.

2-2-7 Diagnose

2-2-7-1 Diagnose network and IO-Link communication status

This function diagnoses the Ethernet network status via a PC, the IO-Link communication status, and the output overcurrent detection status. Right-click on the unit you want to diagnose in the tree to display the context menu, and select “6. Diagnosis of the unit, the network, and the IO-Link.” or press the “6” key.



The communication status will be checked for approximately 16 seconds (varies depending on the connection status), after which the results will be displayed in the “Diagnostic result”.

No.	IP address	Type name	Tag name	Ch...	Item name	Average ...	Minimum ...	Maximum...	Diagnosis result
1	192.168....	UR-ES16DT	IO-Link conn...	---	Maximum internal temperature	48.6 deg C			No problem.
2	192.168....	UR-ES16DT	IO-Link conn...	---	Fault counter by noise	0			No problem.
3	192.168....	UR-ES16DT	IO-Link conn...	---	Peak I/O voltage	24.9 V			No problem.
4	192.168....	UR-ES16DT	IO-Link conn...	---	Response time of reading paramet...	16.80 ms	15 ms	32 ms	No problem.
5	192.168....	UC2-IOL	Four fiber a...	0	IO-Link cycle time	2.2 ms			No problem.
6	192.168....	UC2-IOL	Four fiber a...	0	IO-Link error count	0			No problem.
7	192.168....	UC2-IOL	Four fiber a...	0	IO-Link bit rate error	-0.06 %	-0.1 %	0.0 %	No problem.
8	192.168....	UC2-IOL	Four fiber a...	0	IO-Link bit width error	0.56 %	0.5 %	0.6 %	No problem.
9	192.168....	Z4D-L09N-F...	***	1	IO-Link cycle time	0.5 ms			No problem.
10	192.168....	Z4D-L09N-F...	***	1	IO-Link error count	0			No problem.
11	192.168....	Z4D-L09N-F...	***	1	IO-Link bit rate error	-0.08 %	-0.1 %	0.0 %	No problem.
12	192.168....	Z4D-L09N-F...	***	1	IO-Link bit width error	-0.95 %	-1.0 %	-0.9 %	No problem.
13	192.168....	UR-ES16DT	IO-Link conn...	2	Unused				No problem.
14	192.168....	UR-ES16DT	IO-Link conn...	3	IO-Link cycle time	0.0 ms			Stopping at STARTUI
15	192.168....	UR-ES16DT	IO-Link conn...	3	IO-Link error count	0			No problem.
16	192.168....	UR-ES16DT	IO-Link conn...	3	IO-Link bit rate error	0.00 %	0.0 %	0.0 %	No problem.
17	192.168....	UR-ES16DT	IO-Link conn...	3	IO-Link bit width error	0.00 %	0.0 %	0.0 %	No problem.
18	192.168....	UR-ES16DT	IO-Link conn...	4	IO-Link cycle time	0.0 ms			Stopping at STARTUI
19	192.168....	UR-ES16DT	IO-Link conn...	4	IO-Link error count	0			No problem.
20	192.168....	UR-ES16DT	IO-Link conn...	4	IO-Link bit rate error	0.00 %	0.0 %	0.0 %	No problem.
21	192.168....	UR-ES16DT	IO-Link conn...	4	IO-Link bit width error	0.00 %	0.0 %	0.0 %	No problem.
22	192.168....	UR-ES16DT	IO-Link conn...	5	IO-Link cycle time	0.0 ms			Stopping at STARTUI
23	192.168....	UR-ES16DT	IO-Link conn...	5	IO-Link error count	0			No problem.
24	192.168....	UR-ES16DT	IO-Link conn...	5	IO-Link bit rate error	0.00 %	0.0 %	0.0 %	No problem.
25	192.168....	UR-ES16DT	IO-Link conn...	5	IO-Link bit width error	0.00 %	0.0 %	0.0 %	No problem.
26	192.168....	UR-ES16DT	IO-Link conn...	6	IO-Link cycle time	0.0 ms			Stopping at STARTUI
27	192.168....	UR-ES16DT	IO-Link conn...	6	IO-Link error count	0			No problem.
28	192.168....	UR-ES16DT	IO-Link conn...	6	IO-Link bit rate error	0.00 %	0.0 %	0.0 %	No problem.
29	192.168....	UR-ES16DT	IO-Link conn...	6	IO-Link bit width error	0.00 %	0.0 %	0.0 %	No problem.
30	192.168....	UR-ES16DT	IO-Link conn...	7	IO-Link cycle time	0.0 ms			Stopping at STARTUI
31	192.168....	UR-ES16DT	IO-Link conn...	7	IO-Link error count	0			No problem.
32	192.168....	UR-ES16DT	IO-Link conn...	7	IO-Link bit rate error	0.00 %	0.0 %	0.0 %	No problem.

● 2-2-7-2 Diagnostic information list

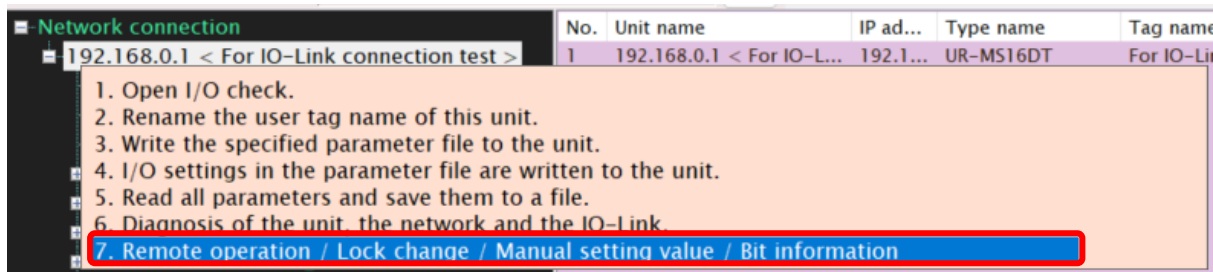
The diagnostic information indicated by the “item name” in the list is as follows.

Item name	Contents	Judgment values	Messages
Maximum internal temperature	This is the highest internal temperature ever recorded by this unit.	Over 85.0°C or 185°F Over 100.0°C or 212°F	Be careful of internal temperature rise. Measures to prevent internal temperature rise are necessary.
Fault counter by noise	This is the number of times the unit detected an abnormality caused by noise (or a malfunction) and restarted.	At least once	There is a possibility that noise was applied, causing the device to malfunction.
Peak I/O voltage	This is the peak value of the I/O power supply (L+, M) that this unit has recorded in the past. It holds the maximum voltage value after passing through a 10μs circuit filter.	29.0V or higher 35.0V or higher	Be careful of noise on the I/O power supply. Noise suppression is required for the I/O power supply.
Response time of reading parameters	The time it takes to read diagnostic information from the unit.	Response times vary by more than 20 ms from the average	The network response may be slow. (It depends on the performance of the PC you are using.)
IO-Link cycle time	This is the communication cycle time with an IO-Link device.	Process input data invalid	The process input data is invalid.
IO-Link error count	This is the number of IO-Link communication errors that occurred during the approximately 16-second diagnosis. If a parity error or timeout is detected even once, the count is incremented.	Once More than once	Please check that the IO-Link communication line is not in the same core as another IO-Link communication line or in the same piping as the power line. IO-Link errors are occurring frequently. Please check that the IO-Link communication line is not in the same core as other IO-Link communication lines or in the same piping as the power line.
IO-Link bit rate error	Measures the bit width of the response data sent by an IO-Link device and displays the error in the device's communication speed.	±3.0% or more	This device has a large error in IO-Link communication speed.
IO-Link bit width error	It measures the on/off ratio of the bit width of the response data sent by an IO-Link device and displays the error caused by distortion of the waveform on the communication path from the device to this unit.	±30.0% or more	The IO-Link communication signal is unstable. Check the cable length and wiring route.
IO-Link (not connected)	Although the I/O setting is IO-Link, communication with the IO-Link device is not established.	—	Communication with IO-Link device not established. Please check the connection or the parameter.
Output over current counter	The number of times an output overcurrent was detected when the I/O function setting was PNP output or NPN output.	At least once	An output overcurrent (peak value of 700mA or more) has been detected. Check the load.

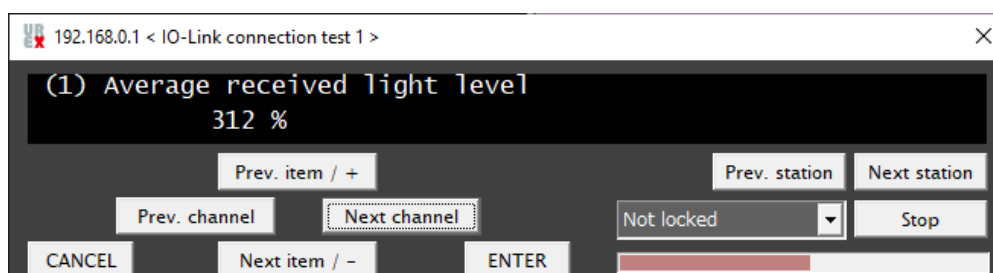
2-2-8 Remotely controlling the unit

• 2-2-8-1 Display the remote control dialogue screen

Right-click on the unit you want to diagnose in the tree to display the context menu and select "7. Remote operation / Lock change / Manual setting value / Bit information" or press the "7" key.

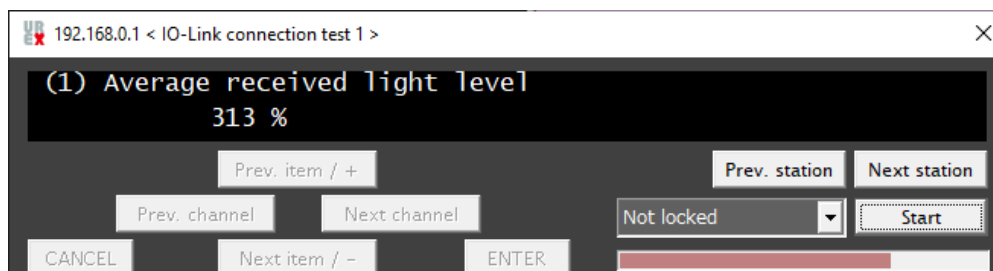


The remote control dialogue screen will then be displayed.

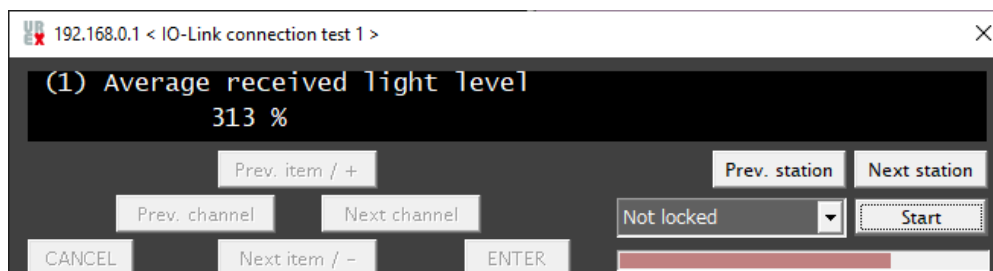


To operate the unit, you can click the buttons on the screen, use the arrow keys to control the D-pad, the [Esc] key to control the [CANCEL] button, or the [Enter] key to control the [ENTER] button.

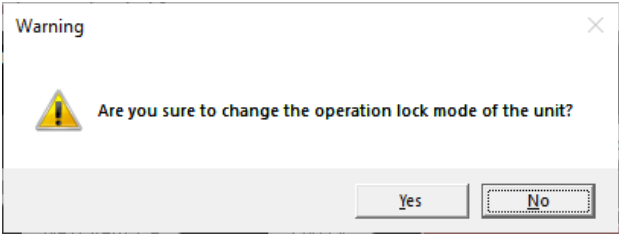
Clicking the [Stop] button will temporarily stop remote operation. To resume, click the [Start] button.



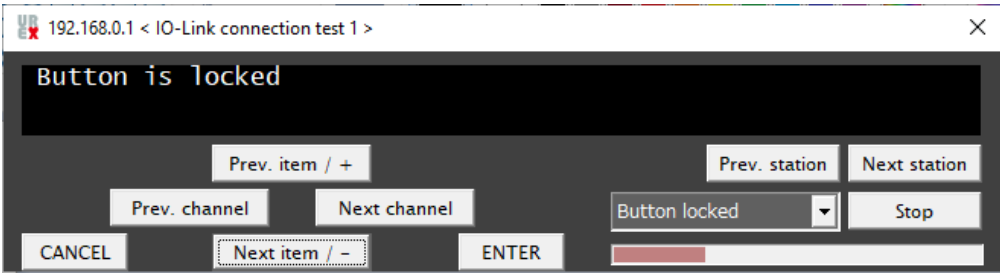
Clicking on the "Not locked" selection box will allow you to lock the unit's buttons.



If you change the current operation lock status, the following message will be displayed. Click [Yes] to change it.



If you select "Button locked" you will not be able to operate the unit's buttons or remotely. To return to the original state, select "Not locked" to switch the operation lock.



There are five operation lock options:

Items	Description
Not locked	All operation locks are unlocked.
Button locked	All button and remote operation on the unit is disabled.
Parameter change locked	Setting Value Change Lock Information such as setting values and process data can be viewed, but setting values cannot be changed.
Error clear locked	Error and event displays cannot be cleared via button operation or remote operation on the unit.
Parameter and Error	The setting value change lock and error clear lock described above function simultaneously.

The input and output bit information enables not only access to the digital inputs and outputs in the SIO mode of this unit, but also reference to the unit's status information and operational data.

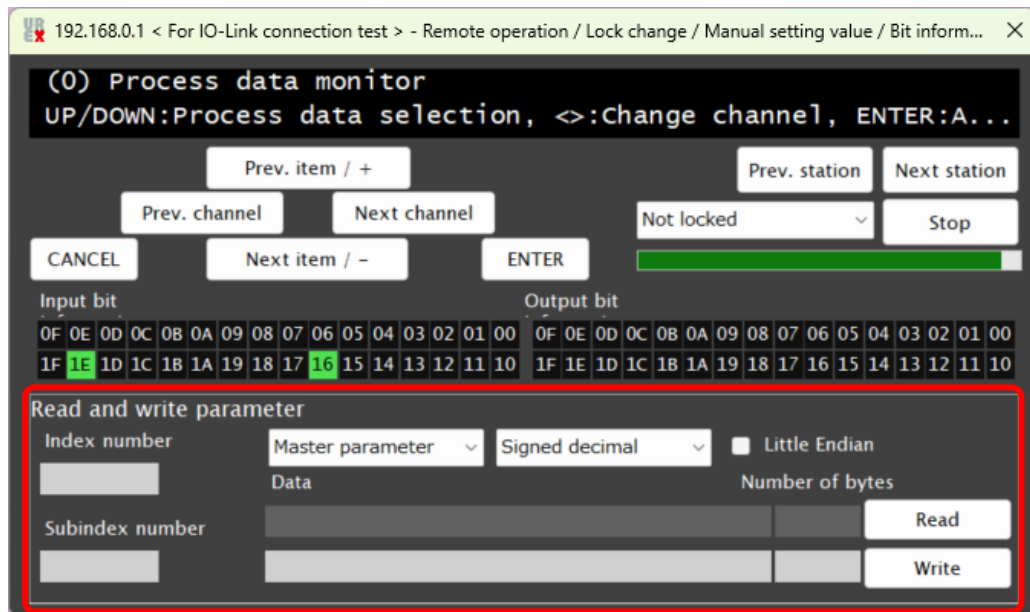
Input bit																Output bit															
0F	0E	0D	0C	0B	0A	09	08	07	06	05	04	03	02	01	00	0F	0E	0D	0C	0B	0A	09	08	07	06	05	04	03	02	01	00
1F	1E	1D	1C	1B	1A	19	18	17	16	15	14	13	12	11	10	1F	1E	1D	1C	1B	1A	19	18	17	16	15	14	13	12	11	10

● 2-2-8-2 Read/Write Manual Parameter Values

It is also possible to read and write parameter values by directly specifying the index number and data for the connected IO-Link device.

Depending on the IO-Link device, some parameters can be accessed only by using this method.

When reading or writing the Master parameters of this unit from this tool, the operation can be executed only from this dialog screen.

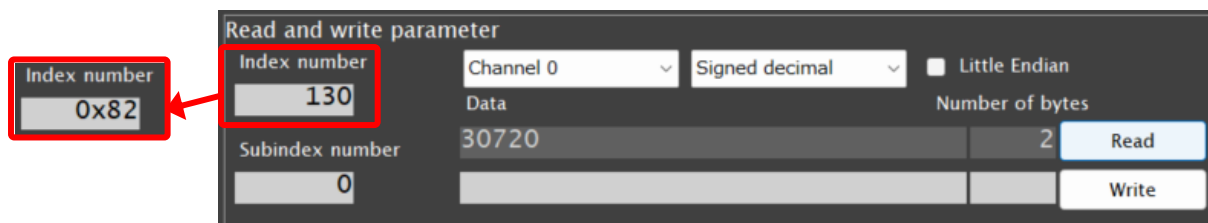


For example, to read Index 130 (0x82) with Subindex 0 from a specific IO-Link device, enter the values as shown below.

In this example, the IO-Link device is assumed to be connected to Channel 0 of this unit.

Values to be stored can be specified in hexadecimal format by adding the prefix "0x".

After clicking "Read" to execute the read operation, a value of "30720" was obtained as 2-byte data.



Although the value to be read is “120”, the value “30720” was obtained because the data was read as 2-byte big-endian data.

When the data length of an IO-Link device is 4 bytes or less, checking “Little Endian” allows read and write operations to be performed in little-endian format, making the values easier to handle.

As the data format for parameters, Signed decimal, Unsigned decimal, Floating Point, String, and Hexadecimal byte string can be selected.

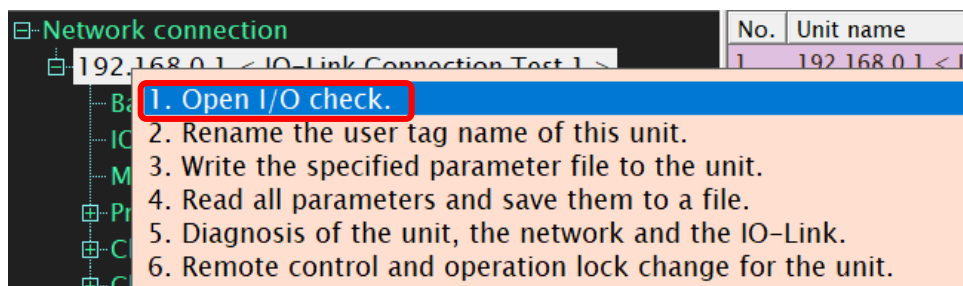
Read and write parameter

Index number	Channel 0	Signed decimal	☒ Little Endian
130	Data	Number of bytes	
Subindex number	120	2	Read
0			Write

2-2-9 Performing an I/O Check on a Machine

2-2-9-1 Displaying the I/O Check Dialog Screen

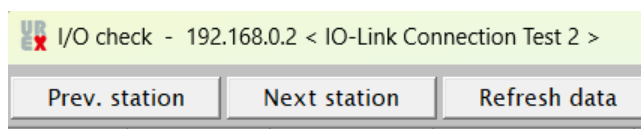
Right-click the machine in the tree for which you want to perform an I/O check to display the context menu, and select "1. Open I/O Check" or press the "1" key.



The I/O check dialog screen will then be displayed.

Channel	Status	I/O function	Device name	Device tag name	Output control	Cycle time	Error count	Input bytes	Output bytes
0	OPERATE	IO-Link	Z4B-30N	*****	---	0.5 ms	0	2	0
1	OPERATE	IO-Link	DT35-B15251 ...	DT35	---	2.3 ms	0	2	0
2	OPERATE	IO-Link	EK30-D_500Pa	***	---	10.0 ms	0	4	0
3	OPERATE	IO-Link	UR-DS8D8T	*****...	Network	0.5 ms	0	2	3
4	OFF	NPN output	---	---	Network				
5	OFF	NPN output	---	---	Network				
6	OFF	npn input	---	---	---				
7	OFF	npn input	---	---	---				
8	OFF	PNP output	---	---	Network				
9	OFF	PNP output	---	---	Network				
A	OFF	pnp input	---	---	---				
B	OFF	pnp input	---	---	---				
C	---	Unused	---	---	---				
D	---	Unused	---	---	---				
E	---	Unused	---	---	---				
F	---	Unused	---	---	---				

By clicking the "Next station (Prev. station)" button, you can move to the I/O check screen of another connected unit. For example, even if multiple units are connected in a line, you can easily perform I/O checks on each unit consecutively.



To read the current values of the unit's SIO (NPN/PNP input/output), click the "Refresh data" button. While data is being updated, the unit's input/output status is read periodically, and the "Refresh data" button changes to the "Stop refresh" button. In the "Status" item in the diagram below, a "OFF" indicates the I/O is off and a "ON" indicates the I/O is on.

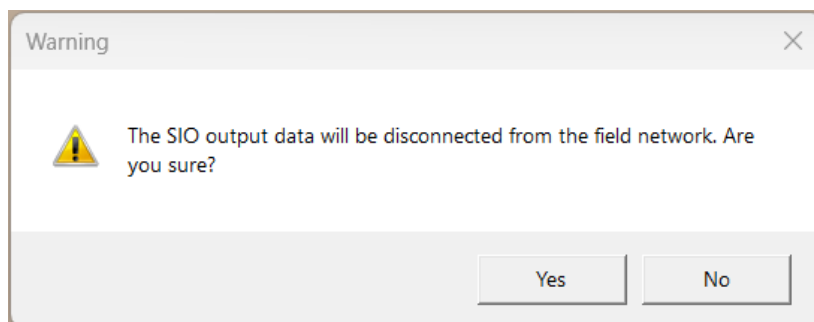
I/O check - 192.168.0.1 < IO-Link Connection Test 1 > /									
Prev. station		Next station		Stop refresh	Clear error count	Turn on all	Turn off all	Release override	
Channel	Status	I/O function	Device name	Device tag name	Output control	Cycle time	Error count	Input bytes	Output bytes
0	OPERATE	IO-Link	Z4B-30N	*****	---	0.5 ms	0	2	0
1	OPERATE	IO-Link	DT35-B15251 ...	DT35	---	2.3 ms	0	2	0
2	OPERATE	IO-Link	EK30-D_500Pa	***	---	10.0 ms	0	4	0
3	OPERATE	IO-Link	UR-DS8D8T	*****...	Network	0.5 ms	0	2	3
4	OFF	NPN output	---	---	Network				
5	OFF	NPN output	---	---	Network				
6	ON	npn input	---	---	---				
7	OFF	npn input	---	---	---				
8	OFF	PNP output	---	---	Network				
9	OFF	PNP output	---	---	Network				
A	ON	pnp input	---	---	---				
B	OFF	pnp input	---	---	---				
C	---	Unused	---	---	---				
D	---	Unused	---	---	---				
E	---	Unused	---	---	---				
F	---	Unused	---	---	---				

To control the on/off status of the unit's SIO output, first select the channel you want to output. In the image below, "NPN Output" for channel 4 is selected and the "Turn on selected" button is clicked. You can also select multiple channels by holding down the [Ctrl] or [Shift] key and turning them on or off simultaneously.

I/O check - 192.168.0.1 < IO-Link Connection Test 1 > \									
Prev. station		Next station		Stop refresh	Turn on selected	Turn off selected	Release override		
Channel	Status	I/O function	Device name	Device tag name	Output control	Cycle time	Error count	Input bytes	Output bytes
0	OPERATE	IO-Link	Z4B-30N	*****	---	0.5 ms	0	2	0
1	OPERATE	IO-Link	DT35-B15251 ...	DT35	---	2.3 ms	0	2	0
2	OPERATE	IO-Link	EK30-D_500Pa	***	---	10.0 ms	0	4	0
3	OPERATE	IO-Link	UR-DS8D8T	*****...	Network	0.5 ms	0	2	3
4	OFF	NPN output	---	---	Network				
5	OFF	NPN output	---	---	Network				
6	ON	npn input	---	---	---				
7	OFF	npn input	---	---	---				
8	OFF	PNP output	---	---	Network				
9	OFF	PNP output	---	---	Network				
A	ON	pnp input	---	---	---				
B	OFF	pnp input	---	---	---				
C	---	Unused	---	---	---				
D	---	Unused	---	---	---				
E	---	Unused	---	---	---				
F	---	Unused	---	---	---				

The following confirmation message will then be displayed. The SIO output of all channels of the relevant unit will be disconnected from the field network and will become controllable with this tool. The current output state will be maintained, but output control from the field network will be ignored, so be sure to click “No” to cancel if the device is operating.

Click “Yes” only if you have confirmed that the device is not operating and that it is okay to disconnect output control from the field network.



The output of channel 4 is turned on, and the “Status” item in the image below is displayed as “ON”. When the output is being forcibly written, the “Output control” item will show “Overriding”. To turn the output off, follow the same procedure and click the “Turn off selected” button.

The “Release override” button can be used to return the output that is being forcibly written to control from the field network.

I/O check - 192.168.0.1 < IO-Link Connection Test 1 > /									
Prev. station		Next station		Stop refresh		Clear error count		Turn on selected	
								Turn off selected	
								Release override	
Channel	Status	I/O function	Device name	Device tag name	Output control	Cycle time	Error count	Input bytes	Output bytes
0	OPERATE	IO-Link	Z4B-30N	*****	---	0.5 ms	0	2	0
1	OPERATE	IO-Link	DT35-B15251 ...	DT35	---	2.3 ms	0	2	0
2	OPERATE	IO-Link	EK30-D_500Pa	***	---	10.0 ms	0	4	0
3	OPERATE	IO-Link	UR-DS8D8T	***** ...	Network	0.5 ms	0	2	3
4	ON	NPN output	---	---	Overriding				
5	OFF	NPN output	---	---	Overriding				
6	ON	npn input	---	---	---				
7	OFF	npn input	---	---	---				
8	ON	PNP output	---	---	Overriding				
9	OFF	PNP output	---	---	Overriding				
A	ON	pnp input	---	---	---				

- 2-2-9-2 List of items displayed during I/O check

The list of items displayed during I/O check is as follows.

Items	Description
Channel	This is the unit's target channel number.
Status	This is the IO-Link communication mode. When IO-Link communication has not started, "NOCOM" is displayed. This is usually "OPERATE", which indicates the operating state in which process data is being exchanged.
I/O function	This is the unit's I/O function setting.
Device name	This is the product type name of the target IO-Link device.
Device tag name	This is the user tag name of the target IO-Link device.
Output control	This is "Network" when the output is controlled from the field network, or "Overriding" when the output is disconnected from the field network and can be controlled by this tool.
Cycle time	This is the actual communication cycle time of the target IO-Link device.
Error count	This is the number of communication errors with the target IO-Link device. A maximum of 255 errors can be counted. You can also clear the number of errors with the target IO-Link device using the "Clear error count" button.
Input bytes	This is the number of bytes of process input data for the target IO-Link device.
Output bytes	This is the number of bytes of process output data for the target IO-Link device.

● 2-2-9-3 Performing a process data check

From the I/O Check dialog screen, you can move to the Process data check dialog for the IO-Link device. For example, if you double-click the Z4B-30N on channel 0, the following dialog screen will appear.

I/O check - 192.168.0.1 < IO-Link Connection Test 1 > -									
Prev. station		Next station		Stop refresh		Clear error count		Turn on selected	
								Turn off selected	
								Release override	
Channel	Status	I/O function	Device name	Device tag name	Output control	Cycle time	Error count	Input bytes	Output bytes
0	OPERATE	IO-Link	Z4B-30N	*****	---	0.5 ms	0	2	0
1	OPERATE	IO-Link	DT35-B15251 ...	DT35	---	2.3 ms	0	2	0
2	OPERATE	IO-Link	EK30-D_500Pa	***	---	10.0 ms	0	4	0
3	OPERATE	IO-Link	UR-DS8D8T	*****	Network	0.5 ms	0	2	3




Process data check - 192.168.0.1 < IO-Link Connection Test 1 > Channel0 < Z4B-30N >

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Prev. channel		Next channel		Refresh data		IODD install		Find device		Clear output		Release override	
Number	Process input data name	Value	Unit	Data type	Word offset	Bit offset	Bit width	Alignment word	Valid when				
P3	Distance relative	29	%	Integer	0	1	15	+0	192.0 = 0				
P4	Detect Margin	Invalid	%	Integer	0	1	15	+0	192.0 = 1				
P5	Maintain Days	Invalid	day	Integer	0	1	15	+0	192.0 = 2				
P6	Switching output	ON		Boolean	0	0	1	+0	Always valid				
P7	Process input data	00 3B		Hexadeci...	0	0	16	+0	Always valid				

Number	Process output data na...	Value	Unit	Data type	Word offset	Bit offset	Bit width	Alignment wo...	Valid when
--------	---------------------------	-------	------	-----------	-------------	------------	-----------	-----------------	------------

The process data check dialog screen allows you to check the process input data and control the process output data of the target IO-Link device. Here, we are checking the process input data information for the Z4B-30N on channel 0.

Clicking the “Refresh data” button will periodically read and update the current process data value.

Depending on the connected IO-Link device, you may be able to use “Find device” by simply clicking it (only for compatible devices).

“Find device” writes “1” to index number 204 (0xCC) of the target IO-Link device, causing the indicator to flash at a 1 Hz cycle (0.5 seconds on, 0.5 seconds off).

For example, our Z4B-30N is an IO-Link compatible general-purpose photoelectric sensor. By simply clicking the “Find device” button, you can visually identify where it is installed within a device or factory facility by checking the blinking indicator.


Process data check - 192.168.0.1 < IO-Link Connection Test 1 > Channel0 < Z4B-30N > /

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Prev. channel

Next channel

Stop refresh

IODD install

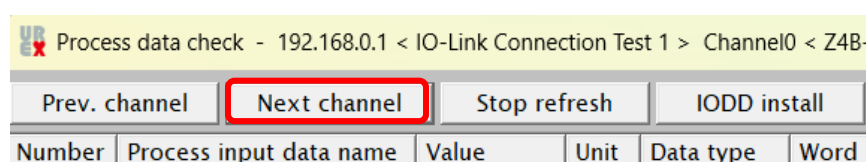
Find device

Clear output

Release override

Number	Process input data name	Value	Unit	Data type	Word offset	Bit offset	Bit width	Alignment word	Valid when	
P3	Distance relative	47	%	Integer	0	1	15	+0	192.0 = 0	
P4	Detect Margin	Invalid	%	Integer	0	1	15	+0	192.0 = 1	
P5	Maintain Days	Invalid	day	Integer	0	1	15	+0	192.0 = 2	
P6	Switching output	ON		Boolean	0	0	1	+0	Always valid	
P7	Process input data	00 5F		Hexadeci...	0	0	16	+0	Always valid	

Clicking the “Next channel” button will move to the next channel. If the current channel is channel 0, it will move to channel 1. Similarly, clicking “Prev. channel” will move to the previous channel, and if it is channel 0, it will move to channel F.



Process data check - 192.168.0.1 < IO-Link Connection Test 1 > Channel0 < Z4B-30N > /							
Prev. channel		Next channel		Stop refresh		IODD install	
Number	Process input data name	Value	Unit	Data type	Word		

This section explains how to control process output data when checking process data. For example, if you specify our IO-Link Hub UR-DS8D8T (8 digital inputs and outputs) as shown below, the following display will be shown.

Our IO-Link devices have data equivalent to the IODD built into the product, so you can check the process data display as shown below without having to install the IODD data separately on this device.


Process data check - 192.168.0.1 < IO-Link Connection Test 1 > Channel3 < UR-DS8D8T > /

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Prev. channel		Next channel		Stop refresh		IODD install		Find device		Clear output		Release override	
Number	Process input data name	Value	Unit	Data type	Word offset	Bit offset	Bit width	Alignment word	Valid when				
P3	Input status	--2---6-		Boolean	0	0	8	+6	Always valid				
P4	Output overcurrent sta...	-----		Boolean	0	8	8	+6	Always valid				
P8	Process input data	00 44		Hexadeci...	0	0	16	+6	Always valid				

Number	Process output data na...	Value	Unit	Data type	Word offset	Bit offset	Bit width	Alignment wo...	Valid when	
Q5	Input NPN specification	Invalid		Boolean	1	0	1	+7	96.0 = 0	
Q6	Output status	-----		Boolean	0	0	8	+6	Always valid	
Q7	Output NPN specification	-----		Boolean	0	8	8	+6	128.0 = 0	
Q9	Process output data	00 00 00		Hexadec...	0	0	24	+6...7	Always valid	

Double-clicking “Q6 Output status” will allow you to write the output status of the UR-DS8D8T.

When writing process output data, even if the data format is “Boolean”, check boxes are arranged to make output operations easier.

Number	Process output data na...	Value	Unit	Data type	Word offset	Bit offset	Bit width	Alignment wo...	Valid when
Q5	Input NPN specification	Invalid		Boolean	1	0	1	+7	96.0 = 0
Q6	Output status	-----		Boolean	0	0	8	+6	Always valid
Q7	Output NPN specification	-----		Boolean					128.0 = 0
Q9	Process output data	00 00 00		Hexadec...					Always valid

Q6. Output status

Device: UR-DS8D8T

Channel No.: 3 Bit width: 8

Data type: Boolean Offset: 0

Read value: -----

Write value: 0 1 2 3 4 5 6 7

Release override Prev. item Next item

By clicking the “IODD Install” button, you can download the IODD file for the IO-Link device from IODD Finder via the Internet.

Process data check - 192.168.0.1 < IO-Link Connection Test 1 > Channel3 < UR-DS8D8T > -

Prev. channel Next channel Stop refresh IODD install Find device Clear output Release override

Number	Process input data name	Value	Unit	Data type	Word offset	Bit offset	Bit width	Alignment word	Valid when
P3	Input status	--2---6-		Boolean	0	0	8	+6	Always valid
P4	Output overcurrent sta...	-----		Boolean	0	8	8	+6	Always valid
P8	Process input data	00 44		Hexadeci...	0	0	16	+6	Always valid

Number	Process output data na...	Value	Unit	Data type	Word offset	Bit offset	Bit width	Alignment wo...	Valid when
Q5	Input NPN specification	Invalid		Boolean	1	0	1	+7	96.0 = 0
Q6	Output status	-----		Boolean	0	0	8	+6	Always valid
Q7	Output NPN specification	-----		Boolean	0	8	8	+6	128.0 = 0
Q9	Process output data	00 00 00		Hexadec...	0	0	24	+6...7	Always valid

As mentioned above, our IO-Link devices have built-in data equivalent to an IODD, but there are cases where it may be preferable to install the IODD data separately on the device.

For example, with the UR-DS8D8T, you can handle process data as data with a “Bit width” of 1 by prioritizing the display of the IODD data installed here.

This applies not only to our IO-Link Hub UR-DS8D8T (8 digital inputs and outputs), but also to the UR-DS16D (16 digital inputs) and UR-DS16T (16 digital outputs).

The actual display is as shown in the figure below. With the UR-DS8D8T, you can check process input data and control process output data regardless of whether an IODD is installed.

The IODD data built into the product has a limit of 77 setting values that can be handled, so the content may differ from that of an IODD installed externally. You can choose whether to keep the built-in IODD data or install an IODD as needed.


Process data check - 192.168.0.1 < IO-Link Connection Test 1 > Channel3 < UR-DS8D8T > -

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Prev. channel		Next channel		Stop refresh		IODD install		Find device		Clear output		Release override	
Number	Process input data name	Value	Unit	Data type	Word offset	Bit offset	Bit width	Alignment word	Valid when				
P3	Input status 0	OFF		Boolean	0	0	1	+6	Always valid				
P4	Input status 1	OFF		Boolean	0	1	1	+6	Always valid				
P5	Input status 2	ON		Boolean	0	2	1	+6	Always valid				
P6	Input status 3	OFF		Boolean	0	3	1	+6	Always valid				
P7	Input status 4	OFF		Boolean	0	4	1	+6	Always valid				
P8	Input status 5	OFF		Boolean	0	5	1	+6	Always valid				
P9	Input status 6	ON		Boolean	0	6	1	+6	Always valid				
P10	Input status 7	OFF		Boolean	0	7	1	+6	Always valid				
Number	Process output data na...	Value	Unit	Data type	Word offset	Bit offset	Bit width	Alignment wo...	Valid when				
Q19	Output status 8	OFF		Boolean	0	0	1	+6	Always valid				
Q20	Output status 9	OFF		Boolean	0	1	1	+6	Always valid				
Q21	Output status A	OFF		Boolean	0	2	1	+6	Always valid				
Q22	Output status B	OFF		Boolean	0	3	1	+6	Always valid				
Q23	Output status C	OFF		Boolean	0	4	1	+6	Always valid				
Q24	Output status D	OFF		Boolean	0	5	1	+6	Always valid				
Q25	Output status E	OFF		Boolean	0	6	1	+6	Always valid				
Q26	Output status F	OFF		Boolean	0	7	1	+6	Always valid				

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If you want to return to the original display (data information equivalent to the IODD built into our IO-Link device), you can use this tool to delete the IODD data installed for the IO-Link device, or change the master parameter for the target channel from “M33. Conditions for applying IODD data” to “Device” and then reload the data to return to the original display.

For example, the process output data for “Q19. Output status 8” handles the on/off state with a bit width of 1, so it can be directly controlled with the “ON” and “OFF” buttons on the right side of the screen. Here, click the “ON” button.

Q19. Output status 8

Device name

UR-DS8D8T

Channel No.

3

Bit width

1

Data type

Boolean

Offset

0

ON

Read value

OFF

OFF

Write value

0

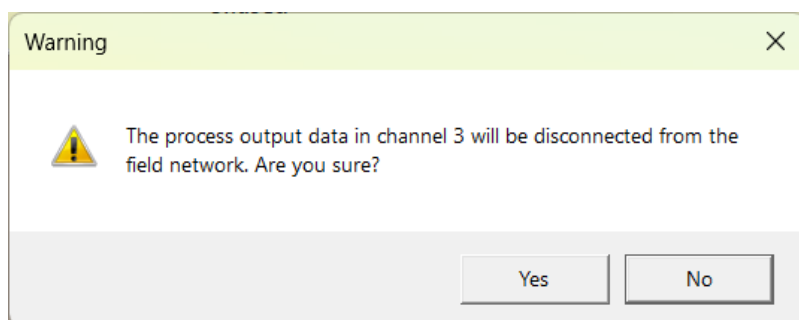
Release override

Prev. item

Next item

The following confirmation message will then be displayed. The process output data of the IO-Link device on the corresponding channel will be disconnected from the field network and will become controllable with this tool. The current output state will be maintained, but output control from the field network will be ignored, so be sure to click “No” to cancel if the device is running.

Click “Yes” only if you are sure that the device is not running and that disconnecting output control from the field network is OK.



After writing the process output data and turning the output on, a “ON” is displayed in the “Value” column. If you click the “Next item” or “Prev. item” button, you can move to the next (or previous) process output data item. In the image below, we are clicking the “Next item” button to move to the next process output data item, and turning on output E of the UR-DS8D8T.

P3	Input status 0	OFF	Boolean	0	0	1	+6
P4	Input status 1	OFF	Boolean	0	1	1	+6
P5	Input status 2	ON					
P6	Input status 3	OFF					
P7	Input status 4	OFF					
P8	Input status 5	OFF					
P9	Input status 6	ON					
P10	Input status 7	OFF					

Number	Process output data na...	Value					
Q19	Output status 8	ON					
Q20	Output status 9	ON					
Q21	Output status A	ON					
Q22	Output status B	ON					
Q23	Output status C	ON					
Q24	Output status D	ON					
Q25	Output status E	ON					
Q26	Output status F	OFF	Boolean	0	7	1	+6

Q26. Output status F

Device: UR-DS8D8T

Channel No.: 3 Bit width: 1

Data type: Boolean Offset: 7 ON

Read value: OFF OFF

Write value: 0

Release override Prev. item Next item

If you want to write “0” to all process output data of the target IO-Link device and reset the values, click the “Clear output” button.

You can also use the “Release override” button to return the output that is being forcibly written to control from the field network.

The screenshot shows the 'Process data check' window for IP address 192.168.0.1. The 'Clear output' button is highlighted with a red rectangle. A warning dialog box is displayed in the center, asking for confirmation to write process output data to zero.

Number	Process input data name	Value	Unit	Data type	Word offset	Bit offset	Bit width	Alignment word	Valid when
P3	Input status 0	OFF		Boolean	0	0	1	+6	Always valid
P4	Input status 1	OFF							Always valid
P5	Input status 2	ON							Always valid
P6	Input status 3	OFF							Always valid
P7	Input status 4	OFF							Always valid
P8	Input status 5	OFF							Always valid
P9	Input status 6	ON							Always valid
P10	Input status 7	OFF							Always valid

Number	Process output data name	Value	Unit	Data type	Word offset	Bit offset	Bit width	Alignment word	Valid when
Q19	Output status 8	ON							Always valid
Q20	Output status 9	ON							Always valid
Q21	Output status A	ON							Always valid
Q22	Output status B	ON		Boolean	0	3	1	+6	Always valid
Q23	Output status C	ON		Boolean	0	4	1	+6	Always valid
Q24	Output status D	ON		Boolean	0	5	1	+6	Always valid
Q25	Output status E	ON		Boolean	0	6	1	+6	Always valid
Q26	Output status F	ON		Boolean	0	7	1	+6	Always valid

Forcing the writing of process output data is useful for checking the digital output of an IO-Link Hub or confirming cylinder operation using an IO-Link-compatible solenoid valve manifold, and also supports writing numerical data rather than just bit on/off.

For example, forcibly writing process output data to an IO-Link-compatible gripper makes it possible to check detailed position control and adjust speed (however, both of these depend on the specifications of the connected IO-Link device).

- 2-2-9-4 List of items displayed during process data check

The list of items displayed during process data check is as follows.

Items	Description
Number	Displays the process input data number (Pxx) and process output data number (Qxx).
Process input (output) data name	The name of the process data.
Value	The currently read value is displayed. Click the “Refresh data” button to update the display. Items that do not match the process data display conditions are displayed as “Invalid”.
Unit	The process data unit.
Data type	The format in which the process data is displayed. Available formats are bit, unsigned decimal, signed decimal, floating point, string, and hexadecimal.
Word offset	The word position as seen from the host network.
Bit offset	The bit position within the word.
Bit width	The bit width used by the process data.
Alignment word	The word position to which process data is assigned is displayed with a leading +0.
Valid when	The conditions under which process data is valid are displayed in the format “(index number.subindex number = value)”. This is used when the content of process data can be switched depending on the setting value of the IO-Link device, but is specific to the IO-Link device.

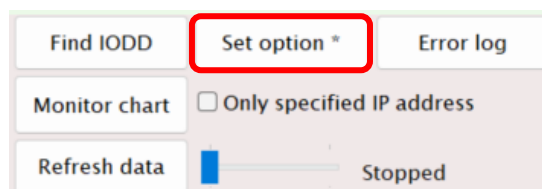
2-2-10 Configure Options for Parameter File Transfer

● 2-2-10-1 Display the Option Settings Dialog

A “Set option” button has been added to the operation area at the top of the screen, and various settings have been consolidated into a dialog that is displayed from this button.

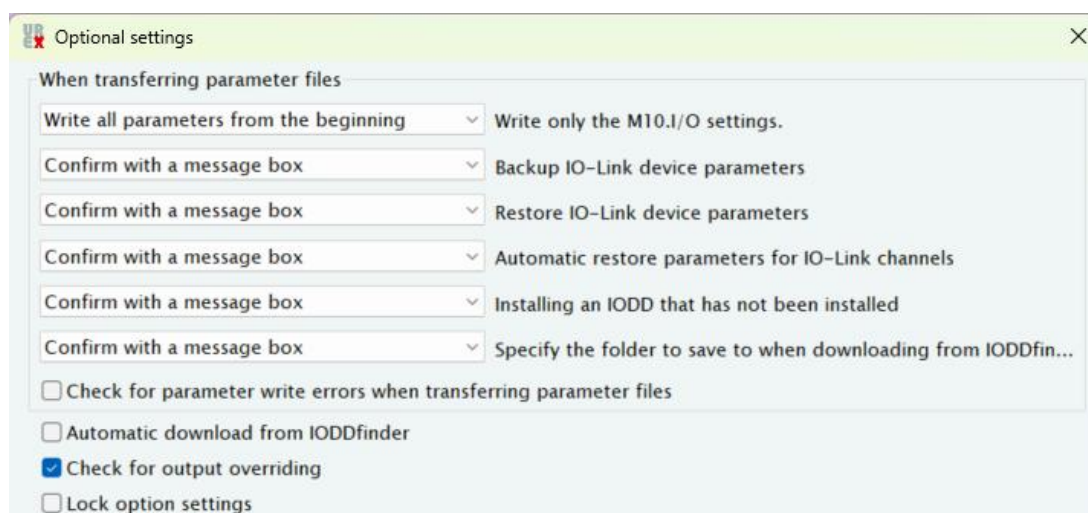
In addition to the existing items, the behavior during parameter file (.bki) transfer can now also be specified.

Click the “Set option” button.



The option settings dialog is then displayed.

As shown in the figure below, the default settings are applied, allowing the system to be used as-is with the same behavior as before.

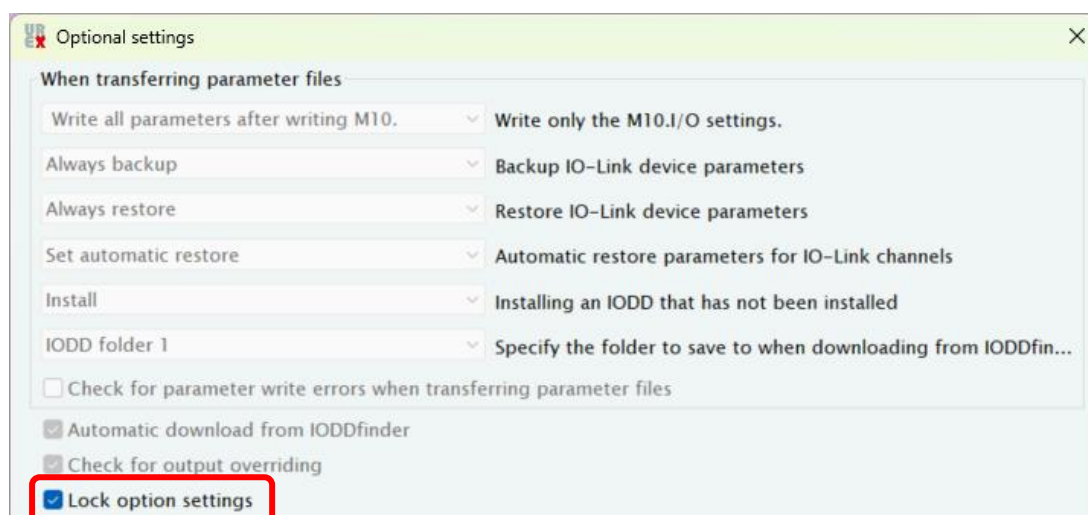


By changing the tab settings under “When transferring parameter files”, the behavior during parameter file transfer can be fixed in advance.

Previously, users were required to select “Yes” or “No” in a message box that appeared each time a transfer was performed. With this function, the desired selection can now be predefined as a setting.

This helps prevent operator misjudgments and operation mistakes even when writing parameters to multiple units, and ensures that parameters are always applied accurately under consistent conditions.

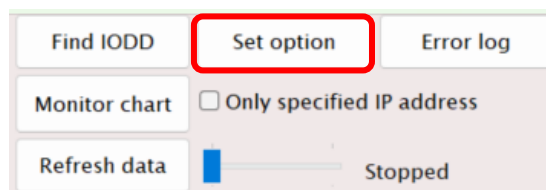
In addition, selecting “Lock option settings” reduces the risk of unintentionally changing the settings.



“Lock option settings” can be released by clearing the checkbox while holding down the Shift key.

When the lock is released, an asterisk (“*”) appears at the end of the option settings button name. The lock status can be confirmed by checking the presence or absence of the “*” (the figure below shows the option settings button when the lock is enabled).

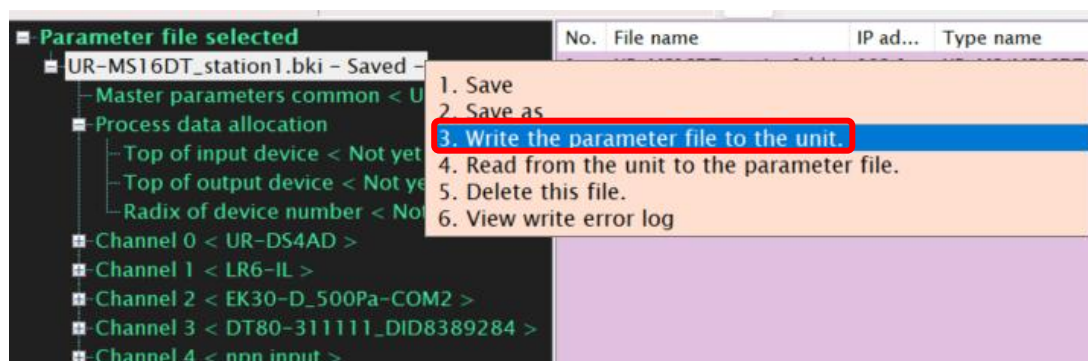
In this example, the parameter file transfer is executed after these option settings have been configured in advance.



Next, the parameter file (.bki) is written to the unit.

The specified option settings are applied regardless of whether the write operation is performed in online or offline mode.

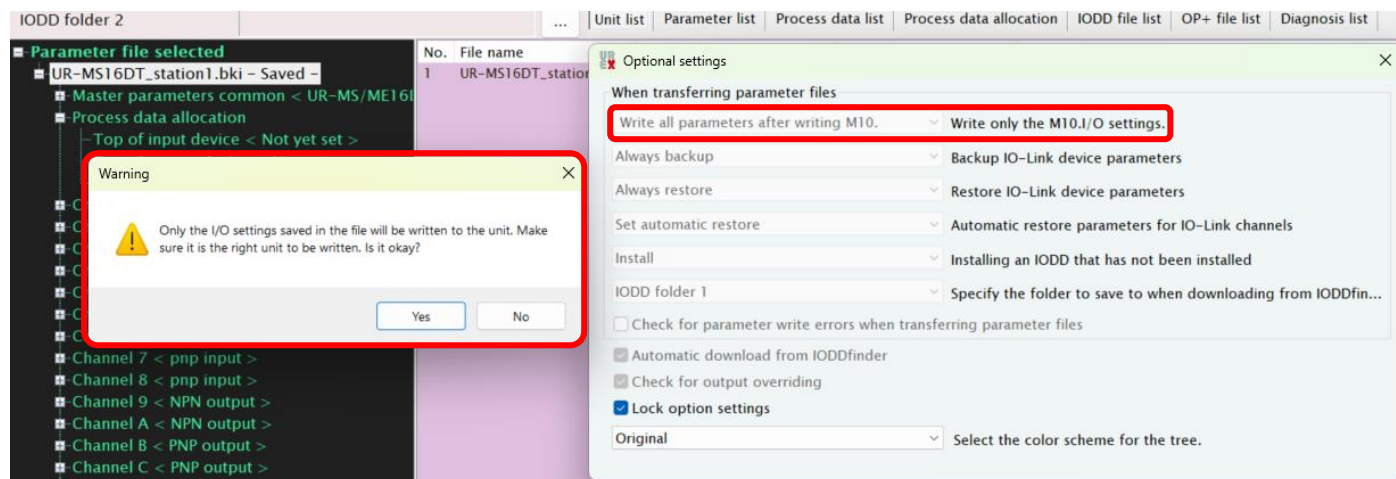
In this example, the operation is performed in offline mode. As shown below, display the context menu and select “3. Write the parameter file to the unit”.



When the “Write only the M10.I/O settings” option is enabled, a warning message is displayed as shown in the red frame in the figure below.

By writing only the I/O function settings, a warning is displayed in advance if the connected IO-Link device is incorrect or not connected for channels whose I/O function is set to IO-Link.

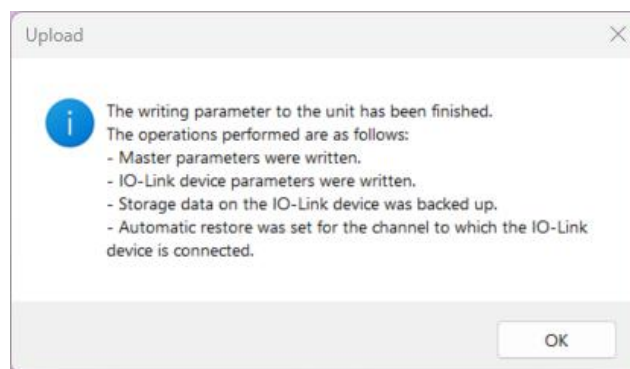
This helps prevent wiring mistakes and forgotten connections.



If there is no issue with the structure of the written parameter file (.bki) and the connection configuration of the unit to which the file is written, and “Write all parameters after writing M10.” is enabled, no confirmation message is displayed and the write operation is executed directly.

In this example, options such as IODD installation and automatic restore behavior are also fixed in advance. As a result, the write operation is completed without requiring any selection in a message box, and a message like the one shown below is displayed to conclude the process.

This message also allows you to confirm the details of the operations that were executed.



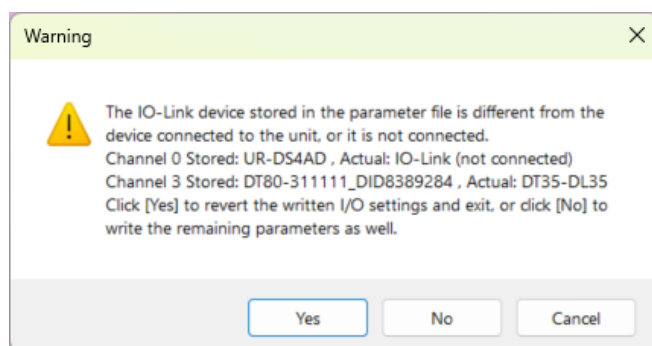
If the structure of the parameter file and the actual configuration of the unit do not match, a warning message such as the one shown below is displayed.

In the example shown in the figure, “UR-DS4AD” is registered for Channel 0 in the parameter file, whereas no IO-Link device is actually connected to the corresponding channel of the unit.

Similarly, it also indicates that the device registered for Channel 3 differs from the device that is actually connected.

If “Yes” is selected in this state, the written I/O function parameters are reverted and the write process is terminated. This allows you to check for wiring mistakes or forgotten connections and then execute the write operation again.

On the other hand, if “No” is selected, the parameter file write operation can be continued even if devices differ or are not connected.



● 2-2-10-2 List of Selectable Items in “Set option” (When Transferring Parameter Files)

The list of selectable options for “When transferring parameter files” in the optional settings is as follows.

Item	Selection	Description
Write only the M10.I/O settings	Write all parameters from the beginning	Writes all parameters from the beginning, in the same manner as the conventional operation.
	Confirm with a message box after writing M10.	First writes the M10.I/O settings for all channels. Even if there is no difference between the parameter file and the connected IO-Link devices, a message is displayed asking whether to continue writing all parameters. If a mismatch between the parameter file structure and the actual unit configuration is detected, a warning message is displayed.
	Exit after writing M10.	Writes only the M10.I/O settings registered in the parameter file and then ends the write process. If no difference is detected, a notification is displayed and the process finishes. If a mismatch between the parameter file structure and the actual unit configuration is detected, a warning message is displayed.
	Write all parameters after writing M10.	First writes the M10.I/O settings for all channels, and then continues writing all remaining parameters without displaying a confirmation message. If a mismatch between the parameter file structure and the actual unit configuration is detected, a warning message is displayed.
Backup IO-Link device parameters	Confirm with a message box	Displays a message box to confirm whether the storage-target parameters of IO-Link devices should be backed up, as in the conventional operation.
	Never backup	Does not display a message box and never performs the backup operation.
	Always backup	Does not display a message box and always performs the backup operation.
	Always backup when reading	Does not display a message box. Backup is performed when reading a parameter file, but not when writing.
Restore IO-Link device parameters	Confirm with a message box	Displays a message box to confirm whether the storage data of IO-Link devices should be restored.
	Never restore	Does not display a message box and never performs the restore operation.
	Always restore	Does not display a message box and always performs the restore operation.
Automatic restore parameters for IO-Link channels	Confirm with a message box	Displays a message box to confirm whether the automatic storage function of IO-Link devices should be set to automatic restore.
	Do not set automatic restore	Does not display a message box and does not set automatic restore.
	Set automatic restore	Does not display a message box and sets automatic restore.
Installing an IODD that has not been installed	Confirm with a message box	Displays a message box to confirm whether uninstalled IODD files should be installed when writing a parameter file.
	Do not install	Does not display a message box and does not install uninstalled IODD files when writing a parameter file.
	Install	Does not display a message box and installs all uninstalled IODD files when writing a parameter file.
Specify the folder to save to when downloading from IODDfinder	Confirm with a message box	Displays a message box to confirm the destination folder when downloading IODD files from IODDfinder.
	IODD folder 1	Does not display a message box and saves downloaded IODD files to IODD folder 1.
	IODD folder 2	Does not display a message box and saves downloaded IODD files to IODD folder 2.

● 2-2-10-3 Checking the Error Log

An “Error Log” button has been added to the operation area at the top of the screen.

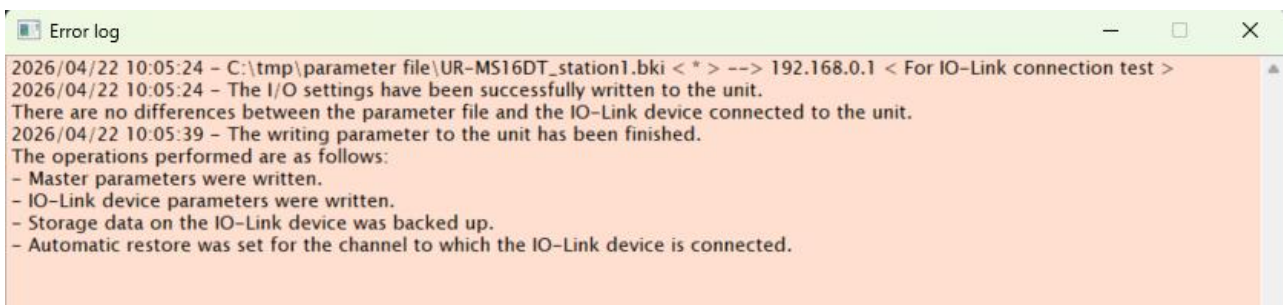
By opening the dialog displayed from this button, you can check the error log.

On the error log screen, you can confirm the date and time when errors occurred, and you can also edit the log contents.

In addition, the log is no longer cleared each time; instead, new entries are appended to the existing log.

Click the “Error Log” button.

The write error log dialog shown in the figure below was displayed after executing a parameter file (.bki) write operation once.



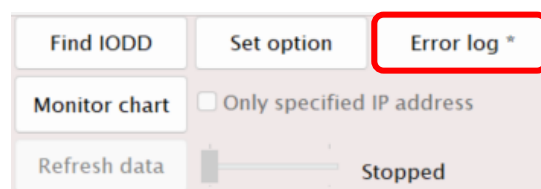
When a parameter file (.bki) is written, the error log records the name of the transferred parameter file, the IP address of the target unit, and the name of each associated tag.

This allows you to identify which parameter file was written.

In addition, when “Write only the M10.I/O settings” is enabled, the log also records whether the structure of the parameter file matched the actual configuration of the unit.

Furthermore, since the completion message displayed at the end of the write operation is also recorded, the details of the executed operations can be stored and displayed as part of the write error log.

If any messages exist in the error log, an asterisk (“*”) is appended to the end of the button name, allowing you to easily check whether log entries are present.



2-2-11 Summary of Changes from Ver. 1.000

● 2-2-11-1 Unicode Support and “Only specified IP address”

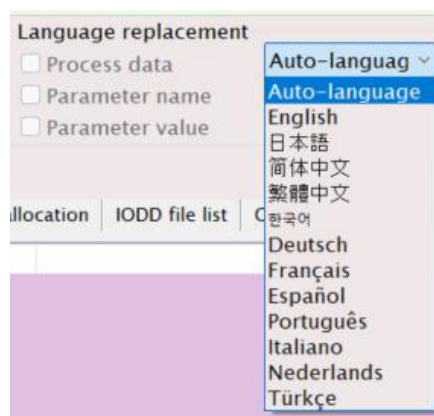
Since Ver. 1.000, this tool has adopted Unicode character encoding, which has enabled multilingual display support in 12 languages.

By supporting Unicode, the user interface can now correctly display characters from multiple writing systems, resulting in significant functional improvements and improved usability in global environments.

The supported languages are as follows:

English, Japanese, Simplified Chinese, Traditional Chinese, Korean, German, French, Spanish, Portuguese, Italian, Dutch, and Turkish.

In addition, an “Auto-language” option is available. When this option is enabled, the display language is automatically switched based on the operating system or environment settings.

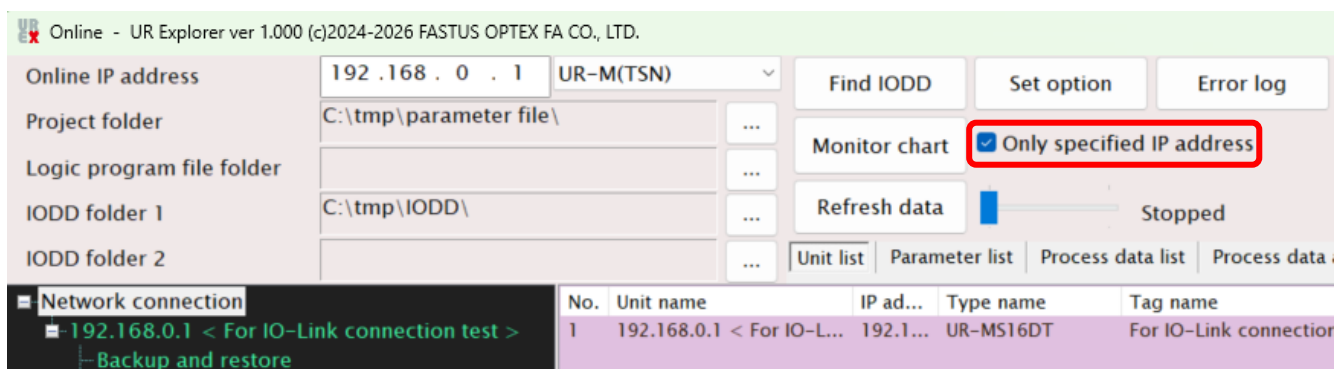


In addition, from Ver. 1.000, this tool provides a checkbox option labeled “Only specified IP address.”

When this option is enabled, the tool communicates only with the IP address specified in the “Online IP address” setting, enabling direct communication with a single target unit.

This function is particularly effective in environments where multicast communication is not supported, such as when using certain VPN connections.

By restricting communication to a specified IP address, stable and reliable communication can be maintained even under such conditions.





3

Resources

Detailed information, including error messages.

3-1 Error Message List

Messages displayed in IODD conversion results	Contents
Failed to read the IODD file.	The specified IODD file (*.xml) was not found. Please specify a folder containing a file in IODD Path 1 or IODD Path 2.
The IODD file size exceeds the limit of 2MB.	The specified IODD file (*.xml) is larger than 2MB and could not be read. Please contact us for further information.
No Vendor ID was found.	The converted IODD data does not have a vendor ID. Please contact us for further assistance.
No Device ID was found.	The converted IODD data does not have a device ID. Please contact us for further assistance.
It exceeds 1440 bytes of system command information. May translate 1440 bytes.	The character length of the system command information exceeded 1,440 bytes, so the rest of the text has been deleted.
There are over 50 item selections of a parameter defined in the IODD file. The 50 data will be translated.	The number of parameter items has exceeded 50. Nothing beyond this will not be converted.
There are over 1440 characters on a string for an item selection of parameter. It will be translated up to 1440 bytes.	The parameter item name exceeded 1,440 bytes, so the rest of the text has been deleted.
It exceeds 1440 bytes of parameter information. May translate 1440 bytes.	The length of the parameter information exceeded 1,440 bytes, so the rest of the text has been deleted.
UR series could display up to 166 parameters defined in the IODD file, but all of them will be translated.	Although the number of parameter information items has exceeded the maximum number of 166 that can be displayed on the unit, they will all be displayed on this tool.
There are over 80 process input data defined in the IODD file. Boolean data was rejected.	Since the number of process input data items exceeded 80, the data was regenerated excluding bit information.
There are over 80 process output data defined in the IODD file. Boolean data was rejected.	Since the number of process output data items exceeded 80, the data was regenerated excluding bit information.
There are over 80 process input data defined in the IODD file. The 80 data will be translated.	The maximum number of process data items that can be installed on this unit is 80 for each input and output.
There are over 80 process output data defined in the IODD file. The 80 data will be translated.	The maximum number of process data items that can be installed on this unit is 80 for each input and output.
It is too long or exceeds 232 bytes string of process data information. Up to 232 bytes will be translated.	The number of characters in the process data information is too long and has been limited to 232 bytes.
Failed to create a CSV file. Please close the csv file if Excel opens it.	The IODD converted file (.csv) is opened elsewhere and cannot be read.
It is too long or exceeds 1456 bytes the length of a column in the CSV file.	Deleted the excess data and installed it.
There are too many columns in the CSV file.	Please check the contents of the specified csv file to see if it is an IODD conversion file (.csv).
It exceeds 166 items the number of data specified by the CSV file.	Please check the contents of the specified csv file to see if it is an IODD conversion file (.csv).
It exceeds the number of process data in the IODD CSV file.	Please check the contents of the specified csv file to see if it is an IODD conversion file (.csv).
The IODD conversion result was empty. Please check the contents of the IODD file (*.xml).	Please check the contents of the specified IODD file (*.xml).

3-2 About language replacement files

Language replacement file specifications.

Items	Contents	
File name	URname_ja.csv	
Maximum number of words	1000	
Delimiter	Comma “,”	
Character encoding format	UTF-8	
Case sensitivity	Uppercase and lowercase are treated as the same when matching	
Word delimiter	All characters other than English letters When changing from lowercase to uppercase	
Word search priority	The longer the string, the higher the priority.	
String replacement target	Process data	Process data name
	Parameter	Parameter name
		Parameter selection item name



Attention: Not to be Used for Personnel Protection.

Never use these products as sensing devices for personnel protection. Doing so could lead to serious injury or death.

These sensors do not include the self-checking redundant circuitry necessary to allow their use in personnel safety applications.

A sensor failure or malfunction can cause either an energized or de-energized sensor output condition.

Please consult our distributors about safety products which meet OSHA, ANSI and IEC standards for personnel protection.

- Specifications are subject to change without prior notice.
- Specifications and technical information not mentioned here are written in Instruction Manual. Or visit our website for details.
- All the warnings and cautions to know prior to use are given in Instruction Manual



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

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