



Operation Manual

PRODUCT NAME

Fieldbus system
IO-Link Setting tool

MODEL / Series / Product Number

IO-Link Device Tool V5.1 PE

SMC Corporation

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1.Outline

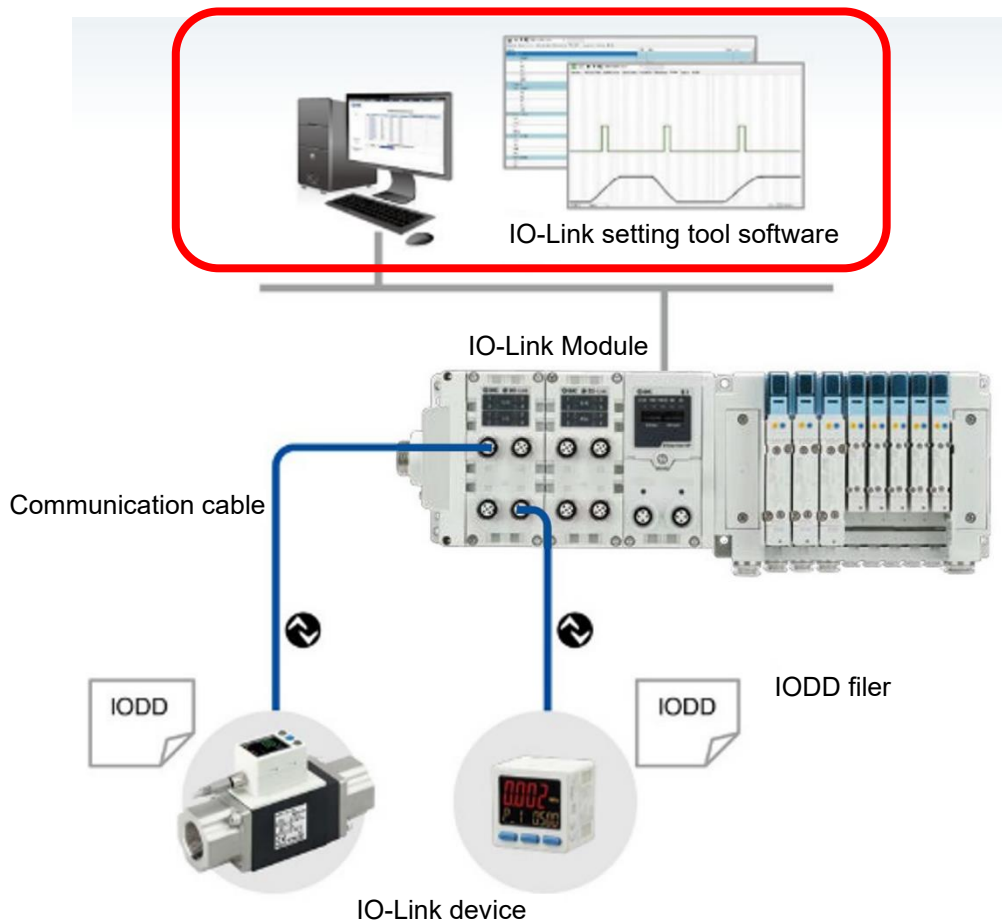
The IO-Link Device Tool is an application software for IO-Link developed by Technologie Management Gruppe (TMG hereafter) in Germany, that makes the following operations possible for the IO-Link Module in the EX600, EX245 and EXW1 series.

- Monitoring various parameters of IO-Link Module
- Monitoring and setting various parameters of IO-Link devices

Note: Applicable SI units and IO-Link Modules are as following.

SI unit	IO-Link Module
EX600-SPN3/SPN4	EX600-LAB1、EX600-LBB1
EX600-SEN7/SEN8	
EX600-SEC3/SEC4	
EX600-SEN3-X80	
EX600-MPN1	
EX600-MEN1	
EX600-MEC1	
EX245-SPN1A	EX245-LA1、EX245-LB1
EX245-SPN2A	
EX245-SPN3A	
EXW1-BECAC/BPNAC1/BENAC1	EXW1-RLAPA8C, EXW1-RLBPA7C

IO-Link Device Tool



2. System Requirements and How to Obtain the Software

■ How to Obtain the Software

- IO-Link Device Tool

After click "Request for 30 days free version and quotation" at the website below and register user information, IO-Link Device Tool file can be downloaded.

- URL : <https://www.tmgte.de/en/products/io-link/io-link-device-tool-professional-edition.html>

- IOLM file

IOLM file can be downloaded from the website below.

- URL : <https://www.smcworld.com/en-jp/>

Documents/Download >> Operation Manuals >> Fieldbus System Serial Transmission System >> IO-Link Device Tool

■ License Key

- The IO-Link Device Tool can be used free of charge for 30 days after the first installation, but a license key is required after that period. A license key can be obtained in one of two ways:

- 1) Purchase one from TMG. Either CmActLicense (limited to a single PC) or a USB dongle (valid when connected to any PC)
=> Contact TMG for details.

- 2) Purchase a USB dongle from SMC.
Model No. EX9-ZSW-LDT1

■ Minimum System Requirements

Components	Requirements
Operating system	Windows10 (32-and 64-bit)
Memory	2GB
Free hard disk space	150MB
Processor	1GHz or higher,32-bit(x86) or 64-bit(x64)
Screen resolution	800 × 600 pixels

■ Recommended System Requirements

Components	Requirements
Operating system	Windows10 (32-and 64-bit)
Memory	8GB
Free hard disk space	250MB
Processor	1GHz or higher,64-bit(x64)
Screen resolution	1920 × 1080 pixels

3.Connection between an EX series and a PC

- Connect the EX600, EX245 and EXW1 series to a PC via a switching hub.

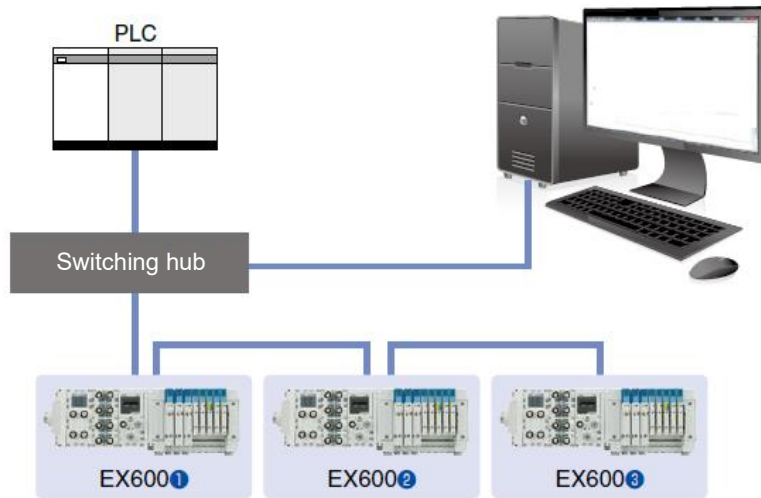


Fig. Example of a connection using a switching hub and EX600

- If the IP address can be set without PLC, it is possible to connect directly to either the communication connectors on the SI unit using EX9-AC###EN-PSRJ.

- Cable model No.

EX9-AC020EN -PSRJ

Cable length (L)	
010	1m
020	2m
030	3m
050	5m
100	10m

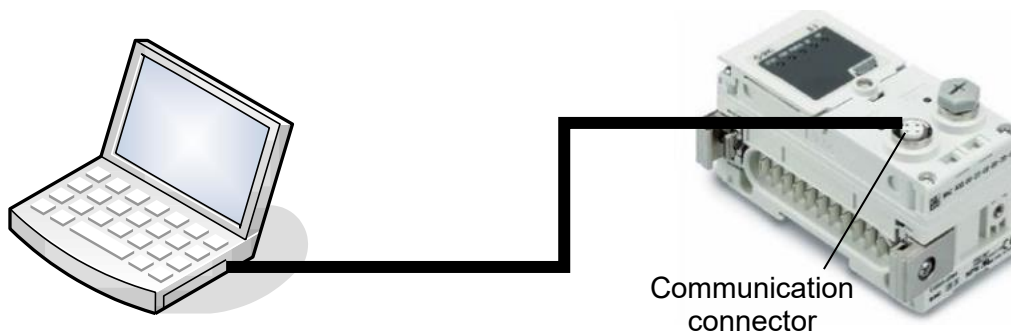
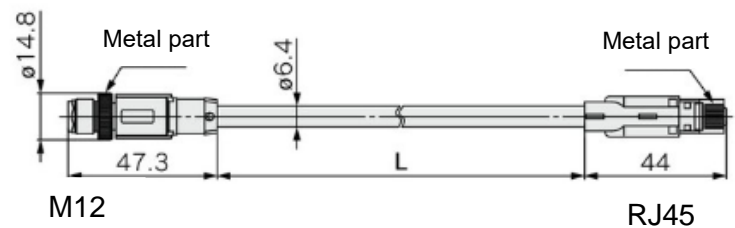
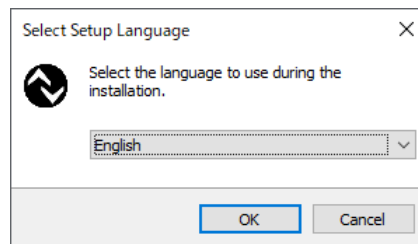


Fig. Example of a direct connection between a PC and SI unit(EX600)

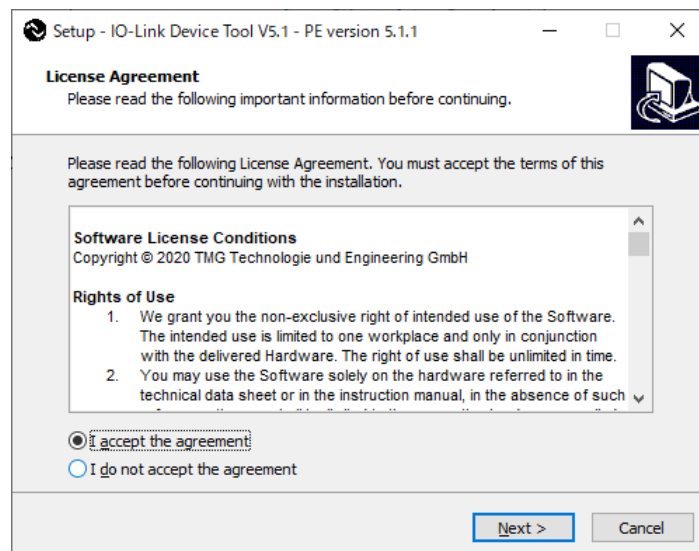
4. Software Installation

■ Install the software according to the following procedure:

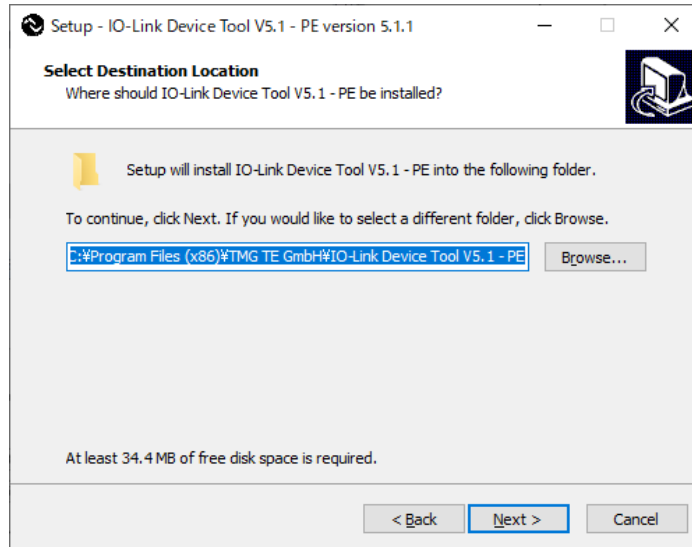
- If an old version of IO-Link Device Tool has been installed on the PC, be sure to uninstall it before installing the new version of IO-Link Device Tool.
- Double-click Setup.exe. The following screen will appear.
Select a language and then press [OK].



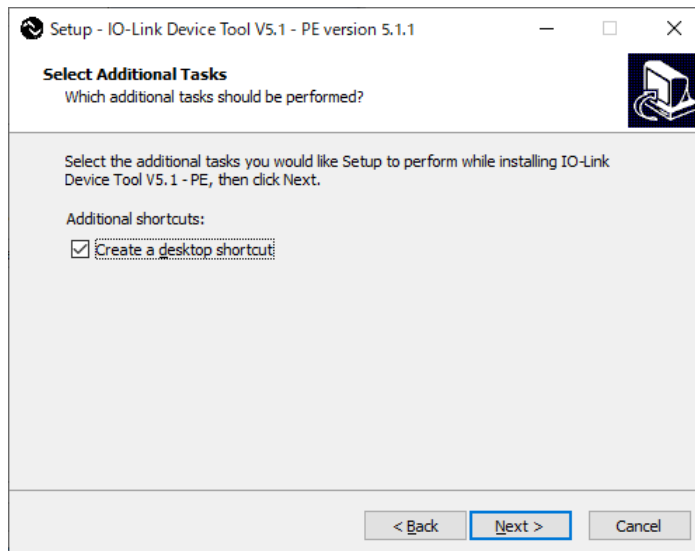
- Check the license terms, and if you agree, check "I accept the agreement" and then press [Next].



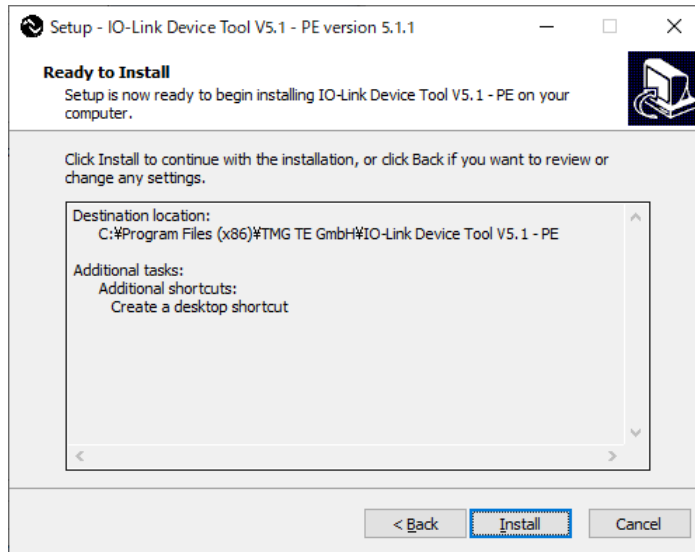
- Select a folder to install the software and then press [Next].



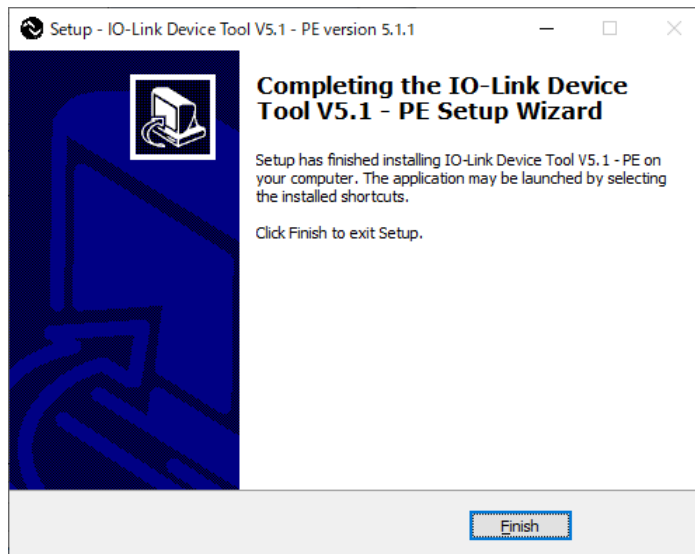
- If you want to add a shortcut, check "Create a desktop shortcut" and then press [Next].



- Check the installation conditions and if everything looks correct, press [Install].



- The above screen appears when the installation is successful. Then press [Finish].



The following description uses the manifold configuration example shown in Fig. 1.

	L#B	L#B	SPN#	
End plate	IO-Link Module	IO-Link Module	SI Unit	Valve
	Slot1	Slot2	Slot3	



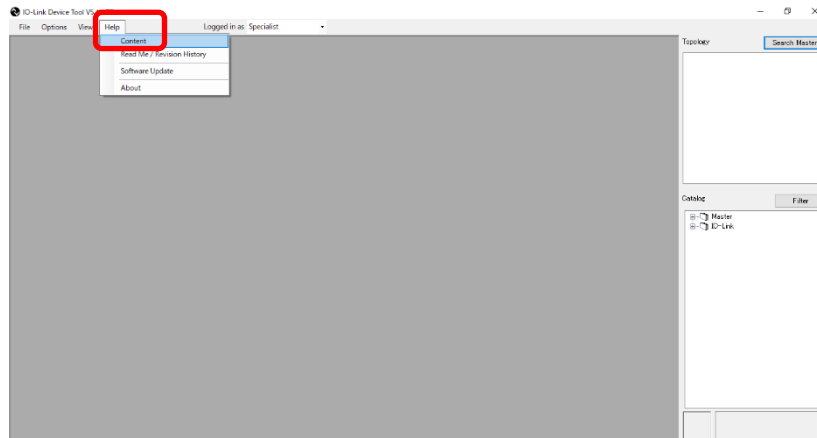
EX600's IP address: 192.168.0.1

PC's IP address: 192.168.0.250

Fig. 1 EX600 manifold configuration example

5.Starting the Software

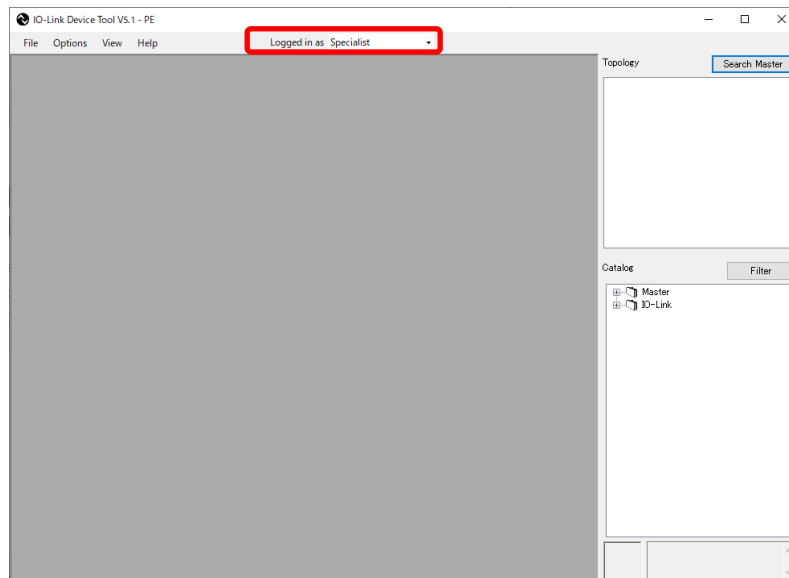
- When the IO-Link Device Tool V#. # is started, the following screen appears.
- Select the Help > Content, to refer to the User Manual prepared by TMG (read the manual for a detailed description of the operations).



- Select a user role depending on the user authorization.

User roles	Password setting	Initial password
Specialist	Allowed	special
Maintenance	Not allowed	maintain
Operator	Not allowed	None

* For details of the user roles, refer to the User Manual prepared by TMG.



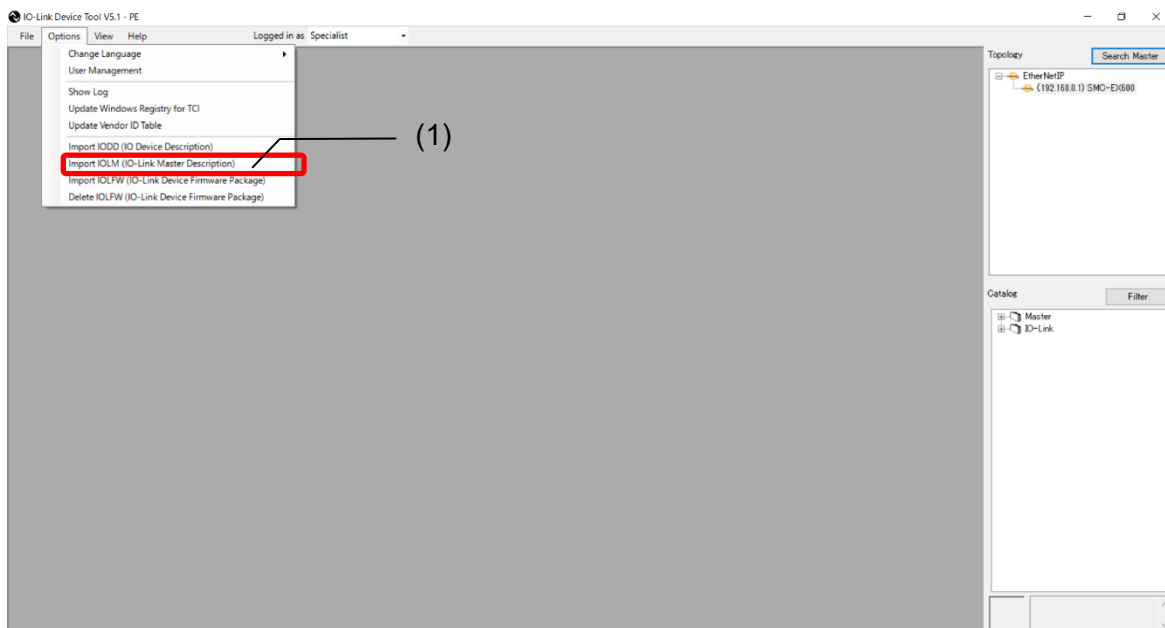
6.Importing an IOLM File

- To use the IO-Link Module in the EX600, EX245 and EXW1 series for IO-Link Device Tool, a dedicated setting file (IOLM file) must be imported.

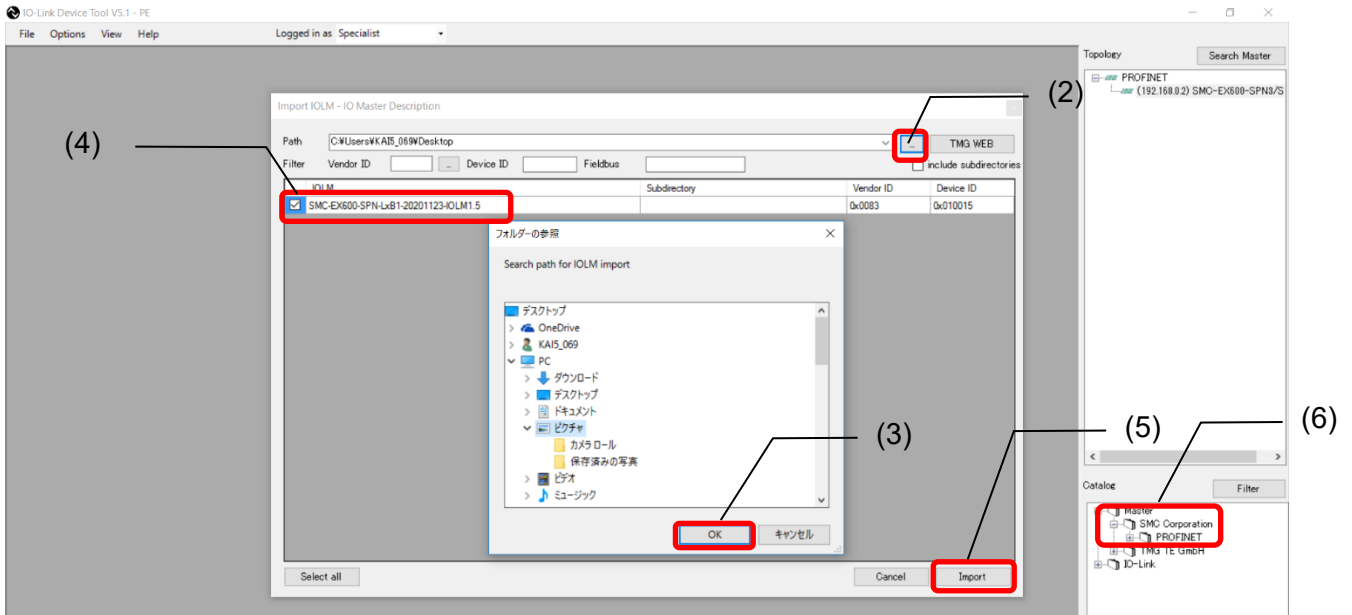
For an EX600-SPN3/4 SI unit: SMC-EX600-SPN-LxB1-202*****-IOLM1.5.zip
For an EX600-SEN7/8 SI unit: SMC-EX600-SEN7_8-LxB1-202*****-IOLM1.5.zip
For an EX600-SEC3/4 SI unit: SMC-EX600-SEC3_4-LxB1-202*****-IOLM1.5.zip
For an EX600-SEN3-X80 SI unit: SMC-EX600-SEN-LxB1-202*****-IOLM1.5.zip
For an EX600-MPN1 SI unit: SMC-EX600-MPN-LxB1-202*****-IOLM1.5.zip
For an EX600-MEN1 SI unit: SMC-EX600-MEN-LxB1-202*****-IOLM1.5.zip
For an EX600-MEC1 SI unit: SMC-EX600-MEC-LxB1-202*****-IOLM1.5.zip
For an EX245-SPN1A SI unit: SMC-EX245-SPN_FX-Lx1-202*****-IOLM1.5zip
For an EX245-SPN2A/3A SI unit: SMC-EX245-SPN_Cu-Lx1-202*****-IOLM1.5zip
For an EXW1-BECAC compact wireless base: SMC-EXW1-BEC-202*****-IOLM1.5.zip
For an EXW1-BPNAC1 compact wireless base: SMC-EXW1-BPN-202*****-IOLM1.5.zip
For an EXW1-BENAC1 compact wireless base: SMC-EXW1-BEN-202*****-IOLM1.5.zip

- The following shows how to import an IOLM file.

(1) Select Options > Import IOLM (IO-Link Module Description).



- (2) Select a folder where the IOLM file in zip format is saved.
- (3) Press [OK].
- (4) Check the IOLM file to be imported.
- (5) Press [Import].
- (6) "SMC Corporation" is added to the Module folder in the Catalog.



7.Importing an IODD File

- To set an IO-Link Device by using IO-Link Device Tool, an IODD file for each device must be imported.

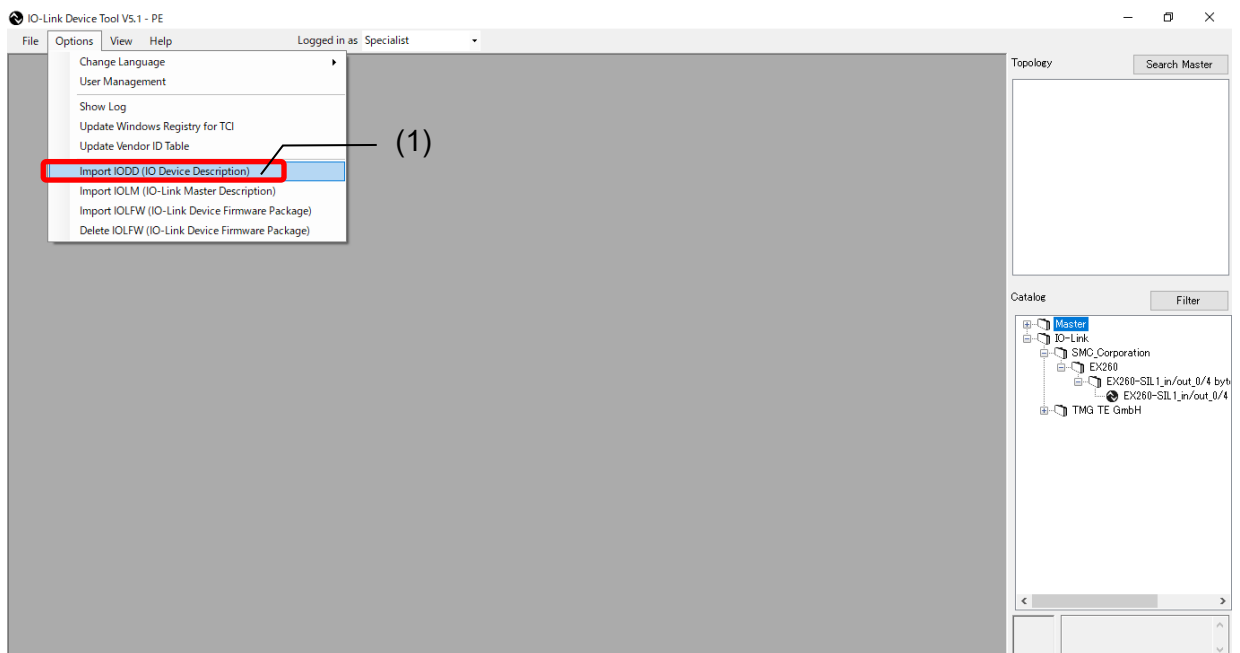
- For how to obtain an IODD file, contact the manufacturer of your device.
- How to import the IODD file of the SMC EX260-SIL1 is shown below.

The IODD file can be downloaded from the URL below.

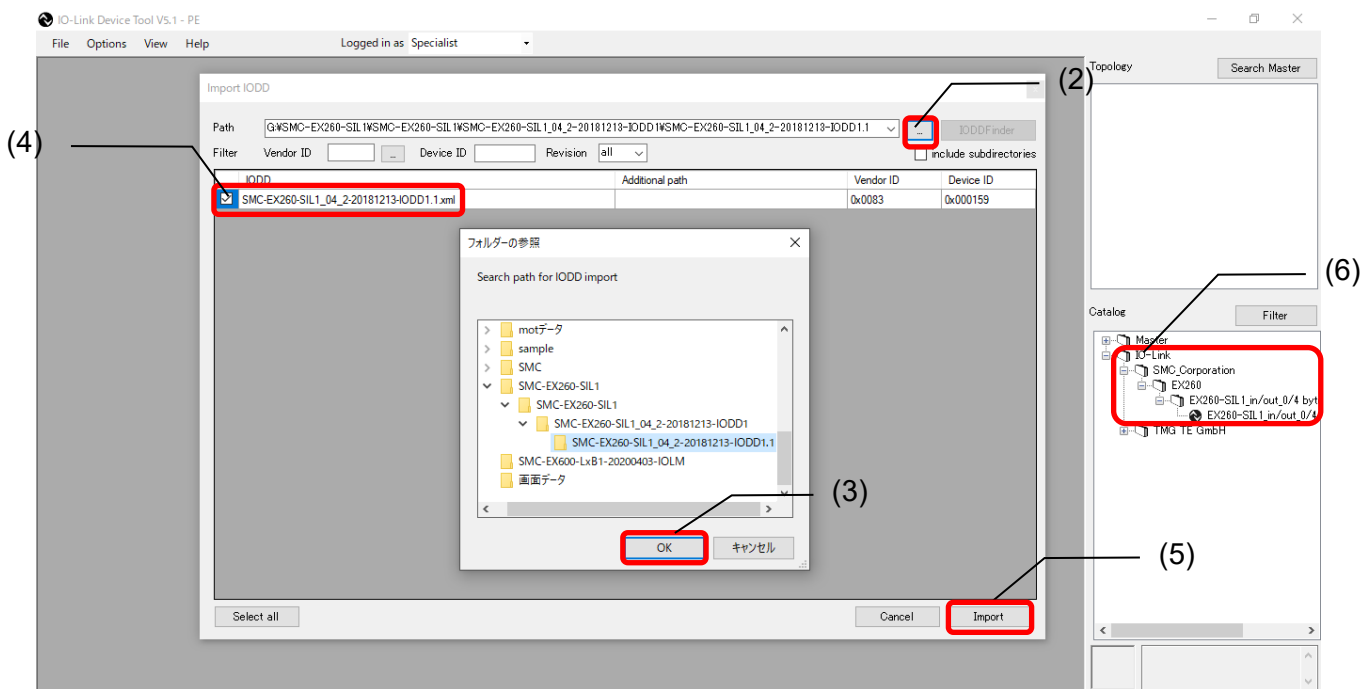
URL: <https://www.smcworld.com/en-jp/>

Documents/Download >> Operation Manuals >> Fieldbus System Serial Transmission System >> IO-Link Device>> EX260-SIL1 >> Configuration File

- (1) Select the Option > Import IODD (IO Device Description).



- (2) Select the folder where the IODD file is saved.
- (3) Press [OK].
- (4) Check the IODD file to be imported.
- (5) Press [Import].
- (6) EX260-SIL is added to the IO-Link folder in the Catalog.



8.How to Use the Software

8.1. The IO-Link Module setting screen

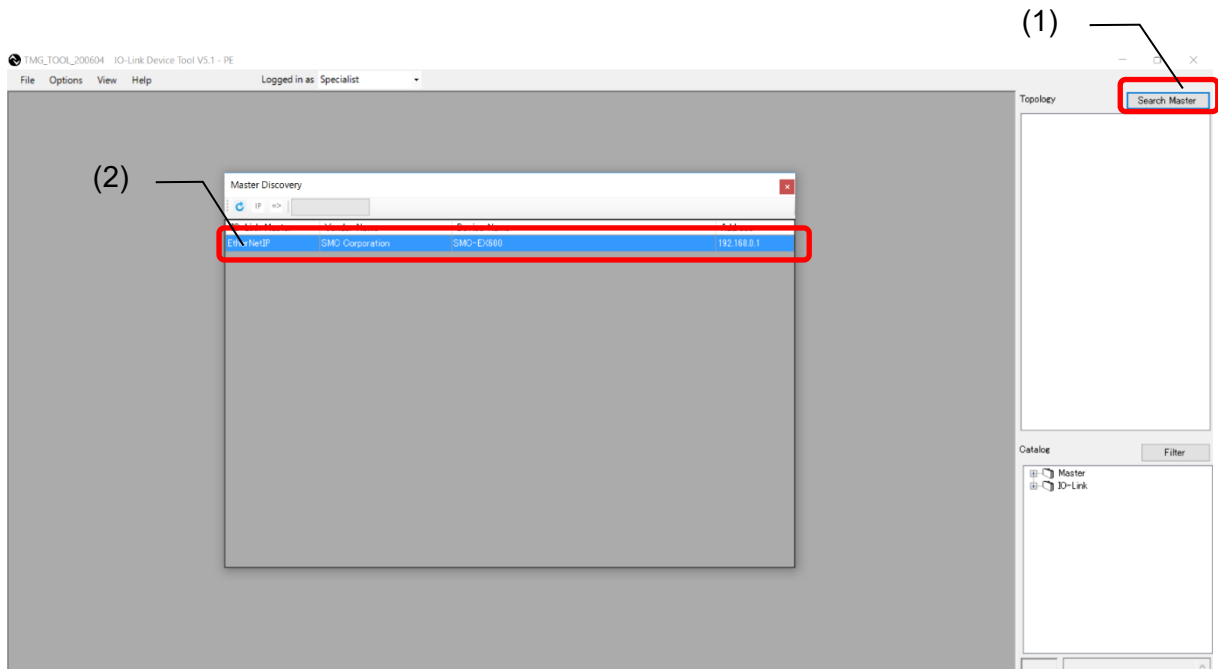
8.1.1. Search Master

- After connecting the SI unit or compact wireless base to a PC, supply power to the EX600 or EXW1 and conduct the operation as follows.

Note: EX245 does not support the function of Search Master.

- (1) Press [Search Master].
- (2) When the scanned EX600 or EXW1 is shown on the Master Discovery screen, double-click it.
The IO-Link Module setting screen will appear.

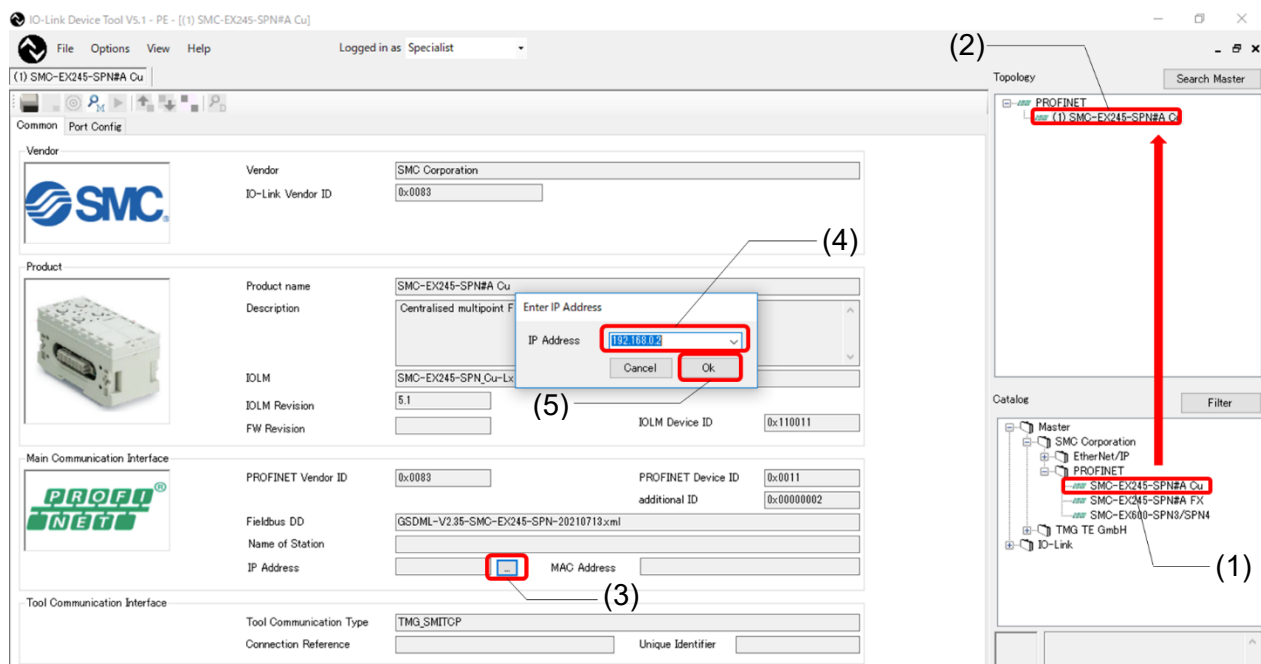
- * If the EX600 or EXW1 does not appear, perform the following.
- Make sure an IP address has been set for the SI unit or compact wireless base.
 - Turn off the EX600 or EXW1 and then turn it on again.
 - Restart the IO-Link Device Tool.



8.1.2. Individual selection

- After connecting the SI unit or compact wireless base to a PC, supply power to the EX600, EX245 or EXW1 and conduct the operation as follows.

- (1) Select the IOLM file that matches the SI unit or compact wireless base to be used.
- (2) Drag and move to Topology. The IO-Link Module setting screen will appear.
- (3) Press [Enter IP address] to display the input screen.
- (4) Input the IP address of the using SI unit or compact wireless base.
- (5) Press [OK].



8.2. IO-Link Module Setting Screen

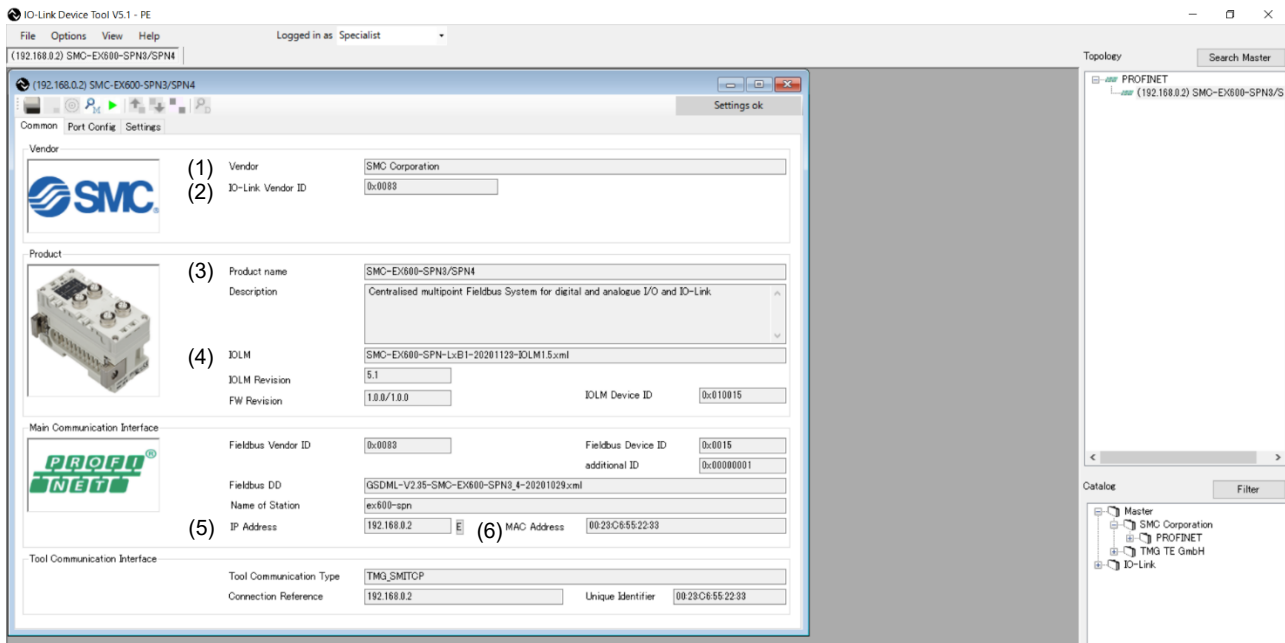
- The IO-Link Module Setting Screen has the three tabs shown below. Selecting a tab changes the screen.

No	Tab name	Outline
1	Common	Shows specific information such as the vendor ID of the EX600/EX245/EXW1.
2	Port Config	Shows information on devices connected to the ports of the EX600-L#B1 or EX245-L#1.
3	Settings	Shows parameter setting information for the EX600-L#B1.

Note: EX600-SEC3/SEC4, EX600-MEN1, EX600-MEC1, EX245-SPN#A, EXW1-BECAC, EXW1-BPNAC1 and EXW1-BENAC1 don't support the Settings tab.

8.3. Common Screen

- The Common Screen of the SMC-EX600/EX245/EXW1 shows property data such as the Vendor ID. (The image is an example of EX600.)



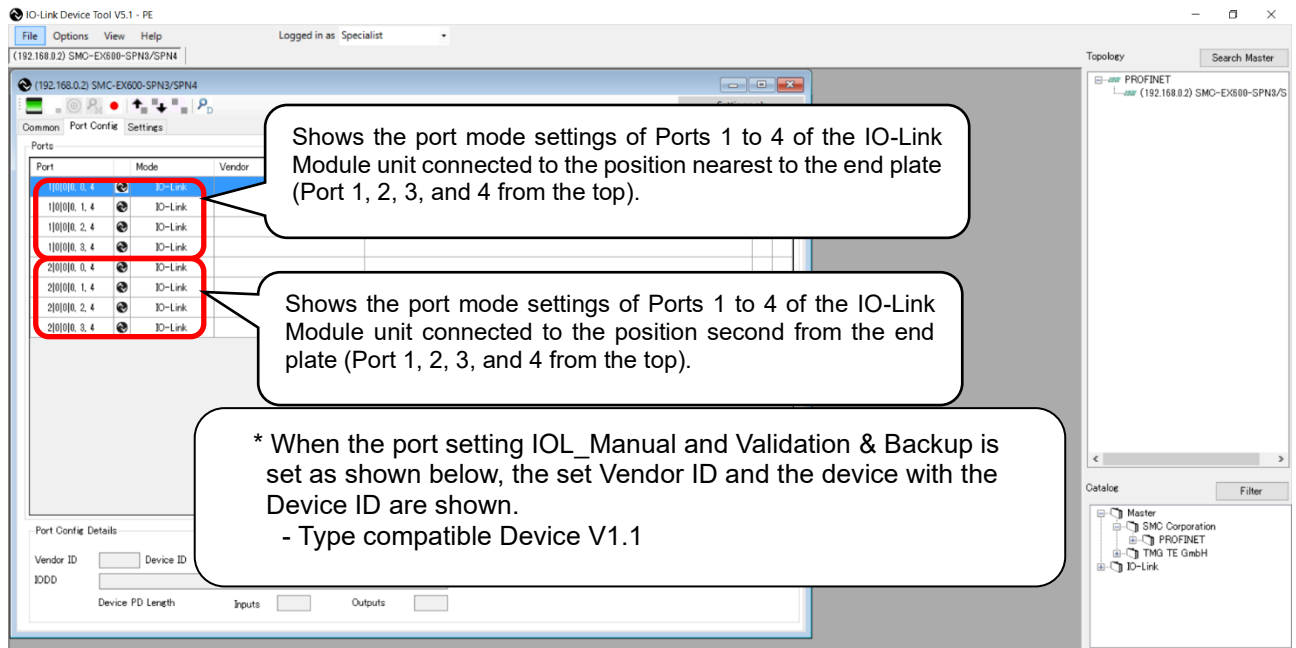
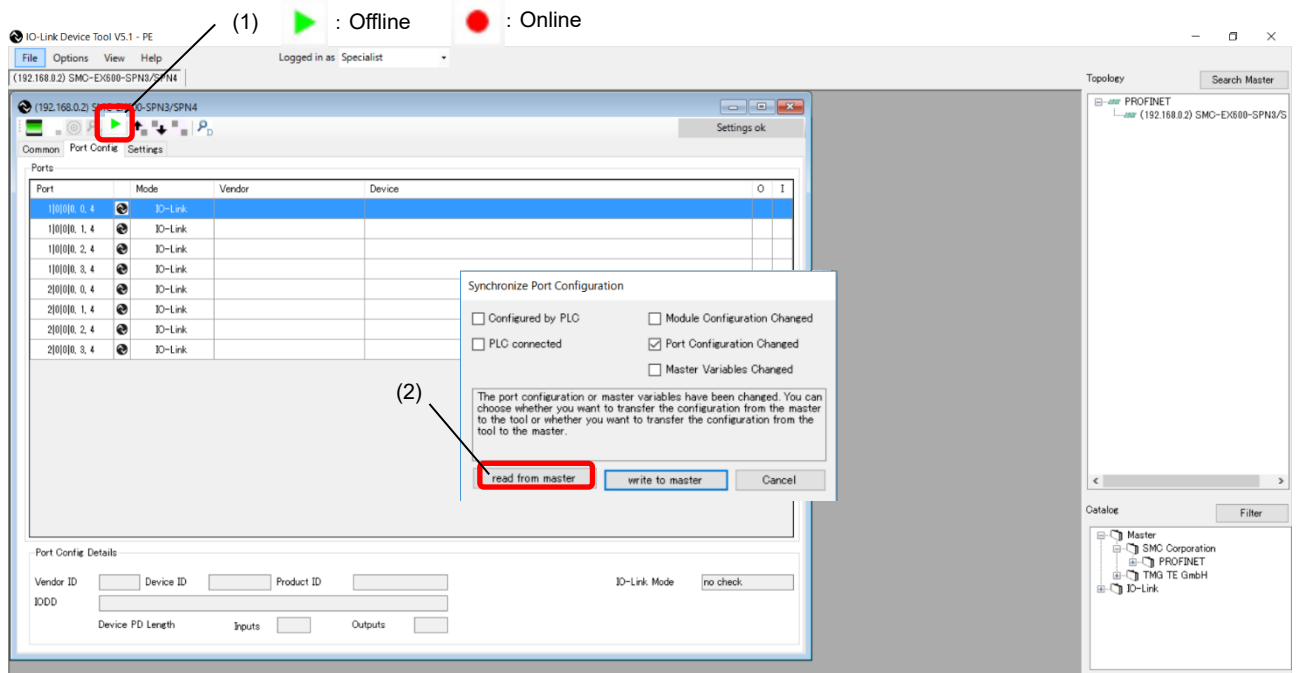
No	Item	Outline
1	Vendor	SMC Corporation, fixed value
2	IO-Link Vendor ID	0x0083, fixed value
3	Product name	The SI unit or compact wireless base name, fixed value
4	IOLM	Shows the name of the IOLM file being used.
5	IP Address	Shows the IP address of the SI unit or compact wireless base being monitored.
6	MAC Address	Shows the MAC address of the SI unit or compact wireless base being monitored.

8.4. Port Config Screen

8.4.1. Reading the IO-Link Port Settings

- The following shows how to read the port settings of the EX600-L#B1, EX245-L#1 or EXW1-RL#.

- (1) Set the status to [Go Online].
- (2) Press [read from master] to read the port settings of the EX600-L#B1, EX245-L#1 or EXW1-RL#.



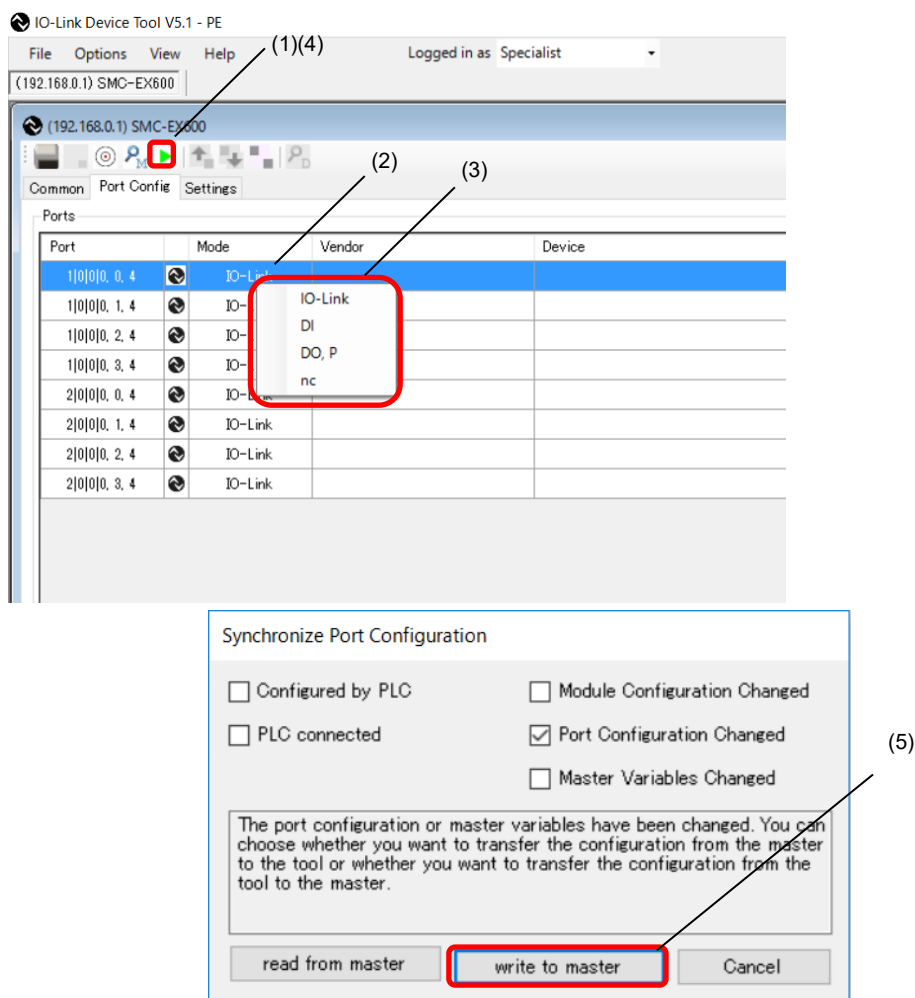
Note: In the case of EX245, show from the IO-Link Module unit connected to the position nearest to the SI unit.

In the case of EXW1, show from wireless channel 1.

8.4.2. Changing the Settings of the IO-Link Ports (Only possible when not connected to PLC)

- The following shows how to change the port settings of the EX600-L#B1 by using IO-Link Device Tool.
- * EXW1 series cannot change IO-Link ports by the IO-Link Device Tool.

- (1) Set the status to [Go Offline].
- (2) Place the cursor on [Mode] of the Port whose setting you want to change and right-click the mouse. The settings for the port will be shown.
- (3) Place the cursor on the desired Port setting and left-click the mouse. [Mode] will be set to that setting.
- (4) When you press [Go Online], the "Synchronize Port Configuration" screen will appear.
- (5) Press [write to master] to apply the setting to the EX600-L#B1.



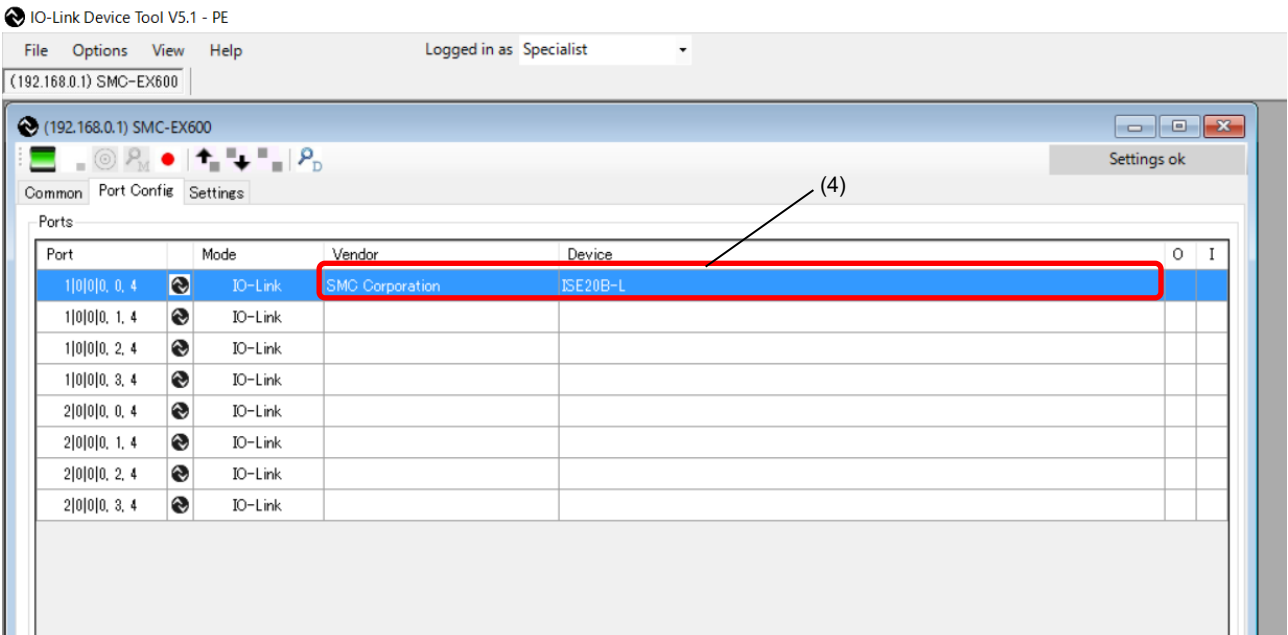
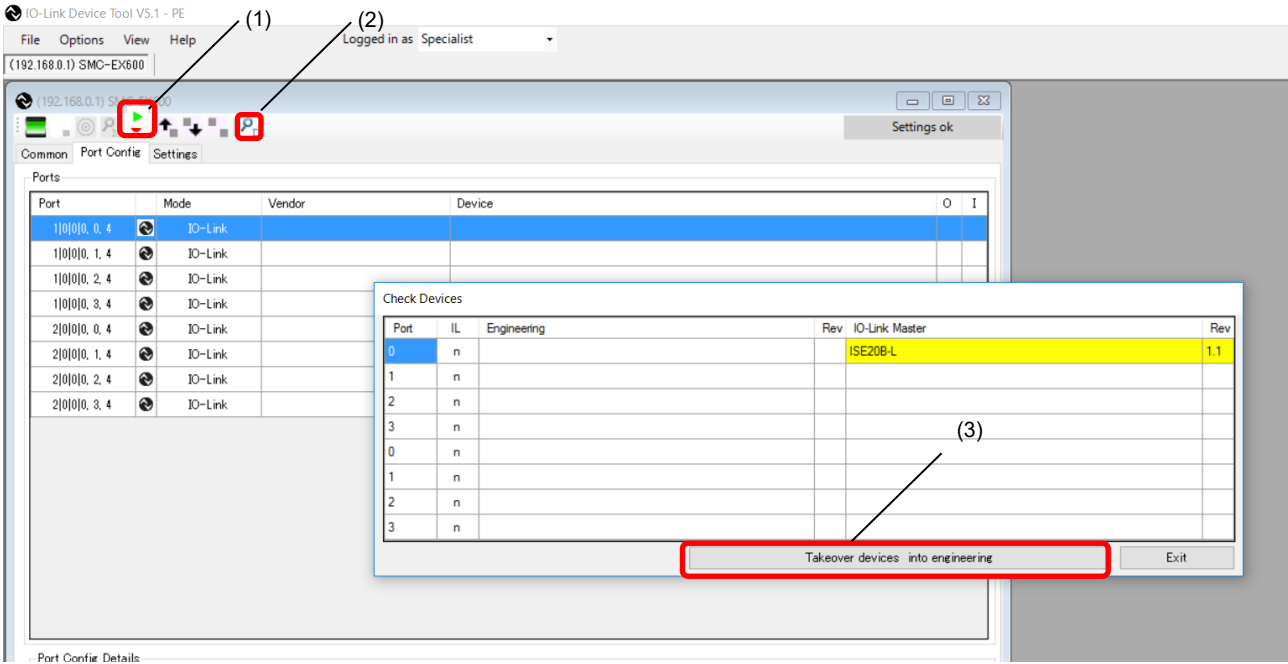
* When the SI unit is EX600-SPN3/4, EX600-MPN1, EX245-SPN#A, EXW1-BECAC, EXW1-BPNAC1 or EXW1-BENAC1 use the configuration software of the PLC or IO Configurator (only EXW1) to change the parameters of EX600-L#B1, EX245-L#1 and EXW1-RL#.

* Parameters cannot be changed by the IO-Link Device Tool while communication with the PLC is established.

8.4.3. Scanning IO-Link Devices

- The following shows the procedures for scanning IO-Link devices when communication with IO-Link devices connected to the EX600-L#B1, EX245-L#1 or EXW1-RL# is established.

- (1) Set the status to [Go Online].
- (2) Press [Check Devices]. The connected IO-Link devices will be shown.
- (3) Press [Takeover devices into engineering].
- (4) Models, etc. of the connected IO-Link devices are shown.



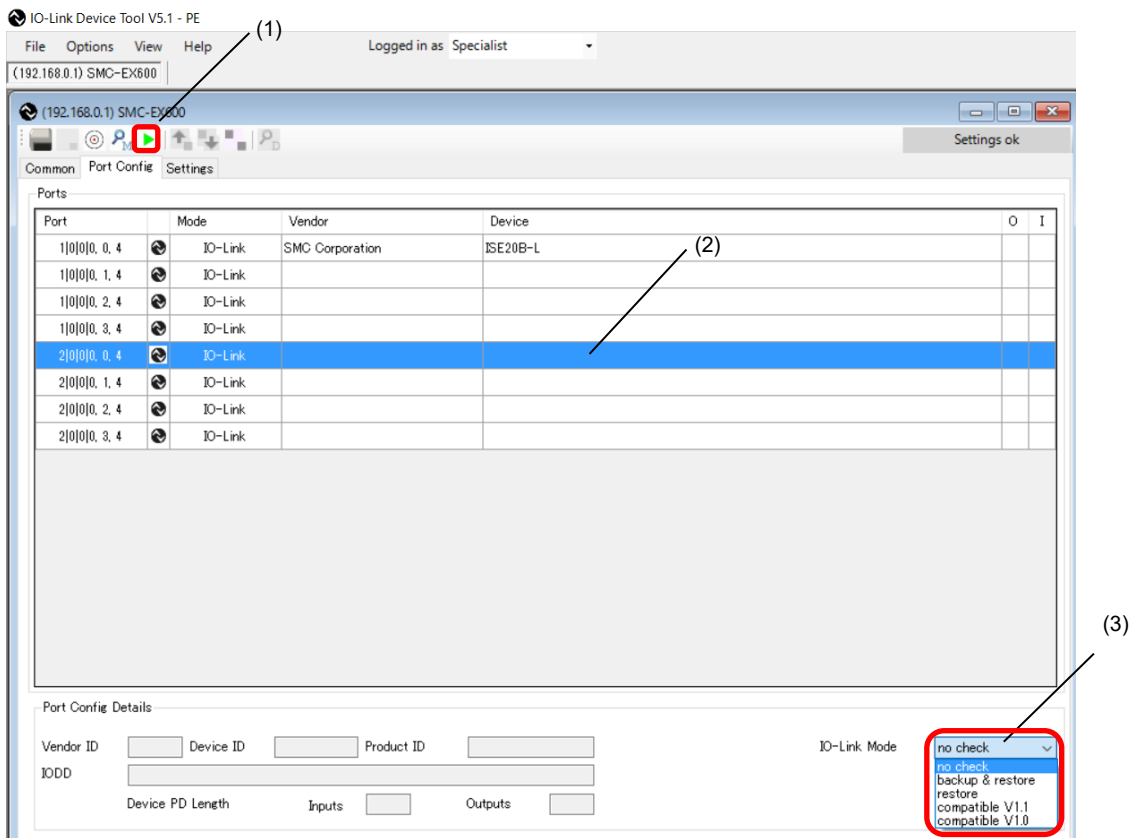
8.4.4. IO-Link Device Validation Function / Data Storage Function Setting

(Only possible when not connected to PLC)

- In the "Port Config Details" on the Port Config Screen of the SMC-EX600, the settings for the IO-Link device Validation Function / Data storage function can be set for each port.

* EXW1 series cannot change IO-Link Device Validation Function / Data Storage Function Setting by the IO-Link Device Tool.

- (1) Set the status to [Go Offline].
- (2) Select a port whose [Mode] is set to IO-Link.
- (3) Select the validation & Backup setting in [IO-Link Mode].
 - * For details on each setting, refer to the SI unit Operation Manual of protocol used.
- (4) When the status is set to [Go Online], the Synchronize Port Configuration screen appears. Press the [write to master] button, to apply the setting to the EX600-L#B1.
 - * See page 17 for the screen.



* When the SI unit is EX600-SPN3/4, EX600-MPN1, EX245-SPN#A, EXW1-BECAC, EXW1-BPNAC1 or EXW1-BENAC1 use the configuration software of the PLC or IO Configurator (only EXW1) to change the parameters of EX600-L#B1, EX245-L#1 and EXW1-RL#.

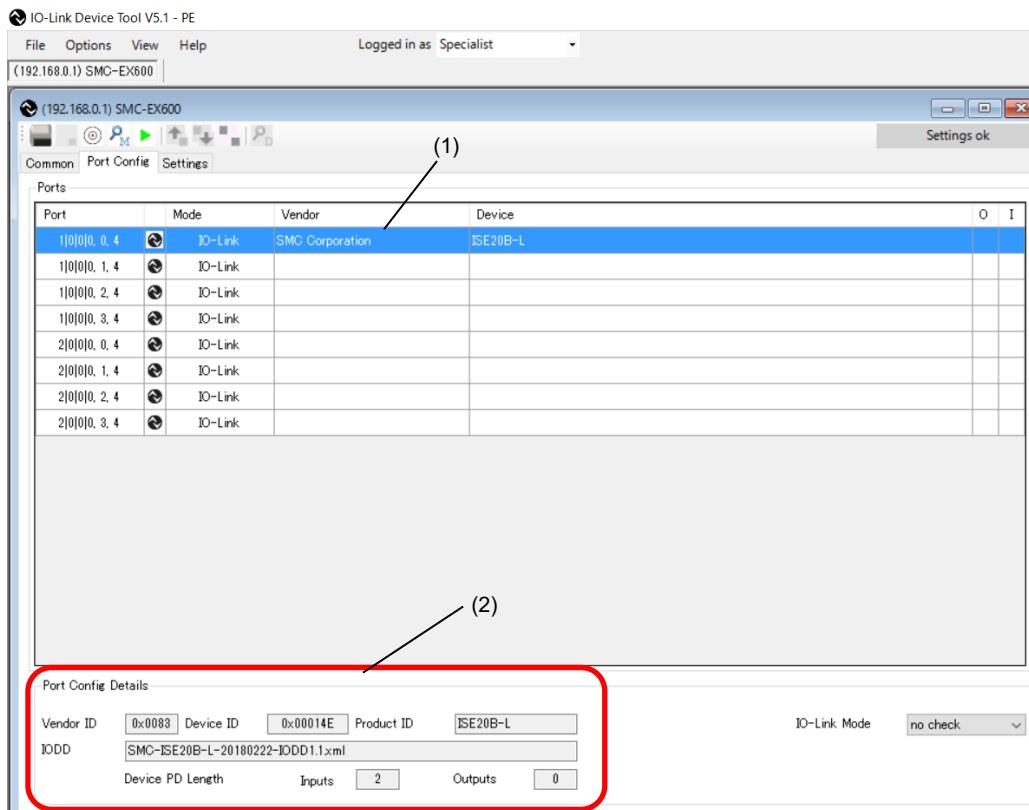
* Parameters cannot be changed by the IO-Link Device Tool while communication with the PLC is established.

8.4.5. Port Config Details

- In "Port Config Details" on the Port Config screen of the SMC-EX600/EX245/EXW1, information on connected IO-Link devices is shown.

- (1) Select a port to which an IO-Link device is connected.
- (2) The information on the IO-Link device is shown in "Port Config Details" as shown below.

No	Item	Outline
1	Vendor ID	Vendor ID
2	Device ID	Device ID
3	Product ID	Product ID
4	IODD	IODD file name
5	Device PD Length Inputs	Input size of the process data
6	Device PD Length Outputs	Output size of the process data



8.5. Settings Screen

- The Setting Screen shows parameter setting information for the EX600-L#B1.

* EX600-SEC3/SEC4, EX600-MEN1, EX600-MEC1, EX245-SPN#A, EXW1-BECAC, EXW1-BPNAC1 and EXW1-BENAC1 don't support the Setting screen.

8.5.1. Reading IO-Link Module Parameters

- The following shows the procedure to read the parameters of the EX600-L#B1.
 - For details of the parameters, refer to the SI unit Operation Manual of protocol used.

- (1) Set the status to [Go Online].
- (2) Select the [Settings] tab. The parameters of the unit selected in "List of Masters" will be shown.
- (3) The units can be switched in "List of Masters" area.
- (4) "Maximum" of "Total Input/Output Size" shows the maximum acceptable configuration size that can be occupied, and "Configured" shows the actually occupied configuration size (for the EX600-SEN7/SEN8 and EX600-SEN3-X80 only).

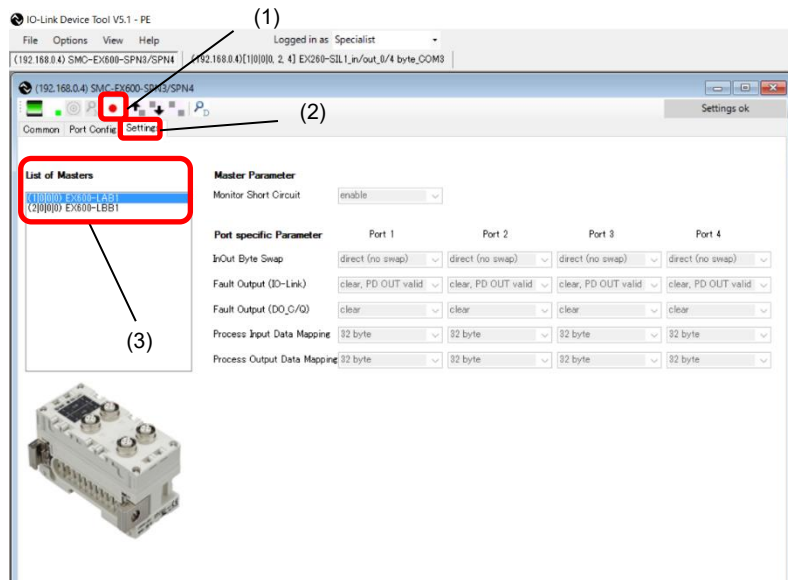


Fig. Screen for the EX600-SPN3/4

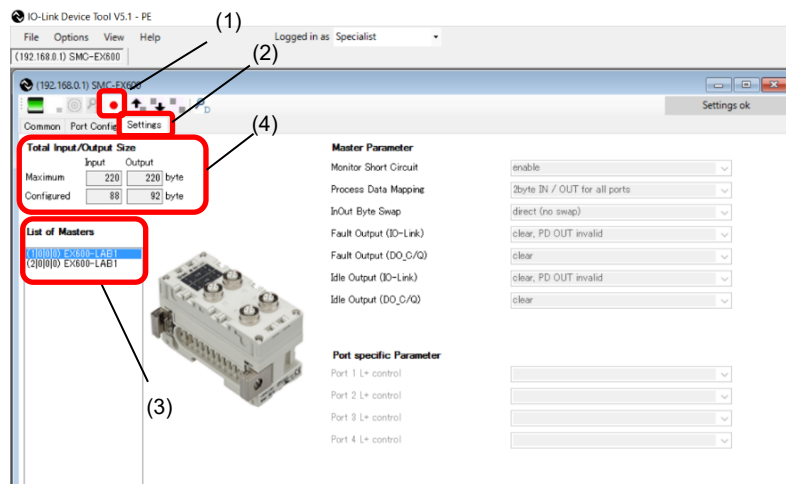
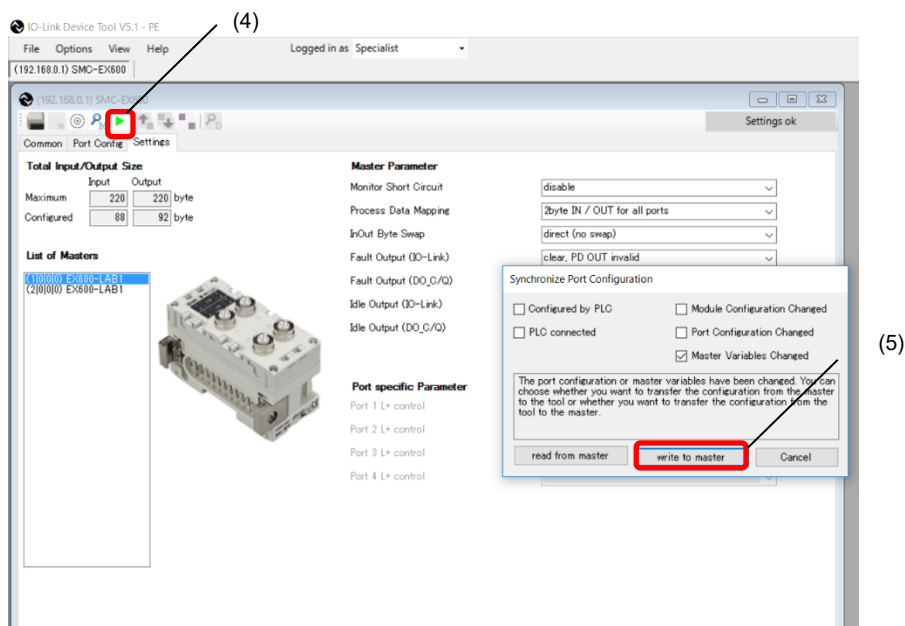
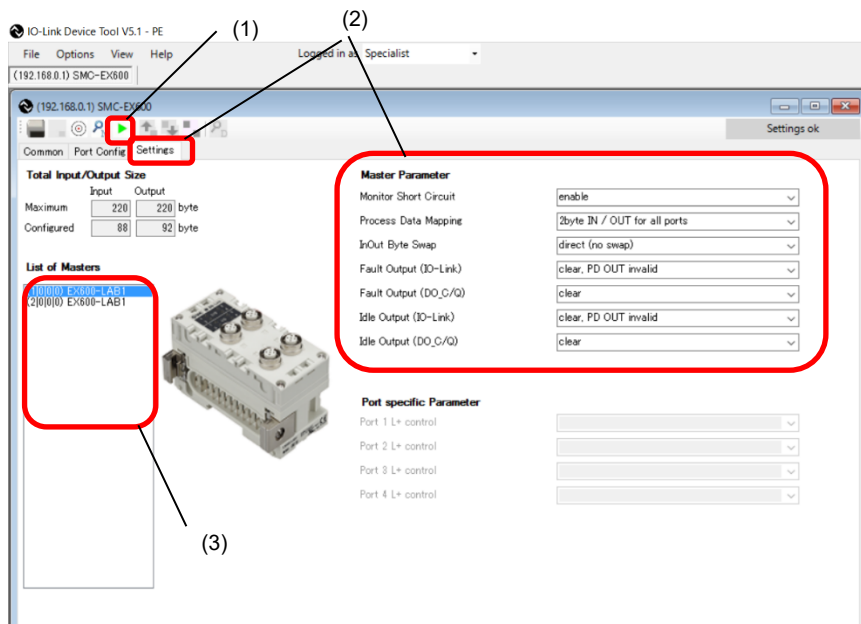


Fig. Screen for the EX600-SEN7/SEN8, and EX600-SEN3-X80

**8.5.2. Setting the IO-Link Module Parameters (Only possible when not connected to PLC)
(for the EX600-SEN7/SEN8, and EX600-SEN3-X80 only)**

- The following shows the procedure to set the parameters of the EX600-L#B1.
- For details of the parameters, refer to the SI unit Operation Manual of protocol used.

- (1) Set the status to [Go Offline].
- (2) Select the [Settings] tab. The parameters of the unit selected in "List of Masters" will be shown.
- (3) The units can be switched in "List of Masters" area.
- (4) When the status is set to [Go Online] after changing the "Module Parameter," the "Synchronize Port Configuration" screen appears.
- (5) Press [write to master] to apply the parameters to the unit.



* When the SI unit is EX600-SPN3/4, EX600-MPN1, EX245-SPN#A, EXW1-BECAC, EXW1-BPNAC1 or EXW1-BENAC1 use the configuration software of the PLC or IO Configurator (only EXW1) to change the parameters of EX600-L#B1, EX245-L#1 and EXW1-RL#.

* Parameters cannot be changed by the IO-Link Device Tool while communication with the PLC is established.

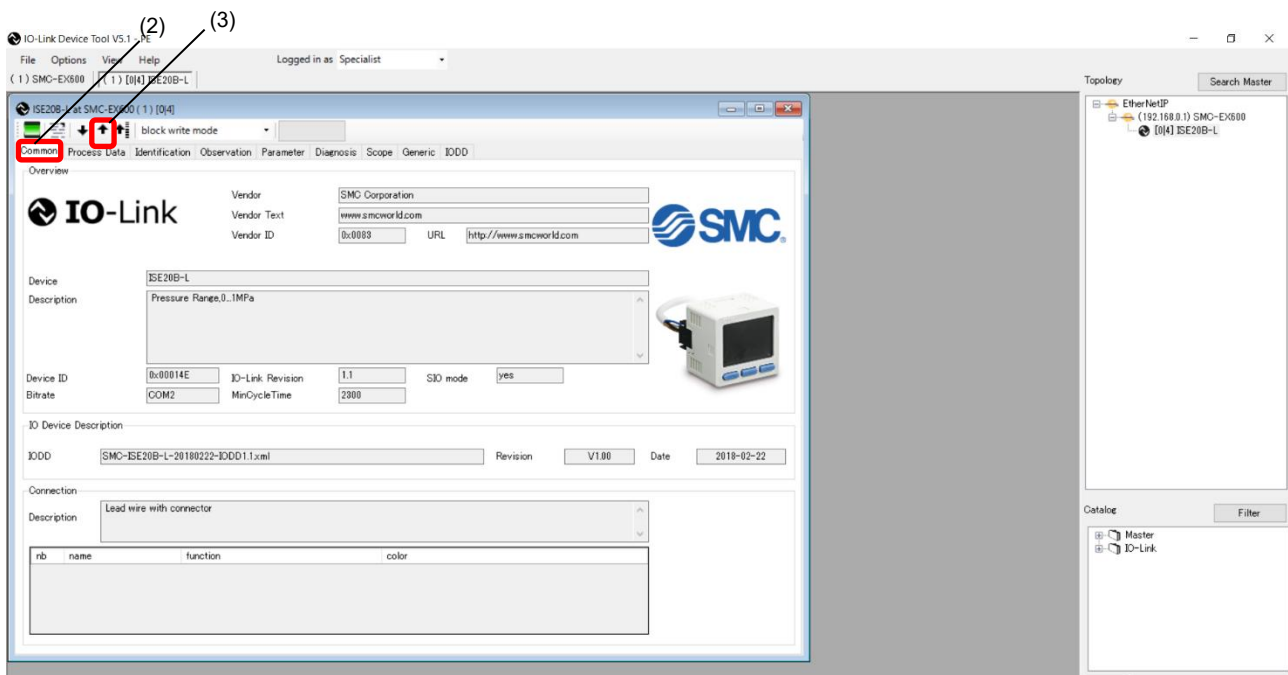
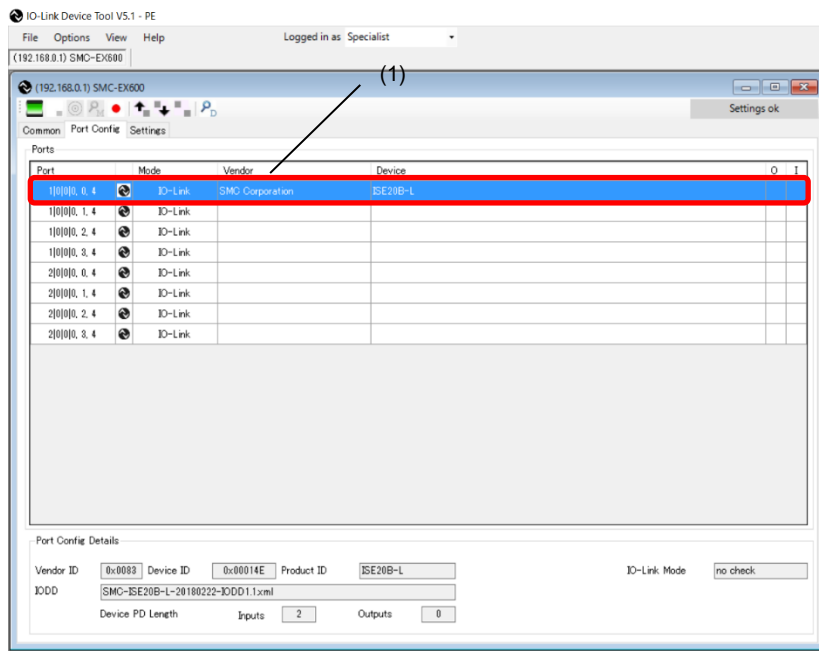
8.6. Setting the IO-Link Devices

8.6.1. Reading Information on IO-Link Devices

- Reading information on an IO-Link device can be performed using the following procedure.
- The following screens are examples of using a pressure switch ISE20B-L. The dedicated IODD file has been imported in advance.

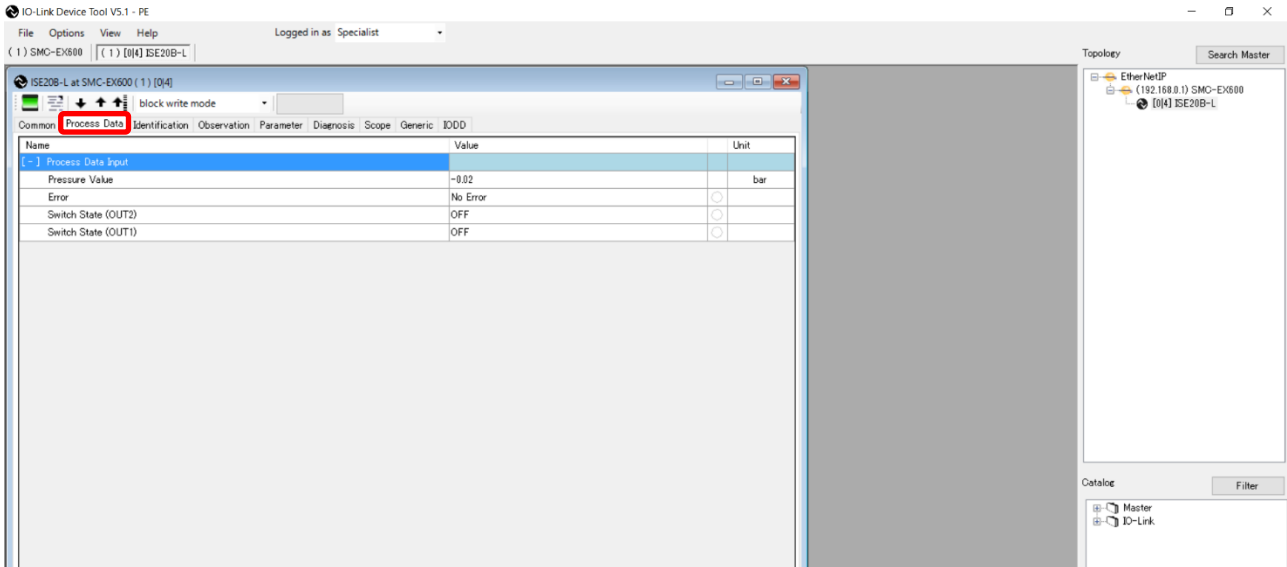
* Screens differ depending on the IO-Link device.

- (1) Select an IO-Link device to read information, after setting the status to [Go Online], and double-click the row.
- (2) The Common tab screen for IO-Link devices appears in a new window.
- (3) Pressing the [Upload from device] button, the information on the connected IO-Link device will be read.



8.6.2. IO-Link Device Process Data (Example using the ISE20B-L)

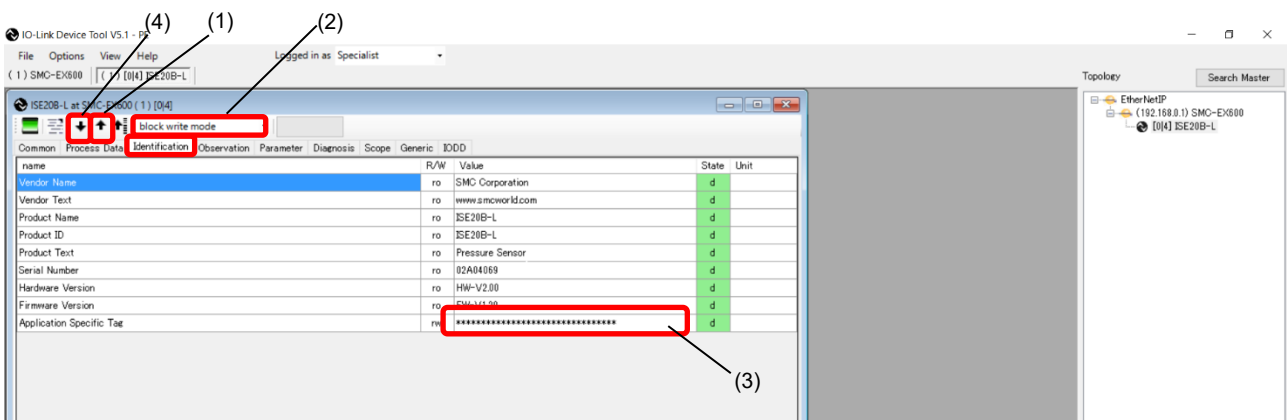
- When the "Process Data" tab of the ISE20B-L is selected, the following screen appears.
- Displays Pressure information, diagnostic information, and switch output status, which comprise the input 2 Byte process data.



8.6.3. IO-Link Device Identification (Example using the ISE20B-L)

- When the "Identification" tab of the ISE20B-L is selected, the following screen appears.
- The specific IO-Link device data can be viewed in the "Identification" tab.
- Only the "Application-Specific Tag" allows writing.

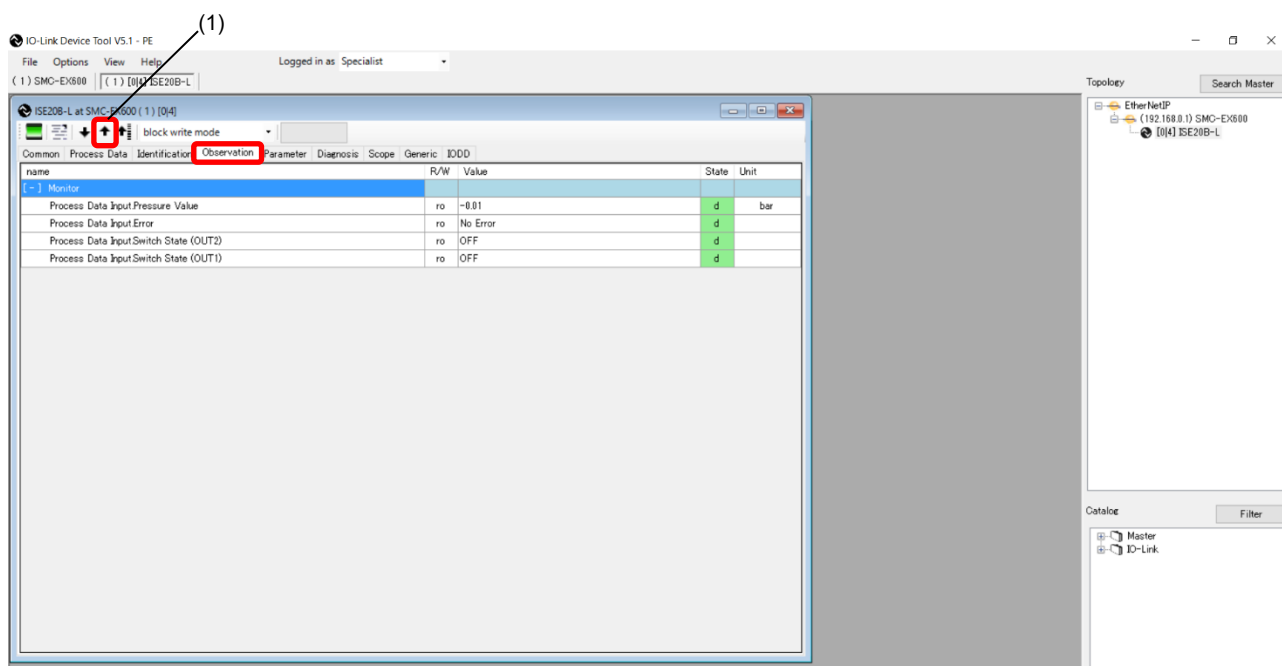
- (1) Pressing the [Upload from device] button, the information on the connected device will be read.
- (2) Select either the "block write mode" or "direct write mode" for the device writing mode.
* For details of the difference between the writing modes, see the User Manual prepared by TMG.
- (3) Any value within 32 characters can be set for the value of "Application-Specific Tag."
To change this value, press the [Enter] button after directly entering the characters.
- (4) Press the [Download to device] button to write this change to the IO-Link device.



8.6.4. IO-Link Device Observation (Example using the ISE20B-L)

- When the Observation tab of the ISE20B-L is selected, the following screen appears.
- Pressure information, diagnostic information, and switch output status are shown.

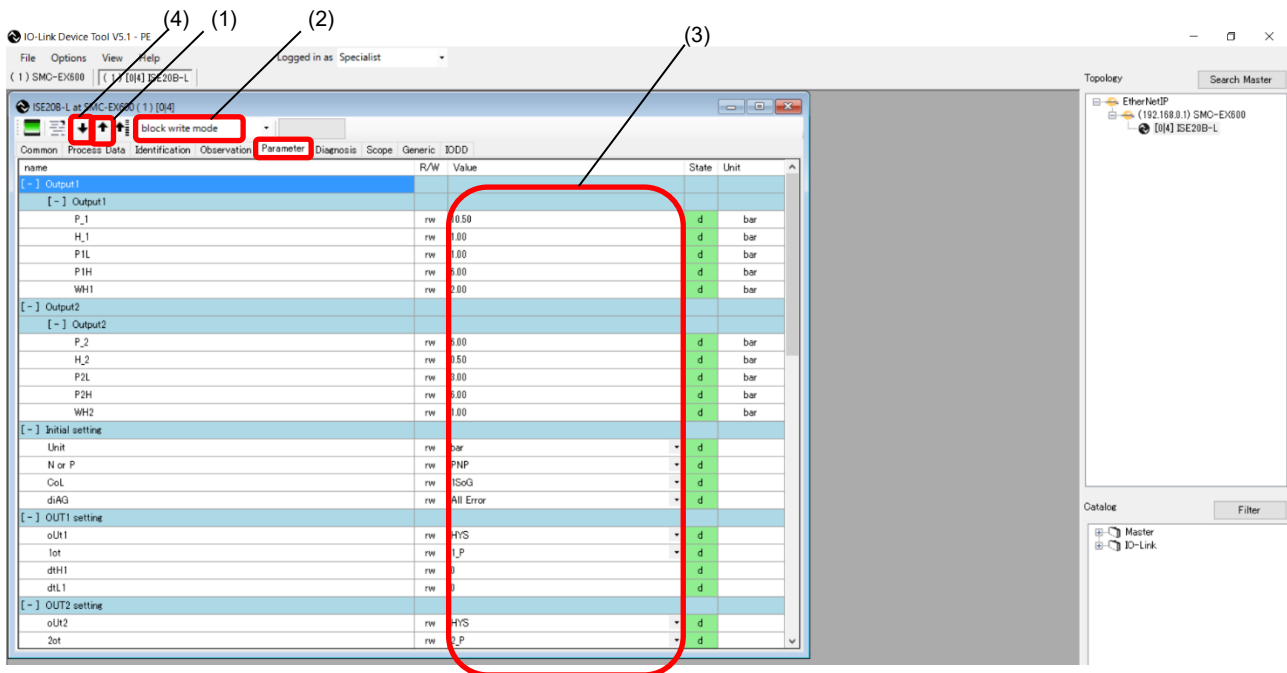
(1) Pressing the [Upload from device] button, the information on the connected device will be read.



8.6.5. IO-Link Device Parameter (Example using the ISE20B-L)

- When the Parameter tab of the ISE20B-L is selected, the following screen appears.
The set parameters can be checked.
- For details of the parameters, refer to the Operation Manual of the using IO-Link device.

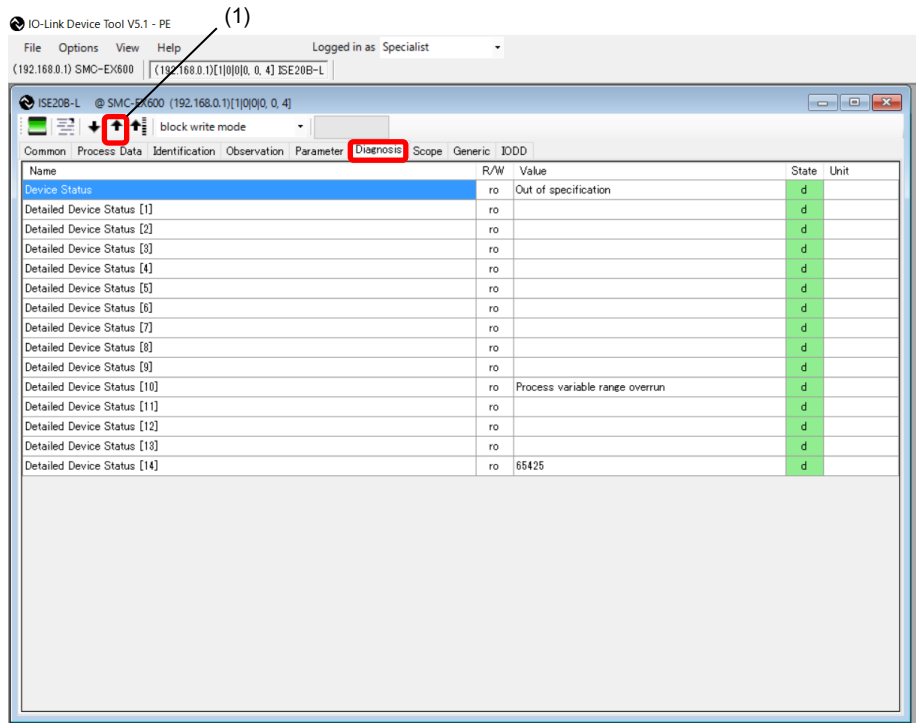
- (1) Pressing the [Upload from device] button, the information on the connected device will be read.
- (2) Select either the "block write mode" or "direct write mode" for the device writing mode.
* For details of the difference between the writing modes, refer to the User Manual prepared by TMG.
- (3) Change "Value." ("State" will change to "c.")
- (4) Press the [Download to device] button to write this change to the IO-Link device.



8.6.6. IO-Link Device Diagnosis (Example using the ISE20B-L)

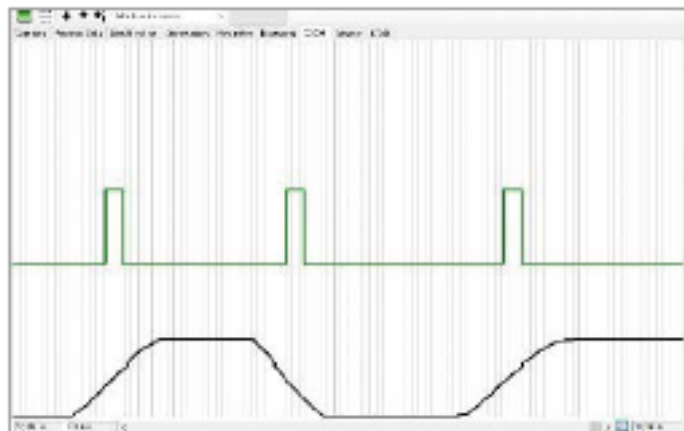
- When the Diagnosis tab of the ISE20B-L is selected, the following screen appears.
- For details of the Diagnosis data, refer to the Operation Manual of the relevant IO-Link device.

(1) Pressing the [Upload from device] button, the information on the connected device will be read.



8.6.7. IO-Link Device Scope (Example using the ISE20B-L)

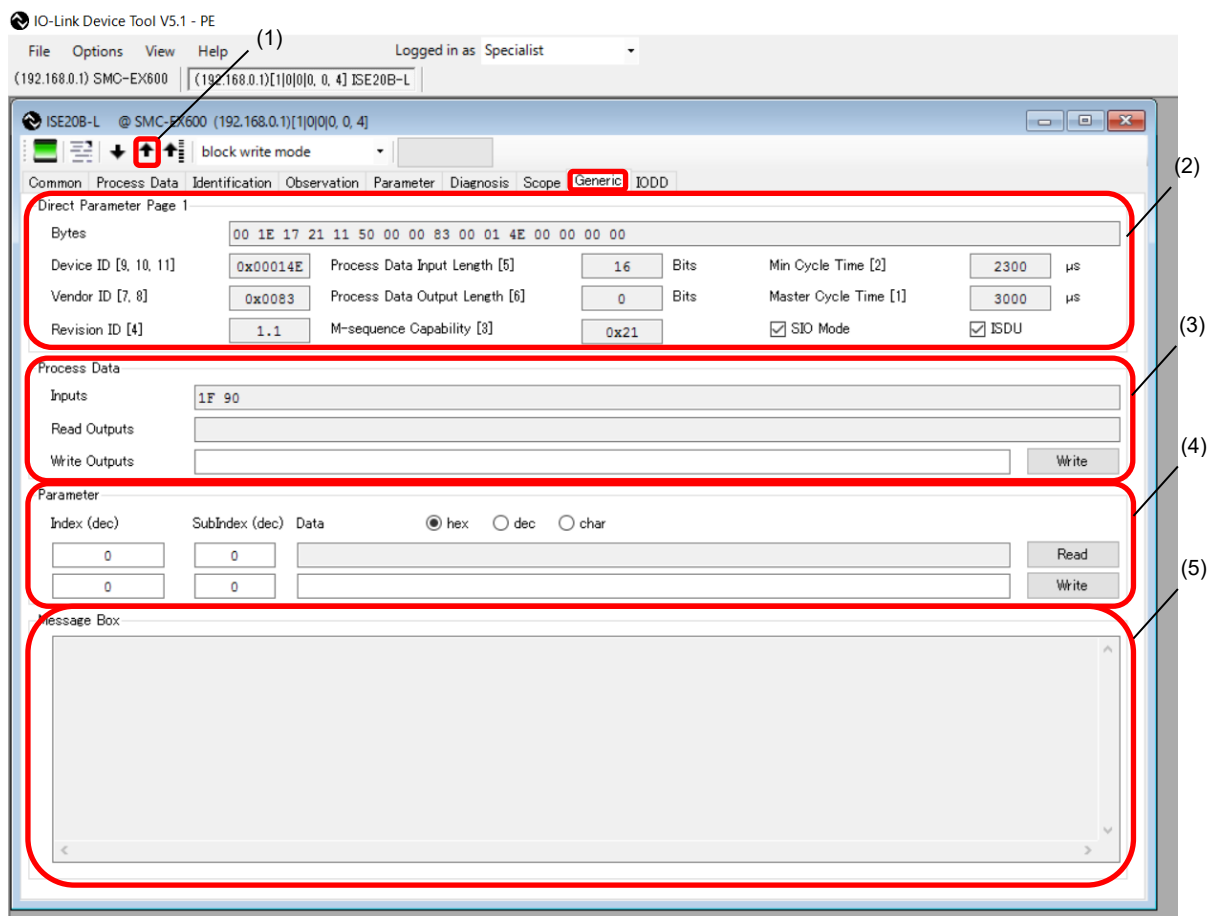
- When the Scope tab of the ISE20B-L is selected, the Scope screen appears. In the Scope screen, process data can be displayed in charts.
- For details on the Scope function, refer to the User Manual prepared by TMG.



8.6.8. IO-Link Device Generic (Example using the ISE20B-L)

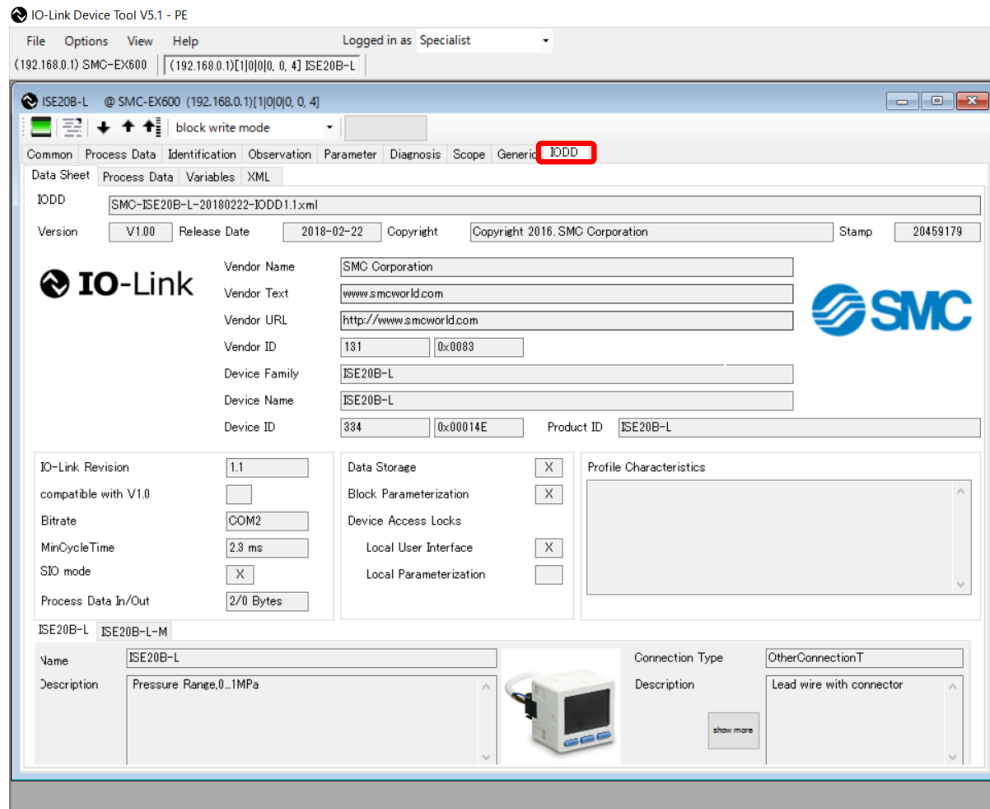
- When the Generic tab of the ISE20B-L is selected, the following screen appears.
- For details of the Generic data, refer to the Operation Manual of the using IO-Link device.

- (1) When the [Upload from device] button is pressed, the information on the connected device will be read.
- (2) The information on Direct Parameter Page 1 is shown.
- (3) The current value of input/output Process Data is displayed.
If the PLC is not connected, output Process Data can be written.
(EX600-SEN3-X80 does not support writing output Process Data.)
- (4) Parameters of IO-Link devices are able to Read/Write by specifying ISDU (indexed service data unit).
- (5) Message Box records the appearance and disappearance log of event information.



8.6.9. IO-Link Device IODD (Example using the ISE20B-L)

- When the IODD tab of the ISE20B-L is selected, the following screen appears.
- Detailed information on the IODD file is shown.



Revision history

- A : Addition of IO-Link modules EX245-L#1.
[April 2022]
- B : Addition of EX600-SEN7/8 and
EX600-SEC3/4. [March 2023]
- C : Addition of EX600-MPN1, EX600-MEN1,
EX600-MEC1, EXW1-BECAC,
EXW1-BPNCA1 and EXW1-BENAC1
[December 2023]

SMC Corporation

4-14-1, Sotokanda, Chiyoda-ku, Tokyo 101-0021 JAPAN

Tel: + 81 3 5207 8249 Fax: +81 3 5298 5362

URL <https://www.smcworld.com>

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