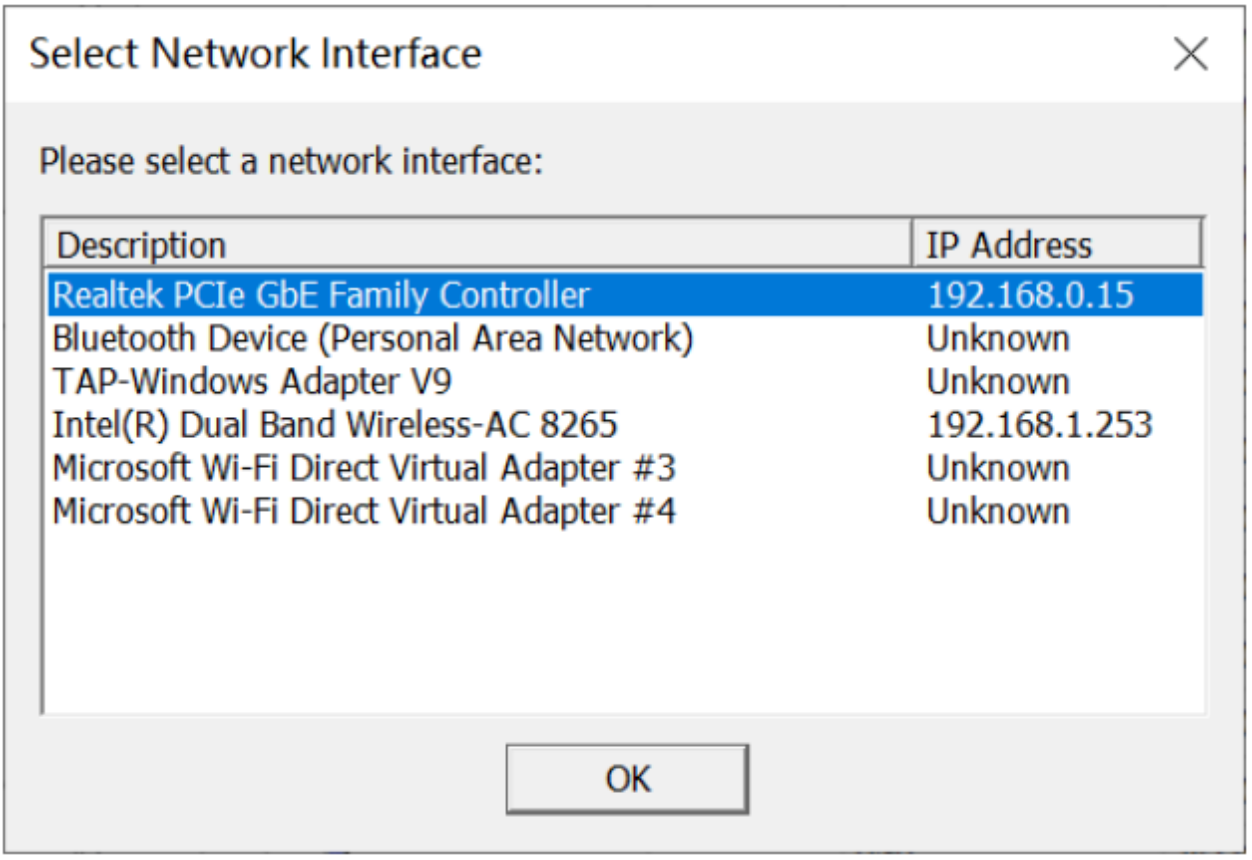
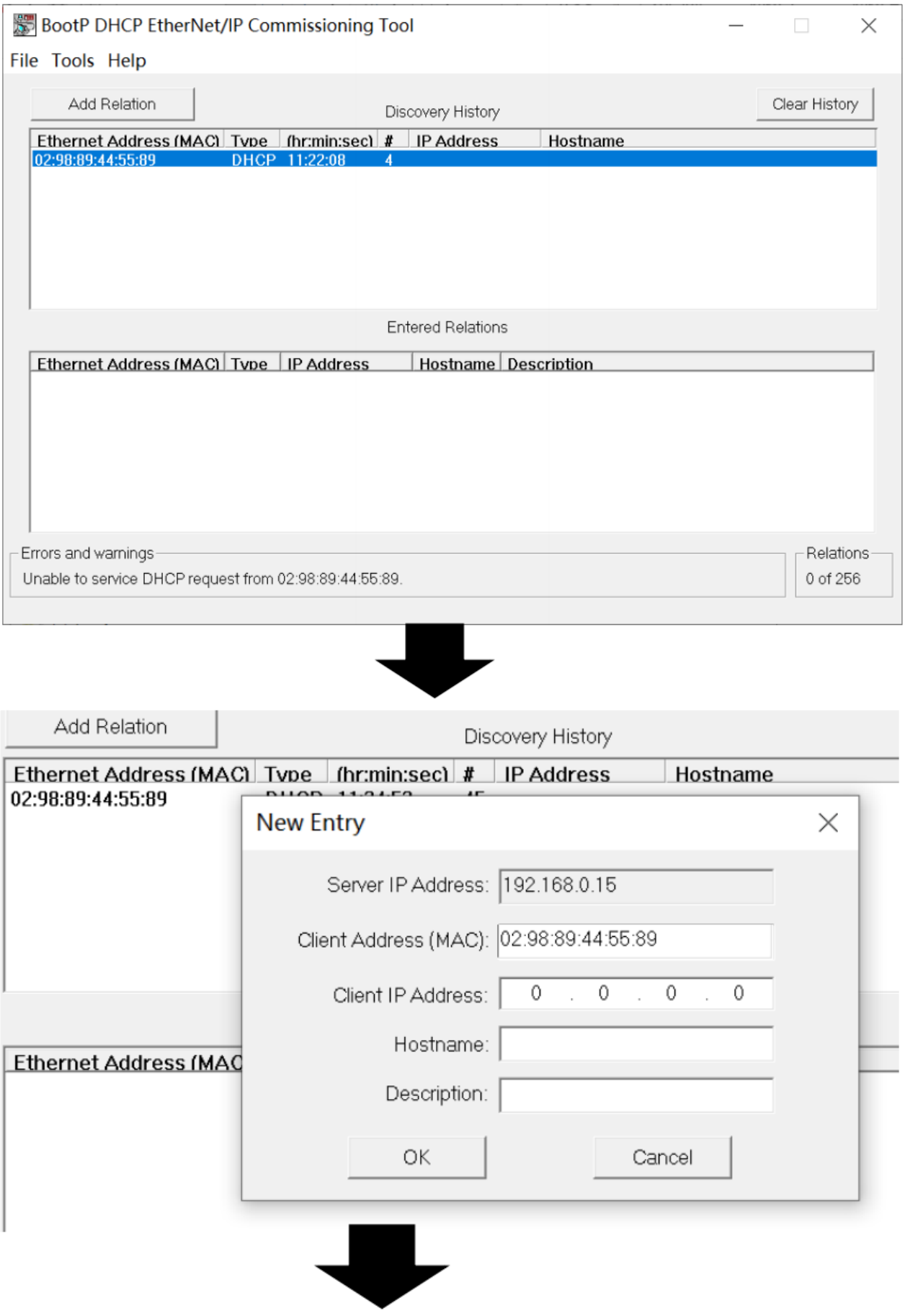
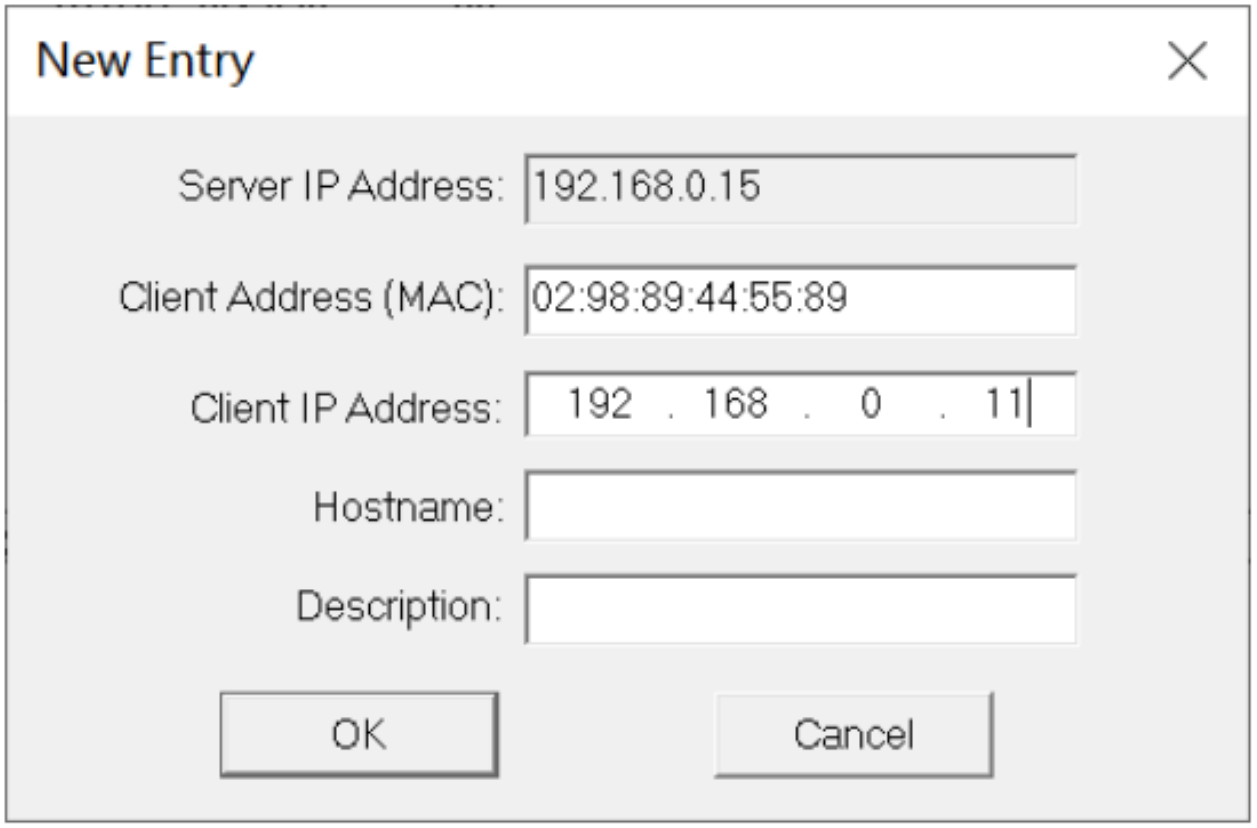
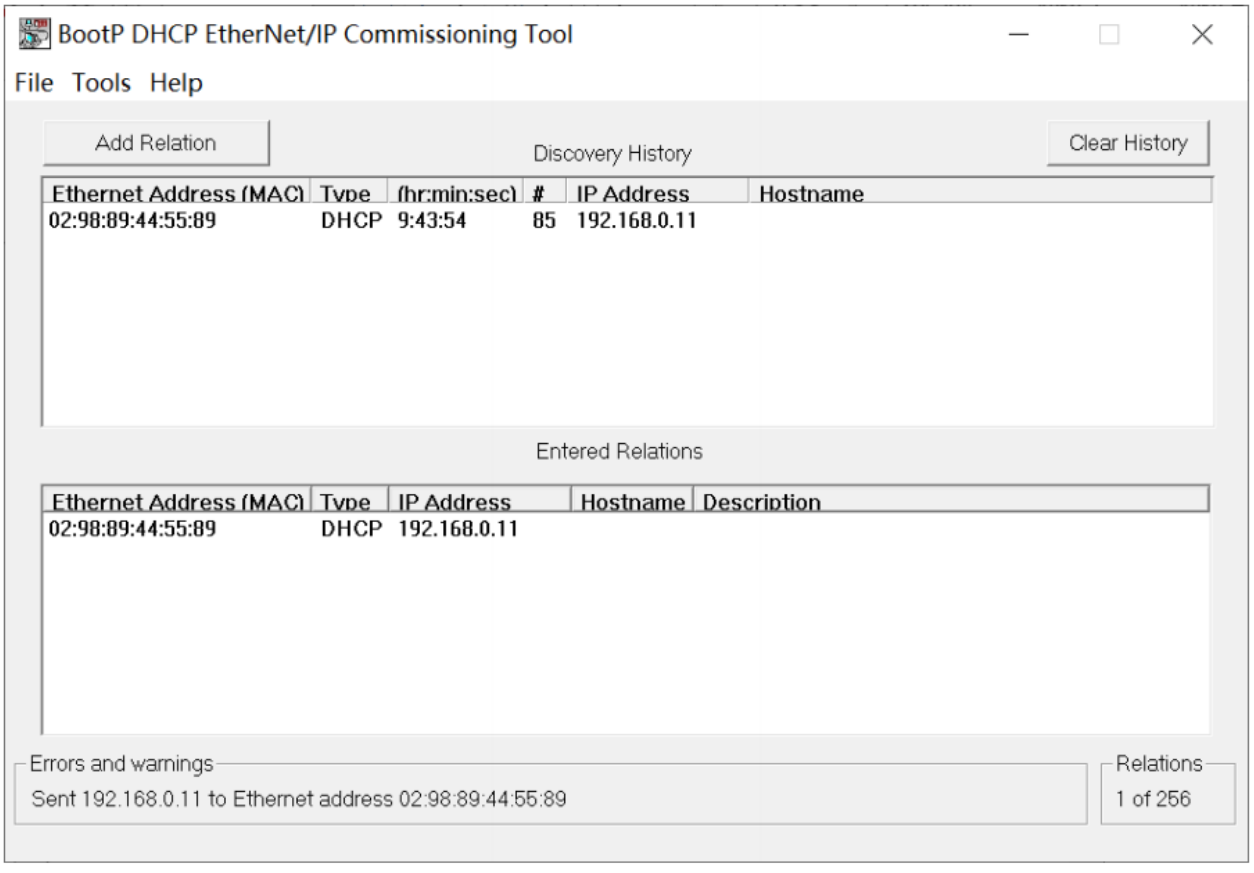
1. **Set the IP address of the Sentinel Ethernet/IP protocol IO-LINK master module using third-party software.** In this example, AB's "Bootp-DHCP Tool" software is used. Before setting up, set the module's IP address dial to "0xFF" (DHCP mode). Power on, and the module will await IP assignment. Open the software, select the appropriate network card, and click "OK".



2. **Double-click the detected module, enter the IP address to set (the IP address must be in the same subnet as the local IP), and click "OK". Once setup is complete, set the module's IP address dial to "0x00" to use the DHCP-assigned IP address.**

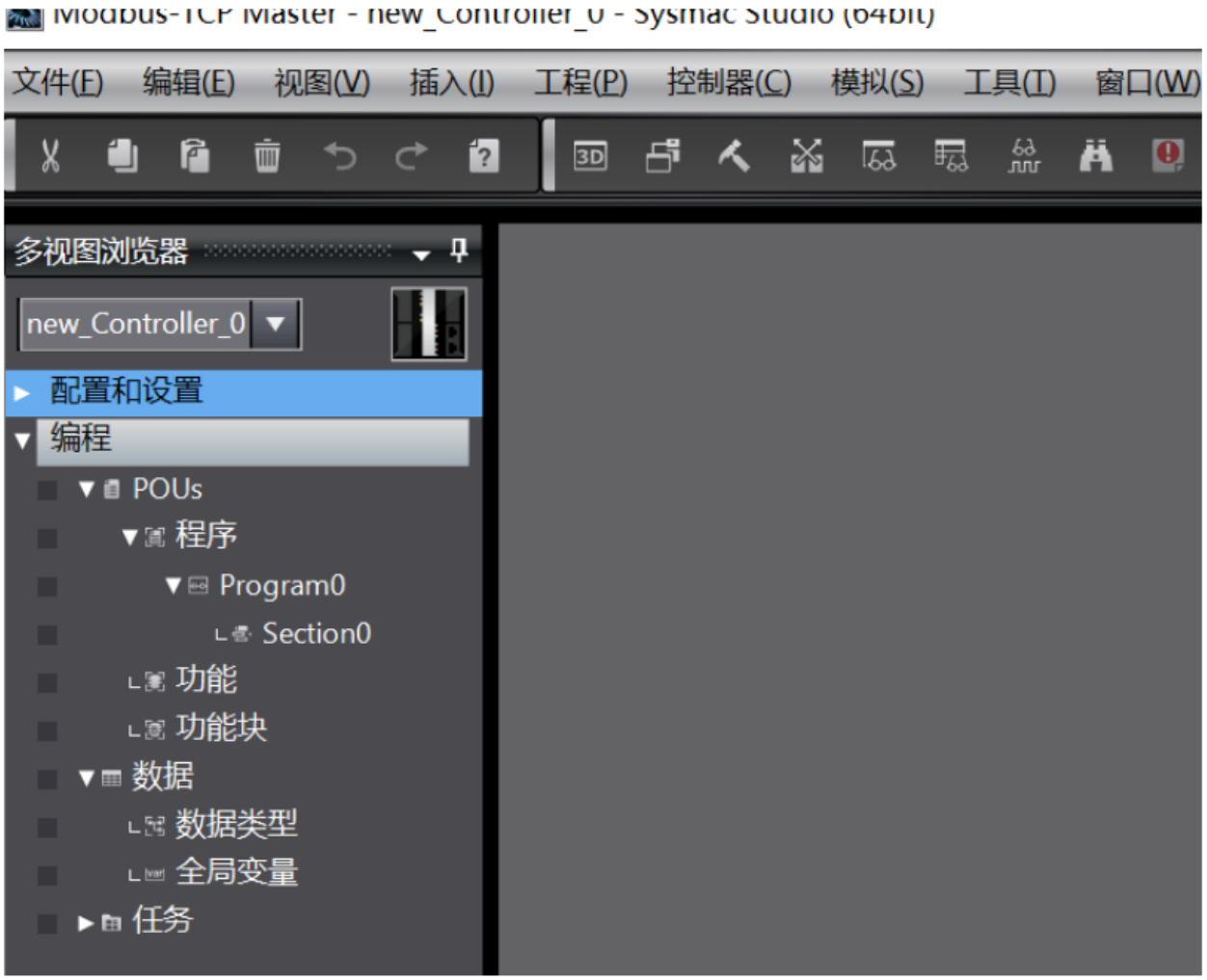

BootP DHCP EtherNet/IP Commissioning Tool
File Tools Help
Add Relation
Discovery History
Clear History
Ethernet Address (MAC) Type (hr:min:sec) # IP Address Hostname
02:98:89:44:55:89 DHCP 11:22:08 4
Entered Relations
Ethernet Address (MAC) Type IP Address Hostname Description
Errors and warnings
Unable to service DHCP request from 02:98:89:44:55:89.
Relations
0 of 256
Add Relation
Discovery History
Ethernet Address (MAC) Type (hr:min:sec) # IP Address Hostname
02:98:89:44:55:89
New Entry
Server IP Address: 192.168.0.15
Client Address (MAC): 02:98:89:44:55:89
Client IP Address: 0 . 0 . 0 . 0
Hostname:
Description:
OK
Cancel
Ethernet Address (MAC



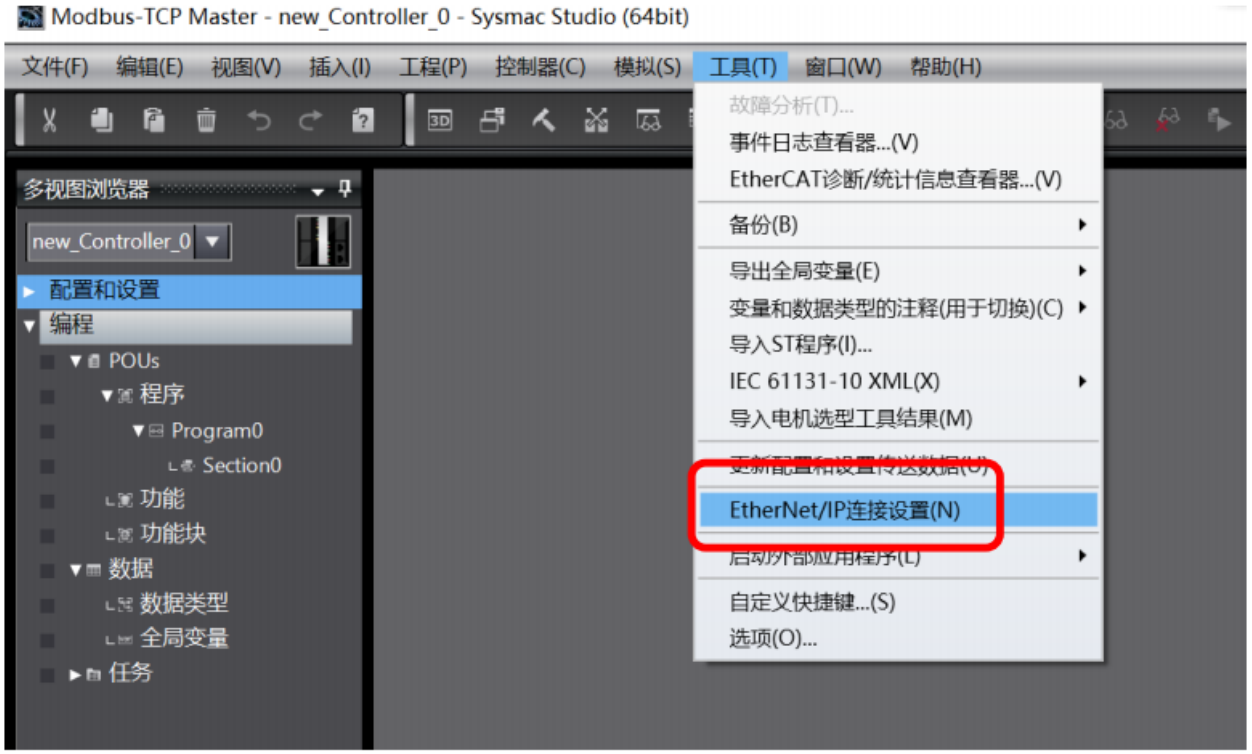


3. **Open Sysmac Studio software, create a new project, and select the controller (NJ501-1300 in this example). Enter a custom "Name" and**

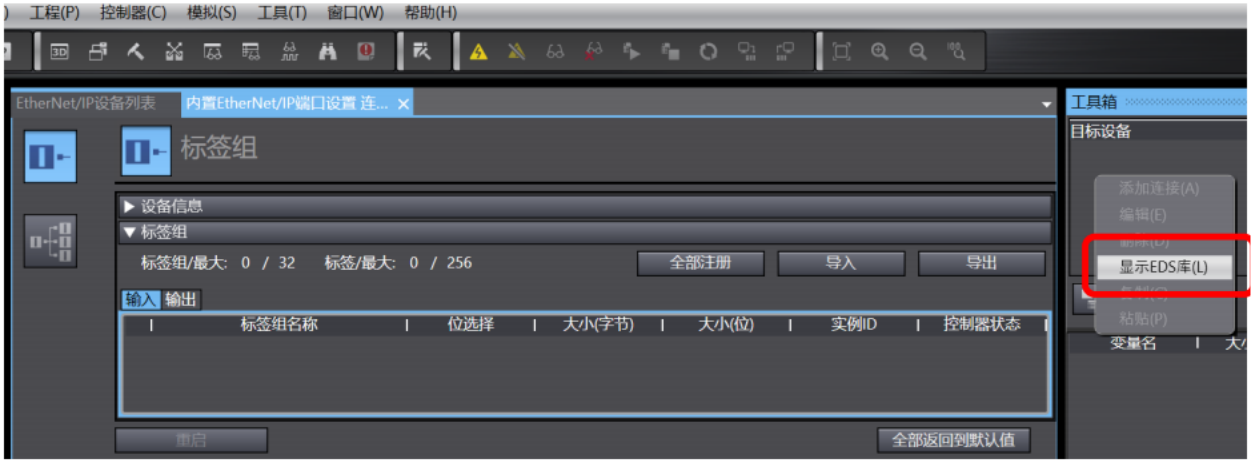
click "Create".



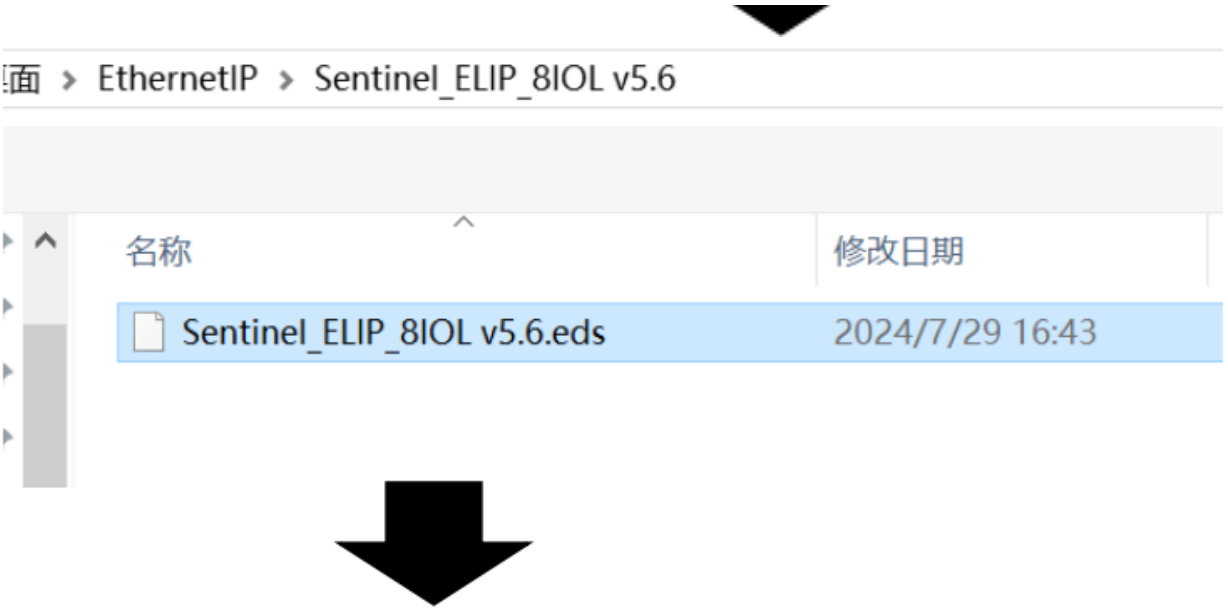
4. **To install the EDS file, click "Tools" -> "ETHERNET/IP Connection Settings", and double-click the PLC in the window. In the pop-up dialog, right-click on the blank area in the "Toolbox" on the right, select "Show EDS Library", and click "Install". In the dialog that opens, locate the EDS file path, and click "Open".**

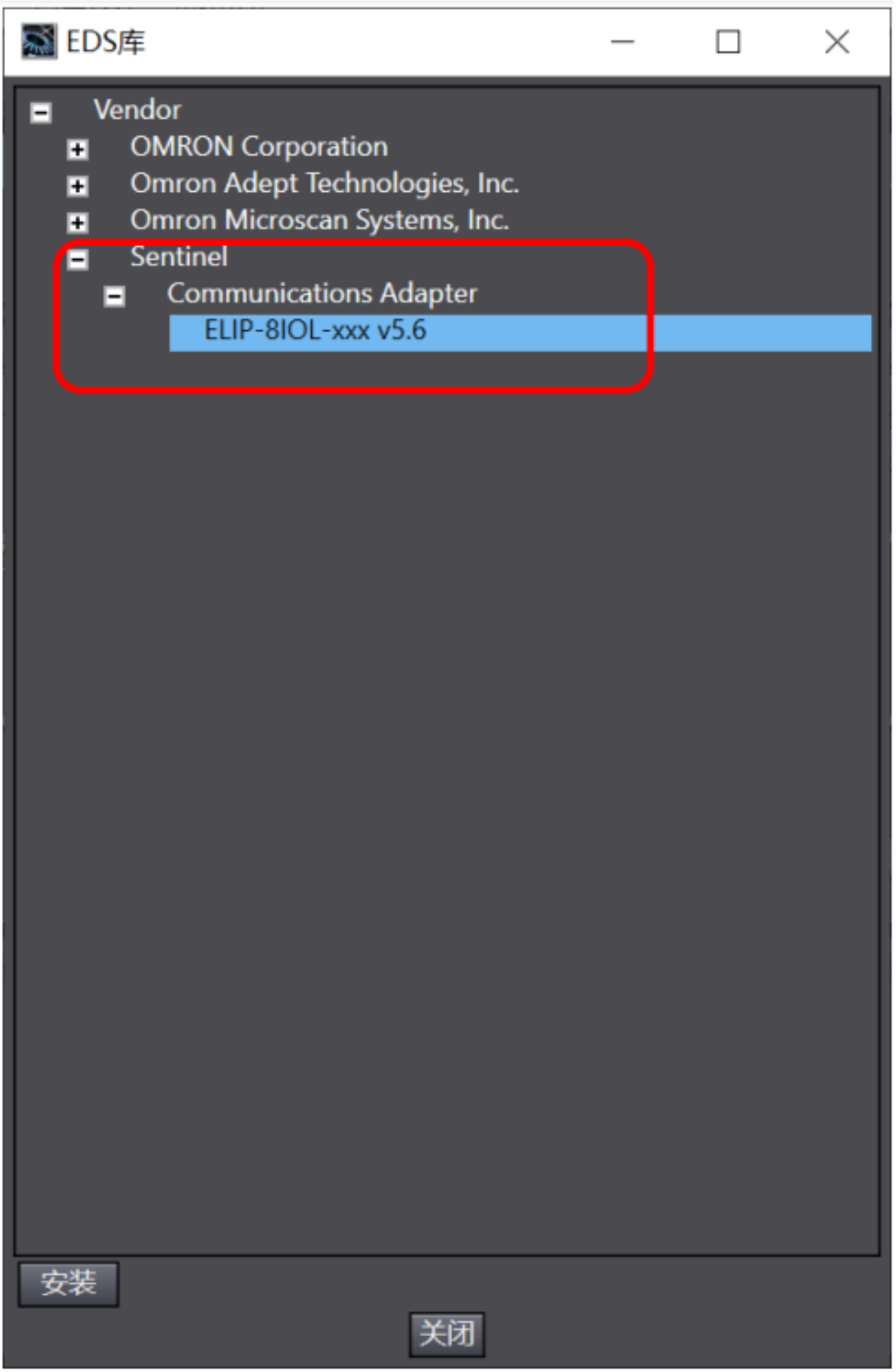

Modbus-TCP Master - new_Controller_0 - Sysmac Studio (64bit)
文件(F) 编辑(E) 视图(V) 插入(I) 工程(P) 控制器(C) 模拟(S) 工具(T) 窗口(W) 帮助(H)
多视图浏览器
new_Controller_0
配置和设置
编程
POUs
程序
Program0
Section0
功能
功能块
数据
数据类型
全局变量
任务
故障分析(T)...
事件日志查看器...(V)
EtherCAT诊断/统计信息查看器...(V)
备份(B)
导出全局变量(E)
变量和数据类型的注释(用于切换)(C)
导入ST程序(I)...
IEC 61131-10 XML(X)
导入电机选型工具结果(M)
EtherNet/IP连接设置(N)
自定义快捷键...(S)
选项(O)...


EtherNet/IP设备列表
节点地址
设备
描述
192.168.250.1
内置EtherNet/IP端口设置
NJ501-1300


工程(P) 控制器(C) 模拟(S) 工具(T) 窗口(W) 帮助(H)
EtherNet/IP设备列表
内置EtherNet/IP端口设置 连...
标签组
设备信息
标签组
标签组/最大: 0 / 32
标签/最大: 0 / 256
全部注册
导入
导出
输入 输出
标签组名称
位选择
大小(字节)
大小(位)
实例ID
控制器状态
重启
全部返回到默认值
工具箱
目标设备
添加连接(A)
编辑(E)
显示EDS库(L)
粘贴(P)
变量名

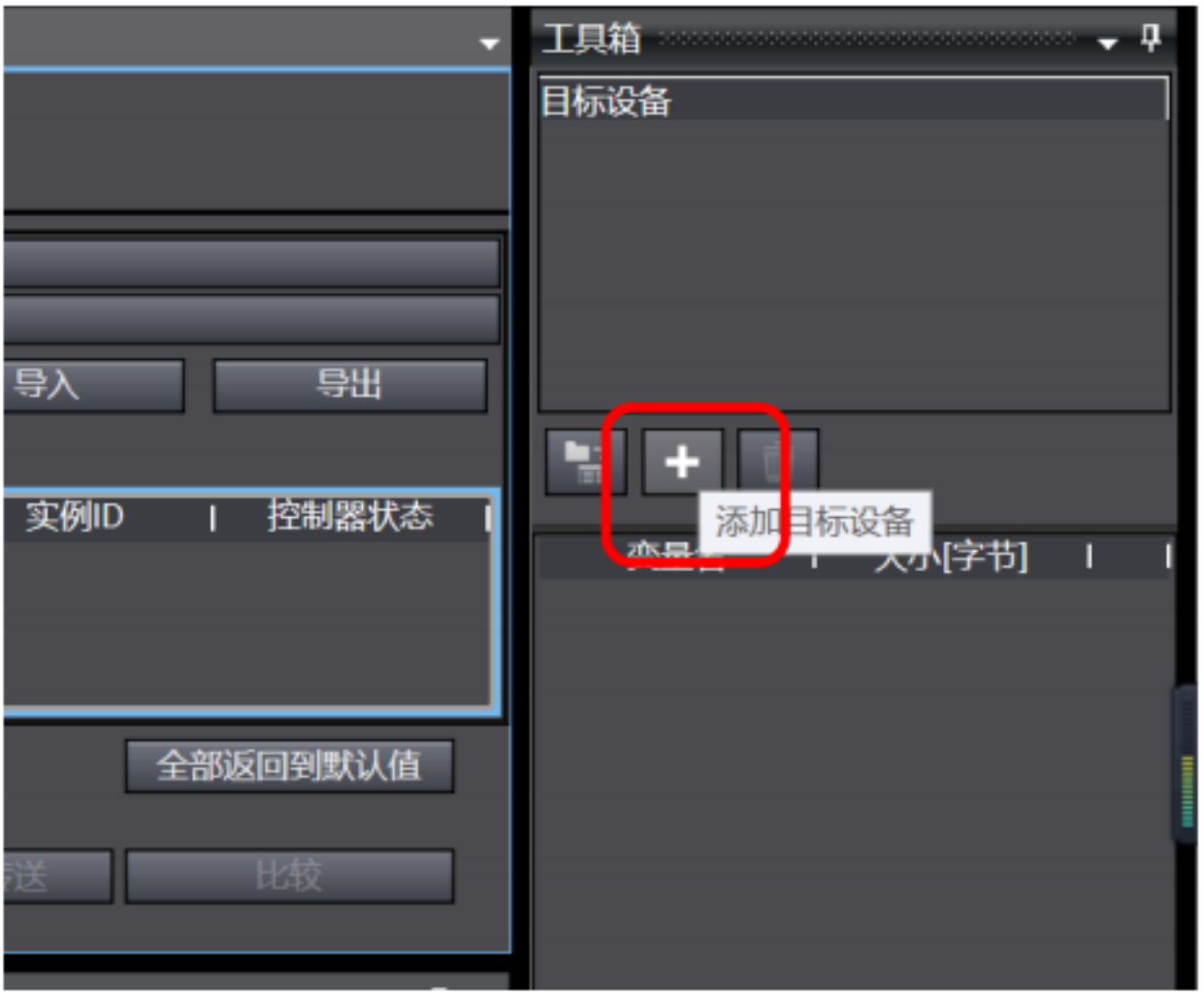

EDS库
Vendor
OMRON Corporation
Omron Adept Technologies, Inc.
Omron Microscan Systems, Inc.
安装
关闭

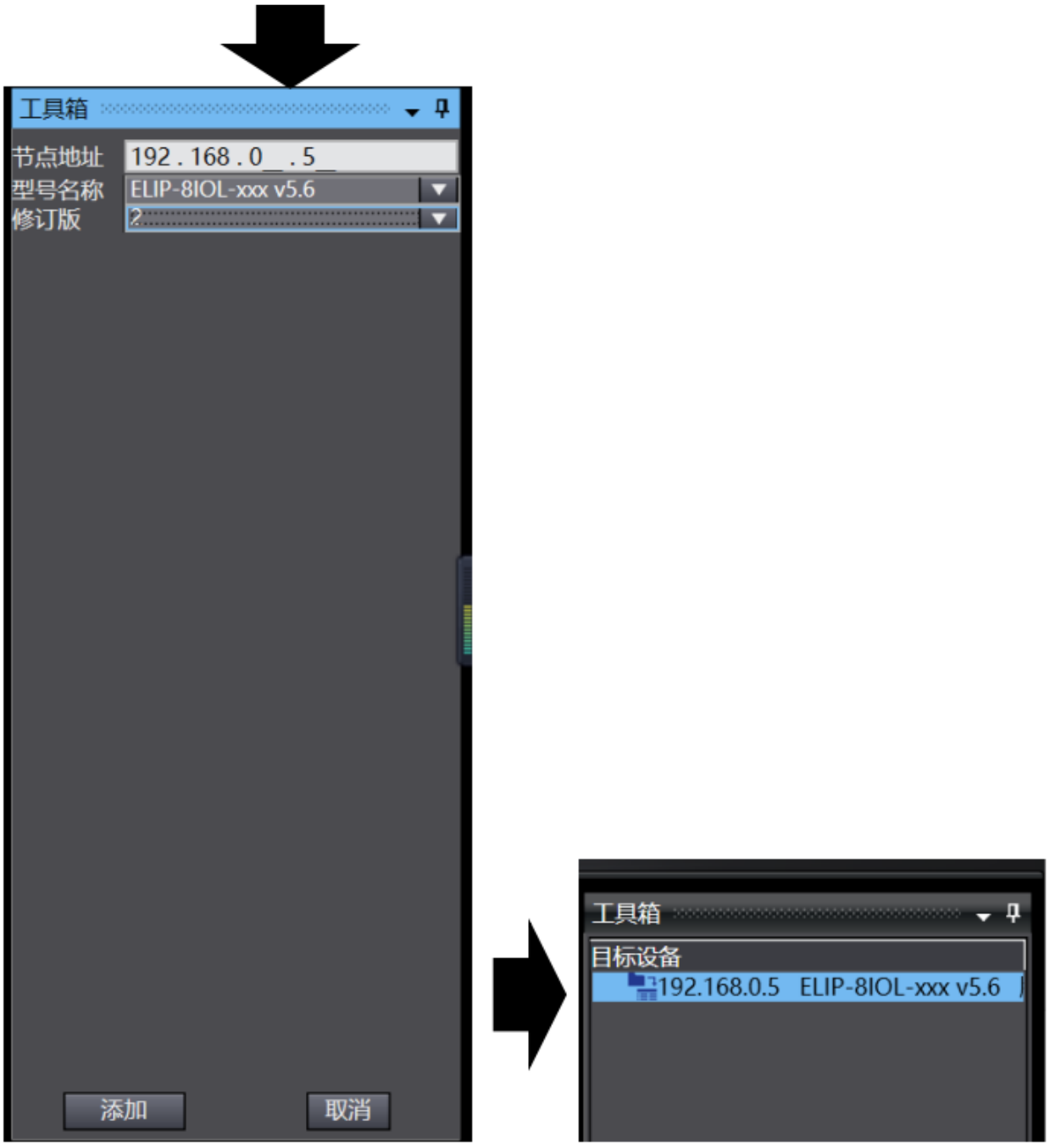

面 › EthernetIP › Sentinel_ELIP_8IOL v5.6
名称
修改日期
Sentinel_ELIP_8IOL v5.6.eds
2024/7/29 16:43



5. **In the toolbox window on the right, click "+" to add a target device. Enter the module's IP address in "Node Address", select the model name from the dropdown, choose the appropriate "Revision", and click**

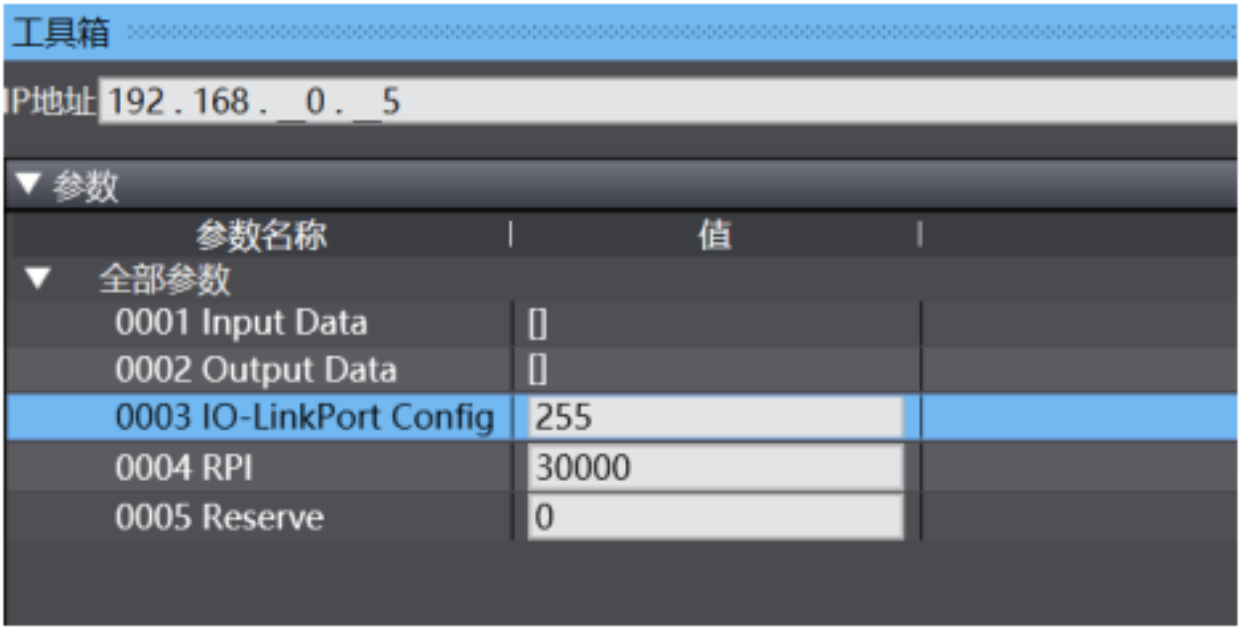
"Add" in the lower-left to complete module creation.



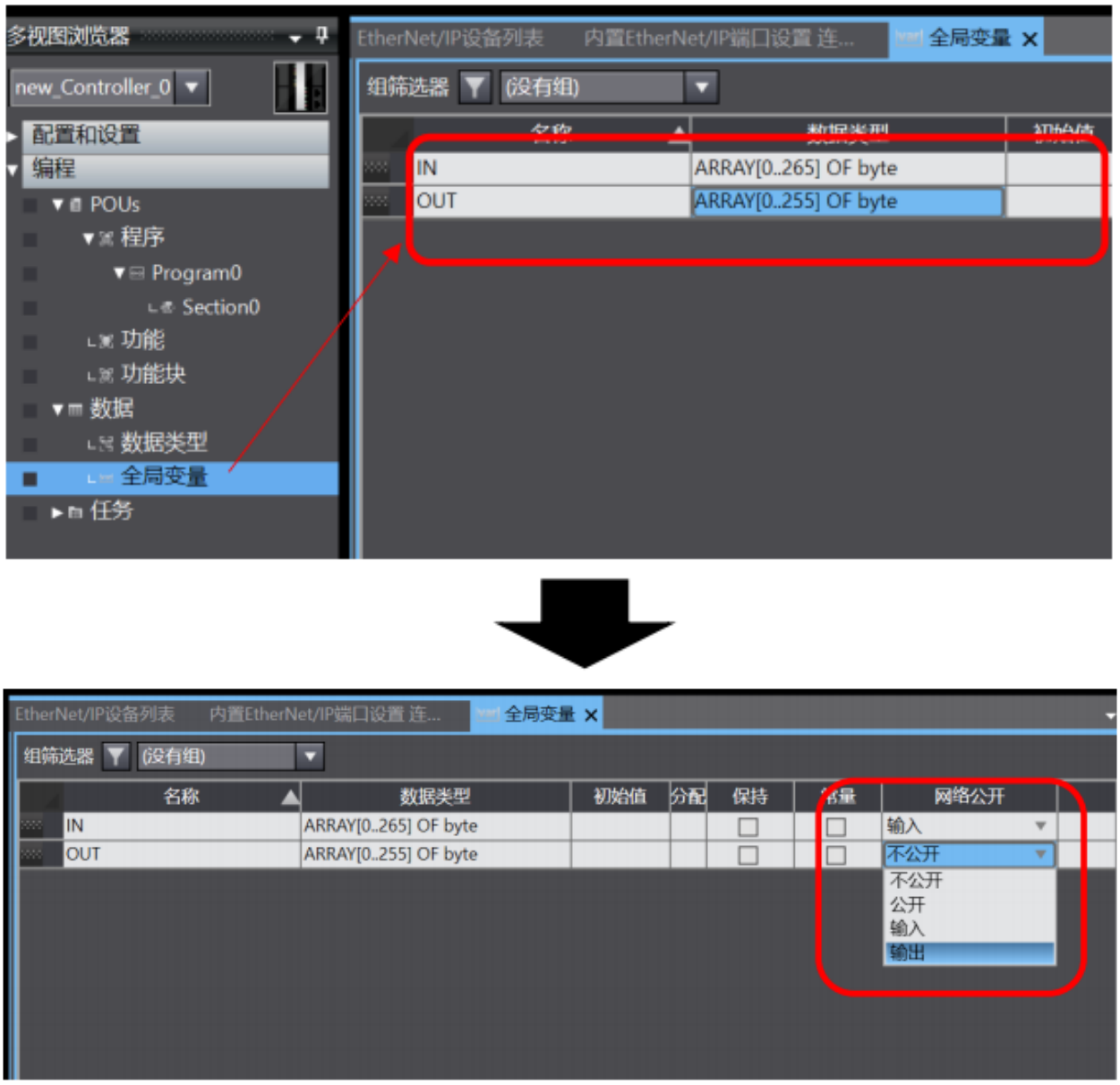


6. **Right-click the module and select "Edit" to configure the required parameters. "IO-LinkPort Config" is for IO-Link port configuration (refer to the module manual for specifics). In this example, 255 (binary: 11111111) enables IO-LINK functionality on all 8 ports.**

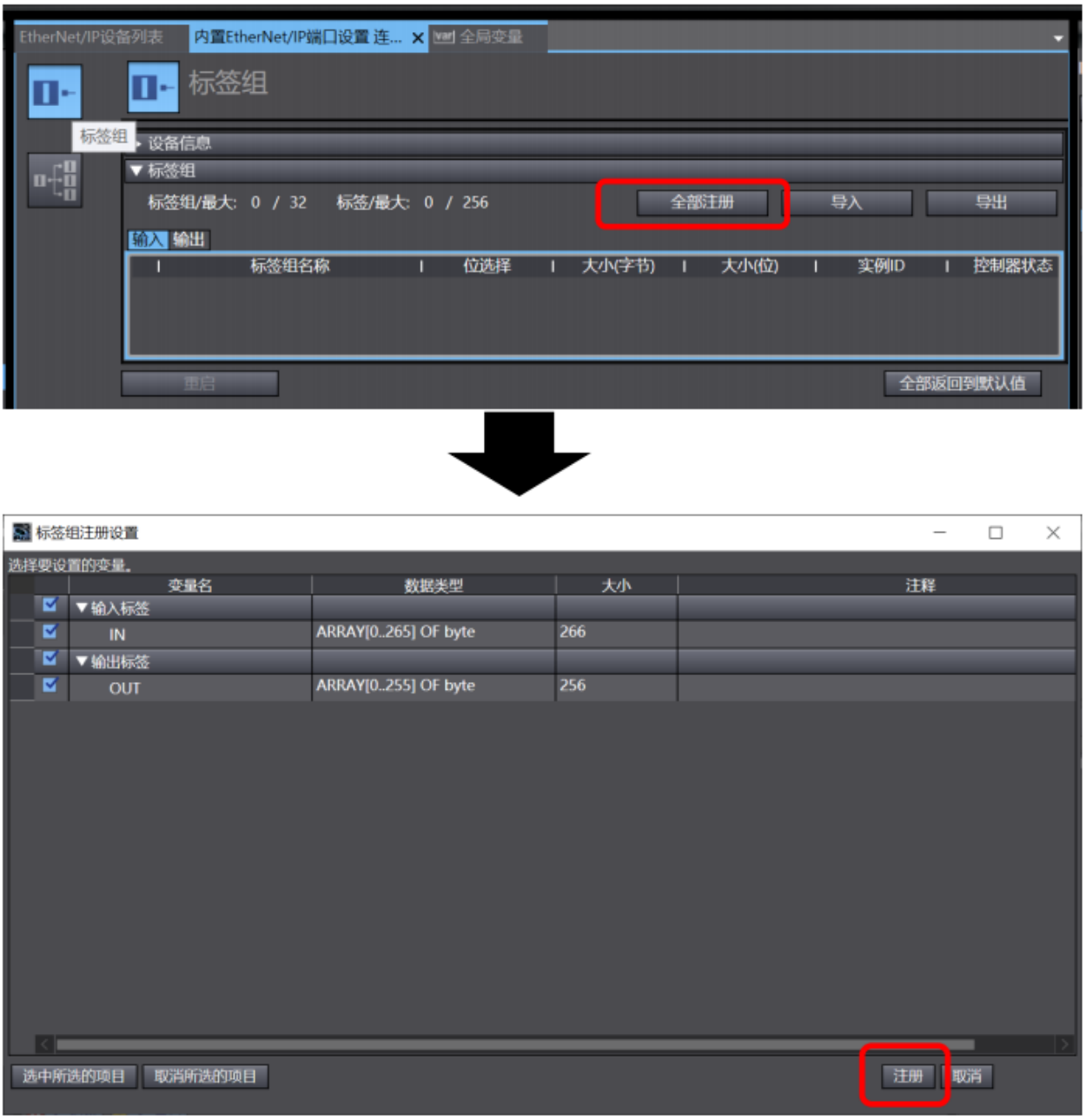

工具箱
目标设备
192.168.0.5 EIP-8IOL-xxx v5.6
添加连接(A)
编辑(E)
删除(D)
显示EDS库(L)
复制(C)
粘贴(P)


工具箱
IP地址 192 . 168 . 0 . 5
参数
参数名称
值
全部参数
0001 Input Data
0002 Output Data
0003 IO-LinkPort Config
255
0004 RPI
30000
0005 Reserve
0

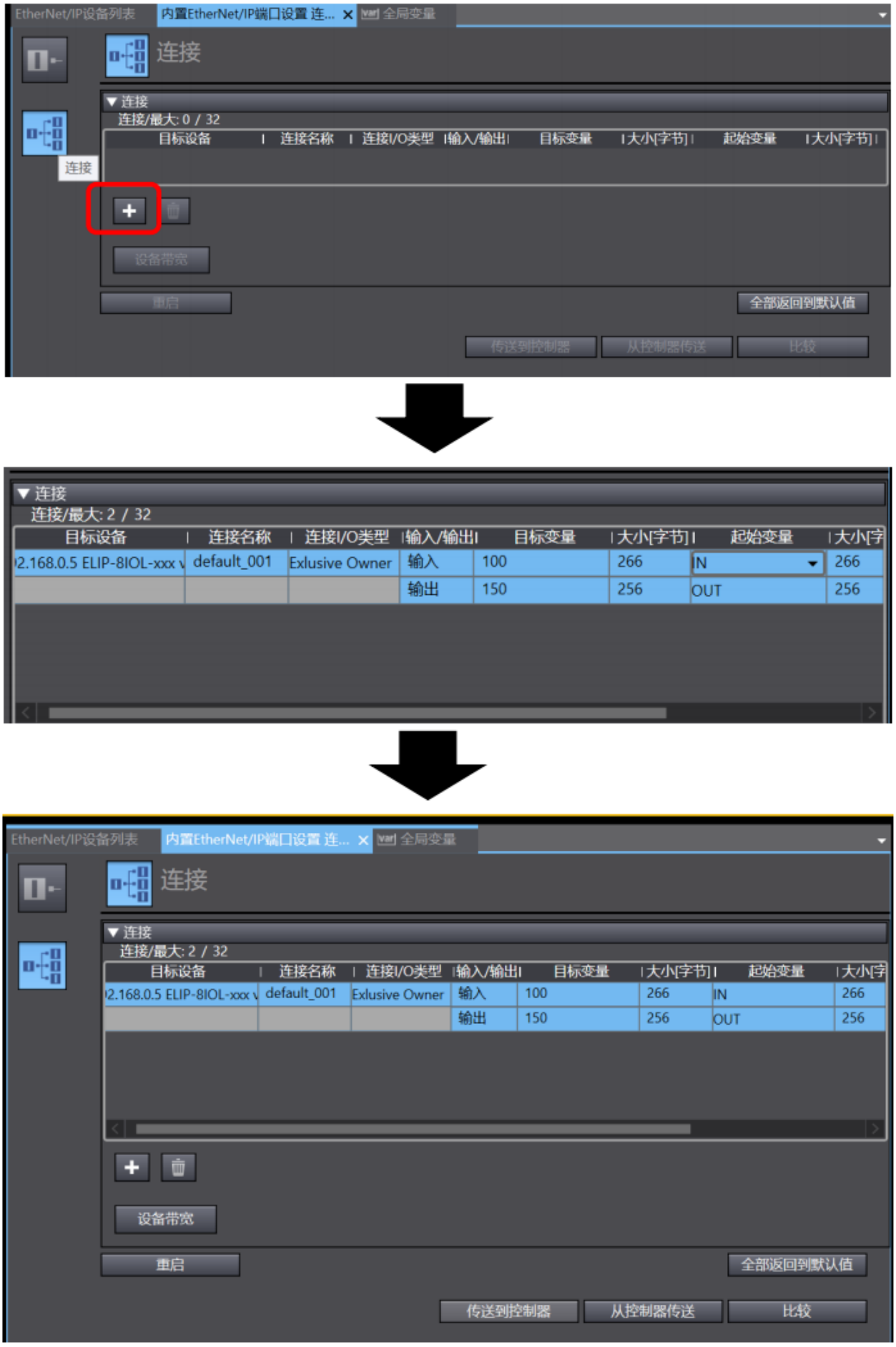
7. **According to the module manual, the module input occupies 266 bytes, and the output occupies 256 bytes. In "Global Variables" on the left, create two arrays: Input (IN) as Array[0...265] of Byte and Output (OUT) as Array[0...255] of Byte. The "Network Publish" option should be configured to the corresponding input and output.**



8. **Return to the "Built-in Ethernet/IP Port Settings" interface, select "Tag Groups", and click "Register All". Select all variables and click "Register".**

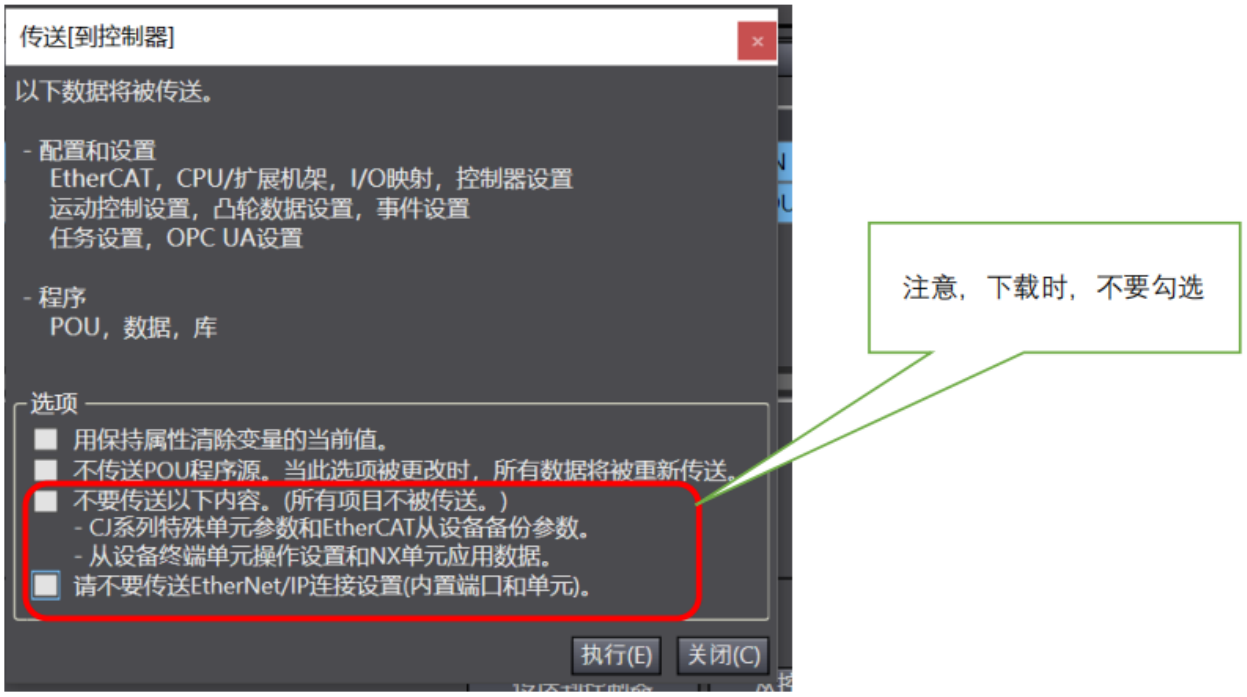


9. **In the "Built-in Ethernet/IP Port Settings" interface, select the second icon on the left—"Connection", and click "+". Choose the previously configured module as the "Target Device" and select "EXCLUSIVE Owner" as the "Connection I/O Type". Set the target variables, with input as 100 and output as 150 (refer to the manual), and set the starting variables to "IN" and "OUT".**



10. **Finally, go online, then select Controller -> Transfer -> Transfer to Controller, and download the program. Monitor the input/output**

process data; for specific byte mappings, refer to the appendix.



Appendix:

1. IO-LINK Configuration Data (4 Bytes)

Byte	Description
Byte0	8 bits represent the configuration of 8 ports IO-Link status: 0 off, 1 on Bit 7 6 5 4 3 2 1 0 Port C8 C7 C6 C5 C4 C3 C2 C1
Byte1	reserve
Byte2	reserve
Byte3	reserve

2. IO-LINK Process Data Input (266 Bytes)

<table>
<tr><th>Byte</th><th>Description</th></tr>
<tr><td>Byte0</td><td>8 bits represent the current IO-Link status of 8 ports: 1 is normal communication, 0 is no communication
<table>
<tr><td>Bit</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr>
<tr><td>Port</td><td>C8</td><td>C7</td><td>C6</td><td>C5</td><td>C4</td><td>C3</td><td>C2</td><td>C1</td></tr>
</table></td></tr>
<tr><td>Byte1</td><td>8 bits represent IO-Link disconnection records of 8 ports: 1 means disconnection, 0 means no disconnection
<table>
<tr><td>Bit</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr>
<tr><td>Port</td><td>C8</td><td>C7</td><td>C6</td><td>C5</td><td>C4</td><td>C3</td><td>C2</td><td>C1</td></tr>
</table></td></tr>
<tr><td>Byte2</td><td>C1 Port disconnection times</td></tr>
<tr><td>Byte3</td><td>C2 Port disconnection times</td></tr>
<tr><td>Byte4</td><td>C3 Port disconnection times</td></tr>
<tr><td>Byte5</td><td>C4 Port disconnection times</td></tr>
<tr><td>Byte6</td><td>C5 Port disconnection times</td></tr>
<tr><td>Byte7</td><td>C6 Port disconnection times</td></tr>
<tr><td>Byte8</td><td>C7 Port disconnection times</td></tr>
<tr><td>Byte9</td><td>C8 Port disconnection times</td></tr>
<tr><td>Byte10-Byte41</td><td>C1 Port process input data (32Byte)</td></tr>
<tr><td>Byte42-Byte73</td><td>C2 Port process input data (32Byte)</td></tr>
<tr><td>Byte74-Byte105</td><td>C3 Port process input data (32Byte)</td></tr>
<tr><td>Byte106-Byte137</td><td>C4 Port process input data (32Byte)</td></tr>
<tr><td>Byte138-Byte169</td><td>C5 Port process input data (32Byte)</td></tr>
<tr><td>Byte170-Byte201</td><td>C6 Port process input data (32Byte)</td></tr>
<tr><td>Byte202-Byte233</td><td>C7 Port process input data (32Byte)</td></tr>
<tr><td>Byte234-Byte265</td><td>C8 Port process input data (32Byte)</td></tr>
</table>

3. IO-LINK Process Data Output (256 Bytes)

Byte	Description
Byte0-Byte31	C1 Port process output data (32Byte)
Byte32-Byte63	C2 Port process output data (32Byte)
Byte64-Byte95	C3 Port process output data (32Byte)
Byte96-Byte127	C4 Port process output data (32Byte)
Byte128-Byte159	C5 Port process output data (32Byte)
Byte160-Byte191	C6 Port process output data (32Byte)
Byte192-Byte223	C7 Port process output data (32Byte)
Byte224-Byte255	C8 Port process output data (32Byte)