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".

Description	IP Address
Realtek PCIe GbE Family Controller	192.168.0.15
Bluetooth Device (Personal Area Network)	Unknown
AP-Windows Adapter V9	Unknown
ntel(R) Dual Band Wireless-AC 8265	192.168.1.253
1icrosoft Wi-Fi Direct Virtual Adapter #3	Unknown
1icrosoft Wi-Fi Direct Virtual Adapter #4	Unknown

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". After setup, set the module's IP address dial to "0x00" to use the DHCP-assigned IP address.

BootP DHCP EtherNet/IP	Commissioning Tool	- 🗆 X
Add Relation	Discovery History	Clear History
Ethernet Address (MAC) Ty 02:98:89:44:55:89 D	vpe (hr:min:sec) # IP Address Hostname	
02.30.03.44.33.03	101 11.22.00 4	
	Entered Relations	
Ethernet Address (MAC) Ty	vpe IP Address Hostname Description	
Errors and warnings		Relations
Unable to service DHCP request	from 02:98:89:44:55:89.	0 of 256
Add Relation	Discovery History	
Ethernet Address (MAC)) Type (hr:min:sec) # IP Address Host	name
02:98:89:44:55:89	New Entry	×
	Server IP Address: 192.168.0.15	
	Client Address (MAC):	
	Client IP Address: 0 . 0 . 0 .	0
Ethernet Address (MAC	Hostname:	
	Description:	
	OK Cancel	

New Entry \times
Server IP Address: 192.168.0.15
Client Address (MAC): 02:98:89:44:55:89
Client IP Address: 192 . 168 . 0 . 11
Hostname:
Description:
OK Cancel
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 9:43:54 85 192.168.0.11 IP Address
Entered Relations Ethernet Address (MAC) Type IP Address Hostname Description 02:98:89:44:55:89 DHCP 192.168.0.11
Errors and warnings Sent 192.168.0.11 to Ethernet address 02:98:89:44:55:89

3. Open Studio 5000 software, create a new project, and select the controller (1756-L81E in this example). Enter a custom "Name" and click "Next". Select the primary firmware version of the controller, the rack size, controller slot, and a security access option.

🥥 New Project					?	×
Project Types			Search			×
Solution Logix	 ▷ Comp □ Comp □ Control □ 17! □ 17!<	act GuardLogix® act GuardLogix® actLogix™ 5370 C actLogix™ 5380 C actLogix™ 5480 C olLogix® 5570 Co olLogix® 5580 Co 56-L81E ControlL 56-L82E ControlL 56-L83E ControlL 56-L84E ControlL EthernetIP F:\Studio5000-p	5370 Safety Co 5380 Safety Co ontroller ontroller ontroller ntroller ntroller .ogix® 5580 Co .ogix® 5580 Co .ogix® 5580 Co .ogix® 5580 Co	ntroller ntroller ontroller ontroller ontroller	Brows	▼ se
		Cancel	<u>B</u> ack	<u>N</u> ext	<u> </u>	sh
🧭 New Project					?	×
1756-L81E Contro EthernetIP	lLogix® 558	0 Controller				
Re <u>v</u> ision:	32 ¥					
<u>C</u> hassis:	1756-A7 7-	Slot ControlLogix	Chassis	Ŷ	4 9 9 9 9	
<u>S</u> lot:	0 ~					
Security <u>A</u> uthority:	No Protection			~		
	authorizatio	e selected Security on	y Authority for	authentication	and	
Secure With:	<u>L</u> ogical Nan Permission	ne <controller na<br="">Set</controller>	me>	~		
Description:	Leunssien					

4. Click "Finish."

	-													
💰 Logix Designer - E	thernetIP [1756-L81E	32.11]											
FILE EDIT VIEW	SEARCH	H LOGIC	COM	IMUNIC	ATIONS	TO	OLS WIN	DOW	HEL	Р				
ኄ 🖆 💾 🗦	¥ O ô	26	11006A	50_31_0)40 ~ S	• 🍫	P 📴	h. [6 6	*	(]2	1	(j	(
= RUN = OK	`∎′	Path: <no< td=""><td>ne></td><td></td><td></td><td></td><td></td><td></td><td></td><td>×.</td><td>**</td><td>B</td><td>•</td><td>⊢ ⊢ ≽ Favo</td></no<>	ne>							×.	**	B	•	⊢ ⊢ ≽ Favo
Energy Storage I/O	Offline	B	. No For	ces	ŀ₊	No Edi	its	Ð.						
Controller Organizer		• 1	ч х											
j 📲														
🔺 🛋 Controller Etherne	etIP													
Controller Tags														
Controller Fault	t Handler													
Power-Up Hand	dler													
🖌 🛋 Tasks														
🖌 🖓 MainTask														
HainProgram	n													
Unscheduled														
🖌 🛋 Motion Groups														
Ungrouped Axe	es													
🕨 💻 Alarm Manager														
Assets														
h Logical Model														
🔺 🛋 I/O Configuration	n													
🛽 🖛 1756 Backplane	e, 1756-A7													
@ [0] 1756-L81	E Ethernetl	Р		Errore										
🔺 💑 Ethernet				enors										
🖻 1756-L81E E	thernetIP			8	0 Errors	A	0 Warnings	0	0 Mes	sages				

5. Install the Sentinel IO-Link master module's EDS file by selecting "TOOLS" -> "EDS Hardware Installation Tool".

💰 Logix Designer - E	thernetIP [1756-L81E 3	2.11]				
FILE EDIT VIEW	/ SEARCH	I LOGIC	COMMUNICA	TIONS	то	OLS WINDOW HELP	
🏠 😩 💾 🔒 🛛	¥ 0 ô	261	006A_50_31_04	0 🗸 🍫		Options	ľ
■ RUN ■ OK	`∎′	Path: <none< td=""><td>2></td><td></td><td>6</td><td>Security Documentation Languages</td><td></td></none<>	2>		6	Security Documentation Languages	
 Energy Storage I/O 	Offline	.	No Forces	▶ ₊ N		Import	
Logical Organizer		▼ ₽	×			Export •	
	UD		_		9	EDS Hardware Installation Tool	
 Logical Model Et MainProgram 	nernetIP					Motion 🕨	
▲ ⊆ Logic and Ta	igs					Monitor Equipment Phases	
✓ Parameter Im Main Pout	rs and Local	Tags				Plug-In Manager	
	ine					Custom Tools	
					12	ControlFLASH	
						ControlFLASH Plus	
					1	Compare Tool	

6. Click "Next" through the following dialogs.



Rockwell Automation's EDS Wizard		×
Options What task do you want to complete?		V
 Register an EDS file(s). This option will add a device(s) to our database. 		
Unregister a device. This option will remove a device that has been registered by an EDS file from our database.		
C Create an EDS file. This option creates a new EDS file that allows our software to recognize your device.		
C Upload EDS file(s) from the device. This option uploads and registers the EDS file(s) stored in the device.		
	< 上一步(B) 下一页(N) >	取消

7. Click "Browse..." and locate the module's EDS file directory in the dialog, select it, and click "Open".

Rockwell Automation's EDS Wizard		×
Registration Electronic Data Sheet file(s) will be a	added to your system for use in Rockwell Auton	nation applications.
 Register a single file Register a directory of EDS files Named: * If there is an icon file (.ico) wiregistering then this image will 	Look in subfolders Browse ith the same name as the file(s) you are be associated with the device. To perform an insta	Ilation test on the file(s), click Next
		< 上一步(B) 下一页(N) > 取消
Select an EDS file		×
← → ∨ ↑ <mark> </mark>	> Sentinel ELIP 8IOL y 진	在 Sentinel ELIP 8IOL v5.6 9
组织 ▼ 新建文件本		8 • 🔟 🙆
	▲ <u>久</u> 衆 ▲	修改日期
此电脑	Sentinel ELIP 8IOL v5	5.6.eds 2024/7/29 16:43
 ■ 视频 ■ 副片 ① 文档 ◆ 下载 ♪ 音乐 ■ 桌面 * Windows (C:) ■ Recovery Image (D:) ■ 软件 (E:) ■ 新加港 (F:) 		
→ <i>→</i> <i>→</i> <i>+</i> <i>2</i> (N):	Centinel ELID BIOL us 5 ada	EDS Files (* eds)
又1+云(N):	Sentinei_ELIP_BIOL VS.0.eds	
		3.1.7(0) ▼ 取消

8. Continue clicking "Next" until "Finish" appears, then click "Finish".

Rockwell Automation's EDS Wizard	×
Registration Electronic Data Sheet file(s) will be added to your system for use in Rockwell Automation applications.	
Register a single file	
C Register a directory of EDS files 🔲 Look in subfolders	
Named:	
C:\Users\lzh_n\Desktop\EthernetIP\Sentinel_ELIP_8IOL v5.6\Sentinel_E Browse	
* If there is an icon file (.ico) with the same name as the file(s) you are registering then this image will be associated with the device.	
To perform an installation test on the file(s), click Next	
< 上一步(B) 下一页(N) > 取満	

Rockwell Automation's EDS Wizard	×
EDS File Installation Test Results This test evaluates each EDS file for errors in the EDS file. This test does not guarantee EDS file validity.	
E-@ Installation Test Results	
c:\users\lzh_n\desktop\ethernetip\sentinel_elip_8iol v5.6\sentinel_elip_8iol v5.6.eds	
View file	
< 上一步(B) 下一页(N) >	取消

Rockwell Automation	's EDS Wizard	d	×
Change Graphic I You can chang	mage e the graphic image that is associated with a device.		
	Product		
Change icon	Communications Adapter		
		< 上一步(B) 下一页(N) > 取満	

Rockwell Automation's EDS Wizard		×
Final Task Summary This is a review of the task you want to complete.		
Vou would like to register the following device. ELIP-8IOL-xxx v5.6		
	< 上一步(B) 下一页(N) >	取消

Rockwell Automation's EDS Wiz	ard ×	(
	You have successfully completed the EDS Wizard.	
	完成	

9. Alternatively, you can install the EDS file using the "EDS Hardware Installation Tool" included with the programming software (process

omitted).



10. Right-click "Ethernet" on the left, click "New Module", and in the dialog that appears, find the Sentinel IO-LINK master module "ELIP-8IOL-XXXX" and click "Create".

Logical Mod ▲ ⊆ I/O Configur ▲	el atior plan 5-L81	e, 1756-A7 E EthernetIP		Errors		
▲ Lthernet	•	New Modul	e	8	0 Errors	<u> </u>
L [™] 17 30-Lo		Import Mod Discover Mo	ule odules			
	Ô	Paste	Ctrl+V			
		Properties	Alt+Enter			
E Controller Or		Print	•			
Select Module Type						
Catalog Module Discovery	Favorit	es			III J. D	14
Module Type Categor Analog Communication Communications Communications Adapt	y Filte	<u>clear rifters</u>	 Module Type Ven Rockwell Automat Sentinel SMC Corporation TURCK 	dor Filters ion/Spreche	n <u>i</u> ae r.	<pre>intersx</pre>
 ✓ Catalog N Descr ELIP-810L-xxxx ELIP-5 	iption SIOL-xxx	Ver v5.6 Ser	ndor Category ntinel Communications			
1 of 643 Module Types Fo	ound				A <u>d</u> d to Fa	vorites
✓ Close on Create					Create Clos	se Help

New Module			×
General	General		
General Connection Module Info Internet Protocol	General Type: Vendor: Parent: Name: Description: Description:	ELIP-8IOL-xxx x5.6 Sentinel Local Unice Structure Address Private Netwo 102 168 1 • • • • • • • • • • • • • • • • • •	×
		Change	
Status: Creating		OK Cancel H	Holp

11. In the dialog, enter the Name (e.g., ELIP) and IP address (e.g., 192.168.0.11).

General* General Connection Type: ELIP-8IOL-xxxx v5.6 Module Info Type: Sentinel Parent: Lood Name: ELIP Description: Image: Private Networ 102 168 1 Image: Private Networ 102 168 1	New Module		\times
Connection Type: ELIP-8IOL-xxxx ELIP-8IOL-xxx v5.6 Module Info Vendor: Sentinel Parent: Local Name: ELIP Description: Internet Protocol	General*	General	
Module Definition Revision: 2.003 Electronic Keying: Compatible Module Connections Exlusive Owner Change	General Connection Module Info Internet Protocol	Type: ELIP-8IOL-xxxx ELIP-8IOL-xxx v5.6 Vendor: Sentinel Parent: txxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	
Status: Creating	Status: Creating	OK Cancel	Heln

12. Click "Change" in the dialog. Under "Revision", ensure the module hardware version matches the version in the RSLinx Online Module Properties (see image below). The "Electronic Keying" section provides options for configuration (refer to the image). Additionally, in the "Connections" section, the EDS file has automatically assigned 266 bytes for input and 256 bytes for output.

Local ELIP	Module Definition Revision: 2 003 Electronic Keying: Compatible Module Connections: Name Size Name Size Exlusive Owner Output 266	rnet A rivate P Addi lost N
Definition on: inic Keying: ctions	OK Cancel Help Exlusive Owner	
SLinx Classic Gat	Change eway - RSWho - 1	
Edit View Co	AB_ETHIP-1\192.168.0.11 ? AB_ETHIP-1, Ethernet ? AB_ETHIP-1, Ethernet ? IP2.168.0.110, 1756-L81E LO ? IP2.168.0.15, FactoryTalk Lin ?	×

_			
E -		١.,	
га	u	IL R	۶.

<

Close

Help

Key Points on "Electronic Keying":

用户配置模块时,指定模块槽号。但是,也可能会在该槽中置入不同 模块,不管是故意还是意外。

用户使用电子钥匙可以保护自己的系统,防止在槽中意外置入错误的 模块。用户选择的钥匙选项决定了槽中的模块必须匹配该槽配置的程 度。

如果:	则选择:	
必须匹配所有信息: • 类型 • 产品编号 • 供应商 • 主要或次要修订号	完全匹配	
匹配除了次要修订号的其它所有信息	兼容模块	
没有匹配的信息	禁用钥匙	C AB 工控室

13. Click "OK". An entry labeled "ELIP-8IOL-XXX ELIP" will now appear in the left menu.

Seneral*	General					
Connection Nodule Info Internet Protocol	Type: Vendor: Parent:	ELIP-8IOL-xxxx ELIP-8IOL-xxx v5.6 Sentinel Local				
	Name:	ELIP		Ethernet Address	102 168 1	
	Description:		^	IP Address: O Host Name:	192.168.0.11	
			~			
	Module Defi Revision: Electronic K Connection	nition 2.003 leying: Compatible Module s Exlusive Owner				
		Change				

h Logical Model

- I/O Configuration
 - IT256 Backplane, 1756-A7
 - [0] 1756-L81E EthernetIP
 - 🔺 💑 Ethernet

1756-L81E EthernetIP

ELIP-8IOL-xxxx ELIP

14. "Double-click 'Controller Tags.' In the dialog box on the right, there are three tags for the module, ELIP: C configuration data, ELIP: I input

data, and ELIP: O output data."

Controller Tags - EthernetIP(controller) ×			
Scope: DEthernetIP Show: All Tags			 Enter Name Filter
Name	≕ Alias For	Base Tag	Data Type
 ELIP:C 			_090D:ELIP_8IOL_xxxx_5220586D:C:0
 ELIP:C.Data 			SINT[4]
ELIP:C.Data[0]			SINT
ELIP:C.Data[1]			SINT
ELIP:C.Data[2]			SINT
▶ ELIP:C.Data[3]			SINT
✓ ELIP:I			_090D:ELIP_8IOL_xxxx_C120282D:I:0
ELIP:I.ConnectionFaulted			BOOL
ELIP:I.Data			SINT[266]
• ELIP:O			_090D:ELIP_8IOL_xxxx_793A82CE:O:0
▶ ELIP:O.Data			SINT[256]
0			

15. Click "Monitor Tags" at the bottom to view the configuration data, which occupies 4 bytes. Refer to the Sentinel IO-LINK master manual. The first byte, ELIP.C.Data[0], configures the 8 ports: 0 disables the IO-LINK function, and 1 enables it. The remaining three bytes are reserved. By default, all 8 port values are set to 1, meaning IO-LINK is enabled. Users can change these values to adjust IO-LINK functionality (set the PLC mode to "GO offline" before making changes, as any changes made in "Online" mode will revert when switching to "offline").

Note: To control the port IO-LINK functionality via configuration data, set the module's "Port Configuration Dial" to 0x00. If the "Port Configuration Dial" is set to a non-zero value, the module will follow the dial to enable the

corresponding IO-LINK ports.

ope: DEthernetIP > Sh	ow: All Tags	✓ <u>T</u> ,
Name	≕ ^ Value	* Force Mas
ELIP:C		{}
 ELIP:C.Data 		{}
 ELIP:C.Data[0] 		-1
ELIP:C.Data[0].0		1
ELIP:C.Data[0].1	岩口 1 配置	1
ELIP:C.Data[0].2 靖	<u> 第四2配置</u>	1
ELIP:C.Data[0].3		1
ELIP:C.Data[0].4		1
ELIP:C.Data[0].5	岩口 6 配置	1
ELIP:C.Data[0].6	岩口 7 配置	1
ELIP:C.Data[0].7	岩口 8 配置	1
ELIP:C.Data[1]		0
ELIP:C.Data[2]		0
ELIP:C.Data[3]		0

16. ELIP: I input data is allocated 266 bytes, where "ELIP.ConnectionFaulted" diagnoses Ethernet/IP communication, providing feedback as a switch status. ELIP: O output data is allocated 256 bytes. Specific input/output byte mappings are shown as follows: IO-LINK process data input (occupies 266 bytes)

Byte	Description										
	8 bits represent the	current I	D-Link	status o	f 8 ports	5: 1 is n	ormal o	commu	nicatio	n, 0 is n	o communication
Byte0		Bit	7	6	5	4	3	2	1	0	
		Port	C8	C7	C6	C5	C4	C3	C2	C1	
	8 bits represent IO-Lin	k disconn	ection	record	s of 8 pc	orts: 1 n	neanso	lisconn	ection,	0 mear	ns no disconnection
Byte1		Bit	7	6	5	4	3	2	1	0	
		Port	C8	C7	C6	C5	C4	C3	C2	C1	
Byte2				C1 Po	rt disco	nnectio	n time	s			
Byte3				C2 Po	rt disco	nnectio	n time	s			
Byte4		C3 Port disconnection times									
Byte5	C4 Port disconnection times										
Byte6	C5 Port disconnection times										
Byte7	C6 Port disconnection times										
Byte8	C7 Port disconnection times										
Byte9	C8 Port disconnection times										
Byte10-Byte41		C1 Port process input data (32Byte)									
Byte42-Byte73	C2 Port process input data (32Byte)										
Byte74-Byte105	C3 Port process input data (32Byte)										
Byte106-Byte137	C4 Port process input data (32Byte)										
Byte138-Byte169		C5 Port process input data (32Byte)									
Byte170-Byte201			С	6 Port p	rocess i	nput da	ata (32E	Byte)			
Byte202-Byte233			C	7 Port p	rocess i	nput da	ata (32E	Byte)			
Byte234-Byte265		C8 Port process input data (32Byte)									

IO-LINK process data output (occupies 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)

17. To connect to the controller, click "COMMUNICATIONS" -> "Who Active".



18. After selecting the communication path, click "Go Online" in the Who Active dialog.

Who Active (RSLinx Classic)	$ \Box$ \times		
Autobrowse Refresh			
Workstation, DESKTOP-8DV4TEV	Go Online		
🖃 🚼 Linx Gateways, Ethernet	Upload		
AB_ETHIP-1, Ethernet 192.168.0.11 [0.0.0.0], ELIP-8IOL-xxx v5.6, ELIP-8IOL-	Download		
🖽 🖷 📔 192.168.0.110, 1756-L81E LOGIX5581E, 1756-L81E/E	Update Firmware		
192.168.0.15, FactoryTalk Linx - Desktop, DESKTOP-8	Close		
	Help		
<			
Path: AB_ETHIP-1\192.168.0.110	Set Project Path		
Path in Project: <none></none>	Clear Project Path		

19. Switch to "offline", then click "COMMUNICATIONS" -> "Download" to download the program.

STE SETTEJ						
GIC	COMMUNICATIONS TOOLS WINDO			WINDOV	v н	
3	윪	Who Active			6	
	i.	Select Recent Pat	า			
AB_E		Select Communication Software				
Ē.		Go Online		L	,	
, 4		Upload		t	roller)	
		Download			All Taç	
		Program Mode				
		Run Mode				
		Test Mode				