

EIP-2000 FAQ

FAQ Version 1.5

ICP DAS Co., Ltd. 2022-12-01

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Q1 : How to connect to the Allen-Bradley PLC ?

A1 : It is tested and confirmed that the EIP-2000 can be connected to the Allen-Bradley[™] ControlLogix Logix 5563 through the 1756-ENBT ControlLogix EtherNet/IP Module successfully. The configuration software is RSLogix 5000. Please follow the steps below:

1. Open RSLogix 5000 and create a new project.



Figure1-1. Create a new project.

2. Select the PLC type and give the project a name.

New Controlle	E		
Vendor:	Allen-Bradley		
<u>I</u> ype:	1769-L32E CompactLogix5332E Controller	-	ОК
Re <u>v</u> ision:	17 💌		Cancel by
	F Bedundancy Enabled		Help
Na <u>m</u> e:	EIP-2000		
Description:		~	
		8	
Chassis Type	(none)	÷	
Sigt	0 🕂 Safety Partner Slot		
Cr <u>e</u> ate In:	C:\RSLogix 5000\Projects\EIP-2000	1	Browse

Figure1-2. Set the PLC type and project name.

3. Create a new module in the "Ethernet" item.

File Edit View	Search Logic	Communications	Tools	<u>W</u> indow	Help
Dffline No Forces No Edits			¢-'		
 → Motion → Motion → Add-O → Data Iy → Was <li< td=""><th>i Groups grouped Axes n Instructions ypes er-Defined ings d-On-Defined odule-Defined nfiguration ckplane, Compact 1769-L32E EIP-: 금도 Ettemet CompactErr</th><th>Logix System 2000 met Port LocalENE New Module</th><td>3</td><td></td><td></td></li<>	i Groups grouped Axes n Instructions ypes er-Defined ings d-On-Defined odule-Defined nfiguration ckplane, Compact 1769-L32E EIP-: 금도 Ettemet CompactErr	Logix System 2000 met Port LocalENE New Module	3		

Figure 1-3. Create a new module.

4. Select the "ETHERNET-MODULE" below "Communications" in the Select Module window.



Figure1-4. Select "ETHERNET-MODULE".

5. Configure the new module parameters. The I/O length of new module must be the same with the length of EIP-2000 I/O data. The data assembly please refer to Table 1-1 and the instance ID please refer to Table 1-2.

Type: Vendor: Parent:	ETHERNET-MODULE Ge Allen-Bradley LocalENB	eneric Ethernet Mo	dule		EIP-20	55
Na <u>m</u> e:	EIP-2000	Co	onnection Para	ameters Assembly		
Description:		× .	nput	101	34	: (8-bit)
	1	~	0 <u>u</u> tput:	102	2	: (8-bit)
Comm <u>F</u> orma	t: Data - SINT Host Name	<u> </u>	Configuration:	100	0	• (8-bit)
	ess: 192 - 168 - 255	5 - 1	Status Input:]
	ame:		Status Output:		1	

Figure1-5. The settings of EIP-2055

Module	Data Assembly	Byte	Description				
		count					
			1 st Byte: DI status				
	Input Assembly	34	2 nd Byte: DO status read back				
EIP-2055	P-2055 Output Assembly		3 rd ~34 th Byte: DI counters				
		2	1 st Byte: DO status				
		2	2 nd Byte: to set DI counters zero				
			1 st Byte: DI status				
	Input Assembly	26	2 nd Byte: DO status read back				
EIP-2060			3 rd ~26 th Byte: DI counters				
	Output	Output	1 st Byte: DO status				
	Assembly	2	2 nd Byte: to set DI counters zero				
	Input Accombly	2	1 st Byte: DO status read back (DO0~DO7).				
	input Assembly	2	2 nd Byte: DO status read back (DO8~DO15).				
CIF-2042	Output	2	1 st Byte: DO status (DO0~DO7).				
	Assembly	2	2 nd Byte: DO status (DO8~DO15).				

Table 1-1. Data Assembly of EIP-2000

			1 st Byte: DI status(DI0~DI7).			
	Input Assembly	66	2 nd Byte: DI status(DI8~DI15).			
EIP-2051			3 rd ~65 th Byte: DI counters.			
	Output	0	1 st Byte: to set DI counters zero (DI0~DI7).			
	Assembly	Z	2 nd Byte: to set DI counters zero (DI8~DI15).			
			1st ~ 16th Byte: AI status(AI0~7) for DIFF. or S.E. mode.			
			17nd ~ 32th Byte: AI status(Al8~15) for S.E. mode only.			
			33rd \sim 40th Byte: Al Type Code (Al0 \sim Al7) for DIFF. or S.E. mode.			
	Input Assembly	53	41st \sim 48th Byte: Al Type Code (Al0 \sim Al7) for S.E. mod only. mode only.			
			49th Byte: Al filters status.			
			50th Byte: Channel mode status.			
			51st Byte: Al representation.			
			52rd Byte: Channel selection (AIV \sim AI7).			
EIP-2017			53rd Byte: Channel selection (Al8 \sim Al15).			
		22	$2^{nd} \approx 17^{th}$ Byte: Set type code to AlQ ≈ 115			
			18 th Byte: Set type code to Alo-Alis.			
	Output		10 th Byte: Channel mode selection DIFE or S E			
	Assembly		20 th Byte: Al representation			
			21 th Byte: AI channel selection (AI0 ~AI7)			
			22 th Byte: AI channel selection (AI8 ~AI15)			
			1 st ~ 16 th Byte: AI status(AI0~AI7).			
	Input Assembly	20	17 nd ~ 18 th Byte: The Brocken wire status.			
			19 rd ~ 20 th Byte: CJC status.			
			1 st Byte: Set value to the module.			
			2 nd ~ 7 th Byte: Set type code to Ch0~Ch7.			
EID 2010			8 th Byte: Filter selection of AI			
EIF-2019	Output		9 th Byte: Wire break detector			
	Assembly	21	10 th Byte: AI representation			
	, (cooling)		11 th Byte: Select AI channel to be short			
			12 th Byte: CJC switch			
			13 th Byte: CJC increment			
			14 th ~ 21 th Byte:CJC Offset			

Table 1-2. Instance ID table of EIP-2000

Implicit Message Information of EIP-2000						
Instance	Instance ID	Data length				

Input(T->O)	65 _{hex} (101)	Depends on modules.
		e.g.34(EIP-2055)
Out(O->T)	66 _{hex} (102)	Depends on modules.
		e.g.2(EIP-2055)
Configuration	64 _{hex} (100)	

Q2 : How to use EDS file of EIP-2000 series ?

A2 : EDS file is a convenient way to make the connection between EtherNet/IP Scanner and Adapter. All the EIP-2000 series EDS file can be download on our website:

http://www.icpdas.com/products/Remote IO/can bus/EtherNet IP series.htm

We provide the connection steps of Hilscher CIFX 50-RE with EIP-2055 EDS file. The configuration software is SYNCON.net. Please refer to the steps below :

1. Open SYNCON.net and create a new project.

busline.



2. To find the "CIFX RE/EIM" item below "EtherNet/IP -> Master", and drag the "CIFX RE/EIM" to the



Figure2-2 Select CIFX RE/EIM

3. Click "Network" and select "Import Device Descriptions".



Figure2-3 Import Device Descriptions

4. To select the EDS file you download on our website of CD.



Figure2-4 Select EDS file

5. To find the "EIP-2055 EDS V1.1" item below "EtherNet/IP -> Slave", and drag the "EIP-2055 EDS V1.1" to the busline.



Figure2-5 EIP-2055 EDS

6. To configure CIFX RE/EIM and EIP-2055 in the same network area.



Figure2-6 Network Settings

7. Right click the CIFX_RE/EIM and click "Download".



Figure 2-7 Download configurations.

8. Right click the CIFX_RE/EIM again and click "Start Communication".

Connect Disconnect						
Download Upload						
Cut <u>C</u> opy <u>Paste</u> <u>Metwork Scan</u> Configuration Measured Value Simulation Diagnostic		1 100 170 00 000				
	- ENIP Generic Adapter J< 192. 168.22,223>					
	_					
Additional Functions	Offline Compare					
Delete	Online Compare Setnoint Value					
	The second secon					
Symbolic Name	Service	Start Communication				
Symbolic Name	Service	Start Communication Stop Communication				

Figure2-8 Start Communication

9. The communication is complete. You can observe the I/O status on the Diagnostic window.

			_														
avigation Area 📃																	
Diagnosis General Diagnosis Master Diagnosis	<u>⊂</u> olumr Intout (is: lata —	Ţ	16		•						D	isplay <u>r</u>	<u>n</u> ode:	Hex	adecim	əl
Firmware Diagnosis Extended Diagnosis	Offset	F	0000			Go	1										
 RX_SYSTEM DPM_COM0_SMBX 	0000	00 •00	01	02	03	04	05	06	07	08	09	0A 00	0B 00	0C 00	0D 00	0E 00	0
DPM_COMO_RMBX EIM_CL1_TASK EIM_ENCAP_TASK EIM_ENCAP_TASK EIM_OBJECT_TASK	0010	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
EIM_AP_TASK EIS_DLR_TASK Tools	4	data –															
Packet Monitor	Output					<i>~~</i>	1										
Packet Monitor Packet Monitor	Output Off <u>s</u> et:	F	0000			GŪ											
Packet Monitor	Output Offset:	00	0000	02	03	04	05	06	07	08	09	A0	OB	00	0D	OE	0
Packet Monitor ➡ IO Monitor	Output Offset: 0000 0010 0020	00 •00 •00 00	00000 01 00 00 00	02 00 00	03 00 00	04 00 00	05 00 00	06 00 00	07 00 00	08 00 00	09 00 00	00 00 00	0B 00 00	0C 00 00	0D 00 00	0E 00 00	0

Figure 2-9 I/O status observation

Q3: When I click the "Network Scan" button, and it pop-up a "Can not find any module" window. What should I do?

- A3: Please follow these tips to solve the problem.
- (1) Disable your anti-virus and the firewall.
- (2) Connect to your EIP-2000 directly with an Ethernet cable.
- (3) Disable ALL your Wi-Fi adapter and another Ethernet adapter that doesn't connect with your EIP-2000.
- (4) Run the EIP-2000 Utility with the system Administrator.

Q4: The AI status we get from the EIP-2017/EIP-2019 is different with the real AI value. How do I solve this problem?

- A4: Please follow these tips to solve the problem.
- (1) Please check the jumpers. The jumpers must be at the right position.

Analog Input	Status		
🔽 Select Al	l Channel		Type Code
🗹 СНО	0.065	mV	+/-15mV 💌
CH1	-0.03	mV	+/-15mV 💌

If the AI type of the channel that you want to get AI status is the voltage type, the jumper must be at the voltage position. If you want to get the current type, the jumper must be at the current position.



Users can check the connection mode when they use the EIP-2017. If the users get the connection mode of the module is Single-Ended(SE) from Utility, they must to select the jumper at SE position. If the setting is Differential(DF), the jumper must at the DF position.



(2) Please update the firmware to the later of v1.6.

Q5: If I forget the IP address of the EIP-2000 modules, how do I search them?

A5: Users can return to the factory default. Please select to the FW mode then reboot.



Connect to the EIP module with Ethernet cable directly. The EIP-2000 module factory default value is

Parameters	Factory Default Value
IP	192.168.255.1
Subnet Mask	255.255.0.0
Gateway	192.168.0.1

Please set the IP address in 192.168.255.xx, then scan the module with the EIP-2000 Utility.

Q6: I can't update the firmware with the Utility, how should I do?

- A6: Please try the following tips,
- (1) Disable the firewall and anti-virus.
- (2) Connect the module directly without Ethernet switch.
- (3) Disable the Wi-Fi adapters and any other Ethernet interfaces.
- (4) The firmware file (.dat file) is saved in the path that includes illegal characters, for example, "/_.)&-+!...", space, Chinese, etc.
- (5) The IP address of PC (laptop) is not in the same network area of the module. (The IP address of PC must be the same with the factory settings of EIP modules)

Q7: How to know the version of EIP-2000 modules hardware?

A7: There is a mark on the front side of the case to distinguish non-RevB and RevB. The case with "RevB" means the RevB version, and empty means "non-RevB" version.



Q8: How to find the compatible FW for EIP-2000 modules?

A8: Refer to " **Download Center** " -> " **FirmWare** " list and find the compatible FW. Warning: If you download the incompatible FW to the module, it may occur something uncertain error.

Q9: Is there any LabVIEW sample to EIP-2000 modules?

A9: Refer to "**Download Center** " -> " **Utility & Tools** "-> "Read_Write_accessAssemblyinstance.vi" The LabVIEW project is built by the NI-EtherNet/IP driver.

Please upgrade or download the driver form this link.

https://www.ni.com/zh-tw/support/downloads/drivers/download.ni-industrial-communications-forethernet-ip.html#305843

Please resize I/O length for you project. (Check I/O length from the user manual P49)



Q10: What is an EDS file?

A10: When using the CIP protocol of the ODVA organization, it is necessary to write a description file for the device that supports the CIP network so that other devices in the CIP network can recognize the device. This description file is called EDS (Electronic Data Sheet: electronic data files). It can be connected with EtherNet/IP devices of other brands through EDS files.

Q11: Where can I download the EDS file of EIP-2000?

A11: On the module page, click Download Center->Firmware, and select the EDS file of the module.

Q12: What is the Instance ID of EIP-2000 series?

A12: Instance and Instance ID are described in the table below.

Instance	Instance ID	Data length
Input (T -> O)	65 hex (101)	依模組而定
Output (O -> T)	66 hex (102)	依模組而定
Configuration	64 hex (100)	

Q13: What is the data length of the EIP-2000 series?

A13: Refer to the table below.

Module	dule Data Assembly Byte Count		Description		
	Input Accombly	2	1 st Byte: DO status read back (DO0~DO7)		
EID 2042	input Assembly	2	2 nd Byte: DO status read back (D08~D015)		
EIF-2042	Output Accombly	2	1 st Byte: DO status (DO0~DO7)		
	Output Assembly	2	2 nd Byte: DO status (DO8~DO15)		
			1 st Byte: DI status (DI0~DI7)		
	Input Assembly	66	2 nd Byte: DI status (DI8~DI15)		
EIP-2051			3 rd ~ 65 th Byte: DI counters		
	Output Accombly	2	1 st Byte: to set DI counters zero (DI0~DI7)		
	Output Assembly	2	2 nd Byte: to set DI counters zero (DI8~DI15)		
			1 st Byte: DI status		
	Input Assembly	34	2 nd Byte: DO status read back		
EIP-2055			3 rd ~ 34 th Byte: DI counters		
	Output Accomply	2	1 st Byte: DO status		
	Output Assembly	2	2 nd Byte: to set DI counters zero		
			1 st Byte: DI status		
	Input Assembly	26	2 nd Byte: DO status read back		
EIP-2060			3 rd ~ 34 th Byte: DI counters		
	Output Assambles	2	1 st Byte: D0 status		
	Output Assembly	۷	2 nd Byte: to set DI counters zero		

Q14: I can ping the EIP-2000 module, but I cannot use the EIP-2000 Utility for setting and communication testing. How to solve this problem?

A14 : According to the following steps, confirm whether the PC has multiple IPs (EIP-2042, the device IP address is: 172.17.23.42 demonstration).

(1). Open the CMD from windows, and enter the ipconfig/all command.



(2). After the input is completed, it will display which IPs are currently on the PC. If there are multiple IPs on the PC, first reserve the same network domain as the EIP-2000 series to set the EIP-2000 series equipment.

☞ 命令提示字元	-	Х
C:\Users\ICPDAS_01>ipconfig/all		1
Windows IP 設定		
主機名稱		
乙太網路卡 Ethernet:		
連線特定 DNS 尾碼 : 描述 : 描述 : 留館位址 : DHCP 已影用 : 2 : 自動設定設用 : : :		
C:\Users\ICPDAS_01>		

(3). Change the interface card option through windows to remove different domains.

IP 位址		子網路遮置	
172.17.23.158		255.240.0.0	
192.168.255.15		255.255.255.0	2
	新增(<u>A</u>)	編輯(<u>E</u>)	移除四天人
預設閘道(日:			h
閘道		公制	
172.18.0.254		自動	
	新增(<u>D</u>)	編輯①	移除(<u>M</u>)
☑ 自動計量(U)			
介面計量(<u>N</u>):			

(4). After removing the different network domains, you can use EIP-2000 Utility to configure the device.

EIP-2000 Utility v3.	3.0			-	×		-		_
e Device Abo	onfigure			404 400	900 ×				
etmork sean c	omgure		IP Address :	192 168	255 1				
Module Name	e Version	IP	Descripitio	n					
1 EIP_2042	1.3	172.17.23.42	16 DO						
	~	😗 Diagnostic (172.1	17.23.42)	100					- 0
					EIP-2	2042			
	ĸ	Digital Outp	ut Set V	alue 0x 0	00	0		00	1011-70
		(CH:0)	0	0	0	0	0	0	(CH(7)
			$\mathbf{\Theta}$	$\mathbf{\Theta}$	$\mathbf{\Theta}$		\mathbf{i}	\mathbf{i}	$\mathbf{\Theta}$
		(CH:8)	~	~	~	~	~	~	(CH:15)
			Θ						
			~	\sim	~	\sim	_ <u> </u>	~	\sim
		Power	On Value	Enabled	S	afe Value	Enabled		
		Network Settings			Module Status			Form	ware Verticon
		MAC Address	00-0D-E0-90	-01-82				2013	2/12/6 ¥1.3
		Address Type	Static IP	~	EIP connec	tion success.			
		Static IP Address	172 17 2	3 42					
		Subnet Mask	255 240 0	0				~	
		Default Gateway	172 18 0	254	Satting Eller				
		Update 1	Vetwork Settir	125	Load Sav	re	1	Exit	
		- Paulo I			File File	est			

Q15: If I forget the network settings of the EIP-2000 module, besides restoring the original factory settings, is there any other solution?

A15 : You can find the EIP-2000 module through Wireshark, and connect the module directly through EIP-2000 Utility v330 or a newer version of Utility.

EIP-2000 Utility download : <u>http://www.icpdas.com/tw/download/show.php?num=4842</u> Wireshark download : <u>https://www.wireshark.org/download.html</u>

(Use EIP-2019 for demonstration)

- (1). Enter the enip command in the filter field in Wireshark.
- (2). Press Network Scan of Utility.
- (3). Wireshark will display the scanned lps.
- (4). Confirm which IP address Source is ICPDAS.



(5). When using EIP-2000 Utility v330, enter the found IP address to connect the device.

Diagnostic						-	-	\square \times				
			EIP	-2()19	Firmware Vers 2022/10/12 V	sion: 1.63			(01)		
Analog Input	Status								y v3.3.0			- D >
🔽 Select Al	ll Channel		Type Cod	e	CJC Offset	AI Paremeter	rs		About			
CH0	0	V	10V	~	0	Filter 50H:	z	~	About	A		
🖂 СН1	-0.006	mV	+/-15mV	~	0	Unit Engi	ineerin	g ~	Configu		IP Address :	192 168 255 1
СН2	-0.007	mV	+/-15mV	~	0 📫	Break De	etect		Name	Verson IP	Descripitio	n
🖂 СНЗ	-0.007	mV	+/-15m∀	~	0)					
CH4	-0.009	mV	+/-15mV	~	0			$\equiv <$				
⊡ сн5	-0.009	mV	+/-15mV	~	0	CJC Incren	nent		1			
СН6	-0.008	mV	+/-15m∀	~	0	◉ 1.0 ℃	00	1 °C				
🗹 СН7	-0.006	mV	+/-15mV	~	0 🜲	Set as CH0	Sa	ve Value				
Network Settin	ngs				Module Status							
MAC Addre	ss 00-0D	-E0-90)-00-71		ſ		~	Save				
Address Typ	pe Static IF)	~		EIP connection st	uccess.(11/30		Log		1111-13C 1112		
Static IP Adda	ness 192	168 2	255 1		Fail to connect with (11/30 01-30 16)	ith the module.		Clear				
Subnet Mas	k 255	255	0 0		Connect to server	r error.(11/30	~	Log				
Default Gatew	/ay 192	168	0 1		Setting Files							
Und	ate Networl	k Setti	nøs		Load Save	5	E	xit				
- pw					rue rue	_						

Q16: When I cannot use the EIP-2000 Utility to scan the button, how can I configure or test the connection of the EIP-2000 module?

A16 : After the EIP-2000 Utility v330 version, the function of direct connection to the EIP-2000 module will be provided. Users can directly input the IP address of the EIP-2000 module for setting and connection testing, without closing the firewall and Antivirus software to scan the connection information of the EIP-2000 module.

ø	EIP-	2000 Utilit	y v3.3.0					_		×
	File	Device	About							
	Netw	ork Scan	Configure	2			Address :	192 168	255	1
		Module	Name	Version	IP	1	Descripiti	on		
	,									
L										7

Q17: I can't measure the current value when I change EIP-2017 to the Single-Ended mode. What can I do?

A17 : The external resistor is required. Please check the wire-connection and its internal jumpers.

(1) The jumper is in the SE mode.



(2) Because of the external resistor, all the channel jumper is in voltage mode.



(3) The external resistor is wired between VIx and AGND.

AI	Voltage Input Wiring	Current Input Wiring
DIFF.	mV/V ↓ □⊖ VIX □⊖ VIX-	$mA \stackrel{\uparrow}{\textcircled{1}}_{125 \Omega} \stackrel{\Box \ominus}{\Longrightarrow} \stackrel{VIX}{\lor}_{VIX}$
S.E.	mV/V ↓ □⊖ VIX/VIX- □⊖ AGND	$mA \underbrace{\stackrel{+}{\textcircled{0}}}_{125 \Omega} \underbrace{D \ominus}_{D \ominus} \underbrace{VIX/VIX}_{AGND}$
	AGND 125 Ohm 20mA	VIO+

(4) The current can be observed by the Utility.