

Application Note

E2 EtherNet/IP驅動器 搭配Rockwell Studio 5000

> www.hiwinmikro.tw MD46UC01-2412_V1.0

修訂紀錄

手冊版次資訊亦標記於手冊封面右下角。

MD46UC01-2412_V1.0

發行日期	版次	適用產品	更新內容
2024/12/31	1.0	E2 EtherNet/IP 驅動器	初版發行。

相關文件

透過相關文件 · 使用者可快速了解此手冊的定位 · 以及各手冊 、產品之間的關聯性 • 詳細內容請至本公司官 網→下載中心→手冊總覽閱覽 (https://www.hiwinmikro.tw/Downloads/ManualOverview_TC.htm) •

本手冊說明 E2 EtherNet/IP 驅動器搭配 Allen-Bradley (Rockwell) PLC 時·PLC 軟體 Studio 5000 的操作。 手冊將依照完整的設備設置來編排·依序為 PLC 的專案建立、通訊設定、參數設定、功能區塊的建立與操 作。欲進一步了解 E2 EtherNet/IP 驅動器·請參閱《E2 系列驅動器 EtherNet/IP 通訊命令手冊》。

軟硬體規格

名稱	軟體/韌體版本
	軟體 (Thunder): 1.11.6.0 以上
E2 EtherNet/IP 驅動器	韌體:3.11.6 以上
	EDS 檔:HIWINMIKROSYSTEM_ED2F_20240418 以上
Allen-Bradley PLC	軟體(Studio 5000): V34.01.00 以上
(CompactLogix 5380)	韌體:V34.011 以上

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連線與模組設定

1.1 建立新專案

1. 開啟 Rockwell Studio 5000,點擊 New Project。



圖 1.1.1

2. 選擇控制器型號、輸入專案名稱、選擇存檔路徑,再點擊 Next。

🗿 New Project		? >	<
Project Types	Search	>	K
Architect	✓ CompactLogix [™] 5380 Controller		
	5069-L306ER CompactLogix™ 5380 Controller		
🕥 Logix	5069-L306ERM CompactLogix™ 5380 Controller		
	5069-L3100ERM CompactLogix™ 5380 Controller		
	5069-L310ER CompactLogix™ 5380 Controller		
	5069-L310ERM CompactLogix™ 5380 Controller		
	5069-L310ER-NSE CompactLogix™ 5380 Controller		
	5069-L320ER CompactLogix™ 5380 Controller		
	5069-I 320FRM Compact I ogix™ 5380 Controller		
	5069-L320ERR CompactLogiv™ 5380 Controller		
	5069-E320ER Completelogix 5300 Controller		
<u> </u>	SUG9-LSSUER Complettogix SS80 Controller		Ŧ
			_
	Name: E2_AQ		
	Location: C:\Users\super99056\Documents\Studio 5(~	Browse	
	Cancel Back Next	Finish	

圖 1.1.2

連線與模組設定

3. 選擇控制器版本,再點擊 Finish。

쥥 New Project		?	×
5069-L330ERM (E2_AC	CompactLogix™ 5380 Controller		
Revision:	34 ~		
Security Authority:	No Protection	~	
	Use only the selected Security Authority for authentication authorization	and	
Secure With:	Iogical Name <controller name=""></controller>		
	Permission Set	\rightarrow	
Description:			
]
	Cancel Back Next	Fi	nish

圖 1.1.3

4. 即成功建立新專案。

Logix Designer - E2 AC (5069-L330ERM 34.11)				- 6 ×
File Edit View Search Logic Communica	itions Tools Window Help			
	v to to 🛤 🌆 he to be o	in acc		
BUN				
OK Path: <none> Fnamy Streame</none>	8 # 1		4	
I/O Offline Vo Forces	i ▶_ No Edits 🔐	Add-On PlantPAx Safety Alarms Bit Timer/Counter	Input/Output Compare Compute/Math Move/Logical File/Misc. File/S	
Controller Organizer 👻 🤻 🤉	<			
ð •				
Controller E2_AC				
Controller Fault Handler				
Power-Up Handler				
I lasks A Description				
MainProgram				
Unscheduled				
Motion Groups Ungrouped Axes				
👂 💼 Alarm Manager				
A 🛁 Assets				
Add-On Instructions				
🚛 User-Defined				
E Strings				
Predefined				
Module-Defined				
Trends				
✓ Subject Model ✓ Subject Model				
🖌 📾 5069 Backplane				
[0] 5069-L330ERM E2_AC				
The second second second	<u> </u>			
Type 5069-L330ERM CompactLogix™ 5380	• •			
Slot 0				
Major Fault				
Minor Fault				
	Errors			+ + ×
	😢 0 Errors 🛕 0 Warnings	0 Messages		Search 🔎
٢				
Te Controller Organizer				
🔊 Search Results 🐺 Watch				
Beady				Communication Software: FactoryTalk Linx -

圖 1.1.4

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連線與模組設定

1.2 IP 設定

1. 點擊主畫面的 Who Active 圖示。

Logix Designer - E2_AC [5069-L330ERM 34.11]		- 8 ×
File Edit View Search Logic Communic	ations Tools Window Help	
1 🖆 🖴 🖶 🗶 🗇 🗇 🔍	W 100 100 100 100 100 100 100 100 10	
= RUN		
OK Path: <none> Energy Storage</none>		
U Offline II - No Force	s P. No Edits et. (р такоплет Ацьско траничах залецу Ацінів ов тіпетісцине пірикоцция сопрале соприлемани почетьдусат тяклівся тися	
Controller Organizer +	×	
0 -		
Controller Tags	*	
Controller Fault Handler		
Power-Up Handler		
A lasks		
MainProgram		
Unscheduled		
Motion Groups Ingrouped Axes		
Alarm Manager		
🔺 🚅 Assets		
Add-On Instructions		
User-Defined		
1 Strings		
Add-On-Defined		
Module-Defined		
Trends		
b. Logical Model		
A B 5069 Backplane		
[0] 5069-L330ERM E2_AC		
Al, Ethernet	• ·	
Type 5069-L330ERM CompactLogix™ 5380		
Description		
Major Fault		
Minor Fault		
	Errors	+ 7 ×
	O Errors A O Warnings O Messages	Search P
	1	
<	>	
Te Controller Organizer		
Search Results 🐺 Watch		
Parada		Communication Coffmans: Faster Talk Line
Neady		Communication Software: Factory Faix Linx -

圖 1.2.1

2. 選擇 USB 介面下的控制器設定圖示。



圖 1.2.2

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連線與模組設定

3. 依網路線連接配置,依序選擇 Port、Manually configure IP settings,並完成 Physical Device IP Address 與 Subnet Mask 的設定,再點擊 Apply。

		MB0364!Backplane\16 ?	×
 Who Active (FactoryTalk Linx) 	Go Online Upload Download Update Firmware Close Help	MB0364!Backplane\16 ? Internet Protocol Port Configuration IP Mode CIP Security LLDP Port: A1	
Path in Project: <none></none>	Clear Project Path	Refresh Apply	
		ବ୍ ବ୍ 100%	, ;

圖 1.2.3

1.3 安裝 EDS 檔

1. 點選主畫面的 Tools→EDS Hardware Installation Tool, 進行 EDS 檔安裝。



圖 1.3.1

2. 開始安裝 EDS 檔,點擊下一步。



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3. 選擇 Register an EDS file(s),點擊下一步。

Rockwell Automation's EDS Wizard	×
Options What task do you want to complete?	
 Register an EDS file(s). This option will add a device(s) to our database. 	
C 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.	
Upload EDS file(s) from the device. This option uploads and registers the EDS file(s) stored in the device.	
<.	上ー步(B) 下一步(N) > 取満

圖 1.3.3

4. 選擇 Register a single file · 點擊 Browse...以選擇 EDS 檔的路徑來源。

Rockwell Automation's EDS Wizard	×
Registration Electronic Data Sheet file(s) will be added to your system for use in Rockwell Automation applications.	N/
Register a single file C Register a directory of EDS files Lookin subfolders	
Named:	
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) 下一步(N) >	取消

圖 1.3.4

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連線與模組設定

E2 EtherNet/IP 驅動器 EDS 檔的路徑來源為 C:\Thunder\doc\EDS Files。



圖 1.3.5

選擇最新韌體版本的 EDS 檔·點擊下一步。

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	
Named:	
C:\Thunder\doc\EDS Files\HIWINMIKROSYSTEM_ED2F_20240712.eds 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 a sufference of installation and as the file(a) stick block	
to perform an installation test on the ine(s), tack vext	
<上一步(B) 下一步(N) > 取)	н

圖 1.3.6

連線與模組設定

5. 確認欲載入的 EDS 檔,點擊下一步。

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.	
Installation Test Results └ ☑ c:\thunder\doc\eds files\hiwinmikrosystem_ed2f_20240712.eds	-
View file < 上一步(6) 下一步(N) > 取満	

圖 1.3.7

6. 載入 EDS 檔後即可辨識到 E2 驅動器,點擊下一步。

Rockwell Automation's	s EDS Wizard	×
Change Graphic Im You can change	nage the graphic image that is associated with a device.	
	Product Types	
Change icon	Undor Specific Type ED2F servo drive	
	< 上一歩(B) 下一歩(N) >	取消

圖 1.3.8

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連線與模組設定

7. 確認辨識到 E2 驅動器後,點擊下一步。

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. ED2F servo drive	
< 上一步(B) 下一步(N) > 1	取満

圖 1.3.9

8. 即成功安裝 EDS 檔。



圖 1.3.10

1.4 設定 Thunder EtherNet/IP setup 視窗

檔案 (File) 工具 (Tools) 設定 (Settings) 主控權切換 (Acc

1. 點擊 Thunder 書籤列中的工具,再點選 EtherNet/IP 設定,開啟 EtherNet/IP setup 視窗。

通訊設定

PROFINET設定 EtherNet/IP 設定 MECHATROLINK-III 設定

相位初始化設定 自動調適

龍門控制系統 電子凸輪

絕對式編碼器初始化 類比命令偏壓調整 動態制動器電阻計算精靈

----HIWIN

Ġ...



- 依序設定 IP 位址、子網路遮罩,選擇 IP 模式為 Static,再點擊 在那些 和認驅動器「狀態」 欄位的資訊 與「設定」 欄位的一致,即完成設置。
 - 註:請將驅動器 IP 位址與控制器 IP 位址設定於相同的網域底下,否則通訊無法正常建立。

🛃 EtherNet/IP setup			- 0	×
網路 Ext. I/O 資料				
設定				
₽位址	192 . 168 . 0 . 50	₽位址	192 . 168 . 0 . 50	
子網路遮罩	255 . 255 . 255 . 0	子網路遮罩	255 . 255 . 255 . 0	
預設閘道	0.0.0.0	預設閘道	0.0.0.0	
IP 模式:	Static 🗸	IP 模式	Static	
套用				

圖 1.4.2

連線與模組設定

1.5 連接裝置至 PLC

1. 點擊主畫面的 Who Active 圖示,選擇連線至 PLC 的方式。

Logix Designer - E2_AC [5069-L330ERM 34.11]*		- # ×
File Edit View Search Logic Communicat	ions Tools Window Help	
<u>ଅକ୍ଲାର</u> ୬ ୯ 🔄	> 5 5 月 10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
■ RUN ■ OK Path: <none></none>	3 3 4 + + + + + + → → → → →	
UO Offline No Porces	No Edits 2. Select a communications path using RSWho Safety Alarma Bit Timer/Counter Input/Output Compare Compute/Math Move/Logical File/Mac, File?	
Controller Organizer 4 4 4 7 Controller 12,AC 6 Controller 12,AC 6 Controller 12,AC 6 Controller 12,AC 6 Controller 14,Bandler 7 Controller 14,Bandler 8 Controller 14,Bandler 9 Soft State 9 Controller 14,Bandler 10 Soft Backgaine 10 <td></td> <td>sart P</td>		sart P
have a second	4	
Te Controller Organizer	1	
E Search Results		
Ready		Communication Software: FactoryTalk Linx -

圖 1.5.1

2. 選擇 USB 介面下的控制器,再點擊 Go Online。



圖 1.5.2

3. 點擊 Download。

Connecte	ed To Go	o Online						×
Options	General	Date/Time	Major Faults	Minor Faults	Project	Nonvolatile Memory		
Conditio	on: The o	pen project d	oesn't match th	e project in the	e controlle	t.		
Connec	ted Contro	oller:						
	Contro	oller Name: E	E2_AC_USB					
	Contro	oller Type: 5	5069-L330ERM	/A CompactLo	gix''' 538) Controller		
	Comm	Path: E	Backplane\16					
	Serial	Number: 7	7074ADB6					
	Secur	ity: N	No Protection					
Offline F	Project:							
	Contro	oller Name: E	E2_AC					
	Contro	oller Type: 5	069-L330ERM	CompactLogi	c 5380 0	iontroller		
	File:		s\super99056	\Documents\	Studio 500	U\Projects\E2_AC.ACD		
	Senai	Number: <	none>					
	Secur	πу: г	vo Protection					
	Online	edits perform	ed during uploa	ad may preven	t upload fi	om completing.		
-		Prohibit or	nline edits durin	g upload.				
	-							
					Downlo	ad Select File	Cancel	Help

圖 1.5.3

4. 於 Download 視窗點擊 Download。

Connected To Go Online X	Download	×
Connected To Go Online X Options General Date/Time Major Faults Minor Faults Project Nonvolatile Memory Condition: The open project doesn't match the project in the controller. Connected Controller: Controller Name: E2_AC_USB Controller Type: 5069-L330ERM/A CompactLogix** 5380 Controller Comm Path: Backplane \16 Secial Number: 7074ADB6 Security: No Protection Offline Project: Controller Name: Controller Name: E2_AC Controller Name: E2_AC Security: No Protection Offline Project: Controller Name: Controller Name: E2_AC Security: No Protection Offline Project: Controller Name: Example: Onlone offline Projects \Studio 5000\Projects\E2_AC.ACD Security: No Protection Online edits performed during upload may prevent upload from completing. Image: Controller Name: Prohibit online edits during upload.	Download General Options Image: State of the second of the project 'E2_AC' to the controller. Connected Controller: Name: E2_AC_USB Type: S0694.330ERN/A CompactLogix** 5380 Controller Path: Backplane116 Security: No Protection Image: Security: No Protection Image: DANGER: The controller being downloaded to is the system time master. Servo axes in synchronized controllers, in this chassis or other chassis, may be turned off. Image: DANGER: Unexpected hazardous motion of machinery may occur. Some devices maintain independent configuration settings that are not loaded to the device (drives, network devices, 3rd party products) have been properly loaded before placing the controller into run mode. Failure to load proper configuration could result in misaligned data and unexpected equipment operation.	×
Download Select File Cancel Help	Download Cancel Help	

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連線與模組設定

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5. 確認主畫面的狀態燈號亮起,即成功連線。

Logix Designer - E2_AC [5069-L330ERM 34.11]										- 8 ×
File Edit View Search Logic Communication	ons Tools Window Hel	lp								
🔥 🖕 🖴 🖶 👗 🖨 🗇 🔍 🔍	v 🍫 🏞	🎜 📴 🏡 🗅 🖏	21 02 16 02 02							
Run Mode										
Controller OK Path: Backplane\16*		* *	• • • • • • •	· -1/1()(U)(L	.>			E. F.		
I/O OK Rem Run No Forces	▶ No Edits	æ	Favorites Add-On	Alarms Bit Timer/	/Counter Input/Output Compar	e Compute/Math Move	e/Logical File/M	ilisc. File/Shift Sequencer F		
Controller Organizer 👻 🖶 🗙	📙 MainProgram - MainRo	outine 🛛 🧭 Program P	arameters and Local Tags - Mai	inProgram 🗙 🧔 🤇	Controller Tags - E2_AC(contro	ller)				-
Ø 📲	Scope: L MainProgram	Show: All Tags					< T. Ent	ter Name Filter		~
▲ Controller E2_AC	Name II +	Usage Value	 Force Mask 	 Style 	Data Type	Description	Constant		Properties	– a
Controller Tags	hMethod	Local	33	Decimal	DINT				Phi Di Ji the Exte	nded Properties
Power-Up Handler	hMSF	Local	()	()	H MSF	HIWIN MIKROSYSTE			A General	
🔺 📹 Tasks	hMSG Read	Local	()	()	MESSAGE				Name	hWriteValue
🔺 🔿 MainTask	b bMSG Write	Local	()	1.3	MESSAGE				Description	
A B MainProgram	b bMSQ	Local	()	1.3	H MSO	HIWIN MIKROSYSTE			Usage	Local
MainRoutine	h bOutputData	Local	()	()	INIT[32]				Type	Base
Unscheduled	h h Barry NO	Local	0440	Desimal	INT				Alias For	
🔺 🚄 Motion Groups	h hParm CubiNDEV	Local	0440	Decimal	(N)				Data Time	DINT
Ungrouped Axes	P hParm_subiNDEX	Local	0	Decimal	SINT		-		Scope	MainProgram
Alarm Manager	P nParmKead_Single	Local	{}	{}	H_ParmKead_Single	Kead a HIWIN MIKRO.			External Access	Read/Write
Alarm Definitions	P hParmWrite_Single	Local	{ }	()	H_ParmWrite_Single	Write a HIWIN MIKR			Style	Decimal
Assets	hPosition	Local	0	Decimal	DINT				Constant	No
he Logical Model	hReadValue	Local	1000	Decimal	DINT				Required	
▲ ⊆ I/O Configuration	hReadValue_Real	Local	0.0	Float	REAL				Visible	0
Δ = 5009 Backplane	hSearchSwitchSpe	Local	83886080	Decimal	DINT				► Data	0
A A1, Ethernet	hSearchZeroSpeed	Local	8388608	Decimal	DINT				Produced Connection	on
5069-L330ERM E2_AC	hSetRelativeMove	Local	0	Decimal	BOOL				Consumed Connect	ion
E2 E2	hSpeed	Local	0	Decimal	DINT				 Parameter Connect 	ions {0:0}
A TAZ, Ethernet	hTargetTorque	Local	0	Decimal	INT					
BODS-CSSDERM E2_AC	hTorqueOffset	Local	0	Decimal	INT					
	▶ hTorqueSlope	Local	0	Decimal	INT					
	hTriggerCondition	Local	0	Decimal	BOOL					
	hTriggerEdge	Local	0	Decimal	BOOL					
	hVelocity	Local	0	Decimal	DINT					
	hWarnCode	Local	0	Decimal	INT					
	hWindowOf PC	Local	0	Decimal	DINT					
	bWriteValue	Local	1000	Decimal	DINT					
	< ► \Monitor Tags &	Edit Tags /			<				>	
	E	- /								- 0 - 4
	Entris									• + •
	CO Errors	4 0 Warning	is 0 of 1 Messages						Search	ρ
	Complete - 0 error(s),	0 warning(s)								^
S Controller Organizer	<									, ×
Search Results 🐺 Watch										
Beady									Communication Software: Fa	ctoryTalk Linx

圖 1.5.5

2. 參數設定

2.	參數設定		2-1
	2.1	建立軸	2-2

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參數設定

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2.1 建立軸

1. 於主畫面右鍵點擊 A1, Ethernet 並選擇 New Module...。

註:請依實際連接的配置,於 A1 或 A2 建立軸。

Logix Designer - E2_AC [5069-L330ERM 3	34.11]						- 8 ×
File Edit View Search Logic Com	munications Tools Window I	Help					
ち 🖆 🖶 🗶 🖬 🗇 🤆 🗌	v *p *	5 / 🕒 h 🕞 h 🖉	8 G C				
RUN Path: some							
Energy Storage	Earcon b No Edite		Favorites Add-On PlantPAx Safety A	arms Bit Timer/Counter Input/Output Compar	re Compute/Nath Move/Logical File/Nisc.	File/S	
Controller Organizer		10 A.					
Controller Organizer Power-Up Handler Power-Up	A New Module						
Bus Size Bus Size	Import Module Discover Modules Paste Ctrl+V Properties Alt+Enter						
	Print •						- • x
	😢 0 Errors	0 Warnings 🚺	0 Messages				Search
		June contractor la la contractor de la c					
¢	>						
📭 Controller Organizer 🔭 Logical Organiz	er						
🔊 Search Results 👼 Watch							

圖 2.1.1

2. 此時會跳出 Select Module Type 視窗,取消勾選右側欄位所有選項。

Enter Search Text for Modu	le Type	Clear H	liters	:		Hide Filters	*
Module Type Catego 20 - Comm-ER Analog CIP Motion Safety Tr Communication	ry Filters ack Section	< >		Module Type Ve Advanced Energy Bray Internations Buerkert Fluid Co Dialight	endor Filters y Industries, Inc. 1, Inc ontrol Systems		< < >
<		>	<				>
Catalog Number 1420-V1P-ENT 0001_0073_010D 0005_007B_0030 0005_007B_0038 0005_007B_0038 Const_002D_0030	Description Powermonitor 500 48MS-SN1PF1-M2 48MS-SN1PF2-M2 SP600 SP600 ER 400Y SP600 ER 400Y				Vendor Rockwell Autom Rockwell Autom Rockwell Autom Rockwell Autom De Juni Venter	Category PowerMonitor Rockwell Auto Rockwell Auto DPI to EtherNo DPI to EtherNo DPI to EtherNo	500 ma et/II et/II

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E2 EtherNet/IP驅動器搭配Rockwell Studio 5000

參數設定

Select Module Type		
Catalog Module Discovery Favorites		
Enter Search Text for Module Type	Clear Filters	Hide Filters 🛠
Module Type Category Filters 20 - Comm-ER Analog CIP Motion Safety Track Section Communication	Module Type Vendor Filters Advanced Energy Industries, Inc. Bray International, Inc Buerkert Fluid Control Systems Dialight	~ ~
 Catalog Number Description 	Yendor	Category
0 of 820 Module Types Found		Add to Favorites
Close on Create	Create	Close Help

圖 2.1.3

3. 選擇 HIWIN MIKROSYSTEM CORP., 會顯示出 E2 驅動器。

Enter Search Text for Module	Туре	Clear Filters		Hide Filters 🕱
Module Type Category 20 - Commence Analog CIP Motion Safety Tract Communication	r Filters k Section	A Mod Hipp HIW HIW HIW HMS C Hith HMS C Hith HMS	ule Type Vendor Filters om Technologies IN MIKROSYSTEM CORP. Industrial Networks AB man Enclosures	×
 Catalog Number E2 	Description ED2F servo drive		Vendor HIWIN MIKRO	Category Generic Device (keys
<				>
1 - 6000 M- July Trans T				Add to Feverites

圖 2.1.4

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4. 點擊 Create,於 New Module 視窗完成 Name 與 Private Network 的設定。Private Network 的 IP 設定必須與驅動器的 IP 設定相同,否則通訊無法正常建立。





5. 於 New Module 視窗點擊 Change...,於 Module Definition 視窗選擇 Size 為 INT, 再點擊 OK。

	📧 New Module	×
Select Module Type Cetabog Module Discovery Favorities Fater Search Test for Module Type Clear Filters Module Type Category Filters 20-CommeRe Analog CIP Motion Starty Track Section CIP M	Connections: New Module Connections: New Module Connections: Conne	hemet Address P Private Network: 192.168.1. D P Address:
Catalog Number Description Vendor Category E2 ED2F servo drive HIWIN MIKEO Generic Device Gays Category I of 820 Module Types Found Add to Fevorites	Exclusive Owner Output: 64 SHT Output: 64 SHT Module wher OK Cancel Hep Change	
Close on Create Close Help	Status: Creating	OK Cancel Help







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參數設定

6. 於 Logix Designer 視窗點擊 Yes, 再於 New Module 視窗點擊 OK。

		New Module General*	General		×
Select Module Type Cathlog Module Discovery Fevorities Enter Search Text for Module Type Image: Cathlog Type Image: Cathlog Type Module Type Category Filters Image: Cathlog Category Filters Image: Cathlog Type Module Type Category Filters Image: Cathlog Category Filters Image: Cathlog Category Filters Module Type Category Filters Image: Cathlog Category Filters Image: Cathlog Category Filters Cathlog Category Category Filters Image: Cathlog Category Filters Image: Cathlog Category Filters Cathlog Category Category Filters Image: Cathlog Category Filters Image: Cathlog Category Filters Cathlog Category Category Filters Image: Cathlog Category Filters Image: Cathlog Category Filters Cathlog Category Category Filters Image: Category Filters Image: Category Filters Cathlog Stumber Description E2 ED2F serve drive Cathlog Filters Image: Category Filters Image: Category Filters	Clear Fillers Hide Fillers R Modula Type Yendor Fillers Higron Technologie HIVE MIKROYTSTEM CORP. Host Statustial Networks AB Logix Designer These changes will cause module data types and prope Data will be set to default values unless it can be recover Verify module properties before Applying changes. Change module definition? Yes No	Correction The Sync Model Info Mod	Type: Vendor: Paret: Name: Desciption: Ectoric Keyng: Compatible Modu Connections: Lance Exclusive Owner Output: OK Cano	CO1 ♥ et Addres et Addres state Address st Name: address	a work: 192.168.1. 10 0
1 of 820 Module Types Found	Create Close Help	Status: Creating		Change	OK Cancel Help



		📧 New Module			×
		General* G	ieneral		
Select Module Type Catalog Module Discovery Favorites	Clear Filters Hide Filters Higonon Technologies Hillynon Technologies Hillyn MLR.COCRSTEIN CORP. Hoffman Enclosures Vendor Category HIVIIN MLR.Co. Generic Device (keys)	Connection" Time Sync" Module Info" Internet Protocol" – Port Configuration" – Network"	Type: E Vendor: H Parent: L Name: [Description: [Module Definition Revision:	E2 ED2F serve drive HWIN MIKROSYSTEM CORP. Local E2 0 0 1.001	Bhemet Address Private Network: 152:168.1. 10 + O IP Address:
I of 820 Module Types Found Close on Creete	> Add to Fevories Creste Close Help	Status: Creating	Eectronic Keyl	ng: Conpatible Module Exclusive Owner Change	OK Cancel Help

圖 2.1.9

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參數設定

7. 於 Select Module Type 視窗點擊 Close · 即成功於主畫面建立 E2 軸。

Ente	er Search Text for Module	туре	Clear Filters			Hide Filters	*
 JUNIC 	Module Type Category 20 - Comm-ER Analog CIP Motion Safety Trac Communication	/ Filters .k Section	 <th>Module Type Ver Hiprom Technolo; HIWIN MIKROS' HMS Industrial Ne Hoffman Enclosu</th><th>ador Filters gies 7STEM CORP. tworks AB res</th><th></th><th>> ^</th>	Module Type Ver Hiprom Technolo; HIWIN MIKROS' HMS Industrial Ne Hoffman Enclosu	ador Filters gies 7STEM CORP. tworks AB res		> ^
•	Catalog Number	Description			Vendor	Category	0
							>

圖 2.1.10



圖 2.1.11

3. 建立功能區塊

3.	建立	功能區塊		3-1
	3.1	導入	Add-On 自定義指令 (AOIs)	3-2
	3.2	建立	控制器程序	3-4
		3.2.1	軸通訊	3-4
		3.2.2	運動指令	.3-10
		3.2.3	參數讀寫	.3-13
	3.3	下載	軟體設置至 PLC	.3-16

3.1 導入 Add-On 自定義指令 (AOIs)

- 請至本公司官網下載 EtherNet/IP 功能區塊及其操作手冊: Function Blocks (AOIs): EtherNet IP with Rockwell Studio 5000
- 2. 於主畫面展開 Assets,右鍵點擊 Add-On Instructions,選擇 Import Add-On Instruction...。

Logix Designer - E2_AC [5069-L330ERM 34.11]*			- 6 ×
File Edit View Search Logic Communication	ons Tools Window Help		
5 🖕 🖬 🖶 X 🖬 A 19 9 9			
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Controller Organizer + 4 ×			
0° °E			
Power-Up Handler			
A lasks			
MainProgram			
iii Unscheduled			
🔺 🖳 Motion Groups			
Congrouped Axes			
A State Alarmanager			
Add-On Instructions	aw Add. On Instruction		
a 🖾 Data Types	nport Add-On Instruction		
Strings			
Add-On-Defined	ut Ctrl+X		
Predefined	opy Uti+C		
Module-Defined	aste Utik Canformation Chile Shike V		
Trends	aste with conliguration Curranity		
Second Model ▲ ⊆ I/O Configuration			
🖌 📼 5069 Backplane			
[0] 5069-L330ERM E2_AC			
A 20 A1, Ethernet			
E2 52 52			
A TALE ALE Ethernet			
	Errors		+ a x
	0 Errors 1 0 Warnings	0 Messages	Search
			and the second
The Controller Organizer Pa Locus al Organizer			
1. concours organizer - US cogical organizer			

圖 3.1.1

3. 選擇檔名為 HIWIN_MIKROSYSTEM_AOIs_vx.x.L5X 的檔案,點擊 Open。

💰 Import Add	-On Instruction			×
Look in:		~ G (• 🖾 🍕	
=1_	Name	^	Date modif	fied
Quick access	⊕ HIWIN_MIK	ROSYSTEM_AOIs_v1.1.L5X	2024/7/3 7	下午 02:42
Desktop				
Libraries				
This PC				
	<			>
Network	File name:	HIWIN_MIKROSYSTEM_AOIs_v1.1.L5X	~	Open
Network	Files of type:	Logix Designer XML Files (*.L5X)	\sim	Cancel
				Help

4. 點擊 OK · 導入 AOIs ·

Import Configuration - HIWIN_MIKE	COSYSTEM_AOIs_v1.1.L5X X	
문 일 Find: Find Within: Final Name	Find/Replace	
Import Content:		
Import Content:	Configure Add-On Instructions Imported Instructions: 17 selected, 0 others as references That instructions and other references will be imported as configured in the References folders	
	OK Cancel Help	
Ready		P

圖 3.1.3

5. 導入完成後,主畫面的 Add-On Instructions 下方會顯示所支援的 AOIs。



圖 3.1.4

HIWIN. MIKROSYSTEM

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建立功能區塊

建立功能區塊

3.2 建立控制器程序

3.2.1 軸通訊

此功能區塊用於驅動器運動與參數 IO 的資料傳輸。

- (1) 使用各功能區塊之前,請先完成軸通訊建置,並確保指令處於導通狀態。
- (2) 每個軸皆需透過軸通訊 (H_ACOMM) 指令來建立傳輸通道。

註:

詳細的 AOIs 指令說明與配置注意事項,請參考《功能區塊 (AOIs) 應用手冊 E2 EtherNet/IP 驅動器搭配 Rockwell Studio 5000》。

1. 展開主畫面的 Tasks→MainTask→MainProgram, 雙擊 MainRoutine, 開始編輯程序。

Logix Designer - E2_AC [5069-L330ERM 34.11]*		- 8 ×
File Edit View Search Logic Communication	ons Tools Window Help	
5 🖆 💾 🖶 🗶 🗗 🙃 🤊 🕫 📃	* 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	
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Controller Organizer		
A Controller F2 AC		
Controller Tags		^
Controller Fault Handler		
Power-Up Handler		
A (> MainTask	(End)	
MainProgram		
Parameters and Local Tags		
Unscheduled		
🔺 🛁 Motion Groups		
Ungrouped Axes		
Alarm Manager Assets		
Add-On Instructions		
Data Types		
I rends		
▲ ⊆ I/O Configuration		
A 🖨 5069 Backplane		
[0] 5069-L330ERM E2_AC		
50 5069-L330ERM E2_AC		
E2 E2		
A La A2, Ethernet		
D SOBS-LSSDERM E2_AC		
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	< ==	• •
	C OEros A OWerring O OMessages	Search
	Complete - 0 error(s), 0 warning(s)	
Time Ladder Disgram (Main)		
E Controller Organizer		×
Search Results 🐺 Watch		
Ready		unication Software: FactoryTalk Linx Rung 0 of 1 APP VER -

圖 3.2.1.1

建立功能區塊

2. 右鍵點擊 MainRoutine 程序,選擇 Add Ladder Element...。



圖 3.2.1.2

於 Add Ladder Element 視窗選擇 H_ACOMM 指令,並點擊 OK。

💰 Logix Designer - E2_AC [5069-L330ERM 34.11]*			- 8 ×
File Edit View Search Logic Communication	ns Tools Window Help		
15 🖕 🖬 🖶 🔺 🖉 🍈 🖓 🔍 📃	> 10 m m m m m m m m m m m m m m m m m m		
RUN OK Path: Backplane\16*			
Energy Storage Offline No Forces	No Edits 2. 4) Favorites Add-On Alarms Bit Timer/Counter hput/Output Compare Compute/Math MoveLogical File/Misc. File/Shift Sequencer F		
Controller Organizer 🚽 🕈 🗙	I MainProgram - MainRoutine* x		
Ø 11	²⁰⁰ 4 4 出 記 元 元 1 m 持 4 * 1 m		
▲ 🛁 Controller E2_AC			•
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Power-Up Handler			
A 🔄 Tasks	(En)		
▲ L MainProgram			
Parameters and Local Tags			
Unscheduled	Add Ladder Element X		
🔺 🚄 Motion Groups			
Ungrouped Axes	Ladder Bernent: H_ACOMM Instruction Help >>		
A Carta Assets	Name Description		
Add-On Instructions Data Types			
Trends	H++ H ACOMM HWWN NIKROSYSTEM Avia Com		
Logical Model	++i H_MAH HWIN MIKROSYSTEM Avas Hom		
A B 5069 Backplane	H H MAX H HIWIN NIKHOSYSTE M Kas Aga		
0 [0] 5069-L330ERM E2_AC			
5069-L330ERM E2_AC			
E2 E2	Show Language Bern at By Groups		
A2, Ethernet	Cancel		
-	New Add-On Instruction Help		
			~
	4) b
		Search	Q
	Complete - 0 error(s), 0 warning(s)		^
Time Ladder Diagram (Main)			
te Controller Organizer	<		>
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Ready	Communication Software: FactoryTalk Linx	Rung 0 of 1	APP VER -

圖 3.2.1.3

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建立功能區塊

E2 EtherNet/IP驅動器搭配Rockwell Studio 5000

Logix Designer - E2_AC [5069-L330ERM 34.11]*				- 8 ×
File Edit View Search Logic Communicati	ons Tools Window Help			
15 🖕 🖬 🖶 🕹 🛈 🗇 🦻 🦿 🛀	< 5 5 m 10 k 6 k 2 (1 m 12			
RUN OK Path: Backplane\16*				
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Controller Organizer 👻 🔻 🛪	H MainProgram - MainRoutline* ×			
đ 🐃				
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Ready			Rung 0 of 1	APP VER -

圖 3.2.1.4

3. 建立 H_ACOMM 指令。雙擊顯示單個問號的項目,設定變數名稱。

H_ACOMM			H_ACOMM		
H_ACOMM	?		H_ACOMM	hACOMM	
InputData	?	-(EN)	InputData	hinputSata	-(EN)
OutputData	?		OutputData	hOutputData	
H_Axis	?	-(PLCControllable)-	H_Axis	hAxis	-(PLCControllable)-
ConnectionFaulted	?		ConnectionFaulted	hConnectFaulted	
	??	-(Err)		??	-(Err)
ErrCode	?		ErrCode	hErrCode	
	??	-(Warn)-		??	-(Warn)-
WarnCode	?		WarnCode	hWarnCode	
	??			??	

圖 3.2.1.5

建立功能區塊

4. 右鍵點擊已設定名稱的變數,選擇 New 來定義它們。(每個已設定名稱的變數都需執行此步驟。)



圖 3.2.1.6

New Param	eter or Tag	>
Name:	hACOMM	Create 🗸 🗸
Description:	^	Cancel
		Help
	~	
Usage:	Local Tag \checkmark	
Type:	Base ~ Connection	
Alias For:	~	
Data Type:	H_ACOMM	
Parameter Connection:	~	
Scope:	🔓 MainProgram 🗸 🗸	
External Access:	Read/Write \checkmark	
Style:	~	
Constant		
Sequencir	ng	

圖 3.2.1.7

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建立功能區塊

5. 完成變數配置後·顯示如下。



6. H_ACOMM 指令的 InputData、OutputData、ConnectionFaulted 需連結至 E2 驅動器模組的 I.Data、
 O.Data、I.ConnectionFaulted 標籤,請雙擊變數並參考圖 3.2.1.9~圖 3.2.1.11 的配置。

	HIWIN MIKROSYST Axis Communicati instruction.	on			
H_A	COMM				
H_A	COMM hACC	DMM			
Out	tData E2:I.Data	~ (EN)			
H_A Con	Enter Name Filter 🗸 🗸	Show: All Tags	8		
	Name		== Dat	а Туре	,
Erro	E2:1		_06	BA:E2_A	40D
War	E2:I.ConnectionFaulted		BOO	DL	
	E2:1.Data		INT[[32]	
	E2:0		_06	BA:E2_8	B67
	HAcceleration	Name: E2:I.D	Data	T	
	Show controller tags	Data Type: If Description:	NT[32]		
	Show MainProgram tags				
	Show parameters from other progra	im:			
	<none></none>	~			
	圖 3.2	2.1.9			
	HMIN MIKROSYST Axis Communicat instruction.	2.1.9			
H_4	HIWIN MIKROSYST Axis Communicat instruction.	2.1.9 TEM			
H_A H_A	HIWIN MIKROSYST Axis Communicat instruction. COMM tData E21	2.1.9			
H_A H_A Inpu	HIWIN MIKROSYST Axis Communicat instruction. CCOMM hACC itData E2:0.Data	2.1.9			
H_4 H_4 Inpu Out	HIWIN MIKROSYST Axis Communicat instruction. CCOMM hACC tData putData E2:0.Data	2.1.9)	hla	
H_A H_A Inpu Out Cor	HIWIN MIKROSYST Axis Communicat instruction. COMM hACC tData putData E2:0.Data vie T_Enter Name Filter	2.1.9) i i	hla	
H_A H_A Inpu Out H_A Corr	HIWIN MIKROSYST Axis Communicat instruction. COMM ACOMM ACCOMM	2.1.9		hie)	
H_4 H_4 Out H_4 Corr Err(HIWIN MIKROSYST Axis Communicat instruction. COMM hACC tData putData E2:0.Data E2:0.Data Mame A E2:0	2.1.9		a Type	B67
H_A H_A Inpu Out H_A Con Err(B 3.2 HIWIN MIKROSYST Axis Communicat instruction. COMM hACC tData putData E2:0.Data ↓ E2:0. E2:0.Data	2.1.9	Controlls === Dat _06 INT	a Type BA:E2_8 [32]	8671
H_4 H_4 Inpu Out H_4 Corr Err(Wa	ACOMM COMM	2.1.9	Controlle Controlle Dat _06 INT[DIN	a Type BA:E2_8 [32] T	B67i
H_4 H_4 Inpu Out H_4 Cor Err(HIMIN MIKROSYST Axis Communicat instruction. ACOMM	2.1.9	Controlle Controlle Dat _06 INT DIN Name:	a Type BA:E2_8 [32] T : E2:O.D	
H_A H_A Inpu Out H_A Corr Err(Wa	HIWIN MIKROSYST Axis Communicat instruction. ACOMM ACOM	2.1.9	Controlle	a Type BA:E2_8 32] T E2:O.D ype: IN	B67i ata T[32]
H_A H_A Inpu Out H_A Corr Err(B 3.2 HIWIN MIKROSYST Axis Communicationstruction. Accommentation haccommentation instruction. Accommentation haccommentation I Enter Name Filter	2.1.9	=== Dat 06 INT[DIN Name: Data T Data T Dats rij	a Type BA:E2_8 (32) T : E2:O.D ype: IN ption:	B67i ata T[32]
H_A H_A Out H_A Corr Err(Wa	B 3.2 HMVIN MIKROSYST Axis Communications Accommunications Accommunications Accommunication transferret Accommunication transferret Accommunication transferret Accommunication transferret Communication transferret transf	2.1.9	Controlle _06 INT DIN Name: Data T Descrip	a Type BA:E2_8 [32] T : E2:O.D ype: IN ption:	B67i Pata T[32]
H_4 H_4 Out H_4 Corr Wa	B 3.2 HIWIN MIKROSYST Axis Communicat instruction. XCOMM hACC htData E2:0.Data E2:0.Data E2:0 P E2:0.Data HAcceleration hAcOMM hAxis Show controller tags Show MainProgram tags Show parameters from other program	2.1.9	Div Div Data T Descrip	a Type BA:E2_8 32] T : E2:O.D ype: IN ⁻ ption:	B67i Pata T[32]
H_A H_A Out H_A Corr Wa	B 3.2 HIWIN MIKROSYST Axis Communicat instruction. ACOMM AC	2.1.9	■ === Dat 0 INT DIV Name: Data T Descrip	a Type BA:E2_8 32] T : E2:O.D ype: IN ption:	B67i

圖 3.2.1.10

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建立功能區塊

E2 EtherNet/IP驅動器搭配Rockwell Studio 5000

				HIWIN MIKE Axis Com instru	ROSYST munication.	EM on					^
_	H_A H_A Input Outp H_A Conn	COM Data utDa kis lecti	IM IM a ata ionFaulted	E2:1.Conne	hACO E2:1.0 E2:0.0 h/ ectionFau	OMM Data Data Axis ulted		-(EN)- -(PLCC	ont	trollable)—	
	ErrC	T,	Enter Nar	ne Filter	~	Sho	w: A	II Tags			~
	War		Name					2	:8	Data Type	^
		•	E2:I.	Connection	Faulted					BOOL	
		Ē	▶ E2:1.	Data						INT[32]	
		F	▶ E2:0				Nar	me: E2:	I.C	onnectionF	aulted
			HAcce	leration			Dat	а Туре	: B(OOL	
			hACOM	IM			Des	criptio	n:		~
			Show contro Show Mainf	oller tags ^p rogram tag	s						
		Sho	w paramete	rs from othe	er progra	m:					
		<no< td=""><td>one></td><td></td><td></td><td></td><td></td><td>~</td><td></td><td></td><td></td></no<>	one>					~			

圖 3.2.1.11

建立功能區塊

3.2.2 運動指令

此節的功能區塊支援與軸相關的關閉、激磁、移動、歸原點、錯誤清除、轉矩控制、Arm Registration 和 Arm Watch 功能,請依實際使用的功能需求來建立功能區塊。此以激磁、歸原點作為設置範例。

註:

詳細的 AOIs 指令說明與配置注意事項,請參考《功能區塊 (AOIs) 應用手冊 E2 EtherNet/IP 驅動器搭配 Rockwell Studio 5000》。

1. 請參考 3.2.1 節功能區塊的配置步驟,依序完成 H_MSO 與 H_MAH 的指令配置。

H_Axis 的變數必須與 H_ACOMM 指令的 H_Axis 相同,否則無法對軸正常下指令。

Logix Designer - E2_AC [5009-L330ERM 34.11]*											-	0° ×
File Edit View Search Logic Communicati	tions Tools W	/indow Help										
🔁 🖕 🖶 🗶 🗗 â 🤊 🤇		🗸 🍫 🏂 📴 🎠	s 🛯 🖉 🕼 🖓 👘									
= RUN												
OK Fain: Bacquane \16"				4 F 4/F 4 / F 40/F 40/F				×				
I/O Offline . No Forces	▶_ No Ec	dits 🔒	4 Favorites Ai	id-On Alarms Bit Timer/Cour	nter Input/Output Compar	re Compute/Math Move/Logical	File/Misc. File/Shift Sequ	encer P				
Controller Organizer 🔹 🔻 🛪	MainProg	ram - MainRoutine* 🛛 🛛	Program Parameters and Local	Tags - MainProgram 🛛 🧳 Cont	troller Tags - E2_AC(contro	oller)						-
ð 12	Q. Q. 111	1 % % E E 🔤 🚧	d. = (0)									
Gontroller E2_AC Ocntroller Tags Gontroller Fault Handler									WarnCode	hWarnCode 0 ◆		^
Power-Up Handler G Tasks										HWIN MIKR Axis Ser	OSYSTEM	
A S Main lask										instru	ction	
Pranters and Local Tags MainRoutine Unscheduled	1 –									H_MSF H_MSF H_Axis ErrCode	hMSF	194 194
										HWIN MKR	OSYSTEM	~
	2 -	NEMSO								H_MSO H_MSO	hMSO	~
▷ 읍 H_MAFR ▷ 읍 H_MAFR ▷ 읍 H_MAJ ▷ 읍 H_MAJ ▷ 읍 H_MAJ										ErrCode	0 + -(0) -(P) -(ER	5- - 6-
▶ 앱 H_MAR ▶ 앱 H_MAS ▶ 앱 H_MASD	3 -	hemaj								HIWIN MIKROSY Axis Jog Instru H_MAJ	NSTEM	
▶ 압H_MASK ▶ 雪H_MAT ▶ 雪H_MAW ▶ 雪H_MDR										H_Axis Speed h Acceleration HAccele	hAxis - <en Speed 0 -<dn eration</dn </en 	>
▶ @ H_MDW ▶ @ H_MSF ▶ @ H_MSO										Deceleration hDeceleration hDeceleration	eration 0	
H_ParmRead_Single M_HParmWrite_Single Gata Types										ErrCode	0	~
User-Defined												- F
1 Strings	Errors											• • ×
P 📆 Add-On-Defined	0	0.5	Manipus 0.4011	1						County		0
meterined Module-Defined			wamings 0 of 8 Message	8						Search		γ
Trends	Complete - 0) error(s), 0 warning(s)									^
🍌 Logical Model 🗸 🗸	·											
Description HIWIN MIKROSVSTEM Avis Co												
te Controller Organizer	<											>
🔊 Search Results 🐺 Watch												
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圖 3.2.2.1

MD46UC01-2412

E2 EtherNet/IP驅動器搭配Rockwell Studio 5000

建立功能區塊

Logix Designer - E2_AC [5069-L330ERM 34.11]*										- 8 ×
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Add-On Instructions									0+	-(PC)
▶ @ H_MAFR								Acceleration	HAcceleration 0 💠	-(ER)
▶ @ H_MAH								HomeOffset	hHomeOffset 0 💠	
P IS H_MAJ ▶ IS H_MAM								ErrCode HomeMsoWriteCtrl	0 + hHomeMsoWriteCtrl	-
▶ 💮 H_MAR										
♦ ⊕ H_MAS									INVIN MIKROSYSTEM	
I I I MASE									Axis Positioning	
▶ @ H_MAT		hEMAM						H_MAM	inserucción	
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Search Results A Watch										
Ready									Rung 0 of 16 APR	VER
iteday .							Communication	Footware. Factory talk Link	angeonre Arr	al.

圖 3.2.2.2

H_MAH 指令的 hHomeMsgWriteCtrl 請參考以下配置。 點擊 hHomeMsgWriteCtrl 右方的方框,會跳出 Message Configuration 視窗。選擇 Set

Attribute Single 和 hMAH.MsgWriteData,並將 Class、Instance、Attribute 皆設為 0。

Configuration* Communication Tag Message Type: CIP Generic	~	HIWIN MIKROSYSTEM Axis Jog instruction
Service Set Attribute Single Source Le Code: 10 (Hax) Class: OHex) Instance: Attribute: (Hex)	ment: hMAH.MsgWriteData ↓ styte: T, Efter Name Filer. ↓ Name III Data Type BOOL hMAH.PC BOOL hMAH.PC BOOL hMAH.PC BOOL hMAH.PC BOOL hMAH.PC BOOL hMAH.PC BOOL hMAH.FCode NT hMAH.MsgWriteData ↓ hMAH.MsgWriteData bMAH.MsgWriteData bMaH.MsgWriteData becription: HIWIN MIKROSYSTE vI Axis Homing instruction DO NOT CHANGE (use	H, MAJ H, MAJ MAJ (m) H, Axis hAxis Speed 0 Acceleration HAcceleration Deceleration HAcceleration Direction hDirection Direction hDirection ErrCode 0 ed to set the HomeMsgWriteCtrl 'source element'
	Show MainProgram tags	H_MAH hMAH H_Axis hAxis Method hMethod
D Enable O Enable Waiting O Start O Done D Error Code: Extended Error Code: irror Path: E2 mor Text: OK Conc	Done Length: 0 Timed Out	SearchSwitchSpeed hSearchSwitchSpeed 0 SearchZeroSpeed hSearchZeroSpeed 0 Acceleration HAcceleration 0 HomeOffset hHomeOffset 0 0

建立功能區塊

3. 切換至 Communication 頁籤,點擊 Browse...並選擇對應的軸 (E2),再點擊 OK。

Configuration * HomeMsgWriteCtrl Configuration* Communication Tag Path:	Browse
Broadcast:	Message Path Browser Path: E2 E2 Government State S
C Enable C Enable Waiting Start Don C Error Code: Extended Error Code: Error Path: Error Text: OK Car	OK Cancel Help

圖 3.2.2.4

Configuration	• Commu	nication* T;	ag		Brows	e
	E2					
O Broad	cast:	~				
Communie	cation Meth	od				
CIP	O DH+	Channel:	"A"	Destination	n Link: 0	*
O CIP W Source	/ith e ID	Source Lin	k: 0	Destination	n Node: 0	+ (Octal)
Conn	ected		Cache	Connections	Large	Connection
L] Conn	ected					Competion

圖 3.2.2.5

3.2.3 參數讀寫

此節的功能區塊支援驅動器的參數讀寫功能,請參考以下範例做設置。

註:

詳細的 AOIs 指令說明與配置注意事項,請參考《功能區塊 (AOIs) 應用手冊 E2 EtherNet/IP 驅動器搭配 Rockwell Studio 5000》。

 請參考 3.2.1 節功能區塊的配置步驟,依序完成 H_ParmRead_Single 與 H_ParmWrite_Single 的指 令配置。H_Axis 的變數必須與 H_ACOMM 指令的 H_Axis 相同,否則無法對軸正常下指令。

Logix Designer - E2_AC [5069-L330ERM 34.11]*		- 8 ×
File Edit View Search Logic Communicat	tions Tools Window Help	
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RUN Path: Backplane/16*		
Energy Storage Offling	the set of the se	
Controller Organizer	Photosona Managara v Deservative and Level Tare. MainDeserve: # Centrella Tare 12 ACCentrella)	
Al PE	A G G H 1 > 7 C m 2 m 2 m 2 m 2 m 2 m 2 m 2 m 2 m 2 m	
A S Controller F2 AC		
Controller Tags		Parameter
Controller Fault Handler	hEParmRead_Single	H_ParmRead_Single
Power-Up Handler		H_Axis hAxis -(EN)-
A C MainTask		Parm_NO hParm_NO
A b MainProgram		Parm_Subindex hParm_SubINDEX
Parameters and Local Tags		Is Data REAL his Data REAL
MainRoutine		0+ - <er></er>
Motion Groups		
Ungrouped Axes		ReadValue_REAL hReadValue_Real
🔺 🖳 Alarm Manager		MSG_Read hMSG_Read
D. Alarms		MSG_ErrCode 0 MSG ExtErrCode 0
Alarm Definitions		
A Con Instructions		Mide a UM/N
▶ ⊕ H_ACOMM		MIKROSYSTEM Axis
▶ @ H_MAFR	hFParrel//te_Single	Parameter H Darmil/rite Single
P TH H_MAH		H_Parm///rite_Single hParm/Write_Single
▶ @ H MAM		H_Axis hAxis -(EN) Parm NO bParm NO
▶ 💮 H_MAR		0 • -(DN)
▶ H_MAS		Parm_Subindex NParm_SubINDEX 0 + -(P)
P @ H_MASD		Data_Length hData_Length
▶ (∰ H MAT		Is_Data_REAL his_Data_REAL
▶ @ H_MAW		0 + WriteValue hWriteValue
▶ H_MDR		0 🌩
P ⊕ H_MDW		WriteValue_REAL NWriteValue_REAL
▶ ∰ H MSO		MSG_Write hMSG_Write
H_ParmRead_Single		MSG_ExtErrCode 0+
H_ParmWrite_Single		
Data lypes Deta lypes	4	*
E Strings		- 1 - 1
Add-On-Defined		• * * ×
P Im Predefined	0 Errors 🛦 0 Warnings 0 of 8 Messages	Search 🔎
Trends	Complete - 0 error(s), 0 warning(s)	^
Logical Model		
Description HIWIN MIKROSYSTEM Avia Co.	1	
Te Controller Organizer	c	· · · · · · · · · · · · · · · · · · ·
Search Results 🗛 Watch		
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neady	Communication Sc	ntware. Pactory rank Linx Rung 0 of 10 APP VER

圖 3.2.3.1

2. H_ParmRead_Single 指令的 hMSG_Read 請參考以下配置。

點擊 hMSG_Read 右方的方框,會跳出 Message Configuration 視窗。選擇 Get Attribute Single 和 hParmRead_Single.MsgReadData,並將 Class、Instance、Attribute 皆設為 0。

	MIKROSYSTEM Axis
	H DeemDeed Sincle
	H ParmRead Single hParmPead Single
contract Conference in MCC Band	H Axis hAxis (EN)
essage configuration - niviso_kead	Parm NO hParm NO
	0 + -(DN)
ontiguration Communication Tag	Parm_Subindex hParm_SubINDEX
	0 ◆ -(₽)
Message Type: CIP Generic V	Is_Data_REAL hls_Data_REAL
	0 • -(ER)
Service Cet Attribute Stople	ReadValue hReadValue
Type: Get Attribute Single	PeadValue DEAL bBeadValue Beal
Source Length: 0 🗘 (Bytes)	ReadValue_REAL IReadValue_Real
Service e (Hex) Class: 0 (Hex) Destination Clark McDeadDate	MSO Read hMSG Read
Code: versination single.msgkeadData v	MSG_ErrCode
Instance: 0 Attribute: 0 (Hex)	MSG_ExtErrCode 0
Ty Date frame fraction of the	
Name _== Data Type ^	
hParmRead Single DN BOOL	Write a HIWIN
hParmPaad Single IP BOOL	MIKROSYSTEM Axis
hranikead_angle.r DOOL	Parameter
nParmkead_Single.EK BOOL	H_ParmWrite_Single
hParmRead_Single.MSG_ErrCode INT	H_ParmWrite_Single hParmWrite_Single
hParmRead_Single.MSG_ExtErrCode DINT	H_Axis hAxis (EN)-
hParmRead_Single.MsgReadData UNT	Parm_NO hParm_NO
hParmWrite Single H ParmWrite Sir	0 • -(DN)
Name: hParmRead_Single.MsgReadD	ata
Data Type: DINT	
Description: Read a HIWIN MIKROSYS	TEM Axis Parameter DO NOT CHANGE (Used for MSG setting wi
	Is_Data_REAL his_Data_REAL
) Enable O Enable Waiting O Start O Done Dor 🗠 Show MainProgram tags	0 🕈
) Fron Code: Extended From Code:	WriteValue hWriteValue
Participation and a second secon	0 🔶
	WriteValue_REAL hWriteValue_REAL
nor lext:	
	MSG_write III.
OK Cancel Apply Help	MSG_EvtErrCode

圖 3.2.3.2

3. 切換至 Communication 頁籤,點擊 Browse...並選擇對應的軸 (E2),再點擊 OK。

Configuration	Commun	ication Tag				Browee	-
Path:	E2					Diowse	
Broad	cast:	\sim					
Communic	cation Meth	od		_			
CIP	O DH+	Channel:	'A'	Destination	Link:	0	*
CIP W Source	/ith e ID	Source Link:	0] Destination	Node:	0	Coctal)
Conn	ected		Cache Co	nnections 🗧 🗧	[Large C	onnection
Conn	O Ford!	M. Water	Cache Co	nnections +	Pres -	Large C	onnection
Conn Conn	O Enable	Waiting	Cache Co	O Done	Done	Length: 0	onnection
Conn Conn Enable Error Code Error Path: E2 Error Text:	© Enable : 2	Waiting 〈 Extended I	Cache Cod Start Error Code:	ODone	Done Tim	Length: 0 ned Out ←	onnection

圖 3.2.3.3

建立功能區塊

4. H_ParmWrite_Single 指令的 hMSG_Write 請參考以下配置。
 點擊 hMSG_Write 右方的方框,會跳出 Message Configuration 視窗。選擇 Set Attribute Single
 和 hParmWrite_Single.MsgWriteData,並將 Class、Instance、Attribute 皆設為 0。

		MIKROSYSTEM Axis Parameter H ParmRead Single
Message Configuration - hMSG_Write Configuration Communication Tag Message Type: CIP Generic ~	×	H_ParmRead_Single (EN) H_Axis Axis -(EN) Parm_NO hParm_NO -(EN) Parm_NO hParm_SubINDEX ON> Parm_Subindex hParm_SubINDEX ON> Parm_Subindex hIs_Data_REAL O.+ ReadValue hReadValue O.+ ReadValue hReadValue O.+
Service Set Attribute Single Source Element: Service 10 (Hex) Class: 0 (Hex) Code: 10 (Hex) Class: 0 (Hex) Destination Instance: 0 Attribute: 0 (Hex) Element:	hParmWirte_Single.M Show: All Tags V_Enter Name status Show: All Tags Name status blata Type hParmWirte_Single.EN BOOL hParmWirte_Single.IP BOOL hParmWirte_Single.IP BOOL hParmWirte_Single.ISR BOOL hParmWirte_Single.MSQ_ErrCode NT hParmWirte_Single.MSQ_ErrCode DINT	MSG_Read hMSG_Read MSG_ErCode 0 Write a HIWIN MIRCOSYSTEM Axis Parameter H_ParmWrite_Single hParmWrite_Single H_Axis H_Axis H_Axis Parameter H_Axis H_Axis Parameter H_Axis MAXis Parameter H_Axis Parameter H_Axis Parameter H_Axis Parameter H_Axis Parameter H_Axis Parameter H_Axis Parameter H_Axis Parameter H_Axis Parameter H_Axis Parameter H_Axis Parameter H_Axis Parameter H_Axis Parameter H_Axis Parameter H_Axis Parameter H_Axis Parameter H_Axis Parameter H_Axis Parameter H_Axis Parameter H_Axis Parameter Parameter H_Axis Parameter P
 ○ Enable ○ Enable Wating ○ Start ○ Done ○ Error Code: Error Path: E2 Error Text: 	hPosition Dar Show controller tags Name: hParmWrite_Singl. Data Type: DINT Description: Write a HIWI Done Length: 0 ☐ Timed Out ◆	
OK Cancel	Apply Help	

圖 3.2.3.4

5. 切換至 Communication 頁籤,點擊 Browse...並選擇對應的軸 (E2),再點擊 OK。

Configuration	Commun	ication Tag			
Path:	E2				Browse
Broade	E2 cast:	~			
Communic	ation Meth	od			
CIP	O DH+	Channel:	'A'	Destination Link:	0
	ith e ID	Source Link:	0 🗘	Destination Node	: 0 🗘 (Octa
) Enable	⊖ Enable	Waiting () Start	ODone Do	ine Length: 0
) Enable) Error Code mor Path: E2 mor Text:) Enable	Waiting K Extended 8) Start ≣mor Code:) Done Do	ne Length: 0 ITimed Out ♥

圖 3.2.3.5

MD46UC01-2412

3.3 下載軟體設置至 PLC

1. 點擊主畫面的 Build Controller 圖示,確認編譯結果無錯誤。

Logix Designer - E2_AC [5069-L330ERM 34.11]*			
File Edit View Search Logic Communicat	tions Tools Window Help		
15 🖕 🗎 🖶 🗶 🖨 ĉነ 🤊 🖿	- to to 🎜 📴 🌭 🕞 🕏		
= RUN			
Fath: Backplane\16*	* *		
I/O Offline . No Forces	▶ No Edits 🔒	Favorites Add-On Alarms Bit Timer/Counter Input/Output Compare Compute/Math Move/Logical File/Misc. File/Shift Sequencer F	
Controller Organizer 🚽 🖛 🛪	🗧 🗏 MainProgram - MainRoutine 🗙 🥥 Progr	r Parameters and Local Tags - MainProgram 🛛 🛷 Controller Tags - E2_AC(controller)	-
d 11	(a, a, b) ≥ 7, 5, 5, m (2 + · ·)		
A 🛁 Controller E2 AC			HIVDORVETEN AND
Controller Tags			Parameter
Controller Fault Handler	hEParmRead_Single		H_ParmRead_Single
Power-Up Handler	11 1		H_Parmkead_single nParmkead_single
A 🔤 lasks			Parm_NO hParm_NO
A b MainProgram			Parm_Subindex hParm_SubINDEX
Parameters and Local Tags			0 • -(P)
B MainRoutine			IS_DATA_REAL INS_DATA_REAL
iii Unscheduled			ReadValue hReadValue
A Constant And			ReadValue_REAL hReadValue_Real
Ungrouped Axes			0.0+
Alarms			MSG_ErrCode 0 +
. Alarm Definitions			MSG_ExtErrCode 0 +
🔺 🖳 Assets			
Add-On Instructions			Write a HIWIN
P 10 H_ACOMM			MIKROSYSTEM Axis Parameter
▶ @ H MAH	hEParmWrite_Single		H_Parm///rite_Single
▶ 個 H_MAJ	12		H_ParmWrite_Single hParmWrite_Single
▶ H_MAM			Parm_NO hParm_NO
▶ @ H_MAR			Parm Subindex bParm SubINDEX
P TO H_MAS			0.
P I H MASE			Data_Length hData_Length
▶ @ H_MAT			Is_Data_REAL his_Data_REAL
Image: Participation of the second secon			WriteValue hWriteValue
▶ ⊕ H_MDR			0 🕈
P @ H_MDW			WriteValue_REAL NWRITEVALUE_REAL
レ 団 H_MSF			MSG_Write hMSG_Write
H_ParmRead_Single			MSG_ExtErrCode 0 +
H_ParmWrite_Single			
🔺 🖳 Data Types			· ·
P 🛗 User-Defined			
Add-On-Defined	Errors		+ + ×
Predefined	🖸 0 Errors 🔥 0 Warning	0 O of 1 Messages	Search
Module-Defined	Complete = 0 error(s) 0 verning(s)		
Trends	compress o crist(s); o warning(s)		
🎠 Logical Model 🗸 🗸			
Description HIWIN MIKROSVSTEM Axis Co			v
📴 Controller Organizer 👔 🔁 Logical Organizer	<		>
🗖 Search Results 🔊 Watch			
Ready			ication Software: FactoryTalk Linx Rung 12 of 16 APP VER -

圖 3.3.1

2. 右鍵點擊 Offline 選單,選擇 Download。

	- No Forces	▶. No	its 2. + Favor	is Add-On Alarms Bit Timer/Counter Input/Output Compare Compute/Math Nove/Logical File/Misc. File/Shift Sequencer F	
er Organizer	Go Onlin Upload	e	am - MainRoutine × Program Parameters an	Local Tags - MainProgram 🧳 Controller Tags - E2,AC(controller)	
Controller E2_AC	Downloa	d	The second se		
Controller Tags	Program	Mode		Axis Communic	ation
Power-Up Handler	Run Mod	le I		H_ACOMM	
isks MainTack	lest Mod	10		inputtata E2 Distribution P2	ELData -(EN)
4 5 MainProgram	Go To Fa	ults		Maxis M_Axis Consider Subst 121 Consider	hAxis -(PLCControllable)
Parameters and Local Ta MainRoutine	Controlle	r Properties		Erronia BF	0 - (Err)-
Unscheduled			1	WarnCode NWa	0+ -(Warn)-
otion Groups Ungrouped Axes					0+
arm Manager					
Alarm Definitions					Axis Servo OFF
sets gical Model			hEMSF		_MSF
Configuration		30 - S			Axis hAxis
5069 Backplane				E	rrCode 0< DN -< P>
A1, Ethernet					
E2 E2					HWW MKROSYSTEN
A2, Ethernet					Axis Servo ON instruction
Doos-Essocian E2_AC			hEMSO		LMSO MMSO
					Axis hAxis -(EN
					(P)

建立功能區塊

3. 於 Download 視窗點擊 Download。



圖 3.3.3

4. 待載入程序完成,於 Logix Designer 視窗點擊 Yes,切換控制器至 Run 模式。

Logix Designer - E2_AC [5069-L330ERM 34.11]			
File Edit View Search Logic Communication	ons Tools	Window Help	
<u>ଅକ୍ଳା</u> 🖶 🗶 🗗 ଅନ୍ତ୍ର 📃		- * * * M N & B M & G @ G @	
Program Mode Path: Backplane\16*		3.461 () 日田田田 中 キ () () () () () () () () () (
I Energy Storage OK I/O OK Rem Prog No Forces	. N	Edits 🛃 4 x Favorittes Add-On Alarms Bit TimeriCounter InputOutput Compare Compute/Nath NoveLogical FielNisc. FielShift Sequencer	7
Controller Organizer 🚽 🕈 🗙	📙 MainPr	igram - MainRoutine 🗴 🎺 Program Parameters and Local Tags - MainProgram 🛷 Controller Tags - E2,AC(controller)	
a 12	1.21	出出 珍珍 注語 [2] 19 19 19 19 19 11 11 11 11 11 11 11 11	
Controller 2, AC Controller Tays Controller Fault Hundler Rever- by Hundler Controller Fault Hundler Controller Fault Hundler Controller Fault Hundler ShariPogram Controller ShariPogram Controller Controler Controller C	0		NVN MN0205151M Anis Communitation Instruction. ▲ NLACOMI Papolita E2100a E2100a LANs Consolitor/Failed
Alarm Manage Anam Manage Anam A	1	NEMSF	HWM BODGSYTEM A Bardon H <mark>M9F Prices HM9F Prices HM9 HM96 </mark>
Ban Gine Dig Controllier Organizer Bis Logical Organizer	3 4 == Errors Complete -	NEMAJ O Error A Warnings 0 of 8 Messages 0 error(s), 0 warning(s)	HAVE INVOICY'STEE Axes Jeg reflortes NUAL NAAL
Search Results Watch	C.		,
Ready		Co	mmunication Software: FactoryTalk Liny Bung 0 of 16 APP VER

圖 3.3.4

建立功能區塊

E2 EtherNet/IP驅動器搭配Rockwell Studio 5000

5. 成功連接裝置後·主畫面的狀態會顯示綠燈。

Logix Designer - E2_AC [5069-L330ERM 34.11]														- 6	×
File Edit View Search Logic Communicat	tions Tools \	Window Help													
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Run Mode					() () ()					10					
III Energy Storage OK			1 88 0 1	corites Add-On Alarms	Bit Timer/Counter	InoutiOuteut Com	mare ComputeMath M	Novel onical EleMisc	Fle/Shift Sequencer	-					
I/O OK Rem Run II NO POrces	P. NO	cots p.		and Load Torry MainOur		T 52 AC/									
An Jomi	E MainPro	gram - Mainkoutin	e x Program Parameters	And Local Tags • MainPro	ogram Controller	Tags - E2_AC(contr	rollerj								
4 Controller 52 AC			1 - 10 IV 10 IV 1		CO NO CO NO CO	•)									
Controller Tags												AXIS Communication			^
Controller Fault Handler											ACOUN	instruction,	_		
Power-Up Handler	0										H_ACOMM	hACOMM			
▲ (> MainTask											nputData DutputData	E21Data E2:0.Data	a , ch ,		
▲ ৳ MainProgram											H_Axis ConnectionFaulted	hAxis E2:I ConnectionFauited	PLCControl	Table 🛤	
Parameters and Local lags											Emforda	0 Code			
Inscheduled												04	(Warn)-		
A G Motion Groups											WarnCode	hWarnCode 0			
Alarm Manager															
Q. Alarms												0000	INNUSTSIEN	_	
J.L Alarm Definitions D 🖮 Accets												Axi	Servo OFF struction		
he Logical Model		hEMSF										H_MSF	MCF		
4 🔄 I/O Configuration												H_Axis	hAxis	-(EN)	
III 101 5069-L330ERM E2 AC												ErrCode		<(P)-	
A 💑 A1, Ethernet														-CER)	
5069-L330ERM E2_AC															
A an A2, Ethernet												HIVIN	AKROSYSTEM s Servo ON		
5069-L330ERM E2_AC		bEMS0										H MSO	struction.		
	2											H_MSO	MSO	100	
												ErrCode	0.	-(DN)-	
														-(P)	
												HIVIN MIK	OSYSTEM		
		DEMA I										Axis Jog	nstruction		
	3											H_MAJ	hMAJ	_	v
													_	_	×
	Errors													-	9 ×
	0	0 Errors 🙏	0 Warnings 0 c	of 8 Messages								Search			ρ
	Complete -	0 error(s), 0 wa	rning(s)												1
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te Controller Organizer	C													_	>
🗩 Search Results 📇 Watch															
														0	

圖 3.3.5

4. 操作功能區塊

4.	操作功能區	逼塊	1-1
	4.1	執行 AOIs	1-2

操作功能區塊

4.1 執行 AOIs

此以功能區塊 H_ACOMM、H_MSO、H_MAH 作為範例,其他功能區塊可參照相同的操作步驟。

註:

請至本公司官網下載 EtherNet/IP 功能區塊及其操作手冊: Function Blocks (AOIs): EtherNet IP with Rockwell Studio 5000

1. 右鍵點擊 H_ACOMM,選擇 Monitor "hACOMM",開啟 Program Parameters and Local Tags 視窗。

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圖 4.1.1

E2 EtherNet/IP驅動器搭配Rockwell Studio 5000

操作功能區塊

2. 於 Program Parameters and Local Tags 視窗設定與監控各 AOI 的變數。

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3. 於 MainProgram 視窗右鍵點擊 H_MSO 的接點開關,選擇 Toggle Bit,即可激磁馬達。

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圖 4.1.3

MD46UC01-2412

4. 於 Program Parameters and Local Tags 視窗依序完成 H_MAH 的變數設定,包含 Method、 SearchSwitchSpeed、SearchZeroSpeed、Acceleration 和 HomeOffset。



圖 4.1.4



圖 4.1.5

操作功能區塊

5. 於 MainProgram 視窗右鍵點擊 H_MAH 的接點開關,選擇 Toggle Bit,即可開始執行歸原點。 註:執行歸原點程序前,請先激磁馬達。

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