

Advantech SE Technical Share Document

Date	2019 / 10 / 16							
	🗌 FAQ 📕 SOP	Related	ESRP-SCS-UNO1372	/WISE-5074/WISE-5057/WISE-5052				
Category	🗆 Driver Tech	Product						
	Note							
Abstract	How to connect EtherCAT Device WISE-5074 and Codesys							
Keyword	ESRP-SCS-UNO1372/WISE-5074/WISE-5057/WISE-5052							
Related OS	Windows							
		Revisio	on History					
Date	Version	Author	Reviewer	Description				
2019/10/16	V1.0							

Problem Description & Architecture:

How to connect EtherCAT Device WISE-5074 and Codesys

Brief Solution - Step by Step:

此文件為說明 CODESYS 如何與使用 EtherAT 與 WISE-5074 做連接 UNO-2484G

Customized UNO





WISE-5074



WISE-5052



WISE-5057





硬體連接

請先將 UNO-2484G 與 WISE-5074 使用 Ethernet cable 進行連接。

軟體設定

第一步:開啟 Codesys IDE



CODESYS V3.5 SP13

Application Object

第二步:添加 EtherCAT 的 XML 檔,點擊 Tool->Device Repository

Tenjin_test.project - CODESYS								- 0	×
File Edit View Project FBD/LD/IL Bui	ild Online Debug To	ols Window Help							T
월 🗃 🖶 😂 🗠 여 🕉 🖻 🛍 🗙 🛤 😘	🐴 🛀 🔳 🐄 🖬 🖉	Package Manager	PLC Log	gic] - 👒 🥨 , 🛛	🖋 Ç= F= d= -	18 • 🛒 🗐 🕅	V		· · ·
🖭 🐡 २३- २३- २३- २३- २३- वी- १४ १४४ / २६ व		Library Repository							
Devices • 4 × Tenjin_test • Device (Advantech SoftMotion x86 RTE V3 x64) B-BI PLC Logic	osis TextList 1 PROGRAM 1 PROGRAM 1 2 VAR 3 x1:E	Device Repository Visualization Style Reposi License Repository	itory	Symbol Configuration	GVL 🕂	PLC_PRG X 1 POU	MainTask	ToolBox General Network Box	→ ∓ X
Application GVL G	4 x2:F	Scripting Customize	•	A 🔻			100 % 🔍 🗸	■ Box with EN/E -vee Assignment → Jump	00
PIC_PRG (PRG)	2 astesi	Options Import and Export Option Device Reader	ns				y1	≪ Return ≪ Input Branch Execute	
또 MainTask 네 면 PLC_PRG 네 TextList 로 System Diagnosis (System Diagnosis) SoftMotion General Axis Pool	3 M						()	 Bootean Operators Math Operators Other Operators Function Blocks Ladder Elements POUs 	
	<					þ	+ - 100 % R >		
	Bookmarks								- ₽ X
	케 Previous Bookmark 케 Ne	ext Bookmark 🔀							
	Bookmark Object 书签_0 PLC_PRG [[书签_1 PLC_PRG [[evice: PLC Logic: Application] levice: PLC Logic: Application]	Position Network 2 / (Impl) Network 3 / (Impl)						
< >>									
Z Devices POUs	Bookmarks 🔂 Cross Ref	ierence List 🙀 Call Tree							
Messages - Total 0 error(s), 0 warning(s), 0 messag	e(s)								

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第三步:點擊 Install	
🌋 Device Repository	×
Location System Repository	Edit Locations
(C:\ProgramData\CODESYS\Devices)	
Installed device descriptions	
String for a fulltext search Vendor: <all vendors=""> ~</all>	Install
Name Vendor Version Description	Uninstall
Miscellaneous Fieldbuses	Export
HMI devices	
Sortwoton drives	
	Details
	Close
	ciose

第四步:選擇 WISE-5074 的 XML 設定檔,點擊開啟

Install Device Description				×
← → × ↑ 🚍 > TENJ	IN (D:)	✓	JIN (D:)	Ą
組合管理 ▼ 新増資料夾				. ?
🟥 文件 🗶 🔦	名稱 ^	修改日期	類型	大小
📰 圖片 🛛 🖈	GSDML-V2.2-Advantech-ADAM6100	2019/10/15 下午	XML 檔案	
3.5.15.0	//////////////////////////////////////	2019/10/16 上午	XML 檔案	
ADAM6100PN_ UNO-2484G安 UNO-2484G安 UNO-2484G安 ■ 本機 ■ TENJIN (D:) ■ UEFI_NTFS (E:) ■ EFI ■ 新増資料夾				
	i(N): WISE-5000_v1.6	✓ EtherCA 開啟(T XML Device des O) 取別	× crip ~



第五步:點擊完就會將 XML 設定檔匯入 Codesys(如下)

Device I	Repository		>
ocation	System Repository	~	Edit Locations
	(C:\ProgramData\CODESYS\Devices)		
installed d	evice descriptions		
String for	a fulltext search Vendor: <all vendors=""></all>	~	Install
Name		^	Uninstall
	WISE-5056SO 8 DO Module. WISE-5057 16 DO Module. WISE-5057SO 16 DO Module.		Export
<	WISE-5074	``	
	•\W/ISE-5000_v1.6 vml	<u>^</u>	
	Device "WISE-5001" installed to device repository.		
	Device "WISE-5051 8 DI Module." installed to device repository.		
	Device "WISE-5052 16 DI Module." installed to device repository.	×	
<		>	Details
			Close

第六步:對 DEVICE 點擊右鍵->add Device

Tenjin_test.project - CODESYS		– 0 ×
File Edit View Project FBD/LD/IL Build Online	Debug Tools Window Help	τ
🎦 📽 🖬 番 い つ 🍐 🖻 🏝 🗙 🗛 🌿 🔳 🕈	1) 11 개 개 📾 11 - 🖸 🕮 Application [Device: PLC Logic] 🔹 🧐 够 🕟 🔳 🤻 [코 9일 4일 4일 8] 수 🧱 국 🏷	
🖭 🚧 🛶 🖙 🖙 📭 🖬 🖓 👘 🖓 👘 👘 👘	→ ■ mm 並 = 1 = 1 = 1 = 計 問 計 問 が 問 す m = 1 = 1 = 1 = 1 = 1 = 1 = 1 = 1 = 1 =	
Devices - 4 × losis	TextList 🔟 Device 🎁 Library Manager 📲 Symbol Configuration 🆓 GVL 🕂 PLC_PRG 🗙 📴 POU 🕸 Main	iTask 👻 ToolBox 👻 म 🗙
Image: System Diago Text Image: System Diago SoftMotor of SoftMotor of	ROGRAM FLC_PRG R X1:ROOL; x2:BOOL; y1:BOOL; x1 x2 x1 x2 x2 x2 x2 x2	 General General Network Box Box with EN/ENO wasignment Jump wasignment Jump wasignment Wath Operators Wath Operators Hath Operators Other Operators Function Blocks Ladder Elements POUs
Export mappings to CSV Conline Config Mode	▶ + Q	>
Reset Origin Device [Device]		- ₽ X
Simulation	_mark 계 Next Bookmark 🗙	
Simulation	Object Position PLC_PRG [Device: PLC Logic: Application] Network 2 / (Impl) PLC_PRG [Device: PLC Logic: Application] Network 3 / (Impl)	
Z Devices 1 POUs	🖾 Cross Reference List 😴 Call Tree	
Messages - Total 0 error(s), 0 warning(s), 0 message(s)	Last build: 📀 0 😗 0 Precompile 🗸 🕌	Project user: (nobody)



第七步:點擊 Fieldbuses->EtherCAT->Master->EtherCAT Master,並點擊 add Device

🗂 Add Device				×				
Name EtherCAT_Master Action Append device O Insert device O Plug device	evice 🔿 U	pdate device						
String for a fulltext search	Vendor	<all vendors=""></all>		~				
Name	Vendo	r	Version	Desc ^				
Backplane PCM27D24DI Fieldbuses CANbus Backplane CANbus Backplane CANbus Backplane CANbus Backplane	Advante Advante	ch Co., Ltd. ch Co., Ltd.	3.5.6.0 3.5.13.0	Backç				
EtherCAT Master	3S - Sma 3S - Sma	art Software Solutions GmbH art Software Solutions GmbH	3.5.15.0 3.5.15.0	Ether Ether				
Group by category Display all versions (for experts only) Display outdated versions Image: EtherCAT Master Vendor: 3S - Smart Software Solutions GmbH Categories: Master Version: 3.5.15.0 Order Number: Description: EtherCAT Master								
Append selected device as last child of Device (You can select another target node in the navigator while this window is open.)								
		Add De	vice	Close				

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第八步:先到 windows->設定->網路與網際網路->乙太網路,查看是使用哪一個 PORT 口。

設定		
命 首頁	Zz	大網路
尋找設定	<u> </u>	網路
網路和網際網路	臣	乙太網路 4 未連線
⊕ 狀態	臣	乙太網路 3 未連線
12 乙太網路	臣	乙太網路 2 主連續
ጬ 撥號		無法辨識的網路
% VPN	F	沒有網際網路
() 數據使用量	相關	設定
Proxy	變更介	面卡選項
	變更進	階共用選項
	網路和	共用中心
	Windo	ws 防火牆

第九步:點擊 EtherCAT Master,並點擊 Browse,選擇目前硬體所使用的 PORT



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第十步:Login(Alt+F8),並使 PLC RUN

Tenjin_test.project* - CODESYS						-	
File Edit View Project Build Online Debug To	ols Window Help						₹.,
	에 게 게 ভ는 한 Applic	ation [Device: PLC Logic		(11 41 61 41 4) 4 4 36	₩ %		
Devices - A X stem_Diagnosis	TextList Device	Library Manager	Symbol Configura	ion 🛛 🎒 GVL 🛛 🚻 PLC_PRG	POU (MainTask 🛛 👔 EtherCAT	ſ_Master ▾
Tenjin_test General General	V Autoconfi	g Master/Slaves		EtherCAT			^
PLC Logic Application [run] Sync Unit A	ssignment EtherCAT NIC	Setting					
- 🙆 GVL - 👘 Library Manager	Destination ad	ddress(MAC) FF-FF-FF-FF	-FF-FF 🗹 Broad	Icast Enable redundancy			
PLC_PRG (PRG) EtherCAT I/ POU (PRG)	0 Mapping Network Nam	ss (MAC) 74-FE-48-35 e 乙太網路	-EB-7B Browse				
Symbol Configuration EtherCAT IE	C Objects Select net	work by MAC OS	elect network by name				
-O⊗ EtherCAT_Task Status	⊿ Distributed C	Clock	> Options				
PLC_PRG Information	Cycle time	4000 🔹 µs					
System_Diagnosis (System Diagnosis)	Sync offset	20 🗘 % w monitoring					
SoftMotion General Axis Pool	Sync window	1 🌲 µs					
							×
Watch 1							- 4 X
Expression			Application	Type Value	Prepared value	Execution point	Ade
							>
Se Devices POUs Set Watch 1	Breakpoints						
Messages - Total 0 error(s), 0 warning(s), 14 message(s)							
Device user: Anonymous Last build	: 🙃 0 🕐 0 Precompile 🖌 🦙 📕	RUN	Program loaded	Program unch	anged	Project user: (nobody)	()

第十一步:對 EtherCAT_Master(EtherCAT_Master)點擊右鍵->Scan For Device

es 🗸 🕂 🛪	stem_Diagnosis 💼 TextList	🚺 Device 🎁 Library Ma	anager 📑 Symbol Configur	ation 🫛 🎒 GVL	PLC_PRG	POU 👔	b MainTask 🛛 🚹	EtherCAT_Master X
Territic test Comparison C	General Sync Unit Assignment Log EtherCAT I/O Mapping EtherCAT IEC Objects Status Information	Autoconfig Master/Slaves EtherCAT NIC Setting Destination address (MAC) Source address (MAC) Network Name Select network by MAC Distributed Clock Cycle time 9ync offset 20 9ync window monitoring	PF-FF-FF-FF-FF → Brow 74-FE-48-35-EB-78 → Select network by name → Options → 0ptions → %	Ether adcast Enable r	edundancy			
SoftMotion General A & Cut B Copy Paste X Delete		Sync window 1	* µs					
Refactorin	ng 🔸							→ ậ
Properties	s		Application	Туре	Value	Prepared value	Execution point	
M Add Obje	ct er Devices dge Diagnosis dge Diagnosis Subtree ct ct with							
Edit IO ma Import ma Export ma	apping appings from CSV appings to CSV							



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第十二步:就會出現所連接的 EtherCAT 設備,本次為使用 WISE-5074 並掛載 3 片 DI 與 DO,因此可以 看到三片模組掛載的情況,並按下 COPY All Device to Project。

			— D >	<
Scanned Devices				
Device name	Device type	Alias Address		
	WISE-5074	36		
WISE_5057SO	WISE-5057SO 16 DO Module.	0		
WISE_5052	WISE-5052 16 DI Module.	0		
WISE_5057	WISE-5057 16 DO Module.	0		
			Show differences to project	
Assign Address			Show differences to project	
Assign Address			Show differences to project	

第十三步:可以看到三片模組已連接成功,下圖為 MAPPING 頁面,將所要的接點與內部變數進行

MAPPING	
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≁ ‡ X	TextList 🚺 Device	🚺 Library Manager 🍡	Symbol Configuration	n 🏾	GVL	PLC_PR	s 👔 POU 🚷	MainTask 👔	EtherCAT_Master	V WISE_505750
enjin_test Image: Second Sec	General The bus is not running. The shown values are perhaps not actual									
Application [run]	Process Data	Find		Filter Shov	vall		- 4	Add FB for IO Char	nel → Go to Instar	ice
GVL	EtherCAT I/O Mapping	Variable	Mapping	Channel	Address	Туре	Current Value	Prepared Value	Unit Description	
Library Manager				DOI	%OX1.0	BIT	FALSE		D00	
PLC_PRG (PRG)	EtherCAT IEC Objects	- N		DO1	%QX1.1	BIT			DO1	
Symbol Configuration	a.,	· · · · · · · · · · · · · · · · · ·		DO2	%QX1.2	BIT			DO2	
Task Configuration	Status	*>		DO3	%QX1.3	BIT			DO3	
The Comparation Task	Information	🍫		DO4	%QX1.4	BIT			D04	
🗉 - 🚱 🎲 MainTask				DO5	%QX1.5	BIT			DO5	
PLC_PRG		*		DO6	%QX1.6	BIT			D06	
TextList				D07	%QX1.7	BIT	FALSE		D07	
😔 🚾 System_Diagnosis (System Diagnosis)				DO8	%QX2.0	BIT	FALSE		DO8	
EtherCAT_Master (EtherCAT Master)				D09	%QX2.1	BIT	FALSE		D09	
= 1 WISE_5074 (WISE-5074)		- j, M		DO 10	%OX2.2	BIT	FALSE		DO 10	
 WISE_5057S0 (WISE-5057S0 : WISE_5052 (WISE-5057S0 : WISE_5052 (WISE-5052 L6 DT WISE_5057 (WISE-5057 L6 DD SoftWotion General Axis Pool 		🐾 = Create new vari	able 🍫 = Ma	ap to existing	variable	1.00	Always		e parent device setung	
	Watch 1									-
	Expression			Application	Т	/pe	Value	Prepared value	Execution point	



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第十四步:MAPPING 後重啟 PLC 就可見到設備已經順利運轉。(下圖模組前有綠色圈就是成功運行)

→ ∓ ×	Manager Symbol Configura	ition 🧭 GVL 💾 PLC_I	PRG 🗗	POU	🌮 MainTask	<)	EtherCAT_Master	WISE_505750) 👔 V	VISE_5052	WISE_5057	
Connected] (Advantech SoftMotion x	General	Find	Filter Show all				 Add FB for IO Channel * Go to Instance 					
PLC Logic	Process Data	Variable	Mapping	Channel DO0	Address %QX3.0	Type BIT	Current Value	Prepared Value	Unit De	scription)		
🎒 GVL 🎁 Library Manager	EtherCAT I/O Mapping			DO1 DO2	%QX3.1 %OX3.2	BIT	FALSE		DO: DO:	2		
UI PLC_PRG (PRG) UI POU (PRG)	EtherCAT IEC Objects			D03	%QX3.3 %QX3.4	BIT			DO:	3		
Symbol Configuration	Status			D05	%QX3.5	BIT	FALSE		DOS	5		
- 😏 🍪 EtherCAT_Task = - 😏 🍪 MainTask	Information			D07	%QX3.7	BIT	FALSE		DO	7		
TextList				D09	%QX4.1	BIT	FALSE		DOS	, , ,		
· ⊙ Z System_Diagnosis (System Diagnosis) · ⊙ ∭ EtherCAT_Master (EtherCAT Master)				DO11 DO12	%QX4.3	BIT	FALSE		DO: DO:	11		
	United of	D00	~ i ∳ = M	ap to existing	variable	Re	et Mapping Always	updatevariables (Jse parent dev	ice setting		
	Expression			Application	Ту	pe	Value	Prepared val	ue Executio	on point	•	

Reference: