

# Configuration Manual For ECAT Slave to ECAT Slave Gateway — GW-ECS256 RCS2 V1.00

## ESTUN Automation Co., Ltd. ESTUN Robotics Engineering Co., Ltd.

- This document is ISO compliant and will be updated in line with changes to the IPD system-

## **Revision History**

S/N	Version	Revision Date	Content	Reviser
1	V1.00	2022.07.05	Create a new document	Liu Chongxiao
2				

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## Preface

This Manual is applicable to control system **RCS2 V1.28.00** and provides instructions on the configuration and debugging methods of the EtherCAT Slave to EtherCAT Slave Gateway GW-ECS256 for ESTUN ER Series Robots.

### **Target Audience**

This manual is intended for technical support personnel specifically working with ESTUN Robotics.

### Precautions

- During the installation and debugging of these components, operators must strictly follow the instructions and explanations provided in this document.
- Relevant responsible personnel must ensure that the application or use of the products fulfils all safety requirements, including applicable laws, regulations, guidelines, and standards.
- While this document has been carefully prepared, the products described herein are subject to continuous updates and advancements. We may not always verify that the performance data, standards, or other characteristics described herein are consistent with the physical products after each update.
- Technical or editorial errors may occur in this document. We reserve the right to modify the document information without prior notice. If the data, diagrams and text descriptions in this document have not been modified for a product that has been changed, we will not make any specific statement to this effect.
- No modifications to the hardware or software configuration other than those specified in the text file are permitted, and ESTUN shall not be liable for any consequences resulting therefrom.
- The unit of measurement in the illustrations is in millimeters (mm) unless otherwise stated.

Warning	Injury Failure to comply with the safety instructions associated with this symbol may jeopardize personal life and health safety.
Caution	Danger to Environment and Equipment Failure to comply with the safety instructions associated with this symbol may pose significant risks to the environment and equipment safety.
<b>1</b> Note	Notes or Tips This symbol indicates that the information is provided to help you better understand the Safety Instructions.

### **Safety Instructions**

# **Chapter 1 Overview of Functions**

The EtherCAT interface refers to a communication method where an external logic controller communicates with a robot using the standard EtherCAT protocol.

## **Chapter 2 Protocol Introduction**

### 2.1 Introduction to EtherCAT

EtherCAT (Ethernet for Control Automation Technology) is a real-time industrial fieldbus communication protocol based on Ethernet architecture. It was introduced to the market in 2003, became an international standard in 2007, and became a Chinese national standard in 2014. EtherCAT has set new standards for system real-time performance and flexible topology.

### **2.2 EtherCAT Features**

(1) Full compliance with Ethernet standards. EtherCAT is a modification of the traditional Ethernet protocol, allowing it to coexist with other Ethernet protocols on the same bus. Standard Ethernet devices, such as Ethernet cables, Ethernet cards, switches, routers, and more, can be used in EtherCAT networks. Additionally, any device with a standard Ethernet controller can act as an EtherCAT master, including PC computers and embedded devices with Ethernet controllers.

(2) Excellent performance. EtherCAT is based on Ethernet technology and achieves data transmission speeds of up to 100 Mbit/s, making it the fastest industrial Ethernet technology available. EtherCAT maximizes the utilization of Ethernet bandwidth for data transmission, with an effective data utilization rate of over 90%. Furthermore, EtherCAT exhibits high real-time performance in data frame processing, with data refresh cycles of less than 100  $\mu$ s, meeting the demands of real-time applications. Additionally, EtherCAT uses high-precision distributed clocks to ensure synchronization accuracy among slave devices with a precision of less than 1  $\mu$ s.

(3) Simplicity and cost-effectiveness. EtherCAT features a simple architecture without the need for switches or hubs. Both complex devices with advanced functionalities and simple I/O nodes can be used as EtherCAT slaves. Furthermore, EtherCAT has no limitations on network topology and supports various topologies such as line, star, and tree structures, as well as combinations of different topologies, enabling flexible device connections.

(4) Comparison with other real-time Ethernet technologies.

	EtherCAT	SERCOS III	PROFINET-IRT	PowerLink	EPA	Ethernet/IP
Management Organization	ETG	IGS	PNO	EPG	EPA Club	ODVA
Communication Structure	Master/Slave	Master/Slave	Master/Slave	Master/Slave	Client/Server	Client/Server
Transmission Mode	Full duplex	Full duplex	Half-duplex	Half-duplex	Full duplex	Full duplex
Real-Time Characteristics	100 axes, response time 100us	8 axes, response time 32.5us	100 axes, response time 1m	100 axes, response time 1ms		1-5ms
Topology Structure	Star, Line, Ring, Tree, Bus	Line, Ring	Star, Line	Star, Tree, Bus	Line, Star	Star, Tree
Synchronization Method	time slice +IEEE1588	Main node +Cycle time	Time slot scheduling + IEEE1588	time slice + IEEE1588	IEEE1588	IEEE1588
Synchronization Accuracy	100ns	<lus< td=""><td>lus</td><td>lus</td><td>500ns</td><td>lus</td></lus<>	lus	lus	500ns	lus

## ESTUN

According to the comparative analysis, EtherCAT stands out in various aspects of real-time industrial Ethernet: it has extremely low cycle time, high synchronization, ease of use and cost-effectiveness. This makes it highly valuable in applications such as robot control and CNC machines.

### 2.3 Key indicators

- 1. The robot supports EtherCAT functionality, with communication data supporting 256 bytes for both input and output.
- 2 In the Sysmac Studio programming environment, users can configure relevant data to parse EtherCAT data and achieve data interaction.
- 3. The communication cycle is set by Omron PLC.
- 4. The device's EDS file is provided by the robot manufacturer.

### 2.4 Hardware environment

The required hardware modules are:

- 1. ERC30D Controller
- 2. Omron NJ101-9000
- 3. XB6-P2000HE
- 4. GW-ECS256LE EtherCAT
- 5. GW-ECS256RE EtherCAT



### 2.5 Function configuration

When the robot standard product is shipped, by default, only one Ethernet port supports EtherCAT functionality. The following configurations need to be performed:

1. System Configuration:



- a) Move the controller's third or fourth network card from the Windows system to the INtime system;(Assuming the third network card is moved to the INtime system)
- b) Configure the runtime package file rtk/eclr\_config.ini with the relevant settings. Example:

[ECAT1]		
EtherCATMasterEnable	=	1
LinkLayerType	=	1
MasterInstance	=	3
CycleTime	=	1000
MasterPrioBase	=	45
DomMode	=	2
LicenseKey	=	

2. PLC Software:

In the Sysmac Studio project, configure the module as an EtherCAT slave. The corresponding PDO data will be used for EtherCAT communication. Parse this data to control the robot accordingly.

## **Chapter 3 Instructions for Debugging**

In this section, the hardware OMRON NJ101-9000 is used as an example to illustrate how to use the EtherCAT interface to interact with the robot.

### 3.1 Hardware wiring diagram



### 3.2 Multiprog configuration

1. Open the Multiprog project and perform the relevant configuration using the device description file.

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• •	T	Copley Controls Co	orp.	
E.		ESTUN AUTOMATI	ON TECHNOLOGY CO., LTD	
× 1	L	Lenze		
- 7	D	Nanjing Solidot Ele	ectronic Technology Co., Ltd	
	•	ESTUN-EC4_V1.21	.xml	
		Name	Description	Revision
		EC4-1616BE	EC4-1616BE	0x00000001 (1)
		EC4-A04VE	EC4-A04VE	0x00000001 (1)
	I	GW-ECS256LE	GW-ECS256LE	0x0000001 (1)
		ESTUN-XB6 V1.33	ENUM.xml	



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2. The GW-PNS256RE module's slave PDO data corresponds to a type length of 64 DINT.



文件①	編輯(E) 视图(⊻) I	程(P) 建立(B	) 联机(N)	附加(区) ?							_	
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Project	t Explorer					Device	Editor				L	
* • U	Configuration/Re	source				Gene	al PDO Mapping Variables Advance	ed Options	Init Comm	ands Co	oE Obje	ect-Dictionary
	Slave_1001 [G	W-ECS256LE	] (1001)			Varia	oles					
							Name	Datatyne	Group Info	Offset		Siza
							Slave 1001 IGW-ECS256LEI Inputs IO0	DINT	(Default)	INC	0.0	40
							Slave 1001 (GW-ECS256) El Inputs I01	DINT	(Default)	INC	4.0	40
							Slave 1001 [GW-ECS256LE] Inputs I02	DINT	(Default)	IN	8.0	40
							Slave 1001 (GW-ECS256LE) Inputs I03	DINT	(Default)	INC	12.0	40
							Slave 1001 [GW-ECS256LE] Inputs I04	DINT	(Default)	IN :	16.0	40
							Slave 1001 (GW-ECS256LE) Inputs IO5	DINT	(Default)	IN -	20.0	40
							Slave_1001 [GW-ECS256EE].Inputs.io5	DINT	(Default)	IN .	20.0	4.0
							Slave_1001 [GW-ECS256LE].inputs.i06	DINT	[Default]	IN.	24.0	4.0
							Slave_1001 [GW-EC5256LE].Inputs.107	DINT	[Default]	IN :	28.0	40
							Slave_1001 [GW-ECS256LE].Inputs.108	DINT	[Default]	IN :	32.0	4.0
							Slave_1001 [GW-ECS256LE].Inputs.I09	DINT	[Default]	IN :	36.0	4.0
							Slave_1001 [GW-ECS256LE].Inputs.I0a	DINT	[Default]	IN :	40.0	4.0
							Slave_1001 [GW-ECS256LE].Inputs.I0b	DINT	[Default]	IN :	44.0	4.0
							Slave_1001 [GW-ECS256LE].Inputs.IOc	DINT	[Default]	IN :	48.0	4.0
							Slave_1001 [GW-ECS256LE].Inputs.I0d	DINT	[Default]	IN :	52.0	4.0
							Slave_1001 [GW-ECS256LE].Inputs.l0e	DINT	[Default]	IN :	56.0	4.0
5							Slave_1001 [GW-ECS256LE].Inputs.I0f	DINT	[Default]	IN :	60.0	4.0
gurat							Slave_1001 [GW-ECS256LE].Inputs.I10	DINT	[Default]	IN :	64.0	4.0
Confi							Slave_1001 [GW-ECS256LE].Inputs.I11	DINT	[Default]	IN :	68.0	4.0
arcAT							Slave_1001 [GW-ECS256LE].Inputs.I12	DINT	[Default]	IN :	72.0	4.0
E							Slave_1001 [GW-ECS256LE].Inputs.I13	DINT	[Default]	IN :	76.0	4.0

3. Create global variables and map them to the PDO data.

→ 初理使件 → Confirmation to STR	名称 人	地址	类型	用法	描述	初值	保持	PDD ·
Resource : T486 LE MSC12	GoPathReq		INT	VAR_GLOBAL				
👜 📁 Tasks	□ GW256							
🔥 Global_Variables	PnIn00	%MD3.13000000	DINT	VAR_GLOBAL				
10_Configuration*	Pnin01	%MD3.13000004	DINT	VAR_GLOBAL				
	PnIn02	%MD3.13000008	DINT	VAR_GLOBAL				
	Pnin03	%MD3.13000012	DINT	VAR_GLOBAL				
	PnIn04	%MD3.13000016	DINT	VAR_GLOBAL				
	PnIn05	%MD3.13000020	DINT	VAR_GLOBAL				
	PnIn06	%MD3.13000024	DINT	VAR_GLOBAL				
	PnIn07	%MD3.13000028	DINT	VAR_GLOBAL				
	PnIn08	%MD3.13000032	DINT	VAR_GLOBAL				
	PnIn09	%MD3.13000036	DINT	VAR_GLOBAL				
	PnIn0a	%MD3.13000040	DINT	VAR_GLOBAL				
	PnIn0b	%MD3.13000044	DINT	VAR_GLOBAL				
	Pnin0c	%MD3.13000048	DINT	VAR_GLOBAL				
	PnIn0d	%MD3.13000052	DINT	VAR_GLOBAL				
	PnIn0e	%MD3.13000056	DINT	VAR_GLOBAL				
	PnIn0f	%MD3.13000060	DINT	VAR_GLOBAL				
	PnIn10	%MD3.13000064	DINT	VAR_GLOBAL				
	Pnin11	%MD3.13000068	DINT	VAR_GLOBAL				
	PnIn12	%MD3.13000072	DINT	VAR_GLOBAL				
	PnIn13	%MD3.13000076	DINT	VAR_GLOBAL				
	PnIn14	%MD3.13000080	DINT	VAR_GLOBAL				
	PnIn15	%MD3.13000084	DINT	VAR_GLOBAL				
	PnIn16	%MD3.13000088	DINT	VAR_GLOBAL				
	PnIn17	%MD3.13000092	DINT	VAR_GLOBAL				
	Pnin18	%MD3.13000096	DINT	VAR_GLOBAL				
	Pnin19	%MD3.13000100	DINT	VAR_GLOBAL				
	PnIn1a	%MD3.13000104	DINT	VAR_GLOBAL				
	Pnin1b	%MD3.13000108	DINT	VAR_GLOBAL				
	Pnin1c	%MD3.13000112	DINT	VAR_GLOBAL				
	PnIn1d	%MD3.13000116	DINT	VAR_GLOBAL				
	Pnin1e	%MD3.13000120	DINT	VAR_GLOBAL				
	Pnin1f	%MD3.13000124	DINT	VAR_GLOBAL				
	PnIn20	%MD3.13000128	DINT	VAR GLOBAL				

Click on the newly created global variable in "Variables Mapping" and double-click on the corresponding module variable in the right Configuration/Resource section. Repeat this process for all newly created global variables to complete the mapping.



multinkog express - ekolu - [global_variablesconnguration.kesource]	
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PHI TO BE THE CARD AND STATE STATE AND STATE STATE AND STATE STATES AND STATE	
EtherCAT Variables Mapping	
Variables Mapping	
Configuration/Resource/PLC_VAR_BOOL (PLC_RC_BOOL_TAB)         ^           Configuration/Resource/PLC_VAR_INT (PLC_RC_DINT_TAB)         ^           Configuration/Resource/PLC_VAR_INT (PLC_RC_DINT_TAB)         ^           Configuration/Resource/PLC_VAR_REAL_(PLC_RC_REAL_TAB)         ^           Configuration/Resource/PLC_VAR_REAL_(PLC_RC_REAL_TAB)         ^           *         Configuration/Resource/PLC_VAR_REAL_(PLC_RC_REAL_TAB)           *         Configuration/Resource/PLL_RC_REAL_TAB)           *         Configuration/Resource/PLL_RC_REAL_TAB)           *         Configuration/Resource/PLL_RC_REAL_TAB)	*         Configuration/Resource           IN: Slaw_1001 [QW-ECS256E].Inputs.00 (DINT)           IN: Slaw_1001 [QW-ECS256E].Inputs.01 (DINT)           X         IN: Slaw_1001 [QW-ECS256E].Inputs.01 (DINT)           Next         IN: Slaw_1001 [QW-ECS256E].Inputs.01 (DINT)           Next         IN: Slaw_1001 [QW-ECS256E].Inputs.02 (DINT)           Next         IN: Slaw_1001 [QW-ECS256E].Inputs.06 (DINT)           IN: Slaw_1001 [QW-ECS256E].Inputs.06 (DINT)         IN: Slaw_1001 [QW-ECS256E].Inputs.06 (DINT)
Task Mapping	
Resource 'Configuration/Resource (IN)': <default></default>	
Resource 'Configuration/Resource (OUT)': <default></default>	
Memory Mapping  UO Channel  Shared Memory  Input:  Output:  0	

4. The PDO data of the module slave is the data transmitted via PROFINET. Users can write their own code to implement the required functionality (User Control Task or create a new Task). For example, assign the received data to the transmitted data and send a response. The process is shown in the following diagram.

工程树编	辑向导	消息 交叉参考 监视窗口 変重Ⅰ 変重 : 制作 调试开/关 工程控 : 13	C编 总线配 过程数.
	7		
HKS	8		
网络	9	realDataIn_03:= DINT_TO_REAL (PnIn_03);	
11.11	10	PushVar2ShareTab_1 (Index:=USINT#1, Var_Pushed:=realDataIn_03);	
+91 -	11	realDataIn_U3:=PushVar2ShareTab_1.Var_Pushed;	
伯毗只	13	PushVar2ShareTab 2(Index:=USINT#2 Var Pushed:=realDataOut 03);	
THT	14	realDataOut 03:=PushVar2ShareTab 2. Var Pushed:	
并行	15	PnOut_03:= REAL_TO_DINT(realDataOut_03);	
1125	16		
	17	R & + 00 - R T 00	
石线圈	10	Prout_00 := Frin_00; Prout_01 := Prin_01;	
	20	Prout $12 := PrIn 12$	
左侧由	21	(*PnOut 03 := PnIn 03;*)	
	22	$PnOut_0\overline{4} := PnIn_0\overline{4};$	
	23	$PnOut_{05} := PnIn_{05}$	
右侧电	24	Prout_06 := Prin_06; Prout_07 := Prin_07.	
121	20	$PnOut_0 := PnIn_0 ::$	
神占类刑	27	PnOut $09 := PnIn 09$ :	
	28	PnOut_Oa := PnIn_Oa;	
	29	PnOut_Ob := PnIn_Ob;	
	30	PnOut_Oc := PnIn_Oc;	
夏制FP	32	Prout_oa := Prin_oa; Prout_oa := Prin_oa;	
2	33	Prout of := Prin of	
切换FP	34		
	35	$PnOut_10 := PnIn_10;$	
	36	$PnOut_{11} := PnIn_{11}$	
	30	Prout_12 := Prin_12; Prout_13 := Prin_13;	
创建步	39	PnOut 14 := PnIn 14:	
一一一	40	PnOut_15 := PnIn_15;	
插入SF	41	PnOut_16 := PnIn_16;	
	42	$PnOut_17 := PnIn_17;$	
Adata = L /b	43	$ \begin{array}{c} \text{PnOut}_{16} := \text{PnIn}_{16}; \\ \text{PnOut}_{16} := \text{PnIn}_{16}; \\ \end{array} $	
创建动作	44	nouc_ro - rancio,	
	П. (		
	日代	\$A]:Dem ╋ 代码:testFB 📰Code:ER ☶ 代码:ER	

5. Download the debugged project to the controller and monitor the data to observe if the communication is functioning correctly.

Note:

When LAN3 is used for ECAT communication, the system does not detect disconnection states. When writing programs, you can use the ECAT\_GET\_SLAVESTATE function block to check the connection status. If the return value is 8 during operation, it indicates an abnormality. You can define error handling in the PLC.



名称	描述
= ECAT_ACK_SLAVEERROR	
ECAT_GET_MASTERNETSTATE	
ECAT_GET_MASTERSTATE	
ECAT_GET_SLAVEERROR	
ECAT_GET_SLAVESTATE	
ECAT_GET_WCSTATE	
= ECAT_SDO_READ	
= ECAT_SDO_WRITE	
≢ ECAT_SET_MASTERSTATE	
ECAT_SET_SLAVESTATE	

### **3.3 OMRON PLC configuration**

1. Open OMRON's SysmacStudio software, create a new project, and add a device by selecting the corresponding PLC model and version.

2. Connect to the PLC.

For this project, connect the laptop directly to the controller using an Ethernet connection. Follow these steps: Controller -> Communication Setup



M建工程 - new_Controller_0 - Sysmac Stud	lio			- 0	×
文件(F) 编辑(E) 视图(V) 插入(I) 工程(P)	控制器(C) 模拟(S) 工具	L(T) 帮助(H)			
X 40 60 57 60 67	通信设置(C) 变更设备(V)		A A A A A A A A A A A A A A A A A A A		
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new Controller D	高纯(F) C	trl+Shift+W		<检索> ▼ ₽	X
	同步(/) c 传道中(A)	trl+M			P
► EtherCAT 下: CPU/扩展机架	横式(M)	•			
	监测(N) 停止监测(N)				
▶ ☆ 运动控制设置 & Cam数据设置 > 本件:20里	设置/重置(S) 强制刷新(F)				
<ul> <li>●件後重</li> <li>● 任务设置</li> <li>□ 数据跟踪设置</li> </ul>	MC试运行(U) MC注册时(T)	7			
▼ [1]]] ▼ @ POUs ▼ ]]] 程序 ▼ []] Program0	SD内存卡(D) 控制器时钟(K) 释放访问权限(C) 更新CPU单元名称(P)				
L d Section0	安全性(E)	•		>	
上間 功能块 ▶ Ⅲ 数据 编译	通除所有内存(L) 世間控制器(R)			~ # X	
▶ hn 任务 🕺 🛄 🔤 1	a <mark>徐公正</mark> 光明	1 程序			
	人编译				

Select Ethernet - Direct Connection. Use the default PLC IP address: 192.168.250.1. Click "Ethernet Communication Test" and confirm a successful test.



Click on the controller and select "Online." If both the "Online" and "ERR/ALM" indicators in the lower-right corner of the software are green, it means the connection is successful.



M 新建工程 - new_Controller_0 - Sysmac Studio		– o ×
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new_Controller_0 V		□检索> ▼ 2 ×
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EtherCAT		
▶ ⑤ CPU/扩展机架		
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▶ 幸 运动控制设置		
e/ Cam数据设置		
▶ 事件设置		
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#### 3. Add the device.

In the multi-view browser on the left side, find "Configuration and Settings" and double-click on "EtherCAT." Right-click on the master device and select "Show ESI Library."



Select "This File" and place the device's XML file in the popped-up file path. After restarting the software, you will see the device ESTUN\_EC4\_V2.02.





In the vendor group, select "EC4 Series Terminal" and choose GW-ECS256RE. Drag this device under the master device. If you encounter issues while dragging, change the device status to offline mode before proceeding. Don't forget to add the node address. Once added, change the device status to online.



◙ 新建工程 - new_Controller_0 - Sysmac Studio	– 🗆 X
文件(E)编辑(E)视图(V)插入(1)工程(P)控制器(C)模拟(S)工具(D)帮助(H)	
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<ul> <li>         ◆初語浏览器         ・4         <ul> <li>             EtherCAT ×             </li> <li>             Tallsbut //网络设置             </li> <li>             Tallsbut //网络设置             </li> <li>             Tallsbut //GMACHT             </li> <li>             Tallsbut //GMACHT</li></ul></li></ul>	二月柏 → 中 全部供应商 ▼ 短 Gelassing and the sensor Digital Type Sens
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If an error occurs in the lower-right corner after changing to the online state, right-click on the master device, select "Compare and Merge with Physical Network Configuration", and click "Apply Physical Network Configuration.

Mathematical States and States	Sysmac Studio			– 🗆 X
文件(F) 编辑(E) 视图(V) 插入(I	)) 工程(P) 控制器(C) 模拟(S) ]	[具(T) 帮助(H)		
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多规则浏览器     ● ●       new_Controller_0     ●       ● 配置和设置     ●       ● 配置和设置     ●       ● 目前引:GW-ECS256F     ●       ● ○ 四/扩展机架     ●       ● ② た制器设置     ●       ● ○ 二、一 市流1:GW-ECS256F     ●       ● ○ 二、一 市流1:GW-ECS256F     ●       ● ○ 二、     ●       ● ○ ○     ●       ● ○ 二、     ●       ● ○ ○     ●       ● ○     ●       ● ○     ●       ● ○     ●       ● ○     ○    <	EtherCAT × ⇒ 点地址 网络没置 1	努力(1)     星朝(C)     私族(2)     朝鮮(0)     重故(3)     全部展开     全部所登     计算工机的传送延迟时间(N)     号入从定卷设置作順入新从设备(0)     号入从定卷设置作順入新从设备(0)     号入从定卷设置(2)     写入从定卷设置(2)     写力从设备建立号(N)     取得从设备建立号(N)     取得从设备建立号(N)     取得从设备建立号(N)     取得所有望置(2)     显示它造漏(N)     显示正当意(4)     显示子出信息(5)     显示子出信息(5)     显示子出信息(5)     显示正当意(6)     显示论造漏(N)     显示论的(统计信息(5)     显示论出意(1)	旅         值           主设音         主设音           主设音         主设音           主设音         1           月         2000         微秒           无         米         1000           形         設置         が時間化設作           防谷町間<30         秒         持谷週…           2         次         注           送信 <= 実系…         決法         米           方法         禁用从设备监控还项           名称。	日本部     日本     日本
< ■ 筛选器 ■	「「「「「「」」」を見ていていていた。	分配驱动器到轴。 		K

After powering off and restarting the slave station, download the program to the PLC by following these steps:

Click on the controller -> Transfer -> Transfer to Controller.



■ 新建工程 - new_Controller_0 - Sy	smac Stud	io					_	
文件(F) 编辑(E) 视图(V) 插入(I)	工程(P)	控制器(C) 模拟	(S) 工具(T) 報	助(H)	2			
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多视图浏览器 → 및	🚟 EtherC/	在线(0)	Ctrl+W			-	工具箱	- 4
new Controller 0 🔻	节点地址网	高线(F)	Ctrl+Shif	t+W			全部供应商	<b>_</b>
和誉和设置	1	同步(Y)	Ctrl+M	_	项目名称	<u>í</u>	全部组	<u></u>
EtherCAT	1	传送中(A)		•	传送到控制器(T)… Ctrl+T		Terminal Coupl	er 🗧
L -□ 节点1 : GW-ECS256F		模式(M)		•	从控制器传达(F) Ctrl+Shift	+1 音	Frequency Inve	rter 🗸
▶ I CPU/扩展机架		监测(N) 停止时间(N)			PDO通信周期	2000 微秒	輸入关鍵字	
▶ 读 控制器设置		17111110月(11)			参考时钟 电缆总长度	尤 1000 米		■ 显示所有版本
▶ @ 运动控制设置		攻重/里亘(5) 躍制刷新(F)			故障弱化操作设置	故障弱化操作	NX-ECC201 R	ev:1.2
Cam数据设置		MC试运行(II)			PDO通信超时检测	30 秒 2 次	NX-ECC202 R	ev:1.2
<ul> <li>事件设置</li> <li>任务设置</li> </ul>		MC监测表(T)		·	版本检测方法	设置值 < = 实际 不检查	NX-ECC203 R	ev:1.4
		SD内存卡(D)			DC同步修正	禁用从设备监控选项	NX-ECC203 Et	herCAT coupl
▼ 编程		控制器时钟(K)			┌设备名称 ———		R88D-15N01H	I-ECT 200V/10
V DOUs		释放访问权限(	C)		设置主设备名称。		R88D-1SN01L R88D-1SN01L	-ECT Rev:1.1 -ECT 100V/10
▼ 阊 程序		更新CPU单元很	る称(P)…				R88D-15N02H	H-ECT Rev:1.1
L 🖶 Section0	<	安全性(E)		•			KOOD-TSHOZH	
∟憲 功能	编译	清除所有内存(				<del>•</del> ₽ ×	机型 : NX	-ECC201 A
	2 0 错误	重置控制器(R)			1 12.00		<b>「</b> ■」版本:1.2	
▶ Ⅲ 蚁姞		1747		相予			大型间· 注释·Fth	
							控制器状态	<del>•</del> ‡
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							住我 • ERR/ALM •	192.168.250.1 运行模式
<								
■ 筛选器	白 輸出	《编译					<	>

### 4. PDO I/O Mapping

Locate the "I/O Mapping" under the Configuration and Settings.

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▼ ﷺ EtherCAT	
L -□ 节点1: GW-ECS256F W DINT	
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Les Section 0	
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Right-click at the arrow and create a new device variable to complete the mapping for all variables.



I 新建工程 - new_Controller_0 - Sy	ysmac Studio	5 <del></del>	
文件(F) 编辑(E) 视图(V) 插入(I)	工程(P) 控制器(C) 模拟(S) 工具(T) 報助(H)		
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new_Controller_0         ▼           前音和设置         ▼           ● 読音和设置         ▼           ● ご前言:GW-ECS256F         ⑤           ● ○ CPU/扩展机架         ●           ● 10 段射         ●           ● 20 段射         ●           ● 20 段射         ●           ● 20 段射         ●           ● 45 设置         ●           ● 20 数据集协设置         ●	第□         説明         R/W         数据类型         支量           ▼ € EtherCAT例路在语		
	Outputs_004_7000_0E     W     DINT     映射列表(M)       Outputs_004_7000_0F     W     DINT     ●       @##     ●     ●     ●     ●       ###     ●     ●     ●     ●		T