

**Operating Instructions** 

# **EtherCAT** option



drives.ru

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# **1.** Hardware Description

This communication card cooperates with the EtherCAT master station, which can realize the command and status acquisition of the inverter, so as to achieve the purpose of driving the inverter. The schematic diagram of its appearance is shown below.

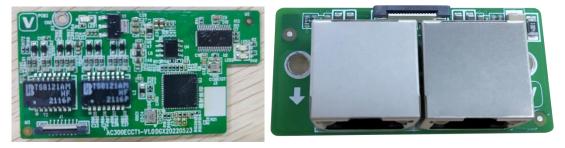


Figure 1.1 VF-101 EtherCAT communication extension card

There are multiple LEDs on this communication card to indicate the communication status of the extension card, and Table 1.1 shows the description of each LED indicator.

Table 1.1 LEDs Indicator light description	Table 1.1	LEDs	Indicator	light	descriptio	n
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Indicator light	Function	Describe
LED1	Power Indicator	<ol> <li>On means the power supply is normal;</li> <li>Off means the power supply is abnormal;</li> </ol>
LED2	Program running indicator	<ol> <li>Blinking means normal (slower blinking when OP, faster blinking when non-OP).</li> <li>Always on or off means the program is running abnormally;</li> </ol>
LED3	Error indicator	<ol> <li>Constant light indicates a board error;</li> <li>Continuous slow flashing means EEPROM loading error; 3.Two consecutive flashes indicate abnormal communication with frequency inverter;</li> <li>After flashing for 3 times, it is always off to indicate an error in reading and writing the inverter;</li> <li>Four consecutive flashes indicate that the main station is disconnected;</li> <li>Five consecutive flashes indicate that the communication card test byte fails;</li> </ol>

# 2. Wiring Instructions

The topological structures supported by EtherCAT include bus type, star type, tree type, etc., and the device connection is very flexible. The bus type connection is a common connection, and the connection topology is as follows (VF-101 EtherCAT extension card right RJ45for input, left RJ45for output).

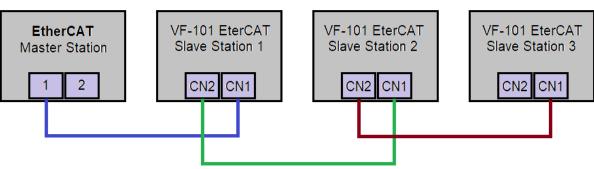


Figure 2.1 EtherCAT bus type wiring topology

# 3. VF-101 inverter related parameter description

# 3.1. VF-101 setting parameters

#### Table 3.1 VF-101 Function code setting

Function code t	Name	Set range	Set value	Meaning
F01.01	Run command selection	0: keyboard given 1: Terminal given 2: RS485 given 3: Optional card given 4: Terminal switching command given	3	The run command is given by the EtherCAT card
F01.02	Frequency given source channel	0: keyboard number given 1: Keyboard analog potentiometer given  10:optional card	10	The frequency command is given by the EtherCAT card
F01.11	Upper limit frequency source selection	Select the given source of the upper limit frequency of the inverter. 0: upper limit frequency digital given 1: reserved 2: Voltage analog VS given 3: Current/voltage analog AI given 4: Current analog quantity AS given 5: Terminal pulse PUL given 6: RS485 communication given 7: Optional Cards	-	If you want to use the EtherCAT card to limit the upper limit frequency, you need to set this to 7
F03.41	Torque command given	0: keyboard number 1: keyboard potentiometer given  7: Optional card	-	If the torque command is to be given by the EtherCAT card, set it to 7
F03.54	Torque control forward speed limit selection	0: Function code F03.56 setting; 1: reserved  7: Optional card*F03.56	-	Set to 7 if the speed needs to be limited by the EtherCAT card
F03.55	Torque control reverse speed limit selection	0: Function code F03.57set up; 1: reserved  7: Optional card*F03.57	-	Set to 7 if the speed needs to be limited by the EtherCAT card
F03.56	Torque control forward rotation maximum speed	0.0~100.0%	-	Relative maximum output frequency (F01.10)
F03.57	Torque control reverse maximum speed	0.0~100.0%	-	Relative maximum output frequency (F01.10)
F12.32	Pn card and inverter disconnection processing method	0: do not detect 1: Alarm and free parking 2: warn and continue		The processing method after the EtherCAT card detects that it is disconnected from the control board (Ebus4/A.buS)
F12.41	Site alias	1-247	1	
F12.43	Master-slave communication fault action	0: do not detect 1: Alarm and free parking 2: warn and continue	-	When the master-slave communication fails, the processing method (the PLC is disconnected from the device or the PLC downloads the program or the PLC is in the stop state, reports Ebus3/A.buS)
F12.50	Extension card communication disconnection processing method (inverter processing)	Ones place: EX-A disconnection handling Tens place: EX-B disconnection processing 0: do not detect 1: Alarm and free parking 2: warn and continue	-	The communication between the EtherCAT card and the inverter is faulty, and the processing method is selected. (The inverter itself detects and processes it, and reportsEbus1/A.buS)

# 3.2. VF-101 Communication Control Group Parameters

#### Table 3.2 VF-101 Communication control group address description

Address definition	Function Description	Description of data meaning	R/W characteristics
0x3100	Communication given frequency	Unit 0.01Hz, such as 5000corresponds to 50.00Hz	R/W
0x3101	Communication command setting	0: no command 1: Forward running 2: Reverse operation 3: Forward jog 4: reverse jog 5: Decelerate to stop 6: Free stop 7: fault reset 8: run the forbidden command 9: run the allow command	R/W
0x3104	Communication given upper limit frequency (0.01Hz)	Unit 0.01Hz	R/W
0x3105	Communication torque setting (0.1%)	Unit 0.1%	R/W
0x3106	Torque control positive maximum frequency limit (0.1%)	Unit 0.1%	R/W
0x3107	Torque control reverse maximum frequency limit (0.1%)	Unit 0.1%	R/W
0x3108	Communication given PID setting value (0.1%)	Unit 0.1%	R/W
0x3109	Communication given PID feedback value (0.1%)	Unit 0.1%	R/W
0x310A	Voltage-frequency separation voltage value setting (0.1%)	Unit 0.1%	R/W
0x310B	Tension setting	0~maximum tension	R/W
0x310C	Roll diameter setting	0~Maximum roll diameter	R/W
0x310D	Line speed setting	0~Maximum line speed	R/W
0x310E	Acceleration time 1	Set the unit through function code F01.21	R/W
0x310F	Deceleration time 1	Set the unit through function code F01.21	R/W
0x3111	Torque current component	0~4000(corresponding to 0.0%~400.0%)	R/W
0x3112	Torque filter time	0~6000(correspond0.000-6.000s)	R/W
0x3113	Tension PID feedback	0~1000(corresponding to 0.0%~100.0%)	R/W
0x3114	Communication given jog torque limit	0~4000(corresponding to 0.0%~400.0%)	R/W
0x3115	Communication given generator torque limit	0~4000(corresponding to 0.0%~400.0%)	R/W

# **3.3. VF-101 Communication monitoring group parameters**

Table 3.3 VF-101 Communication monitoring table

Parameter code (address)	Name		Instruction	R/W
(2222 200)		BitO	0:shutdown state, 1:Operating status	
		Bit1	0:non-accelerated theme,	
		Ditt	1:Accelerated state	
		Bit2	0:non-decelerating state,	
		Bit3	1:deceleration state 0:positive, 1:reverse	
0x3102	Inverter status	Bit4	0:no fault, 1:Inverter fault	R
0/0102			0:GPRS non-locking machine,	
		Bit5	1:GPRS lock	
		Bit6	0:no warning, 1:Inverter warning	
		Bit7	0: no-ready, 1: ready	
		Bit8	0: Communication with the control board is not faulty	
0x3110	Posonio	-	1: Communication failure with the control board	R
	Reserve			
0x3118 0x3119	Reserve	-		R
	Reserve	-		R
0x311A	Reserve		1-	R
C00.00(0x2100)	Given frequency	0.01		R
C00.01 (0x2101)	Output frequency	0.01	12	R
C00.02 (0x2102)	Output current	0.1A		R
C00.03 (0x2103)	Input voltage	0.1V		R
C00.04 (0x2104)	The output voltage	0.1V		R
C00.05 (0x2105)	Mechanical speed	1rpm		R
C00.06 (0x2106)	Given torque	0.1%		R
C00.07 (0x2107)	Output torque	0.1%		R
C00.08 (0x2108)	PID given amount	0.1%		R
C00.09 (0x2109)	PID feedback amount	0.1%		R
C00.10 (0x210A)	Output Power	0.1%		R
C00.11 (0x210B)	Bus voltage	0.1V		R
C00.12 (0x210C)	Module temperature 1	0.1°C		R
C00.13 (0x210D)	Module temperature 2	0.1°C		R
C00.14 (0x210E)	Input terminal X on state	-		R
C00.15 (0x210F)	Output terminal Y on state	-		R
C00.16 (0x2110)	Analog AI1 input value		.V/0.001mA	R
C00.17 (0x2111)	Analog AI2 input value	0.001	V/0.001mA	R
C00.18 (0x2112)	Reserve	-		R
C00.19 (0x2113)	Pulse signal PUL input value	0.001	kHz	R
C00.20 (0x2114)	Analog output AO1		//0.01mA/0.01kHz	R
C00.21 (0x2115)	Analog output AO2	0.01	//0.01mA/0.01kHz	R
C00.22 (0x2116)	counter count value	1		R
C00.23 (0x2117)	The running time of this power-on	0.1H	our	R
C00.24 (0x2118)	The cumulative running time of the machine	Hour		R
C00.25 (0x2119)	Inverter power class	0.1k\	V	R
C00.26 (0x211A)	Inverter rated voltage	V		R
C00.27 (0x211B)	Inverter rated current	0.1A		R
C00.28 (0x211C)	Software version	-		R
C00.29 (0x211D)	PG feedback frequency	0.01	łz	R
C00.30 (0x211E)	Timer time	seco	nds/minutes/hours	R
C00.31 (0x211F)	PID output value	0.019	6	R
C00.32 (0x2120)	Inverter software subversion	-		R
C00.33 (0x2121)	Encoder feedback angle	0.1°		R
C00.34 (0x2122)	Z pulse cumulative error	1		R
C00.35 (0x2123)	Z pulse count	1		R
C00.36 (0x2124)	Fault warning code	0~63	fault number, 64~128warning number	R
C00.37 (0x2125)	Cumulative power consumption (low)	1°		R
C00.38 (0x2126)	Cumulative power consumption (high)	1000	0°	R
C00.39 (0x2127)	Power factor angle	0.1°		R

## 4. Communication Instructions

#### 4.1. PDO data description

PDO realizes the periodic data exchange between the master station and the slave station. The PDO mapping object can add or reduce mapping parameters through the master station (the maximum number of mapping variables for TPDO and RPDO is 10 respectively). The default mapping of PDO mainly includes the following:

Inverter control command, target frequency given.

The current status and running frequency of the inverter can be read in real time.

### 4.2. Mailbox data SDO

Mailbox data SDO is used to transmit non periodic data, such as the configuration of communication parameters, the configuration of inverter operation parameters, etc. Types of CoE services include:

- 1. Emergency
- 2. SDO request
- 3. SDO response
- 4. TPDO
- 5. RPDO
- 6. SDO information, etc.

# 5. Operation example

#### 5.1 Controlling VF-101 inverter with Beckhoff controller

The following describes how to use the EtherCAT communication card via TwinCAT3 simple configuration.

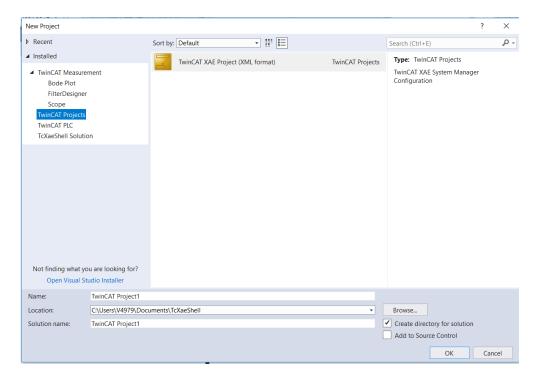
Note: Regarding the network card, please choose to use Intel Chip 100M Ethernet card.

- 1. Install TwinCAT3
- 2. Add xml file

Copy the xml configuration file (VF101\_ECAT1\_T0\_00010\_00000\_M\_20221220.xml) of VF101ECCT1 to the following directory:

TwinCAT3 directory: TwinCAT\3.1\Config\Io\EtherCAT.

- 3. New project
  - a. Open TwinCAT3, open the new project box through the path "File->New->Project", and click OK to create a new TwinCAT project.





b. Install the TwinCAT network card driver: Click the drop-down menu "Show Real Time Ethernet Compatible Devices...", the following dialog box will pop up, select the local website in the "Incompatible devices" column, click Install, after completion, it will be displayed in "Installed and ready to use devices" "The installed network card appears in the column.

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GAFETY Gen C++		Software Protection					
ANALYTICS	на» ЩЩ	Access Bus Coupler/IP Link Register					
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c. Search device: Right click Devices in the I/O drop-down box on the left column, and select scan. After confirmation, wait for a moment to pop up the "Device has been found" window. Follow the figure below for a series of confirmation operations. Finally, you can judge whether the device has successfully established a connection with the master station through the state status in the Online tab

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#### 4. SDO data list

After entering the OP state, the user can observe the data through the SDO data list, or modify the SDO data by doubleclicking the object dictionary.

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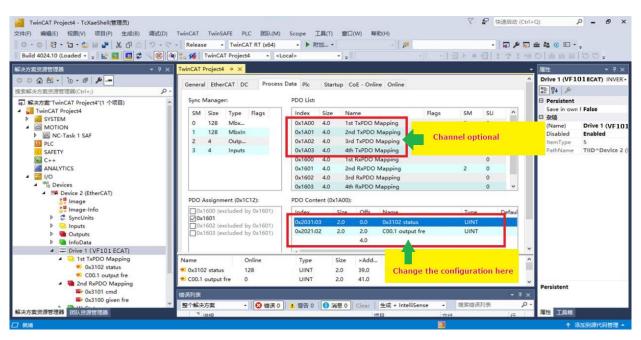
#### 5. Configure PDO parameters

a. Configure RPDO: The extension card can choose 4 RPDO channels, numbered 0x16000x1603, each channel can support up to 10 RPDO mappings, the user can add the required mappings according to the needs; the first two mappings of each channel have default configuration, which can be reconfigured by the user.

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b. Configure TPDO: The extension card can choose 4 TPDO channels, numbered 0x1A000x1A03, each channel can support up to 10 RPDO mappings, the user can add the required mappings according to the needs; the first two mappings of each channel have default configuration, which can be reconfigured by the user.



#### 6. Reactivate the configuration and switch to run mode

After each change of the PDO mapping, the user needs to reactivate the configuration for the new configuration to take effect.

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Target: <a>Local&gt;</a>	Restart TwinCAT System	em in Run Me	ode	
	OK Cancel 测定	82)#	1	

#### 7. Control the inverter through PDO

Set the value of the corresponding PDO map to control the operation of the frequency inverter.

Note: The given source of some function codes needs to be set to TwinCAT first to be valid when the function code is changed in

#### TwinCAT;

For example, for the function code 0x3101 cmd, it is necessary to set the function code F01.01 to 3 (the given source is set to an optional card), and then change the value of 0x3101 cmd in TwinCAT, so that the inverter can be controlled.

TwinCAT Project4 - TcXaeShell(管理员) 文件(F) 编辑(E) 视图(V) 项目(P) 生成(B) 调试(D)	TWINCAT TWINSAFE DLC FR	、(M) Scope 工具(T) 窗口(W) 帮助(H)	√    √    √    ↓	Q) P - 8 ×
G・G 間・10・11 日 12 人 日 白   ワ・C				🟛 🍇 🕲 🗹 👻 🖕
Build 4024.10 (Loaded 🗸 🛫 🔛 🧧 🔣 🌾 🎯	🐾 🔏 TwinCAT Project4 🔹	<local> -</local>	· · · · · · · · · · · · · · · · · · ·	
解决方案资源管理器 ▼ 平 ×	TwinCAT Project4 👳 🗙			属性 <b>▼</b> ₽ ×
○ ○ ☆ ☆ - `o - @ 🖋 🗕	Variable Flags Online			-
搜索解决方案资源管理器(Ctrl+;) ク・	variable riags online			
■ 解决方案"TwinCAT Project4"(1 个项目)	Value: 0			
▲ TwinCAT Project4				
SYSTEM	New Value: Force	Release Write		
MOTION				
NC-Task 1 SAF PLC	Comment:	Set Value Dialog		
SAFETY	3			
54 C++		Dec: OK		
ANALYTICS		Hex: 0x0000 Cancel		
🔺 🔀 I/O		Float		
▲ <sup>4</sup> <sup>th</sup> <sub>th</sub> Devices				
✓ ➡ Device 2 (EtherCAT) Image				
∎ + Image ▲ Image-Info		Bool: 0 1 Hex Edit		
♦ SyncUnits		Binary: 00.00 2 -		
Inputs		Bit Size: ○1 ○8 ●16 ○32 ○64 ○?		
Outputs				
InfoData				
<ul> <li>Inversion 1 (VF101 ECAT)</li> <li>Ist TxPDO Mapping</li> </ul>				
<ul> <li>Ist IxPDO Mapping</li> <li>Ist IxPDO Mapping</li> </ul>				
■ ■ 2nd roke bet mapping ■ 0x3101 cmd				
🗈 0x3100 given fre				
WcState	错误列表			
🕨 🛄 InfoData 🗸 👻	整个解决方案 • 🔀 措	误 0 🚺 警告 0 🚺 消息 0 🛛 Clear 📗 生成 + IntelliSense	<ul> <li>捜索错误列表 ♀</li> </ul>	
解决方案资源管理器 国队资源管理器	1 1418		文件 行	<b>雇性</b> 工具箱
□				↑ 添加到源代码管理 ▲

#### 5.2 Use OMRON controller to control VF101 inverter

The following introduces the operation steps of running the VF101 inverter through the simple configuration of OMRON's NJ501-1300 master station.

- 1. Install Sysmac Studio
- 2. Configure the master IP address

Internet 协议版本 4 (TCP/IPv4) 属性	×
常规	
如果网络支持此功能,则可以获取自动指派 统管理员处获得适当的 IP 设置。	铂 IP 设置。否则,你需要从网络系
○ 自动获得 IP 地址(O)	
● 使用下面的 IP 地址(S):	
IP 地址(I):	192 . 168 . 250 . 10
子网掩码(U):	255 . 255 . 255 . 0
默认网关(D):	192 . 168 . 250 . 1
○ 自动获得 DNS 服务器地址(B)	
● 使用下面的 DNS 服务器地址(E):	
首选 DNS 服务器(P):	
备用 DNS 服务器(A):	· · ·
□ 退出时验证设置(L)	高级(V)
	确定取消

#### 3. New project

When creating a project, select the correct device model.

Sysmac Studio (32bit)				
	_		_	_
<ul> <li>离线</li> <li>新建工程(N)</li> <li>計开工程(O)</li> <li>音 弓入(D,-</li> <li>空 弓入(D,-</li> <li>空 弓入(D,-</li> <li>空 弓入(D,-</li> <li>空 弓丸(D,-</li> <li>在线</li> <li>女 注意到设备(C)</li> <li>版本控制测试器(V)</li> <li>许可(L)</li> <li>□ 许可(L)</li> </ul>	作者 1 注释	設工程 PALT程 1.19	¥ <sup>]</sup> <sup>2</sup> 1300	▼ ▼ ▼ ● ●

#### 4. Communication configuration

 After entering the main interface, open the communication settings dialog box through the path "Controller->Communication Settings", select "Ethernet-Hub Connection" for the connection type, and set the remote IP address to "192.168.250.1".

🧱 通信设置		- 0	) X
▼ 连接类型			
请选择一个在线时每次与控制器连接时使用的方法。			
<ul> <li>USB-直接注接</li> <li>UBeneri-指语连接</li> <li>USB-远程注接</li> <li>Chternet-Hub连接</li> <li>G2X这注接时,请从以下选项中选择。</li> <li>USB-直接连接</li> <li>USB-直接连接</li> <li>USB-直接连接</li> </ul>		53 <b>1</b>	a
■ USB-近岸连接 ■ Ethernet-Hubj连接			
▼ 远程IP地址			
	2 . 168 . 250 . 1 信测试 Ethernet通信测试		
▼选项			
☑ 在线时确认序列ID。 ☑ 离线时检查强制刷新。			
▼ 响应监测时间			
在与控制器的通信中设置响应监视时间。(1-3600秒) 当通过多个网络(如VPN连接)连接到控制器时,请设 2 (秒)	置足够大的值。		
	确定 取消		

b. Click "Ethernet Communication Test", if the test is successful, you can go to the next step.

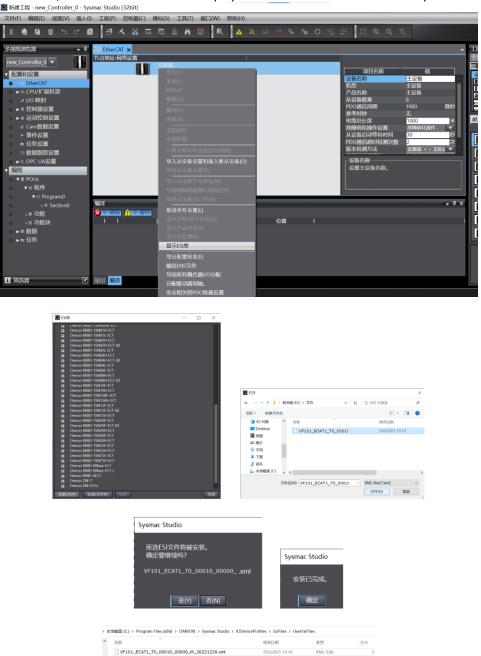
📓 通信设置		- 🗆 ×
▼连接类型		
请选择一个在线时每次与控制器连接时使用的方法	<del>д</del> ,	
<ul> <li>USB-直接沿接</li> <li>Ethernet-直接送接</li> <li>USB-运程建接</li> <li>Ethernet-Hu边送接</li> <li>每次公式连接时,请从以下选项中选择。</li> <li>USB-直接连接</li> <li>Ethernet-直接连接</li> </ul>	<b></b>	
■ USB-运程连接 ■ Ethernet-Hub连接		
▼ 远程IP地址		
指定远程IP地址。		
	192.168.250.1_	
US	B通信测试 Ethernet通信测试	
测试成功		
▼ 选项		
✓ 在线时确认序列ID。 ✓ 离线时检查强制刷新。		
▼ 响应监测时间		
在与控制器的通信中设置响应监视时间。(1-3600 当通过多个网络(如VPN连接)连接到控制器时,请 2(秒)	秒) 设置足够大的值。	



#### c. Import the xml configuration file

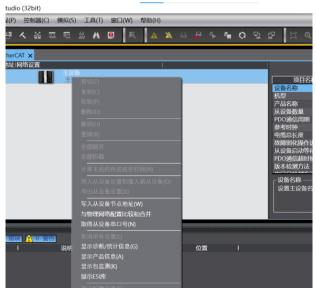
Double-click "EtherCAT" in the "Configuration and Settings" drop-down box in the left column, then right-click "Main Device" in the middle column, click "Show ESI Library", click "Installation File", find the path where the user-specified xml file is located and Open, click OK and the xml can be installed successfully.

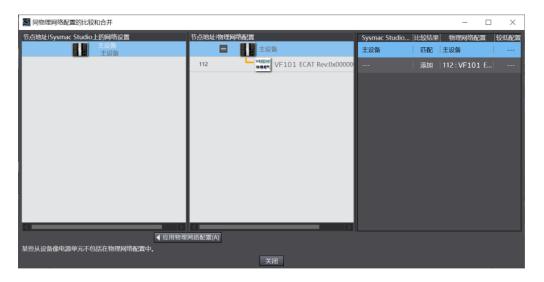
This document takes importing the VF101\_ECAT1\_T0\_00010\_00000\_M\_20221220.xml file as an example. After the import is successful, the xml file name will be displayed in the Omron software directory.



#### 5. Scan the device

Click "Online", then click "Compare and Merge with Physical Network Configuration", select "Apply" and close it. At this time, it can be observed from the lower right corner that the controller status is online.





🔜 应用物理网络配置		×	🃓 实际网络配置应用	相集	×
總要应用实际网络配置到Sysmac Studio 应用 取消	上的网络配置吗?		Sysmac Studio_	上的网络配置与实际网络配 关闭	置相同。
	控制器状态	1000000000	····· ∓ ‡		
	在线 ERR/ALM	•	192.168.250.1 运行模式		
	<				



#### 6. Parameter configuration

Click "Offline" to open the I/O mapping on the left column, and you can see the mapping variables configured by default in the system. Users can set relevant variables according to their needs.

■新建工程 - new_Controller_0 - Sysmac Stu	dio (32bit)							
文件(F) 編辑(E) 视图(V) 插入(I) 工程(I	P) 控制器(C) 模拟	(S) 工具(T) 窗口	(W) 帮助(H)					
X 4 6 6 5 C 6	<b>~</b> ¥ 55 F	a 👭 🖊 🔞	R 🛕 🔌 6	a 🤞 윢 🐿	<b>O</b> <sup>D</sup> <sub>a</sub> <sup>D</sup>	I Q Q	10	
多视图浏览器 🚽 🖣	-CO-11	I/O 映射 ×						-
new_Controller_0	位置	。 EtherCAT网络配置			说明	₹W│数据类型│	变量	
▼ 配置和设置	节点112	VF101 ECAT						
■ ▼ i EtherCAT			ing_0x3101 cmd_2031_0		M	A CANADA		
∟□ 节点112:VF101 ECAT (E001)			ing_0x3100 given fre_20		Ŵ	10 000 000 U		
■ トラ CPU/扩展机架			ig_0x3102 status_2031_0		R	1201201011		
■ 1/0 映射	_	TST IXPDO Mappir CPU/扩展机架	ig_C00.1 output fre_202	1_02	ĸ	UINT		_
▶ 3 控制器设置	CPU机架0	CPU机架0		_				
▶ ♦ 运动控制设置		- CI OULARD						
er Cam数据设置								
▶ 事件设置								
■ ■ 任务设置								
■ 🛛 数据跟踪设置								
▶ ☆ OPC UA设置								
▼ 编程								
▼ ff POUs	Ki							131
■ ▼ 2 程序	6-1-12							
■ ▼⊟ Program0								• 7 ×
■ L # Section0		说明	1 Mark	1 20-100				
■ ∟≋ 功能		说明	程序	1 位置				-
功能块								
▶■数据								
▶ № 任务								
S 第选器	输出 编译							

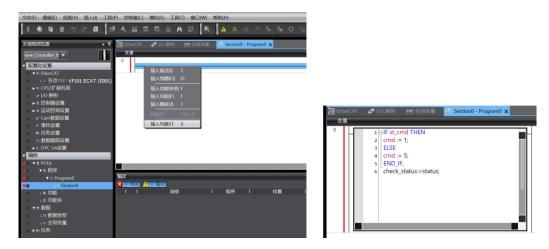
#### 7. Edit PLC program

a. a.Define and add variables: You can set the variable name of the PDO mapping, and add new variables.

🛗 EtherCAT	🧬 I/O 映射 🗙					-
位置	端口	说明	R/W	数据类型		
	▼ StherCAT网络配置					
节点112	VF101 ECAT					
	2nd RxPDO Mapping_0x3101 cmd_2031_02		w	UINT	cmd	
	2nd RxPDO Mapping_0x3100 given fre_2031_01		w	UINT	given_freq	
	1st TxPDO Mapping_0x3102 status_2031_03		R	UINT	status	
	1st TxPDO Mapping_C00.1 output fre_2021_02		R	UINT	out_freq 🛛 💌	
	▼ 👰 CPU/扩展机架					
CPU机架0	CPU机架0					

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多视图浏览器 🗸 🗸	翻 EtherCAT 🛛 🖨 I/O 映	射 全局变量 :	×			
new_Controller_0 🔻	名称	数据类型	初始 分配到	保持常量	网络注释	
	cmd	UINT	ECAT://node#112/2nd		<b>v</b>	
▼ 配置和设置	given_freq	UINT	ECAT://node#112/2nd		<b>v</b>	
▼ 20 EtherCAT	status	UINT	ECAT://node#112/1st T		<b>v</b>	
∟□ 节点112 : VF101 ECAT (E001) ▶ © CPU/扩展机架	out_freq	UINT	ECAT://node#112/1st T		<b>v</b>	
▶ © CPU/3/ 展机采 ■ I/O 映射	st_cmd	BOOL			<b>v</b>	
-> 1/0 映射 ▶ ◎ 控制器设置	check_status	UINT			<b>v</b>	
<ul> <li>● 运动控制设置</li> <li><i>e</i> Cam数据设置</li> <li>● 事件设置</li> <li>● 任务设置</li> <li>□ 数据限踪设置</li> <li>▶ ∞ OPC UA设置</li> <li>▼ <a href="mailto:signa">signe</a></li> <li>▼ <a href="mailto:signa">signe</a></li> <li>▼ <a href="mailto:signa">signe</a></li> <li>▼ <a href="mailto:signa">signe</a></li> <li>■ POUs</li> <li>▼ <a href="mailto:signa">signe</a></li> </ul>						
▼⊟ Program0	编译					- <b>₽</b> ×
⊾e Section0	😫 0 編集 🚺 0 警告					
∟≋ 功能	<b>II i</b>	说明	日程序「	位置		
∟≋ 功能块						
▼ == 数据						
∟≅ 数据类型						
■ <u>← 全局变量</u> ■ ▶m 任务						
■ 筛选器	输出编译					

b. Write PLC program.



c. Add the program to the main task through the "Task Settings" window.

Image: 新建工程 - new_Controller_0 - Sysmac Studio	o (32bit)	
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) 窗口(W) 帮助(H)	
X 4 6 6 5 C 6 6	< ※ 22 時 ※ ※ 22 末 ▲ ※ 22 22 12 12 12 12 12 12 12 12 12 12 12	
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rew_Controller_0 ▼	▲ 程序分配设置 Primarytack	<检索>
	ି କାମ କାମ କାମ କାମ କାମ କାମ କାମ କାମ କାମ କାମ	×
1 筛选器		Ĩ.

8. **Download to the controller**: After running online, click "to the controller" to observe the execution of the program in real time.

