HCFa
禾川科技

EtherCAT Coupler Communication Manual

Ethercat to CANopen Communication Card Wiring Diagram

Front View

Left View

Right View

CANopen

5V power supply integrated in CN3 interface.

VFD CN3 port

(For connections between CAN network nodes, check the CAN Communication section.)

EtherCAT-Out

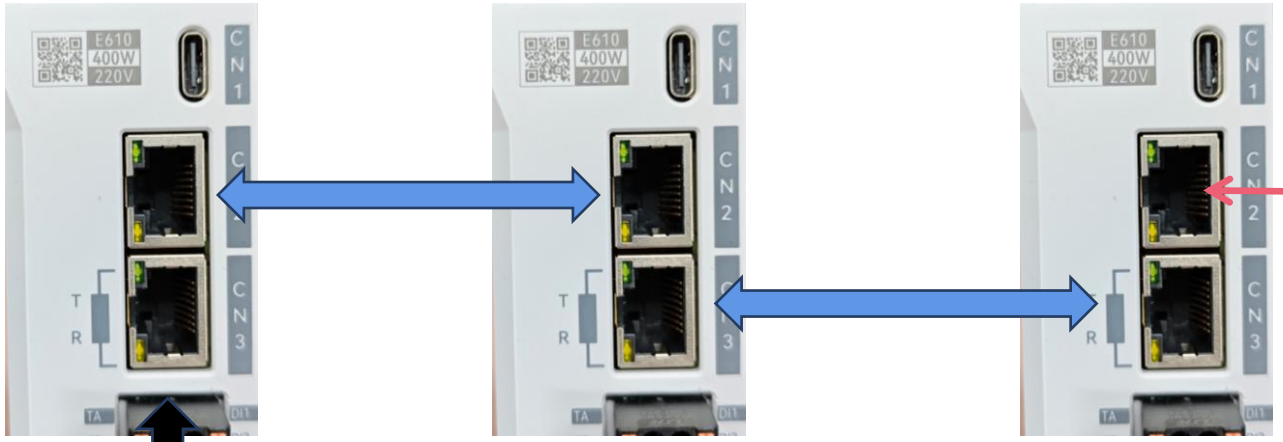
EtherCAT-In

Pin definition	1	2	3	4~6	7	8
	CANH	CANL	GND	—	+5V	GND

NOTE: The order of EtherCAT input and output must not be reversed.

Note: The coupler can only be connected to the CN3 port of the VFD.

Interconnection of multiple frequency converters



The terminal resistor is plugge into the last VFD.

The coupler must be connected to CN3.

CN2/CN3 inputs and outputs are compatible between VFDs

One coupler can support up to eight VFDs.

VFD parameter settings

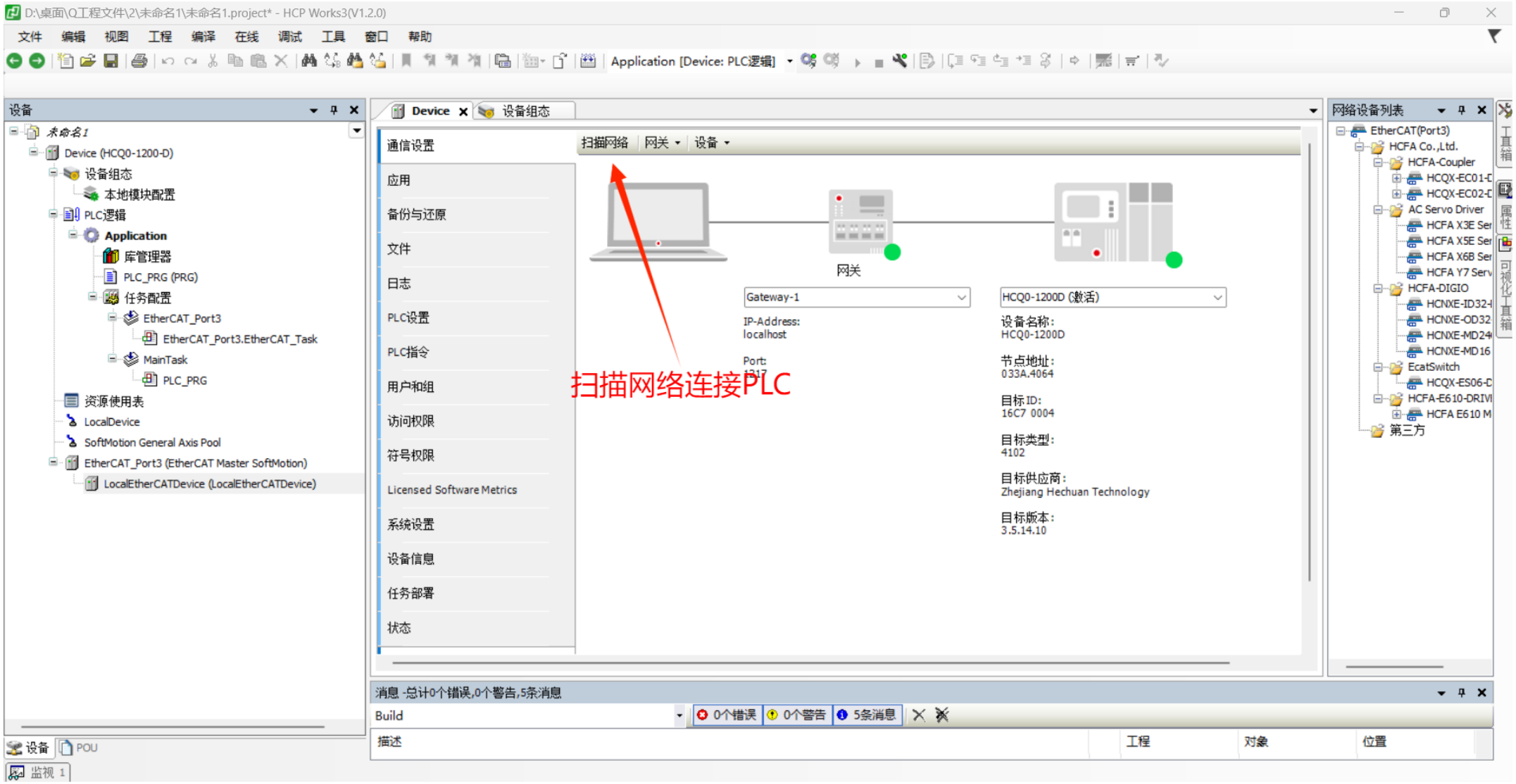
Parameter	Value		Note
P00.02	2	Serial port command communication	
P00.03	9	Main frequency source set by communication	
P15.00	2	Communication method selection CANopen card	
P15.01		Node number	EtherCAT axis 1 is CAN node 1, and so on.
P15.02	495	Baud rate	Default 500k baud rate
P24.13	1	CAN communication protocol	0-Internal network can; 1-canopen Set 2140 in P24.00 before modifying other parameters in the P24 group.

Note: A terminal resistor must be inserted into the CN2 terminal of the frequency converter.

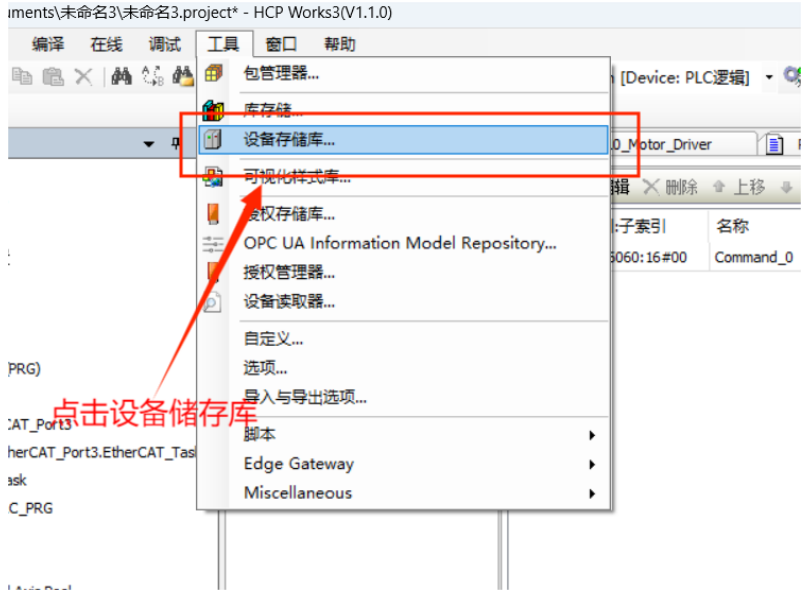
Indicator notes

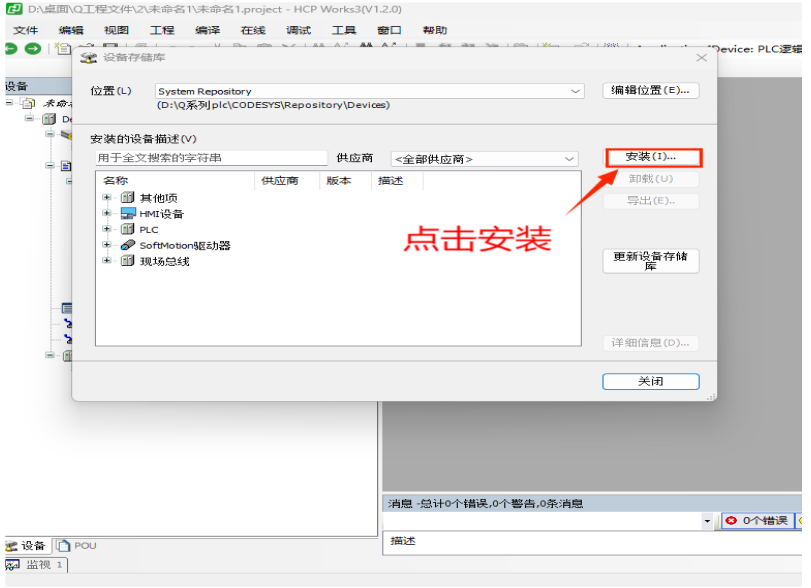
Name	Function	Status description	Note
PWR	Power indicator	Constant on: Power supply normal; Constant off: Power supply abnormal.	
CAN	CAN communication status indicator	1 Steady off: All slave communications are normal; 2 Steady on: Slave communications are abnormal; 3 Flashing on and off: Slave communications are unstable;	When the light is constantly off, check if error code A16 (communication error) appears on the slave station panel. If A16 appears, verify the drive parameters and check the wiring connection.
ECAT	EtherCAT communication status indicator	1 Steady off: Startup 2 Slow flashing: Safe operation; 3 Fast flashing: Pre-operation 4 Steady on: Normal operation	After starting the EtherCAT master, the status light will flash first and then remain solid. If communication errors occur, check the master configuration and ensure the connection cable is an 8-core cable.

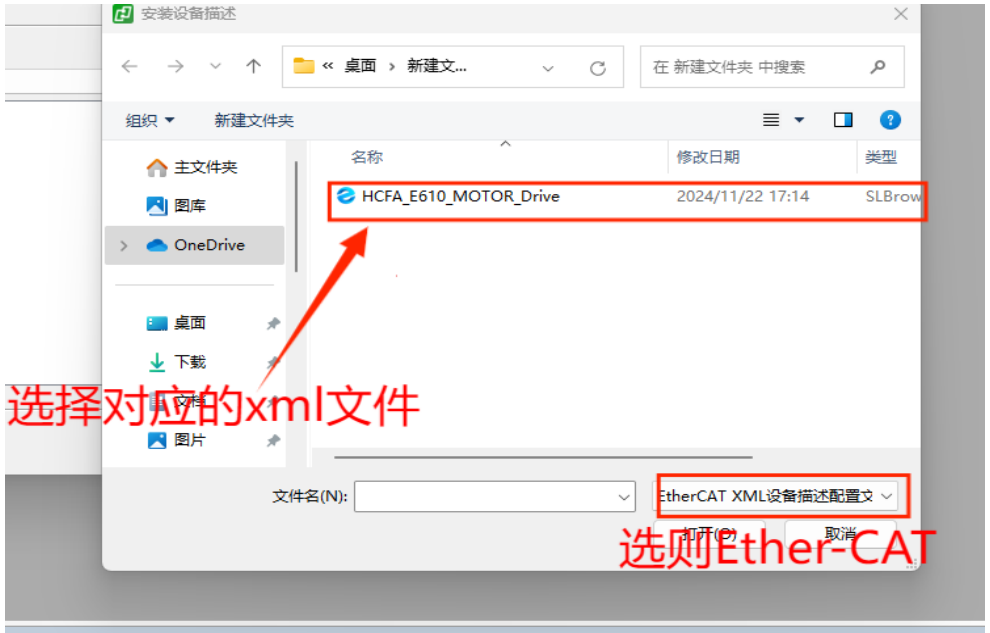
Network configuration when using EtherCAT to CANopen communication card + Q series PLC

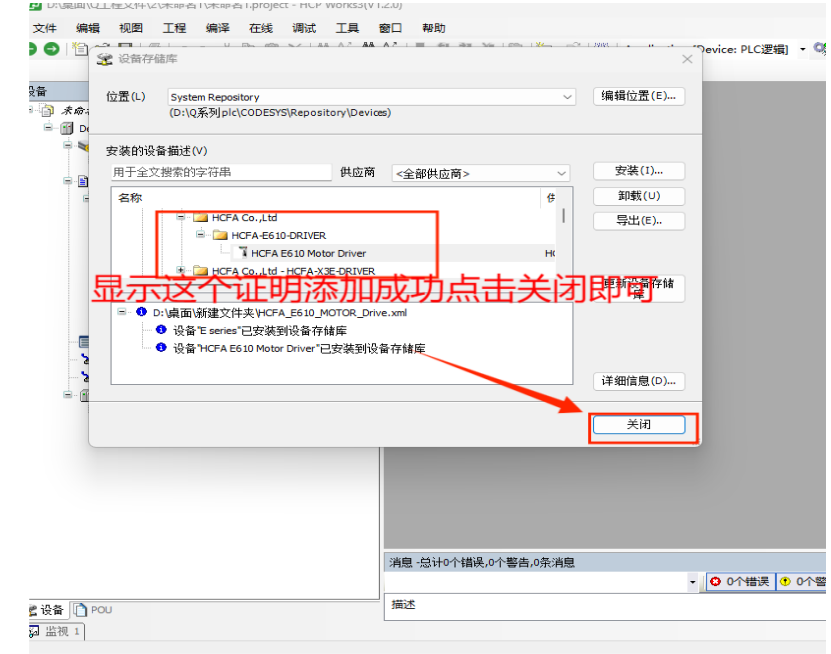


Install the xml file



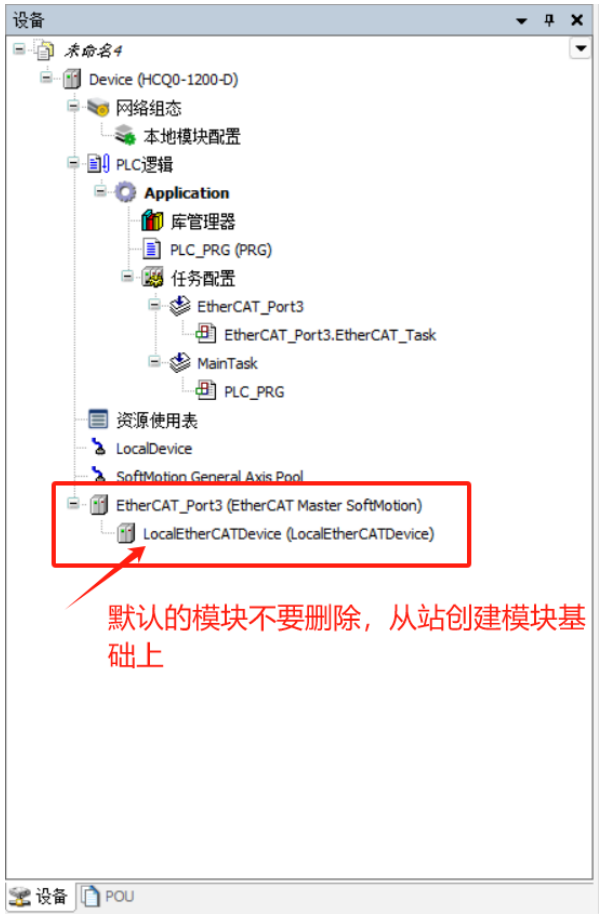




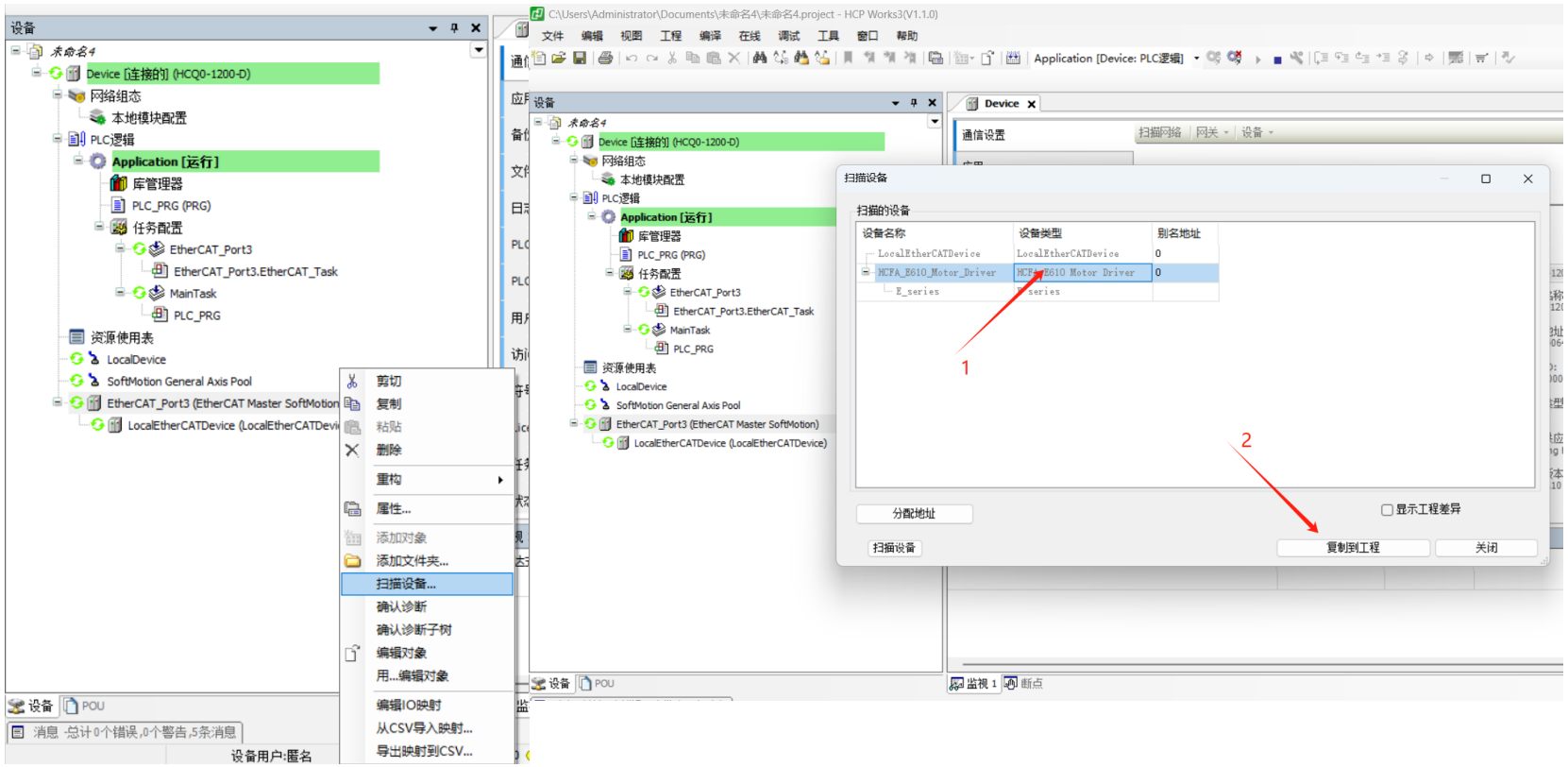


Create project

1. Create a project;

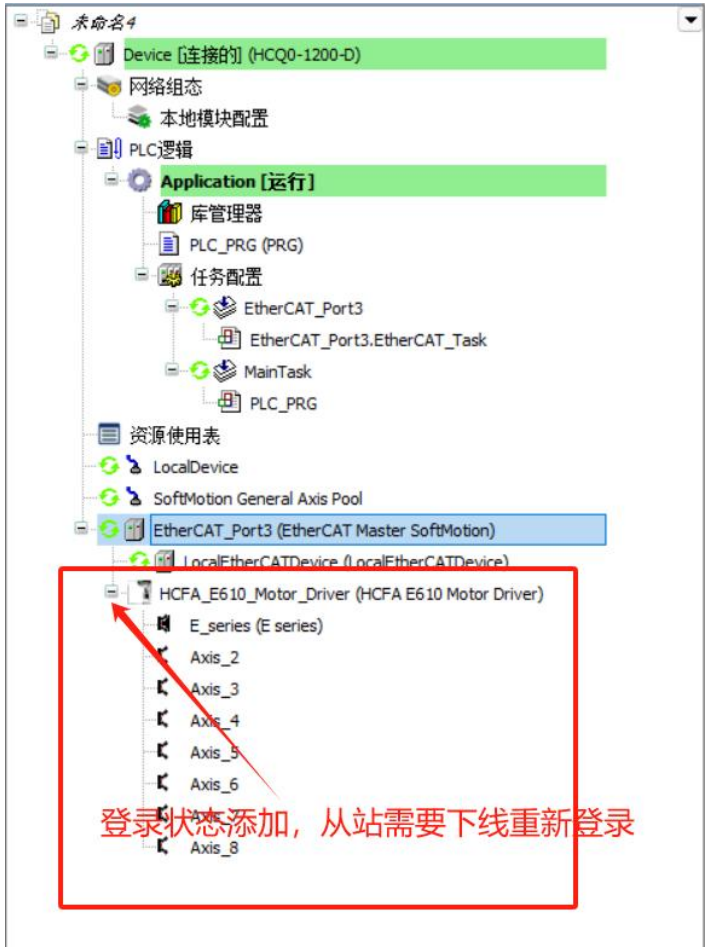


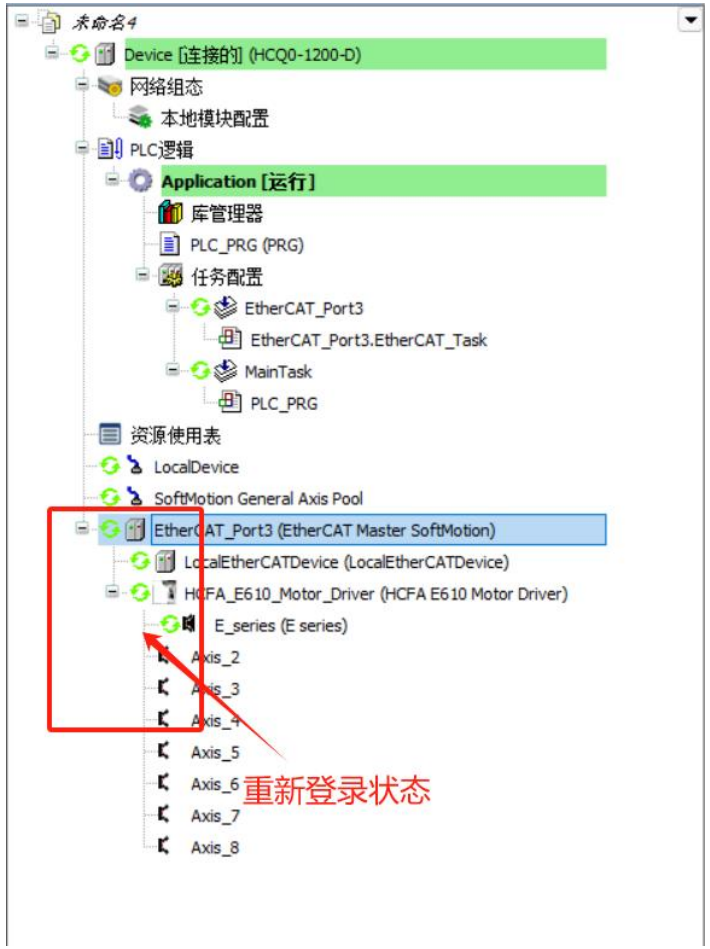
2. Click “Login” (scanning is possible even when not logged in) and scan the slave devices based on the EtherCAT master.



Create project

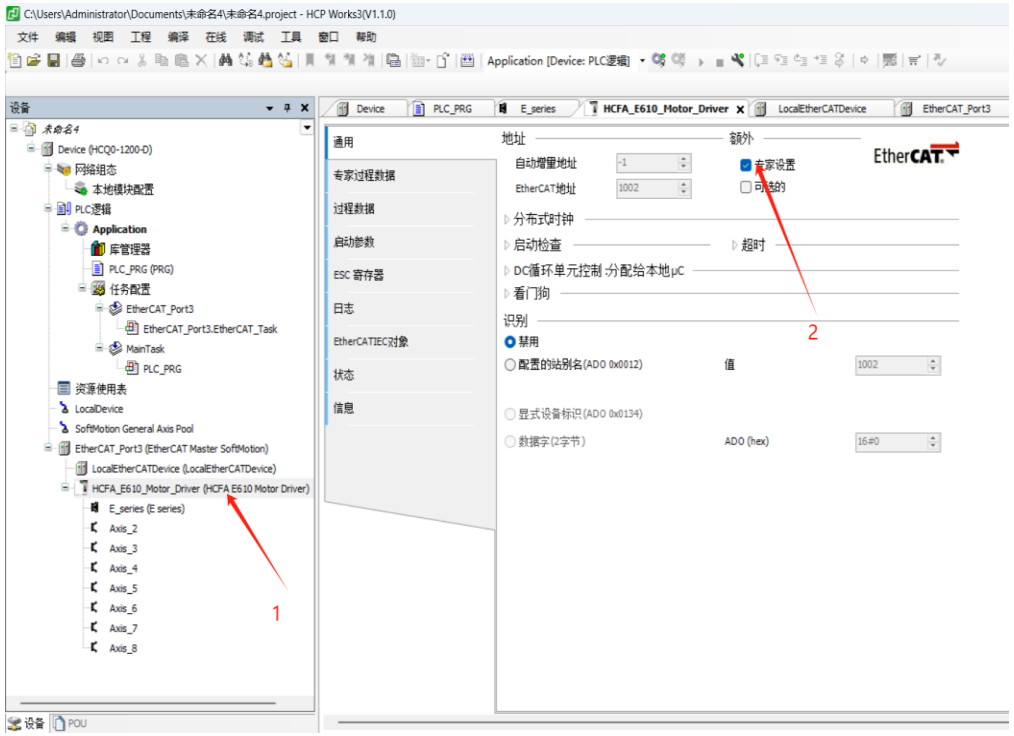
3. Re- login after when there is no connection icon(Green circle) shows



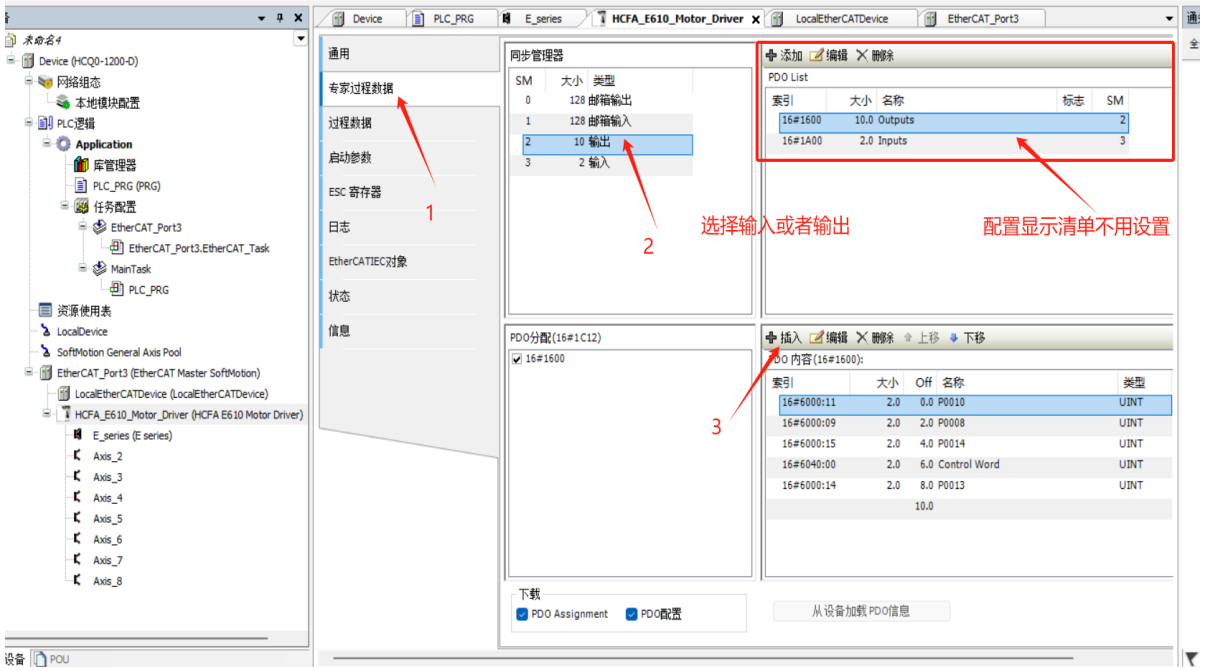


Configure process parameters

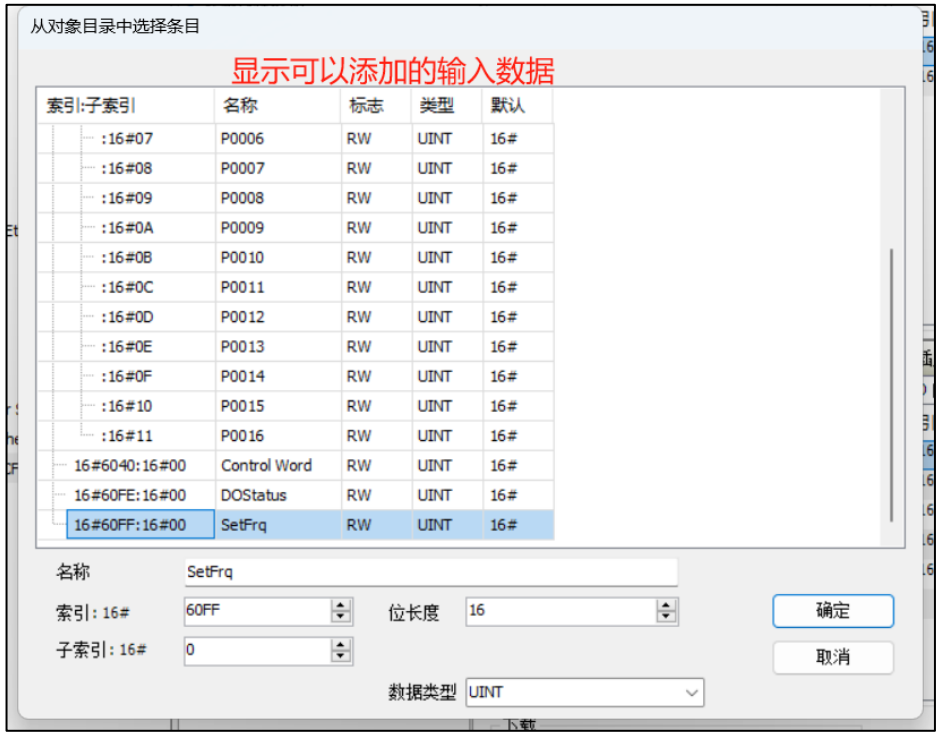
1. Double-click the EtherCAT slave and select expert setting.

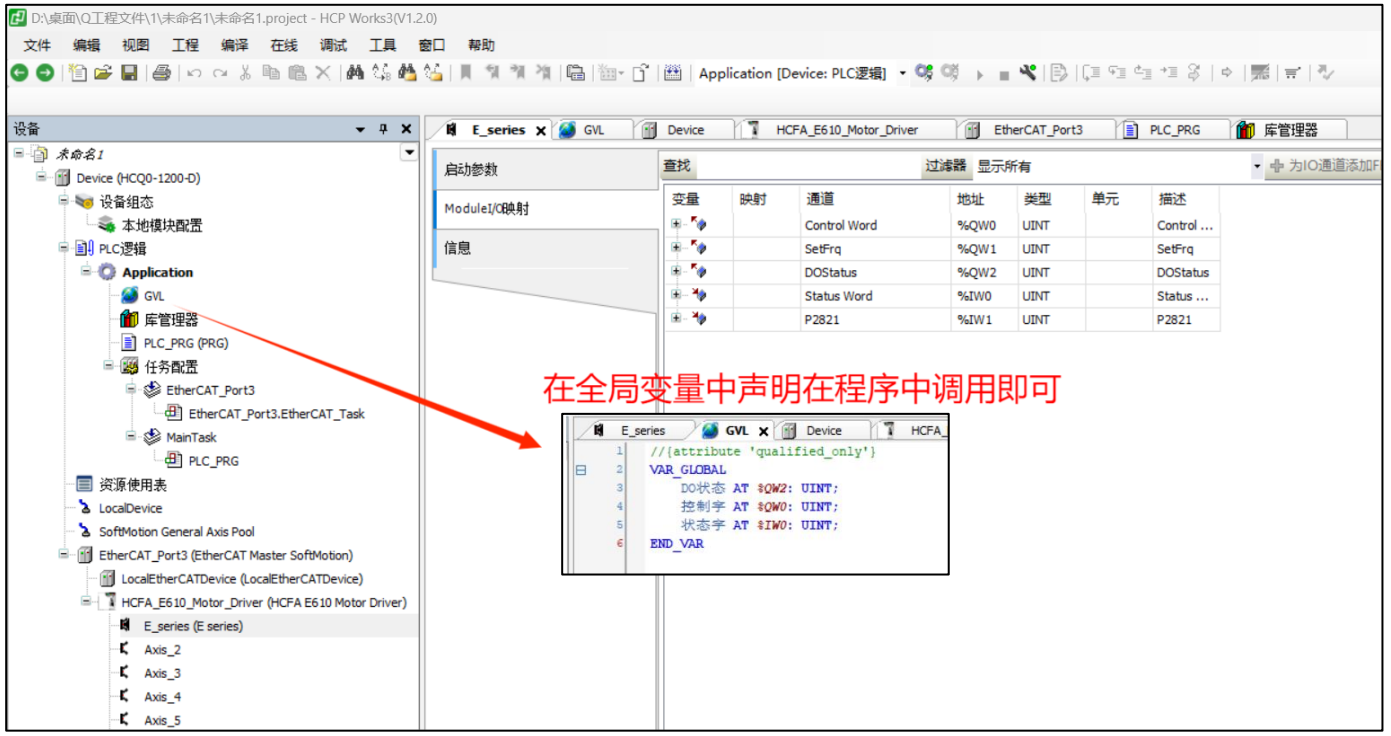


2. Insert input or output parameters (add according to index) in the expert process data.

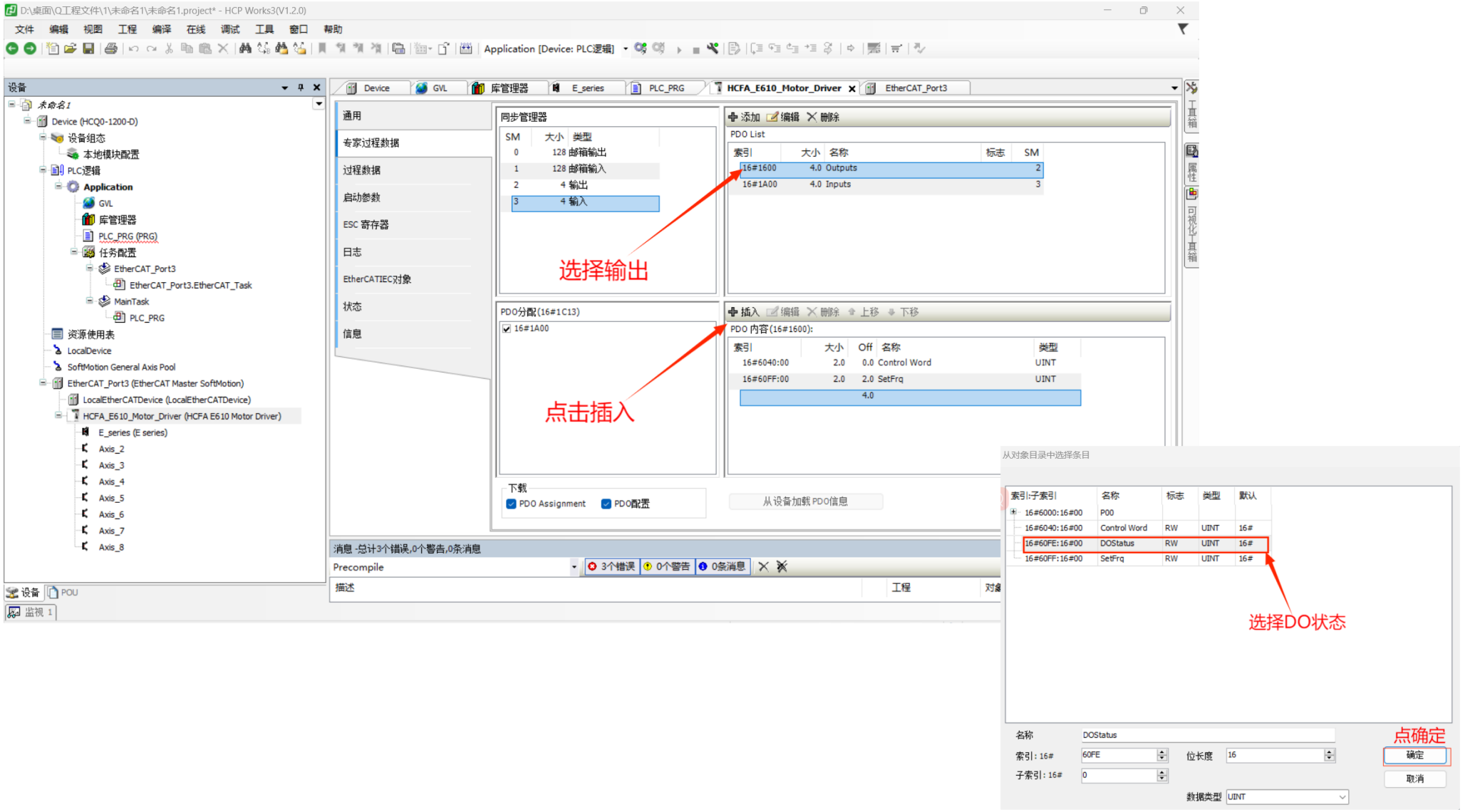


Configure process parameters

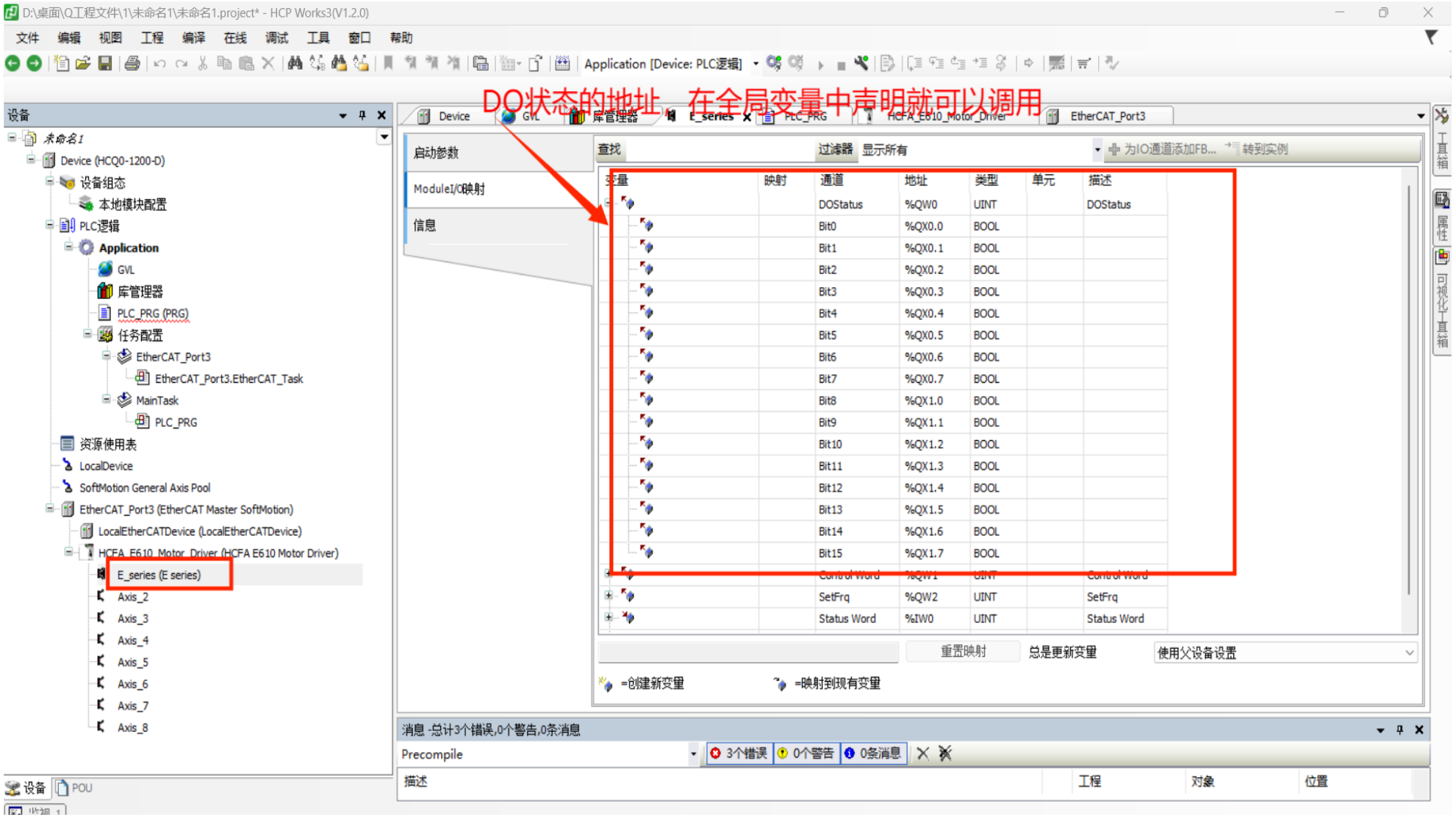




Control DO status



Control DO status

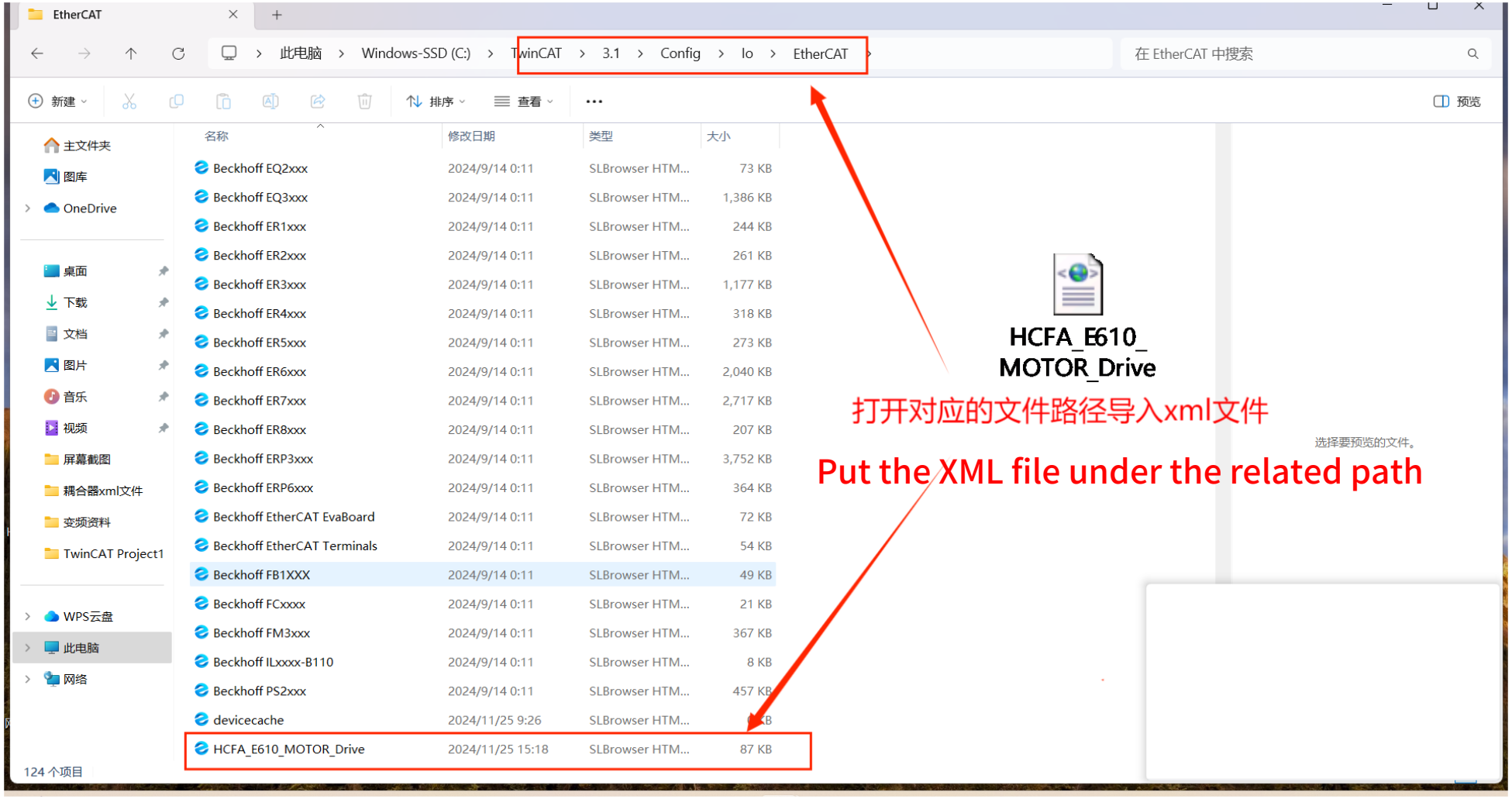


Control DO status

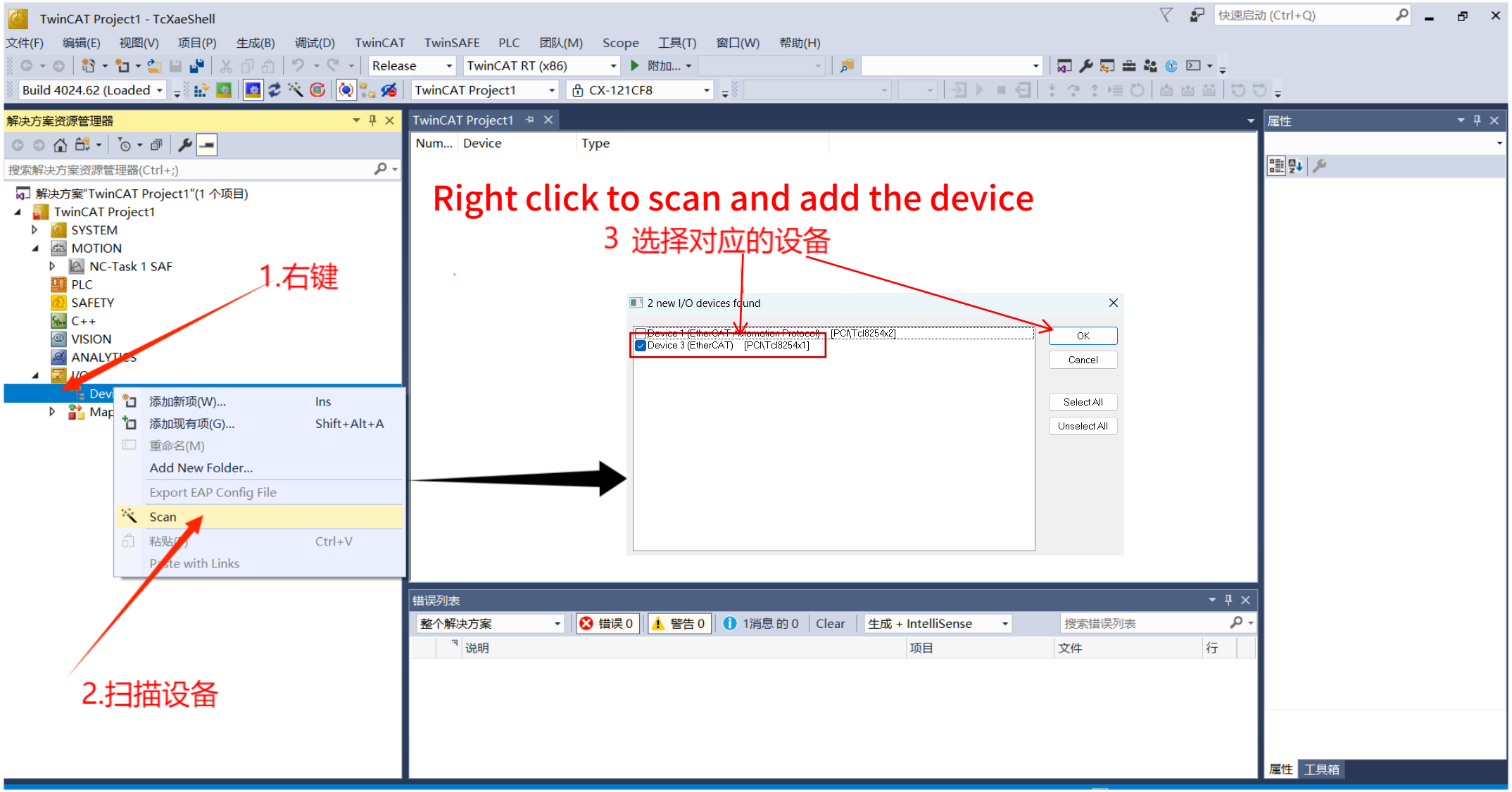
Correspondence	DO status	
	bit0	Relay
	bit1	DO1
	bit2	DO2

Set the inverter parameter relay output selection (06.01) and DO output selection (06.02—06.03) to communication control (20).

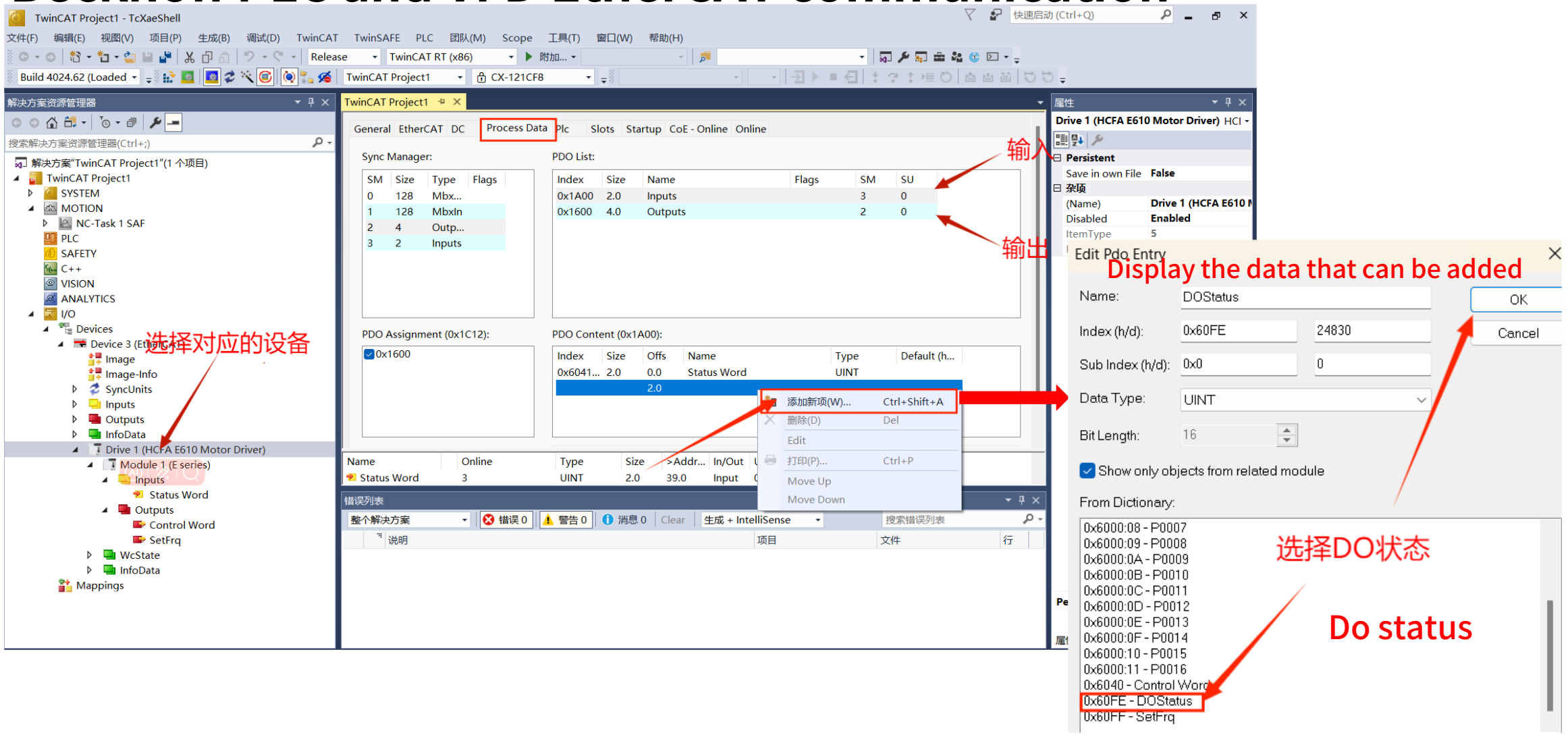
Beckhoff PLC and VFD EtherCAT communication



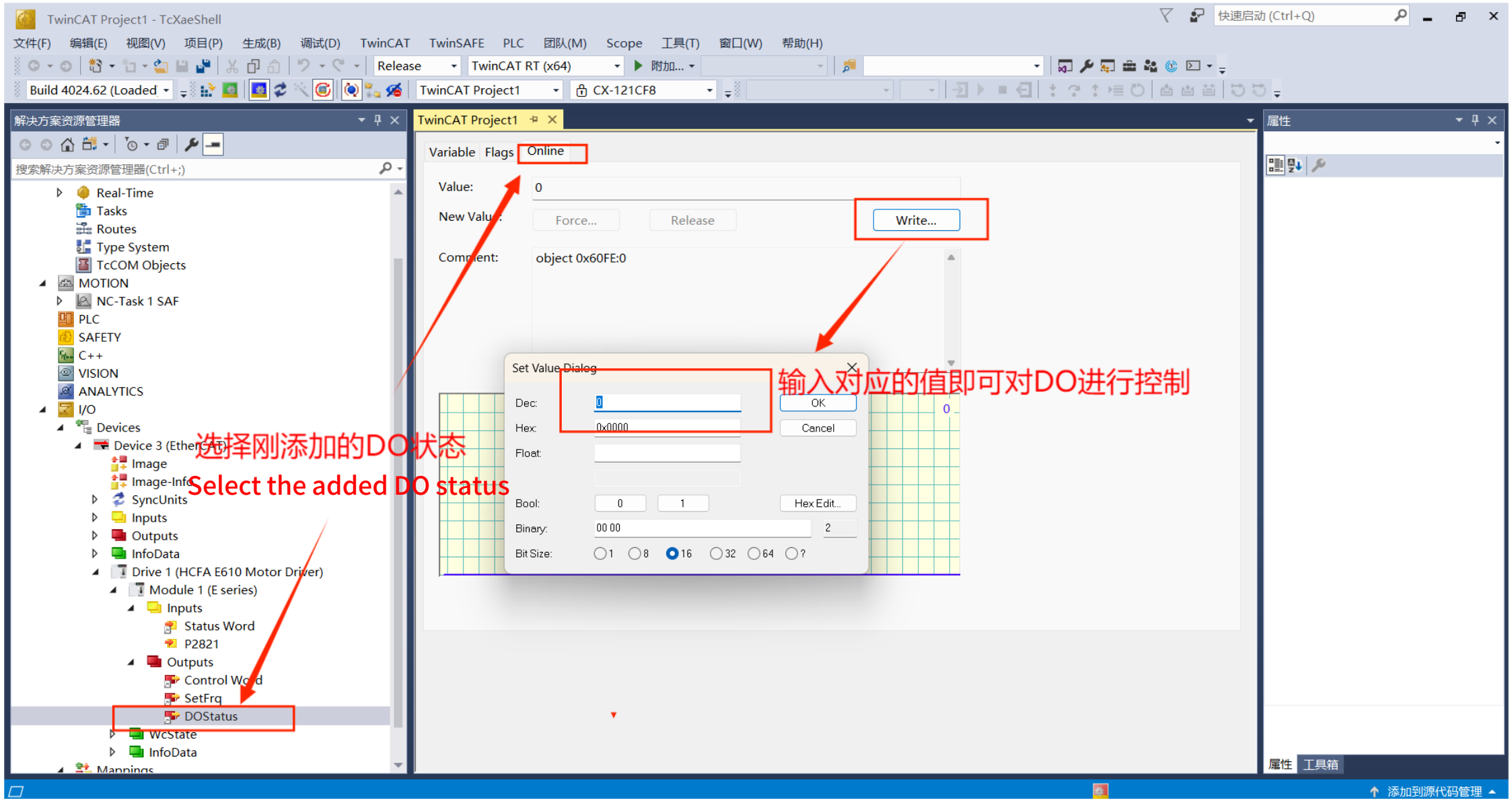
Beckhoff PLC and VFD EtherCAT communication



Beckhoff PLC and VFD EtherCAT communication



Beckhoff PLC and VFD EtherCAT communication



Name	Index	Function	Description	Read/Write
Status Word	16x6041:00	Read the operation status of the frequency converter.	1: Running in forward direction	R
			2: Running in reverse direction	
			3: Shutdown	
			4: Fault	
SetFrq	16x60FF:00	Modify the running frequency.	-1000‰~1000‰	W
Control Word	16x6040:00	Control the operating status of the frequency converter.	1: Forward rotation	W
			2: Reverse rotation	
			3: Forward JOG	
			4: Reverse JOG	
			5: Free stop	
			6: Shutdown based on shutdown mode function code	
			7: Fault reset	
			8: Forward/reverse switching	
DOStatus	16x60FE:00	Control the DO status.	bit0:Relay status	W
			bit1:DO1 status	
			bit2:DO2 status	

Name	Index	Function	Description	Read/Write
P00.00	16x6000:01	GP type display	1: G-type (constant torque load model) 2: P-type (fan, pump load model)	W
P00.01	16x6000:02	Motor control mode	0：0: Sensorless vector control (SVC) 1: Reserved 2: V/F control	W
P00.02	16x6000:03	Command source selection	0: Control panel control 1: External terminal control 2: Communication control	W
P00.03	16x6000:04	Main frequency source X selection	0: Digital setting (no power memory) 1: Digital setting (power memory) 2: AI1 3: AI2 5: PULSE setting 6: Multi-step command 7: Simple PLC 8: PID 9: Communication setpoint	W
P00.04	16x6000:05	Auxiliary frequency source Y selection	0: Digital setting (no power memory) 1: Digital setting (power memory) 2: AI1 3: AI2 5: PULSE setting 6: Multi-step command 7: Simple PLC 8: PID 9: Communication setpoint	W
P00.05	16x6000:06	Frequency source superposition selection	Units Digit: Frequency Command Selection 0: Main frequency source X1: Result of main/auxiliary calculation (relationship determined by tens digit) 2: Switch between main frequency source X and auxiliary frequency source Y 3: Switch between main frequency source X and calculation result 4: Switch between auxiliary frequency source Y and calculation result Tens Digit: Main/Auxiliary Frequency Calculation Mode 0: Main + Auxiliary 1: Main - Auxiliary 2: Maximum value of the two 3: Minimum value of the two	W

P00.06	16x6000:07	Auxiliary frequency source Y range selection during superposition	0: Relative to the maximum frequency 1: Relative to frequency source X	W
P00.07	16x6000:08	Auxiliary frequency source Y range during superposition	0%~150%	W
P00.08	16x6000:09	Maximum frequency	50Hz~599Hz	W
P00.09	16x6000:0A	Upper limit frequency source	0: P00.10 setting 1: AI1 2: AI2 4: PULSE pulse setting 5: Communication setting	W
P00.10	16x6000:0B	Upper limit frequency	Lower limit frequency P00.11 to maximum frequency P00.08	W
P00.11	16x6000:0C	Lower limit frequency	0Hz to upper limit frequency P00.10	W
P00.12	16x6000:0D	Preset frequency	0Hz to maximum frequency P00.08	w
P00.13	16x6000:0E	Acceleration time 1	0s~6500s	w
P00.14	16x6000:0F	Deceleration time 1	0s~6500s	w
P00.15	16x6000:10	Upper limit frequency offset	0Hz to maximum frequency P00.08	w

Code	Name
P28.00	Current power-on time
P28.01	Current operating time
P28.02	Inverter operating status
P28.03	Fault information
P28.04	Operating frequency
P28.05	Set frequency
P28.06	Bus voltage
P28.07	Output voltage
P28.08	Output current
P28.09	Output power
P28.10	Target torque
P28.11	Output torque
P28.12	Feedback frequency
P28.13	Detection frequency
P28.14	Resolver position
P28.15	ABZ position
P28.16	Z signal counter
P28.17	Synchronous motor rotor position
P28.18	Power factor angle
P28.19	Controller temperature
P28.20	Motor temperature value
P28.21	DI input status
P28.22	DO output status