



Q

100

	Q		Q		
					-
	-				2025-11-11
Q	HCP Works3 V1.3.0				
	Q				
	HCQXB-CAN-BD HCQXB-RTC-BD HCQXB-2RS232-BD HCQXB-2RS485-BD				
Q					
2025-11-11		V1.0			

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3. EIP 3 Class3	1
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6. EIP —Extended Status Invalid O->T size 16#127	2
7. EIP —Extended Status Target for connecttion not configured 16#110	2
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1.

SMC_M NV

15

3.

4.

MC_Home

5.

MC_Home

16# 4

6.

MC_Home

SMC_FB_WAS

7.

18

8.

18

9.

18

10.

18

11.

From Home CAN o Sales sys. .sc .

Port Dti i - i

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2.

PID

.....

35

3.

.....

36

4.

.....

38

5.

UPS

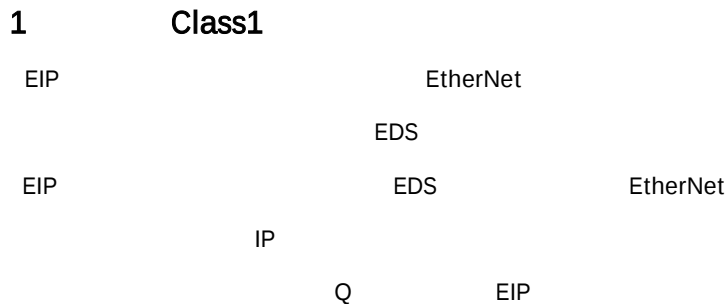
.....

41

1. EIP

1						
2						
3			HCP Works3 V1.3.0			
4	1514	IO	<=1400			
5	61			505	/509	
6	253	255-	-			

2. EIP



3. EIP

3

Class3

EtherNetIP_Tag_V1.0.3

EtherNetIPScanner

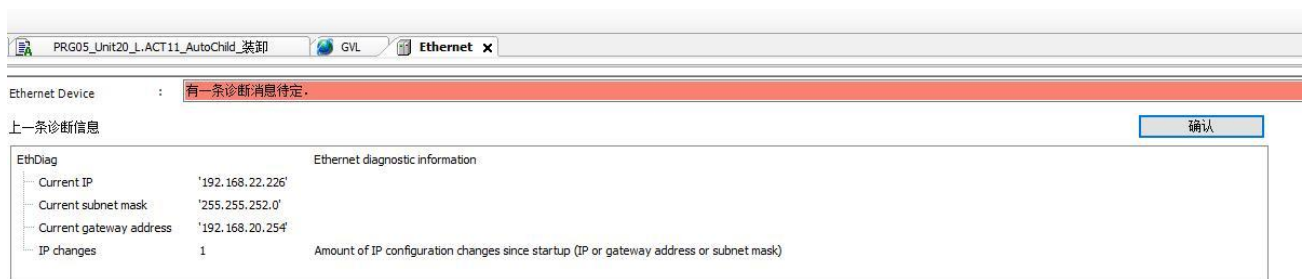
Case

```

1 //实例客户端功能块
2 EtherNetIPScanner_0(
3   bEnable:=bEnable , //使能连接
4   bAutoReconnect:=TRUE , //自动重连
5   sIpAddress:= '192.168.88.210' , //服务器ip
6   uiPort:= , //服务器端口, 默认44818不用修改
7   bTcpActive=> , //TCP通讯正常
8   bEipCipActive=> , //EIP通讯正常
9   bBusy=> ,
10  bDataReady=> ,
11  bError=> ,
12  sStatus=> ,
13  sError=> );
14
15 //轮询数据读取
16 CASE step OF
17   0: //连接成功
18     IF EtherNetIPScanner_0.bEipCipActive THEN
19       step:=1;
20     END_IF
21   1: //读取sTeststring标签, 数据类型string
22     IF EtherNetIPScanner_0.bEipCipActive AND NOT EtherNetIPScanner_0.bBusy THEN
23       step:=step+1;
24     END_IF
25   2: //写入sTeststring标签, 数据类型string
26     IF EtherNetIPScanner_0.bEipCipActive AND NOT EtherNetIPScanner_0.bBusy THEN
27       step:=1;
28     END_IF
29 END_CASE
  
```

4. EIP

—IP



严重	时间戳	描述	组件
	08.09.2021 13:38:19	IoDrvEthernet: IP settings of Ethernet not set as configured.	IoDrvEthernet
	08.09.2021 09:38:15	IoDrvEthernet: IP settings of Ethernet not set as configured.	IoDrvEthernet

5. EIP —Extended Status 16#112

RPI RPI Adapter IOTask

1 Adapter RPI>=n*IOTask(n 0)

2 Scanner Adapter RPI>=n*ScannerIOTask(n 0)

严重	时间戳	描述	组件
	28.05.2024 19:09:01....	IoDrvEthernetIP: Connection failure. (16#1)	IoDrvEtherNe
		Extended Status: 16#112	
	28.05.2024 19:09:01....	IoDrvEthernetIP: Open Connection with serial number 1	IoDrvEtherNe
	28.05.2024 19:08:59....	IoDrvEthernetIP: Connection failure. (16#1)	IoDrvEtherNe
	28.05.2024 19:08:59....	IoDrvEthernetIP: Open Connection with serial number 1	IoDrvEtherNe
	28.05.2024 19:08:54....	IoDrvEthernetIP: Connection failure. (16#1)	IoDrvEtherNe
	28.05.2024 19:08:54....	IoDrvEthernetIP: Close Connection with serial number 1	IoDrvEtherNe

6. EIP —Extended Status Invalid O->T size 16#127

O->T

EIP EXT status f | J f

	38'02'505+ 18:08:29....	IoDrvEthernetIP: Open Connection with serial number 1	IoDrvEtherNe
	38'02'505+ 18:08:29....	IoDrvEthernetIP: Connection failure. (16#1)	IoDrvEtherNe
	38'02'505+ 18:08:29....	IoDrvEthernetIP: Open Connection with serial number 1	IoDrvEtherNe
	38'02'505+ 18:08:29....	IoDrvEthernetIP: Connection failure. (16#1)	IoDrvEtherNe
	38'02'505+ 18:08:01....	IoDrvEthernetIP: Open Connection with serial number 1	IoDrvEtherNe
		Extended Status: 16#127	
	38'02'505+ 18:08:01....	IoDrvEthernetIP: Connection failure. (16#1)	IoDrvEtherNe
严重	时间戳	描述	组件

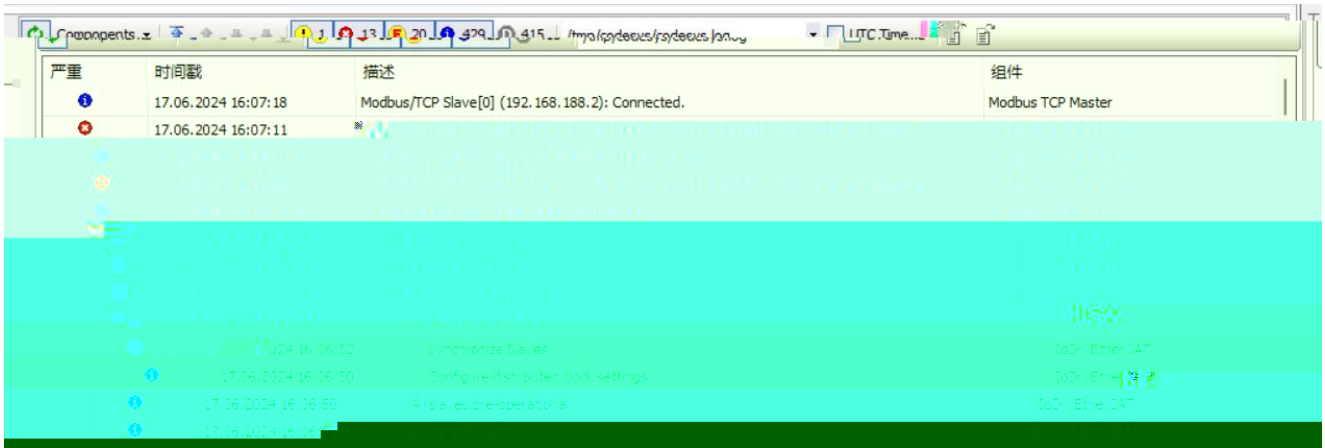
10. Modbus

1	ModbusTCP				
2	IP	ModbusTCP			
3	ModbusTCP	16		64	
4	ModbusTCP	64	99	125	123
5	ModbusRTU	100			
6	ModbusRTU	31			

11. ModbusTCP

Connection aborted:socket keep-alive expired

ModbusTCP	1	1
IP	IP	
socket keep-alive expired	TCP	keep-alive

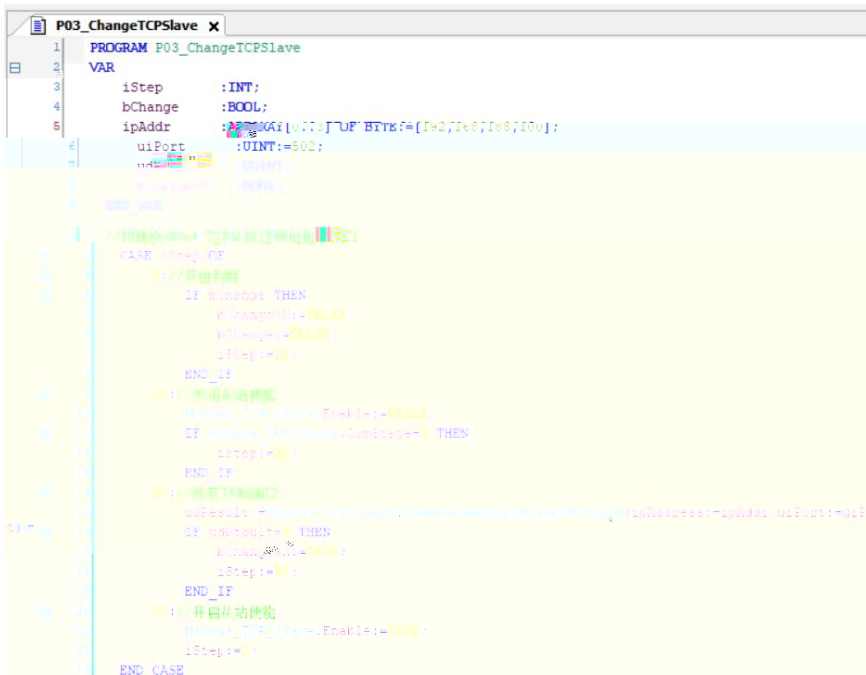


12. ModbusTCP

IP

UpdateCommunicationSettings

IP



13. ModbusTCP

Modbus_TCP_Slave

通用

Modbus从站通道

通道索引	名称	访问类型	触发器	读偏移	长度	错误处理	写偏移	长度	注释
0	Channel 0	Read Holding Registers (函数代码 03)	应用	16#0000	1	保持最后值			
1	Channel 1	Write Multiple Registers (函数代码 16)	应用						

Modbus通道

名称

Channel 1

触发器

应用

读寄存器

16#0000

写寄存器

16#0004

长度

1

错误处理

保持最后值

注释

确定

取消

ModbusChannel

P04_TriggerModbusTCPChannel

PROGRAM P04_TriggerModbusTCPChannel

VAR

ModbusChannel_0

ModbusChannel_1

bRead

bWrite

END_VAR

ModbusChannel_0

slave:=Modbus_TCP_Slave

xExecute:=bRead

xAbort:=

iChannelIndex:=0

xBusy=>

xDone=>

xError=>

xAborted=>

ModbusChannel_1

slave:=Modbus_TCP_Slave

xExecute:=bWrite

xAbort:=

iChannelIndex:=1

xBusy=>

xDone=>

xError=>

xAborted=>

14. Modbus

15. HCQX-RS02-D4-M

RS485 ID

16. ModbusTCP

STOP PLC Stopping STOP

17. Socket

- 1 TCP_Read.pData TCP_Read.szSize
- 2 TCP_Read.xEnable TCP_Client.xActive
- 3 TCP_Client.xEnable NOT TCP_Read.XError

18. Socket 0

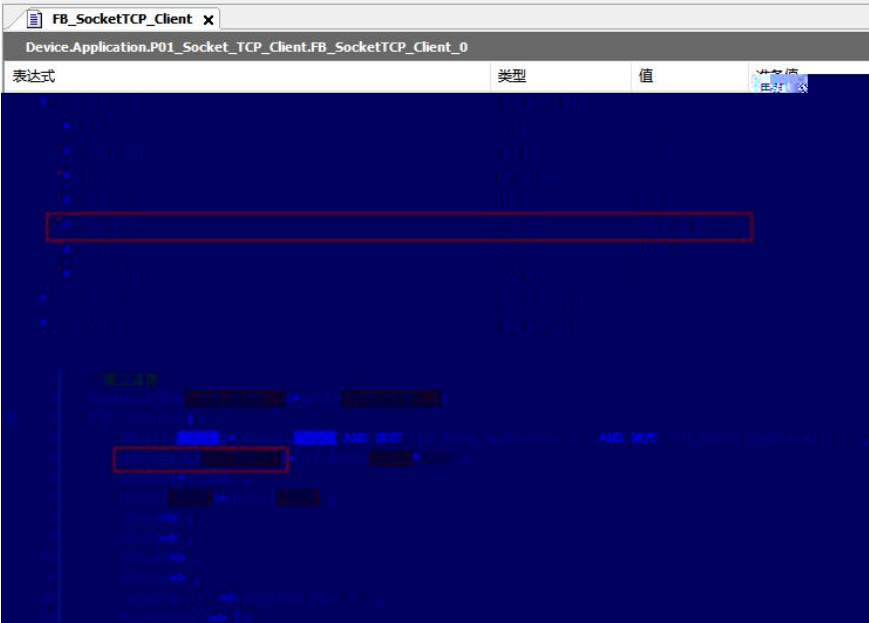
TCP_Write szSize SIZEOF

szSize LEN szSize

19. Socket TCP_Cilent TIME_OUT

TCP_Write udiTimeOut 1000us

TIME_OUT udiTimeOut



20. Q0 COM

Q0 COM1 COM2 COM2

COM1 COM2

1.

1	Retain/Persistent		
2	Persistent	Retain	/
3	IO		2

2.

PLC

U

U

U

U

PORT0

3.

BOOL " "

1

2

3

4.

Q0	V1.04.03.01
Q1	V3.40.20.00
Q0P/Q1P	
Q3P	V1.00.01.14
Q5P/Q7P/Q9P	V1.01.00.02

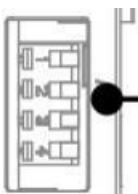
5.

	STRING	WSTRING			
1	STRING	80	81	+	1
2	WSTRING	80	162	+	2
				10	STRING(10)
		11			

6.

IP

Q0 SW1 SW2 FN



⑤ 拨码开关

Q1-322	5	
Q1-330+	5	0000
		0
Q5	5	

Q0P/Q1P	FN	3s	IP
12	FN/RUN/STOP开关	FN/RUN/STOP switch	拨到FN为复位EtherNet通讯接口IP地址，拨到RUN为运行控制器程序，拨到STOP为停止控制器程序

Q3P/Q5P/Q7P/Q9P	FN	3s	IP
10	STOP/RUN/FN 拨码开关	STOP/RUN/FN dial switch	功能拨码，向左为控制器停止状态，中间为运行状态，向右拨至FN并停留3s为恢复Port1/port2/port4 IP默认值

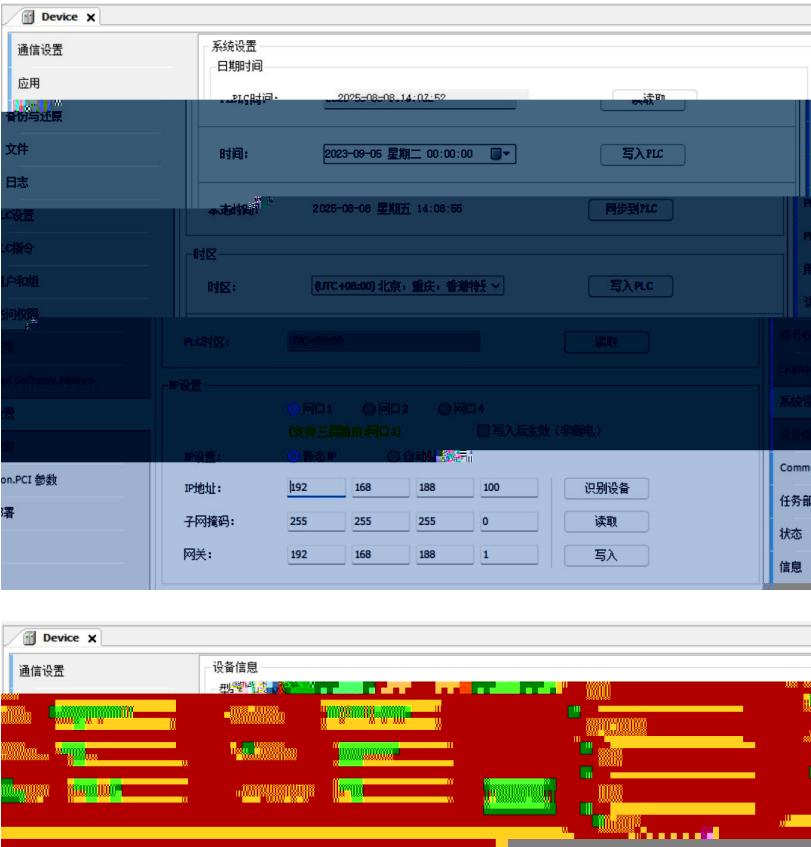
7.

_XWORD/_XINT/_UXINT 32 4 64

8

8.

16 Byte_To_HexStrtr_yt



11.

POINTER TO



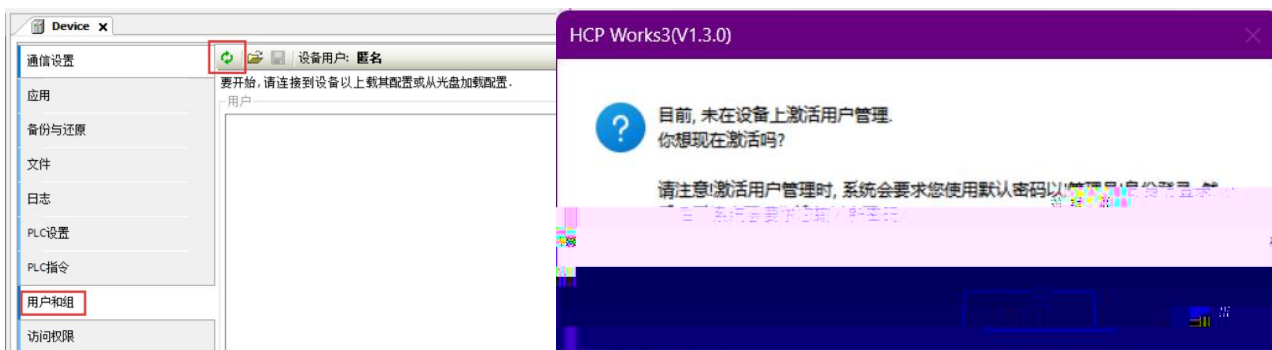
12.

‘ \$ ’

\r\nCODESYS\$L/\$I\$N/\$n

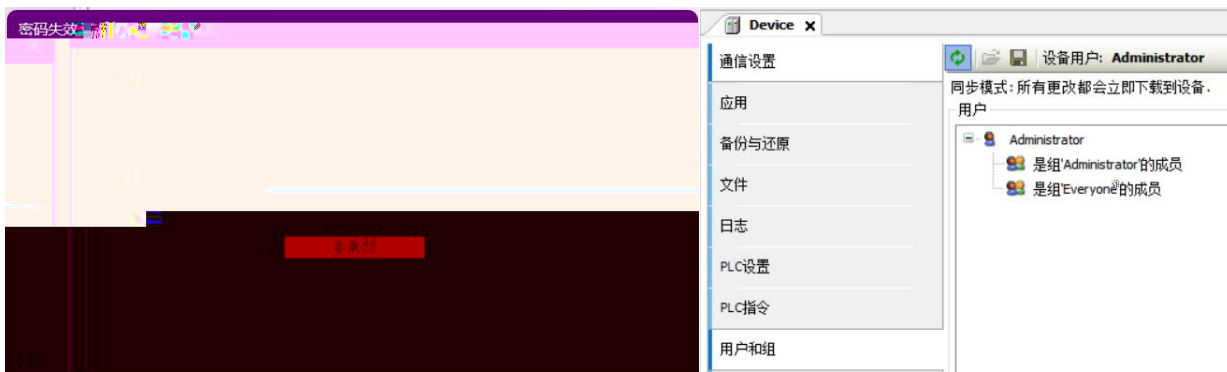
13.

Device



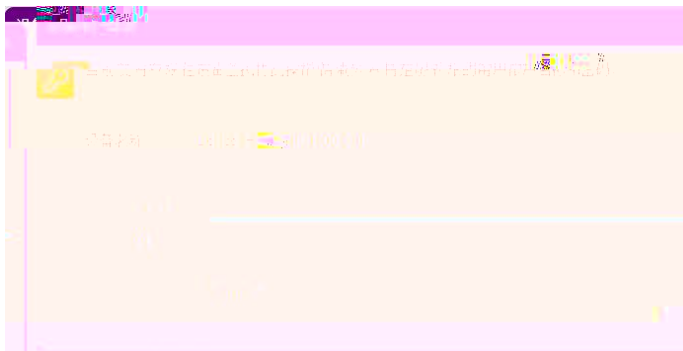
“ ”

Administrator



14.

Device “ [device] ”



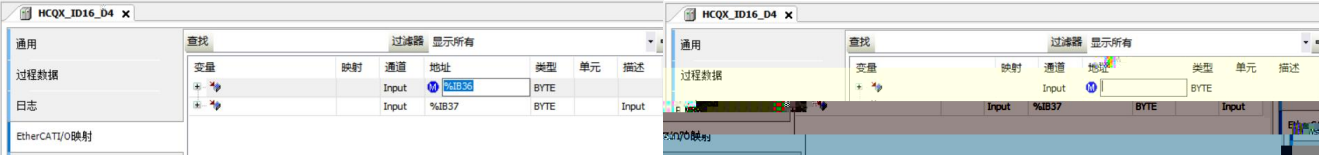
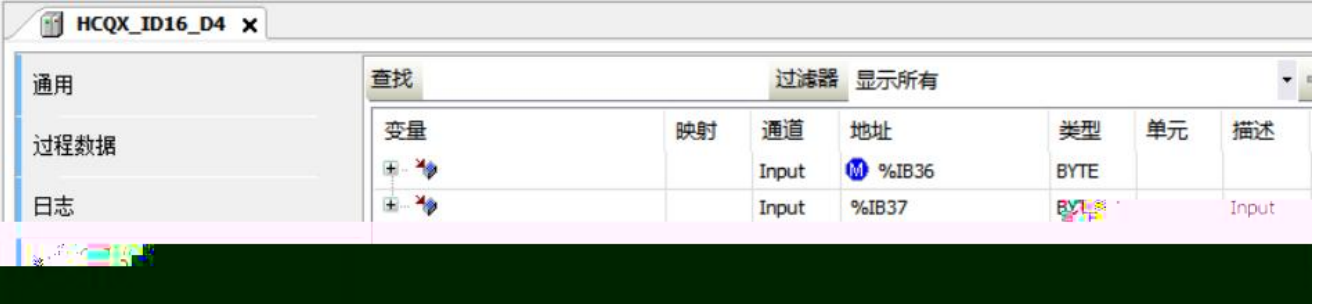
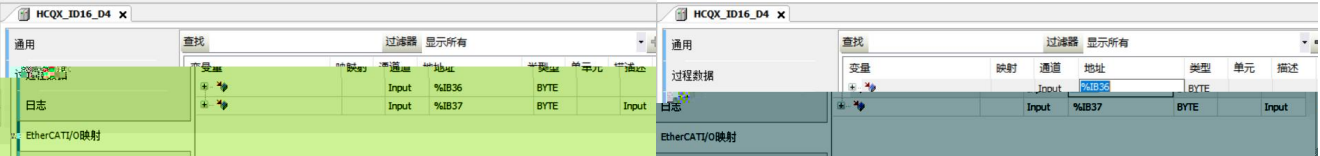
15.

C0136 ambiguous use of name “ ”



16. IO

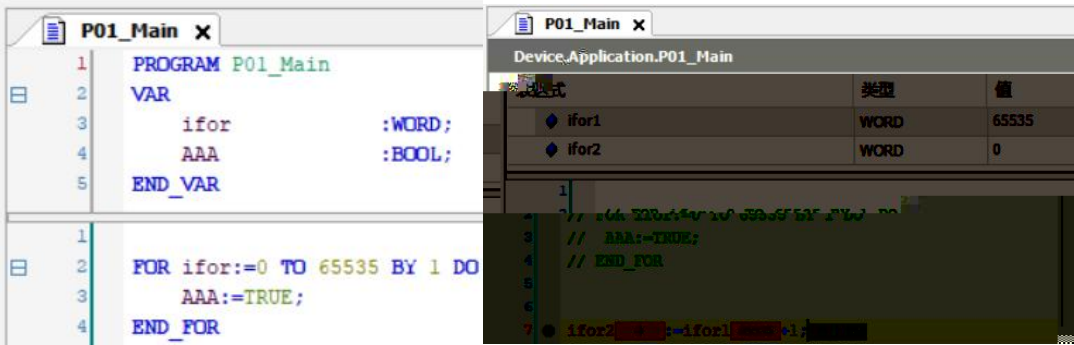
IO



17. FOR

ifor 65535 word FOR +1 ifor

+1 65535+1 ifor 0 word 0~65535



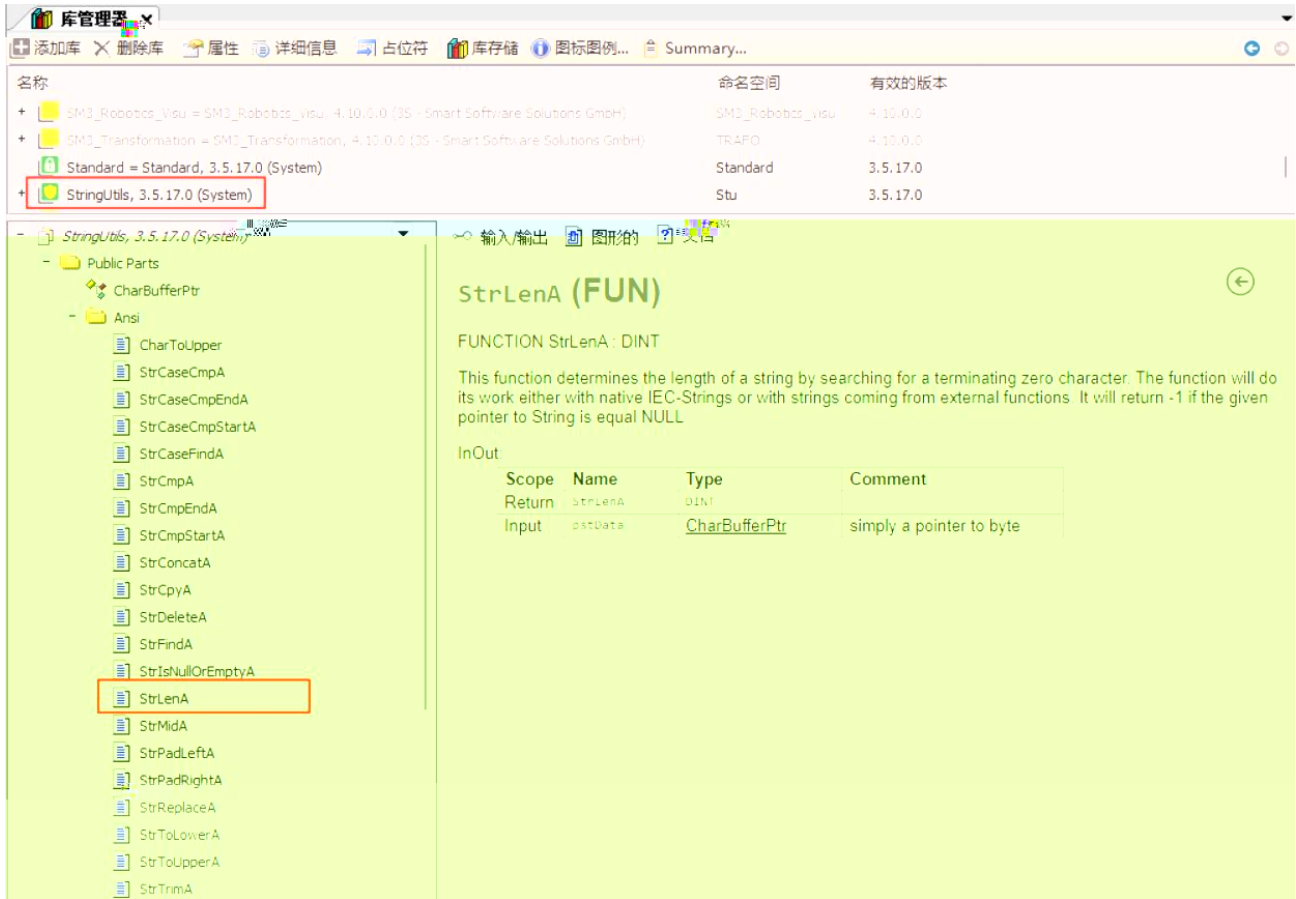
小心!

最终值<结束值>的值可能与循环变量的数据类型上限不同。

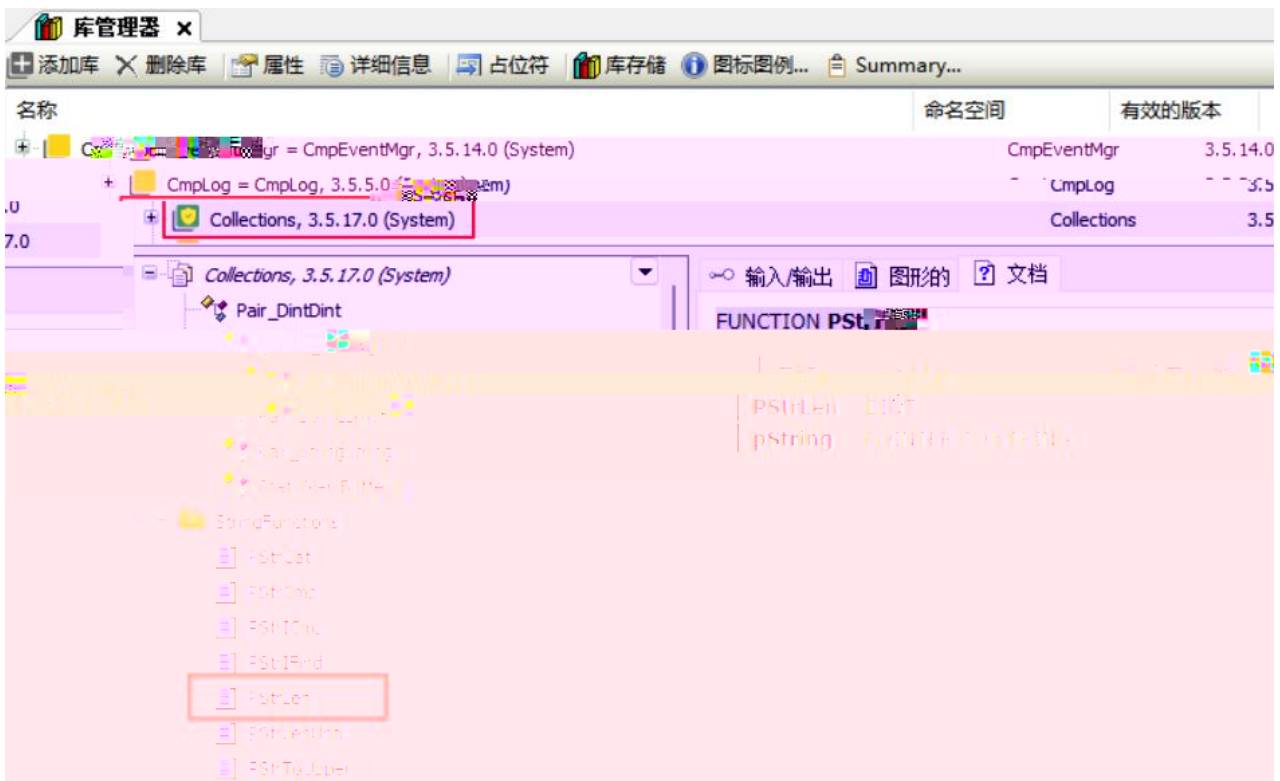
如果循环变量的结束值等于循环变量的数据类型上限，则会导致无限循环。例如，如果iCounter的数据类型为SINT并且<end value>等于127，则无限循环将导致上述示例，因为数据类型SINT的上限值为127。

18. 255

Standard LEN 255 255



2 Collections PstrLen pSting ADR



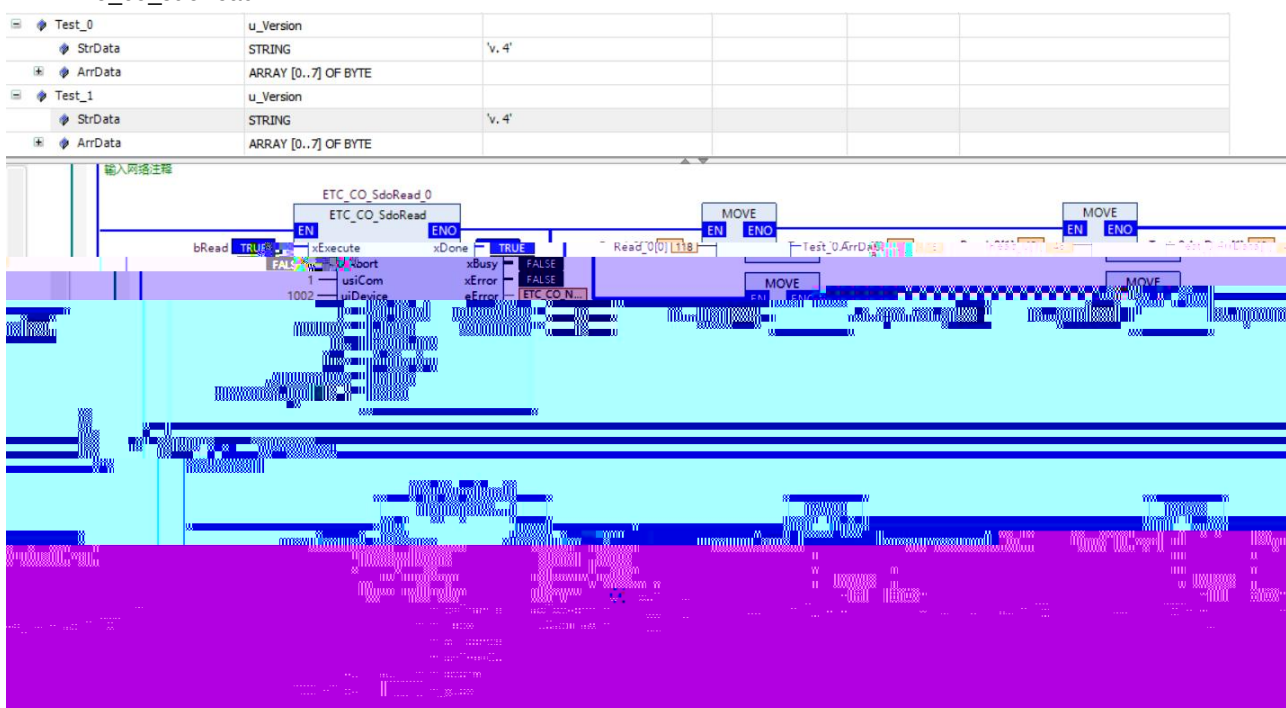
3 0

U USBDevices part0 U PLC
U Codesys U



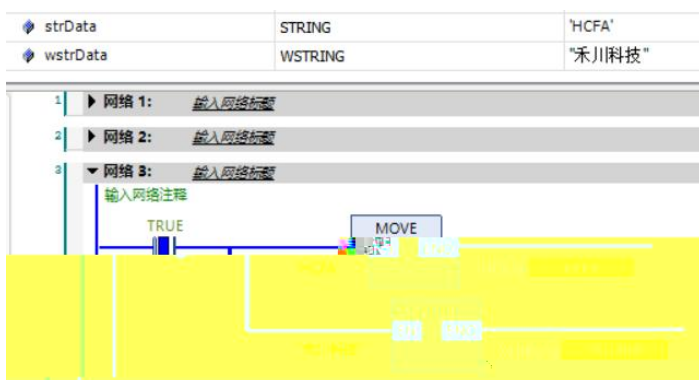
21. SMC3_ETC_ReadParameter CoE DWORD SDO

ETC_co_sdoRead

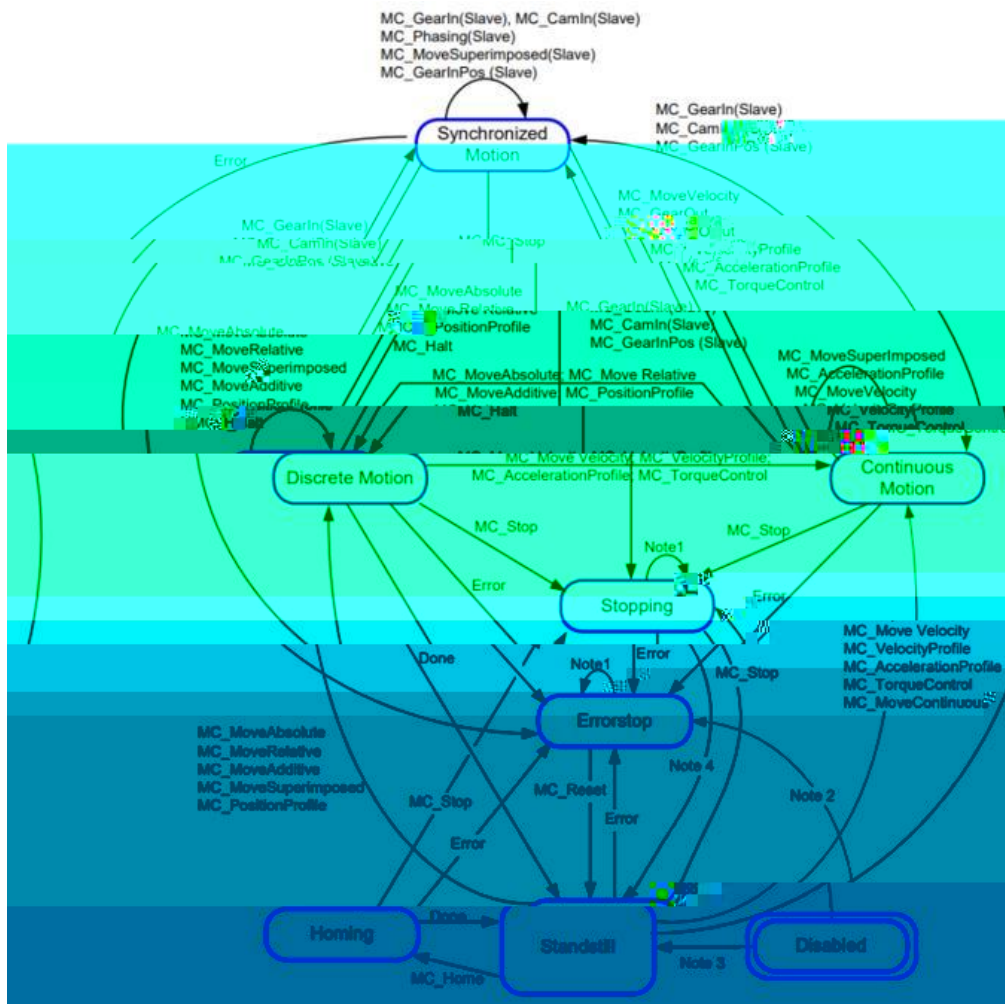


22. STRING MOVE

STRING Wstring



1.



```
//使能
MC_Power_0(
    Axis:=Axis_0 ,
    Enable:=TRUE ,           //此引脚是给MC_Power指令使能，所以直接置TRUE就可以
    bRegulatorOn:=bPower ,
    bDriveStart:=bPower ,
    Status=>bPowerOK ,
    bRegulatorRealState=> ,
    bDriveStartRealState=> ,
    Busy=> ,
    Error=> ,
    ErrorID=> );
```

//停止—需要防止轴处于未使能（Power_off）、错误状态（Errorstop）下被触发

```
MC_Stop_0(
    Axis:=Axis_0 ,
    Enable:=Stop AND Axis_0.nAxisState>1 ,
    Deceleration:=10000 ,
    Jerk:= ,
    Done=> ,
    Busy=> ,
    Error=> ,
    ErrorID=> );
```

//复位—需要轴处于错误状态，并且通讯状态正常

```
MC_Reset_0(
    Axis:=Axis_0 ,
    Execute:=bReset AND Axis_0.nAxisState=1 AND Axis_0.wCommunicationState=100 ,
    Done=> ,
    Busy=> ,
    Error=> ,
    ErrorID=> );
```

//驱动器复位—当总线异常时可以执行复位驱动器

```
SMC3_ReinitDrive_0(
    Axis:=Axis_0 ,
    bExecute:=bReset AND Axis_0.wCommunicationState<100 ,
    bVirtual:= ,
    bDone=> ,
    bBusy=> ,
    bError=> ,
    nErrorID=> );
```

//回原—需要防止轴处于未使能 (Power_off)、错误状态 (Errorstop)、停止状态 (Stopping) 下被触发

```
MC_Home_0(
    Axis:=Axis_0 ,
    Execute:=bHome AND Axis_0.nAxisState>2 ,
    Position:=0 ,
    Done=> ,
    Busy=> ,
    CommandAborted=> ,
    Error=> ,
    ErrorID=> );
```

//停止—需要防止轴处于未使能 (Power_off)、错误状态 (Errorstop)、停止状态 (Stopping) 下被触发

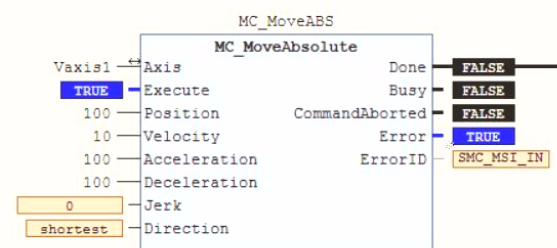
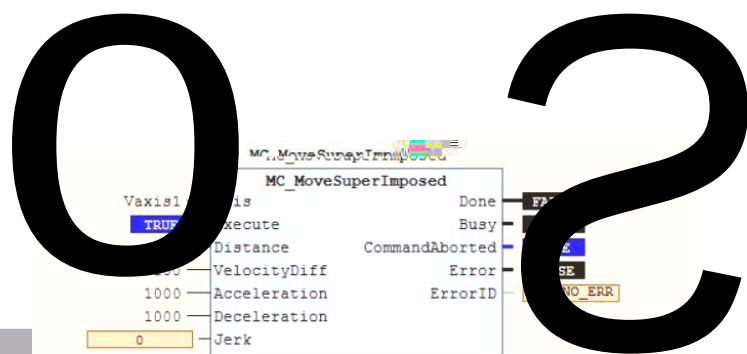
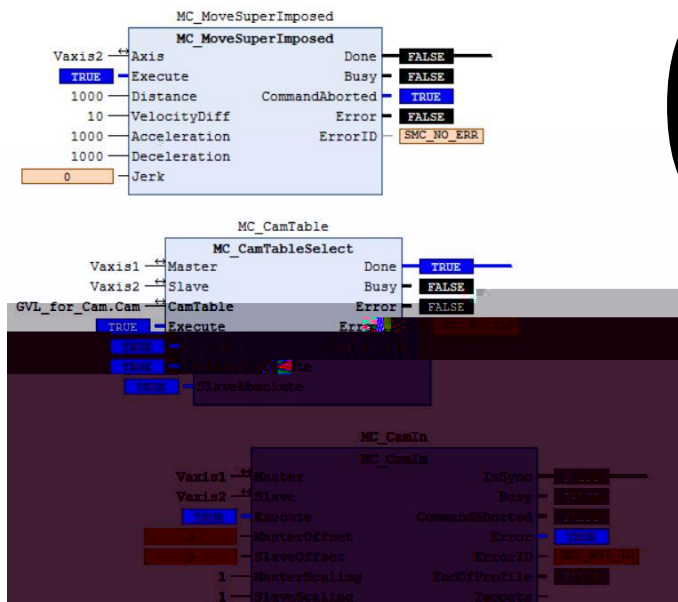
```
MC_Halt_0(
    Axis:=Axis_0 ,
    Execute:=bHalt AND Axis_0.nAxisState>2 ,
    Deceleration:=10000 ,
    Jerk:= ,
    Done=> ,
    Busy=> ,
    CommandAborted=> ,
    Error=> ,
    ErrorID=> );
```

//点动—需要防止轴处于未使能 (Power_off)、错误状态 (Errorstop)、停止状态 (Stopping)、回原 (Homing) 下被触发

```
MC_Jog_0(
    Axis:=Axis_0 ,
    JogForward:=bJogF AND Axis_0.nAxisState>2 AND Axis_0.nAxisState<7 ,
    JogBackward:=bJogB
```

MC_MoveAbsolute MC_MoveRelative MC_MoveSuperImpsed MC_MoveAdditive MC_Jog ,
Power_off Errorstop Stopping Homing

OPAL-RT



3. standstill

0

standstill

EtherCAT

PDO

16#607F

16#6080

Object 6080n:最大电机转速			
对象描述		对象入口描述	
属性	值	属性	值
索引	6080	名称	最大电机转速
名称	最大电机转速	索引	6080
数据类型	uint16	数据类型	uint16
访问权限	只读	访问权限	只读
所属对象	607F	所属对象	607F
所属对象名称	最大电机转速	所属对象名称	最大电机转速
所属对象索引	607F	所属对象索引	607F
所属对象数据类型	uint16	所属对象数据类型	uint16
所属对象访问权限	只读	所属对象访问权限	只读
所属对象所属对象	607F	所属对象所属对象	607F
所属对象所属对象名称	最大电机转速	所属对象所属对象名称	最大电机转速
所属对象所属对象索引	607F	所属对象所属对象索引	607F
所属对象所属对象数据类型	uint16	所属对象所属对象数据类型	uint16
所属对象所属对象访问权限	只读	所属对象所属对象访问权限	只读
所属对象所属对象所属对象	607F	所属对象所属对象所属对象	607F
所属对象所属对象所属对象名称	最大电机转速	所属对象所属对象所属对象名称	最大电机转速
所属对象所属对象所属对象索引	607F	所属对象所属对象所属对象索引	607F
所属对象所属对象所属对象数据类型	uint16	所属对象所属对象所属对象数据类型	uint16
所属对象所属对象所属对象访问权限	只读	所属对象所属对象所属对象访问权限	只读

轴类型与限制

☐ 虚轴模式

☐ 模态

☒ 线性

软件限位

☒ 激活

负向 [u]:
正向 [u]:

-10

1000.0

软件错误处理

减速 [u/s²]:
最大距离 [u]

0

0

动态限制

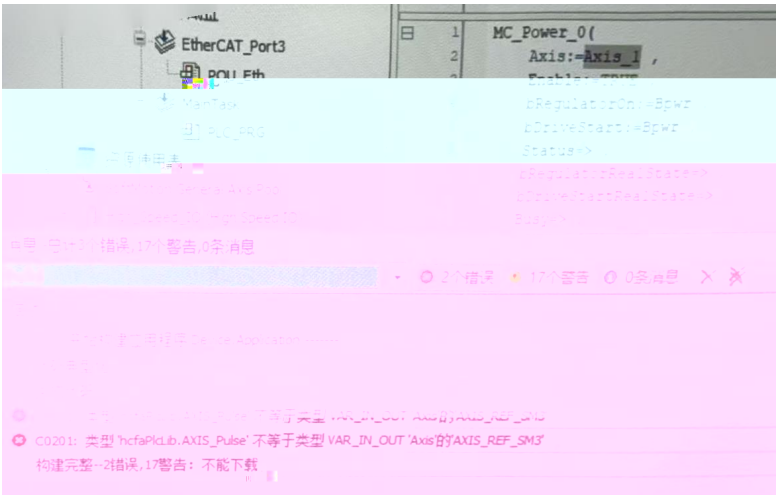
速度 [u/s]:
1000

加速度 [u/s²]:
1000

减速度 [u/s²]:
1000

加加速度 [u/s³]:
10000

11.	Codesys	Port4	Port3	
	Codesys	EtherCAT	EtherCAT	EtherCAT
	Port3	EtherCAT		
12.	HCP Works3 V1.3.0			
	Softmotion	4.10.0	Codesys	HCP Works3 V1.3.0



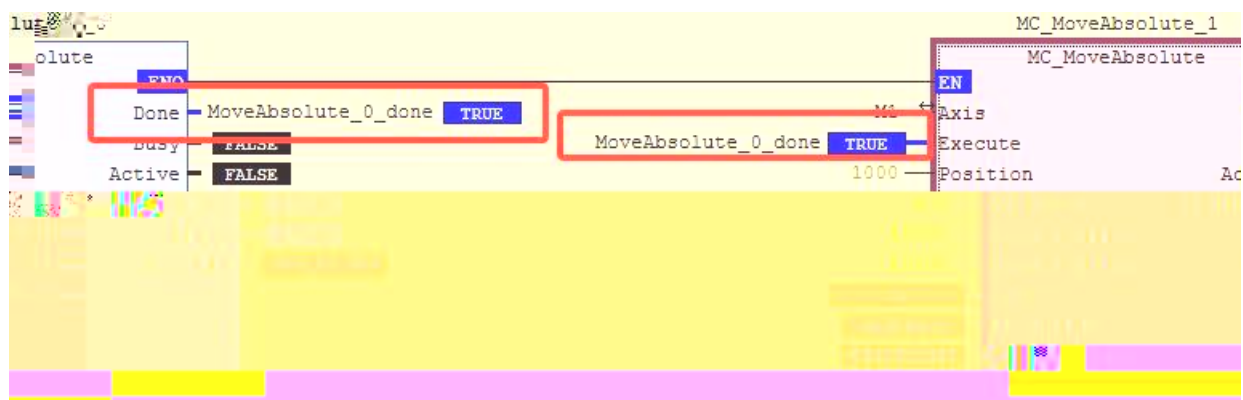
13.	SV730W			
	SV730W	XML	16#6071 16#607F 16#6080	PDO

名称	类型	索引
☒ 16#1600 Outputs		
ControlWord	UINT	16#6040:00
Modes of Operation	SINT	16#6060:00
Target position	DINT	16#607A:00
Target velocity	DINT	16#60FF:00
Target torque	INT	16#6071:00
Max motor speed	UDINT	16#6080:00
☒ 16#1610 Outputs		
ControlWord	UINT	16#6040:00
Modes of Operation	SINT	16#6060:00
Target position	DINT	16#607A:00
Target velocity	DINT	16#60FF:00
Target torque	INT	16#6071:00
Max motor speed	UDINT	16#6080:00

14.

15.

6076	6071	6076	0
------	------	------	---



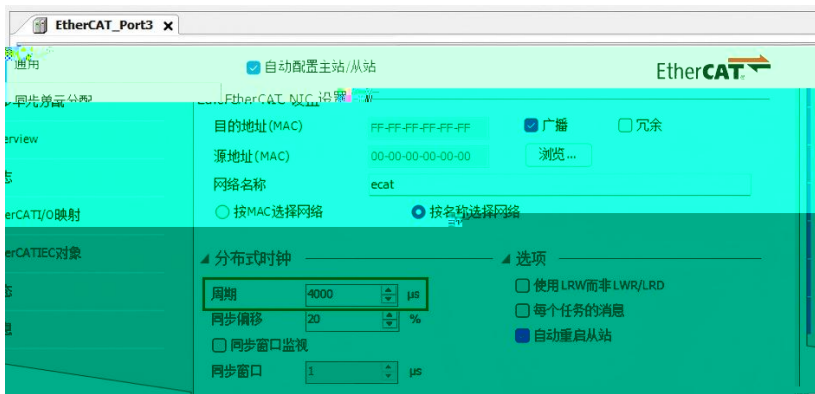
17.

Y7S

```
b负限位 :=Axis_0.in.dwDigitalInputs.0;  
b正限位 :=Axis_0.in.dwDigitalInputs.1;  
b原点   :=Axis_0.in.dwDigitalInputs.2;  
b探针1  :=Axis_0.in.dwDigitalInputs.11;  
b探针2  :=Axis_0.in.dwDigitalInputs.12;
```

EtherCAT EtherCAT





19. SMC_MOVING_WITHOUT_ACTIVE_MOVEMENT

SMC_SetControllerMode Done

Done

Halt Stop

Softmotion

4.4.0.2

softmotion

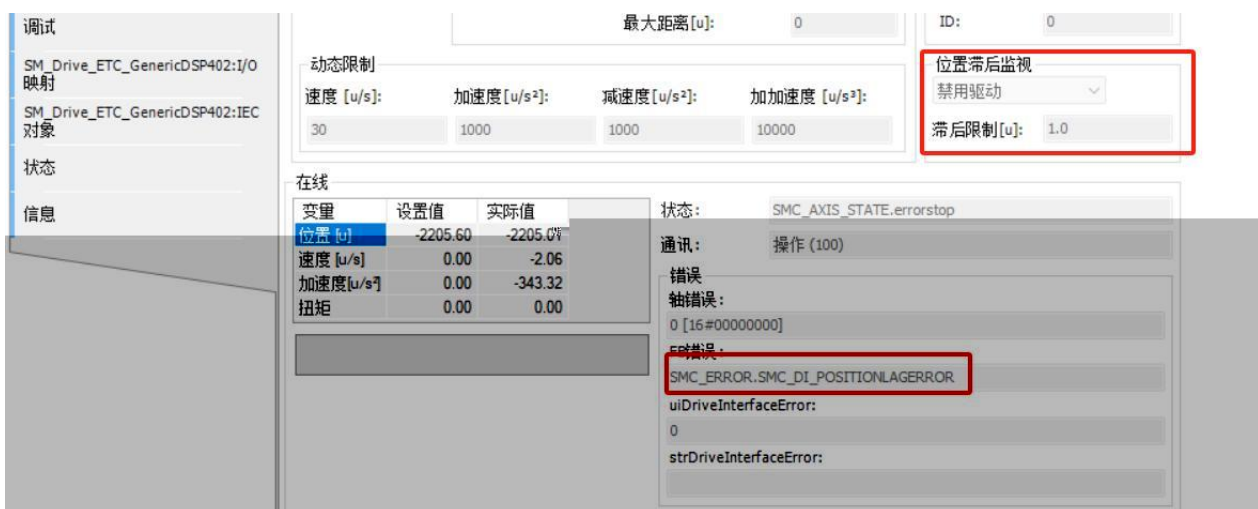
4.10.0.0 softmotion

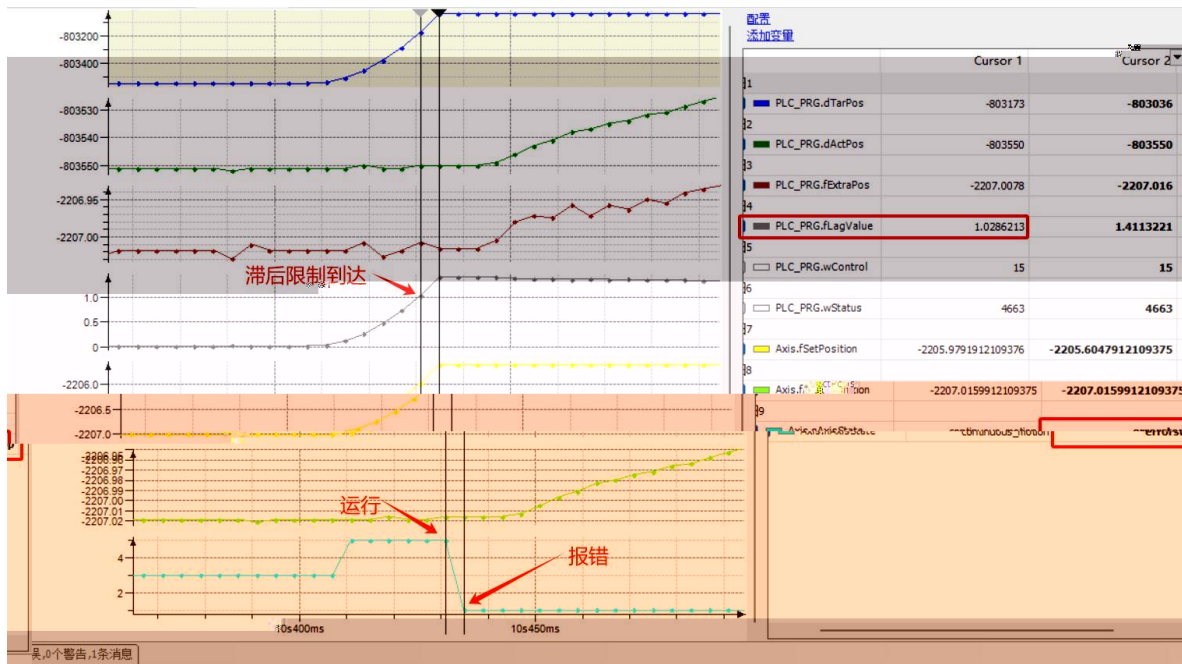
```
SMC_SetControllerMode_0(
    Axis:=Axis_0 ,
    bExecute:= ,
    nControllerMode:=3 ,
    bDone=> ,
    bBusy=> ,
    bError=> ,
    nErrorID=> );

MC_Stop_0(
    Axis:=Axis_0 ,
    Execute:=SMC_SetControllerMode_0.bExecute,
    Deceleration:=10000 ,
    Jerk:= ,
    Done=> ,
    Busy=> ,
    Error=> ,
    ErrorID=> );
```

20. SMC_DI_POSITIONLAGERROR

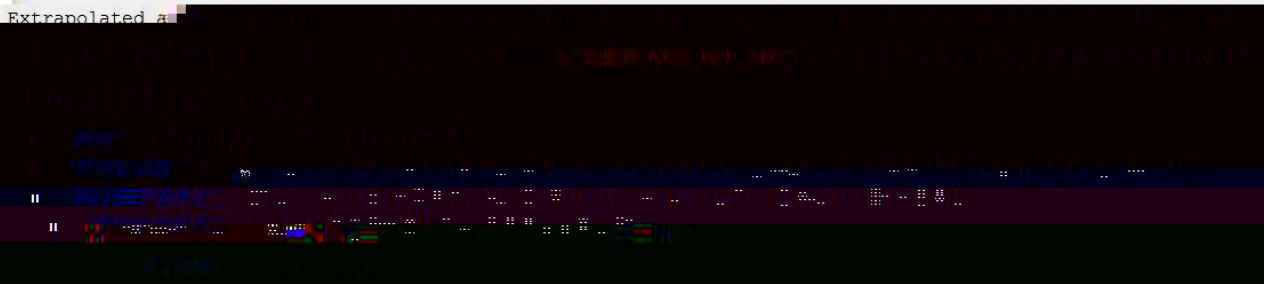
$\text{abs}(f\text{SetPositon}-f\text{ActPositon})>$





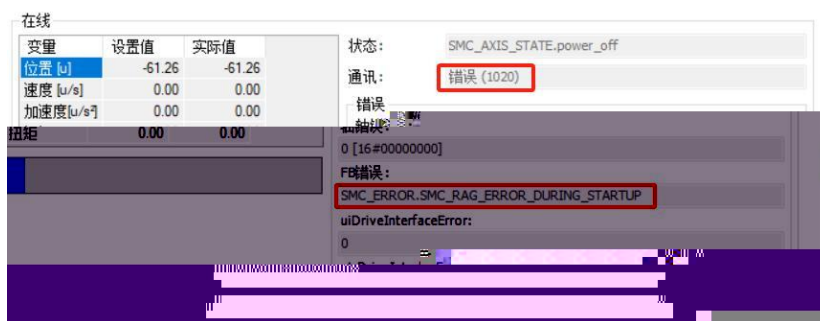
“位置滞后监督”

定义系统的检测滞后误差后的反应。当额定位置和补偿的实际位置之间的差值超过滞后限制就会产生滞后误差。实际位置的计算公式：



21. 1020 SMC_RAG_ERROR_DURING_STARTUP 20 1020 SMC_ERROR
“ Error at startup of the axis group ” SDO

MC_ReadAxisError MC_ReadParameter MC_WriteParameter



SDO SDO SDO
SDO CRC SDO

状态和状态转化	操作
初始化(Init)	应用层没有通讯，从站只能读写ES寄存器。
初始化向预运行转化 Init To Pre-OP(IP)	工作站写入状态地址寄存器。 如果支持邮箱通讯，配置邮箱相关寄存器。 如果支持分布式时钟，配置DC相关寄存器。 主站写入状态控制寄存器，以请求 Pre-OP 状态。
预运行(Pre-OP)	应用层邮箱通讯
预运行向安全运行状态转化 Pre-OP To Safe-OP(PS)	主站使用邮箱初始化过程数据映射。 主站配置过程数据使用的 SM 通道。 主站配置 FMMU。 主站写入状态控制寄存器，请求 Safe-OP 状态。
安全运行(Safe-OP)	应用层支持邮箱通讯。 有过程数据通讯，但只允许读入数据，不产生输出信
安全运行向运行状态转化 Safe-OP To Op(SO)	主站发送有效输出数据。 主站写入状态控制寄存器，请求 Op 状态。
运行状态(Op)	输入输出全部有效

26.03.2024 20:37:05	SDO write ok: Address: 1002 Index: 16
26.03.2024 20:37:05	SDO write ok: Address: 1002 Index: 16
26.03.2024 20:37:05	SDO write ok: Address: 1002 Index: 16
26.03.2024 20:37:05	SDO write ok: Address: 1002 Index: 16
26.03.2024 20:37:05	Set safe operational
26.03.2024 20:37:05	Synchronize SDOs
26.03.2024 20:37:05	

1020

SDO

SDO

softmotion 4.10.0.0 14 17 SMC3_ReinitDrive

SMC3_ReinitDrive SDO MC_ReadAxisError 603F 20

1020

22. SMC_CGR_INVALID_POSPERIOD

18432

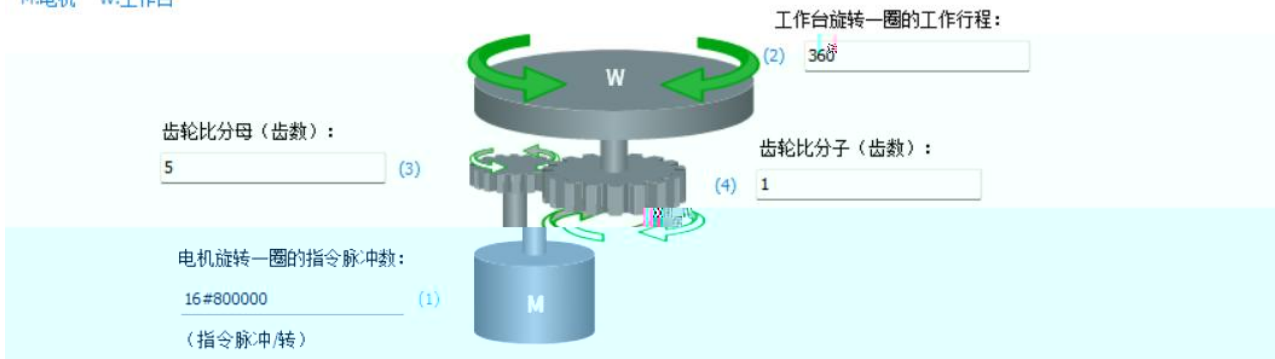
轴类型为旋转模式

单位换算公式：

参考

$$\text{脉冲数 (pulse)} = \frac{(1) \text{ 电机旋转一圈的指令脉冲数 [DINT]}}{(2) \text{ 工作台旋转一圈的工作行程 [LREAL]}} \times \frac{(4) \text{ 齿轮比分子 [DINT]}}{(3) \text{ 齿轮比分母 [DINT]}} \times \text{移动距离 [用户单位]}$$

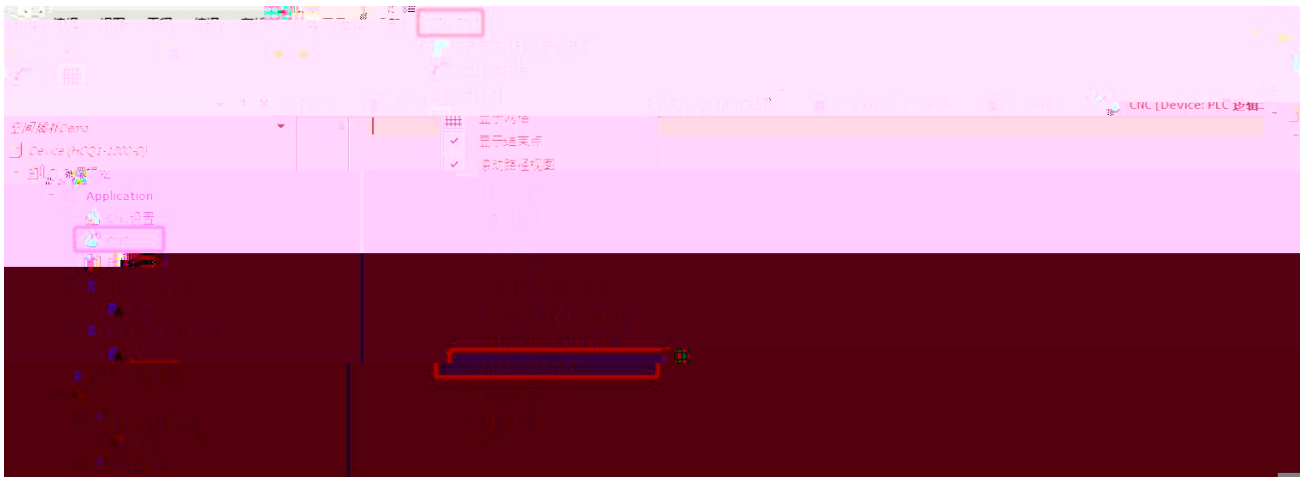
M:电机 W:工作台



23. CNC DXF

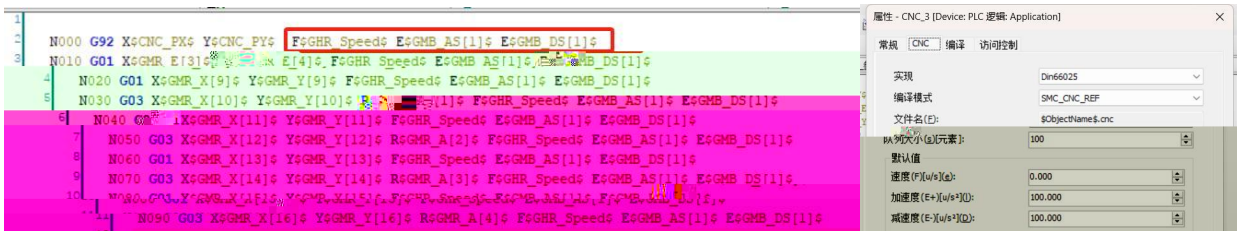
Codesys CAD DXF G CNC-

CNC - DXF - DXF



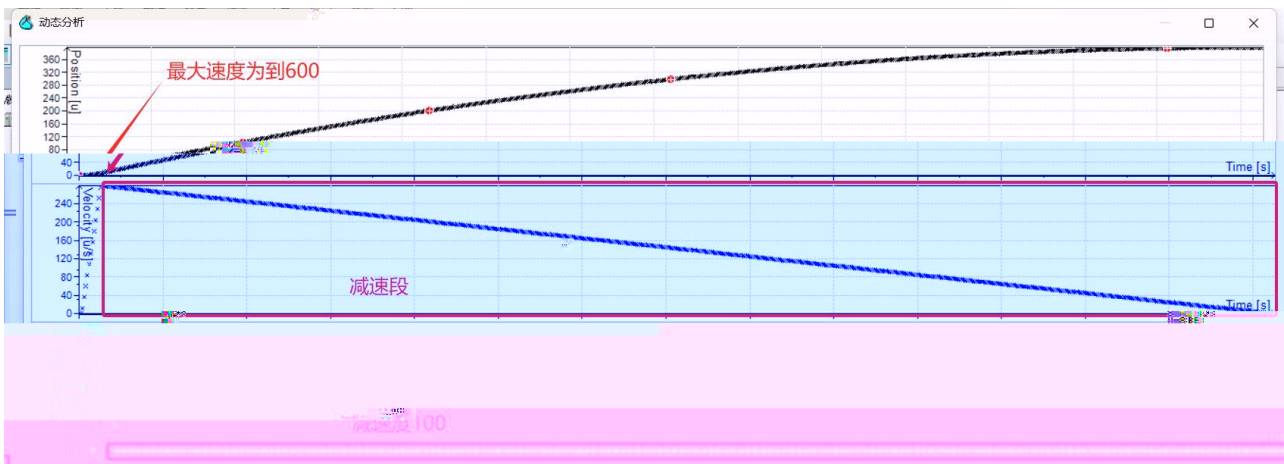
24. CNC

100



600

6



25.

EtherCAT

FB_SetRTCDDate

EtherCAT

EtherCAT

SMC_DI_FIELDBUS_LOST_SYNCRONICITY



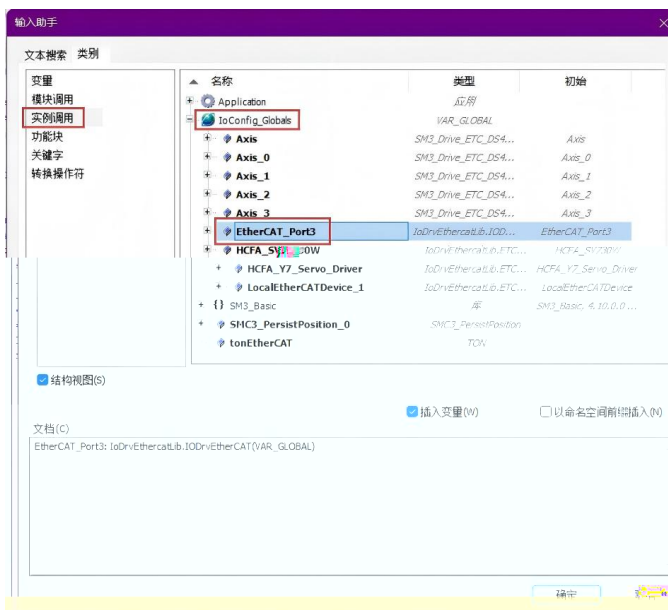
26. EtherCAT

EtherCAT

F2

xRestart

EtherCAT



27.

ATC

FB_GetEtcSlaveState

pMaster

Buffer

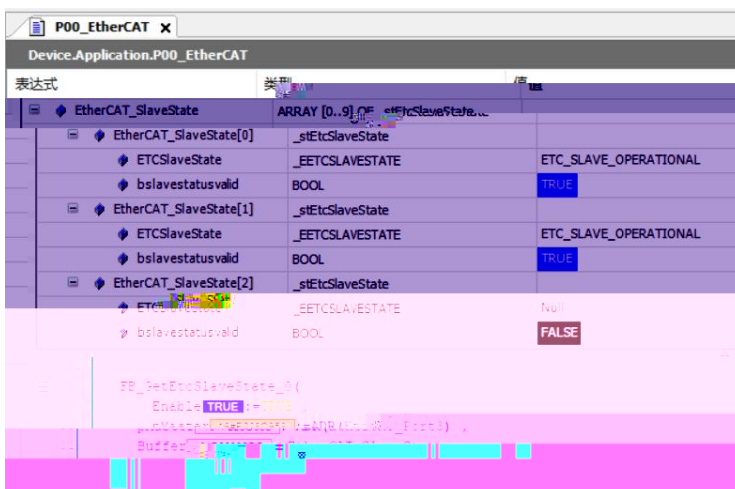
_stEtcSlaveState

NumSlave

_stEtcSlaveState

ETCSlaveState

Null



28. EtherCAT

hcfaAtcLib

FB_EtherCATManager

stECATSlave

LocalEtherCATDevice

```

GVL_PersVars X
1 // {attribute 'qualified_only'}
2 VAR_GLOBAL RETAIN PERSISTENT
3   bSlave_Disable AT %MB131072 : ARRAY [1..4] OF BOOL
4 END_VAR
  
```

```

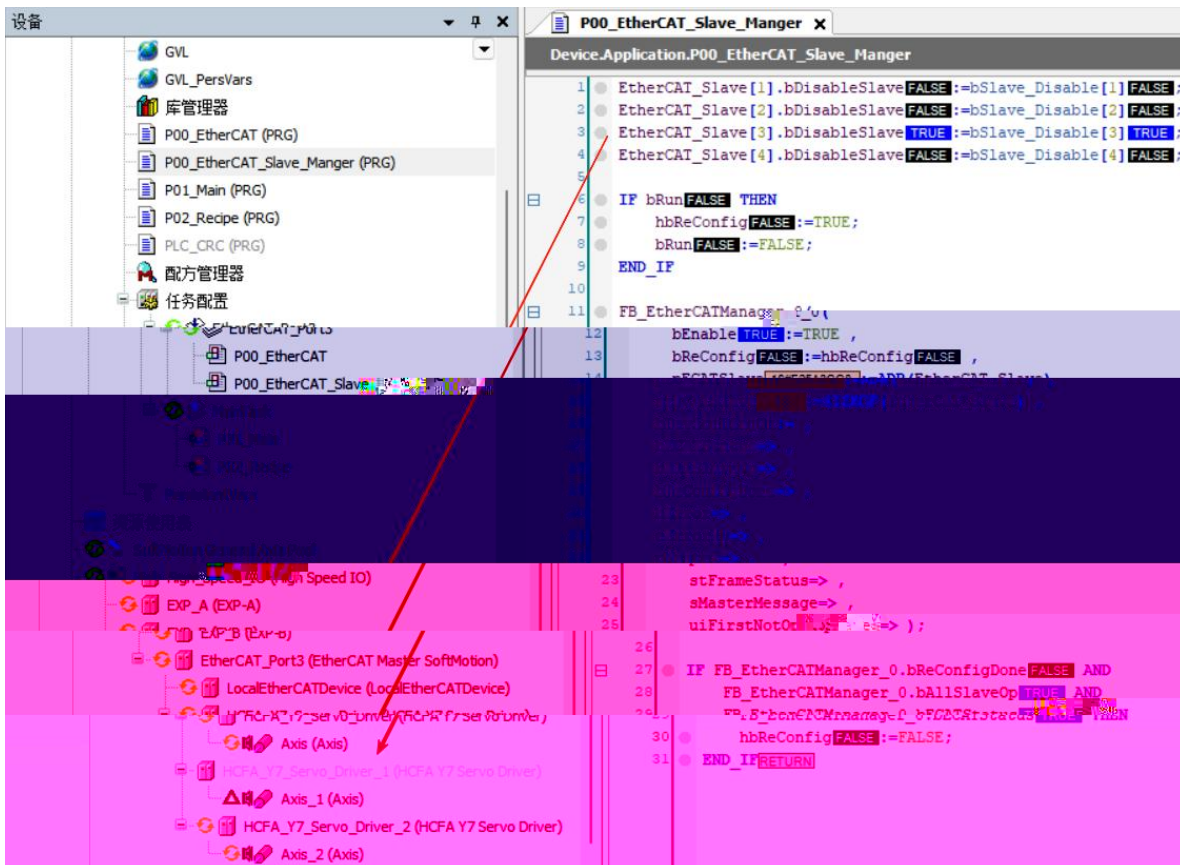
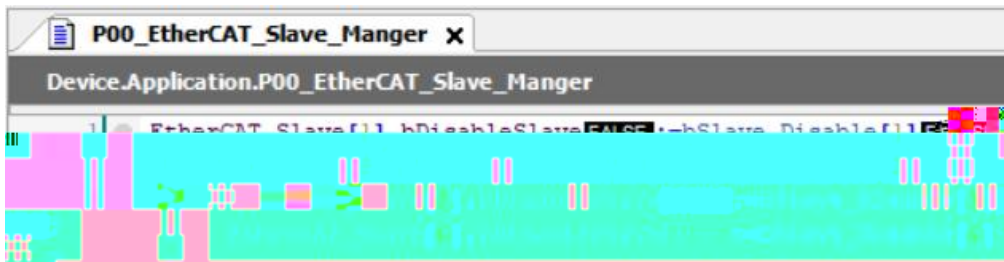
P00_EtherCAT_Slave_Manger X
1 PROGRAM P00_EtherCAT_Slave_Manger
2 VAR
3   FB_EtherCATManager_0      :FB_EtherCATManager;
4   EtherCAT_Slave            :ARRAY[1..4] OF stECATSlave;
5   bRun                      :BOOL:=TRUE;
6   hbReConfig                :BOOL;
7 END_VAR

1 EtherCAT_Slave[1].bDisableSlave:=bSlave_Disable[1];
2 EtherCAT_Slave[2].bDisableSlave:=bSlave_Disable[2];
3 EtherCAT_Slave[3].bDisableSlave:=bSlave_Disable[3];
4 EtherCAT_Slave[4].bDisableSlave:=bSlave_Disable[4];

5
6 IF bRun THEN
7   hbReConfig:=TRUE;
8   bRun:=FALSE;
9 END_IF

10
11 FB_EtherCATManager_0(
12   Master:=TRUE,
13   bReConfig:=hbReConfig,
14   pSlaveArray:=EtherCAT_Slave,
15   pSlaveIndex:=0,
16   pSlaveName:=,
17   pSlaveType:=,
18   pSlaveID:=,
19   pSlaveIP:=,
20   pSlaveMAC:=,
21   pSlavePort:=,
22   pSlaveConfig:=,
23   pSlaveOptions:=);

24
25 IF FB_EtherCATManager_0.bReConfig AND
26   FB_EtherCATManager_0.bSlaveIndex AND
27   FB_EtherCATManager_0.bSlaveType AND
28   FB_EtherCATManager_0.bSlaveID AND
29   FB_EtherCATManager_0.bSlaveIP AND
30   FB_EtherCATManager_0.bSlaveMAC AND
31   FB_EtherCATManager_0.bSlavePort AND
32   FB_EtherCATManager_0.bSlaveConfig AND
33   FB_EtherCATManager_0.bSlaveOptions THEN
34   bRun:=TRUE;
35 END_IF
  
```



SetEnabled

```
EtherCAT_Port3(
    xRestart:=bRestart ,
    xStopBus:= ,
    xConfigFinished=> ,
    xDistributedClockInSync=> ,
    xError=> ,
    xSyncInWindow=> );
```

```
HCFA_Y7_Servo_Driver_1.SetEnabled(pConnector:=HCFA_Y7_Servo_Driver_1.m_pConnector,xEnabled:=NOT bEnable);
HCFA_Y7_Servo_Driver_1.SetEnabled(pConnector:=Axis_1.m_pConnector,xEnabled:=NOT bEnable);
```

29.	DXF	CNC				
	CAM	DXF	CNC	CNC	U \SD	CNC

1.

ER0000

Q0P/Q1P

ERR

2.

ER0051

PLC

FOR

FOR

3.

ER0102 ER0152

FPU DevisionByZero

€	12.09.2023 13:21:41	*SOURCEPOSITION* App=[Application] area=3, offset=2931	CmpIecTask
€	12.09.2023 13:21:41	*EXCEPTION* [FPU DevisionByZero] occurred: App=[Application], Task=[EtherCAT_Task1]	CmpIecTask

POU

REAL/LREAL

POU

fData

NaN

:=fData2

0

/fData2

0

;

RETURN

4.

HCFA

HCFA

HCFA

5. EtherCAT

CRC

Port0

Port1

Link Lost Counter

6. EtherCAT

“

”

XML

XML

7. EtherCAT

1

In Out

2

3

STOP

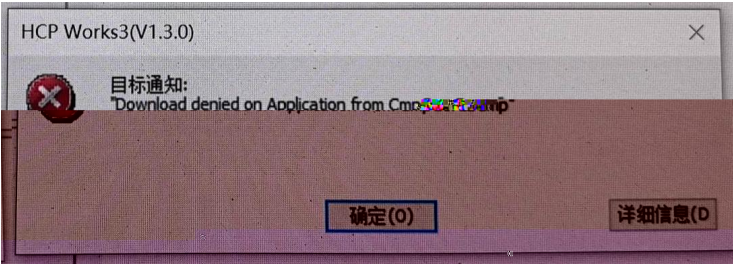
4

5

8. EtherCAT



9. —Download Denied on Application from CmpCoreDump



“ EXCEPTION ”

厂名	时间/时间	描述	操作
1	24.11.2023 22:51:38	*SOURCEPOSITION* App=[Application] area=3, offset=1145650	CmpApp
2	24.11.2023 22:51:38	*EXCEPTION* [GlobalExit] code: App=[Application], Exception=[AccessViolation]	CmpApp

- 1 PLC STOP
- 2 PLC Device →
- 3

10. —

GlobalInit

严重	时间标记	描述	组件
	28.03.2024 02:29:58	*SOURCEPOSITION* App=[Application] area=3, offset=1707470	CmpApp
	28.03.2024 02:29:58	*EXCEPTION* [GlobalInit] code: App=[Application], Exception=[AccessViolation]	CmpApp

44

44

ARM

32

64

```
{attribute 'pack_mode' := '0'}
TYPE AAA :
STRUCT
  Data :REAL;
END_STRUCT
END_TYPE
```

11.

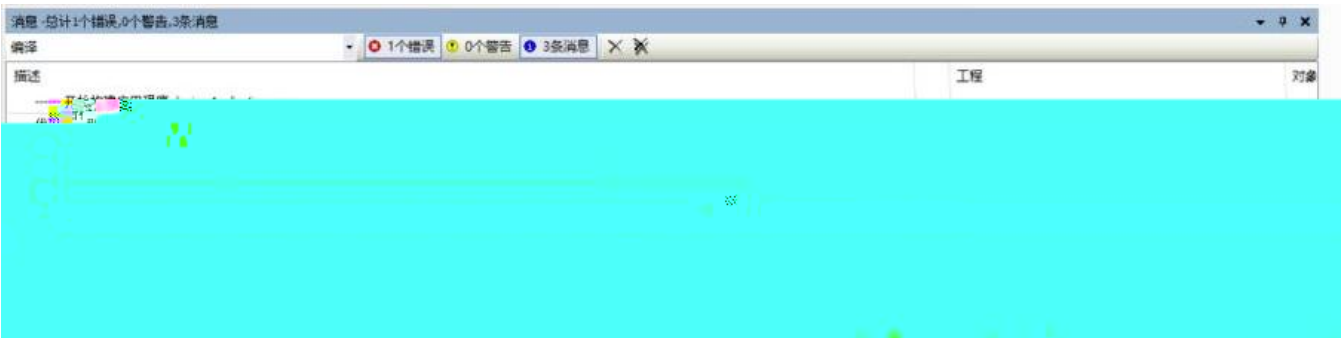
——

'sm3basic,4.10.0.0...

12.

——Internal error:System.NullReferenceException

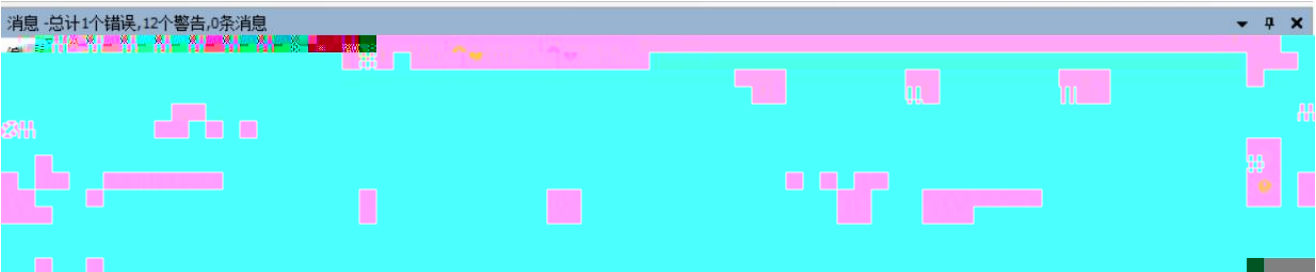
softmotion



13.

——The Library *** is only supported in 32 bit applications

32



23

32

64

system23

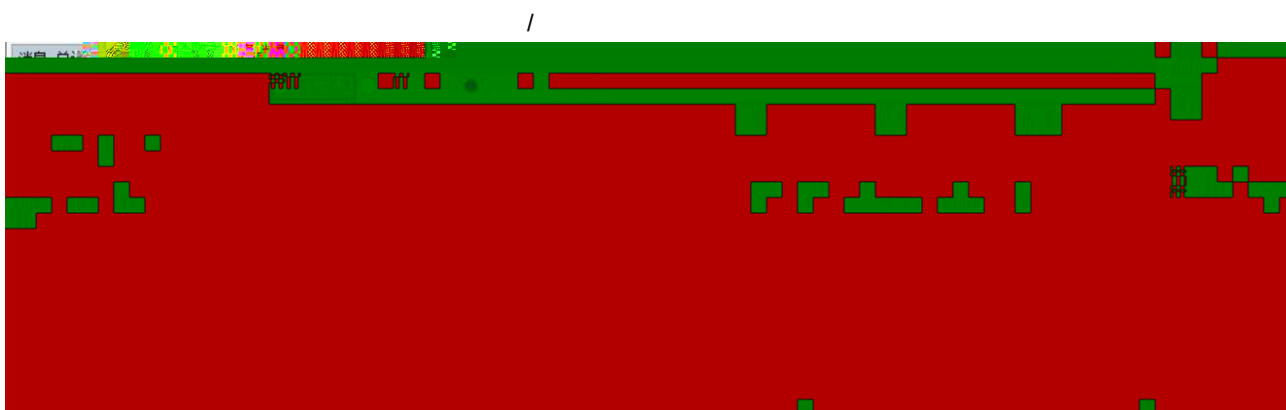
32

system

32 /64

14.

——Not enough persistent memory



1.

Codesys
POU / / /Lrange

CPU

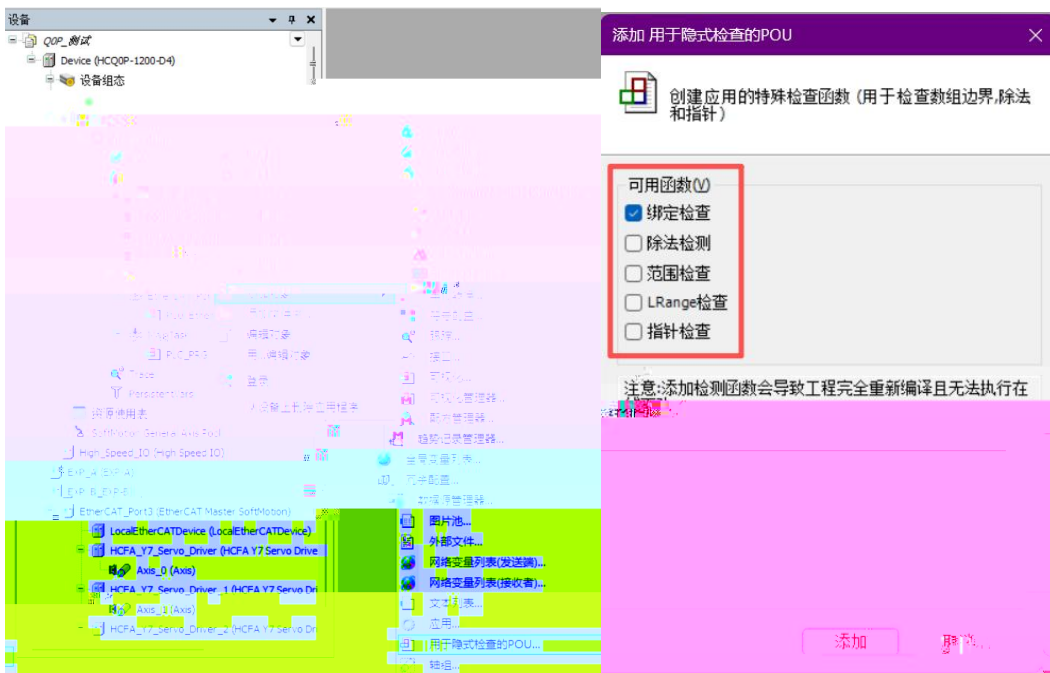
POU “no_check” POU
POU POU

```

1 {attribute 'no_check'}
2 PROGRAM POU_EtherCAT
3 VAR
4     tonEtherCAT          :TON;
5     SMC3_PersistPosition_0 :SMC3_PersistPosition;
6     FB_GetEtcSlaveState_0 :FB_GetEtcSlaveState;
7     EtherCAT_SlaveState   :ARRAY[0..9] OF _stEtcSlaveState;
8     hRestart              :FB;

```

POU Application → → POU, →



dErrCount

dErrCount

1 dErrCount

```

1 // 隐式生成代码:不需要编辑
2 FUNCTION CheckBounds : DINT
3   VAR_INPUT
4     index, lower, upper: DINT;
5   END_VAR
6
7   // 隐式生成代码:只是实现代码的建议
8   IF index < lower THEN
9     CheckBounds := lower;
10    dErrCount:=dErrCount+1;
11  ELSIF index > upper THEN
12    CheckBounds := upper;
13    dErrCount:=dErrCount+1;
14  ELSE
15    CheckBounds := index;
16  END_IF

```

dErrCount 0

```

1 // 隐式生成代码:只是实现代码的建议
2 IF index[??] < lower[??] THEN
3   CheckBounds[??] := lower[??];
4   dErrCount[0] := dErrCount[0] + 1;
5 ELSIF index[??] > upper[??] THEN
6   CheckBounds[??] := upper[??];
7   dErrCount[0] := dErrCount[0] + 1;
8 ELSE
9   CheckBounds[??] := index[??];
10 END_IF

```

```

1 // 隐式生成代码:只是实现代码的建议
2 IF index[0] < lower[1] THEN
3   CheckBounds[1] := lower[1];
4   dErrCount[0] := dErrCount[0] + 1;
5 ELSIF index[0] > upper[9] THEN
6   CheckBounds[1] := upper[9];
7   dErrCount[0] := dErrCount[0] + 1;
8 ELSE
9   CheckBounds[1] := index[0];
10 END_IF

```



CheckBounds PLC_PRG X		
Device.Application.PLC_PRG		
表达式	类型	值
ifor	INT	0
arTest	ARRAY [1..9] OF REAL	

```

1 IF bStart TRUE THEN
2   FOR ifor[0] := 0 TO 9 DO
3     arTest[ifor[0]] [??] := arTest[ifor[0]] [??] + 1;
4   END_FOR
5 END_IF

```

PLC

2. PID

PIDLIB 2.0.0.0.compiled-library

PID PWS

PID

```
rActValue:=TO_REAL($IW2)/10;
```

```
PID_0{
```

```
  RUN:=bRun ,
```

//功能块开始运行

```
  ManualCtrl:=FALSE ,
```

//开始自动调整

```
  AutoTune:=bAutoTune ,
```

```
  SV:=rSetValue ,
```

```
  PV:=rActValue ,
```

```
  CycleTime:=LTIME#100MS ,
```

```
  Proportional:=rP ,
```

//在自调整时随便给个值，但不能为0，给个初始值就好

```
  IntegrationTime:=ltI ,
```

//在自调整时随便给个值，但不能为0，给个初始值就好

```
  DerivativeTime:=ltD ,
```

//在自调整时随便给个值，但不能为0，给个初始值就好

```
  RangLow:=0 ,
```

//输入下限

```
  RangUp:=300 ,
```

//输入上限

```
  MVLow:=0 ,
```

//输出下限

```
  MVUp:=100 ,
```

//输出上限

```
  ManualMV:=rManualMV ,
```

```
  Direction:= ,
```

```
  Options:= ,
```

```
  ATDone=> ,
```

```
  ATBusy=> ,
```

```
  Error=> ,
```

```
  ErrorID=> ,
```

```
  MV=> ) ;
```

//输出值的范围是0-100

```
PWM_0{
```

```
  Enable:=bOut ,
```

```
  OnTime:=REAL_TO_INT(PID_0.MV*10) ,
```

//PID输出值*10就是相当于将ON时间调成在1s中所占百分比

```
  CycleTime:=1000 ,
```

//周期为1000ms

```
  Out=>$QX0.0 ) ;
```

//执行RUN，功能块开始运行，ATBUSY的输出表示初始值有错误

//当ATDone标志位代表运算完成，PID新的参数也会生成，结果会覆盖到比例系数，微分时间，积分时间引脚上

//如需下次使用该组参数无需自调节，将AutoTune复位，直接run即可使用该组PID参数。

3.

PersistentVars

PersistentVars

PersistentVariables

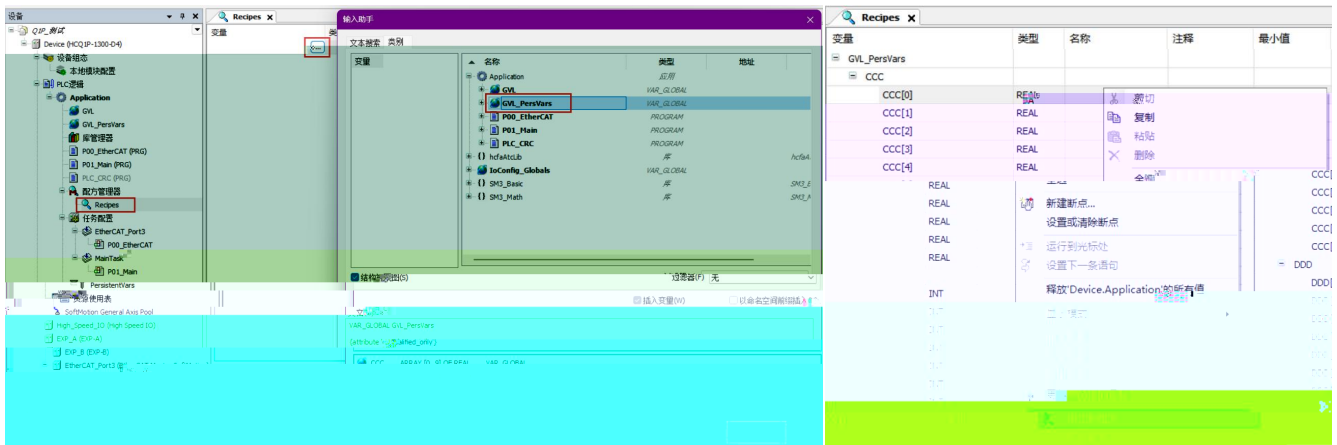
PersVars

PersistentVars

Application

→

→



“FlashFiles/”

```
//实例调用
RecipeManCommands_0();

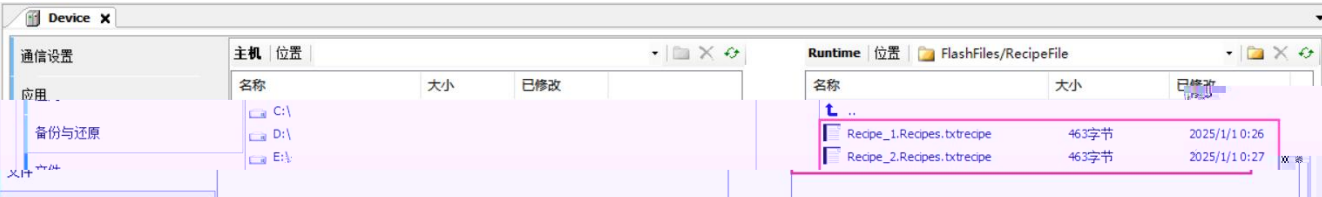
//设置存储路径
IF bSetStoragePath THEN
    IF RecipeManCommands_0.SetStoragePath(stPath:='FlashFiles/RecipeFile/') THEN
        bSetStoragePath_OK:=TRUE;
        bSetStoragePath:=FALSE;
    END_IF
END_IF

//生成配方名称
strRecipeNum:=TO_STRING(wRecipeNum);
strRecipeName:=CONCAT('Recipe_',strRecipeNum);

//创建配方文件
IF bCreateRecipe AND bSetStoragePath_OK THEN
    IF RecipeManCommands_0.CreateRecipe(RecipeDefinitionName:='Recipes',RecipeName:=strRecipeName)=16#0 THEN
        bCreateRecipe_OK:=TRUE;
        bCreateRecipe:=FALSE;
    END_IF
END_IF

//读取PLC变量到配方，并保存配方到配方文件
IF bReadSaveRecipe AND bSetStoragePath_OK THEN
    IF RecipeManCommands_0.ReadAndSaveRecipe(RecipeDefinitionName:='Recipes',RecipeName:=strRecipeName)=16#0 THEN
        bReadSaveRecipe_OK:=TRUE;
        bReadSaveRecipe:=FALSE;
        bCreateRecipe_OK:=FALSE;
    END_IF
END_IF

//从配方文件加载配方，并写入PLC变量
IF bLoadWriteRecipe AND bSetStoragePath_OK THEN
    IF RecipeManCommands_0.LoadAndWriteRecipe(RecipeDefinitionName:='Recipes',RecipeName:=strRecipeName)=16#0 THEN
        bLoadWriteRecipe_OK:=TRUE;
        bLoadWriteRecipe:=FALSE;
    END_IF
END_IF
```

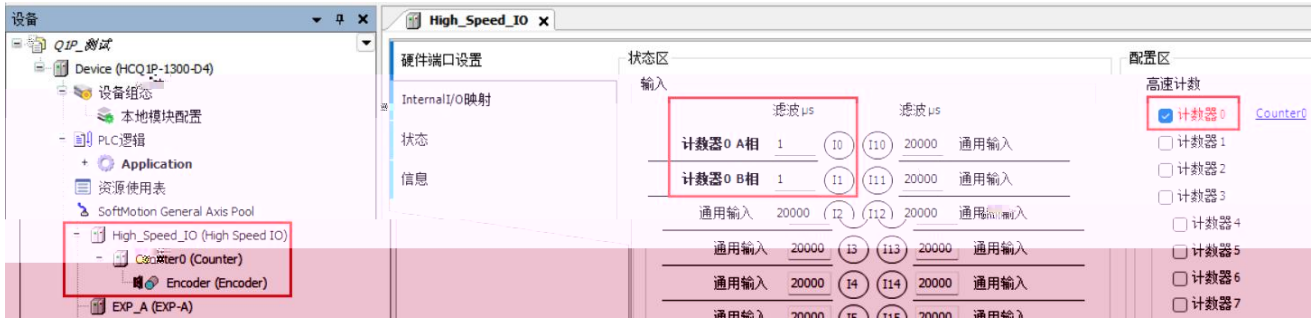


1	EtherCAT	PLC	100ms
2			
3		" FlashFiles/RecipeFile/ "	FlashFiles
		RecipeFile	
4	FlashFiles		
4.		High_Speed_IO	0

Counter0

Encoder

Encoder_0



Counter0

A/B

1

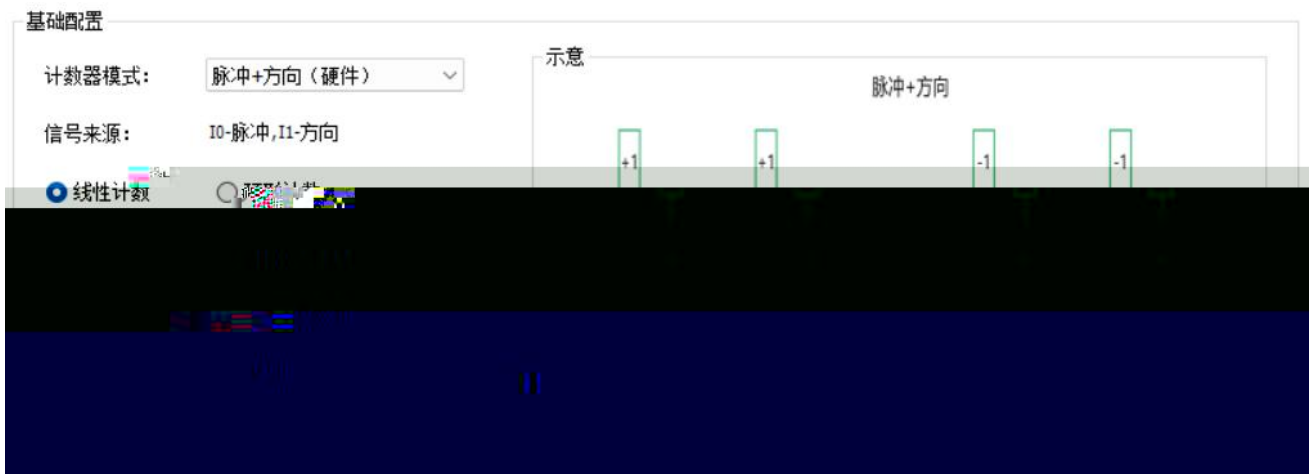
2

4

CW/CCW

+

-2147483648~2147483647



IO



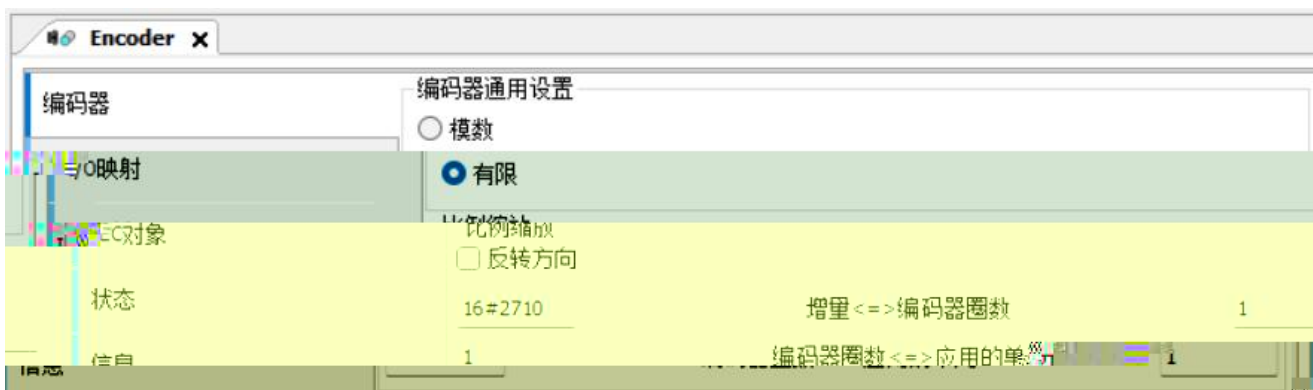
IO

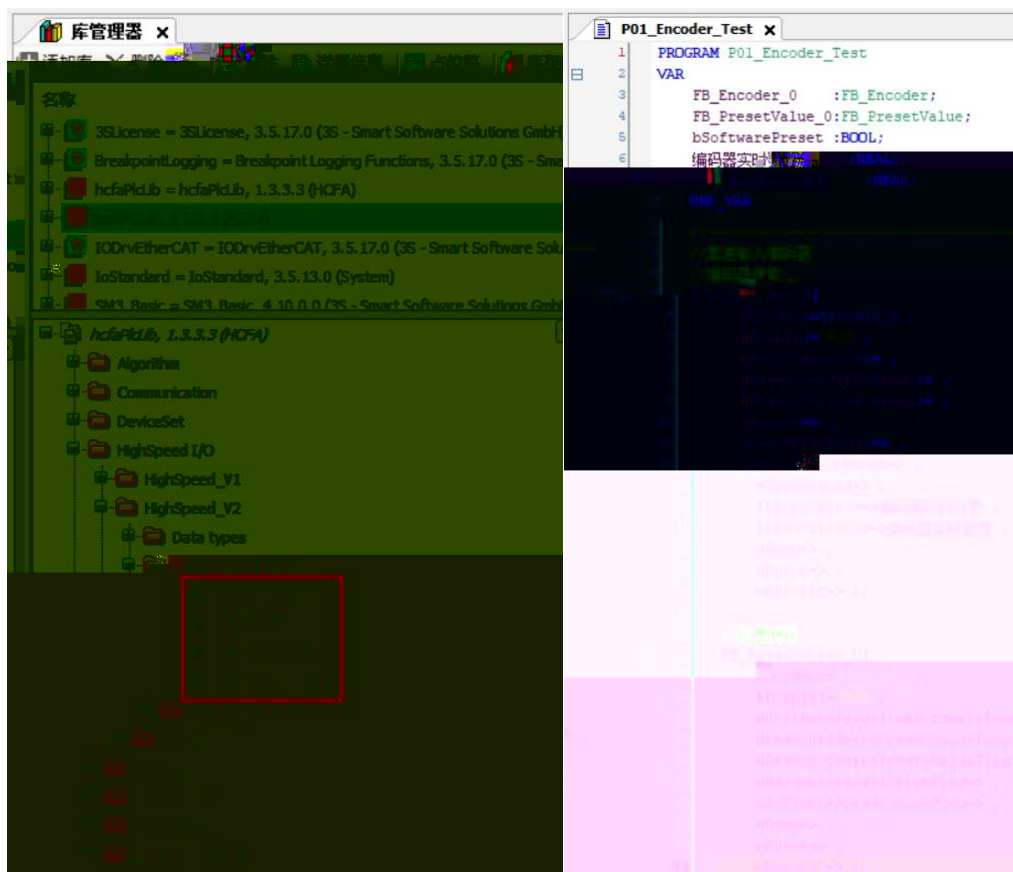
FB_PresetValue

Encoder

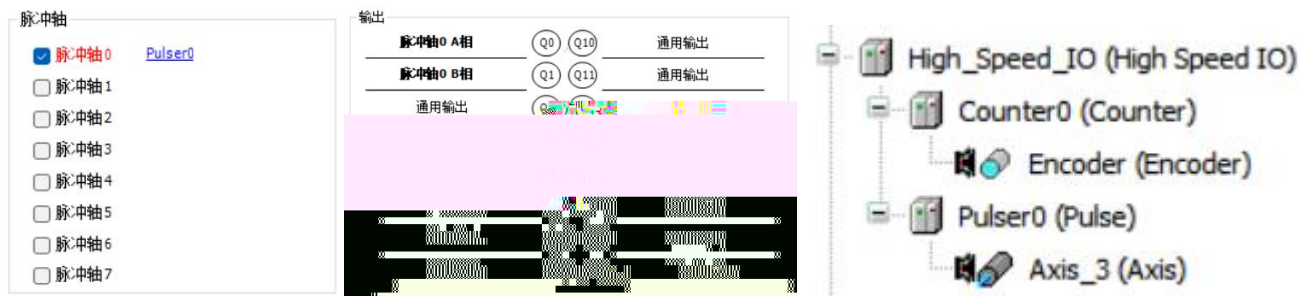
2

FB_Latch

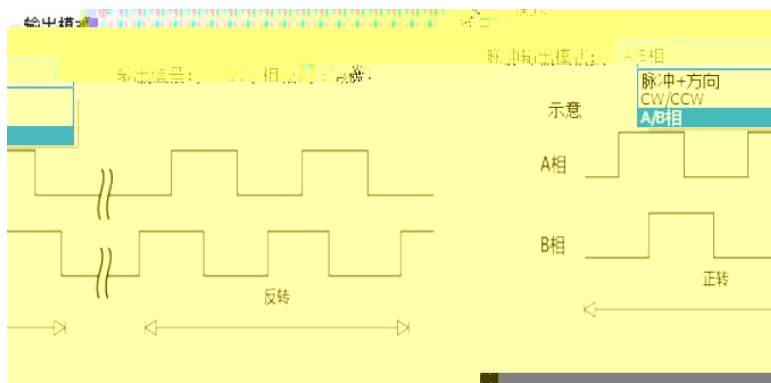




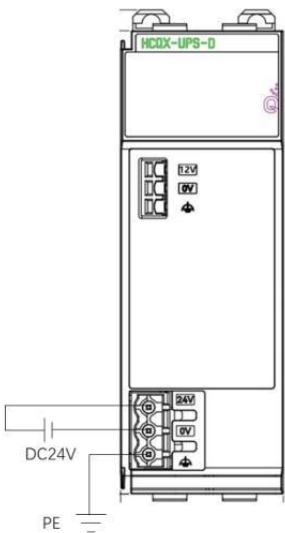
High_Speed_IO 0
Pulser0 Axis



Pulser0 + CW/CCW A/B



Codesys MC MC_Home EtherCAT



HCQX-UPS-D-T09

HCQX-UPS-D-TRF

16

HCQX-UPS-D-TRF

表三 中转模块 HCQX-UPS-D-TRF 端子排列说明

说明	NO.		说明
GND	0	10	12V
	1	11	
	2	12	
	3	13	
	4	14	
	5	15	

