应用说明

FESTO

如何在 Sysmac Studio 中通过 Ethernet/IP 将 CMMT 连接到 OMRON PLC

本文档将分步介绍要通过 Ethernet/IP 将 CMMT 连接到 OMRON PLC 时必须执行的操作以及如何通过 ProfiDrive 协议进行控制。

CMMT

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目录

使用的元件/软件

类型/名称	软件/固件版本	生产日期
CMMT-AS	V018.0.5.62_release	2020
Festo Automation Suite	2.0.1.9	2020
CMMT-AS 插件	20.01.8	2020
NJ301-1100 Omron PLC	1.10	--
Sysmac Studio 标准版	Ver.1.16	--

表 0.1: 1 使用的元件/软件

信息

本应用说明介绍了 CMMT-AS 伺服驱动器相关操作程序。适用于 CMMT-AS 伺服驱动控制器和 CMMT-ST 伺服驱动控制器均基于相同的软件平台。因此，所述设置还可用作其参数化参考。我们在此明确指出，尚未对上述内容进行明确测试，因此无法保证功能正常!

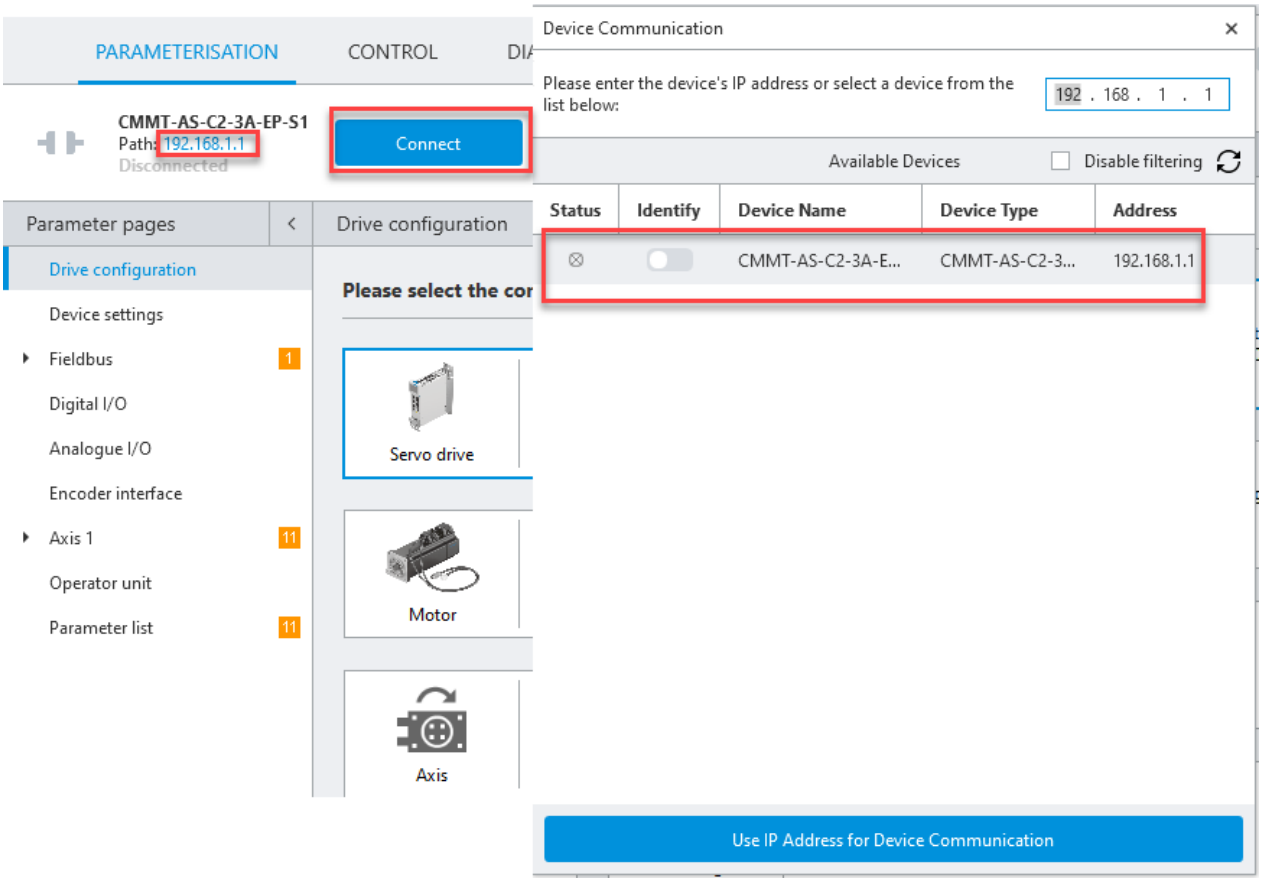
1 FAS 配置

1.1 在 FAS 中创建新项目

在 FAS 中创建表示所需 HW 元件的新项目。

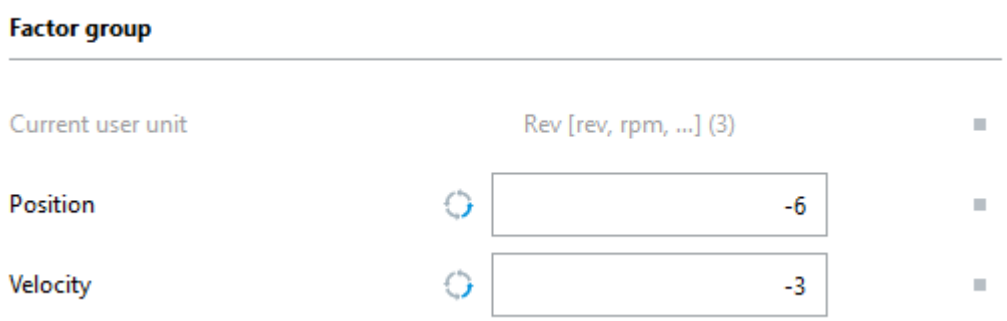
1.2 与 PLC 集成时的 CMMT 驱动器参数设置

1.2.1 在 FAS 中进行 IP 扫描和设置



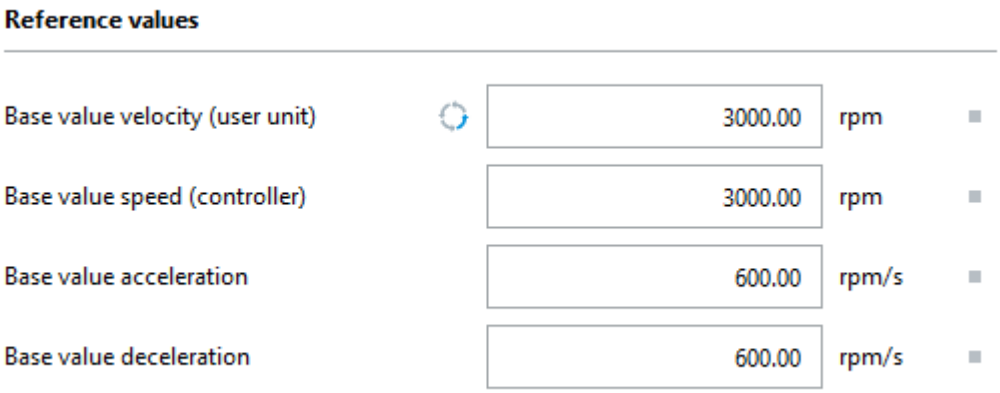
1. 在工具栏中单击 IP 地址**“Path”**。
2. 根据 IP 地址选择正确的驱动器，然后点击**“Use IP Address for Device Communication”**按钮分配路径地址。
3. 单击**“Connect”**按钮建立通信，驱动器的状态随即从 Disconnected 更改为 Connected。

1.2.2 Factor group 设置



输入现场总线的 Position 和 Velocity 命令缩放因子值。可在 Automation Suite 中从 **PARAMETERISATION > Fieldbus > Factor group** 访问 Factor group。
示例 - 1 下面的 PLC 缩放值是基于以 1 m/s 的速度将直线驱动轴移动 10 mm 计算得出的。
Position 因子 (-6) = **10^-6 = 0.000001 = 1µm** 随即得出 10 mm = PLC 中的 1000000 增量值
Velocity 因子 (-3) = **10^-3 = 0.001 = 1mm/s** 随即得出 1 m/s = PLC 中的 1000 增量值
示例 - 2 下面的 PLC 缩放值是基于以 100 RPM 的速度将旋转轴移动 5 Rev 计算得出的。
Position 因子 (-6) = **10^-6 = 0.000001 Rev** 随即得出 5 Rev = PLC 中的 5000000 增量值
Velocity 因子 (-3) = **10^-3 = 0.001 RPM** 随即得出 100 RPM = PLC 中的 100000 增量值

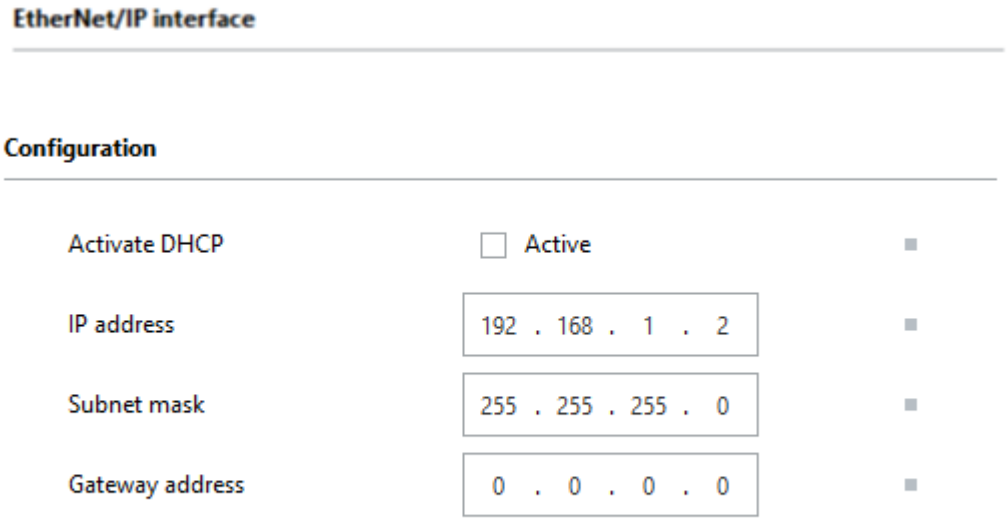
1.2.3 Reference values 设置



在相应的数值字段中输入应用的实际 Base value velocity、Base value acceleration 和 Base value deceleration 值。

注意
- Base value velocity 不会影响驱动器的速度，但是会影响驱动器的显示值。
- AOI 标签**“BaseSpeedValue”**的值必须与 FAS 参数值相同，即 FAS 参数 P1.11280701.0.0。

1.2.4 EtherNet/IP interface 设置

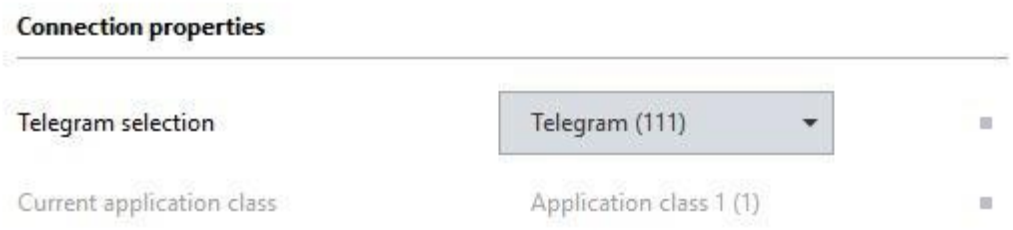


输入 EtherNet/IP 接口的 IP address 和 Subnet mask。此通信接口用于建立与 PLC 的连接，以接受控制命令以及发送信号反馈。它在 CMMT 重启后生效

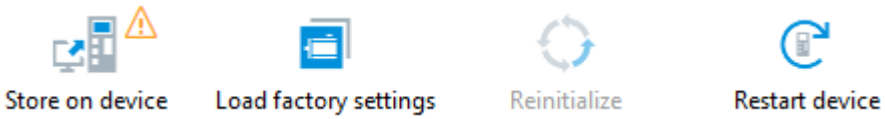
注意

EtherNet/IP 接口的 IP 地址系列必须与 PLC IP 地址系列一致，才能建立连接。

1.2.5 Telegram selection 设置



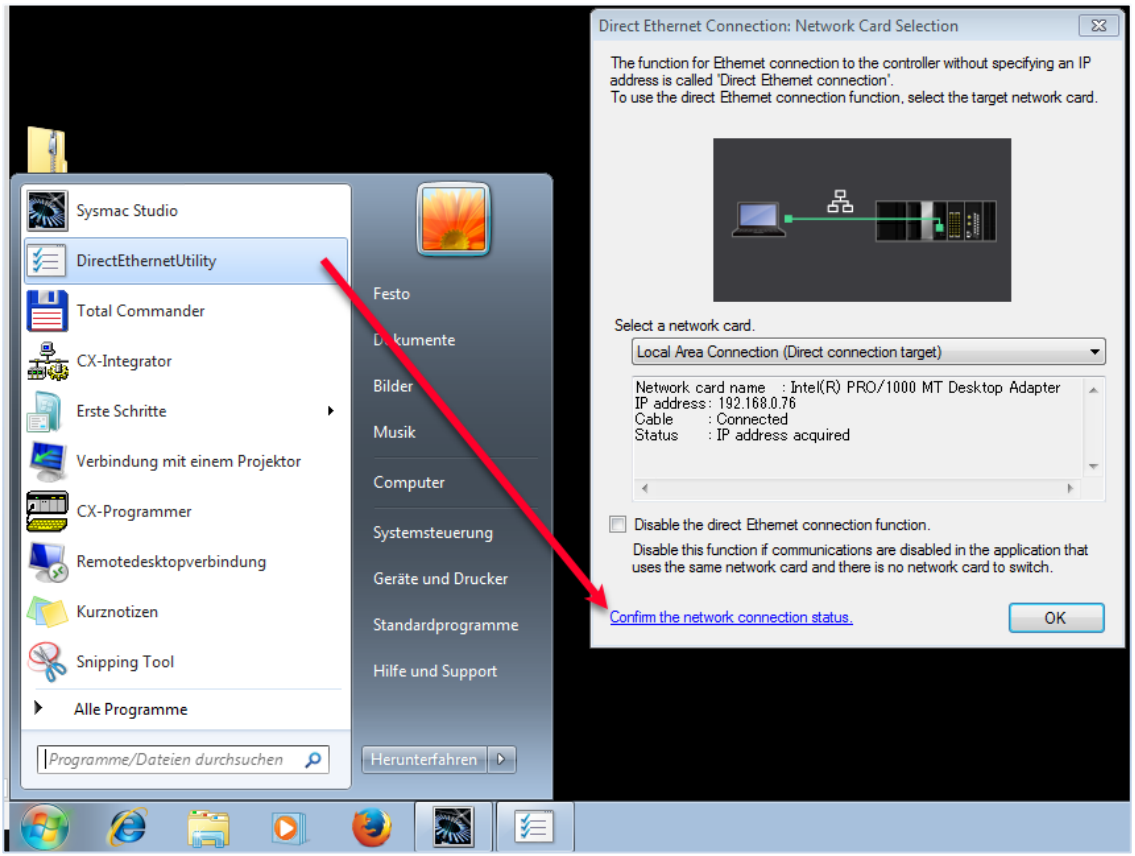
1.2.6 存储参数



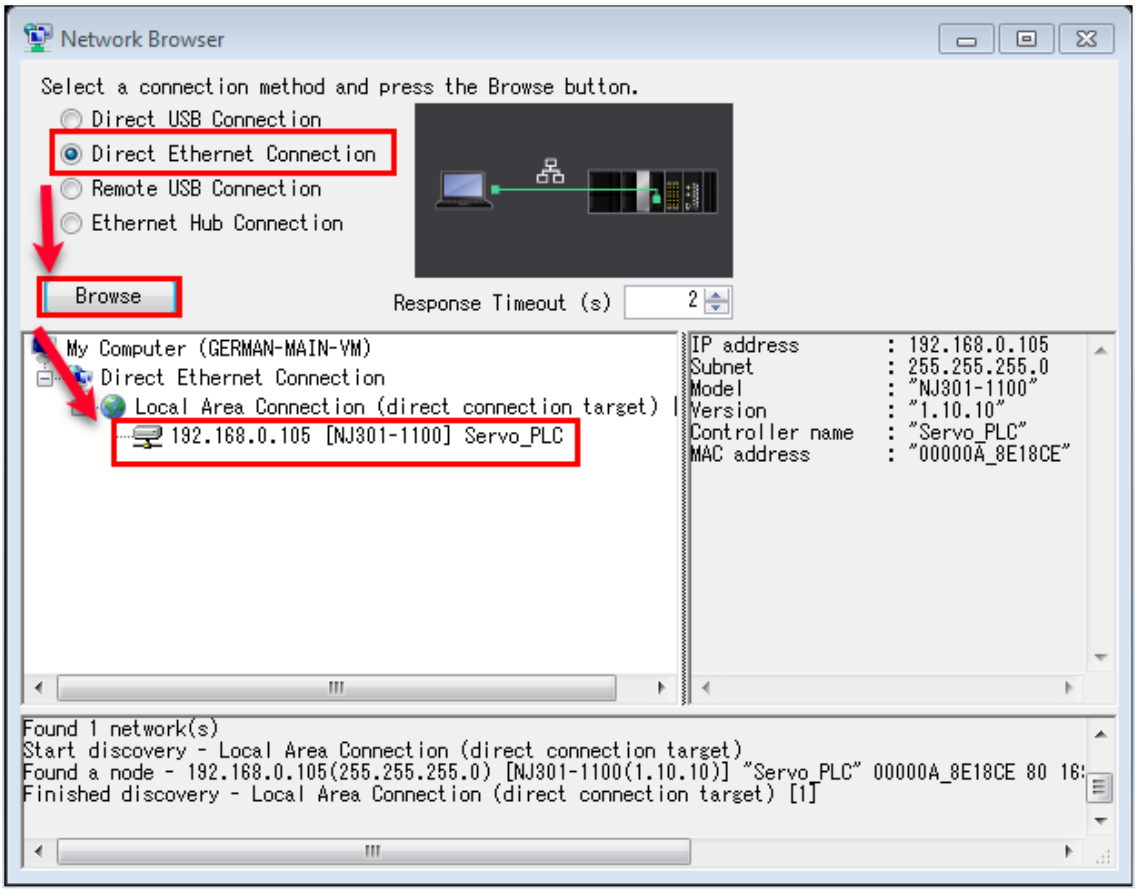
要在驱动器存储器上存储所有参数，单击**“Store on device”**按钮。

2 测试与 PLC 的连接

在安装 Sysmac Studio 后，Omron 将提供名为 DirectEthernetUtility 的 IP 扫描软件。
如果不知道或忘记了 IP 地址，建议使用此工具。
启动 DirectErhernetUtility，然后单击 Confirm the network connection status



选择连接方法，然后单击 Browse 查找设备。



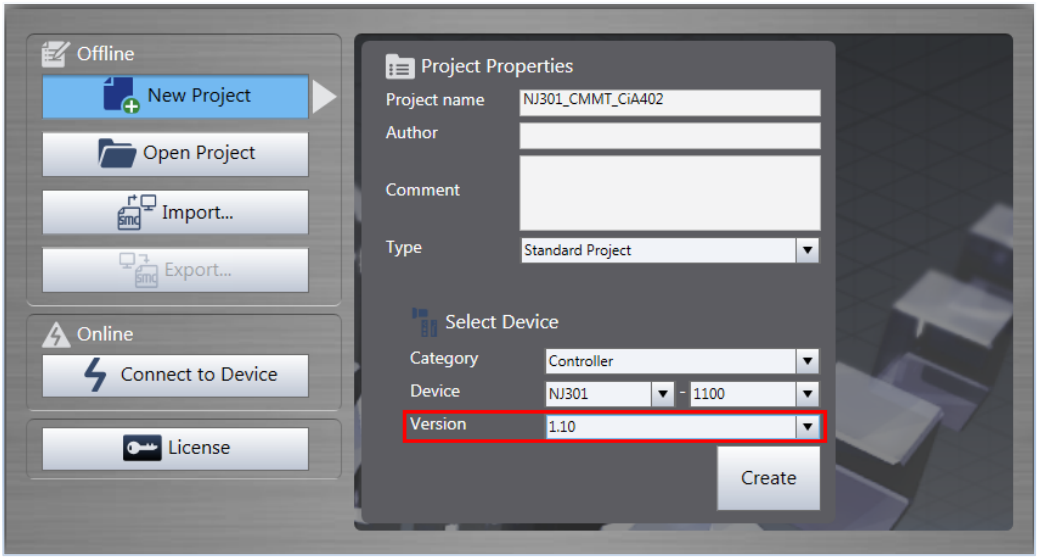
3 Sysmac Studio 配置

3.1 创建新项目

选择您拥有的**设备类型和版本**创建新项目。

注意

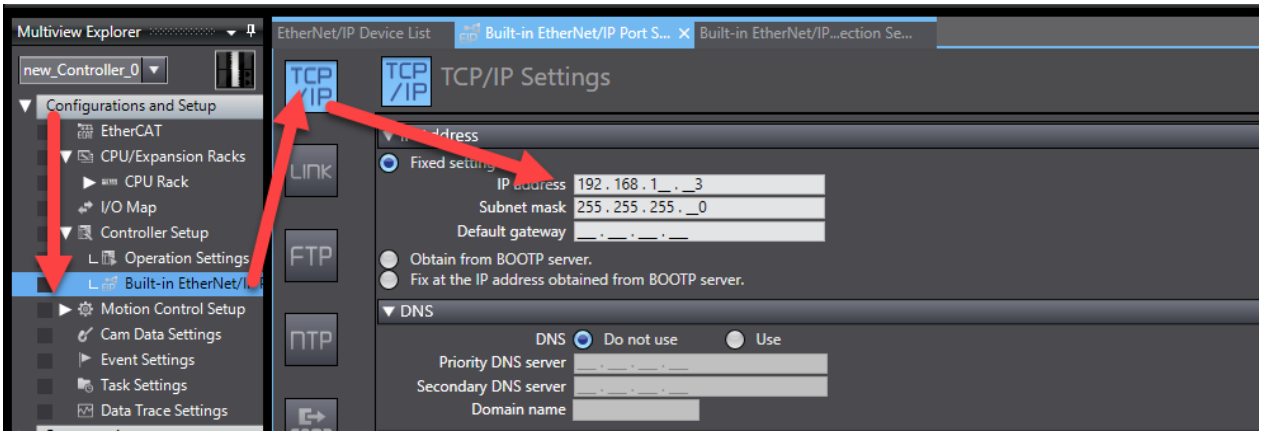
设备版本**必须为 1.10 或更高版本。**较早的控制器不兼容 Festo_MotionControl 库。请联系 OMRON 了解 FW 更新。



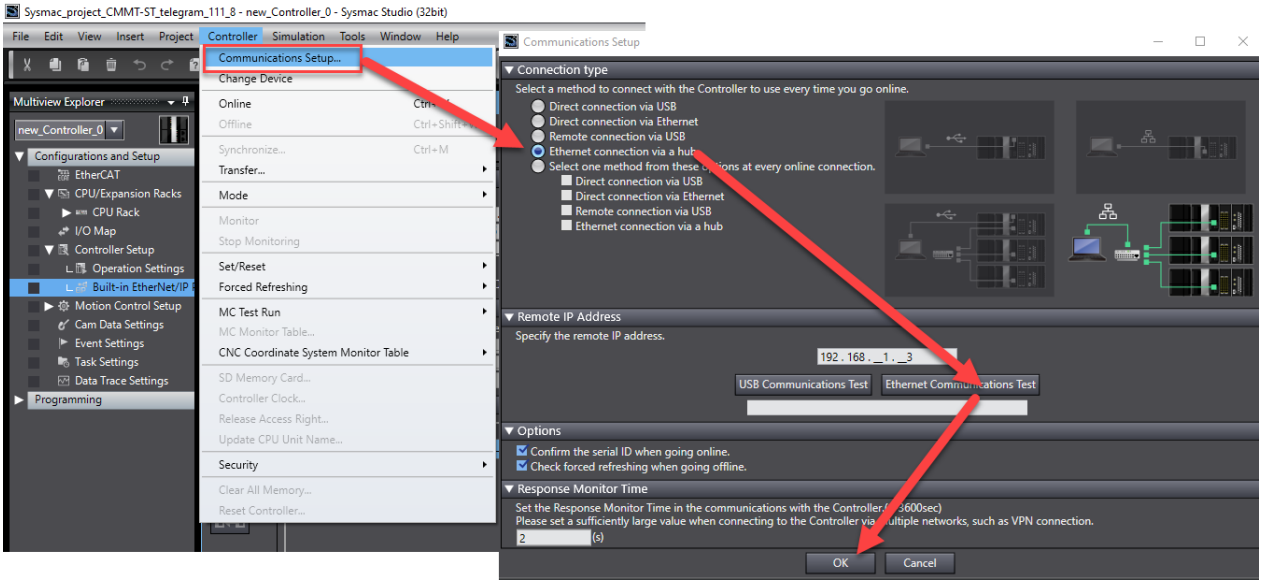
3.2 PLC Ethernet/IP 端口配置

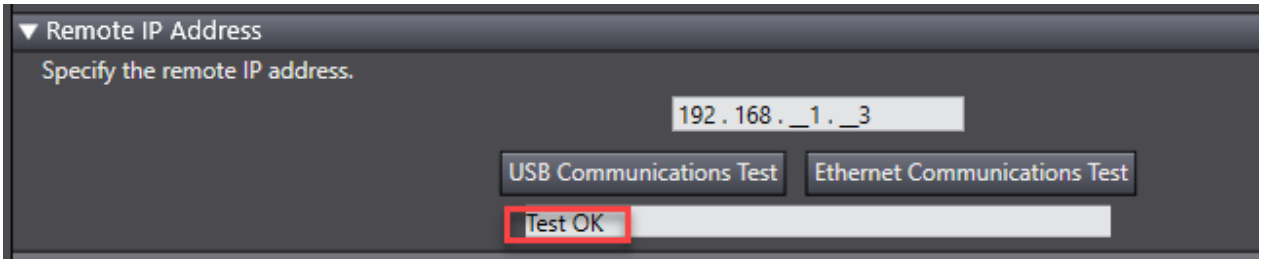
3.2.1 IP 地址

在项目中设置 PLC 的 IP 地址，方法为打开 Configurations and Setup 菜单 -> Controller Setup -> Built-in Ethernet/IP Port Settings -> TPC/IP -> Fixed Setting



进行通信设置，方法为单击 Controller -> Communication Setup... > Select connection method -> Communications Test。



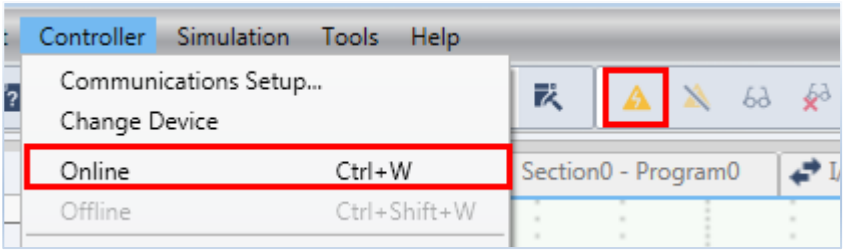


注意

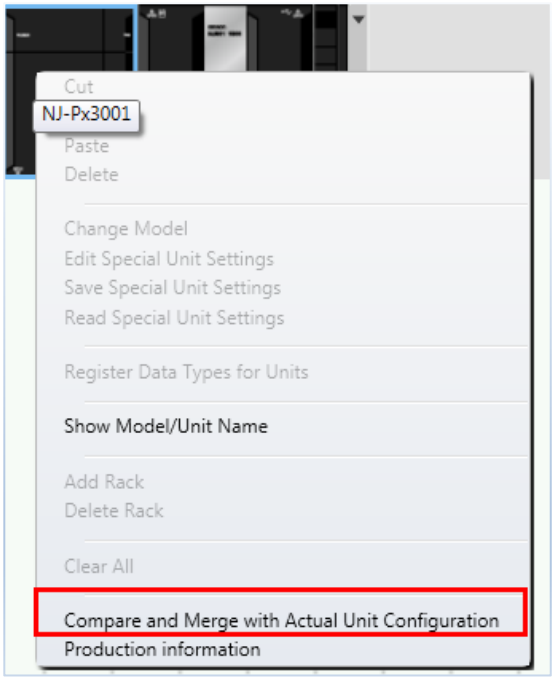
如果测试成功，将显示消息 Test OK。

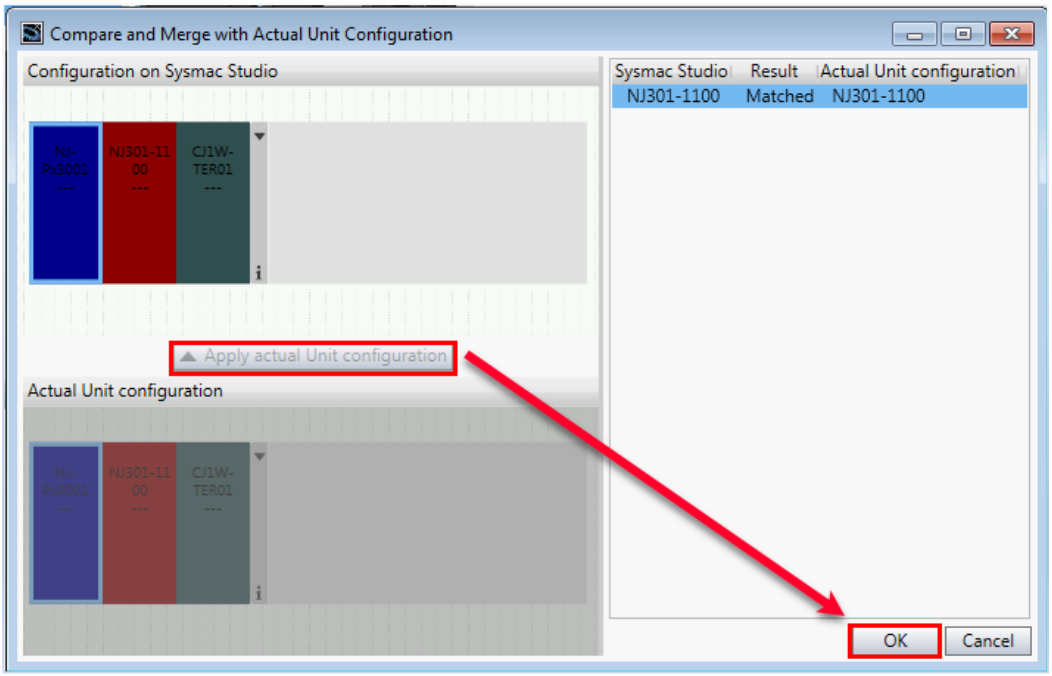
3.2.2 PLC 模块配置

单击 Controller -> Online，与 PLC 建立在线连接。



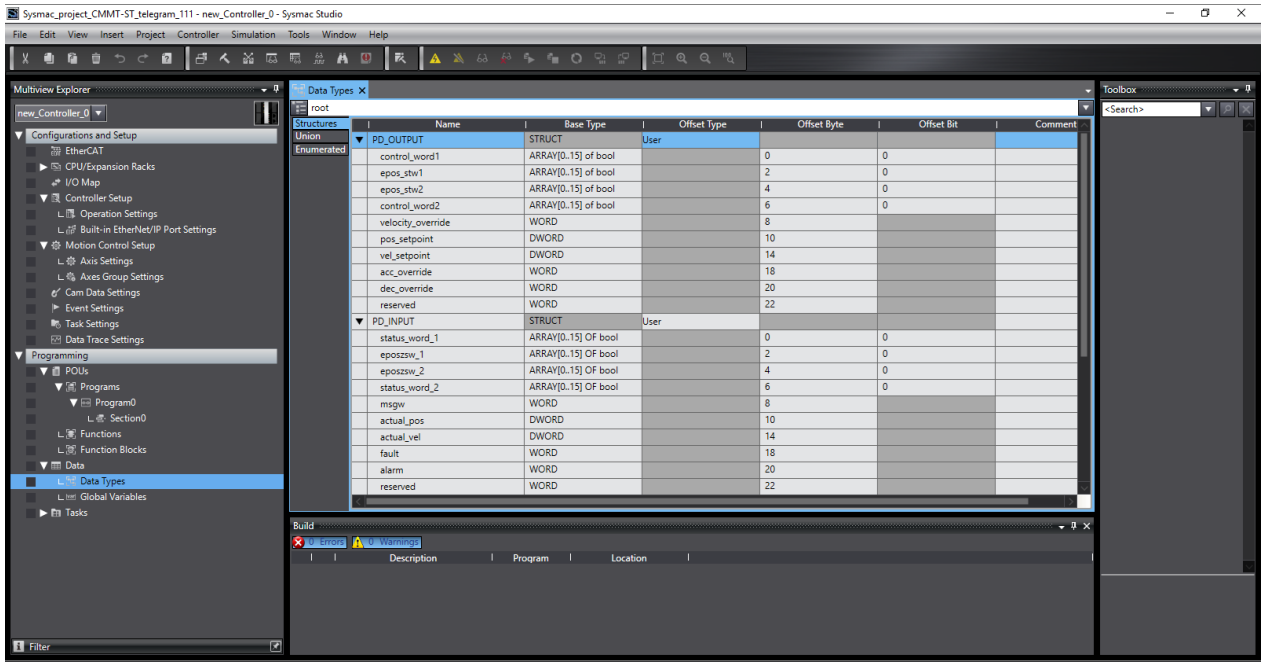
双击 CPU/Expansion Racks。右键单击任意所示模块，然后选择 Compare and Merge with Actual Unit Configuration 选项 -> Apply actual Unit configuration


Cut
NJ-Px3001
Paste
Delete
Change Model
Edit Special Unit Settings
Save Special Unit Settings
Read Special Unit Settings
Register Data Types for Units
Show Model/Unit Name
Add Rack
Delete Rack
Clear All
Compare and Merge with Actual Unit Configuration
Production information

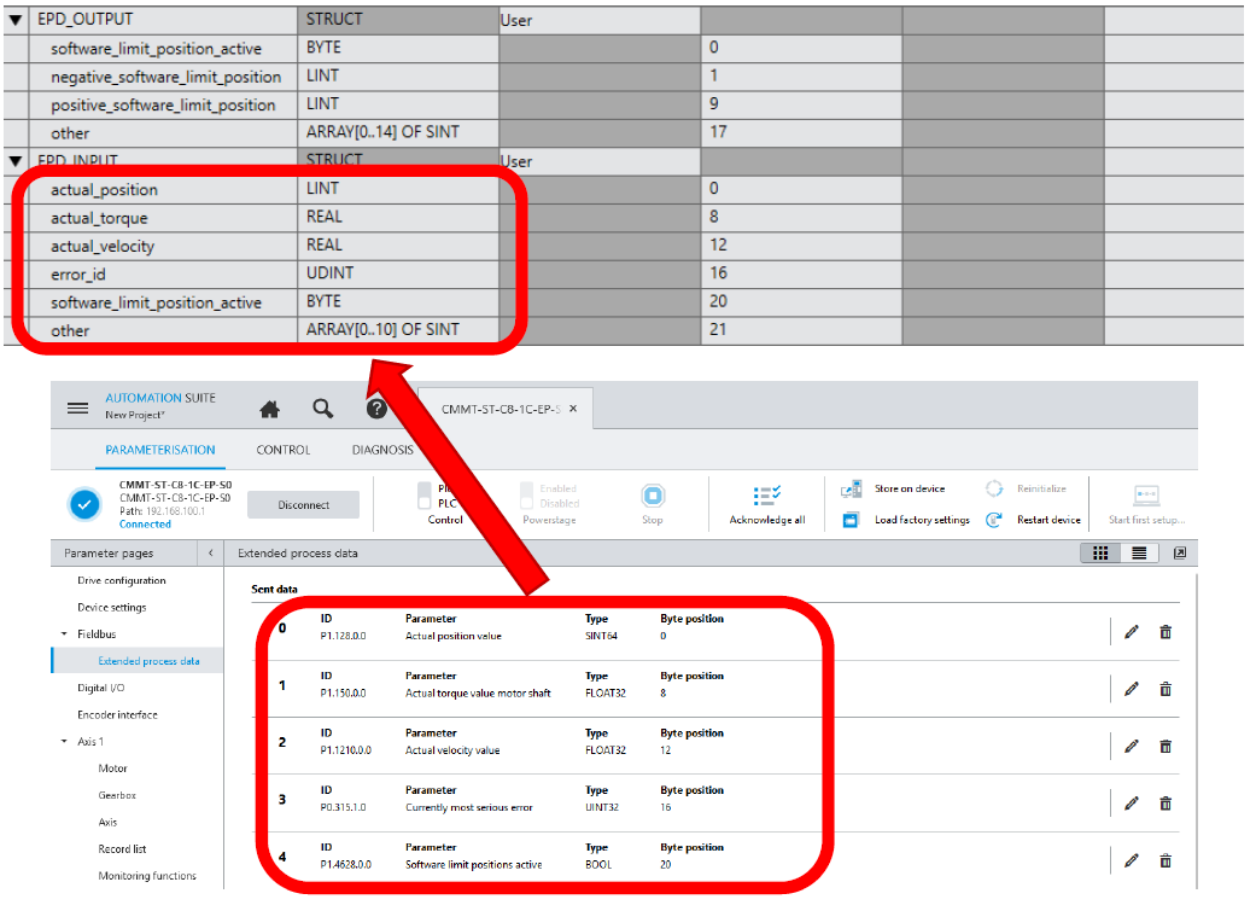

Compare and Merge with Actual Unit Configuration
Configuration on Sysmac Studio
Sysmac Studio
Result
Actual Unit configuration
NJ301-1100
Matched
NJ301-1100
Apply actual Unit configuration
Actual Unit configuration
OK
Cancel

3.3 创建数据类型和全局变量

在“Programming”→“Data”部分 →“Data Types”中，符合报文 111 的结构为过程数据创建不同类型的数据输入和输出：

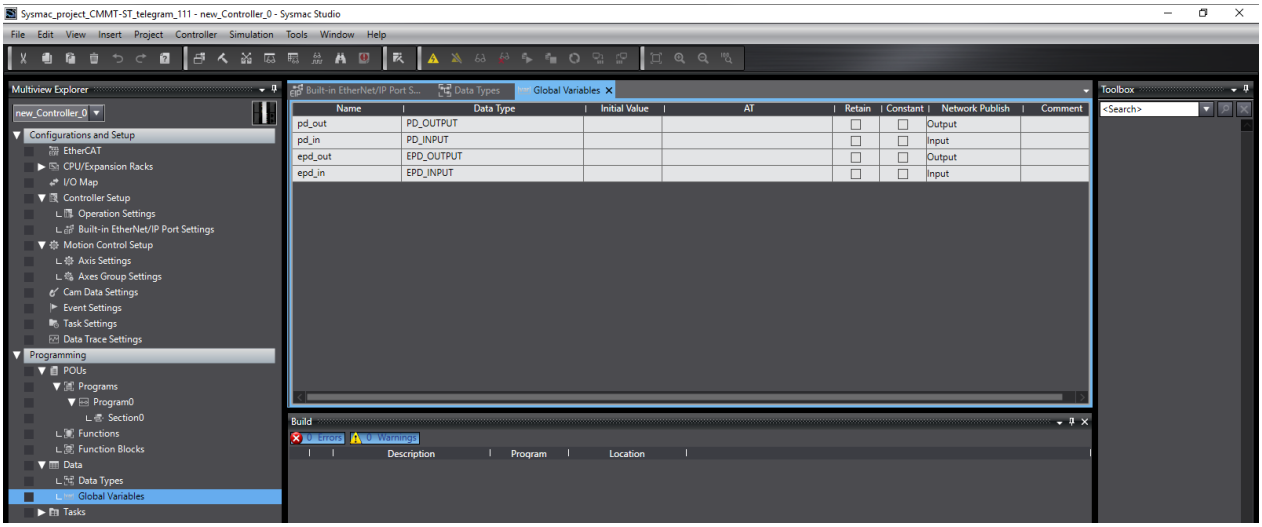


根据通过 Festo Automation Suite 定义的配置，为扩展过程数据创建不同类型的数据输入和输出，注意即使不完全使用所有 32 个字节，也要全部配置：



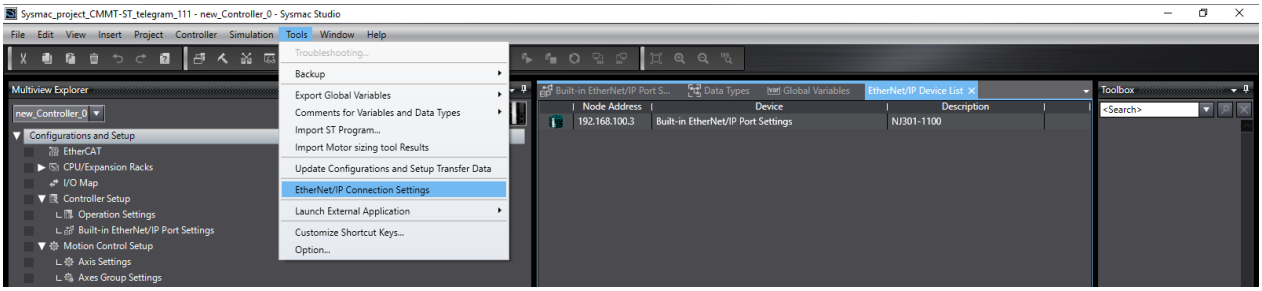
定义全局变量：

在“Programming”→“Data”部分 →“Global variables”中，符合报文 111 的结构为过程数据创建不同类型的数据输入和输出

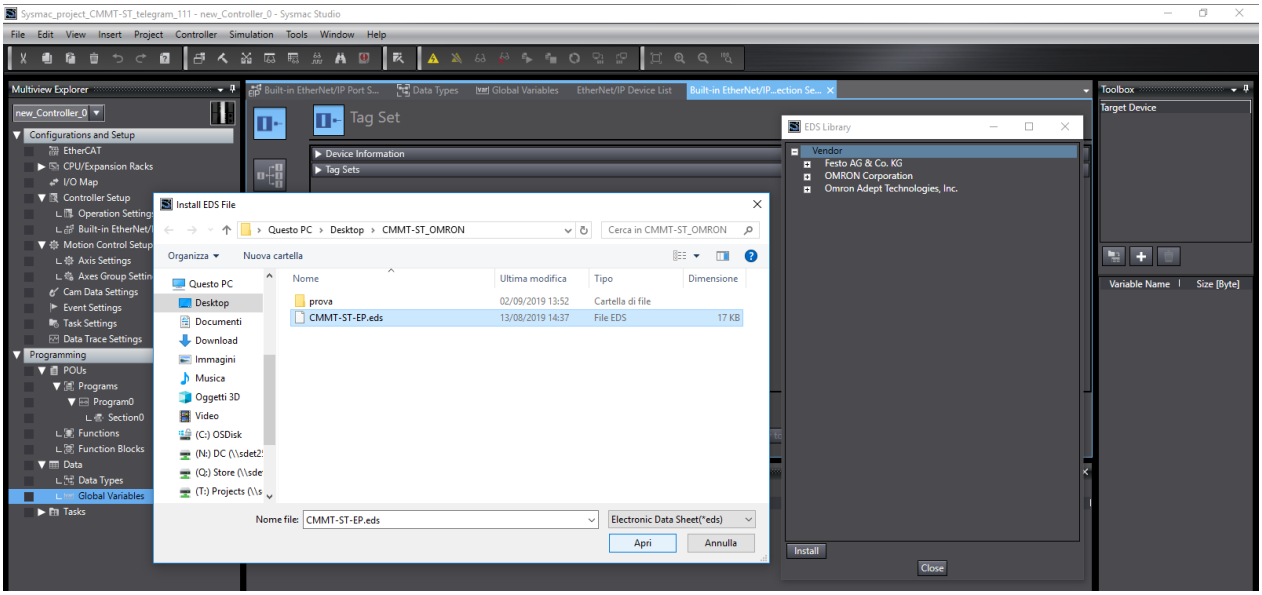


3.4 添加 EDS 文件

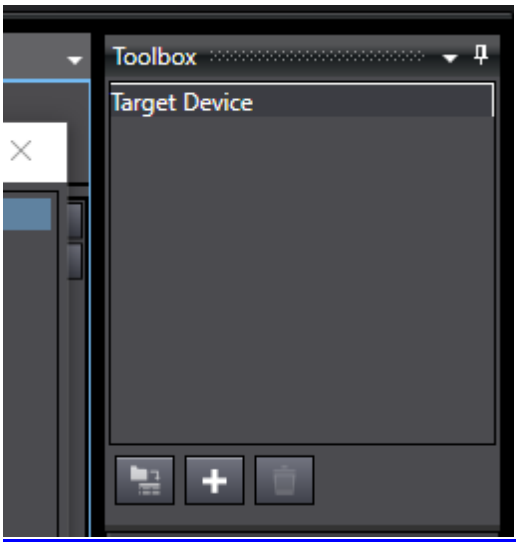
在顶部菜单中：“Tools”→“EtherNet/IP Connection Settings”→ 双击 PLC 图标



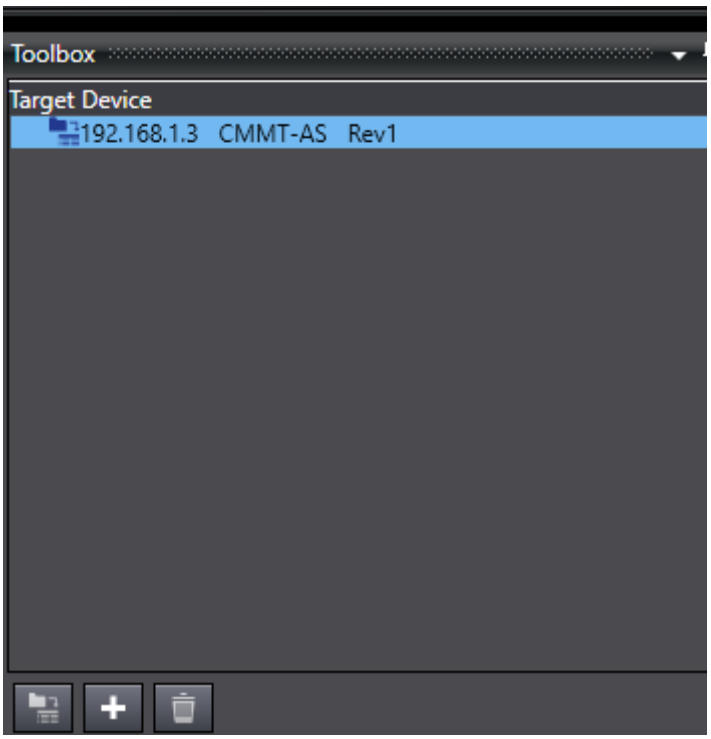
安装 CMMT EDS 描述文件：右键单击“Target Device”窗口 →“Display EDS Library”，然后安装所提供的或位于 Festo 支持与下载上的 EDS 文件。



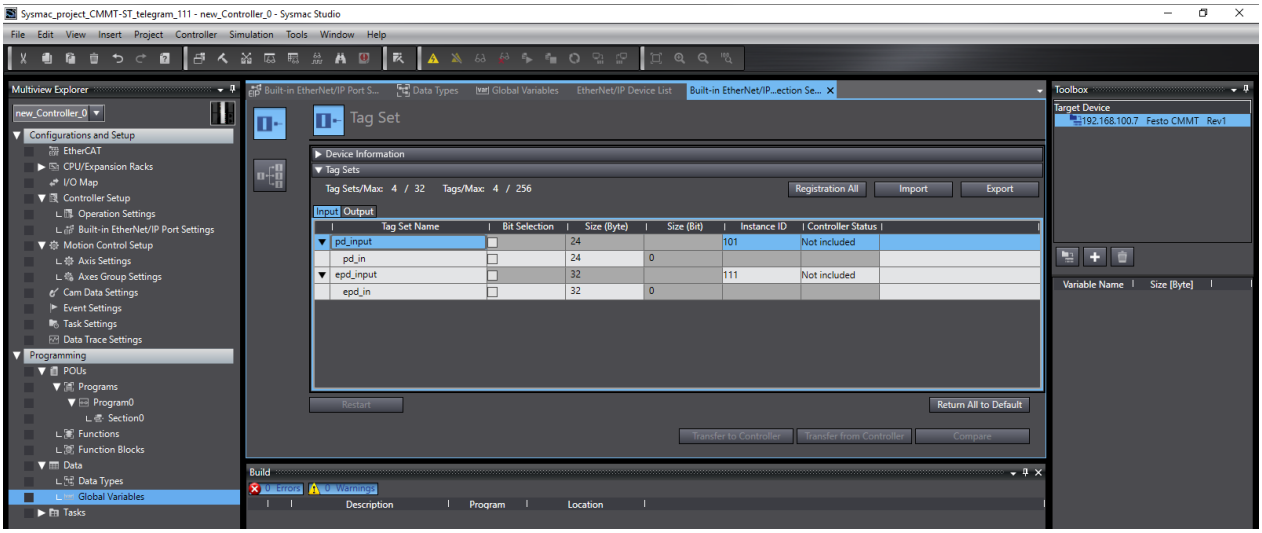
将 CMMT Device 添加至“Target Device”



输入之前在 Automation Suite 上输入的 Ethernet/IP 地址，然后选择刚刚添加至库的“CMMT festo”模板：

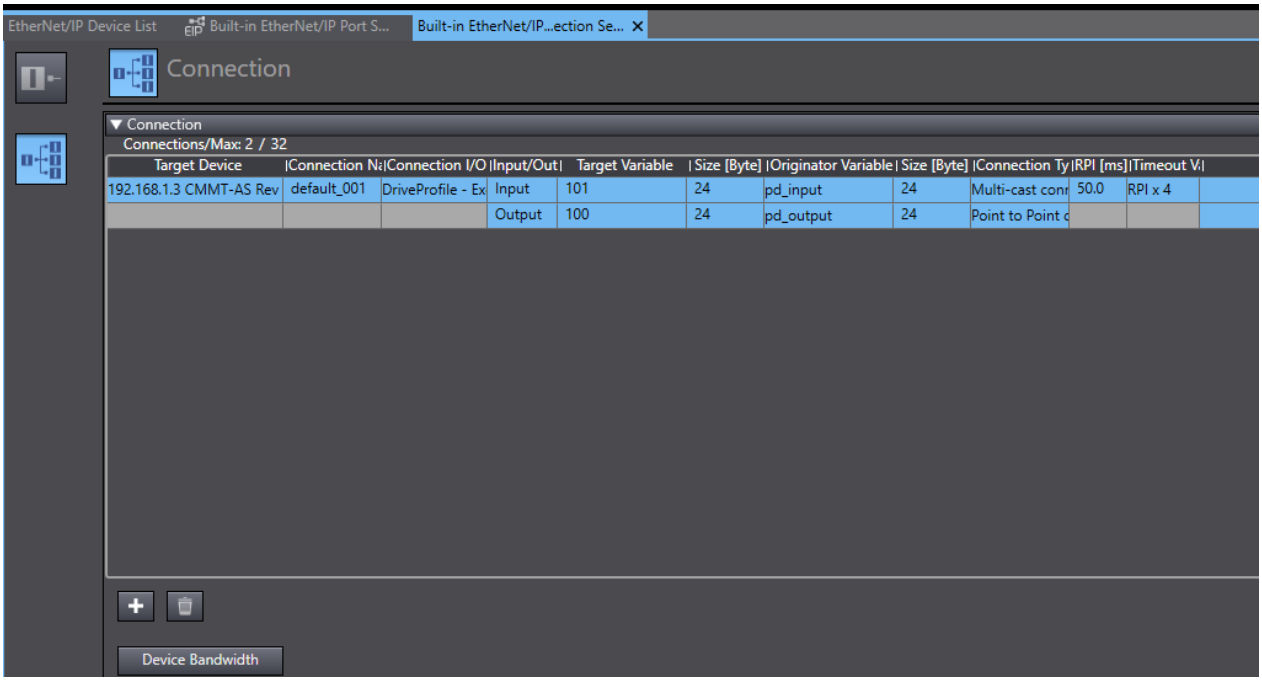


在“Tag Set”部分中，通过实例定义输入和输出集标签，然后将这些标签与之前创建的全局变量相关联：



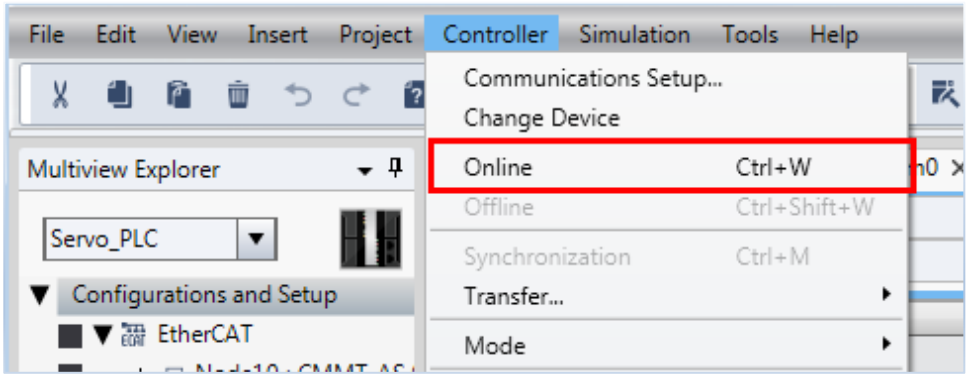
Input	Output						
Tag Set Name	Bit Selection	Size (Byte)	Size (Bit)	Instance ID	Controller Status	Output at Fatal Err	
pd_output		24		100	Not included		
pd_out		24	0			Cleared	
epd_output		32		110	Not included		
epd_out		32	0			Cleared	

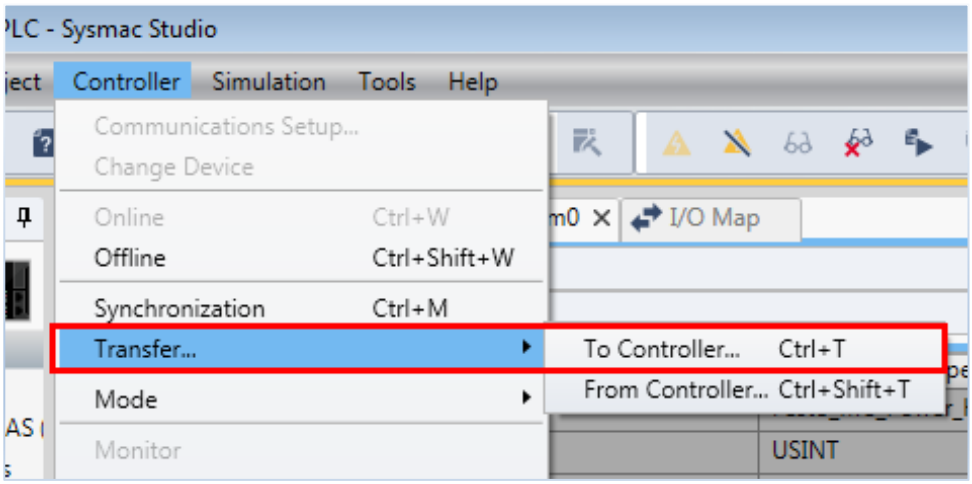
在“Connection”部分中，将 CMMT 与不同的标签相关联，如以下方案所示：



4 传输到控制器并通过 Watch 表控制

在进行所有更改后，最后一步是上线并将参数传输到 Omron 控制器。

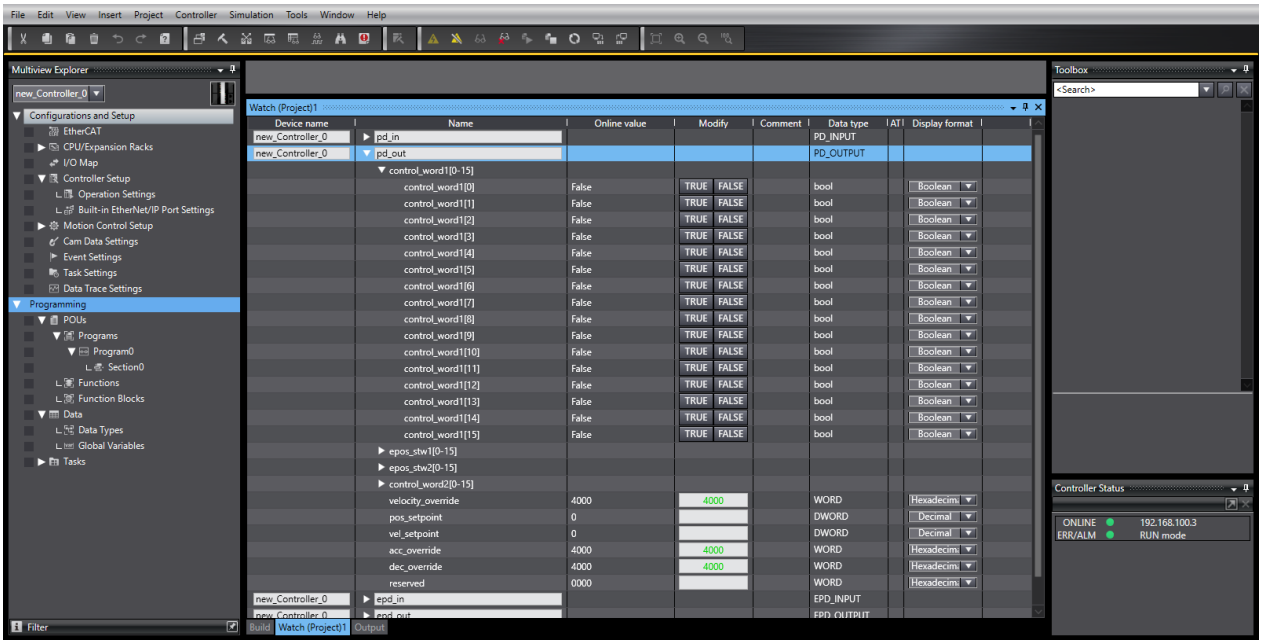




注意

如果不想传输整个控制器配置（在正确完成后），则需要使用在线更改指令执行不影响拓扑或 PLC 设置的更改。

可通过使用 Watch Table (Alt + 4) 配置的所有过程数据控制驱动器：



4.1 符合报文 111 的 CMMT 控制序列

如果过程数据包含 12 个字输出 [共计 24 个字节] 和 12 个字输入 [共计 24 个字节]。每个位的含义遵循 Siemens 报文 111 的模式。报文的详细图表见本文件尾部。以下序列在 CMMT 的主要命令中用于对其进行控制：

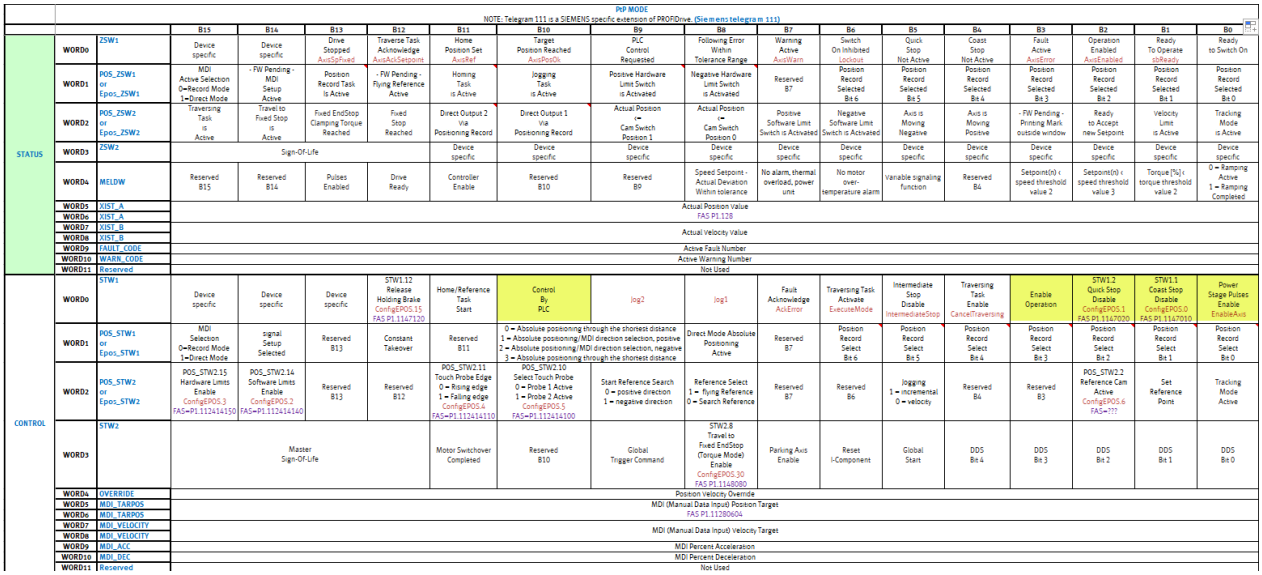
定位任务：

• 使能：切换 PZD1(STW1) 的以下位

0000 0100 0000 0000 →

0000 0100 0011 1110 →

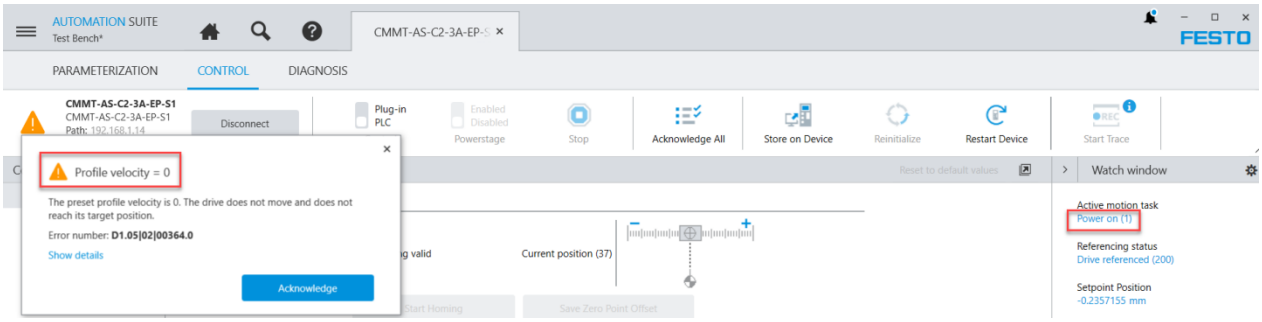
0000 0100 0011 1111



Watch (Project)1

Device name	Name	Online value	Modify	Comment	Data type	AT	Display format
new_Controller_0	pd_in				PD_INPUT		
new_Controller_0	pd_out				PD_OUTPUT		
	control_word1[0-15]						
	control_word1[0]	True	TRUE FALSE		bool		Boolean
	control_word1[1]	True	TRUE FALSE		bool		Boolean
	control_word1[2]	True	TRUE FALSE		bool		Boolean
	control_word1[3]	True	TRUE FALSE		bool		Boolean
	control_word1[4]	False	TRUE FALSE		bool		Boolean
	control_word1[5]	False	TRUE FALSE		bool		Boolean
	control_word1[6]	False	TRUE FALSE		bool		Boolean
	control_word1[7]	False	TRUE FALSE		bool		Boolean
	control_word1[8]	False	TRUE FALSE		bool		Boolean
	control_word1[9]	False	TRUE FALSE		bool		Boolean
	control_word1[10]	True	TRUE FALSE		bool		Boolean
	control_word1[11]	False	TRUE FALSE		bool		Boolean
	control_word1[12]	False	TRUE FALSE		bool		Boolean
	control_word1[13]	False	TRUE FALSE		bool		Boolean
	control_word1[14]	False	TRUE FALSE		bool		Boolean
	control_word1[15]	False	TRUE FALSE		bool		Boolean

- 在启用 CMMT 后，会出现一条警告 Profile velocity=0，需要进行确认和复位



切换 PZD1(STW1) 的以下位以重置

PNP MODE

NOTE: Telegram 111 is a SIEMENS specific extension of PROFIDrive. (Siemens telegram 111)

			B15	B14	B13	B12	B11	B10	B9	B8	B7	B6	B5	B4	B3	B2	B1	B0
STATUS	WORD0	ZSW1	Device specific	Device specific	Drive Stopped AusSpEvad	Traverse Task Acknowledge AusAckSetpoint	Home Position Set AusRef	Target Position Reached AusPosOk	PLC Control Requested	Following Error Within Tolerance Range	Warning Active AusWarn	Switch On Inhibited Lockout	Quick Stop Not Active	Coast Stop Not Active	Fault Active AusError	Operation Enabled AusEnabled	Ready To Operate ziRready	Ready to Switch On
	WORD1	POS_ZSW1 or Epos_ZSW1	MDI Active Selection 0=Record Mode 1=Direct Mode	- FW Pending - MDI Setup Active	Position Record Task Is Active	- FW Pending - Flying Reference Active	Homing Task is Active	Jogging Task is Active	Positive Hardware Limit Switch is Activated	Negative Hardware Limit Switch is Activated	Reserved B7	Position Record Selected Bit 6	Position Record Selected Bit 5	Position Record Selected Bit 4	Position Record Selected Bit 3	Position Record Selected Bit 2	Position Record Selected Bit 1	Position Record Selected Bit 0
	WORD2	POS_ZSW2 or Epos_ZSW2	Traversing Task is Active	Travel to Fixed Stop is Active	Fixed EndStop Clamping Torque Reached	Fixed Stop Reached	Direct Output 2 via Positioning Record	Direct Output 1 via Positioning Record	Actual Position <= Cam Switch Position 1	Actual Position <= Cam Switch Position 0	Positive Software Limit Switch is Activated	Negative Software Limit Switch is Activated	Axis is Moving Negative	Axis is Moving Positive	- FW Pending - Printing Mark outside window	Ready to Accept new Setpoint	Velocity Limit is Active	Tracking Mode is Active
	WORD3	ZSW2	Sign-Of-Life				Device specific	Device specific	Device specific	Device specific	Device specific	Device specific	Device specific	Device specific	Device specific	Device specific	Device specific	Device specific
	WORD4	MELDW	Reserved B15	Reserved B14	Pulses Enabled	Drive Ready	Controller Enable	Reserved B10	Reserved B9	Speed Setpoint - Actual Deviation Within tolerance	No alarm, thermal overload, power unit	No motor over-temperature alarm	Variable signaling function	Reserved B4	Setpoint(n) < speed threshold value 2	Setpoint(n) < speed threshold value 3	Torque [%] < torque threshold value 2	0 = Ramping Active 1 = Ramping Completed
	WORD5	XIST_A	Actual Position Value FAS P1.128															
	WORD6	XIST_B																
	WORD7	FAULT_CODE	Actual Velocity Value															
	WORD8	WARN_CODE	Active Fault Number															
	WORD9	Reserved	Active Warning Number															
	WORD10	Reserved	Not Used															
	WORD11	Reserved																
CONTROL	WORD0	STW1	Device specific	Device specific	Device specific	STW1.12 Release Holding Brake ConfigEPOS.15 FAS P1.1147120	Home/Reference Task Start	Control By PLC	/op2	/op1	Fault Acknowledge AckError	Traversing Task Activate ExecuteMode	Intermediate Stop Disable IntermediateStop	Traversing Task Enable CancelTraversing	Enable Operation	STW1.2 Quick Stop Disable ConfigEPOS.1 FAS P1.1147020	STW1.1 Coast Stop Disable ConfigEPOS.0 FAS P1.1147010	Power Stage Pulses Enable EnableAxis
	WORD1	POS_STW1 or Epos_STW1	MDI Selection 0=Record Mode 1=Direct Mode	signal Setup Selected	Reserved B13	Constant Takeover	Reserved B11	0 = Absolute positioning through the shortest distance 1 = Absolute positioning/MDI direction selection, positive 2 = Absolute positioning/MDI direction selection, negative 3 = Absolute positioning through the shortest distance		Direct Mode Absolute Positioning Active	Reserved B7	Position Record Select Bit 6	Position Record Select Bit 5	Position Record Select Bit 4	Position Record Select Bit 3	Position Record Select Bit 2	Position Record Select Bit 1	Position Record Select Bit 0
	WORD2	POS_STW2 or Epos_STW2	POS_STW2.15 Hardware Limits Enable ConfigEPOS.3 FAS=P1.112414150	POS_STW2.14 Software Limits Enable ConfigEPOS.2 FAS=P1.112414140	Reserved B13	Reserved B12	POS_STW2.11 Touch Probe Edge 0 = Rising edge 1 = Falling edge ConfigEPOS.4 FAS=P1.112414110	POS_STW2.10 Select Touch Probe 0 = Probe 1 Active 1 = Probe 2 Active ConfigEPOS.5 FAS=P1.112414100	Start Reference Search 0 = positive direction 1 = negative direction	Reference Select 1 = flying Reference 0 = Search Reference	Reserved B7	Reserved B6	/jogging 1 = incremental 0 = velocity	Reserved B4	Reserved B3	POS_STW2.2 Reference Cam Active ConfigEPOS.6 FAS=???	Set Reference Point	Tracking Mode Active
	WORD3	STW2	Master Sign-Of-Life				Motor Switchover Completed	Reserved B10	Global Trigger Command	STW2.8 Travel to Fixed EndStop (Torque Mode) Enable ConfigEPOS.30 FAS P1.1148080	Parking Axis Enable	Reset i-Component	Global Start	DDS Bit 4	DDS Bit 3	DDS Bit 2	DDS Bit 1	DDS Bit 0
	WORD4	OVERRIDE	Position Velocity Override															
	WORD5	MDI_TARPOS	MDI (Manual Data Input) Position Target FAS P1.11280604															
	WORD7	MDI_VELOCITY	MDI (Manual Data Input) Velocity Target															
	WORD8	MDI_VELOCITY																
	WORD9	MDI_ACC	MDI Percent Acceleration															
	WORD10	MDI_DEC	MDI Percent Deceleration															
	WORD11	Reserved	Not Used															

Watch (Project)1

Device name	Name	Online value	Modify	Comment	Data type	AT	Display format
	actual_vel	4294904047			DWORD		Decimal
	fault	0000			WORD		Hexadecim
	alarm	0000			WORD		Hexadecim
	reserved	0000			WORD		Hexadecim
new_Controller_0	▼ pd_out				PD_OUTPUT		
	▼ control_word1[0-15]						
	control_word1[0]	True	TRUE FALSE		bool		Boolean
	control_word1[1]	True	TRUE FALSE		bool		Boolean
	control_word1[2]	True	TRUE FALSE		bool		Boolean
	control_word1[3]	True	TRUE FALSE		bool		Boolean
	control_word1[4]	True	TRUE FALSE		bool		Boolean
	control_word1[5]	True	TRUE FALSE		bool		Boolean
	control_word1[6]	False	TRUE FALSE		bool		Boolean
	control_word1[7]	True	TRUE FALSE		bool		Boolean
	control_word1[8]	False	TRUE FALSE		bool		Boolean
	control_word1[9]	False	TRUE FALSE		bool		Boolean
	control_word1[10]	True	TRUE FALSE		bool		Boolean
	control_word1[11]	False	TRUE FALSE		bool		Boolean
	control_word1[12]	False	TRUE FALSE		bool		Boolean
	control_word1[13]	False	TRUE FALSE		bool		Boolean
	control_word1[14]	False	TRUE FALSE		bool		Boolean
	control_word1[15]	False	TRUE FALSE		bool		Boolean

- 启用硬件和软件限位：切换 PZD3（POS_STW2 或 Epos_STW2）的以下位 - 位 14 和位 15

PtP MODE

NOTE: Telegram 111 is a SIEMENS specific extension of PROFIDrive. (Siemens telegram 111)

			B15	B14	B13	B12	B11	B10	B9	B8	B7	B6	B5	B4	B3	B2	B1	B0
STATUS	WORD0	ZSW1	Device specific	Device specific	Drive Stopped AxisStopped	Traverse Task Acknowledge AxisAckSetpoint	Home Position Set AxisRef	Target Position Reached AxisPosOk	PLC Control Requested	Following Error Within Tolerance Range	Warning Active AxisWarn	Switch On Inhibited Lockout	Quick Stop Not Active	Coast Stop Not Active	Fault Active AxisError	Operation Enabled AxisEnabled	Ready To Operate /diReady	Ready to Switch On
	WORD1	POS_ZSW1 or Epos_ZSW1	MDI Active Selection 0=Record Mode 1=Direct Mode	- FW Pending - MDI Setup Active	Position Record Task Is Active	- FW Pending - Flying Reference Active	Homing Task is Active	Jogging Task is Active	Positive Hardware Limit Switch is Activated	Negative Hardware Limit Switch is Activated	Reserved B7	Position Record Selected Bit 6	Position Record Selected Bit 5	Position Record Selected Bit 4	Position Record Selected Bit 3	Position Record Selected Bit 2	Position Record Selected Bit 1	Position Record Selected Bit 0
	WORD2	POS_ZSW2 or Epos_ZSW2	Traversing Task is Active	Travel to Fixed Stop is Active	Fixed EndStop Clamping Torque Reached	Fixed Stop Reached	Direct Output 2 via Positioning Record	Direct Output 1 via Positioning Record	Actual Position >= Cam Switch Position 1	Actual Position >= Cam Switch Position 0	Positive Software Limit Switch is Activated	Negative Software Limit Switch is Activated	Axis is Moving Negative	Axis is Moving Positive	- FW Pending - Printing Mark outside window	Ready to Accept new Setpoint	Velocity Limit is Active	Tracking Mode is Active
	WORD3	ZSW2	Sign-Of-Life				Device specific	Device specific	Device specific	Device specific	Device specific	Device specific	Device specific	Device specific	Device specific	Device specific	Device specific	Device specific
	WORD4	MELDW	Reserved B15	Reserved B14	Pulses Enabled	Drive Ready	Controller Enable	Reserved B10	Reserved B9	Speed Setpoint - Actual Deviation Within tolerance	No alarm, thermal overload, power unit	No motor over-temperature alarm	Variable signaling function	Reserved B4	Setpoint(n) < speed threshold value 2	Setpoint(n) < speed threshold value 3	Torque [%] < torque threshold value 2	0 = Ramping Active 1 = Ramping Completed
	WORD5	XIST_A	Actual Position Value FAS P1.128															
	WORD6	XIST_A																
	WORD7	XIST_B	Actual Velocity Value															
	WORD8	XIST_B																
	WORD9	FAULT_CODE	Active Fault Number															
	WORD10	WARN_CODE	Active Warning Number															
	WORD11	Reserved	Not Used															
CONTROL	WORD0	STW1	Device specific	Device specific	Device specific	STW1.12 Release Holding Brake ConfigEPOS.15 FAS P1.1147120	Home/Reference Task Start	Control By PLC	/og2	/og1	Fault Acknowledge AckError	Traversing Task Activate ExecuteMode	Intermediate Stop Disable IntermediateStop	Traversing Task Enable CancelTraversing	Enable Operation	STW1.2 Quick Stop Disable ConfigEPOS.1 FAS P1.1147020	STW1.1 Coast Stop Disable ConfigEPOS.0 FAS P1.1147010	Power Stage Pulses Enable EnableAxis
	WORD1	POS_STW1 or Epos_STW1	MDI Selection 0=Record Mode 1=Direct Mode	signal Setup Selected	Reserved B13	Constant Takeover	Reserved B11	0 = Absolute positioning through the shortest distance 1 = Absolute positioning/MDI direction selection, positive 2 = Absolute positioning/MDI direction selection, negative 3 = Absolute positioning through the shortest distance		Direct Mode Absolute Positioning Active	Reserved B7	Position Record Select Bit 6	Position Record Select Bit 5	Position Record Select Bit 4	Position Record Select Bit 3	Position Record Select Bit 2	Position Record Select Bit 1	Position Record Select Bit 0
	WORD2	POS_STW2 or Epos_STW2	POS_STW2.15 Hardware Limits Enable ConfigEPOS.3 FAS=P1.112414150	POS_STW2.14 Software Limits Enable ConfigEPOS.2 FAS=P1.112414140	Reserved B13	Reserved B12	POS_STW2.11 Touch Probe Edge 0 = Rising edge 1 = Falling edge ConfigEPOS.4 FAS=P1.112414110	POS_STW2.10 Select Touch Probe 0 = Probe 1 Active 1 = Probe 2 Active ConfigEPOS.5 FAS=P1.112414100	Start Reference Search 0 = positive direction 1 = negative direction	Reference Select 1 = Flying Reference 0 = Search Reference	Reserved B7	Reserved B6	Jogging 1 = incremental 0 = velocity	Reserved B4	Reserved B3	POS_STW2.2 Reference Cam Active ConfigEPOS.6 FAS=???	Set Reference Point	Tracking Mode Active
	WORD3	STW2	Master Sign-Of-Life				Motor Switchover Completed	Reserved B10	Global Trigger Command	STW2.8 Travel to Fixed EndStop (Torque Mode) Enable ConfigEPOS.30 FAS P1.1148080	Parking Axis Enable	Reset I-Component	Global Start	DDS Bit 4	DDS Bit 3	DDS Bit 2	DDS Bit 1	DDS Bit 0
	WORD4	OVERRIDE	Position Velocity Override															
	WORD5	MDI_TARPOS	MDI (Manual Data Input) Position Target FAS P1.11280604															
	WORD6	MDI_TARPOS																
	WORD7	MDI_VELOCITY	MDI (Manual Data Input) Velocity Target															
	WORD8	MDI_VELOCITY																
	WORD9	MDI_ACC	MDI Percent Acceleration															
	WORD10	MDI_DEC	MDI Percent Deceleration															
	WORD11	Reserved	Not Used															

Watch (Project)1

Device name	Name	Online value	Modify	Comment	Data type	AT	Display format
	control_word1[15]	False	TRUE FALSE		bool		Boolean
	▶ epos_stw1[0-15]						
	▼ epos_stw2[0-15]						
	epos_stw2[0]	False	TRUE FALSE		bool		Boolean
	epos_stw2[1]	False	TRUE FALSE		bool		Boolean
	epos_stw2[2]	False	TRUE FALSE		bool		Boolean
	epos_stw2[3]	False	TRUE FALSE		bool		Boolean
	epos_stw2[4]	False	TRUE FALSE		bool		Boolean
	epos_stw2[5]	False	TRUE FALSE		bool		Boolean
	epos_stw2[6]	False	TRUE FALSE		bool		Boolean
	epos_stw2[7]	False	TRUE FALSE		bool		Boolean
	epos_stw2[8]	False	TRUE FALSE		bool		Boolean
	epos_stw2[9]	False	TRUE FALSE		bool		Boolean
	epos_stw2[10]	False	TRUE FALSE		bool		Boolean
	epos_stw2[11]	False	TRUE FALSE		bool		Boolean
	epos_stw2[12]	False	TRUE FALSE		bool		Boolean
	epos_stw2[13]	False	TRUE FALSE		bool		Boolean
	epos_stw2[14]	True	TRUE FALSE		bool		Boolean
	epos_stw2[15]	True	TRUE FALSE		bool		Boolean

• 设置速度超驰值（100%=16#4000 或 10#16384）

PtP MODE

NOTE: Telegram 111 is a SIEMENS specific extension of PROFIDrive. (Siemens telegram 111)

			B15	B14	B13	B12	B11	B10	B9	B8	B7	B6	B5	B4	B3	B2	B1	B0
STATUS	WORD0	ZSW1	Device specific	Device specific	Drive Stopped AxisSpFixed	Traverse Task Acknowledge AxisAckSetpoint	Home Position Set AxisRef	Target Position Reached AxisPosOk	PLC Control Requested	Following Error Within Tolerance Range	Warning Active AxisWarn	Switch On Inhibited Lockout	Quick Stop Not Active	Coast Stop Not Active	Fault Active AxisError	Operation Enabled AxisEnabled	Ready To Operate stReady	Ready to Switch On
	WORD1	POS_ZSW1 or Epos_ZSW1	MDI Active Selection 0=Record Mode 1=Direct Mode	- FW Pending - MDI Setup Active	Posiion Record Task Is Active	- FW Pending - Flying Reference Active	Homing Task is Active	Jogging Task is Active	Positive Hardware Limit Switch is Activated	Negative Hardware Limit Switch is Activated	Reserved B7	Posiion Record Selected Bit 6	Posiion Record Selected Bit 5	Posiion Record Selected Bit 4	Posiion Record Selected Bit 3	Posiion Record Selected Bit 2	Posiion Record Selected Bit 1	Posiion Record Selected Bit 0
	WORD2	POS_ZSW2 or Epos_ZSW2	Traversing Task is Active	Travel to Fixed Stop is Active	Fixed EndStop Clamping Torque Reached	Fixed Stop Reached	Direct Output 2 via Positioning Record	Direct Output 1 via Positioning Record	Actual Posiion >= Cam Switch Position 1	Actual Posiion >= Cam Switch Position 0	Positive Software Limit Switch is Activated	Negative Software Limit Switch is Activated	Axis is Moving Negative	Axis is Moving Positive	- FW Pending - Priming Mark outside window	Ready to Accept new Setpoint	Velocity Limit is Active	Tracking Mode is Active
	WORD3	ZSW2	Sign-Of-Life				Device specific	Device specific	Device specific	Device specific	Device specific	Device specific	Device specific	Device specific	Device specific	Device specific	Device specific	Device specific
	WORD4	MELDW	Reserved B15	Reserved B14	Pulses Enabled	Drive Ready	Controller Enable	Reserved B10	Reserved B9	Speed Setpoint - Actual Deviation Within tolerance	No alarm, thermal overload, power unit	No motor over-temperature alarm	Variable signaling function	Reserved B4	Setpoint(n) < speed threshold value 2	Setpoint(n) < speed threshold value 3	Torque [%] < torque threshold value 2	0 = Ramping Active 1 = Ramping Completed
	WORD5	XIST_A	Actual Position Value FAS P1.128															
	WORD6	XIST_A																
	WORD7	XIST_B	Actual Velocity Value															
	WORD8	XIST_B																
	WORD9	FAULT_CODE	Active Fault Number															
	WORD10	WARN_CODE	Active Warning Number															
	WORD11	Reserved	Not Used															
CONTROL	WORD0	STW1	Device specific	Device specific	Device specific	STW1.12 Release Holding Brake ConfigEPOS.15 FAS P1.1147120	Home/Reference Task Start	Control By PLC	/og2	/og1	Fault Acknowledge AckError	Traversing Task Activate ExecuteMode	Intermediate Stop Disable IntermediateStop	Traversing Task Enable CancelTraversing	Enable Operation	STW1.2 Quick Stop Disable ConfigEPOS.1 FAS P1.1147020	STW1.1 Coast Stop Disable ConfigEPOS.0 FAS P1.1147010	Power Stage Pulses Enable EnableAxis
	WORD1	POS_STW1 or Epos_STW1	MDI Selection 0=Record Mode 1=Direct Mode	signal Setup Selected	Reserved B13	Constant Takeover	Reserved B11	0 – Absolute positioning through the shortest distance 1 – Absolute positioning/MDI direction selection, positive 2 – Absolute positioning/MDI direction selection, negative 3 – Absolute positioning through the shortest distance		Direct Mode Absolute Positioning Active	Reserved B7	Posiion Record Select Bit 6	Posiion Record Select Bit 5	Posiion Record Select Bit 4	Posiion Record Select Bit 3	Posiion Record Select Bit 2	Posiion Record Select Bit 1	Posiion Record Select Bit 0
	WORD2	POS_STW2 or Epos_STW2	POS_STW2.15 Hardware Limits Enable ConfigEPOS.3 FAS=P1.112414150	POS_STW2.14 Software Limits Enable ConfigEPOS.2 FAS=P1.112414140	Reserved B13	Reserved B12	POS_STW2.11 Touch Probe Edge 0 – Rising edge 1 – Falling edge ConfigEPOS.4 FAS=P1.112414110	POS_STW2.10 Select Touch Probe 0 – Probe 1 Active 1 – Probe 2 Active ConfigEPOS.5 FAS=P1.112414100	Start Reference Search 0 – positive direction 1 – negative direction	Reference Select 1 – flying Reference 0 – Search Reference	Reserved B7	Reserved B6	Jogging 1 – incremental 0 – velocity	Reserved B4	Reserved B3	POS_STW2.2 Reference Cam Active ConfigEPOS.6 FAS=???	Set Reference Point	Tracking Mode Active
	WORD3	STW2	Master Sign-Of-Life				Motor Switchover Completed	Reserved B10	Global Trigger Command	STW2.8 Travel to Fixed EndStop (Torque Mode) Enable ConfigEPOS.30 FAS P1.1148080	Parking Axis Enable	Reset i-Component	Global Start	DDS Bit 4	DDS Bit 3	DDS Bit 2	DDS Bit 1	DDS Bit 0
	WORD4	OVERRIDE	Position Velocity Override															
	WORD5	MDI_TARPOS	MDI (Manual Data Input) Position Target FAS P1.11280604															
	WORD6	MDI_TARPOS																
	WORD7	MDI_VELOCITY	MDI (Manual Data Input) Velocity Target															
	WORD8	MDI_VELOCITY																
	WORD9	MDI_ACC	MDI Percent Acceleration															
	WORD10	MDI_DEC	MDI Percent Deceleration															
	WORD11	Reserved	Not Used															

control_word2[0-15]					
velocity_override	4000	4000	WORD	Hexadecim:
pos_setpoint	0000 0000		DWORD	Hexadecim:
vel_setpoint	0000 0000		DWORD	Hexadecim:
acc_override	0000		WORD	Hexadecim:
dec_override	0000		WORD	Hexadecim:
reserved	0000		WORD	Hexadecim:

• 开始回零（FAS 配置）： 切换 PZD11(STW1) 的位

PtP MODE

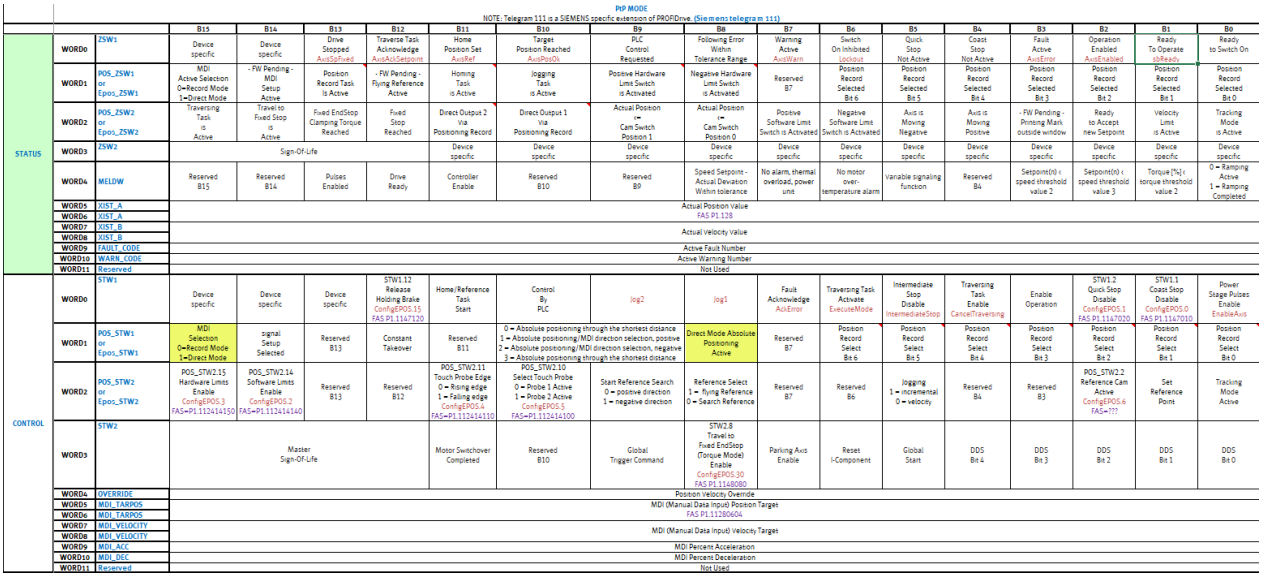
NOTE: Telegram 111 is a SIEMENS specific extension of PROFIDrive. (Siemens telegram 111)

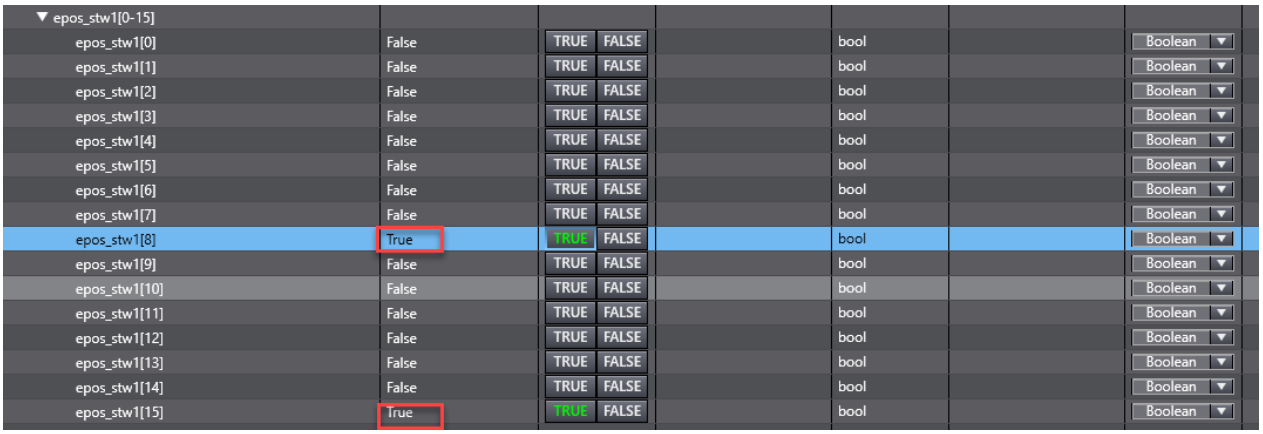
			B15	B14	B13	B12	B11	B10	B9	B8	B7	B6	B5	B4	B3	B2	B1	B0
STATUS	WORD0	ZSW1	Device specific	Device specific	Drive Stopped AxisSpFixed	Traverse Task Acknowledge AxisAckSetpoint	Home Position Set AxisRef	Target Position Reached AxisPosOk	PLC Control Requested	Following Error Within Tolerance Range	Warning Active AxisWarn	Switch On Inhibited Lockout	Quick Stop Not Active	Coast Stop Not Active	Fault Active AxisError	Operation Enabled AxisEnabled	Ready To Operate stReady	Ready to Switch On
	WORD1	POS_ZSW1 or Epos_ZSW1	MDI Active Selection 0=Record Mode 1=Direct Mode	- FW Pending - MDI Setup Active	Posiion Record Task Is Active	- FW Pending - Flying Reference Active	Homing Task is Active	Jogging Task is Active	Positive Hardware Limit Switch is Activated	Negative Hardware Limit Switch is Activated	Reserved B7	Posiion Record Selected Bit 6	Posiion Record Selected Bit 5	Posiion Record Selected Bit 4	Posiion Record Selected Bit 3	Posiion Record Selected Bit 2	Posiion Record Selected Bit 1	Posiion Record Selected Bit 0
	WORD2	POS_ZSW2 or Epos_ZSW2	Traversing Task is Active	Travel to Fixed Stop is Active	Fixed EndStop Clamping Torque Reached	Fixed Stop Reached	Direct Output 2 via Positioning Record	Direct Output 1 via Positioning Record	Actual Posiion >= Cam Switch Position 1	Actual Posiion >= Cam Switch Position 0	Positive Software Limit Switch is Activated	Negative Software Limit Switch is Activated	Axis is Moving Negative	Axis is Moving Positive	- FW Pending - Priming Mark outside window	Ready to Accept new Setpoint	Velocity Limit is Active	Tracking Mode is Active
	WORD3	ZSW2	Sign-Of-Life				Device specific	Device specific	Device specific	Device specific	Device specific	Device specific	Device specific	Device specific	Device specific	Device specific	Device specific	Device specific
	WORD4	MELDW	Reserved B15	Reserved B14	Pulses Enabled	Drive Ready	Controller Enable	Reserved B10	Reserved B9	Speed Setpoint - Actual Deviation Within tolerance	No alarm, thermal overload, power unit	No motor over-temperature alarm	Variable signaling function	Reserved B4	Setpoint(n) < speed threshold value 2	Setpoint(n) < speed threshold value 3	Torque [%] < torque threshold value 2	0 = Ramping Active 1 = Ramping Completed
	WORD5	XIST_A	Actual Position Value FAS P1.128															
	WORD6	XIST_A																
	WORD7	XIST_B	Actual Velocity Value															
	WORD8	XIST_B																
	WORD9	FAULT_CODE	Active Fault Number															
	WORD10	WARN_CODE	Active Warning Number															
	WORD11	Reserved	Not Used															
CONTROL	WORD0	STW1	Device specific	Device specific	Device specific	STW1.12 Release Holding Brake ConfigEPOS.15 FAS P1.1147120	Home/Reference Task Start	Control By PLC	/og2	/og1	Fault Acknowledge AckError	Traversing Task Activate ExecuteMode	Intermediate Stop Disable IntermediateStop	Traversing Task Enable CancelTraversing	Enable Operation	STW1.2 Quick Stop Disable ConfigEPOS.1 FAS P1.1147020	STW1.1 Coast Stop Disable ConfigEPOS.0 FAS P1.1147010	Power Stage Pulses Enable EnableAxis
	WORD1	POS_STW1 or Epos_STW1	MDI Selection 0=Record Mode 1=Direct Mode	signal Setup Selected	Reserved B13	Constant Takeover	Reserved B11	0 – Absolute positioning through the shortest distance 1 – Absolute positioning/MDI direction selection, positive 2 – Absolute positioning/MDI direction selection, negative 3 – Absolute positioning through the shortest distance		Direct Mode Absolute Positioning Active	Reserved B7	Posiion Record Select Bit 6	Posiion Record Select Bit 5	Posiion Record Select Bit 4	Posiion Record Select Bit 3	Posiion Record Select Bit 2	Posiion Record Select Bit 1	Posiion Record Select Bit 0
	WORD2	POS_STW2 or Epos_STW2	POS_STW2.15 Hardware Limits Enable ConfigEPOS.3 FAS=P1.112414150	POS_STW2.14 Software Limits Enable ConfigEPOS.2 FAS=P1.112414140	Reserved B13	Reserved B12	POS_STW2.11 Touch Probe Edge 0 – Rising edge 1 – Falling edge ConfigEPOS.4 FAS=P1.112414110	POS_STW2.10 Select Touch Probe 0 – Probe 1 Active 1 – Probe 2 Active ConfigEPOS.5 FAS=P1.112414100	Start Reference Search 0 – positive direction 1 – negative direction	Reference Select 1 – flying Reference 0 – Search Reference	Reserved B7	Reserved B6	Jogging 1 – incremental 0 – velocity	Reserved B4	Reserved B3	POS_STW2.2 Reference Cam Active ConfigEPOS.6 FAS=???	Set Reference Point	Tracking Mode Active
	WORD3	STW2	Master Sign-Of-Life				Motor Switchover Completed	Reserved B10	Global Trigger Command	STW2.8 Travel to Fixed EndStop (Torque Mode) Enable ConfigEPOS.30 FAS P1.1148080	Parking Axis Enable	Reset i-Component	Global Start	DDS Bit 4	DDS Bit 3	DDS Bit 2	DDS Bit 1	DDS Bit 0
	WORD4	OVERRIDE	Position Velocity Override															
	WORD5	MDI_TARPOS	MDI (Manual Data Input) Position Target FAS P1.11280604															
	WORD6	MDI_TARPOS																
	WORD7	MDI_VELOCITY	MDI (Manual Data Input) Velocity Target															
	WORD8	MDI_VELOCITY																
	WORD9	MDI_ACC	MDI Percent Acceleration															
	WORD10	MDI_DEC	MDI Percent Deceleration															
	WORD11	Reserved	Not Used															

new_Controller_0	pd_out				PD_OUTPUT		
	control_word1[0-15]						
	control_word1[0]	True	TRUE	FALSE	bool	Boolean	
	control_word1[1]	True	TRUE	FALSE	bool	Boolean	
	control_word1[2]	True	TRUE	FALSE	bool	Boolean	
	control_word1[3]	True	TRUE	FALSE	bool	Boolean	
	control_word1[4]	False	TRUE	FALSE	bool	Boolean	
	control_word1[5]	False	TRUE	FALSE	bool	Boolean	
	control_word1[6]	False	TRUE	FALSE	bool	Boolean	
	control_word1[7]	False	TRUE	FALSE	bool	Boolean	
	control_word1[8]	False	TRUE	FALSE	bool	Boolean	
	control_word1[9]	False	TRUE	FALSE	bool	Boolean	
	control_word1[10]	True	TRUE	FALSE	bool	Boolean	
	control_word1[11]	True	TRUE	FALSE	bool	Boolean	
	control_word1[12]	False	TRUE	FALSE	bool	Boolean	
	control_word1[13]	False	TRUE	FALSE	bool	Boolean	
	control_word1[14]	False	TRUE	FALSE	bool	Boolean	
	control_word1[15]	False	TRUE	FALSE	bool	Boolean	

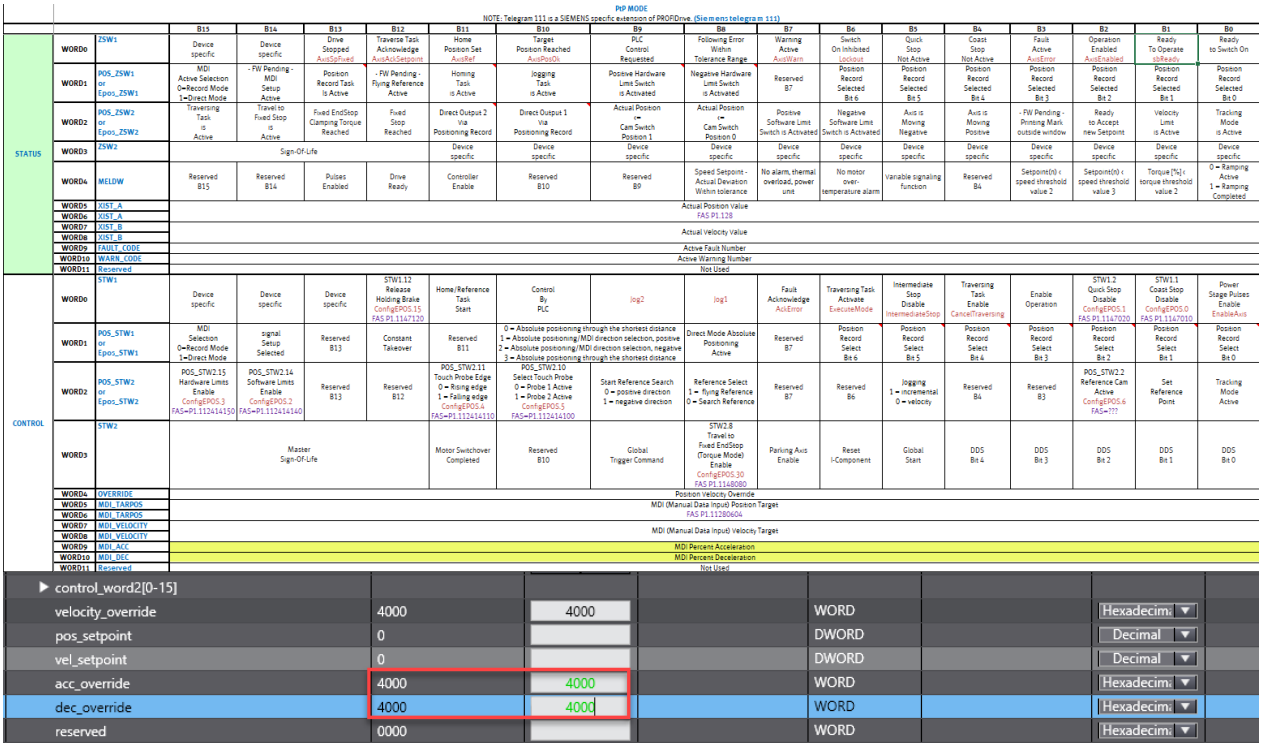
• 绝对定位：

1. 激活 MDI 功能和直接模式绝对定位，方法为切换 PZD2（POS_STW1 或 Epos_STW1）的位 8 和位 15

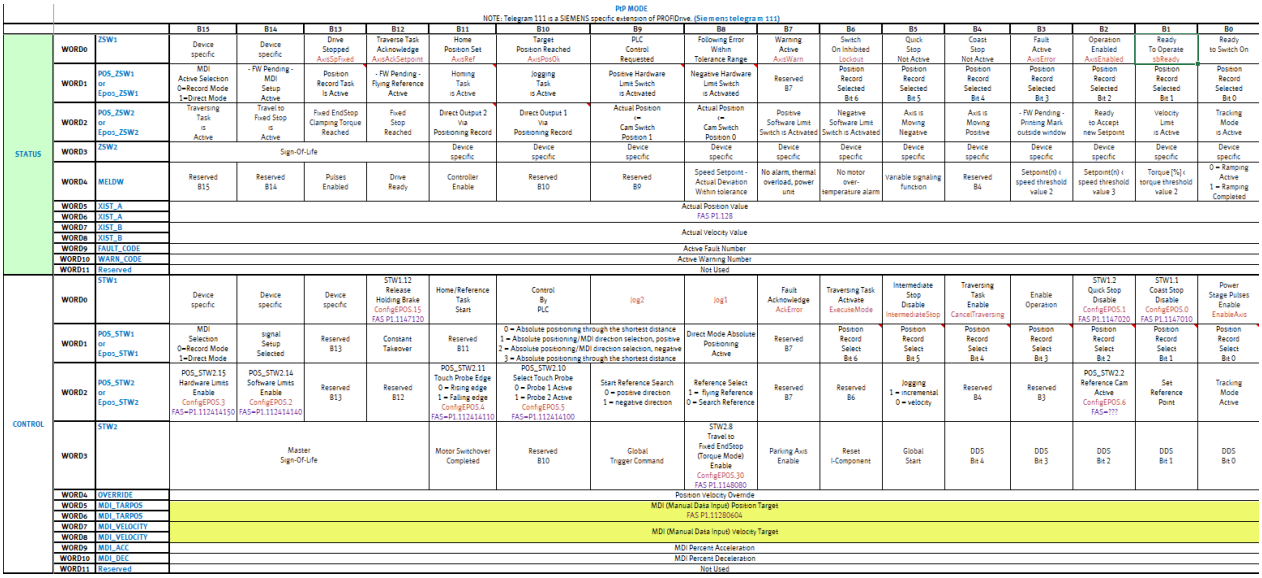




2. 设置加速度和减速度超驰值（100%=16#4000 或 10#16384）



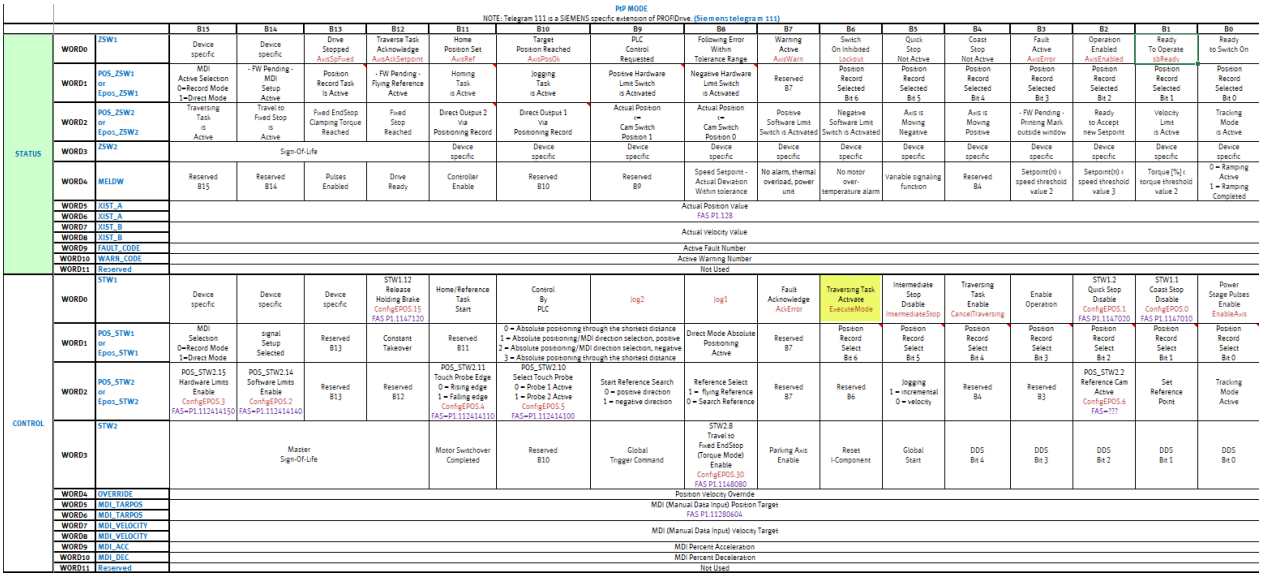
3. 设置位置命令和速度命令值并注意 FAS 中的系数设置



			PtP MODE NOTE: Telegram 111 is a SIEMENS specific extension of PROFIDrive. (Siemens telegram 111)																
			B15	B14	B13	B12	B11	B10	B9	B8	B7	B6	B5	B4	B3	B2	B1	B0
STATUS	WORD0	ZSW1	Device specific	Device specific	Drive Stopped AxisStpFixed	Traverse Task Acknowledge AxisAckSetpoint	Home Position Set AxisRef	Target Position Reached AxisPosOk	PLC Control Requested	Following Error Within Tolerance Range	Warning Active AxisWarn	Switch On Inhibited Lockout	Quick Stop Not Active	Coast Stop Not Active	Fault Active AxisError	Operation Enabled AxisEnabled	Ready To Operate stReady	Ready to Switch On
	WORD1	POS_ZSW1 or Epos_ZSW1	MDI Active Selection 0=Record Mode 1=Direct Mode	- FW Pending - MDI Setup Active	Posiion Record Task Is Active	- FW Pending - Flying Reference Active	Homing Task is Active	Jogging Task is Active	Positive Hardware Limit Switch is Activated	Negative Hardware Limit Switch is Activated	Reserved B7	Posiion Record Selected Bit 6	Posiion Record Selected Bit 5	Posiion Record Selected Bit 4	Posiion Record Selected Bit 3	Posiion Record Selected Bit 2	Posiion Record Selected Bit 1	Posiion Record Selected Bit 0
	WORD2	POS_ZSW2 or Epos_ZSW2	Traversing Task is Active	Travel to Fixed Stop is Active	Fixed EndStop Clamping Torque Reached	Fixed Stop Reached	Direct Output 2 via Positioning Record	Direct Output 1 via Positioning Record	Actual Posiion >= Cam Switch Position 1	Actual Posiion >= Cam Switch Position 0	Positive Software Limit Switch is Activated	Negative Software Limit Switch is Activated	Axis is Moving Negative	Axis is Moving Positive	- FW Pending - Priming Mark outside window	Ready to Accept new Setpoint	Velocity Limit is Active	Tracking Mode is Active
	WORD3	ZSW2	Sign-Of-Life				Device specific	Device specific	Device specific	Device specific	Device specific	Device specific	Device specific	Device specific	Device specific	Device specific	Device specific	Device specific
	WORD4	MELDW	Reserved B15	Reserved B14	Pulses Enabled	Drive Ready	Controller Enable	Reserved B10	Reserved B9	Speed Setpoint - Actual Deviation Within tolerance	No alarm, thermal overload, power unit	No motor over-temperature alarm	Variable signaling function	Reserved B4	Setpoint(n) < speed threshold value 2	Setpoint(n) < speed threshold value 3	Torque [%] < torque threshold value 2	0 = Ramping Active 1 = Ramping Completed
	WORD5	XIST_A	Actual Position Value FAS P1.128															
	WORD6	XIST_A																
	WORD7	XIST_B	Actual Velocity Value															
	WORD8	XIST_B																
	WORD9	FAULT_CODE	Active Fault Number															
	WORD10	WARN_CODE	Active Warning Number															
	WORD11	Reserved	Not Used															
CONTROL	WORD0	STW1	Device specific	Device specific	Device specific	STW1.12 Release Holding Brake ConfigEPOS.15 FAS P1.1147120	Home/Reference Task Start	Control By PLC	/og2	/og1	Fault Acknowledge AckError	Traversing Task Activate ExecuteMode	Intermediate Stop Disable IntermediateStop	Traversing Task Enable CancelTraversing	Enable Operation	STW1.2 Quick Stop Disable ConfigEPOS.1 FAS P1.1147020	STW1.1 Coast Stop Disable ConfigEPOS.0 FAS P1.1147010	Power Stage Pulses Enable EnableAxis
	WORD1	POS_STW1 or Epos_STW1	MDI Selection 0=Record Mode 1=Direct Mode	signal Setup Selected	Reserved B13	Constant Takeover	Reserved B11	0 = Absolute positioning through the shortest distance 1 = Absolute positioning/MDI direction selection, positive 2 = Absolute positioning/MDI direction selection, negative 3 = Absolute positioning through the shortest distance		Direct Mode Absolute Positioning Active	Reserved B7	Posiion Record Select Bit 6	Posiion Record Select Bit 5	Posiion Record Select Bit 4	Posiion Record Select Bit 3	Posiion Record Select Bit 2	Posiion Record Select Bit 1	Posiion Record Select Bit 0
	WORD2	POS_STW2 or Epos_STW2	POS_STW2.15 Hardware Limits Enable ConfigEPOS.3 FAS=P1.112414150	POS_STW2.14 Software Limits Enable ConfigEPOS.2 FAS=P1.112414140	Reserved B13	Reserved B12	POS_STW2.11 Touch Probe Edge 0 = Rising edge 1 = Falling edge ConfigEPOS.4 FAS=P1.112414110	POS_STW2.10 Select Touch Probe 0 = Probe 1 Active 1 = Probe 2 Active ConfigEPOS.5 FAS=P1.112414100	Start Reference Search 0 = positive direction 1 = negative direction	Reference Select 1 = flying Reference 0 = Search Reference	Reserved B7	Reserved B6	Jogging 1 = incremental 0 = velocity	Reserved B4	Reserved B3	POS_STW2.2 Reference Cam Active ConfigEPOS.6 FAS=???	Set Reference Point	Tracking Mode Active
	WORD3	STW2	Master Sign-Of-Life				Motor Switchover Completed	Reserved B10	Global Trigger Command	STW2.8 Travel to Fixed EndStop (Torque Mode) Enable ConfigEPOS.30 FAS P1.1148080	Parking Axis Enable	Reset /-Component	Global Start	DDS Bit 4	DDS Bit 3	DDS Bit 2	DDS Bit 1	DDS Bit 0
	WORD4	OVERRIDE	Position Velocity Override															
	WORD5	MDI_TARPOS	MDI (Manual Data Input) Position Target FAS P1.11280604															
	WORD6	MDI_TARPOS																
	WORD7	MDI_VELOCITY	MDI (Manual Data Input) Velocity Target															
	WORD8	MDI_VELOCITY																
	WORD9	MDI_ACC	MDI Percent Acceleraton															
	WORD10	MDI_DEC	MDI Percent Deceleration															
	WORD11	Reserved	Not Used															

control_word2[0-15]						
velocity_override	4000	4000		WORD		Hexadecim
pos_setpoint	100000000	100000000		DWORD		Decimal
vel_setpoint	100000	100000		DWORD		Decimal
acc_override	4000	4000		WORD		Hexadecim
dec_override	4000	4000		WORD		Hexadecim
reserved	0000			WORD		Hexadecim

4. 切换 PZD1(STW1) 的位 6，开始定位任务



			PtP MODE NOTE: Telegram 111 is a SIEMENS specific extension of PROFIDrive. (Siemens telegram 111)																
			B15	B14	B13	B12	B11	B10	B9	B8	B7	B6	B5	B4	B3	B2	B1	B0
STATUS	WORD0	ZSW1	Device specific	Device specific	Drive Stopped AxisStpFixed	Traverse Task Acknowledge AxisAckSetpoint	Home Position Set AxisRef	Target Position Reached AxisPosOk	PLC Control Requested	Following Error Within Tolerance Range	Warning Active AxisWarn	Switch On Inhibited Lockout	Quick Stop Not Active	Coast Stop Not Active	Fault Active AxisError	Operation Enabled AxisEnabled	Ready To Operate stReady	Ready to Switch On
	WORD1	POS_ZSW1 or Epos_ZSW1	MDI Active Selection 0=Record Mode 1=Direct Mode	- FW Pending - MDI Setup Active	Posiion Record Task Is Active	- FW Pending - Flying Reference Active	Homing Task is Active	Jogging Task is Active	Positive Hardware Limit Switch is Activated	Negative Hardware Limit Switch is Activated	Reserved B7	Posiion Record Selected Bit 6	Posiion Record Selected Bit 5	Posiion Record Selected Bit 4	Posiion Record Selected Bit 3	Posiion Record Selected Bit 2	Posiion Record Selected Bit 1	Posiion Record Selected Bit 0
	WORD2	POS_ZSW2 or Epos_ZSW2	Traversing Task is Active	Travel to Fixed Stop is Active	Fixed EndStop Clamping Torque Reached	Fixed Stop Reached	Direct Output 2 via Positioning Record	Direct Output 1 via Positioning Record	Actual Posiion >= Cam Switch Position 1	Actual Posiion >= Cam Switch Position 0	Positive Software Limit Switch is Activated	Negative Software Limit Switch is Activated	Axis is Moving Negative	Axis is Moving Positive	- FW Pending - Priming Mark outside window	Ready to Accept new Setpoint	Velocity Limit is Active	Tracking Mode is Active
	WORD3	ZSW2	Sign-Of-Life				Device specific	Device specific	Device specific	Device specific	Device specific	Device specific	Device specific	Device specific	Device specific	Device specific	Device specific	Device specific
	WORD4	MELDW	Reserved B15	Reserved B14	Pulses Enabled	Drive Ready	Controller Enable	Reserved B10	Reserved B9	Speed Setpoint - Actual Deviation Within tolerance	No alarm, thermal overload, power unit	No motor over-temperature alarm	Variable signaling function	Reserved B4	Setpoint(n) < speed threshold value 2	Setpoint(n) < speed threshold value 3	Torque [%] < torque threshold value 2	0 = Ramping Active 1 = Ramping Completed
	WORD5	XIST_A	Actual Position Value FAS P1.128															
	WORD6	XIST_A																
	WORD7	XIST_B	Actual Velocity Value															
	WORD8	XIST_B																
	WORD9	FAULT_CODE	Active Fault Number															
	WORD10	WARN_CODE	Active Warning Number															
	WORD11	Reserved	Not Used															
CONTROL	WORD0	STW1	Device specific	Device specific	Device specific	STW1.12 Release Holding Brake ConfigEPOS.15 FAS P1.1147120	Home/Reference Task Start	Control By PLC	/og2	/og1	Fault Acknowledge AckError	Traversing Task Activate ExecuteMode	Intermediate Stop Disable IntermediateStop	Traversing Task Enable CancelTraversing	Enable Operation	STW1.2 Quick Stop Disable ConfigEPOS.1 FAS P1.1147020	STW1.1 Coast Stop Disable ConfigEPOS.0 FAS P1.1147010	Power Stage Pulses Enable EnableAxis
	WORD1	POS_STW1 or Epos_STW1	MDI Selection 0=Record Mode 1=Direct Mode	signal Setup Selected	Reserved B13	Constant Takeover	Reserved B11	0 = Absolute positioning through the shortest distance 1 = Absolute positioning/MDI direction selection, positive 2 = Absolute positioning/MDI direction selection, negative 3 = Absolute positioning through the shortest distance		Direct Mode Absolute Positioning Active	Reserved B7	Posiion Record Select Bit 6	Posiion Record Select Bit 5	Posiion Record Select Bit 4	Posiion Record Select Bit 3	Posiion Record Select Bit 2	Posiion Record Select Bit 1	Posiion Record Select Bit 0
	WORD2	POS_STW2 or Epos_STW2	POS_STW2.15 Hardware Limits Enable ConfigEPOS.3 FAS=P1.112414150	POS_STW2.14 Software Limits Enable ConfigEPOS.2 FAS=P1.112414140	Reserved B13	Reserved B12	POS_STW2.11 Touch Probe Edge 0 = Rising edge 1 = Falling edge ConfigEPOS.4 FAS=P1.112414110	POS_STW2.10 Select Touch Probe 0 = Probe 1 Active 1 = Probe 2 Active ConfigEPOS.5 FAS=P1.112414100	Start Reference Search 0 = positive direction 1 = negative direction	Reference Select 1 = flying Reference 0 = Search Reference	Reserved B7	Reserved B6	Jogging 1 = incremental 0 = velocity	Reserved B4	Reserved B3	POS_STW2.2 Reference Cam Active ConfigEPOS.6 FAS=???	Set Reference Point	Tracking Mode Active
	WORD3	STW2	Master Sign-Of-Life				Motor Switchover Completed	Reserved B10	Global Trigger Command	STW2.8 Travel to Fixed EndStop (Torque Mode) Enable ConfigEPOS.30 FAS P1.1148080	Parking Axis Enable	Reset /-Component	Global Start	DDS Bit 4	DDS Bit 3	DDS Bit 2	DDS Bit 1	DDS Bit 0
	WORD4	OVERRIDE	Position Velocity Override															
	WORD5	MDI_TARPOS	MDI (Manual Data Input) Position Target FAS P1.11280604															
	WORD6	MDI_TARPOS																
	WORD7	MDI_VELOCITY	MDI (Manual Data Input) Velocity Target															
	WORD8	MDI_VELOCITY																
	WORD9	MDI_ACC	MDI Percent Acceleraton															
	WORD10	MDI_DEC	MDI Percent Deceleration															
	WORD11	Reserved	Not Used															

pd_out				PD_OUTPUT		
control_word1[0-15]						
control_word1[0]	True	TRUE FALSE		bool		Boolean
control_word1[1]	True	TRUE FALSE		bool		Boolean
control_word1[2]	True	TRUE FALSE		bool		Boolean
control_word1[3]	True	TRUE FALSE		bool		Boolean
control_word1[4]	True	TRUE FALSE		bool		Boolean
control_word1[5]	True	TRUE FALSE		bool		Boolean
control_word1[6]	True	TRUE FALSE		bool		Boolean
control_word1[7]	False	TRUE FALSE		bool		Boolean
control_word1[8]	False	TRUE FALSE		bool		Boolean
control_word1[9]	False	TRUE FALSE		bool		Boolean
control_word1[10]	True	TRUE FALSE		bool		Boolean
control_word1[11]	False	TRUE FALSE		bool		Boolean
control_word1[12]	False	TRUE FALSE		bool		Boolean
control_word1[13]	False	TRUE FALSE		bool		Boolean
control_word1[14]	False	TRUE FALSE		bool		Boolean
control_word1[15]	False	TRUE FALSE		bool		Boolean

5 简介：EtherNet/IP 过程数据

EtherNet/IP 中的 CMMT 使用 PROFIDrive 通信配置文件。可以使用报文 1（简单速度控制）、102（高级速度控制）和 111（位置控制）。所用报文通过 Automation Suite 进行选择。

PD Telegram 1:
Basic Speed Control

WORD	INPUT	OUTPUT
1.	Control Word 1	Status Word 1
2.	Speed Setpoint Value	Actual Speed Value

PD Telegram 102:
Advanced Speed Control

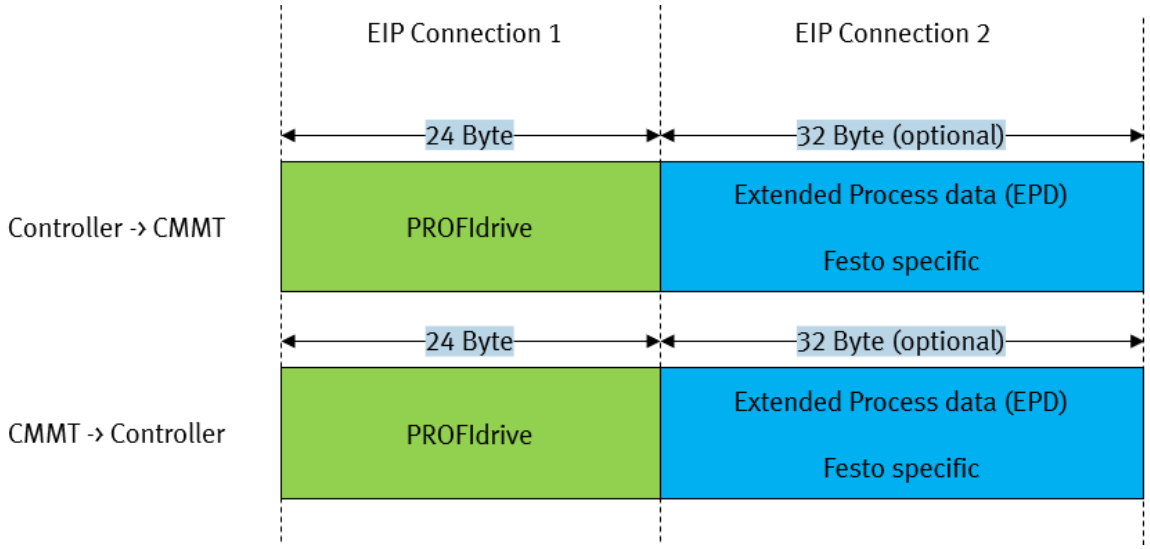
WORD	INPUT	OUTPUT
1.	Control Word 1	Status Word 1
2.	Speed Setpoint	Speed Actual
3.		
4.	Control Word 2	Status Word 2
5.	Torque Reduction	MELDW Status Word
6.	Encoder Control Word 1	Encoder Status Word 1
7.		Encoder Position G1_XIST1
8.		
9.		Encoder Position G1_XIST2
10.		

PD Telegram 111:
EPOS mode

WORD	INPUT	OUTPUT
1.	Control Word 1	Status Word 1
2.	Pos Control Word 1	Pos Status Word 1
3.	Pos Control Word 2	Pos Status Word 2
4.	Control Word 2	Status Word 2
5.	Velocity Override	MELDW Status Word
6.	MDI Position Setpoint	Position Actual Value
7.		
8.	MDI Velocity Setpoint	Velocity Actual Value
9.		
10.	MDI Percent Acceleration	Active Fault Number
11.	MDI Percent Deceleration	Active Warning Number
12.	User Selectable	User Selectable

过程数据包括：

- PROFIdrive Telegram
- Extended Process Data（可选）



Extended Process Data (EPD) 可通过 Festo Automation Suite 进行配置：

- 最多可对 8 个输入和输出进行参数设置。
- 最多 32 个字节输入，32 个字节输出。
- 在激活后，长度固定为 32 个字节。