



IXARC ABSOLUTE ENCODER WITH SSI INTERFACE QUICKSTART INSTRUCTIONS



Equipment List

- Siemens PLC: S7-1200 1215C DC/DC/DC, 6ES7138-6BA01-0BA0
- Engineering Tool: TIA Portal Professional
- Posital Encoder: UCD-S101B-1213-L100-PRQ

Add the Devices

- Search the PLC in the catalog and drag and drop it in the project.

The screenshot displays the Siemens STEP 7 HW Config interface. The main window shows a rack configuration for 'Rack_0' with slots 0 through 12. Slot 0 contains a SIMATIC 300 station. Slot 1 contains a SIMATIC 300 station. Slot 2 contains a SIMATIC 300 station. Slot 3 contains a SIMATIC 300 station. Slot 4 contains a SIMATIC 300 station. Slot 5 contains a SIMATIC 300 station. Slot 6 contains a SIMATIC 300 station. Slot 7 contains a SIMATIC 300 station. Slot 8 contains a SIMATIC 300 station. Slot 9 contains a SIMATIC 300 station. Slot 10 contains a SIMATIC 300 station. Slot 11 contains a SIMATIC 300 station. Slot 12 contains a SIMATIC 300 station. A red box highlights the 'IO device_1' in the rack configuration. The 'Device overview' table on the right lists the modules in the rack:

Module	Rack	Slot	I address	Q address	Type	Article no.
IO device_1	0	0			IM 155-6 PN BA	6ES7 155-...
PROFINET interface	0	0 X1			PROFINET interface	
CM 4xIO-Link_1	0	1	2...13	2...9	CM 4xIO-Link	6ES7 137-...
TM PosInput 1_1	0	2	14...29	10...21	TM PosInput 1	6ES7 138-...
Server module_1	0	3			Server module	6ES7 193-...

The 'Hardware catalog' on the right shows the search results for '6es7 138-6ba01-0ba0'. The 'Catalog' tree on the right shows the hierarchy of modules. The 'TM PosInput 1' module is highlighted with a red box, and the '6ES7 138-6BA00-0BA0' and '6ES7 138-6BA01-0BA0' articles are listed below it. A red box highlights the '6ES7 138-6BA01-0BA0' article, which is the device being added to the rack. The 'General' tab is selected in the bottom left, and the 'Show all messages' button is visible. The 'Message' window at the bottom shows the status of the hardware configuration process.

2

1

Commissioning

➤ Settings

The screenshot displays the Siemens SIMATIC Manager interface for configuring a rack of modules. The top window shows the 'Device overview' for 'IO device_1 [IM 155-6 PN BA]'. Below it, the 'TM PosInput 1_1' properties window is open, showing the 'General' tab. The 'Potential group' section is active, with the 'Enable new potential group (light BaseUnit)' option selected. The 'BaseUnit' dropdown is set to '6ES7 193-6BP00-0DA0, BU type A0, without AUX terminals, light'.

Device overview

Module	Rack	Slot	I address	Q address	Type	Article no.
IO device_1	0	300			IM 155-6 PN BA	6ES7 155-...
PROFINET interface	0	0 X1			PROFINET interface	
CM 4xIO-Link_1	0	1	2...13	2...9	CM 4xIO-Link	6ES7 137-...
TM PosInput 1_1	0	2	14...29	10...21	TM PosInput 1	6ES7 138-...
Server module_1	0	3			Server module	6ES7 193-...

TM PosInput 1_1 [TM PosInput 1]

General | IO tags | System constants | Texts

Potential group

☐ Use potential group of the left module (dark BaseUnit)

☒ Enable new potential group (light BaseUnit)

BaseUnit

The 'BaseUnit' parameter is optional. It is only required for data exchange with external tools (e.g. TIA Selection Tool) and does not affect the operation of the device. If this feature is not required, the 'Unspecified BaseUnit' setting can be used.

BaseUnit: 6ES7 193-6BP00-0DA0, BU type A0, without AUX terminals, light

Commissioning

➤ Settings

The screenshot displays the Siemens SIMATIC Manager interface for configuring an IO device. The main window shows a rack diagram with modules: IO device_1, CM 4xIO-Link_1, TM PosInput 1_1, and Server module_1. The 'Device overview' table lists the modules and their addresses.

Module	Rack	Slot	I address	Q address	Type	Article no.
IO device_1	0	300			IM 155-6 PN BA	6ES7 155-...
PROFINET interface	0	0			PROFINET interface	
CM 4xIO-Link_1	0	1	2...13	2...9	CM 4xIO-Link	6ES7 137-...
TM PosInput 1_1	0	2	14...29	10...21	TM PosInput 1	6ES7 138-...
Server module_1	0	3			Server module	6ES7 193-...

The 'Properties' window for 'TM PosInput 1_1' is open, showing the 'Operating mode' settings for channel 0. The 'Manual operation (without technology object)' is selected.

Selection of the operating mode for the channel 0

- ☐ Operating with technology object "Counting and measurement"
- ☐ Position input for technology object "Motion Control"
- ☒ Manual operation (without technology object)
- ☐ Fast Mode

Selection of the operating type for the channel 0

- ☒ Counting/Position input
- ☐ Measuring

Commissioning

➤ Settings

Device overview

Module	Rack	Slot	I address	Q address	Type	Article no.
IO device_1	0	300			IM 155-6 PN BA	6ES7 155-...
PROFINET interface	0	0			PROFINET interface	
CM 4xIO-Link_1	0	1	2...13	2...9	CM 4xIO-Link	6ES7 137-...
TM PosInput 1_1	0	2	14...29	10...21	TM PosInput 1	6ES7 138-...
Server module_1	0	3			Server module	6ES7 193-...

TM PosInput 1_1 [TM PosInput 1]

General | IO tags | System constants | Texts

Counter inputs

Specify input signals/encoder type

Signal type: Absolute encoder (SSI) ☐ Invert direction

Additional parameters

Frame length: 26 Bit
Code type: Dual
Transmission rate: 125 kHz
Monoflop time: Automatically
Parity: None
Bit number LSB of the position value: 1
Bit number MSB of the position value: 25

Commissioning

➤ Download

The screenshot displays the Siemens SIMATIC Manager interface during the download of a PLC configuration. The main window shows the 'Project tree' on the left, the 'Device overview' table on the right, and a rack diagram in the center. A 'Load results' dialog box is open in the foreground, showing the status of the download process.

Device overview table:

Module	Rack	Slot	I address	Q address	Type	Article no
IO device_1	0	0			IM 155-6 PN BA	6ES7 155
PROFINET interface	0	0 X1			PROFINET interface	
CM 4xIO-Link_1	0	1	2...13	2...9	CM 4xIO-Link	6ES7 137
TM PosInput 1_1	0	2	14...29	10...21	TM PosInput 1	6ES7 138

Load results dialog box:

Status and actions after downloading to device

Status	Target	Message	Action
↓	PLC_1	Downloading to device completed without error.	Load 'PLC_1'
!	Start modules	Start modules after downloading to device.	No action

The 'Load results' dialog box also includes a 'Finish' button, which is highlighted by the mouse cursor.

Add the Devices

➤ Check the I/O addresses

Device overview

Module	Rack	Slot	I address	Q address	Type	Article no.
IO device_1	0	300			IM 155-6 PN BA	6ES7 155-...
PROFINET interface	0	0 X1			PROFINET interface	
CM 4xIO-Link_1	0	1	2...13	2...9	CM 4xIO-Link	6ES7 137-...
TM PosInput 1_1	0	2	14...29	10...21	TM PosInput 1	6ES7 138-...
Server module_1	0	3			Server module	6ES7 193-...

Hardware catalog

Options

Filter Profile: <All>

Catalog

- 6es7 138-6ba01-0ba0
 - ET 200SP CPU
 - BusAdapter
 - BusAdapter HA
 - ET 200SP
 - Interface modules
 - DI
 - DQ
 - DI/DQ
 - AI
 - AQ
 - Communication modules
 - Station extension
 - PM
 - PS
 - Technology modules
 - Charging
 - Counting
 - TM Count 1x24V
 - 6ES7 138-6AA00-0BA0
 - 6ES7 138-6AA01-0BA0
 - F-TM Count 1x1Vpp sin/cos HF
 - PTO
 - Position detection
 - TM PosInput 1
 - 6ES7 138-6BA00-0BA0
 - 6ES7 138-6BA01-0BA0
 - Pulse output
 - Time-based IO
 - Flow measurement
 - Weighing
 - Motor starter
 - Special
 - Server modules
 - ET 200SP HA Ex
 - ET 200AL

Message Log

Message	Go to	Date	Time
Start downloading to device.		03-Mar-20...	17:44
PLC_1		03-Mar-20...	17:45
Hardware configuration		03-Mar-20...	17:45
PLC_1 stopped.		03-Mar-20...	17:45
Hardware configuration was loaded successfully.		03-Mar-20...	17:45
PLC_1 started.		03-Mar-20...	17:45
Loading completed (errors: 0; warnings: 0).		03-Mar-20...	17:45
Connected to PLC_1, via address IP=192.168.0.1.		03-Mar-20...	17:45
Connection to PLC_1 terminated.		03-Mar-20...	17:46
Start downloading to device.		03-Mar-20...	17:47

Commissioning

► Position Value - click on “Monitor All” and “Run the CPU”. Position Value is available on Address ID14

The screenshot displays the Siemens TIA Portal software interface for commissioning a PLC. The main workspace shows a table with the following columns: Name, Address, Display format, Monitor value, Modify value, Comment, and Tag comment. The table contains two rows: Row 1 has Address %ID14 and Display format DEC, with a Monitor value of 38642. Row 2 is labeled <Add new>. The right-hand panel shows the 'CPU operator panel' with buttons for RUN / STOP, ERROR, STOP, MAINT, and MRES. The bottom status bar includes tabs for Properties, Info, and Diagnostics.

Name	Address	Display format	Monitor value	Modify value	Comment	Tag comment
1	%ID14	DEC	38642	☐		
2	<Add new>			☐		

Document Versions:

20252304