



Write sensor parameter via Siemens TIA

English

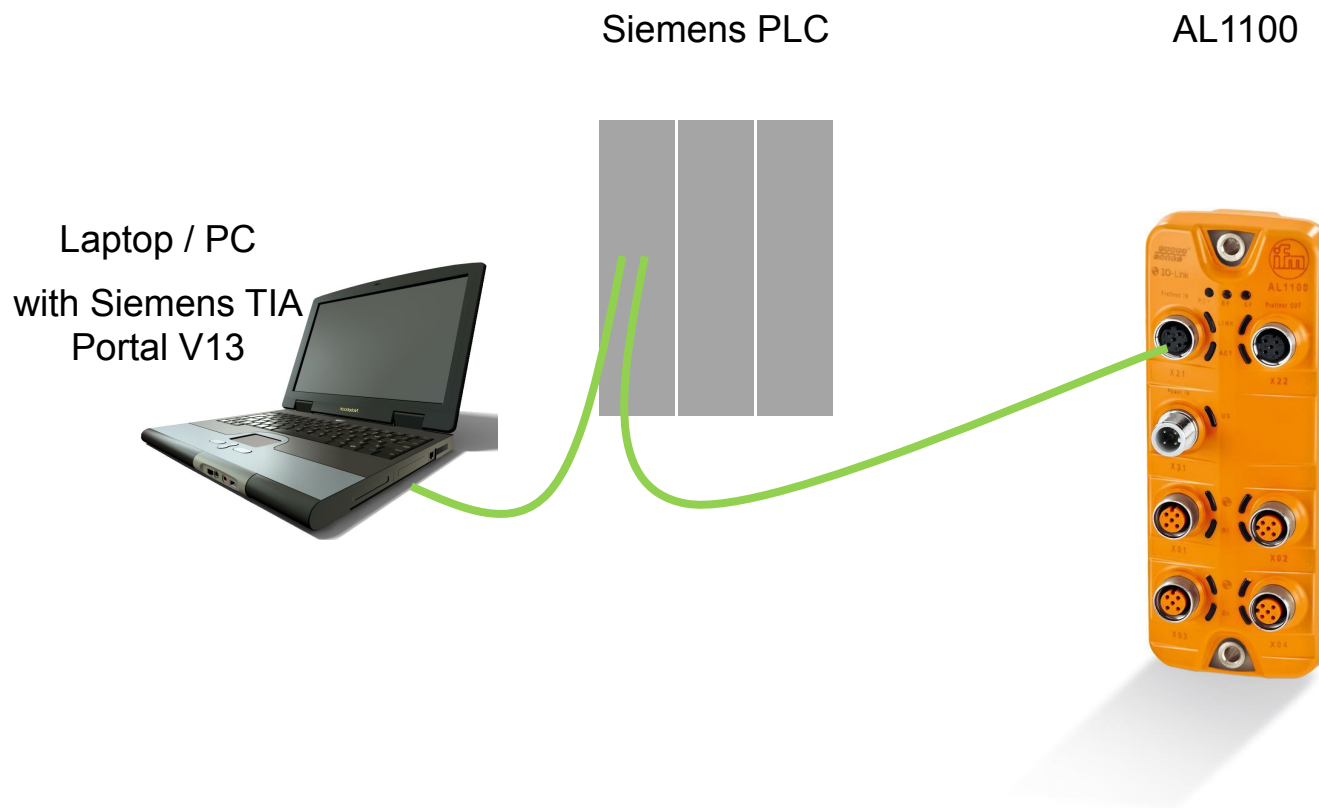


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1. Connect units

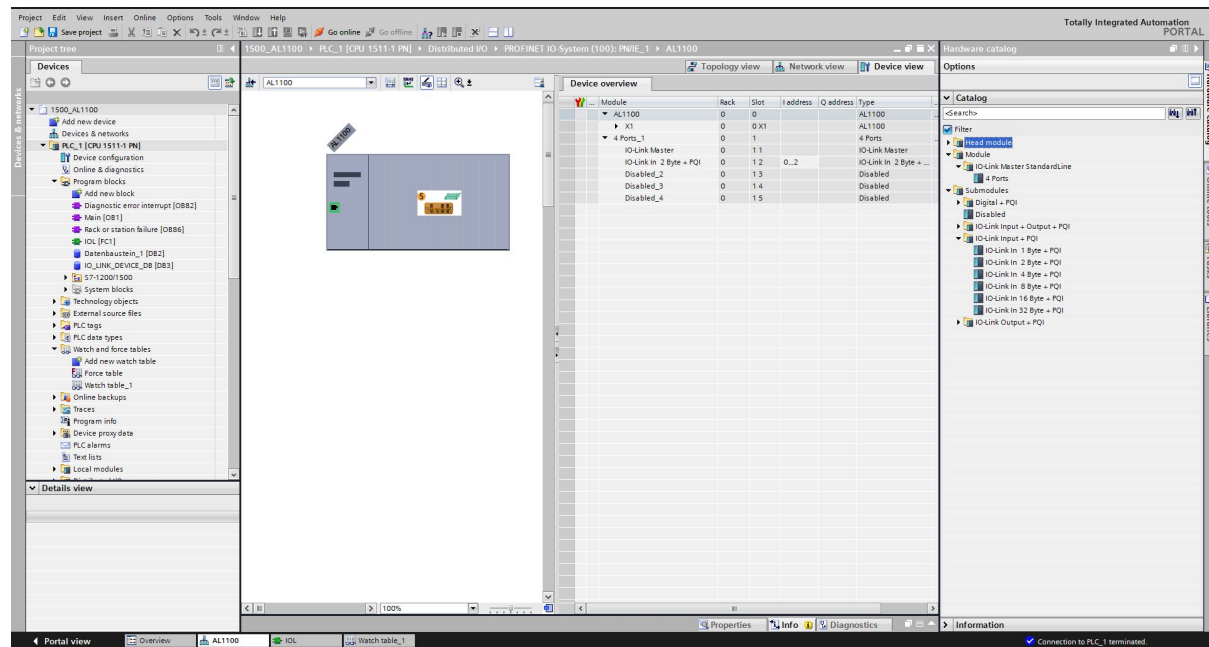




2. Configuration – AL1100 in TIA Portal V13

Install GSDML files for this device – [Get GSDML file](#)

- Download current GSDML file
- Update your catalogue
- Choose AL1100 and insert it to your network





2. Configuration – AL1100 in TIA Portal V13

Connect [O5D100](#) to port 1

- Download IODD PDF

The screenshot shows the ifm website product page for the O5D100 photoelectric sensor. The page includes a navigation bar, a search bar, and a main content area with various download options. A red box highlights the 'IO Device Description - IODD' link under the 'Software download' section.

Category	File Name	Size	Format
Certificates	IO-Link-Approval	296 kb	PDF
	eRÜs,eLUS,UL-Approval	210 kb	PDF
	EU declaration of conformity	171 kb	PDF
	Certificates / Protocoles	2 kb	HTML
	MTTFd certificate	28 kb	PDF
EPLAN file	EPlan	59 kb	EDZ
Classification	eCl@ss 4.1	27-27-08-01	
	eCl@ss 5.1	27-27-08-01	
	eCl@ss 6.1	27-27-08-01	
	eCl@ss 7.1	27-27-08-01	
	eCl@ss 8.0	27-27-08-01	
	ETIM 4.0	EC001625	
	UNSPSC 6.0315u	41111613	
Customs tariff number	85365019		



2. Configuration – AL1100 in TIA Portal V13

Connect [O5D100](#) to port 1

- This device has 2Byte cyclic data
- Last 4bits has to ignore

Name	Description	Data type	Bit offset	Bit length	Value range	Gradient	Offset	Unit
Distance	Fig. PDV1. Current distance.	UIntegerT	8	12	5 to 200	1	0	cm
Switch state [OUT1]	Fig. BDC1. State depends on settings for BDC1.	BooleanT	0		(false) Inactive (true) Active			

PLC 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0

PDV1 BDC1

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2. Configuration – AL1100 in TIA Portal V13

Set-up your port length

- Choose ,IO-Link 2Byte + PQI‘
- Put it with Drag&Drop to your port
- Set your input-area

The screenshot displays the Siemens TIA Portal V13 interface for configuring an AL1100 module. The 'Device overview' table is shown with the following data:

Module	Rack	Slot	I address	Q address	Type
AL1100	0	0			AL1100
X1	0	0	X1		AL1100
4 Ports_1	0	1			4 Ports
IO-Link in 2 Byte + PQI	0	1.2	0..2		IO-Link in 2 Byte + ...
Disabled_3	0	1.3			Disabled
Disabled_4	0	1.5			Disabled

The 'Hardware catalog' on the right shows the 'IO-Link in 2 Byte + PQI' module selected in the 'Submodules' list.



3. IO-Link parameter – O5D100

Parameter 80 – Laser On/Off

Variables

Name	Description	Index	Subindex	Data type	Length	Access rights	Default	Value range	Gradient	Offset	Unit
Laser	Laser configuration	80	Sub 0	UIntegerT	8 Bit	rw	(1) Laser on	(0) Laser off (1) Laser on			
Display	Display configuration	96	Sub 0	UIntegerT	8 Bit	rw	(1) Display on	(0) Display off (1) Display on (2) Display rotated			
Keylock		100	Sub 0	UIntegerT	8 Bit	rw	(1) Unlocked	(0) Locked (1) Unlocked			

- 8 Bit -> value ,1‘ to LEN (IO_Link_Device function block)



4. Read sensor parameter – S7-315-2 DP/PN

Find the ID for IO_Link_Device function block

- First input address of the port

Module	Rack	Slot	I address	Q address	Type
AL1100_1	0	0	2042*		AL1100
X1	0	0 X1	2041*		AL1100
4 Ports_1	0	1			4 Ports
IO-Link Master	0	1.1	2038*		IO-Link M
IO-Link In 2 Byte + PQI	0	1.2	0..2		IO-Link In
Disabled_1	0	1.3	2037*		Disabled
Disabled_2	0	1.4	2036*		Disabled
	0	1.5	2035*		Disabled



4. Read sensor parameter – S7-315-2 DP/PN

Find the ID for IO_Link_Device function block

- First input address of the port
- ID and PORT is linked! If you change your port, you have to change your ID as well!!
- CAP = 16#B400

The screenshot displays the Siemens TIA Portal interface for configuring an IO Link. The 'Project tree' on the left shows the hierarchy: 1500_AL1100 > CPU 315-2 PN/DP [CPU 315-2 PN/DP] > Program blocks > IOL [FC2]. The 'IO Link' table is visible, showing the configuration for the IO Link device. The 'IO_Link_Device' function block is shown in the ladder logic editor, with its parameters configured as follows:

Parameter	Value
EN	TRUE
DB1	"IO_LINK_DEVICE_DB"
IO_Link_Device	"%B5001"
ID	16#0
CAP	16#B400
RD_WR	RD_WR
PORT	1
IOL_INDEX	80
IOL_SUBINDEX	0
LEN	1
DATA	"Data_block_0 1".Data
DONE_VALID	TRUE
BUSY	"%M12.0"
STATUS	FALSE
IOL_STATUS	"%M12.1"
RD_LEN	FALSE
RECORD_IOL_DATA	"Tag_7"
ENQ	"Tag_8"



4. Read sensor parameter – S7-315-2 DP/PN

Find the data

- There will appear your data

Name	Address	Display format	Monitor value	Modify value	Comment
// Request					
"Tag_9"	%M1.0	Bool	TRUE	TRUE	
// True = write - False = read					
"Tag_10"	%M11.1	Bool	FALSE	FALSE	
// Data byte 1					
"Data_block_1.Data[0]"	%DB4.DBBO	Hex	16#01	16#00	
// IO-Link Device acyclic - Done					
"Tag_7"	%M12.0	Bool	TRUE		
// IO-Link Device acyclic - Error					
"Tag_8"	%M12.1	Bool	FALSE		
-Add new>					



5. Read sensor parameter – S7-1500

Find the ID for IO_Link_Device function block

- Hardware identifier has convert to hexadecimal
- 270 dec -> 10E hex

The screenshot shows the Siemens TIA Portal interface for configuring an IO-Link module. The 'Project tree' on the left shows the hierarchy: 1500_AL1100 > PLC_1 [CPU 1511-1 PN] > IO-Link Master. The 'Device overview' table on the right lists the modules:

Module	Rack	Slot	I address	Q address	Type
AL1100	0	0			AL1100
X1	0	0 X1			AL1100
4 Ports_1	0	1			4 Ports
IO-Link Master	0	1 1			IO-Link M
IO-Link In 2 Byte + PQI	0	1 2	0..2		IO-Link In
Disabled_2	0	1 3			Disabled
Disabled_3	0	1 4			Disabled
Disabled_4	0	1 5			Disabled

The 'IO-Link In 2 Byte + PQI [Module]' properties window is open, showing the 'Hardware identifier' field with the value '270' highlighted in a red box.



5. Read sensor parameter – S7-1500

Find the ID for IO_Link_Device function block

- **Hardware identifier**
- ID and PORT is linked! If you change your port, you have to change your ID as well!!
- CAP = 16#B400

The screenshot shows the Siemens TIA Portal interface for a project named '1500_AL1100'. The 'Project tree' on the left shows the hierarchy: '1500_AL1100' > 'CPU 315-2 PN/DP [CPU 315-2 PN/DP]' > 'PLC_1 [CPU 1511-1 PN]' > 'Program blocks' > 'IOL [FC1]'. The main window displays the 'IO_Link_Device' function block configuration. The 'Name' field is set to 'IO_LINK_DEVICE'. The 'Data type' is 'IO_LINK_DEVICE_DB'. The 'Default value' is '%B50001'. The 'Comment' field is empty. The 'Network 1' section shows the function block call with the following parameters: EN, TRUE, %M1.0, %M1.1, 'Tag_2', RD_WR, 1, PORT, 80, IOL_INDEX, INTR0, IOL_SUBINDEX, 1, LEN, INTR0, IOL_STATUS, 'Datenbaustein_1', RECORD_IOL_DATA, %DB3, 'IO_LINK_DEVICE_DB', '%B50001', 'IO_LINK_DEVICE', ID, CAP, DONE_VALID, BUSY, TRUE, %M2.0, FALSE, %M2.1, ERROR, FALSE, %M2.1, IOL_STATUS, RD_LEN, ENO. The 'ID' parameter is highlighted with a red box and has the value '16#10e' next to it. The 'CAP' parameter has the value '16#b400' next to it.



4. Read sensor parameter – S7-1500

Find the data

- There will appear your data

The screenshot shows the Siemens TIA Portal interface. The main window displays a table of tags and their values. A red box highlights the entry 'Datenbaustein_1.Static_1[0]' with a value of 1.

Name	Address	Display format	Monitor value	Modify value	Comment
// Process value Port1 - OSD100					
"Tag_3"	%WD	Bin	2#0000_0000_0111_0001		
// SP1	%I.0	Bool	TRUE		
// Distance	%MW4	DEC	7		
// Request	%M1.0	Bool	TRUE	TRUE	
// True = write - False = read					
"Tag_2"	%M1.1	Bool	FALSE	TRUE	
// Data byte 1					
"Datenbaustein_1".Static_1[0]	%DB2.DB80	DEC+-	1	1	
// IO-Link Device acyclic - Done	%M2.0	Bool	TRUE		
// IO-Link Device acyclic - Error	%M2.1	Bool	FALSE		
"Tag_6"	<Add new>				