



# **Write sensor parameter via Siemens TIA**

English

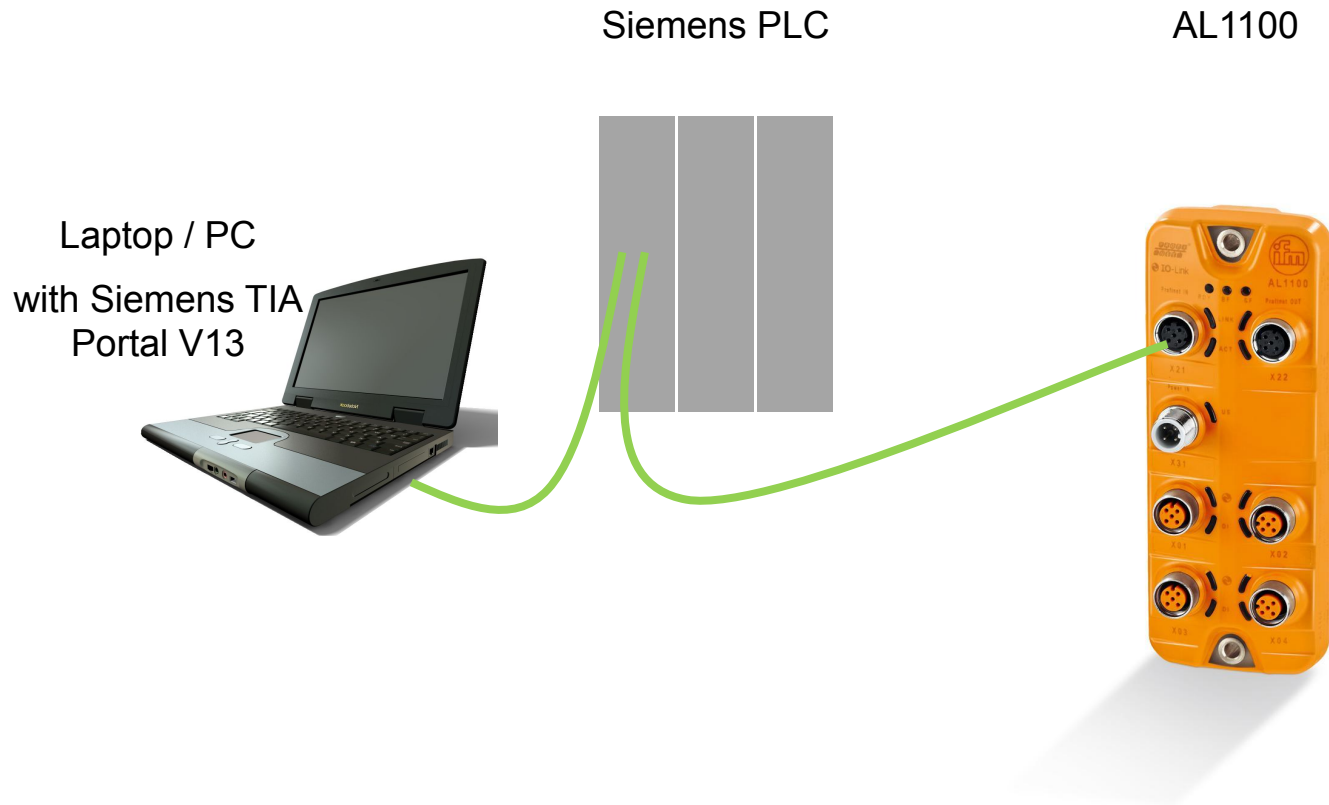


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## 1. Connect units





## 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

The screenshot displays the Siemens TIA Portal V13 interface for configuring an AL1100 device. The central rack diagram shows the AL1100 module installed in slot 1 of rack 0. The 'Device overview' table provides the following data:

Module	Rack	Slot	I address	Q address	Type
AL1100	0	0			AL1100
X1	0	0 X1			4 Ports
4 Ports_1	0	1			4 Ports
IO-Link Master	0	1.1			IO-Link Master
IO-Link In 2 Byte + PQI	0	1.2	0..2		IO-Link In 2 Byte + ...
Disabled_2	0	1.3			Disabled
Disabled_3	0	1.4			Disabled
Disabled_4	0	1.5			Disabled

The hardware catalogue on the right shows the 'IO-Link Master StandardLine' and 'IO-Link Input + PQI' modules, which are relevant for the AL1100 configuration.



## 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	EC000625	
	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 16 PDV1 BDC1

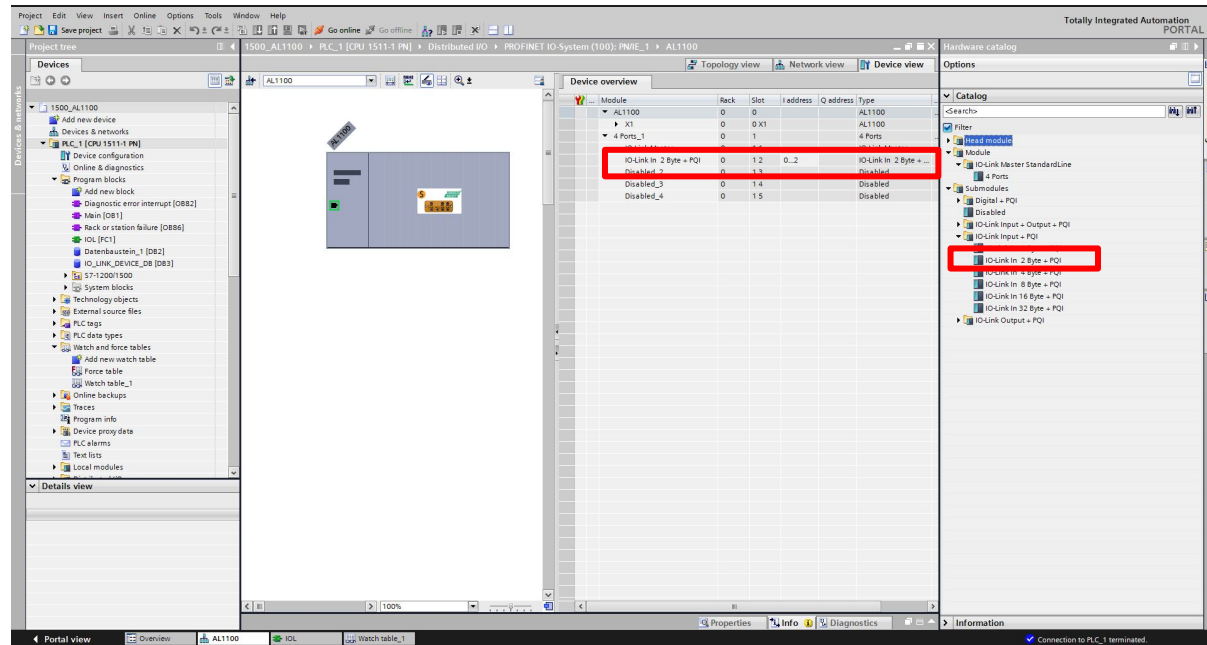
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## 2. Configuration – AL1100 in TIA Portal V13

### Set-up your port length

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





## 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\_Device function block. 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 'Details view' at the bottom left shows the function block's inputs and outputs. The 'ID' input is highlighted with a red box and set to '16#0'. The 'CAP' input is set to '16#B400'. The 'PORT' input is set to 'RD\_WR'. The 'IOL\_INDEX' input is set to '80'. The 'IOL\_SUBINDEX' input is set to '0'. The 'LEN' input is set to '1'. The 'EN' input is set to '%M11.0'. The 'DONE\_VALID' output is set to '%M12.0'. The 'ERROR' output is set to '%M12.1'. The 'IOL\_STATUS' output is set to '%M12.1'. The 'RECORD\_IOL\_DATA' output is set to '%M12.1'. The 'RD\_LEN' output is set to '%M12.1'. The 'DATA' output is set to '%M12.1'. The 'ENQ' output is set to '%M12.1'.



## 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. The 'Project tree' on the left shows the project structure, including the 'IO-Link Device' function block. The 'Device overview' table on the right lists the modules in the rack, with 'IO-Link In 2 Byte + PQI' selected. The 'Properties' window at the bottom shows the 'Hardware identifier' field set to '270'.

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

General	IO tags	System constants	Texts
General			
Inputs			
Module parameters			
IO addresses			
Hardware identifier			



## 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. The Project tree on the left displays the hierarchy: 1500\_AL1100 > CPU 315-2 PN/DP [CPU 315-2 PN/DP] > PLC\_1 [CPU 1511-1 PN] > Program blocks > IO\_L [FC1]. The main window displays the IO\_L function block configuration. The 'ID' parameter is highlighted with a red box and set to '16#10e'. The 'CAP' parameter is set to '16#b400'. Other parameters include 'PORT' (1), 'IOL\_INDEX' (80), 'IOL\_SUBINDEX' (0), and 'LEN' (1). The 'DONE\_VALID' parameter is set to '%M2.0' and 'BUSY' to '%M2.1'. The 'ERROR' parameter is set to '%M2.1' and 'STATUS' to '%M2.1'. The 'IOL\_STATUS' parameter is set to '%M2.1' and 'RD\_LEN' to '%M2.1'. The 'RECORD\_IOL\_DATA' parameter is set to '%M2.1' and 'DATA' to '%M2.1'. The 'EN' parameter is set to '%M1.0' and 'ENO' to '%M1.1'. The 'RD\_WR' parameter is set to '%M1.1' and 'PORT' to '%M1.1'. The 'IOL\_INDEX' parameter is set to '%M1.1' and 'IOL\_SUBINDEX' to '%M1.1'. The 'LEN' parameter is set to '%M1.1' and 'STATUS' to '%M1.1'. The 'IOL\_STATUS' parameter is set to '%M1.1' and 'RD\_LEN' to '%M1.1'. The 'RECORD\_IOL\_DATA' parameter is set to '%M1.1' and 'DATA' to '%M1.1'.



## 4. Read sensor parameter – S7-1500

### Find the data

- There will appear your data

The screenshot shows the Siemens TIA Portal interface. The 'Watch and force tables' window is open, displaying a table of variables. A red box highlights the entry 'Datenbaustein\_1.Static\_1[0]' with a monitor 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>				