

WLS Pro Parameter Data Function Block

11/22/2022

This document covers the installation and use of a function block for Siemen's TIA Portal software package. This function block handles acyclic IO-Link commands to and from a Banner WLS15 Pro, WLS27 Pro, or WLS28 Pro (referenced as WLS Pro going forward). This allows the user to easily change WLS Pro Parameter Data.

Each Banner IO-Link Device Parameter Data function block is meant to be used alongside a Banner IO-Link Device Master Control function block. This paper describes how to set up both of these blocks.

Components

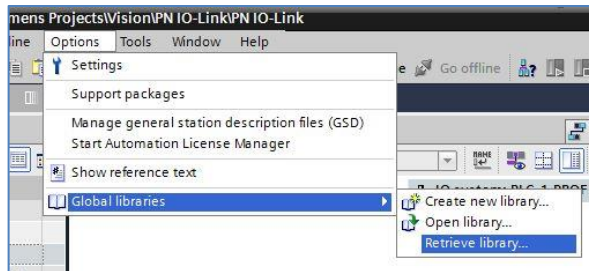
Banner WLS Library.zal14

NOTE: The WLS Pro, depending on length, can draw more current than a typical IO-Link Master can provide. A splitter arrangement may be necessary, where the light is powered from a different source.

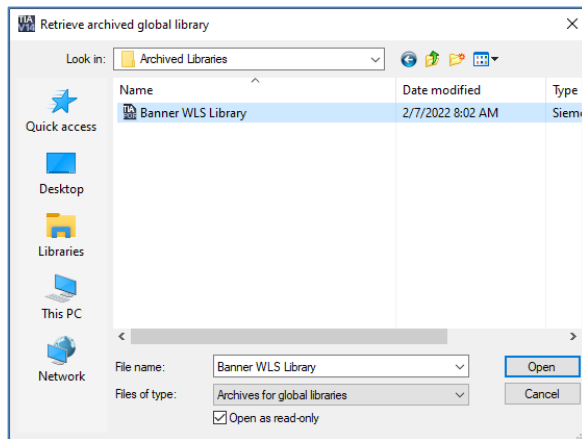
There are two methods for the parameter data. The first is used when creating a connection to Banner's IO-Link masters. The second set of instructions are for systems using other manufacturer's IO-Link masters.

Installation Instructions

1. Open a project.
2. Go to Options > Global Libraries > Retrieve Library.



3. Select the Banner IO-Link Library. Click Open.



4. The library is now accessible in the Libraries tab.
5. Go to page 3 for Banner IO-Link Masters and to page 8 for all other IO-Link Masters.

Setup of WLS Pro with a Banner DXMR90-4K

1. Go to Device and Networks to configure the DXMR90-4K. Add the DXMR90-4K if it has yet to be added to the system.
2. Add Banner IO-Link Master Info to Slot 1. This sets the DXMR90-4K for IO-Link mode.

| | | | | |
|------------------------------|---|---|-------|----------------------------|
| Banner IO-Link Master Info_1 | 0 | 1 | 1...9 | Banner IO-Link Master Info |
|------------------------------|---|---|-------|----------------------------|

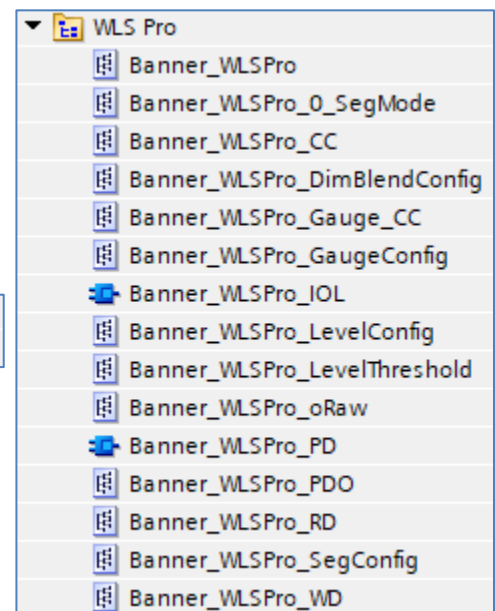
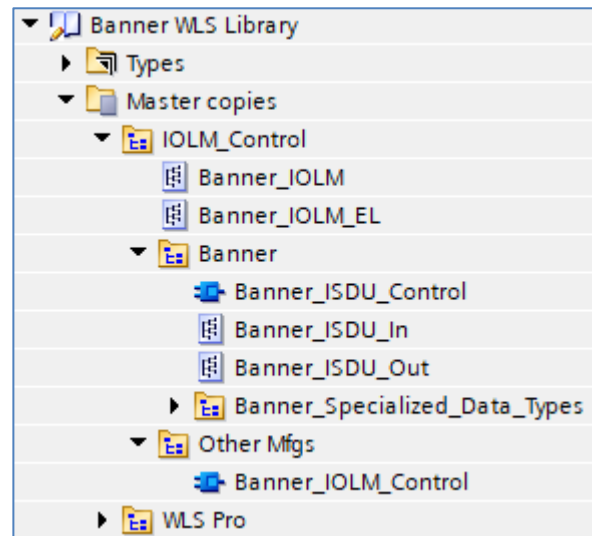
3. Open the IO-Link Generic Devices and select the proper module. The IO-Link ISDU 190/190 Byte_1 is required for this Function Block. Make note of the I address for the Slot 10. The inputs data starts at I185 while the outputs data starts at Q185 for this example.

| | | | | | |
|-----------------------------|---|----|-----------|-----------|---------------------------|
| IO-Link ISDU 190/190 Byte_1 | 0 | 10 | 185...380 | 185...380 | IO-Link ISDU 190/190 Byte |
|-----------------------------|---|----|-----------|-----------|---------------------------|





















4. Drag the Banner_IOLM and Banner_IOLM_EL to the PLC Data Types area under your PLC. These are found in the IOLM_Control.
5. Open the Banner folder and drag the Banner_ISDU_Control to the Program blocks area.
6. Also move the Banner_WLSPro_IOL to the Program blocks area.
7. Finally move the Banner_WLSPro, Banner_WLSPro_CC, Banner_WLSPro_LevelConfig, Banner_WLSPro_LevelThreshold, Banner_WLSPro_Gauge_CC, Banner_WLSPro_GaugeConfig, Banner_WLSPro_RD, Banner_WLSPro_SegConfig, Banner_WLSPro_0_SegMode, Banner_WLSPro_SegMode, Banner_WLSPro_DimBlendConfig, and Banner_WLSPro_WD to the PLC Data Types.
8. Go to PLC Tags. Create two tags. The first tag "IOLM1 ISDU In" and the second tag is "IOLM1 ISDU Out". Use the %I and %Q values from step 2.

| | | |
|------------------|-------------------|---------|
| ▶ IOLM1 ISDU In | "Banner_ISDU_In" | %I185.0 |
| ▶ IOLM1 ISDU Out | "Banner_ISDU_Out" | %Q185.0 |

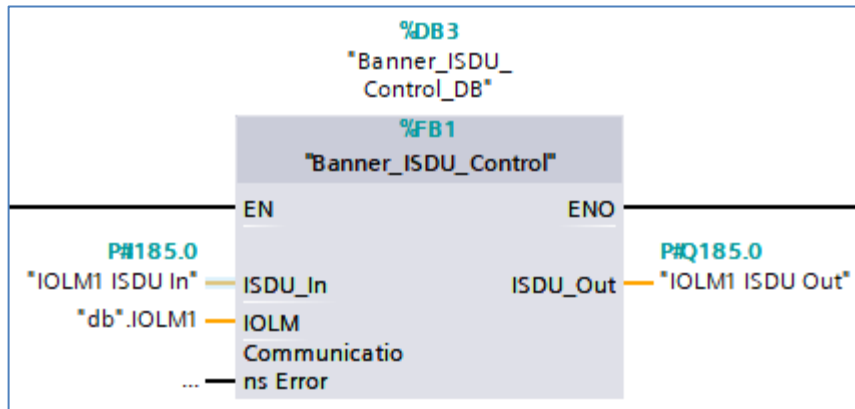
9. Go to Program blocks. Add a new Data block if necessary. In this example the new data block is named "db".
10. Create a tag with the type of "Banner_IOLM". This example uses IOLM1.



11. Expand the IOLM1 tag, then expand the Port Controlled section. The Port Controlled tag array determines which of the ports has a function block-controlled Banner IO-Link device plugged into it. Each Port Controlled array tag with **true** as the start value is considered to have such a device connected. Correctly setting this array allows the Device and IO-Link Master function blocks to control the device on that port. Errors will occur if a port without an IO-Link device is set to true.

| db | | | |
|---|------------------------|-----------------------|-------------|
| | Name | Data type | Start value |
|  | ■ ▼ IOLM1 | "Banner_IOLM" | |
|  | ■ ▼ Port Controlled | Array[1..8] of Bool | |
|  | ■ Port Controlled[1] | Bool | true |
|  | ■ Port Controlled[2] | Bool | true |
|  | ■ Port Controlled[3] | Bool | true |
|  | ■ Port Controlled[4] | Bool | false |
|  | ■ Port Controlled[5] | Bool | false |
|  | ■ Port Controlled[6] | Bool | false |
|  | ■ Port Controlled[7] | Bool | false |
|  | ■ Port Controlled[8] | Bool | false |
|  | ■ ▶ Port Activate | Array[1..8] of Bool | |
|  | ■ ▶ Port Read Request | Array[1..8] of Bool | |
|  | ■ ▶ Port Write Request | Array[1..8] of Bool | |
|  | ■ ▶ Port RW Complete | Array[1..8] of Bool | |
|  | ■ ▶ Port Device Read | Array[1..8] of Bool | |
|  | ■ ▶ Transfer Data | Array[0..231] of B... | |
|  | ■ Wr_Length | UInt | 0 |
|  | ■ Rd_Length | UInt | 0 |
|  | ■ IO-Index | Int | 0 |
|  | ■ Reset | Bool | false |

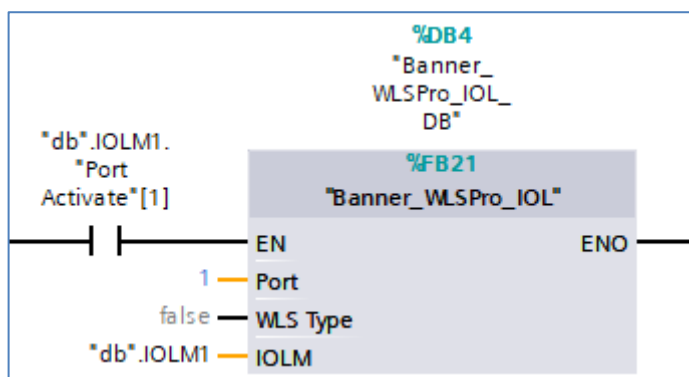
11. Next add the “Banner_ISDU_Control” function block to an OB ladder. You will be prompted to make a new data block. You now must define three input variables for this function block: ISDU_In, ISDU_Out, and IOLM.



12. Link the IOLM variable to the database IOLM tag created in step 7. While ISDU_In are linked to variables created in step 7.
13. Now add the “Banner_WLSPro_IOL” function block to an OB ladder. You will be prompted to make a new data block. Type in the port number for the device, then link the “IOLM” variable to the IO-Link master variable created in step 10.

The WLS Type parameter tells the Function Block what type of WLS is connected. There are a few slight differences between the models. False (0) is used for the WLS27 and WLS28 models, while True (1) is used for the WLS15.

As a final step, the Port Activate bit is added on the same rung as the WLS Pro function block to ensure orderly behavior. The IO-Link Master function block will cycle through all ports, giving each connected device function block a time to shine.



14. The WLS Pro Parameter Data function block is now set up. Compile the project and download it to the PLC. Go online, then open the WLS Pro data block. When the function block starts out, it does an initial global read of all WLS Pro information. The Read Data section of the data block shows this information.

| Name | Data type | Start value | Monitor value |
|------------------------------|--------------------|-------------|--------------------|
| ▼ Static | | | |
| ■ ▼ WLSPro Data | "Banner_WLSPro" | | |
| ■ Initial Global Read | Bool | false | TRUE |
| ■ Command | USInt | 0 | 0 |
| ■ ▼ Read Data | "Banner_WLSPro_RD" | | |
| ■ Master Cycle Time | USInt | 0 | 80 |
| ■ Min Cycle Time | USInt | 0 | 76 |
| ■ M-Sequence Capability | USInt | 0 | 9 |
| ■ IO-Link Version ID | USInt | 0 | 17 |
| ■ Process Data Input Length | USInt | 0 | 0 |
| ■ Process Data Output Length | USInt | 0 | 159 |
| ■ Vendor ID Combined | UDInt | 0 | 451 |
| ■ Vendor ID 1 | USInt | 0 | 1 |
| ■ Vendor ID 2 | USInt | 0 | 195 |
| ■ Device ID Combined | UDInt | 0 | 396205 |
| ■ Device ID 1 | USInt | 0 | 6 |
| ■ Device ID 2 | USInt | 0 | 11 |
| ■ Device ID 3 | USInt | 0 | 173 |
| ■ Serial Number | String | " | '21-01-1312:48:22' |

The Write Data section of the data block shows all the writeable parameter data for the WLS Pro. Simply change a value here and it will be automatically written to the sensor via a one-time acyclic write through the IO-Link Master.

It is almost like the WLS Pro is a PROFINET-speaking device!

| Name | Data type | Start value | Monitor value |
|-------------------------------|----------------------------|-------------|---------------|
| ■ ▼ Write Data | "Banner_WLSPro_WD" | | |
| ■ System Command | USInt | 0 | 0 |
| ■ Parameter Access Lock | Bool | false | FALSE |
| ■ Data Storage Lock | Bool | false | FALSE |
| ■ Local Parameterization Lock | Bool | false | FALSE |
| ■ Local User Interface Lock | Bool | false | FALSE |
| ■ Operating Mode | USInt | 0 | 0 |
| ■ ▶ Segment Config | "Banner_WLSPro_O_SegM..." | | |
| ■ ▶ LevelConfig | "Banner_WLSPro_LevelCo..." | | |
| ■ Custom 1 - Red | USInt | 0 | 255 |
| ■ Custom 1 - Green | USInt | 0 | 255 |
| ■ Custom 1 - Blue | USInt | 0 | 255 |
| ■ Custom 2 - Red | USInt | 0 | 255 |
| ■ Custom 2 - Green | USInt | 0 | 255 |
| ■ Custom 2 - Blue | USInt | 0 | 255 |
| ■ LED Mode Intensity | USInt | 0 | 0 |
| ■ Orientation | USInt | 0 | 0 |
| ■ Custom Intensity | USInt | 0 | 100 |
| ■ Custom Frequency | USInt | 0 | 10 |

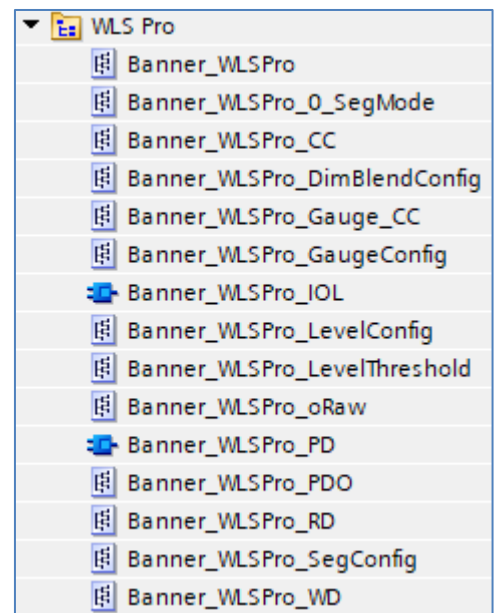
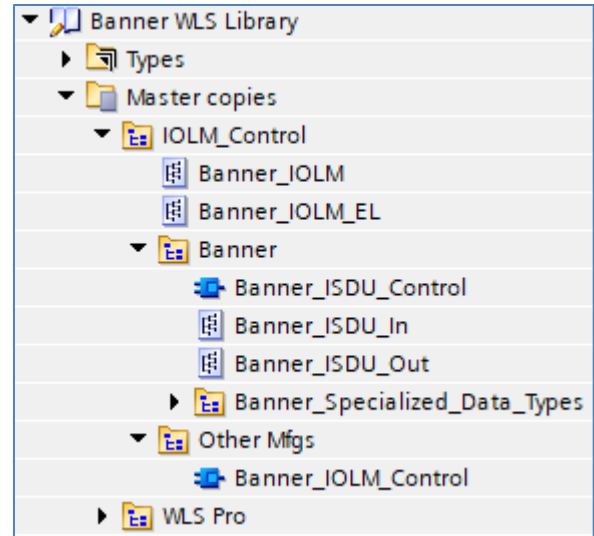
Setup of WLS Pro with other IO-Link Masters

Additional Component Needed

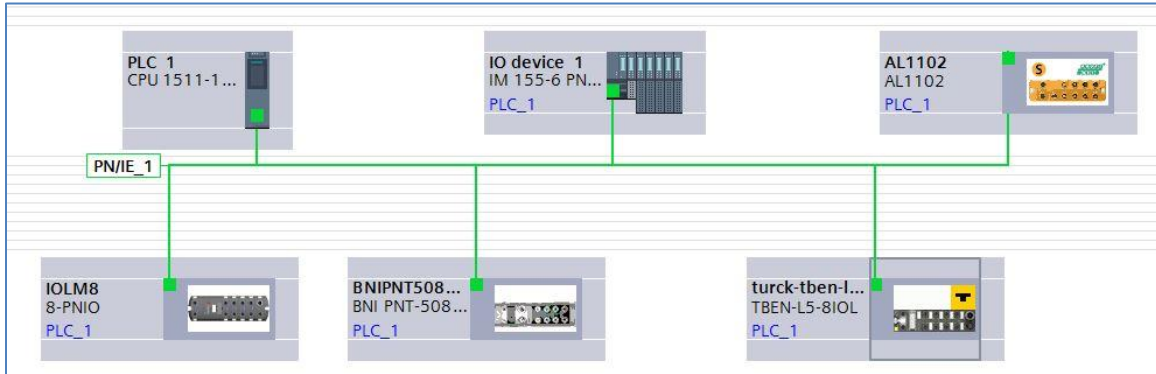
Siemens IO_LINK_DEVICE function block

Installation Instructions

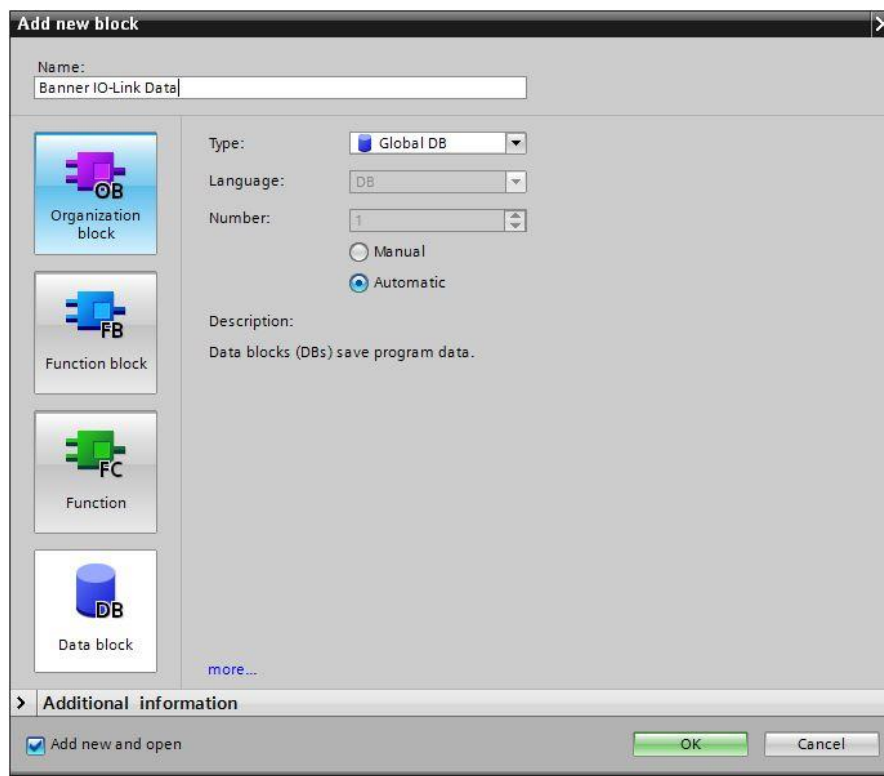
1. The Banner IO-Link Library will now be in the Global Library List. Expand the Master copies section. The WLS Pro folder contains elements for both Process Data and Parameter Data connections to a WLS Pro device. As Parameter Data is the focus of this paper, we will concern ourselves with these items: Banner_WLSPro, Banner_WLSPro_CC, Banner_WLSPro_IOL, Banner_WLSPro_LevelConfig, Banner_WLSPro_LevelThreshold, Banner_WLSPro_Gauge_CC, Banner_WLSPro_GaugeConfig, Banner_WLSPro_RD, Banner_WLSPro_SegConfig, Banner_WLSPro_0_SegMode, Banner_WLSPro_SegMode, Banner_WLSPro_DimBlendConfig, and Banner_WLSPro_WD.
2. Drag Banner_WLSPro_IOL to the Program Blocks area under your PLC.
3. Drag the rest to the PLC Data Types area under your PLC.
4. We also must prepare for setting up the IO-Link Master. Go to the IOLM_Control section of the Banner IO-Link Library List.
5. Drag Banner_IOLM and Banner_IOLM_EL to the PLC Data Types area under your PLC.
6. Drag the Banner_IOLM_Control to the Program Blocks area under your PLC.
7. Finally, we must bring the Siemens-made IO_LINK_DEVICE function block specific to your PLC into our project. This can be found in a Siemens IO-Link Library. See their website for more details. Once that library is retrieved and opened, drag IO_LINK_DEVICE to the Program Blocks area under your PLC.



8. Go to Devices and networks to configure the system as necessary. Below is an example of what a configuration might look like. This example shows 5 different IO-Link Masters connected to the same PLC.



9. Go to Program blocks. Add a new Data block if necessary. In this example the new data block is named "Banner IO-Link Data".



10. In the new data block, create a new tag to represent the IO-Link Master, using the data type "Banner_IOLM". This example uses the tag name "IOLM1". A different IO-Link Master might be called IOLM2 or IOLM3, for instance.

| Banner IO-Link Data | | |
|---------------------|--------|---------------|
| | Name | Data type |
| 1 | Static | |
| 2 | IOLM1 | *Banner_IOLM* |

11. Expand the IOLM1 tag, then expand the Port Controlled section. The Port Controlled tag array determines which of the ports has a function block-controlled Banner IO-Link device plugged into it. Each Port Controlled array tag with **true** as the start value is considered to have such a device connected. Correctly setting this array allows the Device and IO-Link Master function blocks to control the device on that port. Errors will occur if a port without an IO-Link device is set to true.

| Banner IO-Link Data | | | |
|---------------------|--------------------|-----------------------|-------------|
| | Name | Data type | Start value |
| 5 | IOLM1 | *Banner_IOLM* | |
| 6 | Port Controlled | Array[1..8] of Bool | |
| 7 | Port Controlled[1] | Bool | false |
| 8 | Port Controlled[2] | Bool | true |
| 9 | Port Controlled[3] | Bool | true |
| 10 | Port Controlled[4] | Bool | false |
| 11 | Port Controlled[5] | Bool | false |
| 12 | Port Controlled[6] | Bool | true |
| 13 | Port Controlled[7] | Bool | true |
| 14 | Port Controlled[8] | Bool | false |
| 15 | Port Activate | Array[1..8] of Bool | |
| 16 | Port Read Request | Array[1..8] of Bool | |
| 17 | Port Write Request | Array[1..8] of Bool | |
| 18 | Port RW Complete | Array[1..8] of Bool | |
| 19 | Port Device Read | Array[1..8] of Bool | |
| 20 | Transfer Data | Array[0..231] of Byte | |
| 21 | Wr_Length | UInt | 0 |
| 22 | Rd_Length | UInt | 0 |
| 23 | IO-Index | Int | 0 |
| 24 | Reset | Bool | false |

12. Next add the “Banner_IOLM_Control” function block to an OB ladder. You will be prompted to make a new data block. You now have to define three input variables for this function block: CAP, ID Control state, and IOLM.

Defining an input variable for the fourth input, Communications Error, is optional.

The Client Access Point (CAP) varies, depending on the specific IO-Link Master used.

| IO-Link Master | CAP |
|--------------------------------|-------|
| Balluff (BNI PNT-508-105-Z015) | 255 |
| Control (IOLMPN8P) | 255 |
| ifm (AL1102) | 46080 |
| Siemens (CM 4xIO-Link) | 227 |
| Turck (TBEN-L5-8IOL) | 251 |

The ID Control state variable should be “true” if using an IO-Link Master from ifm; otherwise it should be set to “false”.

Link the “IOLM” input variable to the tag created in step 13.

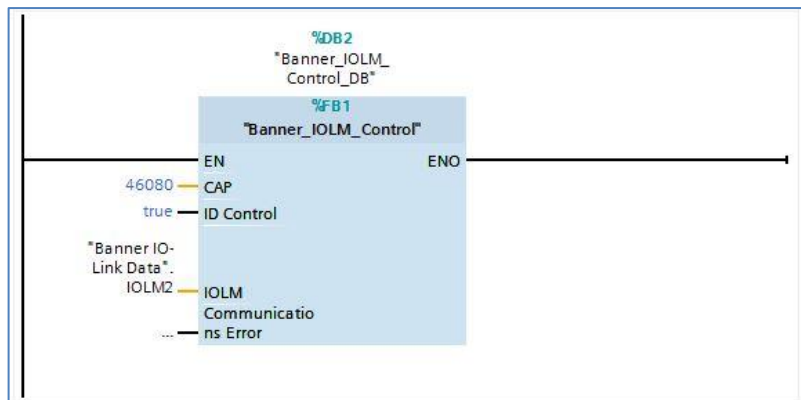


Figure 1: An example using an ifm IO-Link Master

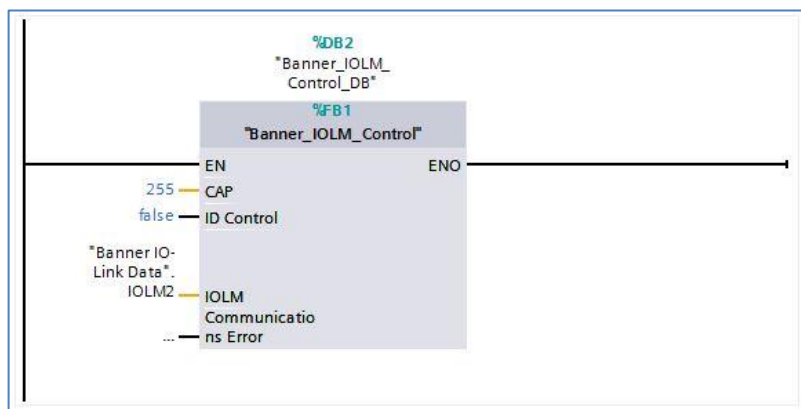


Figure 2: An example using a Balluff IO-Link Master

13. The ID Control true/false state is linked to an array called "ID_Array", found in "Banner_IOLM_Control_DB". This array contains the Hardware ID property of the PROFINET configuration.

See Appendix A for more information on how to find the correct value for your specific IO-Link Master.

In the case of an IO-Link Master from ifm, each port has a different Hardware ID and each number must be entered into the correct place. The example shown in Figure 3 is of an IO-Link device connected to port 6 of an ifm IO-Link Master. The ifm IO-Link Master's port 6 Hardware ID is entered into the "ID_Array[6]" slot. This full array of different Hardware IDs, based on port used, is used when the "ID Control" variable is set to true (i.e. only when the IO-Link Master is from ifm).

IO-Link Masters from other vendors use a single Hardware ID value for all ports. In this case, the Hardware ID is entered into the "ID_Array[1]" slot of the array, regardless of the port to which the device is connected. This array is ignored (but the [1] slot is still important) when the "ID Control" variable is set to false.

| ▼ ID_Array | Array[1..8] of HW_IO | |
|---------------|----------------------|-----|
| ■ ID_Array[1] | HW_IO | 0 |
| ■ ID_Array[2] | HW_IO | 0 |
| ■ ID_Array[3] | HW_IO | 0 |
| ■ ID_Array[4] | HW_IO | 0 |
| ■ ID_Array[5] | HW_IO | 0 |
| ■ ID_Array[6] | HW_IO | 279 |
| ■ ID_Array[7] | HW_IO | 0 |
| ■ ID_Array[8] | HW_IO | 0 |

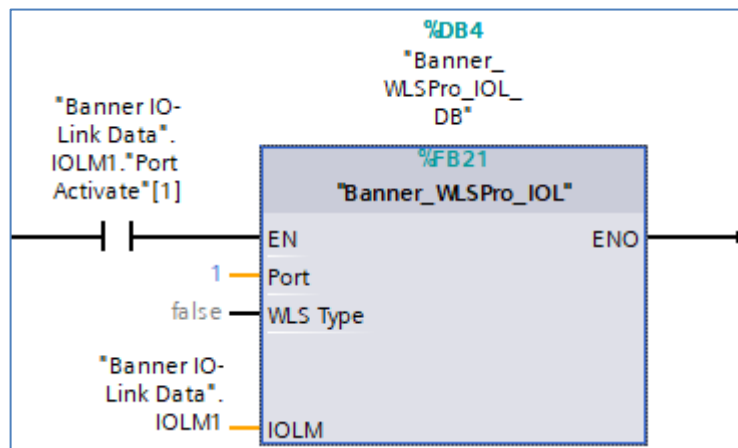
Figure 3: The ID_Array when using an ifm IO-Link Master; device attached to port 6

| ▼ ID_Array | Array[1..8] of HW_IO | |
|---------------|----------------------|-----|
| ■ ID_Array[1] | HW_IO | 309 |
| ■ ID_Array[2] | HW_IO | 0 |
| ■ ID_Array[3] | HW_IO | 0 |
| ■ ID_Array[4] | HW_IO | 0 |
| ■ ID_Array[5] | HW_IO | 0 |
| ■ ID_Array[6] | HW_IO | 0 |
| ■ ID_Array[7] | HW_IO | 0 |
| ■ ID_Array[8] | HW_IO | 0 |

Figure 4: The ID_Array when using a Balluff IO-Link Master; device attached to any port (only ID_Array[1] is used)

14. Now add the “Banner_WLSPro_IOL” function block to an OB ladder. You will be prompted to make a new data block. Type in the port number for the device, then link the “IOLM” variable to the IO-Link master variable created in step 13.

As a final step, the Port Activate bit is added on the same rung as the WLS Pro function block to ensure orderly behavior. The IO-Link Master function block will cycle through all ports, giving each connected device function block a time to shine.



15. The WLS Pro Parameter Data function block is now set up. Compile the project and download it to the PLC. Go online, then open the WLS Pro data block. When the function block starts out, it does an initial global read of all WLS Pro information. The Read Data section of the data block shows this information.

| Name | Data type | Start value | Monitor value |
|------------------------------|--------------------|-------------|--------------------|
| ▼ Static | | | |
| ■ ▼ WLSPro Data | "Banner_WLSPro" | | |
| ■ Initial Global Read | Bool | false | TRUE |
| ■ Command | USInt | 0 | 0 |
| ■ ▼ Read Data | "Banner_WLSPro_RD" | | |
| ■ Master Cycle Time | USInt | 0 | 80 |
| ■ Min Cycle Time | USInt | 0 | 76 |
| ■ M-Sequence Capability | USInt | 0 | 9 |
| ■ IO-Link Version ID | USInt | 0 | 17 |
| ■ Process Data Input Length | USInt | 0 | 0 |
| ■ Process Data Output Length | USInt | 0 | 159 |
| ■ Vendor ID Combined | UDInt | 0 | 451 |
| ■ Vendor ID 1 | USInt | 0 | 1 |
| ■ Vendor ID 2 | USInt | 0 | 195 |
| ■ Device ID Combined | UDInt | 0 | 396205 |
| ■ Device ID 1 | USInt | 0 | 6 |
| ■ Device ID 2 | USInt | 0 | 11 |
| ■ Device ID 3 | USInt | 0 | 173 |
| ■ Serial Number | String | " | '21-01-1312:48:22' |

16. The Write Data section of the data block shows all the writeable parameter data for the WLS Pro. Simply change a value here and it will be automatically written to the sensor via a one-time acyclic write through the IO-Link Master.

It is almost like the WLS Pro is a PROFINET-speaking device!

| Name | Data type | Start value | Monitor value |
|-------------------------------|----------------------------|-------------|---------------|
| ■ ▼ Write Data | "Banner_WLSPro_WD" | | |
| ■ System Command | USInt | 0 | 0 |
| ■ Parameter Access Lock | Bool | false | FALSE |
| ■ Data Storage Lock | Bool | false | FALSE |
| ■ Local Parameterization Lock | Bool | false | FALSE |
| ■ Local User Interface Lock | Bool | false | FALSE |
| ■ Operating Mode | USInt | 0 | 0 |
| ■ ▶ Segment Config | "Banner_WLSPro_O_SegM..." | | |
| ■ ▶ LevelConfig | "Banner_WLSPro_LevelCo..." | | |
| ■ Custom 1 - Red | USInt | 0 | 255 |
| ■ Custom 1 - Green | USInt | 0 | 255 |
| ■ Custom 1 - Blue | USInt | 0 | 255 |
| ■ Custom 2 - Red | USInt | 0 | 255 |
| ■ Custom 2 - Green | USInt | 0 | 255 |
| ■ Custom 2 - Blue | USInt | 0 | 255 |
| ■ LED Mode Intensity | USInt | 0 | 0 |
| ■ Orientation | USInt | 0 | 0 |
| ■ Custom Intensity | USInt | 0 | 100 |
| ■ Custom Frequency | USInt | 0 | 10 |

Appendix A

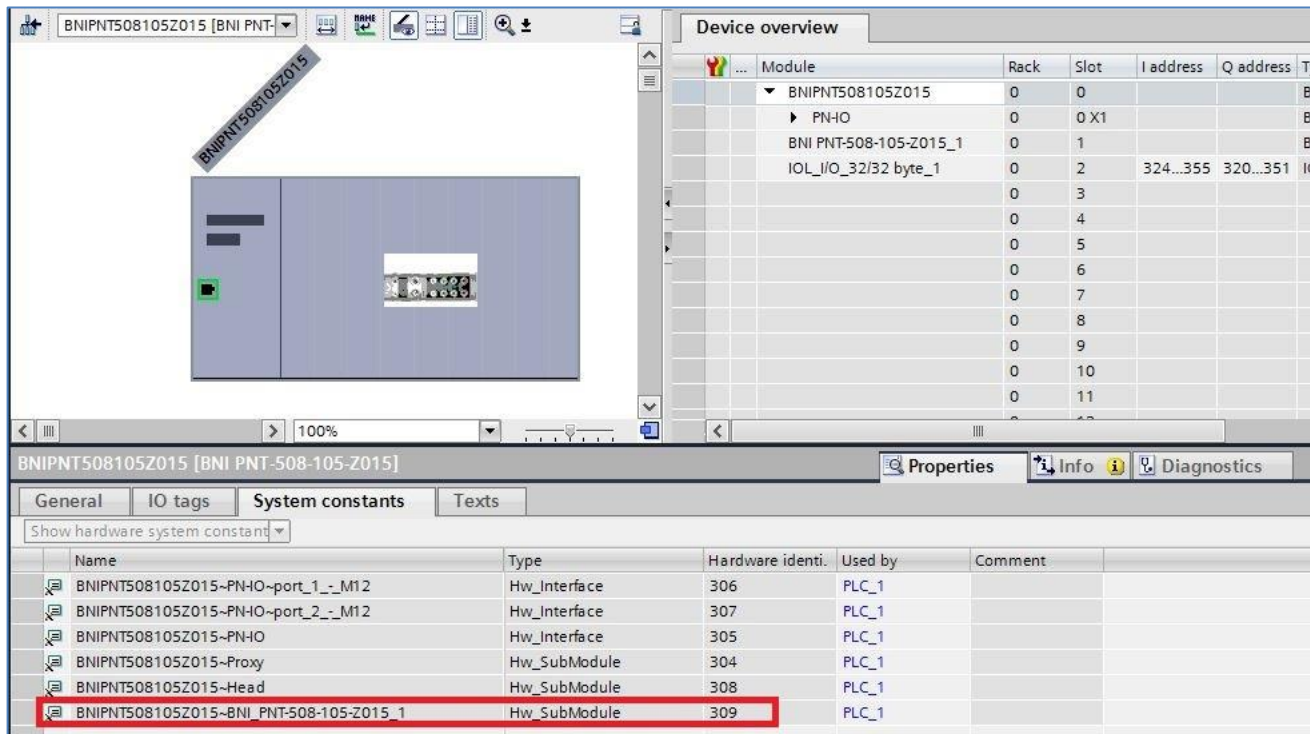
IO-Link Master Hardware ID Numbers

The Hardware ID number used in “ID_Array” in the “Banner_IOLM_Control_DB” function block is not trivial to find. Each manufacturer uses the Hardware Identifier of a slightly different subcomponent as the value required for our purposes. Furthermore, the particular Hardware Identifier numbers will change based on the number of devices in your configuration. These pictures show which subcomponent’s Hardware ID is relevant to the function block.

In each case, click on the hardware device from the “Devices & Networks” view. Click on “Properties”, then click on “System Constants” to see the screen shots below.

Balluff

Use the Hardware Identifier from the “BNI_PNT-508-105-Z015_1” Hw_SubModule. Type this number into the [1] slot of the ID_Array found in the “Banner_IOLM_Control_DB” data block.



The screenshot displays the Siemens TIA Portal interface. The top right pane shows the 'Device overview' table:

| Module | Rack | Slot | I address | Q address |
|------------------------|------|------|-----------|-----------|
| BNI_PNT-508-105-Z015 | 0 | 0 | | |
| PN-IO | 0 | 0 X1 | | |
| BNI_PNT-508-105-Z015_1 | 0 | 1 | | |
| IOL_I/O_32/32 byte_1 | 0 | 2 | 324...355 | 320...351 |

The bottom pane shows the 'Properties' window for the selected device, with the 'System constants' tab active. It displays a table of hardware identifiers:

| Name | Type | Hardware identi. | Used by | Comment |
|--|---------------------|------------------|---------|---------|
| BNI_PNT-508-105-Z015-PN-IO-port_1_-M12 | Hw_Interface | 306 | PLC_1 | |
| BNI_PNT-508-105-Z015-PN-IO-port_2_-M12 | Hw_Interface | 307 | PLC_1 | |
| BNI_PNT-508-105-Z015-PN-IO | Hw_Interface | 305 | PLC_1 | |
| BNI_PNT-508-105-Z015-Proxy | Hw_SubModule | 304 | PLC_1 | |
| BNI_PNT-508-105-Z015-Head | Hw_SubModule | 308 | PLC_1 | |
| BNI_PNT-508-105-Z015-BNI_PNT-508-105-Z015_1 | Hw_SubModule | 309 | PLC_1 | |

Figure 5: Balluff BNI005H. Type this value into the “ID_Array[1]” location.

Control

Use the Hardware Identifier from the “Head” Hw_SubModule. Type this number into the [1] slot of the ID_Array found in the “Banner_IOLM_Control_DB” data block.

The screenshot displays the HW Config interface for an IOLM8 [8-PNIO] device. The 'Device overview' table on the right provides a summary of the hardware configuration, including the rack, slot, and I/Q addresses for each module. The 'System constants' table at the bottom lists the hardware identifiers for various components, with the 'IOLM8-Head' highlighted in red.

| Module | Rack | Slot | I address | Q address | Type |
|----------------------------|------|------|-----------|-----------|-------------------|
| IOLM8 | 0 | 0 | | | IO-Link Master |
| Interface | 0 | 0 X1 | | | IO-Link Interface |
| IO-Link In/Out 32 bytes_1 | 0 | 1 | 68...99 | 64...95 | IO-Link In/Out |
| IO-Link In/Out 32 bytes_2 | 0 | 2 | 100...131 | 96...127 | IO-Link In/Out |
| IO-Link In/Out 32 bytes_3 | 0 | 3 | 132...163 | 128...159 | IO-Link In/Out |
| IO-Link In/Out 32 bytes_4 | 0 | 4 | 164...195 | 160...191 | IO-Link In/Out |
| IO-Link In/Out 32 bytes_5 | 0 | 5 | 196...227 | 192...223 | IO-Link In/Out |
| IO-Link In/Out 32 bytes_6 | 0 | 6 | 228...259 | 224...255 | IO-Link In/Out |
| IO-Link In/Out 32 bytes_7 | 0 | 7 | 260...291 | 256...287 | IO-Link In/Out |
| IO-Link In/Out 32 bytes_8 | 0 | 8 | 292...323 | 288...319 | IO-Link In/Out |
| IO-Link In/Out 32 bytes_9 | 0 | 9 | | | IO-Link In/Out |
| IO-Link In/Out 32 bytes_10 | 0 | 10 | | | IO-Link In/Out |

| Name | Type | Hardware identi. | Used by | Comment |
|------------------------|--------------|------------------|---------|---------|
| IOLM8~Interface~Port_1 | Hw_Interface | 274 | PLC_1 | |
| IOLM8~Interface~Port_2 | Hw_Interface | 275 | PLC_1 | |
| IOLM8~Interface | Hw_Interface | 273 | PLC_1 | |
| IOLM8~Proxy | Hw_SubModule | 272 | PLC_1 | |
| IOLM8~Head | Hw_SubModule | 276 | PLC_1 | |

Figure 6: Control IOLM8 PNIO. Type this value into the “ID_Array[1]” location.

Turck

Use the Hardware Identifier from the “Basic_1” Hw_SubModule. Type this number into the [1] slot of the ID_Array found in the “Banner_IOLM_Control_DB” data block.

The screenshot displays the Siemens STEP 7 HW Config interface. The main window shows a rack configuration with a Turck TBEN-L5-8IOL module. The 'Device overview' table on the right lists the modules and their addresses. The 'System constants' table at the bottom lists the hardware identifiers for each module, with 'tben-Basic_1' highlighted in red.

| Module | Rack | Slot | I address | Q address |
|--------------------------|------|-----------|-----------|-----------|
| tben | 0 | 0 | | |
| PN-HO | 0 | 0 X1 | | |
| Basic_1 | 0 | Basic | 33...36 | 33...34 |
| | 0 | IO-Lin... | | |
| | 0 | IO-Lin... | | |
| | 0 | IO-Lin... | | |
| | 0 | IO-Lin... | | |
| | 0 | IO-Lin... | | |
| IN 32 BYTE/OUT 32 BYTE_1 | 0 | IO-Lin... | 356...387 | 352...383 |
| | 0 | IO-Lin... | | |
| | 0 | Diagn... | | |
| | 0 | IO-Lin... | | |

| Name | Type | Hardware identi. | Used by | Comment |
|-------------------|--------------|------------------|---------|---------|
| tben-PN-HO-Port_1 | Hw_Interface | 298 | PLC_1 | |
| tben-PN-HO-Port_2 | Hw_Interface | 299 | PLC_1 | |
| tben-PN-HO | Hw_Interface | 297 | PLC_1 | |
| tben-Proxy | Hw_SubModule | 296 | PLC_1 | |
| tben-Head | Hw_SubModule | 300 | PLC_1 | |
| tben-Basic_1 | Hw_SubModule | 301 | PLC_1 | |

Figure 3: Turck TBEN-L5-8IOL. Type this value into the “ID_Array[1]” location.

Siemens

Use the Hardware Identifier from the “CM_4xIO-Link_1” Hw_SubModule. Type this number into the [1] slot of the ID_Array ID_Array found in the “Banner_IOLM_Control_DB” data block.

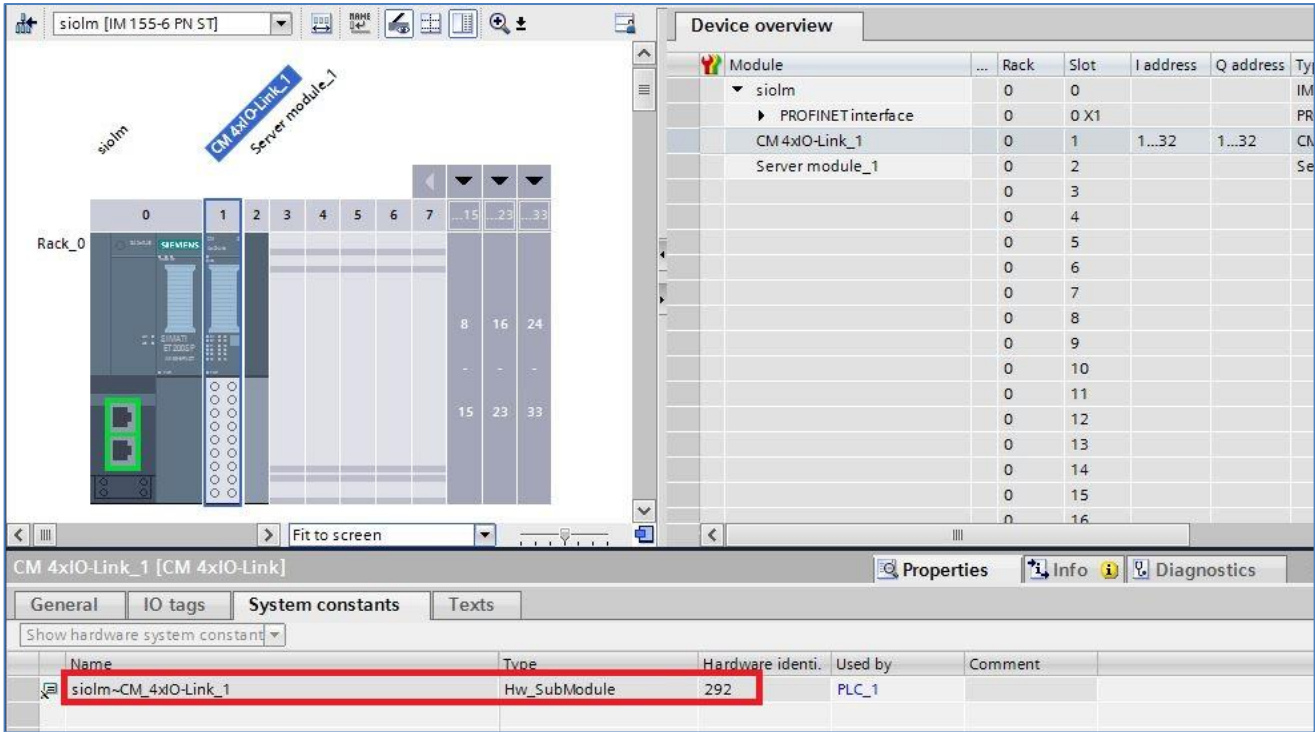
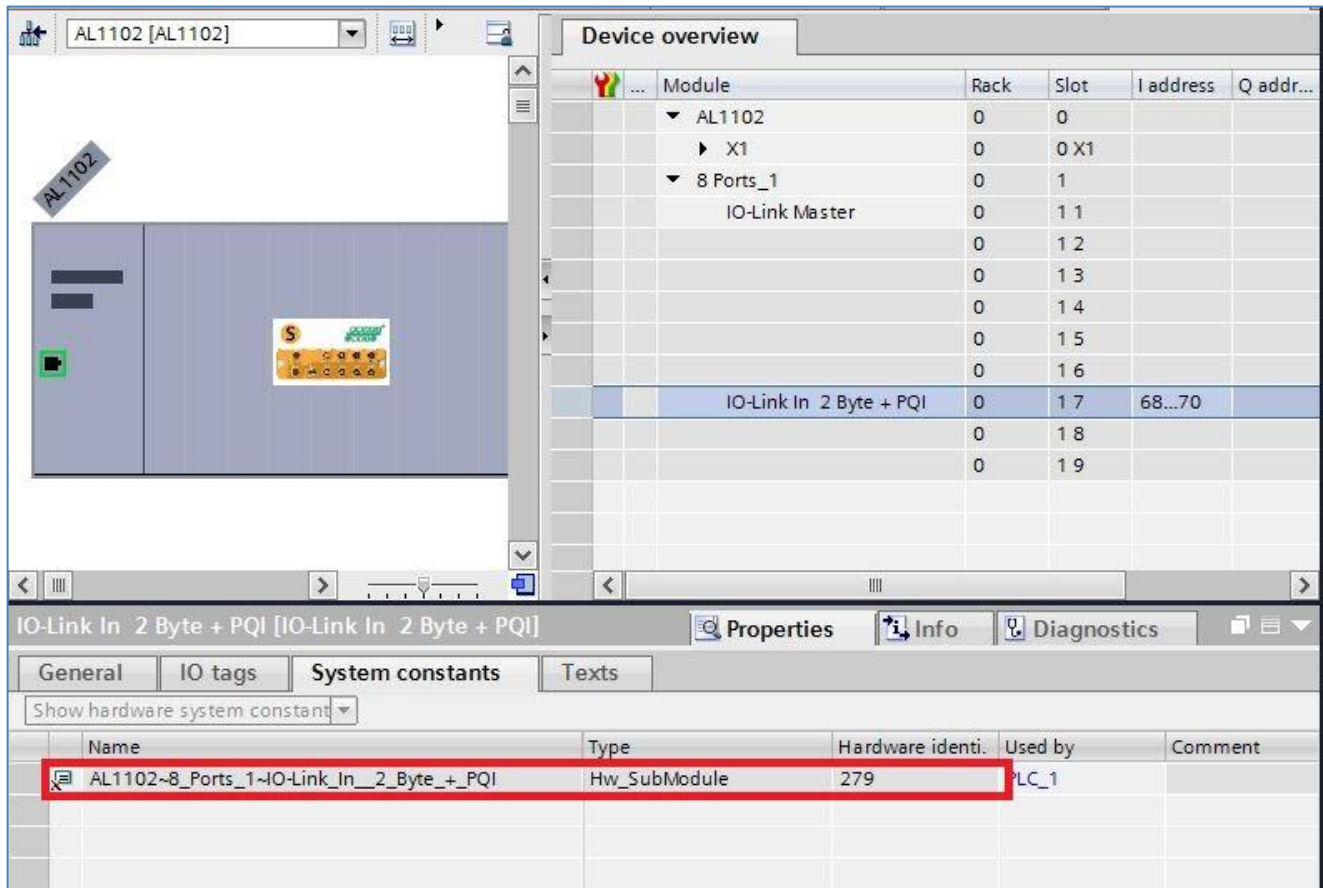


Figure 4: Siemens CM 4xIO-Link Master on ET-200SP. Type this value into the “ID_Array[1]” location.

ifm

Use the Hardware Identifier from the port to which the IO-Link Device you wish to control is connected Hw_SubModule. Each port is a different Hardware identifier. You will need to populate the ID_Array, found in the “Banner_IOLM_Control_DB” data block, with the correct values. In the example below, port 6 on the master has a Hardware ID of “279”. Thus, the [6] entry in the ID_Array variable should be set to “279”.



The screenshot displays the WLS Pro software interface. On the left, a diagram of the AL1102 module is shown. On the right, the 'Device overview' table lists the modules and their hardware identifiers. The 'System constants' table at the bottom shows the hardware identifier for the selected module, which is 279.

| Module | Rack | Slot | I address | Q addr... |
|-------------------------|------|------|-----------|-----------|
| AL1102 | 0 | 0 | | |
| X1 | 0 | 0 X1 | | |
| 8 Ports_1 | 0 | 1 | | |
| IO-Link Master | 0 | 1 1 | | |
| | 0 | 1 2 | | |
| | 0 | 1 3 | | |
| | 0 | 1 4 | | |
| | 0 | 1 5 | | |
| | 0 | 1 6 | | |
| IO-Link In 2 Byte + PQI | 0 | 1 7 | 68...70 | |
| | 0 | 1 8 | | |
| | 0 | 1 9 | | |

| Name | Type | Hardware identi. | Used by | Comment |
|---|--------------|------------------|---------|---------|
| AL1102~8_Ports_1~IO-Link_In__2_Byte_+_PQI | Hw_SubModule | 279 | LC_1 | |

Figure 5: ifm AL1102: each port on the ifm IO-Link Master has its own Hardware ID. Type these values into the correct “ID_Array[x]” location, where ‘x’ is the port number in question ([6] here, as the ports are labeled 2 through 9).