SENSOR PARTNERS SMP 7400-IO IO-Link Communication Port Retroreflective Photocell User Manual

Contents

SENSOR PARTNERS

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Product Information

Specifications:

- **Model:** SMP 7000-IO
- **Series:** Space Master Series
- **Type:** Photoelectric diffuse proximity sensors with IO-link
- **Supply Voltage:** 10-30 V dc
- **Output Mode:** Light/dark
- **Sensing Range:** 50 cm and 1 m adjustable

Product Usage Instructions

FAQ

- **Q: How do I adjust the output mode?**
  A: You can adjust the output mode either through the integral light/dark switch or via the IO-Link. Refer to the Output Logic table for guidance.
- **Q: What is the recommended supply voltage for the SMP 7000-IO?**
  A: The recommended supply voltage is 10-30 V dc for the SMP 7000-IO sensor.

Product Data

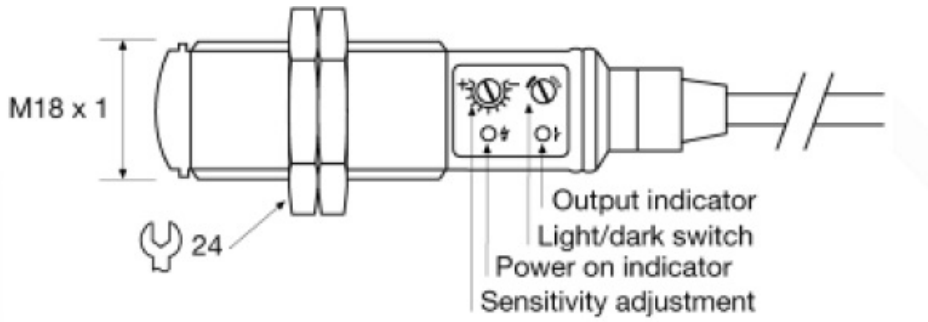
Electrical Data	
Supply Voltage	10 – 30 V dc
Voltage ripple	+/- 15 %
Current consumption	30 mA
Max. output load	200 mA / 30 V dc
Reverse polarity protected	Yes
Short circuit protected	Yes

Environmental Data	
Temperature, operation	-20 to +60 ºC
Sealing class	IP 67
Approvals	UK CA CE

Available Models					
	Model	Supply Voltage	Output	Output Mode	Sensing Range
Diffuse Proximity	SMP 7400-IO xx x	10-30 V dc	IO-Link/NPN	Light/dark	50 cm, adjustable*
	SMP 7500-IO xx x		IO-Link/PNP		
	SMP 7401-IO xx x		IO-Link/NPN		1 m adjustable*
	SMP 7501-IO xx x		IO-Link/PNP		

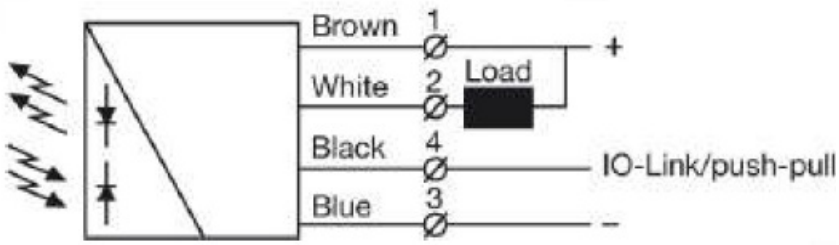
Note: Measured against matt white A4 paper.

Illustration

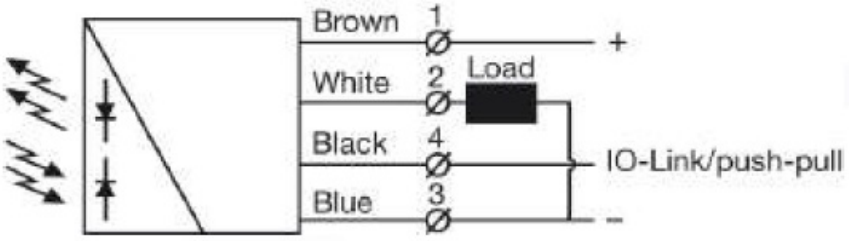


Connection

Wiring Diagrams

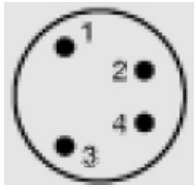
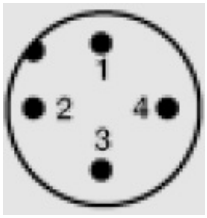


SMP 740x-IO
Load as NPN



SMP 750x-IO
Load as PNP

Connection Pins

Connection Pins			
		4 pin, M8 plug	4 pin, M12 plug
Supply +	Brown	Pin 1	Pin 1
Supply –	Blue	Pin 3	Pin 3
IO-Link	Black	Pin 4	Pin 4
Control/Output	White	Pin 2	Pin 2
		 Sensor plug	 Sensor plug

Mounting & Installation

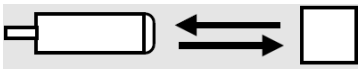
Mounting & Installation	
1	Position the sensor pointing at the target object.
2	Align by moving sensor horizontally and vertically until the output changes when the target object is pre sent (refer to Output Logic table).
3	Fasten the sensor securely using the enclosed locking nuts and/or a mounting bracket. Avoid acute an gles on cable close to the sensor.

Adjustments

General
Sensitivity and output mode can be adjusted using the potentiometers or with the IO-Link. The IO-Link allows the user to setup and read several functions and parameters. Please refer to “SMP and PC connection” on the following page.

Output Mode Selection
The output mode can be selected via an integral light/dark switch, or via IO-Link. Refer to Output Logic table for output mode reference. Note that the NPN output is closed when IO-Link/push pull is low, and the yellow output LED is off.

Light Operated (N.O.)	Enables the output to be active when there is an object present.	Turn switch to full clockwise position, or set: • Overwrite light operated = true • Light operated = true in the Parameters tab.
Dark Operated (N.C.)	Enables the output to be inactive when there is an object present.	Turn switch to full counter clockwise position, or set: • Overwrite light operated = *true* • Light operated = *false* in the Parameters tab.

Output Logic					
Detection	Output mode	Output status			Yellow LED
		IO-Link	PNP	NPN	
Object present 	Dark operated (N.C.)	Low	Open	Closed	Off
	Light operated (N.O.)	High	Closed	Open	On
Object absent 	Dark operated (N.C.)	High	Closed	Open	On
	Light operated (N.O.)	Low	Open	Closed	Off

Sensitivity Adjustment
Maximum sensitivity can be used for most applications and is advised for applications with contaminated environments. The sensitivity can be adjusted on the potentiometer (factory default active) or via IO-Link. Sensitivity adjustment may be required in applications where objects to be detected have highly reflective, dark, or textured surfaces and/or applications where a background is present. This can be achieved manually or via IO-Link.

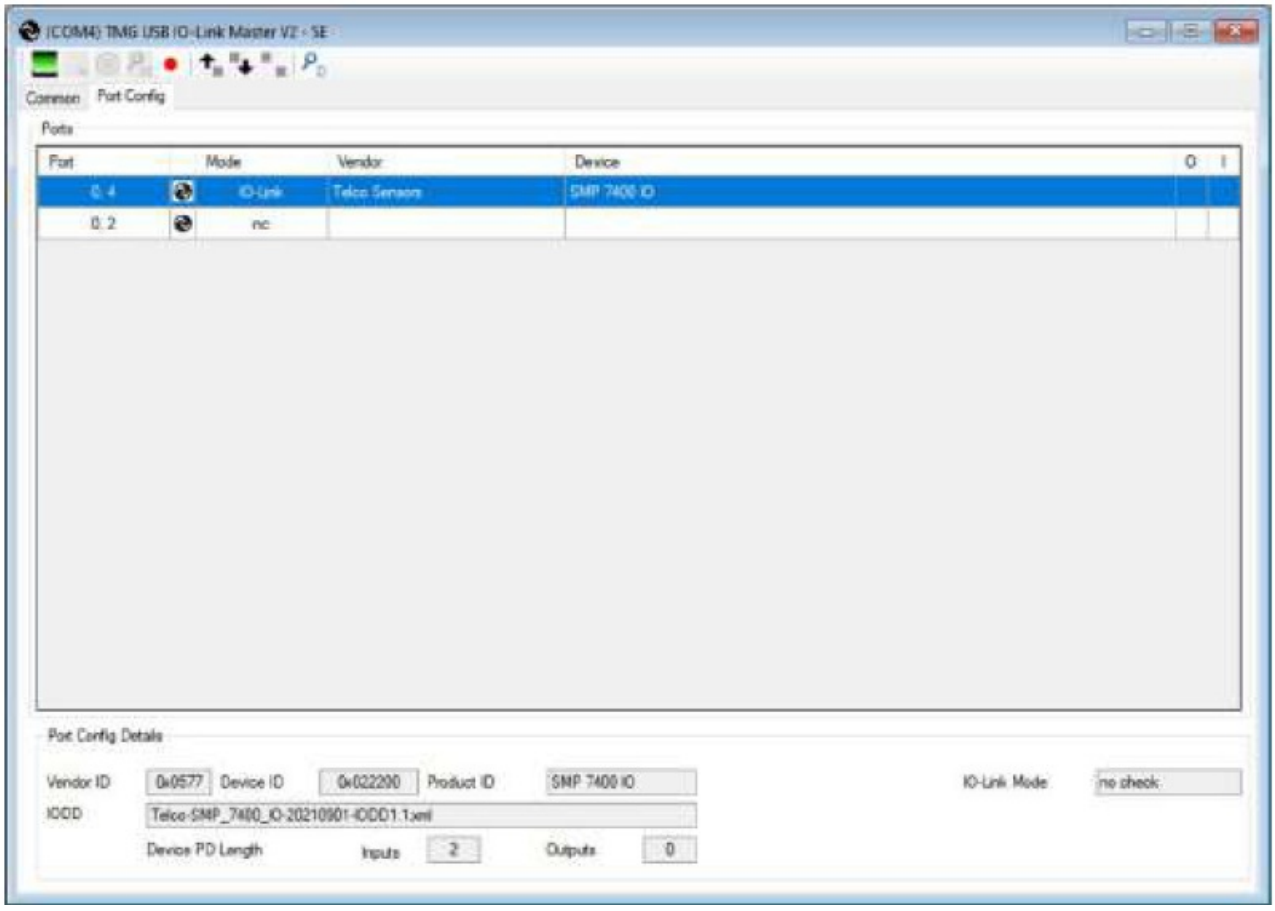
For sensitivity adjustment, proceed with the following steps:

1	Start with the sensitivity at minimum by turning the potentiometer to full counter clockwise position.
2	Select target object with the smallest dimensions and least reflective surface.
3	Place target object in front of sensor.
4	Via potentiometer: Increase the sensitivity by turning the potentiometer clockwise until the target obj ect is detected and the output status changes (Position 1)Via IO-Link: Press the System Command Teach gain button in the parameter tab. This will adjust and determinate the best sensitivity level, in dependently of the predefined gain.If the output has not changed, attempt to move sensor closer to target object and repeat procedure.
5	If there is a background proceed to step 7. If there is no background proceed to step 6.
6	Turn the potentiometer clockwise to a position midway between Position 1 and maximum clockwise position.
7	Remove target object. If the output changes, proceed to step 8. If the output has not changed, a ba ckground is detected. Proceed to step 10
8	Turn the potentiometer clockwise until the output status changed (Position 2). A background is now detected.
9	Turn the potentiometer counter clockwise to a position midway between Position 1 and Position 2.
10	If the background is still detected and the output has not changed, attempt to angle the sensor in rel ation to the plane of the background. Then repeat procedure from step 1.

Warning
This device is not to be used for Personnel Protection in Machine Guarding Safety applications. This device does not include the self checking redundant circuitry necessary to allow its use in personnel machine guarding stand-alone safety applications.

SMP and PC connection

To setup or adjust an SMP, it is required to use TMG IO-Link Device Tool together with TMG-USB IO-Link Master, or another IO-Link PC application.



How to connect

Connect the TMG-USB IO-Link Master USB-adapter to the USB-port of the PC and to the cable of the SMP. Download the IO-Link Device Tool software and the SMP-IODD file from the Telco Sensors website in

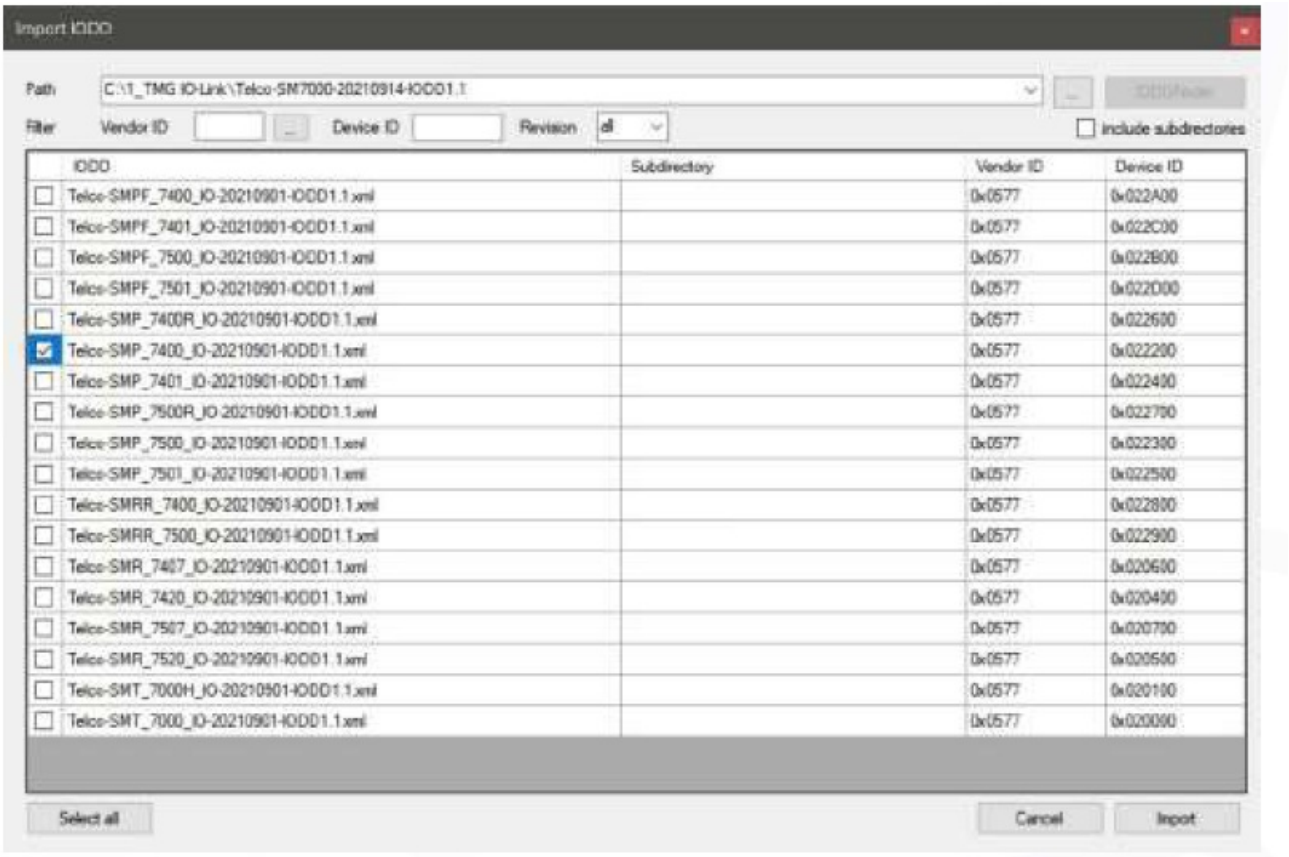
https://www.telcosensors.com/downloads selecting Software in Document type section. Install the TMG IO-Link Device Tool V5.1.1-5122 SE – Setup file and run the program. Import the SMP-IODD by selecting “Import IODD” in the Options menu, previously downloaded. Click on “Search Master” and select the Master in the popup window.

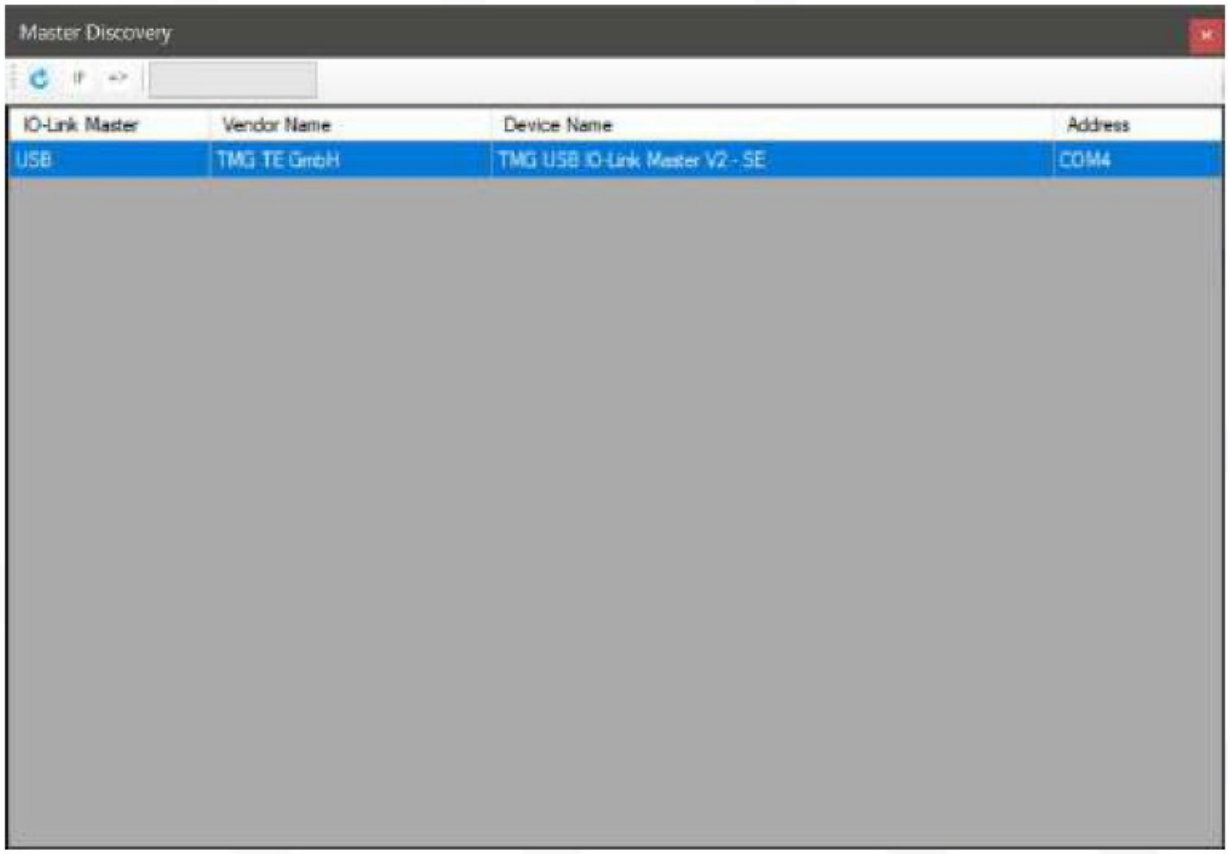
Click on “Go Online” .

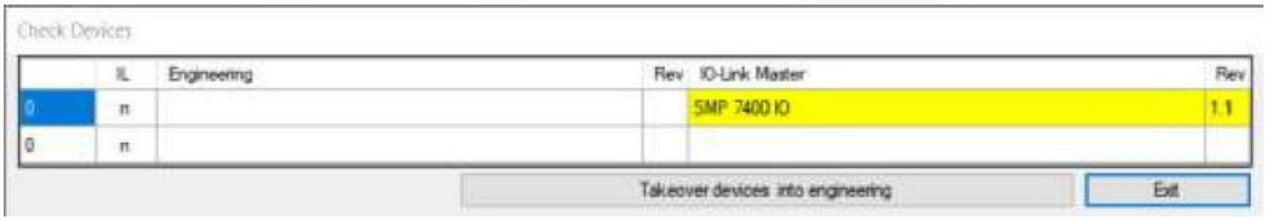
Click on “Check Devices” .
Click on “Takeover devices into engineering” to go to the SMP device.
Double click on the row with the SMP, to open the Device menu.

Click on “Upload from Device” to upload the SMP settings.
For more information see TMG’s User Manual for the IO-Link Device Tool.

Popup windows:







Warning
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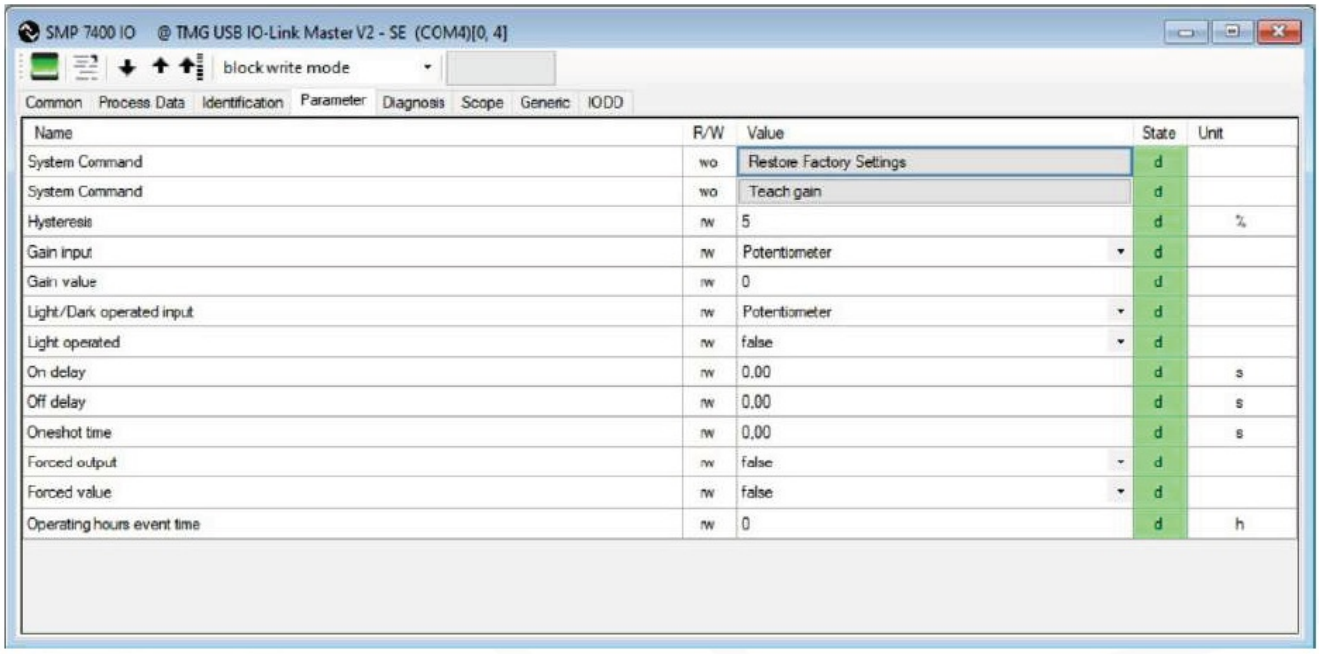
Parameters

On the Parameter tab, the parameters of the sensor can be set up or modified.

General settings SMP:



System Command – Restore Factory Settings
Restores all user-settings to default values.

System Command – Teach Gain
Determines the lowest possible gain to turn on.

Hysteresis
The relative difference between on and off threshold. In both IO-Link and Potentiometer gain input it is possible to set the Hysteresis level. It can be set from 0 to 10%.

Gain input
Select how the gain should be controlled. Select between Potentiometer or IO-Link. IO-Link is set by the Gain value setting. Keep objects out of the detection area when switching to automatic gain mode, because the initial setting of the beam requires information about signal strength for an unbroken beam. Excess gain is adjusted to about 2.

Gain value
Select a fixed gain when IO-Link is selected for Gain input. It can be set from 0 to 255.

Light/Dark operated input.
How the light/dark operated should be determined. Select between Potentiometer or IO-Link.IO-Link is set by the “Light operated” value setting. Potentiometer is set by the potentiometer on the sensor.

Light operated
Select between true or false.
Changing the selection will invert the outputs, if the Overwrite light operated is true.

On delay
Select the delay of the output when an object appears, i.e., becomes present. It can be set from 0,00 to 600,00 seconds.

Off delay
Select delay of the output when an object disappears, i.e., becomes absent. It can be set from 0,00 to 600,00 seconds.

Oneshot time
Select how long the outputs will be active for when going from not active to active. It can be set from 0,00 to 600,00 seconds.

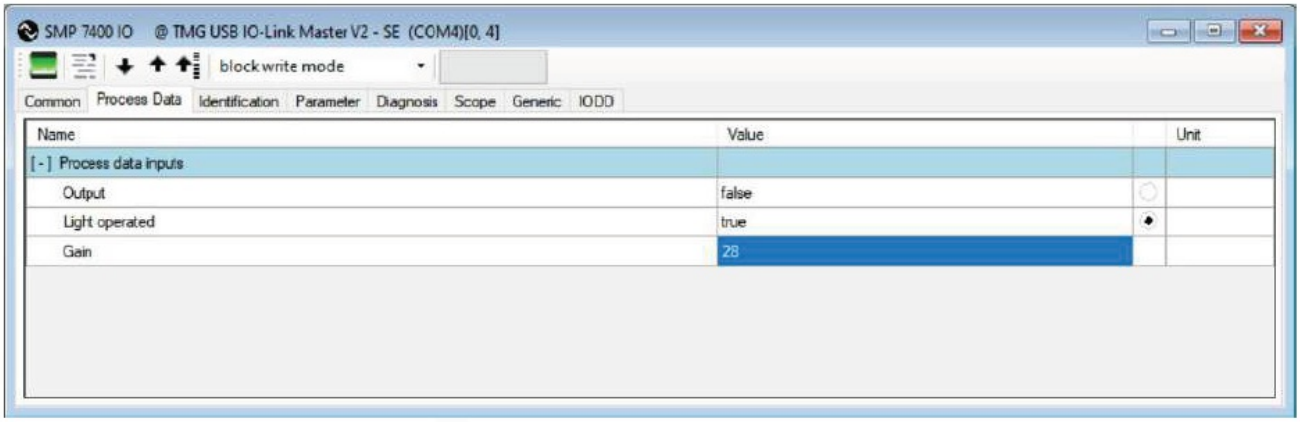
Forced output.
Select if the output should be forced to the value in Forced value or decided from the sensor input.

Forced value
Select the output state if the Forced output is true.

Operating Hours Event Time
Starts an event message when operating hours reaches the value. It can be set from 0 to 4294967295. If 0 is selected there will be no operating hours event.

Process Data

Process data SMP:



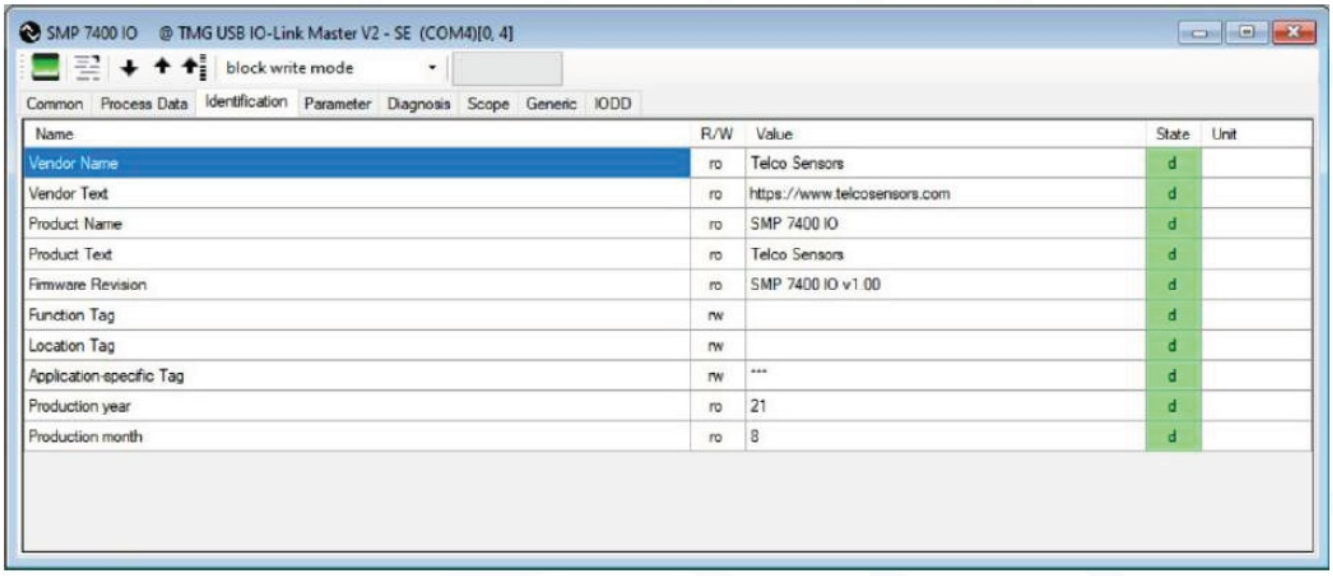
Output
Status on the output.

Light Operated
Status on the light operated selection.

Gain
Status on the gain value.

Identification

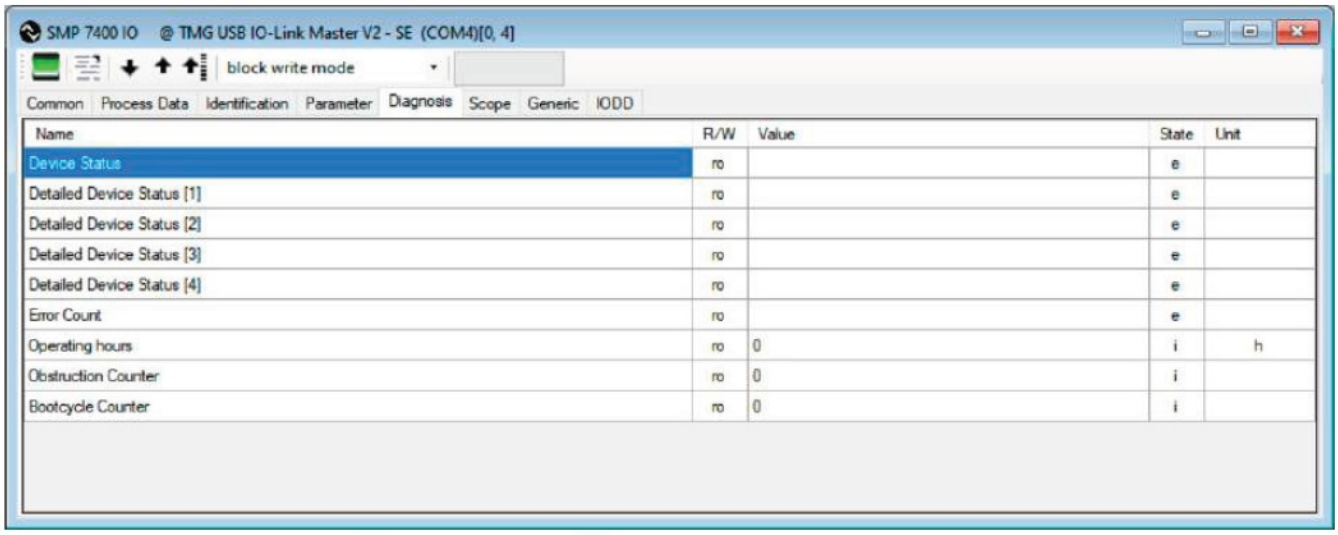
On the identification tab, general information about the sensor is displayed.



Function Tag, Location Tag and Application-specific Tag
Enter user specific descriptions for identification.

Diagnosis

The detailed device status can contain the following events:



Event: Operating Hours
If the Operating Hours Event Time is exceeded.

Warning: Signal Alarm
If the signal is less than 40% excess gain for more than 5 minutes.

Error: Potentiometer Fail
If there is a hardware fail on the gain setting.

Warning: Signal low
If the signal is too low to complete the automatic teaching.

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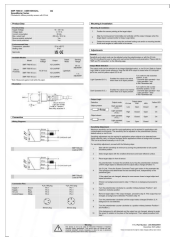
- BANK N 1.93 HAN D0784527083
- KVK 18128491

Documents / Resources

	**SENSOR PARTNERS SMP 7400-IO IO-Link Communication Port Retroreflective Photocell** [pdf] User Manual SMP 7400-IO IO-Link Communication Port Retroreflective Photocell, SMP 7400-IO, IO-Link Communication Port Retroreflective Photocell, Communication Port Retroreflective Photocell, Port Retroreflective Photocell, Photocell

References

- Downloads - Telco Sensors
- User Manual