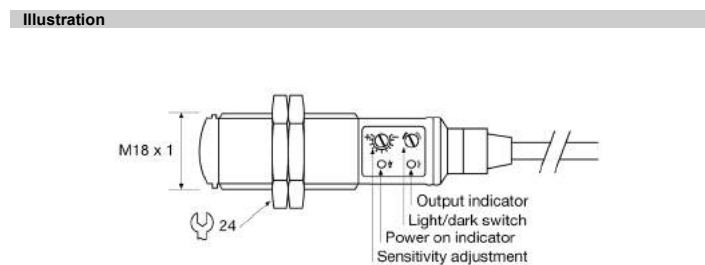


Product Data		
Electrical Data		
	Transmitter	Receiver
Supply Voltage	10 – 30 V dc	
Voltage ripple	+/- 15 %	
Current consumption	25 mA	30 mA
Max. output load	-	200 mA / 30 V dc
Reverse polarity protected	Yes	
Short circuit protected	Yes	
Environmental Data		
Temperature, operation	-20 to +60 °C	
Sealing class	IP 67	
Approvals	CE	

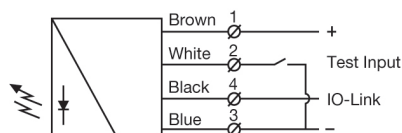
Available Models					
	Model	Supply Voltage	Output	Output Mode	Sensing Range
Transmitter	SMT 7000 IO xx x	10-30 V dc	IO-Link	-	20 m
	SMT 7000H IO xx x				40 m
Diffuse Proximity	SMR 7407 IO xx x		IO-Link/NPN	Light/dark	0 – 7 m
	SMR 7507 IO xx x		IO-Link/PNP		0 – 14 m*
	SMR 7420 IO xx x		IO-Link/NPN		0 – 20 m
	SMR 7520 IO xx x		IO-Link/PNP		0 – 40 m*

*Note: Sensing Range achieved in combination with the SMT 7000H IO xx x

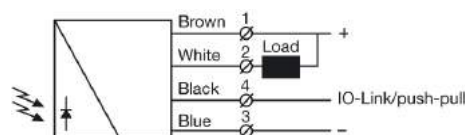


Connection

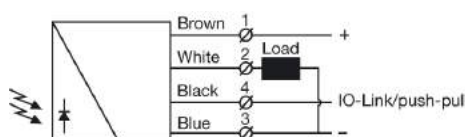
Wiring Diagrams



Transmitter	SMT 7000x IO
-------------	--------------



Receiver	SMR 74xx IO Load as NPN
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Receiver	SMR 75xx IO Load as PNP
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Transmitter Model	Pin 2 connected to (-)	Pin 2 not connected	Pin 2 connected to (+)
SMT 7000x IO xx	Not transmitting	Transmitting	Transmitting

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
Test Input	White	Pin 2	Pin 2



Sensor plug



Sensor plug

Mounting & Alignment





Mounting & Alignment	
1	Mount the transmitter and receiver sensors facing each other. Make sure the distance between the sensors does not exceed the specified sensing range of the system.
2	Wire the sensor pair according to the wiring diagram
3	Check for correct wiring before turning power on.
4	Align the sensors by moving either the transmitter or receiver sensor horizontally and vertically until the output is: - Deactivated when no object is present. (Dark operated) - Activated when no object is present. (Light operated)
5	Fasten the transmitter and receiver sensors securely using the enclosed locking nuts and/or a mounting bracket. Avoid acute angles on cable close to the sensor.

Adjustments

General
 Sensitivity and output mode can be adjusted using the potentiometers or via the IO-Link. The IO-Link allows the user to setup and read several functions and parameters. Please refer to "SMT/R 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.C.)	Enables the output to be inactive when there is an object present.	Turn switch to full clockwise position, or set: - Overwrite light operated = true - Light operated = true
Dark Operated (N.O.)	Enables the output to be active when there is an object present.	Turn switch to full counter clockwise position, or set: - Overwrite light operated = true - Light operated = false

Output Logic		Output status			
Detection	Output mode	IO-Link	PNP	NPN	Yellow LED
Object absent	Dark Operated (N.O.)	Low	Open	Closed	Off
 → 	Light operated (N.C.)	High	Closed	Open	On
Object present	Dark Operated (N.O.)	High	Closed	Open	On
 → 	Light Operated (N.C.)	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 are small or translucent. This can be achieved manually, or via IO-link. Proceed with the following steps:

1	Set the gain to maximum by turning the potentiometer to full clockwise position, or by setting the Gain value to 255.
2	Select target object with the smallest dimensions and most translucent surface.
3	Decrease the gain by turning the potentiometer counter clockwise or decrease the Gain value to a lower value until the output changes. If the output has not changed, attempt to move the receiver and transmitter further apart. Then repeat procedure from step 1
4	Remove target object. Check output status has changed.

Test Input	
Enable transmitter	The transmitter can be externally disabled and enabled via the control wire or IO-link, for test purposes*. The test input requires the control wire to be connected to - (negative) supply wire for manual control. Make sure no object is present in the detection area when transmitter is disabled for test. When the transmitter is disabled, the receiver should change output. Open (off) control switch (connected to +, or not connected), or set Forced Ctrl. input to IO-link and set Forced Ctrl. input value to false under the Parameter tab, if the device is connected to an IO-link master.
Disable transmitter	Close (on) control switch (connected to -) or set Forced Ctrl. input to IO-link and set Forced Ctrl. input value to true under the Parameter tab, if the device is connected to an IO-link master.

Note: If the test input is not to be used, it is recommended to connect the control wire to+ (positive) supply wire.

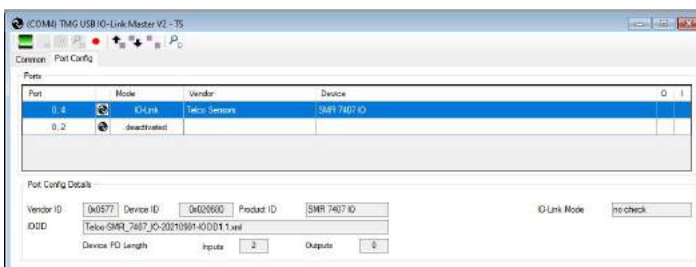
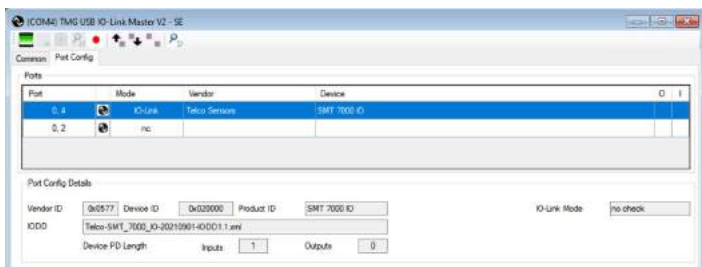
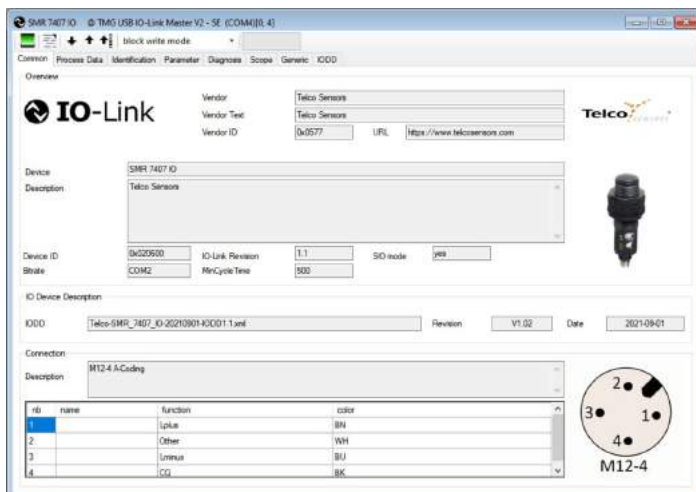
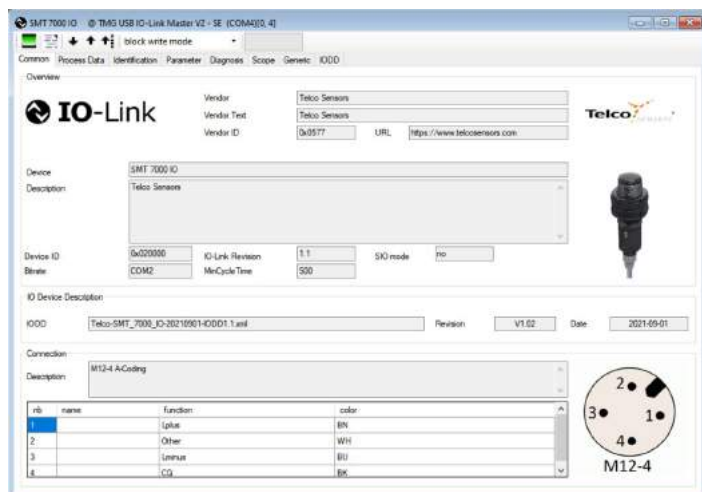
*Note: Some IO-link masters connect Pin 2 to ground, which necessitates the user to disable the control pin via IO-link before the transmitter can function.



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.

SMT/R and PC connection

To setup or adjust an SMT/R, 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 SMT/R.

Download the IO-Link Device Tool software and the SMT/R-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 SMT/R-IODD by selecting "Import IODD" in the Options menu, previously downloaded.

Click on "Search Master" and select the Master in the popup window.

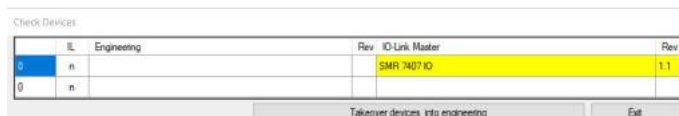
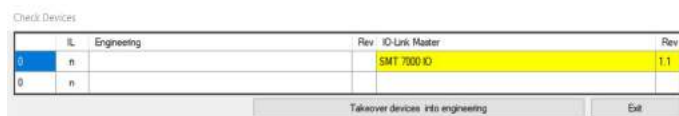
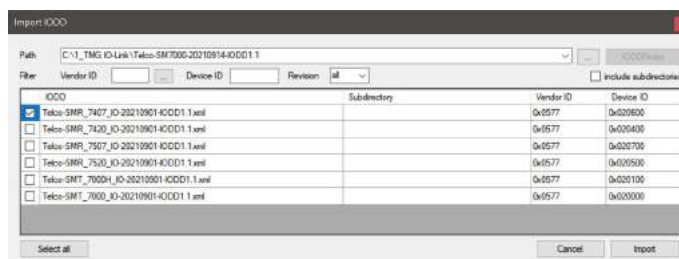
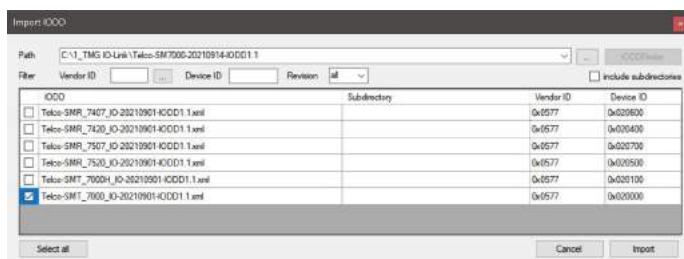
Click on "Go Online" .

Click on "Check Devices" .

Click on "Takeover devices into engineering" to go to the SMT/R device.
 Double click on the row with the SMT/R, to open the Device menu.

Click on "Upload from Device"  to upload the SMT/R settings.
 For more information see TMG's User Manual for the IO-Link Device Tool.

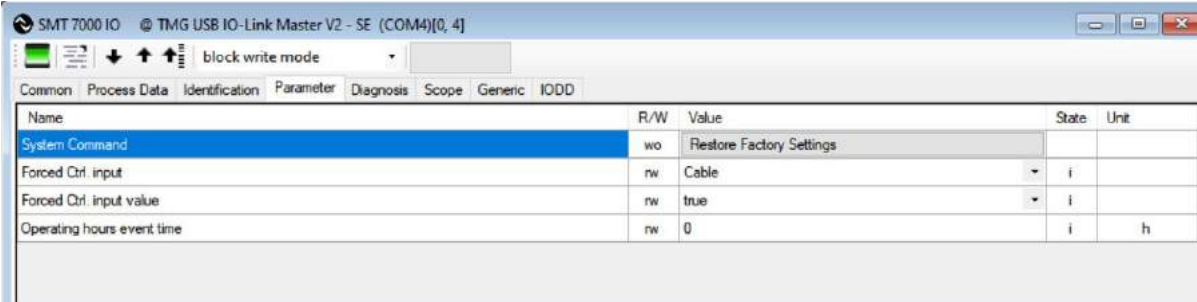
Popup windows:



Parameters

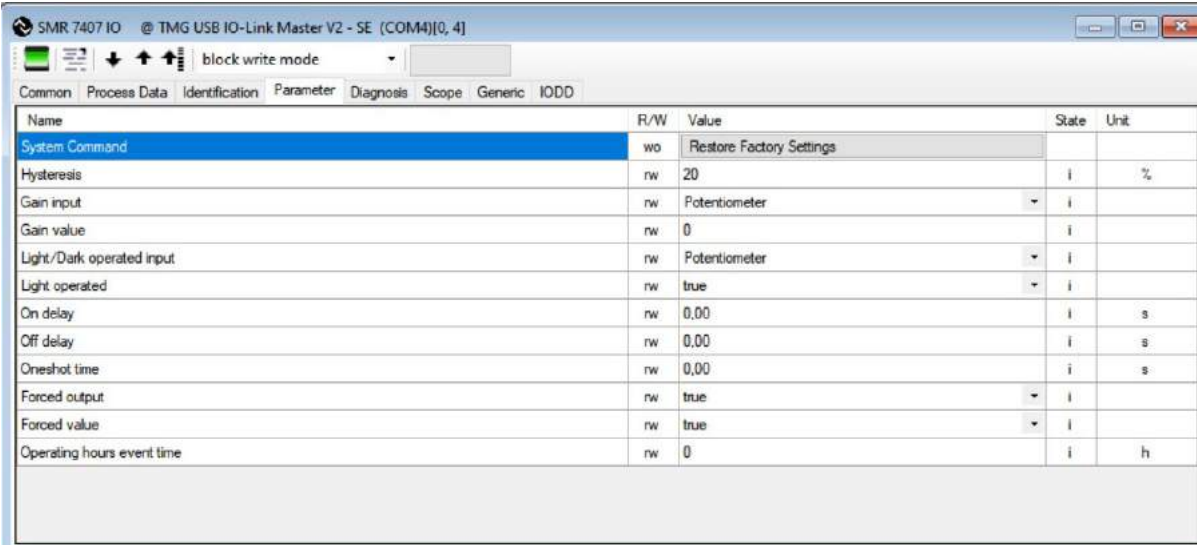
On the Parameter tab, the parameters of the sensor can be set up or modified.

General settings SMT:



Name	R/W	Value	State	Unit
System Command	wo	Restore Factory Settings		
Forced Ctrl. input	rw	Cable	i	
Forced Ctrl. input value	rw	true	i	
Operating hours event time	rw	0	i	h

General settings SMR:



Name	R/W	Value	State	Unit
System Command	wo	Restore Factory Settings		
Hysteresis	rw	20	i	%
Gain input	rw	Potentiometer	i	
Gain value	rw	0	i	
Light/Dark operated input	rw	Potentiometer	i	
Light operated	rw	true	i	
On delay	rw	0,00	i	s
Off delay	rw	0,00	i	s
Oneshot time	rw	0,00	i	s
Forced output	rw	true	i	
Forced value	rw	true	i	
Operating hours event time	rw	0	i	h

System Command - Restore Factory Settings

Restores all user-settings to default values.

Forced Ctrl. Input.

Select if the Ctrl. Input value should be forced to the value in Forced Ctrl. Input value or determined from the Ctrl. Input cable of the sensor.

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 40%.

Gain input

Select the gain should be controlled. Select between Potentiometer, IO-Link and Auto. 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.



Warning

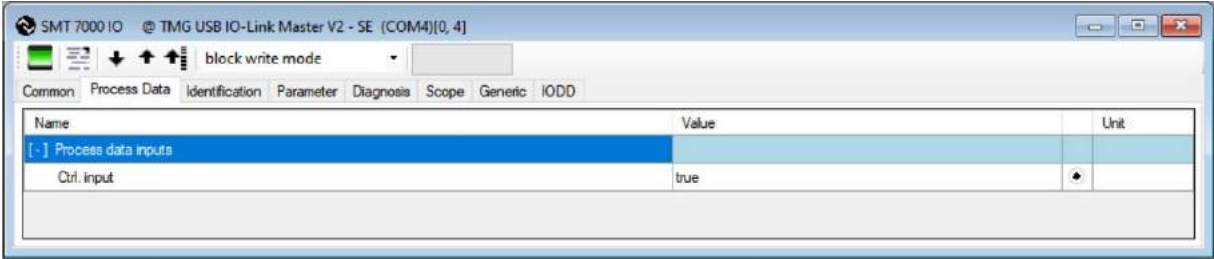
This device is not to be used for Personnel Protection in Machine Guarding Safety applications. This device does not include the self-checking redundant circuitry necessary to allow its use in personnel machine guarding stand-alone safety applications.

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

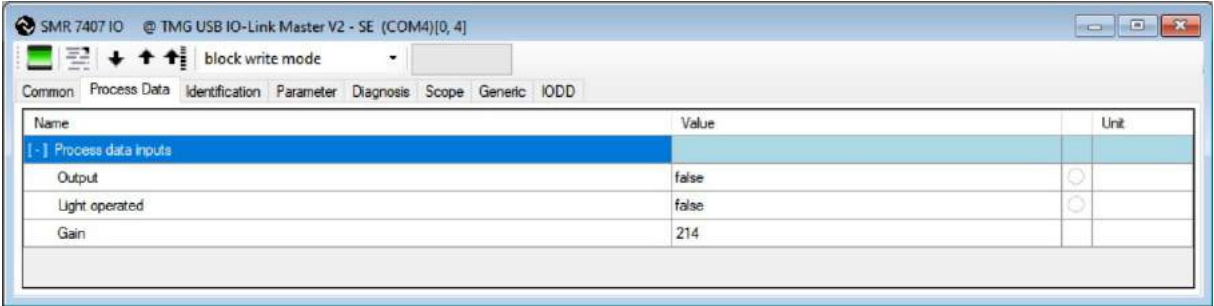
Process data SMT:



The screenshot shows the 'SMT 7000 IO' window with the 'Process Data' tab selected. The table displays the following data:

Name	Value	Unit
[-] Process data inputs		
Ctrl. input	true	

Process data SMR:



The screenshot shows the 'SMR 7407 IO' window with the 'Process Data' tab selected. The table displays the following data:

Name	Value	Unit
[-] Process data inputs		
Output	false	
Light operated	false	
Gain	214	

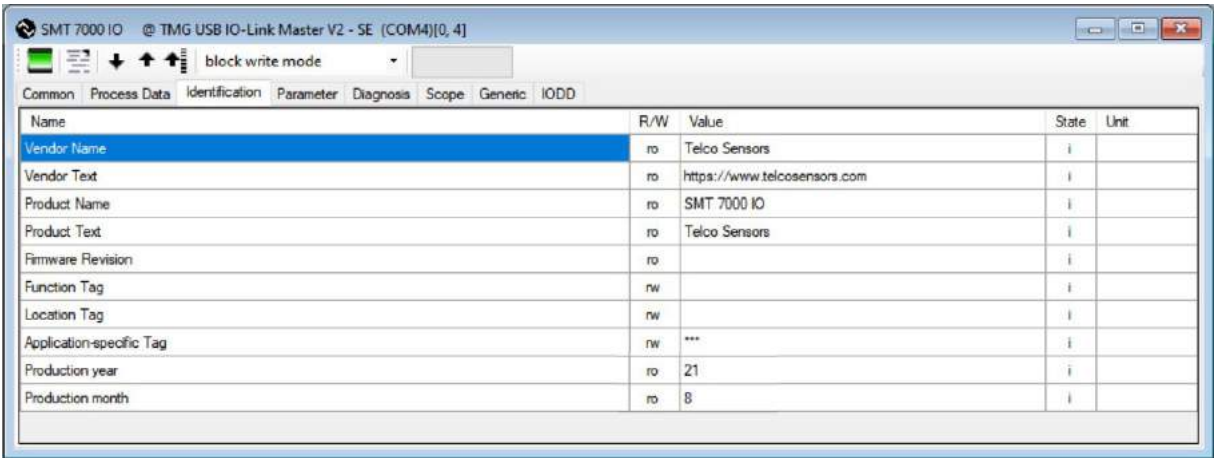
Output
Status on the output.

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.



The screenshot shows the 'SMT 7000 IO' window with the 'Identification' tab selected. The table displays the following data:

Name	R/W	Value	State	Unit
Vendor Name	ro	Telco Sensors	i	
Vendor Text	ro	https://www.telcosensors.com	i	
Product Name	ro	SMT 7000 IO	i	
Product Text	ro	Telco Sensors	i	
Firmware Revision	ro		i	
Function Tag	rw		i	
Location Tag	rw		i	
Application-specific Tag	rw	***	i	
Production year	ro	21	i	
Production month	ro	8	i	

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



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.