Product Data

Electrical Data

	SST (Transmitter)	SSR (Receiver)
Supply voltage	12 – 30 V dc	
Max. Voltage ripple	15 % (within supply range)	
Current consumption	100 mA (RMS)	50 mA
Max. output load (Q1)	-	100 mA
Reverse polarity protected	Yes	
Short circuit protected	Yes	
Inductive load protection	-	Yes

Environmental Data

Light immunity @5º incidence	> 100.000 lux
Temperature, operation	-30 to + 60 ºC
Sealing class	IP 67
Marking	UK CA CE

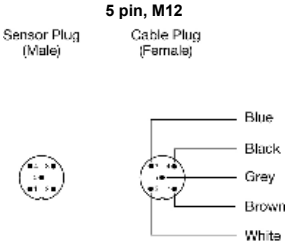
Available Models

	Model	Beam spacing	Sensing Range
Transmitter	SST 01-10-xxx-xxx-05-H-1D1-0.5-J5	5 mm	10 m
	SST 01-10-xxx-xxx-10-H-1D1-0.5-J5	10 mm	
	SST 01-10-xxx-xxx-20-H-1D1-0.5-J5	20 mm	
Receiver	SSR 01-10-xxx-xxx-05-H-IO-0.5-J5	5 mm	0 m – 4 m or 1 m – 10 m
	SSR 01-10-xxx-xxx-10-H-IO-0.5-J5	10 mm	
	SSR 01-10-xxx-xxx-20-H-IO-0.5-J5	20 mm	

Connection

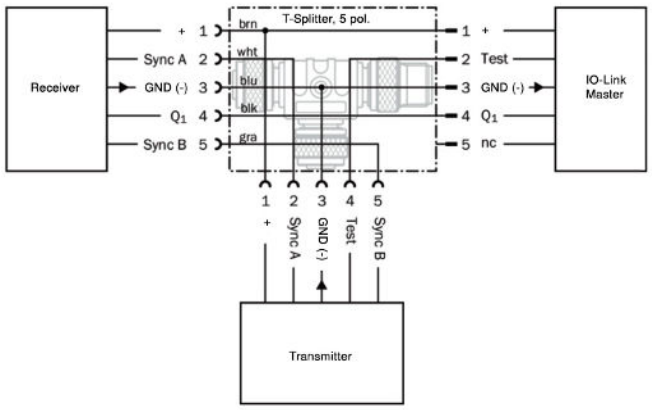
Wiring Diagrams

5 pin, M12



SST and SSR 5 pole M12 male connector

Transmitter Model	Black wire connected to (-)	Black wire not connected	Black wire connected to (+)
SST 01-10-xxx-xxx-xx-H-1D1-0.5-J5	not transmitting	transmitting	transmitting



Installation & Adjustments

Installation

The light curtain is configured by the PC program 'IO-Link Device Tool V5.1' from TMG, described in the following pages. Before using it, check the power supply complies with electrical data.

1	Mount the transmitter (SST) and receiver (SSR) facing each other and correctly aligned.
2	Wire the sensor according to the wiring diagram. Notice that the pin 3 on the SSR and the pin 3 on SST (blue wires) must be connected to a common GND (–). Make sure the SSR output load does not exceed 100 mA.
3	Check for correct wiring before turning power on.
4	When the power on indicator (green LED) on SSR and SST is on, the system is operating.
5	The position of the receiver and transmitter must not be changed after power-up. The light curtain is only intended for static applications.

SST Test Input

The transmitter SST can be externally disabled and enabled via the black control wire for test purposes. When the transmitter is disabled the action of the receiver corresponds to breaking all beams.

Indicators

SSR	Red LED	Status indicator
SSR	Yellow LED	Follows state of Digital Output 1
SSR & SST	Green LED	Power on indicator

Troubleshooting

Probable Reason	Corrective Action
1. Symptom: Status indicator (Red LED) on SSR is constant on.	
SST has no power.	Check supply and supply cable to the SST
SST & SSR white, grey and blue wires are not connected correctly.	Connect the wires.
2. Symptom: Output indicator (Yellow LED) on SSR is flashing.	
Severe electrical interference.	Separate SSR and SST supply cable from high voltage cables.
Severe ambient light.	Swap position of SSR and SST.
Cross talk from another light curtain or photo sensor	Swap position of SSR and SST.
Cross talk from a nearby HF strip light	Swap position of SSR and SST or remove the strip light.
3. Symptom: Digital outputs do not response when IR beams are obstructed.	
One or more beams are blocked, or the rails are out of sensing range.	Remove obstruction or reduce the distance between the rails.
The test input on SST is activated	Remove SST pin 4 (black wire) from ground.
Outputs are not configured for simple detection of obstructions	If needed, factory reset the SSR using the Parameter tab in the PC program '

Website: www.telcosensors.com
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Made in Denmark

Warning
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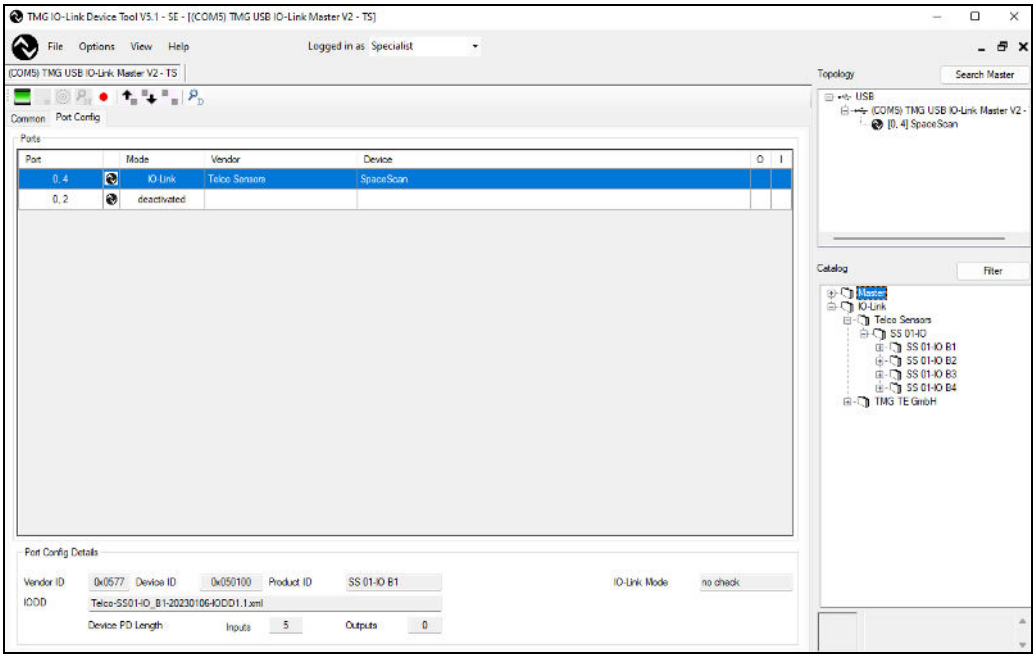
V 1.4 Part Number: 0666220975
June 2023 edition

SSR 01-IO and PC connection

To setup or adjust a SS 01-IO, it is required to use TMG IO-Link Device Tool together with TMG-USB IO-Link Master, or another IO-Link PC application with its USB-adaptor.



How to connect

Connect the TMG-USB IO-Link Master USB-adaptor to the USB-port of the PC and to the cable of the SS 01-IO.

Please contact to your Telco Sensors supplier for the IODD files and TMG IO-Link Device Tool.
Install the TMG IO-Link Device Tool V5.1.1-5122 SE – Setup file and run the program.
Import the SS 01-IO-IODD files selecting all of them and “Import IODD” in the Options menu, if not already done in a previous session.

Click on “Search Master” and select the Master in the popup window.

Click on “Go Online” .

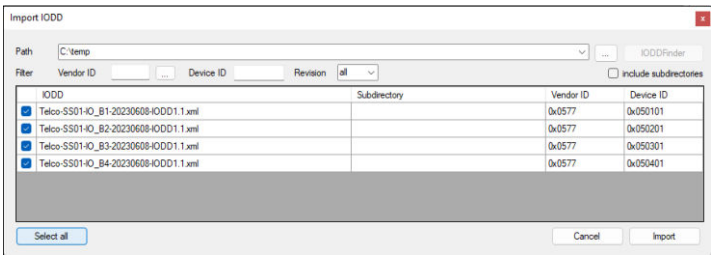
Click on “Check Devices” .

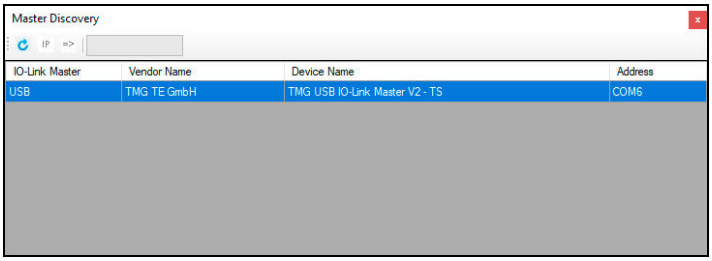
Click on “Takeover devices into engineering” to the SpaceScan (SS 01-IO) device.
Double click on the row with the SS 01, to open the Device menus.

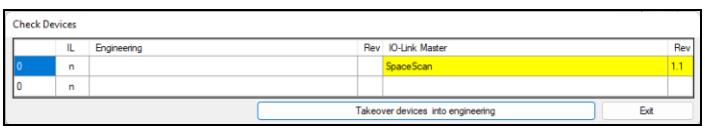
Click on “Upload from Device” to upload the SS 02 settings.

For more information see TMG’s User Manual for the IO-Link Device Tool.

Popup windows:







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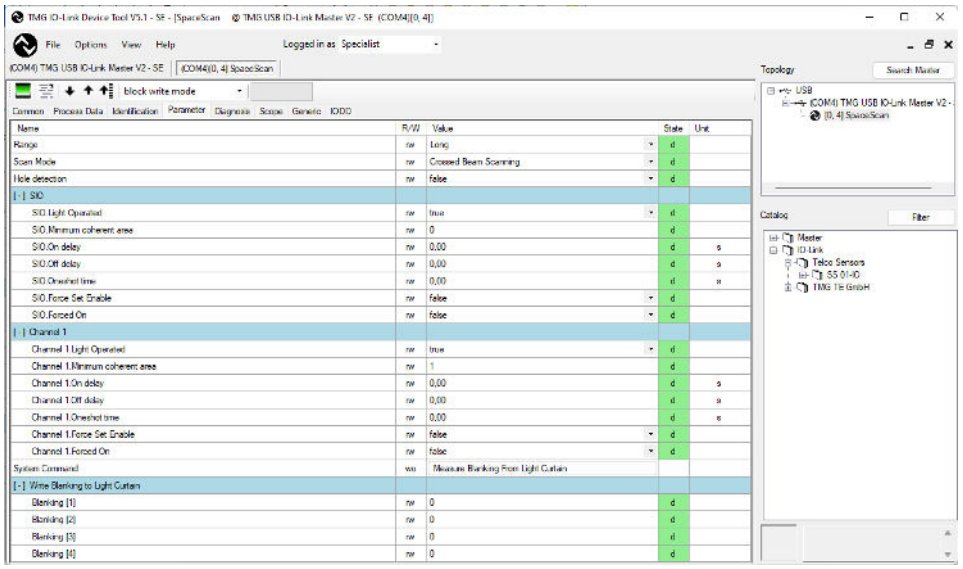
Parameters

On the Parameter tab, you can set up all the parameters of the light curtain.

General settings



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

Range
Select short or long range. In both cases with autogain, but different target excess gain. Long range setting is used for rough applications with risk of false obstructions, short range is selected if for more delicate applications, where there is risk of bypass of light.

Scan mode
Select between Parallel or Cross beam.
On cross beam mode, the number of actual beams is increased from N straight beams to (3*N)-2 beams giving a denser beam pattern, with larger detection certainty.
If objects are positioned in the centre, or close to the centre, between transmitter and receiver the measurement resolution is increased to the double, i.e. the crossed beam mode adds an additional virtual beam between each of the straight beams, in total N-1 extra virtual beams. When crossed beam mode is selected the number of beams is increased to (2*N)-1 in total.

Hole detection
If Hole Detection is activated, the status of all beams will be individually inverted, that means that 'made beams' are converted to 'broken beams' (and inversely), whereby holes (unbroken beams) will be perceived as objects obstructing beams for the following analysis.

Light operated
Operation mode of the output channel.

Minimum coherent area
The Smoothing Function tells the SSR to ignore objects which are smaller than a specific size. If the Smoothing Function is set to 3, any object that interrupts 3 or less adjacent beams will be ignored. Smoothing can be used, e.g., to ignore interference caused by wood chips while sawing a log.
The effect is obtained by a pre-processing of the beam's status where all groups of adjacent broken beams with less than or equal to 3 beams are substituted by made beams.
This smoothing function is carried out after the 'hole detection' pre-processing.

On delay
Delay in seconds of the output switching when an object enters the beams. Minimum value 0.01 s = 10 ms, maximum 60.00 s.

Off delay
Delay in seconds of the output switching when an object is moving out of the beams. Minimum value 0.01 s = 10 ms, maximum 60.00 s.

One shot time
The time the output is activated when an object enters the beams. Minimum value 0.01 s = 10 ms, maximum 60.00 s.

Force set enable
The output of the channel can be forced to specific value if set to true.

Forced On
The output of the channel is forced to On (true) if the value true is selected, otherwise it is Off (false).

Standard Command – Measure Blanking from Light Curtain
When the 'Measure Blanking from Light Curtain' is pressed, those beams that are obstructed, will be blanked out permanently, which means that their beam status will be ignored, until their blanking status is changed again.

Blanking [1]
Each of the 8 bits of this byte corresponds to the blanking status of each of the straight beams. Bit 0 corresponds to 'not blanked' and bit 1 corresponds to 'blanked'. The crossed beams between blanked straight beams are automatically blanked.

Note: It is recommended to press "Download to Device" after every change in the parameters tab to ensure that the settings have been stored in the SS 02.

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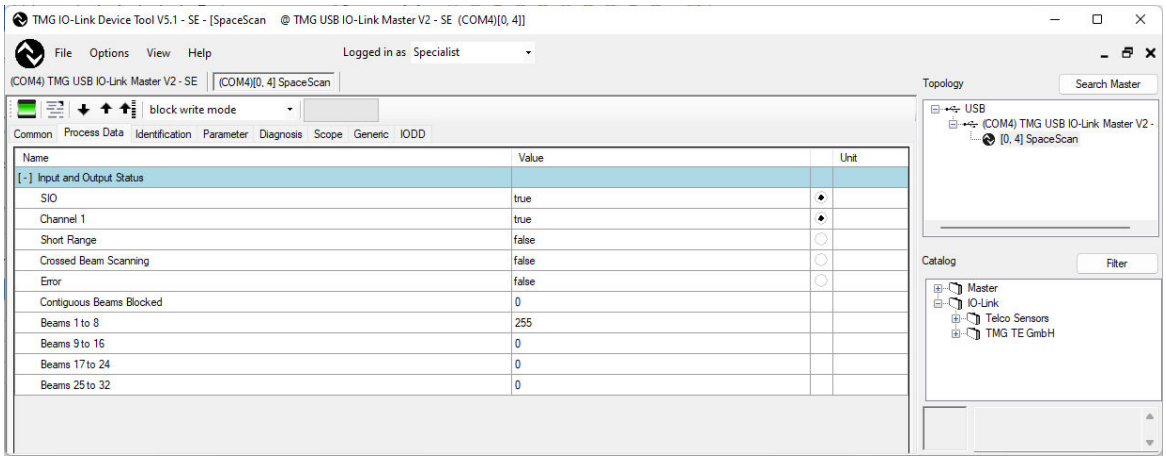
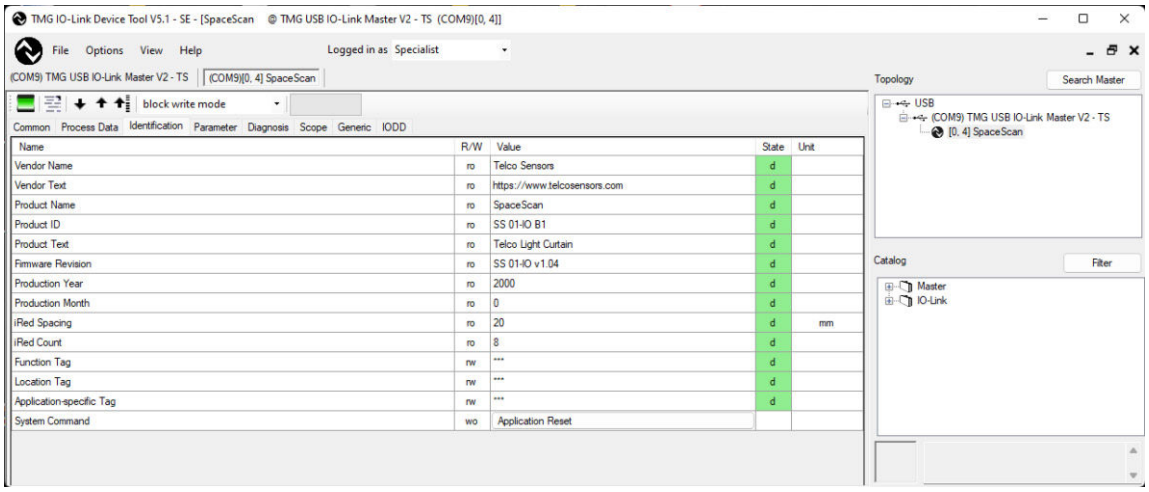
Process data

On the Process data tab, you will see status of standard IO (SIO) and the output of the digital channel that are not corresponding to any physical output. Short Range indicate which range is selected in the Parameter tab. The data field 'Error' is true if the supply voltage is too low or there is a synchronization failure. Further details can be seen under 'Diagnosis tab'. The number of the maximum contiguously blocked beams. The status of the beams are given as bits in one or more bytes, depending on the total number of beams. A bit which is 1 corresponds to an unbroken beam and 0 corresponds to a broken beam. The least significant bit is closer to the cable end.



Identification

On the Identification tab, you will see the information about the light curtain.



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