SG 14 - USER MANUAL
Space Guard Series
Photoelectric light curtains for automatic doors

EN

Product Data

Electrical Data

	SGT (Transmitter)	SGR (Receiver)
Supply voltage	12 – 36 Vdc	
Max. Voltage ripple	15% (within supply range)	
Reverse polarity protected	Yes	
Max. current consumption	70 mA (RMS)	50 mA
Max. output load	-	200 mA
Short circuit protected	-	Yes
Inductive load protection	-	Yes

Environmental Data

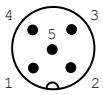
Light immunity @ 5º incidence	> 100.000 lux
Temperature, operation	-20 to + 65 ºC
Sealing class	IP67
Approvals	CE

Available Models

	Model	Output	Blanking Function	Output Mode	Sensing Range
Transmitter	SGT 14-xxx-0xx-A1-x-0x-xx	-	-	-	C profile: 1 – 10m
Receiver	SGR 14-xxx-0xx-A1-x-08-xx	Solid State Relay	On / Off	N.O.	D profile: 1 – 7.5 m
	SGR 14-xxx-0xx-A1-x-09-xx			N.C.	

Connection

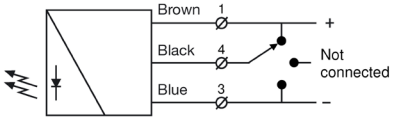
Wiring Diagrams



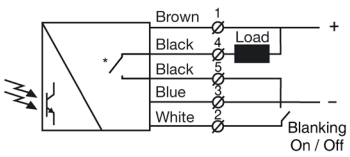
1: Brown
2: White
3: Blue
4: Black
5: Black or Yellow/green

5 pole M12 male connector

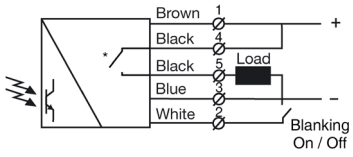
Transmitter Model	Black wire connected to (-)	Black wire not connected	Black wire connected to (+)
SGT 14-xxx-0xx-A1-x-**00**-xx	TX is not transmitting	TX is transmitting	TX is transmitting
SGT 14-xxx-0xx-A1-x-**01**-xx	TX is not transmitting	TX is transmitting	TX is not transmitting
SGT 14-xxx-0xx-A1-x-**02**-xx	TX is transmitting	TX is not transmitting	TX is transmitting



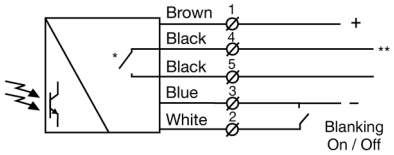
Transmitter SGT 14



Receiver SGR 14 with solid state relay used as NPN output



Receiver SGR 14 with solid state relay used as PNP output



* Relay type: Open when SGR not powered

** Max. 24 V ac / 36 V dc

Receiver SGR 14 with solid state relay output.

Installation & Adjustments

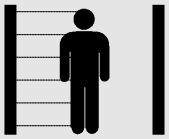
Installation and Adjustment

No initial set up or adjustments are required, due the automatic signal-tracking (AST) feature, which automatically adjust each individual channel on the system.

Notice that the SG14 system must not be placed on moving doors.

1	Mount the transmitter (SGT) and receiver (SGR) facing each other and correctly aligned. Telco recommends that the rails are placed at least 5mm from edges for mechanical protection.
2	Wire the sensor according to the wiring diagram. Make sure the load does not exceed 200 mA.
3	Check for correct wiring. Select blanking function if required.
4	Turn power on.
5	The status indicator (red LED) on the SGR will flash quickly when the AST is active.
6	When the power on indicators (green LEDs) are on, the system is operating. If the Status indicator (red LED) is constant on the SGR cannot see the SGT.
7	Notice that the rails must not be moved after the power to the SGR is turned on.

Output Logic

Detection	Output mode	Output status	Output indicator (yellow led)
Present 	Dark operated (N.O.)	Closed	On
	Light operated (N.C.)	Open	Off
Absent 	Dark operated (N.O.)	Open	Off
	Light operated (N.C.)	Closed	On

Indicator LEDs

Indicators

Red LED:	Status indicator
Yellow LED:	Output indicator
Green LED:	Power on indicator

Troubleshooting

Troubleshooting

Probable Reason	Corrective Action
1. Symptom: Status indicator (Red LED) on SGR is constant on.	
TX is not emitting	Check supply and cable to the SGT
SGT is disabled	Enable the SGT
The lowest beam is blocked	Remove obstruction
2. Symptom: Output indicator (Yellow LED) is flashing	
Severe electrical interference	Remove SGR and SGT supply cable from high voltage cables
Severe ambient light	Change position of SGT and SGR
Cross talk from another light curtain	Change position of SGT and SGR

SGR Output Response Time

Output Response Time

Nº of channels	16	24	32	40	48	56
Response time (max) For obstruction by objects larger than 100 mm.	24 ms	24 ms	30 ms	37 ms	43 ms	49 ms

SGT Test Input

SGT Test Input

The transmitter can be externally disabled and enabled via the control wire (black wire) for test purposes. To activate the test input, please refer to "Transmitter Model" table.
Make sure no object is present in the detection area when transmitter is disabled for test.
When the transmitter is disabled, the receiver will change its output.

The test input on SGT14 has to be activated a certain minimum time T_r in order to ensure that the output of SG14 will switch.

On activation of the SGT14 test input, the output of the receiver will switch within a certain maximum time T_{ON} .

When the test input of SGT14 is deactivated the output will be switched back within a certain maximum time T_{OFF}.

The time T_r is longer than T_{ON} in order to ensure a complete test cycle of minimum duration.

Note: Refer to "SGT test input response time table" & graph.

SGR Dynamic Blanking Function

Dynamic Blanking Function

All channels can be blanked without switching the output by moving a non transparent object between the SGR and SGT from top of the rails and down to the lowest channel in one movement.

All channels will stay blanked as long as the lowest channel at the bottom of the rails is obstructed. Make sure that the lowest channel is well obstructed when all the channels are blanked.

Minimum speed of the blanking object	0.05 m/s
Maximum speed of the blanking object	1.6 m/s

There is no restriction on maximum speed when removing the object.

Note: Refer to "SGR blanking function response time" & graph.

Channel spacing	46 mm
Minimum size of blanking object	55 mm

Website: www.telcosensors.com
E-Mail: info@telcosensors.com

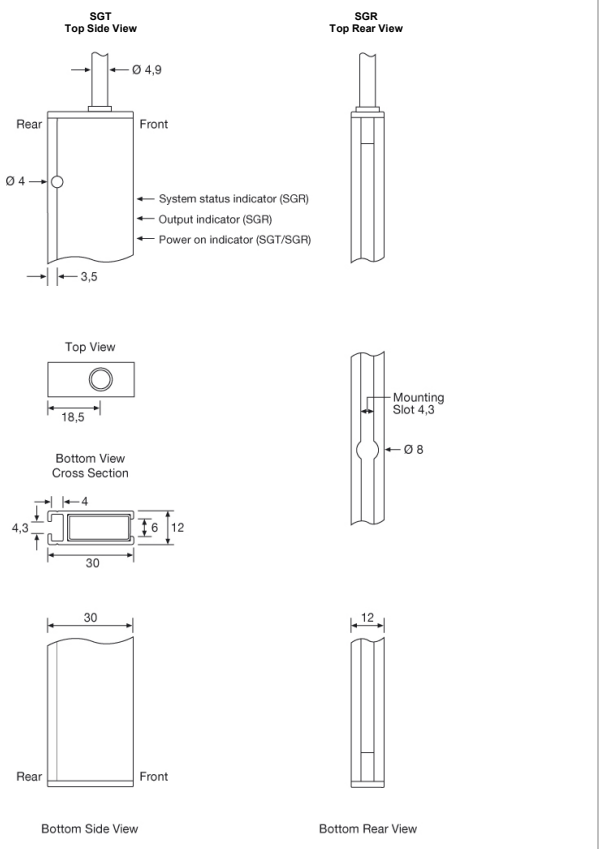
Made in Denmark

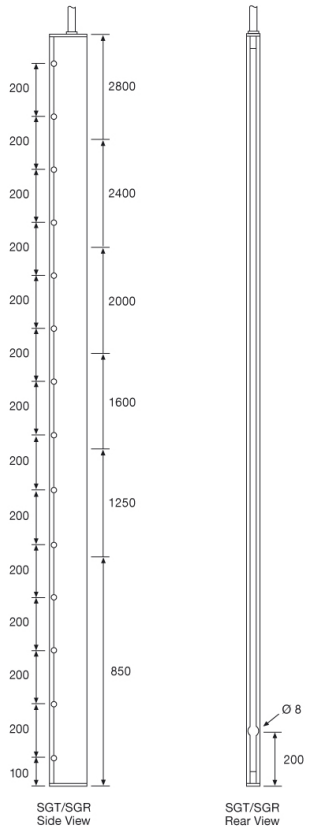
Warning
This device is not to be used for Personnel Protection in Machine Guarding Safety applications. This device does not include the self-checking redundant circuitry necessary to allow its use in personnel machine guarding stand-alone safety applications.

V 1.6.CD Part Number: 0666220707
April 2019 edition

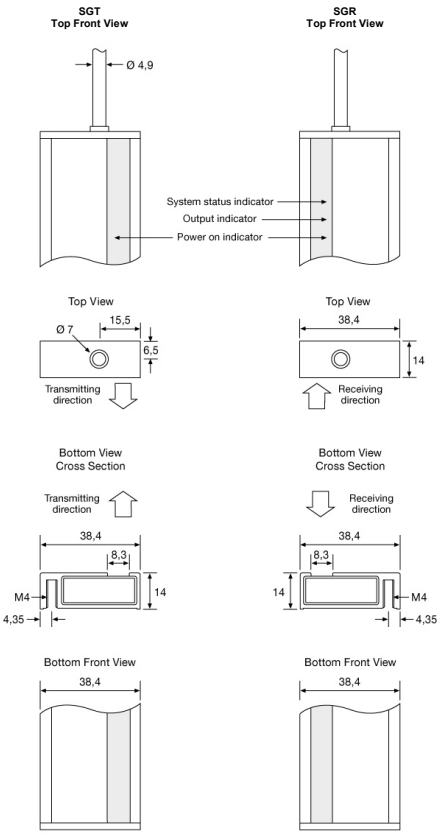
Dimensions and Descriptions

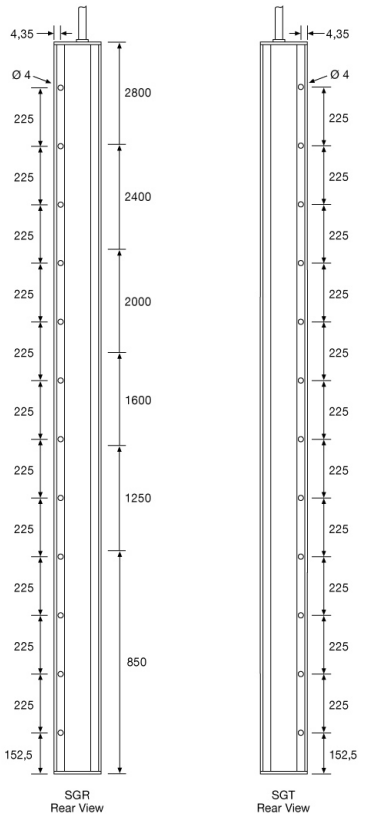
Slim Line **"C"** Housing – **IP 67**





Leading Edge **"D"** Housing – **IP 67**





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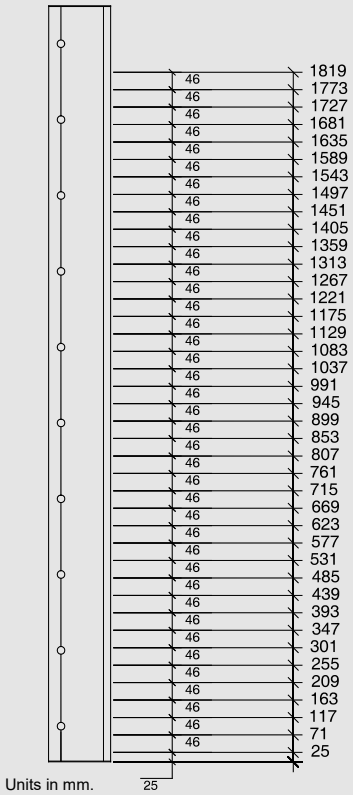
Position of Channels

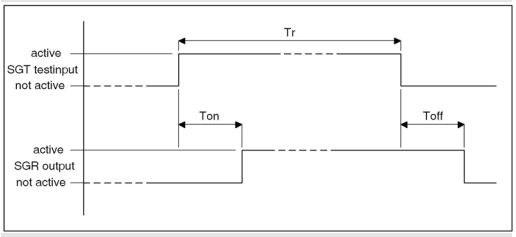
Drawing of 2000 mm housing length, 40 channels



Units in mm.

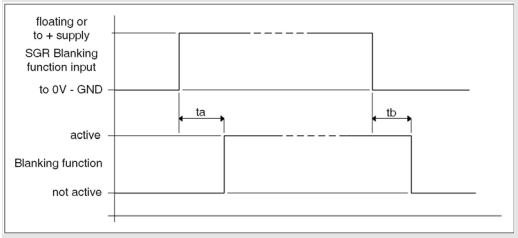
SGT test input response time

Number of channels	Ton (max.)	Toff	Tr (min.)
56	12 ms	48 ms	40 ms
48	12 ms	42 ms	35 ms
40	12 ms	36 ms	30 ms
32	12 ms	29 ms	25 ms
24	12 ms	23 ms	20 ms
16	19 ms	15 ms	27 ms



SGR blanking function response time

Number of channels	ta	tb
56	96 ms	5 ms
48	84 ms	5 ms
40	71 ms	5 ms
32	58 ms	5 ms
24	45 ms	5 ms
16	45 ms	12 ms



Housing Length & Number of Channels

Housing Length	Active Height	Channels	Beam Spacing
2800 mm	2555 mm	56	46 mm
2400 mm	2187 mm	48	
2000 mm	1819 mm	40	
1600 mm	1451 mm	32	
1250 mm	1083 mm	24	
850 mm	715 mm	16	

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