Important Information

General

THIS LIGHT CURTAIN SG15 SHOULD ONLY BE INSTALLED BY AUTHORIZED AND FULLY TRAINED PERSONNEL!

THE LIGHT CURTAIN IS ONLY A SAFETY PROTECTION DEVICE IF ALL INSTRUCTIONS IN THIS MANUAL, ARE CAREFULLY FOLLOWED AND FULLY COMPLIED WITH. IN ADDITION, THE INSTALLER IS REQUIRED TO COMPLY WITH ALL LOCAL LAWS AND STANDARDS.

ANY ALTERATIONS TO THE DEVICE BY THE BUYER, INSTALLER OR USER MAY RESULT IN UNSAFE OPERATING CONDITIONS.

Compliance to Directives and Standards

This device complies with the European directive 2006/42/EC for machinery and with the European directive 2004/108/EC for electromagnetic compatibility, when used in accordance with the instructions in this manual.

The compliance to the directive of machinery is declared according to EN 12978, with normative reference to:

EN 13849-1, category 2, PL d
IEC 61496-2, type 2 ESPE

EC type examination:
TUV NORD CERT GmbH, Langemarckstr. 20, 45141 Essen (NB 0044)
EC-type certificate No. 44 205 13 413372-001

Product Data

Technical Data

	SGT (Transmitter)	SGR (Receiver)
Supply voltage	12-30 Vdc	
Max. Voltage ripple	15% (within supply range)	
Reverse polarity protected	Yes	
Max. current consumption	70 mA (RMS)	30 mA
Max. output load	-	100 mA
Max. output ON resistance	-	20Ω ~ 2V@100mA
Max. leakage current	-	80uA
Short circuit protected	-	Yes
Inductive load protection	-	Yes
Output type	-	Opto coupled solid state relay
Sensing range	1 m - 12 m	
Response time (max.)	50 ms	

Environmental Data

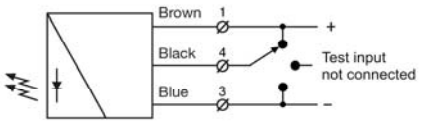
Light immunity @ 5º incidence	> 100.000 lux
Temperature, operation	-20 to + 65 ºC
Temperature, storage	-40 to + 80 ºC
Sealing class	IP67
Marking	CE

Output Mode

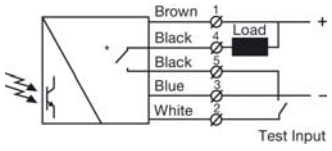
Models	Output Mode
SGR 15-xxx-0xx-x1-E-x9-xx	NC

Connection

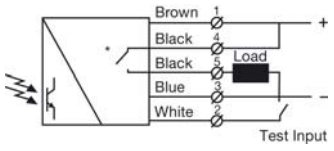
Wiring Diagrams



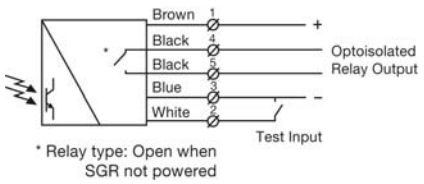
Transmitter SGT 15



Receiver SGR 15 with solid state relay used as NPN output



Receiver SGR 15 with solid state relay used as PNP output



Receiver SGR 15 with solid state relay output.

Installation & Adjustments

General Instruction and Precaution

Even though the light curtain has a high degree of immunity to ambient light sources, it is recommended to avoid direct exposure to sunlight, and interference from flashlights or other infrared light sources, such as other photo sensors.

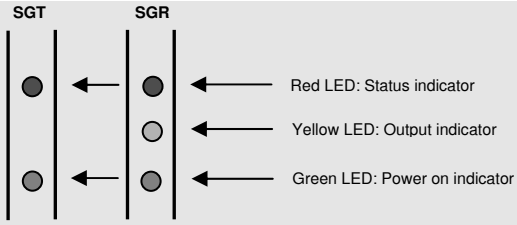
If the front cover of the light curtain becomes contaminated, they have to be cleaned with a slightly damp cloth. Do not use organic solvents or detergents. If the light curtain is very contaminated, the output may go into safe state and de-energize even after the cleaning, due to safety reasons. The light curtain will automatically make the necessary internal adjustments, and within less than a few minutes, the light curtain will be fully adjusted and resume normal operation. Immediate adjustment can be forced by switching the light curtain off and then on again.

Ensure that the light curtain is mounted, so that it is mechanically stable during operation.

The light curtain must not be placed on moving doors.

Severe rain and snow may be detected due to the high sensitivity of the light curtain.

Indicators



Installation and Adjustment

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

1	Use the brackets supplied with the light curtain (at least 2 pcs, with max distance of 135 cm) to mount the transmitter (SGT) and receiver (SGR) facing each other and correctly aligned.
2	Correct alignment is achieved when the front cover of the light curtains are parallel and when a virtual line connecting top of the transmitter and receiver are perpendicular to both transmitter and receiver front cover. (Within 2 deg.)
3	Wire the sensor according to the wiring diagram. Make sure the load does not exceed 100 mA.
4	Check for correct wiring.
5	Turn power on.
6	The status indicator (red LED) on the SGR will flash quickly when the AST is active.
7	When the power on indicators (green LEDs) is on, the system is operating.
8	Notice that the rails must not be moved after the power to the SGR is turned on.

SGT/R Test Input

The function of the light curtain has to be tested before any cycle (f.i. door closing acc. EN 12978 2009, 4.4.3), by activating the test input of the transmitter and the receiver. The SGR and the SGT test input wires must be connected together. The test is enabled and disabled via the black (SGT) and white (SGR) control wire. (See “Wiring Diagrams” and table below).

Activation of the test input will initiate an extensive internal safety test in both the transmitter and the receiver. A faulty receiver or a faulty transmitter will turn on red led and go into safe mode; the transmitter will stop transmitting and the receiver will de-energise the output until test is repeated again with success.

An external controller ensures that the receiver de-energizes the output, when the test inputs are activated, and that the receiver energizes the output, when the test inputs are de-activated again.

The test input on SGT/R has to be activated a certain minimum time T_r in order to ensure that the test request is registered and a test sequence is initiated.

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

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

By only activating the test input on the SGT, a switch in output of the SGR should be observed. If only the SGR test input is activated, no change in its output should be observed.

There must be at least 500ms from the start of one test pulse to the start of the next test pulse.

Note: Refer to “SGT/R Test Input Response Time “.

How the test inputs are to be operated depends on digit **0X** on transmitter (SGT) and **X9** on receiver (SGR) in the model code;

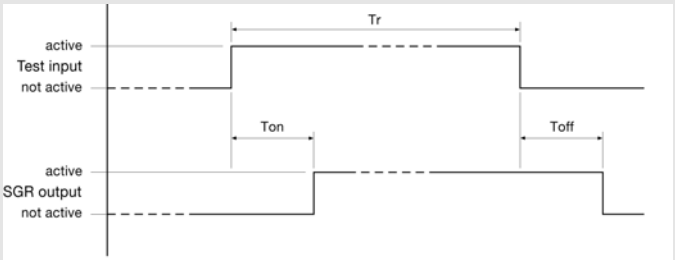
SGT 15-xxx-0xx-x1-E-**0X**-xx
SGR 15-xxx-0xx-x1-E-NB**X9**-xx

Make sure no object is present in the detection area when test is done.

Model		Test input connected to 0V - GND	Test input not connected	Test input connected to + supply
Transmitter SGT	Receiver SGR			
00	**09**	Testing activated	No testing	No testing
03	**39**	No testing	No testing	Testing activated
04	**49**	Testing activated	Testing activated	No testing

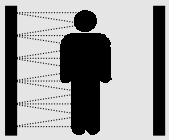
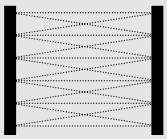
SGT/R Test Input Response Time

Ton (max./min.)	Toff (max./min.)	Tr (min.)
120 ms / 35 ms	120 ms / 5 ms	200 ms



Output Logic

Output Logic

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

Housing Length and Number of Channels

Housing Length and Number of Channels

Housing length	Beam Placement	Active Height	Channels
1928 mm	C1	1800 mm	40
	D1	1800 mm	28
	E1	1800 mm	16
2288 mm	C1	2160 mm	48
	D1	2160 mm	30
	E1	2160 mm	18
2648 mm	C1	2520 mm	56
	D1	2520 mm	32
	E1	2520 mm	20

Troubleshooting

Troubleshooting

Probable Reason	Corrective Action
1. Symptom: Red LED on SGT/R is constant on. All other LEDs are off.	
Error found during test process	Check supply and cable to the SGT/R. Or replace the rail(s).
2. Symptom: Red and green LEDs on SGT is constant on.	
Error found during test process	Replace the SGT rail.
3. Symptom: Red and green LEDs on SGR is constant on.	
Error found during test process	Replace the SGR rail.
4. Symptom: Yellow LED on SGR is flashing	
Cross talk from another light curtain, or other powerful light sources.	Change position of the SGT and SGR rails.
5. Symptom: Yellow LED on SGR is constant off. Red LED is off.	
Rails are out of sensing range	Check the sensing range and power to the SGT.
6. Symptom: After start up, red LED on SGR continues to flash quickly. Green LED is on.	
Rails are out of sensing range or SGT is not turned ON or an object is obstructing one or more beams.	Check the sensing range and for objects between the SGT and the SGR. Check SGT is powered or replace rails.
7. Symptom: After start up, green LED on SGT/R is on. Yellow LED on SGR is off.	
Test input is constant activated under and after start up.	Deactivate the test input on SGT/R.

Disposal

Disposal

The light curtain should only be replaced if a similar protection device is installed. Disposal should be done using the most up-to-date recycling technology according to local rules and laws.

Manufacturer

Manufacturer

Telco A/S, Højerupvej 25a, 4660 Store Heddinge, Denmark

Lars Krarup, Managing Director