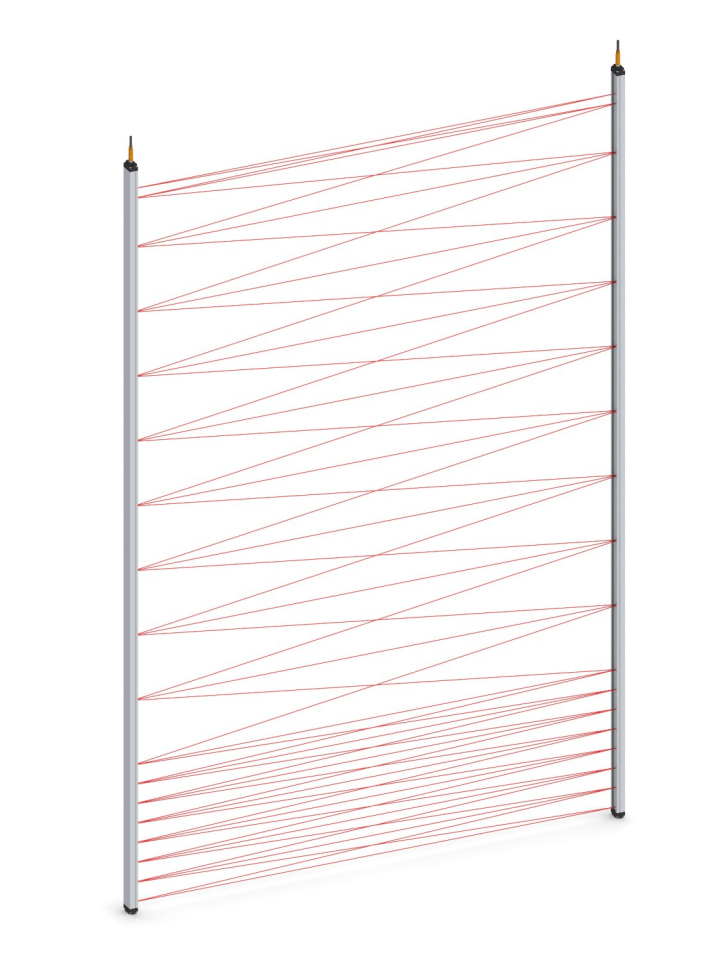


ILGT Instructions

Safety light grid for gates

Status: 2.1.2023



Important note

The data and information in this documentation were compiled with greatest care. Although every reasonable effort has been made to make the information contained in this documentation correct and up to date at the time of publication, no guarantee can be given for absolute freedom from errors.

© **STRACK LIFT AUTOMATION GmbH**, Lise-Meitner-Straße 2, 42489 Wülfrath

Telephone +49 2058 89328-0 / Telefax -99 / support@liftnet.org

This manual and the product described therein are subject to proprietary protection for **STRACK LIFT AUTOMATION GmbH** or its suppliers, with all rights reserved. According to the copyright protection laws, this manual or parts thereof may not be copied without the consent of **STRACK LIFT AUTOMATION GmbH** in writing, except within the scope of normal utilisation of the product or for making backup copies. This exception regulation does not extend to copies which are made for third parties and sold or otherwise transferred to these third parties. However, the entire procured material (including the backup copies) may be sold, given or lent to third parties. According to the definitions by law, making a translation also falls under the definition of copying. All rights reserved.

Document changes

Date	Page	Changes
16.8.2013		1st official issue
19.11.2013	6 31 34	Switching time of the test signal is specified. Current consumption of the transmitter inputs added. Declaration of conformity amended, last paragraph of the page.
28.2.2014	30 32 11.29 15 11.29 9 9 32 12 12 22.34 -	Note on parameter 25 in Parameter table added. Reaction times of the ILGT output (OSSD) adjusted. Parameter 12 extended: the test input can be adjusted to the gate control with regard to polarity and logic. Requirements on the length of the test pulse and timeout times for the gate control added. Parameter 14 extended by the function rain filter. Function of the green status LED at the transmitter extended. Yellow diagnostic display / event log for transmitter and receiver added. Min. gate closing speeds for blanking has been reduced to 0.02 m/s. Max. gate closing speeds for blanking has been increased to 6 m/s depending on the channel grid. Required height of the gate edge for blanking reduced to 65 mm, depending on the channel grid. No further need to use the same serial number for transmitter and receiver. Factory settings of the parameters are now noted in a supplementary sheet.
27.3.2014	29 32 9,10	Parameter 11 (Sync channel): Standard factory setting to 2/3 of the height. Adding the response rate data directly underneath the gate edge during blanking. Change of the indicator codes of the yellow LEDs.
10.4.2014	5 33	Indication for the power supply added. Technical data changed: IP protection, foreign light strength, response times, current consumption, OSSD leak current / voltage drop
11.4.2014	38	TÜV EC Type-examination certificate added
22.4.2014	3 18 34	Added safety precautions and functional safety parameters. Added note to reflective surfaces. No distinction between resistive, capacitive and inductive loads to the OSSD.
20.5.2014	24	Chapter "adjustment" completed: "Switch off/on voltage"
22.9.2014	34 12,30 24 25 16,32 4	Shortened response times for beam disruption and test signal input. Correction of the connecting diagrams and description of parameter 12. We significantly speeds up the calibration process during commissioning. With blanking function we have reduced the number of necessary learning runs from 4 to 3. Parameter 26 was extended with blanking without circumvention protection e.g. for door controls, which can only test a light grid at the upper end position is reached. Type B added in type key. Type B may work besides and parallel to a normal ILGT, e.g. if two ILGT shall directly be installed in front of and behind a gate.
20.2.2021	24/25	Installation tips added
2.1.2023	36	Height of installation changed to 2000m

Content

1	General notes and instructions.....	1
1.0	Typographic conventions.....	1
1.1	Intended use.....	1
1.2	Terms and abbreviations.....	2
2	Functional safety.....	3
2.0	D.ILGT.....	3
2.1	S.ILGT.....	3
2.2	Characteristics acc. IEC 61508-1 to -7 and IEC 62061.....	3
2.3	Characteristics acc. EN ISO 13849-1.....	3
3	Type key.....	4
4	Connection.....	5
4.0	General.....	5
4.1	Transmitter.....	6
4.2	Receiver.....	7
4.3	Pin assignment.....	7
5	Functional description.....	8
5.0	Setup.....	8
5.1	ILGT series.....	8
5.2	Contamination-mist regulation of the S.ILGT.....	8
5.3	Fuzzy regulation of the D.ILGT.....	8
5.4	Object detection / monitoring grid.....	9
5.5	LED displays.....	10
5.6	Parameters configurable locally.....	11
5.7	Channel suppression.....	12
5.8	Switch-on delay (gate closing delay).....	12
5.9	Test input.....	12
5.10	Rain filter.....	13
5.11	Integrated heating system.....	13
5.12	Assembly of two ILGT parallel to each other.....	13
5.13	Electronics.....	13
5.14	Blanking to suppress the gate.....	13
5.15	Operation diagrams.....	17
6	Installation.....	19
6.0	D.ILGT.....	19
6.1	S.ILGT.....	19
6.2	Installation and assembly instructions.....	19
6.3	Accuracy.....	20
6.4	ILGT with clamping or bolt attachment.....	22
6.5	ILGT with swivel attachment.....	23
7	Commissioning.....	26
7.0	Adjustment.....	26
7.1	Calibrating.....	26
7.2	Perform learn trips.....	27
7.3	Clear and renew the calibrating.....	28
7.4	Check after commissioning.....	28
8	Test specifications.....	28
8.0	Check the test function of the gate control system.....	28
8.1	Check for a gap-free protection field.....	28
9	Parametrisation.....	30
9.0	Important notes and instructions regarding the parametrisation.....	30
9.1	Action sequence of parameter setting.....	30
9.2	Parameter list.....	33

10	Technical data.....	36
11	Maintenance.....	38
11.0	Precautions.....	38
11.1	Maintenance intervals.....	38
11.2	Cleaning the sensor strips.....	38
11.3	Instructions for replacement.....	39
12	Storage.....	39
13	Packing and disposal.....	39
14	EC Declaration of conformity.....	40
15	EC Type-Examination Certificate.....	41

1 General notes and instructions

The documentation contains instructions which must be complied with under all circumstances in order to protect the life or health of persons. Knowledge and technical implementation of the safety instructions included in this documentation as well as the accident prevention regulations applying to the place of installation of the plant are required for a safe installation and commissioning. The documentation does not include all details on all plant designs and is unable to take into account any conceivable setup, operation, repair, maintenance and commissioning scenario.

1.0 Typographic conventions

Font / symbol	Meaning
	Hazard warning. Neglecting the regulations may pose a risk of an accident, including personal injury or property damage.
	Special information or useful tips
Menu, designations	This presentation identifies menu items, menu options, menu commands, registration areas, windows and form designations.

1.1 Intended use

The safety light grid ILGT is an electro-sensitive protection device as defined by the Machine Directive 2006/42/EC for power-operated doors and gates provided for the installation in access areas of persons, and it is their main use to ensure safe access for goods and vehicles, accompanied or controlled by persons in industrial, commercial or residential areas.

The ILGT is used as a standard reversal unit at doors and gates on the inside and outside, at entrances within the industrial manufacturing, automatic storage areas, for the monitoring of loads, etc. It also serves as a safety light grid for power operated doors and gates in the industrial and commercial area, incl. high-speed doors and sectional gates as well as to safeguard garage doors.

The ILGT is a safety light grid for all power-operated gates up to a width of 20 m (larger widths on request). It is an AOPD type 2 corresponding to SIL 1, Cat. 2, Performance level c and can be used as the sole sealing device of power-operated gates. In addition, it can be installed directly into the guide rail of vertically moving gates. The gate control system requires only a test function, and here, the gate is provided with comprehensive mobility between 0.02 and 6 m/s (depending on model).

The ILGT is a safety light grid subdivided into two series: the D.ILGT for the dynamic installation and the S.ILGT for the static installation. Both series are identical; however, the D.ILGT is provided with infrared light beams opening further.

Restrictions:



- The ILGT must not be used in the vicinity of explosive gases or dusts.
- With a severe development of smoke or wafts of mist, the light path of the ILGT is interrupted and might keep the door or gate incorrectly open. Please take this into account when using the ILGT in connection with fire control systems, etc.
- The ILGT must not be directly exposed to the weather conditions. When used outside, protect it against direct exposure to rain, snow and hail.

All chapters of this operating manual include important information for the intended use of the product. These chapters exclusively apply to technically qualified personnel trained especially for the installation, commissioning, maintenance and repair of power operated doors and gates, which have been constructed according to the relevant standards. The product described may only be installed, operated, serviced and repaired by this group of people. It must be ensured that all activities are carried out according to the respective statutory provisions of industrial safety.

In order to ensure a trouble-free and safe operation of the plant, the notes and instructions in the documentation included in the delivery of the plant must always be observed. The product may not be changed before and after putting it on the market without consulting the manufacturer (**STRACK LIFT AUTOMATION GmbH**).

1.2 Terms and abbreviations

AOPD	An active optoelectronic protection device is a sub-type of an ESPE (e.g. a light barrier or a light grid) according to EN61496-2.
ESPE	According to EN61496-1, electro-sensitive protective equipment (ESPE) presents an access protection or a presence detection, which must include at least a sensory system, control and monitoring parts and output switching elements (e.g. radar, ultrasonic and light sensors).
D.ILGT	Dynamic ILGT may be mounted in a moveable manner
Setup mode	In the as-delivered condition or after resetting to the factory setting the ILGT is in setup mode, i.e. the receiver only indicates the condition of the protection field with a quickly flashing green and constantly lit red status display, but never activates the OSSD.
Channel	A pair consisting of a transmitter and receiver LED of a light grid. For instance, a 32-channel light grid has 32 transmission LEDs and 32 corresponding reception LEDs. A channel is able to send or receive several light beams: in parallel beam operation one light beam, in crossed beam operation three light beams (see also Chapter 15.4 "Object detection / monitoring grid").
ILGT	Infrared light grid for gates. When "ILGT" is mentioned in this document, this concerns D.ILGT as well as S.ILGT.
Cat. 2	Category 2 according to EN 13849-1
OSSD	Output switching element of an ESPE (here the ILGT) connected to the superior control system (here gate control system).
PL	Performance level according to EN 13849-1
SIL	Safety integrity level according to EN 62061
S.ILGT	Static ILGT must not be mounted in a moveable manner.
Type 2	ESPE type 2 according to EN 61496-1

2 Functional safety

2.0 D.ILGT

The D.ILGT may be mounted firmly (statically), or on the gate wing in a moveable manner (dynamically). It is an adequate safety light grid; however, with the restriction that the light beams show a larger opening angle than required by EN61496-2. However, EN61496-2 Section 5.4 (environmental influences, foreign light tolerance) is met.

D.ILGT Safety:



EN12445, EN12453, EN13241-1, EN13849-1 (Cat. 2, PL c), EN62061 (SIL 1), EN61496-1 (ESPE type 2), EN61496-2 Section 5.4, EN12978 without Section 4.3.3

It must not be used as an E device acc. to EN 12453. It should be seen but application specific as a combination of C- and D device. (You must carry out examinations however of your own at a sample gate.)

(see Chapter 14 "EC Declaration of conformity")

2.1 S.ILGT

The S.ILGT may only be mounted firmly (statically), thus it must not move along at the gate wing. It is a full-size safety light grid without restriction.

S.ILGT Safety:



As D.ILGT, but additionally EN12978 and EN61496-2 (AOPD) without restriction.

It may be used as an E device acc. to EN 12453.

(see Chapter 14 "EC Declaration of conformity")

2.2 Characteristics acc. IEC 61508-1 to -7 and IEC 62061

	Value	Comment
Safety Integrity	SIL 1	
PFH [1/h] transmitter	4,50 E-8	0,45 % of SIL 1
PFH [1/h] receiver	1,23 E-7	1,23 % of SIL 1

2.3 Characteristics acc. EN ISO 13849-1

	Value	Comment
Performance Level	c	
Category	2	
MTTFd transmitter	> 100 years	calculated: 430 years
MTTFd receiver	> 100 years	calculated: 136 years
Diagnostic coverage DC transmitter	81,5 %	
Diagnostic coverage DC receiver	85,4 %	

3 Type key

Type key:		a-c-e/g-i-m-p/(q)(-x)/(y)(-z)	
Example:		688-D.ILGT1-46/040-K-K2a-05	
a	Article group	688	
c	Device type	D.ILGT1 D.ILGT2 S.ILGT1 S.ILGT2	dynamic ILGT with the range of 0.1 - 12 m (safety light grid with an opening angle of beam $> \pm 10^\circ$) dynamic ILGT with a range of 0.2 - 20 m (safety light grid with an opening angle of beam $> \pm 10^\circ$) static ILGT with a range of 1 - 12 m (full-size safety light grid for the static installation) static ILGT with a range of 11 - 20 m (full-size safety light grid for a static installation)
e	Number of channels	03-64	number of <u>channels</u> (=LEDs) (in case of crossed beams: Number of <u>light beams</u> = 3x number of channels - 2)
g	Channel grid	040 066 132	40 mm 66 mm 132 mm
i	Type of profile	K B S	without bolt, without holder, without earth connection (for customer's own clamping at the aluminium part) with bolt, without earth connection (earthing is performed by fixing the sensor strips using bolts) with swivelling holder for the front and rear panel installation, with earth connection
m	Connecting cable	K1 K2 K2a K3 K3a K4 K4a	standard cable PVC SW / firmly connected to the sensor strip / end with conductor sleeves highly flexible cable PUR SW halogen-free / pluggable M8 at sensor strip / end with conductor sleeves (such as K2 but with standard cable PVC SW for non-moveable installation) highly flexible cable PUR SW halogen-free / pluggable M8 at sensor strip / end with M8 plug (such as K3 but with standard cable PVC SW for non-moveable installation) highly flexible cable PUR SW halogen-free / pluggable M8 at sensor strip / end with M12 plug (such as K4 but with standard cable PVC SW for non-moveable installation)
p	Cable length	00 02 05 10 15 20	0 m (only M8 plugs at the sensor strip) 2 m 5 m (standard) 10 m 15 m 20 m
q	Special length in mm	0000 - 5000	(if not specified, the lengths correspond to those of the tables in the ILGT catalogue)
x	Special variants	B H S001	May work parallel directly besides a normal ILGT, e.g. if two ILGT shall directly be installed before and behind a gate (see chapter 5.12 "Assembly of two ILGT parallel to each other"). With integrated controlled heating system for the use outside. Special variants no. 001 (e.g. other weld studs).
y		S... E... ...	transmission strip (if necessary, followed by the software version) receiver strip (if necessary, followed by the software version) complete system (transmitter and receiver)
z		VP01 VP02 VP12	individual packaging (per pair) inclusive double packaging (per pair) inclusive 12-pair collective packaging inclusive

(Dimensional drawings and length variants see ILGT catalogue)

4 Connection

4.0 General

Normally, the ILGT is directly connected to the power supply +11...30V DC of the gate control system. The terminal assignment is also specified on the type plate.

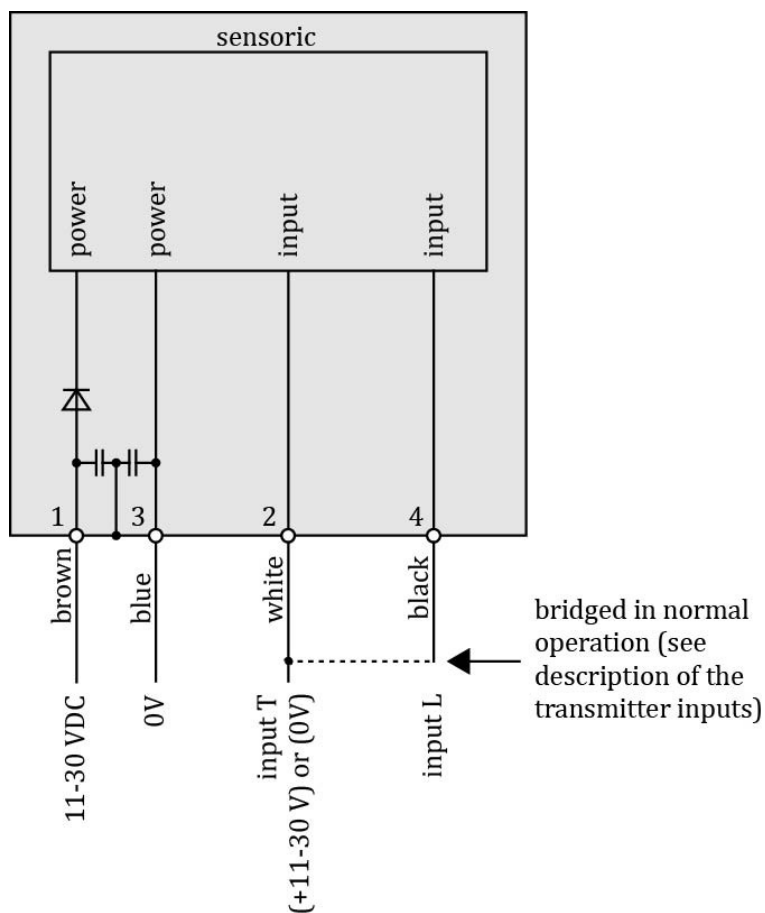
Note:



The power supply of the ILGT have to bridge a short-term power failure of 10 ms and a short-term reduction of mains voltage of 20 ms of 50% in accordance with EN 60204 and IEC 61496-1. Please observe the power consumption of the ILGT accordance with chapter 10 „Technical data“.

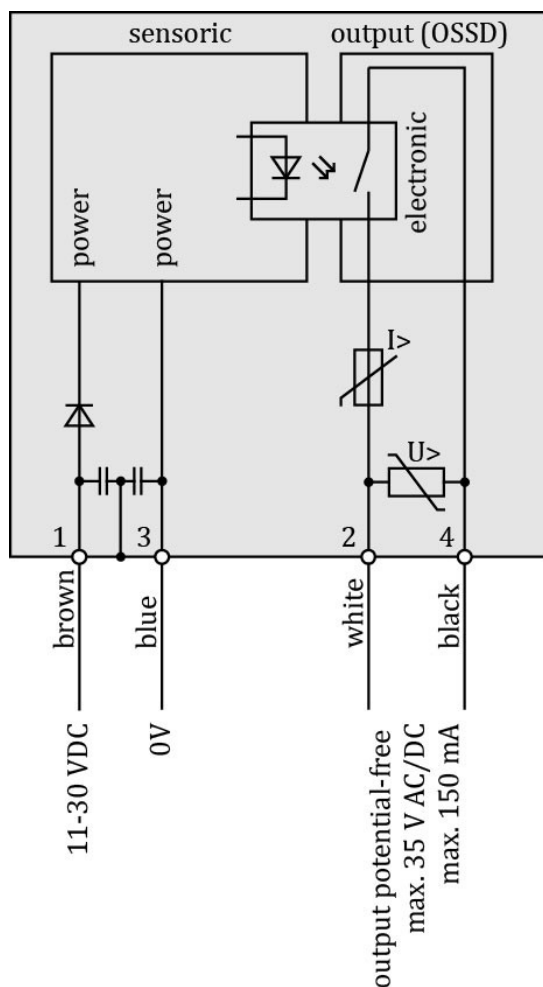
You need only to follow this note, if your ILGT have the option of 'heating' or the supply voltage at the ILGT is less than 20 VDC.

4.1 Transmitter



Description of the transmitter inputs	
<u>During the commissioning</u> (inputs L and T not bridged):	
Input T:	= parametrise light grid
Input L:	= calibrate the light grid to the current range and activate the learn trips during blanking (Note: with repeated actuation, the calibration can be deleted again).
<u>In normal operation</u> (inputs L and T bridged):	
Inputs L and T bridged	= safe light grid testing The pulse length of the test signal must be > 50 ms, recommendation: e.g. 100 ms. The logic and the test signal can be reversed (Parameter 14).

4.2 Receiver

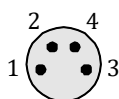


Switching output at the receiver (OSSD)

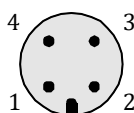
The switching output between Pin 2 and 4 or the wire colours white and black are designed as a potential-free electronic “contact”. This output circuit also contains an electronic fuse. If this fuse triggers due to an overcurrent or short-circuit at the output circuit caused by excessive current consumption, it becomes high-ohmic (the output opens). After eliminating the excessive current consumption and a waiting period of several seconds, the output works normally again.

4.3 Pin assignment

pin assignment
M8 connector
(view onto the pins)



pin assignment
M12 connector
(view onto the pins)



5 Functional description

5.0 Setup

The ILGT consists of a transmitter and a receiver strip made from extruded aluminium and plastic, which can be manufactured in various lengths, cable variants, equipment and further options. The transmitter strip transmits pulsed IR beams in the temporal multiplex methods, which are received and evaluated by the receiver strip. The temporal synchronisation between transmitter and receiver is performed by optical transmission. Several options can be set by parameters, which can be entered by the user at the transmitter with password protection, and be automatically transmitted optically to the receiver.

The transmitter includes a T- and an L-input. By means of these inputs, parametrisations, calibrations, learn trips and testing can be activated.

5.1 ILGT series

The ILGT is a safety light grid subdivided into two series: the D.ILGT for the dynamic installation and the S.ILGT for the static installation. Both series are identical; however, the D.ILGT is provided with infrared light beam opening further.

5.1.1 D.ILGT

The D.ILGT may be mounted firmly (statically), and on the gate wing in a moveable manner (dynamically) (regarding the safety features see Chapter 2.0 "D.ILGT").

5.1.2 S.ILGT

The S.ILGT may only be mounted firmly (statically), thus it must not move along at the gate wing (regarding the safety features see Chapter 2.1 "S.ILGT").

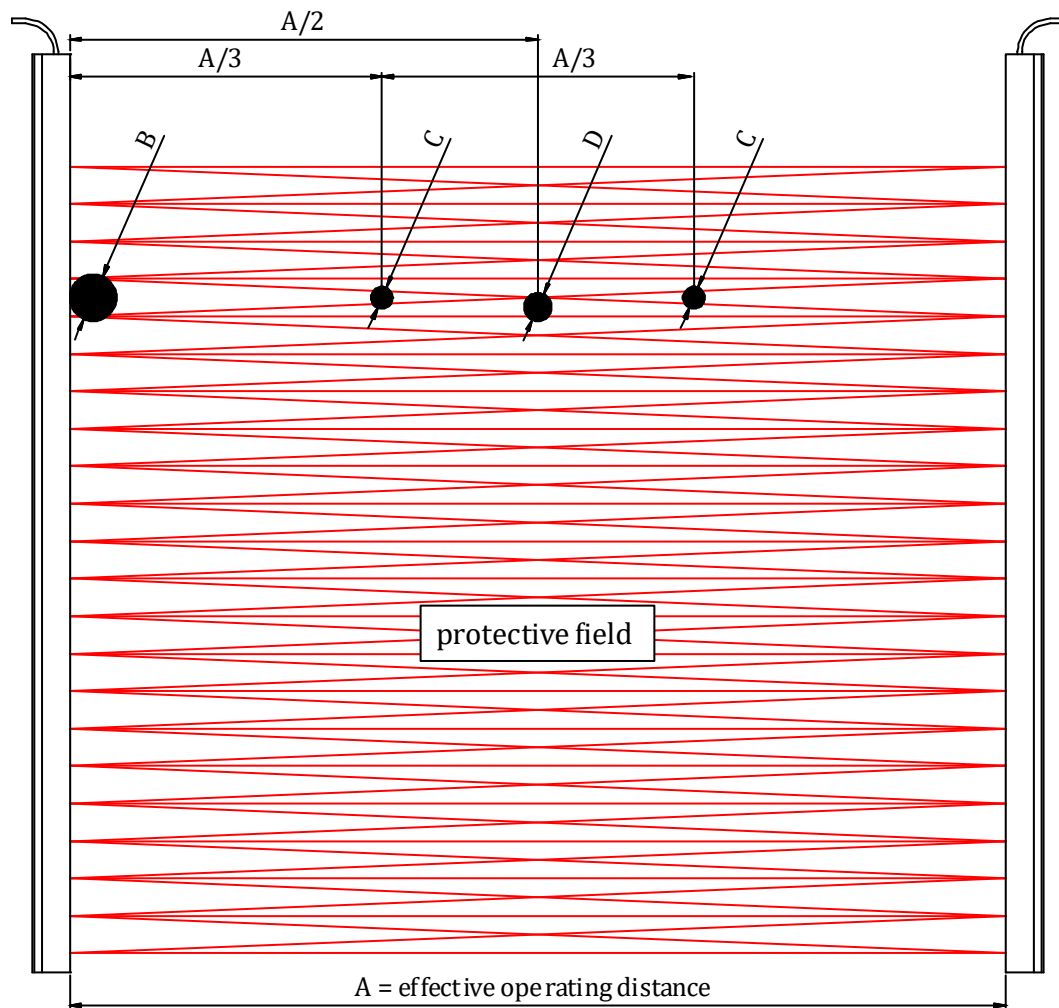
5.2 Contamination-mist regulation of the S.ILGT

The contamination-mist regulation compensates impairments of the S.ILGT caused by contamination or mist after no more than 120 seconds. Thus, there is always sufficient range reserve available. The receiver shows a contaminated light grid visually.

5.3 Fuzzy regulation of the D.ILGT

The signal strength of the D.ILGT is controlled by means of fuzzy-logic in real-time. Through this, an optimal luminous power is always ensured, at close range, on the fringes and in case of contamination. This regulation is so fast that when mounted on a gate wing it goes along at any gate speed.

5.4 Object detection / monitoring grid



The spacing of the light beams (resolution) directly at the sensor strips is identical to the spacing of the LEDs in the transmitter- or receiver strip (channel). The triple crossing of the light beams results in a higher resolution inside the protection field than directly at the sensor strips. The resolution is almost twice as high in the middle of the protection field and almost three times as high at a distance of 33% and 66% of the actual range.

The size of the reliably detected objects is specified in the figure on the left with B, C and D. Thus, different ILGT variants result in the following data:

ILGT at **grid 132 mm**: B=137 mm D=71 mm C=49 mm

ILGT at **grid 66 mm**: B= 71 mm D=38 mm C=27 mm

ILGT at **grid 40 mm**: B= 45 mm D=25 mm C=18 mm

5.5 LED displays

5.5.1 Red and green status indicators

Transmitter		
Green	Red	Meaning
I	O	transmitter is active
flashing	O	testing is active
O	I	transmitter is defective
O	Flashes 1 time, followed by 0-7 times, pause, do.	The transmitter has detected a safety relevant internal fault. Depending on the kind of fault, it can be reset by switching off/on, otherwise the light grid must be replaced.
Flashes briefly quickly	O	You have tried to parametrise or start the calibration, after the transmitter had already been switched on for more than 10 minutes. Switch off/on and try again.
Receiver		
Green	Red	Meaning
I	O	normal operation, protection field is clear
O	I	protection field is interrupted, the light grid is misadjusted or outside the calibrated range. Can occur also during the commissioning when adjusting (see Chapter 7 "Commissioning")
I	I	(only S.ILGT) Normal operation, protection field is clear, light grid is contaminated
O	Regularly flashes quickly	(only S.ILGT) The light grid was calibrated for a larger range and currently works at an insufficient distance. Remount it at the old location or recalibrate it again. This condition may also occur, if the light grid was contaminated and cleaned. After switching it off/on, it works normal again.
O	Flashes 1 time, followed by 0-7 times, pause, do.	The transmitter has detected a safety relevant internal fault. Depending on the kind of fault, it can be reset by switching off/on, otherwise the light grid must be replaced.
Flashing	O	calibration required (see Chapter 7 "Commissioning")

5.5.2 Yellow diagnostic display / event log

The yellow LED inside the transmitter and receiver serves to diagnose malfunctions. Transmitter and receiver are provided with an event log storing the last eight events. After every test signal prior to the gate closing cycle, the memory is deleted, i.e. all events are shown, which occurred during the last closing cycle. Power Off/On deletes the memory. The indications is repeated after a pause of 5 s.

Transmitter (for deliveries starting in summer 2015)	
Yellow	Meaning (several events are indicated successively)

Flashes very quickly	L-input active. If the L-input is actuated for an extended period of time, the LED goes out after a period of 5 s to indicate to the user, when to let go of the input again to start the ILGT calibration or the ILGT calibration reset.
Flashes 1 x	The 10 minutes following the activation of the power are running. The ILGT could be parametrised or put into operation.
Flashes 2 x	-
Flashes 3 x	-
Flashes 4 x	-
Flashes 5 x	-
Flashes 6 x	All internal safety monitoring features of the transmitter are activated (for information purposes and quality control only).
Flashes 7 x	Compared to the factory settings, the transmitter is operated with changed parameters (for information purposes only)
Flashes 8 x	The power at the transmitter was switched on, or the voltage drops briefly (in very rare cases, this event display could also be caused by a triggering of the internal watchdog).
Receiver (for deliveries starting in summer 2015)	
Yellow	Meaning (several events are indicated successively)
Flashes 1 x	Only for a blanking function: the protective field was free, the gate went down, while reaching the first light beam the ILGT noted, that - either previously no testing has been performed - or the time between testing and the interruption of the first light beam was longer than the time taught at the learning trips plus 5 s
Flashes 2 x	Protection field was interrupted (not the sync-channel)
Flashes 3 x	The beams of an extraneously clocked light source (light barrier, light grid, laser, ...) penetrate the receiver inadmissibly strongly
Flashes 4 x	Only for a blanking function: the ILGT monitors the number of closing movements, which are made without that all light beams become clear again. When more than 10 times, the output OSSD is switched off until the gate has released all rays of light (this is not an error, but a security function).
Flashes 5 x	Only for a blanking function: at least at one location the gate has been moved at least at double the speed learned during the commissioning
Flashes 6 x	All internal safety monitoring of the receiver is activated (for information purposes and quality control only).
Flashes 7 x	Compared to the factory settings, the receiver is operated with changed parameters (for information purposes only)
Flashes 8 x	The power at the receiver was switched on, or the voltage drops briefly (in very rare cases, this event display could also be caused by a triggering of the internal watchdog).

5.6 Parameters configurable locally

The ILGT can be parametrised password protected without local aids. Any channel suppressions, logic and polarity of T- and L-input, switching-delay, blanking yes/no, etc. can be set. The respective parameter settings are made only for the transmitter. The data are transferred optically to the receiver and stored in both permanently.

5.7 Channel suppression

By simply covering channels and activating the function “channel suppression” (see Chapter 9 “Parametrisation”) the ILGT is able to exclude the covered channels of the detection and store this setting permanently. After removing the covers, it functions normally, but without the deactivated areas. In the case of intended changes, the procedure can be cancelled and repeated any desired number of times.

Any or even several areas may be suppressed; however, the sync-channel must not be covered. If the sync-channel is also to be suppressed, it must first be relocated by a parameter change.



Note:

Concerning the ILGT with blanking function the sync-channel is always the bottom channel and cannot be relocated, thus, also not suppressed.



Caution!

The channel suppression may only be carried out if afterwards testing according to Chapter 8 “Test specifications” is performed.

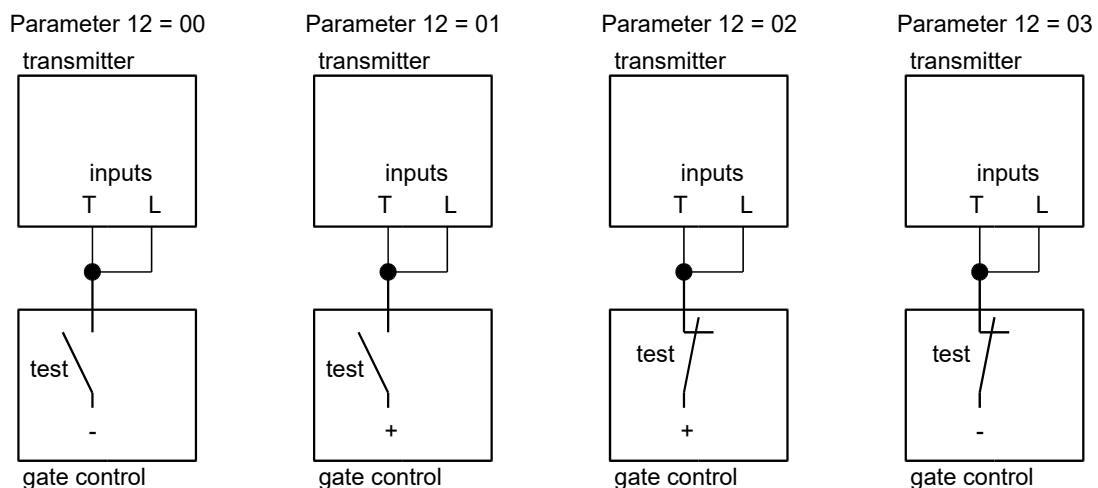
5.8 Switch-on delay (gate closing delay)

If the light path of the ILGT is clear (again), the ILGT switches on again as soon as possible. However, a switch-on delay can be parametrised. Thus, for instance, a closing of the gate after passing it without changing the gate control system can be delayed.

5.9 Test input

With the “Test input” (inputs L and T together) the ILGT must be tested for correct function prior to every closing of the gate. When setting the test, the receiver switches its output OSSD off, which must be controlled by the gate control system. Afterwards, the gate control system releases the test input again and the receiver activates the OSSD again. The gate is able to close (see also Chapter 5.15.1 “Gate closes completely”).

Connection variant:



5.10 Rain filter

With Parameter 14 (see Chapter 9 “Parametrisation”) a multiple scan can be activated assisting during the operation in the outdoor area, to minimize undesired interruptions of the protection field by rain, snow or e.g. insects. Thus, the response time of the ILGT concerning the protection field interruption is slightly extended (see Chapter 10 “Technical data”), all further response times remain unchanged, especially for the blanking function, the quick response time directly underneath the edge of the gate and the max. possible gate closing speeds!

5.11 Integrated heating system

Optionally, the ILGT is available with a thermally controlled heating system in the sensor strips for the use outdoors. The heating system is activated at a temperature of the unit of less than 10 °C and deactivated at more than 15 °C. This is able to prevent or minimise an internal condensation of the light grid.

5.12 Assembly of two ILGT parallel to each other

If you want to install two ILGT side by side (e.g. for installation directly in front of and behind a gate), you must take one as a normal ILGT acc. to your wishes and the other ILGT must be a type B (see special variant B in the type key). Thus, it is ensured that the two ILGT cannot influence themselves dangerously, even if a double-sided mirror should be installed into the protective field (e.g. a reflective metal box). Nevertheless the transmitters and receivers must be installed invertedly to each other.



5.13 Electronics

The entire electronic system is integrated into the sensor strips without requiring a separate unit. The floating electronic output is non-contact, non-wearing and short circuit proof.

5.14 Blanking to suppress the gate

Due to the integrated blanking function, the ILGT can be installed directly into the gate wing path of sectional and high-speed gates cooperating with every gate control system provided with a test output for a light barrier or light grid. Except for the power supply, test input and switching output there is no need for a connection between transmitter and receiver, or to the gate control system. Practically, the gate is provided with comprehensive mobility at a speed between 0.02 and 6 m/s (depending on the channel grid). At a stop of the gate resulting from a command or an interruption of the light grid, there is no need for the gate to move up completely again. Furthermore, an object is also detected directly underneath the edge of the gate, which is only half the height of the channel grid of the ILGT at this position. No monitoring gap develops as during other blanking procedures, but rather a reduction of the grid!

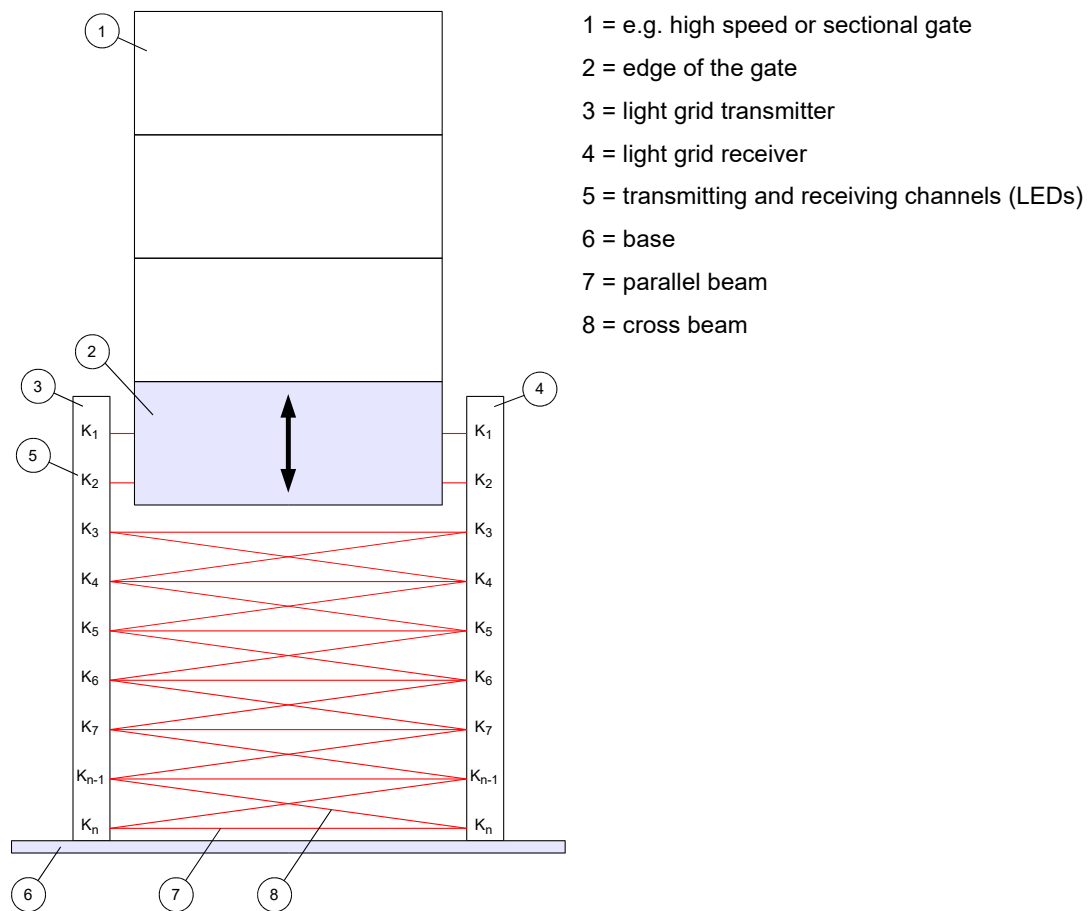
Also the reaction rate of the ILGT directly underneath the edge of the gate is always very fast, independent of the setting “rain filter”.

In spite of the blanking procedure, the ILGT is able to work with crossed beams enabling a denser monitoring grid with diagonal beams to detect, e.g. fork arms or drawbars.

5.14.1 Blanking conditions

The blanking procedure works with pattern and speed detection. To this end, only the edge of the gate is of interest, not the material above. Therefore, the gate wing material may also be transparent or a thin film. However, the blanking condition is that for the ILGT the **edge of the gate, including a possibly available rubber is opaque**. Always at least one channel of the ILGT must remain interrupted by the edge of the gate (see the following Table):

Minimum height of the edge of the gate (incl. rubber, if available)						
ILGT grid code (with various grids within a ILGT the roughest grid is the one that counts)	<i>Minimum height of the gate edge (mm) to max. gate closing speed:</i> (“ - “ speed not permitted)					
	1 m/s	2 m/s	3 m/s	4 m/s	5 m/s	6 m/s
040	65	85	-	-	-	-
040+2	125	145	-	-	-	-
066	90	110	130	-	-	-
066+2	125	145	165	-	-	-
132	160	180	200	220	240	260
132+2	160	180	200	220	240	-



5.14.2 Features of the ILGT blanking procedures

- The ILGT can be installed directly in the gate wing path.
- The S.ILGT is able to replace the conventional gate closing edge safety device with a contact strip or leading light barrier as well as the pass-through light barrier.
- The ILGT does not make demands on the quality of the gate leaf above the edge of the gate, i.e. there, the light beams may be interrupted or clear (PVC film hangings, transparent elements, etc.)
- The protection field underneath the edge of the gate can be provided with parallel beams (very brief response time) or crossed beams (finer resolution).
- The light beam directly underneath the edge of the gate is part of the protection field “to the end”, i.e. no monitoring gap occurs underneath the edge of the gate. With the learned gate speed, even objects directly underneath the edge of the gate are detected during closing with only about half the height of the channel grid of the ILGT at this position.
- The gate is not restricted in its functionality, i.e. during opening and closing it may stop and start automatically as well as reverse.
- The ILGT also monitors the movement of the gate wings above the light grid by learning the time it takes to reach the light grid. Thus it is difficult to simulate a closing gate with an object (patent protected circumvention protection).
- Also with a partially opened gate, the ILGT monitors the protection field for circumvention. Thus it is difficult to use an object to simulate a gate closing further.

5.14.3 Functional blanking description

During the commissioning of the gate, three learn trips (closing and opening) are performed at operational speed. To this end, the ILGT memorises the time the gate requires to interrupt the top channel of the ILGT, meaning the gap between the protection field and the completely open gate. On the other hand, the ILGT stores the gate speed at each point of the protection field. In the following normal operation, the edge of the gate may cross the protection field with no more than 200% of this learned speed.

Function with parameter 26 = 01 WITH circumvention protection (standard):

If the gate is completely open, the gate control system must always set the test input (inputs L and T jointly) of the ILGT prior to every closing.

Should the gate stop automatically or by an interruption of a light grid during the opening or closing, the protection field underneath the edge of the gate down to the floor remains active, the output is still working normally. After a stand still time of 2.5 seconds the gate can continue to move downward only, if either

1. the test input of the ILGT has been set or
2. the gate first moves upward by at least one channel ("relive motion")

Thus, after a stop, the gate must not move upward completely.

If the gate is nearly or completely closed, the light grid output interrupts after 2.5 seconds operationally. Should the bottom two channels clear again during the next opening of the gate, the output is clear again.

Function with parameter 26 = 02 WITHOUT circumvention protection (e.g. for gate controller, which have no function "test before closing"):

If the gate is fully open, the door control must use at least once the test input (input L and T together) of the ILGT. This test needs to be made not directly before the closing, but can also be performed e.g., if the gate is straight up and arrived in the upper end position. After the test it may last arbitrarily long, to the gate closes again.

If you have the gate open or close automatically or by an interruption of the protective field, after 2.5 seconds the output of the ILGT switches off for safety reasons. The gate then can continue closing only, if either

1. the test input of the ILGT has been set or
2. the gate first moves upward by at least one channel ("relive motion")

Thus, after a stop, the gate must not move upward completely.

5.14.4 Saving even more energy, in spite of blanking

By default, the ILGT needs very little power.

In addition, the transmitter may also be deactivated when the gate is closed completely.

However, the receiver must remain activated. If the receiver is also deactivated, the output remains interrupted after a reactivation, until all channels are clear and the gate has been opened completely.

5.15 Operation diagrams

5.15.1 Gate closes completely

Caution!

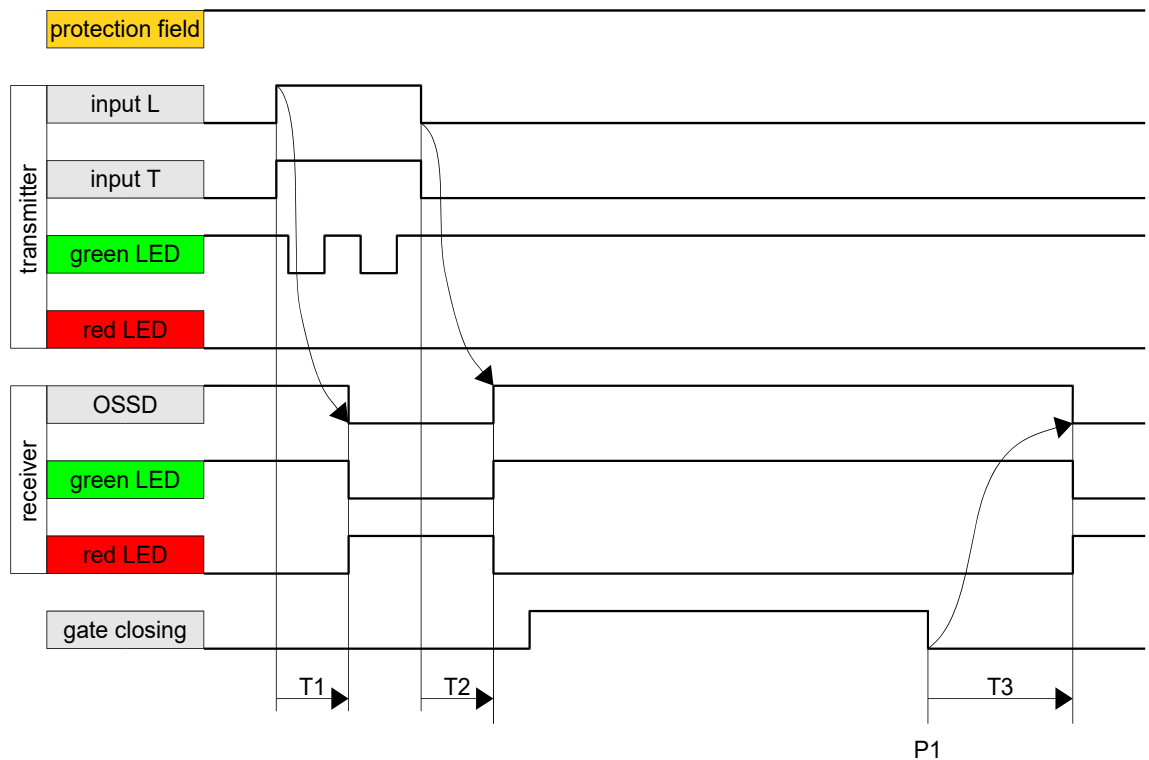


The gate control system **must** test the ILGT for correct function prior to every closing of the gate. The test output of the gate control system must be connected with both inputs L and T of the ILGT. After the gate control system has set Test, it checks if the light grid output (OSSD) is deactivated within the max. admissible response time. If yes, the gate control system deactivates its test output again. If OSSD is activated within the max. period permitted, the gate is able to close in automatic mode.



The test pulse of the gate control system must be at least 50 ms long (recommended: e.g. 100 ms).

As a timeout period of the gate control system we recommend to set at least 400-500 ms after the test and release again. If these timeout periods have elapsed without a reaction of the OSSD, the gate control system either does not provide for a closing of the gate or only in dead man mode.



T1 Response time of the ILGT for „test on“ of the gate control

T2 Response time of the ILGT for „test off“

T3 At ILGT with blanking function the OSSD switches off after 2.5 s, if the gate edge stops in the area of the undermost four channels

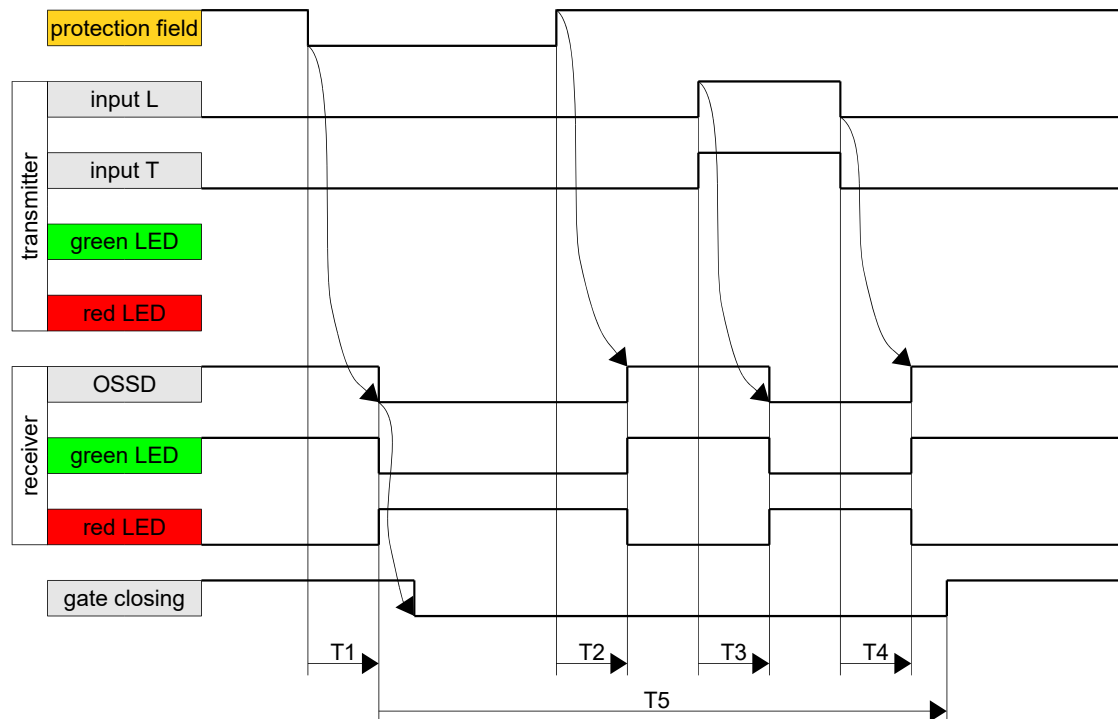
P1 Edge of the gate reaches the undermost four channels (the gate almost is closed)

(Response times of the ILGT see Chapter 10 “Technical data”)

5.15.2 Gate does not close completely

Even with blanking function, the ILGT provides the gate practically with comprehensive mobility. Permitted are partial openings, partial closings, multiple starting and stopping when passing the light grid.

The following diagram presents an interruption of the protection field and continued movement after the release of the protection field with another light grid test.



- T1 Response time of the ILGT for interruption of the protection field.
- T2 Response time of the ILGT for „protection field is clear again“.
- T3 Response time of the ILGT for test signal.
- T4 Response time of the ILGT for „test free again“.
- T5 (Only ILGT with blanking function:) If the gate stops for longer than 2.5 s within the light curtain, prior to a next closing either test must be set (shown in the diagram) or the gate must travel for at least one channel upwards.

(Response times see Chapter 10 “Technical data”)

6 Installation

6.0 D.ILGT

The D.ILGT may be mounted firmly (statically), and on the gate wing in a moveable manner (dynamically).

6.1 S.ILGT

The S.ILGT may only be mounted firmly (statically), thus it must not move along at the gate wing.

6.2 Installation and assembly instructions

1. Check the condition of the light grid when withdrawing it from stock. It must not show severe contamination and damage.
2. It is not admissible to open the sensor strips. This would terminate any warranty by the manufacturer.
3. The installation is only admissible within the specified ranges (see type plate, e.g. of the S.ILGT1 = 1..12 m or of the D.ILGT1 = 0.1..12 m)
4. Observe the installation instructions and provisions for use of the gate manufacturer.
5. Signal cables should be installed separately with a motor line (recommended distance at least 10 cm).
6. The ILGT works with a modulation frequency of 250 kHz. Avoid other infrared light sources in the vicinity of the receiver operating with a similar frequency (e.g. 150 - 350 kHz). Beams penetrating the receiver intensively may cause undesired interruptions of the light grid.
7. If you use the S. ILGT as an E device acc. to EN 12453, avoid permanently mounted, reflective surfaces parallel to the protection field (front and behind the gate) as follows:

S.ILGT1

working distance / m	1-3	4	5	6	7	8	9	10	11	12
min. distance to reflective surface / mm	262	350	437	525	612	700	787	875	963	1050

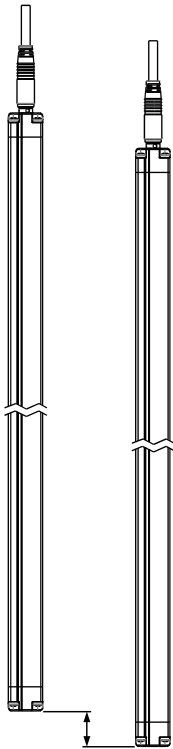
S.ILGT2

working distance / m	10	11	12	13	14	15	16	17	18	19	20
min. distance to reflective surface / mm	875	963	1050	1137	1225	1312	1400	1487	1575	1662	1750

Note: The D.ILGT must not be used as E device acc. to EN 12453.

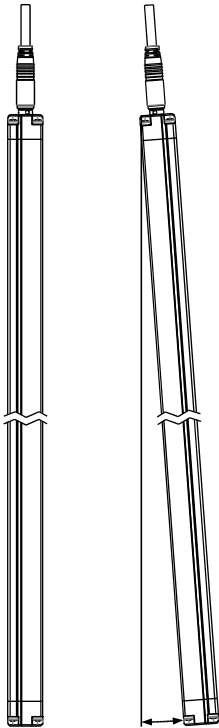
6.3 Accuracy

1. Max. admissible vertical displacement:



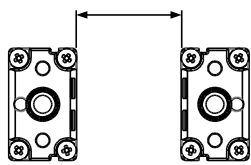
Distance transmitter - receiver	Admissible vertical displacement
0.1 m	5 mm
0.2 m	10 mm
1.0 m	20 mm
> 3.0 m	50 mm

2. Max. admissible out-of parallel (tilting towards one another):



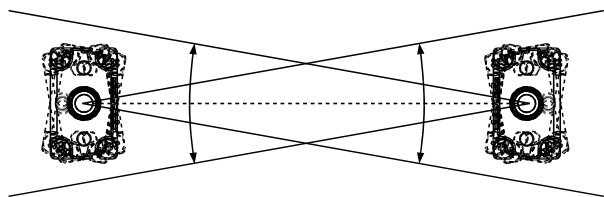
D.ILGT	3°
S.ILGT	1°

3. Minimum permitted separation of the sensor strips:



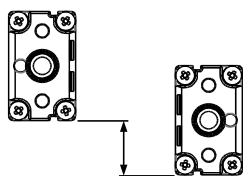
D.ILGT1	0.1 m
D.ILGT2	0.2 m
S.ILGT1	1.0 m
S.ILGT2	10.0 m

4. Max. admissible twisted towards one another:



D.ILGT	3°
S.ILGT	1°

5. Maximum permissible lateral displacement:

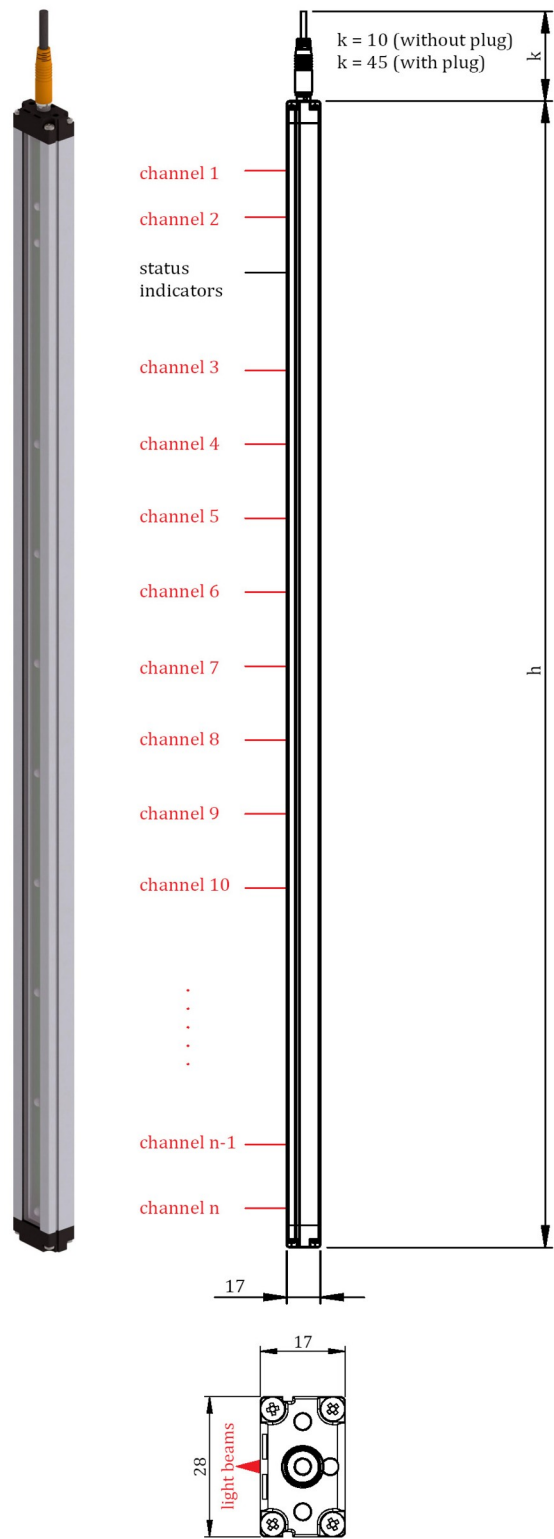


Min. distance transmitter - receiver	Permissible lateral displacement
0.1 m	5 mm
0.2 m	10 mm
1.0 m	20 mm
> 3.0 m	50 mm

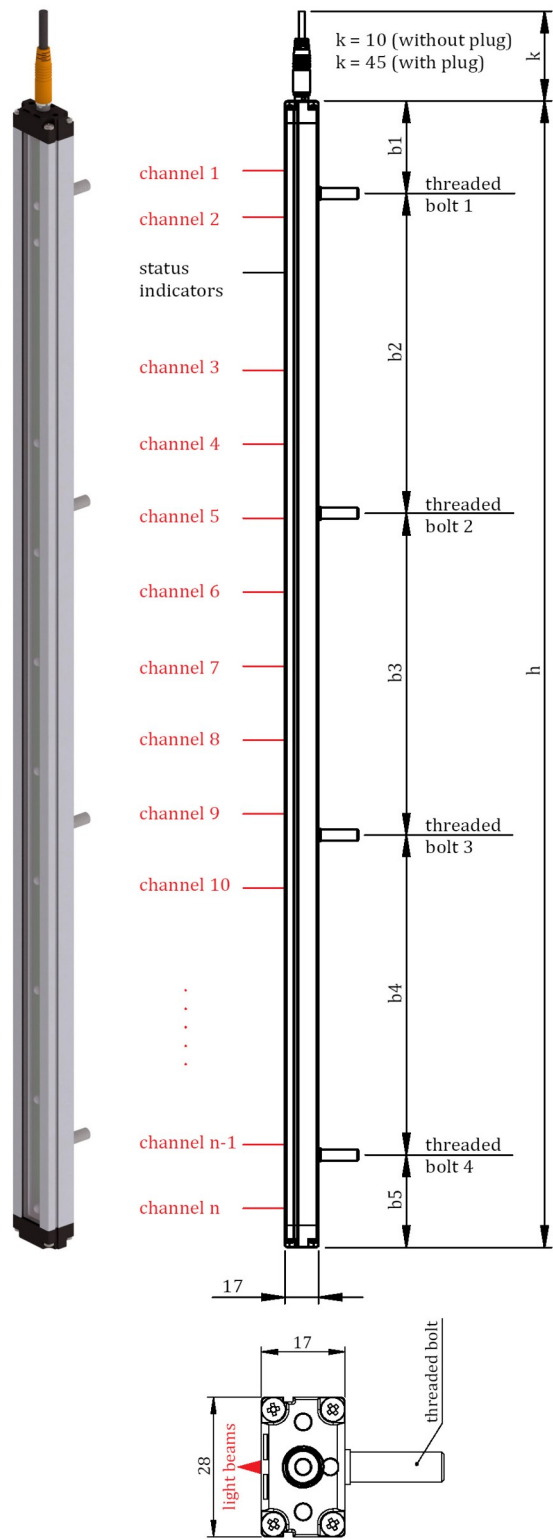
6. Aforementioned limit values should not occur in combination, meaning e.g. sensor strips twisted and simultaneously not mounted in parallel.

6.4 ILGT with clamping or bolt attachment

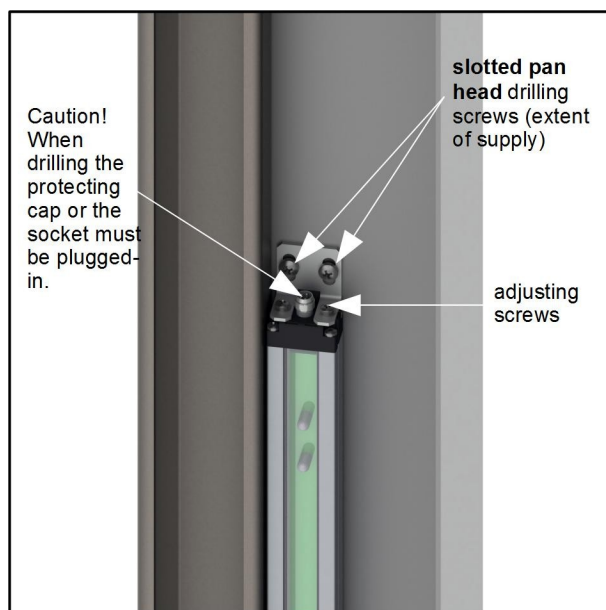
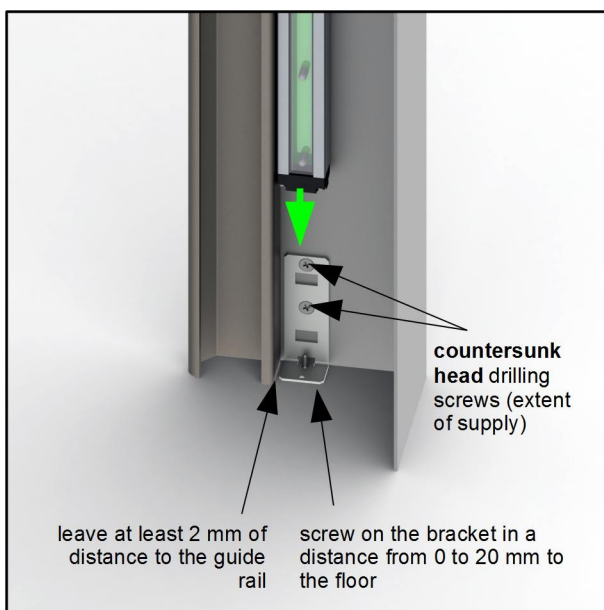
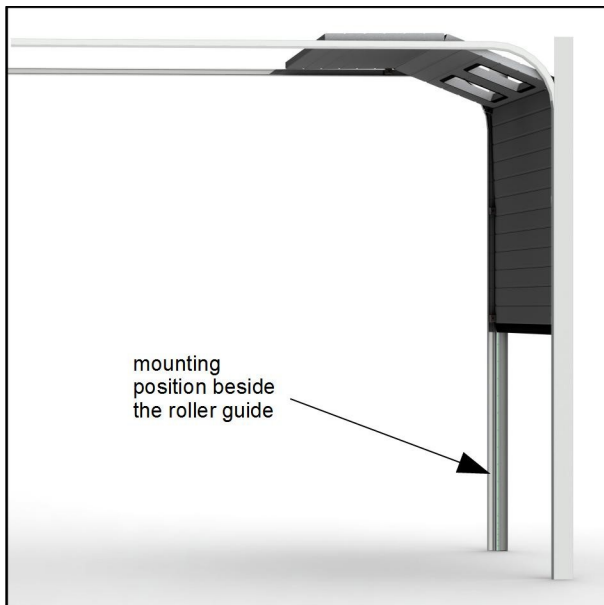
Fastened with clamps (holder provided by the customer)



Fastened with bolts (dimensions see ILGT catalogue)



6.5.1 Example: Assembly within the gate wing path of a sectional gate



1. The edge of the gate must be opaque at least 65 - 260 mm from the bottom edge for light beams (specific value see Chapter 5.14.1 "Blanking conditions"). **Ensure that there are no holes available at the front side of the edge of the gate rubber (see "Avoid assembly mistakes" on the following page)!**
2. The floor should be flat and level, i.e. transmitter and receiver are mounted at the same height. The bottom angle must be vertical and mounted with countersunk bolts.
3. The sensor strip is plugged vertically into the swivel pin; it can easily be turned by approx. $\pm 7^\circ$. **ATTENTION!** Do not twist!
4. The top angle can now be bolted on. Ensure that with pluggable cables no chips fall into the plug (protective cap or cable connector must be plugged).

Avoid assembly mistakes (light grid within a gate wing path)



Right!

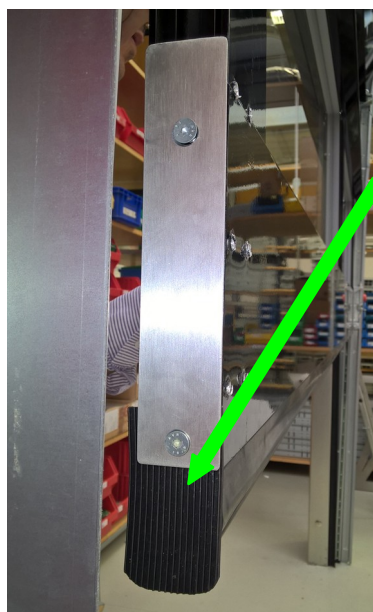
The light grid must be mounted **parallel to the track**, not parallel to the door frame, so that the door edge can pass clean and centred through the light grid.



Wrong!

Though the front of the door edge was sealed with a plate and the door rubber was sealed with foam (and silicone), but the rubber strap at the gate is still translucent for the light curtain, even though you can't see with the naked eye.

The gate thus sporadically stops or reverses at closing by light grid interruption.



Right!

The front of the door edge was almost completely covered with a sheet and a rubber flap so that no infrared beam of transmitter can radiate freely through.

This cover must be made at least on the transmitter side, but better on both sides.

7 Commissioning

7.0 Adjustment

1. Activate the power. At the transmitter (type .../S) the green LED must be lit (not flash). At the receiver (type .../E) either the red LED is lit or the green LED flashes.
2. Open the gate completely (closing does not work since the receiver output is not yet switching). Switch off/on the voltage again.
3. Turn the transmitter until the central position between **red lighting on the right >> green flashing << red lighting on the left** of the indicator LEDs of the receiver have been found (if the green LED of the receiver does not flash, switch the power off/on and try again). Lock transmitter: in case of swivel mounting, with both M3 adjusting screws at the top bracket. Only S.ILGT: The faster the receiver flashes green, the better the alignment (between 1 Hz and 25 Hz).
4. Do the same with the receiver.

7.1 Calibrating

The calibration process performs the following automatically:

- Calibration of the range for optimal function and safety.
- For an activated blanking function: learn the gate speed with learn trips.

Notes and instructions:



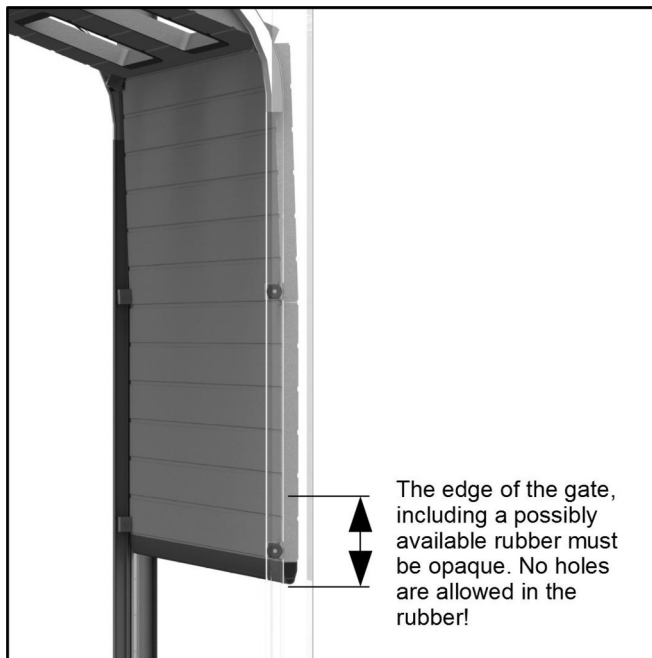
- The calibration process can only be activated within the first 10 minutes after activating the ILGT. If the time elapsed, switch the ILGT off/on.
- If the ILGT has been installed directly within the gate wing path of a vertically moved gate, Parameter `Blanking function` according to Chapter 5.14 “Blanking to suppress the gate” must be activated (see supplementary sheet “Parameter setting” of these instructions). If the ILGT is not passed with the gate wing, this parameter must be deactivated.

1. Open the gate completely.
2. Position the input L to plus for 5-10 seconds (or 0V, see supplementary sheet “Parameter setting” of these instructions).
3. The calibration starts, the red LED is lit at the receiver for approx. 3 seconds (do not disturb the light grid at this time).
4. After a successful calibration the green LED is lit at the receiver. Now, the receiver output is activated. (If the calibration is poor, the green LED flashes again and the red is off; then, the calibration must be repeated starting with step 2, possibly after a readjustment.)
5. Bridge both inputs L and T. To this end, you may also deactivate the ILGT.
6. If your ILGT has not been installed directly within the gate wing path of a vertically moving gate, thus, the blanking function has not been parametrised, you are now done, proceed with Chapter 8 “Test specifications”. **If the blanking function has been parametrised, the ILGT is now expecting learn trips (next chapter).**

7.2 Perform learn trips

Notes and instructions:

- The learn trips must only be performed if the ILGT has been installed directly within the gate wing path of a vertically moving gate.
- The gate must be in normal operation, i.e. the test prior to each closing must function properly connected to the bridged inputs L and T of the ILGT, the limit switches at the top/bottom, the speed of the gate and the acceleration ramps must already been set completely.
- During the learn trips nothing except the gate may cross the light grid.
- Prior to or between the learn trips, the protection field may not be interrupted more than 10 times or the test be set. Otherwise, the process is cancelled for reasons of safety and the calibration must be restarted (previous chapter).
- If a learn trip is interrupted, it can simply be repeated. Also after switching the ILGT off/on, proceed directly with the next learn trip.



(see "Avoid assembly mistakes" on the previous page)

During the following three learn trips the output of the receiver functions normally.

1. The gate is completely open and the inputs L and T are bridged.
2. Close and open the gate completely. If open again, the green and red LEDs at the receiver flash simultaneously 1x ("first learn trip successful"). (Should the gate stop immediately when crossing the light grid, the test signal of the gate control system does not function properly, the edge of the gate is not light-proof for the ILGT, or Parameter 26 = 00.)
3. Close and open the gate completely for a second time. The green and red LEDs at the receiver flash 2x ("second learn trip successful").
4. Repeat once more.
5. After a successful third learn trip the green and red LEDs at the receiver first flash 3x in confirmation. Then, the green LED is lit permanently and the ILGT is now in normal operation.
6. Proceed with Chapter 8 "Test specifications"

7.3 Clear and renew the calibrating

The calibrating can be cleared if necessary. Do the same as in the calibrating process, so on the transmitter again separate the L and T inputs (black and white wire) from the rest, connect the L input (black) for 5-10 seconds to Plus (or 0V, see supplementary sheet "Parameters"), the red LED on the receiver lights up for approx. 3 seconds.

Then the green LED on the transmitter lights up again, the green LED on the receiver flashes. The calibration is cleared and the output is switched off. You can adjust for example the sensors again and start a new calibration. The procedure can be repeated any number of times.



Note:

Clearing the calibration is also possible when the light grid is currently outside its calibrated range (red LED on the receiver lights up). The clearing works with well adjusted light grids up to 15 meters or 25 meters distance between transmitter and receiver.

7.4 Check after commissioning



Caution!

For reasons of safety, after every change and commissioning perform tests according to Chapter 8 "Test specifications".

8 Test specifications

8.0 Check the test function of the gate control system

Bridge the output (OSSD) of the receiver. Open the gate. Give the command to close: the gate may not start to move since the test did not work. Remove the bridge again.

8.1 Check for a gap-free protection field

If your ILGT has been installed at a horizontally moving gate, perform the following steps:

1. The green LED at the receiver must be lit and thus show a clear protection field.
2. With a test piece according to prEN12445:2005 Chapter 6.1 (test specimen A and B), according to prEN12445:2005 Chapter 6.2.2.2 the protection field must be interrupted at all positions. To this end, the red LED at the receiver must be lit continuously. Alternatively, **"Cardboard A" 200 mm thick** and **"Cardboard B" 50 mm thick** can be used:
 - 2.1 Feed Cardboard B with the 50 mm thick side through the protection field between the floor and a height of 300 mm.
 - 2.2 Feed Cardboard A through the protection field at a height of 300 to either the clear opening height of the gate or up to 2500 mm above floor level.

If your ILGT has been installed directly within the gate wing path of a vertically moving gate, thus equipped with the blanking function, perform the following steps:

1. The green LED at the receiver must be lit and thus show a clear protection field.
2. With a test piece according to prEN12445:2005 Chapter 6.1 (test specimen A and B), according to prEN12445:2005 Chapter 6.2.2.2 the protection field must be interrupted at all positions. To this end, the red LED at the receiver must be lit continuously. Alternatively, **"Cardboard A" 200 mm thick** and **"Cardboard B" 50 mm thick** can be used:
 - 2.1 Feed Cardboard B with the side 50 mm thick through the protection field between the floor and a height of 300 mm.
 - 2.2 Feed Cardboard A through the protection field at a height of 300 to either the clear opening height of the gate or up to 2500 mm above floor level.
3. During closing, feed Cardboard A directly under the edge of the gate if the gate is provided with an opening height between just about 2500 and 600 mm. The gate must stop.
4. Open the gate again.
5. During closing, feed Cardboard B directly under the edge of the gate if the gate is provided with an opening height between still 300 and 100 mm. The gate must stop.

9 Parametrisation

All parameters have already been set by the factory; usually a change is not required. However, you are able to make changes locally by means of input T at the transmitter. All parameter changes are stored automatically.

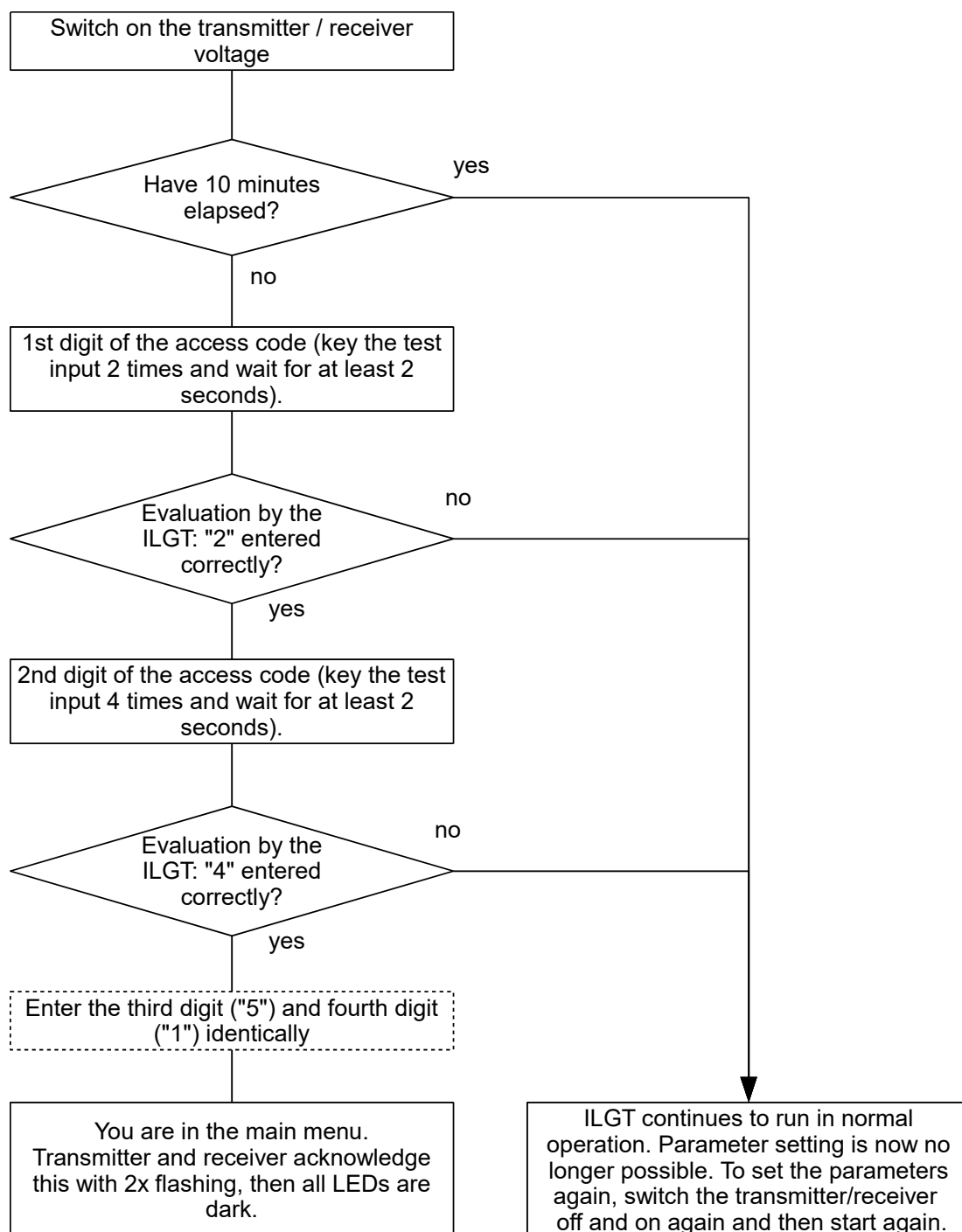
9.0 Important notes and instructions regarding the parametrisation

- For the parametrisation, it is helpful to clamp a sensor to the T-input.
- The parametrisation mode can only be activated within the first 10 minutes after the ILGT has been activated.
- During the parametrisation, transmitter and receiver must “see” one another and be located within the maximum possible nominal range of the ILGT type (e.g. 12 m).
- During the following count of channels, the counting is always carried out from the top (on the cable side) to the bottom.
- Determine during the parametrisation that something has crossed the light path or that the receiver has not detected a value (receiver does not acknowledge or the transmitter is listed in the main menu again and the receiver is not), then you are able to switch the ILGT off and on again, enter the access code and the same parameter again.

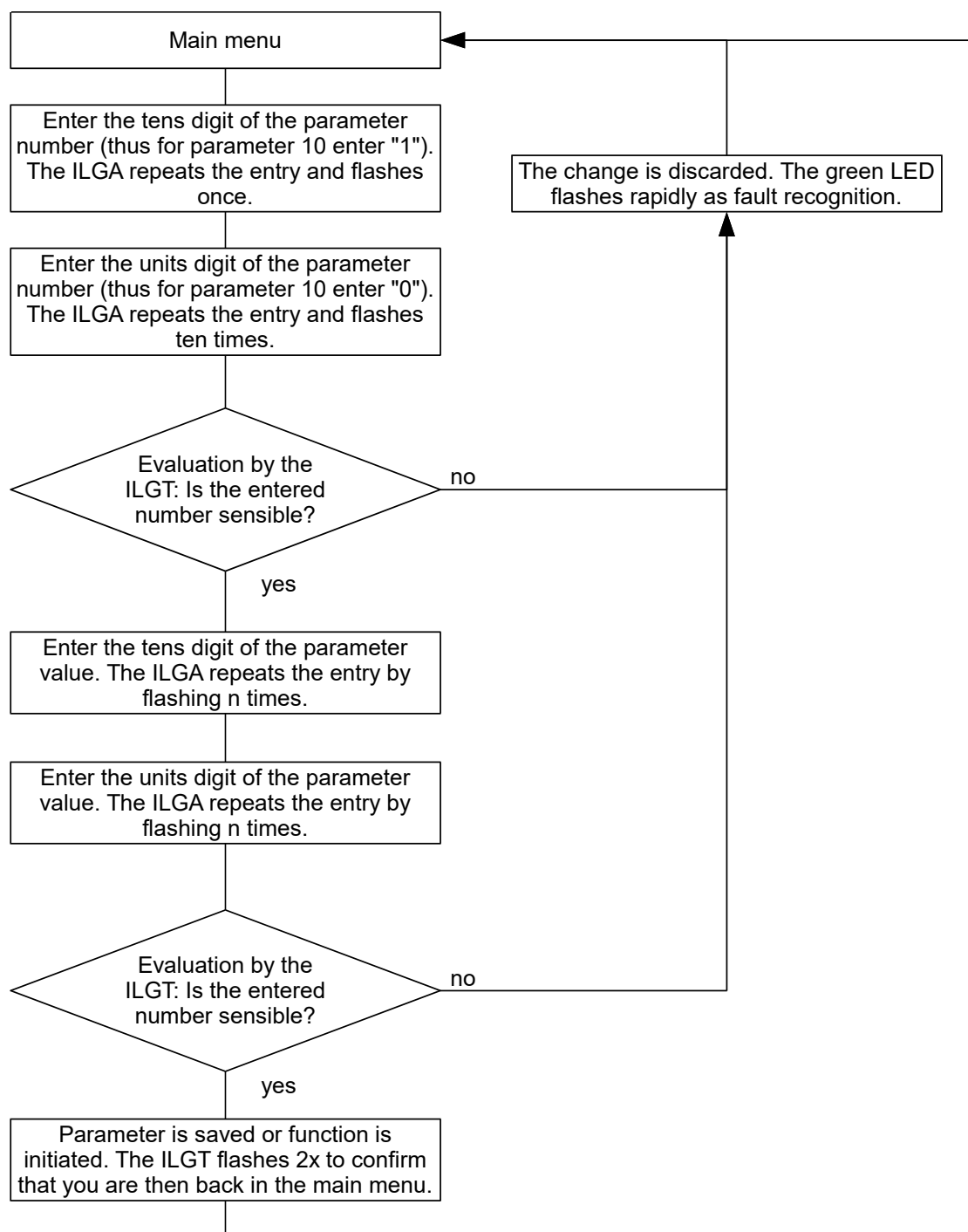
9.1 Action sequence of parameter setting

1. For the input of all parameters the T-input is used at the transmitter. The L-input must not be included in the activation. Separate T- and L-input if possible.
2. Enter a digit at the T-input with a keying speed of 0.1-1.5 s (for a 5, for instance, you must tapping the T-input 5x briefly to +24V or with low-active inputs 5x to 0V). Afterwards, wait at least 2 s. If the digit entered was plausible, transmitter and receiver repeat the digit entered as a confirmation. Now, enter the next digit the same way, etc.
3. A “0” is entered by tapping 10 times. A leading “0” e.g. with the value “01” must be entered (here tap 10x as well, wait 2 s, tap 1x, wait 2 s).
4. The access code for all ILGT is the **digit sequence 2 4 5 1**. During the input of the access code the sequence of the keys is not acknowledged. Any incorrect input of the code leads back to normal operation.
5. After the code has been entered, transmitter and receiver acknowledge every value directly with the green LED after the input. Parallel to the LED, the receiver also acknowledges the value with its output OSSD. Thus, a matching gate control system would be able to parametrise the ILGT also by control menu and, to this end, would receive feedback by pulsing of the OSSD from ILGT.
6. During the parametrisation it is best to watch only the green LED at the receiver.
7. Do not forget to bridge the T- and L-inputs again after the completion of the parametrisation.

9.1.1 Entering the access code



9.1.2 Changing parameters / function initiation



9.2 Parameter list

No.	Description	Value	Description
11	Sync channel no.	01 - N	With the grid code "+2" (the two top channels are also available spaced 20 mm): If here, a grid of 132 mm occurs, the two top channels are specified numbers 1 and 3, otherwise 1 and 2. A channel grid of 132 mm counts twice and a channel grid of 40 or 66 mm once. Examples regarding the numbering of the channels (from the top to the bottom): ILGT-08/040+16/132+2: <u>1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31,33,35,37,38,</u> <u>39,40,41,42,43,44</u> ILGT-16/132+2: <u>1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31,33,35</u> ILGT-16/066+2: <u>1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18</u> ILGT-16/066: 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16 The data between transmitter and receiver are transmitted via the so-called sync-channel. It must always remain activated. 01 = top channel (on the side of the connecting cable) N = bottom channel <u>Factory setting:</u> The sync-channel is set to approx. 2/3 of the height of the sensor strip as a standard. With activated blanking (Parameter 26), the sync-channel is automatically always the bottom channel, independent of Parameter 11.
12	Polarity and logic of L- and T-input	00 - 03	00 = inputs are switched with 0V. Test active if 0V has been applied 01 = inputs are switched with plus. Test active if Plus has been applied 02 = as 01, however, test active if Plus has <u>not</u> been applied 03 = as 00, however, test active if 0V has <u>not</u> been applied (see also Chapter 5.9 "Test input")
14	Type of beam	00 - 05	00 = parallel beams 01 = triple crossed beams 02 = parallel beams + triple scan (rain filter) 03 = triple crossed beams + double scan (rain filter) 04 = parallel beams + 6-fold scan (strong rain filter) 05 = triple crossed beams + triple scan (strong rain filter) (see also Chapter 5.10 "Rain filter") Note: The response time of the ILGT depends on this! (see Chapter 10 "Technical data")

No.	Description	Value	Description
19	Switch-on delay (gate-open period)	00 - 60	00 = off (a minimum period of 100 ms is always active) 01 - 60 = time in seconds Example: 03 means, the output of the ILGT is only activated 3 seconds after the protection field is cleared again
25	Transmitting power	00 - 99	The transmitting power of the transmitter corresponds to the maximum <u>nominal</u> range of the light grid e.g. 50 = 50% the possible nominal range, e.g. 99 = 99% (rounded 100%) of the nominal range Normally, the value does not need to be changed (standard = 99), since during the commissioning, the receiver is automatically calibrated to the transmitter. In an isolated case it may be reasonable to reduce the value, e.g. to reduce the effect of the transmitter on exterior IR receiver or also other ILGT receivers. ATTENTION! In order to avoid malfunctions, Function 51 16 must be activated after a value has been changed so the receiver can be calibrated to the new transmitting power, see Chapter 7.1 "Calibrating"!
26	Blanking	00 - 01	00 = no 01 = yes (during the installation directly into the guide rail for gates of vertically moving gates, WITH circumvention protection) 02 = yes (during the installation directly into the guide rail for gates of vertically moving gates, WITHOUT circumvention protection) (see chapter 5.14.3 "Functional blanking description")
51	Activation of the functions	10 - 16	10 = end of the parametrisation 11 = reset to factory setting 12 = channel suppression 13 = all parameters issued as flash code 14 = copy all parameters of the transmitter to the receiver (a possibly set channel suppression, Parameter 51 12 is not included in the transmission) 15 = transmission of a set of parameters via the gate control system 16 = calibration (+learn trips) restart ATTENTION: see Chapter 7.1 "Calibrating"! 17 = reset to the setup mode to be able to readjust the light grid. Alternatively, you are also able to change the L-input for 5-10s to Plus (or 0V).
	Ref. to 10) The ILGT returns to normal operation. May also be performed by deactivation/activation. Ref. to 11) Transmitter and receiver return to their respective factory settings. Ref. to 12)  When activated the covered channels are permanently disabled. Caution! Ensure that this does not lead to inadmissibly large holes in the protection field,		

No.	Description	Value	Description
	check according to Chapter 8 "Test specifications"! - All relevant <u>transmitter and receiver</u> LEDs must first be taped light-proof or the object to be suppressed must be located within the light path. - The sync channel must not be obstructed. If it is to be covered anyway, it must be relocated to a position of the ILGT, which is not required to be occupied (see Par.11). - The position of the covered channels is in other respects random. You can also shut down several areas. - A least 2 channels must remain, the sync-channel and another channel. - In case of ILGT with blanking function, a suppressed channel increases the maximum channel grid occurring and the minimum height of the edge of the gate must be accordingly larger (see Chapter 5.14 "Blanking to suppress the gate"). Ref. to 13) Successively all stored parameters are issued. The transmitter and the receiver output their values independently of each other. In case of doubt, run this function twice and record the values separately. They must always correspond, otherwise the ILGT will be unable to function correctly. After the "3" of the entered "13" has not yet been acknowledged, the output of parameters starts: X = value of Parameter 11 (ten's digit) X = value of Parameter 11 (A-place) X = value of Parameter 12 (ten's digit) X = value of Parameter 12 (A-place) ... X = value of Parameter 26 (ten's digit) X = W value of #Parameter 26 (A-place) Example: 0 4 ... means that Parameter 11 is set to the value 04, etc. Ref. to 15) A gate control system could know the parameters of the ILGT and send them to the ILGT. A set of parameters can be transmitted to the ILGT with calls of Function 51 15. The following action sequence must be maintained: All digits should be transmitted with a speed of 150 ms pulse and 150 ms pause, it is necessary always to pause between the digits for 2.5 s. First, transmit access code 2451. Then, wait for the main menu confirmation of the ILGT (2x flashing of the ILGT output in a 300 ms interval). Function 51 transmitted (ILGT acknowledges always the digits at its output in a 300 ms interval). Now, transmit parameters in the same order as described under 51 13, thus, first Parameter value 11 ten's digit, <u>1.5</u> s wait (briefer period permitted), Parameter value 11 unit place, ... to 26 unit place. After each complete parameter (so always after 2 digits) the ILGT checks if this value is admissible. If a value is inadmissible, the ILGT indicates this at its output by flashing 5x in a 70 ms interval. If after the clocking of the last parameter everything was okay, flashes of the ILGT output indicates this by flashing 2x in a 300 ms interval storing the data. In case of a fault the ILGT output flashes 5x in a 70 ms interval. Then, exit the menu by moving to 51 10 (always with a 2.5 s pause between digits). After exiting the menu, the ILGT functions as usual immediately applying the new parameters. Ref. to 16) Here, as an alternative to setting the L-input, you are able to start another commissioning. The calibration is only started after the menu has been left, or switching the power off/on.		

Page 36

Optically		
Type	Unit	Value
Allowed nominal range (working distance)	m	D.ILGT1: 0.1 - 12 D.ILGT2: 0.2 - 20 S.ILGT1: 1 - 12 S.ILGT2: 10 - 20
Wavelength of the light beams	nm	850
Clock frequency of the light beams	kHz	250
Opening angle of the light beams	°	D.ILGT: ±10 S.ILGT: according to EN 61496-2 (sharper contrast than for D.ILGT)
Foreign light tolerance	Lux	Direct and low-frequency light, e.g. sun: >120,000 Other light sources: according to EN 61496-2
Electric		
Type	Unit	Value
Power supply	V DC	11-30 DC, ripples 10% (See also chapter 4 "Connection")
Protection against reverse polarity		Yes
Max. current consumption per pair (Note: Receiver individual: 25 mA, independent of parameters)	mA	<u>Complete individual light grids:</u> D.ILGT1 / D.ILGT2 / S.ILGT2: 42 + 2.1 per channel S.ILGT1: 42 + 0.7 per channel Example: S.ILGT1 with 16 channels = 54 mA D.ILGT1 with 16 channels = 76 mA <u>Parameter 25 (max. Nominal range):</u> If the max. nominal range is limited with Parameter 25 the channel current is reduced by the same percentage, thus, per light grid pair: 42 mA + (Par.25)/100 x channel current x number of channels <u>For a heating system (less than 10-15°C) additional:</u> Grid 40 and 66 per 8 channels: 118 @12V / 237 @24V Grid 132 per 4 channels: 118 @12V / 237 @24V
Connecting cable		<u>Standard cable:</u> 4x0.25 mm² / PVC / good resistance to oils <u>Highly flexible cable:</u> 4x0.25mm² / PUR / flame-retardant/ silicone, halogen and PVC-free / good resistance to chemicals and oils / to microbes and hydrolyses / good weld-field immunity / very good weather resistance
Output at the receiver (OSSD)		
Type	Unit	Value
Switching manner		1 closing device potential-free: electronic contact, closed with a clear light path
Max. voltage switched	V	35 AC/DC

Max. current switched	mA	150 @ TU=20°C / 100 @ TU=55°C
Min. current switched	mA	6 (according to EN 61496-1:2009 Section 4.2.4.3)
Voltage drop at the "contact" min. / typ. / max.	V	1.4 / 1.7 / 2.15 (depending on temperature and current)
Max. leakage current with open "contact"	µA	13 @ 20°C / 60 @ 55°C
Protection against reverse polarity / protection against short-circuit		Yes / Yes
Inputs at the transmitter		
Type	Unit	Value
Current consumption per input	mA	2.5 @ 24V

11 Maintenance

11.0 Precautions



Caution!

Keep all documentation included in the delivery such as manuals and circuit diagrams at the installation site of the plant handy at all times. Please observe all safety and danger notes of the system and always keep them legible.



Caution!

Should changes of the environmental factors such as temperature, humidity or potentially explosive atmosphere occur during the operating or storage period of the safety light grid, the manufacturer must be notified to adapt the plant to the new conditions.



Caution!

Spare parts must correspond to the technical requirements specified by the manufacturer. This is always given for original spare parts. In case of changes to the safety circuit or control system, additional hazards may occur excluding a liability of the manufacturer for resulting damages.



Caution!

Do not perform independent repairs of control units or sensor strips. In case of a failure to observe these notes and instructions or changes to the ILGT, additional hazards may occur excluding a liability of the manufacturer for resulting damages.

11.1 Maintenance intervals

The ILGT is designed and constructed so that it functions with low-maintenance.

The correct function of the ILGT should be checked within periodic inspection of the plant (see Chapter 8 "Test specifications"). We recommend performing this check as well at the time when control software of the gate control system is replaced.

11.2 Cleaning the sensor strips

Depending on the degree of dirt accumulation on the plant, the filter discs of the sensor strips must be cleaned at corresponding intervals. However, only clean the discs with a soft, moist cloth, if necessary, with a small amount of detergent.



- Do not use any abrasives or additives that attack plastics.
- Do not “rub” dry, since plastic panes may become blind or increasingly bind dust, which may lead to a reduction in range.

11.3 Instructions for replacement

1. Ensure that the type designations on the transmitter and receiver only vary in the specification “.../T...” (transmitter) and “.../R...” (receiver).
2. The version of the transmitter and of the receiver must be the same, e.g.
.../T and .../R
.../T2 and .../R2
.../T3 and .../R3
3. Position transmitter and receiver always at the gate side they had been placed before.

12 Storage

Store the units only at the admissible temperature (see Chapter 10 “Technical data”) and under normal additional storage conditions for electrical equipment.

Check the condition of the units when removing them from storage. They must not show any severe contamination with dirt, mechanical damage or deformation.

13 Packing and disposal

The customer is responsible for disposing of the delivered goods after termination of their service life at his own expense and in accordance with the statutory regulations, and to hold STRACK LIFT AUTOMATION GmbH free from obligations according to § 10 Section 2 ElektroG (Manufacturer's take back obligation) and third party claims in connection therewith.

14 EC Declaration of conformity

We hereby declare that the product described below, based on its design and construction as well as the version that we have put into circulation, observing the operating manual included in the delivery, corresponds to the respective protection requirements of the directives specified below. The product complying with this declaration is provided with the CE mark. This declaration becomes invalid should the product be modified without our approval.

Type designation:	D.ILGT / S.ILGT
Year of construction:	2023 / 2024 / 2025 / 2026 / 2027
Short description:	Contactless active protective device for power-operated doors and gates provided the for the installation in access areas of persons, and mainly used to ensure safe access for goods and vehicles, accompanied or controlled by persons in industrial, commercial or residential areas.
Relevant directives:	2006/42/EG (Machine Directive) 2006/95/EG (Low-voltage Directive) 89/336/EEC (EMC Directive)
Applied standards:	IEC 61496-1:2012 (BWS type 2) IEC 61496-2:2013 (D.ILGT only section 5.4 / S.ILGT full standard) EN 12978:2009 (D.ILGT without section 4.3.3 / S.ILGT full standard) prEN 12453:2005 EN ISO 13849-1:2008 + AC:2009, Cat. 2, PL c EN 62061:2005 + AC2010 + A1:2013, SIL 1 EN 61508 parts 1-7:2010
Name of the notified body the of the EC certificates performing the EC type- examination and the production monitoring:	TÜV Rheinland Industrie Service GmbH Competence Centre Functional Safety Am Grauen Stein 51105 Köln (Identification number 0671)
Certificate no. of the EC type examination certificate:	01/205/5384.00/14



This explanation is issued by the responsible manufacturer **STRACK LIFT AUTOMATION GmbH**

Submitted on 2 Jan. 2023 by Dipl.-Ing. Dirk Strack, Manager Director

A handwritten signature in black ink, appearing to be 'D. Strack', is written over a horizontal line.

Note

The products specified above are exclusively intended for the installation in doors and gates or the assembly with other door and gate parts. The commissioning or distribution within the European Community is admissible only if the finished product conforms to the relevant harmonised directives of the EC.

15 EC Type-Examination Certificate


TÜVRheinland®

ZERTIFIKAT
CERTIFICATE

EC Type-Examination Certificate
Reg.-Nr./No.: 01/205/5384.00/14

Prüfgegenstand Product tested	Berührungslos wirkende Schutzeinrichtung (BWS Typ 2) für Tür- und Toranwendungen Active Opto-electronic Protective Device (AOPD Type 2) for door and gate applications	Zertifikatsinhaber Certificate holder	STRACK LIFT AUTOMATION GmbH Lise-Meitner-Straße 2 42489 Wülfrath Germany
Typbezeichnung Type designation	S.ILGT, D.ILGT	Hersteller Manufacturer	wie Zertifikatsinhaber see certificate holder
Prüfgrundlagen Codes and standards forming the basis of testing	EN 61496-1:2004+ A1:2008 + AC:2010 IEC 61496-1:2012 IEC 61496-2:2013 EN ISO 13849-1:2008 + AC:2009		EN 62061:2005 + AC:2010 + A1:2013 EN 61508 Parts 1-7:2010 EN 12978:2003 + A1:2009 (in extracts) prEN 12453:2005 (in extracts)
Bestimmungsgemäße Verwendung Intended application	Absicherung an Türen und Toren. Das S.ILGT erfüllt die Anforderungen an eine BWS Typ 2 nach IEC 61496-1/-2 und kann als E-Einrichtung nach EN 12453 eingesetzt werden. Das D.ILGT erfüllt bis auf den effektiven Öffnungswinkel (EAA) alle Anforderungen an eine BWS Typ 2 und kann als Kombination aus C- und D-Einrichtungen gemäß EN 12453 eingesetzt werden. Alle Lichtgitter erfüllen Kat. 2 / PL c nach EN ISO 13849-1 und SIL CL 1 nach EN 62061 / IEC 61508. Safeguarding at doors and gates. The S.ILGT complies with the requirements for AOPD Type 2 acc. to IEC 61496-1/-2 and can be used as E-type mean acc. to EN 12453. The D.ILGT complies with the requirements for AOPD Type 2 except for the effective aperture angle (EAA) and can be used as a combination of C- and D-type means acc. to EN 12453. All light curtains comply with Cat. 2 / PL c acc. to EN ISO 13849-1 and SIL CL 1 acc. to EN 62061 / IEC 61508.		
Besondere Bedingungen Specific requirements	Die Hinweise in der zugehörigen Installations- und Betriebsanleitung sind zu beachten. Für den Einsatz in Tür- und Tor-Anwendungen gemäß EN 12453 ist eine testende Torsteuerung einzusetzen. Bei Anwendung des D.ILGT muss als Ergebnis einer Risikoanalyse gezeigt werden, dass Umspiegelungen während der Torfahrt nicht zu einem gefährlichen Ausfall der Schutzeinrichtung führen können. The instructions of the associated Installation and Operating Manual shall be considered. For use in door and gate applications acc. to EN 12453 a testing door controller has to be used. When using the D.ILGT it has to be shown as the result of a risk analysis, that extraneous reflections during the door movement do not result in a fail to danger of the protective equipment.		
Es wird bestätigt, dass der Prüfgegenstand mit den Anforderungen nach Anhang I der Richtlinie 2006/42/EG über Maschinen übereinstimmt. It is confirmed, that the product under test complies with the requirements for machines defined in Annex I of the EC Directive 2006/42/EC.			
Dieses Zertifikat ist gültig bis 11.04.2019. This certificate is valid until 2019-04-11.			



Functional Safety Type Approved

www.tuv.com
ID 0600000000

Der Ausstellung dieses Zertifikates liegt eine Prüfung zugrunde, deren Ergebnisse im Bericht-Nr. 968/M 421.00/14 vom 11.04.2014 dokumentiert sind. Der Inhaber eines für den Prüfgegenstand gültigen Genehmigungs-Ausweises ist berechtigt, die mit dem Prüfgegenstand übereinstimmenden Erzeugnisse mit dem abgebildeten Prüfzeichen zu versehen.

The issue of this certificate is based upon an examination, whose results are documented in report-no.: 968/M 421.00/14 dated 2014-04-11.

The holder of a valid licence certificate for the product tested is authorized to affix the test mark shown opposite to products, which are identical with the product tested.



Berlin, 2014-04-11

Certification Body for Machinery, NB 0035



Dipl.-Ing. Eberhard Frejno

