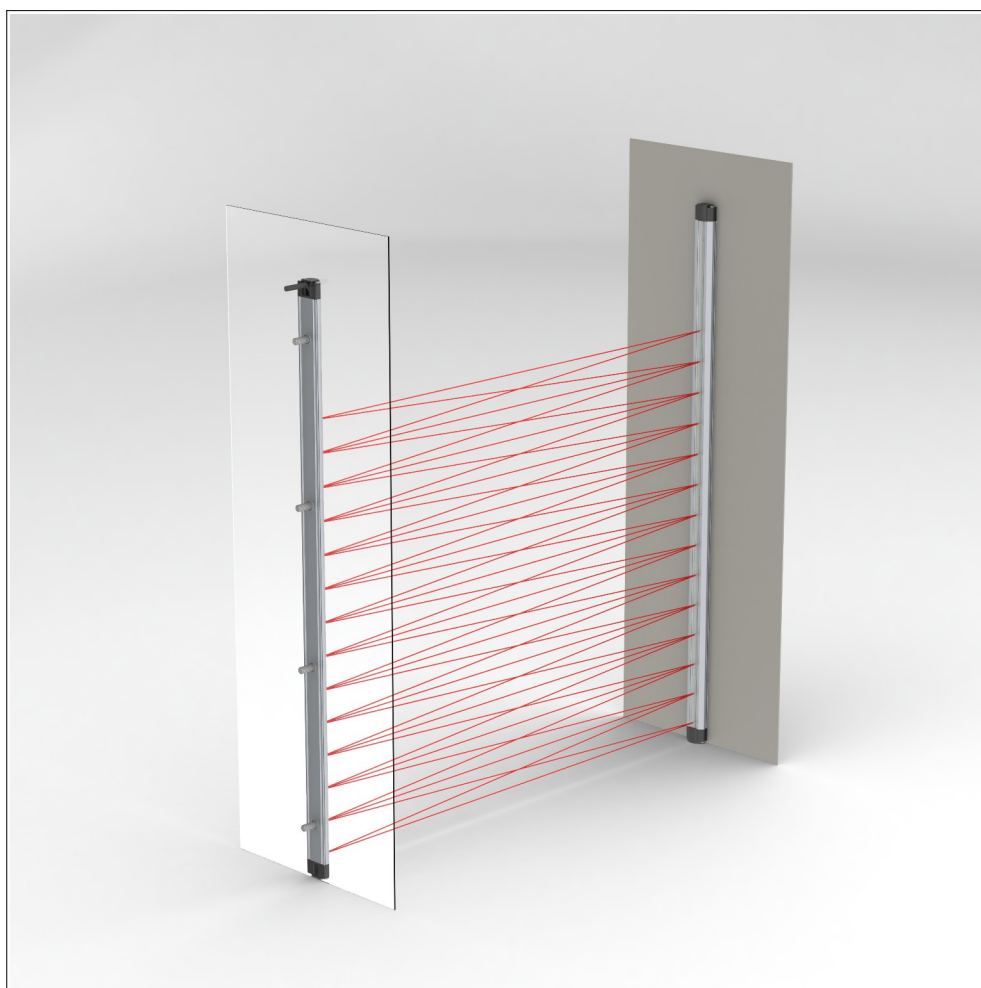


Operating Manual ILGA

Fully automatic light curtain with flat shape

Status: 2.10.2024



Important note:

The data and information in this documentation were compiled with the greatest of 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.

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1 Risk assessment

The knowledge and technical realisation of the safety instructions included in this documentation is a pre-requisite for a defect-free product. However, this documentation cannot take into account all details of any possible case occurring during the installation. Therefore an element of risk of human failure remains as in any other case. This documentation is intended to limit this residual risk to a minimum.

1.0 Understanding of symbols and meaning and safety instructions

Font / Symbol	Meaning
	Danger warnings are designated with this danger sign. It points out existing danger of accident entailing personal injury or property damage if the measures to be taken are not complied with.
	Special information and useful tips

1.1 Utilisation as intended

ILGA light curtains are utilised as reversing devices on power-operated doors and gates indoors, in lifts for persons, on access routes of industrial production lines, in automated stores, for monitoring goods loading, etc.

Restrictions



- Utilisation in applications for which the safety of persons depends exclusively on the device function is not permitted. In such cases so-called safety light curtains must be used.
- The ILGA must not be used in the vicinity of gases or dusts that are able to explode.
- Strong smoke production or fog patches interrupt the light path of the ILGA and thus could hold the door or gate open inappropriately. This must be observed when utilising the ILGA together with fire confining control systems, etc.
- The ILGA may not be exposed to any direct weather. Protect it against the direct influence of rain, snow and hail at applications in the outside area.

2 Concepts and abbreviations

channel A couple from sending and reception LED of light bars. E. g. 32 channel light bars have 32 sending LEDs and 32 accompanying reception LEDs. A channel can send out or receive several light beams: in the parallel radiation configuration one light beam, in the cross radiation configuration three light beams.

3 Type key

(see ILGA datasheet)

4 Dimension drawings

(see ILGA datasheet)

5 Functional principles

5.0 General

The ILGA consists of a transmitting strip (".../S" type designation) and a receiving strip (".../E" type designation). The LEDs in the transmitting strip emit infra red light beams in a predefined time sequence, whereby in the crossed beam function each LED transmits 3 times in each cycle. The receiving LEDs in the receiving strip receive this cyclic sequence, where in crossed beams mode each receiving LED receives three times in each cycle, with and without offset with respect to the transmitter. After each cycle the receiver evaluates according to the preset parameters, whether an object is present between the transmitting strip and the receiving strip, and switches its output to the corresponding state. A new cycle starts then, repeatedly.

The entire electronics module is incorporated within the sensor strips, and a voltage supply of 10...30V DC means that no separate power supply is required. The "relay" output is floating and electronic, i.e. without mechanical contacts subject to wear. Closing or opening contact function can be configured locally without requiring auxiliary equipment (see under parameter setting). It is also possible to connect the ILGA to the mains voltage with the mains power supply unit NTR18/04.

5.1 Object detection / monitoring grid

(see ILGA datasheet)

5.2 Fully automatic sensitivity regulation

(see ILGA datasheet)

5.3 Local parameter configuration or "quick change possible"

(see ILGA datasheet)

5.4 Beam failure tolerance

If it is found in the course of operation that a limited number of light beams are obstructed for longer than 60 seconds, the ILGA assumes that a defect or manipulation (chewing gum) is the cause and deactivates these channels. The ILGA then functions normally again, but indicates the failed beams (see „LED status indicators“ page 11). The monitoring time and the number of beams (max. 9) can be configured as parameters. The positions of the light beams relative to each other are arbitrary. This status is reset after switching off and on.

Note: The sync channel is an exception. It must not fail.

5.5 Arbitrary channel suppression

If you want to suppress a region of the light curtain, place the "disturbing object" in the light curtain or stick opaque adhesive tape over the region at the receiver. Then activate the function "channel suppression" (see „Parameter list“ page 17). The ILGA then excludes the covered channels from detection. After exiting the menu the ILGA functions quite normally, but without the suppressed regions. This setting is permanently saved and thus retained even after switching off and on again. In the case of intended changes, the procedure can be cancelled and repeated any desired number of times.

Arbitrary areas may be removed, the synchronization channel mustn't, however, be covered since the data transmission and the synchronization then wouldn't work between transmitter and receiver any more.

At first if the synchronization channel also shall be removed, he must be moved (see „Parameter list“ page 17).

5.6 Test input

(see ILGA datasheet)

If the test input is not required, it can be left with nothing connected to it. The test input can be driven as 10...30V or as 0V signal (see „Parameter list“ page 17).

5.7 Switch-on delay

(see ILGA datasheet)

5.8 Switch-off delay

(see ILGA datasheet)

Example: If a switch-off delay time of 1 second is configured, the ILGA only switches off the output after the light beam has been interrupted continuously for at least 1 second. If, for example, the obstruction of the light path disappears again within this one second, the time delay will restart from the beginning when the light path is interrupted again.

5.9 Heater (not with ILGA-LED)

(see ILGA datasheet)

5.10 ILGA-LED, light curtain with red/green illumination

(see ILGA datasheet)

5.11 Buzzer

(see ILGA datasheet)

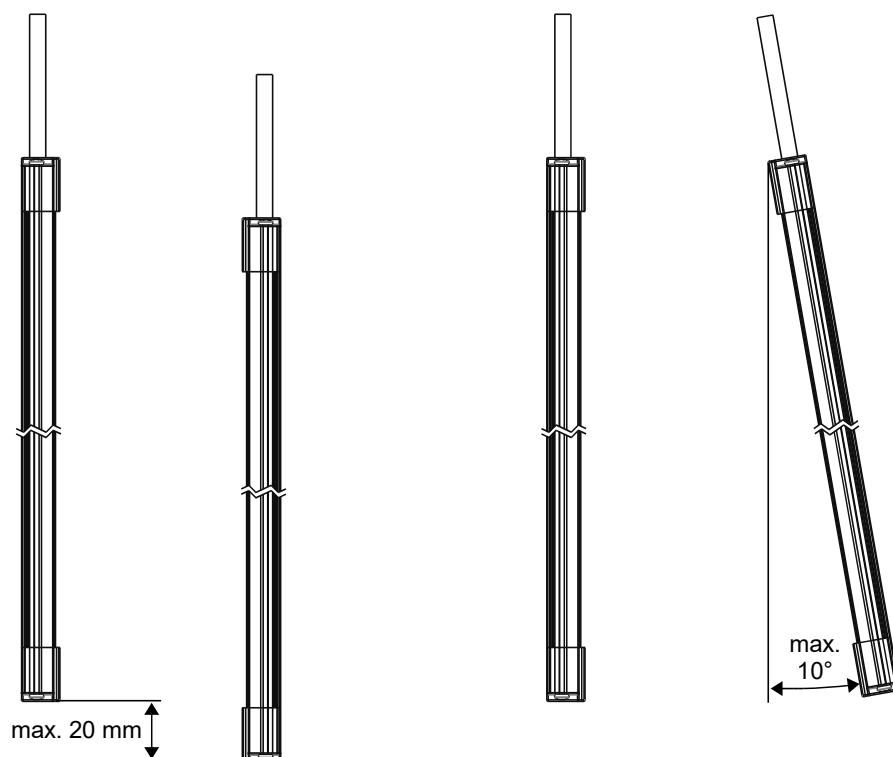
5.12 Light curtain group

When using a small control unit, up to 5 pairs of ILGA can be grouped together without affecting each other. The outputs of the ILGA can be used as usual single. Because of the special multiplex procedure newly developed by STRACK, the response even when 5 interconnected light curtains is still considerably short (see „Technical data“ page 24).

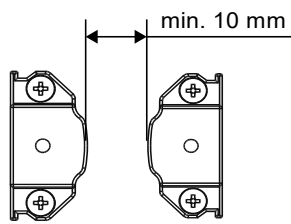
6 Installation

6.0 Mounting instructions

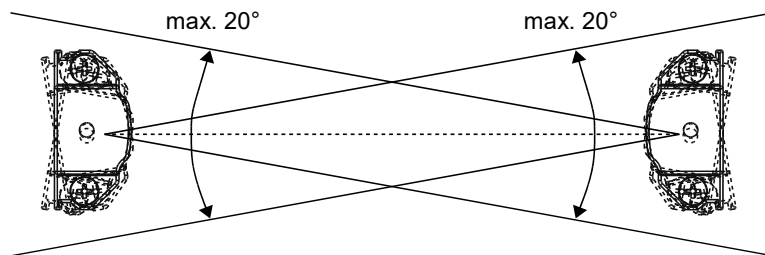
1. The connection of the sensor strips to the earthed car or machine frame must be conductive. This is usually already ensured by the standard fastening.
2. The ILGA operates with a modulation frequency of 250 kHz (see „Technical data“ page 24). Please avoid foreign light sources in the vicinity of the ILG receiver if they operate with a similar frequency (50 - 350 kHz). If such foreign light sources radiate too strongly into the receiver, incorrect switching operations of the ILGA could take place during the times when these foreign light sources are switched on.
3. It is not admissible to open the sensor strips. Opening them would void all warranty and liability of the manufacturer.
4. No further fixing bolts may be welded onto the sensor strips with bolt attachment. Modifications will be made only by the manufacturer.
5. The limit values stated below must not be reached in combination, i.e. the sensor strips must not be mounted strongly rotated and at the same time not parallel.
6. max permissible vertical displacement and non-parallel error (depending on the range)



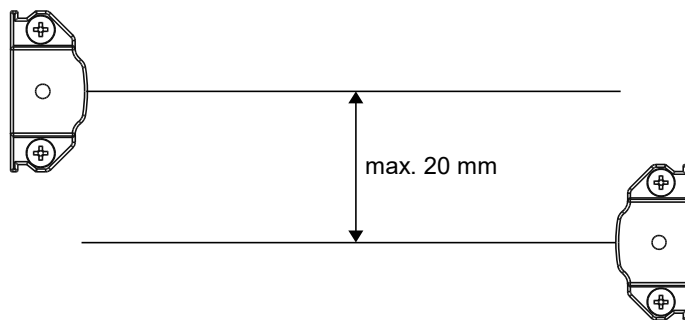
7. min permitted separation of the sensor strips



8. max permissible rotation (depending on the range)



9. max permissible lateral displacement (depending on the range)



7 Connection

7.0 General

Normally the ILGA is connected directly to the +10...30V DC power supply of the higher level system.

7.1 Switching output of the receiver

The switching output between the pins 2 and 4 or between the conductor colours white and black is designed as floating electronic "contact". When the internal fuse operates in response to an excessive current drain due to overcurrent or short circuit in the output circuit, the output impedance becomes high (the output opens). The output operates normally again only after removing the excessive current drain and elapse of a waiting time of a few seconds then. **NOTE:** In the non-powered state of the ILGA, the output is always open, regardless of the configuration as closing or as opening contact.

7.2 Connector pin assignment

(see ILGA datasheet)

7.3 Single light curtain

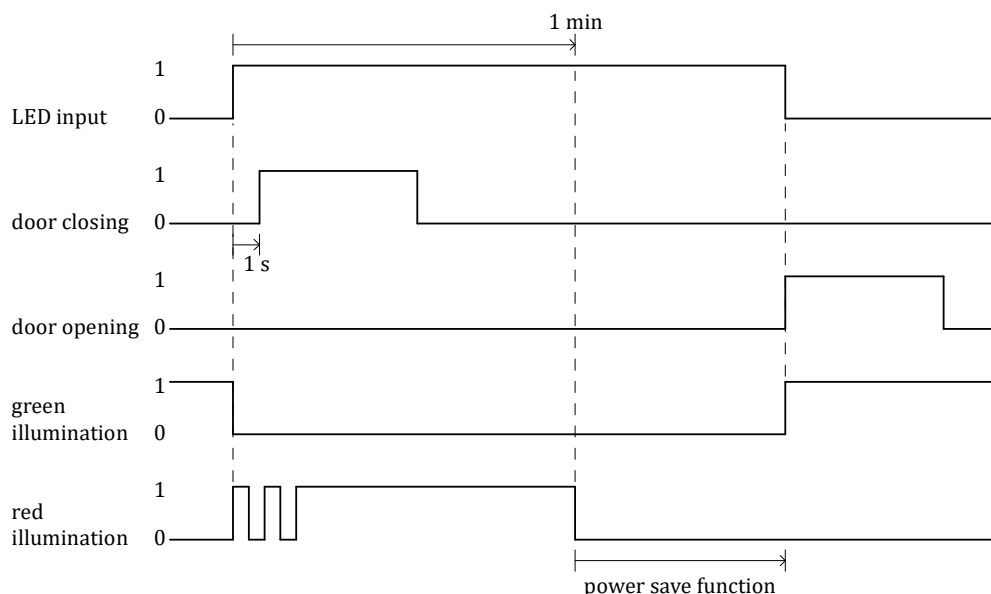
(see ILGA datasheet)

7.4 ILGA-LED

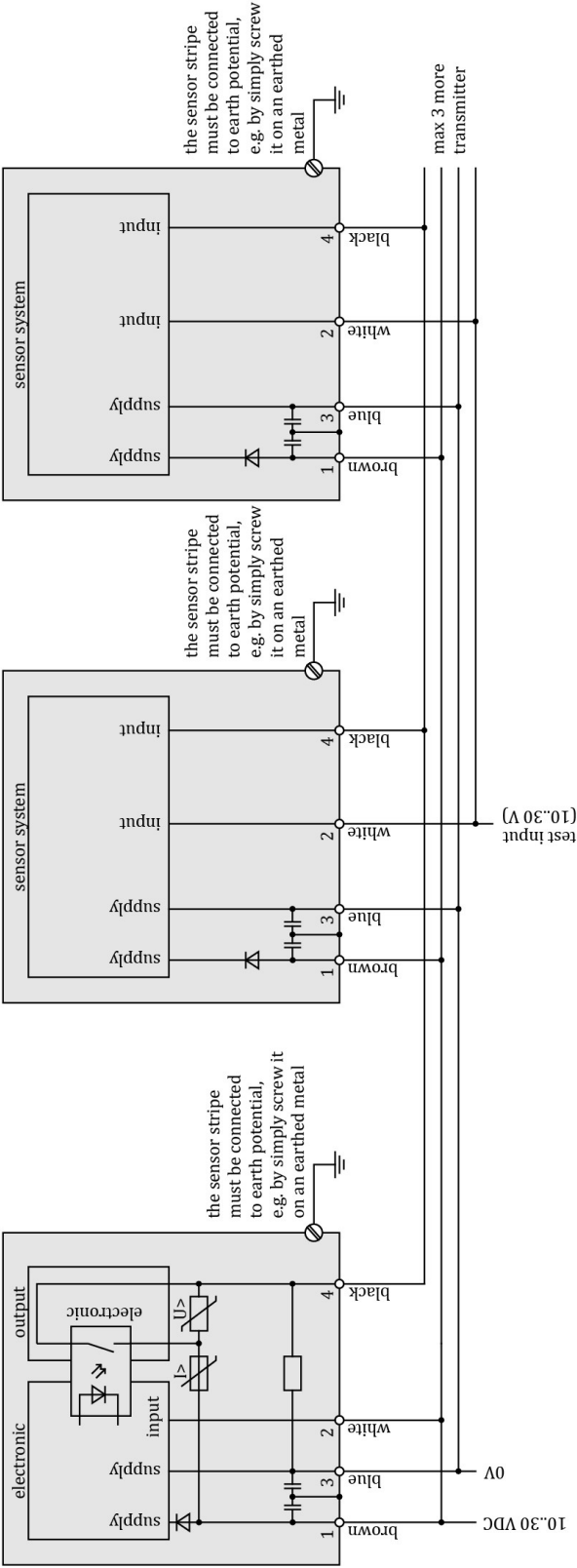
(see ILGA datasheet)

Connection of the LED input

The LED inputs of the transmitter and receiver are normally bridged and can be connected in the simplest case with the door close signal of the master control. It is better, if the master control has a separate output, which switches-on briefly (e.g. 1s) before closing the door. Even if this signal remains further switched-on with closed door, the ILGA switches-off the lighting after one minute (power save function). If the master control switches-off the signal again with beginning of a door opening, the ILGA switches-on its green lighting immediately and without flashing.



7.5 A group of light curtains (optional)



Caution!
Applies only to a group with several light curtains.
Standard connection, see ILGA data sheet!

NOTE
With a group of light curtains the test input must only be switched active plus (see parameter 13).
The output of the primary control system must not switch active 0V. It has to be open or high resistance at this status.

8 LED status indicators

Transmitter	
yellow LED	Description
off	transmitter is off (no supply voltage)
on	transmitter is in operation
flashes rhythmically	test input is active

Receiver		
yellow LED	red LED	Description
off	off	receiver is off (no supply voltage)
off	on	light path is interrupted (output is not switched)
on	off	light path is unobstructed (output is switched)
on	on	light path is unobstructed, but beam failure tolerance is activated (output is switched)

9 Quick change (channel suppression and output)

All parameters of the ILGA have already been set in the factory (see „Parameter setting“ page 14). However, if it is necessary to make changes locally, this will be possible by means of the test input on the transmitter without requiring any further auxiliaries. All parameters are permanently stored in the so-called flash memory (the stored values are always preserved, even without applied voltage).

With the function "Quick change" the function 51-14 (**channel suppression**) and the parameter 13 (**output as closing or opening contact**) can be activated without having to go to the parameter setting function. This constitutes a quick and convenient local setting possibility for the fitter.

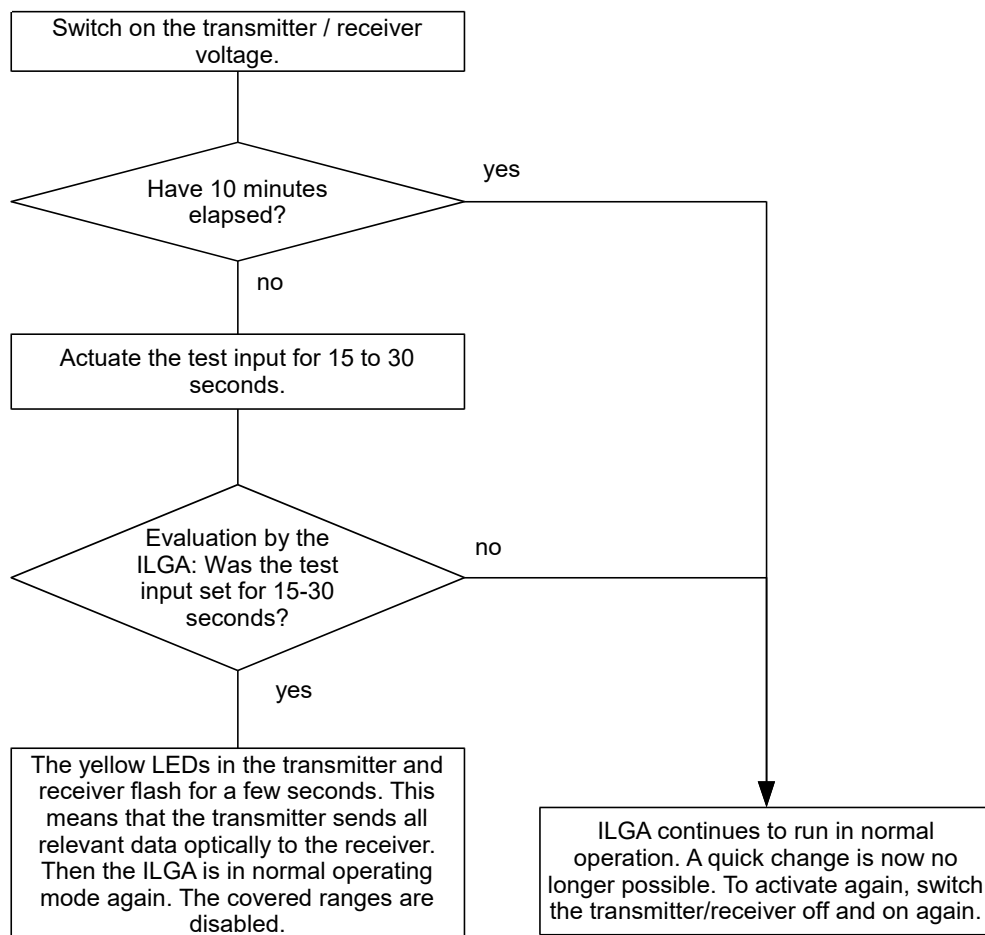
9.0 Important notes for the quick change

- The quick change mode can be activated only within the first 10 minutes after switching on the ILGA.
- The parameter 22 ("allow quick change") must be set to 01 (standard for lift light curtains).
- For parameter setting the transmitter and the receiver must "see each other" and must be operating within the nominal range.
- During code entry at the test input for quick change the ILGA is in normal operating mode, i.e. the test input is also functioning normally for the time being (the transmitter and the receiver also switch off).
- The parameters changed by quick change are saved immediately.
- If you find during quick change that something has come into the light path or that the receiver has not received a value, you can simply switch the ILGA off and on again, and then start from the beginning.

9.1 Channel suppression

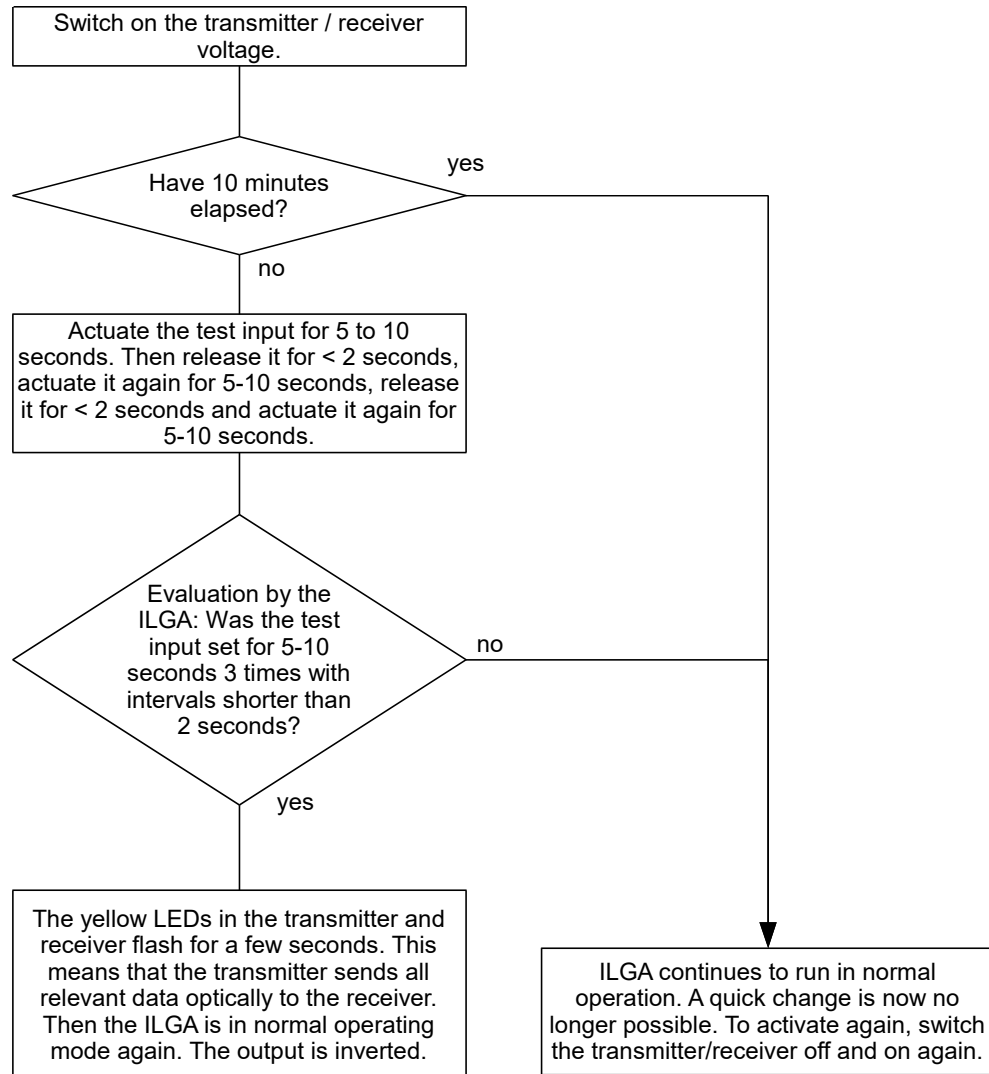
On activation the free channels are read in and the obstructed channels are permanently deactivated.

- Bring the disturbing object into the light path or cover the LEDs at the receiver with adhesive tape.
- The sync channel must not be obstructed. If it is necessary to cover it, too, the quick changes cannot be used. The sync channel must first be shifted to a position of the ILGA that can remain free. The sync channel can be shifted with parameter 11 (see „Parameter setting“ page 14).
- The position of the covered channels is in other respects arbitrary. You can thus also suppress several regions simultaneously.
- At least 2 channels must be left active, namely the sync channel and any one other channel.
- If a neighbouring channel with respect to a still active channel is deactivated, of course the crossed beam function to this deactivated channel is inactive.



9.2 Changing the output as closing or opening contact

On activation the output is inverted, i.e. a closing contact becomes an opening contact, and an opening contact becomes a closing contact.



10 Parameter setting

All parameters have already been set in the factory. However, if it is necessary to make changes locally, this will be possible by means of the test input on the transmitter without requiring any further auxiliaries. All parameters are permanently stored in the so-called flash memory, the stored values are always preserved, even without applied voltage.

See also section „Quick change (channel suppression and output)“ page 11 if only a few monitoring areas of the ILGA are to be suppressed or the output is to be inverted.

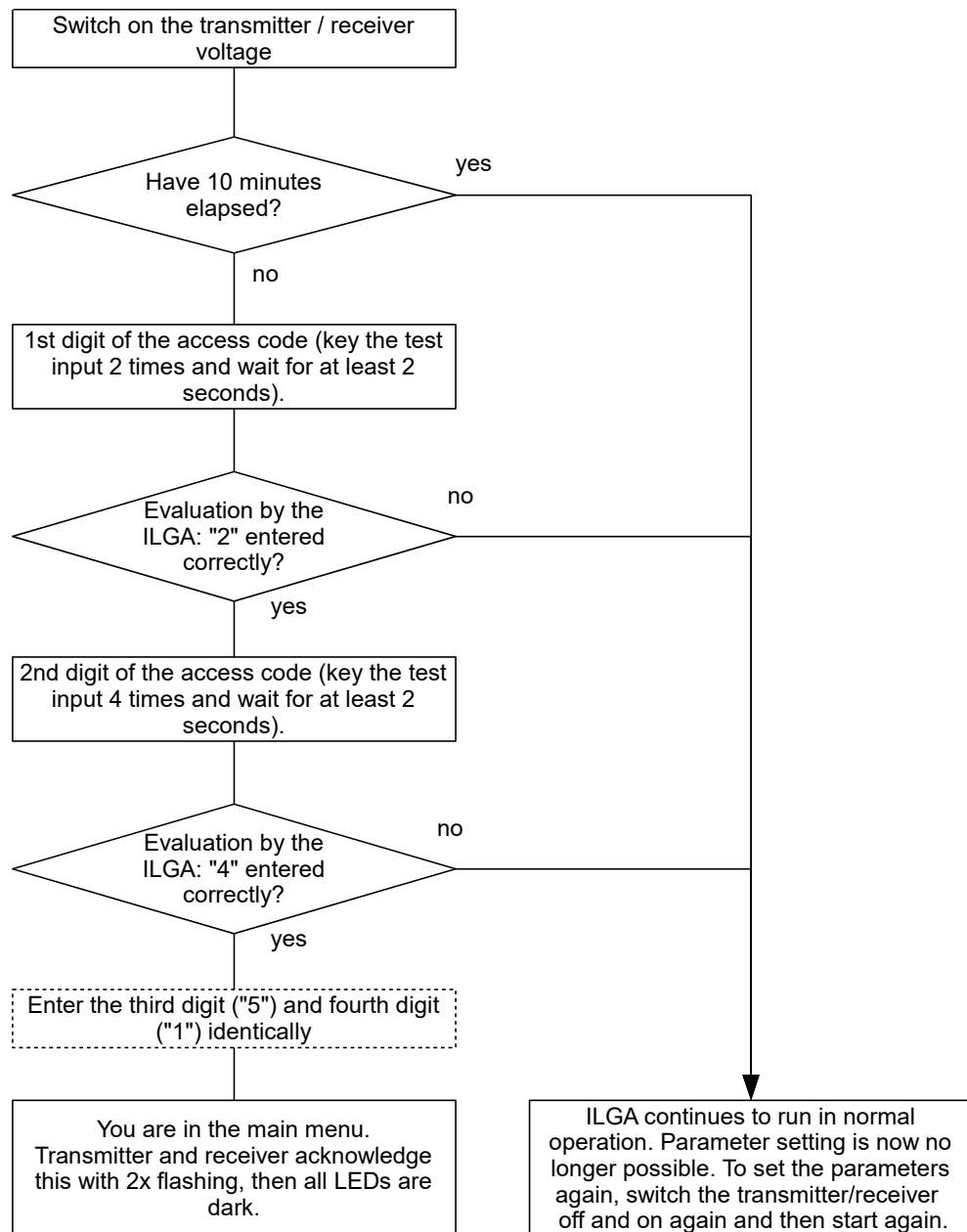
10.0 Important instructions for parameter setting

- It is helpful to connect a button on the test input for parametrization, because the test input is sensitive to bouncing (e.g. to simple short-circuiting the wires).
- The parameter setting mode can be activated only within the first 10 minutes after switching on the ILGA.
- For parameter setting the transmitter and the receiver must "see each other" and must be operating within the nominal range.
- If an incorrect digit is entered during the code input, the ILGA will wait for a new code sequence. This must then be entered from the beginning.
- For the subsequent counting of channels, counting is always from the top (on the cable side) to the bottom. For ILGA with 40mm and 60mm channel grid the channels count 1, 2, 3, 4, ..., for ILGA with 120 mm grid the channels count 2, 4, 6, 8, ...
- The changed parameter is saved immediately when the value is correct.
- The access code is the same for all ILGA and cannot be changed. Since access to the connecting cables must always also be possible to enter the code, extensive protection against abuse is given in connection with the access code.
- When no further entries are made during parameter setting, the transmitter and receiver automatically revert to normal operation after 10 minutes.
- If you find during parameter setting that something has come into the light path or the receiver has not received a value (it does not acknowledge, or the transmitter is back in the main menu, but not the receiver), simply switch the ILGA off and on again, type in the access code again and then re-enter the same parameter.

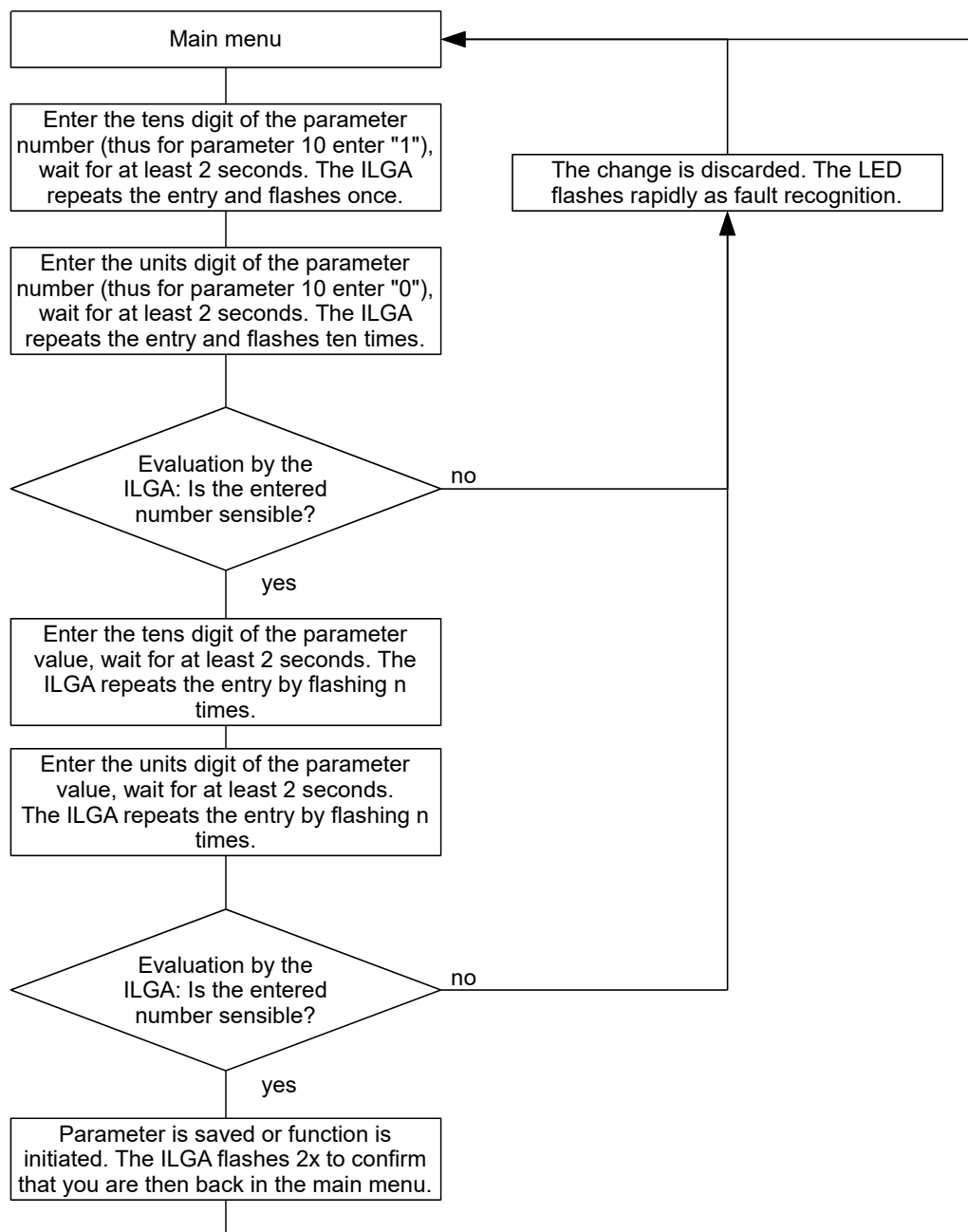
10.1 Action sequence of parameter setting

1. Use the test input on the transmitter for entering all digits. A digit must be entered at the test input with a keying rate of 100 ms to 1.5 s (thus for a 5 you must hold the keying input 5 times in succession briefly on +V, or for low active inputs 5 times on 0V). You must then wait for at least 2 seconds. If a typed-in digit was plausible, the transmitter and receiver repeat the entered digit as confirmation. You can then enter the next digit in the same manner, and so on.
2. A "0" is entered by pressing 10 times. A leading "0" for the value "01" must be entered (i.e. for this press 10 times, wait for 2 seconds, press once, wait for 2 seconds).
3. **The access code for all ILGA is the digit sequence "2451".**
4. During parameter setting (i.e. after entering the access code) the receiver acknowledges each value with its yellow LED after the entry.
5. At the same time as with the LED, the receiver also acknowledges the value with its output. This means that you can also make the parameter settings of the ILGA with the help of the higher-level control system (PLC) and thereby receive the return message via the normal receiver output.
6. The transmitter additionally acknowledges the value with its yellow LED (also after the entry).
7. Always look at the yellow LED of the receiver while setting parameters.

10.1.1 Entering the access code



10.1.2 Changing parameters / function initiation



10.2 Parameter list

No.	Description	Value	Description
11	sync channel No.	01 - N	Attention: For ILGA with a grid of 120 mm the channels count 2, 4, 6, 8, ... It is not allowed to type in an odd number! The transmitter and receiver synchronise with respect to each other with the help of the sync channel. Data transmission during parameter setting also runs via this channel. The sync channel must always remain activated. 01 = highest channel (on the side of the connecting cable) N = lowest channel (thus 11 for an ILGA-11/06, 32 for an ILGA-16/12) With crossed beam function (see Par. 14) settings in the range 2 to N-2 are here allowed. With parallel beam function settings in the range 1 to N are allowed. Factory setting: <u>grid 40,60:</u> for ILGA-03 up to 08: Channel 02 for ILGA-09 up to 16: Channel 07 for ILGA-17 up to 64: Channel 14 <u>grid 120:</u> for ILGA-03 up to 08: Channel 04 for ILGA-09 up to 16: Channel 14 for ILGA-17 up to 64: Channel 28
12	polarity of the test input and L input	00 - 01	00 = input activated with 0V at the input ("low active") 01 = input activated with +V at the input ("high active")
13	output closing contact or opening contact	00 - 01	00 = closing contact ("bright switching") 01 = opening contact ("dark switching") Note: The output is always open when the light curtain is not powered up
14	beam type	00 - 01	00 = parallel beams 01 = triple crossed beams Note: The maximum response time of the ILGA is not the same for parallel beams and crossed beams (see „Technical data“ page 24)
15	ILGA-LED number of flashing cycles	00 - 50	00 = no flashing 01-50 = number of flashing cycles of the red LEDs when switching-on the LED input
16	ILGA-LED flashing period	10 - 99	flashing cycle period in steps of 10 ms, e.g. 25 = 250 ms, that means the red LEDs are 250 ms on and 250 ms off
17	time for beam failure toleration	00 - 60	00 = off 01-60 = time in 10-second steps Example: 06 means that a defective LED will be gated out after 60 seconds
18	maximum number of beams for beam failure tolerance	01 - 03	For parallel beams: 01 = 1 light beam 02 = 2 light beams 03 = 3 light beams For crossed beams: 01 = 3 light beams 02 = 6 light beams

10.2 Parameter list

			03 = 9 light beams Factory setting in normal cases: 02																								
19	switch-on delay	00 - 60	00 = off 01-60 = time in one-second steps Example: 03 means that the light curtain switches on again only when 3 seconds have elapsed after the light path has become unobstructed																								
20	energy saving mode	01 - 03	The current drain (without heater) of the ILGA is reduced by approx. 10% for each increment of the numerical value. Attention: At the same time the maximum response time becomes smaller by the set factor, thus as follows depending on the set beam mode (see Par.14)																								
21	switch-off delay	00 - 99	00 = off 01-99 = time in 100-ms steps Example: 10 means that the output of the ILGA switches off only when the light beams have been interrupted since 1 second																								
22	allow quick change	00 - 01	00 = not allowed 01 = allow, i.e. "Output closing/opening contact" and "Channel suppression" can be changed without normal parameter setting, see quick change section																								
23	light curtain group	00 - 01	00 = single light curtain 01 = light curtain in a light curtain group																								
24	number in the light curtain group	01 - 05	01 = light curtain No. 1 in the light curtain group 02 = light curtain No. 2 in the light curtain group 03 = light curtain No. 3 in the light curtain group 04 = light curtain No. 4 in the light curtain group 05 = light curtain No. 5 in the light curtain group This parameter is only effective, if par. 23 is 01. Multiple light curtains within a group must not have the same number there, because they affect each other.																								
25		00 - 99	Radiated power of the transmitter, corresponds to the maximum nominal range of the light curtain e.g. 50 = 50% of the possible nominal range e.g. 99 = 99% (rounded 100%) of the possible nominal range Usually, the value need not be changed (default = 99), because the receiver always automatically adjusts itself to the transmitter. <u>In some</u> cases, you might want to reduce the value, for example to reduce the influence of the transmitter to external IR receiver (or other ILGA receiver) or to reduce the impact of reflecting surfaces parallel to the protective field of the ILGA. Max. nominal range at ILGA variant („-“ = not allowed): <table><tr><th>Par. value</th><th>Nominal range</th><th>Par. value</th><th>Nominal range</th><th>Par. value</th><th>Nominal range</th></tr><tr><td>00-29</td><td>-</td><td>50</td><td>2,0m</td><td>80</td><td>3,2m</td></tr><tr><td>30</td><td>1,0m</td><td>60</td><td>2,4m</td><td>90</td><td>3,6m</td></tr><tr><td>40</td><td>1,5m</td><td>70</td><td>2,8m</td><td>99</td><td>4,0m</td></tr></table>	Par. value	Nominal range	Par. value	Nominal range	Par. value	Nominal range	00-29	-	50	2,0m	80	3,2m	30	1,0m	60	2,4m	90	3,6m	40	1,5m	70	2,8m	99	4,0m
Par. value	Nominal range	Par. value	Nominal range	Par. value	Nominal range																						
00-29	-	50	2,0m	80	3,2m																						
30	1,0m	60	2,4m	90	3,6m																						
40	1,5m	70	2,8m	99	4,0m																						

No.	Description	Value	Description
51	function activation	10 - 14	10 = end of the parameter setting 11 = reset to the factory settings 12 = channel suppression 13 = output all parameters as flashing code 14 = copy all parameters of the transmitter to the receiver (any set channel suppression, parameter 51 12, is not copied either) 15 = transmission of a set of parameters by a PLC
For 10) The ILGA reverts to normal operation. Can take place alternatively by switching the power supply voltage off and on again. For 11) The transmitter and the receiver set themselves back to their respective factory settings. For 12) - When activated the covered channels are permanently disabled. - All relevant <u>receiver</u> LEDs must have been covered previously in a lightproof manner, or the object which is to be suppressed must be in the light path. - The sync channel must not be obstructed. If it has to be covered too, it must first be moved to a position of the ILGA that can remain unobstructed. The sync channel is moved with Par. 11. - The position of the covered channels is in other respects arbitrary. You can also deactivate several ranges. - At least 2 channels must be left active, namely the sync channel and any one other channel. If a neighbouring channel with respect to a still active channel is deactivated, of course the crossed beam function to this deactivated channel is inactive. For 13) All stored parameters are output successively. The transmitter and the receiver output their values independently of each other. If in doubt, therefore, let this function run twice and write down the values separately. They must always agree, otherwise the ILGA will not function correctly. After the "3" of the entered "13" has also been acknowledged, the parameter output commences: X = Value of the parameter 11 (tens digit) X = Value of the parameter 11 (units digit) X = Value of the parameter 12 (tens digit) X = Value of the parameter 12 (units digit) ... X = Value of the parameter 21 (tens digit) X = Value of the parameter 21 (units digit) Example: 0 4 ... means that parameter 11 is set to the value 04, etc. For 15) A higher level PLC could imitate the parameters of the ILGA, adjustable with a corresponding convenient user interface, or could have placed predetermined sets of parameters in your memory. This set of parameters can then be transferred to the ILGA by calling up the function 51 15. To be able to use the function, the ILGA test input must be connected directly to a PLC output, and the ILGA output must be connected to a PLC input. The following action sequence must be maintained: All numerals should be transmitted with a speed of 150 ms pulse duration and 150 ms pause duration; a waiting time of 2.5 s must be interposed between the numerals. First of all transmit the access code 2451. Then await the main menu confirmation of the ILGA (2 x flashing of the ILGA output with 300 ms rhythm). Transmit function 51 (ILGA acknowledges in each case the numerals at its output with 300 ms rhythm). Now transmit the parameters in the same sequence as described under 51 13, thus first parameter value 11 tens digit, wait for <u>1.5s</u> (here shorter allowed), parameter value 11 units digit, ... parameter value 26 units digit. After each complete parameter (i.e. always after 2 digits) the ILGA checks whether this value was allowed. If a value is not allowed, the ILGA issues at its output 5 x flashing with 70 ms rhythm. If everything was correct after keying in the last parameter, the ILGA output flashes twice with 300 ms rhythm and saves the data. In the case of an error the ILGA flashes 5 times with 70 ms rhythm. It is then possible to exit the menu by keying in 51 10 (again in each case with 2.5 s pause between the numerals. After exit from the menu the ILGA functions normally immediately, using the new parameter values.			

11 The most frequent errors

<i>Symptom</i>	With dynamic mounting the ILGA sometimes interrupts when opening and closing the door / the gate.
<i>Possible cause</i>	1. the sensor strips are not adjusted properly according to the instructions 2. severe EMC disturbance of the door/gate drive 3. an object is sporadically present in the light path
<i>Solution</i>	For 1. check the adjustment (see the mounting instructions) For 2. check the earthing of the sensor strips. The housing of the transmitter strip and of the receiver strip must be earthed. Check the feeder cables. No lines for voltages <30V should be located together with lines for voltages >30V in the same cable, e.g. 230VAC and 24VDC signals. For 3. check whether, for example, a cable, loose sticker or other such object can come into the light path while the door/gate is running

<i>Symptom</i>	With dynamic mounting the ILGA interrupts shortly before reaching the open state of the door or gate. With static mounting the ILGA always interrupts.
<i>Possible cause</i>	1. the sensor strips are not adjusted properly according to the instructions 2. the filter discs are dirty 3. an object is present in the light path 4. the ILGA is defective
<i>Solution</i>	For 1. check the adjustment (see the mounting instructions) For 2. clean the filter discs of the transmitter strip and of the receiver strip (see under maintenance). Possibly the filter discs are scratched or blind due to improper cleaning. For 3. check that there is really not an object in the light path For 4. the ILGA must be replaced (see the instructions for replacement)

<i>Symptom</i>	With dynamic mounting the ILGA interrupts when the door or gate is almost closed.
<i>Possible cause</i>	1. the sensor strips are not adjusted properly according to the instructions 2. the sync channel is set differently at the transmitter and at the receiver after replacing a sensor strip
<i>Solution</i>	For 1. check the adjustment (see the mounting instructions) For 2. the transmitter and receiver must always be replaced as a matched pair (see the instructions for replacement). Alternatively: Set the sync channel such that it is matched at the transmitter and receiver (see parameter setting).

<i>Symptom</i>	The red LED at the receiver does not switch off, but the ILGA is functioning normally.
<i>Possible cause</i>	this is the indication of beam failure tolerance (see beam failure tolerance)
<i>Solution</i>	Switch the ILGA off and on again. If the ILGA then does not switch active immediately, but only after about 60 s (depending on the parameter settings), exactly one LED is still obstructed or defective. Immediate replacement of the ILGA is not necessary.

<i>Symptom</i>	No LED is lit on the transmitter and/or No LED is lit on the receiver
<i>Possible cause</i>	1. no power supply voltage 2. the ILGA is defective
<i>Solution</i>	For 1. Check the connection (correct conductor colours?). Measure the voltage at the terminals of the ILGA (see connections) For 2. replace the ILGA pair (see the instructions for replacement)

<i>Symptom</i>	During initial operation, the yellow LED is lit on the transmitter, but only the red LED is lit on the receiver. The ILGA does not switch to the active state.
<i>Possible cause</i>	1. the transmitter and the receiver do not match 2. the parameter settings of the transmitter and of the receiver are different
<i>Solution</i>	For 1. Please check the rating plates on the transmitter and receiver. The type keys must be identical except for .../S and .../E. For 2. see parameter setting

<i>Symptom</i>	The receiver does not switch to the activated state (the yellow LED is off), and the yellow LED is flashing on the transmitter.
<i>Possible cause</i>	The test input on the transmitter is active
<i>Solution</i>	Check the test input. If it is configured to "high active", it must lie at 0V potential or be open. If it is configured to "low active", it must lie at +V potential or be open (see parameter setting)

<i>Symptom</i>	The read and yellow LEDs flash irregularly, partly furiously. Reducing the range brings improvement, but sporadic interruptions persist even with small ranges.
<i>Possible cause</i>	1. Condensation is present inside the ILGA housing, i.e. the circuit boards have become moist. There is (partial) condensation on the inside of the red filter discs. 2. When connecting / during initial operation of the higher-level

	control system or of the ILGA an error has occurred. A voltage > 63V was connected between the 0V supply line of the ILGA and earth. Some control systems permit brief false terminal connections during initial operation (e.g. a short circuit between the 230V phase line and the 24VDC signal voltage). This makes a 230VAC voltage appear between 0V and ground and destroys the internal protection capacitors of the ILGA and possibly also other electronic devices, without this becoming immediately apparent. The devices (ILGA) then behave unstable with respect to EMC disturbances. 3. A fault has occurred in operation of the higher-level control system or in operation of the ILGA. A voltage >63V appeared between the 0V supply line and earth (see 2.)
<i>Solution</i>	For 1. Protect the strips against weather influence, rapid temperature changes, fog, etc. If the ILGA is utilised outdoors, also consider using the variant with heater. The variant with heater must also not be exposed directly to the weather. Protect this variant too, e.g. with a rain roof. For 2+3. Measure the potential difference between 0V and earth, also when the lift is running or the door/gate is moving. Normally there should be no potential difference, not even briefly. The 0V line should normally be connected to earth in the control system (see the circuit diagram of the higher level control system). If there is any doubt, power down the plant and then measure the resistance between the 0V line and earth. The ideal value is 0 Ohms. After checking and remedying the fault, the ILGA pair must be replaced (see the instructions for replacement).

<i>Symptom</i>	The output of the ILGA does not close. But the yellow status LED indicates the switching state correctly.
<i>Possible cause</i>	1. There is an electronic fuse in the output circuit. When this fuse operates in response to an excessive current drain due to over-current or short circuit in the output circuit (see technical data), the output impedance becomes high (the output opens). 2. The output circuit is defective
<i>Solution</i>	For 1. The output operates normally again only after removing the excessive current drain and elapse of a waiting time of a few seconds then. For 2. The output circuit has possibly been destroyed by a voltage that was too high. Replace the ILGA (transmitter and receiver, see the instructions for replacement). Before the next switch-on of the control system check whether the output was closed correctly and that no excessively high voltage can appear (see the technical data).

<i>Symptom</i>	The beam covering is not taken over correctly at the time of parameter setting.
<i>Possible cause</i>	1. the transmitter and the receiver are too close together 2. the transmitter and the receiver are too far apart 3. the rays that are to be suppressed are not covered unambiguously 4. the sync channel is partially covered
<i>Solution</i>	For 1. move the transmitter and the receiver further apart For 2. bring the transmitter and the receiver closer together For 3. it is best to cover the rays with a broad black object or insulating tape directly over each ray that is to be suppressed For 4. remove the covering of the sync channel or move the sync channel to a different ray before execution

<i>Symptom</i>	The access code for parameter setting is not accepted.
<i>Possible cause</i>	1. more than 10 minutes have elapsed since switching on the transmitter or receiver 2. the light path between the transmitter and receiver is obstructed 3. the distance between the transmitter and receiver is too great 4. The polarity of the test input is + (i.e. test input active with +V) but you are trying to enter the code by keying/bridging to 0V. You can determine the polarity setting as follows: If the ILGA is functioning normally while the test input is connected to 0V, you must key-in the code with +, (and conversely). 5. the polarity of the test input is - (i.e. the test input is active with 0V), but you are trying to enter the code by keying/bridging to +V
<i>Solution</i>	For 1. follow the instruction in the parameter setting section For 2. follow the instruction in the parameter setting section For 3. follow the instruction in the parameter setting section For 4. - For 5. -

12 Technical data

(see ILGA datasheet)

Additional data:

Electronics		
	Unit	Value
maximum response time of an ILGA, that works in a group of light curtains	ms	<u>with parallel beam configuration:</u> light path becomes obstructed: with 2xILGA: 45, with 3xILGA: 65, with 4xILGA: 80, with 5xILGA: 95 light path becomes unobstructed: with 2xILGA: 95, with 3xILGA: 140, with 4xILGA: 190, with 5xILGA: 240 test input set: with 2xILGA: 90, with 3xILGA: 110, with 4xILGA: 125, with 5xILGA: 140 test input free again: with 2xILGA: 135, with 3xILGA: 180, with 4xILGA: 230, with 5xILGA: 280 <u>with crossed beam configuration:</u> light path becomes obstructed: with 2xILGA: 145, with 3xILGA: 205, with 4xILGA: 250, with 5xILGA: 295 light path becomes unobstructed: with 2xILGA: 190, with 3xILGA: 280, with 4xILGA: 375, with 5xILGA: 470 test input set: with 2xILGA: 190, with 3xILGA: 250, with 4xILGA: 295, with 5xILGA: 340 test input free again: with 2xILGA: 230, with 3xILGA: 320, with 4xILGA: 415, with 5xILGA: 510

13 Maintenance

13.0 Safety instructions

Attention!



The light curtain can only be used in technically perfect condition. Keep all documentation included in the delivery such as this manual ready at hand and constantly at the site of operation. Keep the documentation always current. This especially applies to modifications of the higher-ranking control system carried out later. Please observe all safety and danger notes of the system and always keep them legible.

Attention!



If there are changes to the environmental influences such as temperature, humidity or a potentially explosive atmosphere during the operating time of the system or storage period of the light curtain, the manufacturer must be notified to adjust the system, if necessary, to the new circumstances.

Attention!



Only the manufacturer's original spare parts must be used.

**Attention!**

Do not perform repairs on control units or sensor strips independently. A failure to comply with these instructions or changes to the light curtain can cause additional danger excluding the liability of the manufacturer for damages resulting from this.

13.1 Maintenance intervals

The light curtain is designed and constructed to function trouble-free and with low maintenance. However, it is mandatory to check the functions at regular intervals.

13.2 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 in the dry state, because this can make the plastic discs go blind and thus reduce the range.

13.3 Instructions for replacement

1. Always replace the complete ILGA consisting of the transmitter strip and the receiver strip. Make sure that the replaced pair is returned together for repair.
2. If an ILGA has to be replaced, please check whether the present parameter settings have been noted (see under parameter setting). If not, please check whether the ILGA transmitter is still functioning to the extent that the parameter settings can be read out. Note these parameter settings in the table in the parameter setting section.
3. After replacement it may be necessary to make parameter settings in the new ILGA (see under parameter setting). The factory settings are also noted on every ILGA transmitter strip and receiver strip. Only transmitters and receivers that have the same parameter settings will function properly as pair.
4. Make sure that the type designations on the transmitter and receiver differ only with the specification /S for the transmitter and /E for the receiver.
5. The version of the transmitter and of the receiver must be the same, e.g.
.../S and .../E
.../S2 and .../E2
.../S3 and .../E3
6. Bolt the transmitter again on the door/gate side on which the transmitter was mounted previously.

14 Storage

Only store the units at an admissible temperature (see chapter 12 „Technical data“) under normal broader storage conditions for electrical appliances.

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

15 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.

16 EU declaration of conformity

We hereby declare that the units listed below fully comply with the relevant essential protection requirements of the listed directives with regard to their design and components as well as in the version marketed by us in compliance with our circuit and assembly suggestions. The units complying with this declaration are provided with CE emblem. This declaration becomes invalid should the unit be modified without our approval.

Type designation:	ILGA
Short description:	Infra red light curtain as reversing control device for power-actuated doors and gates
Year of construction	2024 / 2025 / 2026 / 2027 / 2028
Basis are the following directives:	Low voltage directive 2014/35/EU EMC directive 2014/30/EU Lift directive 2014/33/EU
Applied standards:	EN 81-20:2020 EN 81-70:2022 EN 12015:2021 EN 12016:2013 EN 61000-6-1:2019 EN 61000-6-2:2019 EN 61000-6-3:2022 EN 61000-6-4:2020

This explanation is issued by the responsible manufacturer

STRACK LIFT AUTOMATION GmbH

on 2.10.2024

by Dipl.-Ing. Dirk Strack, Managing Director



Note:

The STRACK products mentioned above are intended exclusively for incorporation in power-actuated doors and gates or in assembly together with other plant parts. The initial operation or distribution within the European Community is admissible only if the finished product conforms to the relevant harmonised directives of the EU.

