

GC 342 safety sensor

EN Installation and operating instructions

167391-03



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Symbols and illustrations

Important information and technical notes are highlighted to explain correct operation.

Symbol	Meaning
0	means "Important Information"; Information to prevent property damage, to understand or opti- mise the operation sequences.
i	means "Additional Information"
•	Symbol for an action: This means you have to do something. If there are several actions to be taken, keep to the given order.

Revisions and validity

Original instructions for device version 02.

Product liability

In compliance with the liability of the manufacturer for his products as defined in the German "Product Liability Act", compliance with the information contained in this brochure (product information and intended use, misuse, product performance, product maintenance, obligations to provide information and instructions) must be ensured. Failure to comply releases the manufacturer from his statutory liability.



Reference documents

Supplementary information connected to GEZE drives can be found in the specific wiring diagrams.

1 Installation information

- Remove the laser window protection before the teach-in and the commissioning of the sensor.
- Avoid vibrations.
- Do not cover the laser window.
- Avoid moving objects and light sources in the detection area.
- Avoid smoke, fog and dust in the detection area.
- Avoid condensation.
- Avoid sudden and extreme fluctuations in temperature.
- Keep the sensor permanently powered in environments where the temperature can fall to below –10 °C.
- Do not remove the laser window protection until after the end of the building work.

2 Safety

2.1 Intended use

The GC 342 safety sensor may only be used to secure automatic swing doors with GEZE drives. The minimum object size corresponds to the reference object CA according to DIN 18650 or 16005 both upright and lying down. The sensor can be used to secure swing doors against impact and trapping of the human body.

2.2 Safety notices

- The mandatory installation, maintenance and repair work must be performed by properly trained personnel authorised by GEZE. Any attempts at repairs by unauthorised personnel cancel the factory guarantee.
- The device may only be operated with safety extra-low voltage (SELV) with electrically protective separation.
- The country-specific laws and regulations are to be observed during safety-related tests.
- Make sure that the cover of the door control is fitted correctly and earthed.
- If unauthorised changes are made to the system, GEZE cannot be held liable in any way whatsoever for any resulting damage, and the approval for use in escape routes or emergency exits ceases.
- GEZE does not accept any warranty for combinations with third-party products.



- Only original GEZE parts may be used for repair and maintenance work.
- Observe the latest versions of directives, standards and country-specific regulations, in particular:
 - ASR A1.7 "Doors and gates"
 - DIN 18650 "Building hardware Powered pedestrian doors"
 - DIN EN 16005 "Power operated pedestrian doorsets Safety in use Requirements and test methods"
 - Accident-prevention regulations, especially BGV A1 "General regulations" and BGV A2 "Electrical installations and equipment".
- The risk assessment and installation of the sensor and the door system in compliance with national and international regulations and door safety standards are the responsibility of the door manufacturer.
- Any uses of the device other than those described in this manual do not correspond to the approved purpose and cannot be guaranteed by the manufacturer.

2.3 Safety-conscious working

- Secure workplace against unauthorised entry.
- Watch the swivelling range of long system parts.
- Never carry out high-risk work alone.
- Secure the cover/drive panels against falling.
- Only use the cables prescribed in the cable plan provided. Cables must be shielded in compliance with the wiring diagram.
- Secure loose, internal drive cables with cable ties.
- Before working on the electrical system:
 - Disconnect the drive from the 230-V mains and check to ensure that it is not supplied with power.
 - Disconnect the control unit from the 24-V rechargeable battery.
- When an Uninterruptible Power Supply (UPS) is used, the system will still be under voltage even when disconnected from the mains.
- Always use insulated wire-end ferrules for wire cores.
- Make sure of sufficient lighting.
- Danger of injury with opened drive. Hair, clothing, cables, etc. can be drawn in by rotating parts!
- Danger of injury caused by unsecured crushing, impact, drawing-in or shearing spots!
- Danger of injury due to glass breakage!
- Danger of injury due to sharp edges in the drive!
- Danger of injury during installation through freely moving parts!



2.4 Environmentally conscious working

When disposing of the door system, separate the different materials and have them recycled.

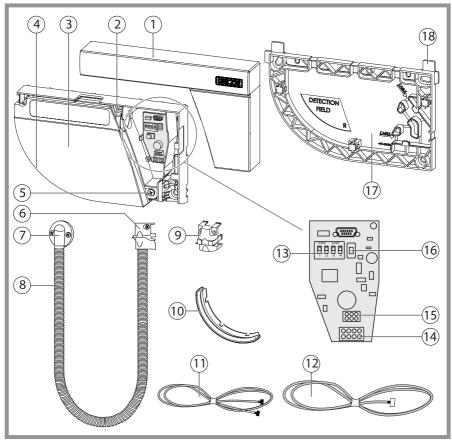
3 Description

The GC 342 is a safety sensor based on laser technology for automatic swing doors. To safeguard the rotating door leaf and the finger protection area, one module each must be installed in the top corner on both sides of the door leaf.

Variant	GC 342 Kit	GC 342 Left	GC 342 Right
black	167438	167432	167435
white	167439	167433	167436
stainless steel	167440	167434	167437



4 Supplied by GEZE



- 1 Cover
- 2 Lock screw
- 3 Laser head
- 4 Laser window
- 5 Angle adjustment screw
- 6 Strain relief
- 7 Cap and screws
- 8 Flexible tube
- 9 Plug

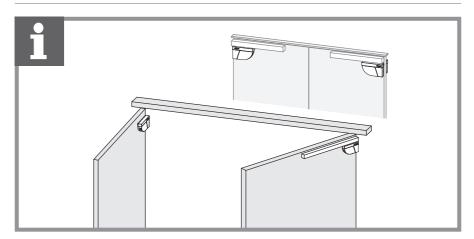
- 10 Laser window protection
- 11 Door connection cable BS/BGS
- 12 Door transmission cable
- 13 DIP switch
- 14 Main connector
- 15 Master-slave connector
- 16 Push button
- 17 Mounting plate
- 18 Spacer

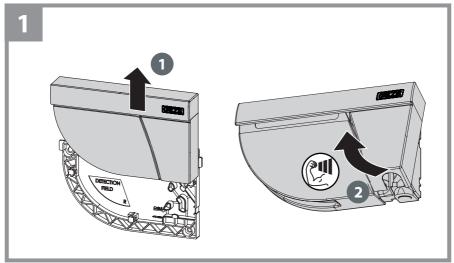


5 Installation

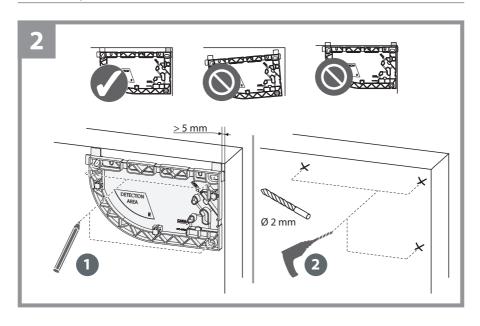


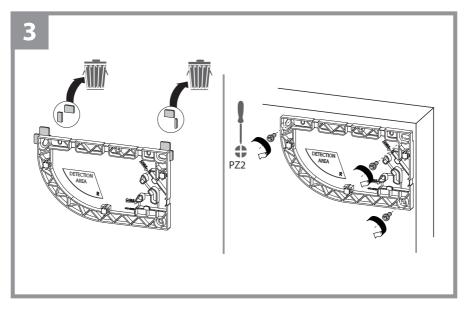
- ▶ Before attaching the mounting plate, make sure that the sensor does not obstruct door movement. If the sensor is not positioned correctly it can become crushed during opening of the door.
- ▶ For optimum safety, install one module on each door wing side and interconnect the two modules using a door connection cable BS/BGS.
- ▶ Keep a distance of at least 15 cm between the GC 342 and the radar detector.



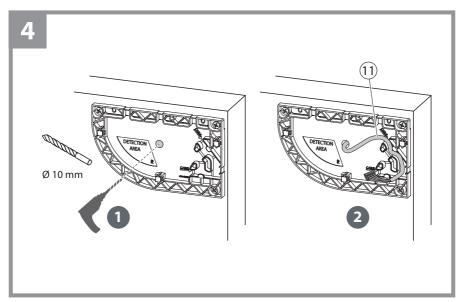




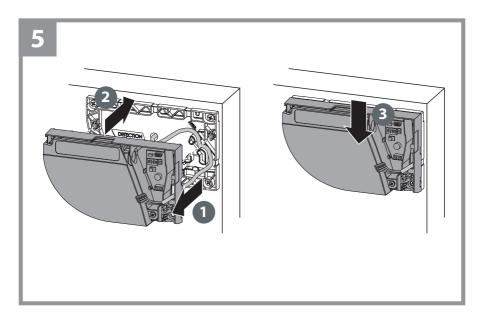




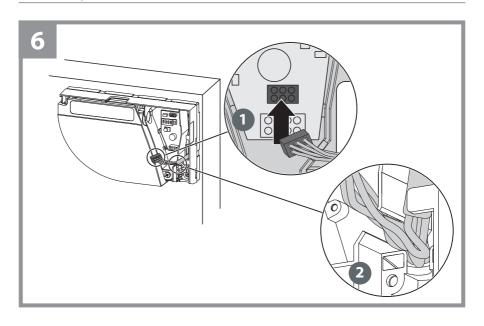


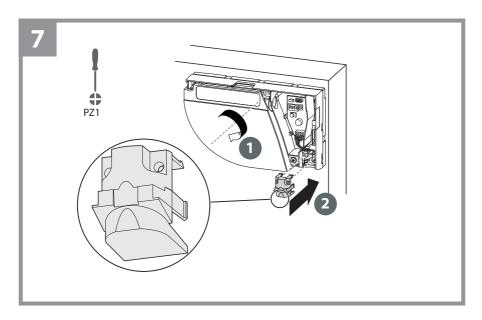


11 Door connection cable BS/BGS



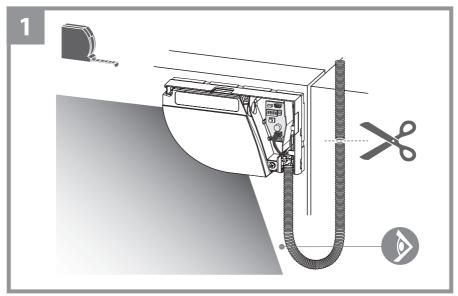




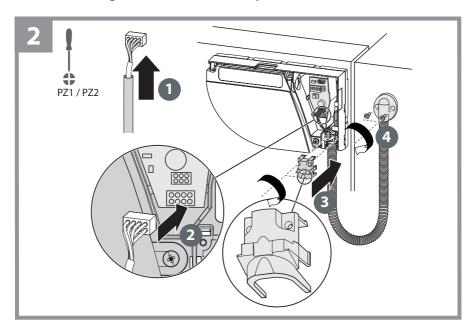




6 Connection to the door control

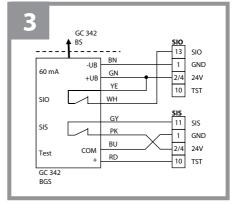


Attaching the flexible tube with cap





- Cut the door transmission cable to the correct length.
- ► Strip the 8 wires and connect them in accordance with the wiring diagram.
- Heed the polarity of the power supply.



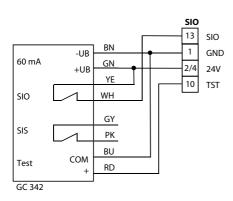


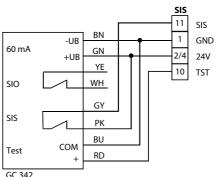
- For compliance with EN 16005 and DIN 18650, the test output of the door control must be wired and able to test the sensor.
- The sensor is tested with GND.
- ▶ Disable ECO-mode for connection to a GE7F Powerturn.

7 Special installation situations

- 7.1 Installation on fire protection doors/glass doors

 If a cable cannot be routed through the door, both sensors are connected individually to the door control.
 - ▶ Use GC 342 accessories.









Hinge side:

Extended secondary closing edge protection and wall blanking function inactive. Opposite hinge side:

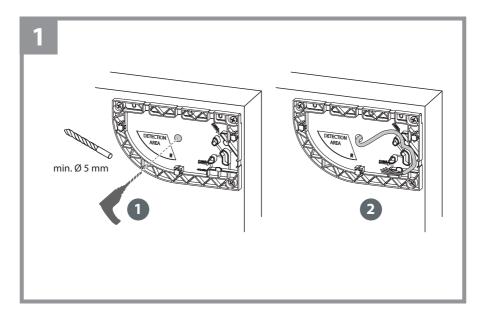
Extended main closing edge protection inactive.

- ▶ Use the drive wall blanking.
- ▶ Use mechanical protection for the secondary closing edge if necessary.

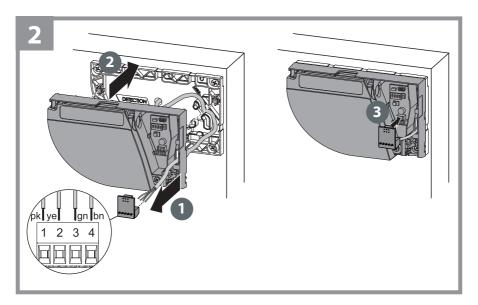
7.2 Fire protection kit



- ▶ Heed the instructions provided by the manufacturer of the fire protection door.
- ▶ If the manufacturer of the fire protection door permits drill holes < Ø 10 mm, use the GC 342 fire protection kit.



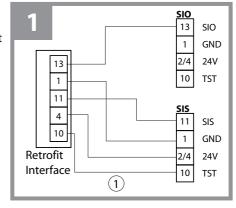




7.3 Retrofit

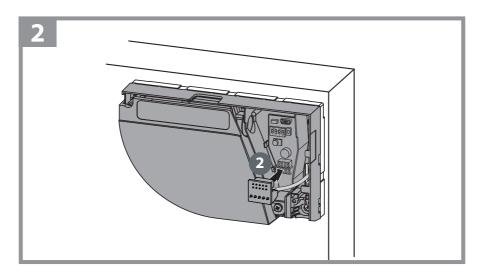
Makes use of an on site cable possible.

- Cut the door transmission cable to the correct length.
- Strip the 5 wires and connect them in accordance with the wiring diagram.
- Heed the polarity of the power supply.



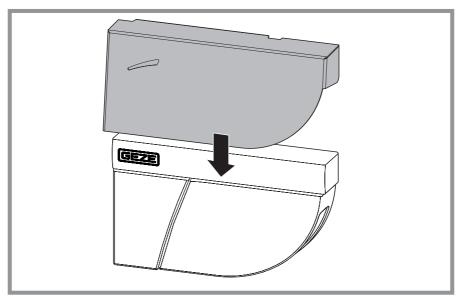
1 Type LIYY 5×0.25 mm²





7.4 Protective cover

If a movement detector is mounted very close to a GC 342, the mirror rotation can be interpreted as radar activation. The protective cover made of metal prevents activation of the radar and protects the sensor against unusual weather conditions.



8 Description of LED displays

SIO active

LED flashes slowly

red



SIS or secondary closing edge active



LED flashes quickly

green



LED flashes



LED is off



LED flashes x times



LED flashes red-green Calculation in progress; move out of the detection area and wait.

9 Parameter setting

Parameter setting is carried out using the DIP switches.

► Change the DIP switch.

The LED flashes orange.



Confirming the setting

▶ Press the push button for longer than 3 s.



The LED indicates the number of modules connected by flashing green (x times).



9.1 DIP switch 1

ON



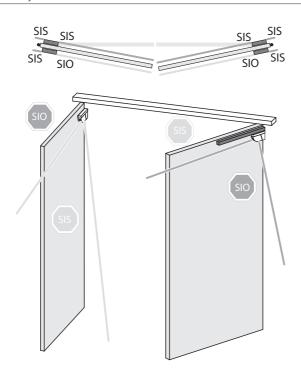
SIO signal (safety opening) DIP 1 ON





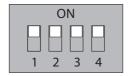
SIO signal (safety closing) DIP 1 OFF







9.2 DIP switches 2–4



	Parameter	Switch	position	
		ON	OFF	
DIP 2	Environment	Standard	Critical	Switch to "Critical" if the environment cause unwanted detections (min. object size, immunity and uncovered zones are increased)
DIP 3	Background	On	Off	Switch to "Off" if there is no back- ground (glass floor, footbridge etc.)
DIP 4	Pinch zone	On *)	Off	Switch to "Off" if no secondary closing edge safety is required and objects can cause unwanted detection.

^{*)} If DIP 4 is switched to ON, the input signal SIS on the drive must be set to "SIS REV".



Carry out a risk analysis to check whether the environment requires additional mechanical protection in the pinch zone.



10 Teach-in



The service mode disables the safety detection of the sensor for 15 minutes and can be useful during installation, mechanical teach-in of the drive or maintenance work.



Give the push button a long push.
 Service mode is enabled for 15 minutes.



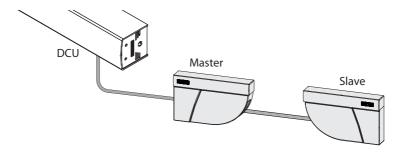
► Give the push button another long push. Service mode is disabled.



Service mode is automatically disabled when the teach-in process starts.



10.1 Explanations master – Slave



- The module connected to the DCU is automatically considered to be the master module.
- The module connected to the master automatically becomes the slave.

Teach-in started on the master

Master and slave are taught.

Teach-in started on the slave

Only the slave is taught.



10.2 Pre-conditions

- Door control has been completely configured
- Glass areas near the door have been covered
- Door is closed (switch to service mode if necessary)
- Both sensors wired according to the instructions
- Door connection cable BS/BGS is wired between the two modules
- Detection area is free of heavy rain, fog, snowfall and other moving objects or people
- Red laser window protection has been removed

10.3 Starting teach-in



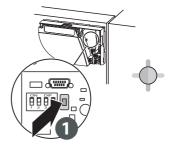
If the master and slave modules are installed at different distances to the door edge, the teach-in must be started on both modules.

Press the push button on the master module briefly.

The teach-in starts.
The LED flashes red-green.

For 2-leaf doors:

Press the push button on the second master module briefly as well.



Defining the detection area

When the LED flashes green:

- Stand in front of the door and stretch your hand out.
- Move your hand from top to bottom along the closing edge.
- Move back out of the detection area.

The LED flashes red while the width of the door leaf is being calculated.







Environment teach-in

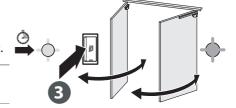
When the LED flashes green:

► Trigger a door opening.

The sensor learns its environment.



Do not enter the detection area.



The LED flashes red while the door is closing.

Teach-in is completed when the door is completely closed and the LED is off.





10.4 Test and settings

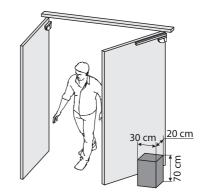
Checking the correct positioning of the detection areas

Place a reference body in the detection area.

The door swings open up to the reference body without touching it and then closes again.

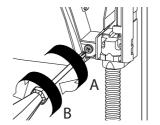
Place the reference body next to the door leaf.

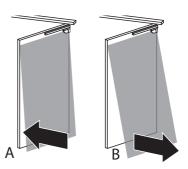
The door does not move.



If necessary, set the inclination angle of the sensor:

► Turn the angle adjustment screw (between 2° and 10°).







If the inclination angle, starting position or environment has been changed, always launch a teach-in and test the correct positioning of the detection areas checked.



11 Final steps

- ► Fit the cover to the sensor, starting with the narrow side.
- ▶ Press tightly if necessary.



To open the sensor again:

► Insert a screwdriver in the recess at the bottom of the sensor and pull it upwards.





12 Setting GS 342 using a remote control (optional)

- 12.1 Using the remote control
- 12.1.1 Entering the access code
 - GEZE recommends using a different access code for each module. This way, you avoid changing parameters from both modules at the same time.



After unlocking, the red LED flashes and the sensor is accessible.

If the red LED flashes quickly after unlocking:

► Enter the access code.

If the access code is not known:

Turn the power supply off and on again.

After switch-on the sensor can be unlocked within 1 minute without the access code being entered.

Lock the sensor again at the end of the settings.

12.1.2 Saving the access code

An access code (1 to 4 digits) is recommended for sensors which are installed close together.



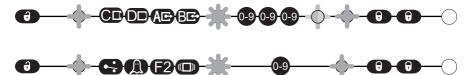
12.1.3 Deleting the access code



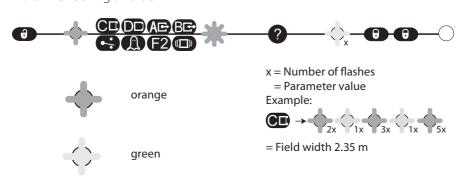
Enter the access code.



12.1.4 Setting one or more parameters



12.1.5 Checking a value



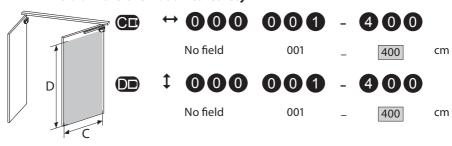
12.1.6 Resetting to factory settings



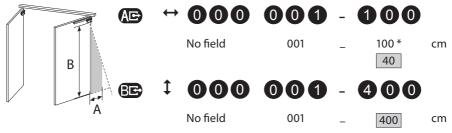
12.2 Settings with the remote control

- i
- A teach-in overwrites the values entered here.
- = Factory setting

Field dimensions - door leaf safety



Field dimensions - pinch zone

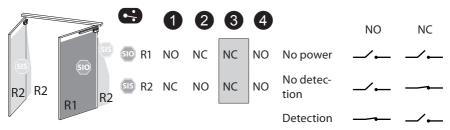


DIP 4 = ON

*) The actual dimensions depend on the installation height (100 cm at 4 m).



Output configuration



NO = Normally open NC = Normally closed

Immunity filter



- Increase to filter out external disturbances
- DIP 2 = ON
- Longer response time from value 5

Uncovered zone





Antimasking & background

DIP 3 = ON



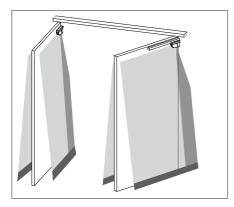
- Antimasking:
 Detects unwanted objects near the laser window which mask the viewing field.
- Background:
 Reference point in the detection area of the sensor.
 Switch the function off if there is no background present.
- *) DIN 18650 EN 16005

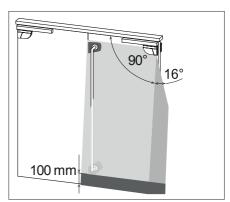
General information

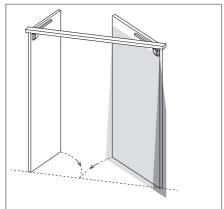
0	8	9
Teach-in	Full reset	Partial reset
See Page 21	Complete reset to factory settings	Reset to factory settings except field dimensions and out- put configurations

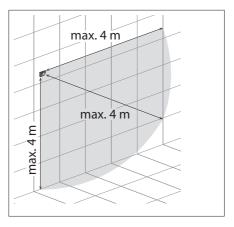


13 Detection areas









Door leaf safety

Type. object size: 10 cm at an installation height of 4 m

Pinch zone

Type. object size: 2 cm at an installation height of 4 m

Uncovered zone

Can be set using the remote control
Default setting: 10 cm



14 Maintenance

- Wipe the laser window off using a clean and damp microfibre cloth if necessary.
- Do not use a dry or soiled cloth or aggressive cleaning agents or chemicals.
- Avoid direct exposure to high-pressure cleaners.

15 Fault messages and troubleshooting

LED Display	Effect	Cause	Elimination
	Red or green LED lights up sporadically or permanently and the door does not react as required	Inaccurate teach-in	Start teach-in (with the door closed).
		Unwanted detection (caused by environment or weather)	Check whether the flexible tube is triggering detection.
			Check whether the laser window is soiled. If necessary, wipe off using a clean and damp microfi- bre cloth.
			The surface of the laser window is very sensitive.
			Start teach-in (with the door closed).
			Switch DIP 2 to OFF (critical environment).
	The sensor does not respond when	Inverted power supply	► Check cabling (GREEN +, BROWN –).
	switched on	Faulty cable	► Replace the cable.
		Faulty sensor	► Replace the sensor.
	The sensor does not respond after power-on	Test fault	Check voltage between RED and BLUE.
		Service mode is enabled	 Press the push button for at least 3 seconds to disable the service mode.



LED Display	Effect	Cause	Elimination
-	A parameter cannot be set using the remote control	Wrong DIP switch position	Switch the corresponding DIP switch to ON.
	The remote control does not	The sensor is protected by	► Enter the access code.
	react	an access code	Forgotten the access code: ➤ Switch the power supply off and on to unlock the sensor during the 1st minute after the power supply has been switched on.
	The orange LED lights up permanently	The sensor has a memory problem	Send the sensor back to the manufacturer for checking.
3/4	The orange LED flashes quickly	DIP switch setting expects confirmation	Keep the push button pressed to confirm the DIP switch settings.
	The orange LED flashes 1× every 3 seconds	The sensor has detected an internal error	 Switch the sensor power supply off/on. If the orange LED lights up again: Replace the sensor.
	The orange LED flashes 2× every	Voltage supply too low or too high	Check the power supply (voltage, capacity).
2	3 seconds		Shorten the cable length or replace the cable.
		Internal tempera- ture is too high	Protect the sensor from every type of heat source (sun, hot air etc.).



LED Display	Effect	Cause	Elimination
	The orange LED flashes 3× every	Communication fault between	Check the wiring between master and slave.
3	3 seconds.	modules	Check the wiring between print- ed circuit board and laser head.
			Press the push button for at least 3 seconds if the door connection cable BS/BGS has definitely been removed.
	The orange LED flashes 4× every 3 seconds	9	Switch DIP 3 to OFF. Background detection is disabled.
4		Part of the detection area is masked by an object near the sensor	 Check whether there are any scratches on the laser window. Replace the sensor if necessary.
			Remove all the masking objects (insects, cobwebs, flexible tube, window protection).
			Check whether the laser window is soiled. If necessary, wipe off using a clean and damp microfi- bre cloth.
			The surface of the laser window is very sensitive.
			Switch off the antimasking setting.
			DIN 18650 EN 16005



LED Display	Effect	Cause	Elimination
5	The orange LED flashes 5× every 3 seconds	Teach-in error	 Check whether all the teach-in requirements were met. Teach-in again with the door closed.
			Change the inclination angle.Teach-in again with the door closed.
			Set the field dimensions using the remote control, press and trigger a door opening.
		Permanently faulty door position measure data	 Check whether all three fixing screws have been tightened. Teach-in again with the door closed. If the orange LED lights up again: Contact GEZE Service.
6	The orange LED flashes 6× every 3 seconds	Occasional faulty door position measure data	 Check whether all three fixing screws have been tightened. Move out of the detection area and wait until the door closes.
			 In closed position, switch the sensor power supply off and on again. Teach-in again with the door closed.



16 Technical data

Technology	Laser scanner, time-of-flight measurement
Detection mode	Presence
Max. detection area	4 m (diagonal) with 2% reflectivity (e.g. at W = 1.5 m \rightarrow max. H = 3.7 m)
Opening angle	Door leaf safety: 90° / Pinch zone: 16°
Angle resolution	Door leaf safety: 1.3° / Finger protection area: 0.2°
Typical min. object si	ze
 Door leaf safety 	10 cm for 4 m (in Proportion to object distance)
 Pinch zone 	2 cm for 4 m (in Proportion to object distance)
Test body	700 mm \times 300 mm \times 200 mm (Reference body CA in compliance with EN 16005 and DIN 18650)
Characteristics of the	transmitter
Infrared LASER	Wavelength 905 nm; max. output pulse power 25 W; Class 1
Power supply	12-24 V DC ± 15%
Power consumption	≤ 2 W
Response time	
 Door leaf safety 	max. 50 ms
Pinch zone	max. 90 ms
Outputs	2 electronic relays (floating outputs - potential-free)
 Max. switching voltage 	42 V AC/DC
 Max. switching current: 	100 mA
LED signal	1 two-coloured LED Detection state / Initial state
Dimensions	142 mm (W) \times 85 mm (H) \times 33 mm (D) (mounting base + 7 mm)
Housing material	PC/ASA
Colour	Black - Aluminium - White



Setting angle	+2° +10° (without fixture)
Protection rating	IP54 (EN 60529)
Temperature range	-30 °C +60 °C in operation
Humidity	0 to 95%, non-condensing
Vibration	<2G
Min. door leaf speed	2°/sec.
Standard conformity	EN 12978, EN ISO 13849-1PI "d"/ CAT2; IEC 60825-1; EN 61000-6-2; EN 61000-6-3; EN 62061 SIL 2; DIN 18650-1 Chapter 5.7.4 (Reference body CA); EN 16005 Chapter 4.6.8 (Reference body CA);



Named office for EC type testing: 0044 - TÜV NORD CERT GmbH, Langemarckstr. 20, 45141 D-Essen

EC Certificate of Conformity number: 44 205 13089618



The complete Declaration of Conformity can be downloaded from our website. For EU countries: In compliance with Directive 2012/19/EU concerning Waste Electrical and Electronic Equipment (WEEE)



17 Accessories / Spare parts

Material no. 167799 black GC 342 Covers 167800 white (left and right) 167801 stainless steel 167793 black GC 342 Mounting plates 167794 white (left and right) 167795 stainless steel GC 342 Accessories 167805 black (black flexible tube, 167806 white screw sets with plugs 167807 stainless and strain relief) steel



	Material no.
Retrofit interface	189422
Fire protection adapter	189384
Protective cover (left and right)	188669 black 188670 stainless steel 188671 according to RAL



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