

Hold-open system FA GC 150

Instructions for installation, commis-
sioning, operation and maintenance

RSZ 6, RSZ 7,

TS 4000 R, TS 4000 RFS, TS 4000 R-IS,

TS 5000 R, TS 5000 RFS, TS 5000 RFS

KB,

TS 5000 R-ISM /G/S/O, TS 5000 R-ISM

EFS,

Slimdrive EMD F/R*, Slimdrive EMD

F/R-IS*,



Powerturn F/R*, Powerturn F/R-IS*,

Powerturn F/R-IS/TS*

141512_07

EN Wiring diagram

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EN 14637

German
institute for
construction
technology



General construction technique permit:

Z-6.500-2308

Z-6.500-2309

Certification office: BWU33


*The automatic swing door drives
TSA 160 NT F, TSA 160 NT F EN7, TSA 160 NT F-IS,
TSA 160 NT F-IS-TS,
Slimdrive EMD-F, Slimdrive EMD-F-IS,
Slimdrive EMD F/R, Slimdrive EMD F/R-IS,
Powerturn F/R, Powerturn F/R-IS,
Powerturn F/R-IS/TS,
are hold-open devices/systems which are approved
under the general construction technique permit
Z-6.500-2308 or Z-6.500-2309, but their testing ac-
cording to EN 14637 has not yet been completed.

1 Symbols and illustrations

Warning notices



In these instructions, warning notices are used to warn against material damage and injuries.

- ▶ Always read and observe these warning notices.
- ▶ Observe all measures marked with the warning symbol and warning word.

Warning symbol	Warning word	Meaning
	DANGER	Danger to persons. Non-compliance will result in death or serious injuries.
–	CAUTION	Information to prevent property damage, to understand or optimise the operation sequences.

Further symbols and means of representation

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

Symbol	Meaning
	means "important note"
	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.

Abbreviations

AL	Alarm
AS	Ceiling-mounted detector (additional sensor)
BMA	Fire alarm system
E	Electric hold-open device
EMC	Electromagnetic compatibility
FA	Hold-open system
FS	Free swing function
GC	GEZE
GND	Reference potential (ground)
HOD	Hold-open device
IS	Integrated closing sequence
ISM	Integrated closing sequence (mechanical)
KB	Transom installation hinge side
LED	Light-emitting diode
LK	Luster terminal
MRB	Manual trigger switch (manual release button)
NC	Normally closed contact
NO	Normally open contact

R	Electric hold-open device with lintel-mounted detector and power supply (hold-open system)
RSZ	Smoke control unit
TS	= Door closer
UTA	Manual trigger switch

Colours

BK	black
BN	brown
BU	blue
GN	green
RD	red
YE	yellow
WH	white

2 Notes

- In compliance with the manufacturer's product liability as defined in the German "Product Liability Act", the information contained in this brochure is to be noted and followed. Failure to comply releases the manufacturer from his statutory liability.
- To ensure personal safety, it is important to follow these safety instructions.
- Heed the installation instructions for the hold-open system and its assembly groups.
- The country-specific regulations are to be observed if used on fire and smoke protection doors.
- Keep these documents.

2.1 Installation and electrical connection of the hold-open system

- The hold-open system must be installed by trained specialists. Refer also to the installation instructions for the respective hold-open system.
- The connection of the hold-open system to the mains voltage must be carried out by a qualified electrician.
- Hold-open systems may not trigger an fire alarm signal for the building.
- Only the devices specified in the construction technique permit may be installed and connected.
- Before connecting hold-open system components to the power supply, the supply voltage must be switched off.

2.2 Installation of the lintel-mounted smoke switch



- Do not install the lintel-mounted smoke switch until construction work for commissioning of the hold-open system has been completed.
- The lintel-mounted smoke switch is a sensitive electronic product and must be protected against electrostatic discharge:
 - Only take the lintel-mounted smoke switch out of the protective packaging directly before installation.
 - Do not touch any electronic components.
- Interrupt the voltage supply before installing the lintel-mounted smoke switch.

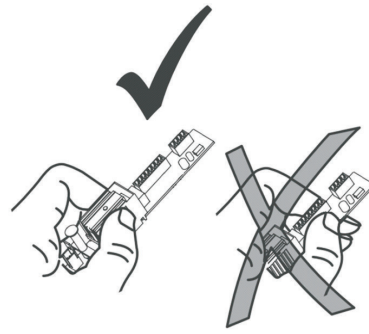


Fig. 2.2.1

- The lintel-mounted smoke switch is clipped into the housing of the hold-open system.

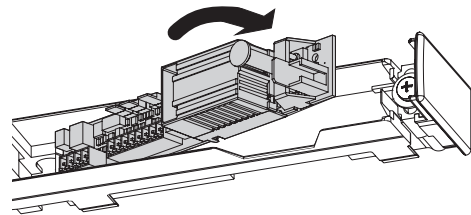


Fig. 2.2.2

2.3 Protecting a smoke switch from contamination

- Do not remove the dust protection film or dust protection cap from the smoke switch until commissioning is about to take place.
- After the smoke switch has been installed and the dust protection removed, make sure no dust gets into the measuring chamber. This leads to increased contamination and can significantly shorten the service life of the smoke switch.
- The measuring chamber of a smoke switch must not be opened.

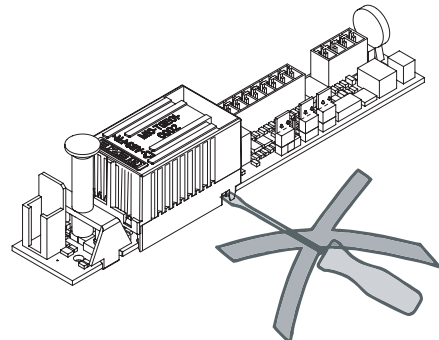


Fig. 2.3.1

2.4 Disposal



- The hold-open system is made up of materials that should be sent for recycling. The individual components have to be sorted in accordance with their material type. The parts can be disposed of at the local recycling depot or by a scrap recycling company.
- In accordance with the German Battery Directive, we are obliged to inform you of the following in connection with the sale of batteries or rechargeable batteries respectively in connection with the delivery of devices containing batteries or rechargeable batteries: Rechargeable batteries and batteries must not be disposed of with household waste. Disposal with household waste is expressly forbidden according to the German Battery Directive. As the end-consumer, you are legally obliged to return used batteries. Please dispose of batteries at a municipal collection point or in store. Batteries obtained from us can be returned to us by mail. The address is: GEZE GmbH, Incoming Goods, Reinhold-Vöster-Str. 21-29, 71229 Leonberg/Germany. Batteries which contain harmful substances are identified by a symbol of a crossed-out rubbish bin.

3 Hold-open system FA GC 150

3.1 Function

Directly after a fire or smoke protection door has been opened, it is closed again by the fitted door closer. This self-closing characteristic is cancelled in a controlled way by the hold-open system, so that a fire or smoke protection door can remain open permanently. In the event of a power failure, response by a fire detector or triggering by a push button, an open door is closed by the door closer.

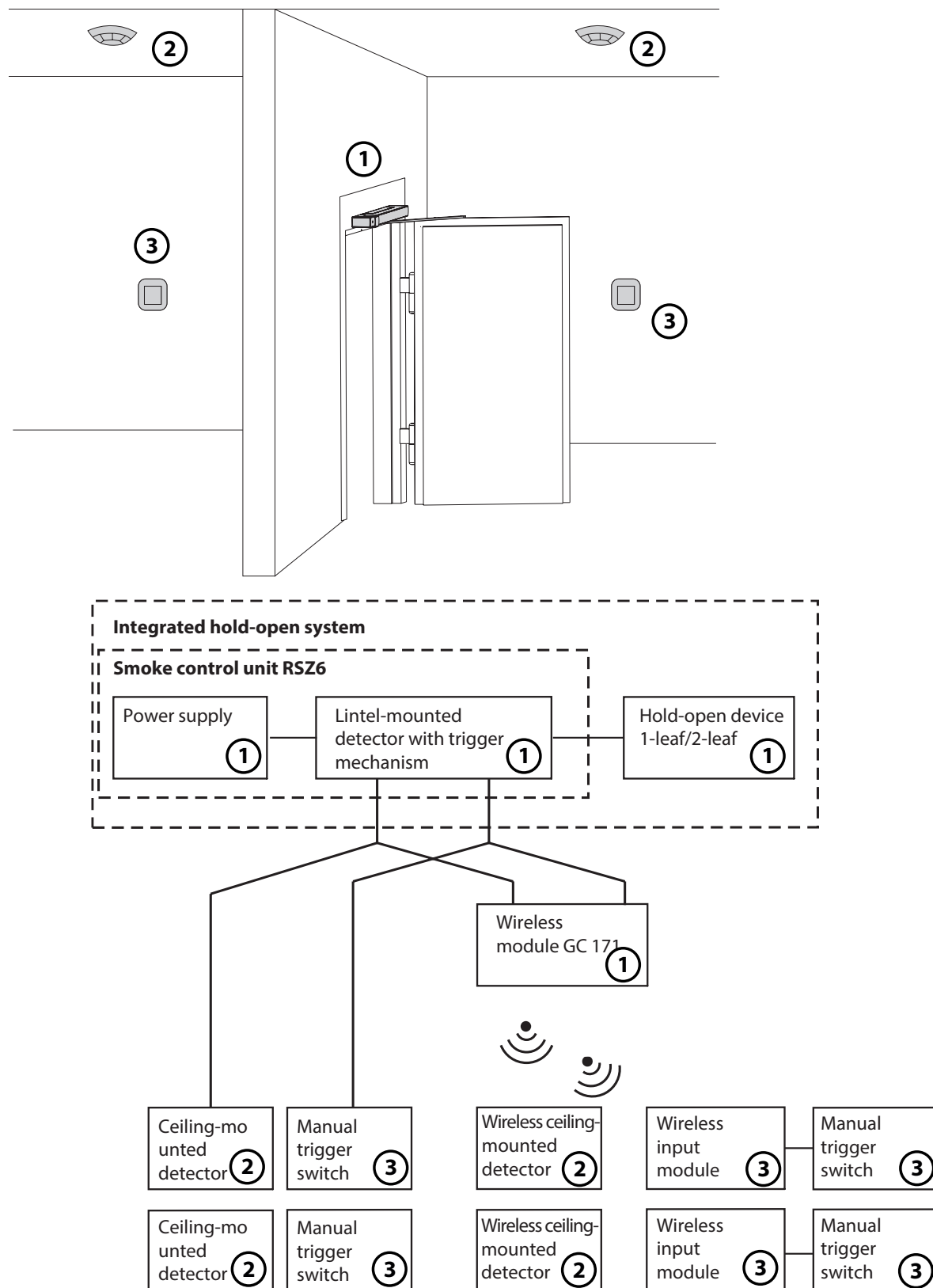


Fig. 3.1.1

3.2 Hold-open system with separate smoke control unit RSZ 6, RSZ 7

The hold-open system RSZ 6, RSZ 7 comprising:

- **Power supply (1)**
 - Power supply RSZ 6, RSZ 7
- **Lintel-mounted smoke switch with trigger mechanism (1)**
 - GC 151, lintel-mounted smoke switch
- **Wireless module (1)**
 - for the wireless connection of ceiling-mounted detector and/or manual trigger switches
 - GC 171, wireless module
- **Ceiling-mounted detector (2)**
 - GC 152, smoke detector with relay base
 - GC 153, thermal detector with relay base
 - ORS 142, smoke detector with base
 - GC 172, wireless smoke detector
 - GC 173, wireless thermal detector
- **Manual trigger switch (3)**
 - UTA, manual trigger switch
 - GC 175, wireless input module
- **Hold-open device (1)**
 - overhead door closer**
 - TS 4000 E
 - link arm, electrohydraulic hold-open function
 - TS 4000 EFS
 - link arm with free swing function, electrohydraulic hold-open function
 - TS 4000 E-IS
 - link arm, 2-leaf with integrated closing sequence, electrohydraulic hold-open function for both leaves
 - E guide rail
 - electromagnetic hold-open function
 - E-ISM guide rail
 - 2-leaf with integrated closing sequence, electromagnetic hold-open function for both leaves
 - E-ISM/G guide rail
 - 2-leaf with integrated closing sequence, electromagnetic hold-open function for the active leaf
 - E-ISM/S guide rail
 - 2-leaf with integrated closing sequence, electromagnetic hold-open function for the passive leaf
 - ISM-EFS guide rail
 - 2-leaf with integrated closing sequence, electrohydraulic hold-open function for the active leaf with free swing function
 - TS 5000 EFS
 - guide rail with free swing function, electrohydraulic hold-open function
 - Integrated door closers**
 - E guide rail Boxer
 - electromagnetic hold-open function
 - E-ISM guide rail Boxer
 - 2-leaf with integrated closing sequence, electromagnetic hold-open function for both leaves
 - ISM-EFS guide rail Boxer
 - 2-leaf with integrated closing sequence, electrohydraulic hold-open function for the active leaf with free swing function
 - Boxer EFS
 - guide rail with free swing function, electrohydraulic hold-open function
 - Floor spring**
 - TS 550 NV-E
 - electrohydraulic hold-open function
 - TS 550 E
 - electromagnetic hold-open function
 - TS 550 E-IS
 - 2-leaf with integrated closing sequence control, electromagnetic hold-open function
 - Hold-open magnet**
 - GT 50 R
 - GT 60 R
 - GT 63 R
 - GT 70 R

Automatic drives

- **TSA 160 NT F***
hydraulic swing door drive
- **TSA 160 NT F-IS***
hydraulic swing door drive, 2-leaf with integrated mechanical closing sequence
- **Slimdrive EMD-F***
electromechanical swing door drive
- **Slimdrive EMD F-IS***
electromechanical swing door drive, 2-leaf with integrated mechanical door closing sequence
- **Powerturn F***
electromechanical swing door drive
- **Powerturn F-IS***
electromechanical swing door drive, 2-leaf with integrated mechanical closing sequence
- **Powerturn F-IS/TS***
electromechanical swing door drive on the active leaf, door closer on the passive leaf with integrated mechanical closing sequence

3.3 Integrated hold-open systems

In addition to the hold-open system with separate smoke control unit RSZ 6, RSZ 7, the following hold-open systems with integrated hold-open device available for overhead door closers:

- **TS 4000 R**
link arm, electrohydraulic hold-open function
- **TS 4000 RFS**
link arm with free swing function, electrohydraulic hold-open function
- **TS 4000 R-IS**
link arm, 2-leaf with integrated closing sequence, electrohydraulic hold-open function for both leaves
- **TS 5000 R**
guide rail, electromagnetic hold-open function or hold-open function with hold-open magnet
- **TS 5000 R-ISM**
guide rail, 2-leaf with integrated closing sequence, electromagnetic hold-open function for both leaves
- **TS 5000 R-ISM/G**
guide rail, 2-leaf with integrated closing sequence, electromagnetic hold-open function for the active leaf
- **TS 5000 R-ISM/S**
guide rail, 2-leaf with integrated closing sequence, electromagnetic hold-open function for the passive leaf
- **TS 5000 R-ISM/O**
guide rail, 2-leaf with integrated closing sequence, without electromagnetic hold-open function in the guide rail
- **TS 5000 R-ISM-EFS**
guide rail, 2-leaf with integrated closing sequence, electrohydraulic hold-open function for the active leaf with free swing function
- **TS 5000 RFS**
guide rail with free swing function, electrohydraulic hold-open function
- **TS 5000 RFS KB**
guide rail with free swing function, transom installation hinge side, electrohydraulic hold-open function
- **Slimdrive EMD F/R***
electromechanical swing door drive
- **Slimdrive EMD F/R-IS***
electromechanical swing door drive, 2-leaf with integrated mechanical closing sequence
- **Powerturn F/R***
electromechanical swing door drive
- **Powerturn F/R-IS***
electromechanical swing door drive, 2-leaf with integrated mechanical closing sequence
- **Powerturn F/R-IS/TS***
electromechanical swing door drive on the active leaf, door closer on the passive leaf with integrated mechanical closing sequence

3.4 Classification in accordance with EN 14637

GEZE	Hold-open system FA GC 150	MM/JJJJ	Input 230 V AC 0,08 A
D-71229 Leonberg	BWU 33		Output 24 V DC 0,26 A
+49 (0)7152/203-0	EN 14637	3 8 1 1 1 4	IP 20

No. 1	Class 3	Application class	Frequent use by the general public and other persons with little incentive to take care
No. 2	Class 8	Permanent function	500,000 test cycles
No. 3	Class 1	Door type	Swing doors
No. 4	Class 1	Suitability for use on fire/smoke protection doors	Suitable for use on fire/smoke protection doors
No. 5	Class 1	Safety	Meets all requirements of EN 14637
No. 6	Class 0		No defined corrosion resistance (in connection with automatic drives)
	Class 2		Moderate corrosion resistance in accordance with EN 1670 (in connection with the hold-open magnet GT 60 R)
	Class 3		High resistance in accordance with EN 1670 (in connection with the hold-open magnets GT 50 R, GT 63 R and GT 70 R)
	Class 4		Very high resistance in accordance with EN 1670 (in connection with all other GEZE hold-open devices)

3.5 Planning of fire detectors and manual trigger switches

3.5.1 Smoke detector or thermal detector

Smoke detectors detect smoke. They work using the scattered light principle. A light transmitter and a light interface are arranged in the measuring chamber in such a way that no light reaches the interface in the normal case. If there are suspended particles (smoke) in the measuring chamber, these scatter part of the light onto the interface, which converts this into an electric signal.

Accordingly, a smoke detector not only detects smoke but all other suspended particles and responds sensitively to contamination.

Thermal detectors measure the ambient temperature and respond if the temperature exceeds a certain maximum value or increases quickly within a certain time.

Usually, smoke and fire gases spread quickly when a fire breaks out. It is only later that the temperature increases. Therefore smoke detectors must be used for hold-open systems on fire protection doors on rescue routes. As far as possible, smoke detectors should generally be used for hold-open systems. In areas where disruption such as steam, dust, condensation or operation-related smoke development (workshops, kitchens) occurs, it may, however, be sensible to use thermal detectors rather than smoke detectors.

3.5.2 Number and installation of fire detectors

- h Distance between lower edge of the lintel and ceiling or false ceiling (where a larger concentration of smoke is to be expected first in the event of a fire).



Lintel-mounted smoke switch



Ceiling-mounted detector

Usually there must be at least one ceiling-mounted detector - i.e. one pair of detectors - fitted in the rooms adjacent to the smoke opening – and at least one lintel-mounted detector on one side of the lintel over the active leaf above the smoke opening. If the following prerequisites are met, other installations are sufficient

one lintel-mounted smoke switch

- if the distance h is smaller than 100 cm on both sides of the door

and

- if the opening width of the swing door is smaller than 300 cm

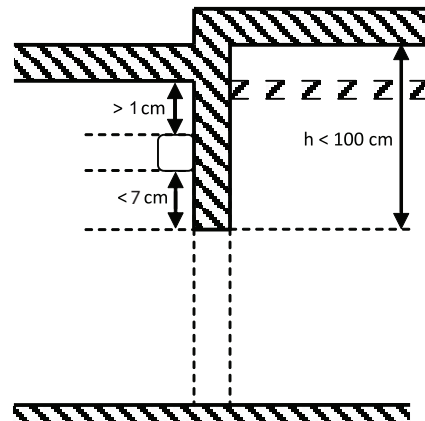


Fig. 3.5.2.1

one lintel-mounted smoke switch and one ceiling-mounted detector on each side of the door

- if the distance h is greater than 100 cm on at least one side of the door

or

- if the opening width of the swing door is greater than 300 cm

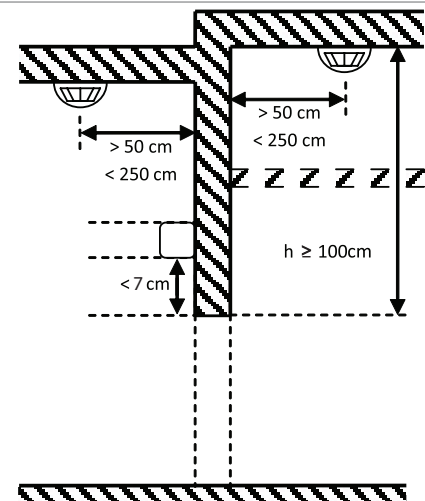


Fig. 3.5.2.2



Lintel-mounted smoke switch

- The lintel-mounted smoke switch is installed directly above the door, in the case of 2-leaf doors above the active leaf.
- The lintel-mounted smoke switch is installed in such a way that a minimum distance of 1 cm is observed between the upper edge of the smoke switch housing and the component above it.
- The lintel-mounted smoke switch is only suitable for wall installation, it must not be installed on the ceiling.
- If the lintel-mounted smoke switch is subject to disruption such as steam, dust, condensation or operation-related smoke development, it can make sense to cover the smoke chamber of the lintel-mounted smoke switch and to install an additional thermal detector as lintel-mounted smoke switch above the door using an installation bracket instead (**not permissible on rescue routes**).



Ceiling-mounted detector

- The ceiling-mounted detectors are installed on the ceiling above the door, the distance to the wall is between 50 cm and 250 cm. The distance to any installation is at least 50 cm.
- If the distance h on one side of the door is greater than 500 cm, the corresponding ceiling-mounted detector can be mounted on a projecting arm 50 cm in front of the wall and at least 350 cm above the lower edge of the lintel.
- In special ceiling situations (e.g. sloped ceilings, false ceilings, galleries) the fire detectors must be installed where a larger concentration of smoke is to be expected in the event of a fire. If in doubt, a fire protection planner or expert should be consulted.

3.5.3 Manual trigger switch

Optional manual trigger switch:

The hold-open devices

- TS 4000 E, TS 4000 E-IS
- E guide rail, E-ISM guide rail, E-ISM/G guide rail, E-ISM/S guide rail
- E guide rail Boxer, E-ISM guide rail Boxer
- TS 550 NV-E, TS 550 E, TS 550 E-IS

and the hold-open systems

- TS 4000 R, TS 4000 R-IS
- TS 5000 R, TS 5000 R-ISM, TS 5000 R-ISM/G, TS 5000 R-ISM/S, TS 5000 R-ISM/O

can be triggered by hand by closing the door leaves manually.

A manual trigger switch can be installed as an option.

Manual trigger switch mandatory:

The hold-open devices

- TS 4000 EFS
- TS 5000 EFS
- ISM-EFS guide rail
- Boxer EFS
- ISM-EFS guide rail Boxer
- GT 50 R, GT 60 R, GT 63 R, GT 70 R
- TSA 160 NT F*, TSA 160 NT F-IS*
- Slimdrive EMD F*, Slimdrive EMD F-IS*
- Powerturn F*, Powerturn F-IS*, Powerturn F-IS/TS*

and the hold-open systems

- TS 4000 RFS
- TS 5000 RFS, TS 5000 RFS-KB, TS 5000 R-ISM-EFS
- Slimdrive EMD F/R*, Slimdrive EMD F/R-IS*
- Powerturn F/R*, Powerturn F/R-IS*, Powerturn F/R-IS/TS*

cannot be triggered by hand. For this reason, a manual trigger switch must be installed.

Installation of the manual trigger switch

- Installation of the manual trigger switch in a clearly visible place in the direct vicinity of the door (not concealed by the door leaf).
- Recommended installation height of the manual trigger switch: 140 cm ± 20 cm.

4 Technical data

4.1 Hold-open system FA GC 150

Protection rating (according to DIN EN 61140)



TS 4000 R, TS 4000 RFS
TS 4000 R-IS, TS 5000 RFS KB
Slimdrive EMD F/R*
Slimdrive EMD F/R-IS*
Powerturn F/R*
Powerturn F/R-IS*
Powerturn F/R-IS/TS*



RSZ 6, RSZ 7 (if automatic swing door drives are used as a hold-open device, they are connected up as protecting rating I devices) TS 5000 R, TS 5000 RFS
TS 5000 R-ISM /G/S/O
TS 5000 R-ISM EFS

IP rating (in accordance with DIN 60529)

IP20, only for dry areas

Ambient temperature

-5 °C to 50 °C

4.2 Guidelines

DIBt Guidelines:2015

DIN EN 14637:2008-01

DIN 14677:2011-03

DIN 18263-4:2015-04

DIN EN 54-4:1997-12

DIN EN 54-5:2001-03

DIN EN 54-7:2006-09

DIN EN 54-18:2005-12

DIN EN 54-25:2008-06

DIN EN 1155:2006-06

DIN EN 62368-1

VDE 0868-1:2016-05

DIN EN 60950-1:2014-08;

VDE 0805-1:2014-08

DIN EN 61000-6-2:2016-05;

VDE 0839-6-2:2015-05

DIN EN 61000-6-3:2011-09;

VDE 0839-6-3:2011-09

ETSI EN 300 220-2, V3.1.1,2017-02

ETSI EN 301 489-1, V1.9.2:2011-09

General requirements and test regulations for the approval procedure for hold-open systems - version September 2015

Locks and building hardware - electrically controlled hold-open systems for fire/smoke protection doors - requirements, test methods, application and maintenance

Servicing of electrically controlled hold-open systems for fire and smoke protection closers

Locks and building hardware - door closers with controlled locking structure - Part 4: Swing door drives with self-closing function

Fire detection and fire alarm systems - Part 4: Power supply equipment

Fire detection and fire alarm systems - Part 5: Heat detectors - point detectors

Fire detection and fire alarm systems - Part 7: Smoke detectors - Point detectors using scattered light, transmitted light or ionisation

Fire detection and fire alarm systems - Part 18: Input/output devices

Fire detection and fire alarm systems - Part 25: Components which use high-frequency connections

Locks and building hardware - electrically controlled hold-open mechanisms for swing doors - requirements and test methods

Audio/video, information and communication technology equipment- Part 1: Safety requirements

Information technology equipment - Safety - Part 1: General requirements

Electromagnetic compatibility (EMC) - Part 6-2: Generic standards

- Interference immunity for industrial sectors

Electromagnetic compatibility (EMC) - Part 6-3: Generic standards

- Interference immunity for residence, business and commercial sectors as well as small-sized business

Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices (SRD);

Radio equipment to be used in the 25 MHz to 1 000 MHz frequency range with power levels ranging up to 500 mW;

Part 2: Harmonized EN covering essential requirements under article 3.2 of the R&TTE Directive

Electromagnetic compatibility and Radio spectrum Matters (ERM);

Electromagnetic Compatibility (EMC)

standard for radio equipment and services;

Part 1: Common technical requirements

4.3 Power supply

Power supply

- Cable length 230V / 24V

- Cable length 230V / 24V

- Cable length 230V / 24V

Input voltage

Input current

Output voltage

Output current

130 mm / 150 mm (ID 085391)

90 mm / 65 mm (ID 103354)

700 mm / 750 mm (ID 115818)

230 V AC, +10 % / -15 %, 50 Hz

maximum 80 mA

24 V ± 0,5 V DC

maximum 260 mA

4.4 Lintel-mounted smoke switch GC 151

Lintel-mounted smoke switch GC 151

Functional principle

ID 142250

Scatter light, adaption of the alarm threshold, no alarm saving (self-resetting as soon as there is no longer any smoke in the measuring chamber)

Input voltage

24 V \pm 0,5 V DC

Input current

maximum 15 mA

Installation position

Wall (lintel) installation, horizontal

Output hold-open device

Transistor output, short-circuit proof

Free-wheeling diode for inductive load, maximum 24 V, 200 mA

in the event of an alarm switch-off of the hold-open device for at least 4 s

Additional detectors

Connection of up to 3 ceiling-mounted detectors using 3-line technology

Line monitoring (can be switched off) using two terminating resistors (43 k Ω each) at the end of the cable

Manual trigger switch

Line monitoring (can be switched off) using terminating resistor (43 k Ω) at the end of the cable

Alarm output

Potential-free relay output, changer

maximum 24 V DC / maximum 1 A

Test button

The hold-open device is switched off as long as the key is pressed (for at least 4 s)

Reset of the smoke switch by activating the button

Detector test

Alarm triggering: with test button or with test aerosol



Line monitoring may only be deactivated when used as a spare part in old systems without line monitoring (ORS 141).



Switch the supply voltage off before changing the jumper setting (remove terminal clamp KL1). The new jumper setting only becomes active after the mains voltage has been switched back on again.

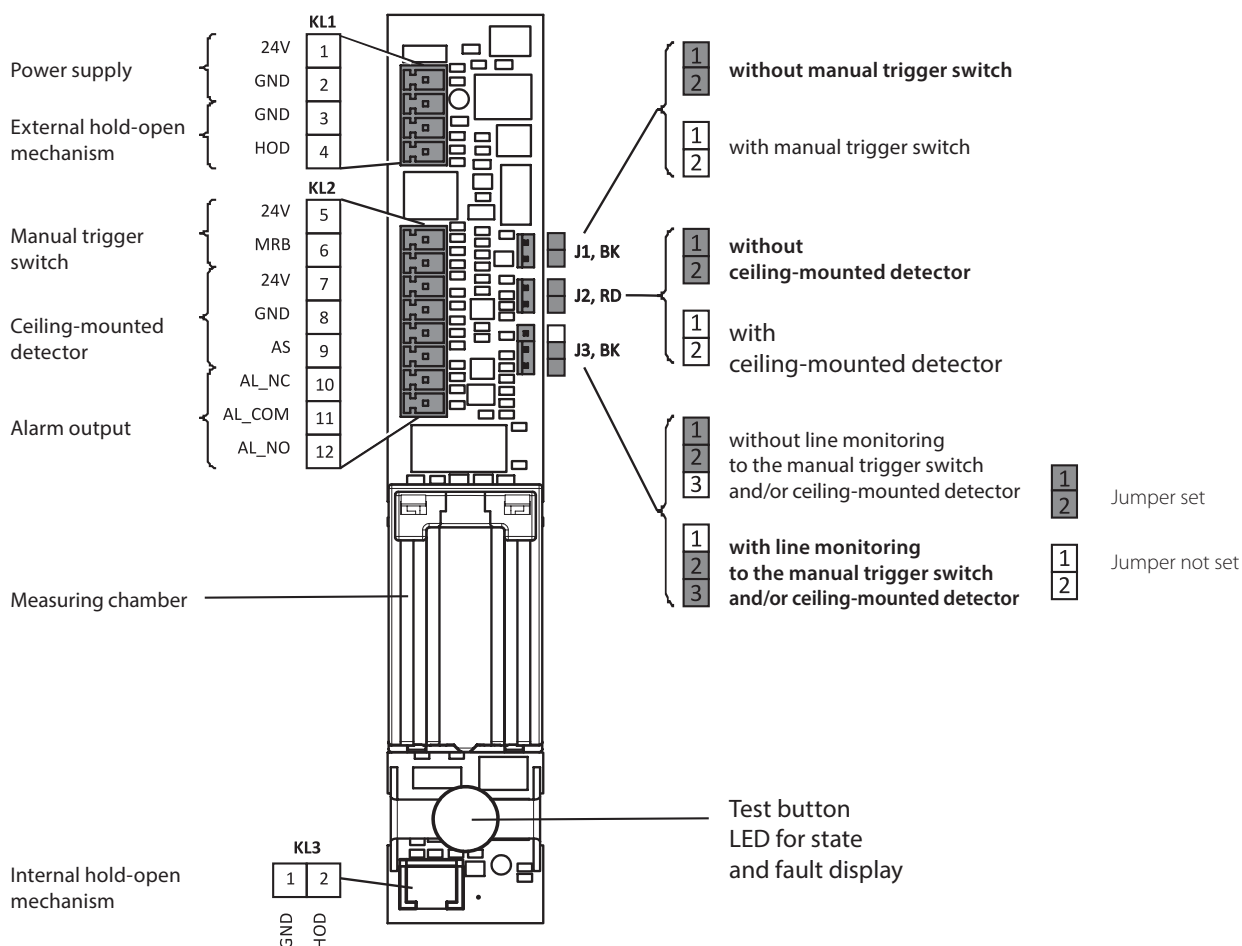
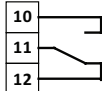
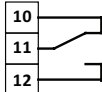


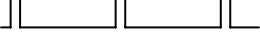
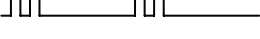
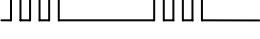
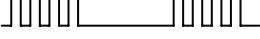


Fig. 4.4.1

State / fault	LED	Alarm output	Hold-open output KL1: 3-4 / KL3: 1-2
Voltage-free	Off		0 V
Normal operation	Green		24 V
Contamination (warning) The lintel-mounted smoke switch should be replaced.	Red Green 		24 V
Contamination limit reached The lintel-mounted smoke switch must be replaced.	Red Green 		0 V
Fault lintel-mounted smoke switch The lintel-mounted smoke switch must be replaced.	Red Off 		0 V
Short-circuit at the hold-open output Disconnect the lintel-mounted smoke switch from the supply voltage and eliminate the short-circuit.	Red Off 		0 V
Supply voltage for lintel-mounted smoke switch too small Broken cable manual trigger switch¹⁾	Red Off 		0 V
Supply voltage ceiling-mounted detector too small¹⁾ Short-circuit ceiling-mounted detector¹⁾	Red Off 		0 V
Manual trigger switch activated²⁾ Short-circuit manual trigger switch¹⁾	Yellow		0 V
Press the test button	Yellow		0 V
Alarm lintel-mounted smoke switch Alarm ceiling-mounted detector Broken cable ceiling-mounted detector¹⁾ Ceiling-mounted detector removed	Red		0 V

¹⁾ Display only if line monitoring is active (jumper J3)

Tab. 4.4.1

²⁾ Does not apply if the manual trigger switch is connected as a normally closed contact. When the normally closed contact is actuated, "broken cable manual trigger switch" is displayed.

4.5 Wireless module GC 171

Wireless module GC 171

Colour

Dimensions (W × H × D)

Installation position

Input voltage

Input current

Function

ID 163051

RAL 7016 (anthracite grey)

177 mm × 30 mm × 18 mm

Wall installation

24 V DC

maximum 15 mA

The wireless module GC 171 makes wireless communication possible between the lintel-mounted smoke switch GC 151 and various wireless devices (wireless smoke detector GC 172, wireless thermal detector GC 173 and wireless input module GC 175).

The wireless module GC 171 forwards wireless signals to the lintel-mounted smoke switch GC 151 as changes in resistance. These changes in resistance correspond to those of the ceiling-mounted detectors GC 152 and GC 153 and the manual trigger switch.

An alarm triggered at a wireless module is indicated without delay (in less than 10 s) at the lintel-mounted smoke switch GC 151.

Interference with a wireless device or a problem with communication is indicated in less than 100 s on the lintel-mounted smoke switch GC 151.

The wireless module GC 171 can communicate with a maximum of 6 wireless devices (GC 172, GC 173 or GC 175).

Number of wireless participants

Signal transfer period	60 s
Antenna	integrated
Frequency range	868.15 MHz to 869.85 MHz
Range	10 m (100 m in space)
Number of frequency channels	7
Modulation technique	FSK (frequency shift keying)
Radiated power	10 dBm / 10 mW

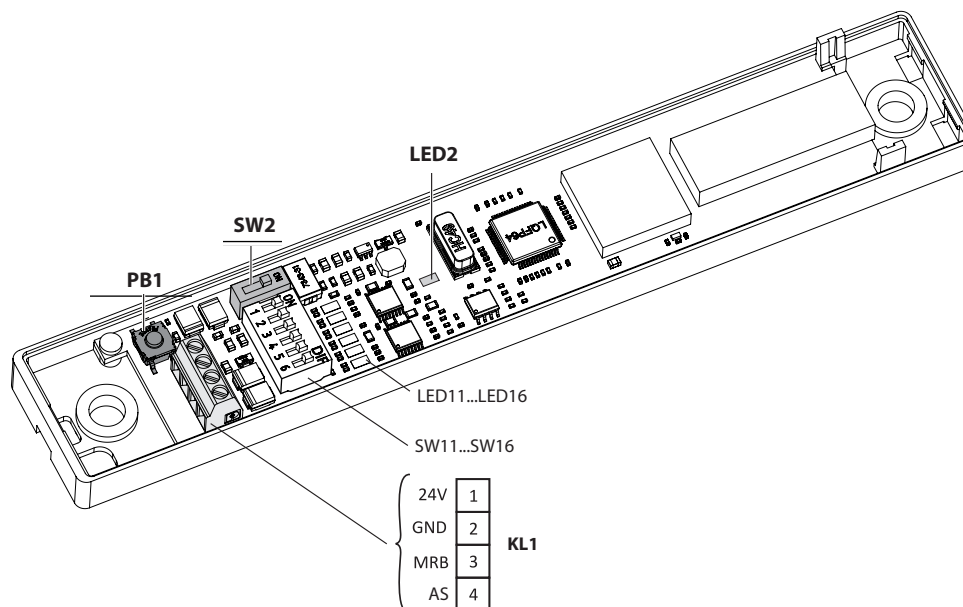


Fig. 4.5.1

KL1	Connection to the lintel-mounted smoke switch
24V	Power supply
GND	Power supply
MRB	Manual trigger switch
AS	Ceiling-mounted detector
PB1	Push button for mode selection "Operating" mode "Set up wireless connection" mode
LED1x	Wireless device LEDs 6 LEDs, one LED belongs to exactly one wireless device.
SW1x	Wireless device switches 6 sliding switches, one switch belongs to exactly one wireless device.
LED2	Status LED Indicates the status of the GC 171.
SW2	Selection of the lintel-mounted smoke switch SW2 is switched to ON for connection to lintel-mounted smoke switch GC 151.



Always remove jumpers J1 and J2 from the GC 151.

4.5.1 "Operating" mode

After the supply voltage has been switched on, the wireless module GC 171 is in "operating" mode.

LED displays

In "operating" mode the GC 171 monitors the set-up wireless connections and signals faults and alarms to the lintel-mounted smoke switch. Faults and alarms are also indicated on the status LED and the wireless device LEDs of the GC 171. The following table shows the states for various events which are signalled via the set-up wireless connections:

- of the wireless device LEDs of the GC 171
- of the status LED of the GC 171
- of the LED of the lintel-mounted smoke switch GC 151
- of the alarm output and the hold-open output of the lintel-mounted smoke switch GC 151

The wireless module GC 171 indicates an event until the cause has been eliminated. If the cause of an event is no longer present, the wireless module GC 171 changes back to normal operation (the displays are deleted and 24 V is applied to the hold-open output of the lintel-mounted smoke switch again).

		Wireless module GC 171 ("operating" mode)		Lintel-mounted smoke switch GC 151		
Wireless connection	State / fault	Wireless device LED 1x	Status LED	LED	Alarm output	Hold-open output KL1: 3-4 / KL3: 1-2 24 V
GC 171	Connection quality	flashes green → good flashes yellow → sufficient flashes red → poor	Off	Green		0 V
	General fault	Off	Yellow	Red		
GC 172 GC 173	General fault	Red Off	Yellow	Red Off		0 V
	Sabotage	Red Off		Red Off		
	Loss of connection	Red Off		Green		
	Low battery charge (warning)	Yellow Off		Green		
	Contamination (warning)	Red/green short		Red Off		
	Contamination limit reached	Red/green long		Red Off		
	Wireless detector alarm	Red	Red	Red		0 V
GC 175	General fault, broken cable	Red Off	Yellow	Red Off		0 V
	Loss of connection	Red Off		Green		
	Low battery charge (warning)	Yellow Off		Yellow		
	Contact (normally open contact) activated, short-circuit	Yellow		Yellow		

Tab. 4.5.1

Connection quality

If the wireless device switch is in the OFF position during "operating" mode, the corresponding wireless device LED indicates the connection quality to the corresponding wireless device:

- LED is Off	→ no wireless connection is set up
- LED flashes green every 2 s	→ good connection quality
- LED flashes yellow every 2 s	→ sufficient connection quality
- LED flashes red every 2 s	→ still connected but poor connection quality Connection interference is possible, the quality of the wireless connection should be optimised by changing the position of the wireless device.

If the wireless device switch is in the OFF position in "operating" mode and the wireless device signals an event (a warning, a fault or an alarm), the wireless device LED indicates this event in compliance with the table above instead of the connection quality.

General fault

The wireless module GC 171 signals "general fault" if

- no wireless connection is set up,
- the set-up switch is in the ON position with GC 172, GC 173 or GC 175,
- a fault has occurred during smoke detection with GC 172,
- the connection to the termination resistor is interrupted with GC 175,
- the wireless module GC 171 is in the "set up wireless connection" mode.

Sabotage

The wireless module GC 171 signals "sabotage" if a wireless detector GC 172 or GC 173 has been removed from its base.

Loss of connection

If the wireless module GC 171 does not receive a new message from a set-up wireless device within 100 s of the last message, the wireless module signals "loss of connection" for the corresponding wireless connection. The wireless module GC 171 continues to monitor this wireless connection. If the wireless module sends a signal again in time, the wireless module GC 171 returns to "normal operation".

Low battery charge

The wireless module GC 171 signals "low battery charge" if the voltage of the main battery of the corresponding wireless device falls to less than 2.6 V. Both batteries (main battery and slave battery) must be replaced.

Contamination

The wireless module GC 171 signals "contamination" if the inside of the smoke chamber is heavily soiled. The corresponding wireless smoke detector GC 172 should be replaced.

Contamination limit reached

The wireless module GC 171 signals "contamination limit reached" if the inside of the smoke chamber is too heavily soiled. The corresponding wireless smoke detector GC 172 must be replaced.

Wireless detector alarm

The wireless module GC 171 signals "wireless ceiling-mounted detector alarm" if the wireless smoke detector GC 172 or the wireless thermal detector GC 173 triggers. The signal is acknowledged automatically when the cause of the alarm is no longer present. The wireless module GC 171 returns to "normal operation".

Contact activated

The wireless module GC 171 signals "contact activated" if the input of the wireless input module GC 175 is short-circuited (when the connected contact is closed or in the event of short-circuit of the connection to the contact). The signal is acknowledged automatically when the short-circuit is no longer present. The wireless module GC 171 returns to "normal operation".

Event memory

The wireless module GC 171 saves the last event for every connected wireless device. A new event overwrites the last event. In order to check whether an event has been saved for the wireless device, slide the corresponding wireless device switch to the ON position. If an event has been saved for this wireless device, the corresponding wireless device LED will then display this event as shown in the table above. If the wireless device LED is green, then no event has been saved for this wireless device.

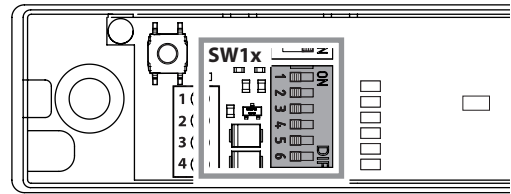
When the wireless device switch is slid back to the OFF position, any event saved is deleted.

4.5.2 "Set up wireless connection" mode

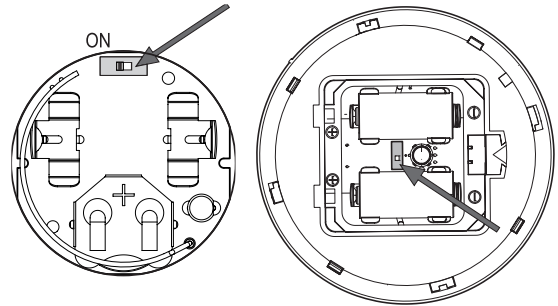
In the "set up wireless connection" mode, new wireless connections can be set up to new wireless devices GC 172, GC 173 or GC 175. A maximum of 6 wireless connections can be set up.

Pre-conditions

- All the wireless device switches of the wireless module GC 171 are in the OFF position.



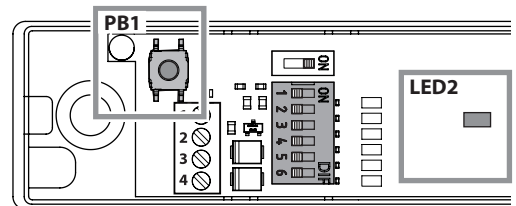
- The set-up switch of the new wireless device is set to the ON position.



- The protective film is on the battery compartment of the new wireless device and the main battery for the new wireless device has not been fitted.

After the supply voltage has been switched on, the wireless module GC 171 is in "operating" mode.

- ▶ Press the PB1 push button on the wireless module GC 171 briefly to change to the "set up wireless connection" mode. The status LED2 of the wireless module GC 171 is now permanently lit red.



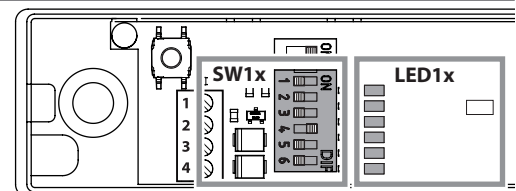
Set up wireless connection

- ▶ Slide a free wireless device switch SW1x of the wireless module GC 171 to the ON position.

If a connection has already been set up for the wireless device switch selected, this is overwritten by the following process. The corresponding wireless device LED1x starts to flash green. The wireless module GC 171 waits for the connection query for a new wireless device. If a wireless device does not respond within 2 minutes, the GC 171 cancels the connection attempt, the corresponding wireless device LED1x lights up red.

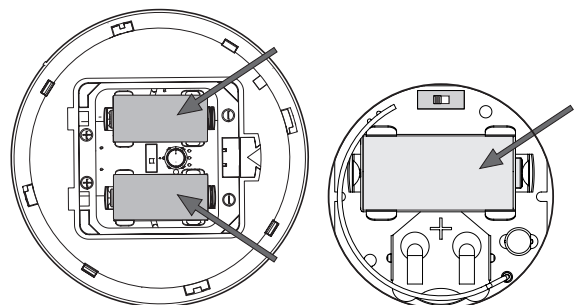
- ▶ To start the connection attempt again, slide the corresponding wireless device switch SW1x to the OFF position briefly, then slide it back into the ON position.

The corresponding wireless device LED1x flashes green again for 2 minutes.



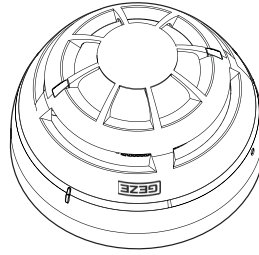
Install batteries

- ▶ Remove the protective film from the battery compartment of the new wireless device and install the main battery in the new wireless device (ensure correct polarity).

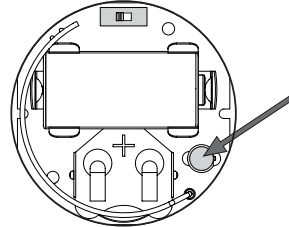


Wireless ceiling-mounted detector GC 172 or GC 173:

The LED of the new wireless ceiling-mounted detector flashes green twice first, then lights up yellow for one second and then flashes red four times. As soon as the LED goes out after that, the connection can be set up.

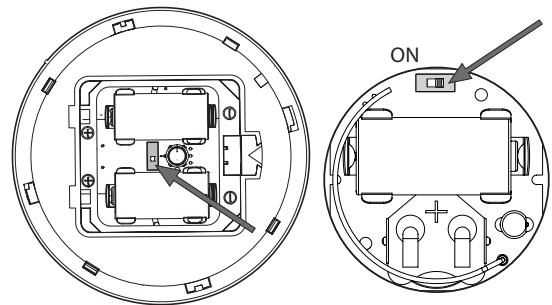
**Wireless input module GC 175:**

The LED of the new wireless input module flashes green once first, then lights up yellow for one second and then flashes red four times. As soon as the LED goes out after that, the connection can be set up.



- Slide the set-up switch on the new wireless device to the 1 position.

After a short time, the LED of the new wireless device will flash green for a few seconds. The corresponding wireless device LED1x of the wireless module GC 171 lights up green permanently.



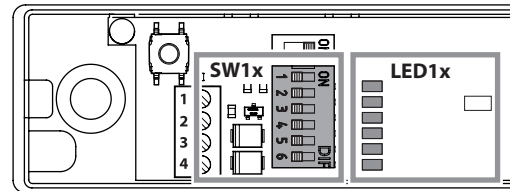
If the LED on the new wireless device lights up red permanently, no connection has been made.

- In this case, remove the main battery from the new wireless device, slide the set-up switch on the new wireless device back and forward six times and start again with "Install batteries".

- Fit the wireless ceiling-mounted detector to the base and close the housing of the wireless input module.
- Slide the wireless device switch SW1x of the wireless module GC 171 to the OFF position again.

The colour of the flashing of the corresponding wireless device LED1x indicates the quality of the wireless connection (see chap. 4.5.1).

- Optimise the quality of the wireless connection if necessary by changing the position of the wireless device.

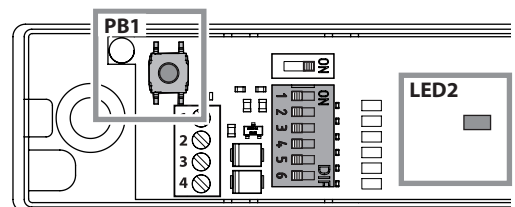


The connection of the wireless module GC 171 to the new wireless device has been set up.

- Note the set-up connection (number of the assigned wireless device switch) on the new wireless device unit e.g. on its identification plate.
- To set up further wireless connections, continue with step "Set up wireless connection".

- Press the PB1 push button on the wireless module GC 171 briefly to change to the "operating" mode.

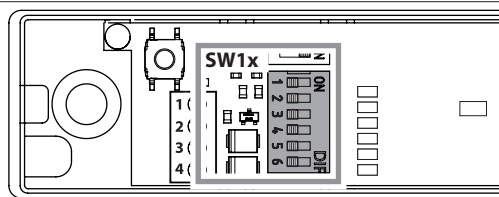
The status LED2 of the wireless module GC 171 goes off.



Delete all wireless connections

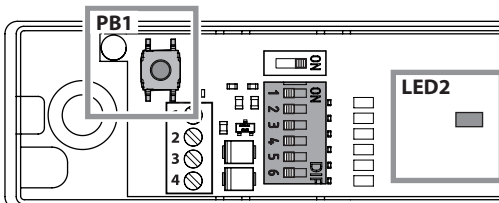
All wireless connections already set up can be deleted in the “set up wireless connection” mode.

After the supply voltage has been switched on, the wireless module GC 171 is in “operating” mode. All the wireless device switches SW1x are in the OFF position.

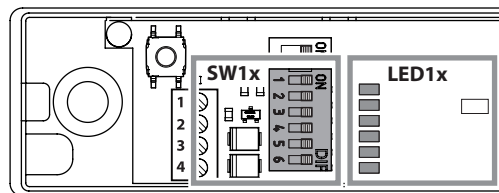


- Press the PB1 push button briefly to change to the “set up wireless connection” mode.

The status LED2 of the wireless module is now permanently lit red.

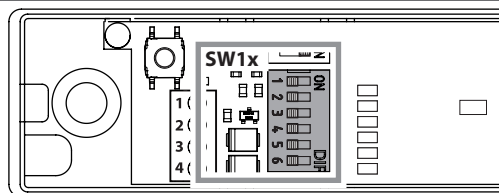


- Slide all 6 wireless device switches SW1x to the ON position. The wireless device LED1x light up yellow in succession until all the wireless device switches are in the ON position. They then flash red for 5 s. Within these 5 s, deletion of the wireless connections can be cancelled by sliding one or more wireless device switches back to the OFF position

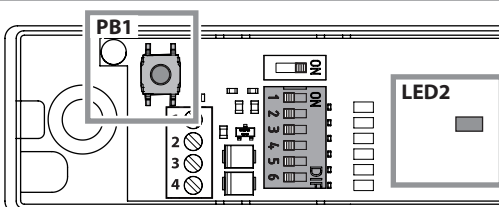


Now all 6 wireless device LED1x are lit yellow permanently, all wireless connections are deleted

- Slide all 6 wireless device switches SW1x back to the OFF position.



- Press the PB1 push button briefly to change back to the “operating” mode. The status LED2 of the wireless module is now permanently lit yellow.



4.6 Ceiling-mounted smoke detector GC 152

Smoke detector with relay base GC 152 ID 139850

comprising

- Relay base GC 150 B
- Smoke detector GC 002 D

Smoke detector GC 002 D ID 141458

Colour

white, RAL 9016

Dimensions (with base, Ø × H)

110 mm × 67 mm

Functional principle

Scatter light, adaption of the alarm threshold, no alarm saving (self-resetting as soon as there is no longer any smoke in the measuring chamber) prevents insects getting into the measuring chamber.

Insect grid

Input voltage

24 V DC

Input current

maximum 20 mA

Installation position

Ceiling mounting

Terminating resistors

2 × 43 kΩ, integrated, can be disconnected

Alarm output

potential-free relay output, normally closed contact
maximum 24 V DC / maximum 1 A

Detector test

Alarm triggering

- with test magnet near the magnetic sensor (GEZE logo)
- with test aerosol

The detector test using a test magnet tests the electrical components. The detector test which forms part of the regular testing of the hold-open system must be carried out using a test aerosol (see chap. 6.2.2).

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Signalling

	LED	Relay output
Voltage-free	Off	<div>24V</div> <div>ASout</div> <div>ASin</div>
Normal operation	Off	<div>24V</div> <div>ASout</div> <div>ASin</div>
Alarm	Red	<div>24V</div> <div>ASout</div> <div>ASin</div>

Tab. 4.6.1

GC 150 B

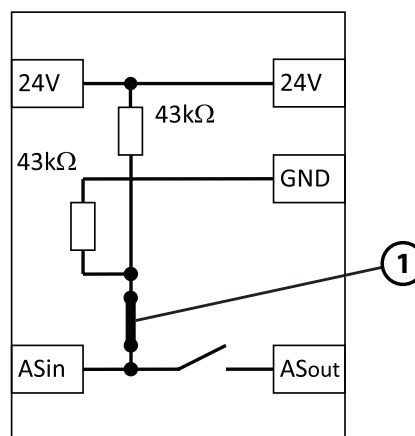


Fig. 4.6.1

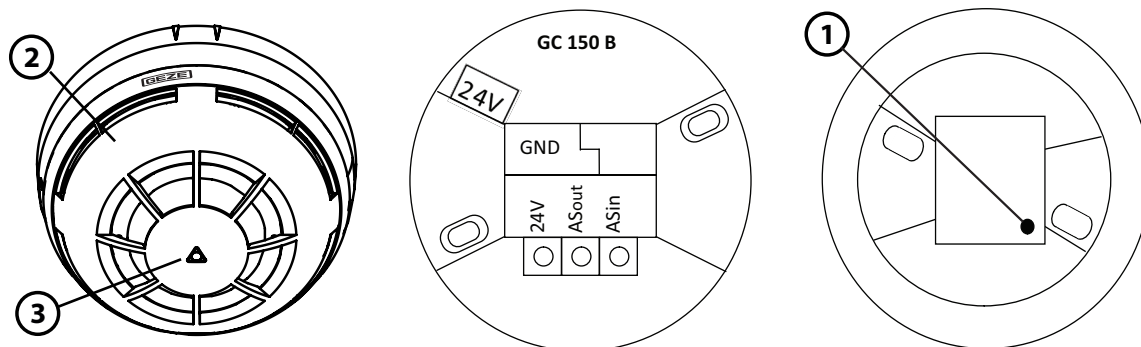


Fig. 4.6.2

- 1 Breaking point (see chap. 5.2)
- 2 Magnetic sensor for testing (behind the GEZE logo)

- 3 LED for displaying state

4.7 Ceiling-mounted thermal detector GC 153

Thermal detector with base GC 153 comprising

ID 139881

- Relay base GC 150 B
- Thermal detector GC 003 D

Thermal detector GC 003 D

ID 141459

Colour

white, RAL 9016

Dimensions (with base, Ø × H)

110 mm × 67 mm

Functional principle

Alarm if the ambient temperature exceeds the alarm temperature or if the ambient temperature increases very quickly, no alarm saving (self-resetting as soon as the ambient temperature has dropped again)

Alarm temperature

57 °C

EN 54-5 classification

A1R

Input voltage

24 V DC

Input current

maximum 20 mA

Installation position

Ceiling mounting

Terminating resistors

2 × 43 kΩ, integrated, can be disconnected

Alarm output

Potential-free relay output, normally closed contact maximum 24 V DC / maximum 1 A

Detector test

Alarm triggering

- with test magnet near the magnetic sensor
- with heat detector testing device

The detector test using a test magnet tests the electrical components. The detector test which forms part of the regular testing of the hold-open system must be carried out using a heat detector testing device (see chap. 6.3).

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Signalling

	LED	Relay output
Voltage-free	Off	<div> <div>24V</div> <div>ASout</div> <div>ASin</div> </div>
Normal operation	Off	<div> <div>24V</div> <div>ASout</div> <div>ASin</div> </div>
Alarm	Red	<div> <div>24V</div> <div>ASout</div> <div>ASin</div> </div>

Tab. 4.7.1

GC 150 B

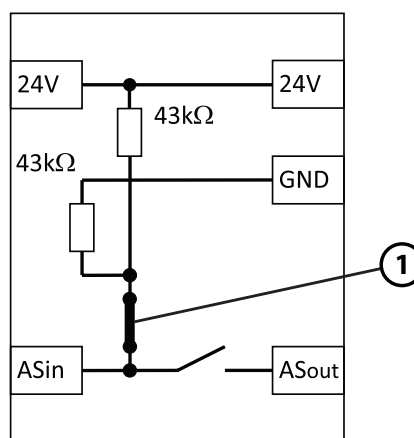


Fig. 4.7.2

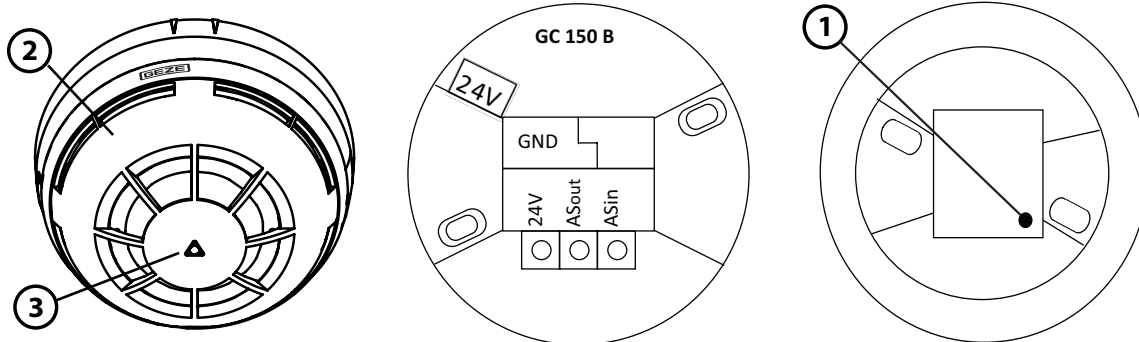


Fig. 4.7.3

- 1 Breaking point (see chap. 5.2)
- 2 Magnetic sensor for testing (behind the GEZE logo)

- 3 LED for displaying state

4.8 Ceiling-mounted smoke detector ORS 142

Ceiling-mounted smoke detector kit ORS	ID 141715
142 with	
▫ 2 × smoke detector ORS 142	
▫ 2 × base ORS 143 A	
▫ 1 × magnetic holder	
Ceiling-mounted smoke detector ORS 142 with	ID 091069
▫ Smoke detector ORS 142	
▫ Base ORS 143 A	
▫ 1 × magnetic holder	
Colour	white, RAL 9010
Dimensions (with base, Ø × H)	80 mm × 66 mm
Functional principle	
▫ Smoke detection	Scatter light, adaption of the alarm threshold, self-resetting
▫ Temperature sensor	70 °C ±5
Input voltage	24 V DC
Input current	maximum 22 mA
Installation position	Ceiling mounting
IP rating	IP42
Ambient temperature	-20 °C to 60 °C
Alarm output	Potential-free relay output, normally closed contact maximum 24 V DC / maximum 1 A
Magnetic holder	switches on in the last ceiling-mounted detector 2 × 43 kΩ
Detector test	Alarm triggering with test aerosol

Signalling

	LED	Relay output
Voltage-free	Off	ASout 4 ASin 5
Normal operation	Green	ASout 4 ASin 5
Contamination (warning) The ceiling-mounted smoke detector should be replaced.	Yellow Green	ASout 4 ASin 5
Contamination limit reached The ceiling-mounted smoke detector must be replaced.	Yellow Green	ASout 4 ASin 5
Fault The ceiling-mounted smoke detector must be replaced.	Yellow	ASout 4 ASin 5
Alarm	Red	ASout 4 ASin 5

Tab. 4.8.1

LED for displaying state



Fig. 4.8.1

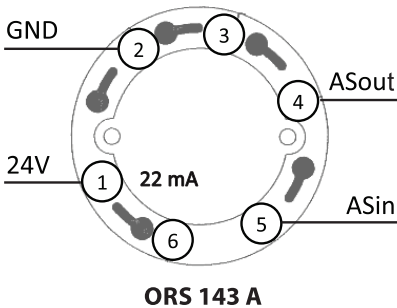


Fig. 4.8.2

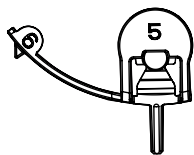


Fig. 4.8.3

4.9 Wireless ceiling-mounted smoke detector GC 172

Wireless ceiling-mounted smoke detector GC 172 comprising:

Battery type

Colour

Dimensions (with base, Ø × H)

Functional principle

Insect grid

Installation position

Detector test

ID 195522

▫ Base GC 170 B

▫ Wireless smoke detector GC 002 F

▫ Two batteries

CR 123A (3 V DC)

white, RAL 9016

110 mm × 65 mm

Scatter light, adaption of the alarm threshold, no alarm saving (self-resetting as soon as there is no longer any smoke in the measuring chamber)

prevents insects getting into the measuring chamber.

Ceiling mounting

To activate test mode:

► Move the test magnet near to the magnetic sensor (GEZE logo).
The LED flashes green.

Alarm triggering:

► Move the test magnet near to the magnetic sensor (GEZE logo) again.
► Trigger the alarm using the test aerosol.

The detector test using a test magnet tests the electrical components. The detector test which forms part of the regular testing of the hold-open system must be carried out using a test aerosol (see chap. 6.2.2).

Battery life span

Signal transfer period

Antenna

Frequency range

Range

Number of frequency channels

Modulation technique

Radiated power

8 years

60 s

integrated

868.15 MHz to 869.85 MHz

10 m (100 m in space)

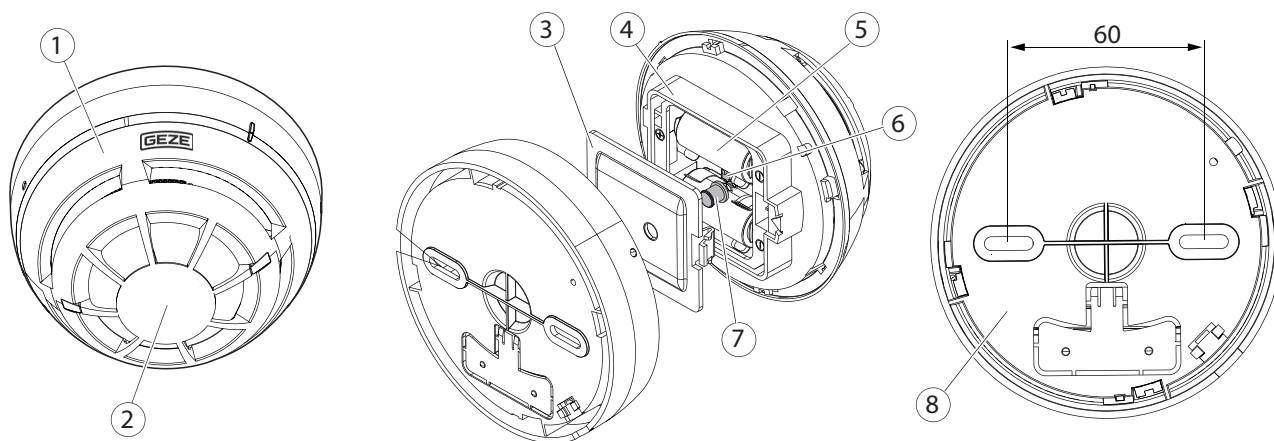
7

FSK (frequency shift keying)

10 dBm / 10 mW

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1 Magnetic sensor for testing (behind the GEZE logo)

2 LED for displaying state

3 Battery compartment cover

4 Battery compartment

5 Batteries

6 Set-up switch

7 Sabotage contact

8 Base

4.9.1 Signalling

The LED of the wireless ceiling-mounted smoke detector GC 172 indicates various states and events.

State, event	LED for displaying state
Switch on	lights up green for 1 s, then repeated red
Start set-up of the wireless connection	flashes green until the wireless connection is established
Fault during set-up of the wireless connection	lights up red
Operation	off
Alarm	flashes red (0.5 s on – 0.5 s off)
Battery 1 discharged	flashes orange (0.1 s on – 5 s off)
Battery 2 discharged	flashes green (0.1 s on – 5 s off)
Both batteries discharged	flashes orange/green alternately (0.1 s on – 5 s off)
Other faults	flashes orange/green alternately (0.5 s each)
Manipulation	off
Loss of connection	off
Test mode – the detector reacts sensitively to aerosol pulses	flashes green every second for 1 minute

Tab. 4.9.1.1

4.9.2 Battery replacement

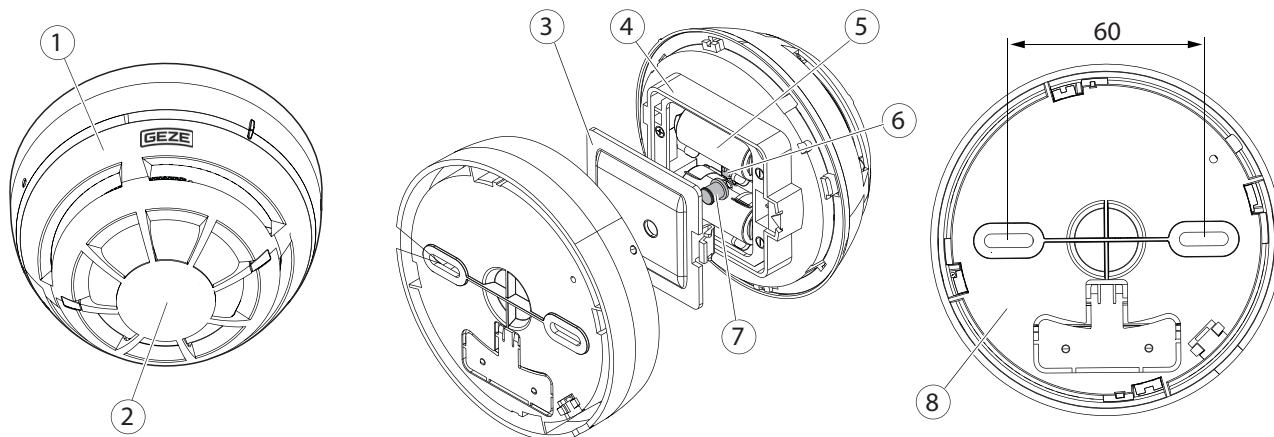
The wireless detector signals “low battery charge” to the wireless module GC 171 if the charge state of the batteries is no longer sufficient. Both batteries (5) always have to be replaced together. The set-up switch (6) for the wireless detector must not be activated.

- ▶ Take the wireless detector out of the base (8).
- ▶ Remove the battery compartment cover (3).
- ▶ Remove both batteries (5).
- ▶ Insert new batteries (type CR123A) – make sure polarity is correct.
- ▶ Replace the battery compartment cover (3).
- ▶ Insert the wireless detector into the base (8).
- ▶ Test the wireless detector. It can take up to a minute for the wireless detector to be ready for operation after battery replacement.

4.10 Wireless thermal detector GC 173

Wireless thermal detector GC 173 comprising:	ID 195523 <ul style="list-style-type: none"> ▫ Base GC 170 B ▫ Wireless thermal detector GC 003 F ▫ Two batteries
Battery type	CR 123A (3 V DC)
Colour	white, RAL 9016
Dimensions (with base, Ø × H)	110 mm × 65 mm
Functional principle	Alarm if the ambient temperature exceeds the alarm temperature or if the ambient temperature increases very quickly, no alarm saving (self-resetting as soon as the ambient temperature has dropped again)
Alarm temperature	57 °C
EN 54-5 classification	A1R
Installation position	Ceiling mounting
Detector test	To activate test mode: <ul style="list-style-type: none"> ▶ Move the test magnet near to the magnetic sensor (GEZE logo). The LED flashes green. Alarm triggering: <ul style="list-style-type: none"> ▶ Move the test magnet near to the magnetic sensor (GEZE logo) again. Trigger the alarm using the heat detector testing device. The detector test using a test magnet tests the electrical components. The detector test which forms part of the regular testing of the hold-open system must be carried out using a heat detector testing device. (see chap. 6.3).
Service life main battery	8 years
Signal transfer period	60 s
Antenna	integrated
Frequency range	868.15 MHz to 869.85 MHz

Range	10 m (100 m in space)
Number of frequency channels	7
Modulation technique	FSK (frequency shift keying)
Radiated power	10 dBm / 10 mW



1	Magnetic sensor for testing (behind the GEZE logo)	4	Battery compartment	7	Sabotage contact
2	LED for displaying state	5	Batteries	8	Base
3	Battery compartment cover	6	Set-up switch		

4.10.1 Signalling

The LED of the wireless ceiling-mounted thermal detector GC 173 indicates various states and events.

State, event	LED for displaying state
Switch on	lights up green for 1 s, then repeated red
Start set-up of the wireless connection	flashes green until the wireless connection is established
Fault during set-up of the wireless connection	lights up red
Operation	off
Alarm	flashes red (0.5 s on – 0.5 s off)
Battery 1 discharged	flashes orange (0.1 s on – 5 s off)
Battery 2 discharged	flashes green (0.1 s on – 5 s off)
Both batteries discharged	flashes orange/green alternately (0.1 s on – 5 s off)
Other faults	flashes orange/green alternately (0.5 s each)
Manipulation	off
Loss of connection	off
Test mode – the detector reacts sensitively to heat	flashes green every second for 1 minute

Tab. 4.10.1.1

4.10.2 Battery replacement

The wireless detector signals “low battery charge” to the wireless module GC 171 if the charge state of the batteries is no longer sufficient. Both batteries (5) always have to be replaced together. The set-up switch (6) for the wireless detector must not be activated.

- ▶ Take the wireless detector out of the base (8).
- ▶ Remove the battery compartment cover (3).
- ▶ Remove both batteries (5).
- ▶ Insert new batteries (type CR123A) – make sure polarity is correct.
- ▶ Replace the battery compartment cover (3).
- ▶ Insert the wireless detector into the base (8).
- ▶ Test the wireless detector. It can take up to a minute for the wireless detector to be ready for operation after battery replacement.

4.11 Manual trigger switch UTA

Type	UTA, AS500
Manual trigger switch	ID 116266
Surface-mounted box	ID 120503
Spare resistor 43 k Ω	ID 157093
Type of switching	Changer
Switching voltage	Maximum 250 V
Switching current	maximum 10 A
Terminating resistor	43 k Ω



Fig. 4.11.1

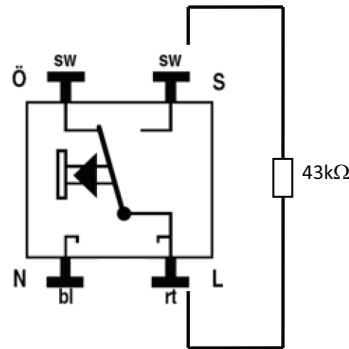


Fig. 4.11.2

4.12 Wireless input module GC 175

Wireless input module GC 175 comprising:	ID 163068
	<ul style="list-style-type: none"> Wireless input module GC 175 Main battery and slave battery, resistor 2.2 kΩ
Battery set (VPE 10)	ID 183282
Spare resistor 2.2 k Ω	ID 163229
Main battery	Type CR 123A (3 V DC)
Slave battery	Type CR 2032A (3 V DC)
Colour	Matt black
Dimensions (Ø × H)	52 mm × 32 mm
Functional principle	<ul style="list-style-type: none"> signals the state of an external potential-free contact (normally open contact) to the GC 171 wireless module monitors the line to the contact for breaks
Line length	130 mm
Line monitoring	Termination resistor 2.2 k Ω at the end of the line
Installation position	<p>Installation in flush-mounted or cavity box</p> <p>Installation in such a way that removing the wireless module and manual trigger switch is only possible after these two assemblies have been disconnected from one another (e.g. installation of the two assemblies in two different flush-mounted boxes)</p>
Service life main battery	5 years
Signal transfer period	60 s
Antenna	integrated
Frequency range	868.15 MHz to 869.85 MHz
Range	10 m (100 m in space)
Number of frequency channels	7
Modulation technique	FSK (frequency shift keying)
Radiated power	5 dBm (3 mW)

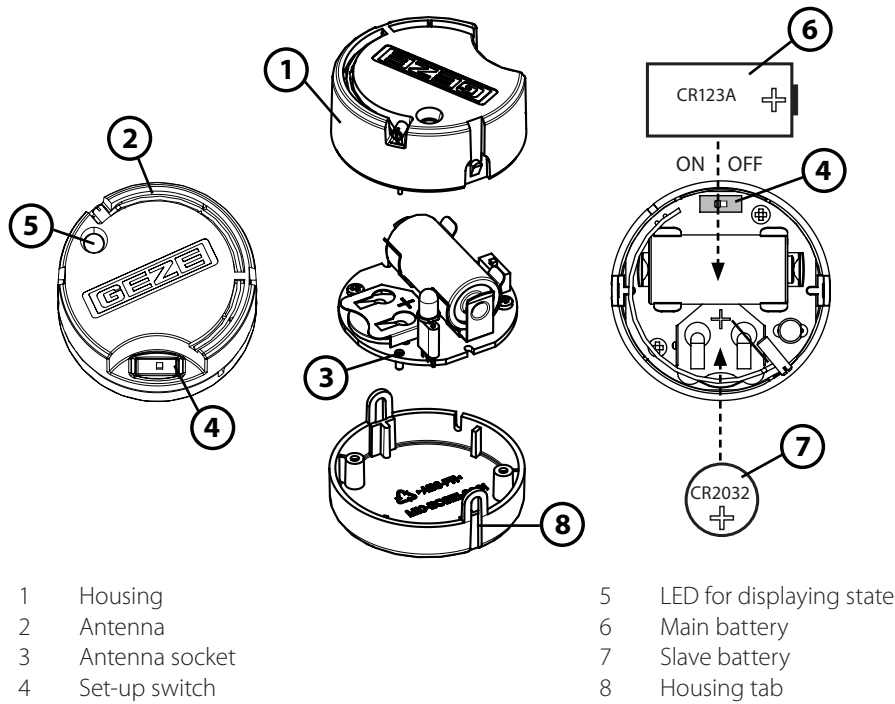


Fig. 4.12.1



CAUTION!

Component at risk from electrostatic charge

► Do not touch the antenna!

4.12.1 Signalling

The LED of the wireless input module GC 175 indicates various states and events.

State, event	LED for displaying state
Switch on after removal of the insulation film or after the main battery has been inserted	flashes 10 x green, then red briefly, then the LED is Off
Start set-up of the wireless connection	flashes 1 x green, 1 x yellow, 4 x red
Fault during set-up of the wireless connection	red
Operation	Off
Broken cable	Off
Main battery discharged	flashes yellow (0.1 s on – 5 s off)
Slave battery discharged	flashes green (0.1 s on – 5 s off)
Main and slave batteries discharged	flashes yellow/green alternately (0.1 s on – 5 s off)
Other faults	flashes yellow/green alternately (0.5 s off each)
Contact closed, short-circuit	flashes 1 x red

4.12.2 Battery replacement



The wireless input module signals “low battery charge” to the wireless module GC 171 if the charge state of the batteries is no longer sufficient. Both batteries (main battery and slave battery) always have to be replaced together.

- Bend the tabs on the side of the bottom part of the housing open slightly and pull the top part of the housing up and off carefully (the antenna will be pulled out of the antenna socket at this point).
- Remove the main battery.
- Use a small screwdriver to carefully remove the slave battery.
- Slide the new slave battery (type CR2032A) into place – the positive pole faces upwards.
- Insert the new main battery (type CR123A) – make sure polarity is correct.
- Replace the top part of the housing carefully, making sure the antenna meets the antenna socket.
- Replace the top part of the housing in such a way that the two tabs engage again.
- Test the wireless input module. To do this, activate the connected contact. The hold-open system must trigger and the door leaf must close. The status LEDs of the wireless module GC 171 and the lintel-mounted smoke switch light up yellow.

5 Wiring diagram


- Note the requirements for selection and installation of the fire detectors and manual trigger switches in chapter 3.5.
- In addition, heed the installation instructions for the respective hold-open system.
- The connection of the hold-open system to the mains voltage must be carried out by a qualified electrician.
- Before working on the electrical system interrupt the power supply and check for safe isolation from the supply. When an Uninterruptible Power Supply is used, the system will still be under voltage even when disconnected from the mains.
- Only use the specified cable types.
- Marking of on-site cables in these instructions:
 - ① NYM-J, $3 \times 1.5 \text{ mm}^2$
 - ② NYM-O, $2 \times 1.5 \text{ mm}^2$ or NYM-J, $3 \times 1.5 \text{ mm}^2$
 - ③ J-Y(ST)Y, $2 \times 0.6 \text{ mm}$ or J-Y(ST)Y, $2 \times 0.8 \text{ mm}$, maximum length smaller than 15 m
 - ④ J-Y(ST)Y, $2 \times 0.6 \text{ mm}$ or J-Y(ST)Y, $2 \times 0.8 \text{ mm}$, maximum length smaller than 6 m
 - ⑤ J-Y(ST)Y, $2 \times 2 \times 0.6 \text{ mm}$ or J-Y(ST)Y, $2 \times 2 \times 0.8 \text{ mm}$, maximum length smaller than 15 m
 - ⑥ J-Y(ST)Y, $2 \times 2 \times 0.6 \text{ mm}$ or J-Y(ST)Y, $2 \times 2 \times 0.8 \text{ mm}$, maximum length smaller than 6 m
 - ⑦ J-Y(ST)Y, $2 \times 0.6 \text{ mm}$ or J-Y(ST)Y, $2 \times 0.8 \text{ mm}$, maximum length smaller than 3 m
 - ⑧ J-Y(ST)Y, $2 \times 2 \times 0.6 \text{ mm}$ or J-Y(ST)Y, $2 \times 2 \times 0.8 \text{ mm}$, maximum length smaller than 3 m
 Non-marked connections are system cables, only these may be used.
- The cables must be sufficiently mechanically protected and attached.
- Insulate wires that are not used.

5.1 Mains connection

- The GEZE hold-open systems are devices of protection rating I  or protection rating II  in accordance with DIN EN61140.
- A 16 A circuit breaker must be provided on site (suitable for the electrical installation).
- The 230 V supply must be introduced into the connecting space doubly insulated (with cable sheath) at least 8 mm.
- Total power consumption at the power supply max. 260 mA.

5.1.1 Mains connection for protection rating I

Power supply for	TS 4000 R, TS 4000 RFS, TS 4000 R-IS, TS 5000 RFS KB
ID	103354
Cable length 230V / 24V	90 mm / 65 mm

- Devices of protection rating I  are connected using a three-core cable NYM-J, $3 \times 1.5 \text{ mm}^2$. The protective earth conductor is connected to the PE terminal.

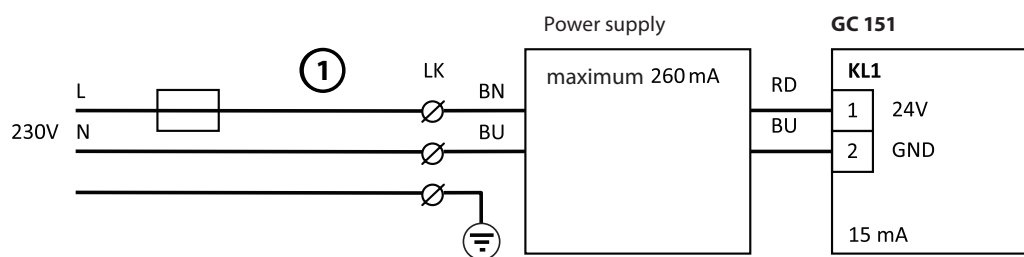


Fig. 5.1.1.1

5.1.2 Mains connection for protection rating II

Power supply for	smoke control unit RSZ 6, RSZ 7	TS 5000 R, TS 5000 RFS, TS 5000 R-ISM /G/S/O, TS 5000 R-ISM-EFS
ID	085391	no. 115818
Cable length 230 V / 24 V	130 mm / 150 mm	700 mm / 750 mm

Devices of protection rating II  are connected using a two core cable NYM-O, 2x1.5 mm².

Connection can also be made using a three core cable NYM-J, 3x1.5 mm². The protective earth conductor must not be connected and must be permanently insulated (e.g. additional luster terminal or shrink hose).

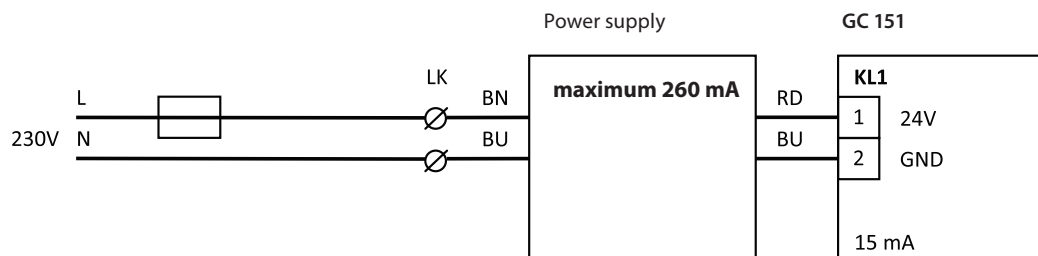


Fig. 5.1.2.1

5.1.3 Mains connection for Slimdrive EMD F/R versions* see chap. 5.8.9 and 5.8.10

5.1.4 Mains connection for Powerturn F/R versions* see chap. 5.8.11, 5.8.12 and 5.8.13

5.2 Ceiling-mounted detector

- Note the requirements on the number and installation of ceiling-mounted detectors in chap. 3.5.
- When ceiling-mounted detectors are connected, remove jumper J2 from the lintel-mounted smoke switch GC 151.

5.2.1 Ceiling-mounted detectors GC 152 and GC 153

- The ceiling-mounted smoke detector GC 152 is made up of the smoke detector GC 002 D and the relay base GC 150 B.
- The ceiling-mounted thermal detector GC 153 is made up of the thermal detector GC 003 D and the relay base GC 150 B.
- Ceiling-mounted smoke detector with base GC 152, ID 139850
Ceiling-mounted thermal detector with base GC 153, ID 139881
Smoke detector GC 002 D, ID 141458
Thermal detector GC 003 D, ID 141459
- The resistors for line monitoring are already installed in the relay base GC 150 B. The resistors can be disconnected using a breaking point. To do this, insert a screwdriver 3 mm through the hole on the back of the relay base into the slot of the PDB and turn it, the connection to the resistors breaks.

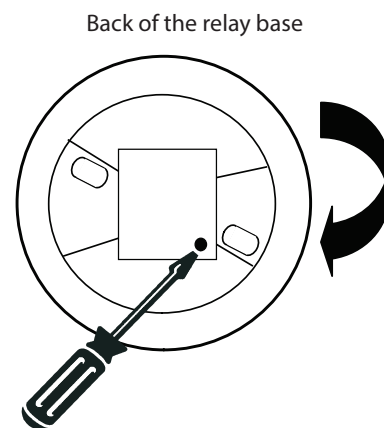


Fig. 5.2.1.1



The resistors for line monitoring and the alarm resistor are already installed in the relay base GC 150 B. The resistors for line monitoring are located on a PCB inside the relay base. These can be disconnected using a screwdriver as described.

The visible resistor is the alarm resistor.
This must not be disconnected.

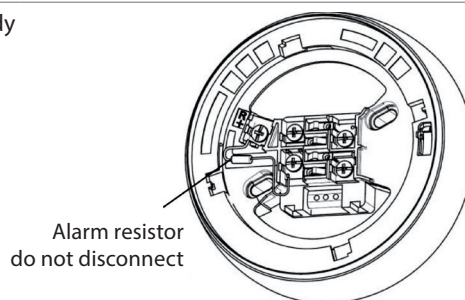


Fig. 5.2.1.2

Ceiling-mounted detectors GC 152 and GC 153 with line monitoring

The general construction technique permit requires the cable to the ceiling-mounted detectors to be monitored.



Line monitoring is active if:

- jumper J3 of the lintel-mounted smoke switch to the measuring chamber is set (2-3 factory setting, see chap. 4.4).
- the breaking point in the first relay base GC 150 B is disconnected.
- the breaking point in the last relay base GC 150 B is not disconnected.



The ASin and ASout cables must be laid separately or protected.

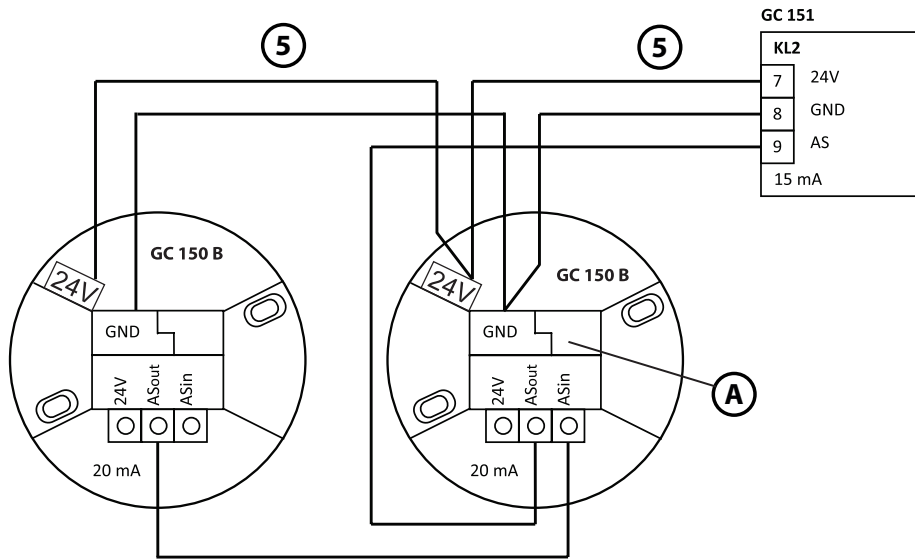


Fig. 5.2.1.3



Disconnect the breaking point in the base of the **first** ceiling-mounted detector^A.

Ceiling-mounted thermal detector GC 153 as lintel-mounted detector with line monitoring

- If the lintel-mounted smoke switch GC 151 is subject to disruption such as steam, dust, condensation or operation-related smoke development, it can make sense to use a thermal detector as a lintel-mounted detector. See the relevant notes in chap. 3.5.
- Install an additional thermal detector GC 153 as a lintel-mounted detector above the door using the fixing bracket DM GC. See the relevant notes in chap. 3.5 (fixing bracket, white, RAL 9016, ID 150264).
- Protect the smoke chamber of the integrated lintel-mounted smoke switch from contamination using a dust protection cap (ID 146407).

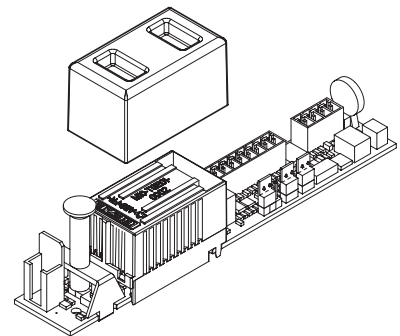


Fig. 5.2.1.4

Connection of a ceiling-mounted thermal detector GC 153 as a lintel-mounted detector and two further ceiling-mounted detectors



PLEASE NOTE

When two floor springs TS 550 E are used, no more than two ceiling-mounted detectors may be connected.

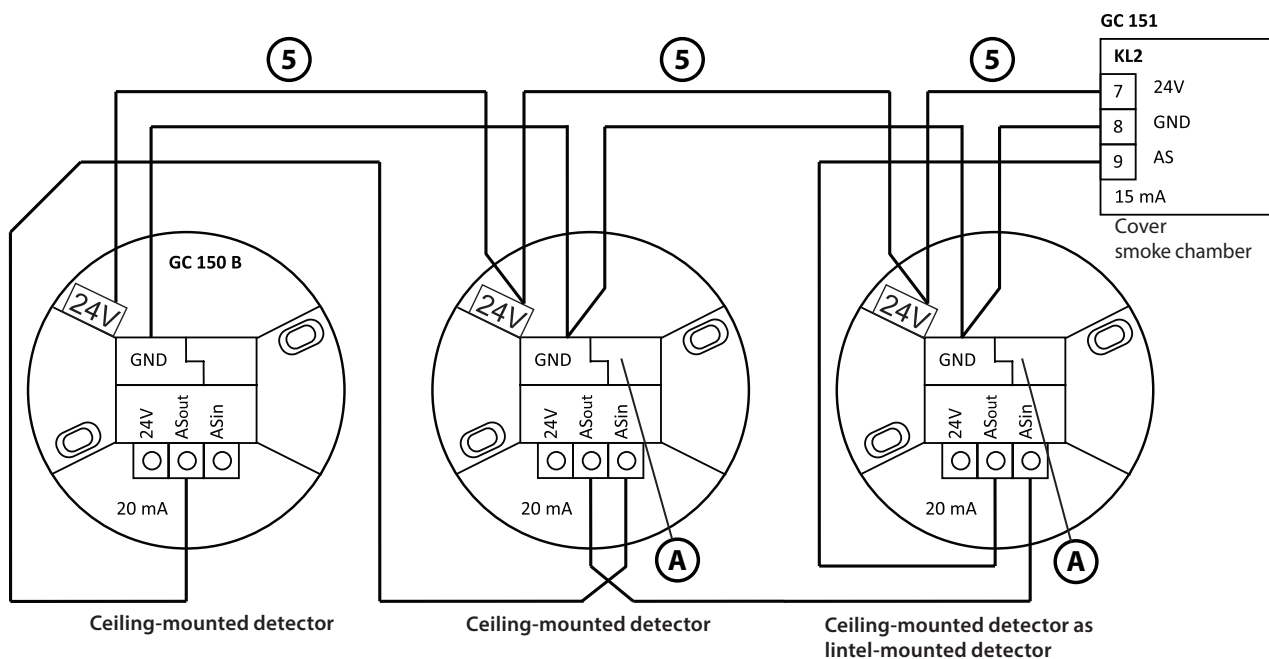


Fig. 5.2.1.6



Disconnect the breaking point in the base of the **first** two ceiling-mounted detectors Ⓐ. The ASin and ASout cables must be laid separately or protected.

5.2.2 Ceiling-mounted smoke detector ORS 142

The ceiling-mounted detector ORS 142 is made up of the smoke detector ORS 142 and the base ORS 143 A.

Ceiling-mounted smoke detector kit ORS 142 with ID 141715

- 2 × smoke detector ORS 142
- 2 × base ORS 143 A
- 1 × magnetic holder

Ceiling-mounted smoke detector ORS 142 with ID 091273

- Smoke detector ORS 142
- Base ORS 143 A
- 1 × magnetic holder

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Ceiling-mounted smoke detector ORS 142 with line monitoring

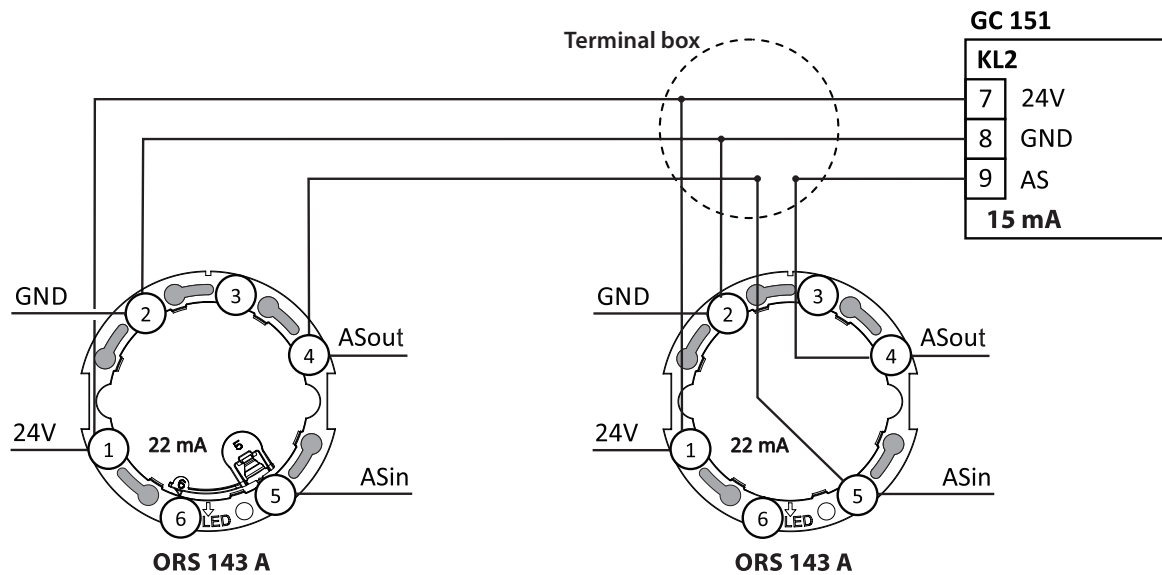
The general construction technique permit requires line monitoring to the ceiling-mounted detectors.



Line monitoring is active if jumper J3 of the lintel-mounted smoke switch to the measuring chamber is set (2-3 factory setting, see chap. 4.4).

► Fasten the magnetic holder in the base between terminal 5 and 6.

Connection of the first ceiling-mounted detector must not be executed as a parallel branch line (supply and return line in the same cable)



AS Ceiling-mounted detector (additional sensor)
GND Reference potential (ground)

Fig. 5.2.2.1

5.3 Manual trigger switch or contact of the fire alarm system

- Spare resistor 43 kΩ, ID 157093

5.3.1 Manual trigger switch UTA

- Manual trigger switch UTA, AS500, ID 116266
Surface mounting cap, single, AS500, ID 120503
- When a manual trigger switch is connected, remove jumper J1 from the lintel-mounted smoke switch.
- Note the requirements on the installation of manual trigger switch in chap. 3.5.

The general construction technique permit requires line monitoring to the manual trigger switch if the connection of a manual trigger switch is mandatory according to the standard (see chap. 3.5.3).



Line monitoring is active if:

- jumper J3 of the lintel-mounted smoke switch to the measuring chamber is set (2-3, see chap. 4.4).
- a 43 kΩ resistor is connected in parallel in the manual trigger switch.

- Connect the manual trigger switch as a normally open contact.

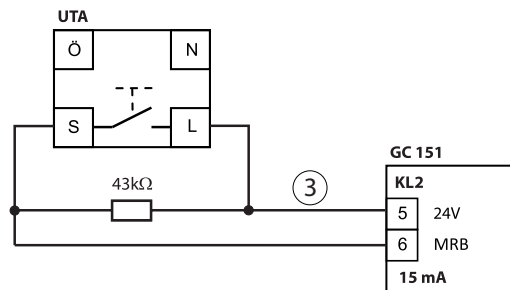


Fig. 5.3.1.1

- Connect the manual trigger switch as a normally closed contact.

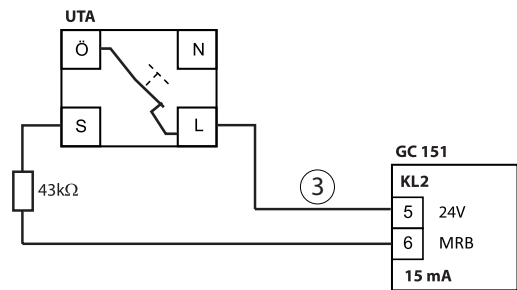


Fig. 5.3.1.2

Several manual trigger switches with normally open contact are connected in parallel. Only connect the 43 kΩ resistor in the last one.

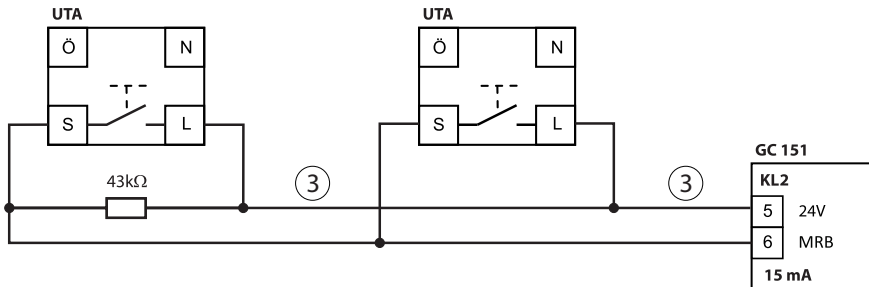


Fig. 5.3.1.3

Several manual trigger switches with normally closed contact are connected in parallel. Only connect the 43 kΩ resistor in the last one.

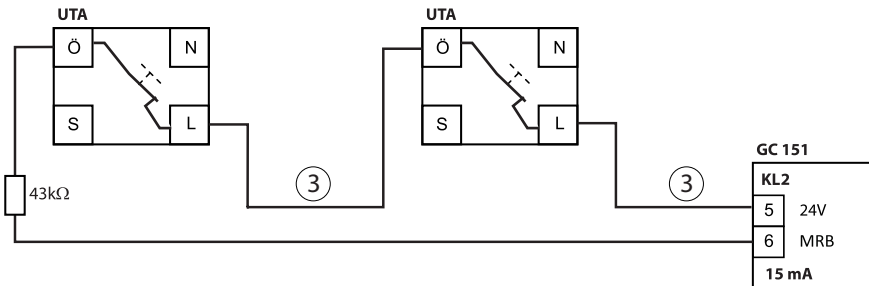


Fig. 5.3.1.4



The cable to the first manual trigger switch (UTA) must be laid separately or protected.

5.3.2 Contact to the fire alarm system

- When a potential-free contact of the fire alarm system is connected, remove jumper J1 from the lintel-mounted smoke switch.



Line monitoring is active if:

- jumper J3 of the lintel-mounted smoke switch to the measuring chamber is set (2-3, see chap. 4.4).
- a 43 kΩ resistor is connected in parallel at the contact of the fire alarm system.

Potential-free normally open contact (BMA)

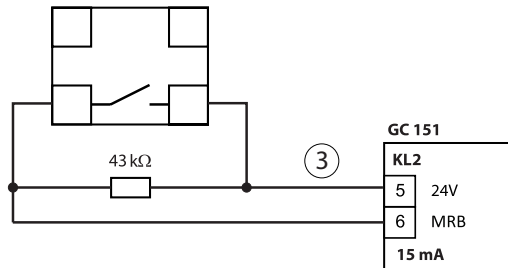


Fig. 5.3.2.1

Potential-free opener contact (BMA)

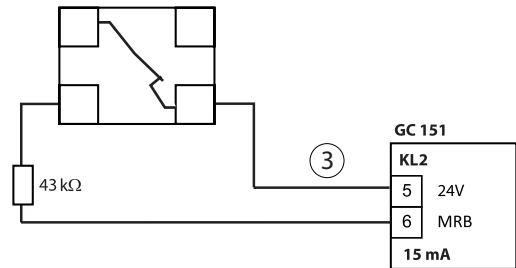


Fig. 5.3.2.2

5.3.3 Contact of the fire alarm system and manual trigger switch UTA

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The general construction technique permit requires line monitoring to the potential-free contact of the fire alarm system and to the manual trigger switch.



Line monitoring is active if:

- jumper J3 of the lintel-mounted smoke switch to the measuring chamber is set (2-3, see chap. 4.4).
- a 43 kΩ resistor is connected in parallel at the end of the cable.

- Remove jumper J1 of the lintel-mounted smoke switch.
- Connect the potential-free contact as a N/O contact.

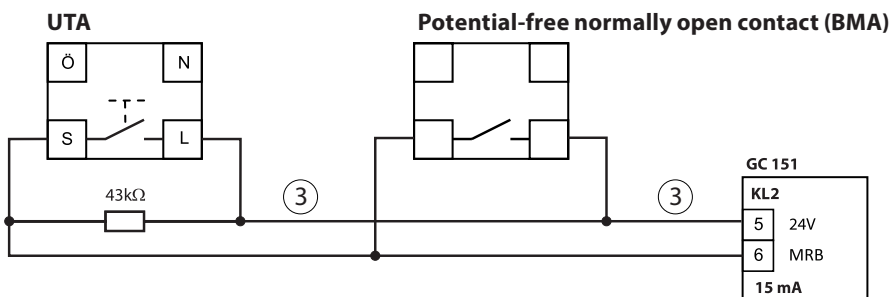


Fig. 5.3.2.1

- Connect the potential-free contact as a normally closed contact.

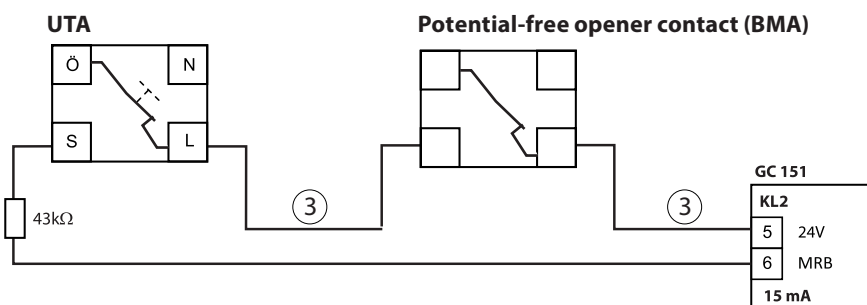


Fig. 5.3.2.2



The cable to the potential-free contact (fire-alarm system) must be laid separately or protected.

5.4 Wireless module GC 171

- Wireless module GC 171, ID 163051
- Wireless ceiling-mounted smoke detector GC 172 - ID 195522
- Wireless ceiling-mounted thermal detector GC 173 - ID 195523
- Wireless input module GC 175, ID 163068
- Battery set GC 17x, ID 183282
- Spare resistor 2.2 k Ω , ID 163229
- Remove jumper J1 and J2 of the lintel-mounted smoke switch GC 151 (see chap. 4.4).
- Set jumper J3 of the lintel-mounted smoke switch to the measuring chamber (2-3, factory setting, see chap. 4.4).
- The area defined in Figure 5.4.1.1 must be kept free. Observe distances and specifications in section 3.5.2.

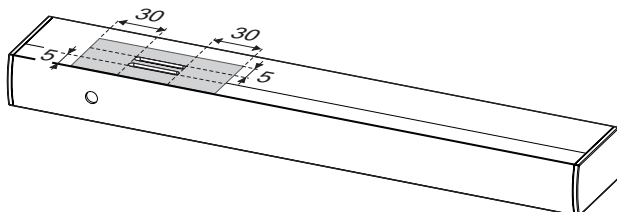


Fig. 5.4.1.1

- Cable length between lintel-mounted smoke switch and wireless module GC 171 maximum 3 m
- Set switch SW2 of the wireless module GC 171 to the ON position (see chap. 4.5).
- See chap. 4.5.2 for how to set up the wireless connections.

5.4.1 Wireless ceiling-mounted detector GC 172 or GC 173 and/or wireless input modules GC 175

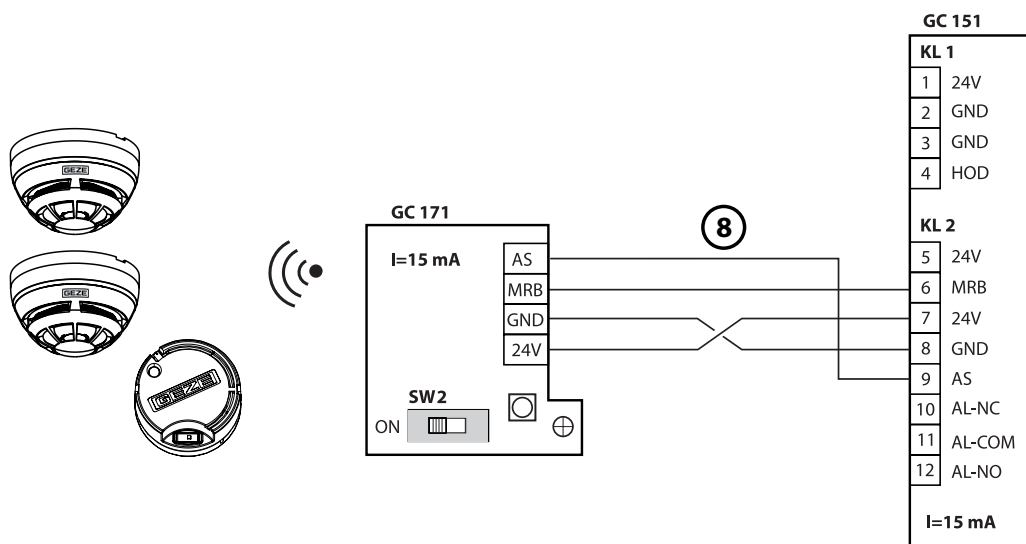


Fig. 5.4.1.2

5.4.2 Wireless ceiling-mounted detector GC 172 or GC 173 – manual trigger switch or fire detector contact wired

- Manual trigger switch or fire alarm contact are connected as described in chap. 5.3.

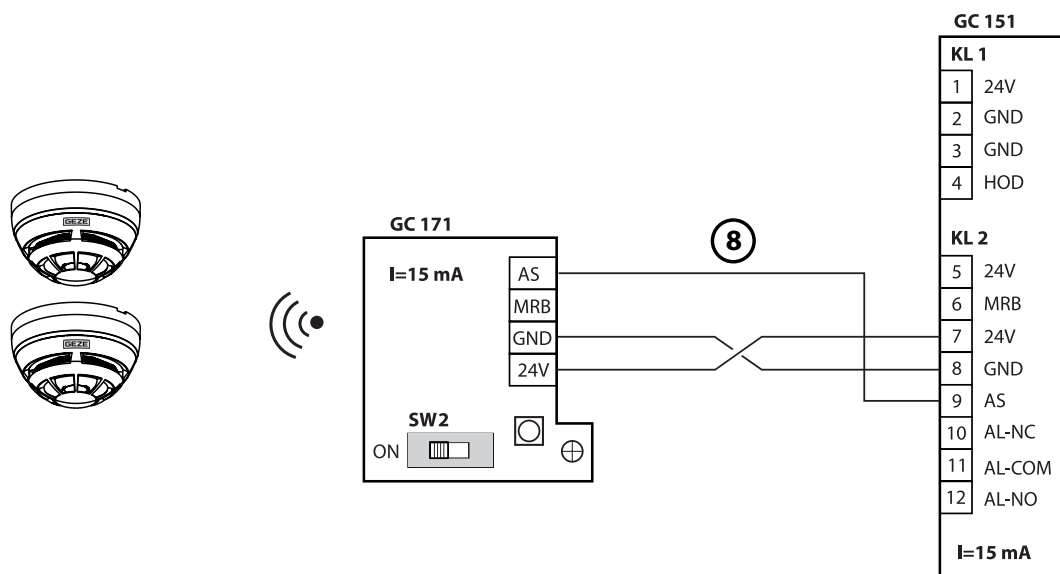


Fig. 5.4.2.1

5.4.3 Wireless ceiling-mounted detector wired – wireless input modules GC 175

- Ceiling-mounted detectors are connected as described in chap. 5.2.

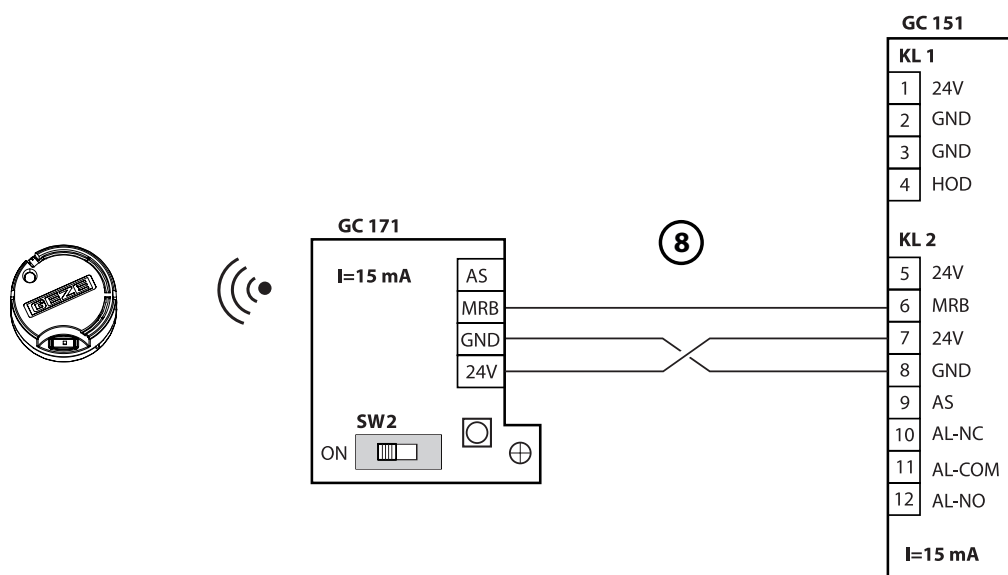


Fig. 5.4.3.1

5.5 Wireless input module GC 175

- Wireless input module GC 175, ID 163068
- Battery set GC 17x, ID 183282
- Spare resistor 2.2 kΩ, ID 163229
- See chap. 4.5.2 for how to set up the wireless connections.
- The cable at the wireless input module GC 175 may only be extended to max. 3 m

5.5.1 Manual trigger switch UTA

- Manual trigger switch UTA, AS500, ID 116266
- Surface mounting cap, single, AS500, ID 120503
- Note the requirements on the installation of manual trigger switch in chap. 3.5.
- Installation in flush-mounted or cavity box
- Install in such a way that removing the wireless module and manual trigger switch is only possible after these two assemblies have been disconnected from one another (e.g. installation of the two assemblies in two different flush-mounted boxes).

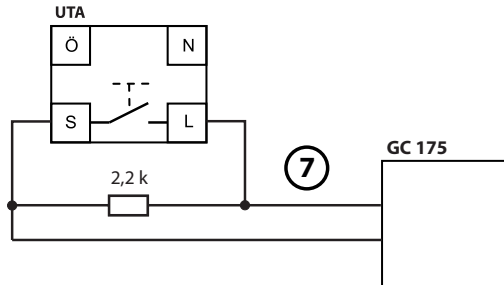


Fig. 5.5.1.1

Several manual trigger switches are connected in parallel. Only connect the 2.2 kΩ resistor in the last one.

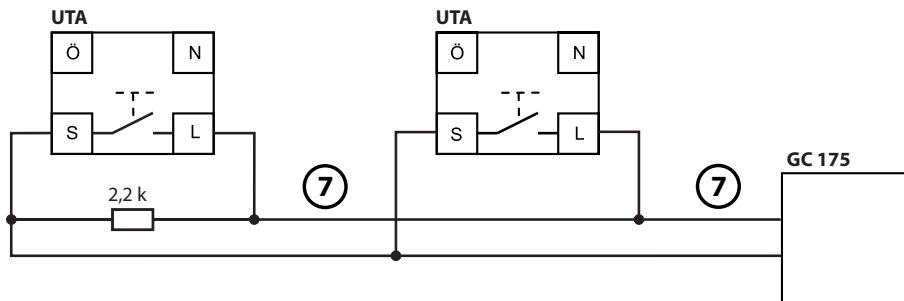


Fig. 5.5.1.2



The cable to the first manual trigger switch (UTA) must be laid separately or protected.

5.5.2 Contact to the fire alarm system



Line monitoring is active if:

- a 2.2 kΩ resistor is connected in parallel at the contact of the fire alarm system.
- Connect the potential-free contact as a normally open contact

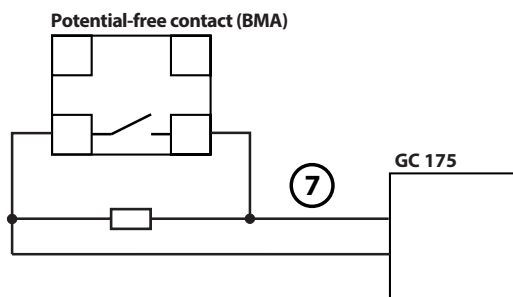


Fig. 5.5.2.1

5.5.3 Contact of the fire alarm system and manual trigger switch UTA

The general construction technique permit requires line monitoring to the potential-free contact of the fire alarm system and to the manual trigger switch.



Line monitoring is active if:

- a 2.2 kΩ resistor is connected in parallel at the end of the cable.

- Connect the potential-free contact as a normally open contact

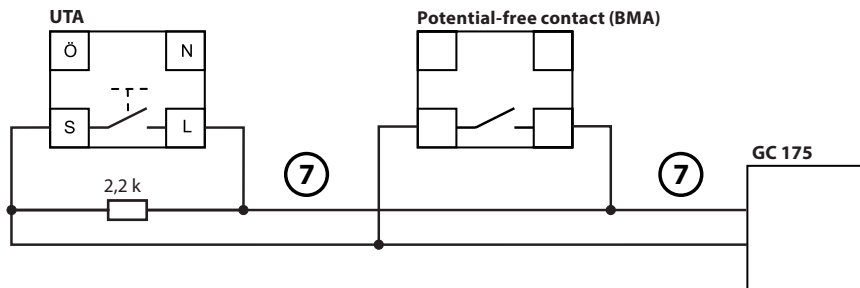


Fig. 5.5.3.1



The cable to the potential-free contact (fire-alarm system) must be laid separately or protected.

5.6 Alarm output

- Potential-free relay output, changer, maximum 24 V, 1 A
- In normal operation the contact 11-12 is open, in the event of power failure or alarm closed.
- Do not supply alarm display from the hold-open system.

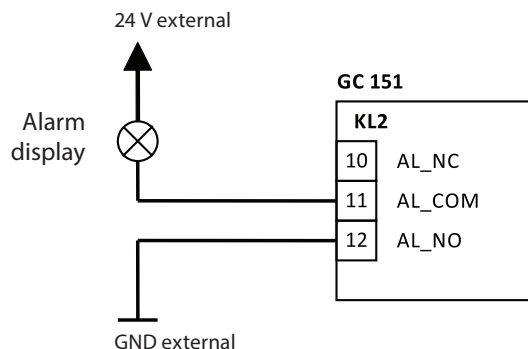


Fig. 5.6.1

5.7 Mutual triggering of two hold-open systems

- Two hold-open systems can trigger each other mutually. For this purpose, the alarm contact of the one lintel-mounted smoke switch is connected with the input MRB of the other lintel-mounted smoke switch.
- If additional manual trigger switches are required, these are connected in parallel to the connection at the respective input MRB.
- Remove jumper J1 from both lintel-mounted smoke switches.

The general construction technique permit requires monitoring of the lines between the two lintel-mounted smoke switches.



Line monitoring is active if:

- jumper J3 of the two lintel-mounted smoke switches to the measuring chamber is set (2-3, see chap. 4.4),
- a 43 kΩ resistor is connected in parallel at both lintel-mounted smoke switches directly at the alarm output.

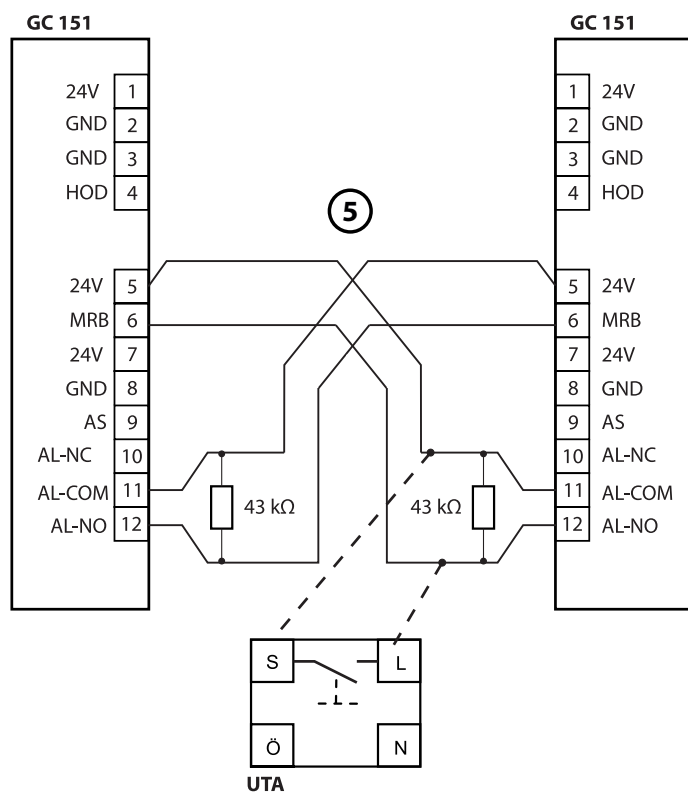


Fig. 5.7.1

5.8 Hold-open device

- External hold-open devices are connected to KL1 of the lintel-mounted smoke switch (screw-push-terminal). Internal hold-open devices are connected to KL3 of the lintel-mounted smoke switch (system plug-type connection).

5.8.1 Hold-open system RSZ 6, RSZ 7

Door closer TS 4000 E, TS 4000 EFS

Door leaf installation

- Connector box with plug-in drip loop, ID 052105

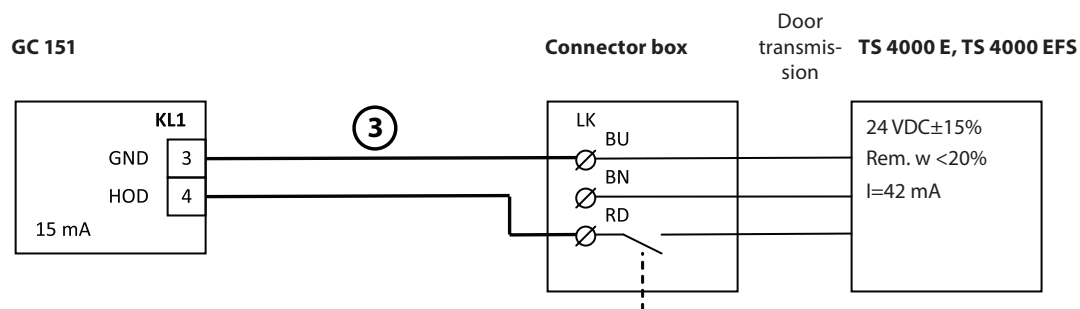


Fig. 5.8.1.1

Transom installation

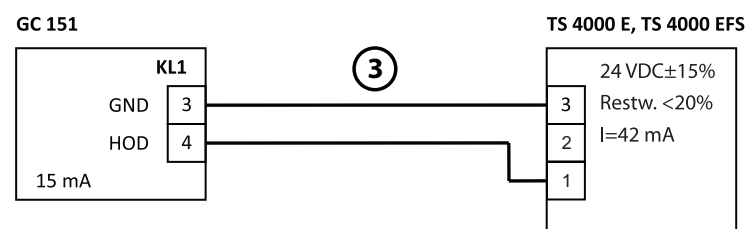


Fig. 5.8.1.2

Door closer TS 4000 E-IS**Door leaf installation**

- Connector box with plug-in drip loop, ID 052105

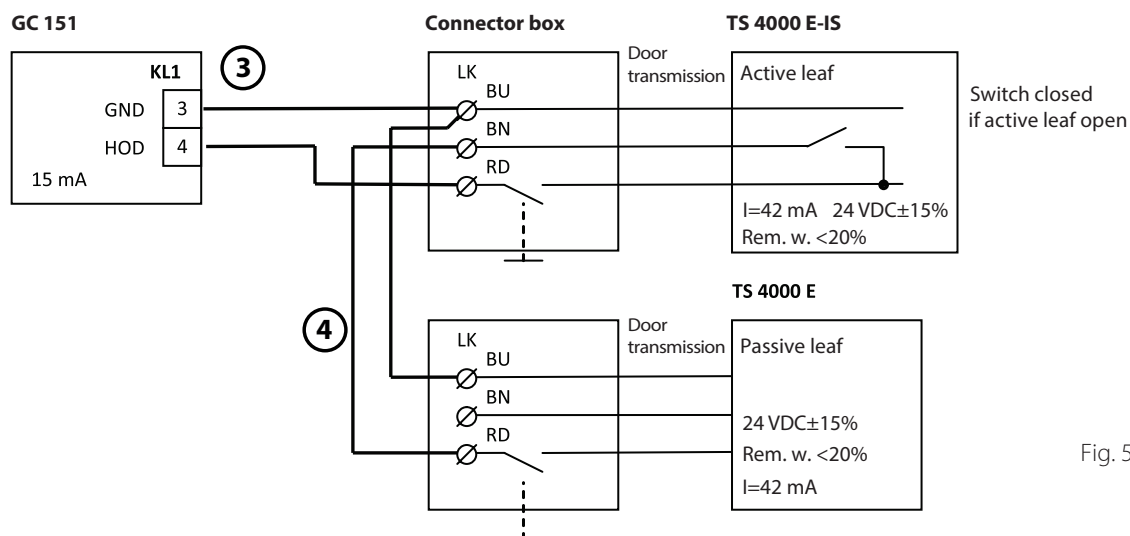


Fig. 5.8.1.3

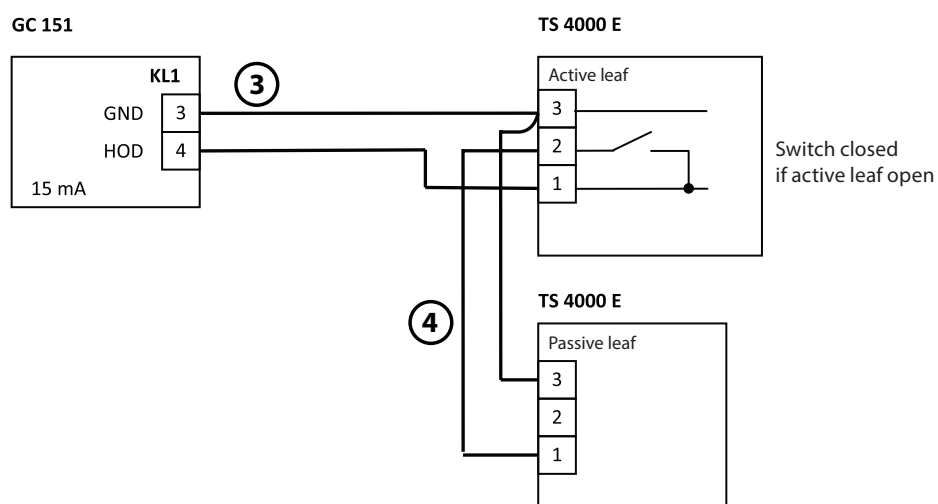
Transom installation

Fig. 5.8.1.4

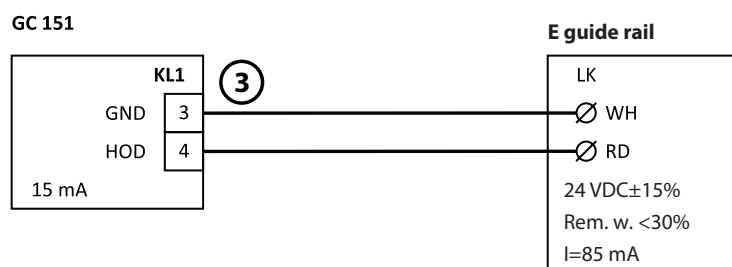
E guide rail, E guide rail Boxer

Fig. 5.8.1.5

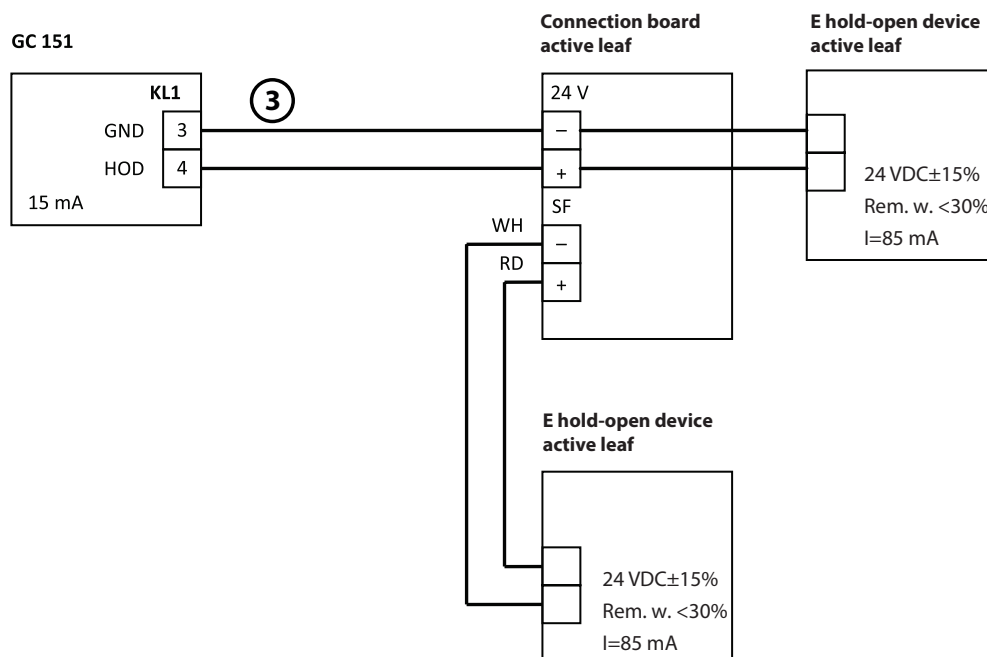
E-ISM guide rail, E-ISM guide rail Boxer**(E-ISM/G no hold-open function in the passive leaf, E-ISM/S no hold-open function in the active leaf)**

Fig. 5.8.1.6

ISM-EFS guide rail, ISM-EFS guide rail Boxer

- No hold-open device for the passive leaf
- Connector box with plug-in drip loop, ID 052105

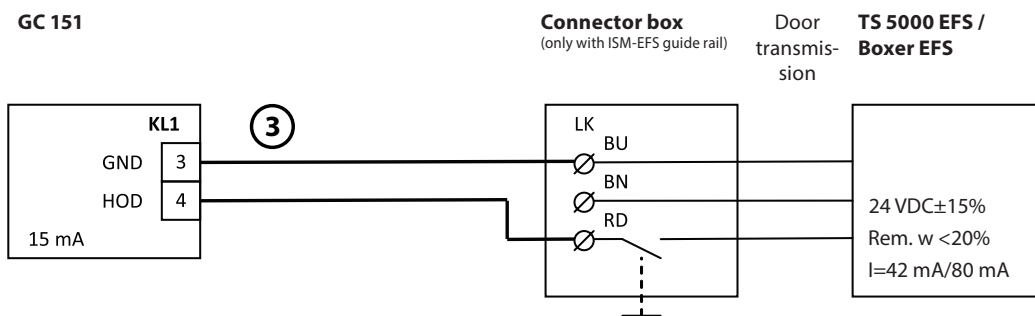


Fig. 5.8.1.7

Door closer TS 5000 EFS**Door leaf installation**

- Connector box with drip loop, ID 162723

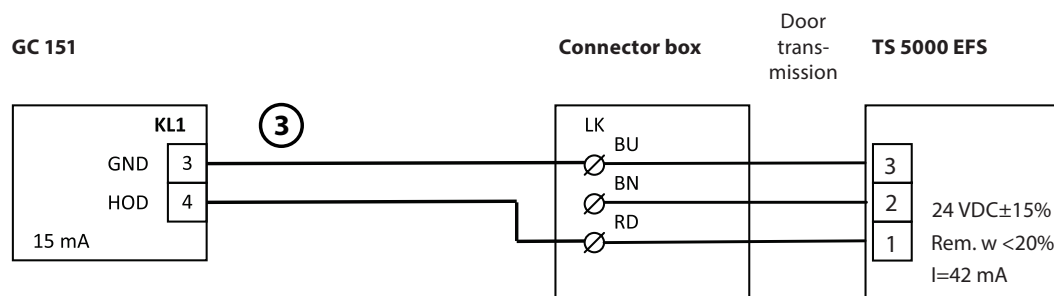


Fig. 5.8.1.8

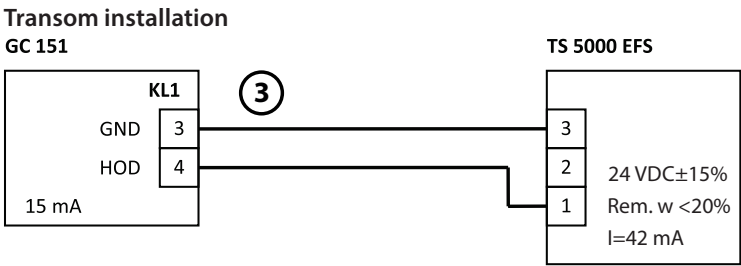


Fig. 5.8.1.9

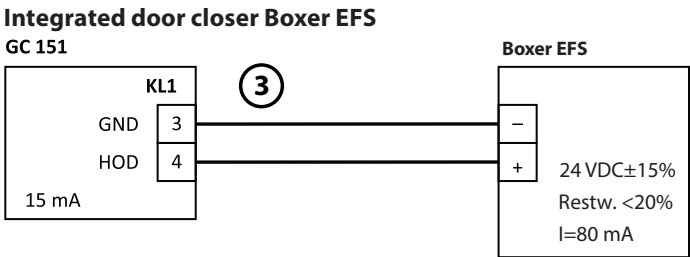


Fig. 5.8.1.10

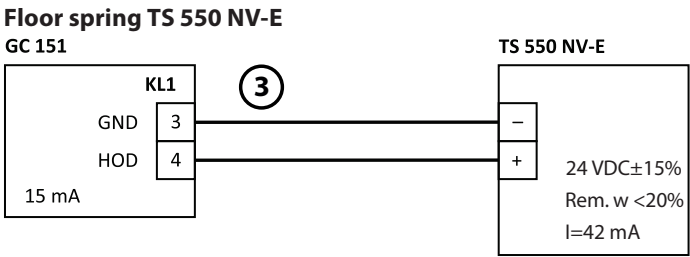


Fig. 5.8.1.11

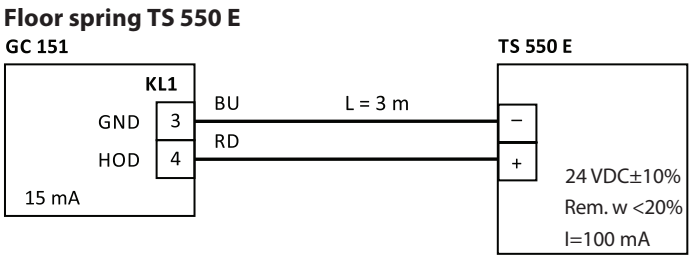


Fig. 5.8.1.12

Floor spring TS 550 E-IS

- Connection PCB, ID 001102
- Terminal box on site

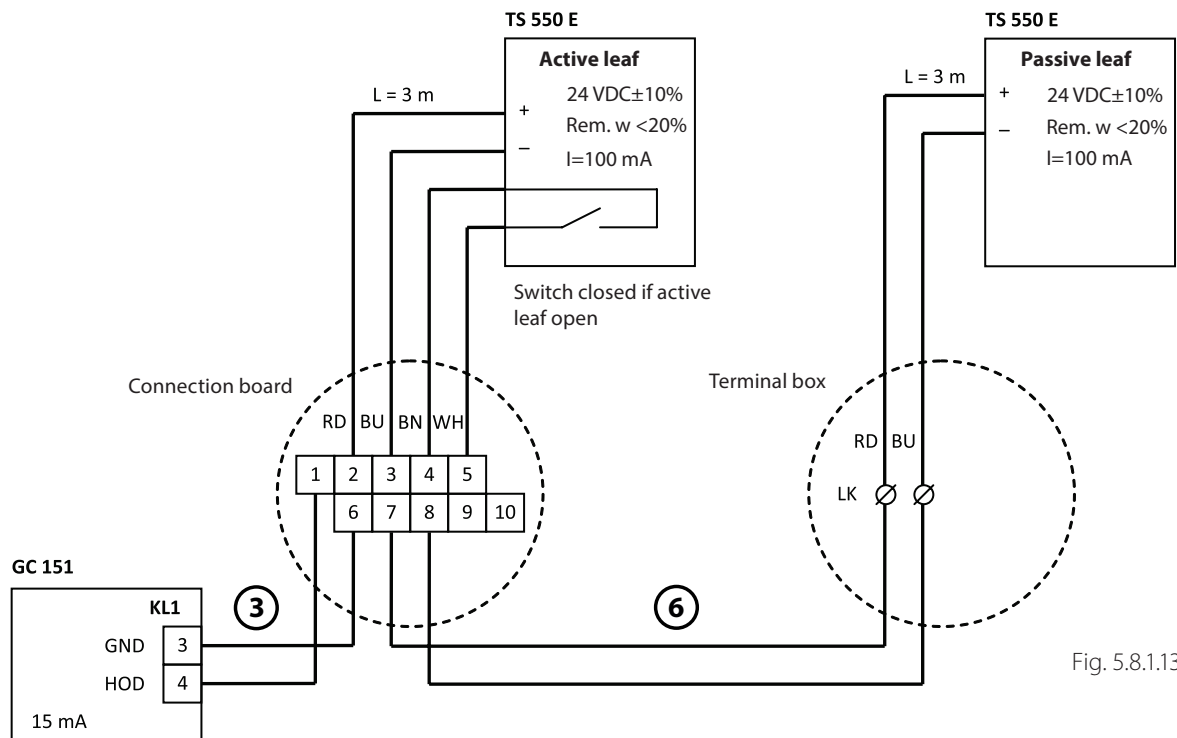


Fig. 5.8.1.13

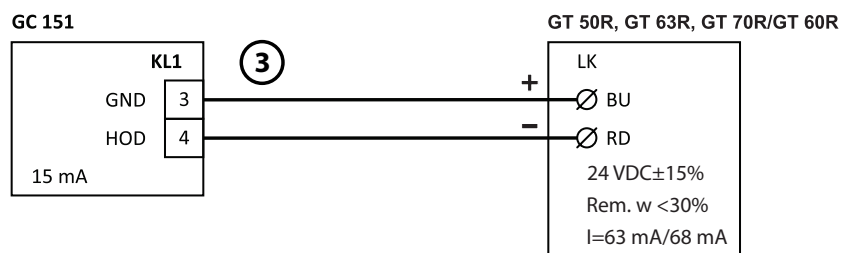
Hold-open magnets GT 50 R, GT 63 R, GT 70 R

Fig. 5.8.1.14

Hydraulic swing door drive TSA 160 NT F*, TSA 160 NT F EN7*

Accessories TSA 160 NT F, ID 019654



Follow the wiring diagram for the TSA 160 NT swing door drive.

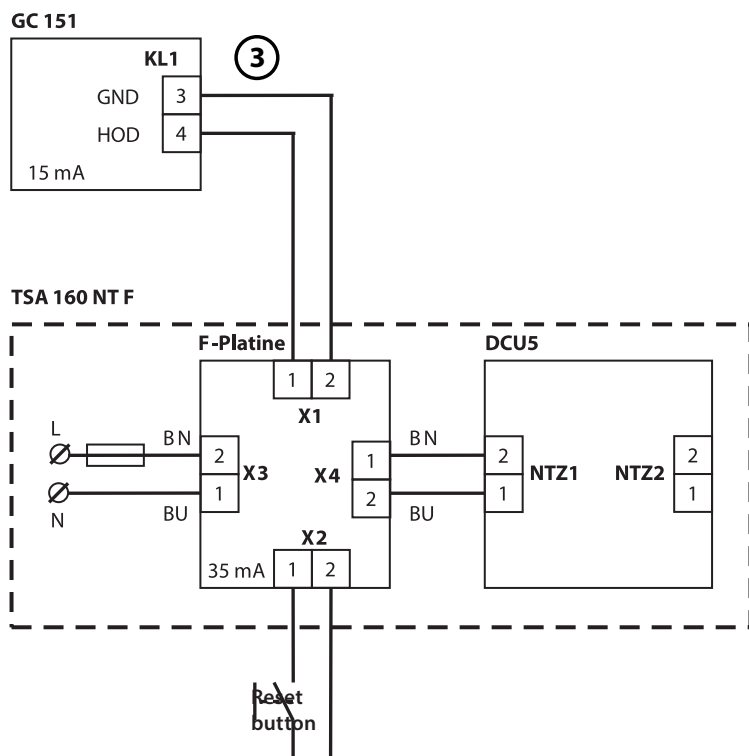


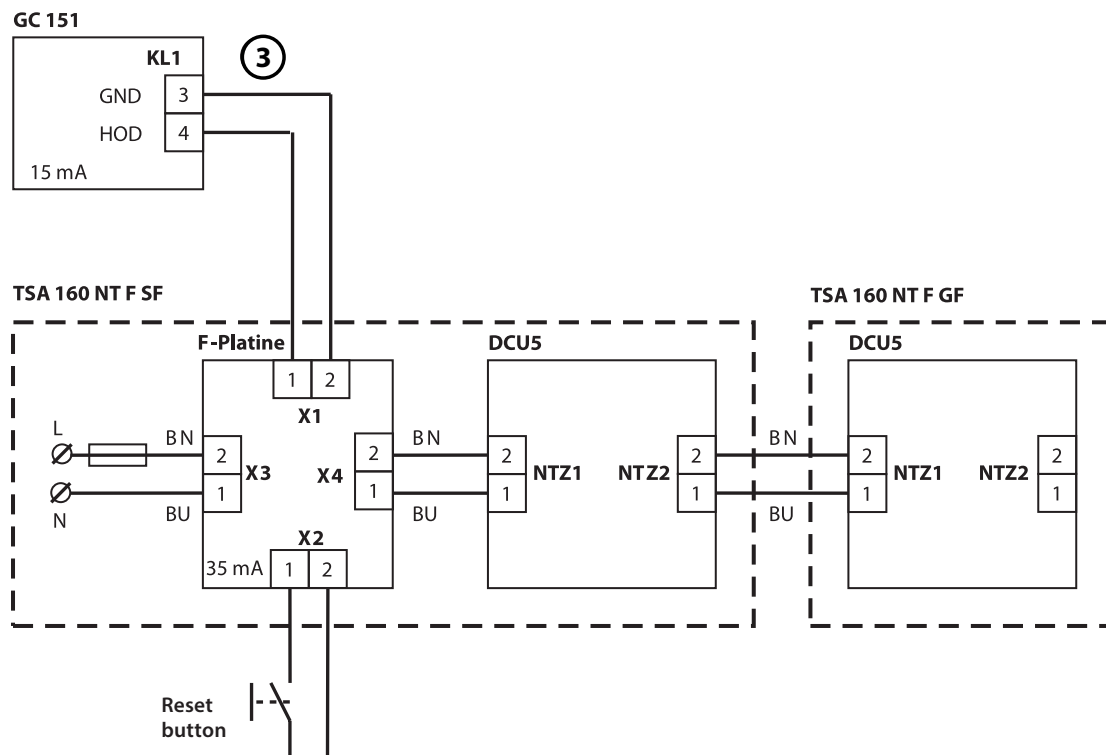
Fig. 5.8.1.15

Hydraulic swing door drive TSA 160 NT F-IS*

Accessories TSA 160 NT F, ID 019654



Follow the wiring diagram for the TSA 160 NT swing door drive.

Fig.
5.8.1.16

Electromechanical swing door drive Slimdrive EMD F*

Follow wiring diagram for the Slimdrive EMD swing door drive.

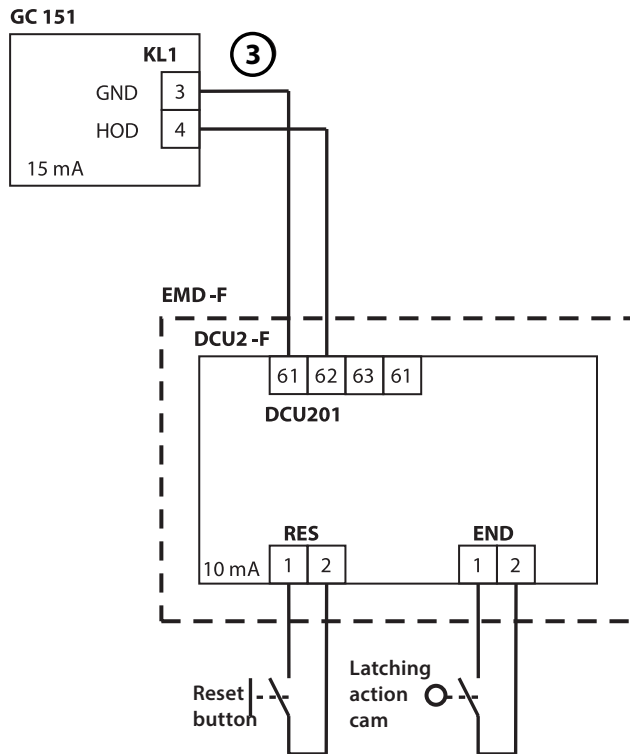


Fig. 5.8.1.17

Electromechanical swing door drive Slimdrive EMD F-IS*

Follow wiring diagram for the Slimdrive EMD swing door drive.

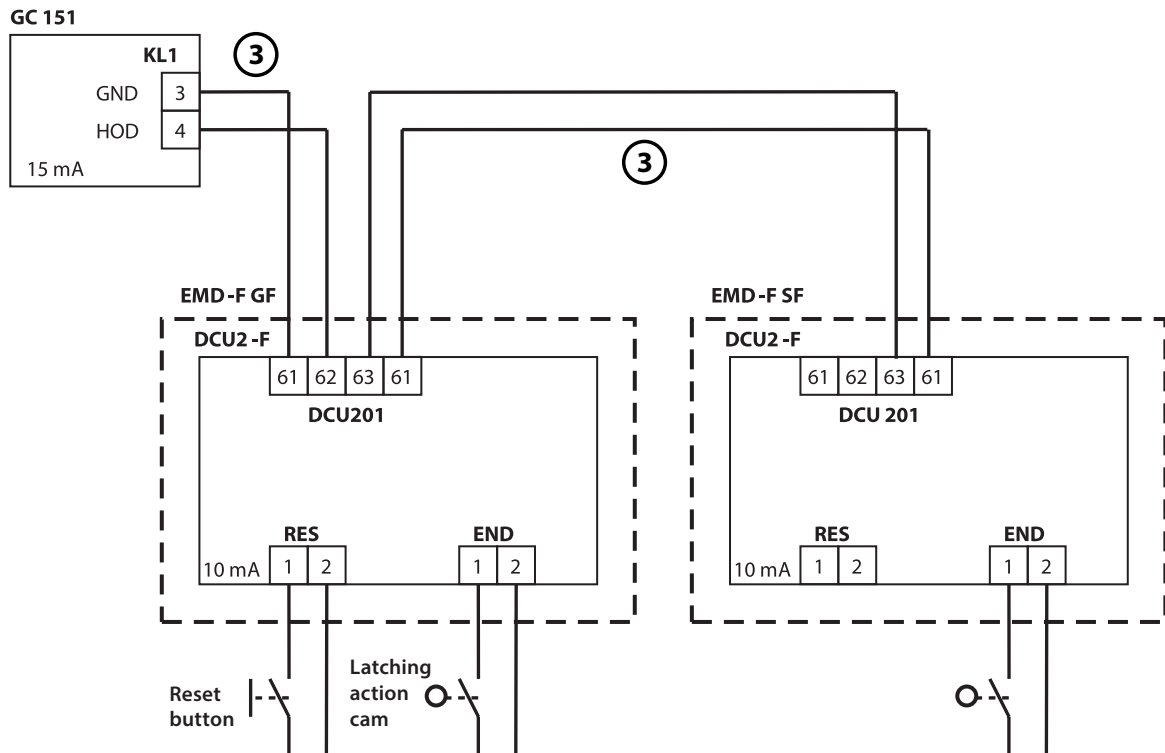


Fig. 5.8.1.18

Electromechanical swing door drive Powerturn F*

! Follow wiring diagram for the Powerturn swing door drive.

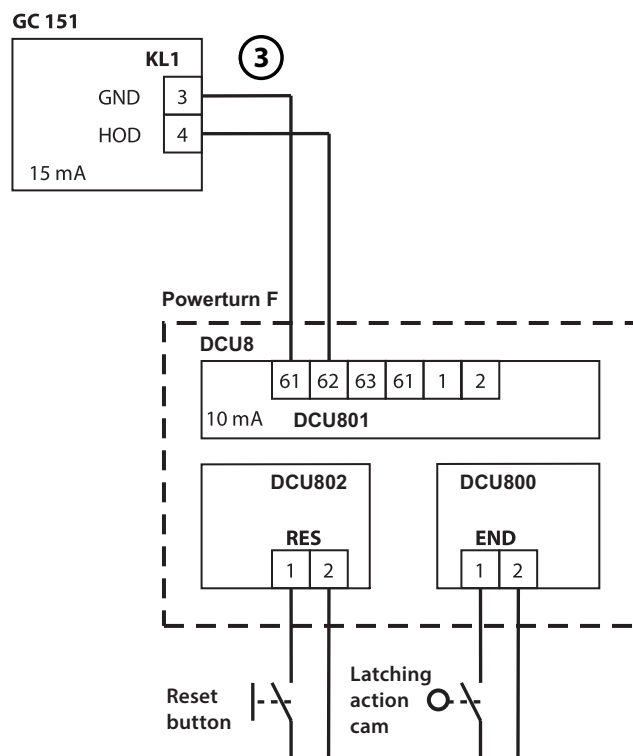


Fig. 5.8.1.19

Electromechanical swing door drive Powerturn F-IS*

! Follow wiring diagram for the Powerturn swing door drive.

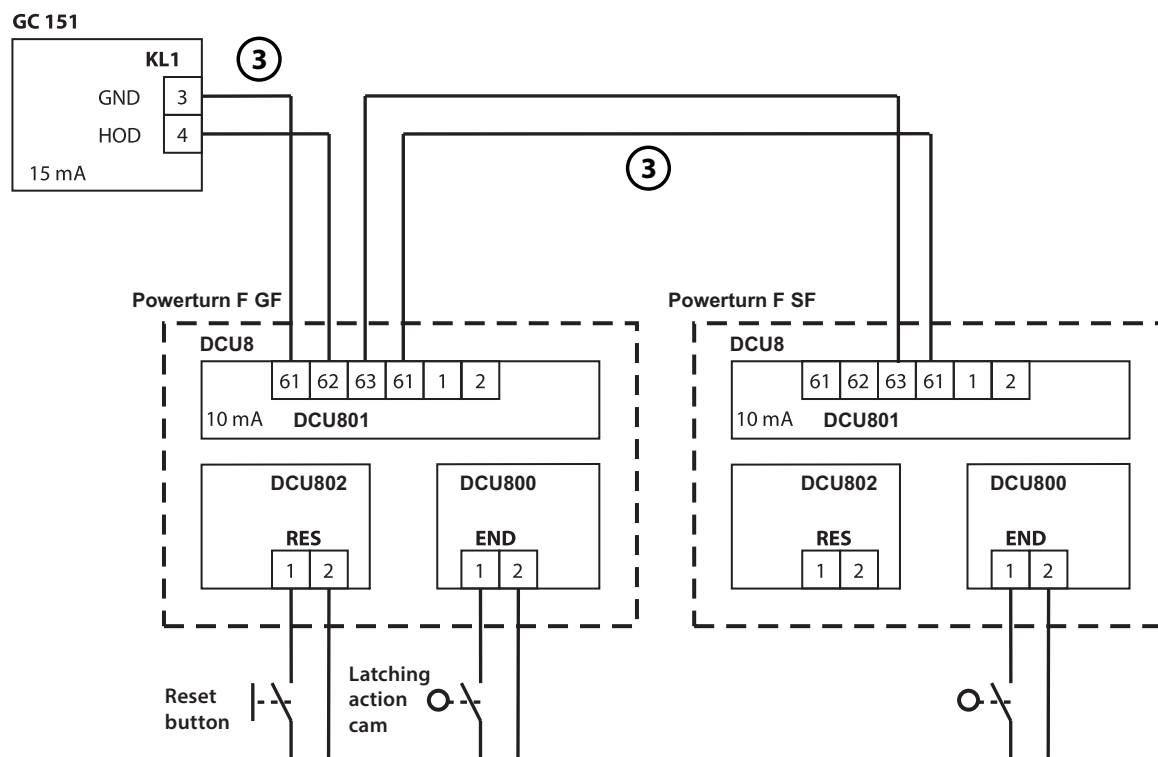


Fig. 5.8.1.20

Electromechanical swing door drive Powerturn F-IS/TS*

Follow wiring diagram for the Powerturn swing door drive.

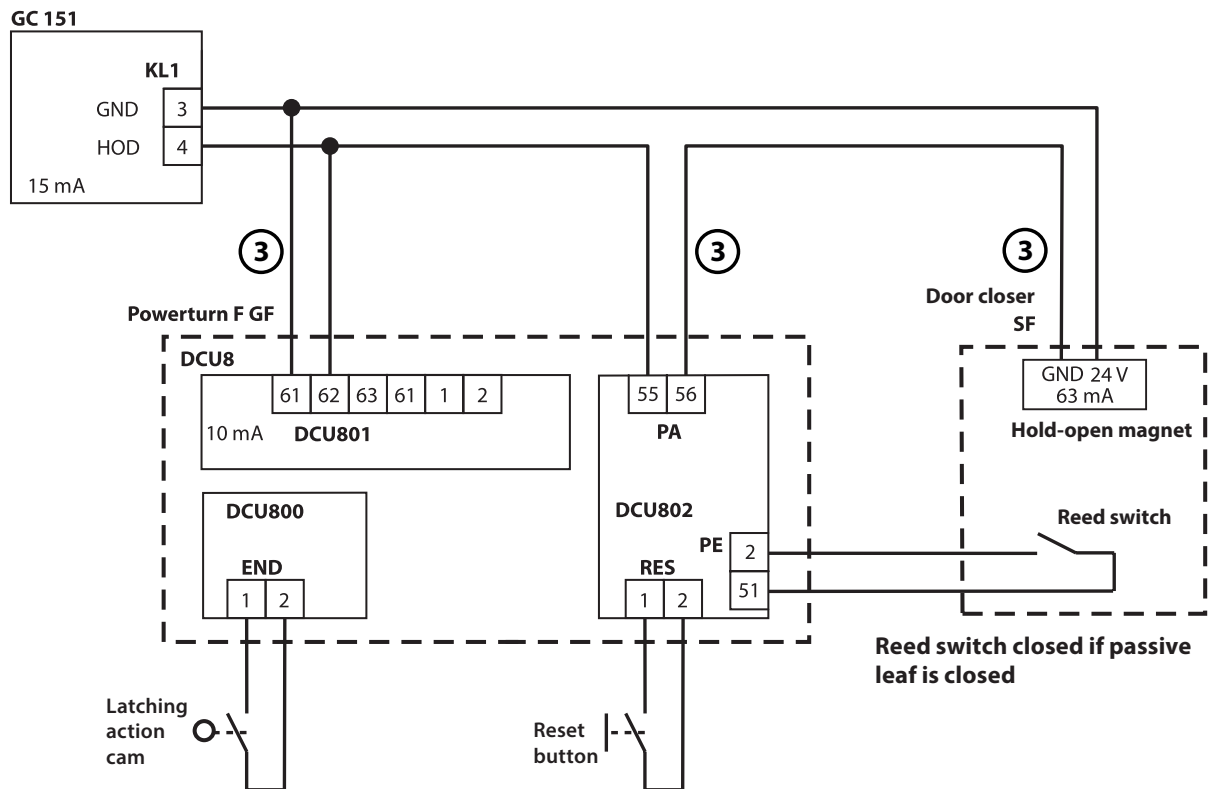


Fig. 5.8.1.21

5.8.2 Hold-open system TS 4000 R, TS 4000 RFS

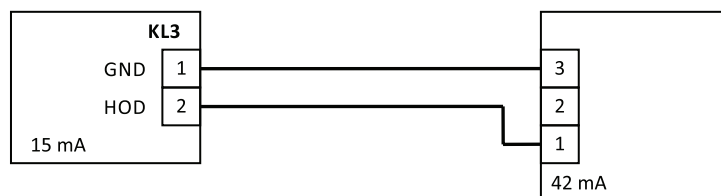
GC 151

Fig. 5.8.2.1

5.8.3 Hold-open system TS 4000 R-IS

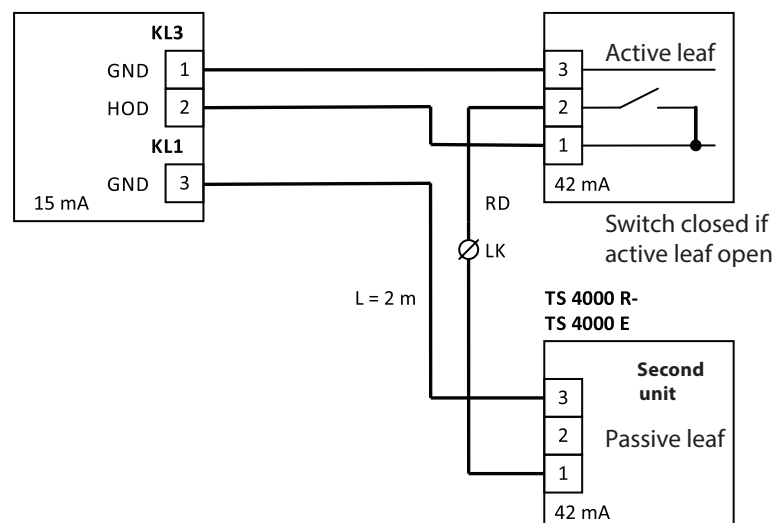
GC 151

Fig. 5.8.3.1

5.8.4 Hold-open system TS 5000 R

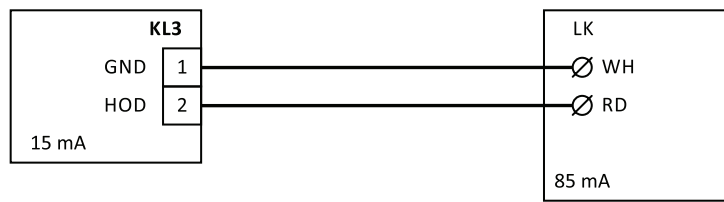
GC 151

Fig. 5.8.4.1

5.8.5 Hold-open system TS 5000 R-ISM /G/S/0



TS 5000 R-ISM/G - no hold-open function in the passive leaf

TS 5000 R-ISM/S - no hold-open function in the active leaf

TS 5000 R-ISM/0 - no hold-open function in the passive and active leaf

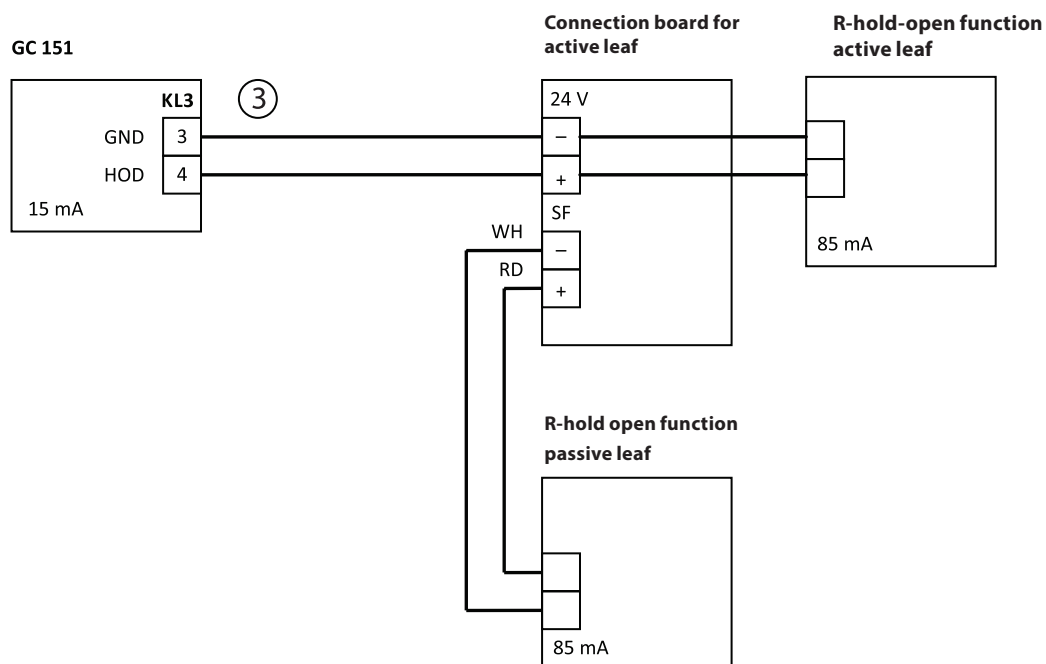


Fig. 5.8.5.1

5.8.6 Hold-open system TS 5000 R- ISM-EFS/ TS TS 5000 R-ISM/ 0 with free swing door closer

- No hold-open device for the passive leaf
- Connector box with plug-in drip loop, ID 052105

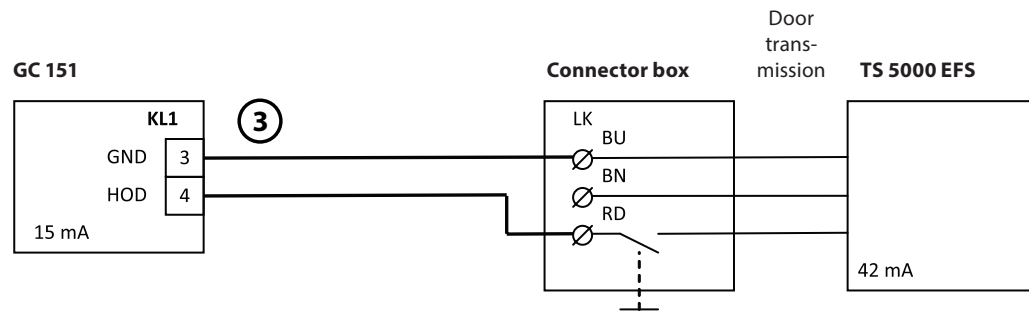


Fig. 5.8.6.1

5.8.7 Hold-open system TS 5000 RFS

- Door leaf installation
- Connector box with drip loop, ID 162723

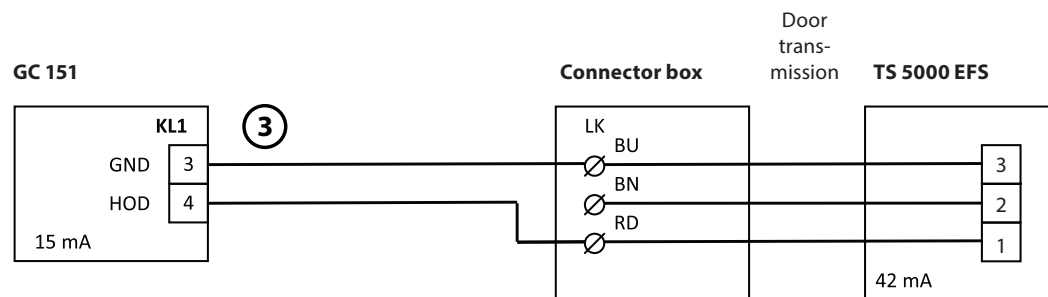


Fig. 5.8.7.1

5.8.8 Hold-open system TS 5000 RFS-KB

- Transom installation

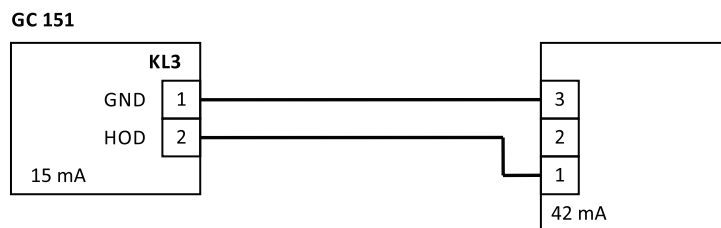


Fig. 5.8.8.1

5.8.9 Hold-open system Slimdrive EMD F/R



Follow wiring diagram for the Slimdrive EMD swing door drive.

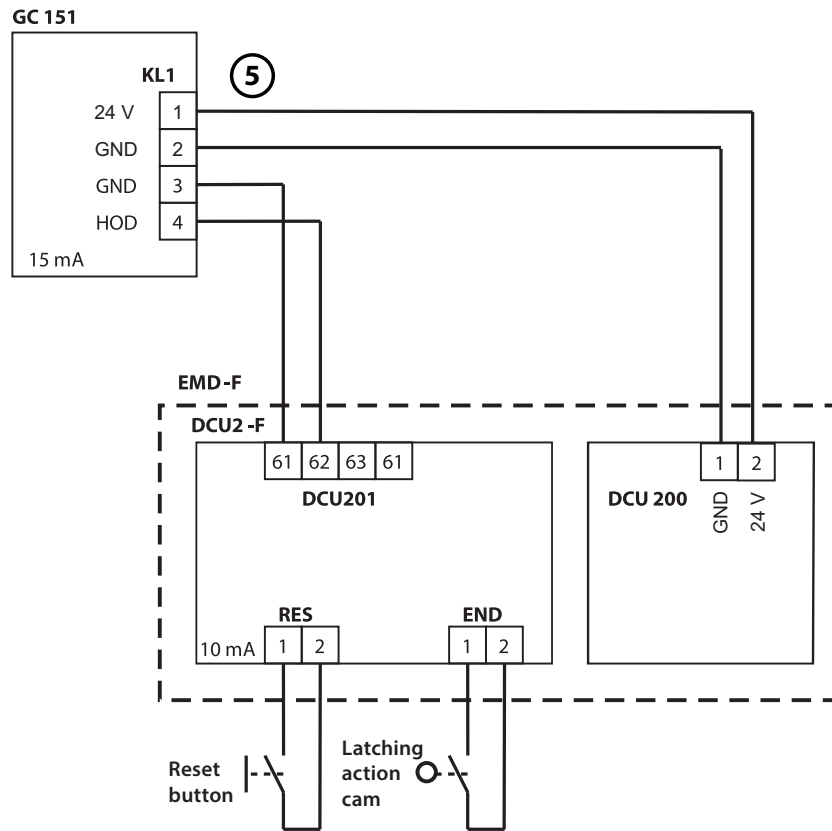


Fig. 5.8.9.1

5.8.10 Hold-open system Slimdrive EMD F/R-IS*

Follow wiring diagram for the Slimdrive EMD swing door drive.

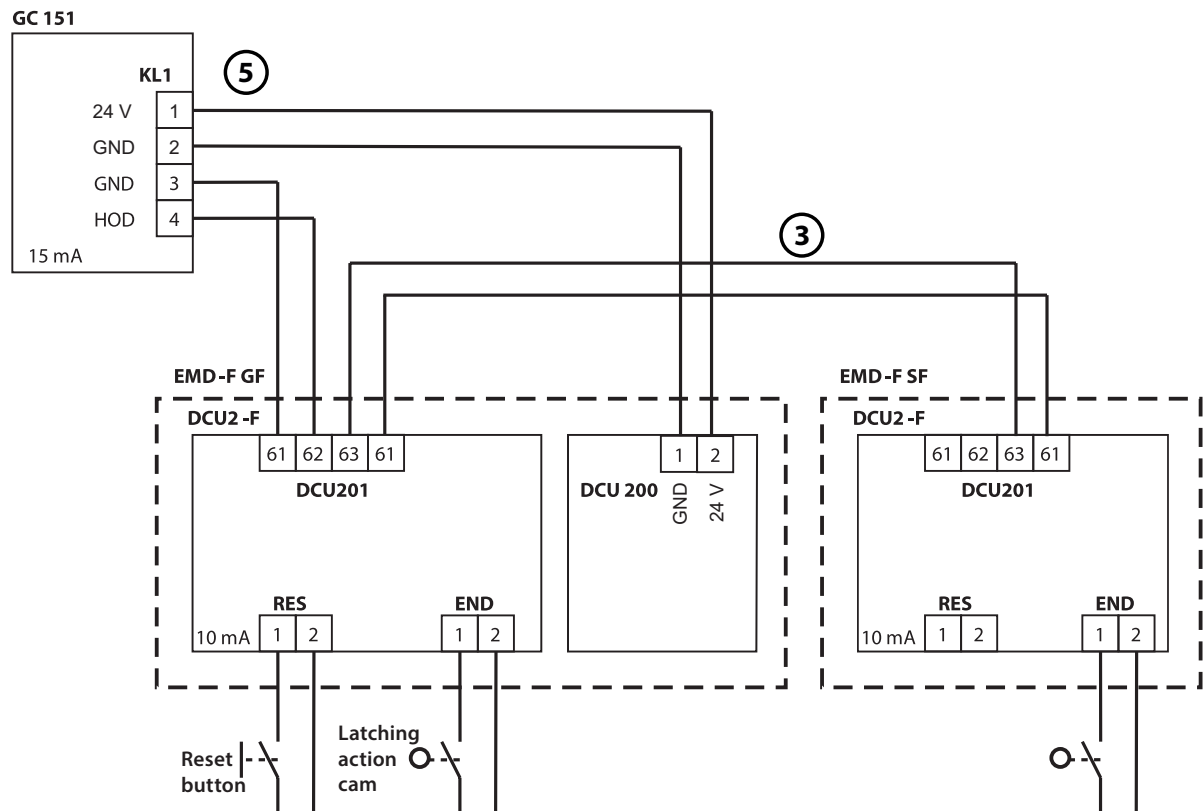


Fig. 5.8.10.1

5.8.11 Hold-open system Powerturn F/R*

Follow wiring diagram for the Powerturn swing door drive.

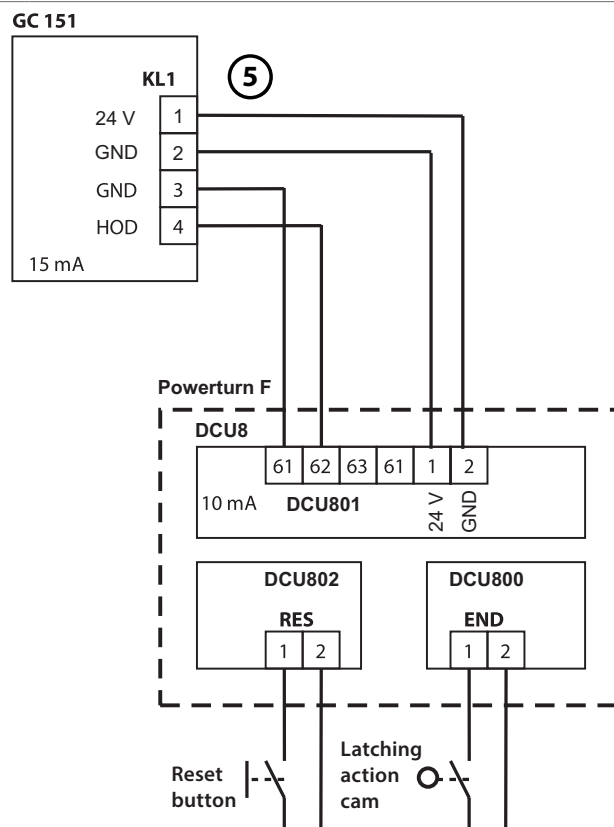


Fig. 5.8.11.1

5.8.12 Hold-open system Powerturn F/R-IS*

! Follow wiring diagram for the Powerturn swing door drive.

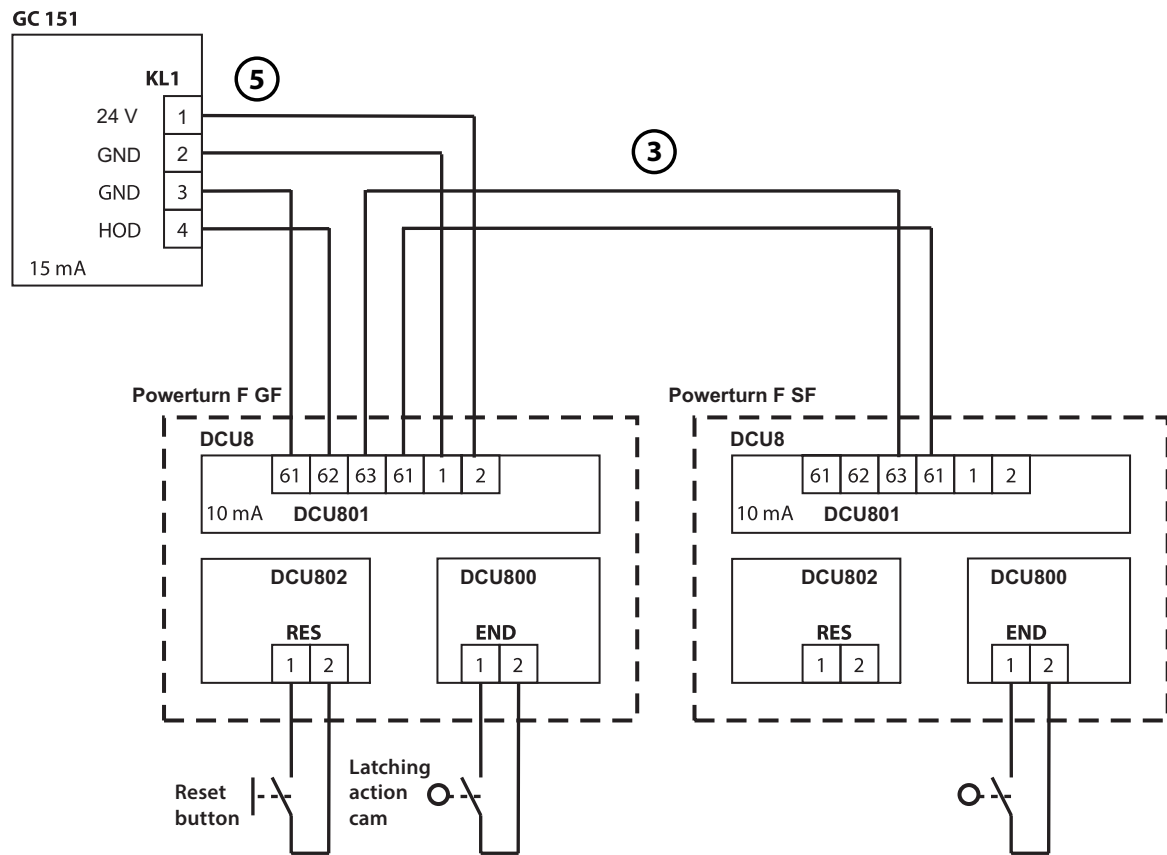


Fig. 5.8.12.1

5.8.13 Hold-open system Powerturn F/R-IS/TS*



Follow wiring diagram for the Powerturn swing door drive.

GC 151

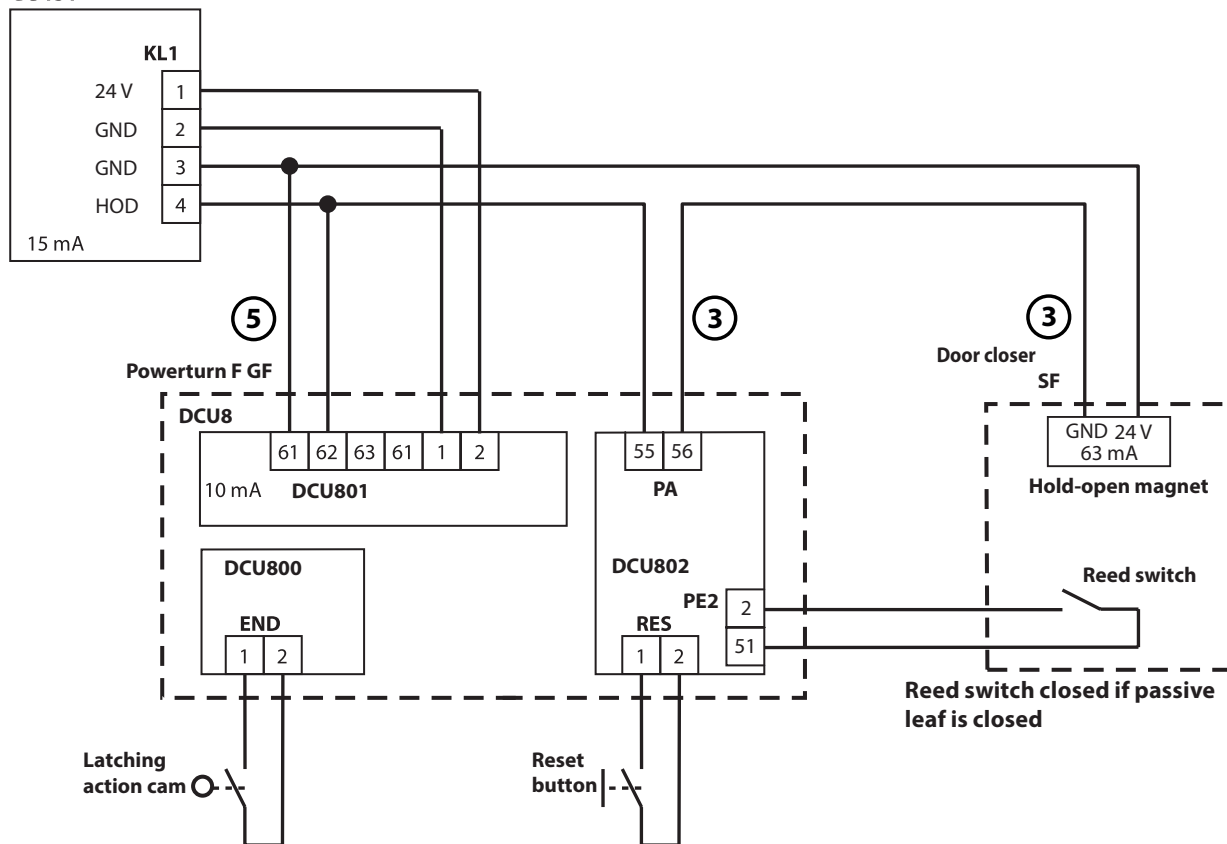


Fig. 5.8.13.1

6 Commissioning

1. Switch on the mains voltage.
The state display of the lintel-mounted smoke switch lights up green.
2. Remove the dust protection film or dust protection cap from the housing of the hold-open system so that the smoke openings are clear.
3. Remove the protective covers from the ceiling-mounted detectors.

6.1 Check the self-closing characteristic of the door

6.1.1 1-leaf door

1. Open the door leaf completely. The door leaf is held in the open position by the hold-open system.
2. Activate the test button on the lintel-mounted smoke switch. The state display lights up yellow for approx. 4 s. The door leaf closes and snaps into the latch.
3. If necessary, adjust the manual disengaging torque in the opened position:
Open the door leaf completely. According to EN 1155, the disengaging torque should be between 40 Nm and 120 Nm at an opening angle of 90°.

6.1.2 2-leaf door

1. Open both door leaves completely. The door leaves are held in the open position by the hold-open system.
2. Activate the test button on the lintel-mounted smoke switch. The state display lights up yellow for approx. 4 s. The door leaves close, following the closing sequence. Both door leaves close completely and the active leaf snaps into the latch.
3. If necessary, adjust the manual disengaging torque in the opened position:
Open both door leaves completely. According to EN 1155, the disengaging torque should be between 40 Nm and 120 Nm at an opening angle of 90°.
4. Push the active leaf out of the hold-open function by hand, the passive leaf closes automatically. The active leaf comes to a standstill and then closes when the passive leaf is closed.

6.2 Testing the smoke detectors

Test aerosol, ID 059168



Systems may only be tested with an aerosol that evaporates without leaving any residue.

6.2.1 GC 151

Carry out the following steps within approx. 2 minutes:

1. Press the test button, the state display changes from green to yellow.
Wait until the state display lights up green again.
2. Open the door leaf completely. The door leaf is held in the open position by the hold-open system.
3. Now spray the test aerosol from a distance of about 15 cm into the free smoke opening in short bursts lasting about 1 s with 1 s between bursts, covering the upper smoke opening of the smoke detector for this.
The smoke detector must trigger (change of the state display from green to red). The door closes.

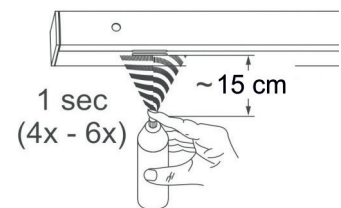


Fig. 6.2.1.1

6.2.2 GC 152, ORS 142 and GC 172

1. Open the door leaf completely. The door leaf is held in the open position by the hold-open system.
2. Spray the test aerosol from a distance of 10 cm to 15 cm into the free smoke opening in short bursts lasting about 1 s with 10 s between bursts.
The smoke detector must trigger (change of the state display of the lintel-mounted smoke detector from green to red). The door closes.

6.3 Testing the thermal detectors GC 153 and GC 173

1. Open both door leaves completely. The door leaves are held in the open position by the hold-open system.
2. Test the thermal detector GC 153 using a tester for heat detectors.
The thermal detector must trigger (change of the state display of the lintel-mounted smoke detector from green to red). The door closes. The test can also be carried out using a hair dryer. The air flow must reach a temperature of at least 60 °C but must not exceed 90 °C.

7 Confirmation of conformity for the installation of the hold-open system

The contractor who installed the hold-open system must issue a confirmation of conformity for each construction project, certifying that the hold-open system has been professionally installed with regard to all details and in compliance with all provisions of the respective general construction technique permit (and, if applicable, the provisions of the modification and supplementary notices) as well as the assembly instructions provided by GEZE.

This confirmation must be entered in the GEZE log book for hold-open systems. Alternatively, this confirmation may be based on the model from the general construction technique permit.

The declaration is to be sent to the client for any necessary forwarding to the responsible building inspectorate.

8 Acceptance test

An official acceptance test must be carried out in order to ascertain the correct function and installation according to the regulation once the installation of the hold-open system has been completed at the set-up location.

The operator must arrange this official acceptance test.

The acceptance test may only be carried out by GEZE specialists, specialists authorised by GEZE (with GEZE expert training) or specialists from an official test centre named by DIBt in the approval procedure.

The official acceptance test must include at least the following points:

1. It must be checked that the installed devices and device combinations of the hold-open system correspond to the devices and device combinations specified in the general construction technique permit.
2. It shall be verified that the marking of the installed equipment and equipment combinations conforms to the marking specified in the general construction technique permit or standard.
3. The interaction of all devices and device combinations must be checked on the basis of the general construction technique permit, whereby triggering must take place both by simulation of the fire characteristic the fire detector is based on as well as by hand.
4. It must be checked whether the closer is released for automatic closing if the hold-open system is not functional (e.g. through removal of a detector or power failure).

After the official acceptance test has taken place, the operator must attach a sign (set 10 pcs. ID 79142) in the size 105 mm × 52 mm, which is provided by GEZE, in the direct vicinity of the closer stating the following:

- Hold-open system
- Number of the general construction technique permit
- Official approval through ... (company logo as well as month and year of the official approval) and must be affixed permanently.

The operator is to be given a certificate for the successful official acceptance test; this must be kept by the operator.

9 Maintenance

9.1 Routine inspection / monthly inspection

- The hold-open system must be kept permanently in a good operating condition by the operator; in particular the door leaves must not be blocked (e.g. by wedges, chains or other objects which prevent the door leave closing automatically).
- In order to ensure that the hold-open system is in a good condition, a routine test must be carried out at regular intervals on site.

If twelve monthly functional tests in succession do not reveal functional faults, the hold-open system only needs to be checked at intervals of 3 months. If a functional fault is established during the quarterly functional tests, serviceability is to be re-established without delay and proved through at least three successive monthly functional tests.

- This routine test may be carried out by anyone, following appropriate briefing through GEZE.

The functional test of a hold-open system must contain at least the following elements:

- Check on the manual trigger (manual trigger switch or by manual disengagement if permitted);
- Check on triggering of the hold-open system by testing the fire detectors (see chap. 6);
- Check on automatic resetting of the fire detectors from the alarm state;
- Check whether environmental influences impair the function of the hold-open system installed;
- Check whether the environment in the direct vicinity of the hold-open system has a negative influence on it (e.g. occurrence of dust or steam);
- Check on whether constructional changes and/or interaction with other product groups in the direct vicinity of the hold-open system has a negative influence (e.g. later installation of suspended ceilings) and whether the positioning of the fire detectors complies with the general construction technique permit (see chap. 3.5);
- Check whether the fire protection or smoke protection closer is released for automatic closure after triggering.

When wireless assemblies are used in the hold-open system:

- The quality of the wireless connections must be tested (see chapter 4.5.2 Connection quality). Construction changes or new electronic assemblies in the direct vicinity of the hold-open system can interfere with the wireless connections.
- The charge state of the batteries in the wireless assemblies GC 172, GC 173 and GC 175 must be tested. An empty battery is indicated as a warning at the status LED of the wireless module GC 171 (see chap. 4.5.1)

Scope, result and time of the functional test must be documented in the GEZE log book for hold-open systems and made available to the operator. These records must be stored by the operator.

The operator must be informed if obvious functional problems and/or damage to the fire protection or smoke protection closer occur.

9.2 Annual testing and maintenance

- In addition, the operator is responsible for the organisation of the testing and maintenance of all the components of the hold-open system, so that it is guaranteed that these components work properly and without interference. This testing and maintenance must be carried out at least once a year in accordance with the recommendations of the manufacturer. Scope, results and date of this annual testing must be recorded in the GEZE log book for hold-open systems which must be kept by the operator.

Regular maintenance and testing may only be carried out by a specialist or a person trained for this purpose. Maintenance of the hold-open system must include the elements of a functional test in accordance with chapter 8 and the following additional elements:

- Check the correlation with documentation and general construction technique permit;
- Cleaning of the function-related components of a hold-open system, in as far as their contamination can lead to impairment; (the measuring chamber of a smoke detector must not be opened).
- Check whether the hold-open system is triggered in the event of a power failure;
- Check whether the hold-open system is triggered in the event of a fire detector being removed.

When wireless assemblies are used in the hold-open system:

- Change the main battery and the slave battery of GC 175 in a 5-year cycle, even without "battery empty" display on the GC 171.

Scope, result and time of the maintenance carried out must be documented and made available to the operator.

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