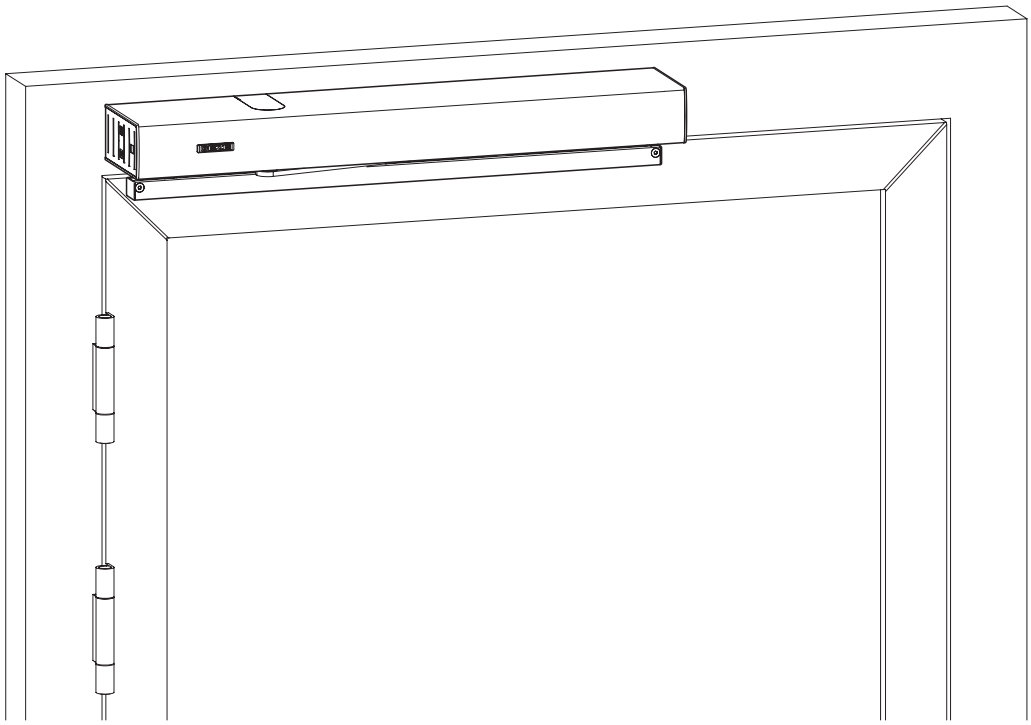


Powerturn

EN Wiring diagram

Valid for variants:

Powerturn (1-leaf/2-leaf)
Powerturn F (1-leaf)
Powerturn F-IS (2-leaf)
Powerturn F/R (1-leaf)
Powerturn F/R-IS (2-leaf)
Powerturn F/R-IS/TS

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GEZE

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Symbols and illustrations

Warning notices
In these instructions, warning notices are used to warn against material damage and injuries.
- ▶ Always read and follow these warnings.
- ▶ Follow all measures labelled 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.
	**WARNING**	Danger to persons. Non-compliance can result in death or serious injuries.
	**CAUTION**	Danger to persons. Non-compliance can result in minor injuries.

Further symbols and illustrations
Important information and technical instructions are highlighted to explain correct operation.

Symbol	Meaning	
	means "important information" ; Information on avoiding material damage, understanding a concept or optimising workflows	
	Means "additional Information"	
	▶ Symbol for an action: This means you must do something. ▶ If there are several actions to be taken, keep to the given order.	
	Compliant with EN 16005	Symbol in a table or for information on safety sensors.
	Not compliant with EN 16005	Symbol in a table or for a piece of information on sensors that do not correspond to EN 16005.
	Fire protection door	Symbol for fire protection door
	Not permitted for fire protection door	Symbol "Not permitted for fire protection door"

Validity

- Valid for software version DCU8 V2.2 or higher
- Hardware revision DCU800 from Rev F

Product liability

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

1 Notes

1.1 Safety precautions

- ▶ Keep these instructions.
- ▶ Secure the workplace against unauthorised entry.
- ▶ Before working on the electrical system, disconnect the power supply (mains and rechargeable battery) and check that there is no voltage. Note that if an Uninterruptible Power Supply (UPS) is used, the system will still be supplied with voltage despite the fact that the power supply is disconnected.
- ▶ Observe the swivelling range of long system parts.
- ▶ Secure the drive/drive cover/coupling elements against falling.
- ▫ Only specialists who are authorised by GEZE are permitted to carry out installation, commissioning and maintenance.
- ▫ Danger of injury when working at heights.
- ▫ Operate the drive only with a connected latching action switch.
- ▫ If unauthorised changes are made to the system, GEZE cannot be made liable in any way whatsoever for any resulting damages.
- ▫ GEZE does not accept any warranty for combinations with third-party products. In addition, only original GEZE parts may be used for repair and maintenance work.
- ▫ Connection to the mains voltage must be carried out by a qualified electrician. Perform the mains connection and protective conductor test in accordance with VDE 0100 Part 600.
- ▶ Use an on-site automatic circuit-breaker as the line-side disconnecting device. Its dimensioning is matched to the type, cross-section, type of laying and ambient conditions of the on-site power supply circuit. The automatic cut-out must have at least 4 A and may have max. 16 A.
- ▶ In accordance with Machinery Directive 2006/42/EC, carry out the safety analysis before commissioning the door system and label the door system in accordance with the CE Labelling Directive 93/68/EEC.
- ▫ Observe the latest versions of guidelines, standards and country-specific regulations, in particular:
  - ▫ ASR A1.7 "Guidelines for doors and gates"
  - ▫ DIN EN 16005 "Power-operated pedestrian doorsets – Safety in use – Requirements and test methods"
  - ▫ DIN VDE 100-600 "Installation of low-voltage systems - Part 6 Tests"
  - ▫ DIN EN 60335-2-103 "Household and similar electrical appliances - Safety; Particular requirements for drives, for gates, doors and windows"
  - ▫ Accident-prevention regulations, especially DGUV V1 (BGV A1) "General regulations"
  - ▫ DGUV V3 (BGV A3) "Electrical installations and equipment"

Swing door drive as a hold-open device in accordance with DIN 18263-4

- ▫ The hold-open function of the side-hung leaf drive must be cancelled in the event of a fire alarm, fault or manual triggering; the latch release (electric strike according to fail-secure principle) must be disabled and all the activators for opening the door leaves must be switched ineffective.
- ▫ The side-hung leaf drives may only be used on 1- and 2-leaf doors if the door frame or the passive leaf of a 2-leaf door respectively is equipped with an electric strike that releases the latch and/or a safety catch with a spring-loaded latch.

1.2 Connection information

- ▫ The drive is designed exclusively for use in dry rooms.
- ▶ Only use the cables specified in the wiring schematic. Connect the shields according to the wiring diagram.
- ▶ Always use insulated wire end ferrules for wire cores.
- ▶ Insulate unused cores.
- ▶ Secure loose internal drive cables with cable ties.
- ▶ Observe the maximum permitted total power consumption required to supply the periphery.



Install the product in such a way that access is easy during repairs/maintenance and causes little effort. The costs for removal must be in economic relation to the value of the product.

1.3 Reference documents

Mat. no.	Document	Product
154918	Powerturn user manual	Door drive
154917	Powerturn installation instructions	Door drive
154872	Installation instructions IS mechanism Powerturn	Door drive
123457	Installation instructions GC 302 R	Radar movement detector
198724	Installation instructions GC 307+	Non-contact activation sensor
203845	Installation instructions GC 308 R	Radar movement detector
126833	Installation instructions GC 334	Safety sensor
128556	Installation instructions GC 335	Safety sensor
152968	Installation instructions GC 338	Pair of safety sensor strips
167390	Installation instructions GC 342	Safety sensor
198708	Installation instructions GC 342+	Safety sensor
141511	Wiring diagram FA CG 150	Hold-open system
132159	Installation and service instructions	GEZE wireless program automatic
186584	Safety analysis	Door drive
030450	Inspection book	Automatic

1.4 Inspection of installed system

- Check the protective earth connection to all metal parts which can be touched and are connected to the protective earth conductor.
- Check the function of the presence detectors and motion detectors.
- Check the measures for protection and prevention of crushing, impact, shearing or drawing-in spots.

2 Abbreviations

Core colours

BN	brown	GN	green	OG	orange	TQ	turquoise
BK	black	GY	grey	PK	pink	VT	violet
BU	blue	YE	yellow	RD	red	WH	white

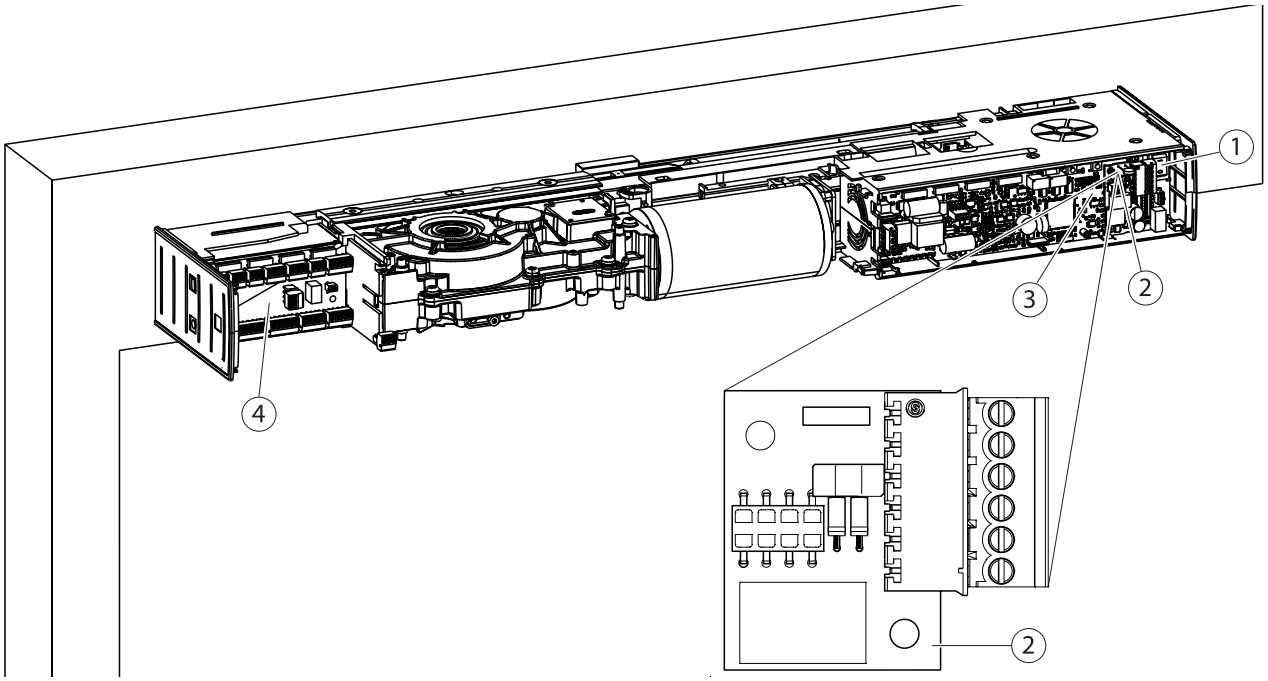
Connections, terminals and plugs

AU	Automatic	PE	Configurable input
HS	Hinge side	RBM	Radar movement detector
BGS	Opposite hinge side	RES	Reset switch
DO	Hold open	RM	Bolt message
DPS	Display programme switch	RSZ	Smoke control unit
LATCHING AC-TION	Latching action	RS485	Communication signal to DPS and second drive
GF	Active leaf	OFF	Operating mode AUS
FK 1	Radio channel 1 (changeover mode of operation and activation signal KI)	SF	Passive leaf
FK 2	Radio channel 2 (activation signal KB)	STOP	Stop
GND	Ground	SCR	Shield
KA	Contact sensor outside	SIO	Safety sensor opening
KB	Mechanical contact	SIS	Safety sensor close
KI	Contact sensor inside	STG	Fault
LK	Lustre connector	TK	Door transmission cable
LS	Exit only	TOE	Electric strike
MPS	Mechanical programme switch	TST	Test signal for safety sensors
NA	Night mode	24V	Supply voltage for external devices
PA	Configurable output	24V SENS	Supply voltage for sensors, switched after ECO mode has been set

3 Electrical data

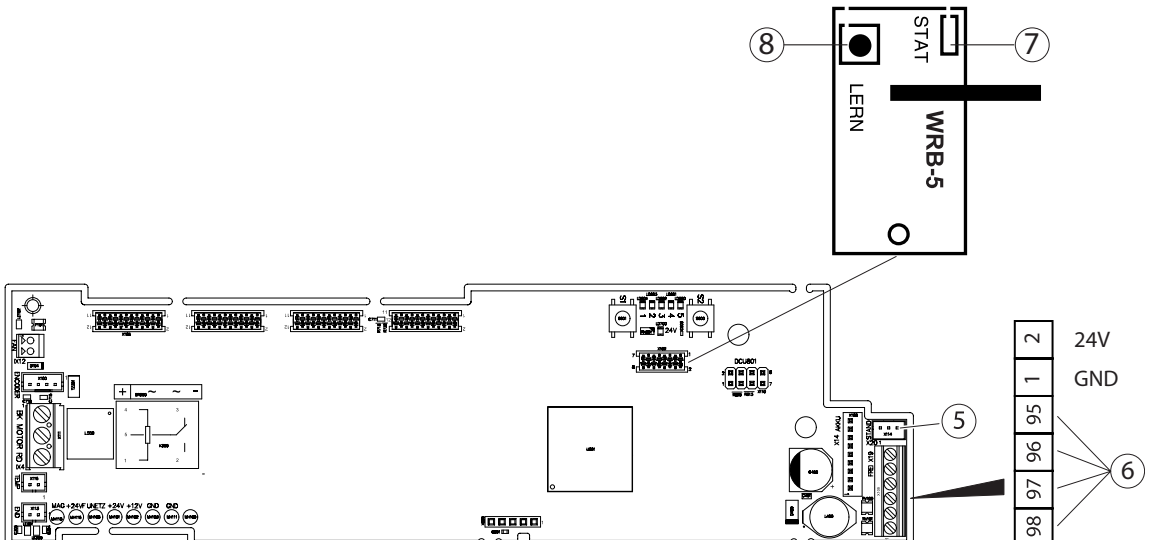
Mains voltage	230 V AC –15 %, +10 %
Frequency	50/60 Hz
Protection class	I
Capacity rating	200 W
Mains connection	Fixed connection (installation cable or drip loop)
Primary fuse	–
Secondary fuse	10 A slow-blow, 5×20 mm
Secondary voltage (transformer)	33 V AC (46 V DC)
Control voltage for external components	24 VDC ±10 %
Output current control voltage 24 V	1200 mA permanently 1800 mA briefly (5 s, duty ratio 30 %)
Fuse protection <24 V	2.5 A; reversible
Temperature range	–15 C… +50 °C
IP rating	IP30
Emission sound pressure level	< 70 dB (A)

4 Supply terminals



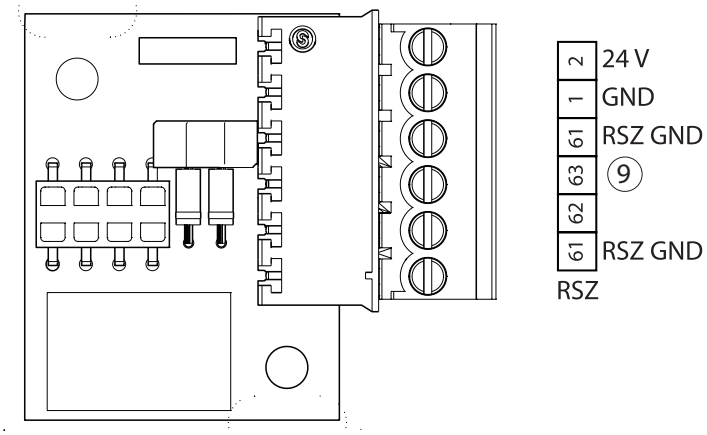
1	Main switch	3	DCU800
2	DCU801 (optional)	4	DCU802

DCU800 with WRB-5 (optional)



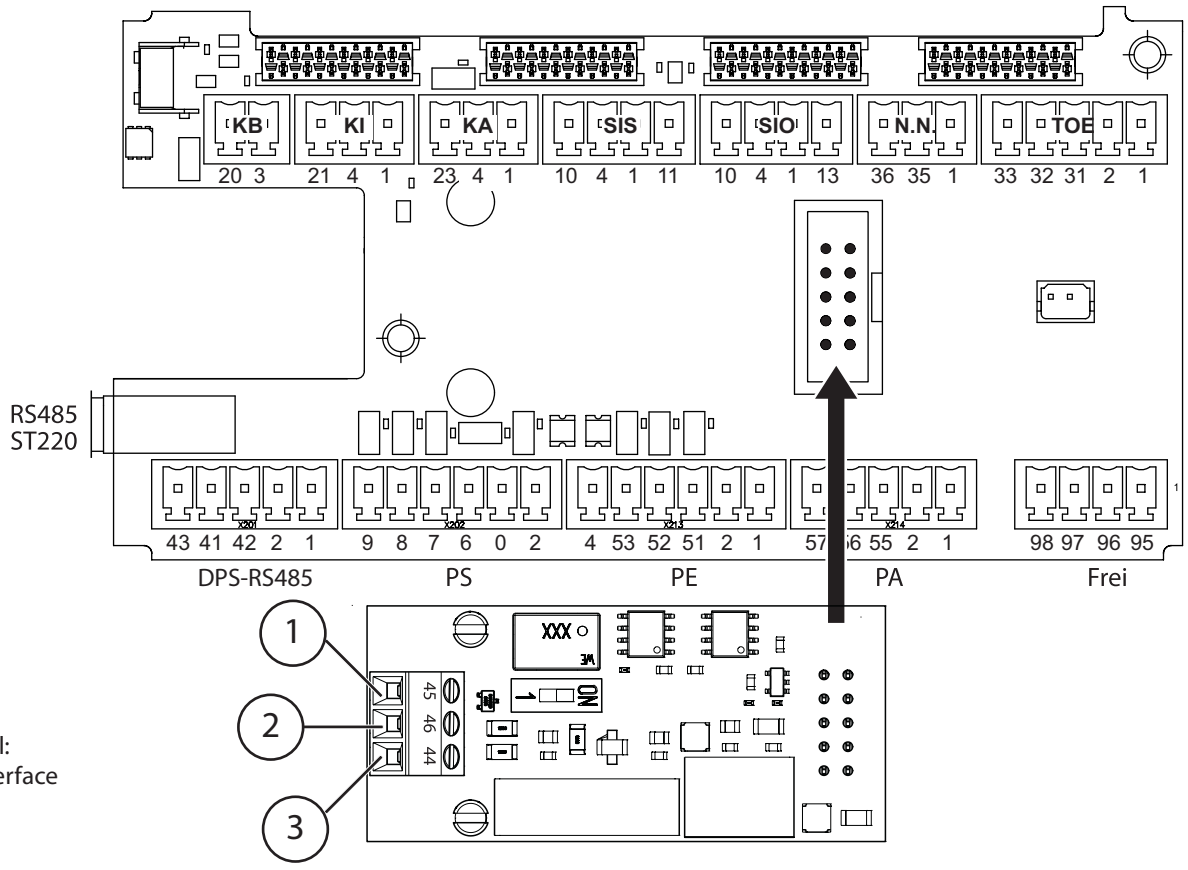
5	RS485 passive leaf	7	Status LED (wireless WRB-5)
6	FREE	8	Teach button (wireless WRB-5)

DCU801 (optional)



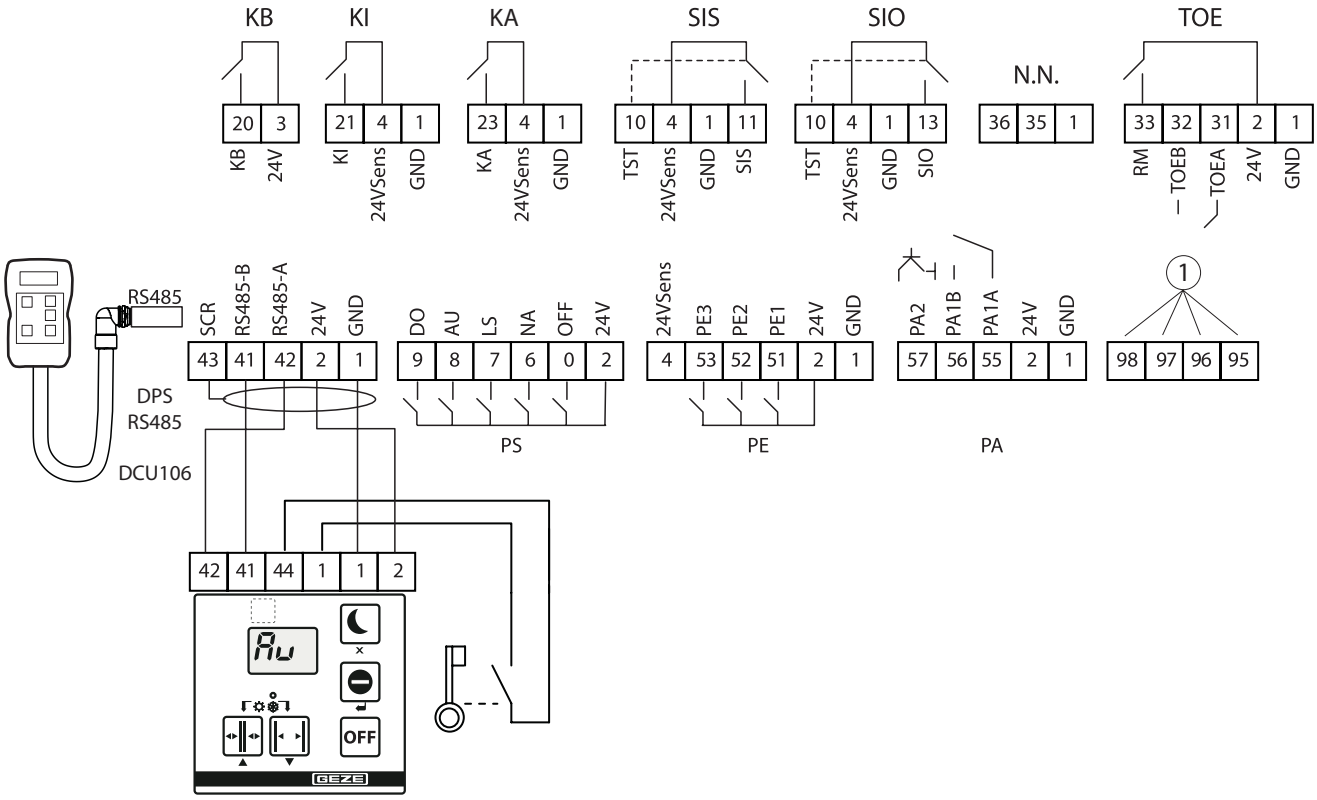
9 Second drive + RSZ 24V

DCU802



Optional:
CAN interface

1 Terminal CANL
2 Terminal CANH
3 Terminal GND CAN (ISO)



1 Exposed cable connections, see “14 Free line connections” on page 44.

5 Safety sensor close and open

- ▶ With 2-leaf systems, connect the safety sensors of the active leaf with the active leaf control.
- ▶ With 2-leaf systems, connect the safety sensors of the passive leaf with the passive leaf control.
- ▶ Fit the sensor for monitoring closing on the opposite hinge side of the door leaf.
  If the SIS is activated during closing, the door reverses and opens again.
- ▶ Install the sensor for monitoring opening on the door leaf, hinge side.
  If the SIO is activated during opening, the door stops.

On detection the sensor output is open (GND applied to SIS or SIO input).

- ▶ Check function and correct setting of the sensors during commissioning and service.
- ▫ For operation of the display programme switch DPS, see chapter 29.4 “Display programme switch DPS”, p. 94.
- ▫ For operation of the service terminal ST220, see chapter 29.1 “Service terminal ST220”, p. 75.

The status of the drive to which the ST220 is connected is displayed. With 2-leaf systems, the status of the active leaf is displayed.

- ▶ Press the ↵ key.
- ▶ Select "Active leaf para" or "Passive leaf para" using the ▲ or ▼ key and press the ↵key.
- ▶ In the selection menu, select “Signals” using the push buttons ▲ or ▼ and press the ↵ push button.

For further settings, see the descriptions below.
The wall blanking area of the SIO safety sensor is set automatically during the teach-in operation.
If required, it can be changed with DPS or ST220 via the service menu, with

- ▫ Display programme switch: Set the *Ab* parameter to the desired wall blanking range (1°...99°).
- ▫ ST220: Set "Input signals", "SI3 – terminal SIO1", "SI3 wall blanking area" to the desired value (1° to 99°).

5.1 Pair of safety sensor strips GC 338

EN 16005

- ▶ Note chapter 1.3 “Reference documents”, p. 7..
- ▶ Note chapter 31.2 “Accessories”, p. 110..

- ▫ The connector plug of the GC 338 interface has 6 poles. Terminal 6 is not occupied.
- ▫ For energy-related reasons, the Powerturn can switch the GC 338 automatically to standby mode as long as it is not required. In order to do so, the Powerturn must be equipped with firmware above V1.8.
- ▫ The "energy-saving mode" must be activated on the Powerturn and on the GC 338.
- ▫ Both operating modes are compliant with DIN EN 16005.

Standard operation

- ▶ Set DIP switch 3 (TST/SBY) on the GC 338 interface module to ON (Factory setting).
- ▶ Set the "Testing" parameters:
  - ▫ DPS: Set *tE* to *01* (testing with 24 V).
  - ▫ ST220: Set "Output signals", "Testing SI", "Testing SI" to "Testing with 24 V".

Energy-saving mode

SIS and SIO must be set to testing "Energy-saving mode". This setting extends the response time after the mode of operation has been changed.

- ▶ Set DIP switch 3 (TST/SBY) on the GC 338 interface module to OFF.
- ▶ Set the "Testing" parameters:
  - ▫ Display programme switch: *ET tE* to *03* (energy-saving mode).
  - ▫ ST220: Set “Output signals” and “SI testing” to “energy-saving mode”.

5.1.1 Monitoring closing and opening

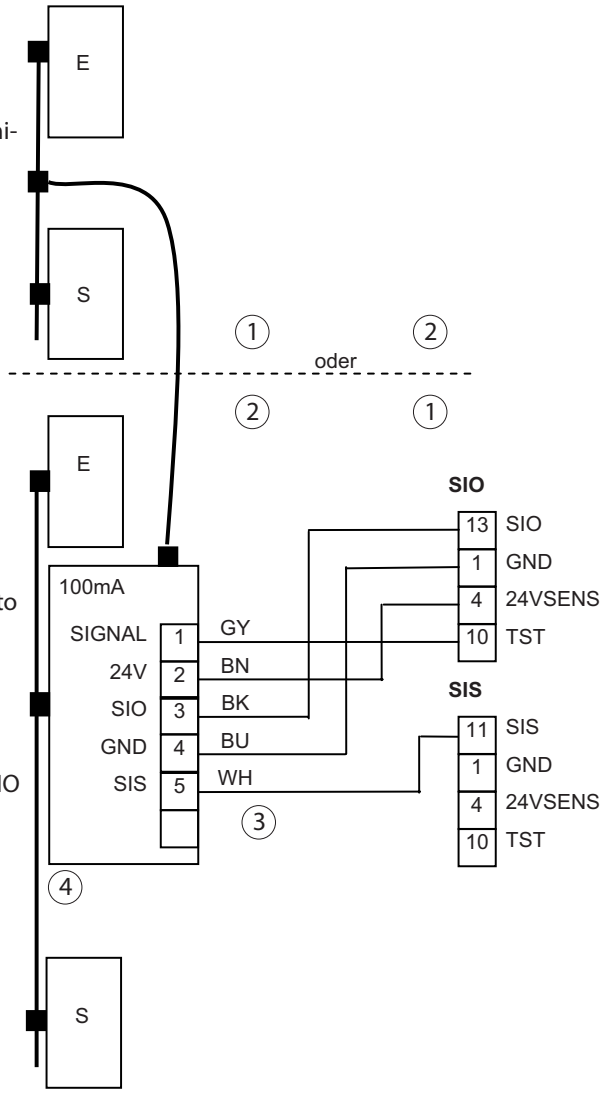
Standard operation

- ▶ Set the "Contact type" parameters;
  - ▫ DPS: Set *51* and *53* to *02* (normally closed contact) (factory setting).
  - ▫ ST220:Set the "Input signals", "SI1 – terminal SIS", "SI1 contact type" to "normally closed contact" and "SI3 – terminal SIO", "SI3 contact type" to "normally closed contact" (factory setting).

Energy-saving mode

- ▶ Set the "Contact type" parameters;
  - ▫ DPS: Set *51* and *53* to *03* (frequency).
  - ▫ ST220: Set “Input signals”, “SI1 – Terminal SIS” and “SI1 Contact type” to “Frequency”, and set “SI3 – Terminal SIO” and “SI3 Contact type” to “Frequency”.

- ▶ Set the "Function" parameters:
  - ▫ DPS: Set *F1* top the desired function and *F3* to *05* (SIO stop) or *06* (SIO stop SF GF).
  - ▫ ST220: Set the "Input signals", "SI1 – terminal SIS", "SI1 function" to the desired function and "SI3 – terminal SIO", "SI3 function" to "SIO stop" or "SIO stop SF GF".



1 Opposite hinge side
2 Hinge side
3 Door transmission cable
4 GC 338 interface module

5.1.2 Monitoring opening

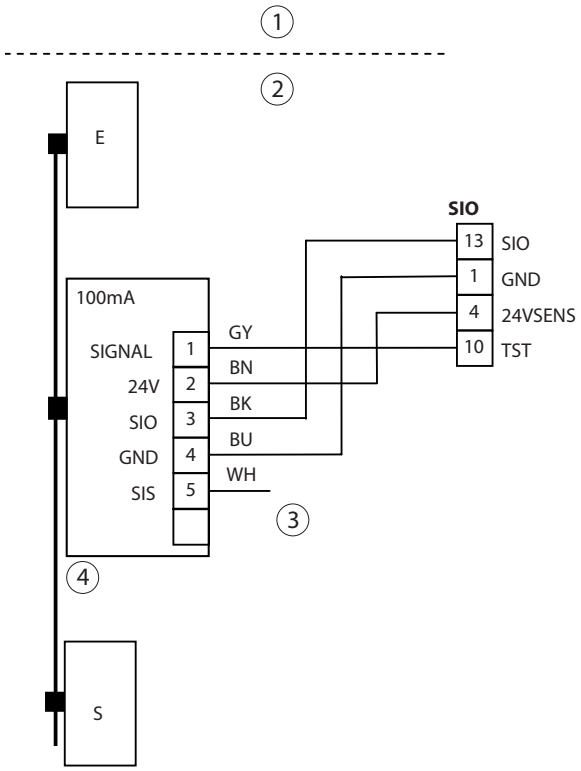
Standard operation

- ▶ Set the "Contact type" parameters:
  - ▫ Display programme switch: Set *53* to *02* (normally closed contact) (factory setting).
  - ▫ ST220: set “Input signals”, “SI3 – SIO terminal”, “SI3 contact type” to “normally closed” (factory setting).
  - ▫ S1, S2: Set parameter 9 to 02 (normally closed contact).

Energy-saving mode

- ▶ Set the "Contact type" parameters;
  - ▫ DPS: Set *53* to *03* (frequency).
  - ▫ ST220: Set “Input signals”, “SI3 – SIO terminal” and “SI3 contact type” to “Frequency”.

- ▶ Set the "Function" parameters:
  - ▫ DPS: Set *F3* to *05* (SIO stop) or to *06* (SIO stop SF GF).
  - ▫ ST220:Set the "Input signals", "SI3 – terminal SIO", "SI3 function" to "SIO stop" or "SIO stop SF GF".
  - ▫ S1, S2: Set parameter 10 to 05 (SIO stop) or 06 (SIO stop SF GF).



1 Opposite hinge side
2 Hinge side
3 Door transmission cable
4 GC 338 interface module

5.1.3 Monitoring closing

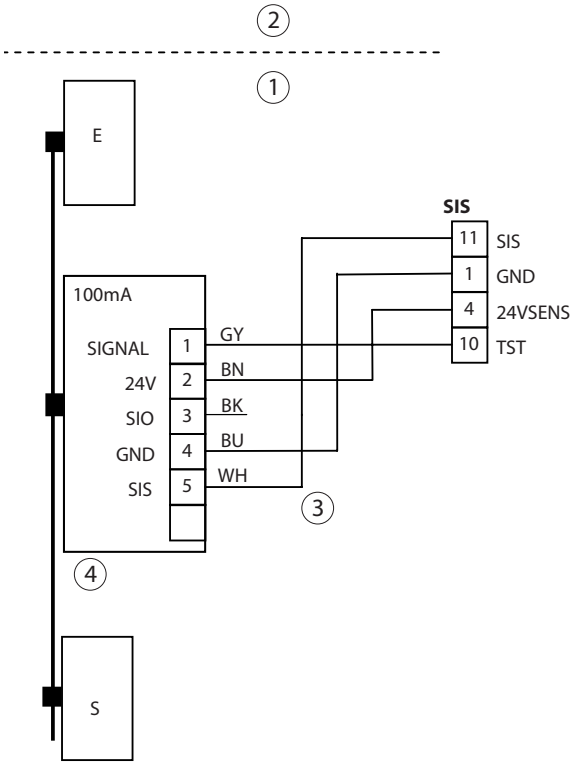
Standard operation

- ▶ Set the "Contact type" parameters:
  - ▫ DPS: Set *SI* to *02* (normally closed contact) (factory setting).
  - ▫ ST220:Set the "Input signals", "SI1 – terminal SIS", "SI1 contact type" to "normally closed contact" (factory setting).
  - ▫ S1, S2: Set parameter 7 to 02 (normally closed contact) (factory setting).

Energy-saving mode

- ▶ Set the "Contact type" parameters;
  - ▫ Display programme switch: *SI* set to *03* (frequency).
  - ▫ ST220: Set “Input signals”, “SI1 – SIS terminal” and “SI1 contact type” to “Frequency”.

- ▶ Set the "Function" parameters:
  - ▫ DPS: Set *FI* to the desired function.
  - ▫ ST220:Set the "Input signals", "SI1 – terminal SIS", "SI1 function" to the desired function.
  - ▫ S1, S2: Set parameter 8 to the desired function.



1 Opposite hinge side
2 Hinge side
3 Door transmission cable
4 GC 338 interface module

5.2 Sensor GC 334/GC 335

EN 16005

- ▶ Note chapter 1.3 “Reference documents”, p. 7..
- ▶ Note chapter 31.2 “Accessories”, p. 110..

5.3 Safety sensor GC 342

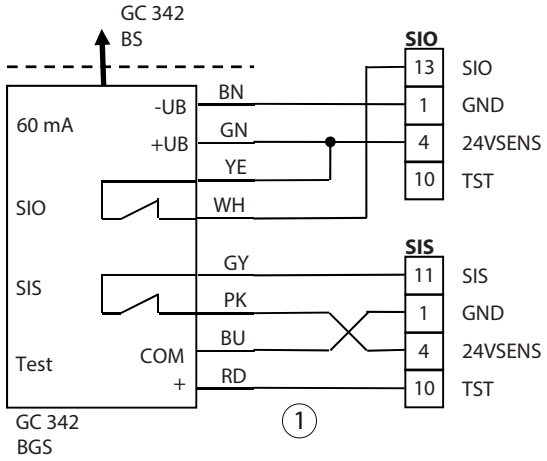
EN 16005

- ▶ Recommendation: Use the optional remote control to change the sensor settings.
- ▶ Note chapter 1.3 “Reference documents”, p. 7..
- ▶ Note chapter 31.2 “Accessories”, p. 110..

Sensor position

- ▶ Parameter setting DCU8.
  - ▫ Display programme switch: *ET tE* to *02* (test with GND).
  - ▫ ST220:Set "Output signals", "Testing SI" to "Testing with GND".

5.3.1 Monitoring closing and opening



1 Door transmission cable

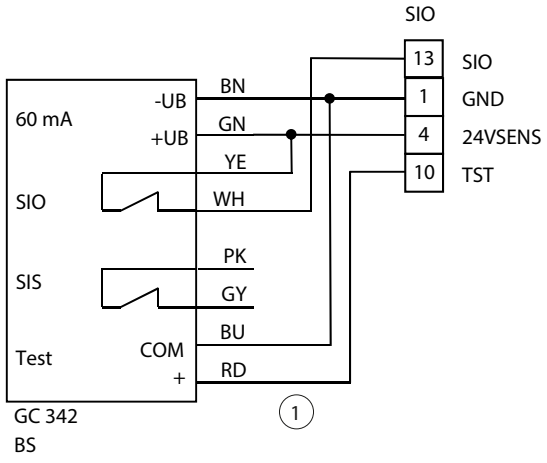
Settings GC 342

- ▶ Recommendation: Use the optional remote control to change the sensor settings.
- ▶ Note chapter 1.3 “Reference documents”, p. 7..
- ▶ Note chapter 31.2 “Accessories”, p. 110..

Settings DCU8

- ▶ Set the "Contact type" parameters:
  - DPS: Set *51* and *53* to *02* (normally closed contact) (factory setting).
  - ST220: Set “Input signals”, “SI1 – Terminal SIS”, “SI1 Contact type” to “normally closed” and “SI3 – Terminal SIO”, “SI3 Contact type” to “normally closed” (factory setting).
- ▶ Set the "Function" parameters:
  - DPS: Set *F1* to the desired function and *F3* to *05* (SIO stop) or *06* (SIO stop SF GF).
  - ST220: Set “Input signals”, “SI1 – Terminal SIS” and “SI1 Function” to the desired function, and set “SI3 – Terminal SIO” and “SI3 Function” to “SIO stop” or “SIO stop SF”.

5.3.2 Monitoring opening

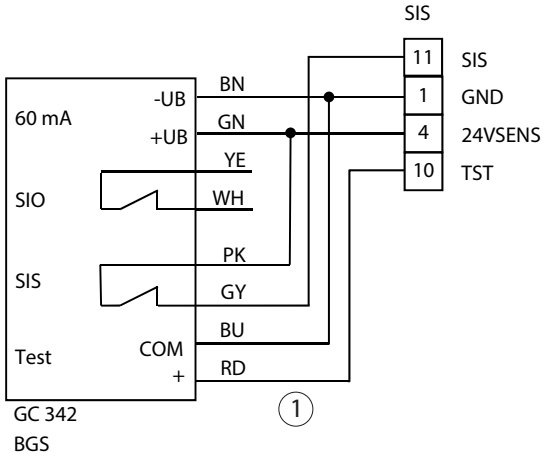


1 Door transmission cable

Settings DCU8

- ▶ Set the "Contact type" parameters:
  - DPS: Set *51* to *02* (normally closed contact) (factory setting).
  - ST220: Set the "Input signals", "SI3 – terminal SIO", "SI3 contact type" to "normally closed contact" (factory setting).
- ▶ Set the "Function" parameters:
  - DPS: Set *F3* to *05* (SIO stop) or *06* (SIO stop SF GF).
  - ST220:Set the "Input signals", "SI3 – terminal SIO", "SI3 function" to "SIO stop" or "SIO stop SF GF".

5.3.3 Monitoring closing



1 Door transmission cable

Settings DCU8

- Set the "Contact type" parameters:
  - DPS: Set *S1* to *02* (normally closed contact) (factory setting).
  - ST220:Set the "Input signals", "SI1 – terminal SIO", "SI1 contact type" to "normally closed contact" (factory setting).
- Set the "Function" parameters:
  - DPS: Set *F1* to the desired function.
  - ST220: Set “Input signals”, “SI1 – SIS terminal” and “SI1 function” to the desired function.

5.4 Safety sensor GC 342+

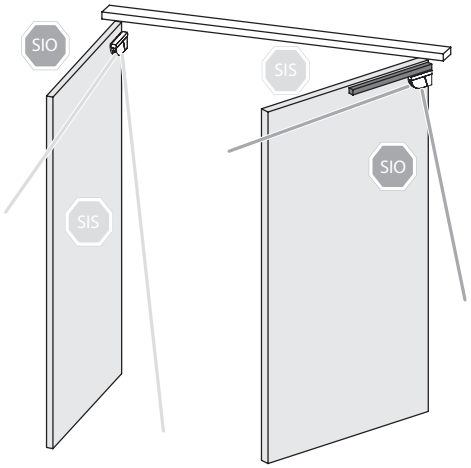
EN 16005

- Recommendation: Use the optional remote control to change the sensor settings.
- Note chapter 1.3 “Reference documents”, p. 7..
- Note chapter 31.2 “Accessories”, p. 110..

Sensor position

- To protect the door leaf and pinch zone, install one module in the top corner on both sides of the door leaf.

5.4.1 Monitoring opening and closing with activation

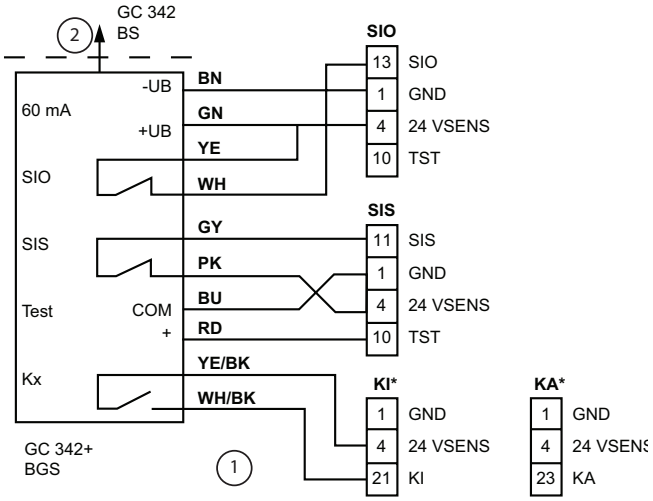




SIO-Signal (Sicherheit Öffnen) DIP 1 ON



SIS-Signal (Sicherheit Schließen) DIP 1 OFF



1 Door transmission cable
2 Door connection cable HS/OHS

Settings GC 342+

- ▶ Recommendation: Use the optional remote control to change the sensor settings.
- ▶ Note chapter 1.3 “Reference documents”, p. 7..
- ▶ Note chapter 31.2 “Accessories”, p. 110..

Settings DCU8

- ▶ Set type of contact KI resp. KA to "normally open contact".
- ▶ Set type of contact for SIS resp. SIO to "normally closed contact".
- ▶ Set testing SI to "Testing with GND".
- ▶ Set the "Contact type" parameters:
  - ▫ DPS: Set *51* and *53* to *02* (normally closed contact) (factory setting).
  - ▫ ST220:Set the "Input signals", "SI1 – terminal SIS", "SI1 contact type" to "normally closed contact" and "SI3 – terminal SIO", "SI3 contact type" to "normally closed contact" (factory setting).
- ▶ Set the "Function" parameters:
  - ▫ DPS: Set *F1* to the desired function and *F3* to *05* (SIO stop) or *06* (SIO stop SF GF).
  - ▫ Set the "Input signals", "SI1 – terminal SIS1", "SI1 function" to the desired function and "SI3- terminal SIO", "SI3 function" to "SIO stop" or "SIO stop SF GF".

- ▶ Set the "Contact type KI" parameters
  - ▫ DPS: Set CI to 01 (factory setting).
  - ▫ ST220: Set the "Signals", "Input signals", "KI" and "KI contact type" to "normally open contact" (factory setting).
- ▶ Set the "Contact type KA" parameters:
  - ▫ DPS: Set Co to 01 (factory setting).
  - ▫ ST220: Set the "Signals", "Input signals", "KA", "KA contact type" to "normally open contact" (factory setting).
- ▶ Set the "Testing" parameter.
  - ▫ DPS: Set tE to 02 (test with GND).
  - ▫ ST220:Set "Output signals", "Testing SI" to "Testing with GND".

6 Mechanical contact

- The input KB is active in the modes of operation AU, LS and NA.
- For 2-leaf systems, the mechanical contact can be connected to the active leaf control or to the passive leaf control.
- When activated, the active leaf opens and, if switched on, the passive leaf opens.
- During activation, the output of the mechanical contact is closed, 24 V are applied at the KB input (normally open contact). Parameters set as a normally closed contact must have 0 V applied on activation.

The status of the drive to which the ST220 is connected is displayed. With 2-leaf systems, the status of the active leaf is displayed.

▶ Press the ↵ key.

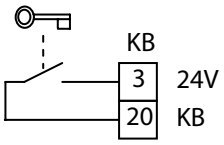
▶ Select "Active leaf para" or "Passive leaf para" using the ▲ or ▼ key and press the ↵key.

For further settings see the descriptions below:

- Set the "Contact type" parameters:
  - With DPS: Set C6 to 01 (normally open contact) or to 02 (normally closed contact).
  - With ST220: Set “Signals”, “Input signals”, “Mechanical contacts” and “Mechanical contact type” to “normally open” or “normally closed” respectively.

6.1 Key switch

- Set the parameter "Contact type" with
  - DPS: Set C6 to 01 (factory setting).
  - ST220: Set the "Signals", "Input signals", "KB", "KB contact type" to "normally open contact" (factory setting).
- SCT key switch, single-pole, flush-mounted, AS500 without Euro profile half cylinder



7 Contact sensor inside

- The input KI is active in the modes of operation AU and LS.
- In the case of 2-leaf systems the contact sensor inside can be connected to the active leaf control or to the passive leaf control.
- When activated, the active leaf opens and, if switched on, the passive leaf opens.

The status of the drive to which the ST220 is connected is displayed. With 2-leaf systems, the status of the active leaf is displayed.

▶ Press the ↵ key.

▶ Select "Active leaf para" or "Passive leaf para" using the ▲ or ▼ key and press the ↵key.

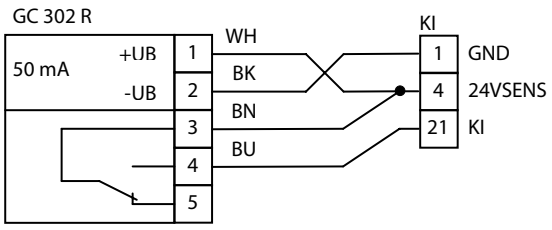
For further settings see the descriptions below:

- The sensor for monitoring closing can also be used as a contact sensor inside.
- Set the parameters with:
  - DPS: Set *F1* to *03*.
  - Set the "Signals", "Input signals", "SI1 – terminal SIS1", "SI1 function" to "SIS and KI".
- An activation delay time can be set for the input KI. This time is added to the general activation delay time (opening delay).
- Set the parameters with:
  - DPS: Set *tA* to the desired delay time (0 s … 9 s).
  - ST220: Set "Signals", "Input signals", "AI", "AI Delay" using the push buttons ▲ or ▼ to the desired delay time (0 s … 9 s) and press the ↵ push button.

7.1 Radar movement detector GC 302 R

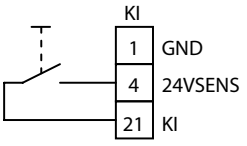
▶ Note chapter 1.3 "Reference documents", p. 7..
▶ Note chapter 31.2 "Accessories", p. 110..

- On activation, the output of the GC 302 R is closed (24 V applied to the KI input).
- Set the parameter "Contact type" with
  - DPS: Set *CI* to *01* (factory setting).
  - ST220: Set the "Signals", "Input signals", "KI" and "KI contact type" to "normally open contact" (factory setting).
- The GC 302 R is a direction-sensitive radar movement detector.



7.2 Push button (potential-free normally open contact)

- Set the parameter "Contact type" with
  - DPS: Set *CI* to *01* (normally open contact) (factory setting).
  - ST220: Set the "Signals", "Input signals", "KI" and "KI contact type" to "normally open contact" (factory setting).

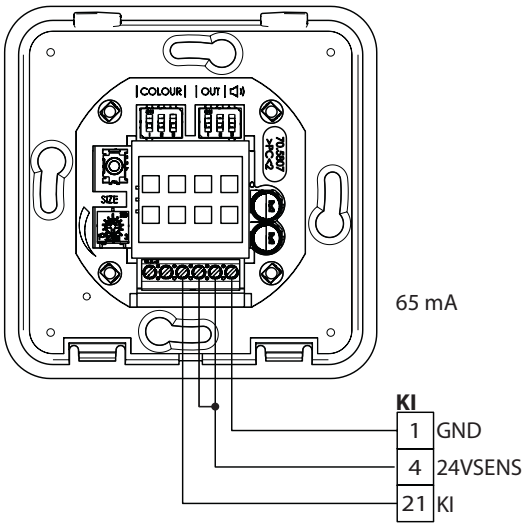


7.3 Non-contact activation sensor GC 307+

- ▶ Note chapter 1.3 “Reference documents”, p. 7..
- ▶ Note chapter 31.2 “Accessories”, p. 110..

The GC 307+ is a non-contact activation sensor with a range of 10...60 cm, for manual activation.

- ▶ Set the parameter "Contact type" with
  - DPS: Set *CI* to *0 1* (normally open contact) (factory setting).
  - ST220: Set the "Signals", "Input signals", "KI" and "KI contact type" to "normally open contact" (factory setting).

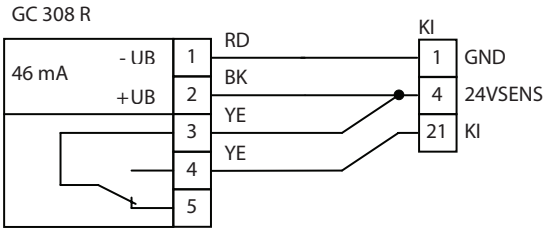


7.4 Radar movement detector GC 308 R

- ▶ Note chapter 1.3 “Reference documents”, p. 7..
- ▶ Note chapter 31.2 “Accessories”, p. 110..

The GC 308 R is a radar sensor that has been designed for use as an opening pulse generator on automatic doors. Due to the Doppler effect, the sensor detects movements, whereby a distinction is made between approach and distance to the detector. Mutual interference between several sensor systems with dangerous effects is not possible.

- ▶ Set the parameter "Contact type" with
  - DPS: Set *CI* to *0 1* (normally open contact) (factory setting).
  - ST220: Set the "Signals", "Input signals", "KI" and "KI contact type" to "normally open contact" (factory setting).



- ▫ On activation, the output of the GC 308 R is closed (24 V applied to the KI input).

8 Contact sensor outside

▶ Note chapter 1.3 “Reference documents”, p. 7..
▶ Note chapter 31.2 “Accessories”, p. 110..

- The input contact sensor outside is only active in the AU operating mode.
- In the case of 2-leaf systems the contact sensor outside can be connected to the active leaf control or to the passive leaf control.
- When activated, the active leaf opens and, if switched on, the passive leaf opens.

The status of the drive to which the ST220 is connected is displayed. With 2-leaf systems, the status of the active leaf is displayed.

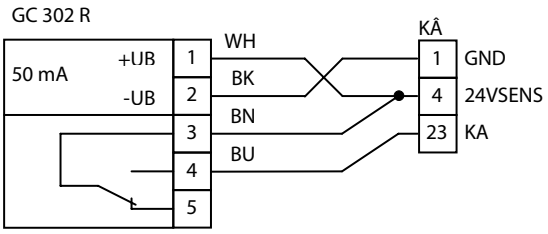
▶ Press the ↵ key.
▶ Select "Active leaf para" or "Passive leaf para" using the ▲ or ▼ key and press the ↵key.

For further settings see the descriptions below:

- The sensor for monitoring closing can also be used as a contact sensor outside.
- Set the parameters with:
  - DPS: Set *F1* to *04*.
  - Set the "Signals", "Input signals", "SI1 – terminal SIS1", "SI1 function" to "SIS and KA".
- An activation delay time can be set for the input KA. This time is added to the general activation delay time (opening delay).
  Set the parameters with:
  - DPS: Set *AA* to the desired delay time (0 s … 9 s).
  - ST220: Set “Signals”, “Input signals”, “KA”, “KA delay” using the push buttons ▲ and ▼ respectively to the desired delay time (0 s … 9 s) and press the ↵ push button.

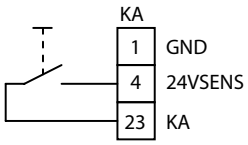
8.1 Radar movement detector GC 302 R

- For information see GC 302 R (KI).
- On activation, the output of the GC 302 R is closed (24 V applied to the KA input).
- Set the "Contact type" parameters with:
  - DPS: Set *Co* to *01* (factory setting).
  - ST220: Set the "Signals", "Input signals", "KA", "KA contact type" to "normally open contact" (factory setting).



8.2 Push button (potential-free normally open contact)

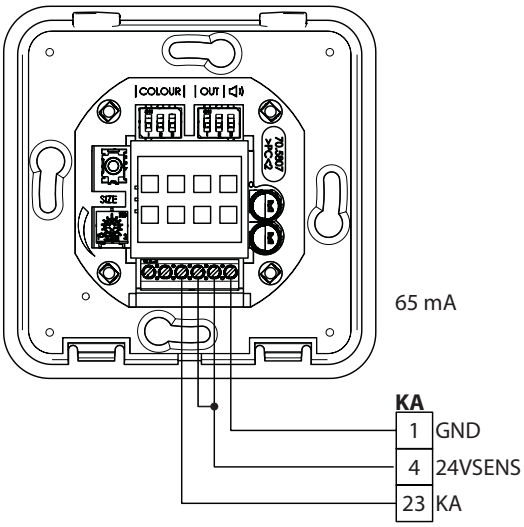
- For information see push button (KI).
- Set the "Contact type" parameters with:
  - DPS: Set Co to 01 (factory setting) .
  - ST220: Set “Signals”, “Input signals”, “KA” and “KA contact type” to “normally open contact” (factory setting).



8.3 Non-contact activation sensor GC 307+

The GC 307+ is a non-contact activation sensor with a range of 10...60 cm, for manual activation.

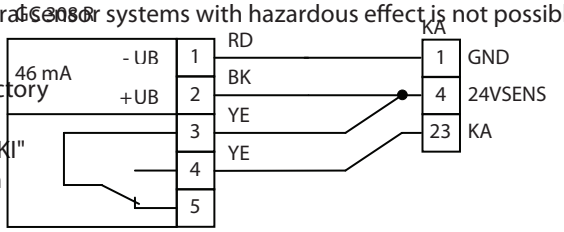
▶ Set the parameter "Contact type" with
- DPS: Set Co to 01 (factory setting) .
- ST220: Set the "Signals", "Input signals", "KA" and "KA contact type" to "normally open contact" (factory setting).



8.4 Radar movement detector GC 308 R

The GC 308 R is a radar sensor that has been designed for use as an opening pulse generator on automatic doors. Due to the Doppler effect, the sensor detects movements, whereby a distinction is made between approach and distance to the detector. The mutual influence of several sensor systems with hazardous effect is not possible.

▶ Set the parameter "Contact type" with
- DPS: Set CI to 01 (normally open contact) (factory setting).
- ST220: Set the "Signals", "Input signals", "KI" and "KI contact type" to "normally open contact" (factory setting).

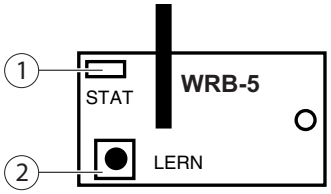


- On activation, the output of the GC 308 R is closed (24 V applied to the KA input).

9 Radio control

▶ Note chapter 1.3 “Reference documents”, p. 7..
▶ Note chapter 31.2 “Accessories”, p. 110..

- Radio reception board WRB-5
- 1-channel remote control WTH-1
- 2-channel remote control WTH-2
- 4-channel remote control WTH-4
- Transmitting module WTM

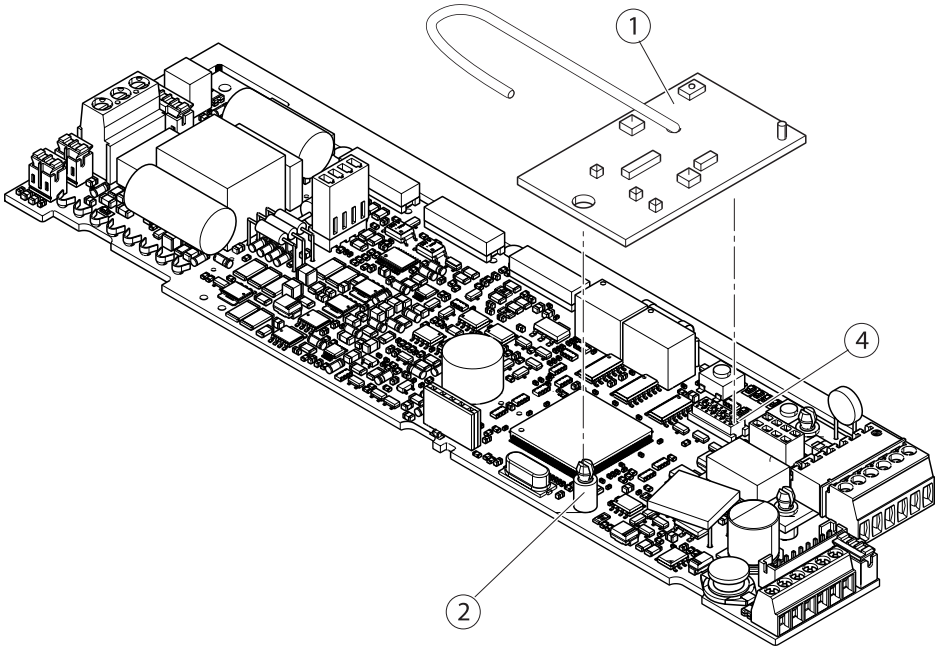


1 Status LED
2 Teach button

- The radio reception board WRB-5 can optionally be plugged onto the DCU800 control.
- The receiving module has the two channels FK1 and FK2.
- The keys on the remote control can be taught separately using the teach button on the receiving module.
- A maximum of twelve transmitters can be stored per channel in the memory of the receiver.

9.1 Plug the radio reception board WRB-5 into the control circuit board DCU800

Only plug the radio reception board WRB-5 onto the control DCU800 in the de-energised state.



▶ Press spacer (2) onto the control circuit board DCU800 (3).
▶ Set the radio reception board WRB-5 (1) onto spacer (2) and connector strip (4).
▶ Move the aerial to the right position, see illustration.

9.2 Radio channels

Radio channel 1
The function of the radio channel FK 1 depends on how long the assigned key is pressed.
- < 5 seconds: Functions as a contact sensor input KI
- > 5 seconds, in AU or LS mode of operation: the control system switches to DO mode of operation. After pressing the push button again briefly: the control returns to AU mode of operation.

Radio channel 2
The function of the radio channel FK 2 is identical to that of activation input KB.

10 Push And Go

WARNING
Danger of injury due to crushing and shearing!
- ▶ During an activated Push And Go function door handles can form potential danger points. Use safety sensors.

- The Push And Go function allows activation of the drive without contact sensors being used.
- When the Push And Go function is set, the drive opens the door automatically as soon as the door leaf is moved manually out of the closing position.
- The opening angle for use of the automatic opening function can be set (1...20 %; if the max. opening width is 100 %).
- For convenient use, the opening time should not be set to the minimum value.

If the opening angle is too small, the door may open automatically.
According to EN 16005, the door must be marked when this function is used.

- For operation of the display programme switch DPS, see chapter 29.4 “Display programme switch DPS”, p. 94.
- For operation of the service terminal ST220, see chapter 29.1 “Service terminal ST220”, p. 75.

The status of the drive to which the ST220 is connected is displayed. With 2-leaf systems, the status of the active leaf is displayed.
- ▶ Press the ↵ key.
- ▶ Select "Active leaf para" or "Passive leaf para" using the ▲ or ▼ key and press the ↵key.

For further settings see the descriptions below:
- Set the parameters with:
  - DPS: Set *Pu* to the desired opening range (1-20) to start the automatic opening function
    or
    set *Pu* to *00* to disable the function.
    Set *OP* to the desired hold-open time with "Push And Go" (0 – 60 s).
  - ST220: Set “Motion parameters”, “Push & Go” using the push buttons ▲ or ▼ to the opening range (1–20) for the start of the automatic opening function, or set “Push & Go” to 0 to deactivate the function.
    Set the "Movement parameters", "Hold-open times", "Push And Go" to the desired hold-open time (0 – 60 s).

11 Configurable inputs

- Various special functions are assigned to the configurable inputs PE1, PE2 and PE3, see chapter 29 “Service menu”, p. 75.. The type of contact required for the desired function can be found in chapter 29.6 “DPS service menu and service buttons S1/S2 with LEDs”, p. 96. or chapter 29.3 “Service menu ST220”, p. 76..
- The configurable input PE1 is a pure binary input which is only suitable for the connection of normally open or normally closed contacts - not however for the connection of the analogue programme switch MPS.
- The configurable inputs PE2 and PE3 are analogue inputs which are suitable for the connection of normally open or normally closed contacts as well as for the connection of the analogue programme switch MPS, see chapter 16 “Mode of operation”, p. 47.
- For operation of the display programme switch DPS, see chapter 29.4 “Display programme switch DPS”, p. 94.
- For operation of the service terminal ST220, see chapter 29.1 “Service terminal ST220”, p. 75.

The status of the drive to which the ST220 is connected is displayed. With 2-leaf systems, the status of the active leaf is displayed.

▶ Press the ↵ key.
▶ Select "Active leaf para" or "Passive leaf para" using the ▲ or ▼ key and press the ↵key.
▶ Select "Signals", "Input signals" and press the ↵key.

For further settings see the description below:

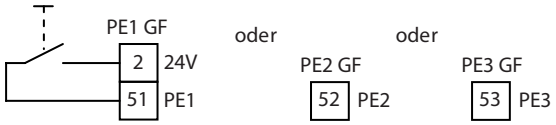
- Set the parameters with:
  - DPS: Set E1, E2 or E3 to the desired function.
  - ST220: Set “PE1”, "PE1 function", "PE2", "PE2 function" or "PE3", "PE3 function" to the desired function.

11.1 MPS

See chapter 16.1 “Programme switches”, p. 47.. An MPS can only be connected to PE2 and PE3.

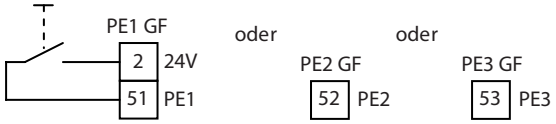
11.2 2-leaf opening and 1-leaf opening

- The configurable inputs of the active leaf control can be used to change between the operating modes 2-leaf opening or 1-leaf opening as required (depending on the parameter setting). This can, for example, be advisable if the type of opening is switched by a timer via the available programme switching inputs (NA, LS, AU, DO).
- The change in the type of opening is not possible if the analogue programme switch MPS is connected since this specifies "2-leaf opening" or "1-leaf opening" in a fixed way.
- Set the parameters with:
  - DPS: Set E1, E2 or E3 to 03 (switchover summer) or 04 (switchover winter).
  - ST220: Set “PE1 function”, “PE2 function” or “PE3 function” to “2-leaf opening” (summer mode) or “1-leaf opening” (winter mode).



11.3 Sabotage

- The configurable input PE1, PE2 or PE3 can be used for connection of an alarm contact which can serve to monitor a closed (key switch) housing. In the case of the closed housing, the contact is closed and 24 V is applied to the input PE1, PE2 or PE3. When the alarm contact opens, 0 V is applied to the input PE1, PE2 or PE3. In this case, the door remains closed and locked.
  If the contact is interrupted, KB is not analysed in the NA, LS, AU operating mode. All other functions remain the same. Then acknowledgement must be made (close alarm contact, delete error or by changing mode of operation).
- Set the parameters with:
  - Display programme switch: Set E1, E2 or E3 to 05 (sabotage).
  - ST220: Set “PE1 function”, “PE2 function” and “PE3 function” to “Sabotage NC”.



11.4 Closing position active leaf

Feedback from a door contact attached in the closing position, connected to PE1, PE2, or PE3.
The door contact closes as soon as the door leaf has reached the closing position (active leaf).

- Set the parameters with:
  - Display programme switch: Set E1, E2 or E3 to 06 (active leaf door closer closed position).
  - ST220: Set “PE1 function”, “PE2 function” or “PE3 function” to “Active leaf closed position”.

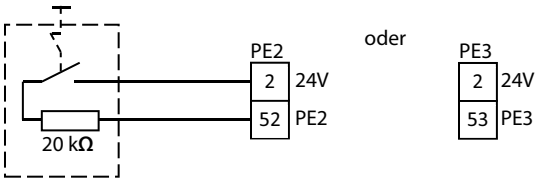
11.5 Emergency lock

WARNING
Danger of injury due to crushing and shearing!
Safety sensors and obstructions are not analysed. The door closes with the set force.
▶ If the door closes suddenly, step out of the danger zone.

Not permitted for rebated doors and escape routes.
Only the use of a configurable input is permitted.

- The configurable inputs PE2 and PE3 can be used to connect an emergency interlock switch.
- When the emergency lock switch is activated, the contact is closed and 17.83 V is applied to the input PE2 or PE3. Contact sensors KA, KI and KB, safety sensors SIS and SIO as well as obstruction detection are hidden. Permanent open operating mode is cancelled. The door closes and locks. The function requires a 20 kOhm terminating resistor for proper function.
- The door remains closed as long as the emergency lock signal is applied to the input.
- Set the parameters with:
  - Display programme switch: Set E2 or E3 to 07 (emergency lock 20 kΩ).
  - ST220: Set “PE2 function” or “PE3 function” to “Emergency lock 20 kΩ NO”.

EN 16005



11.6 Additional contact sensors (P-KI, P-KA)

- The configurable inputs can be used to connect additional normally open contacts as contact sensors inside or contact sensors outside.
- Set the parameters with:
  - DPS: Set E1, E2 or E3 to 08 (contact sensor inside) or to 09 (contact sensor outside).
  - ST220: Set "ST220 function", "PE2 function" or "PE3 function" to "P-KI actuation NO" or "P-KA actuation NO".
- See chapter 7 “Contact sensor inside”, p. 22. or chapter 8 “Contact sensor outside”, p. 24. for more information
- The contact sensors can either be connected to terminal 2 (24 V) or terminal 4 (24 VSens).

11.7 Switch functions

11.7.1 General points

- On activation, the output of the push button is closed (24 V applied to the PE1 or PE2 input).
- For double-leaf systems, the push button can be connected to the active leaf control or the passive leaf control.
- ▶ Set the hold-open time on the active leaf control.
- If the push button is connected to the passive leaf control, both door leaves open when the switch function is activated, even if the "1-leaf" electric strike of operation is set. The 'Automatic' operating mode must be set on the passive leaf.

11.7.2 Switch function

1st switch contact = open door / 2nd switch contact = close door.
If there is no second push-button contact, the door remains open until the operating mode is switched.
With a double-leaf operator, the opening is double-leaf if the push-button is connected to the SF operator.

DPS

▶ Set *E1* or *E2* to *10*.

ST220

▶ Set "PE1", "PE1 function" or "PE2", "PE2 function" to "Push button NO".

11.7.3 Switch function OHZ

In the case of 2-leaf drives, the settings on the active leaf control determine the hold-open time.

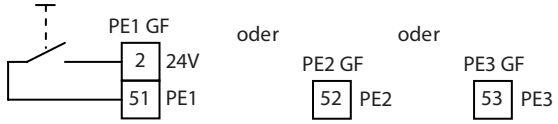
DPS

▶ Set *E1* or *E2* to *11* for:
1st switch contact = open door / 2nd switch contact = close door
If the SIO is triggered before the hold-open time or the 2nd switch contact is activated, the hold-open time runs and is not cancelled by the 2nd switch contact.
After expiry of the hold-open period at the latest

- *oH* for 2-leaf drive and 2-leaf opening type if the push button is connected at the SF drive.
- *or* for 1-leaf drive or with 2-leaf drive and opening type 1-leaf if the push button is connected at the GF drive.

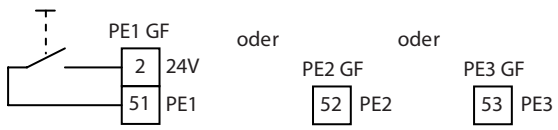
ST220

Set "PE1", "PE1 function" or "PE2", "PE2 function" to "Push button hold-open time NO" for:
1st switch contact = open door / 2nd switch contact = close door
The door closes at the latest after the hold-open time has expired.



11.8 Control unit reset

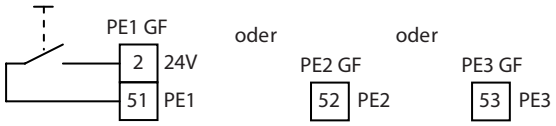
- The control unit can be restarted via the configurable inputs. After pressing the button, the drive behaves in the same way as after switching on the mains voltage.
- Set the parameters with:
  - DPS: Set *E1*, *E2* or *E3* to *13* (reset switch).
  - ST220: Set "PE1 function", "PE2 function" or "PE3 function" to "Emergency lock NO".



11.9 Double push button (1-leaf/2-leaf door opening)

In the case of 2-leaf drives the door can open via the configurable inputs of the active leaf control in 1-leaf or 2-leaf mode as desired by pressing a button if the "1-leaf opening" operating mode setting is active. If the push button is pressed once, only the active leaf opens and closes after the 1-leaf hold-open time has expired. With two successive push button activations within 1.5 s open active leaf and passive leaf and close after the hold-open time 2-leaf has expired.
Set the parameters with:

- DPS: Set E1, E2 or E3 to 14 (double push button).
- ST220: Set “PE1 function”, “PE2 function” or “PE3 function” to “double-push button”.



11.10 STOP

Configurable inputs PE1, PE2 and PE3 can be used for connection of a stop push button or safety edge. The inputs PE2 and PE3 can also be evaluated in the same way.

- When activated, the door leaf stops (both in the case of double-leaf systems) and remains stationary as long as the input is active.
- For double-leaf systems, the stop button can be connected to the active leaf control or to the passive leaf control.
- For operation of the display programme switch DPS, see chapter 29.4 “Display programme switch DPS”, p. 94.
- For operation of the service terminal ST220, see chapter 29.1 “Service terminal ST220”, p. 75.

The status of the drive to which the ST220 is connected is displayed. With 2-leaf systems, the status of the active leaf is displayed.

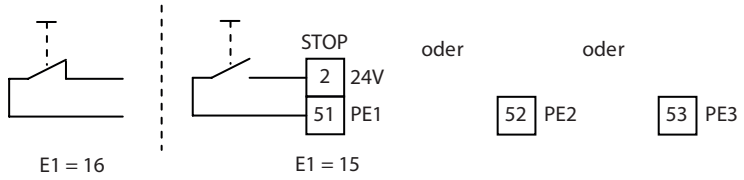
► Press the ↵ key.
► Select "Active leaf para" or "Passive leaf para" using the ▲ or ▼ key and press the ↵key.

For further settings see the description below:

~~EN 16005~~

For PE1, PE2, PE3:

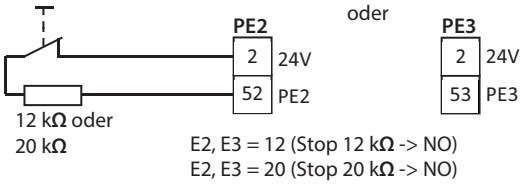
- Set the "Contact type" parameters with:
  - DPS: Set E1, E2 or E3 to 15 (normally open contact, not monitored) or to 16 (normally open contact, not monitored).
  - ST220: Set “Signals”, “Input signals”, “PE1 function”, “PE2 function” or “PE3 function”, “Stop normally open contact”, “Stop normally closed contact”.



EN 16005

For PE2 or PE3:

- In order to ensure protection of persons as specified in EN 16005, a terminating resistor 12 k or 20 k must be connected to monitor the input. The terminating resistor must be connected directly to the switch contact.
- Set the "Contact type" parameters with:
  - DPS: E2 or E3 to 12 or 20.
  - ST220: Set “Signals”, “Input signals”, “PE2” or “PE3”, “PE2 function” or “PE3 function” to “Stop 12 kOhm” or “Stop 20 kOhm”.



11.11 Closing position detection

11.11.1 Closing position door leaf (active leaf drive, passive leaf drive)

Feedback from a door contact attached in the closing position, connected to PE1, PE2, or PE3 of the control. The door contact closes once the door leaf associated with the drive has reached the closed position.
Set the parameters with

- DPS: Set *E1*, *E2* or *E3* to *06* (closing position GF).
- ST220: Set “PE1 function”, “PE2 function” or “PE3 function” to “Closed position active leaf”.

11.11.2 detection passive leaf for 2-leaf doors with manual passive leaf

See chapter 17.1 “Powerturn IS/TS: automated active leaf, passive leaf with door closer”, p. 52. and chapter 18 “Powerturn F and Powerturn F/R on fire protection doors”, p. 54.

11.12 WC control

Connection of the internal push button for the WC function, refer also to chapter 15 “WC control”, p. 45.

11.13 Servo function with fire alarm

Refer also to chapter 28.2.1 „Servo-Funktion mit Zusatzmoment Servo-Brandalarm“, S. <?>.

11.14 1-leaf Open

With this function, a 2-leaf system in the setting type of opening "2-leaf opening" can have only 1 leaf opened with the connected activation device.

- The passive leaf must be switched on.
- On activation, the output of the activation device is closed (24 V applied to the PE1 or PE2 input).
- With 2-leaf systems the activation device must be connected to the active leaf control. Set the hold-open time on the active leaf control.
  (In the case of 2-leaf drives, the settings on the active leaf control determine the hold-open time)

DPS
Set *E1* or *E2*
▶ Set to *23*.
With a 2-leaf drive, the opening is single-leaf if the control element is connected to the active leaf control.
▶ Set *or* on the active leaf control.

ST220
Set "PE1", "PE1 function" or "PE2", "PE2 function"
▶ Set to ‘Open 1-leaf’ for control element on active leaf.
The door closes at the latest after the hold-open time has expired.
▶ Set hold-open time 1-leaf (winter) on the active leaf control unit.

11.15 Suppression of the safety sensors

When a signal is applied to PE 2 or PE 3, the connected safety sensors are not evaluated. The signal usually comes from a central fire alarm system. The function can be used for the doors on rescue routes. The door then opens automatically in the event of a fire and is not prevented opening and closing by smoke near the sensors.

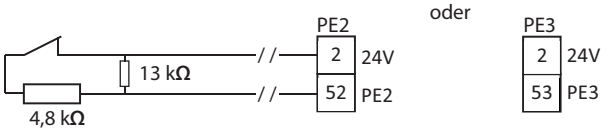
- This function is only available for 1-leaf doors.
- Only manually operated activation devices, which do not react to smoke or heat, are permitted (such as push buttons).
- When the function is active, the door drive moves at safe speed and displays the message "09" on the DPS.
- If a smoke switch control unit or lintel-mounted smoke switch are connected, this function is only available up to a smoke alarm.

▶ Implement line monitoring so that the function is not triggered by a fault (e.g. line short-circuit). Attach the resistors directly at the signal output of the fire alarm system.

With this function, the door can also move without safety sensors:

▶ Carry out a risk analysis on site.

▶ Assess the residual risk of crushing, shearing and impact.



- Contact closed = normal operation, safety sensors are evaluated.
- Contact opened = function active, safety sensors are not evaluated.
- Line fault (short circuit, line break) = normal operation safety sensors are evaluated.

Set the parameters with:

DPS

E2 or *E3*

▶ Set to *29*.

ST220

"PE2 function" or "PE3 function"

▶ Set to "Fire alarm without SI".

12 Configurable outputs

Various switching functions can be assigned to the configurable outputs PA1 and PA2, see chapter 29 “Service menu”, p. 75.

- For operation of the display programme switch DPS, see chapter 29.4 “Display programme switch DPS”, p. 94.
- For operation of the service terminal ST220, see chapter 29.1 “Service terminal ST220”, p. 75.

The status of the drive to which the ST220 is connected is displayed. With 2-leaf systems, the status of the active leaf is displayed.

- ▶ Press the ↵ key.
- ▶ Select "Active leaf para" or "Passive leaf para" using the ▲ or ▼ key and press the ↵key.
- ▶ Select "Signals" and press the ↵key.

For further settings see the description below:
Set the parameters with:

- DPS: Set A1 or A2 to the desired function.
- ST220: Set "PA1", "PA1 function" or "PA2", "PA2 function" to the desired function.

12.1 Configurable output PA1

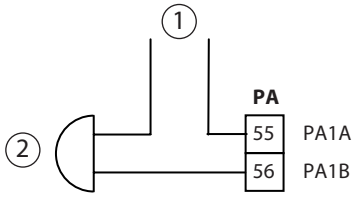
PA1 is a potential-free relay contact, switching voltage max. 24 V AC/DC, current 0.5 A.

12.1.1 Gong

The output is selected if KA or SIS (for a "SIS and KA" setting) is activated in the automatic only AU mode of operation.

- Set the parameters with:
  - DPS: Set A1 to 01 (Gong).
  - ST220: Set "ST220 function" to "Gong".

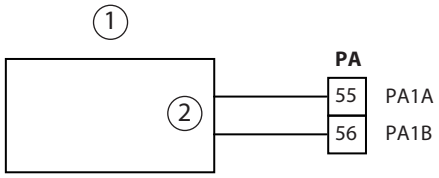
1 On-site power supply
max. 24 V/0.5 A AC/DC
2 On-site activator, e.g. gong or door bell



12.1.2 Fault

- The function is used for fault messages, e.g. to an on-site building control centre. The contact closes or opens if the control unit determines a fault, see chapter 30 “Fault messages”, p. 105.
- Set the parameters with:
  - DPS: Set A1 to 02 (Fault normally open contact) or to 03 (Fault normally closed contact).
  - ST220: Set “PA1 Function” to “Fault Normally Closed” or “Fault Normally Open”.

1 Building control centre (on-site)
2 Signal input



12.1.3 Fault indication for mechanical programme switch

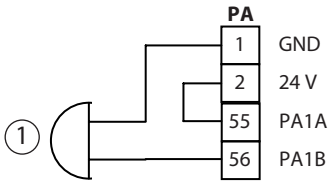
The function is used to switch the fault LED at the mechanical programme switch. The contact closes if the control unit determines a fault, see chapter 30 “Fault messages”, p. 105.. When maintenance is due, the output is switched cyclically and the fault LED on the MPS flashes.

- For connection see chapter 16.1 “Programme switches”, p. 47.
- Set the parameters with:
  - DPS: Set A1 to 04 (MPS fault).
  - ST220: Set “PA1 function” to “mechanical programme switch fault”.

12.1.4 Warning signal

- The function is used to switch an on-site activator on/off when the door is opened or closed.
- Maximum permitted total power consumption by the control unit.
- Set the parameters with:
  - DPS: Set A1 to 05 (warning signal).
  - ST220: Set “PA1 function” to “Warning signal”.

1 24 V DC activator supplied on the drive side



12.1.5 Electric strike

The electric strike function is not permitted if the drive is used for the fire protection area (Powerturn F, F/R, F-IS).

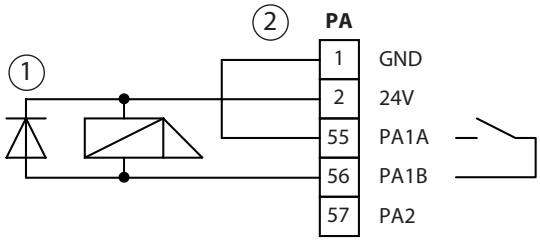
- An additional electric strike can be connected to the configurable output PA1 in addition to the electric strike connection (see chapter 13 “Electric strike/motor lock”, p. 41. The electric strike connection must be configured otherwise the function will not work on the PA.
- Maximum permitted total power consumption by the control unit.
- Set the parameters with:
  - DPS: Set A1 to 06 (Electric strike).
    Set to the electric strike type connected.
  - ST220: Set “PA1 Function” to “Electric strike”.
    Set "Electric strike type" to the electric strike type connected.

Alternative parameter setting with:

- DPS: Set A1 to 25 (fail-secure electric strike) or 26 (fail-safe electric strike).
- ST220: Set “PA1 Function” to “TOE fail-secure NO” or “TOE fail-safe NC”.

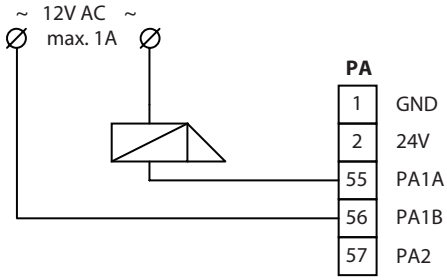
Drive-side supplied electric strike

1 Free swing diode 1N4007
2 Wire jumper



On-site supplied electric strike

- Contact load output PA1 with 12 V AC: max. 1 A



Bolt message (RM)
See chapter 13 “Electric strike/motor lock”, p. 41. “Electric strike/motor lock”, “Bolt message”.

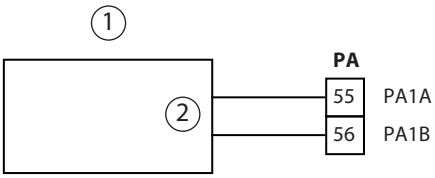
12.1.6 Door status message

- The function is used to signal the door status, e.g. to an on-site building control centre.
- Message function/door status:

08 Closed and locked
09 Closed
10 Not closed
11 Open
12 Off
13 Night mode
14 Exit only
15 Automatic
16 Hold open
18 Day/night mode changeover
20 Maintenance due (see chapter 12.1.9 “Maintenance due”, p. 37.)

- Set the parameters with:
  - DPS: Set *A I* to the desired message function.
  - ST220: Set "ST220 function" to the desired message function.

1 Building control centre (on-site)
2 Signal input

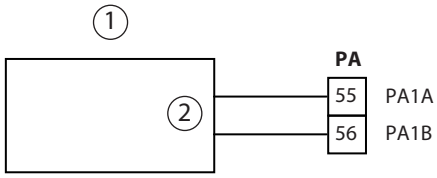


12.1.7 Light control

DANGER
Risk of fatal injury due to electric shock!
Danger of damage to the electrical control unit!
Output PA1 of the control unit cannot switch the illumination directly.
▶ Do not connect mains voltage to the PA1 output of the control unit.

- The function is used to activate a light controlling device which, for example, switches on the entry illumination as soon as a contact sensor (KI, KA, KB, SIS+KI, SIS+KA) is activated or the door is opened manually.
- Set the parameters with:
  - DPS: Set A1 to 17 (Light control).
  - ST220: Set “PA1 Function” to “Light Control”.

1 Light control system (on site)
2 Activation input



12.1.8 Day/night mode changeover

- The function is used to mode of operation to an on-site building control centre or for switching a motor lock to day mode operation.
  The output contact closes if the mode of operation LS, AU 1-leaf, DO, or AU 2-leaf or a motor lock is set.
- Set the parameters with:
  - DPS: Set A1 to 18 (mode of operation message "Day/night mode").
  - ST220: Set “PA1 Function” to “Day/Night Selector Switch”.
- Connecting a building control centre, see chapter 12.2.2 “Fault”, p. 38.

12.1.9 Maintenance due

- The function is used to signal that maintenance is due for the door drive to an on-site building control centre.
- Set the parameters with:
  - DPS: Set A1 to 20 (Maintenance due).
  - ST220: Set ‘PA1 Function’ to ‘Due for maintenance’.
- Connecting a building control centre, see chapter 12.1.2 “Fault”, p. 35.

12.1.10 Holding magnet GF / SF

For more detailed information on using a holding magnet see chapter “18 Powerturn F and Powerturn F/R on fire protection doors” on page 54.

12.1.11 WC time-out

For more detailed information about connecting a lamp or a signal to signal when the 30 min. timer has expired for the WC function, see chapter 15 “WC control”, p. 45.

12.2 Configurable output PA2

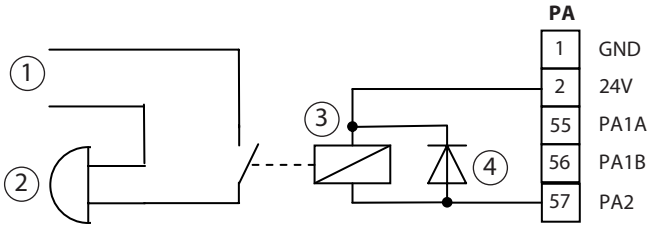
PA2 is a transistor output, switching voltage/current max. 24 V DC / 0.5 A.

12.2.1 Gong

The output is selected, if KA or SIS (for a "SIS and KA" setting) is activated.

- Set the parameters with:
  - DPS: Set A2 to 01 (Gong).
  - ST220: Set “PA2 function" to "Gong".

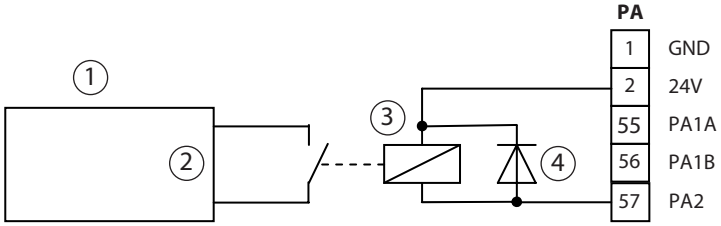
1 On-site power supply
2 Door gong
3 24 V relay
4 Free swing diode



12.2.2 Fault

- The fault function is used for fault messages, e.g. to an on-site building control centre.
- Set the parameters with:
  - Display programme switch: A2 set to 02 (faults – normally open contact) or to 03 (faults – normally closed contact).
  - ST220: Set “PA2 Function” to “Fault Normally Closed” or “Fault Normally Open”.
- The output switches to GND or locks as soon as the control detects a system fault. At the same time, the corresponding fault number is displayed on the DPS.
- ▶ A relay for galvanic isolation must be installed for forwarding the fault message (e.g. to a building management system).

1 Building control centre (on-site)
2 Signal input
3 24 V relay
4 Free swing diode



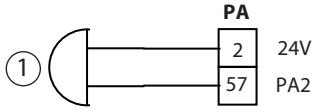
12.2.3 Fault indication for mechanical programme switch

- The function is used to switch the fault LED at the mechanical programme switch. The contact closes if the control unit determines a fault, see chapter 30 “Fault messages”, p. 105.
- For connection see chapter 16.1 “Programme switches”, p. 47.
- Set the parameters with:
  - Set display programme switch: A2 to 04 (mechanical programme switch faults).
  - Using ST220: Set “PA2 function” to “mechanical programme switch faults”.

12.2.4 Warning signal

- The function is used to cyclically switch an on-site activator on/off when the door is opened or closed.
- Set the parameters with:
  - Display programme switch: Set A2 to 05 (warning signal).
  - ST220: Set “PA2 function” to “Warning signal”.

1 24 V DC activator supplied on the drive side



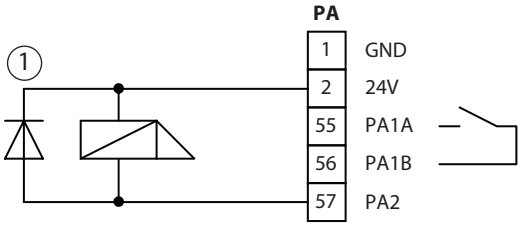
12.2.5 Electric strike

- The electric strike function is not permitted if the drive is used for the fire protection area (Powerturn F, F/R, F-IS).
- Only inductive DC electric strikes (without integrated electronics) may be connected to PA2. Electric strikes with integrated electronics must be connected to the configurable output PA1, see chapter 12.1.5 “Electric strike”, p. 35.

- The function is used to actuate an additional fail-secure or fail-safe electric strike, in addition to the electric strike connection (see chapter 13 “Electric strike/motor lock”, p. 41. The electric strike connection must be configured otherwise the function will not work at the PA.
- The contact closes or opens as soon as the door drive is actuated.
- Set the parameters with
  - DPS: Set A2 to 06 (Electric strike).
    Set to the electric strike type connected, see chapter 29.6 “DPS service menu and service buttons S1/S2 with LEDs”, p. 96.
  - ST220: Set “PA2 Function” to “Electric strike”.
    Set "Electric strike type" to the electric strike type connected, see chapter 29.3 “Service menu ST220”, p. 76.

Alternative parameter setting, see chapter 13 “Electric strike/motor lock”, p. 41.

1 Free swing diode 1N4007



Bolt message (RM)
See chapter 13 “Electric strike/motor lock”, p. 41. “Electric strike/motor lock”, “Bolt message”.

12.2.6 Door status message

- The function is used to signal the door status, e.g. to an on-site building control centre.
- Door modes:

08	Closed and locked	13	Night mode
09	Closed	14	Exit only
10	Not closed	15	Automatic
11	Open	16	Hold open
12	Off	20	Maintenance due

- Set the parameters with:
  - DPS: Set A2 to the desired message function.
  - ST220: Set “PA2 function" to the desired message function.
- Connection to a building control centre, see chapter 12.2.2 “Fault”, p. 38.

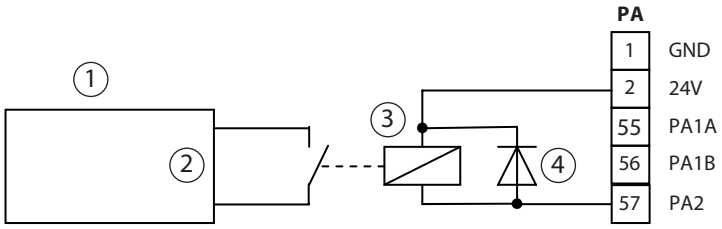
12.2.7 Day/night mode changeover

- The function is used to signal the day mode of operation to an on-site building control centre.
  The output switches to GND, if the mode of operation LS, AU 1-leaf, DO, or AU 2-leaf is set.
- Connect a 24 V DC relay as electrical isolation.
- Set the parameters with:
  - Display programme switch: SET A2 to 18 (operating mode signal “Day-Night”).
  - ST220: Set “PA2 Function” to “Day/Night Selector Switch”.
- Connection to a building control centre, see chapter 12.2.2 “Fault”, p. 38.

12.2.8 Maintenance due

- The function is used to signal that maintenance is due for the door drive to an on-site building control centre.
- Set the parameters with:
  - DPS: Set *A2* to *20* ("Maintenance due" message).
  - ST220: Set 'PA2 function' to 'Due for maintenance'.
- Connection to a building control centre, see chapter 12.2.2 "Fault", p. 38.

1 Building control centre (on-site)
2 Signal input
3 24 V relay
4 Free swing diode



12.2.9 Holding magnet GF / SF

For more detailed information on using a holding magnet see chapter "18 Powerturn F and Powerturn F/R on fire protection doors" on page 54.

12.2.10 WC time-out

To connect a lamp or a signal to signal when the 30 min. timer has expired for the WC function.

13 Electric strike/motor lock

▶ Note chapter 1.3 “Reference documents”, p. 7..
▶ Note chapter 31.2 “Accessories”, p. 110..

When the door drive is used for the fire protection area (Powerturn F, F/R), an electric strike may only be connected to the terminal TOE. The outputs PA1, PA2 are not permitted for this.

▶ Connect the electric strike of the active leaf to the active leaf control and the electric strike of the passive leaf to the passive leaf control.
- Potential-free relay contact, switching voltage/current max. 24 V AC/DC, 1 A.
- Use an electric strike with a duty rating of ED 100.
- For operation of the display programme switch DPS, see chapter 29.4 “Display programme switch DPS”, p. 94.
- For operation of the service terminal ST220, see chapter 29.1 “Service terminal ST220”, p. 75.

The status of the drive to which the ST220 is connected is displayed. With 2-leaf systems, the status of the active leaf is displayed.
▶ Press the ↵ key.
▶ Select "Active leaf para" or "Passive leaf para" using the ▲ or ▼ key and press the ↵key.

For further settings see the descriptions below:
- Set the parameter electric strike type with:
  - Display programme switch: Set *tø* to the desired electric strike type; see section 29.6 “DPS service menu and service buttons S1/S2 with LEDs”, p. 96.
  - ST220: Set “Door parameters” and “Electric strike type” to the desired type; see section 29.3 “Service menu ST220”, p. 76.
- Holding magnet MA 500 with counterplate for the magnetic locking of emergency exits.
- Motor lock with panic function GEZE IQ Lock EL for 1-leaf doors.
  The GEZE IQ Lock EL is a self-locking anti-panic motor lock with external control. Note the wiring diagram for motor lock IQ Lock EL.
  IQ Lock SecuLogic set
  (Motor lock PZ-perforated, complete, incl. face plate and strike plate, motor lock control, connection cable for control, reed contact as well as open drip loop)

Designation	Centres [mm]	Backset [mm]
IQ Lock EL 9235	92	35
IQ Lock EL 9240	92	40
IQ Lock EL 9245	92	45
IQ Lock EL 7255	72	55
IQ Lock EL 7265	72	65
IQ Lock EL 7280	72	80
IQ Lock EL 7210	72	100

- When a motor lock without bolt message is used, the parameters "Opening delay day" (time in which the motor lock can unlock before the drive opens the door; only applies in the automatic and exit only modes of operation) or "Opening delay night" (time during which the motor lock can unlock before the drive opens the door; only applicable in the night mode of operation) are set to give the motor lock time to unlock.
- Set parameter *dL* for delayed opening day or *dn* for delayed opening night mode with:
  - Display programme switch: Set *dL* to the required time (0 s … 9 s).
  - ST220: “Door parameters”, “Opening delay” day" or "Opening delay night" to the required time.

With parameters set for electric strike type "motor lock", the signal is activated up to the complete opening position and over the hold-open time. After the hold-open time has expired and of the door has closed by approx. 10°, the electric strike signal is deactivated.
With parameters set for electric strike type "fail-secure electric strike", the signal is activated up to approx. 20° opening or 8s plus the optional opening delay.

13.1 24V DC electric strike supplied on drive side

GEZE electric strikes for standard applications, doors with access control

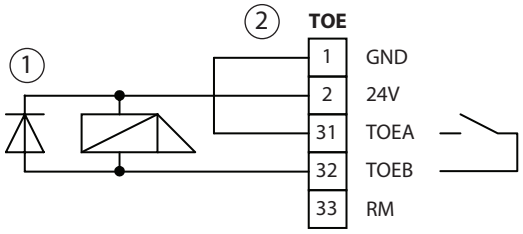
GEZE electric strike type	Mat. No.	Current consumption	Voltage	Functions
A5000--B	144590	200 mA (with 12 V) 100 mA (with 24 V)	Continuous operation: 12 or 24 V DC ±15 % Momentary operation: 12–48 V AC/DC	Fail-secure electric strike, standard applications, doors with access control
A5000-FB with lock latch guide	144632	200 mA (with 12 V) 100 mA (with 24 V)	Continuous operation: 12 or 24 V DC ±15 % Momentary operation: 12–48 V AC/DC	Fail-secure electric strike, standard applications, doors with access control
A5300--B	144631	200 mA (with 12 V) 100 mA (with 24 V)	Continuous operation: 12 or 24 V DC ±15 %	Fail-safe electric strike, standard applications
A5000--E	145182	200 mA (with 8–11 V) 50 mA (with 12-24 V)	Continuous operation: 8–28 V DC Momentary operation: 8–28 V AC/DC	Fail-secure electric strike, standard applications, opening under side-load with DC voltage
A5001--B with switch contact	145183	200 mA (with 12 V) 100 mA (with 24 V)	Continuous operation: 12 or 24 V DC ±15 % Momentary operation: 12–48 V AC/DC	Fail-secure electric strike, standard applications, doors with access control

GEZE electric strike for fire protection doors

GEZE electric strike type	Mat. No.	Current consumption	Voltage	Functions
FT500--B	144634	200 mA (with 12 V) 100 mA (with 24 V)	Continuous operation: 12 or 24 V DC ±15 % Momentary operation: 12–48 V AC/DC	Fail-secure electric strike, fire protection doors
FT501--E with switch contact	144647	200 mA (with 8–11 V) 50 mA (with 12-24 V)	Continuous operation: 8–28 V DC Momentary operation: 8–28 V AC/DC	Fail-secure electric strike, fire protection doors, opening under side-load with DC voltage

- Max. current consumption of 1000 mA, but pay attention to the total power consumption of all the components, especially for fail-safe electric strikes.
- Fail-secure electric strike for Powerturn:
  - IQ eStrike A5000--E
- Fail-safe electric strike for Powerturn:
  - IQ eStrike A5300--B

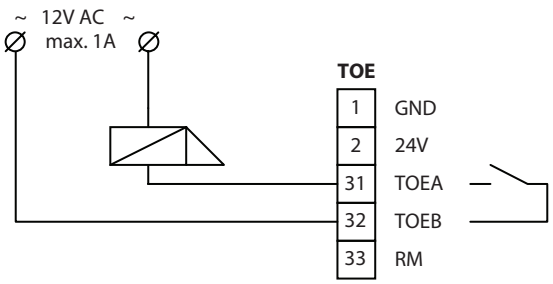
▶ Attach a free swing diode 1N4007 (1) (a free swing diode is not required with GEZE electric strike).



1 Free swing diode
2 Wire jumper

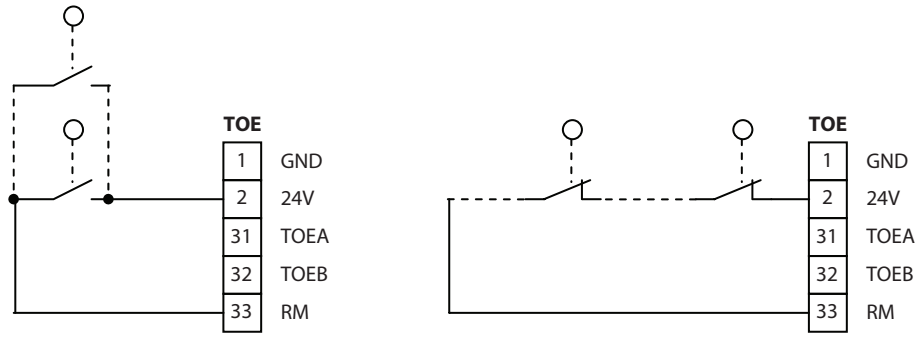
13.2 On-site-powered 12 V AC electric strike

Contact current TOE at 12 V AC: max. 1 A



13.3 Bolt message

- Input RM blocks activation of the drive and prevents the drive opening against a manually locked door, for example. If the Input RM becomes active while the door is open, the door reverses and remains open.
- When connecting an additional electric strike with
  - Normally open contact: Connect the contacts in parallel.
  - Normally closed contact: Connect the contacts in series.
- Set the parameters with:
  - DPS: Set rr to 01 (normally open contact) or 02 (normally closed contact).
  - ST220: Set the "Signals", "Input signals", "Bolt contact type", "Bolt contact type" to "normally open contact" or "normally closed contact".
- When the bolt feedback signal is pending, the drive remains in the set mode of operation, but the DPS switches its own state to "night mode".



Normally open contact

normally closed contact

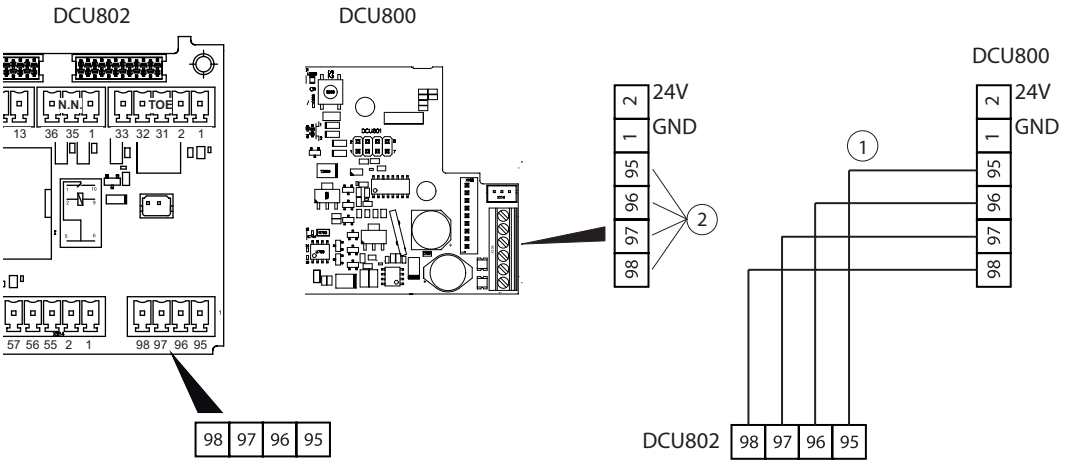
13.4 Activation delay for lock switch contact

If a lock switch contact is used, the drive opens the door after valid activation only after 2.5 s if a change from "locked" to "not locked" has taken place. This applies for all settings of the parameters "electric strike type" apart from the "motor lock" setting.

14 Free line connections

Up to 4 signals can be transmitted via the ribbon cable between the DCU802 connection board and the DCU800 control board using the free cable connections. This is useful if devices are installed in the add-on or intermediate bonnet, for example, and need to be connected to the connection board.

- Max. signal voltage: 30 V AC/DC
- Max. signal current: 0.3 A

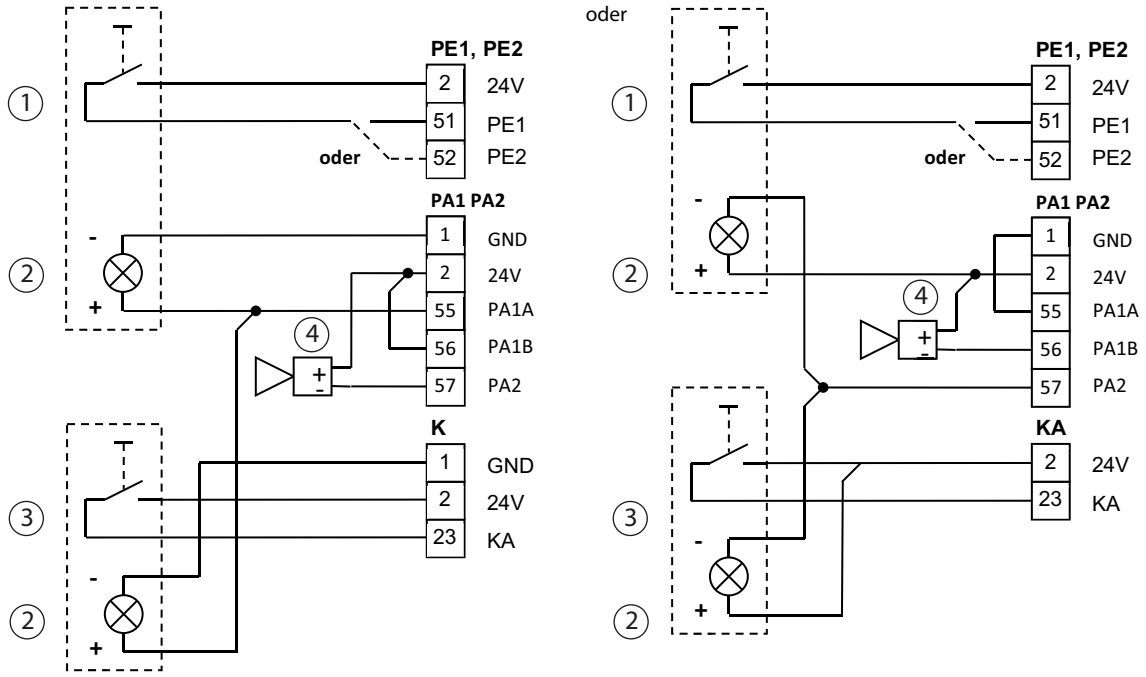


1 Internal flat ribbon cable
2 FREE

15 WC control

- Note chapter 1.3 “Reference documents”, p. 7..
- Note chapter 31.2 “Accessories”, p. 110..

Only operates with fail-safe electric strike. For connection and parameter setting, see chapter 13 “Electric strike/ motor lock”, p. 41.
Only operates with programme switch DPS, not with MPS or MPS-D.



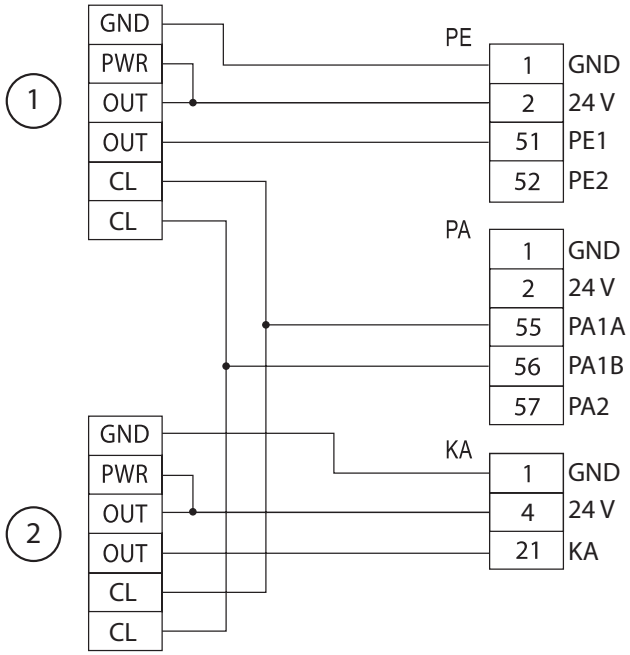
1 Inside push button (switching unit with illuminated display)
2 Illuminated OCCUPIED sign
3 Outside push button (switching unit with illuminated display)
4 Signal horn SLH220 (optional)

Function
The control recognises the operating function "WC control" based on the parameter set for the configurable input (PE1, PE2). If the WC is not occupied, the door is in automatic mode and is in the closing position. The OCCUPIED signs are off.
When the "outside push button" is pressed, the WC door is opened. Once someone has entered the cubicle, the WC door is switched to exit only mode by pressing the "Internal push button" and the external push button is blocked. Alongside locking via the "inside push button", locking is also possible via the push button "exit only LS" on the display programme switch DPS (from outside). The OCCUPIED signs light up. The WC door is locked by the fail-safe electric strike *). Pressing the "inside push button" again switches the mode of operation back to automatic. The OCCUPIED signs go off. The door opens and the "outside push button" is activated again. If the closed and locked door is opened manually from the inside or if a contact sensor KB is triggered, the mode of operation also switches back to automatic. The door can then be reopened by pressing KA.
When the WC is monitored for permanent locking, the "WC alarm" signal is triggered after 30 minutes and an acoustic signal (signal horn) is switched on. The time cannot be set.
The operating function "WC control" is cancelled in the following cases:
- If the door is closed and locked and manual opening is detected.
- If the door is opened from the outside using the mechanical contact (KB) (e.g. in an emergency).

In both cases the door can then be triggered using the "Push button outside".
In the event of a power failure, the fail-safe electric strike is released and the door can be opened manually.
*) Locking mechanism also possible with panic motor lock (optional).

15.1 Non-contact sensor GC 307+ WC

▶ Note chapter 1.3 “Reference documents”, p. 7..
▶ Note chapter 31.2 “Accessories”, p. 110..



1 Push button inside
2 Push button outside

For further information about the alternative cable variant "WC control with adjustable unlocking time" see the installation instructions for GC 307+.

Recommended setting at the GC 307+ WC via remote control

▶ Set all DIP switches "colour LED" to OFF.
- Colour "no detection" → green
- Colour "detection" → blue
- Colour "occupied/external control signal" → red

15.2 Illuminated OCCUPIED sign

The illuminated OCCUPIED sign (PA1 or PA2) is activated when switching to the exit only mode of operation.
Parameter setting:

- DPS:
  - Set *E1* or *E2* to *21* (WC control), depending on the input used.
  - Set *A1* or *A2* to *14* (exit only).
  - Set *A1* or *A2* to *24* (alarm WC control).
  - Set *or* to the desired time (0–60 s).
- ST220:
  - Set "PE1" or "PE2" to "WC control".
  - Set "PA1" or "PA2", "Function" to "Exit only".
  - Set "PA1" or "PA2", "Function" to "Alarm WC control".
  - Set "Hold-open times, 1-leaf opening" to the desired time (0–60 s).

Emergency shut-off switch

See chapter 6.1 “Key switch”, p. 21.

16 Mode of operation

- ▶ Note chapter 1.3 “Reference documents”, p. 7..
- ▶ Note chapter 31.2 “Accessories”, p. 110..

From software version V2.1, the following applies for the mode of operation OFF:
- Powerturn: The door leaf moves freely.
- Powerturn F, F/R: Drive in passive operation; the spring closes the door.

- For operation of the display programme switch DPS, see chapter 29.4 “Display programme switch DPS”, p. 94.
- For operation of the service terminal ST220, see chapter 29.1 “Service terminal ST220”, p. 75.
- Setting and operation via
  - Service keys
  - Mode of operation key

The status of the drive to which the ST220 is connected is displayed. With 2-leaf systems, the status of the active leaf is displayed.

▶ Press the ↵ key.

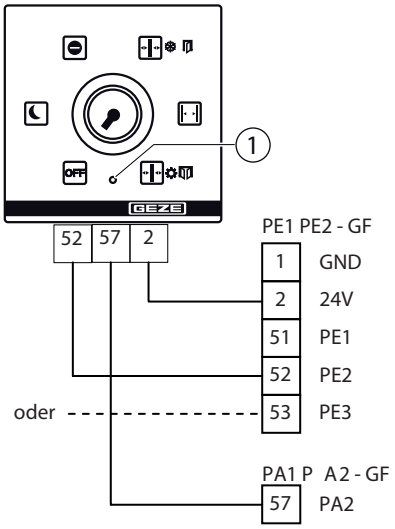
▶ Select "Active leaf para" or "Passive leaf para" using the ▲ or ▼ key and press the ↵key.

For further settings, see the descriptions below.

16.1 Programme switches

Mechanical programme switch (MPS)

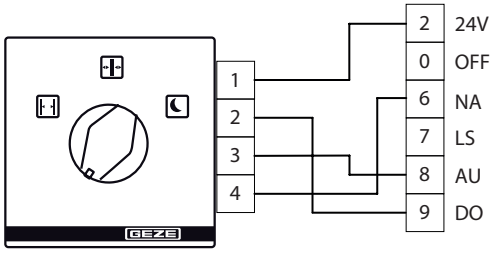
- Connection to PE2 or PE3
- MPS, AS500
  MPS-ST, with key, AS500
- Operating modes
  OFF, NA, LS, AU 1-leaf, DO, AU 2-leaf
- Follow the installation instructions
- In 2-leaf systems, the MPS is connected to the active leaf.
- If the MPS is used, the mode cannot be changed with DPS or via the NA, LS, AU and DO inputs.
- Set the parameters of the control to which the MPS is connected, with:
  - Display programme switch: Set *E2* or *E3* to *01* (mechanical programme switch).
    A2 or *A1* to *04* (fault indicator for mechanical programme switch).
  - ST220: Set “Signals”, “Input signals”, “PE2”, “PE2 function”, or “PE3”, “PE3 function” to “Mechanical programme switch” and
    Set “Signals”, “Output signals”, “PA2”, “PA2 function” to “Mechanical programme switch fault”, or “PA1”, “PA1 function” to “Mechanical programme switch fault”.



1 In the event of an error and when maintenance is due, the LED on the MPS lights up
MPS flashes when maintenance is due

Mechanical programme switch (MPS-D)

- MPS-D, AS500
- MPS-D-ST, with key, AS500
- The MPS-D is connected to the active leaf on 2-leaf systems.
- Set the parameter Contact type (if changed), with:
  - DPS: Setting not possible
  - ST220: Set the "Signals", "Input signals", "AU", "Contact type" to "normally open contact" and "DO", "Contact type" to "normally open contact" (factory settings). Set "NA", "Contact type" to "NC".

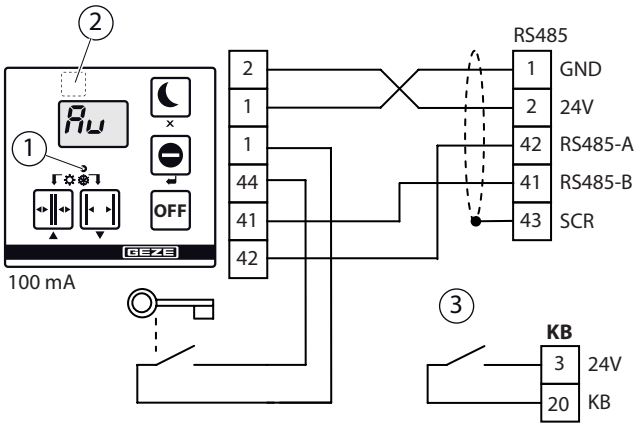


Display programme switch (DPS) with OFF

- AS500, DPS with OFF, flush-mounted, alpine white
- Modes of operation: OFF, NA, LS, AU, DO, 1-leaf/2-leaf opening

▶ Follow the installation instructions.

- DPS cannot be connected if the PE2 or PE3 function is set to "MPS" (only display possible).
- ▶ Connect DPS to the active leaf.
- Changing the operating mode with the DPS is only possible if 24 V is not applied to NA, LS, AU, DO or to PE2 or PE3, if PE2 or PE3 is configured to OFF, 2-leaf opening or 1-leaf opening. After the power returns, the drive is in the operating mode that was previously set.
- It is possible to change the operating mode if the key switch is active or with bridge 1-44.
- Switching over between 1-leaf and 2-leaf operation:
- ▶ Press the ▲ ▼ keys simultaneously.



1 Display 1-leaf/2-leaf operation (LED lights up with 1-leaf operation)
2 Hidden service push button
3 Additional contact in the key switch for activating KB

Operation at the DPS is not possible during the self-test, e.g. after changing the operating mode.

The control can be configured using DPS.
Accessing the service menu:
▶ Press the concealed service key and ↵ simultaneously.

Blocking or releasing DPS operation

- Locking operation with key switch

Operation of the DPS can be locked/enabled by connecting a key switch to prevent unauthorised persons from switching the operating mode.
Operation is possible when the key switch is actuated, or:
▶ Actuate the key switch briefly to release operation.
- Operation is permanently released.

▶ To block operation, actuate the key switch briefly again.
▶ Operation is blocked.
- With the DPS, the operation block is signalled by the display "- -" when any key is pressed.

- Locking operation by assigning a password

The operation of the DPS can be protected by a password in the service menu to prevent unauthorised persons from switching the operating mode.
The password can only be set and changed with the ST220 service terminal via the service menu.
The password for operating the DPS has 2 digits (0...9).
Factory setting: 00 = enabled

- Changing the operating mode when password protection is set

Instead of entering the password, the operating mode switchover can also be enabled by pressing the key switch.

The number of times the key is pressed corresponds to the digit to be entered.
- ▶ Enter the first digit using key ▲.
- ▶ Enter the second digit using key ▼.

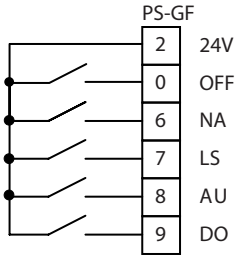
Example: The password is 37.
- ▶ Press the ▲ key 3 times.
- ▶ Press the ▼ key 7 times.
- ▶ Confirm password with key ↵.

- ▫ Permanent release of programme switch operation
- ▶ For permanent release, attach a jumper between terminals 1-44 of the DPS.

– and –
- ▶ Set the password in the service menu to '00' (factory setting).

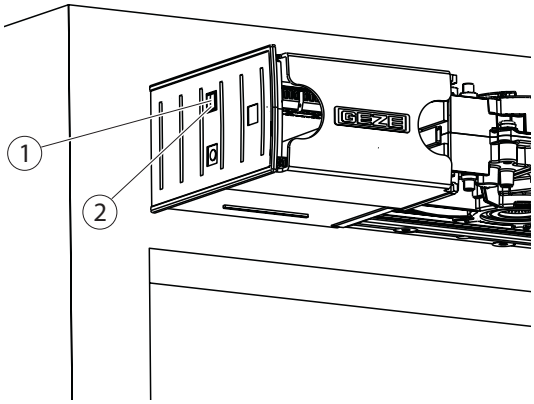
16.2 Operating mode setting with buttons or switches

- ▫ The operating mode can be set using buttons or switches (e.g. timer).
- ▫ The buttons or switches are connected to the control unit of the active leaf.
- ▫ The control switches to the desired mode if 24 V is applied to the corresponding input and remains in this mode of operation. A pulse signal is sufficient.
- ▫ Operation on the DPS is only possible if there is no signal at the OFF, NA, LS, AU and DO inputs.
- ▫ Input NA takes precedence over inputs LS, AU and DO. If 24 V is applied at input NA the drive switches to NA mode, even if 24 V is applied to one of the other PS inputs.
- ▫ Set the parameter Contact type (if changed), with
  - ▫ DPS: Setting not possible
  - ▫ ST220: Set "Signals", "Input signals", "NA" and "Contact type" to "normally open", and do the same for the contact type for "LS", "AU", "Off" and "DO" (factory settings)



16.3 Change in mode of operation

16.3.1 Changing the mode of operation using the operating modes push button/operating modes display



Changing the mode of operation (with 1-leaf-doors or active leaf)

▶ Press the operating modes push button (1) briefly.

The operating modes display immediately switches one mode of operation further. The drive itself does not change the mode of operation to the new mode of operation until 1 s after the last key has been pressed.

Operating modes sequence:

… → Off → Night mode → Exit only → Automatic → Hold open → Off → Night mode → …

Thanks to the 1 s delay it is possible to change the mode of operation from AU (automatic) through DO (hold open) to NA (night mode) without the door opening in the DO (hold open) setting.

- When ready to operate, the operating modes display LED (2) lights up in the colour of the current mode of operation.
- The operating modes display LED (2) is also used to indicate faults. For more detailed information see chapter 30 “Fault messages”, p. 105.
- In the OFF mode of operation, there is no fault display on the operating modes display LED.
- If you do not wish to switch modes using the operating modes push button (1), this can be blocked with the service terminal using the "Mode of operation key" parameter.
- If the setting is changed from enabled to disabled or vice versa, the operating modes display LED flashes yellow for 3 s – the setting has been applied.
- If a deactivated operating modes push button (1) is actuated again, the operating modes display LED (2) flashes for 3 s in red – operation is not accepted.

A connected external programme switch MPS takes priority.

Changing the mode of operation (with passive leaf)

The drive on the passive leaf is switched on and off using the operating modes push button.

When the drive is switched on, the modes of operation display LED (2) lights up in the colour of the mode of operation (see below).

If the drive is switched off, the operating modes display LED (2) does not light up.

A disabled passive leaf behaves in a similar manner to the NA mode of operation, in the case of manual entry.

Mode of operation display

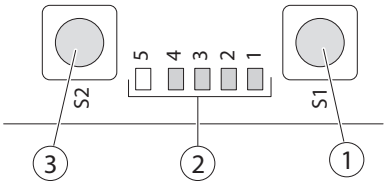
Mode of operation	Colour of the operating modes display LED (2)
OFF (off)	–
NA (night mode)	red
LS (exit only)	white
AU (automatic)	green
DO (hold open)	blue

16.3.2 Changing the operating mode using the service LEDs

The service LEDs are used
- to indicate system signals,
- to indicate and change drive parameters,
- to start the production test.

During normal operation the LEDs indicate the current mode of operation.
The mode of operation can be changed using keys S1 and S2.
S1 = previous mode of operation S2 = next mode of operation

1 Service push button S1
2 Service LEDs
3 Service push button S2



Mode of operation	LED				
	5 *	4	3	2	1
OFF	○	○	○	○	●
Night mode	○	○	○	●	○
Exit only	○	○	●	○	○
Automatic	○	●	○	○	○
Hold open	○	○	○	●	●

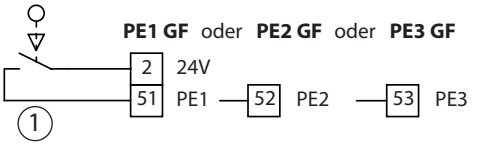
○ LED off
● LED on

17 2-leaf drives

- ▶ Note chapter 1.3 “Reference documents”, p. 7..
- ▶ Note chapter 31.2 “Accessories”, p. 110..

17.1 Powerturn IS/TS: automated active leaf, passive leaf with door closer

- ▫ Reed switch
- ▫ The closing position of the passive leaf is monitored with a reed switch. The reed switch contact is closed if the passive leaf is closed. The active leaf only closes once the passive leaf is closed.
- ▶ Set active leaf to 1-leaf.
- ▶ Attach the reed switch near the main closing edge of the passive leaf. The reed switch can be connected to PE1, PE2 or PE3. Parameter E1, E2 or E3 must be set to 06 (closing position SF) when connecting to PE1, PE2, PE3.
- ▶ Set parameter EF (“Number of leaves”) to 01 (“1-leaf drive”).
- ▫ If the mode of operation is changed to DO, the holding magnet is powered and the passive leaf can be kept open, see chapter 18.6 “Hold-open system Powerturn F-IS/TS, Powerturn F/R-IS/TS - active leaf automated, passive leaf with door closer and holding magnet”, p. 57.

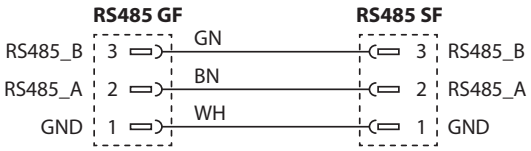


1 Reed switch (normally open contact NO)

Illustration:
Passive leaf not closed, contact open

17.2 Two automated door leaves

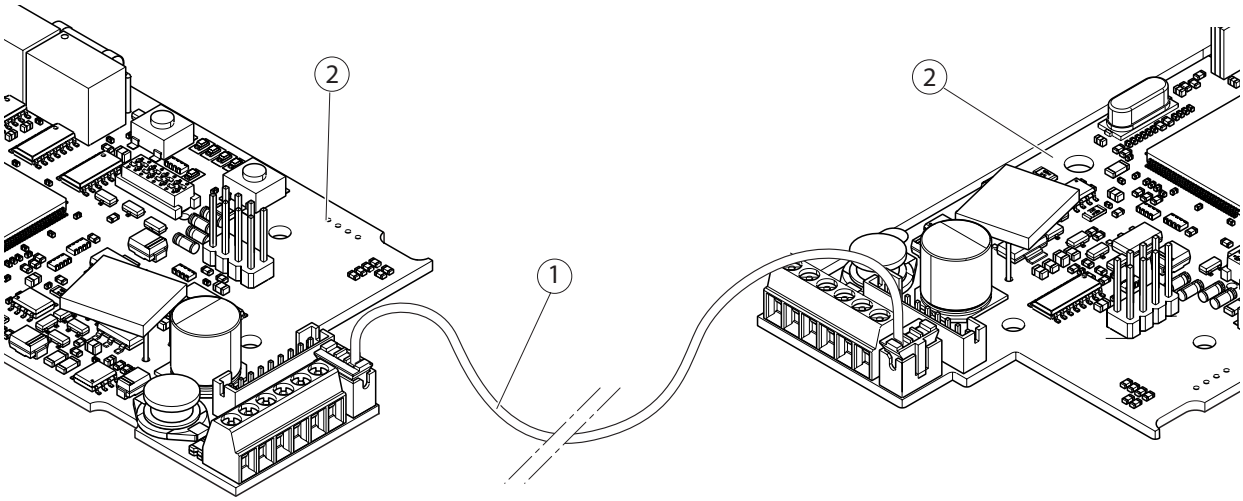
- ▫ For parameter settings, see chapter 22 “Commissioning and service”, p. 65.
- ▶ Set up RS485 connection between the two drives using system cable, see chapter 17.3 “Connection via system cable RS485”, p. 52.
- ▶ Set up connection to the 230 V network, see chapter 17.4 “Mains connection”, p. 53.



17.3 Connection via system cable RS485

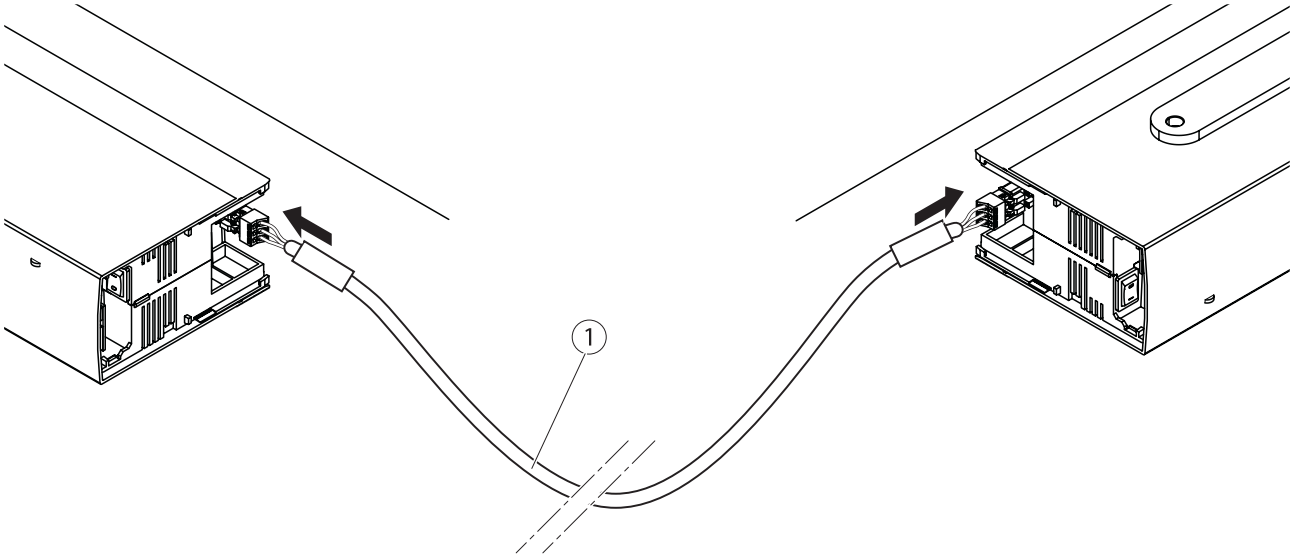
Active leaf

Passive leaf



1 System cable RS485, 3-wire
2 Control circuit board DCU800

17.4 Mains connection



1 Feeder H03VV 3G 0.75 mm²

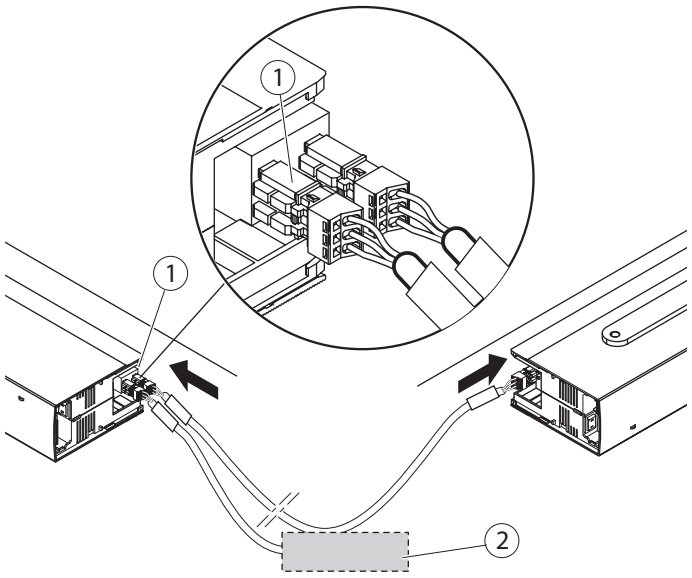


▶ For mains plugs install the rubber sleeves, see chapter 19.1 “Mounting plate with integrated power supply circuit”, p. 61.

The mains plugs have spring-type terminals which means connection without wire end ferrules is permitted.

230 V distributor (optional)

The 230 V T-distributor (1) makes it possible to set up a junction in the 230 V AC connecting cable on 2-leaf doors with 2 Powerturn drives. A further additional device (2) can be connected to this and supplied with 230 V AC. This is useful for additional devices which are installed under the intermediate cover.



18 Powerturn F and Powerturn F/R on fire protection doors



- ▶ Note chapter 1.3 “Reference documents”, p. 7..
- ▶ Note chapter 31.2 “Accessories”, p. 110..

If the door drive is used on fire protection doors, do not connect an on-site central reset switch. A central reset switch is not permitted.

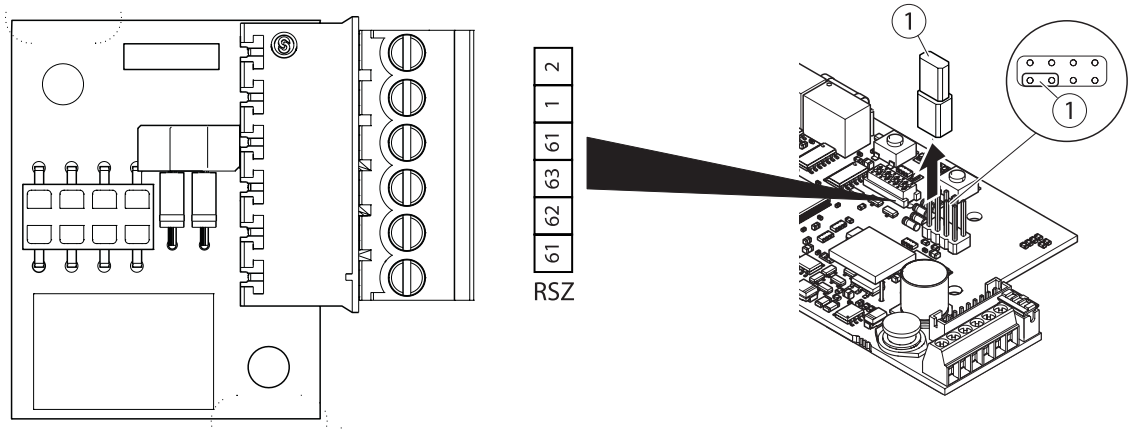
- In case of a fire alarm or a power failure, the electric strike (at terminal 31/32 of the DCU), valve and motor gear unit are disconnected from the control. The door closes through spring load (passive operation).
- In 2-leaf doors both leaves close.
- The control places a load of approx. 10 mA on the smoke switch control unit for a 1-leaf drive and approx. 20 mA for a 2-leaf drive.
- The closing speed in the event of a fire alarm or power failure must be set depending on the leaf weight and spring load. More detailed information about braking force in chapter 23 “De-energised operation”, p. 70..
- When a door is closed by spring load, the latching action is triggered by a latching action switch in the gear.

- ▶ Do not start up the drive with unplugged latching action switch.

- ▶ Before commissioning and during service work with the drive de-energised:
  - Check the setting of the latching action switch.
  - Check the function of the brake power circuit by manually opening the door. Set the braking force parameters according to the installation instructions.
- In the opening direction, only the spring acts as a brake.
- From the open position, the door must close at slow speed due to the spring load.
- ▶ After a fire alarm or restoration of power, reset the door drive on site, see chapter 18.3 “Triggering and reset of holding open”, p. 55.

18.1 F-board DCU 801

For the smoke switch control unit or lintel-mounted smoke switch, the F-board DCU 801 is built into the door drives Powerturn F and Powerturn F/R.



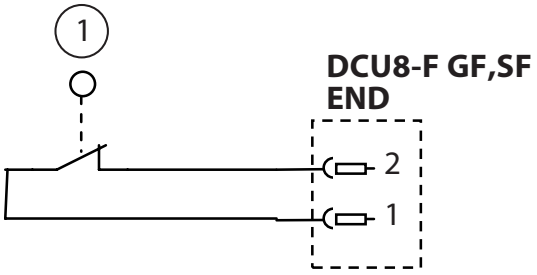
1 Jumper

- ▶ A jumper must be inserted for controls without an F-board.
- ▶ Only insert jumper when switched off.

In normal operation, smoke switch control unit or lintel-mounted smoke switch deliver a 24V voltage to the hold-open output. The 24V voltage supplies the F-board DCU801 and the door drive can be operated in normal operation as long as this voltage is applied.
In the event of a fire alarm or power failure, the smoke switch control unit or lintel-mounted smoke switch switch this 24V voltage at the F-board DCU801 off. The door closes through spring load (passive operation).

18.2 Setting latching action switch

The latching action, for overcoming the lock latch, must not start until 10° before the master key system at the earliest. When a door is closed by spring load, the latching action is triggered by a latching action switch in the gear. The latching action switch is connected to the printed circuit board DCU800. The contact of the mechanically confirmed switch (when door closed) is open. For further information about setting the limit switch, see the installation instructions for Powerturn ("1.3 Reference documents" on page 7).



1 Latching action switch

18.3 Triggering and resetting the hold-open function

Any activation of the hold-open system caused by a fire alarm, a power failure or a manual trigger switch remains saved until normal operation is restored by pressing the 'Fire Alarm Reset' button. Always only reset a triggered hold-open system on site, and use one of the following possibilities to do this:

- Press the push button mode of operation once
- Switch mode of operation over at the DPS (DPS must be installed in the visible area of the door)

"Reset by switching mode of operation" is not possible remotely (terminal 6-9) and not by radio. The system must be switched to one of the modes of operation automatic (AU), exit only (LS) or hold open (DO). The following combinations can be set using the 'Trigger/Reset' parameter (ST 220) or FP (DPS).

Parameter ST 220/DPS	**Meaning/functionality**	
	Reset by changing mode of operation	Reset via reset push button
Reset button/00	NO	YES
Reset mode of operation/04 (factory setting)	YES	NO

With 2-leaf doors the parameters for active and passive leaf must be identical in this function.

Reset with reset push button

Parameter setting makes it possible to use a separate reset switch like with older software versions (≤ V2.0).
Set the parameters with:

- DPS: FP to 00 (Reset button)
- ST 220: 'Trigger/Reset', 'Reset button'

To do so, connect the smoke switch or the smoke switch control unit to terminal 62 of the DCU801 and not to terminal 63 as shown on the diagram. There must be a reset switch installed on the door drive.

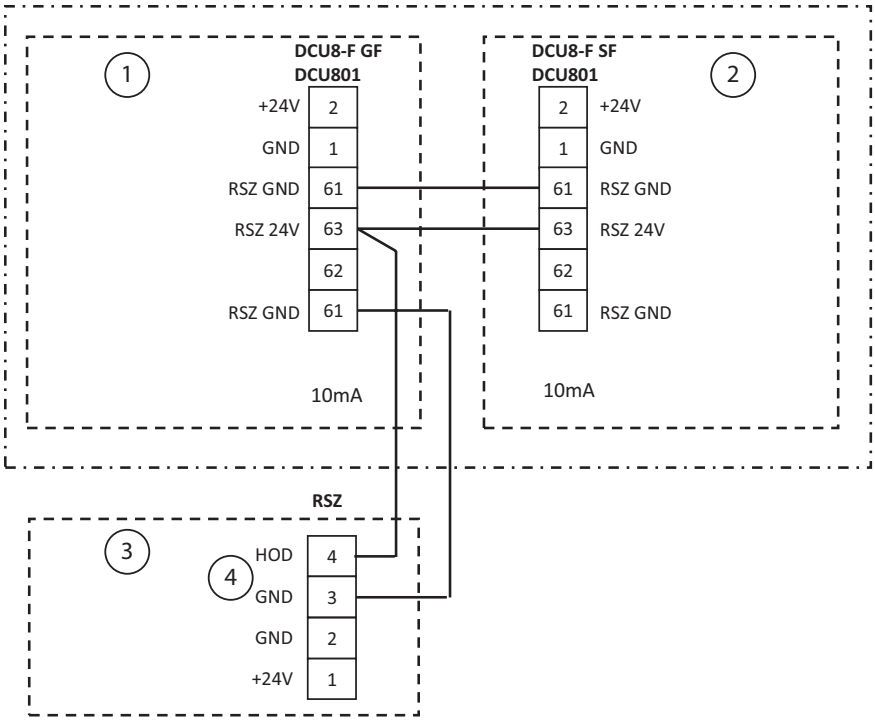
Triggering with manual trigger switch

A manual trigger switch must be fitted. Connect the manual trigger switch to the smoke switch control unit or the lintel-mounted smoke switch. For more detailed information see the installation instructions for FA GC 150.

18.4 Hold-open system Powerturn F, Powerturn F-IS with smoke switch control unit

The smoke switch control unit has its own mains supply.

Door drive Powerturn F and F-IS

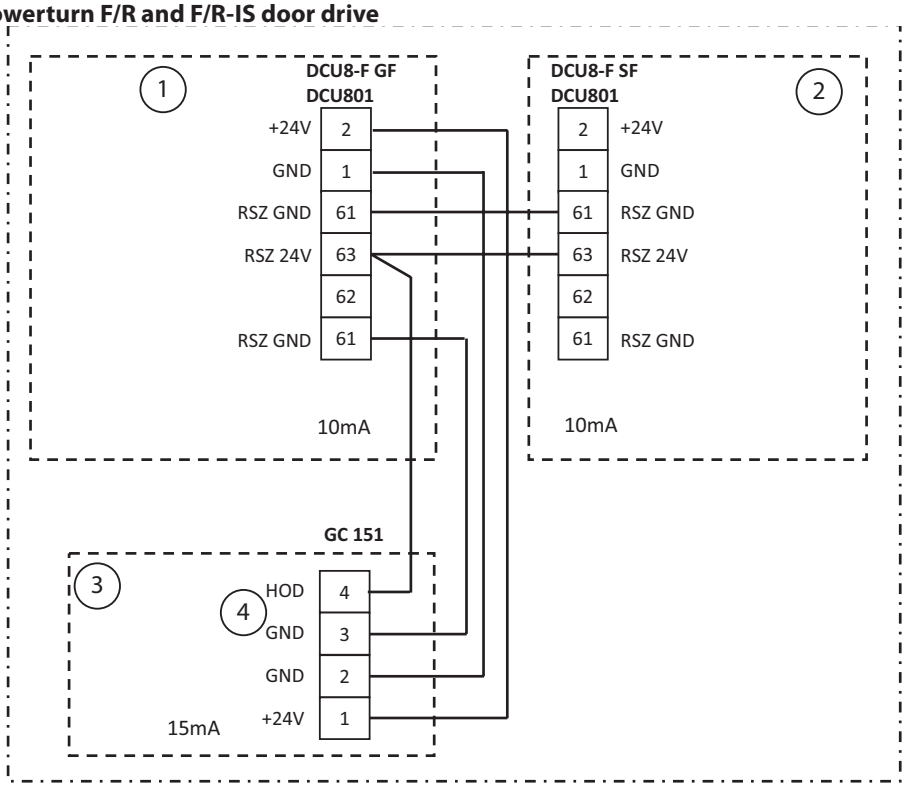


1 Powerturn F active leaf
2 Powerturn F passive leaf, optional
3 Smoke switch control unit RSZ
4 Output for eternal hold-open function

18.5 Hold-open system Powerturn F/R, Powerturn F/R-IS with integrated lintel-mounted smoke switch

The lintel-mounted smoke switch can be integrated in the ad-on set or the intermediate cover kit. The smoke switch is supplied with 24V through the Powerturn control.

Powerturn F/R and F/R-IS door drive



1 Powerturn F active leaf
2 Powerturn F passive leaf, optional
3 Integrated lintel-mounted smoke switch GC 151
4 Output for eternal hold-open function

18.6 Hold-open system Powerturn F-IS/TS, Powerturn F/R-IS/TS - active leaf automated, passive leaf with door closer and holding magnet

The Powerturn F-IS/TS and Powerturn F/R-IS/TS hold-open systems are systems where the active leaf is automated with a Powerturn and the passive leaf has a mechanical door closer. In the hold open mode of operation, the passive leaf is held in the open position by a holding magnet. The closing position of the passive leaf is monitored with a reed-contact. For more detailed information about this, see chapter 17.1 „Powerturn IS/TS: Gangflügel automatisiert, Standflügel mit Türschließer“, S. <?>. Safe closing is guaranteed by a mechanical closing sequence control.

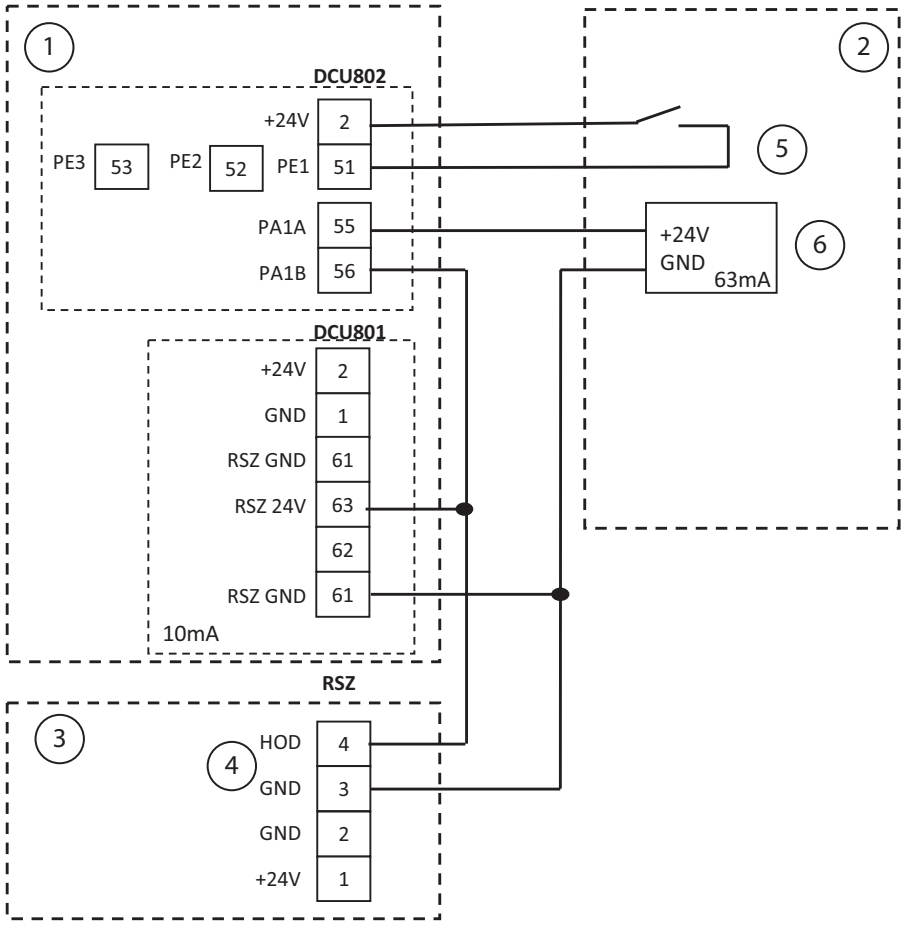
Set the parameters with:
- Display programme switch:
  - Set EF (3rd menu) to 01 (1-leaf drive), set E1, E2 and E3 (3rd menu) to 19 (closed position SF) and A1 (3rd menu) to 22 (holding magnet SF).
- ST 220:
  - 'Door parameters', 'Number of leaves', set to '1-leaf drive, set 'Signals', 'Input signals' and 'PE1 function, PE2 function or PE3 function' to 'Closed position SF', and set 'Output signals' and 'PA1 function' to 'holding magnet SF'.

- ▶ Only use the potential-free output PA1.
- ▶ When a door closer is used, change the system to 1-leaf.

- ▶ Note chapter 1.3 „Mitgeltende Dokumente“, S. <?>..
- ▶ Note chapter 31.2 „Zubehör“, S. <?>..

18.6.1 Powerturn F-IS/TS with smoke switch control unit

Door drive Powerturn F

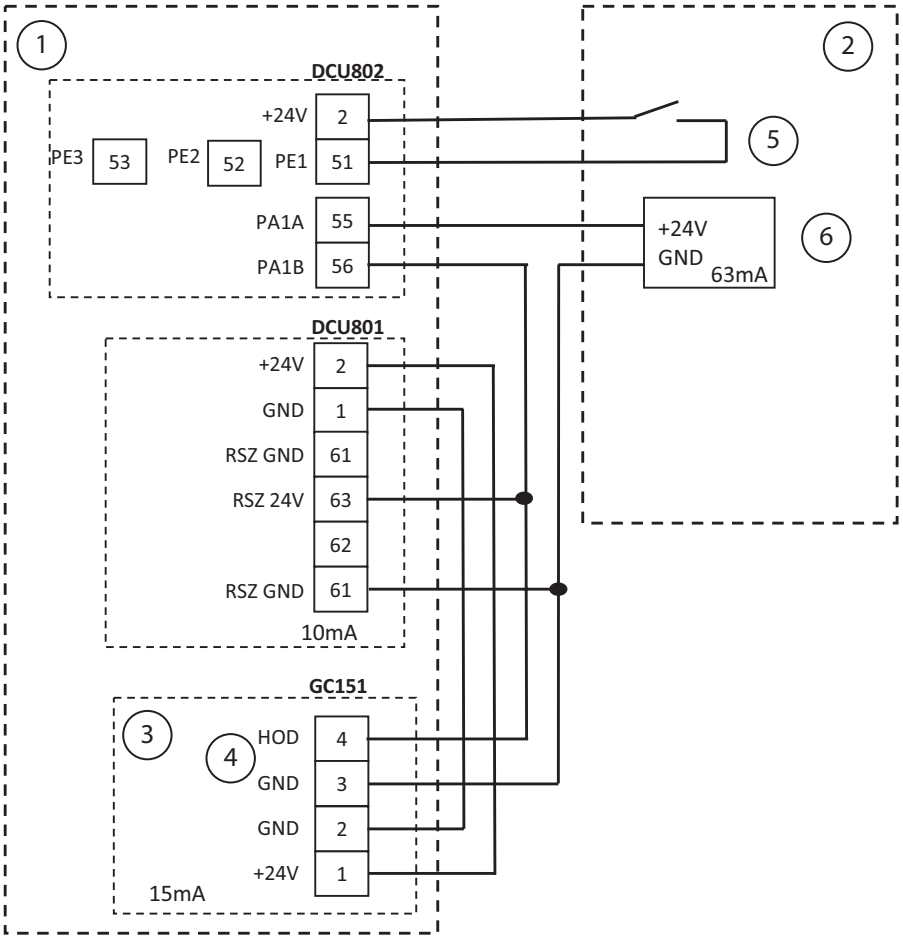


1 Powerturn F active leaf
2 Passive leaf with door closer
3 Smoke switch control unit RSZ
4 Output for eternal hold-open function
5 Reed switch for the passive leaf closing position
6 Holding magnet (accessory, see FA GC 150)

If the passive leaf is fixed using a holding magnet, use a manual trigger switch, since manual triggering of the passive leaf is not possible.

18.6.2 Powerturn F/R-IS/TS with lintel-mounted smoke switch

Door drive Powerturn F/R

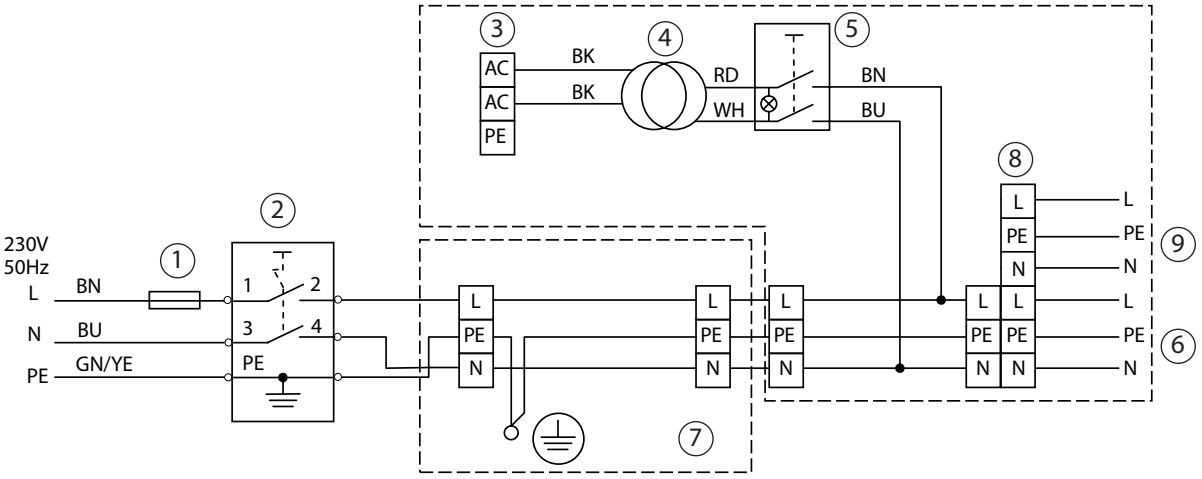


1 Powerturn F active leaf
2 Passive leaf with door closer
3 Integrated lintel-mounted smoke switch GC151
4 Output for eternal hold-open function
5 Reed switch for the passive leaf closing position
6 Holding magnet (accessory, FA GC 150)

If the passive leaf is fixed using a holding magnet, use a manual trigger switch, since manual triggering of the passive leaf is not possible.

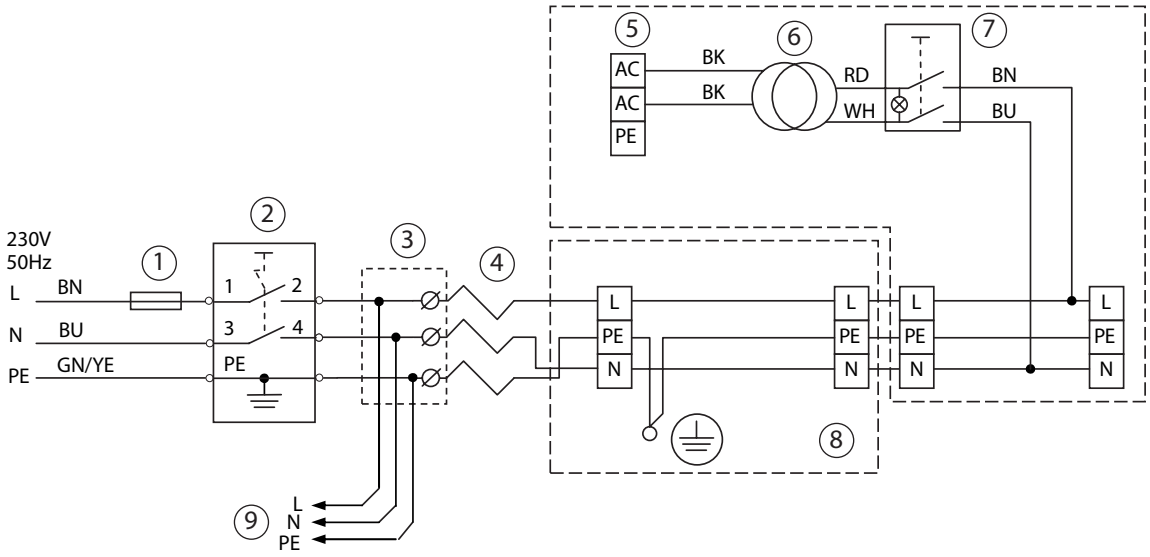
19 Mains connection

Transom installation



1 Mains fuse
2 Main switch (optional)
3 control AC IN
4 Transformer
5 Main switch, internal
6 To the second drive
7 Mounting plate
8 230 V T-distributor
9 230 V 50 Hz additional device, max. 700 W

Door leaf installation

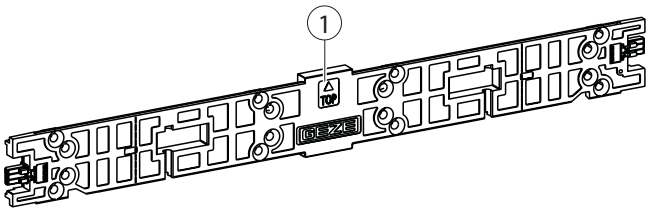


1 Mains fuse
2 Main switch (optional)
3 Connection box
4 Drip loop
5 control AC IN
6 Transformer
7 Main switch, internal
8 Mounting plate
9 To the second drive

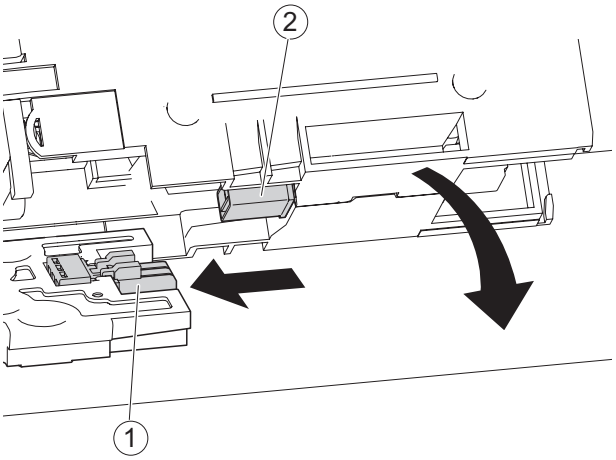
19.1 Mounting plate with integrated power supply circuit

19.1.1 Structure

- Make sure the mounting plate is in the correct position, see directional arrow (1).
- Mains connection always on the hinge side (secondary closing edge).
- The connection to the drive is on the facing side.



19.1.2 Connection drive – mounting plate



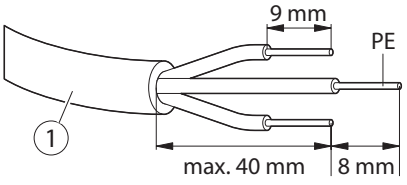
▶ Push the drive in place so that the electric connection is established between the connector (1) on the mounting plate and the connector (2) of the drive.

19.1.3 Connecting to the mains

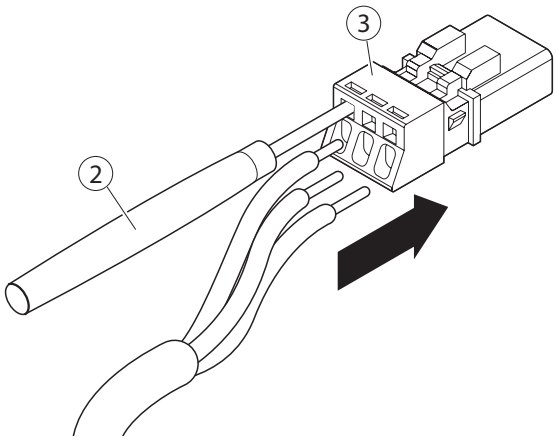
▶ Note chapter 1.3 “Reference documents”, p. 7..
▶ Note chapter 31.2 “Accessories”, p. 110..

If the mains supply line is connected to the installed drive, the connection board DCU802 must be removed.

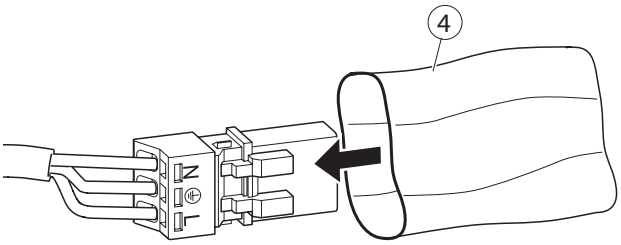
▶ Strip the mains cable (1).
- Sheath length = 40 mm
- Stripping length = 9 mm
- PE conductor lead = 8 mm



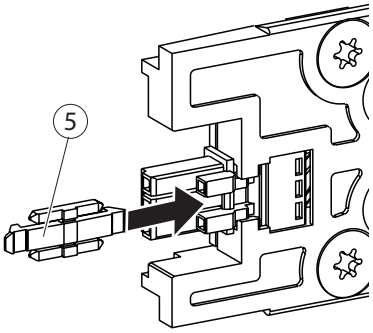
- Insert screwdriver (2) or similar into the opening of connector (3).
- Push the cores into connector (3).
- Remove screwdriver (2) again.



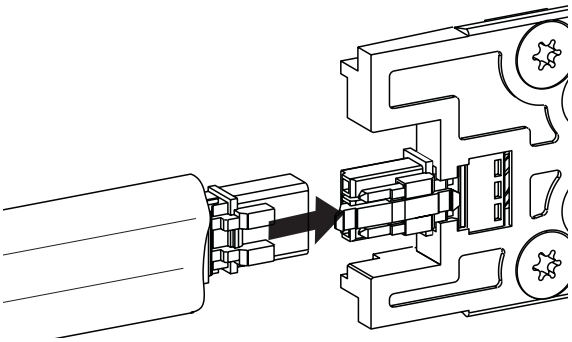
- Push the rubber sleeve (4) over the connector and cable.



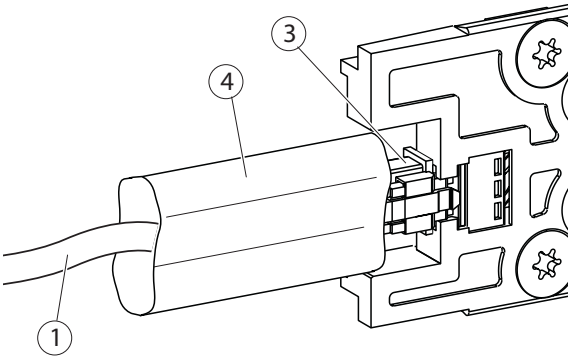
- Push the locking device (5) onto the connector.



- Insert the connector with the feeder into the mounting plate.

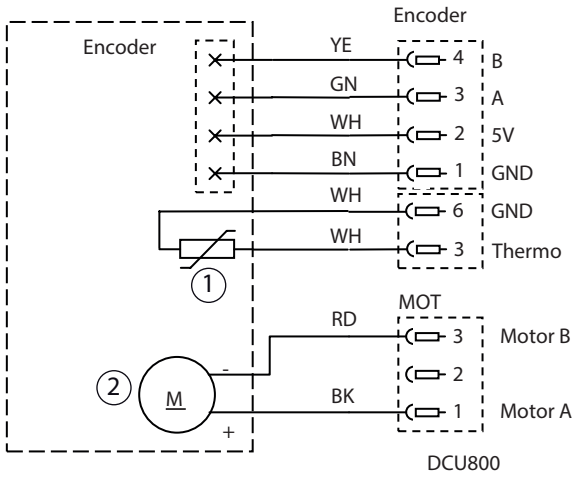


- In the connected state, the rubber sleeve (4) must completely enclose the connector (3) and cable (1).
- No individual wires may be visible.



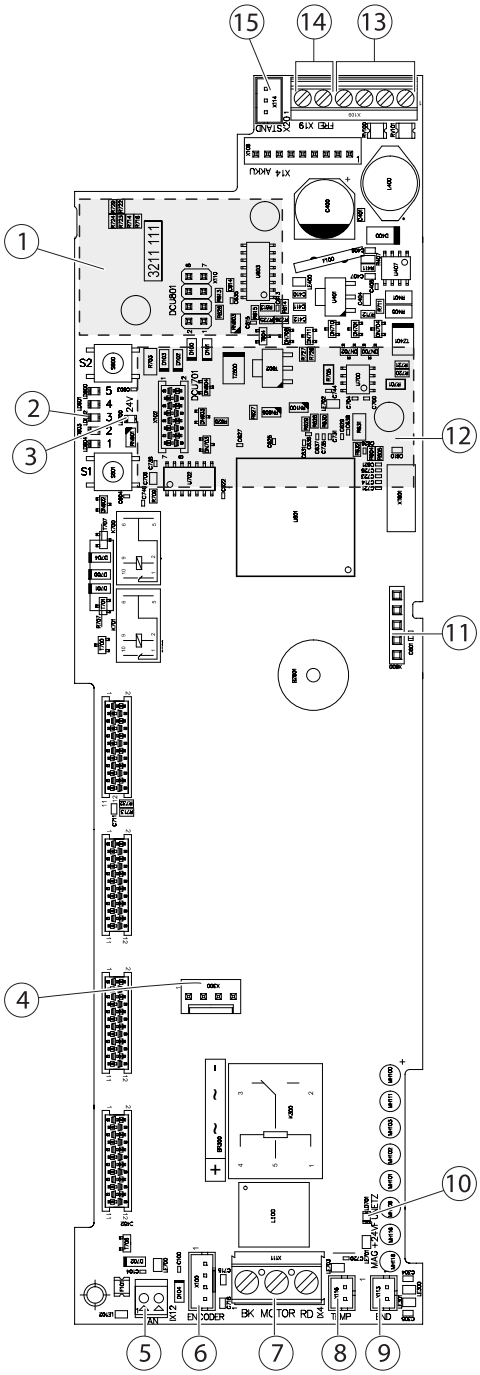
20 Motor gear unit

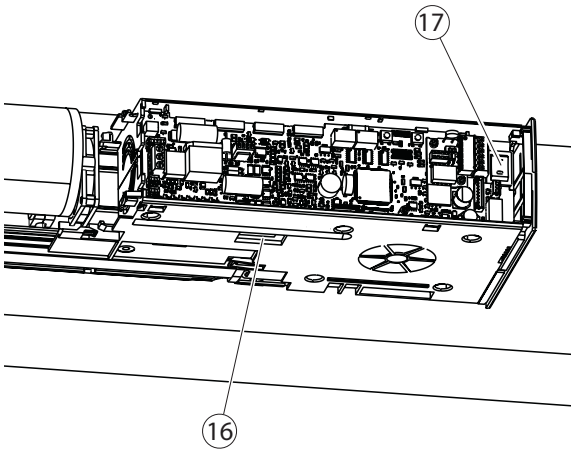
WARNING
Danger of injury through link arm or lever arm snapping back!
Danger of injury from hot motor gear unit!
- Disconnect motor gear unit from the control only if spring is relaxed.



1 Temperature sensor
2 Motor gear unit

21 Control unit





1 Slot for F-board DCU801
2 Service buttons and service LEDs
3 LED 24V ext
4 Brake
5 Ventilator
6 Rotary encoder
7 Motor gear unit
8 Temperature sensor
9 Latching action switch
10 LED solenoid valve
11 PROG
12 WRB-5 wireless board slot
13 FREE
14 24 V
15 RS485
16 Safety fuse F1, AC IN (10 A T, 5 × 10 mm)
17 Main switch

22 Commissioning and service

Commissioning and service can be performed using the display programme switch DPS, the internal service keys or the service app.

22.1 Commissioning

22.1.1 Pre-conditions

- Drive
  - attached
  - untaught
  - set to factory setting *
- Electrical installation is complete.
- During commissioning the DPS displays "LE" and the operating modes LED is yellow.
- During new teach-in of drive: both drives to automatic mode of operation.
- With a 2-leaf system, the parameter "Number of leaves" (EF) must be set on both drives first.

22.1.2 Carrying out commissioning

	**CAUTION**	Danger of injury with opened drive. With the cover removed, ▫ do not reach into the area with moving parts. ▫ wear tight-fitting clothes. ▫ wear a hair net if necessary.
	**CAUTION**	Risk of injury by trapping, knocking, shearing and hair etc. being pulled in at unsecured points. With the cover removed, do not reach into the danger area.
	**CAUTION**	Danger of injury due to sharp edges in the drive. With the cover removed, do not reach into the danger area.
	**CAUTION**	Danger of injury through link arm or lever arm snapping back. Disconnect motor gear unit from the control only if spring is relaxed.

- ▶ Check whether the drive works mechanically when de-energised (check by hand).
- ▶ Switch the main switch on.
- ▶ Set the peripheral equipment before the teaching run.
- ▶ Perform the teaching run as described in chapter 22.2 “Teaching run”, p. 65..
  The safety sensor is active because the wall blanking function is being learnt.
- ▶ Check the functionality of the safety sensors.
- ▶ Check other functionality.

Optional:
The braking effect in de-energised state can be set for different door weights. See chapter 23 “De-energised operation”, p. 70.

22.2 Teaching run

- For the teaching run to be carried out, the drive must be completely installed and supplied with voltage.
- The spring load required (EN4–7) must be set before the teaching run, see Powerturn installation instructions.
- ▶ Mechanically set on drive and calibrate on the door leaf.
- If "Start teaching" is started using the parameter menu (DPS, ST220, service keys), the user has 1 minute to start the teaching process.
  - If the door is not moved within this time, the drive cancels the teaching run and retains the data previously stored.
- On delivery, the safety sensors are actively configured.
- The teaching run starts and ends in the closed position so that the drive learns the opening/closing direction correctly.

The following points must be observed:
- During the movement (part of the teaching process), activating the safety sensors does not stop the door leaf. For this reason, only carry out a movement run under supervision or with the assistance of an authorised person.
- If the door leaf is blocked during the movement run, this leads to error message 25 and the teach-in run must be repeated.

If a 2-leaf system has to be taught, the parameter "Number of leaves" (EF) must first be installed on both drives:
- ▶ Select the parameter with service terminal ST220 or the display programme switch DPS and set the value 02 for active leaf and the value 03 for passive leaf.
- ▶ Connect both drives.
- ▶ Set both drives to automatic mode of operation.

The drive differentiates between two conditions:
- The drive is not programmed in its factory settings (as supplied)➔
- Drive is already taught and needs to be taught again.

22.3 Teaching a 1-leaf system

step	Actions	ST220 display	DPS display	Service LED display (5 → 1)
1	▶ Select parameter "Start teaching" and press the ENTER key. ▶ Select 1-leaf system.	Start teaching		
1	▶ Start the respective teaching in DPS (NT): ▫ LE for 1-leaf system.		LE	
1	▶ Exit display.			○ ● ● ● ●
2	A beep is sounded (1 × 0.5 s).			
3a	The drive is as delivered or has been set to the factory setting. The following system parameters are displayed in succession:			
	▶ Set system parameter for the present project. ▶ When programming via the service interface, the parameters must be set before programming; see chapter 29.5 "Service buttons S1 and S2", p. 94.	Type of installation Leaf width Door weight Safety sensor close Safety sensor open	OH F8 t6 S1 S3	
	▫ Testing: ▫ 24 V or energy-saving mode for GC 338 ▫ GND for GC 334, GC 342, GC 342+	Testing Electric strike type Bolt message contact type	tE to rr	
3b	If the teaching is carried out again, the parameter menu 3a is no longer displayed.			
4a 4b	▶ Wait until the "Open manually" display appears. ▶ Open door leaf manually up to the desired opening position. The drive emits an acoustic warning signal to indicate the maximum drive-related open positions. The interruption of the warning signal becomes shorter and shorter until the maximum open position is reached.	Open manually	L1	● ○ ○ ○ ●
	▫ If the beep sounds continuously, the door leaf is in the max. open position range (±3°). ▫ In this setting, there is a possibility that the drive does not work properly or is permanently damaged. ▶ Carry out the teaching run again to avoid this.			
5	▶ Move the door leaf by hand to the desired closing position. ▶ Press the enter key. The display is acknowledged.	Close manually	L2	● ○ ○ ● ○
6	If GC 338 is installed: ▶ Press the "Teach In" key on the sensor and wait for 10 s. Else (if GC 338 is not installed), proceed with point 7.	Press "Teach in"	L3	● ○ ○ ● ●
7	▶ Press the enter key. The display is acknowledged.	Press "Teach in"	L3	● ○ ○ ● ●
8	The movement run starts automatically after 2 s. ▫ Wall blanking is taught. In this run, sensors are not switched as "active". ▫ An obstruction is not identified. ▫ If a blockage is detected within the movement run, fault 25 is set. The teaching run must then be repeated.	Movement run	L4	● ○ ● ○ ○
9	When the door leaf arrives in the closing position at the end of the movement run, a beep (2 × 0.5 s) is sounded.			
10	The teach-in run is complete, display depends on the peripheral device.	The main menu is displayed	The main menu is displayed	The operating mode is displayed

22.4 Teaching a 2-leaf system

step	Actions	ST220 display	DPS display	Service LED display (5 → 1)
1	▶ Select parameter "Start teaching" and press the ENTER key. ▶ Select 2-leaf system.	Start teaching		
1	▶ Start the respective teaching in DPS (NT): ▫ LE for 2-leaf system.		L2	
2	A beep sounds (1 x 0.5 s)			
	In the case of a 2-leaf system, the teaching begins on the active leaf.			
3a	The drive is as delivered or has been set to the factory setting. The following parameters are displayed in succession:			
	▶ Set system parameter for the present project. ▫ Testing: ▫ 24 V or energy-saving mode for GC 338 ▫ GND for GC 334, GC 342	Type of installation Leaf width Door weight Safety sensor close Safety sensor open Testing Electric strike type Bolt message contact type	OH F8 t6 S1 S3 tE to rr	
3b	If the teaching is carried out again, the parameter menu 3a is no longer displayed.			
4a	▶ Wait until the "Open manually" display appears.			
4b	▶ Open door leaf manually up to the desired opening position. The drive emits an acoustic warning signal to indicate the maximum drive-related open positions. The interruption of the warning signal becomes shorter and shorter until the maximum open position is reached. ▫ If the beep sounds continuously, the door leaf is in the max. open position range (±3°). ▫ In this setting, there is a possibility that the drive does not work properly or is permanently damaged. ▶ Carry out the teaching run again to avoid this.	Open manually	L1	

step	Actions	ST220 display	DPS display	Service LED display (5 → 1)
5	▶ Move the door leaf by hand to the desired closing position. ▶ Press the enter key. The display is acknowledged.	Close manually	L2	
6	If GC 338 is installed and a wall is to be taught: ▶ Press the "Teach In" key on the sensor interface 2x and wait for 10 s. Else (if GC 338 is not installed), proceed with point 7.	Press "Teach in"	L3	
7	▶ Press the enter key. The display is acknowledged.	Press "Teach in"	L3	
8	The movement run starts automatically after 2 s. ▫ Wall blanking is taught. In this run, sensors are not switched as "active". ▫ An obstruction is not identified. ▫ If a blockage is detected within the movement run, fault 25 is set. The teaching run must then be repeated.	Movement run	L4	● ○ ● ○ ○
9	The active leaf opens up to the opening position automatically and remains in this position until the end of the teaching run for the passive leaf.			
10	The passive leaf is now taught in the same way as the 1-leaf system, see chapter 22.3 “Teaching a 1-leaf system”, p. 67.			
11	When the passive leaf arrives in the closing position at the end of the movement run, a beep (2 × 0,5 s) is sounded.			
12	After the teaching is finished , the active leaf closes automatically.			
13	The teach-in run is complete, display depends on the peripheral device.	The main menu is displayed	The main menu is displayed	The operating mode is displayed

Teaching a 2-leaf system with service keys is not possible.

22.5 Forces and speeds

22.5.1 Forces

The forces set using "Opening force" (FO), "Opening retention force" (0F), "Closing retention force" (CF), "Force closing position" (FS) or "Closing force" (FC) always refer to N at the main closing edge.

- For the ST220, the values correspond directly to the main closing edge.
- For the DPS (with OFF), the values correspond to ×10 N at the main closing edge.

In addition, the parameter "Obstruction" (*bh*) affects the force ("Opening force" and "Closing force") within the movement. Depending on the mass and the desired speed of the door, a higher value may be required for the obstruction parameter. This has a direct impact on manual opening, see chapter 25 “Resilience to load due to external influences or wind pressure”, p. 71.

22.5.2 Speeds

The speeds "Opening time" (*ot*), "Closing time" (*ct*) and "Closing time manual" (*SB*) are always calculated for an opening angle of 90°.
This means:

- If the opening angle has been taught less than 90°, the movement time is faster than the setting value.
- If the opening angle has been taught more than 90°, the movement time for the complete movement angle is higher than the set value.
  - The drive continues to move at the speed past 90° to the opening position.

Exception:
The value "Latching action closing" (SC) is not a real value. It does not correspond to a unit.

23 De-energised operation

The door can be manually opened even when in switched-off or de-energised operation. In the opening direction, the spring load acts as a brake. In the closing direction, the door must close from the open position by means of the spring load with a slower speed. This parameter can be used to set this closing speed in de-energised operation.

If a fire alarm has been triggered (fault 07), the braking force cannot be set.

- Display programme switch: Set 82 to 01 … 14.
- ST220: Set “Motion parameters”, “Speeds” and “Braking force” to the desired braking force (01 … 14).

In a connected state after completion of the teaching process the value for the parameters "Braking force" must be set as follows:

- For personal protection;
  the closing time must be kept in accordance with the table minimum closing time 90° to 0° (chapter 27 Low-energy mode) in the de-energised state.
- For a fire protection door;
  the closing time is in the range between 6 s and 10 s.

Here, 01 is the lowest braking force (high speed) and 14 is the highest braking force (slow speed).
In an unlearned condition (factory setting) or after resetting the factory setting, the braking force is set and works in both directions of movement. After initial teaching, the value is automatically set to 13 and is only effective in the closing direction.

24 Free swing function

- The parameter "free swing function" is used to determine how the drive reacts to external loading.
- When the free swing function parameter is set, the drive will allow you to manually push the door to open or close it even in automatic operation.
- The door movement brakes automatically before the door is opened completely by the adjusted back check.
- Display programme switch: Set 02 (3rd menu) to 01.
- ST220: Set “Movement parameters” and “Door opening” to “Yes”.

The free swing function parameter is not set for exposed exterior doors with high load due to wind pressure or doors exposed to overpressure, otherwise the drive cannot optimally respond to the external load, such as wind load.

25 Resilience to load due to external influences or wind pressure

On exposed exterior doors with a high wind load or doors exposed to overpressure, the drive can be set using the parameters "Force opening, FO", "Force closing, FC" and "Obstruction, bh" in such a way that it responds perfectly to external influences. The drive pushes against the external influences with the set force and for the set time (parameter "Obstruction, bh").
The higher the set value, the more resilient the drive is against wind pressure, for example, ensuring reliable opening and closing. Manual opening is then no longer as convenient.
At low set values, the door is easier to use in manual opening. However, this also reduces the resilience against wind pressure, for example.

26 Door closer operation

If frail people and/or children use the door and the risk analysis states that appropriate safety measures must be selected, the "Door closer mode" (tS) parameter must be set to 0 or 1 and the "Door closer torque" (dF) parameter must be set to 0.
This does **not** apply, if the door closing movement in the door closer mode is safeguarded with safety sensors.

The behaviour of the drive can be set so that its function corresponds to that of a mechanical door closer.

- In the service menu, set the "Door closer mode" (tS) parameter to the desired behaviour in the door closer mode.

The speed within the torque-controlled closing is set using the "Manual closing" parameter.

- Note low-energy mode, see chapter 27 “Low-energy mode”, p. 72.
- In a 2-leaf swing door system, both drives must always be set to the same door closer mode.

Door closer operation function table (tS)

Setting of door closer operation		Explanation
Manually (tS = 00)	Door closing torque (dF) equal to 0 Nm	Speed-controlled closing after automatic and manual opening (SIS and obstacle detection active).
	Door closing torque (dF) 01 … 70 Nm	Speed-controlled closing after automatic opening (SIS and obstacle detection active). Following activation by KI, KA or KB and parameter setting "Rev. closing auto", "Active", the door reverses in the event of a blockage during closing. In the event of manual opening and parameter setting "Rev. closing manual", "Active" reverses the door in the event of a blockage during closing. Torque-controlled closing following manual opening (SIS active or inactive). Drive closes the door at the set door closing torque. The drive pushes against an obstacle or reverses depending on the SIS parameter setting.
Automatic (tS = 01)	Door closing torque (dF) equal to 0 Nm	Speed-controlled closing after automatic and manual opening (SIS and obstacle detection active).
	Door closing torque (dF) 01 … 70 Nm	Torque-controlled closing after automatic and manual opening (SIS active or inactive). The drive always closes the door at the set door closing torque. Following activation by KI, KA or KB and parameter setting "Rev. closing auto", "Active", the door reverses in the event of a blockage during closing. In the event of manual opening and parameter setting "Rev. closing manual", "Active" reverses the door in the event of a blockage during closing.

Observing low-energy operation
The table shows the observation of low-energy operation depending on the door width and max. door closing torque.

Door width [m]	Max. door closing torque [Nm]
0.8	48
0.9	54
1.0	60
1.1	66
1.2	70
1.3	70
1.4	70
1.5	70
1.6	70

27 Low-energy mode

- Doors set to low-energy function generally do not require any additional protective devices, if no people in special need of protection are expected to use the door.
- With 2-leaf doors, both drives must have been set to low-energy function.

The Powerturn drive can be operated as a low-energy drive if the following conditions are met:
- in a de-energised state:
  - The spring's retention force and opening force must be set to <67 N at the main closing edge.
  - The closing time must be set from 90° to 0° using the table below.
  - ▶ Once the power is connected, set the value for the "Braking force" parameter so that the closing time is complied with in the de-energised state.
- in an electrified state:
  - Static force on the main closing edge is <67 N.
  - ▶ The opening and closing force must be set to 60 using the "Opening force" and "Closing force" or FO and FC parameters.
  - The kinetic energy in the door leaf has to be limited to 1.6 J.
  - ▶ The opening time and the closing time of the door must be set accordingly using the parameters "Opening time" or oE and "Closing time", "Manual closing time" or cE and SS in line with the table below.
  - ▶ The hold-open times (or, oH, OP, HO, oS parameters) must be set to >5 s.

The following table shows the minimum opening time from 0° to 90° and the minimum closing time from 90° to 0°.

Door weight [kg]/ Leaf width [mm]	60	90	120	150	180	210	240	270	300	330	370	400	430	460	490	520	550	580	600
800	4	4	5	5	6	6	7	7	7	8	8	8	9	9	9	10	10	10	10
900	4	5	5	6	7	7	7	8	8	9	9	9	10	10	11	11	11	11	11
1000	4	5	6	7	7	8	8	9	9	10	10	10	11	11	12	12	–	–	–
1100	5	6	6	7	8	8	9	9	10	10	11	11	12	–	–	–	–	–	–
1200	5	6	7	8	8	8	10	10	11	11	12	–	–	–	–	–	–	–	–
1300	6	7	8	8	9	10	11	11	12	–	–	–	–	–	–	–	–	–	–
1400	6	7	8	9	10	11	11	12	–	–	–	–	–	–	–	–	–	–	–
1500	6	8	9	10	11	11	12	–	–	–	–	–	–	–	–	–	–	–	–
1600	7	8	9	10	11	12	–	–	–	–	–	–	–	–	–	–	–	–	–

Example:
Leaf weight: 90 kg, leaf width 1000 mm

The opening time must be set to 5 s and closing time must be set to 5 s.

If the drive does not fulfil these requirements, it is in low-energy function. The leaf movement must then be safeguarded using protective devices.
The set static and dynamic forces must be calibrated.

28 Servo mode

The GEZE Powerturn drive can be operated as a servo drive. It supports the user torque-controlled during manual opening.
The servo drive is operated and set within the automatic operating mode.
Servo mode is only available for 1-leaf doors.
The power support is divided into 2 functional areas:
- Servo support with additional servo torque
- Servo support with additional servo torque and additional torque for fire alarm

28.1 Servo support with additional servo torque

The drive supports the force required to manually open the door so that the door can be opened manually even under adverse environmental conditions such as wind or dynamic pressure in a staircase. The servo support can be adjusted.
The door can be accelerated manually with the aid of the servo drive up to the maximum speed at low-energy. If this speed is reached, the drive slows the door movement.
The following parameters must be set:
- Servo duration (Ad): Duration of servo assistance from the moment of activation
- Additional servo torque (Ao): force-supporting torque for easy manual opening

When activation is via KI, KA, PE-KI, PE-KA, PE-switch function, FK1, or KI+SIS, KA+SIS or with Push & Go bracket set, the drive opens the door with the additional servo torque set. The drive closes the door again after the set servo duration (Ad) has expired.
In the event of activation via KB, FK2 opens the drive speed-controlled with the set values "Opening force", "Closing force", "Opening time" and "Closing time".

- The additional servo torque (Ao) must be set for the low-energy function.
- The safety sensors SIO and SIS are evaluated and react as set. In night mode, the drive does not reverse in the case of a blockage, it presses against the obstacle with the set force or torque.

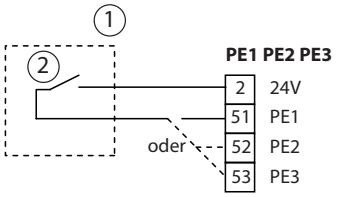
28.2 Servo support with additional servo torque and additional torque servo fire alarm

- Project-related approval is required for use of the function on fire protection doors.
- The drive must be supplied by a on-site safety power supply or an Uninterruptible Power Supply (UPS).
- Only manually operated activation devices (e.g. push buttons, contact mats) are permitted

▶ Connect lintel-mounted smoke switch GC 151 to the drive as described in chapter 18 "Smoke switch control unit".

Function
The servo support function with fire alarm and additional torque applies for fire protection doors which are installed in stairwells and which open towards the staircase as escape route exit doors in the event of a fire alarm in the building (not triggered locally at the drive through the smoke switch control unit). The excess air pressure in the staircase to clear smoke from the escape routes makes manual opening of the door more difficult. With the set torque "Servo fire alarm", the drive supports every activation if a 24V signal "Fire alarm" from the building control centre is queued at input PE1, PE2 or PE3.

In the event of a fire in the direct vicinity of the door, the lintel-mounted smoke switch installed in the door area triggers a shut-down of the drive motor and the electric strike.
In this case, the door closes by spring load.
The door can then only be opened manually, without force support by the drive.
The door drive can only be operated again in normal operation after a reset fire alarm has been carried out. For more detailed information on the reset fire alarm see chapter 18 “Powerturn F and Powerturn F/R on fire protection doors”, p. 54.

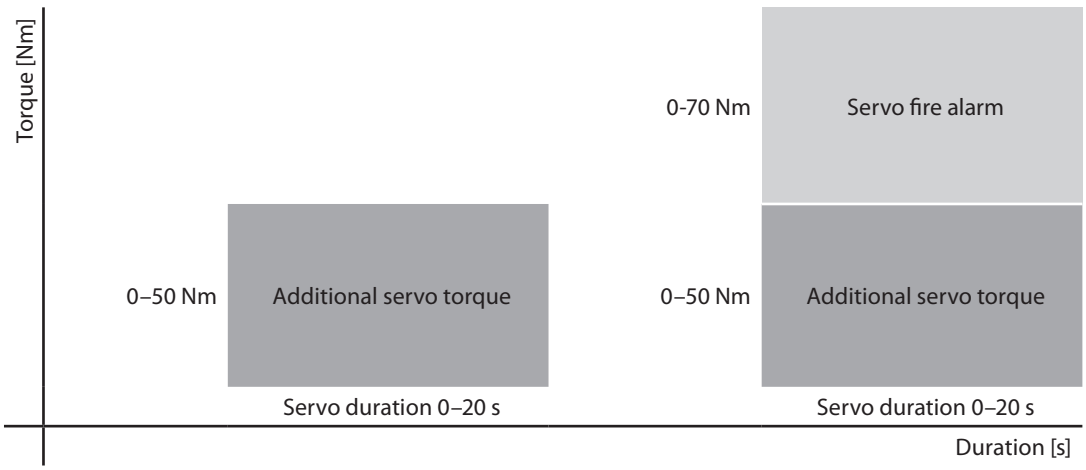


1 On-site building control centre
2 The potential-free output switches the configurable input "Fire alarm servo".

WARNING
Risk of injury due to high dynamic forces of the servo function with fire alarm!
▶ In the event of a fire alarm, no-one may be near the door when it opens.

With activation (KB), the drive opens the door at a set additional servo torque (*Ao*) plus the set opening moment "Servo fire alarm" (*FA*).
The "Servo fire alarm" opening moment (*FA*) is only available as long as the fire alarm signal (24V) is queued at the configurable input (PE1 or PE2 or PE3, set function "Servo fire alarm").
Set the following parameters:
- Duration of the servo support (0–20 s):
  - With display programme switch: set *Ad* to the desired time.
  - With ST220: Set 'Motion parameters' and 'Servo duration' to the desired time.
- Level of desired additional opening moment (0-50 Nm):
  - With display programme switch: set *Ao* to the desired additional torque level.
  - With ST220: Set 'Motion parameters' and 'Servo additional torque' to the desired level.
- Fire alarm function of the configurable input PE1 or PE2 or PE3:
  - with display programme switch: Set *E1* or *E2* or *E3* to *22* (Fire Alarm Servo).
  - with ST220: Set "Signals", "Input signals", "PE 1 function", "PE 2 function" and "PE 3 function" to "Fire Alarm Servo".
- Level of additional "Servo fire alarm" opening moment (0-70 Nm) in case of fire:
  - With display programme switch: *FA* to set the desired level of additional opening moment in the event of a fire.
  - With ST220: Set 'Motion parameters' and 'Servo fire alarm' to the desired level.

- The additional servo torque (*Ao*) must be set for the low-energy function.
- Safety sensor open (SIO) is not evaluated in the event of an activated "Fire alarm servo" function. The drive pushes against an obstacle in the opening direction with the set additional servo torque plus the torque servo fire alarm.
- Safety sensor close (SIS) is not evaluated in the event of an activated "Fire alarm servo" function. The drive pushes against an obstacle in the closing direction with the set closing torque.



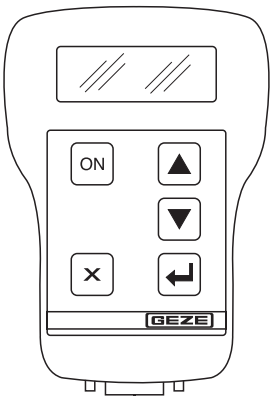
29 Service menu

29.1 Service terminal ST220

- The drive can be commissioned with the ST220 service terminal, software version V2.1 or higher.
- Connection either via 5-pin connector RS485 or using 3.5 mm TRS connector (with adapter cable).

29.1.1 ST220 operation

Key	Function
▲	▫ Cursor upwards ▫ Increase number value ▫ Scroll upward (if key is pressed longer than 2 s)
▼	▫ Cursor downwards ▫ Decrease number value ▫ Scroll downward (if key is pressed longer than 2 s)
×	▫ Cancel input Any input can be cancelled by pressing the x key. The input position then changes back to the first menu position or one menu level back.
↵	▫ Select ▫ Update display ▫ Accept new value



Entering values in service terminal ST220

- ▶ Change value using ▲ or▼.
- ▶ Confirm with ↵.
- ▶ Abort using **x** if necessary.

Display directly after connection

G E Z E	
Service terminal	
2.1	Software version ST220 V2.1
XXXXXYWWJJZZZZZZV	Serial number ST220

29.1.2 Service mode ST220

- The change to service mode occurs when the service terminal is connected to DCU8.
- Service is possible in modes of operation LS, AU, OFF and DO.
- In service mode, the door remains in operation in the current mode of operation (not when teaching is activated).
- From software version 1.8 upwards, the hardware version is recognised. If there is no compatibility, the drive changes to safety switch-off and sets the fault "Wrong HW/SW combination".

Display after connection to the door controller

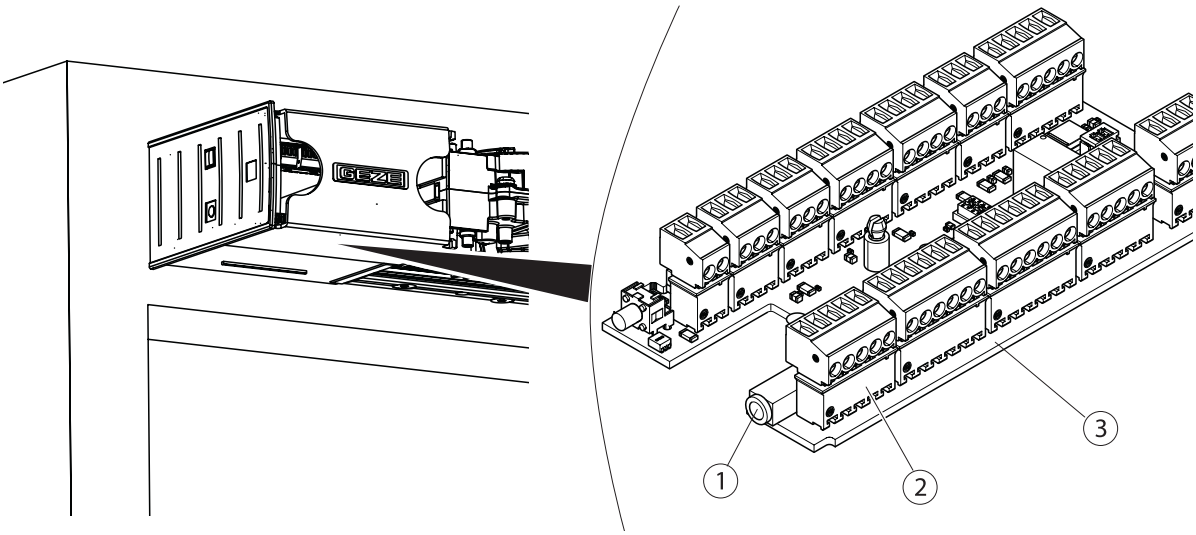
Powerturn V2.1 F0	Drive type	Software version V2.1, hardware version F0
DCU8ST	Basic board DCU800	
Automatic	Mode of operation	
Closed	Door mode	

or

Powerturn V2.1 F1
DCU8GD
Automatic
Closed

29.2 Connecting the ST220 service terminal

Service terminal ST220 is connected to connection board DCU802 (3) using the socket for the 3.5 mm TRS connector (1) or alternatively at the connector plug for DPS (2).



29.3 Service menu ST220

See chapter 29.6 “DPS service menu and service buttons S1/S2 with LEDs”, p. 96. for explanations of the individual parameters

29.3.1 Parameter setting for a 2-leaf drive

Selection of active leaf/passive leaf parameter setting	
Selection GF SF	Selection of the parameter setting GF or SF
Active leaf Para*	Setting of active leaf parameter setting
Passive leaf Para	Setting of passive leaf parameter setting

29.3.2 Main menu

A 4-digit password must be entered before the main menu can be accessed:

```
Password

____
```

Only possible if the menu is password-protected.

Designation	Reference
Mode of operation	see section 29.3.3 “Mode of operation”, p. 77.
Door parameters	see section 29.3.4 “Door parameters”, p. 77.
Movement parameters	see section 29.3.5 “Movement parameters”, p. 78.
Signals	see section 29.3.6 “Signals”, p. 81.
Diagnosis	see section 29.3.7 “Diagnosis”, p. 90.
Standard values	see section 29.3.8 “Standard values”, p. 92.
Reset DCU8	see section 29.3.9 “Reset DCU8”, p. 92.
Start teaching	see section 29.3.10 “Start teaching”, p. 92.
Factory setting	see section 29.3.11 “Factory setting”, p. 92.
Delete maintenance	see section 29.3.12 “Delete maintenance”, p. 92.
Password	see section 29.3.13 “Password”, p. 93.
Language	see section 29.3.14 “Language”, p. 93.

29.3.3 Mode of operation

Designation	Setting values		Explanation
Mode of operation *	Off		Operating mode setting
	Night mode		
	Exit only		
	Automatic		
	Hold open		
Opening type	1-leaf Open		Only open active leaf.
	2-leaf Open		Open active and passive leaves when activated.
Open door	Open door	Press the ▲ key	Control the door using ST220.

29.3.4 Door parameters

Designation	1st sub-menu	2nd sub-menu	Explanation
Number of leaves	1-leaf drive 2-leaf active 2-leaf passive		The parameters are used to set the leaf on which the drive is installed.
Leaf width	Value: 11 x10cm Min 7 x 10 cm Max 16 x 10 cm		
Door weight	Value: 100 kg 200 kg 300 kg **600 kg**		The door weight influences the safe speed.
Control unit type	DCU8 DCU8_F		Display only
Type of installation	**KM BS GLS** KM BG GLS KM BG GST TM BS GLS TM BS GST TM BG GLS		KM Transom installation BG Opposite hinge side HS Hinge side GLS Guide rail GST Link arm TM Door leaf installation
Drive type	**Spring power closes**		
Basic function	Auto mode	Auto mode	
Drive ser. no.	000000000000		Entry of the Serial Number
Maintenance	**Operating time** Number of cycles	Operating time Value 12 months min 0 months max 99 months	
		Number of cycles Value 500,000 min 0 max 3,000,000	The cycle counter is incremented by one: ▫ every time the opening position is reached after automatic activation ▫ every time the standstill position is reached after manual opening if the drive would like to close afterwards.
Electric strike type	No electric strike **Fail-secure** Fail-safe Motor lock		Electric strike type, operator has no closing force before opening.
	Working-close pressure Static close pressure Motor-close pressure		Drive has closing force before opening. Set in connection with an opening delay.

Designation	1st sub-menu	2nd sub-menu	Explanation
Opening delay Day	Value: 0 s * 0.1 min 0 s *0.1 max 90 s *0.1		Door opening delay: The time before the drive opens the door. Only applicable in the automatic and exit only modes of operation.
Opening delay Night mode	Value: 0 s * 0.1 min 0 s *0.1 max 90 s *0.1		Night-mode opening delay: The time before the drive opens the door. Only applicable in the night mode of operation.
ECO mode	**not active** Active		The 24 supply voltage (24VS-ENS) at terminal 4 is switched off after switchover to the modes of operation DO and OFF (after <10s) and NA (after 10min). Note: Activation via the access control system or KB when A, as well as the door closing when switching from DO to AU, takes a few seconds, as the systems need time to start up.
GEZE bus address	Value: **0** **Value** min 0 value max 99 value		For CAN interface.

29.3.5 Movement parameters

Designation	1st sub-menu	2nd sub-menu			Explanation
Speeds	Opening time	Value:	4	s	Opening time*) with automatic opening. Setting pursuant to the table in the Powerturn installation instructions.
		min	3	s	
		max	25	s	
	Closing time	Value:	5	s	Closing time*) after automatic opening. Setting pursuant to the table in the Powerturn installation instructions.
		min	5	s	
		max	25	s	
	Manual closing time	Value:	5	s	Closing time after manual opening or after automatic opening with set automatic door closing mode. Setting pursuant to the table in the Powerturn installation instructions.
		min	5	s	
		max	25	s	
	Closing latching action	Value:	0		Sets the speed at which the drive moves to the closing position shortly before closing. This is required, for example, for operation with a motor lock. Latching action also applies for manual passage.
		min	0		
		max	50		
	Move towards open	**Off**			In the event of further opening attempts, the drive stops before the obstacle in the opening range.
		Imped Motor On			Drive presses against obstacle in the opening range.
		Imped Motor Off			Drive presses against obstacle in opening range and reduces motor current to 0 A.

Designation	1st sub-menu	2nd sub-menu	Explanation
	Door opening	**no** yes	For doors without external loads, such as wind or pressure, the "Free swing function" parameter can be activated in order to enable optimum passage of the door.
	*) the values for opening time and closing time refer to an opening angle of 90°.		
	Braking force	Value: **13** Value min 1 max 14	Braking force during closing via spring action following power failure or fire alarm.
Forces	Opening force	Value: **150** N min 10 N max 250 N	Open static force at the main closing edge.
	Closing force	Value: **150** N min 10 N max 250 N	Closing static force at the main closing edge.
	Obstruction	Value: **6** **0.1 s** min 1 0.1 s max 20 0.1 s	Time for which the drive pushes against an obstacle with the set static force.
	Opening retention force	Value: **00** N min 00 N value 70 N	Constant force at the main closing edge in open position.
	Closing retention force	Value: **00** N min 00 N value 70 N	Constant force at the main closing edge in closed position.
	Closing position force	Value: **50** N min 00 N max 150 N	Force acts after the end of the latching action in the closed position. Manual opening is more difficult during the set time. The greater the force set, the longer the duration. Examples: for 10 N=0.5 s, for 150 N = 2 s
	Door closing torque	Value: **0** Nm min 0 Nm max. 70 Nm	Door closing torque after manual opening. 0...40: ~~EN 16005~~ 41...70: ~~EN 16005~~ or safety sensors necessary.
Hold-open times	Push and Go	Value: **1** s min 0 s max 60 s	Hold-open time during passage with Push and Go.
	Manually	Value: **1** s min 0 s max 70 s no	Hold-open time for manual opening. "No" corresponds to an unlimited hold-open time, no automatic closing. If manual triggering is set, the value is limited to max. 10s.
	2-leaf (Summer)	Value: **1** s min 0 s max 60 s	With activation KI, KA 2-leaf Opening (AU-So) Setting on GF control.
	1-leaf (Winter)	Value: **1** s min 0 s max 60 s	With activation KI, KA 1-leaf Drive (AU-Wi, AU-So) 2-leaf Opening (AU-So) Setting on GF control.
	Authorised contact	Value: **1** s min 0 s max 60 s	With activation through KB.

Designation	1st sub-menu	2nd sub-menu	Explanation
	Close delay GF	-> EN 16005	
		min 0 s	 0 s: both leaves close simultaneously. 01 … 15 s: The active leaf closes some time after the passive leaf.
		max 16 s	 16 s: Active leaf does not close until after the passive leaf has closed completely.
	Dyn extension	**no** yes	When actuated, the passage frequency is taken into account in the hold-open time. The door does not close as fast when passage requirements are increased.
Reversal	Manual rev. closing	**not active** Active	Reversing in case of obstruction during closing after manual opening.
	Auto rev. closing	not active **Active**	Reversing in case of obstruction during closing after automatic opening.
Servo duration		Value: 0 s min 0 s max 20 s	Adjustable duration of the force support in servo mode.
Additional servo torque		Value: 0 Nm min 0 Nm max 50 Nm	Adjustable torque of force support for manual opening (limited in time through "servo duration").
Servo fire alarm		Value: 0 Nm min 0 Nm max 70 Nm	Adjustable torque for power-support for fire alarm if 24 V applied to PE1 or PE2. Acts in addition to "additional servo torque". See servo function with fire alarm, chapter 28.2.1 „Servo-Funktion mit Zusatzmoment Servo-Brandalarm“, S. <?>.
Trigger/Reset		Manual trigger **Manual reset**	Settable reset functions, see chapter 18.
Back check		Value: 50 % min 10 % max 80 %	Application of the back check, referenced to maximum opening range (manual opening).
Passive leaf start range		Value: 10 % min 0 % max 95 %	Start of the passive leaf at opening range of the active leaf, referenced to its maximum opening range. Note EN 16005 with 50 cm gap between the two main closing edges.
Push and Go		Value: 0% min 0 % max 20 %	0%: No Push & Go 1–20%: Push & Go Response range referenced to maximum opening range (=100).

Designation	1st sub-menu	2nd sub-menu	Explanation
Setting opening width		Value: 0 degrees min. -9 degrees max. 9 degrees	The value is only for fine adjustment. The value is learned during the teaching run and then corresponds to the 0 point. It can be adjusted manually in this way and will subsequently correspond to the 0 point again. The opening value can thus be adjusted manually in incremental steps. Is not set in the factory setting.
Reversing limit		Value: 30 *0.1 degrees min. 0 *0.1 degrees max 90 *0.1 degrees	Angle on the drive axis for fine adjustment of the tolerance in the closing position from which the drive attempts to close again. ▶ Set the value so that the door gap is as small as possible before the drive closes again.
Door closer mode		**Manually** Automatic	Manual: The door closes only after being opened manually, using the set closing torque; otherwise, there is speed regulation Automatic: The door always closes with the set closing torque, regardless of the type of activation.
Manual interference		Value: 0 Value min. 0 value max 10 value	Provides the option of manually intervening in the movement of the door from the SIO side during automatic closing. When active, the door can then be manually reopened. 0: = off, 1: = easy, 10: = difficult

29.3.6 Signals

Designation	1st sub-menu	2nd sub-menu	3nd sub-menu	Explanation
Input signals	SI1 - SIS terminal	Current state	SI1 - SIS terminal Z->not active K->NC contact F->SIS rev	
		SI1 contact type	Not used **Normally closed contact** Frequency	Parameter sets the use of the safety sensor close contact type.
		SIS function	**SIS rev**	If the safety sensor close triggers, the door reverses.
			SIS and KI	If the safety sensor close triggers, the drive reacts as with activation KI.
			SIS and KA	If the safety sensor close triggers, the drive reacts as with activation KA.
			SIS stop	If the safety sensor close triggers during a closing movement, the drive stops.
		SIS manual	not active **Active**	Safety sensor close active/ not active during closing after manual opening in door closer mode.

Designation	1st sub-menu	2nd sub-menu	3nd sub-menu	Explanation
	SI3 - terminal SIO	Current state	SI3 - terminal SIO Z->not active K->NC contact F->SIO stop	
		SI3 Contact type	Not used **Normally closed contact** Frequency	Parameter sets the use of the safety sensor open contact type.
		SI3 function	**SIO stop**	If the safety sensor open triggers, only the drive on the detected door leaf stops.
			SIO stop SF GF	If the behaviour should be the same for active leaf and passive leaf, both drives must be set to SIO stop SF GF. If the safety sensor open triggers, both active leaf and passive leaf drives stop.
		SI3 Wall blanking	Value: 0% min. 0 % max. 99 %	0 %: No wall blanking. The application range for the wall blanking of the Open safety sensor is learnt during commissioning and can be corrected here. Maximum opening range of the door = 99%.
		SIO manual	**not active** Active	Safety sensor open (SIO) not active during manual opening.
	Bolt contact type	Current state	Bolt contact type Z->not active K-> NO contact F-> Deadbolt contact	
		Bolt contact type	**Normally open contact** Normally closed contact	Feedback e.g. of a motor lock.
	KB	Current state	KB Z->not active K-> NO contact	
		KB Contact type	Not used **Normally open contact** Normally closed contact	The input KB is active in the operating modes AU, LS and NA. With 2-leaf assemblies the mechanical contact can be connected to the active leaf control or to the passive leaf control. When activated, the active leaf opens and, if switched on, the passive leaf opens. Active in every mode of operation when the door is not closed.
	KI	Current state	KI Z->not active K-> NO contact A->*0.1s	

Designation	1st sub-menu	2nd sub-menu	3nd sub-menu	Explanation
		KI Contact type	Not used **Normally open contact** Normally closed contact	The input KI is active in AU and LS mode. With 2-leaf assemblies the contact sensor inside can be connected to the active leaf control or to the passive leaf control. When activated, the active leaf opens and, if switched on, the passive leaf opens. Active in every mode of operation when the door is not closed.
		KI delay	Value 0 s *0.1 min **0 s *0.1** max 90 s *0.1	Only active when the door is in a closing position.
	KA	Current state	KA Z->not active K-> NO contact A->*0.1s	
		KA Contact type	Not used **Normally open contact** Normally closed contact	The input contact sensor outside is only active in the AU operating mode. With 2-leaf assemblies the contact sensor outside can be connected to the active leaf control or to the passive leaf control. When activated, the active leaf opens and, if switched on, the passive leaf opens. Active in every mode of operation when the door is not closed.
		KA delay	Value: 0 s *0.1 min **0 s *0.1** max 90 s *0.1	Only active when the door is in a closing position.
	NA	Current state	NA Z->not active K-> NO contact	
		NA contact type	Not used **Normally open contact** Normally closed contact	
	LS	Current state	LS Z->not active K-> NO contact	
		LS contact type	Not used **Normally open contact** Normally closed contact	
	AU	Current state	AU Z->not active K-> NO contact	
		AU contact type	Not used **Normally open contact** Normally closed contact	
	DO	Current state	DO Z->not active K-> NO contact	

Designation	1st sub-menu	2nd sub-menu	3nd sub-menu	Explanation
		DO contact type	Not used **Normally open contact** Normally closed contact	
	OFF	Current state	OFF Z->not active K-> NO contact	
		OFF Contact type	Not used **Normally open contact** Normally closed contact	
	PE1	Current state	PE1 Z->not active K->not used F->not used	
		PE1 function	**Not used**	
			Switch over summer	For connection of a push button for the summer function.
			Switch over winter	For connection of a push button for the winter function. Only for switching from 1-leaf to 2-leaf opening, not for actually opening the door.
			Sabotage NC	Permanently switched. If the contact is interrupted, KB is not analysed in night mode. All other functions remain the same.
			Closing position GF NO	Closing position contact of the door leaf ▫ For 1-leaf Door ▫ For 1-leaf Drive unit with manual passive leaf (door closer): Closing position contact of the active leaf ▫ For 2-leaf door: Active leaf contact on the active leaf control unit, passive leaf contact on the passive leaf control unit
			P-KI activation NO	Additional contact sensor (P-KI, P-KA).
			P-KA activation NO	
			Switch function NO	On activation, the output of the push button is closed. With 2-leaf assemblies the push button can be connected to the active leaf control or to the passive leaf control. If the push button is connected to the passive leaf control, both door leaves open and close on activation of the switch function. When the push button is pressed once, the drive opens the door. When the push button is pressed again, the drive closes the door.

Designation	1st sub-menu	2nd sub-menu	3nd sub-menu	Explanation
			Switch function OHZ NO	On activation, the output of the push button is closed. With 2-leaf assemblies the push button can be connected to the active leaf control or to the passive leaf control. If the push button is connected to the passive leaf control unit, both door leaves will open and close when the switch function is activated, even if the opening type is set to 'single leaf'. Open mode is active (bed opening). When the push button is pressed once, the drive opens the door and closes after the hold-open time has expired. When the push button is pressed again (within the hold-open time) the drive closes the door without waiting for the hold-open time to expire. If the push button is connected to the active leaf, the 1-leaf hold-open time is used for 1-leaf applications and for 2-leaf applications the 2-leaf hold-open time is used.
			Reset push button NO	For restarting the drive. Function as reset.
			Double push button NO	Open 1× press = 1 leaf Open Open 2× press = 2 leaf Open
			Stop normally open contact NO	For connection of a stop push button.
			Stop normally closed contact NC	
			Closing position SF	closed position contact for the passive leaf for 2-leaf door with manual passive leaf (door closer):
			WC control	Connection to the internal push button for the WC function.
			Fire alarm servo	If active, the function additional servo torque is set with servo fire alarm torque for the duration (servo).
			1-leaf opening	In 2-leaf systems, when the signal is active on the active leaf only 1 leaf is opened. Display only for 2-leaf drives.
	PE2	Current state	PE2 Z->not active K->not used F->not used	
		PE2 function	**Not used**	
			MPS MPS	For connection of an MPS.
			Selector switch Summer NO	For connection of a push button for the summer function.

Designation	1st sub-menu	2nd sub-menu	3nd sub-menu	Explanation
			Selector switch Winter NO	For connection of a push button for the winter function.
			Sabotage NC	see PE1
			Closed position active leaf NO	Closing position contact of the door leaf ▫ For 1-leaf Door ▫ For 1-leaf Drive unit with manual passive leaf (door closer): Closing position contact of the active leaf ▫ For 2-leaf door: Active leaf contact on the active leaf control unit, passive leaf contact on the passive leaf control unit
			Emergency lock.20KOhm NO	The input can be used to connect an emergency lock switch. When the emergency lock switch is activated, the contact is closed and 17.83 V is applied to the input. The door closes and locks. The contact sensors KA, KI and KB, safety sensors SIS and SIO as well as obstacle detection are hidden. The door remains closed as long as the emergency lock signal is applied to the input.
			P-KI activation NO	Additional contact sensor (P-KI, P-KA). For connection of additional closing contacts.
			P-KA activation NO	
			Switch function NO	see PE1
			Switch function OHZ NO	see PE1
			Stop 12 kOhm NO	For connecting a stop button with 12 kOhm terminating resistor.
			Reset-Push button NO	For restarting the drive. Function as reset.
			Double push button NO	Open 1× press = 1 leaf leaf. Open 2× press = 2 leaf leaf.
			Stop normally open contact NO	For connection of a stop push button.
			Stop normally closed contact NC	For connection of a stop push button.
			Closing position SF	closed position contact for the passive leaf for 2-leaf door with manual passive leaf (door closer):
			Stop 20 kOhm	For connecting a stop button with 20 kOhm terminating resistor.
			WC control	Connection to the internal push button for the WC function.
			Fire alarm servo	See PE1

Designation	1st sub-menu	2nd sub-menu	3nd sub-menu	Explanation
			1-leaf opening	In 2-leaf systems, when the signal is active on the active leaf only 1 leaf is opened. Display only for 2-leaf drives.
			Fire alarm without SI	If active, the safety sensors are hidden and the door opens and closes at a safe speed.
	PE3	Current state	PE3 Z->not active K->not used F->not used	
		PE3 function	**Not used**	
			MPS MPS	For connection of an MPS.
			Selector switch Summer NO	For connection of a push button for the summer function.
			Selector switch Winter NO	For connection of a push button for the winter function.
			Sabotage NC	see PE1
			Closing position GF NO	Closing position contact of the door leaf ▫ For 1-leaf Door ▫ For 1-leaf Drive unit with manual passive leaf (door closer): Closing position contact of the active leaf ▫ For 2-leaf door: Active leaf contact on the active leaf control unit, passive leaf contact on the passive leaf control unit
			Emergency lock.20KOhm NO	see PE2
			P-KI activation NO	Additional contact sensor (P-KI, P-KA). For connection of additional closing contacts.
			P-KA activation NO	
			Switch function NO	see PE1
			Switch function OHZ NO	see PE1
			Stop 12 kOhm NO	For connecting a stop button with 12 kOhm terminating resistor.
			Reset-Push button NO	For restarting the drive. Function as reset.
			Double push button NO	Open 1× press = 1 leaf Open Open 2× press = 2 leaf Open
			Stop normally open contact NO	For connection of a stop push button.
			Stop normally closed contact NC	For connection of a stop push button.
			Closed position passive leaf NO	closed position contact for the passive leaf for 2-leaf door with manual passive leaf (door closer):
			Stop 20 kOhm NO	For connecting a stop button with 20 kOhm terminating resistor.
			WC control NO	Connection to the internal push button for the WC function.
			Fire alarm Servo NO	See PE1.

Designation	1st sub-menu	2nd sub-menu	3nd sub-menu	Explanation
			1-leaf opening	See PE2.
			Fire alarm without SI	See PE2.
	Mode of operation push button	Current state	Mode of operation push button Z -> not active K -> normally opened contact	
		push button contact	Not used	Operating modes push button on the drive not active.
			Normally open contact	Operating modes push button on the drive active.
Output signals	PA1	Current state	PA1 Z->not active F->not used K-> NO contact	
		PA1 function	Not used	
			Gong	If KA is triggered.
			Fault NO contact	The function is used for fault messages, e.g. to an on-site building control centre. The contact closes or opens respectively if the control determines a fault.
			Fault normally closed contact	
			Fault MPS	The function is used to switch the fault LED at the mechanical programme switch. The contact closes if the control determines a fault. When maintenance is due, the output is switched cyclically and the fault LED on the MPS flashes.
			Warning signal	The function is used to cyclically switch an activator on/of while the door is opening or closing.
			Electric strike	For connection of an additional electric strike. Function in accordance with parameters "Electric strike type".
			closed lock	The function is used to signal the door status, e.g. to a building control centre.
			Closed	
			Not closed	
			open	
			Off	
			Night mode	
			Exit only	
			Automatic	
			Hold open	
			Light control	The function is used to activate a light controlling device which, for example, switches on the entry illumination as soon as a contact sensor (KI, KA, KB, SIS+KI, SIS+KA) is activated or the door is opened manually.
			Day/night mode changeover	This function is used to signal the day mode of operation to a customer building control centre. The output switches to GND if the mode of operation LS, AU 1-leaf, DO, or AU 2-leaf is set.

Designation	1st sub-menu	2nd sub-menu	3nd sub-menu	Explanation
			Maintenance due	The function is used to signal the door status, e.g. to a building control centre.
			Holding magnet active leaf	For setting the holding magnet (active leaf).
			Holding magnet passive leaf	For setting the holding magnet (passive leaf).
			WC time-out	For connection of a lamp or a signal to indicate when the 30-min. timer has expired for the WC function.
			TOE fail-secure NO	For connection of a fail-secure electric strike. Only works when the TOE function is active.
			TOE fail-safe NC	For connection of a fail-safe electric strike. Only works when the TOE function is active.
	PA2	Current state	PA2 Z->not active F->not used K-> NO contact	
		PA2 function	**Not used**	
			Gong	If KA is triggered.
			Fault NO contact	see PA1
			Fault normally closed contact	
			Fault MPS	see PA1
			Warning signal	The function is used to cyclically switch an activator on/off while the door is opening or closing.
			Electric strike	For connection of an additional electric strike. See PA1.
			Not used	
			closed lock	The function is used to signal the door status, e.g. to a building control centre.
			Closed	
			Not closed	
			open	
			Off	
			Night mode	
			Exit only	
			Automatic	
			Hold open	
			Light control	see PA1
			Day/night mode changeover	see PA1
			Not used	
			Maintenance due	see PA1
			Holding magnet active leaf	For setting the holding magnet (active leaf).
			Holding magnet passive leaf	For setting the holding magnet (passive leaf).
			WC time-out	For connecting a lamp or a signal for signalling when the 30-minute timer for the WC function has expired.
			TOE fail-secure NO	See PA1.
			TOE fail-safe NC	See PA1.

Designation	1st sub-menu	2nd sub-menu	3nd sub-menu	Explanation
	Testing SI	Current state	Testing SI Z->not active K->not used F->No testing	
		Testing SI	**No testing** Testing with 24 V Testing with GND Energy-saving mode	Testing the safety sensor. Depending on the type used, the testing must be set to 24V or GND here.
	Operating mode LED	Current state	Operating mode LED Z->not active K->not used F->Mode of operation	
		LED function	**Mode of operation** Inactive	Deactivates the mode of operation LED on the drive.

29.3.7 Diagnosis

Designation	1st sub-menu	2nd sub-menu		Explanation
Current values	Inputs	SI1	0 V	
		SI3	0 V	
		RM	0 V	
		KB	0 V	
		KI	0 V	
		KA	0 V	
		NA	0 V	
		LS	0 V	
		AU	0 V	
		DO	0 V	
		OFF	0 V	
		PE1	0 V	
		PE2	0.0 V	
		PE3	0.0 V	
		S1	0 V	
		S2	0 V	
		S3	0 V	
		FK1	0 V	
		FK2	0 V	
		END	0 V	
	Outputs	PA1	closed	
		PA2	0 V	
		TOE	24 V	
		TEST	24 V	
		FAN	0 V	
		MAG	0 V	
	Internal values	current position		
			23 %	
		current motor power		
		Mot DCU800	0.0 A	
		Voltages		
		Mains	On	
		24 V internal	xy.z V	
		24 V external	xy.z V	
		Temperatures		
		DCU800	41 degrees C	
		M DCU800	45 degrees C	
		Statistics		
		Cycles total	0	
		Cycles man	0	
		Hours	1352	
		Hours ser	112	
		Yoke cycles	235	

Designation	1st sub-menu	2nd sub-menu	Explanation
current conditions	Inputs	SI1 off	
		SI3 off	
		RM off	
		KB off	
		KI off	
		KA off	
		NA off	
		LS off	
		AU off	
		DO off	
		OFF off	
		PE1 off	
		PE2 off	
		PE3 off	
		S1 off	
		S2 off	
		S3 off	
		FK1 off	
		FK2 off	
		END off	
	Outputs	PA1 off	
		PA2 off	
		TOE off	
		TEST off	
		FAN off	
		MAG off	
Error memory	Current errors	Fault 1 Cause 1	
		Cause 2	
		Fault 2 Cause 1	
		Cause 2	
		Fault 3 Cause 1	
		Cause 2	
		Fault 4 Cause 1	
		Cause 2	
	Old errors	Fault 1 Cause 1	
		Cause 2	
		Fault 2 Cause 1	
		Cause 2	
	Current Delete error	**no**	
		yes	
	Clear old faults	**no**	
		yes	
Configuration	Drive	Ser. no. 000000000000	
		OEW left ?xyz	
		Mot.resist: 1770 mΩ	
		Curr.M.Res: 0 mΩ	
	Control unit	Type Powerturn	
		Prod. date. CW xy xzyx	
		SVN 1280:161711 (Example)	
	myGEZE Bluetooth Mod	Software Version	
		(only available on DCU112)	
		Start Bluetooth pairing Establish pairing with	
		DCU112	
	Software	Powerturn 2.1 F0	
		SVN 2637:2640M	
		CRC bfd8a87	
		ID no. 158511 (example)	

29.3.8 Standard values

Designation	1st sub-menu	2nd sub-menu	Explanation
Standard values	**no** yes		All the values are set to standard setting. Position, SIO wall blanking and opening angle are retained. Fault memory is deleted. A teaching run and initialisation run are not necessary.

29.3.9 Reset DCU8

Designation	1st sub-menu	2nd sub-menu	Explanation
Reset DCU8	**no** yes		Fault memory is deleted. Position and opening angle are not deleted. The processor restarts. A teaching run is not necessary, an initialisation run is necessary.

29.3.10 Start teaching

Designation	1st sub-menu	2nd sub-menu	Explanation
Start teaching	**1-leaf Teach** 2-leaf Teach		Starts the teaching procedure. For the procedure, see chapter 22.2 “Teaching run”, p. 65.

29.3.11 Factory setting

Designation	1st sub-menu	2nd sub-menu	Explanation
Factory setting	**no** yes		Reset all the values to the factory settings. The state is like after delivery. Values to standard setting, fault memory, position and opening angle are deleted. A teaching run and initialisation run are necessary.

29.3.12 Delete maintenance

Designation	1st sub-menu	2nd sub-menu	Explanation
Delete maintenance	**no** yes		Clear the maintenance values.

29.3.13 Password

Designation	1st sub-menu	2nd sub-menu	Explanation
Password ST220	Password old 0000 Password new ----		for access to the service menu with ST220.
Password DPS	Password old 00 Password new --		Is used to enable the DPS instead of enabling via a key switch. Disabling reoccurs automatically after 1 minute without push button activation. The first digit specifies how often the ▲ button has to be pressed and the second digit how often the ▼ button has to be pressed to enable operation of the DPS.
Block parameters	**no** yes		

Entering the password in control unit ST220

- ▶ Change digit with ▲ or ▼.
- ▶ Conform figure and change to next position using ↵ .
- ▶ Abort with **x**.

The current position is indicated by the asterisk below.

- ▶ After completing entry, press ↵ to accept the password.

- ▫ After 1 minute without a button being pressed or when the service menu is accessed again, the password is required before changes to the operating mode setting or to the parameter settings can be carried out.
- ▫ The password has to be set separately for the active leaf and passive leaf drive. The active leaf drive and the passive leaf drive can have different passwords.
- ▫ When the password for ST220 is set, access to the service menu via DPS is no longer possible.
- ▫ If the password is forgotten, a special flash file must be requested from GEZE with which the password on the control unit can be reset to 00.
- ▫ The password cannot be deleted by installing a new software version

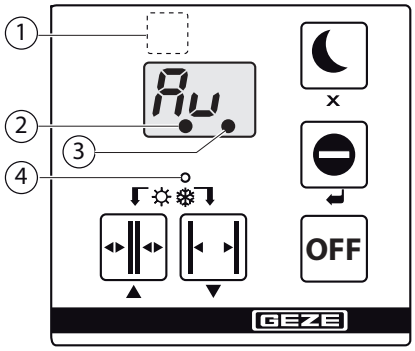
29.3.14 Language

Designation	Setting values		Explanation
Language		**German** English French Swedish	

29.4 Display programme switch DPS

The DPS can be used for commissioning and service:
- for changing the drive parameters
- for teaching the drive
- for diagnosis

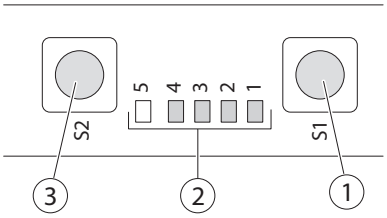
Operating mode		Service mode	
nA	Night mode	×	Cancel and return to first menu level
LS	Exit only	↵	Confirm
Au	Automatic	▲	Scroll up increase value
do	Hold open	▼	Scroll down Reduce value
oF	OFF		
▲ + ▼ simultaneously	Change 2-leaf operation 1-leaf operation	–	–
Service key (1) + ↵ simultaneously	Change mode of operation / service mode		



1 Service button
2 Position unknown
3 Illuminated for maintenance
4 Lights up at 1-leaf operation

29.5 Service buttons S1 and S2

1 Service push button S1
2 Service LEDs
3 Service push button S2



The service keys S1 and S2 have the following functions:
- for diagnosis
- for indicating and changing drive parameters
- for "teaching" the drive

During normal operation the LEDs indicate the current mode of operation.
The mode of operation can be changed using keys S1 and S2.

Function	Input and reaction
Open/leave the parameter menu	▶ Simultaneously press buttons S1 and S2 longer than 2 s. LED5 flashes slowly, corresponding to the selected parameter level: Level 1: 1 pulse + 1 s pause Level 2: 2 pulses + 1 s pause LED1 through LED4 display the parameter.
Parameter selection	▶ Briefly press key S2 (+) or key S1 (–).
Switch to value setting	▶ Keep key S1 pressed longer than 2 s. In the value menu, LED5 is off, LED1 to LED4 display the value according to the value table.
Change value	▶ Briefly press key S2 (+) or key S1 (–).
Confirm value	▶ Press key S1 longer than 2 s.
Value setting without exiting value change	▶ Press and hold the S2 push button for longer than 2 seconds.
Reset the values to the factory settings	▶ Set parameter 24 (factory settings) to 01.

System signals

- If one or more faults are present, these are displayed one after the other, alternating with the current operating mode in coded form with the service LEDs 1 to 4.
- The red LED5 flashes quickly (10 Hz) on the fault display.
- The mode of operation is displayed for 5 s, the respective fault message for 2 s.

Service mode

- Individual parameters can be set for the control in service mode.
- Within the first 3 minutes of the mains voltage being switched on, the device can be changed to service mode using keys S1 and S2.
- There is a time limit to changing to service mode using keys S1 and S2 so that safety-related parameters are not changed unintentionally during operation.
- It is possible to change from any mode of operation to the service mode.
- The control automatically changes back to normal operation if no key is pressed in service mode for 2 minutes.
- In service mode, the door drive does not open and close automatically.
- The door can be opened and closed manually.

Changing to the parameter selection menu

▶ Simultaneously press keys S1 and S2 longer than 2 s.

The control changes to the parameter selection menu.
In this menu, the red LED5 flashes once (parameter level 1) or twice (parameter level 2) at 1 Hz.
The parameters are indicated in coded form by the other 4 LEDs.
The desired parameters are selected using keys S1 (–) and S2 (+).

Changing to the value menu

▶ Press key S1 for longer than 2 s.

The control changes to the value menu.

- All 5 LEDs are used for coding the values.
- The desired value is selected using keys S1 (–) and S2 (+).
- After key S1 has been kept pressed for more than 2 s the control takes over the value indicated.
- Input can always be aborted by pressing key S2 for more than 2 s; the control then changes back to the value menu or the parameter menu.
- Service mode is quit by pressing keys S1 and S2 simultaneously for more than 2 s.

Display values service LEDs

5	4	3	2	1	Value
○	○	○	○	○	0
○	○	○	○	●	1
○	○	○	●	○	2
○	○	○	●	●	3
○	○	●	○	○	4
○	○	●	○	●	5
○	○	●	●	○	6
○	○	●	●	●	7
○	●	○	○	○	8
○	●	○	○	●	9
○	●	○	●	○	10
○	●	○	●	●	12
○	●	●	○	○	14
○	●	●	○	●	16
○	●	●	●	○	18
○	●	●	●	●	20

5	4	3	2	1	Value
●	○	○	○	○	25
●	○	○	○	●	30
●	○	○	●	○	35
●	○	○	●	●	40
●	○	●	○	○	45
●	○	●	○	●	50
●	○	●	●	○	55
●	○	●	●	●	60
●	●	○	○	○	65
●	●	○	○	●	70
●	●	○	●	○	75
●	●	○	●	●	80
●	●	●	○	○	85
●	●	●	○	●	90
●	●	●	●	○	95
●	●	●	●	●	100

29.6 DPS service menu and service buttons S1/S2 with LEDs

- Changing to the service mode is possible in the NA, LS, AU and DO operating modes.
- If no key is pressed in service mode for a period of 2 minutes, an automatic change to the operating mode takes place.
- In service mode, the door remains in operation in the current mode of operation (not when teaching is activated).
- Service mode via the DPS is blocked if the service app at the drive is active (display nS).

1st menu

DPS	Service LEDs 5	4	3	2	1	Parameter	Setting values		Explanation
oE	*	○	○	○	●	Opening time	03…**04**…06…25		in s; Opening time*) with automatic opening. Setting pursuant to the table in the Powerturn installation instructions.
cE	*	○	○	●	○	Closing time	**05**…06…25		in s;
FB	*	○	●	○	●	Leaf width	07…**11**…16		in mm × 100; Influences the forces at the main closing edge.
tG						Door weight	01, 02, 03, **06**		in kg × 100 ; Influences the safe speed.
Pu	*	○	●	○	○	Push and Go	**00** 01		0%: No Push & Go 1–20%: Push & Go Response range referenced to maximum opening range (=100).
SC	*	○	●	●	○	Latching action closing	**00**…10 12…20 25…50		Sets the speed at which the drive moves to the closing position shortly before closing. This is required e.g. for operation with a motor lock. Latching action also applies for manual passage.
or	*	○	●	●	●	Hold-open times, 1-leaf (winter)	00…**01**…10 12…20 25…50 60		in s; For 2-leaf drive for winter operation. With activation KI, KA
FI	*	●	○	○	●	SIS function	**01**	**SIS rev**	If the safety sensor close triggers, the door reverses.
							02	SIS and KI	If the safety sensor close triggers, the drive reacts as with activation KI.
							03	SIS and KA	If the safety sensor close triggers, the drive reacts as with activation KA.
							04	SIS and Stop	If the safety sensor close triggers during a closing movement, the drive stops.
F3	*	●	○	●	○	SI3 function	**05**	**SIO Stop**	If the safety sensor open triggers, only the drive on the detected door leaf stops.
							06	SIO Stop SF-GF	If the behaviour should be the same for active leaf and passive leaf, both drives must be set to SIO stop SF GF. If the safety sensor open triggers, both active leaf and passive leaf drives stop.
tE	*	●	○	●	●	Testing SI	**00** 01 02 03	**No testing** Testing with 24 V Testing with GND Energy-saving mode	Testing the safety sensor. Depending on the type used, the testing must be set to 24 V or GND here. For energy-related reasons, the Powerturn can switch the GC 338 automatically to standby mode as long as it is not required. See chapter 5.1 “Pair of safety sensor strips GC 338”, p. 13.

*) The values for opening time and closing time refer to an opening angle of 90°.

to	*	●	●	○	○	Electric strike type	00	No electric strike	
							01	**Fail-secure**	Drive does not have closing force (pressure in the closing position) before opening.
							02	Fail-safe	
							03	Motor lock	

DPS	Service LEDs 5	4	3	2	1	Parameter	Setting values		Explanation
							04	Working closing pressure	Drive has closing force (pressure in the closing position) before opening. Set in connection with an opening delay.
							05	Static closing pressure	
							06	Motor closing pressure	
St	–	–	–	–	–	Control unit type	80	DCU8	Only display, no setting option.
							81	DCU8-F	
OH	*	●	●	○	●	Type of installation	**01**	**KM HS GLS**	**Transom installation hinge side guide rail**
							02	KM BG GLS	Transom installation opposite hinge side guide rail
							03	KM BG GST	Transom installation opposite hinge side link arm
							04	TM HS GLS	Door leaf installation hinge side guide rail
							05	TM HS GST	Door leaf installation hinge side link arm
							06	TM BG GLS	Door leaf installation opposite hinge side guide rail
At	*	●	●	●	○	Drive type	**00**	**Spring load closes**	
tS						Door closer mode	**00**	**Manual**	Manual: The door closes only after being opened manually, using the set closing torque; otherwise, there is speed regulation Automatic: The door always closes with the set closing torque, regardless of the type of activation.
							01	Automatic	
HE						Manual interference	**00**	**Not active**	Provides the option of manually intervening in the movement of the door from the SIO side during automatic closing. When active, the door can then be manually reopened.
							01 …10	active	
EP	–	–	–	–	–	Software version	e.g. SL, 10, 00 for DCU8 V1.0		or SF, 10, 01 for DCU8-F V1.0.1 for special solutions; Scroll forwards using "arrow downwards", menu has 3 levels Level 1 → SL; Level 2 → 10; Level 3 → 00 (00 -> standard / 01 → for special solutions…).
nE									Next level

2. Menu

DPS	Service LEDs					Parameter	Setting values	Explanation
	5	4	3	2	1			
OP	–	–	–	–	–	Push And Go hold-open times	00 **01** … 10 12 … 20 25 … 50 60	in s; Hold-open time during passage with Push and Go.
HO	–	–	–	–	–	Hold-open times, manual	00 **01** … 10 12 … 20 25 … 50 60	in s; Hold-open time for manual opening; Values corresponding to the time.
							No	No automatic closing. If manual triggering is set, the value is limited to max. 10s.
oH	–	–	–	–	–	Hold-open time 2-leaf (Summer)	00 **01** … 10 12 … 20 24 … 50 60	in s; With 2-leaf drive for summer operation. (AU-So). Setting on GF control. Valid for KI, KA.
dL	–	–	–	–	–	Opening delay Day	**00** … 90	in s x 0,1; Door opening delay: The time before the drive opens the door. Only applicable in the automatic and exit only modes of operation.
dn	–	–	–	–	–	Opening delay Night mode	**00** … 90	in s x 0,1; Night-mode opening delay: The time before the drive opens the door. Only applicable in the night mode of operation.
SU	–	–	–	–	–	Close delay GF	00	~~EN 16005~~ Simultaneous closing of both leaves.
							01 …10 … 15s	~~EN 16005~~ The active leaf closes some time after the passive leaf.
							99	EN 16005 Active leaf does not close until after the passive leaf has closed completely. This value must be set in order to fulfil EN 16005. The value does not correspond to the time.
FL	–	–	–	–	–	Passive leaf start range	00 … **10** … 95	in % Start of the passive leaf at opening range of the active leaf, referenced to its maximum opening range.
Ad	–	–	–	–	–	Servo duration	**00** … 20	in s; Adjustable duration of the force support in servo mode.
Ao	–	–	–	–	–	Additional servo torque	**00** … 50	in Nm; Adjustable torque of force support for manual opening (limited in time through "servo duration").
FA	–	–	–	–	–	Servo fire alarm	**00** … 70	in Nm; Adjustable torque for power-support for fire alarm if 24 V applied to PE1 or PE2. Acts in addition to "additional servo torque". See servo function with fire alarm, chapter 28.2.1 „Servo-Funktion mit Zusatzmoment Servo-Brandalarm“, S. <?>.

DPS	Service LEDs					Parameter	Setting values	Explanation
	5	4	3	2	1			
FP	–	–	–	–	–	Trigger/reset	00, **04**	00: Reset Trigger **04: Reset operating mode**
dF	–	–	–	–	–	Door closing torque	**00,** 16 … 40	in Nm; Door closing torque after manual opening. 0 … 40: EN 16005
							41 … 70	41 … 70: ~~EN 16005~~ or safety sensors are required.
AB	–	–	–	–	–	Wall blanking	**00** … 01 … 99	00: No wall blanking. The application range for the wall blanking of the Open safety sensor is learnt during commissioning and can be corrected here. Maximum opening range of the door = 99.
LE	*	●	●	●	●	Start teaching ->1 leaf Teach	Start/terminate	Teaching a 1-leaf system. For the procedure, see chapter 22.2 “Teaching run”, p. 65.
L2						Start teaching ->2 leaf Teach	Start/terminate	Teaching a 2-leaf system. For the procedure, see chapter 22.2 “Teaching run”, p. 65.
Er	–	–	–	–	–	Current errors	CE	Display of the current faults in the fault memory. Delete with CE.
oE	–	–	–	–	–	Delete old faults	CE	Display of old faults in the fault memory. Delete with CE.
CP	**	○	○	○	●	Factory setting	cP	Reset all the values to the factory settings. The state is like after delivery. Values to standard setting, fault memory, position and opening angle are deleted. A teaching run and initialisation run are necessary.
LP	**	○	○	●	○	Standard values	dP	After acknowledgement, all values are set to the default setting. Position and opening angle are retained. Fault memory is deleted. A teaching run and initialisation run are not necessary.
PP	**	○	○	●	●	Reset DCU8		Once confirmed, the display jumps to 88. The position and opening angle are not cleared. The processor restarts. A teaching run is not necessary, an initialisation run is necessary.

* 1 flashing pulse + 0.9 s pause
** 2 flashing pulses + 0.7 s pause

3. Menu

DPS	Service LEDs					Parameter	Setting values		Explanation
	5	4	3	2	1				
oS	–	–	–	–	–	Hold-open time KB	00 … **01** … 10 12 … 20 25 … 50 60		in s; Hold-open time after activation with KB.
od	–	–	–	–	–	Dyn extension	**00** 01	**No** Yes	When actuated, the passage frequency is taken into account in the hold-open time. The door does not close as fast when passage requirements are increased.
Sb	*	○	○	●	●	Manual closing time	**05** … 06 … 15 … 25		in s; Closing time after manual opening or after automatic opening with set automatic door closing mode. Setting pursuant to the table in the Powerturn installation instructions.
dR	–	–	–	–	–	Back check	10 … 12 … 20 … 25 … **50** … 60 … 80		Application of the back check, referenced to maximum opening range (manual opening).
E0	–	–	–	–	–	Setting opening width	–9 … 00 … 09		in degrees; The value is only for fine adjustment. The value is learned during the teaching run and then corresponds to the 0 point. It can be adjusted manually in this way and will subsequently correspond to the 0 point again. The opening value can thus be adjusted manually in incremental steps. Is not set in the factory setting.
CL	–	–	–	–	–	Reversing limit	00 … **30** … 90		In 0.1 degrees of the drive axle. Angle on the drive axis for fine adjustment of the tolerance in the closing position from which the drive attempts to close again. ▶ Set the value so that the door gap is as small as possible before the drive closes again.
02	–	–	–	–	–	Door opening	**00** 01	**No** Yes	For doors without external loads such as wind or pressure, the parameter "free swing function" can be activated in order to enable optimum passage of the door.
OL						Move towards open	**00**	**No**	In the event of further opening attempts, the drive stops before the obstacle in the opening range.
							01	Obstruction Motor on	Drive pushes against the obstruction and switches the motor gear unit off.
							02	Obstruction Motor off	Drive pushes against the obstruction and makes the motor gear unit switch on.
EF	–	–	–	–	–	Number of leaves	**01** 02 03	**1-leaf Drive** 2-leaf active 2-leaf Updates	Parameter sets which of the door leaves the drive is installed on.
S1	**	○	●	○	○	SI1 contact type	00 **02** 04	Not used **Normally closed contact** Frequency	Parameter sets the use of the safety sensor close contact type.
S3	**	○	●	○	●	SI3 Contact type	00 **02** 04	Not used **Normally closed contact** Frequency	Parameter sets the use of the safety sensor open contact type.

DPS	Service LEDs 5	4	3	2	1	Parameter	Setting values		Explanation
C6	–	–	–	–	–	KB Contact type	00 **01** 02	Not used **Normally open contact** Normally closed contact	The input KB is active in the operating modes AU, LS and NA. With 2-leaf assemblies the mechanical contact can be connected to the active leaf control or to the passive leaf control. When activated, the active leaf opens and, if switched on, the passive leaf opens. Active in every mode of operation when the door is not closed.
CI	–	–	–	–	–	KI Contact type	00 **01** 02	Not used **Normally open contact** Normally closed contact	The input KI is active in AU and LS mode. With 2-leaf assemblies the contact sensor inside can be connected to the active leaf control or to the passive leaf control. When activated, the active leaf opens and, if switched on, the passive leaf opens. Active in every mode of operation when the door is not closed.
IR	–	–	–	–	–	KI delay	**00** … 90		in s x 0,1; only active when the door is in a closing position. Can be adjusted in steps of 0.1.
Co	–	–	–	–	–	KA Contact type	00 **01** 02	Not used **Normally open contact** Normally closed contact	The input contact sensor outside is only active in the AU operating mode. With 2-leaf assemblies the contact sensor outside can be connected to the active leaf control or to the passive leaf control. When activated, the active leaf opens and, if switched on, the passive leaf opens. Active in every mode of operation when the door is not closed.
RR	–	–	–	–	–	KA delay	**00** … 90		in s × 0.1; only active when the door is in a closing position. Can be adjusted in steps of 0.1.
EI	–	–	–	–	–	PE1 function	**00**	**Not used**	
							03 NO	Selector switch Summer	For connection of a push button for the summer function.
							04	Selector switch Winter NO	For connection of a push button for the winter function. Only for switching from 1-leaf to 2-leaf opening, not for actually opening the door.
							05	Sabotage NC	Permanently switched. If the contact is interrupted, KB is not analysed in night mode. All other functions remain the same.
							06	Closing position GF NO	Closing position contact of the door leaf ▫ For 1-leaf Door ▫ For 1-leaf Drive unit with manual passive leaf (door closer): Closing position contact of the active leaf ▫ For 2-leaf door: Active leaf contact on the active leaf control unit, passive leaf contact on the passive leaf control unit
							08	P-KI activation NO	Additional contact sensor (P-KI, P-KA).
							09	P-KA activation NO	For connection of additional closing contacts.

DPS	Service LEDs 5 4 3 2 1	Parameter	Setting values			Explanation
			10	Switch function	NO	On activation, the output of the push button is closed. With 2-leaf assemblies the push button can be connected to the active leaf control or to the passive leaf control. If the push button is connected to the passive leaf control, both door leaves open and close on activation of the switch function, even if the passive leaf control is switched off (bed opening). When the push button is pressed once, the drive opens the door. When the push button is pressed again, the drive closes the door.
			11	Switch function OHZ	NO	On activation, the output of the push button is closed. With 2-leaf assemblies the push button can be connected to the active leaf control or to the passive leaf control. If the push button is connected to the passive leaf control, both door leaves open and close on activation of the switch function, even if the type of opening 1-leaf opening is active (bed opening). When the push button is pressed once, the drive opens the door and closes after the hold-open time has expired. When the push button is pressed again (within the hold-open time) the drive closes the door without waiting for the hold-open time to expire. If the push button is connected to the active leaf, the 1-leaf hold-open time is used for 1-leaf applications and for 2-leaf applications the 2-leaf hold-open time is used.
			13	Reset push button	NO	For restarting the drive. For the function, see chapter 29.3.9 “Reset DCU8”, p. 92.
			14	Double push button	NO	Open 1× press = 1 leaf Open Open 2× press = 2 leaf Open
			15	Stop normally open contact	NO	For connection of a stop push button.
			16	Stop normally closed contact	NC	
			19	Closing position SF		closed position contact for the passive leaf for 1-leaf door with manual passive leaf (door closer):
			21	WC control		Connection of the internal button for the WC function.
			22	Fire alarm servo	NO	If active, the additional servo torque function is set with the servo fire alarm torque is set for the duration.
			23	1-leaf opening		In 2-leaf systems, when the signal is active on the active leaf only 1 leaf is opened.
E2	– – – – –	Configurable input 2	**00**	**Not used**		
E3	– – – – –	Configurable input 3	01	MPS		For connection of a mechanical programme switch
			03	Selector switch Summer NO		For connection of a push button for the summer function.
			04	Selector switch Winter	NO	For connection of a push button for the winter function. Only for switching from 1-leaf to 2-leaf opening, not for actually opening the door.

DPS	Service LEDs 5 4 3 2 1	Parameter	Setting values			Explanation
			05	Sabotage	NC	Permanently switched. If the contact is interrupted, KB is not analysed in night mode. All other functions remain the same.
			06	Closing position GF	NO	Closing position contact of the door leaf ▫ For 1-leaf Door ▫ For 1-leaf Drive unit with manual passive leaf (door closer): Closing position contact of the active leaf ▫ For 2-leaf door: Active leaf contact on the active leaf control unit, passive leaf contact on the passive leaf control unit
			07	Emergency lock 20 kOhm NO		The input can be used to connect an emergency lock switch. When the emergency lock switch is activated, the contact is closed and 17.83 V is applied to the input. The door closes and locks. The contact sensors KA, KI and KB, safety sensors SIS and SIO as well as obstacle detection are hidden. The door remains closed as long as the emergency lock signal is applied to the input.
			08	P-KI activation	NO	Additional contact sensor (P-KI, P-KA). For connection of additional closing contacts.
			09	P-KA activation	NO	
			10	Switch function	NO	see PE1
			11	Switch function OHZ	NO	see PE1
			12	Stop 12 kOhm	NO	For connecting a stop button with 12 kOhm terminating resistor.
			13	Reset push button	NO	For restarting the drive. Function as reset.
			14	Double push button	NO	Open 1× press = 1 leaf Open Open 2× press = 2 leaf Open
			15	Stop normally open contact NO		For connection of a stop push button.
			16	Stop normally closed contact NC		
			19	Closing position SF		closed position contact for the passive leaf for 2-leaf door with manual passive leaf (door closer):
			20	Stop 20 kOhm	NC	For connecting a stop button with 20 kOhm terminating resistor.
			21	WC control		Connection of the internal button for the WC function.
			22	Fire alarm servo		See PE1.
			23	1-leaf opening		In 2-leaf systems, when the signal is active on the active leaf only 1 leaf is opened.
			29	Fire alarm without SI		If active, the door opens and closes at safe speed, safety sensors are hidden.
A1	– – – – –	Configurable output 1	**00**	**Not used**		
A2	– – – – –	Configurable output 2	01	Gong		If KA is triggered.
			02	Fault normally open contact		The function is used for fault messages, e.g. to an on-site building control centre. The contact closes or opens respectively if the control determines a fault.
			03	Fault normally closed contact		

DPS	Service LEDs 5	4	3	2	1	Parameter	Setting values		Explanation
							04	Fault MPS	The function is used to switch the fault LED at the mechanical programme switch. The contact closes if the control determines a fault. When maintenance is due, the output is switched cyclically and the fault LED on the MPS flashes.
							05	Warning signal	The function is used to switch a signalling device on/off cyclically when the door is opened or closed.
							06	Electric strike	For connection of an additional electric strike. Function in accordance with parameters "Electric strike type".
							08	Closed locked	The function is used to signal the door status, e.g. to a building control centre.
							09	Closed	
							10	Not closed	
							11	Open	
							12	Off	
							13	Night mode	
							14	Exit only	
							15	Automatic	
							16	Hold open	
							17	Light control	The function is used to activate a light controlling device which, for example, switches on the entry illumination as soon as a contact sensor (KI, KA, KB, SIS+KI, SIS+KA) is activated or the door is opened manually.
							18	Day/night mode changeover	This function is used to signal the day mode of operation to a customer building control centre. The output switches to GND if the operating mode LS, AU 1-leaf, DO, or AU 2-leaf is set.
							19	Not used	
							20	Maintenance due	The function is used to signal the door status, e.g. to a building control centre.
							21	Holding magnet GF	To set the active leaf holding magnet.
							22	Holding magnet SF	To set the passive leaf holding magnet.
							24	WC timeout	For connecting a lamp or a signal for signalling when the 30-minute timer for the WC function has expired.
							25 NO	Electric strike	For connection of a fail-secure electric strike.
							26 NC	Electric strike	For connection of a fail-safe electric strike.
FO	–	–	–	–	–	Opening force	01 … **15** … 25		×10 N; Static force at the main closing edge opening.
FC	–	–	–	–	–	Closing force	01 … **15** … 25		×10 N; Static force at the main closing edge closing.
bh	–	–	–	–	–	Obstruction	01 … **06** … 20		×0.1 s; Time for which the drive pushes against an obstacle with the set static force.
OF	–	–	–	–	–	Opening retention force	**00** … 01 … 07		×10 N; Constant force at the main closing edge in open position.
CF	–	–	–	–	–	Closing retention force	**00** … 01 … 07		×10 N; Constant force at the main closing edge in closed position.

DPS	Service LEDs					Parameter	Setting values		Explanation
	5	4	3	2	1				
FS	–	–	–	–	–	Closing position force	00 … **05** … 15		x10 N, force acts after the end of the latching action in the closed position. Manual opening is more difficult during the set time. The greater the force set, the longer the duration. Examples: for 10 N=0.5 s, for 150 N = 2 s
GA	–	–	–	–	–	Basic function	**01**	**Yes**	The drive is in automatic mode.
rr	–	–	–	–	–	Bolt contact type	**01** 02	**Normally open contact** Normally closed contact	Feedback e.g. of a motor lock.
SH	–	–	–	–	–	SIO manual	**00**	**Not active**	SIO not active during manual opening.
							01	Active	SIO active during manual opening.
SS	–	–	–	–	–	SIS manual	00	Not active	SIS not active during closing after manual opening.
							01	**Active**	SIS active during closing after manual opening.
PH	–	–	–	–	–	Manual rev. closing	**00**	**Not active**	Reversing in the event of an obstruction within closing following manual opening: not active.
							01	Active	Reversing in case of obstruction during closing after manual opening: active.
PA	–	–	–	–	–	Auto rev. closing	00	Not active	Reversing in case of obstruction during closing after manual opening: active.
							01	**active**	Reversing in case of obstruction during closing after manual opening: active.
SB	–	–	–	–	–	ECO mode	**00**	**Not active**	The 24V supply voltage (24SENS) at terminal 4 is switched off after switchover to the modes of operation DO and OFF (after <10s) and NA (after 10 min). Note: Activation via the access control system or KB when A, as well as the door closing when switching from DO to AU, takes a few seconds, as the systems need time to start up.
							01	Active	
B2	–	–	–	–	–	Braking force	01 … **13** … 14		Braking force in de-energised operation; e.g. to stop the door from slamming shut. Set it so that the door closes in 5 s, see chapter 23 “De-energised operation”, p. 70.
SP	–	–	–	–	–	Language	**00**	**German**	Language of the drive.
							01	English	
							02	Français	
							03	Svensk	
CS	–	–	–	–	–	Delete maintenance	cS		Reset maintenance counter, switch off service LED. After acknowledgement the display switches between CS → cS
B6	–	–	–	–	–	Operating Duration	Co	Total no. of cycles/100	Display 6-digits each. Scroll forwards with "downward arrow".
							CH	No. of manual cycles/100	
							Ho	Operating hours/4	
							So	Operating hours/4 until next service	
nS	–	–	–	–	–	no Service			If the service app is active, the service mode is blocked via DPS.

* 1 flashing pulse + 0.9 s pause
** 2 flashing pulses + 0.7 s pause

30 Fault messages

30.1 Fault messages ST220 and DPS

30.1.1 Fault display

On the DPS

- Currently queued fault messages are displayed on the display programme switch in cycles. In addition, they are also entered in the Er and oE fault memories.
- The mode of operation is displayed for 5 s, the fault message for 2 s.
- Individual faults are indicated by the fault ID.
- If the faults are group faults, only the main fault number is indicated e.g. 22.

On the control unit ST220

- Faults are shown using the text form of the fault names.
  Example of an error: SIS SF

On the operating modes push button

- If the control has not been taught at this point, the operating modes display LED lights up yellow (continuous light).
- If the control has not been initialised yet, the operating modes display LED lights up in the colour of the current mode of operation, periodically interrupted by two short flashing impulses (1 Hz.).
- If one or more faults are queued, the operating modes display LED flashes quickly (10 Hz.) in the colour of the current mode of operation.
- In the OFF mode of operation, there is no fault display on the operating modes display LED

30.1.2 Fault messages

Fault no.	Message on the DPS	Message on the ST220	Fault description
01	01	24 V missing	Control faulty, short circuit at 24 V.
03	03	230 V fault	Power failure, 230 V group fault.
		230 V low voltage	230 V undervoltage.
		230 V overvoltage	230 V overvoltage.
07	07	Fire alarm	Group fault fire alarm.
		Fire alarm F-board	Smoke detector or manual trigger switch has triggered.
		Fire alarm man GF	Manual triggering door leaf GF.
		Fire alarm man SF	Manual triggering door leaf SF.
09	09	Fire alarm PE	Group fault fire alarm at configurable input.
		Fire alarm without SI	Fire alarm without suppression of the safety sensors active
		Fire alarm servo	Fire alarm with increased servo torque active.
		Line fault PE	Fault in the line monitoring for fire alarm with suppression of the safety sensors.
10	10	Rotary encoder GF	Group fault rotary encoder.
		Rotary encoder model	Rotary encoder displays fault.
		Edge counter	Error in identifying the rotary encoder edges.
		Position check	Rotary encoder position error.
		Fault direction	Direction of rotation of motor gear unit or rotary encoder is incorrect.
11	11	Motor gear unit 1 short	Motor current too large.
12	12	Motor gear unit 1	Motor gear unit defective.
13	13	SIS1 faulty	Safety sensor close active leaf, group fault.
		Permanent activation	The close active leaf safety sensor has been activated for longer than 4 min.
		Testing	Error during testing of the close active leaf safety sensor.
14	14	MPS	Inconsistent state at the PS inputs or line break MPS.

Fault no.	Message on the DPS	Message on the ST220	Fault description
15	15	Comm. DPS	No communication between control – display programme switch.
16	16	Locking mechanism	Electric strike does not block.
17	17	Unlocking	Electric strike does not trigger.
		TOE short-circuit	Faulty electric strike.
		TOE relay	Faulty electric strike relay at DCU800.
19	19	SIS SF fault	Safety sensor close passive leaf, group fault.
		Permanent activation	Safety sensor "close passive leaf" activated for more than 4 min.
		Testing	Error in testing safety sensor "close passive leaf".
22	22	Mech. Error active leaf	A mechanical fault has occurred on the active leaf; group fault.
		Rotate angle	It has been detected that the cam has skipped.
		Fault solenoid valve	The solenoid valve of the energy storage device is defective.
23	23	Mech. Error passive leaf	A mechanical fault has occurred at the passive leaf; group fault.
		Rotate angle	It has been detected that the cam has skipped.
		Fault solenoid valve	The solenoid valve of the energy storage device is defective.
25	25	Teaching run fault GF	Teaching run group fault, teaching run invalid.
		Latching action switch	Teaching run is invalid e.g. due to incorrect limit switch settings.
		Teach obstacle	Obstruction of the door leaf during the learning procedure.
		Learning timeout	Time-out expired within 60 s of teaching.
26	26	Teaching run fault SF	Passive leaf teaching run group fault, teaching run invalid.
		Latching action switch	Teaching run is invalid e.g. due to incorrect limit switch settings.
		Teach obstacle	Obstruction of the door leaf during the learning procedure.
		Learning timeout	Time-out expired within 60 s of teaching.
28	28	Relay DCU800	Motor relay defective.
29	29	SIO SF fault	Safety sensor open passive leaf, group fault.
		Permanent activation	Safety sensor open SF activated for more than 4 min.
		Testing	Error in testing safety sensor open SF.
32	32	Sabotage	Sabotage active.
35	35	Permanent activation PE1	Expected configuration as MPS, sabotage, stop, emergency lock.
36	36	Permanent activation PE2	Expected configuration as MPS, sabotage, stop, emergency lock.
37	37	Permanent activation KI	Movement detector defective or activation > 4 min.
38	38	Permanent activation PE3	Expected configuration as MPS, sabotage, stop, emergency lock.
39	39	Permanent activation KA	Activation longer than 4 min.
40	40	Permanent activation KB	Activation longer than 4 min.
41	41	SIO 1	Safety sensor open active leaf, group fault.
		Permanent activation	Safety sensor open GF activated for more than 4 min.
		Testing	Error in testing safety sensor open GF.
42	42	Emergency lock	Group fault emergency lock.
		Activation active	If the function is active via PE.

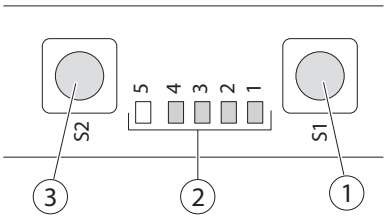
Fault no.	Message on the DPS	Message on the ST220	Fault description
		Push button defective	If the push button for the function is detected as defective.
44	44	Input stop	Stop is active.
45	45	Motor gear unit hot	Motor gear unit or control temperature higher than 95 °C.
46	46	T-sensor motor gear unit	Motor temperature sensor defective.
47	47	T-sensor ctrl.	Control temperature sensor defective.
48	48	Overtemp	Motor gear unit or control temperature higher than 105 °C.
51	51	24 V missing SF	Control defective passive leaf.
53	53	230 V error SF	230 V passive leaf group fault.
54	54	Comm. DPS NT	Communication error DPS NT.
57	57	Fire alarm SF	Smoke detector active passive leaf.
60	60	Ctrl. DCU800	Internal control fault, group fault for active leaf.
		EEPROM value	–
		EEPROM comparison	–
		Fault current measurement	Error in motor current measurement.
		EEPROM time-out	–
		Quartz tolerance	–
		RAM test	–
		ROM CRC test	–
		VCC test	–
		Quartz failure	–
		Motor gear unit resistance	–
		Comm. M1-M2	–
		Wrong HW/SW combination	–
63	63	SW version	Active leaf and passive leaf have different software versions.
65	65	Comm. SF-GF	No communication active leaf/passive leaf control.
66	66	Locking mechanism SF	Electric strike not blocking (passive leaf).
67	67	Unlocking SF	Electric strike not triggering (passive leaf).
70	70	Ctrl. DCU800 SF	Internal control error; general error such as error 60. Log in to passive leaf for details.
71	71	Motor gear unit SF short	Motor current too large.
72	72	Motor gear unit SF	Motor gear unit defective.
74	74	Rotary encoder SF	Rotary encoder signals faulty.
75	75	DCU800 hot	Passive leaf drive, motor gear unit or control temperature higher than 95 °C.
76	76	Sensor motor gear unit SF	Motor temperature sensor defective.
77	77	T-sensor SF	Control temperature sensor defective.
78	78	Overtemp SF	Motor gear unit or control temperature higher than 105 °C.
79	79	Relay SF	Motor relay defective, passive leaf.
	X.X	Position	Leaf position unknown (dot on left display).
	X X.	Maintenance	Maintenance requirement (number of cycles, operating hours, dot on right display).

Fault no.	Message on the DPS	Message on the ST220	Fault description
	8.8.	DPS	No communication with control - display programme switch
	--	DPS	Operation at programme switch.
	oo	DPS	Release operation at programme switch.
	00	DPS	Operating mode change via programme switch not possible (internal PS is not set to 0, or MPS is parameterised).
	rS	Reset	When the learning process starts: The reset push button has not been pressed or the 24 V smoke switch control unit is missing.
	nS	DPS	This service cannot be performed if another service tool is active or if an ST220 password has been set.

30.2 Fault messages at the service key LEDs

- Fault messages of fault groups are indicated on the service key LEDs. The exact fault can be determined using the fault number in chapter 30.1.2 “Fault messages”, p. 106..
- With the service key LEDs, LED 5 flashes at 10 Hz.

1 Service push button S1
2 Service LEDs
3 Service push button S2



Display of service key LEDs					Designation of the fault group	Fault no. in chapter 30.1.2 “Fault messages”, p. 106.
5	4	3	2	1		
*	○	○	○	●	Alarm	07, 57
*	○	○	●	○	Power failure	03, 53
*	○	○	●	●	Drive too hot	45, 46, 48, 75, 76, 78
*	○	●	○	○	SIO	29, 41
*	○	●	○	●	Mechanical faults	22, 23
*	○	●	●	○	SIS	13, 19
*	○	●	●	●	Locking mechanism	16, 17, 66, 67
*	●	○	○	○	Motor gear unit	10, 11, 12, 71, 72, 74
*	●	○	○	●	Control unit	01, 28, 47, 51, 60, 63, 70, 77, 79
*	●	○	●	○	Communication	15, 54
*	●	○	●	●	Activation	14, 35, 36, 37, 38, 39, 40, 44, 73
–	–	–	–	–	No operating voltage	–

○ LED off
● LED on
* LED flashes at 10 Hz

31 Disposal and accessories

31.1 Disposal of the door system

- The door system is made up of materials that should be sent for recycling.
  For this purpose, the individual components should be sorted corresponding to material type:
  - Aluminium (profiles, cover, deflection pulleys, slide nuts, ...)
  - Iron (drivers, screws, ...)
  - Plastic
  - Electronic components (bolt, motor gear unit, control unit, transformer, sensors, ...)
  - Cables

The parts can be disposed of at the local recycling depot or by a scrap recycling company.

- Rechargeable batteries contain pollutants and heavy metals. Do not dispose of these with household waste. Hand in rechargeable batteries to your local recycler, too.

31.2 Accessories

Mat. no.	Designation	Relevant chapter
024467	Additional contact	16.1 “Programme switches”, p. 47.
024740	Retention magnet MA 500 with counterplate	13 “Electric strike/motor lock”, p. 41.
081476	Safety sticker	1.1 “Safety precautions”, p. 6.
087261	Service terminal ST220	29.1 “Service terminal ST220”, p. 75.
092777	Reed switch	17.1 “Powerturn IS/TS: automated active leaf, passive leaf with door closer”, p. 52.
099575	Remote control	7.1 “Radar movement detector GC 302 R”, p. 22.
100061	Remote control	5.2 “Sensor GC 334/GC 335”, p. 16. 7.3 “Non-contact activation sensor GC 307+”, p. 23.
103352	24 V relay	12.2.1 “Gong”, p. 38. 12.2.2 “Fault”, p. 38. 12.2.7 “Day/night mode changeover”, p. 39. 12.2.8 “Maintenance due”, p. 40.
103601	IQ Lock EL 9235	13 “Electric strike/motor lock”, p. 41.
103699	IQ Lock EL 9245	13 “Electric strike/motor lock”, p. 41.
103700	IQ Lock EL 7255	13 “Electric strike/motor lock”, p. 41.
103701	IQ Lock EL 7265	13 “Electric strike/motor lock”, p. 41.
106571	IQ Lock EL 7280	13 “Electric strike/motor lock”, p. 41.
106572	IQ Lock EL 7210	13 “Electric strike/motor lock”, p. 41.
112321	Spot finder	5.1 “Pair of safety sensor strips GC 338”, p. 13.
113226	Mechanical programme switch, AS500	16.1 “Programme switches”, p. 47.
113227	MPS-ST, with key, AS500	16.1 “Programme switches”, p. 47.
114077	Plastic elbow switch, stainless steel	15 “WC control”, p. 45.
114078	Plastic elbow switch, white	15 “WC control”, p. 45.
115013	IQ Lock EL 9240	13 “Electric strike/motor lock”, p. 41.
115293	Free swing diode 1N4007	12.1.5 “Electric strike”, p. 35. 12.2.5 “Electric strike”, p. 39. 13.1 “24V DC electric strike supplied on drive side”, p. 42.
115339	Rain cover	7.1 “Radar movement detector GC 302 R”, p. 22.
115384	Ceiling installation kit	7.1 “Radar movement detector GC 302 R”, p. 22.
115934	SLE220 indicator lamp, flush-mounted, AS500, AW	15 “WC control”, p. 45.
115939	SLH220, signal horn, ASW500, AW, complete	15 “WC control”, p. 45.
116266	Manual trigger switch	“18 Powerturn F and Powerturn F/R on fire protection doors” on page 54.

Mat. no.	Designation	Relevant chapter
117996	SCT key switch, single-pole, flush-mounted, AS500 without Euro profile half cylinder	16.1 “Programme switches”, p. 47.
118417	MPS-D, AS500	16.1 “Programme switches”, p. 47.
118418	MPS-D-ST, with key, AS500	16.1 “Programme switches”, p. 47.
119898	Stainless steel elbow switch	15 “WC control”, p. 45.
119952	CAN interface	4 “Supply terminals”, p. 10.
120048	System cable	17.2 “Two automated door leaves”, p. 52.
120061	System cable	17.2 “Two automated door leaves”, p. 52.
120503	Surface-mounting cap, single, AS500	16.1 “Programme switches”, p. 47.
120880	Manual trigger switch	“18 Powerturn F and Powerturn F/R on fire protection doors” on page 54.
124087	GC 302 R black	7.1 “Radar movement detector GC 302 R”, p. 22.
124088	GC 302 R according to RAL	7.1 “Radar movement detector GC 302 R”, p. 22.
128582	Stainless steel elbow switch LS 990, surface-mounted	15 “WC control”, p. 45.
128583	Stainless steel elbow switch LS 990, flush-mounted	15 “WC control”, p. 45.
128609	Surface-mounting cap, double, AS500	16.1 “Programme switches”, p. 47.
131209	1-channel remote control WTH-1	9 “Radio control”, p. 26.
131210	2-channel remote control WTH-2	9 “Radio control”, p. 26.
131211	4-channel remote control WTH-4	9 “Radio control”, p. 26.
131212	Transmitting module WTM	9 “Radio control”, p. 26.
135170	Radio reception board WRB-5	9 “Radio control”, p. 26.
144631	IQ eStrike A5300--B	13.1 “24V DC electric strike supplied on drive side”, p. 42.
145182	IQ eStrike A5000--E	13.1 “24V DC electric strike supplied on drive side”, p. 42.
151524	DPS with OFF, flush-mounted AS500, alpine white	16.1 “Programme switches”, p. 47.
155810	DPS with OFF and SCT, without Euro profile half cylinder, flush-mounted, AS500, alpine white	16.1 “Programme switches”, p. 47.
157266	Adapter cable	29.1 “Service terminal ST220”, p. 75.
166272	230 V T-distributor	19 “Mains connection”, p. 60.
180408	Reset switch	“18 Powerturn F and Powerturn F/R on fire protection doors” on page 54.
193226	GC 307+ standard flush-mounted	7.3 “Non-contact activation sensor GC 307+”, p. 23. 8.3 “Non-contact activation sensor GC 307+”, p. 25. 15.1 “Non-contact sensor GC 307+ WC”, p. 46.
195727	GC 307+ standard surface-mounted	7.3 “Non-contact activation sensor GC 307+”, p. 23. 8.3 “Non-contact activation sensor GC 307+”, p. 25. 15.1 “Non-contact sensor GC 307+ WC”, p. 46.
203603	GC 308 R, black	7.4 “Radar movement detector GC 308 R”, p. 23. 8.4 “Radar movement detector GC 308 R”, p. 25.
203604	GC 308 R, white	7.4 “Radar movement detector GC 308 R”, p. 23. 8.4 “Radar movement detector GC 308 R”, p. 25.
203605	GC 308 R, stainless steel	7.4 “Radar movement detector GC 308 R”, p. 23. 8.4 “Radar movement detector GC 308 R”, p. 25.
203606	GC 308 R, according to RAL	7.4 “Radar movement detector GC 308 R”, p. 23. 8.4 “Radar movement detector GC 308 R”, p. 25.

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