Instructions

Swing door operator

DEUTSCHTEC

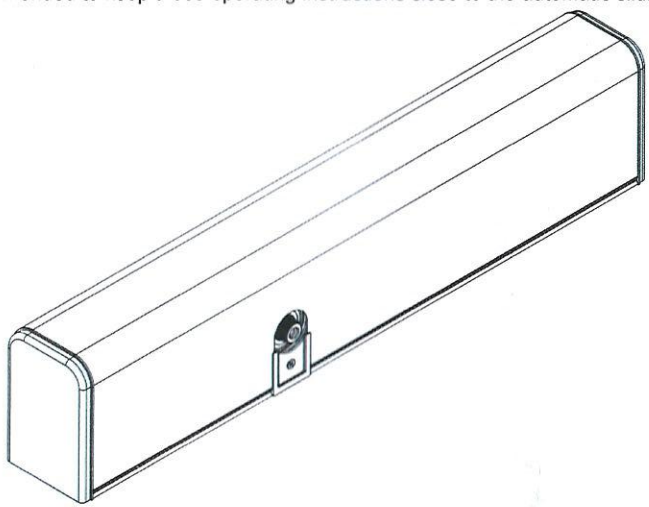
Table of contents

1 General

These operating instructions are intended for the automatic swing door operator. The operating company are the persons responsible for the technical maintenance of this door system. These instructions describe the use of the swing door operator. They form the basis for satisfactory functioning.

These operating instructions should be read by the door operator before commissioning and the safety instructions need to be observed!

It is recommended to keep these operating instructions close to the automatic sliding door.



2 Product identification

For an exact identification please read the following data on the type plate, which is located on the rear side of the product:

Example:

Type:
Serial number:
Year of manufacture:
Mains connection:
Power consumption:

Classification according 18650-1:2005:

Identification: **SW40 (DEUTSCHTEC)**

2.1 Manufacturer agtatec ag

agtatec AG
Allmendstrasse 24
CH – 8320 Fehraltorf
Switzerland
Phone: +41 44 954 91 91
Fax: +41 44 954 92 00

2.2 Document identification

Name: BAL_DFA127_FP_EN_1V0_REC_102-127401853
Article No.: 102-127401853
Version: V1.0

3 Description of the equipment

The DFA 127 FP (Full Power) is a compact, self-monitoring, microprocessor-controlled swing door operator (abbreviated to DFA). With its many special and additional functions, it is suitable for a very wide application spectrum. The path of every door movement is controlled by the microprocessor, which evaluates the current door position, the door speed and the final position at every instant and precisely calculates the optimum motion. This makes the familiar end-stops, jerky braking actions, creep speeds etc. unnecessary. Depending on the door width, the corresponding spring range must be selected in the range of EN 4 to EN 6 (according to European standard EN 1154). Safety is also additionally increased by the use of a redundant force limitation.

3.1 Low energy drive (Low Energy)

In the parameterisation of the Low Energy door type, the DFA acts as an automatic low energy operator. The opening and closing speeds are limited and the operator is more sensitive in case of a collision. The closing action takes place using spring force and reduced kinetic energy. To prevent unintentional or malicious modifications to the program, user access to the parameters is blocked.
The set values for the permitted speeds are indicated in EN 16005. They are calculated depending on the weight of the door leaf and the width of the door.

4 Important information

4.1 Copyright

4.2 Target group

For better readability only the masculine form of pronouns is used in these documents. Nevertheless, these instructions also apply for feminine specialists.
These instructions are intended for the qualified and authorized fitter, start-up engineer and operator of the automatic door.
Before installing and commissioning a swing door operator, read the manuals and in particular all safety instructions.

4.3 Storage of the manual

After the installation of the system, the instructions should be stored in an accessible and dry place.

5 Safety instructions

5.1 Presentation of warning signs

Various symbols are used in this guide for easier understanding:

NOTICE

Useful advice and information to ensure correct and efficient workflow of the system.

IMPORTANT

Specific details which are essential for trouble-free operation of the system.

IMPORTANT

Important details which must be read for proper function of the system.

⚠ CAUTION

Against a potential hazardous situation that can lead to minor personal injury and property damage.

⚠ WARNING

Against a latent hazardous situation that can lead to severe injuries or death and cause substantial property damage.

⚠ DANGER

Against an imminent hazardous situation that can lead to severe injury or death.

⚠ DANGER

Against an imminent or latent hazardous situation that could lead to electric shock and cause serious injury or death.

5.2 General safety and accident prevention regulations

⚠ WARNING

Unexpected OPEN/CLOSE of the doors

- Bruises and contusions through the door leaf

➢ Generally no safety devices (sensors) may be dismantled or put out of service.

⚠ CAUTION

Unexpected OPEN/CLOSE of the doors

- Bruises and contusions through the door leaf

➢ No objects must be placed within the opening zone/path of the swing door! The safeguard against crushing and shearing strains at the side edge must be provided by the manufacturer.

⚠ CAUTION

Unexpected OPEN/CLOSE of the doors

- Bruises and contusions through the door leaf, or damages

➢ The safety devices (sensors) are switched off during the learning cycle (which must only be performed by trained personnel)! Before initiating the learning cycle, it must therefore be ensured that no persons or objects are situated in the danger zone of the moving door leaves during operation.

NOTICE

In case of low-energy operators, doors and manual actuating devices must be adapted and appropriately marked for physically disabled people.

⚠ WARNING

Unexpected OPEN/CLOSE of the doors

- Bruises and contusions through the door leaf

➢ Should an inacceptable contact for the user group be detected during the risk assessment of doors with low-energy operator, a suitable safeguard must be fitted.

5.3 Product safety

5.3.1 State of technology

This system was developed using state of the art technology and officially recognized technical safety regulations. The system, depending on its options and diameter, comply with the requirements of the Machine Guidelines 2006/42/EG as well as EN 16005 and DIN 18650 (D).
Nevertheless, danger may arise if not used as intended.

IMPORTANT

Installation, commissioning, inspection, maintenance and repair work may only be conducted by qualified, trained and authorized technicians.
After commissioning or repair work, fill in the check list and give it to the customer for safe keeping.
We recommend obtaining a service agreement.

5.3.2 Intended purpose of use (operating)

The installation is designed exclusively for normal service in dry rooms. It can also be installed on the outer side of a building, if the customer provides for a proper sealing.
Any other application or use beyond this purpose is not considered to be an intended purpose. The manufacturer bears no liability for any resulting damage; the operator alone shall bear the associated risk.
The intended purpose also includes observation of the operating conditions specified by the manufacturer, in addition to regular care, maintenance and repair.
Interventions in or alterations to the automatic door performed by non-authorised maintenance technicians exclude the manufacturer's liability for consequential damages.

5.4 Danger zones

5.4.1 Security- and surveillance equipment

The passages of the plant are monitored by sensors. It is important that they work faultlessly and are under no circumstances set out of service.

5.4.2 Danger warnings on the product

If necessary, the country specific regulations have to be adhered to.

5.4.3 Qualifications, skills and training of staff

Mechanic	Technical training with very good electrical and mechanical skills Site experience
Commissioning Service Employees	Technical training with very good electrical and mechanical skills Experience in field service

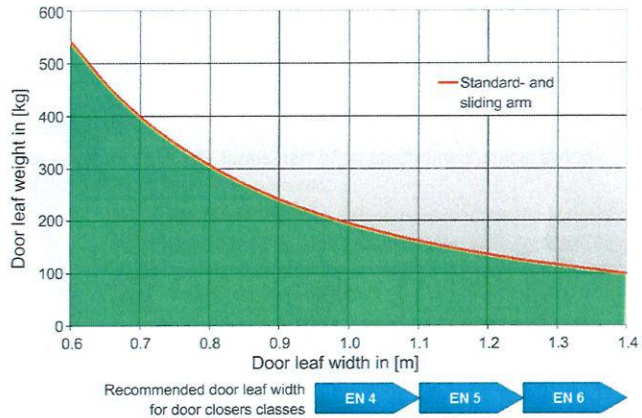
5.4.4 Reconstructions and changes to the product

Unauthorized modifications to the installation will release the manufacturer from all liability for any resulting damage.

6 Technical Data

Dimensions:	Operator 600 x 85 x 124 mm (wxhxd)
Operating voltage:	230VAC, 50/60 Hz
Power consumption:	Standby 13 W, rated power 67 W
Max. torque:	50 Nm
Mass inertia:	65 kgm^2
Opening angle:	adjustable from 70° to 115°
Time delay:	adjustable from 0 to 60 seconds (40 steps)
Opening speed:	adjustable from 3 to 20 seconds (40 steps)
Closing speed:	adjustable from 5 to 20 seconds (40 steps)
Noise emission:	< 45 dB
Protection class:	IP20
Environment conditions	
Temperature range:	-15° C to +50° C
Humidity range:	up to 85% relative humidity, non condensing

6.1 Door leaf weights and door widths



The curves are calculated using the following formula:

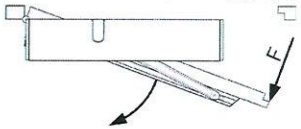
$$J=1/3 \times m \times b^2$$

Standard arms: J max. 65 kgm^2
Slide arms: J max. 65 kgm^2

Key:
J = mass moment of inertia kgm^2
m = door leaf weight in kg
b = door leaf width in m

7 Instructions for low energy operators (Low-Energy)

When using a low-energy operator the door must open, in case of a power cut or of an operator breakdown, with a manual pressure of max. 67 N to release a locking device, of max. 90 N to set the door in motion, or of max. 67 N to open the door wide.



The force must be exerted on the main closing edge of the door and must be measured vertically to the main closing edge in the movement direction.

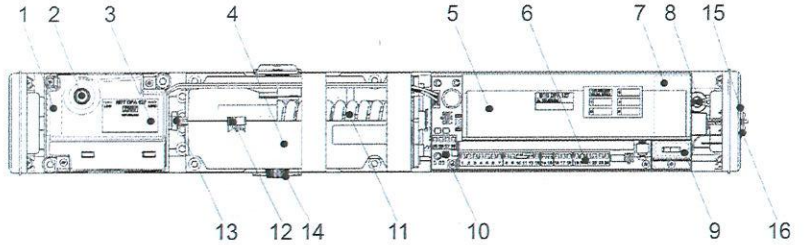
NOTICE

The forces must be tested with appropriate force measuring device (e.g. tension spring balance).
The combination fire door and low energy operator is only authorised according to the data mentioned in the table below.

Arm type	Maximum authorised door closers - according to size		
	EN 4	EN 5	EN 6
Standard arm	authorised	not authorised	not authorised
Slide arm pulling	authorised		not authorised
Slide arm pushing	authorised		not authorised

8 Construction and Function

8.1 Construction



Key:

1	Mains connection terminals	9	Slide switch in rotation direction
2	Fine-wire fuse	10	Multifunctional switch on STG
3	NET power supply	11	Closing spring
4	ATM drive unit	12	Vision panel, adjust. spring tension
5	STG control unit	13	Adjusting screw for spring tension
6	STG connection terminals	14	Connectors for arms (both sides)
7	Motor print MOT	15	Standard switch BDI
8	ATE drive unit terminals	16	Status signal and Reset button

8.2 Components

The swing door operator DFA 127 forms part of an electromechanical swing door system and comprises the following main components:

Control unit: Intelligent, learning, microprocessor-controlled control system

Driving unit: Low maintenance DC geared motor with electronic path measurement and integral thermostatic protective switch, gear box with adjustable spring tension

Power supply: Compact 230 V power supply with integral input filter

Control unit BDE-D: As required with convenient, simple mechanical control unit and / or a programmable electronic BDE-D

Arm types: Power transmission to the door leaf by use of standard arm pushing or sliding arm pulling / pushing

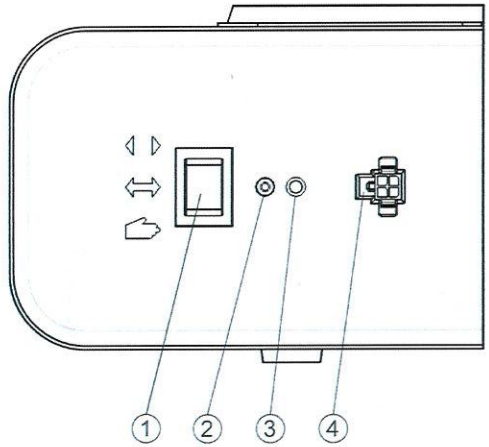
Locking (optional): Possibility on site to connect an electrical door opener (24 VDC)

Sensors: Aesthetic actuating and self-monitoring safety elements with adjustable sensitivity ensure optimum, smooth and reliable operation of the door system

8.3 Functions

The DFA 127 has been designed to close without electrical power. It can be easily opened by hand and closes using the energy stored in the spring, with the motion damped by the motor acting as a generator.
If the door operator is connected to the mains power, the opening and closing movements will be assisted by the motor.
In the standard "Automatic" mode of operation the door system opens by the response of an actuating device (e.g. radar unit) to persons or objects approaching. The door closes after the door hold-open time, provided no further opening pulse is received.
The following functions are provided exclusively for the safety of the user:
Collision detection: If the door strikes an obstacle while opening, it stops immediately and stores the position of the impact. During the time delay, the drive briefly tries to reach the open position. Once the time delay has expired, the door closes, and, when next opened, the door passes the impact position very carefully in slow mode. This prevents a further violent impact.
Reversing: If the door strikes an obstacle when closing, it leads to an immediate re-opening (reverse). The obstacle position is recorded in the door operator and this position is approached slowly when next closing.

9 Mech. control elements and indication



1. Mechanical BDI with 3 positions (control toggle switch)
2. Reset button
3. Status display
4. Connector for Service- and Flashprogrammer FPC 902

9.1 Mechanical BDI (control toggle switch)

If available, the following operational modes can be set up with the 3-position toggle switch:

Manual operation:
In this operation mode, the DFA works as a normal door-closer. It can easily be opened manually, and then closes automatically. The connected actuating elements are deactivated.

Automatic:
The door opens and closes automatically, either through the activation of an activation device or by pushing the door with activated touch control.

Continuously open:
The door opens and remains in the open position. If an obstacle is encountered while opening, the DFA will attempt 5 times within a few seconds to bring the door to the set open position. If the obstacle is still present, the current position will be accepted as the continuously-open position (Status 9 *Opening unsuccessful* is displayed).
By factory default setting, the mechanical BDI is always active. If an additional electronic BDE-D is connected, the operating mode will be set at the highest priority by a defined priority structure in the BDE-D.
The priority and the code shown in the following table apply to the operating mode, whereby BDE1 (S1) and BDE2 (S2) represent the two STG input terminals (→ J7/1 + J7/2, Print BDE-M) for the mechanical BDE:
(L = interruption or 0V, H = +24V)

Mechanical BDI (toggle switch)		Electronic BDE-D	
BDE2 (S2)	BDE1 (S1)	Function	Priority (1=highest)
		Locked	1
		One-Way	2
L	H	Continuously open	3
H	L	Manual	4
L	L	Automatic	5

The BDE-D indicates the current operating mode.
If an operating mode that has no current priority is set on the BDE-D, status message 62 is displayed.

9.2 Reset-Button

If this button is pressed for at least 5 sec. a reset of the control unit is carried out. After the reset, the status display LED lights up permanently.

9.3 Status indication

- Remains off if no fault is present
- Blinks if a fault is present (see chapter *Status and fault signals BDE-D*)
- Lights up continuously during a reset

10 Operating instructions

10.1 Controls on the STG 127

General

The STG 127 operates with an active HIGH level, i.e. a +24 V level must be applied to activate a function. Safety inputs are activated during interruptions.
The signal ground (0V) is connected to the protective earth.

Jumpers

J13:	CAN line termination
J14:	Master / Slave Jumper at position M1 for master (factory setting) Jumper at position S1 for salve

LED's

LD1:	(red)	Control LED for push-button operation (S1)
LD2:	(green)	+35V Off during power failure
LD3:	(green)	+24V Lights up if +24V is present. Caution: in the event of a power failure a processor reset takes place 1 second after this LED goes out.

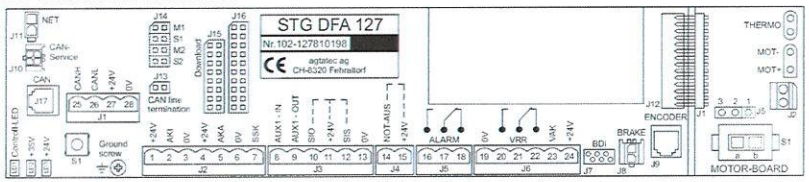
Key (S1)

This is a multifunctional key (MF).

IMPORTANT

The use of this switch is reserved exclusively for trained and authorized persons.

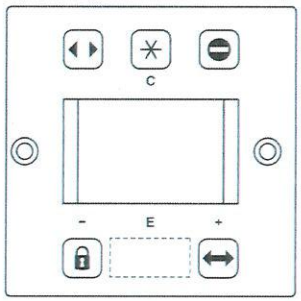
View of the control unit STG



10.2 Electronic controller BDE-D (Option)

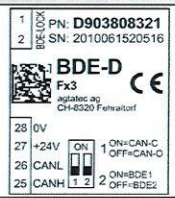
IMPORTANT

The following listed functions can only be checked after learning of running parameters or after learning of CAN-sensors.
At the same time the addressing of CAN-sensors will be checked.



The BDE-D electronic controller is an easily operated input and output device for the control and adjustment of door operators. Logically arranged pushbuttons allow intuitive operation and navigation through the operator specific menu. The LCD with backlight shows data and information about the door status with symbols and text messages. Additional information can be found in the BDE-D manual.

10.2.1 Adressing of the electronic controller

Installation with 1 BDE-D	Installation with 2 BDE-D
	
BDE 1 **with Bus termination** (rear face)	BDE 2 **without Bus termination** (rear face)

10.2.2 Operating modes and behaviour of the door during input signals

Table of signals (X marks a release reaction)
Explanation of the abbreviations see chapter *Abbreviations*

Automatic / AUTO AUTO

Normal operation: The door opens and closes automatically, either by triggering of an activation device or by pushing the door, if the "touch control (push to active)" is active.

	CLOSED	OPENING	OPEN	CLOSING
AKI	X	X	X	X
AKA	X	X	X	X
SSK	X	X	X	X
SIO		X	X	X
SIS			X	X
TIPP	X			

Manual operation / PROG HAND

In this mode the operator works as a normal door closer. It is easy to open the door by hand and closes automatically. The actuating devices connected are ignored.

One-Way / EXIT EXIT

In the One-Way traffic mode, people cannot enter the room from the outside, but can leave it from the inside.

	CLOSED	OPENING	OPEN	CLOSING
AKI	X	X	X	X
AKA*		X	X	X
SSK	X	X	X	X
SIO		X	X	X
SIS			X	X
TIPP				

* AKA is active as safety device while closing

Continuously open / OPEN OPEN

The door is opened and stays open. If an obstruction stands in the way while opening, the operator tries another five times within a few seconds to bring the door to the target position. Should the obstruction remain, the current position is then validated as the continuously open position.

Locked

The locking is activated in the Locked operation mode.

	CLOSED	OPENING	OPEN	CLOSING
AKI		X	X	X
AKA		X	X	X
SSK	X	X	X	X
SIO		X	X	X
SIS			X	X
TIPP				

OFF

This operation mode can be used only in the USA. The operator is switched to manual operation (without configurations). An SSK opening is possible, but only under surveillance because some monitoring functions are disabled. Functions like parameter settings, Flash-update, continue to work.

	CLOSED	OPENING	OPEN	CLOSING
AKI				
AKA				
SSK	X	X	X	X
SIO				
SIS				
TIPP				
BODYG			X	X
RAILB			X	X

RESET (hidden button between the buttons and)

After pressing the button for approx. 5 seconds, this status message appears on the display:

No
Reset Control?
Yes

Press on the button again to reset the operator.

11 Configurations

11.1 Description of parameters

W = Factory settings: **Basic drive** (FP)

PARAMETER	W	Comment
DRIVING CYCLE		
→ Closing speed	20	Driving speed when closing the door. 0 = lowest speed 40 = highest speed ▪ The maximum reachable speed depends on the driven distance (door width) and the acceleration setting.
→ Opening speed	36	Driving speed of the opening door. 0 = lowest speed 40 = highest speed ▪ The maximum speed reachable depends upon the opening angle and the acceleration setting. ▪ DIN: > 1.5 s <4 s
TIME DELAYS OPEN		
→ Time delay open	2	Determines the minimum time for which a door stays open after it has been opened by a type AKA, AKI or automatic triggering signal. 0..20 = 0 to 20 seconds, 1 s increments 21..40 = 22 to 60 seconds, 2 s increments ▪ The hold-open time starts only after all trigger and safety signals have been made in the closing direction.
→ Time delay SSK	5	Determines the minimum time for which a door stays open after it has been opened by a type SSK triggering signal. 0..20 = 0 to 20 seconds, increments 1 s 21..40 = 22 to 60 seconds, increments 2 s ▪ The hold-open time starts only after all trigger and safety signals have been made in the closing direction.

NOTICE

The open duration can be reduced when sensors are used which keep the door open, for example, *Time delay*.

DRIVE		
→ Opening angle	35	The opening angle is read during the learning cycle and corresponds to the value 40. 0 = minimum opening angle 40 = maximum opening angle ▪ **DIN**: min. 95°

11.1.1 Changed factory settings for door types

EU Low Energy and UK Low Energy

PARAMETER	W	Comment
DRIVING CYCLE		
→ EU Low Energy		Setting for Low Energy applications to meet the normative requirements in the EU. ▪ See notes in the chapter Instructions for Low Energy operators (Low-Energy)

Parameter	Default value
Driving cycle → Closing speed	10
Driving cycle → Opening speed	20
Driving cycle → Acceleration	15
Time delays open → Time delay open	5
Time delays open → Time delay SSK	5
Drive → Collision	5
Manual control → During closing	Enabled
Manual control → Collision	Enabled
Manual control → Closing speed	10

→ UK — Setting for Full Power applications to meet the normative requirements in the UK.

Parameter	Default value
Manual control → When locked	Enabled
Manual control → When automatic	Enabled

→ UK Low Energy — Setting for Low Energy applications to meet the normative requirements in the UK.

Parameter	Default value
Driving cycle → Closing speed	10
Driving cycle → Opening speed	20
Driving cycle → Acceleration	15
Time delays open → Time delay open	5
Time delays open → Time delay SSK	5
Drive → Collision	5
Manual control → During closing	Enabled
Manual control → When locked	Enabled
Manual control → When automatic	Enabled
Manual control → Collision	Enabled
Manual control → Closing speed	10

12 Door care and maintenance instructions

12.1 General remarks

According to the legal provision in force, the operating entity of the automatic door is responsible for its maintenance and for the user's safety, as soon as the installation has been handed over.

The regular inspection of single elements by the operator requires little time investment and reinforces the prevention of accidents caused by an inappropriate use of the door.

Testing

As part of testing, visual and functional tests are conducted, ranging in particular over door leaves, guides, bearings, limiting devices, sensors as well as over safety at danger points due to crushing, shearing or drawing-in.

In addition, with door systems installed on escape routes, all the safety devices of the escape route function are controlled.

To provide the operator with documentation and information, the test result is recorded on a check list and must be kept in the logbook by the operator for at least **one year**.

Maintenance

During maintenance, bearings, sliding points and power transmission are cleaned and adjusted. Relevant fixing screws are controlled and retightened if necessary.

Then, functional testing is carried out for switching devices, drives, control units, force or energy storing devices or command controllers. The safety devices are adjusted and all the motion sequences including the final points are set.

A test run with final overall control of the door system is executed.

To provide the operator with documentation and information, the state of the door installation is recorded on a check list and must be kept in the logbook by the operator for at least **one year** until the next test / maintenance.

IMPORTANT

The test frequency is at least once a year according to the manufacturer's stipulations.
The maintenance frequency is at least once a year according to the manufacturer's recommendations.

IMPORTANT

A listing of recommended spare parts is supplied in the annex and is also available on request at your service department.

IMPORTANT

Tests and maintenance should only be carried out by a specialist or a person specifically trained for that. The authorisation of these persons exclusively lies with the manufacturer. Extent, results and time of the periodical inspection must be recorded in the logbook. These records must be kept by the operator.

12.2 Door care

The entire door installation – including sensors and safety devices – can be cleaned with a damp cloth and commercially available cleaning agents (do not use abrasive cleaning agents or any solvent). First test the product selected on a non-visible spot. The floor tracks should be kept free of dirt.

NOTICE

It is recommended to do this work in the operating mode (Locked) or (Continuously open) to avoid injuries through unintentional door movements.

12.3 Maintenance and regular inspection

Prior to carrying out the first commissioning and if required as well as in accordance with the applicable regulations - however at least **once a year** – a technical inspection by a skilled service technician or an authorised partner must take place. We recommend performing maintenance at the same time.

Any due maintenance is indicated on the display of the BDE-D control unit. The interval for the edition of this message is determined by the number of opening cycles and/or the expiry of a defined operating period.

Regular maintenance and inspection of the automatic door by trained personnel authorised by the manufacturer provides the best guarantee for a long service life and an error-free operation.

We recommend the conclusion of a service contract with the respective service department in your region.

IMPORTANT

A listing of recommended spare parts is supplied in the annex and is also available on request at your service department.

12.4 Logbook

IMPORTANT

The following example of a logbook is just a pattern.
According to local regulations such a logbook must be attached to the door installation and all interventions and recurrent controls must be recorded in it.

Date	Error description / status-no.	Troubleshooting / maintenance / recurrent controls	Repairs / replacements	Service technician signature

IMPORTANT

Spare parts change plan recommendation is attached in the annex or can also be requested at your after-sales centre.

12.4.1 General information

Manufacturer – Information	
Name:	
Street:	
City:	
Telephone:	
Fax:	
E-Mail:	

Distributor – Information	
Name:	
Street:	
City:	
Telephone:	
Fax:	
E-Mail:	

Location of system installation (Project information)	
Name:	
Street:	
City:	
Telephone:	
Fax:	
E-Mail:	

System – Information	
Conf. serial – No.:	
System – Type:	
System – Installation date:	

12.4.2 Information for the operator

In general the technical safety requirements for automatic door systems are regulated by national and international standards and guidelines.

In particular the requirements from the EN16005 / DIN18650 part 1 and 2 apply for inspecting automatic door systems, as well as the Machinery Directive 2006/42/EG at the time of marketing the door system of the door drive.

NOTICE

Operating the door system
There are operating instructions and additional informative documentation. Please read and observe these. For questions, please contact the installation company.

12.4.3 Operator's duties

According to principles for inspecting automatic door systems, in particular according to case law of safety obligations, automatic door systems must be inspected by a qualified technician before commissioning and at least **once a year** thereafter according to the manufacturer. It is particularly important for the protection of people, to observe and to comply with the requirements for public access facilities! The operator is responsible to fulfill the duties required for the door system. For this reason, the manufacturer dictates that one of their "qualified technicians" perform **inspection** on the automatic door system at least **once a year**. The manufacturer also recommends that **maintenance** be performed **once** and for automatic door systems in escape routes **maintenance** should be performed **twice a year,** which can be combined with the above mentioned inspection. Scope, result and the date of the inspection and maintenance must be conducted in accordance to the control list. The results from the control lists are to be documented in this inspection logbook by the operator and to be kept during the entire lifetime of the automatic door. The inspection logbook and the current control list must be available to authorities, insurance agents and authorized technicians upon request. For further information see the chapter on "Inspection and Maintenance".

12.4.4 Commissioned technician

Technicians are people:

- that on the basis of their technical training, knowledge, experience and work, perform their assigned test properly and identify and evaluate potential hazards.
- that have sufficient knowledge in the field of automatic door systems, relevant national safety regulations, accident prevention regulations, directives and generally recognized technical regulations, so they can judge the secure working condition of automatic door systems.
  These people include, for example, technicians from the manufacturing or supplying company, relevantly experienced, trained personnel authorized by the manufacturer or other persons with appropriate expertise.

Experts must submit their assessment objectively from the standpoint of personal and operational safety without being influenced by other requirements, such as i.e. economic circumstances.

12.4.5 Legal requirement for a periodic inspection

NOTICE

According to valid guidelines (EN16005 / DIN 18650) at the time of commissioning, automatic door systems must:
be **inspected** before commissioning and then according to the manufacturer's instructions, however at least once a year, by a qualified technician.

Particular observation of this special regulation is required for personal safety.

12.4.6 Extent of the inspection

The inspection is performed according the inspection instructions of the manufacturer. The result of the inspection is documented in a "check list" and noted in the inspection logbook. The inspection is generally performed at the same time as the maintenance of the system. During the inspection, it must be verified, that no changes were made to the system since the last inspection and whether the current safety requirements suffice.

12.4.7 Requirements for periodic inspection documentation

Extent, results and dates of the periodic inspections, must be documented and kept by the operator in an INSPECTION- and / or MAINTENANCE log book.
The contractor / operator must be informed of the results in writing.
The contractor / operator requires the inspection report (check list) for proof that the periodic inspection was performed and/or as documentation for construction authorities or accident and liability insurances, etc.

12.5 Recommended and planned spare- and wear parts

Spare part/Wear part	Interval
Slide shoe	3 years
Lever hub	3 years
Ball joint axle	If wear is detected
Support ring for lever hub	If wear is detected
MS Stop	If wear is detected
Cable transmission	If wear is detected
Actuator flap	If wear is detected
Traction group ATG	If wear is detected
Power supply NET	If wear is detected
Control unit STG	Breakdown/Failure
Control panel BDE	If wear is detected
Others	If wear is detected

NOTICE

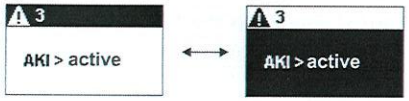
Depending on the version of the door installed, not all the listed spare and wear parts are installed.

13 Action in case of faults

13.1 Detail description of status indications

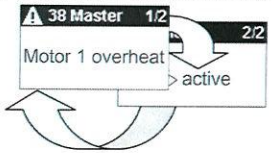
General

In case of an irregularity, the display changes automatically from operation mode level to error display. Depending on the control unit connected BDE-E or BDE-M various indications are given.



When using an electronic BDE-D

The background colour changes between normal/invers every 2 seconds. Several errors can be displayed (e.g. 1/2 means: Error No. 1 of total 2 errors).



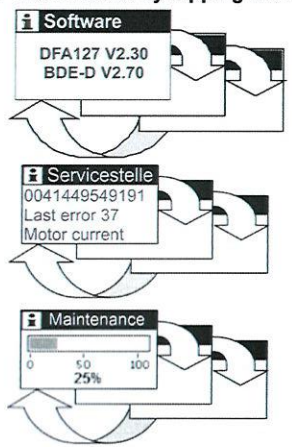
Temporary return to main display for 4 seconds after browsing through error displays.

Status notifications with a „W" are warnings. In this case, the error relay does not switch. The status can be reset by several means according to the detailed description.

A status can usually be deleted by pressing the key for 5 seconds (= reset). This triggers a restart in the control unit.
Information about the operator system, like e.g. the software version, can be read out of the BDE-D main display by pressing the same key once again.
Telephone number, fault and maintenance are only displayed, when this function has been activated by the service technician.
If the cause of the fault has not been eliminated, however, the status message will re-appear if the fault occurs again.
The following list gives the causes of faults in decreasing probability. The fault at the bottom of the list has the smallest probability of occurring in the STG.

Press key about 2 seconds

Browse through informations by tapping the key



Back to main display by pressing the key or automatically after 20 seconds.

13.2 Error display and troubleshooting for swing doorsets

Notice / Abbreviation / Symbol	Meaning
No.	Status or error number
R (Reset)	A service technician is required for resetting the error display. After removing an error, no automatic reset happens.
W	If there is a „W" behind a status or error number, the displayed message is a warning and not a error message.
	Despite an active error, the door can be provisionally locked as follows: • Set BDE-D on MANUAL operating mode. • Set BDE-D on LOCKED operating mode. • Door remains closed and locked.

No.	Display text	H	Comments and possible troubleshooting
3	AKI active		An opening signal is permanently activated on the inner side of the door. ▪ Remove objects moving within the detection area of AKI sensors. ▪ The reaction time for the error can be configured or the error message can be disabled (see *Parameter → Miscellaneous → Alarm display → Time activation).*
5	AKA active		An opening signal is permanently activated on the outer side of the door. ▪ Remove objects moving within the detection area of AKI sensors. ▪ The reaction time for the error can be configured or the error message can be disabled (see *Parameter → Miscellaneous → Alarm display → Time activation).*
6	Unlocking	R	The door could not be unlocked correctly. ▪ Via BDE-D/M select *Locked* operating mode, and once the door has been locked change to *Automatic* mode to repeat unlocking attempt. ▪ Provided that there is an unlocking device, first select *Manual* operating mode, actuate the unlocking device and then change back to *Automatic*. ▪ Check lock mechanism and adjust if needed.
9	Open. unsuccessful		The door cannot open because a safety signal has been activated or the door is mechanically obstructed. ▪ Remove objects in detection field of SIO sensors. ▪ Eliminate mechanical hindrance. ▪ Check locking device.
11	Wrong motor current		Possibly faulty wiring in prefabricated cables ▪ Replacement by service fitter
23	Slave control unit defective		Possibly slave control unit defective ▪ Replacement by service fitter
25	Slave connection	R	Slave connection (CAN) to Master is interrupted
31	EMERGENCY STOP		Emergency stop button has been pressed or manual unlocking has been actuated. ▪ Reset Emergency stop button and manual unlocking.
37	Motor current	R	An excessive motor current has been registered. ▪ Wrong motor type configured. ▪ Check motor and cabling. ▪ Motor is overloaded due to a blockage. ▪ Replace door controller.
38	Motor overheat	R	The temperature of the motor is too high ▪ The system changes to Manual operating mode ▪ The door leaves are possibly too heavy or undergo too much friction ▪ Reset after cooling down of the motor

39	Overload 24V	R	Voltage for the 24V-supply is too low. It is probably overloaded. ▪ Check peripheral units and wiring. ▪ Do not connect too many external units.
40	Closing unsuccessful		The door cannot close because a safety signal has been activated or the door is mechanically obstructed. ▪ Remove objects from detection field of SIS sensor. ▪ Take away mechanical hindrance.
41	Temp. sensor 1	R	The temperature sensor of motor 1 is faulty. ▪ Check motor wiring for disconnections or by-passes.
43	Encoder fault	R	An anomaly has been detected in the encoder. ▪ Check encoder and wiring. ▪ Control drive pulley for correct fitting and tension of the drive belt.
45	T motor too high		The motor temperature is too high for the door to continue to operate. The door remains in Manual mode until the temperature has dropped back to normal values. ▪ Make sure the door runs smoothly. ▪ Remove mechanical hindrance. ▪ Control motor configuration. ▪ Check volume of traffic and weight of door leaves.
46	Control unit defective	R	Includes the following individual faults ▪ EPROM ▪ RAM ▪ Watchdog ▪ Imax ▪ ImaxT ▪ Difference on SHE-EXT
47	SIO active	R	A safety signal in opening direction is permanently activated. Depending on configuration the door stops or moves at reduced speed (see *Parameter→ Input/output → SIO → Function SIO).* ▪ Remove objects moving within the detection field of SIO sensors. ▪ Correctly set the door position at which the signal is activated or suppressed (see *Parameter → Input/output → SIO).* ▪ The response time for the error can be configured or the error message can be disabled (see *Parameter → Miscellaneous Miscellaneous → Alarm display Alarm display → Time safety).*
50	Control unit CPU2 defective		Control unit CPU2 defective ▪ Replace by service fitter
51	Software version	R	In case of a door controller featuring several microprocessors, these do not have the same software version. ▪ Carry out a Flash-Update via FPC902 .
52	No running param.	R	The door parameters (travel distance, door mass, friction, etc.) are unknown. After every loading of factory setting or default parameter or after changing door type, these parameters are erased. ▪ Execute learning cycle .

53	Interrupt. mot. 1	R	No current can be measured on motor 1. ▪ Motor is not plugged in. After it has been connected, a restart must take place. ▪ Motor or controller is faulty.
54	Calibration run	W	A door run is performed to learn the door parameters (travel distance, door mass, friction, ...). ▪ Trigger several door openings (normally 2) until the message disappears.
59	SIS enabled		A safety signal in closing direction is permanently active. Depending on configuration, the door reverses, stops or creeps (see *Parameter → Input/output → SIS).* ▪ Remove objects moving within the detection field of SIS sensors. ▪ The reaction time for the error can be configured or the error message can be disabled (see *Parameter → Miscellaneous Miscellaneous → Alarm display → Time safety).*
60	EEPROM defective	R	Parameter settings as well as history and maintenance information are permanently saved in the EEPROM. Faulty data have been discovered after restart or later on during continuous testing. ▪ EEPROM or door controller is defective. ▪ An old software version has been installed (downgrade) which could not find compatible data in the EEPROM. ▪ Numerous power failures or by-pass of the mains supply. ▪ The error can only be eliminated by downloading the factory settings. As a consequence, all the current settings get lost and the door controller must be configured again. To this end, execute the function *Factory settings* with the MFT key (9 pulses) or with the FPC902, and then carry out a restart within 10 seconds with EMERGENCY STOP or EMERGENCY OPENING. If after this the menu for language selection appears on the BDE-D display, the function has been executed correctly. Subsequently, configure the door controller again.
61	SSK active		The signal on the key-operated contact is permanently active. ▪ Check the SSK switch and wiring/connections. ▪ The response time for the error can be configured or the error message can be disabled (see *Parameter →Miscellaneous Miscellaneous →Alarm display → Time activation).*
62	BDE no priority	W	The requested operating mode cannot currently be set because an operating mode with a higher priority has been selected on one of the mechanical controls (BDE-M, SURV, SURA, etc.). For instance, if operating mode *Locked* has been set on the BDE-M, one cannot change to *Automatic* with the BDE-D.
63	Collision	W	A collision has occurred during a closing or opening movement. ▪ The error is automatically erased when the original travel distance can be driven again. ▪ If the error remains though nothing more hinders the door travel, either a restart or a learning cycle must be carried out. ▪ The error can be so configured that it is displayed or not (see *Parameter → Miscellaneous → Alarm display → Collision)*

72	Slave connection	R	Master does not recognize Slave operator.
88	Diff. parameters	R	Security-relevant parameters are saved by CPU1 and CPU2 in their respective EEPROM. After restart or later on during permanent testing, these data do not have equal values. ▪ Execute a restart with EMERGENCY OPENING. ▪ Unplug mains and battery for a short time and then plug them in again. If the error still remains, then the factory settings must be loaded again (see *Error 60*). ▪ Replace door controller.
89	Master connection	R	Slave does not recognize Master operator.
90	Railbeam active		Railbeam continuously active ▪ Automatically reset if everything is in order, or by service fitter
91	Bodyguard active		Bodyguard continuously active ▪ Automatically reset if everything is in order, or by service fitter
92	STG relay defect	R	The control of the motor relay, which occurs during restart or later periodically, shows an error. Presumably, contacts stick to each other. ▪ Replace door controller.
93	Overvoltage 24V	R	An excessive voltage has been measured at the 24V power supply. ▪ Check cables for proper attachment to peripherals and test connected peripherals. ▪ Replace door controller.
94	Spring calibration		Spring calibration ▪ Automatic reset
95	Error in sense of rotation		▪ Wrong sense of rotation. ▪ Check position of slide switch on MOT-Print.
96	EEPROM void	R	No data has been found in the EEPROM. Normally, this message only appears after commissioning a new door controller for the first time. ▪ Load factory settings (see *Error 60*).
97	Maintenance time exceeded	W R	The configured maintenance cycle has already been exceeded for a certain time (>105%). ▪ Inform our after-sales service centre urgently and have maintenance carried out. ▪ By acknowledging the warning message, the alarm is reset for 13 days.
98	Maintenance due	W R	95% of the configured maintenance cycle has been reached. ▪ Inform our after-sales service centre and have maintenance carried out soon. ▪ The warning can be acknowledged. It will be displayed again when 100% of the maintenance cycle has been reached.
99	Operator rotates	W	Operator rotates. ▪ The grease in the gear will be dispersed. ▪ Automatic reset.
105	Test brake	W	Test brake ▪ Automatic reset

53	Interrupt. mot. 1	R	No current can be measured on motor 1. ▪ Motor is not plugged in. After it has been connected, a restart must take place. ▪ Motor or controller is faulty.
54	Calibration run	W	A door run is performed to learn the door parameters (travel distance, door mass, friction, ...). ▪ Trigger several door openings (normally 2) until the message disappears.
59	SIS enabled	🔒	A safety signal in closing direction is permanently active. Depending on configuration, the door reverses, stops or creeps (see *Parameter → Input/output → SIS).* ▪ Remove objects moving within the detection field of SIS sensors. ▪ The reaction time for the error can be configured or the error message can be disabled (see *Parameter → Miscellaneous Miscellaneous → Alarm display → Time safety).*
60	EEPROM defective	R	Parameter settings as well as history and maintenance information are permanently saved in the EEPROM. Faulty data have been discovered after restart or later on during continuous testing. ▪ EEPROM or door controller is defective. ▪ An old software version has been installed (downgrade) which could not find compatible data in the EEPROM. ▪ Numerous power failures or by-pass of the mains supply. ▪ The error can only be eliminated by downloading the factory settings. As a consequence, all the current settings get lost and the door controller must be configured again. To this end, execute the function *Factory settings* with the MFT key (9 pulses) or with the FPC902, and then carry out a restart within 10 seconds with EMERGENCY STOP or EMERGENCY OPENING. If after this the menu for language selection appears on the BDE-D display, the function has been executed correctly. Subsequently, configure the door controller again.
61	SSK active	🔒	The signal on the key-operated contact is permanently active. ▪ Check the SSK switch and wiring/connections. ▪ The response time for the error can be configured or the error message can be disabled (see *Parameter →Miscellaneous Miscellaneous →Alarm display → Time activation).*
62	BDE no priority	W	The requested operating mode cannot currently be set because an operating mode with a higher priority has been selected on one of the mechanical controls (BDE-M, SURV, SURA, etc.). For instance, if operating mode *Locked* has been set on the BDE-M, one cannot change to *Automatic* with the BDE-D.
63	Collision	W	A collision has occurred during a closing or opening movement. ▪ The error is automatically erased when the original travel distance can be driven again. ▪ If the error remains though nothing more hinders the door travel, either a restart or a learning cycle must be carried out. ▪ The error can be so configured that it is displayed or not (see *Parameter → Miscellaneous → Alarm display → Collision)*

72	Slave connection	R	Master does not recognize Slave operator.
88	Diff. parameters	R	Security-relevant parameters are saved by CPU1 and CPU2 in their respective EEPROM. After restart or later on during permanent testing, these data do not have equal values. ▪ Execute a restart with EMERGENCY OPENING. ▪ Unplug mains and battery for a short time and then plug them in again. If the error still remains, then the factory settings must be loaded again (see *Error 60*). ▪ Replace door controller.
89	Master connection	R	Slave does not recognize Master operator.
90	Railbeam active		Railbeam continuously active ▪ Automatically reset if everything is in order, or by service fitter
91	Bodyguard active		Bodyguard continuously active ▪ Automatically reset if everything is in order, or by service fitter
92	STG relay defect	R	The control of the motor relay, which occurs during restart or later periodically, shows an error. Presumably, contacts stick to each other. ▪ Replace door controller.
93	Overvoltage 24V	R	An excessive voltage has been measured at the 24V power supply. ▪ Check cables for proper attachment to peripherals and test connected peripherals. ▪ Replace door controller.
94	Spring calibration		Spring calibration ▪ Automatic reset
95	Error in sense of rotation		▪ Wrong sense of rotation. ▪ Check position of slide switch on MOT-Print.
96	EEPROM void	R	No data has been found in the EEPROM. Normally, this message only appears after commissioning a new door controller for the first time. ▪ Load factory settings (see *Error 60*).
97	Maintenance time exceeded	W R	The configured maintenance cycle has already been exceeded for a certain time (>105%). ▪ Inform our after-sales service centre urgently and have maintenance carried out. ▪ By acknowledging the warning message, the alarm is reset for 13 days.
98	Maintenance due	W R	95% of the configured maintenance cycle has been reached. ▪ Inform our after-sales service centre and have maintenance carried out soon. ▪ The warning can be acknowledged. It will be displayed again when 100% of the maintenance cycle has been reached.
99	Operator rotates	W	Operator rotates. ▪ The grease in the gear will be dispersed. ▪ Automatic reset.
105	Test brake	W	Test brake ▪ Automatic reset

106	Brake defective	R	Brake or cabling defective.
107	SIS defective	R	Sensors with test input are tested before every dangerous run. An error has been detected on the safety sensor in closing direction. ▪ Check sensor and wiring.
108	SIO defective		Sensors with test input are tested before every dangerous run. An error has been detected on the safety sensor in opening direction. ▪ Check sensor and wiring.
109	Factory settings		The function for loading the factory settings has been activated. ▪ A reset must be performed at the door controller within 10 seconds so that the function is correctly executed (see *error 60*).
110	No Motor	R	No motor detection during initialisation (motor temperature sensor). ▪ Check motor temperature sensor.

NOTICE

Status numbers with a "W" are warnings!

14 Taking out of service and disposal

14.1 Taking out of service

When the swing door operator is discontinued or taken out of service, it has to be disconnected from the power supply and if available, the battery should be plugged out.

NOTICE

After every temporary discontinuation, a new commissioning has to be carried out.

14.2 Dismantling and disposal

IMPORTANT

All the parts of the machine must be sorted by material types and disposed of according to local regulations and guidelines.

The automatic door can consist, among other things, of the following materials:

Aluminium:
- Profiles of the arm system
- Gearbox
- Door leaf profiles and side profiles
- Various profiles and small parts
- Operator casing

Steel and iron parts:
- Stainless steel casing
- Floor plate
- Box out for floor installation
- Optionally spacing or reinforcing profiles
- Gear components, springs
- Various small parts like fittings, covers, parts of the arm system, etc.

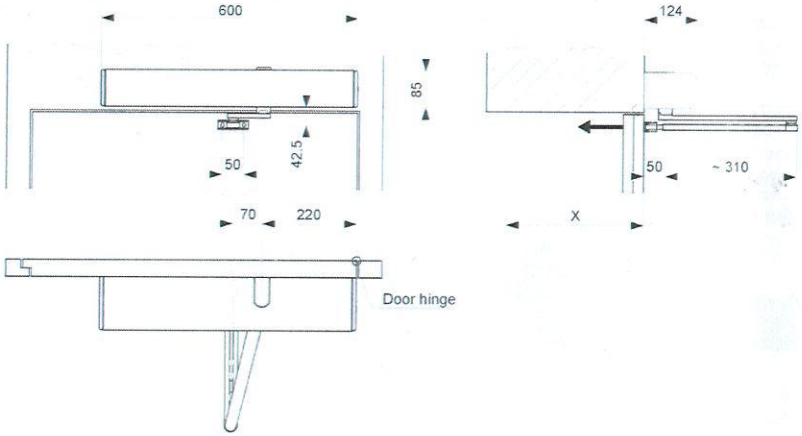
Glass:
- Door leaves and side screens

Various electronic and electromechanical components:
- Control and operator components
- Sensors
- Lead-acid and NiCd rechargeable batteries

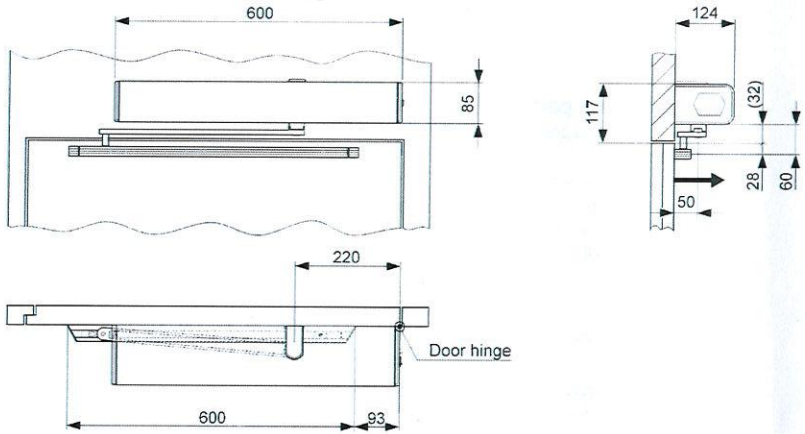
Various plastics:
- Wheels
- Cable slips, side caps, parts of the coupling and the arm system
- Sealing profiles
- Casing of electromechanical components and sensors

15 Drawings

15.1 Drive with Standard arm



15.2 Drive with Slide arm pulling



15.3 Drive with Slide arm pushing