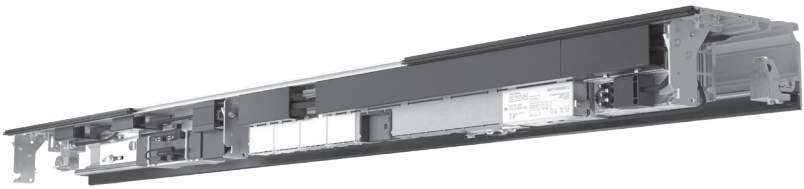
dormakaba

ES 250 PRO/ES 250 PRO FST
ES 400 PRO/ES 400 PRO FST

Operating instructions
Original document



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EN

Contents

1 About this document

1.1 Contents and purpose

This manual enables the safe operation of the ES PROLINE sliding door unit (also referred to as "door unit" in the following). The facility operator must have read this manual prior to commissioning the door unit. Complying with all safety instructions and action steps provided in this manual is a basic prerequisite for handling the door unit safely.
The figures serve to provide a general understanding and may differ from the model of the door unit that is actually delivered.

1.2 Target group

This manual is aimed at the facility operator of the ES PROLINE sliding door unit.

1.3 Other applicable documents

- ES PROLINE mounting and commissioning instructions
- ES PROLINE operation manual
- Documentation for accessories used
- Inspection log for power-operated doors
- The risk assessment for the project

1.4 Documents storage

This manual and the applicable documents must be kept during the service life of the product and must be passed on with the product.

1.5 Symbols used

1.5.1 Hazard categories

WARNING

This signal word indicates a possible hazardous situation that may result in death or serious injury if not averted.

CAUTION

This signal word indicates a possible hazardous situation that may result in minor or slight injury if not averted.

ATTENTION

This signal word indicates a possible hazardous situation that may result in damage to property or the environment if not averted.

1.5.2 More symbols

- ▸ Result of an action/event

2 Safety

2.1 Intended use

ES PROLINE sliding door operators are suitable for use with 1- and 2-leaf sliding doors and telescopic sliding doors for the passage of people in dry environments.
The escape route variant is suitable for use on escape and emergency routes.
All specifications in this manual and the applicable documents must be taken into account.

2.2 Non-intended use

The use of control elements, settings or procedures not described in this documentation may cause electric shocks, hazards posed by electrical voltages/currents, and/or hazards posed by mechanical processes.

2.3 Reasonably foreseeable misuse

Any use above and beyond the correct use is considered to be incorrect use.
Do not allow children to play with the ES PROLINE sliding door unit, the regulating and control equipment or the remote controls.

2.4 Basic warnings

WARNING

Danger to life through electric current
The operator contains live parts.
- Only qualified personnel are allowed to perform maintenance and repair work on the operator.
- Before starting work on electrical units and equipment, establish a voltage-free state and maintain this state for the entire duration of the work.

WARNING

Risk of injury due to heat generation, explosion, and fire
Improper handling of batteries (e.g. overheating, destruction, recharging, use of the battery in other products) can cause heat generation, explosion, and fire. This poses a risk of injury.
- Only use the battery types recommended and approved by dormakaba.
- Observe warnings on the batteries.
- Only use the batteries as intended.
- Keep the batteries out of reach of children.

CAUTION

Risk of injury due to uncontrolled moving door leaves
Risk of crushing, shearing or impact.
- The door unit must not be operated without safety sensors.

Note

This appliance can be used by children from age 8 and over as well as by persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge, if they have been supervised or instructed on using the appliance in a safe way and understand the dangers involved. Children are not allowed to play with the device. Cleaning and user maintenance must not be carried out by children.

2.5 Danger points

Depending on the structural condition, door variant and protection option, residual risks exist at the closing edges, e.g. due to slight crushing or force limited impacts.

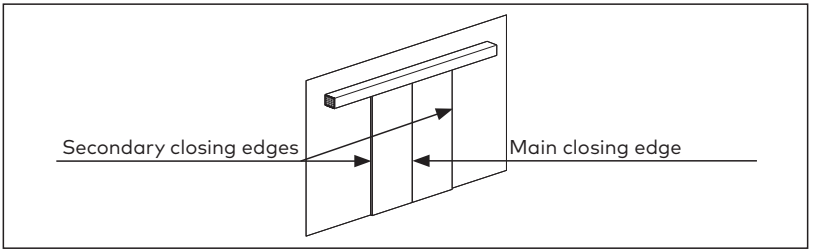

Fig. 1

3 Product description

3.1 Operating mode switch

The door unit is equipped with an operating mode switch. The following operating modes can be set with the operating mode switch.

Off operating mode
The door cannot be opened automatically. Where units have a locking device, the door is mechanically locked. The door can be opened in conjunction with suitable activators via the night/bank function.

Automatic operating mode
The door opens automatically after an activator has been activated. The door closes after the set hold-open time expires.

Permanently open operating mode
The door opens automatically and remains open while this function is active.

Exit operating mode
The door opens automatically after an activator has been activated on the inside. The activators on the outside are not active. The door closes after the set hold-open time expires.

Partial open operating mode
The door opens automatically to the set partial opening width after an activator has been activated. The door closes after the set hold-open time expires.

3.2 Outside and inside detectors

The outside and inside detectors respond to movement. If a person or object enters the detection area of the detectors, the door opens. When the hold-open time expires, the door closes.

3.3 Safety equipment

3.3.1 Main closing edge safety sensors

The area of movement between the open door leaves is monitored by safety sensors. If a person or object enters the detection area of the safety sensors during the closing movement, the door brakes, opens and remains in the open position. When the monitored area is clear again, the door closes after the hold-open time expires. The safety sensors are tested automatically before every closing movement. If the test is negative, the control unit reports the corresponding error and the door no longer closes. The unit must be inspected by a service technician.

3.3.2 Secondary closing edge safety sensors (optional)

The secondary closing edges are monitored by safety sensors. If a person or object enters the detection area of the safety sensors during the opening movement, the door stops. Depending on the door unit setting, the door remains still or continues to move slowly.

3.3.3 Force monitoring

The control unit detects obstacles that are not detected by the safety sensors (e.g. a doormat lying in the area of movement).

3.3.3.1 Force monitoring during the closing movement

If the obstacle is detected during a closing movement, the door opens again. When the hold-open time expires, the door closes. Depending on the setting, the next closure is done slowly. This process is repeated until the obstacle is removed.

3.3.3.2 Force monitoring during the opening movement

If the obstacle is detected during an opening movement, the door stops. The door performs up to 6 opening movements at creep speed. If the obstacle is still present, the door closes. At the next opening impulse, the door opens at creep speed. This process is repeated until the obstacle is removed.

3.4 Automatic adjustment of the hold-open time to the footfall

To protect the drive from overheating, the hold-open time is automatically extended when the door unit experiences high footfall. The hold-open time is automatically reduced to the set value when the footfall drops again.

3.5 Door unit behavior in the event of power failure

Depending on how the operator is equipped, the door behaves as follows in the event of a power failure:

3.5.1 Escape route sliding door

- In Off operating mode:
  - ▸ The door remains closed and locked.
  - ▸ Depending on the setting, the door can be opened from outside, e.g. via a key switch.
- In Automatic, Partial open and Exit operating modes:
  - ▸ The door opens automatically.

3.5.2 Escape route sliding door with FIA locking device

- In Off operating mode:
  - ▸ The door remains closed and locked.
  - ▸ The door can be opened via the emergency open switch.
  - ▸ Depending on the setting, the door can be opened from outside, e.g. via a key switch.
  - ▸ Changing the operating mode has no effect.

Due to the interlock's increased power consumption, the battery is depleted after max. 1.5–2 hours.

  - ▸ The battery is switched off when the voltage falls below 21 V.
  - ▸ The door is unlocked.
  - ▸ The door leaves can be moved.
- In Automatic, Partial open and Exit operating modes:
  - ▸ The door opens automatically.

3.5.3 Standard sliding door without battery pack

The door leaves remain in the current position. Depending on the locking device type installed, the door behaves as follows in the event of a power failure:

- Fail-safe locking device:
  - ▸ When the locking device is locked, it is unlocked.
  - ▸ The door leaves can be moved manually.
- Fail-secure locking device:
  - ▸ The door is locked in every position.
  - ▸ The door leaves cannot be moved.
- Standard locking device:
  - ▸ The status of the locking device does not change.

3.5.4 Standard sliding door with battery pack

A locked door unit can be opened with a key switch if the battery is charged. Depending on the configured battery mode, the door behaves as follows in the event of a power failure:

3.5.4.1 Emergency open

- In Automatic, Partial open, Exit and Permanently open operating modes:
  - ▸ The door opens at creep speed and enters energy-saving mode.
- In OFF operating mode:
  - ▸ The door closes at creep speed.
  - ▸ If the door is equipped with a locking device, the door locks.
  - ▸ The door enters energy-saving mode.

3.5.4.2 Emergency close

- In all operating modes:
  - ▸ The door closes at creep speed.
  - ▸ If the door is equipped with a locking device, the door locks.
  - ▸ The door enters energy-saving mode.

3.5.4.3 Emergency operation

- In Automatic, Partial open, Exit and Permanently open operating modes:
  - ▸ The door behaves according to the set operating mode.
  - ▸ If the battery voltage drops below 21 V, the door opens and the battery switches off.
- In OFF operating mode:
  - ▸ The door remains closed.
  - ▸ If the door is equipped with a locking device, the door remains locked.
  - ▸ If the battery voltage drops below 21 V, the battery is switched off. The door cannot be opened until power is restored.

3.5.4.4 The battery mode is not set.

- ▸ The door remains open for a short time. Ongoing movements are not necessarily terminated.

3.6 Door Pilot Interface (option)

The DPI function comprises a Bluetooth low energy module, the Door Pilot Interface and an app for mobile end devices (smartphones): the Door Pilot App. The Door Pilot App allows remote control of the door unit. The Health Check function can also be used to check the current status of the unit. When using the Door Pilot App, an additional lock, e.g. a floor lock, must be mounted on the door. The customer bears sole responsibility for the safeguarding of access details required to operate the door unit via the Door Pilot Interface. To protect against misuse, it is necessary after installation of the door unit and the Door Pilot Interface to log in using the Door Pilot App and to personalize the user key. If there is to be no operation using the Door Pilot App, the Door Pilot Interface must be deactivated or uninstalled.
For further information, see the terms and conditions (within the Door Pilot App).

3.7 Fire protection function

The fire protection function enables the sliding door to close safely in case of fire. The function is controlled externally, e.g. via fire alarm systems or building management systems. The function is only available for standard doors.
When the fire protection function is triggered, the door closes and is locked.
The door moves at creep speed due to the deactivated sensor system.
The following functions are no longer possible:

- Opening the door via the sensor system
- Change of the operating mode
- Fire brigade functionality
- Panic lock
- Close dead man's switch
- Open dead man's switch
- Pharmacy functionality

Opening the door is now only possible via emergency opening or the night/bank impulse.

3.8 Technical data

Connection voltage:	230 V AC + 10% -15% 50 Hz
Fuse supplied by the customer:	10 A
Protection class:	IP 20
Operating noise:	<47 dB(A)
Permissible humidity:	93% relative humidity, non-condensing
Operating temperature:	-20°C to +60°C
Program inputs:	Off, Automatic, Permanently open, Partly open, Exit
Tested load changes	1.5 million
Power supply for external devices	
- With mains operation with 180 W power supply unit: with 130 W power supply unit:	 24 V DC/2A 24 V DC/2A
- With power failure in battery mode with 180 W power supply unit: with 130 W power supply unit:	 21–27 V DC/2A 21–27 V DC/2A
Max. power consumption with 180 W power supply unit: with 130 W power supply unit:	 180 W 130 W
Data and characteristics	
Opening width, 1-leaf:	700–3000 mm
Opening width, 2-leaf:	800–3000 mm
Max. door weight, 1-leaf with 180 W power supply unit: with 130 W power supply unit:	 1 x 250 kg 1 x 125 kg
Max. door weight, 2-leaf with 180 W power supply unit: with 130 W power supply unit:	 2 x 200 kg 2 x 125 kg
Settings	**Adjustment range min. – max.**
Opening/closing speed with 180 W power supply unit: with 130 W power supply unit:	 10–90 cm/s 10–70 cm/s
OPEN/CLOSE creep speed:	3–9 cm/s
Brake ramp OPEN/CLOSE: Braking deceleration OPEN:	0–9
Hold-open time/ night/bank hold-open time:	0–180 s
Night/bank delayed opening:	0–10 s
Partial opening:	25–800 cm
Creep speed distance OPEN/CLOSE:	0–30 cm
Acceleration OPEN/CLOSE:	0–9
Force limitation OPEN/CLOSE:	50–310 N

3.9 Optional components

3.9.1 Key switch

The key switch can be configured by the service technician.
Each of the 4 switching options can be individually configured according to customer requirements. 3 frequently used configurations are provided.

	Standard	**Fire brigade circuit**	**FIA**
Left <3 sec.	Off		FIA test run OUTPUT deactivated
Left >3 sec.	Electrical fault lock	Close dead man's circuit	---
Right <3 sec.	Night/bank impulse	Fire brigade switch	FIA test run OUTPUT activated
Right >3 sec.	Electrical fault unlock	Open dead man's circuit	---

Individual configuration
Left <3 sec.
Left >3 sec.
Right <3 sec.
Right >3 sec.

3.9.2 Night/bank activator

The night/bank activator is used to open the door unit from outside when it is switched off. Depending on the model, the activator is operated using a key or electronically (e.g. with a credit or debit card). The activator is located outside near the door unit. To open the door from inside after using the night/bank activator, an activator such as a push button must be actuated if Off operating mode is set. In Exit operating mode, the door opens automatically.

3.9.3 Emergency stop button

The emergency stop button is used to stop the door unit immediately in an emergency. The emergency stop button has a red actuation element on a yellow background and is located near the door unit. The emergency stop button must not be used on doors on escape and emergency routes.

3.9.4 Emergency open button (only on escape route sliding doors)

The emergency open button is used to open the door unit immediately in an emergency. The emergency open button has a green actuation element and is located near the door unit. The emergency open button is used only on escape route sliding doors.

3.10 Fault LED on the operating mode switch

The fault LED lights up if an error occurs that impairs operation.

- The door remains in the open position.

The door can be closed by setting the Off operating mode so long as the displayed error does not prevent this.

- The door closes slowly.
- If a locking device is present, the door unit is locked.

4 Maintenance

4.1 Checking the door unit

Power-operated doors have to be tested by a qualified individual at least once a year.
Power-operated doors on escape and emergency routes have to be tested by a qualified individual at least twice a year.
The test is carried out according to the supplied inspection log for power-operated doors.
Between tests by a qualified individual, it is recommended as an additional safety precaution that a regular inspection of the key functional elements be performed by the facility operator.

4.2 Wear parts

WARNING!

Using the wrong replacement parts can cause a risk of injury!
The use of incorrect or faulty replacement parts can be dangerous to personnel.
- Only use replacement parts approved by dormakaba.

The replacement of wear parts depends on the expected number of load changes made by the door unit. ES PROLINE sliding door operators are tested on approval with 1 or 1.5 million opening and closing cycles. However, during operation the door units are subjected to other environmental conditions and a natural ageing process. As such, dormakaba prescribes timings for the replacement of safety-related wear parts in order to ensure safe operation of the door unit.

Wear parts	Replacement at the latest:
Rollers	2 years
Counter rollers	In the event of visible wear
End stop	In the event of visible wear
Toothed belt	5 years
Battery pack	3 years
Track profile	5 years
Anti-static brushes	1 year
Locking contact	4 years
CO48 rubber cord	1 year
Li-Mn button cell CR 1220	8 years

4.3 Replacing the battery pack/the battery

The battery pack and the battery may only be replaced by trained specialists according to the corresponding manual.

5 Maintenance by dormakaba

Regular maintenance of your units pays off: weak points are detected and eliminated at an early stage and your unit's service life is increased.
dormakaba and our authorized partners offer premium maintenance service for automatic doors and hold-open systems, which gives building operators reliable safety through the official seal of approval. Because if all door units have not been properly tested, the building operator may be liable for property damage and personal injury in the event of an accident. Regardless of safety aspects, regular maintenance also makes sense from an economic point of view. Any damage or wear can thus be detected and repaired at an early stage. The risk of unforeseen costs, such as high repair costs, can be minimized – and we help you to keep an eye on your budget – always with the aim of increasing the service life of your door units.
dormakaba takes over the complete organization and execution of maintenance for you. The advantage to you: All units – including units from other manufacturers – are tested by trained experts at the scheduled regular intervals. The facility operator does not have to worry about anything else and legal requirements are reliably fulfilled.
A maintenance contract for the door ensures tested functionality with a premium standard!
We want to win you over too – contact us for a non-binding, free quote for a maintenance contract.
Further information on this and many other topics of the dormakaba service can be found on our homepage at www.dormakaba.com

0 800 524 0246
24hr Service Hotline

6 Troubleshooting

Malfunctions can have many causes.
As the cause often lies in the ambient conditions, the operator attempts to detect the ambient conditions and react to them accordingly. This involves the operator interrupting the current function and starting again after a waiting time or a new activation. If this does not work, the automatic operator function switches off and an error message is output.
The display is an LED on the operating mode switch.
The display flashes or shows a continuous light and indicates a malfunction that must be rectified by dormakaba Service.
To reset error messages, switch the operating mode switch to the OFF position.
Before acknowledging an error message, cause analysis and removal shall always take place.

6.1 Influence of weather conditions

The safety sensors on the door unit protect the passage area. Personal protection takes top priority when setting the sensitivity of the sensors.
Weather factors such as rain or snow, flying foliage or sunlight on reflective flooring can cause the sensors to make false detections.
False detections can result in the door opening for up to 1 minute. This opening of the door unit is stipulated in a standard and is intended solely to protect door users.

6.2 Error location

If faults occur during operation, check the following:

- Is the power supply available?
- Is the optional emergency stop switch released?
- Is the optional emergency open switch released?
- Is the operating mode switch in the correct position?
- Are objects blocking the door?
- Are the door leaves smooth-running?

If these items are all OK and the door unit is still not functioning, notify dormakaba Service.

7 Disassembly, recycling and disposal

Disassembly is carried out in the reverse order of mounting and must be carried out by qualified personnel.

WARNING

Danger to life through electric current
Work on electrical units must only be carried out by qualified electricians.

- Before starting work on electrical units and equipment, establish a voltage-free state and maintain this state for the entire duration of the work.

The product must be disposed of in an environmentally friendly manner. Electrotechnical parts and batteries must not be disposed of as domestic waste. Dispose of electrotechnical parts and batteries in the designated acceptance and collection points. Refer to the statutory regulations for your country.

8 EC declaration of conformity

dormakaba Deutschland GmbH, DORMA Platz 1, 58256 Ennepetal

hereby declares that the products
ES 250 PRO, ES 250 PRO FST, ES 250 PRO T, ES 250 PRO T FST, ES 400 PRO, ES 400 PRO FST, ES 400 PRO T, ES 400 PRO T FST, ES 500 PRO, ES 250 PRO EASY, ES 250 PRO EASY T
are in conformity with the provisions of the following EC Directives and that the following standards have been applied.

EC Directives:

2014/30/EU	Electromagnetic Compatibility
2011/65/EU	RoHS

Harmonized European standard, national rules:

EN 13849-1	EN ISO 12100	EN 16005	EN 60335-2-103
EN 61000 - 6 - 2	EN 61000 - 6 - 3	EN 61000 - 3 - 2	EN 61000 - 3 – 3
EN IEC 63000			

System components:

Expansion modules:
Operating mode switch (BAS), safety and activation (SIAK), inputs and outputs (I/O)

9 EC declaration of incorporation

dormakaba Deutschland GmbH, DORMA Platz 1, 58256 Ennepetal

hereby declares that the partly completed machinery
ES 250 PRO, ES 250 PRO FST, ES 250 PRO T, ES 250 PRO T FST, ES 400 PRO, ES 400 PRO FST, ES 400 PRO T, ES 400 PRO T FST, ES 500 PRO, ES 250 PRO EASY, ES 250 PRO EASY T
conforms to the following essential requirements of the Machinery Directive (2006/42/EC) - Annex I, Article:
1.1.3, 1.1.5, 1.2.1, 1.2.3, 1.2.5, 1.2.6, 1.3.2, 1.3.3, 1.3.4, 1.3.8.1, 1.3.9, 1.5.1, 1.5.2, 1.5.4- 1.5.10, 1.5.16, 1.6.1, 1.6.2, 1.6.3, 1.6.4, 1.7.1.1, 1.7.3, 1.7.4

The partly completed machinery continues to comply with all relevant provisions of Directives 2014/35/EU and 2014/30/EC.
It may be installed and operated in automatic door units according to the Machinery Directive if the unit manufacturer ensures that all requirements resulting from the Machinery Directive are complied with and issues an EC declaration of conformity.
The specialist technical documents have been created and are available from the Product Compliance Manager at: product-compliance.germany@dormakaba.com.
They will be transmitted electronically to national authorities upon reasoned request.

10 UKCA Declaration of Conformity

This declaration is issued under the sole responsibility of the manufacturer.
dormakaba Deutschland GmbH, DORMA Platz 1, 58256 Ennepetal, Germany

declares that the products
ES 250 PRO, ES 250 PRO FST, ES 250 PRO T, ES 250 PRO T FST, ES 400 PRO, ES 400 PRO FST, ES 400 PRO T, ES 400 PRO T FST, ES 500 PRO, ES 250 PRO EASY, ES 250 PRO EASY T
comply with the provisions of the applicable legislation and the designated standards of the United Kingdom.

UK legislation:

- Electromagnetic Compatibility Regulations 2016
- RoHS, The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Regulation 2012

Designated standards:

EN 13849-1:2015 EN ISO 12100:2010 EN 16005:2012/AC:2015 EN 60335-2-103:2015
EN 61000 - 6 – 2:2005 EN 61000 - 6 – 3:2007/A1:2011 EN 61000 - 3 – 2:2014 EN 61000 - 3 – 3:2013
EN IEC 63000:2018

System components:
Expansion modules:

Safety and activation (SIAK), operating mode switch (BAS), input/output (I/O)

11 UKCA declaration of incorporation

This declaration is issued under the sole responsibility of the manufacturer.
dormakaba Deutschland GmbH, DORMA Platz 1, 58256 Ennepetal, Germany
declares that the partly completed machinery
ES 250 PRO, ES 250 PRO FST, ES 250 PRO T, ES 250 PRO T FST, ES 400 PRO, ES 400 PRO FST, ES 400 PRO T, ES 400 PRO T FST, ES 500 PRO, ES 250 PRO EASY, ES 250 PRO EASY T
complies with the basic requirements of the following sections of the Supply of Machinery (Safety) Regulations 2008 - Annex I:
1.1.3, 1.1.5, 1.2.1, 1.2.3, 1.2.5, 1.2.6, 1.3.2, 1.3.3, 1.3.4, 1.3.8.1, 1.3.9, 1.5.1, 1.5.2, 1.5.4- 1.5.10, 1.5.16, 1.6.1, 1.6.2, 1.6.3, 1.6.4, 1.7.1.1, 1.7.3, 1.7.4

The partly completed machinery also complies with all relevant provisions of the Electromagnetic Compatibility Regulations 2016 and the Electrical Equipment (Safety) Regulations 2016.
It can be installed and operated in automatic door control mechanisms in accordance with the Supply of Machinery (Safety) Regulations 2008, provided that the manufacturer of the systems ensures that all requirements of the Supply of Machinery (Safety) Regulations 2008 have been met and a UKCA Declaration of Conformity has been issued.
The specialist technical documentation has been created and is available from the Product Compliance Manager at product-compliance.dach@dormakaba.com.
It is forwarded electronically to the individual authorities in response to a duly substantiated request.

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