

ED900



Low energy operator

Safety and Technical Specifications:
Book 1 of 3



ED900



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1. For Your Safety

This documentation contains important information regarding the mounting and the safe operation of the door system.

Read these instructions carefully before operating the ED900.

It is important for your personal safety to abide by all enclosed instructions.

An incorrectly performed installation might cause serious injuries.

Using control elements, making adjustments or performing procedures that are not described in this documentation might cause electric shocks, danger caused by electric voltage/current and/or danger due to mechanical incidents. Please keep these documents for further reference and hand them over to the person in charge in case the system is transferred to another party.

Explanation of symbols



NOTE

This symbol underlines important information that may facilitate your work.



REMARK

This symbol warns you of possible system damage and explains how to avoid this damage.



WARNING

This symbol indicates dangers that might cause personal or material damage or even kill people.

Intended application

As an electromechanical swing door operator, the ED900 is **only designed to open and close swing doors with a door-leaf weight of up to 220lb with a max width of 48"**.

This operator is suitable for installation as slide channel pull arm assembly or double lever push arm assembly.

The closing force paths have been optimized for the respective ways of mounting and comply with the requirements of ANSI 156.19.

Please ensure that the system is approved for installation at the respective door before installing the system at a fire or smoke door.

Before you start with the installation of the system, please ensure that your operator is suitable for the door situation as explained in the technical specifications in chapter 2 and that the door is equipped with adequate hinges for operation with an automatic operator.

The maximum cable length for external components must not exceed 98' 5" [30 m].

Limitation of liability

The ED900 may only be used according to their specified intended application. DORMA will not accept any liability for damage resulting from unauthorized modifications of the ED900. Furthermore components/accessories that have not been approved by DORMA are exempted from liability.

Safety instructions



Work on electrical equipment may only be performed by properly qualified staff (electricians).

- Do not allow children to play with the ED900 or its rigidly mounted adjustment and control devices.
- Keep remote controls out of reach of children.
- Never stick metal objects into the openings of the ED900; otherwise you might sustain an electric shock.
- Always use safety glass when mounting glass door panels.
- Only operate the mains switch at the header profile while the door stands still or is permanently open.
- No push buttons/switches, pictures etc. must be located within the door's movement range.
- Switch must be located so that door operation can be observed by person operating the switch.
- Your door system must be maintained in compliance with the standards of the industry, BHMA/ANSI.
- Proper decals and labels be applied, per BHMA/ANSI Standards, and maintained on your doors. If decals are removed, or cannot be read, request labels to be replaced when calling for service.

Standards, laws, codes and regulations

The latest versions of the common and local-specific standards, laws, codes and regulations have to be observed.

Application of the ED900 swinging fire door operators:

- Intended for use on swinging type fire door assemblies, equipped with electric strikes or single point latches/locks or fire exit hardware with remotely activated retractable latch bolts.

Low-energy product

The ED900 can be adjusted so that it meets the requirements of a low-energy application (low-energy operator) to ANSI 156.19. During commissioning, the operator has to be adjusted in accordance with the appropriate standard and then verified after installation is complete.

The required system safety is ensured by the following means:

- Reduced dynamic force at door leaf/contact force
- Low driving speed
- Reduced static force at door leaf/contact force
- Force limitation

The application of additional safety sensors to protect the swing path is not explicitly stipulated but should be considered as an option if the individual risk assessment reveals that further sensors are required. The protection of the secondary closing edge has to be assessed individually.

Risk assessment on the part of the installer

Due to special spatial conditions and the expected user groups of the door, the application of safety sensors may, however, also be reasonable for a low-energy operator. Therefore the manufacturer, i.e. the installer of the system, has to perform an individual risk assessment during the planning of the door system in order to decide whether additional safety equipment is required or not.

Please refer to our homepage www.dorma-usa.com

Special requirements regarding the protection of people in need of protection

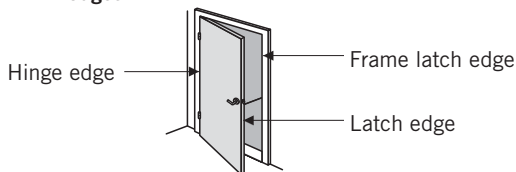
In case the risk assessment reveals that there is a health risk or risk of injury caused by the door hitting a person using the door with an unacceptable force, an additional protection with the aid of appropriate safety equipment (connection of a safety sensor) is required.

This is especially necessary when people in need of protection (children, elderly people or disabled people) use the door.

Dangers at closing edges



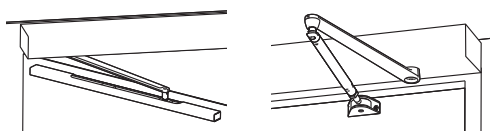
Automatic doors may cause hazards by crushing, shearing, hitting and drawing-in at the different closing edges.



Dangers caused by slide channel and arm



The slide channel and the arm may cause hazards by crushing and shearing.



Residual risk

Depending on the structural conditions, the door version and the available safety equipment, residual risks (such as crushing and hitting – with limited force) cannot be excluded. All people using a door are generally aware of the danger spot at the secondary closing edge of every swing door (also at manually operated doors). This danger spot cannot be influenced by the manufacturer of the operator and a protection of this closing edge often cannot be realized due to its construction and technical function. A suitable clamping protection (like a rubber or textile cover) is available in the specialized trade and not part of the scope of delivery.

Recycling and disposal



The **ED900** and its packing mainly consist of **recyclable raw material**.

The **ED900** and the respective accessories must **not be disposed of as domestic waste**.

Please ensure that the old appliance and the respective accessories (if available) are properly disposed of.

Abide by the prevailing national statutory provisions!

Safety during mounting

- The door is designed to be installed by trained and knowledgeable installers. The installation technician should be experienced in the installation of automatic entrances. They should know all local code requirements and be familiar with the requirements of the current ANSI A156.10 & 156.19 Standards for Power Operated Pedestrian Doors.
- The working area has to be secured against unauthorized access from other people. Falling items or tools might cause injuries.
- This unit should not be mounted in exterior conditions.
- The way of mounting and the mounting equipment, must be adequate with regard to the structural conditions (steel structure, wood, concrete etc.).
- Before mounting the **ED900**, the door leaf has to be checked with respect to proper mechanical condition and smooth running. **No other closing mechanisms can be attached to this door in anyway.**
- The mounting of the **ED900** described herein is only an example. **Structural or local conditions, available tools or other conditions might suggest a different approach.**
- Following the successful installation of the system, the settings and the proper function of the **ED900** and the safety equipment have to be checked.

- Only specially qualified staff may open the power supply housing.
- Disconnect the **ED900 from power supply (de-energize the system) before removing the cover of the power supply housing.**
- After installation, the door must be adjusted to conform to **DORMA** recommendations and all code requirements. Carefully study the requirements in these instructions.
- After installation and adjustment, the installer's final responsibility is to properly instruct the owner in the safe use of the door. He must also present the owner with the manual.
- Each step of the installation, adjustment and instructions are important for proper and safe use of the door being installed. If there are any questions about any items contained in these instructions, call the **DORMA** Technical Assistance Group for assistance.

Safety during commissioning

- Only specially qualified staff may open the power supply housing.
- The protective earth conductor ground has to be connected.
- Ensure that the door leaves run smoothly.
- The operator and the door leaf must be properly linked.

Inspection and system approval

Before the first commissioning and depending on requirements, however, at least once a year, the **ED900 has to be inspected by a properly qualified technician and serviced if required.**

Briefing:

Following the adjustment, commissioning and functional testing of the door system, the operating instructions have to be handed over to the facility operator and a briefing has to be made.

Maintenance

The system has to be de-energized/disconnected from power supply before any kind of maintenance work is performed (turn main power supply breaker OFF).

Please consider the leaflet regarding the application of hold-open devices for further information and instructions regarding the application of the **ED900 at fire and smoke doors.**

Care

The system has to be de-energized (disconnected from power supply) before cleaning the system.

Remove power plug or, with permanent power supply, switch off breaker.

You may clean the **ED900 with a damp cloth and standard commercial detergents.**

You should not use scouring agents for cleaning purposes as they might damage the surface finish.

Pay attention that no water or other liquids drop on or into the **ED900.**

Never stick metal objects into the openings of the **ED900; otherwise you might sustain an electric shock.**

Wear

The following wear parts have to be inspected once a year and replaced if required:

- Arm
- Slide shoe
- Slide channel

Only use DORMA original replacement parts.

2. Technical Specifications

The following technical specifications will help you to check additionally if the system fulfills the requirements. You can start mounting if the system complies with the parameters.

Required operating conditions

| | |
|---------------------------------------|---|
| Ambient temperature | 5 to 122° F [-15 to 50° C] |
| Only suitable for dry environments | relative humidity max. 93% non-condensing |
| Power supply | 115 V AC +/- 10% 50/60 Hz 6.6 A max. |
| Class of protection | IP 20 |
| Branch circuit protection (by others) | 15 A |
| Power cable type | 14 AWG / 12 AWG |
| Max. operating noise | 50 db (A) |

General specifications

| | |
|--|--|
| Dimensions (WxHxD) | 27 x 2 3/4 x 5 1/8" [685 x 70 130 mm] |
| Min. distance between hinges (double-leaf systems) | 55 1/8" [1,400 mm] |
| Min. distance between hinges (double-leaf systems) with Full Width Cover | 59 1/16" [1,500 mm] |
| Operator weight | 26.5 lb [12 kg] |
| Power supply for external accessories | 24 V DC +/- 10%, 1.5 A |
| Opening angle | Max. 110° |

Inputs

| | |
|---|--------------------------------------|
| Connections | 14 AWG Max. [2 mm ²] |
| Dry contact | Inside and outside (NO contact) |
| Override (intercom system) | 8 - 24 V DC / AC + 10% |
| Override (key switch) | NO contact/NC contact |
| Safety sensor | Pull side and push side (NC contact) |
| Test signal for safety sensor | Pull side and pull side |
| Deactivation of operator function (lock switch) | NC contact/NO contact |

Outputs

| | |
|--------------|---|
| Connections | 14 AWG Max. [2 mm ²] |
| Status relay | Door closed Door open Malfunction |

Integrated functions

| | |
|---|--|
| Latching action | Adjustable from 5° to 0° |
| Hold-open time | 0 - 30 seconds |
| Override hold-open time | 0 - 30 seconds |
| Obstruction detection during closing cycle | Reversing / Automotive mode |
| Delayed opening for locking mechanism (electric strike) | 0 - 4 second/s |
| Locking feedback contact | Latch / Lock monitor |
| Wind load control | up to 33,7 lbf [150 N] |
| Power failure speed control | Adjustable via potentiometer |
| Closing force prior to close | Force adjustable |
| LED status indicator | green - power supply available red - malfunction yellow - service interval indicator |
| Internal mode switch | OFF AUTOMATIC PERMANENT OPEN EXIT ONLY (only for single-leaf systems) |
| Program panel with 2 digit display | Status indicator and settings / parameters |
| TMP – Temperature Management Program | Overload protection |
| IDC – Initial Drive Control | Driving phase optimization |
| Cycle counter | 0 – 1,000,000 (reasonably subdivided) |
| Power Assist Function / Helping Force | Servo-supported manual opening |
| Push & Go Function | The door opens when it is moved manually by 4° |

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|--|--|
| Max. steady state power consumption | 120 Watts |
| Max. door-leaf weight for lintel depths of up to 11 3/4 " [300 mm] | 220.4 lbs [100 kg] |
| Door-leaf width | 27 9/16" to 43 1/4" [700 to 1,100 mm] |
| Opening speed | (27°*)/second |
| Closing speed | (27°*)/second |
| Axle extension | 0" [0mm] 3/4" [20 mm] standard 1 3/16" [30 mm] 2 3/8" [60 mm] |
| Pull side track mount lintel depth for slide channel | +/- 1 3/16" [30 mm] |
| Push side top jamb lintel depth for standard arm | 0" to 11 13/16" [0-300 mm] |

Power-Assist / Helping Force Mode

The Automatic-Power-Assist Function may be activated while the door is in door closer mode (parameter hd = 1). As soon as a user opens the door manually by some degrees, the servo-function supports the manual opening cycle. The servo support automatically adapts to the adjusted size of the door closer. The level of servo support is adjustable in order to meet the requirements of ANS: 156.19 Power Assist Mode. The maximum adjustable opening torque amounts to 15 ft-lbf [20 Nm], unless the hold-open device is triggered or in the event of a power failure.

It is not possible to use the system in conjunction with the Push & Go Function or opening and closing force (wind load control) as these modes may affect the easy manual opening.

Door closer mode & Automatic mode

Users may choose between two operation modes: door closer and Automatic mode. While adjusted to door closer mode (setting 32 hd = 1), the system is optimized for manual operation. With its optional Power-Assist / Helping Force Mode, the door closer mode is tailored to predominantly manually-operated doors where a door closer function is desired. The Automatic mode (setting 32 hd = 0) in turn is especially suitable for mainly automatic access via pushbutton. In addition, the door reverses as soon as it runs into an obstruction while closing. On activation of the Automatic mode, also the wind load control is available. However, the doors are still ready for manual egress. In this case we would recommend the Push & Go function.

Wind load control

ED900 operators are suitable for application at exterior doors that are subject to varying wind loads and for interior doors separating rooms where different pressure prevails. While the system is in AUTOMATIC mode, the wind load control monitors the actual driving speed and adjusts the speed correspondingly if it does not correspond to the adjusted value.

The electronic latching action is activated during the last 5° of the closing cycle in order to support the closing action.



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