ED900

Low Energy Swing Door Operators

CONTENTS
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DORMA USA quality and environmental management systems in Reamstown, PA and Steeleville, IL are certified to ISO 9001:2008 and ISO 14001:2004.

ED900 SWING DOOR OPERATORS

—

DORMA's most advanced low-energy swing door power operator.

The ED900 is fully ADA compliant – helpful for children, the elderly, persons with disabilities, or those carrying or pushing objects.
The operator is exceptionally quiet, safe, and easy to use. Doors open at precisely controlled speeds and forces, assuring safety for all users.

The ED900 features Contur design for a highly aesthetic look especially when used with the TS93 family of closers.

Technical Details

- Onboard power supply for access control devices: 1.5 A @ 24 VDC.
- Maximum door size: 48" (1219 mm) wide.
- Maximum door weight: 220 lb (100 kg).
- Operator weight: 26.58 lb (12 kg).
- Operating temperatures: 5° F to 122° F (−15° C to 50° C).
- Standard operator dimensions: 27" W × 2-3/4" H × 5-1/8" D (685 mm × 70 mm × 130 mm).
- Maximum opening angle: Powered—110°, Manual—180°.
- Non-handed.

- On-board cycle counter.
- 27" cover standard.
- One unit for push/pull track and top jamb applications.
- Axel extensions: 0, 5/16" (9 mm), 3/4" (20 mm), 1-3/16" (30 mm), and 2-3/8" (60 mm) — standard.

Certifications

- ANSI/BHMA 156.19 Power Assist and Low Energy Power Operated Doors.
- UL and CUL listed for fire door operators with automatic closers.
- ICC/ANSI A117.1 Accessible and Usable buildings and facilities.
- Underwriters Laboratories: ANSI/UL 325 Door, Drapery, Gate, Louver, and Window Operators and Systems.
- California State Fire Marshall (CSFM) approved.

Specifications

DORMA ED900 Series low energy operators with selectable low energy or power assist. Low energy function to cycle the door open as programmed. Power assist function for decreased opening force when manually operated. Operator to have a programmable push and go. All operators to have programmable sweep speed, latch speed, and backcheck cushioning.

Operators to have the following programmable options for power open functions: delay time, opening time/ opening force, opening angle, and door width selector. Operators to have selectable jumper to accommodate push or pull side applications. Operators to have on/off strike delay when the ED900 must delay while a locking device releases. Push side (top jamb) and pull side (track) arms to be available. All operators will be hard wired. All operators to have selectable on/off obstacle detection on closing.

Optional Specifications

All operators to have remote switch wiring for tamper-resistance. Hold open function is deleted. On/off status can be controlled from a remote location. Specify RS. All operators to be powered with a power cord plugged into a 120 VAC receptacle. Specify PC.

Electrical Specifications

- Power requirements: 115 VAC +/– 10%, 50/60 Hz, 6.6 A max.
- Current: 6.6 A.
- Fuse: 3 Amp – type AGC – size 1/4" – 1-1/4".
- Branch circuit protection: 15 A min.
- Auxiliary power output 24 V (normally) filtered, unregulated 1.5 A max range 24 +/– 10%.

- Form "C" relay contact for controlling fail-secure or fail-safe locking devices 50 VAC or DC at 1 A max.

When incorporating the ED900 into a system with other electrical components, DORMA's Technical Services Department offers assistance with point-to-point wiring diagrams. Please contact them with specific requirements.

Programmable Features

- Opening and closing speed.
- Hold open time: from 0–30 seconds.
- Backcheck & latching angles.
- Blow open/night bank hold open.
- Wall blanking on pull side.
- Safety sensor testing.
- Delayed opening for unlocking: From 0–400 milliseconds. Use with electromechanical access control peripherals such as electric strikes or exit devices with electric latch retraction.
- Closing force prior to unlocking: Works with the delayed unlocking feature and accommodates reduction of latch bolt locking force prior to releasing the electro-mechanical access control device.
- Opening and closing force.
- Latching action force: Power boost during latching cycle to overcome resistance for door seals, locking devices, or door/ frame misalignment.
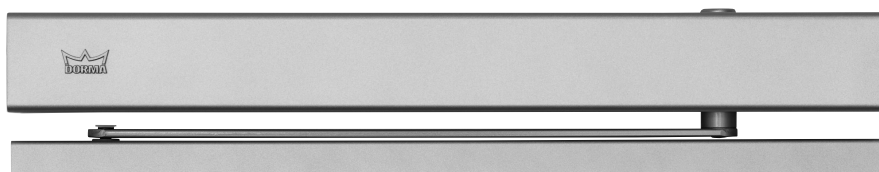
Programmable Features (Continued)

- Keep closed force: designed to keep the door in the closed position when unlocked.
- Latching action angle: For engaging the programmable latching action feature. Opening angle range 2°–5°.
- Push and go.
- Program switch type.
- Behavior following a power reset.
- Cycle counter.
- Opening angle.
- Door closer/ automatic function.
- Activation angle for Helping Force function and Helping Force function.
- Remote interface.
- Backcheck when door is opened manually.
- Astragal angles for double-leaf doors—Opening of the second door can be delayed up to 30° of when the first door is opened.
- Wind load control: Opening and closing cycles. Variable include door size and weight, hinging, alignment, wind loads, HVAC imbalance.

Forces measured at each door must confirm with ANSI 156.19 to maintain ADA compliance.

- After hours access hold open times: From 0–30 seconds.
- Day/night (push/pull): Unlocking during business hours.
- Door position status: Monitors when door has reached fully open or fully closed position. Can communicate status to external monitoring device or console.
- Activation via safety sensor on push side.
- Thickness of door.
- Deactivation of operator depending on contact setting.
- Hinge clearance.
- Reset of service interval display.
- Level of factory settings.
- Deletion of error log.
- Internal program switch delayed activation.
- Unlock in "Automatic" mode.
- Function of status relay.

Activation (Trigger) Options
The ED900 Automatic Operator can utilize a Normally Open (N.O.) dry contact activation input to automatically open a door. See DORMA's Electronic Access Control Components brochure for other options.

ED900 & Motorized Latch Retraction Exit Devices
The ED900 Automatic Operator can be used in conjunction with DORMA's Motorized Latch Retraction (MLR) 9000 Series Exit Device. The onboard 1.5 A power supply of the ED900 can directly power and control one MLR device, providing seamless operation of an automatic latch retraction door without the need for an auxiliary power supply. See DORMA's 9000 Series Exit Device brochure for additional information.

ED900, Electric Strikes & Electromagnetic Locks
The ED900 Automatic Operator can be used in conjunction with DORMA's Electric Strikes to

provide Access Control to an opening. See DORMA's Electronic Access Control (EAC) section of our website for additional information.

Finishes

Standard Sprayed Finishes
- Aluminum: 689
- Bronze: 690 (Statuary), 691 (Dull), or 695 (Dark Duranodic)
- Gold: 696
- Black: 693

Optional DORMA Custom Color or Designer Color Finishes
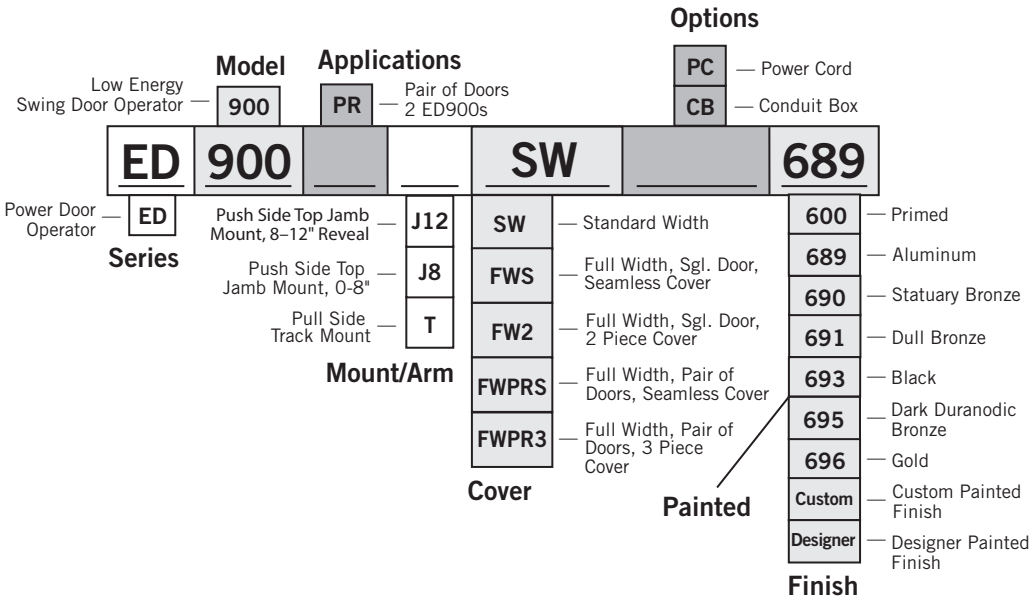Contact Customer Service.
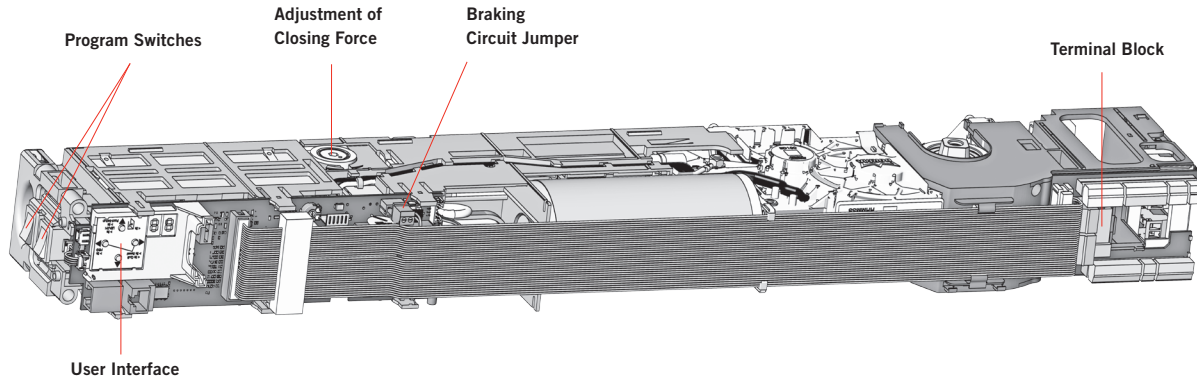
Fire Door Applications
The ED900 is UL/CUL Listed for your installation on labeled fire doors.

Warranty
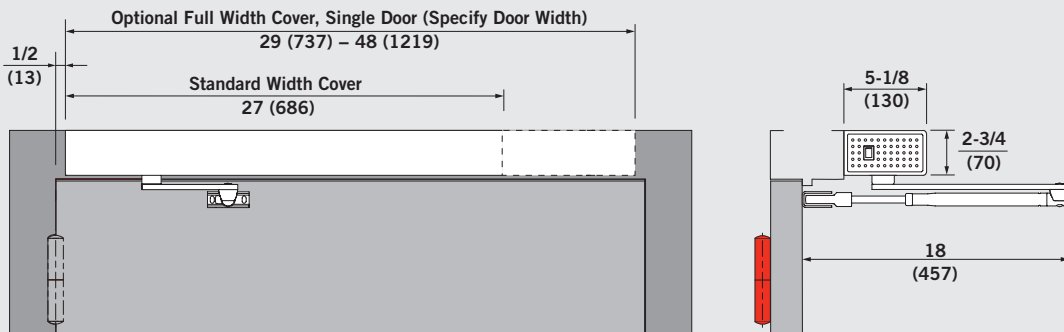For details, refer to **DORMA Limited Warranty** on our website at **go.dorma.com/terms**.

HOW TO ORDER ED900 SERIES
—

		Low Energy Swing Door Operator	Model	Applications		Options		
			900	PR — Pair of Doors 2 ED900s		PC — Power Cord		
						CB — Conduit Box		

ED | **900** | | | **SW** | | | **689**

Power Door Operator — ED

Series

Mount/Arm		Cover		Finish	
J12 — Push Side Top Jamb Mount, 8–12" Reveal		SW — Standard Width		600 — Primed	
J8 — Push Side Top Jamb Mount, 0-8"		FWS — Full Width, Sgl. Door, Seamless Cover		689 — Aluminum	
T — Pull Side Track Mount		FW2 — Full Width, Sgl. Door, 2 Piece Cover		690 — Statuary Bronze	
		FWPRS — Full Width, Pair of Doors, Seamless Cover		691 — Dull Bronze	
		FWPR3 — Full Width, Pair of Doors, 3 Piece Cover		693 — Black	
				695 — Dark Duranodic Bronze	
				696 — Gold	
				Custom — Custom Painted Finish	
				Designer — Designer Painted Finish	

Painted

Program Switches

Adjustment of
Closing Force

Braking
Circuit Jumper

Terminal Block

User Interface

TOP JAMB INSTALLATION—SINGLE

ED900 J

Optional Full Width Cover, Single Door (Specify Door Width)
29 (737) – 48 (1219)

1/2
(13)

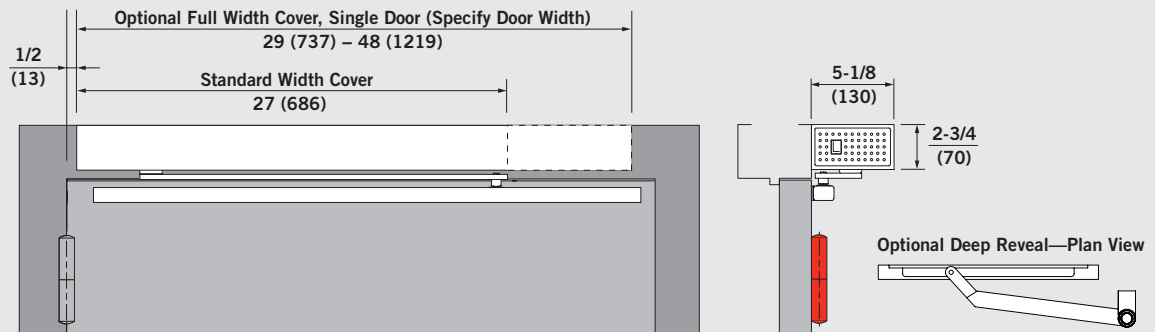Standard Width Cover
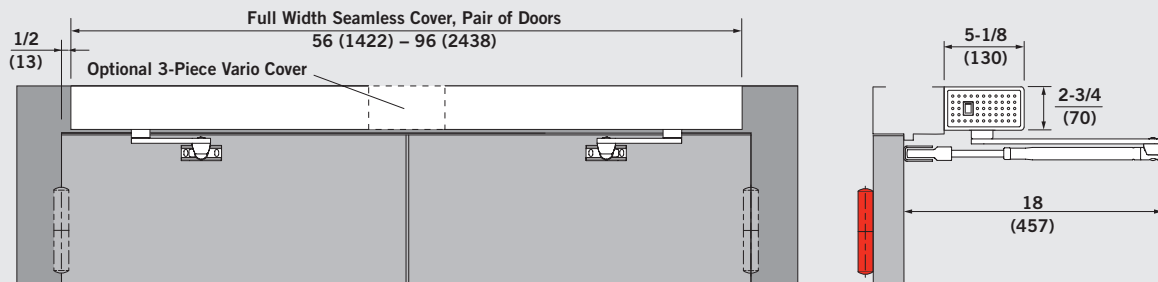27 (686)

5-1/8
(130)

2-3/4
(70)

18
(457)

NOTE: Refer to the included bumper/stop to limit door travel to a maximum 110° to prevent possible damage to the ED900 arm.
Where this is not practical, the ED900 J × Drop Mount with a surface door stop is recommended.

TRACK INSTALLATION—SINGLE

ED900 T

Optional Full Width Cover, Single Door (Specify Door Width)
29 (737) – 48 (1219)

1/2
(13)

Standard Width Cover
27 (686)

5-1/8
(130)

2-3/4
(70)

Optional Deep Reveal—Plan View

NOTES

- Refer to the included bumper/stop to limit door travel to a maximum 110° to prevent possible damage to the ED900 arm.
  Where this is not practical, the ED900 J × Drop Mount with a surface door stop is recommended.
- For deep reveal installations, consult DORMA Technical Support for arm options.
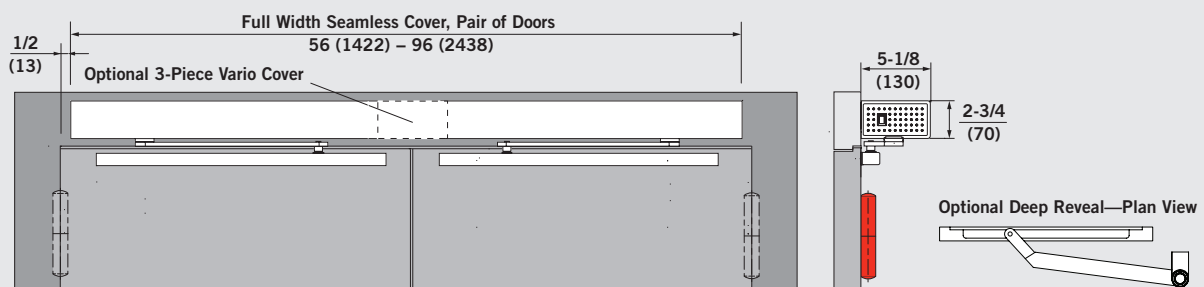
TOP JAMB INSTALLATION—PAIR

ED900 J

Full Width Seamless Cover, Pair of Doors
56 (1422) – 96 (2438)

1/2 (13)

Optional 3-Piece Vario Cover

5-1/8 (130)

2-3/4 (70)

18 (457)

NOTE: Refer to the included bumper/stop to limit door travel to a maximum 110° to prevent possible damage to the ED900 arm. Where this is not practical, the ED900 J × Drop Mount with a surface door stop is recommended.
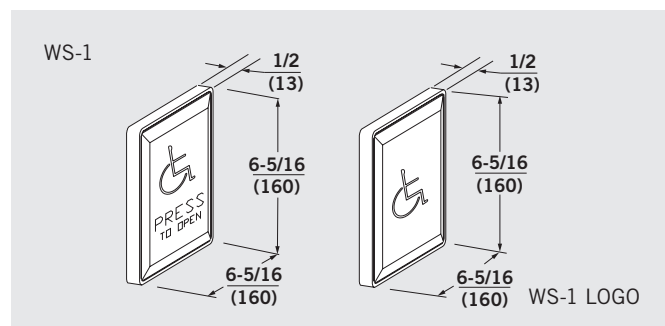
TRACK INSTALLATION—PAIR

ED900 T

Full Width Seamless Cover, Pair of Doors
56 (1422) – 96 (2438)

1/2 (13)

Optional 3-Piece Vario Cover

5-1/8 (130)

2-3/4 (70)

Optional Deep Reveal—Plan View

NOTES

- Refer to the included bumper/stop to limit door travel to a maximum 110° to prevent possible damage to the ED900 arm.
  Where this is not practical, the ED900 J × Drop Mount with a surface door stop is recommended.
- For deep reveal installations, consult DORMA Technical Support for arm options.

ACCESSORIES
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Wall Switches

WS-1

1/2 (13)

6-5/16 (160)

6-5/16 (160)

PRESS TO OPEN

1/2 (13)

6-5/16 (160)

6-5/16 (160)

WS-1 LOGO

WS-1 SQ4

1-3/4 (44)

4-7/8 (124)

4-7/8 (124)

PRESS TO OPEN

1-3/4 (44)

4-7/8 (124)

4-7/8 (124)

WS-1 RND4

PRESS TO OPEN

WS-1 — Tamper-resistant 6" × 6" wall plate with a normally open switch. Includes a heavy duty injection molded black ABS mounting box. Satin stainless steel wall plate with blue engraving. Wall plate displays the accessibility symbol and "PRESS TO OPEN."

Fits a standard 4" × 4" electrical box. Must be hard wired. Flush design allows the optimum in weather resistance, in surface, or recessed applications.

WS-1 LOGO — Same as the WS-1, except that the wall plate displays the accessibility symbol only.
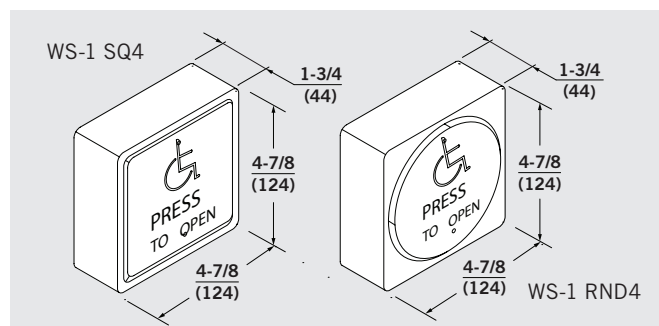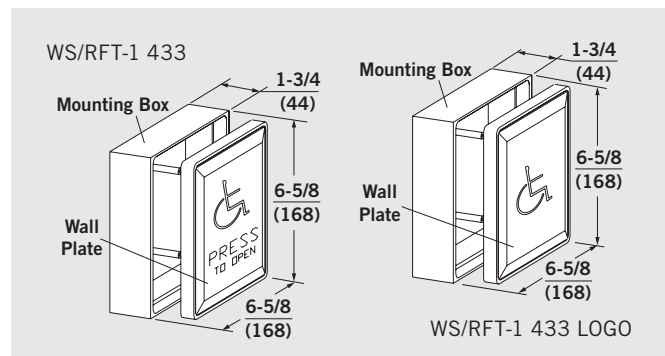
WS-1 SQ4 — Tamper-resistant 4-1/2" × 4-1/2" wall plate with a normally open switch. Includes a heavy duty injection molded black ABS mounting box. Satin stainless steel wall plate with blue engraving. Wall plate displays the accessibility symbol and "PRESS TO OPEN."

Fits a standard 4" × 4" electrical box. Must be hard wired. Flush design allows the optimum in weather resistance, in surface, or recessed applications.

WS-1 RND4 — Same as the WS-1 SQ4, except that the wall plate displays the accessibility symbol only. Wall plate is 4-1/2" round.

Wireless Wall Switches

WS/RFT-1 433

Mounting Box

Wall Plate

1-3/4 (44)

6-5/8 (168)

6-5/8 (168)

PRESS TO OPEN

Mounting Box

Wall Plate

1-3/4 (44)

6-5/8 (168)

WS/RFT-1 433 LOGO

WS/RFT-1 433 SQ4

1-3/4 (44)

4-7/8 (124)

4-7/8 (124)

PRESS TO OPEN

1-3/4 (44)

4-7/8 (124)

4-7/8 (124)

WS/RFT-1 433 RND4

PRESS TO OPEN

WS/RFT-1 433 MHz — Tamper-resistant 6" × 6" wall plate with a normally open wireless switch. Includes a heavy duty injection molded black ABS mounting box with a radio frequency transmitter and 9 VDC battery. Must be used in conjunction with the RFR receiver. Maximum range is 50 ft. Satin stainless steel wall plate with blue engraving.

Wall plate displays the accessibility symbol and "PRESS TO OPEN." Flush design allows the optimum in weather-resistance, in surface, or recessed applications. Ideal where conditions prohibit hard wiring.

WS/RFT-1 LOGO 433 MHz — Same as WS/RFT-1, except that the wall plate displays the accessibility symbol only.
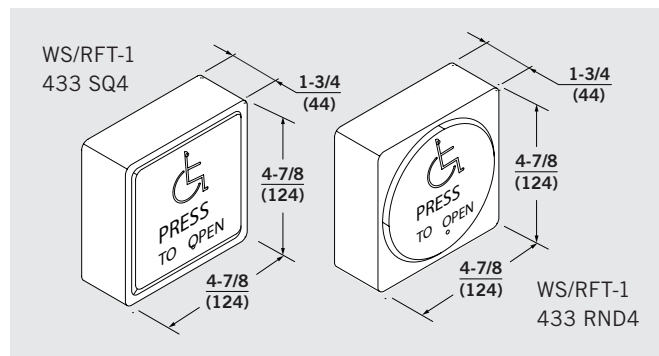
WS/RFT-1 433 MHz SQ4 — Same as WS/RFT-1, except that the wall plate displays the accessibility symbol only. Wall plate is 4-1/2" × 4-1/2" square.

WS/RFT-1 433 MHz RND4 — Same as WS/RFT-1, except that the wall plate displays the accessibility symbol only. Wall plate is 4-1/2" round.

Frame Switches

FS-1

1/4
(6)

4-1/2
(114)

1-3/4
(44)

1/4
(6)

4-1/2
(114)

1-3/4
(44)
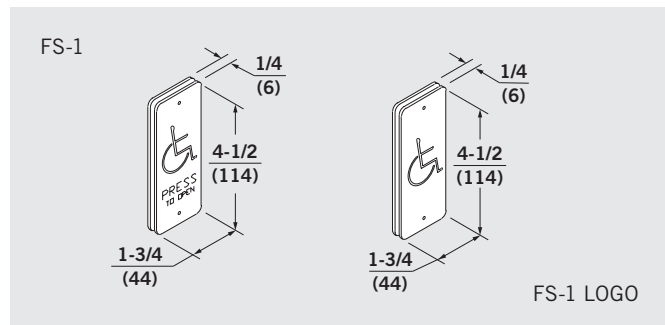
FS-1 LOGO

FS-1 — 1-3/4" × 4-1/2" frame plate with a normally open switch. Satin stainless steel frame plate with blue engraving. Frame plate displays the accessibility symbol and "PRESS TO OPEN."

Fits a minimum 1-3/4" × 4" frame section. Must be hard wired.

**FS-1 LOGO** — Same as FS-1, except that wall plate displays the accessibility symbol only.

Mounting Boxes

UMB

1-3/4
(44)

6-5/8
(168)

6-5/8
(168)

1-3/4
(44)

6-5/8
(168)

6-5/8
(168)
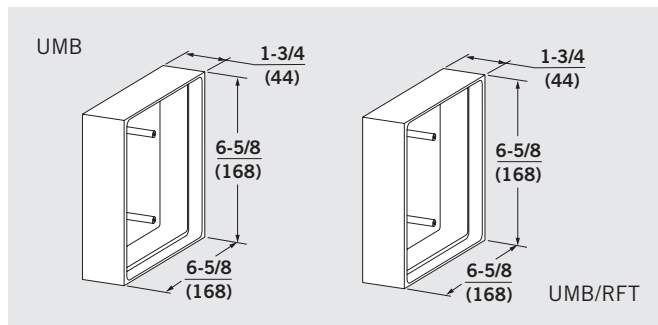
UMB/RFT

**UMB** — Black ABS universal replacement mounting box for WS-1 type switches.

UMB/RFT — Black ABS universal replacement mounting box for WS/RFT-1 type switches. Includes a radio frequency transmitter.

Flush Mount Ring

UMB Flush MNT Ring

3/16
(5)

8-1/8
(206)

8-1/8
(206)
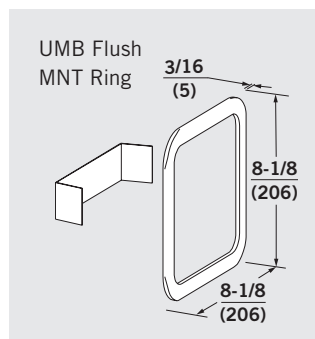
UMB Flush MNT Ring — Black ABS flush mount ring and metal mounting bracket. The ring is designed to cover the gap between the mounting box and the switch plate cutout in the wall for a nice clean look.

Hand Held Transmitters

HH/RFT-1 433

3-3/4
(95)

7/8
(22)

HH/RFT-4 433

4-1/4
(108)

1
(26)

2-5/16
(58)

3-3/4
(95)

7/8
(22)
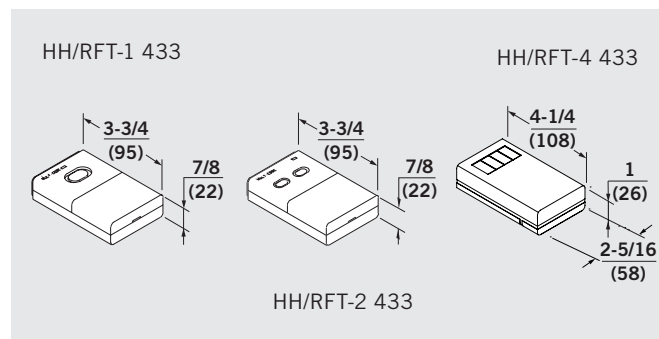
HH/RFT-2 433

HH/RFT-1 433 MHz (Single Frequency), HH/RFT-2 433 MHz (Dual Frequency), HH/RFT-4 433 MHz (Quad Frequency) — Compact, portable switches. Must be used with RFR receiver. Maximum range is approx. 50 ft (depending on conditions). Works with, or in place of, WS/RFT-1. Powered by 9 V DC battery.
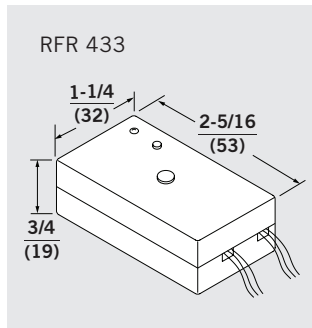
Well suited where multiple users must activate ED900 for accessibility, security, convenience, or where use of an exposed switch is not practical. Neutral case with grained finish. RFT-2 requires one RFR per frequency.

Key Chain Transmitters

RFT-1

2-1/8
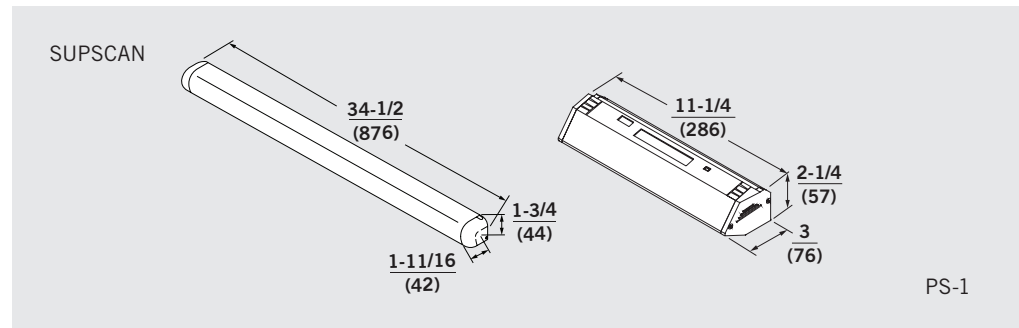(54)

5/8
(16)

1-1/2
(38)

5/8
(16)
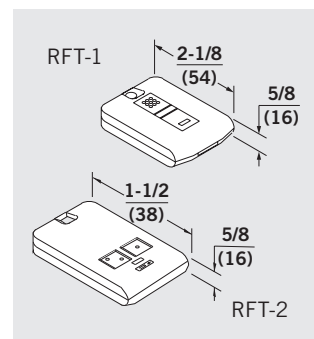
RFT-2

KC/RFT-1 433 MHz (Single Frequency), 800 KC/RFT-2 433 MHz (Dual Frequency) — Similar to HH/RFT-1 or HH/RFT-2, but more compact. Must be used with RFR receiver. RFT-2 requires one RFR per frequency. The small size permits the use as a key chain or in cases where the hand held transmitter is too large. Powered by a watch battery.

Receiver

RFR 433

1-1/4
(32)

2-5/16
(53)

3/4
(19)

Presence Sensors

SUPSCAN

34-1/2
(876)

1-3/4
(44)

1-11/16
(42)

11-1/4
(286)

2-1/4
(57)

3
(76)

PS-1

RFR 433 MHz — Radio frequency receiver. Required for use with all DORMA transmitter switches. Powered from the onboard power supply of the ED900. Ideal for applications with range and signal strength problems. Maximum range typically 50 ft (conditions permitting). Surface applies remotely. Operates on 12 or 24 Volts AC or DC. 16 mA nominal (50 mA max. when relay is triggered).

Supscan — Door mounted presence sensor that uses distance measuring technology to project focused active infrared patterns that can be used for safety and reactivation.

- Detection range from 2'–12'.
- Can be mounted at various angles for multiple, custom applications.

- A focused pattern may be ideal for many applications where precision is key.
- Background elements such as texture, color, or reflectivity do not effect detection sensitivity.

PS-1 — Ties to ED900 safety circuit for ultimate user protection. Prohibits opening of door if obstacle is sensed. Requires use of optional **transformer.**

PS-1 RMT — Hand held remote control required to program PS-1 or MS-1 RV1. One remote programs unlimited presence or motion sensors.

Time Delay Module

TDM

2-3/16
(55)

4-1/16
(103)

7/8
(23)

Motion Sensors

MS-1 RV1

4-1/2
(114)

2
(51)

3-1/8
(79)
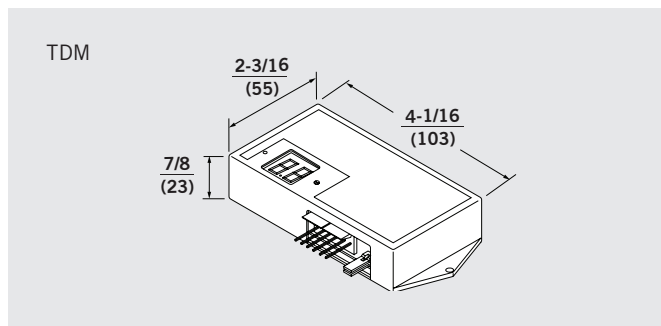
TDM — Advanced time delay module, allowing the installer to use only one time delay for any automatic door operation, electrically or magnetically locked doors, or vestibule sequencing applications.

Takes one to four inputs and converts them to sequential relay outputs.

As a make/break relay, it eliminates mechanical binding of the locking mechanism on an automatic door. Make relay can be configured as a wet output to directly apply power to an electric locking device.

To sequence vestibule sets of doors, unit provides an initial relay output for the first door, a delay between outputs 1 and 2, and another output for the second door. Also provides a delay between outputs 2 and 1, allowing you to sequence your vestibule in both directions with only one TDM. Each delay adjustable from 0.0 to 99 seconds.

Power Requirements
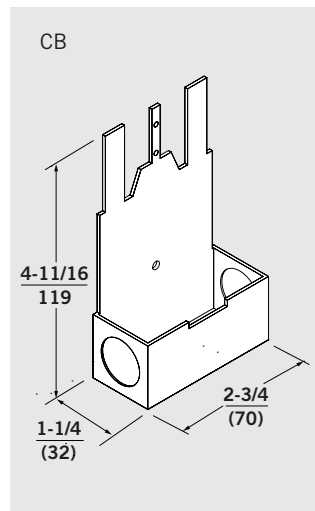12–24 V AC or DC +/– 10%, 50 or 60 Hz, 83 mA @ 24 VDC
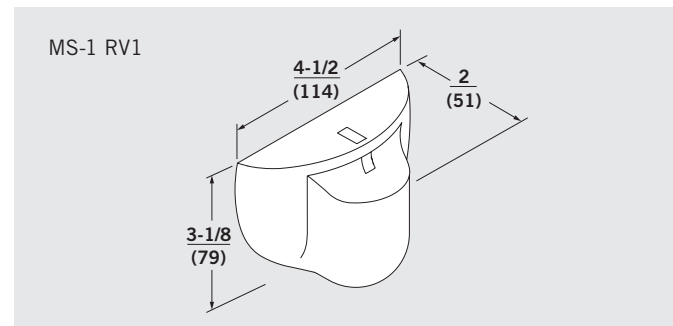
MS-1 RV1 — Unidirectional K band sensor. Adjustable elliptical sensing pattern. Adjustments include unidirectional, unidirectional with motion tracking feature, bidirectional sensing capability, wide or narrow patterns, 3-dimensional angle adjustment, and heightened immunity to highly sensitive motion settings. Adjustments via PS-1 RMT remote control. Self-monitored ready out of the box, used with or without a self-monitored ready system. Includes 0°–90° vertical and –30°–+30° lateral tilt angle, powered by 12–24 VAC (±10%) or 12–24 VDC (+30%) (–10%).

PS-1 RMT required for initial setup. Designed for use in openings designated specifically for barrier-free accessibility.

IMPORTANT NOTE: Cannot be used as primary activation without additional safety sensors.

Should not be used in combination with ED900 in openings used for pedestrian traffic or where high-speed operation/opening is needed. Precise setup of the motion sensor detection area is necessary so nearby traffic is not picked up.
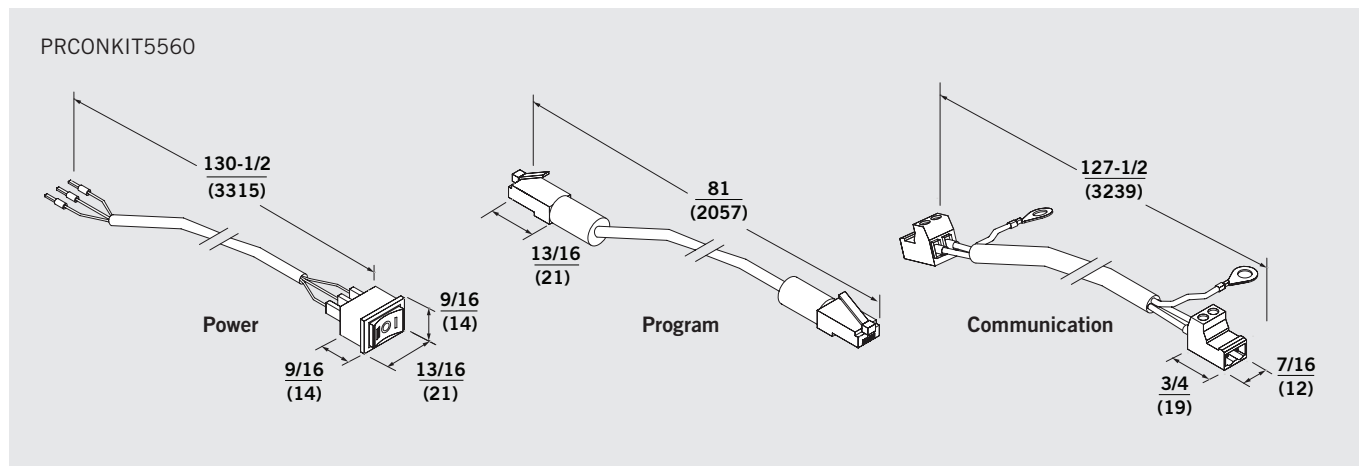
Conduit Box

CB

4-11/16
119

2-3/4
(70)

1-1/4
(32)

Wiring Kit

PC

3/4
(20)

7/8
(22)

11/16
(17)

3/8
(10)

4-11/16
119

2-3/4
(70)

1-1/4
(32)

19-1/2
(495)

1-5/8
(41)

11/16
(17)

CB — UL approved conduit box accessory to provide surface wiring of 120 VAC power to ED900.
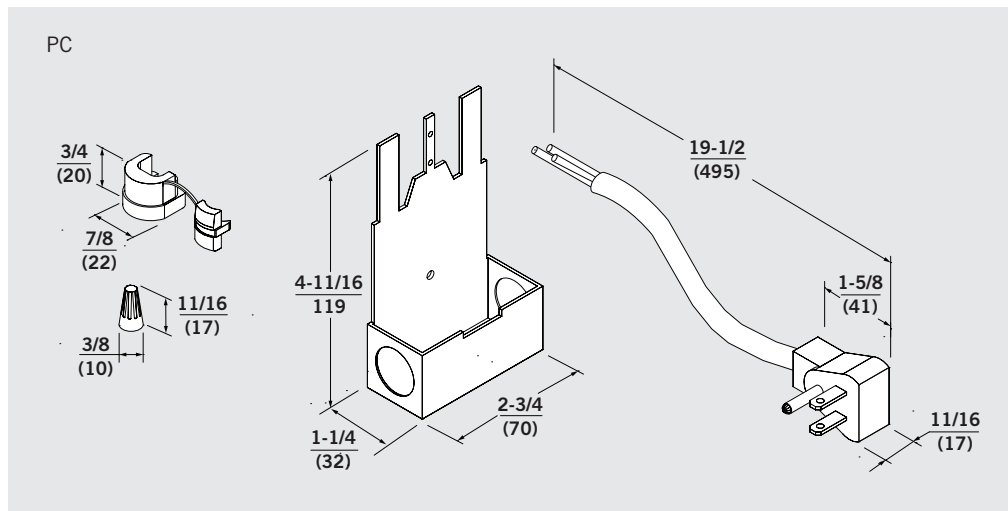
PC — Eliminates need for hard wiring. Permits ED900 to plug directly into 120 VAC/60 Hz receptacle. Cord measures 15" from end cap to center of plug.

Kit includes
- Power cord
- Wire nut
- Cord grip
- Conduit box

Full-Width Three Piece Cover Kit

PRCONKIT5560

130-1/2
(3315)

Power

9/16
(14)

9/16
(14)

13/16
(21)

81
(2057)

13/16
(21)

Program

127-1/2
(3239)

Communication

3/4
(19)

7/16
(12)

PRCONKIT5560 — Allows installation and communication of two ED900s on a pair of doors.

Includes
- Communication cable to program coordination of the two operators.

- Power cable to link operators.
- New programming switch to enable proper commissioning.
- Backplate, middle cover, and seam covers.
- Kit can accommodate paired openings 86" to 110".

Bumper Stops

BSTP25

3-1/2
(22)
1/4
(6)
7/8
(22)
1-1/4
(32)

3-1/2
(22)
1/2
(12)
7/8
(22)
1-1/4
(32)
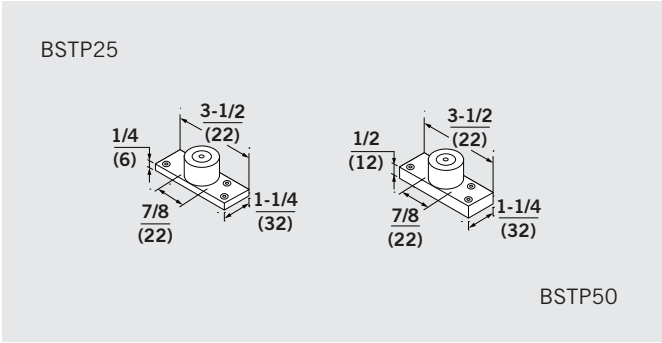
BSTP50

BSTP25 (1/4" thick base plate)/ BSTP50 (1/2" thick base plate) — Header mounted bumper stop provides protection for ED900J operator and door by limiting degree of opening when bumper stop is correctly located and installed.
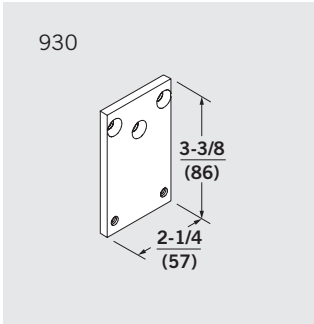
Angle Bracket

970

2
(51)
21-1/4 (540)
3
(76)
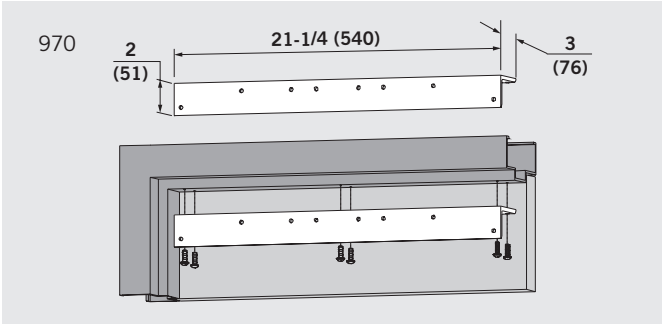
970 — For mounting ED900 J easily on deep reveal frame conditions or when frame face is less than 1-3/4". Frame must be properly reinforced to secure bracket. Requires 2-3/4" minimum soffit width.

Drop Plate

930

3-3/8
(86)
2-1/4
(57)

930 — For mounting arm shoe in top jamb drop application when top door rail is less than 4-5/8" (2" minimum required).

DORMA

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