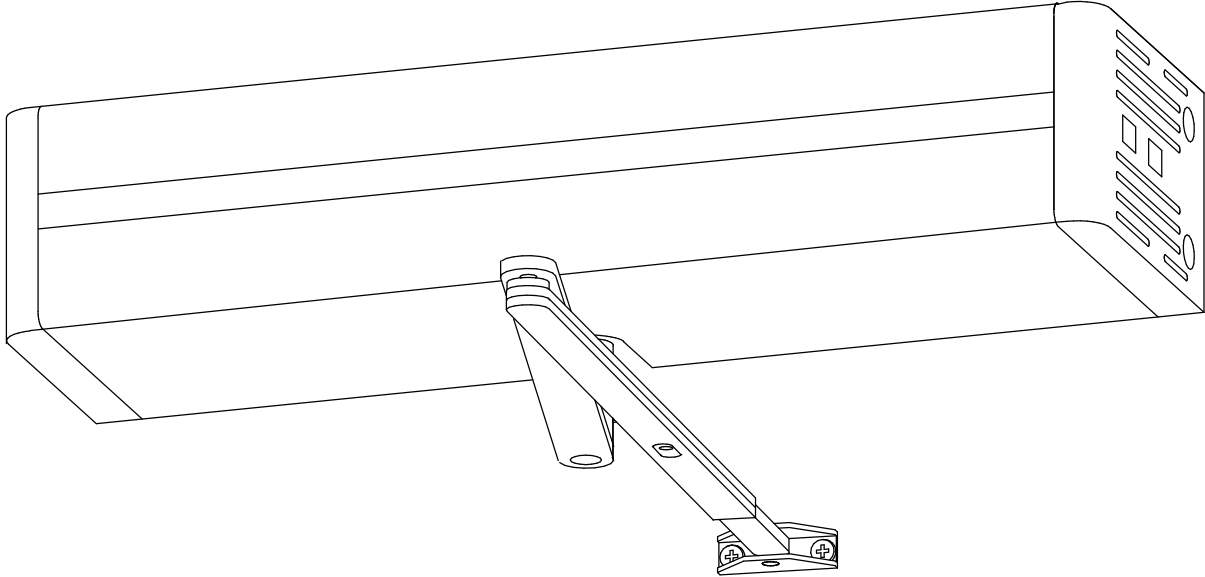
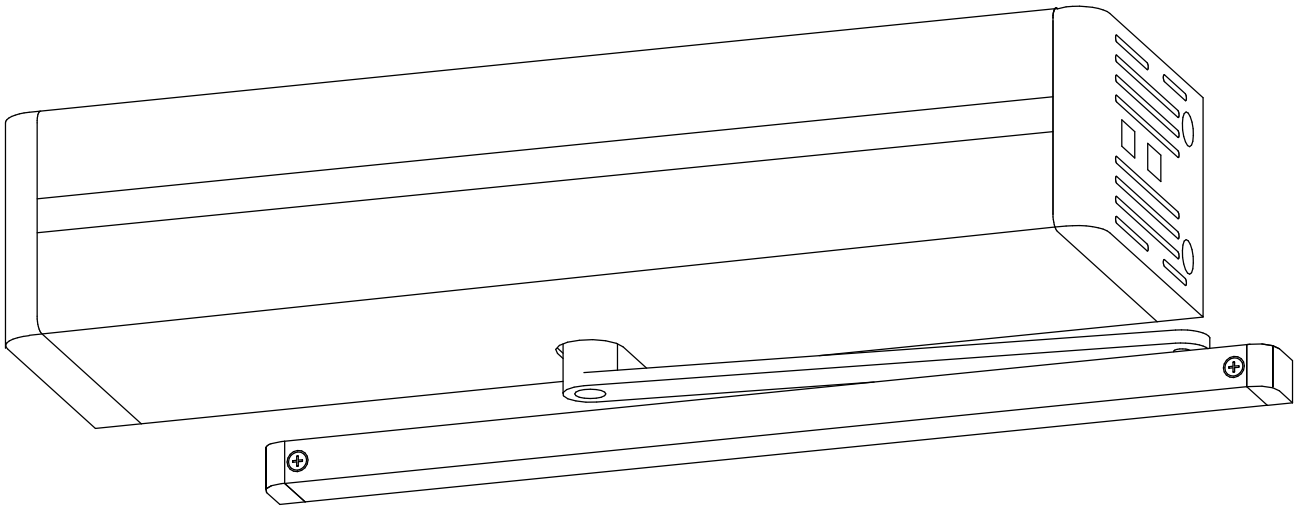


DORMA ED800 SERIES

INSTALLATION INSTRUCTIONS



ED800 J



ED800 T

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SUGGESTED TOOL LIST

The following is a list of tools required for the installation of the ED 800. Additional tools may be required for installation of the various types of actuators and accessories.

1. 10" Long No. 2 Phillips screwdriver
2. No. 3 Phillips screwdriver
3. 1/8" blade screwdriver
4. 3/16" blade screwdriver
5. Tape measure
6. 10" Adjustable wrench
7. Center punch
8. Hammer
9. 5mm Hex key
10. 6mm Hex key
11. 3/8" Drill
12. No. 7 (0.201") Drill bit
13. 5/32" Drill bit
14. 3/8" Drill bit
15. 7/8" Hole saw
16. 1/4 - 20 Tap
17. Safety glasses
18. ED 800 Installation Video

GENERAL INFORMATION

Functional Detail

The DORMA ED 800 low energy power operator was designed to make doors accessible, while still providing the good operating characteristics of a manual door closer.

The ED 800 is based on the DORMA TS83 door closer and offers the same sweep, latch, backcheck, adjustable spring power and operating efficiencies. In the normal mode of operation, the ED 800 will be used as a manual door closer. Upon activation the unit will open the door, hold the door open for a predetermined period, and close the door under the parameters as set forth by ANSI A156.19, Standard for Power Assist and Low Energy Power Operated Doors.

The mechanical components of the unit consist of a permanent magnet type DC motor, which drives a lead screw assembly. The lead screw assembly has a recirculating ball nut with a shuttle attached to it. The shuttle drives the TS83 door closer.

The electronic components of the unit consist of the motor, an encoder assembly, a control module, a power transformer, and additional electronic components and assemblies. The transformer is powered by line voltage. The transformer powers the control module. The motor is driven by the control module. The motor shaft turns an incremental encoder which indicates the motor velocity to the control module. The control module responds to external inputs such as an activation switch and internal door inputs such as an obstacle encountered in the opening or closing cycle.

The unit also provides a manual rocker switch for a hold open function. The hold open switch will override all other inputs, and will hold the door open approximately 15 minutes. After that period of time, the door will automatically close and return to the automatic mode. The door can also be closed at any time by pushing the hold open rocker switch in the opposite direction.

The ED 800 has two basic functions which can be selected in the field: Low Energy or Power Assist. The factory setting will be at Low Energy. In the Low Energy function, when the door is activated, the door will open within the speed and force guidelines, per ANSI A156.19. The door will open to a position which is adjustable between 85° and 115°, and will stay in the hold open position for a period of time which is adjustable from 5 to 60 seconds. At the expiration of the selected time, the door will begin to close. The time delay commences once the door attains the fully open position, or when it last receives an actuation input, whichever occurs later.

In the opening cycle the door will exert a maximum of 15 lbf. at the latch edge of the door. In the event an obstacle is encountered, the power will be reduced to the door, so that the door is held in a balanced state.

While in the balanced state the door can easily be pushed open or closed, as needed. The door will remain in the balanced state for the length of time as set by the time delay adjustment. The time delay commences once there is no longer any door movement.

In the closing cycle a maximum of 15 lbf. may be generated at the latch edge of the door. If an obstacle is encountered, the unit will balance the door. While in this state the door can easily be pushed open or closed manually, as needed. The door will remain in the balanced state for the length of time as set by the time delay adjustment. The time delay commences once there is no longer any door movement.

If at any time there is a power failure, the unit will operate as a standard TS83 door closer.

The second basic function is power assist. When the power assist is activated, the unit responds by opening the door approximately one inch, to alert the user that the power assist mode is active. The door can then be opened with a reduced opening force, which can be adjusted from 1/2 lb. to 5 lbs., as measured from the latch edge of the door. The reduction of opening force remains active as long as the unit senses door movement, plus the duration of the time delay setting. The time delay will commence after there is no door movement. At the expiration of the time delay, the door begins to close under the control of the TS83 door closer.

When the ED 800 is initially energized, it will perform a learn cycle. If the door is latched and can not open during the learn cycle, the ED 800 will default to the power requirements of a typical 36" wide interior door. If an electric strike, magnetic lock or electric latch retraction device is installed and tied in with the delay contacts, the ED800 will automatically send a signal to unlock the strike, magnetic lock or hold back the electric latch. The ED800 will only go through a full learn cycle when turned on at the ON/OFF switch. During the learn cycle, the exact closed position of the door will be established. Also, the ED800 will open the door a few degrees to determine the amount of force required to compress the door closer spring and set the door in motion. From this information, along with the "door width" setting, the control module can determine the amount of force to exert on the door so as not to exceed the 15 lbf. maximum required by the ANSI 156.19 standard. If the ED800 loses power, (other than the ON/OFF switch) when power is restored the ED800 does a Secure Learn. The most recent learn cycle is stored in memory and is used so that the door stays secure (locked and latched) during and after a power failure.

Activation of the ED 800 can be by any normally open circuit which is momentarily closed to signal the door. The most basic means of activating the unit would be a wall switch or frame switch which is directly wired to the external connector. A radio frequency receiver along with a radio frequency wall switch transmitter, or hand held transmitter, can be used if it is considered too difficult to run wires from the push button to the unit. For doors that are specifically dedicated for accessibility, a motion sensor is available to activate the unit. Keep in mind that when the unit is not activated it will operate as a standard TS83 door closer.

Another method of activating the door is with the **Push and Go feature**. This is a standard field selectable option which activates the door when it is opened more than one inch. It can be used as the only method of door activation, or it can be used in conjunction with other external activation means, such as push buttons. The push and go type activation is intended for openings that are dedicated to accessibility, since the door is operating automatically 100% of the time. The push and go feature is only active when the door is in the fully closed position.

The ED800 has an **open trigger** to activate the door opening.

The ED800 also has a standard **vestibule function** available. With this function two units can be interconnected. Upon the completion of the closing cycle of the first unit, an activation signal will be sent to the second unit. This activation functions in both directions. If the interior door is activated first, it will then signal the exterior door to open. If the exterior door is activated first, it will then signal the interior door to open.

The ED800 also has a standard **strike delay function**. This is used to control the release of an electric strike, magnetic lock or the retraction of an electric latch, in conjunction with the operation of the ED800.

When the ED800 is activated, Form-C relay (NO/ C / NC) contacts (PINS 6, 7, 8) momentarily change state for up to 1 second to release a strike, magnetic lock or retract a latch.

If required, ED800 operation may be delayed by 1/2 second when using an electric strike, magnetic lock or latch retraction. Delaying the operator allows a locking device time to release the door before the ED800 opens it. The delay is enabled using an On/Off switch on the controller (See page 16). This feature is only activated when the door is in the closed position, so that electric strikes, magnetic locks or electric latch bolts are not operated needlessly.

In addition, the ED 800 offers an **external output terminal**, rated at **12 volts DC**, at a maximum of **500 milliamps**. This can be used to power an electric strike or any accessory of compatible voltage.

The ED 800 also has a **built-in safety circuit**. While not required by the ANSI A156.19 standard, this safety circuit can provide the ultimate in safe door operation. When the optional presence sensor is installed, the door will not operate under power when it detects an obstacle within the swing area of the door. In addition, the unit will hold the door in the fully opened position until traffic has cleared from the swing area of the door. Under no circumstances however, shall the presence sensor serve to stop an already moving door in the event that the swing area of the door becomes occupied, once the door is in motion. In this case, safety is assured by the low opening force, low opening speed, and obstacle default function of the unit.

INSTALLATION OF UNIT

Introduction

Prior to installation of the ED800, confirm that the door is in proper working order. Hinges or pivots must be in good condition and the door must swing freely through the entire opening range anticipated with the ED800. **All door repairs must be performed prior to installation of the ED800.** Ball bearing hinges or needle bearing pivots are recommended for proper ED800 operation.

The ED 800 is a non-handed unit which mounts to the door and frame much the same as a standard door closer. The unit is designed so that it can be installed by one person. The backplate is equipped with unique slots to aid in installation. Two screws are pre-installed into the frame. The unit is then hung on the two screws until the balance of the screws can be installed and tightened.

There are four different ways that the ED 800 can be ordered and installed:

ED 800J - Top jamb installation where the unit is attached to the header on the push side and the arm shoe is attached to the door. The standard unit accommodates a reveal from 2 to 6 inches. For reveals of 0 to 4 inches, the C800R bar and shoe must be specified. For reveals of 4 to 8 inches, the C810R bar and shoe must be specified. For reveals of 8 to 12 inches, the C812R bar and shoe must be specified.

ED 800J x Drop - Top jamb installation where the unit is located to clear a low ceiling condition on the push side of the door. This is otherwise similar to the ED 800J.

ED 800J x Drop x 830 - Top jamb drop installation to clear a low ceiling on the push side. The 830 is an arm shoe drop plate designed to connect the ED 800 arm to a narrow top door rail in this particular application. This is otherwise similar to the ED 800J x Drop.

ED 800T - Track installation where the unit is attached to the header on the pull side and a track arm assembly is attached to the top of the door.

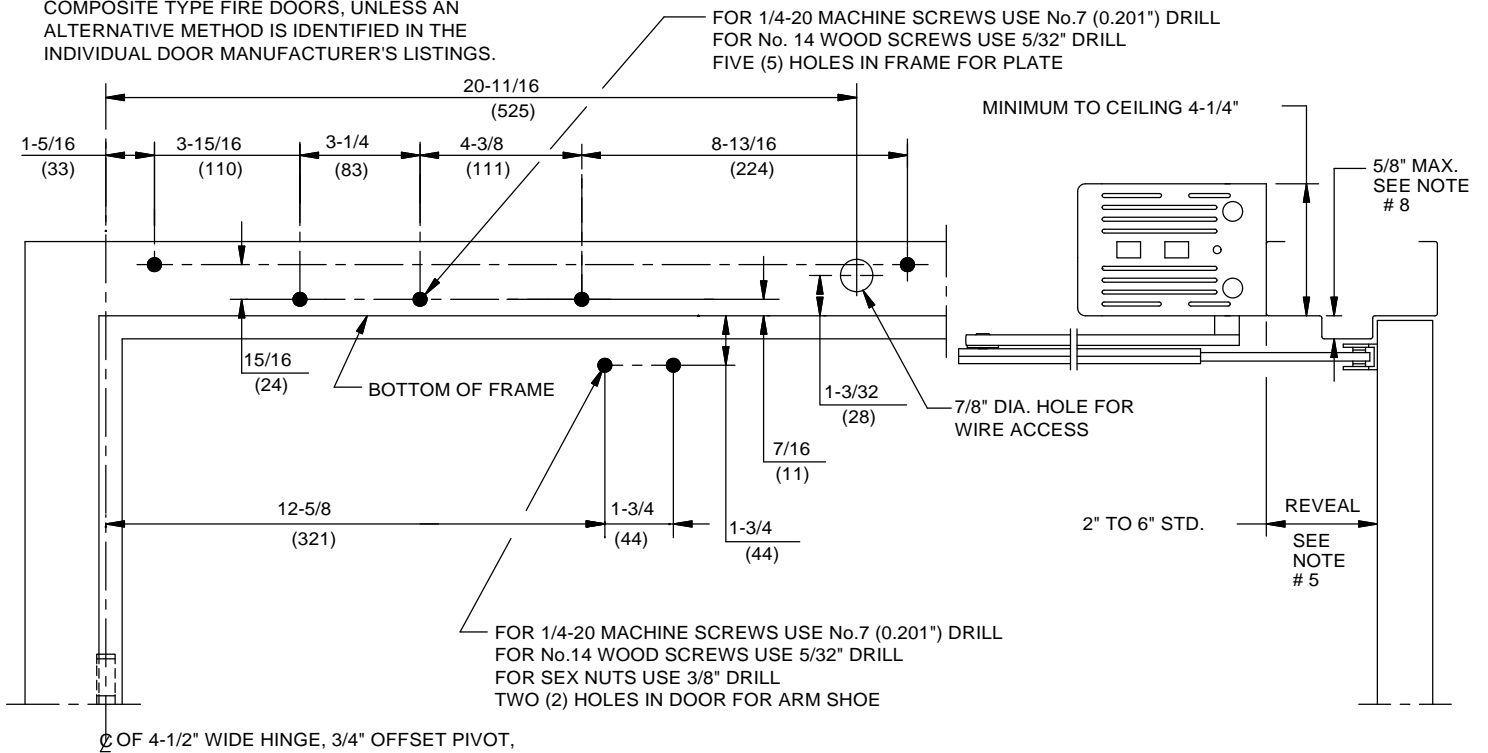
Refer to individual templates for exact dimensional requirements for each particular application. **Please use the full size preparation template included with the ED 800 when preparing the door and frame.**

ED 800J - TOP JAMB INSTALLATION TEMPLATE & MOUNTING INSTRUCTIONS

Prepare door and frame according to template.

NOTES:

1. DO NOT SCALE DRAWING.
2. DIMENSIONS ARE IN INCHES/(MM).
3. LEFT HAND DOOR SHOWN.
4. CAUTION: SEX NUTS ARE REQUIRED FOR ATTACHMENT OF COMPONENTS TO UNREINFORCED DOORS AND TO WOOD OR PLASTIC FACED COMPOSITE TYPE FIRE DOORS, UNLESS AN ALTERNATIVE METHOD IS IDENTIFIED IN THE INDIVIDUAL DOOR MANUFACTURER'S LISTINGS.
5. SEE CATALOG FOR ARM NUMBER FOR NON STANDARD REVEALS.
6. MAXIMUM OPENING ANGLE 115°.
7. DOORS AND FRAMES MUST BE PROPERLY REINFORCED.
8. IF STOP PROJECTION IS OVER 5/8" USE ED800 x DROP INSTALLATION.
9. AUXILIARY STOP, (BY OTHERS) ARE REQUIRED AT 115° FOR INSTALLATIONS WHERE DOOR CAN OPEN MORE THAN 115°.

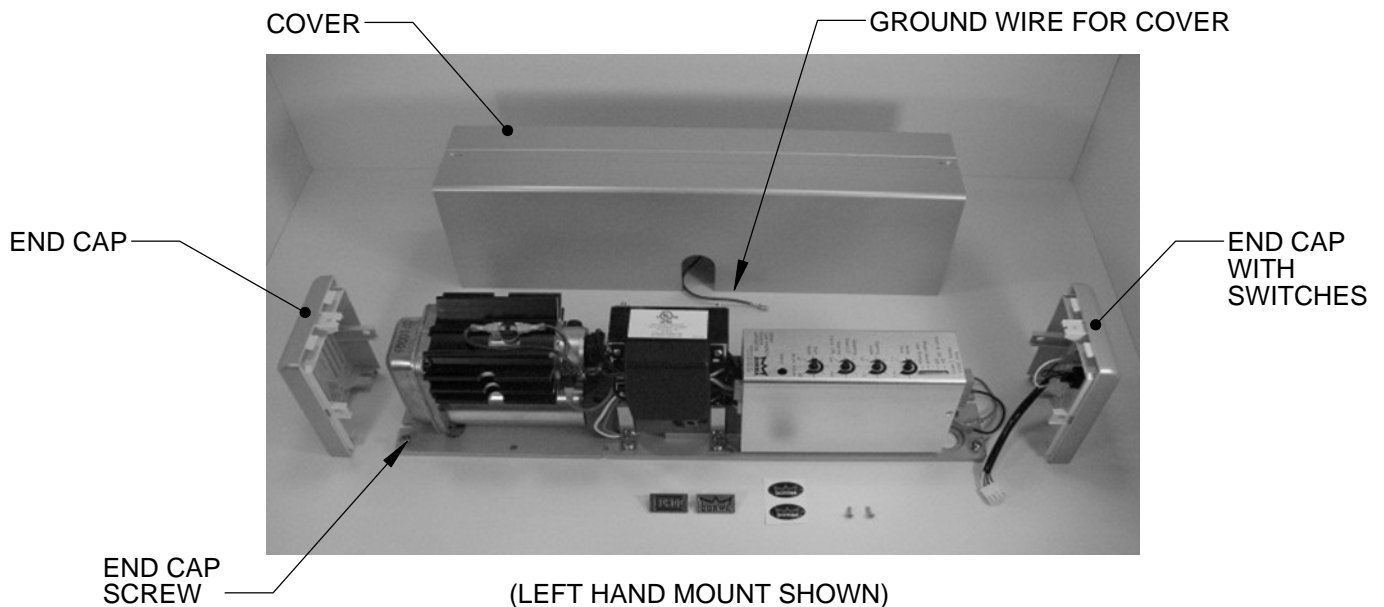


ED800-1 Rev.08/04

Remove two (2) cover screws and cover. Disconnect cover ground wire at base plate. Loosen, but do not remove end cap screws and slide end caps off.

Note:

Re-install end caps, cover ground wire and cover after installation is complete. Push-in emblems or logo decals can be applied to hide cover screws if needed.



Initially install screws for slots "A" as pictured, allowing 5/16" between the screw head and the frame. Align the slots in the mounting plate with the screws. Slide the mounting plate over the screw and hold the unit in place until the balance of the screws are installed. Tighten all screws securely.

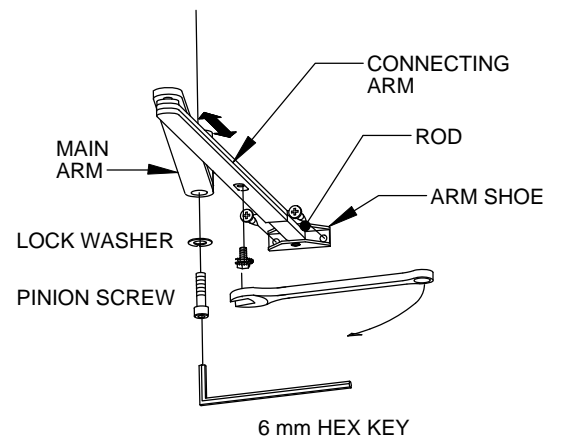


SLOT "A" — MOUNTING PLATE — SLOT "A"
 ← HINGE SIDE OF DOOR

Orient arm as shown. Attach arm shoe to door. Place wrench on top pinion shaft and rotate pinion slightly toward latch edge of door. Slide main arm over bottom pinion shaft. Fasten securely with pinion screw and lock washer provided. Loosen screw in connecting arm so arm slides freely. Adjust connecting arm length so rod and connecting arm are 90° to door. Re-tighten screw.



← HINGE SIDE OF DOOR

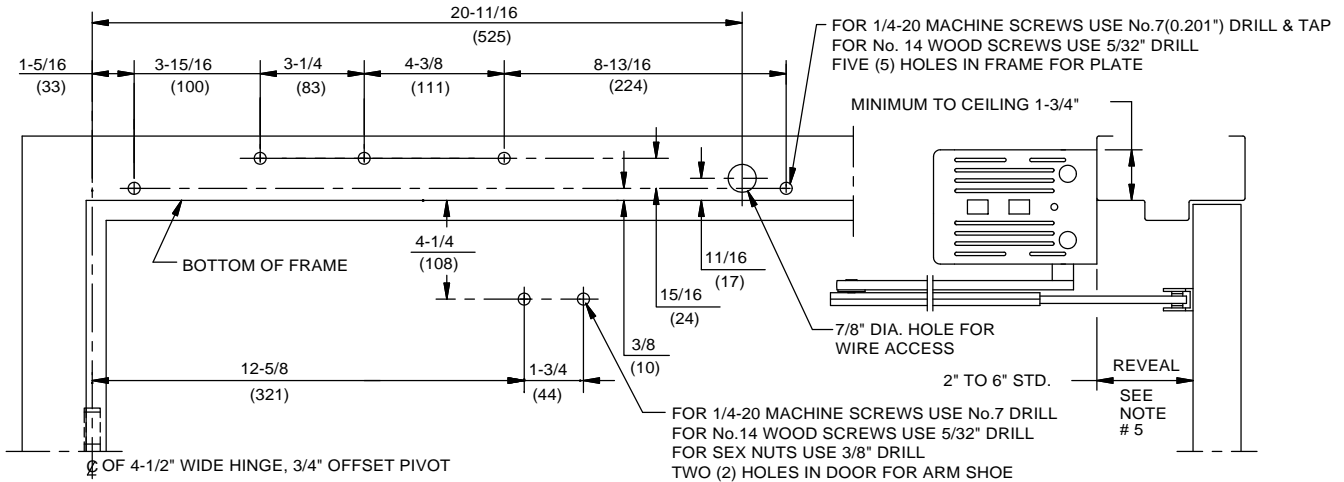


ED 800J X DROP - TOP JAMB DROP INSTALLATION TEMPLATE & MOUNTING INSTRUCTIONS

Prepare door and frame according to template.

NOTES:

1. DO NOT SCALE DRAWING.
2. DIMENSIONS ARE IN INCHES/(MM).
3. LEFT HAND DOOR SHOWN.
4. CAUTION: SEX NUTS ARE REQUIRED FOR ATTACHMENT OF COMPONENTS TO UNREINFORCED DOORS AND TO WOOD OR PLASTIC FACED COMPOSITE TYPE FIRE DOORS, UNLESS AN ALTERNATIVE METHOD IS IDENTIFIED IN THE INDIVIDUAL DOOR MANUFACTURER'S LISTINGS.
5. SEE CATALOG FOR ARM NUMBER FOR NON STANDARD REVEALS.
6. MAXIMUM OPENING ANGLE 115°
7. DOORS AND FRAMES MUST BE PROPERLY REINFORCED.
8. AUXILIARY STOP, (BY OTHERS) ARE REQUIRED AT 115° FOR INSTALLATIONS WHERE DOOR CAN OPEN FURTHER THEN 115°



ED800J X DROP
TOP JAMB DROP INSTALLATION - LOW CEILING CLEARANCE
(PUSH SIDE MOUNT)

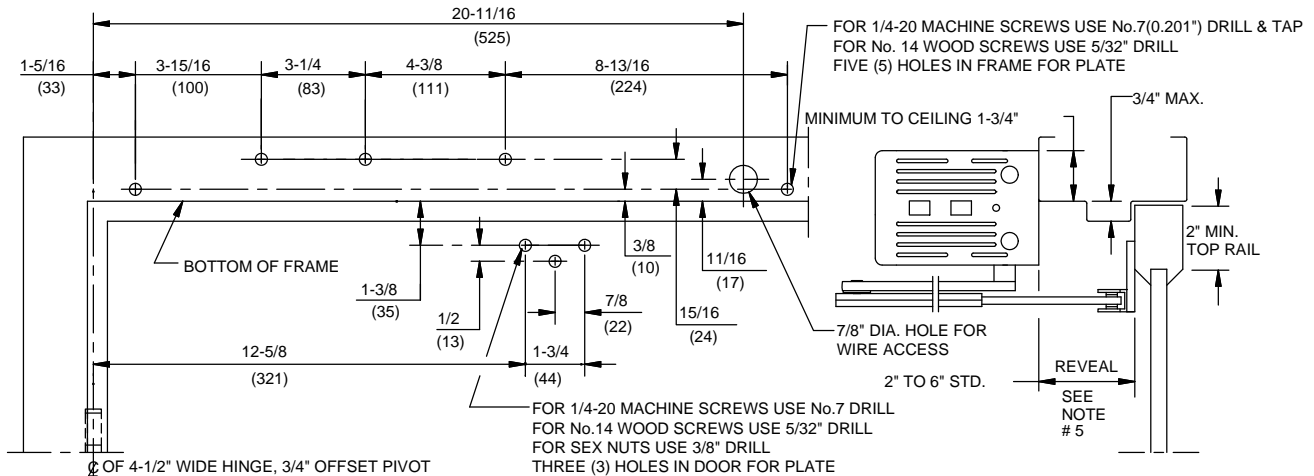
ED800-2 Rev.08/04

ED 800J X DROP X 830 - TOP JAMB DROP INSTALLATION WITH 830 ARM SHOE DROP PLATE TEMPLATE & MOUNTING INSTRUCTIONS

Prepare door and frame according to template.

NOTES:

1. DO NOT SCALE DRAWING.
2. DIMENSIONS ARE IN INCHES/(MM).
3. LEFT HAND DOOR SHOWN.
4. CAUTION: SEX NUTS ARE REQUIRED FOR ATTACHMENT OF COMPONENTS TO UNREINFORCED DOORS AND TO WOOD OR PLASTIC FACED COMPOSITE TYPE FIRE DOORS, UNLESS AN ALTERNATIVE METHOD IS IDENTIFIED IN THE INDIVIDUAL DOOR MANUFACTURER'S LISTINGS.
5. SEE CATALOG FOR ARM NUMBER FOR NON STANDARD REVEALS.
6. MAXIMUM OPENING ANGLE 115°
7. DOORS AND FRAMES MUST BE PROPERLY REINFORCED.
8. AUXILIARY STOP, (BY OTHERS) ARE REQUIRED AT 115° FOR INSTALLATIONS WHERE DOOR CAN OPEN FURTHER THEN 115°

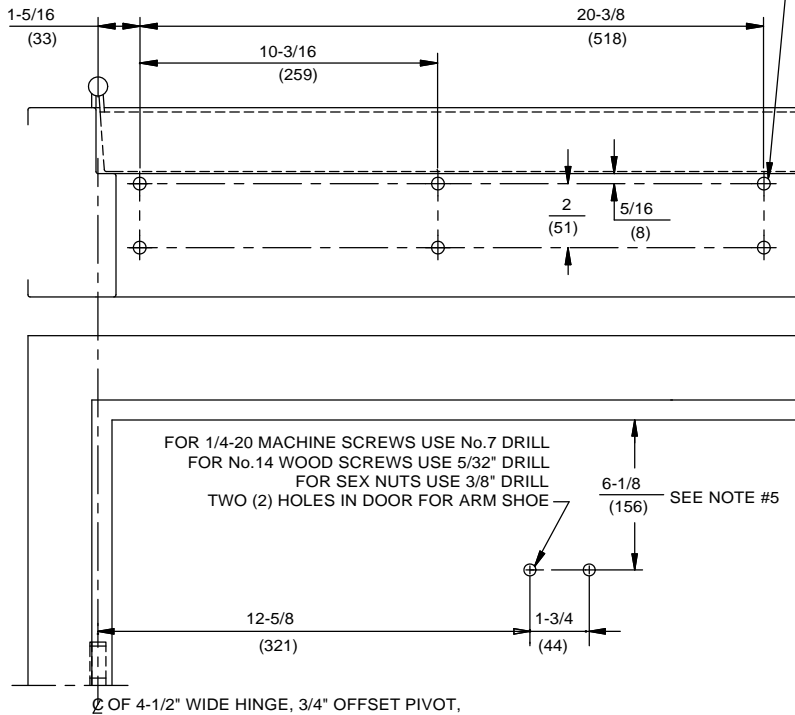


ED800J X DROP X 830 ARM SHOE DROP PLATE
TOP JAMB DROP INSTALLATION - LOW CEILING CLEARANCE / NARROW TOP RAIL
(PUSH SIDE MOUNT)

ED800-4 Rev.08/04

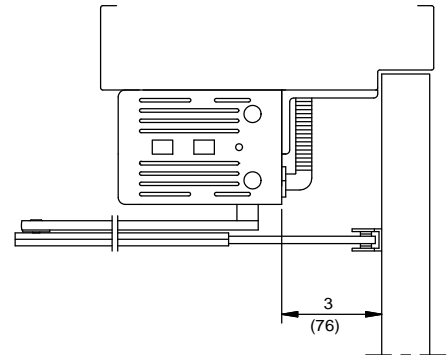
ED 800J x 870 ANGLE BRACKET - TOP JAMB INSTALLATION TEMPLATE

FOR 1/4-20 MACHINE SCREWS USE No.7 (0.201") DRILL
 FOR No. 14 WOOD SCREWS USE 5/32" DRILL
 SIX (6) HOLES IN FRAME FOR BRACKET



NOTES:

1. DO NOT SCALE DRAWING.
2. DIMENSIONS ARE IN INCHES/(MM).
3. LEFT HAND DOOR SHOWN.
4. CAUTION: SEX NUTS ARE RECOMMENDED FOR ATTACHMENT OF COMPONENTS ON COMPOSITE DOORS OR LABELED FIRE DOORS.
5. ALWAYS LOCATE ARM SHOE FROM 870 BRACKET MOUNTING SURFACE.
6. MAXIMUM OPENING ANGLE 115°.
7. DOORS AND FRAMES MUST BE PROPERLY REINFORCED.

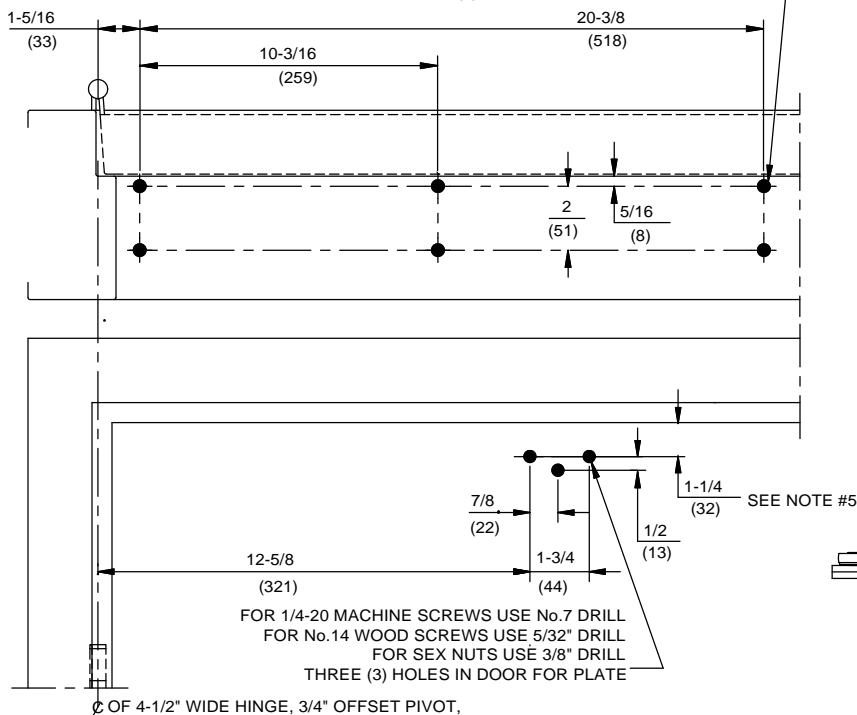


ED800J
 TOP JAMB INSTALLATION - (PUSH SIDE MOUNT)
 WITH 870 ANGLE BRACKET

TEMPLATE No. ED800-SP1 Rev.02/95

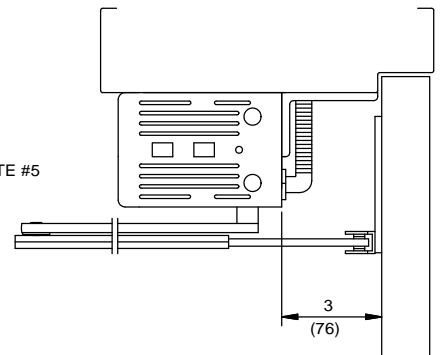
ED 800J x 870 ANGLE BRACKET x 831 ARM SHOE DROP PLATE - TOP JAMB INSTALLATION TEMPLATE

FOR 1/4-20 MACHINE SCREWS USE No.7 (0.201") DRILL
 FOR No. 14 WOOD SCREWS USE 5/32" DRILL
 SIX (6) HOLES IN FRAME FOR BRACKET



NOTES:

1. DO NOT SCALE DRAWING.
2. DIMENSIONS ARE IN INCHES/(MM).
3. LEFT HAND DOOR SHOWN.
4. CAUTION: SEX NUTS ARE RECOMMENDED FOR ATTACHMENT OF COMPONENTS ON COMPOSITE DOORS OR LABELED FIRE DOORS.
5. ALWAYS LOCATE 830 PLATE FROM 870 BRACKET MOUNTING SURFACE.
6. MAXIMUM OPENING ANGLE 115°.
7. DOORS AND FRAMES MUST BE PROPERLY REINFORCED.



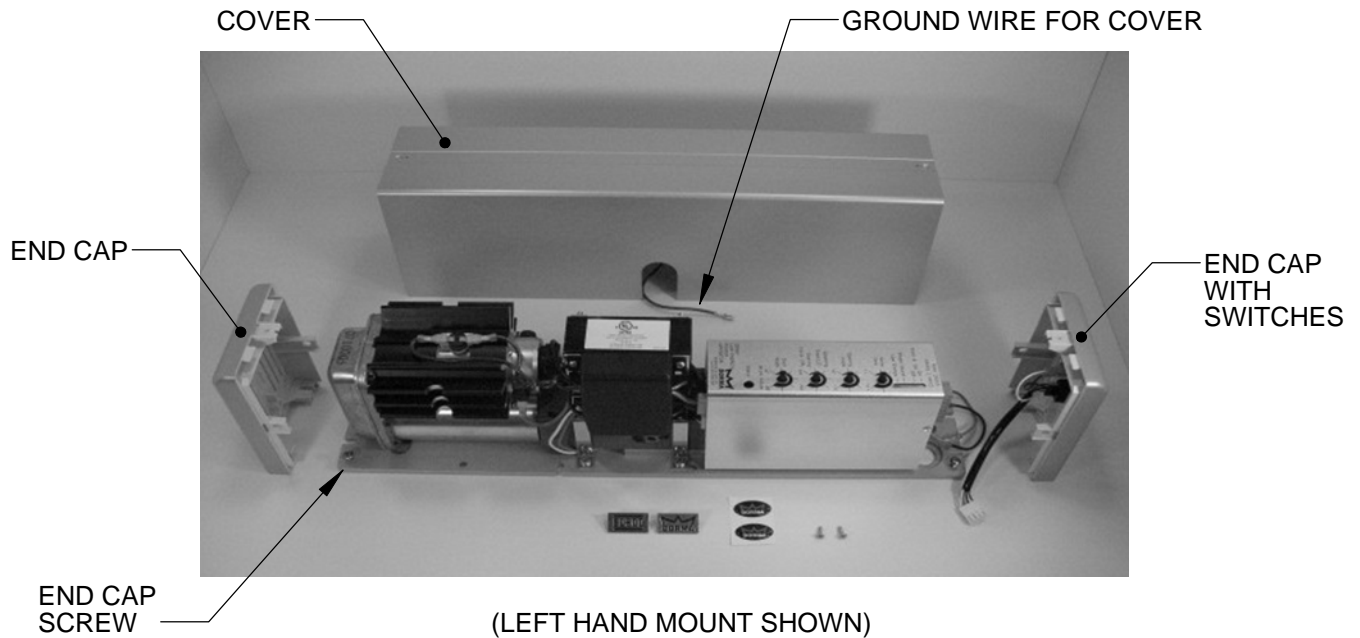
ED800J
 TOP JAMB INSTALLATION - (PUSH SIDE MOUNT)
 WITH 870 ANGLE BRACKET X 831 ARM SHOE DROP PLATE

TEMPLATE No. ED800-SP3 Rev.08/95

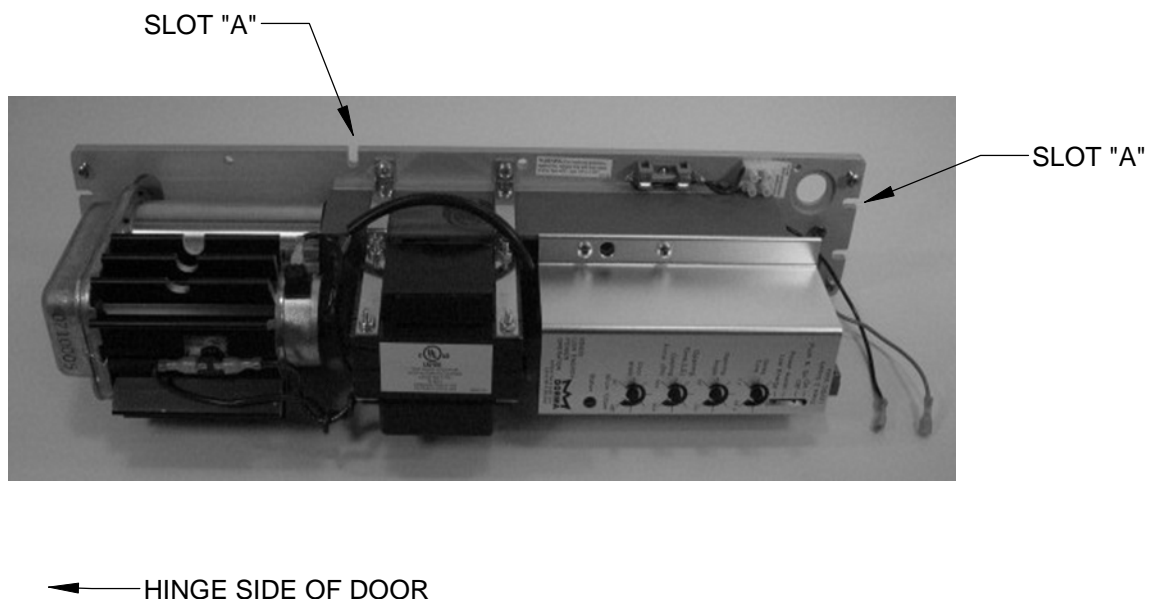
Remove two (2) cover screws and cover. Disconnect cover ground wire at base plate. Loosen, but do not remove end cap screws and slide end caps off.

Note:

Re-install end caps, cover ground wire and cover after installation is complete. Push-in emblems or logo decals can be applied to hide cover screws if needed.



Initially install screws for slots "A" as pictured, allowing 5/16" between the screw head and the frame. Align the slots in the mounting plate with the screws. Slide the mounting plate over the screw and hold the unit in place until the balance of the screws are installed. Tighten all screws securely.



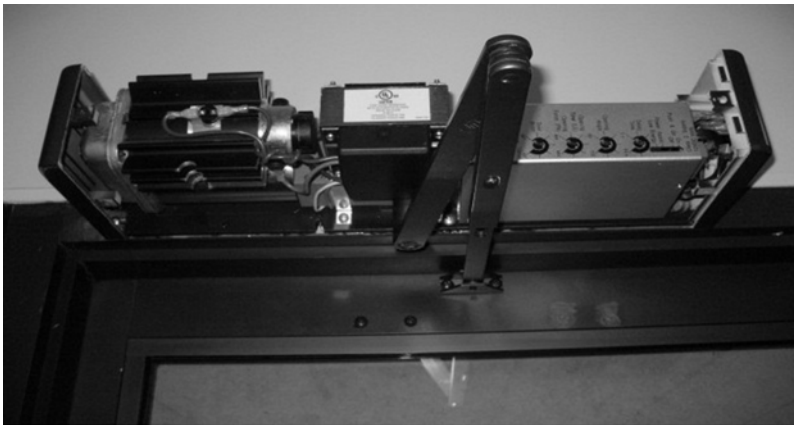
If required, attach 830 arm shoe drop plate to top rail with three screws provided.



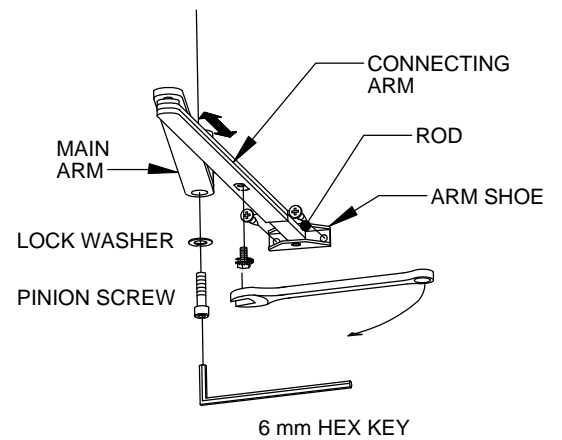
830 DROP PLATE

← HINGE SIDE OF DOOR

Orient arm as shown. Attach arm shoe to door or 830 arm shoe drop plate. Place wrench on top pinion shaft and rotate pinion slightly toward latch edge of door. Slide main arm over bottom pinion shaft. Fasten securely with pinion screw and lock washer provided. Loosen screw in connecting arm so arm slides freely. Adjust connecting arm length so rod and connecting arm are 90° to door. Re-tighten screw.



← HINGE SIDE OF DOOR



ED 800T - TRACK INSTALLATION TEMPLATE & MOUNTING INSTRUCTIONS

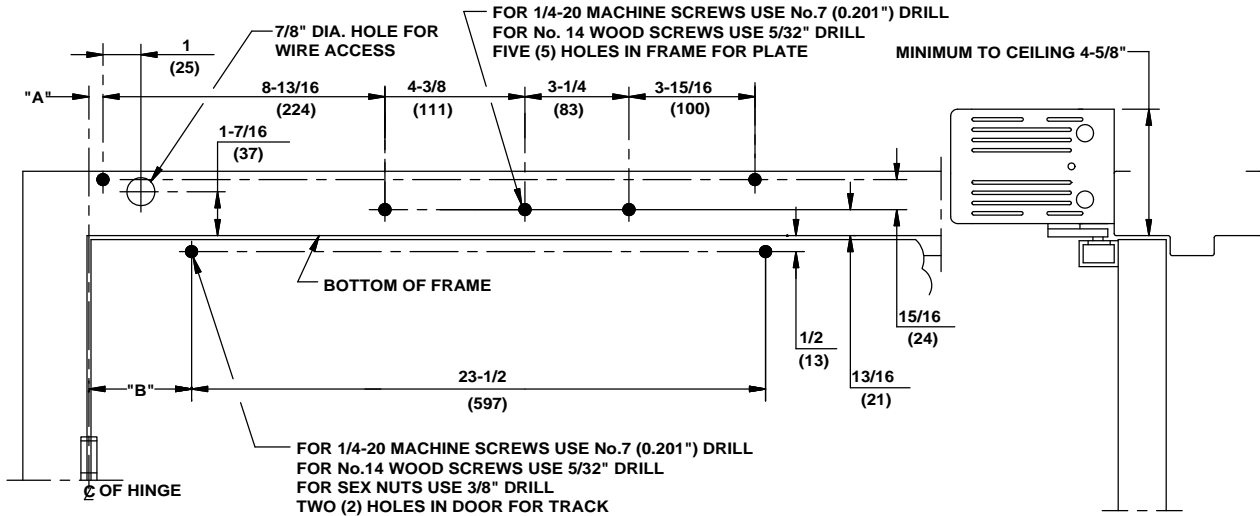
Prepare door and frame according to template.

NOTES:

1. DO NOT SCALE DRAWING.
2. DIMENSIONS ARE IN INCHES/(MM).
3. RIGHT HAND DOOR SHOWN.
4. CAUTION: SEX NUTS ARE REQUIRED FOR ATTACHMENT OF COMPONENTS TO UNREINFORCED DOORS AND TO WOOD OR PLASTIC FACED COMPOSITE TYPE FIRE DOORS, UNLESS AN ALTERNATIVE METHOD IS IDENTIFIED IN THE INDIVIDUAL DOOR MANUFACTURER'S LISTINGS.

5. MAXIMUM OPENING ANGLE 115°.
6. DOORS AND FRAMES MUST BE PROPERLY REINFORCED.
7. AUXILIARY STOP, (BY OTHERS) ARE REQUIRED AT 115° FOR INSTALLATIONS WHERE DOOR CAN OPEN FURTHER THEN 115°

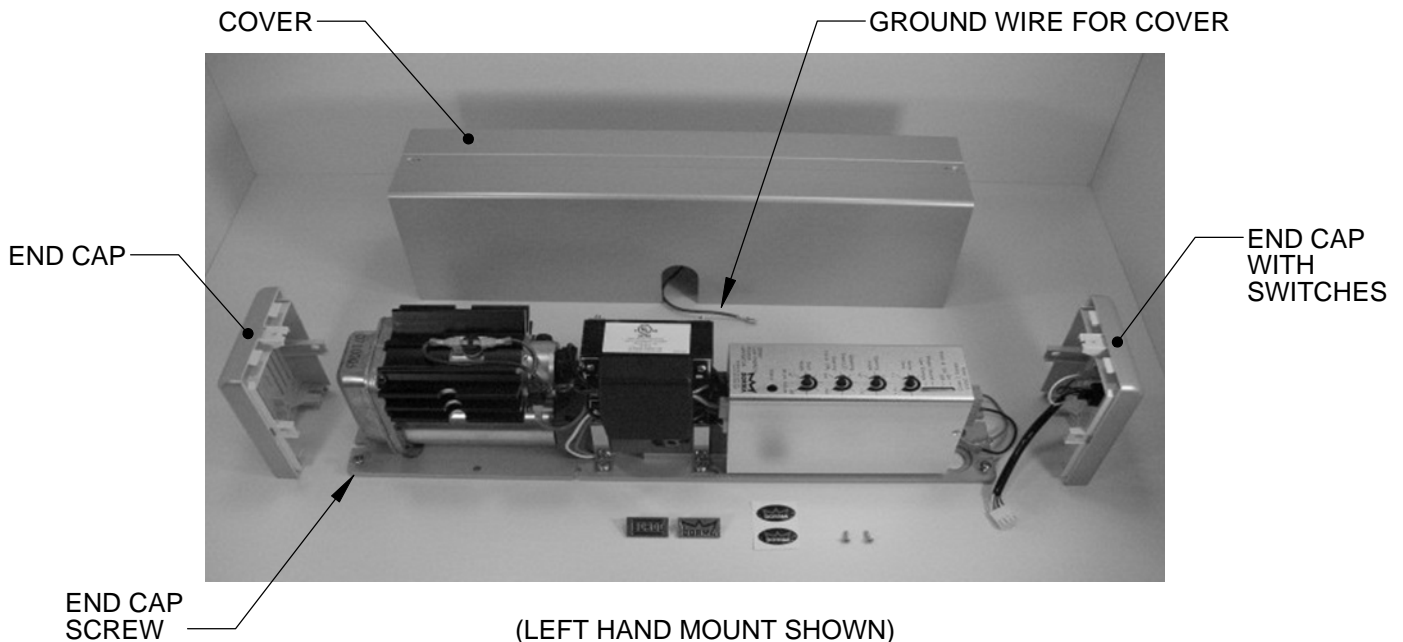
	4-1/2" WIDE HINGE	3/4" OFFSET PIVOT
DIM. "A"	$\frac{7}{16}$ " (11)	$\frac{1}{8}$ " (25)
DIM. "B"	$4\text{-}\frac{5}{16}$ " (106)	$4\text{-}\frac{7}{8}$ " (124)



ED800-3 Rev.08/04

Remove two (2) cover screws and cover. Disconnect cover ground wire at base plate. Loosen, but do not remove end cap screws and slide end caps off.

Note:
Re-install end caps, cover ground wire and cover after installation is complete. Push-in emblems or logo decals can be applied to hide cover screws if needed.



Initially install screws for slots "A" as pictured, allowing 5/16" between the screw head and the frame. Align the slots in the mounting plate with the screws. Slide the mounting plate over the screw and hold the unit in place until the balance of the screws are installed. Tighten all screws securely.



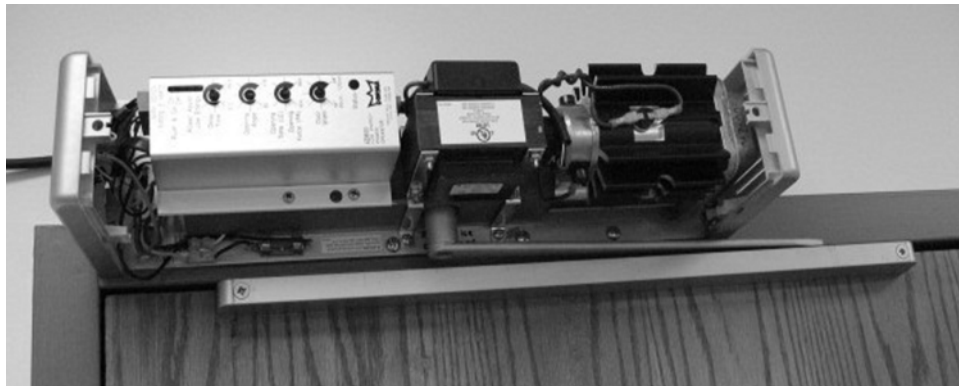
SLOT "A"

SLOT "A"

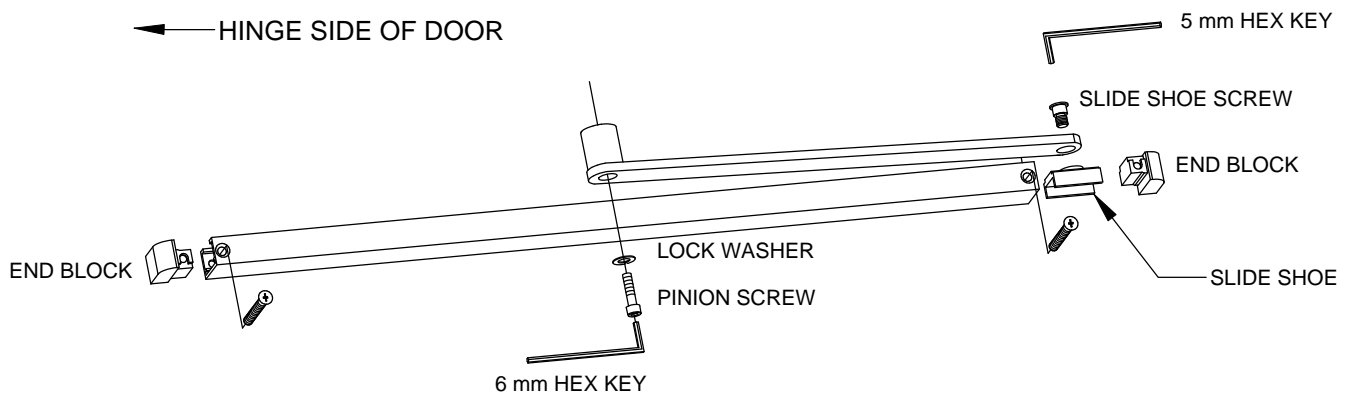
MOUNTING PLATE

HINGE SIDE OF DOOR →

Insert slide shoe and end blocks into track and attach track to door. Attach arm to slide shoe using screw provided. Place wrench on top pinion shaft and rotate 45° towards hinge edge of door. Slide arm over bottom pinion shaft. Fasten securely with pinion screw and lock washer provided.



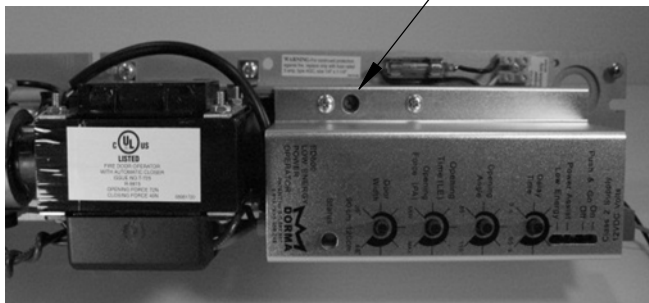
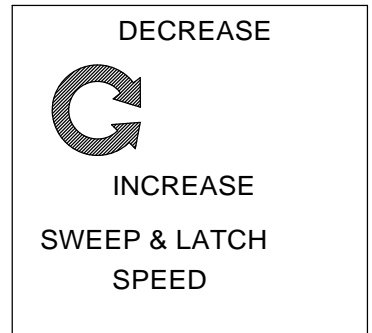
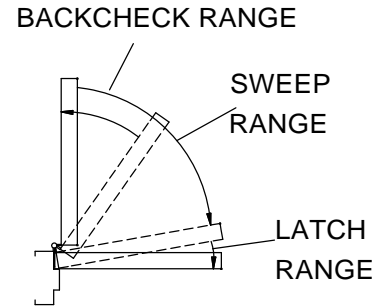
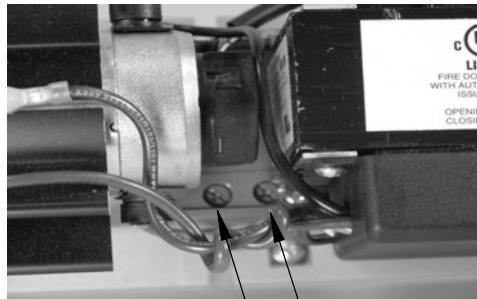
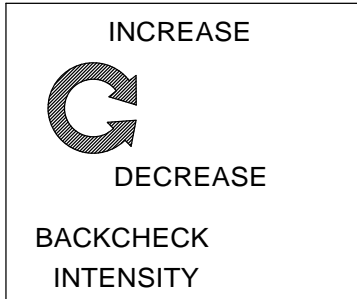
← HINGE SIDE OF DOOR



VALVE ADJUSTMENTS

Adjust sweep, latch and backcheck valves. Closing time from 90° to 10° (sweep range) should take at least 3 seconds. Closing time from 10° to fully closed (latch range) should take at least 1.5 seconds. Backcheck intensity should be adjusted to ensure that door is under control during the opening cycle

CAUTION: DO NOT REMOVE VALVES.



SPRING POWER ADJUSTMENT

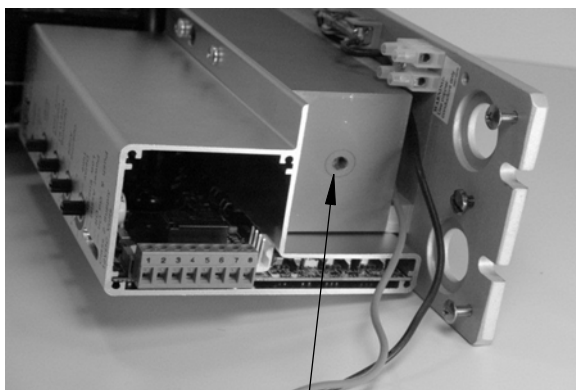
Adjust spring tension according to the chart below. The ED 800 is shipped from the factory as a size 3. The spring power can be increased to a size 5. Clockwise turns increase spring power.

Do not decrease spring power from factory setting.

CRITICAL

Spring tension must be adjusted to ensure that door will close and latch consistently.

DOOR WIDTH		FULL TURNS OF SPRING ADJUSTING	SPRING SIZE
EXTERIOR	INTERIOR		
-	3'-0"	0	3
3'-0"	3'-6"	6	4
3'-6"	4'-0"	9	5



adjust with 5 mm hex key



ULC LABELED UNITS ONLY - ADJUST ACCORDING TO CHART

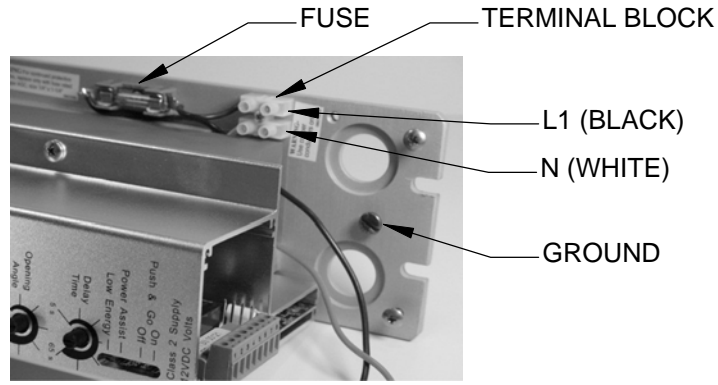
MAX. DOOR WEIGHT (LBS.)	FULL TURNS OF SPRING ADJUSTING	SPRING SIZE
125	0	3
150	6	4
200	9	5

MAIN POWER CONNECTION

Connect the 120 volt AC power supply wires to the ED 800 terminal block. Connect the ground wire to the green ground screw on the mounting plate. Observe all local electrical codes when performing connections.

The incoming wire size is to be 14 AWG. The maximum power consumption of the ED 800 is 2 amps.

WARNING: DISCONNECT POWER WHILE MAKING CONNECTIONS.



POWER CORD OPTION (refer to Installation Instructions 08076325)

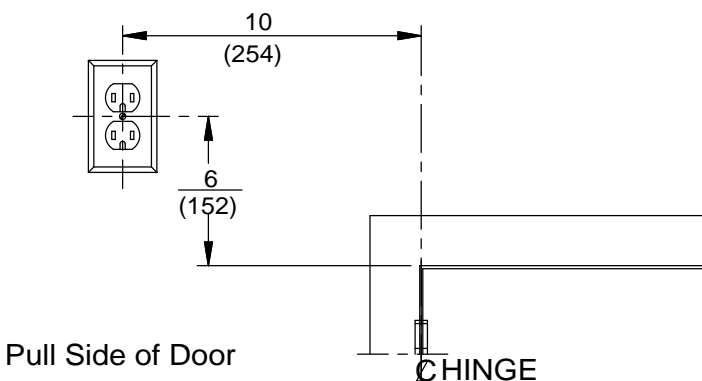
The ED800 is available with an optional power cord which allows the unit to be plugged directly into a standard receptacle. If power cord is being added as a field option, refer to instructions packaged with power cord. A grounding-type 120 volt receptacle rated for a minimum of 15 amps. is required and should be located at the approximate location shown. When considering the amount of units to be supplied by one circuit, remember the power consumption is 2 amps. per unit.

When routing the power cord to the receptacle, do not run through doorways, window openings, walls, ceilings, floors, or the like. Do not attach or otherwise secure the power cord to the building structure, and do not conceal the power cord behind walls.

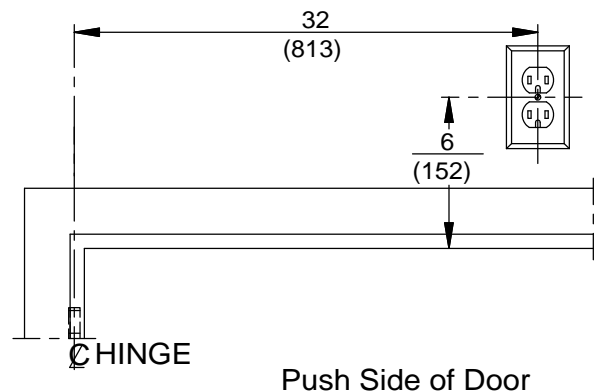
WARNING: DO NOT ALLOW THE POWER CORD TO BECOME ENTRAPPED IN THE MOVING PARTS OF THE ED 800 OR THE DOOR AND THE FRAME.

If the local codes require permanent wiring to be employed, refer to Main Power Connection section.

Track Installations



Top Jamb & Top Jamb Drop Installations



FUSE

The ED 800 is protected by a 3 amp type AGC size 1/4" x 1 1/4" fuse. Replace only with an identical fuse.

WARNING: DISCONNECT POWER TO THE ED 800 WHEN REPLACING THE FUSE.

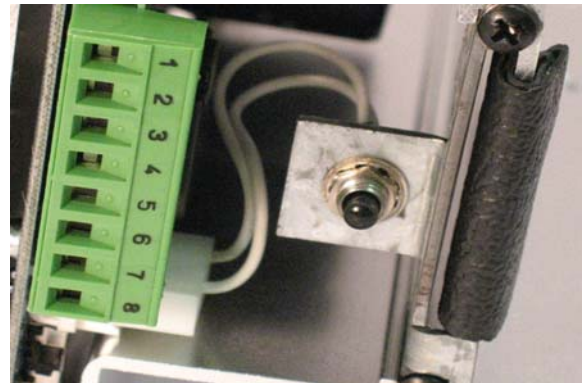
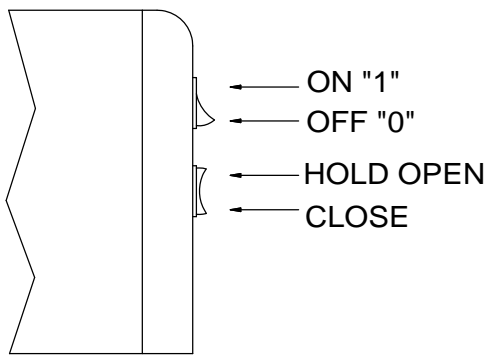
ON/OFF SWITCH

The ED 800 is equipped with an on/off switch which is located in the end cap closest to the control module. The switch must be in the "on" position for any powered function.

HOLD OPEN/CLOSE SWITCH

The ED 800 is equipped with a standard "hold open" feature. To activate, momentarily depress the switch towards "hold open". The door will open and remain in the open position for approximately 15 minutes. After that period of time, the door will then close and the unit will be ready for normal operation. To close the door at any time, depress the switch towards "close". This will override the time delay and close the door immediately.

NOTE: Hold Open/Close Switch must be plugged into control module to enable operator.

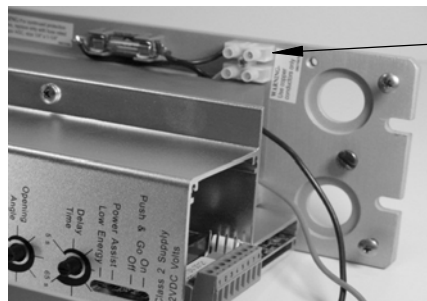


PUSH BUTTON FOR LEARN OPTION (available with remote switch option)

A small concealed button accessible through end cap slots must be pressed for ED800 to start learn cycle.

REMOTE SWITCH OPTION (refer to Installation Instructions 08105680)

If the ED 800 is ordered with the RS - Remote Switch option, the On/Off switch and the Hold Open/Close switch are deleted. This is recommended for applications where the switches may be subjected to tampering. In this application, a remote switch must be provided (by others) in the incoming power supply. This switch must be wired in accordance to The National Electrical Code.



L1 with SPST SWITCH
RATED @
3amp @ 120 VOLTS MIN.
(BY OTHERS)

FIRE DOOR WIRING

When the ED 800 is installed on a fire door, the main power to the unit must be supplied through a set of contacts in a UL listed fire alarm panel. The contacts are to be closed under normal (stand-by) conditions providing power to the unit. Under alarm conditions, the contacts must open, cutting power to the unit, causing the ED 800 to operate as a manual door closer.

POWER ADJUSTMENTS

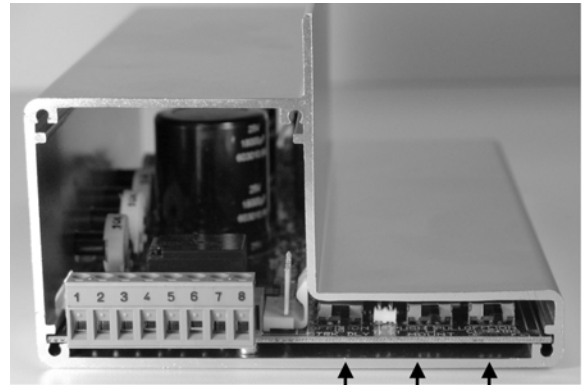
NOTE: Before making any power adjustments, the ED 800 unit must be properly installed on the door and frame, the arm must be adjusted and the spring tension set.

MOUNT TYPE SWITCH

Set the Push/Pull switch for correct mounting. Push is required for top jamb applications. Pull is required for track applications.

STRIKE DELAY SWITCH

When turned "ON" this switch delays the function of the operator by 1/2 second to allow time for a strike or ES exit device to operate. (See pages 5 or 25)

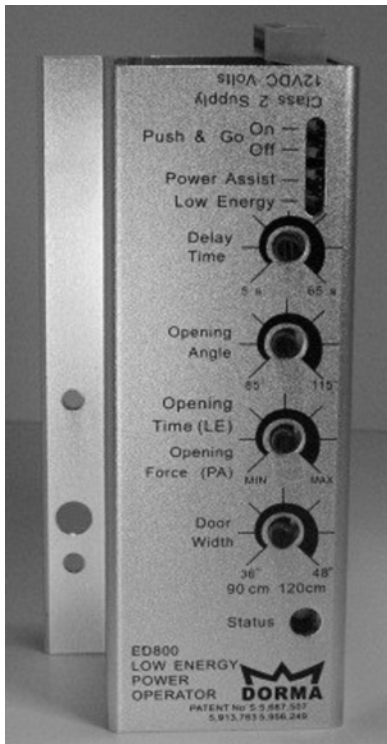


STRIKE DELAY SWITCH (OFF/ON) ————
MOUNT TYPE SWITCH (PUSH/PULL) ————
CLOSING OBSTACLE SWITCH (OFF/ON) ————

CLOSING OBSTACLE SWITCH

Normally "ON". When switching to "OFF" position, obstacle detection in the closing direction will not be functional.

LOW ENERGY FUNCTION



1. Adjust the "Power Assist/Low Energy" slide switch to the "Low Energy" position.
2. Adjust the "Door Width" potentiometer to match the approximate door width. Doors must be between 36 and 48 inches wide for optimum operation.
3. Adjust the "Opening Time(LE)" potentiometer to obtain the desired door opening time. "MIN" is the least amount of opening time (fastest door speed), and "MAX" is the greatest amount of opening time (slowest door speed).
4. Adjust the "Opening Angle" potentiometer to obtain the desired angle of opening (Hold Open Position). This is adjustable from 85° to 115°. This is a "live" adjustment when the door is in the hold open position
5. Adjust the "Delay Time" potentiometer to obtain the desired amount of time the door will remain at the hold open position. This is adjustable from 5 to 60 seconds. The delay time will commence when the door reaches the hold open position, or when it last receives an actuation input, whichever occurs later.
6. Adjust the "Push & Go" slide switch as required. When in the "on" position, a door movement of one inch will activate the unit. If the user opens the door briskly beyond 45° the Push & Go feature will abort. This is to conserve heating and air conditioning energy and to prevent the unit from operating needlessly. When in the "off" position, the unit must be activated externally.

Refer to the Functional Detail in the General Information section for a complete description of the operation of the ED 800 in Low Energy Function.

POWER ASSIST FUNCTION



1. Adjust the "Power Assist/Low Energy" slide switch to the "Power Assist" position.
2. Adjust the "Door Width" potentiometer to match the approximate door width. Doors must be between 36 and 48 inches wide for optimum operation.
3. Adjust the "Opening Force(PA)" potentiometer to obtain the amount of opening force desired. "MIN" is the least amount of force required to open the door (approximately 1.5 pounds of force), and "MAX" is the greatest amount of force required to open the door (approximately 5 pounds of force).
4. Adjust the "Opening Angle" potentiometer to obtain the maximum angle of opening to which the unit will assist.
5. Adjust the "Delay Time" potentiometer to obtain the desired amount of time the door will remain in the Power Assist function once activated. This is adjustable from 5 to 60 seconds. The delay time will commence upon activation or when there is no longer any door movement, whichever occurs later.
6. Adjust the "Push & Go" slide switch as required. When in the "on" position, a door movement of one inch will activate the unit. If the user opens the door briskly beyond 45° the Push & Go feature will abort. This is to conserve heating and air conditioning energy and to prevent the unit from operating needlessly. When in the "off" position, the unit must be activated externally.

Refer to the Functional Detail in the General Information section for a complete description of the ED 800 in Power Assist Function.

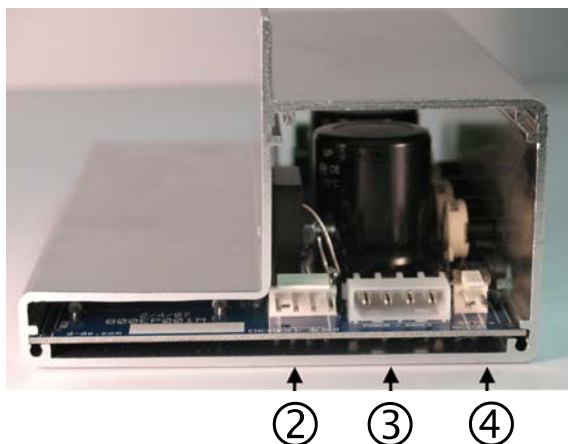
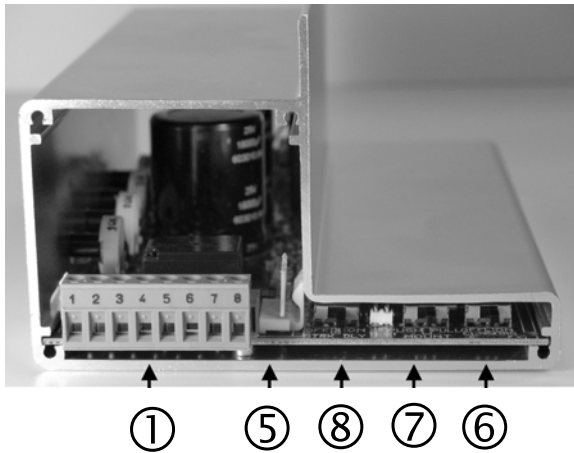
LATCHED DOOR

If the ED 800 is to be installed on a door which is required to be latched, it is recommended that an electric strike release or electric latch retraction device be installed. When the ED 800 is installed on a door with an exit device, the device should be dogged during hours when the ED 800 is turned on.

Also, the latch must be manually held retracted when the unit is initially turned on. This is because the ED 800 performs a "learn cycle" when it is first energized. Part of the learn cycle requires that the door be opened a few degrees to obtain information about the amount of force required to open that particular door. If the door is latched during the learn cycle, the ED 800 will default to the power requirements of a typical 36" wide interior door.

If this is not satisfactory, simply turn the unit off, wait approximately 30 seconds, then turn the unit back on while holding the latch retracted until the learn cycle is completed.

ED800 Controller Module Diagram



- ① External Connector (See below)
- ② Encoder Connection
- ③ Transformer/Motor Connection
- ④ (Factory use only)
- ⑤ Hold Open Switch Connection
- ⑥ Closing Obstacle Switch (Off/On)
- ⑦ Mount Type Switch (Push/Pull)
- ⑧ Latch Delay Switch (Off/On)

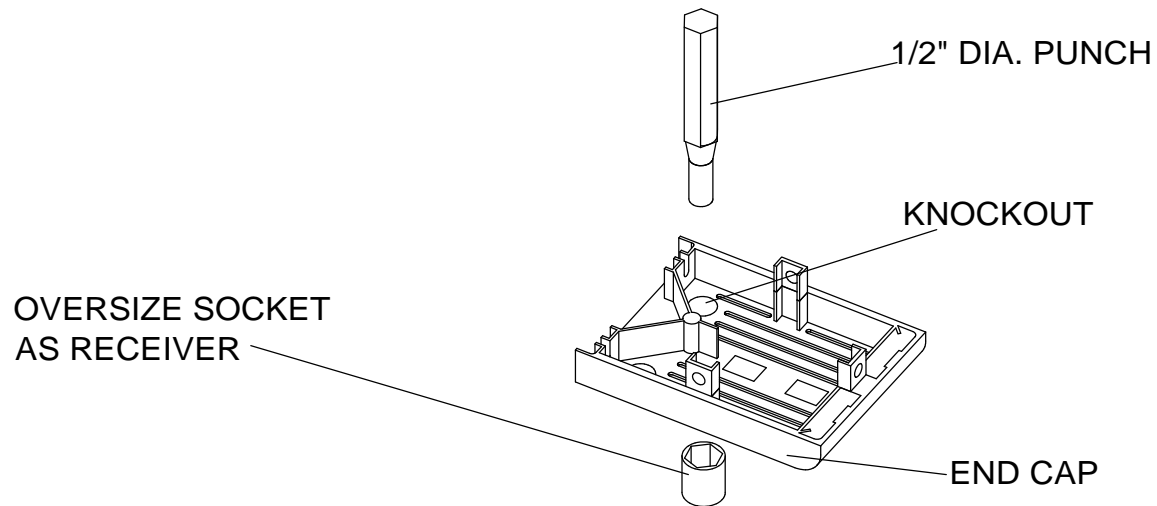
① **External Connector**

1	→	GROUND \perp
2	N	+12VDC
3	∞	OPEN TRIGGER
4	↗	BUSY SWING (SAFETY)
5	S	VESTIBULE
6	N	NO
7	C	C
8	N	NC

NOTE: Terminal can be removed from control module to simplify installation of wires. The maximum recommended wire size is 18 AWG.

ACCESSORY WIRE ROUTING

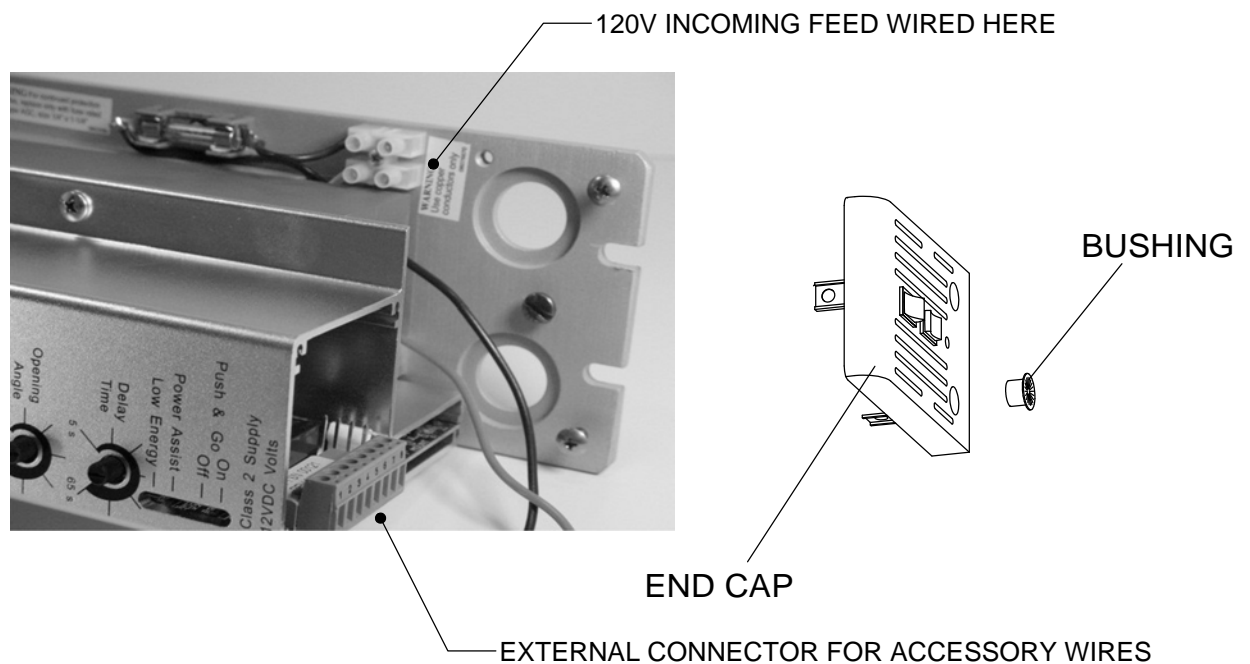
Remove knockout with a 1/2" diameter punch and hammer. Back side of end cap must be supported to prevent damage to the end cap.



Insert bushing into end cap.

Feed accessory wires through bushing in end cap. Connect wires as required to external connector.

Note: Accessory wires must be isolated from 120V incoming power

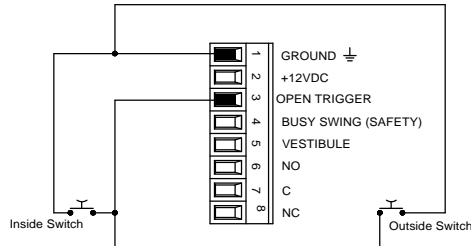


OPEN TRIGGER - HARD WIRED

WS-1 Wall Switch FS-1 Frame Switch

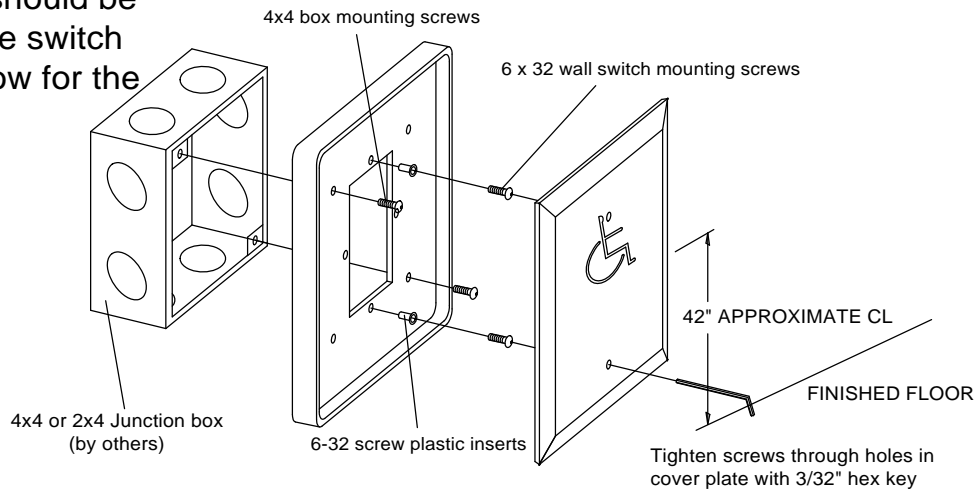
The open trigger is created by providing a normally open dry circuit, which is momentarily closed. Contact is made between "OPEN TRIGGER" and "GROUND" to signal the ED800.

Typical Wall Switch or Frame switch wiring diagram.



WS-1 WALL SWITCH

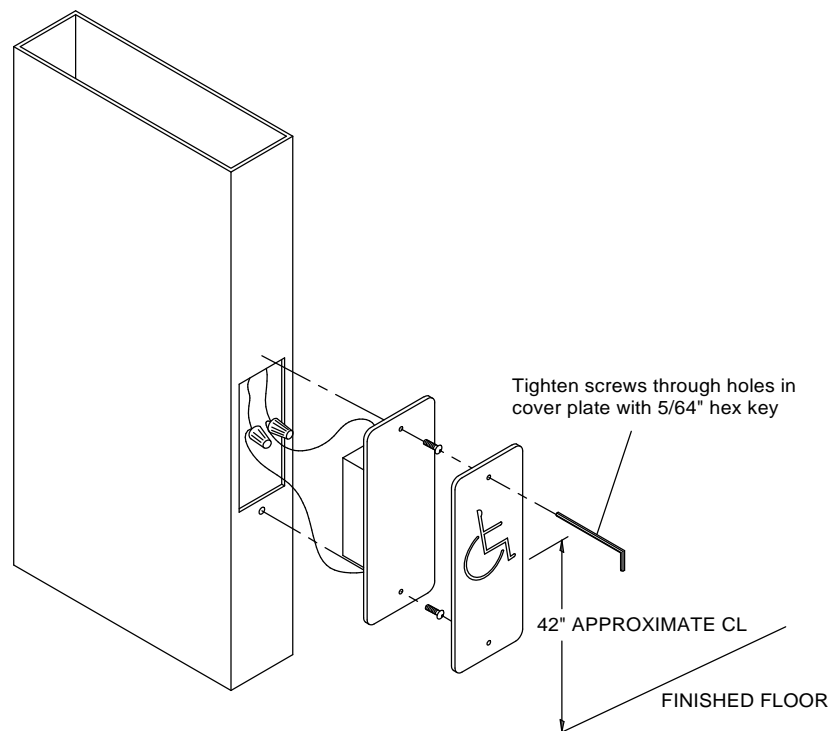
When considering the location of the 800 WS-1 Wall Switch, sufficient distance should be allowed between the switch and the door, to allow for the door to open.



FS-1 FRAME SWITCH

The FS-1 Frame Switch is designed to be installed in a metal door frame with a minimum width of 1 3/4".

NOTE: Generally, a junction box is not used with this type of switch

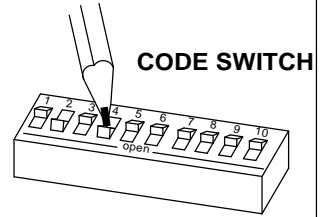


OPEN TRIGGER - WIRELESS

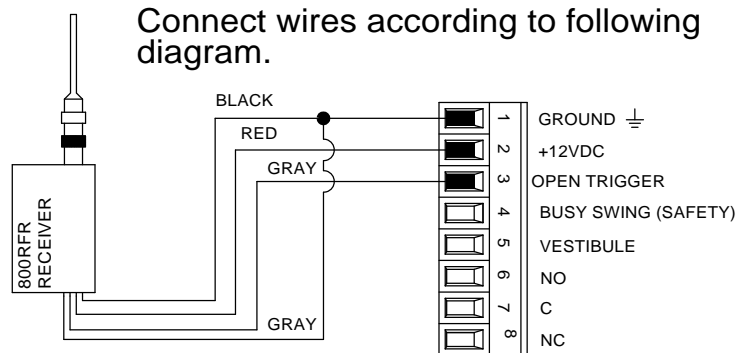
RFR Radio Frequency Receiver

The RFR Receiver can be used on applications where it is not practical to run wires from a switch to the ED 800 unit.

A code must be selected to ensure the receiver is only activated by the intended transmitter(s). This is determined by the positions of the 10 small switches numbered 1 through 10 located on the receiver board. To gain access to the switch, remove the top section of the case. Any combination of on (closed) or off (open) positions can be selected by using a small screwdriver or ball point pen. It is strongly recommended that the following codes be avoided: all on; all off; 2, 4, 6, 8, 10 on; or 1, 3, 5, 7, 9, on. These codes are frequently used and create the possibility of false operation. After selecting the code be sure it is recorded so that it may be duplicated in any transmitter intended to operate the door.



Install antenna by threading it on the connector. Locate receiver in close proximity to the ED 800 unit. Position antenna so that it is clear of metal structures. Anchor the receiver permanently.

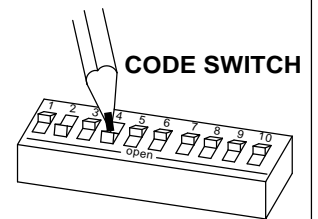


NOTE: Be sure receiver unit is kept away from direct moisture.

After installation is complete, check for proper operation. The transmitter should provide reliable operation from a distance of about 50 feet, however the environment and location of both transmitter and receiver will affect range.

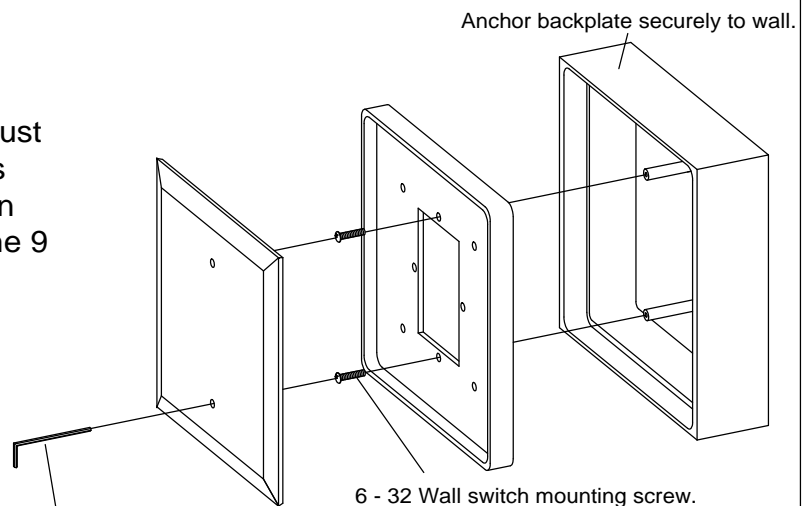
WS/RFT-1 Wall Switch

The WS/RFT-1 wall switch with radio frequency transmitter is used in conjunction with the RFR radio frequency receiver. The wall switch transmitter must be located within a distance of 50 feet from the receiver. The WS/RFT-1 is suitable for outdoor use, however it must not be exposed to direct moisture. Anchor the backplate of the wall switch securely to the mounting surface at a height approximately 42" above the finished floor.



Select the code for the transmitter. The code must be identical to the code for the receiver which is intended to be signalled. Refer to code selection for RFR Radio Frequency Receiver. Connect the 9 volt battery at this time.

The replacement battery is 9 volt NEDA 1604 (Eveready 216 or equivalent).



NOTE:
Flush Mount Assembly Kit also available

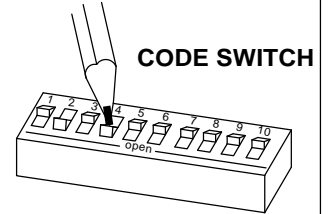
HH/RFT-1 Transmitter and HH/RFT-2 Transmitter

The HH/RFT hand held transmitters are used in conjunction with the RFR radio frequency receiver. Under normal conditions, it will provide reliable activation of the ED800 within a distance of 50 feet.

Select the code for the transmitters. The code must be identical to the code for the receiver which is intended to be signaled. To access the code switch, remove the lower cover of the housing, exposing the battery and the code switch. Refer to the code selection for RFR Radio Frequency Receiver. Connect the 9 volt battery at this time.

If desired, a belt clip can be attached to the back of the transmitter housing by sliding the clip completely into the slot provided.

The replacement battery is 9 volt NEDA 1604 (Eveready 216 or equivalent). If the red LED on the transmitter fails to light when the button is depressed, it is most likely that the battery is weak or dead, and should be replaced.

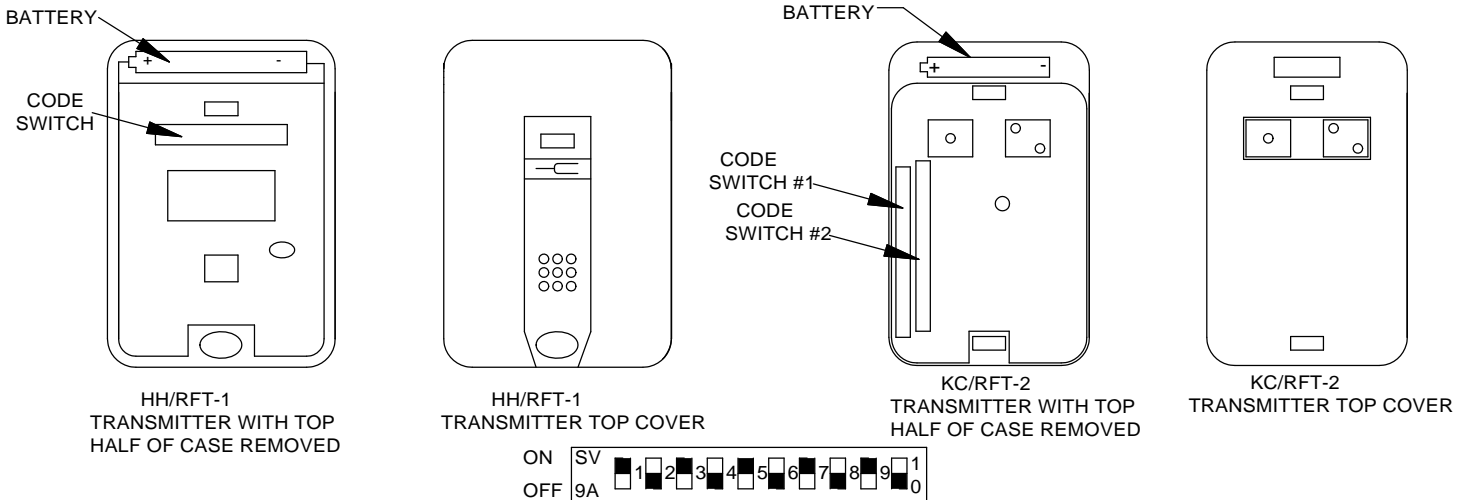


After installation is complete, check for proper operation.

KC/RFT-1 Transmitter and KC/RFT-2 Transmitter

The KC/RFT key chain transmitters are used in conjunction with the RFR radio frequency receiver. Under normal conditions, it will provide reliable activation of the ED 800 within a distance of 50 feet. Select the code for the transmitter. The code must be identical to the code for the receiver which is intended to be signaled. To access the code switch, KC/RFT-1 separate the two halves of the transmitter case by inserting a coin in the side slot and twisting. KC/RFT-2 remove the phillips head screw on back of case and carefully separate the two halves exposing the circuit board and battery.

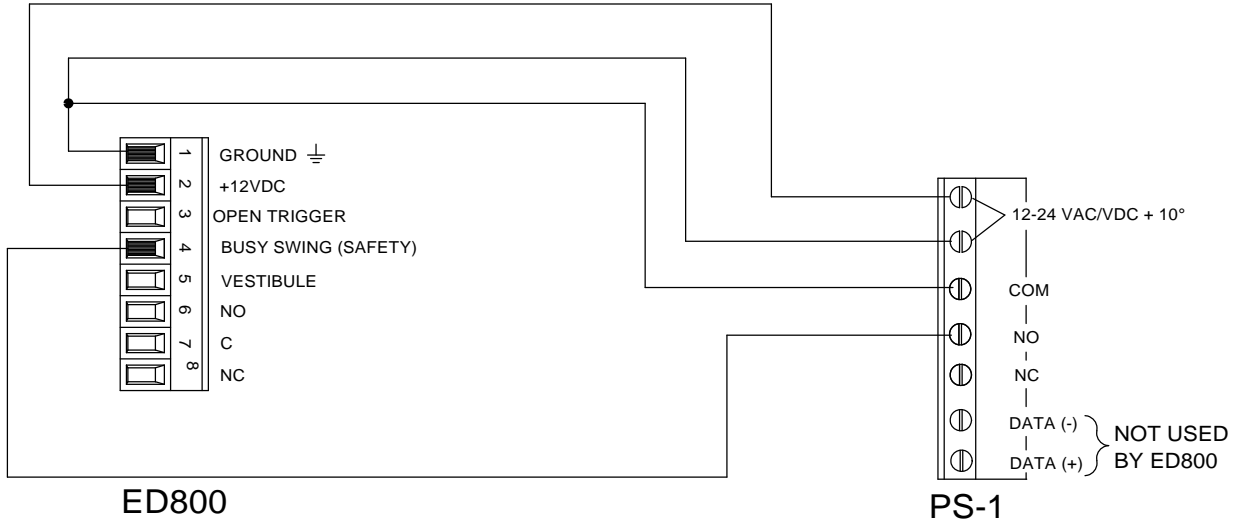
Refer to the code selection for RFR Radio Frequency Receiver. The replacement battery is a 12 volt alkaline lighter battery (Eveready A23 or equivalent). NOTE: If the red LED on the transmitter fails to light when the button is depressed it is most likely that the battery is weak or dead and should be replaced. It is required that the correct polarity is observed when replacing the battery. After installation is complete, check for proper operation.



PS-1 Presence Sensor

BUSY SWING (SAFETY)

The ED800 has a built-in safety circuit which can be interfaced with an optional presence sensor. When activated, the safety circuit prevents the door from receiving an "open trigger" signal. Additionally, when the door is in the open position, the safety circuit will now act as an "open trigger" signal, keeping the door open until the signal is no longer present. The use of the safety circuit is optional and not required. However, by utilizing the safety circuit, the ultimate Safety and convenience can be realized. The Safety circuit is activated by making a contact between " Busy Swing (Safety)" and "Ground".

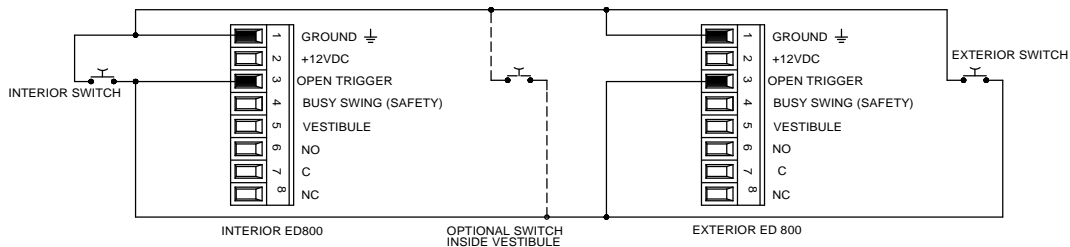


VESTIBULE FUNCTION

The ED 800 can provide two different types of vestibule functions depending on the method of wiring.

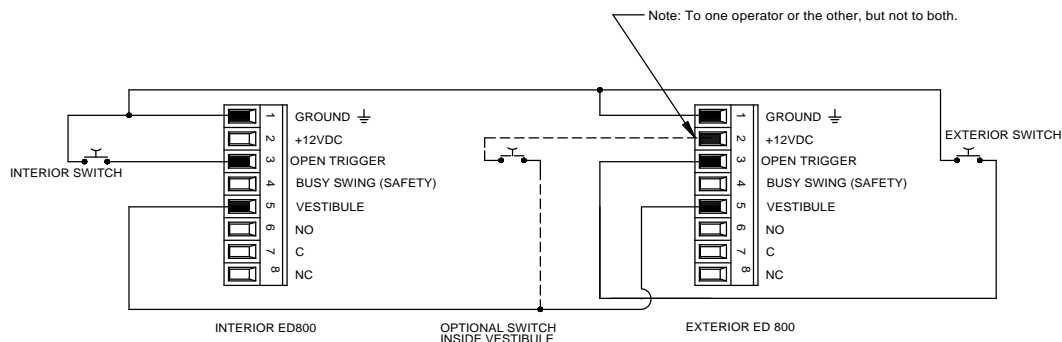
SIMULTANEOUS OPERATION

In this operation, both doors will open at the same time. The switch for each door and the optional switch inside the vestibule will cause both doors to open at the same time.



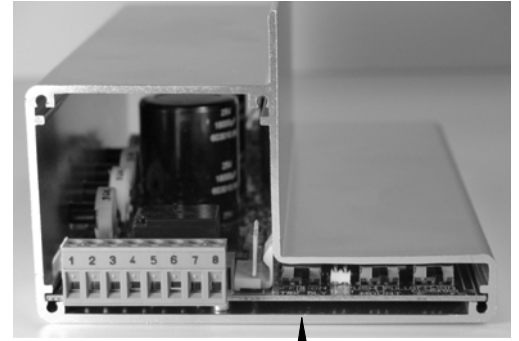
SEQUENTIAL OPERATION (SINGLE DOORS)

In this operation, the doors will open in sequence. The switch at each door will activate that door. After that door closes completely, the other door will be activated. For example, when the exterior switch is depressed the exterior door will open. When the exterior door closes completely, the interior door will then open. This operation is the same in both directions. The optional switch inside the vestibule opens both doors simultaneously.



STRIKE DELAY SWITCH

Toggle switch must be placed in the "ON" position (to the right) to allow ED800 to delay for 1/2 second before opening door when Electric Latch, Strike or Magnetic Locks are interfaced.

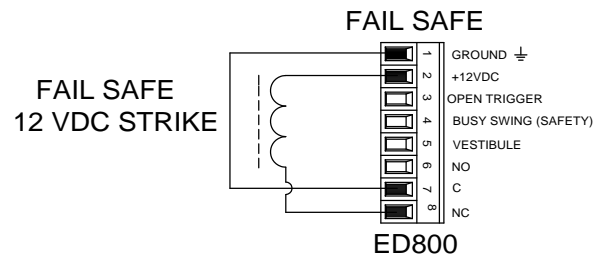
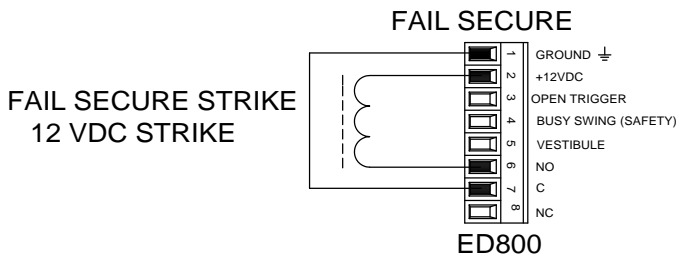


STRIKE DELAY OFF/ON SWITCH

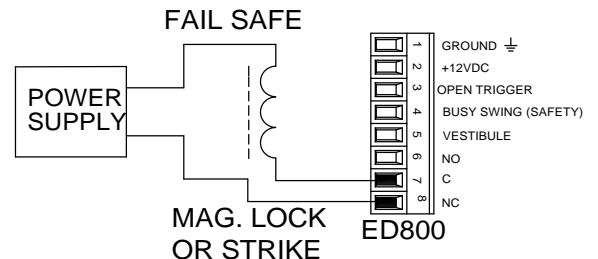
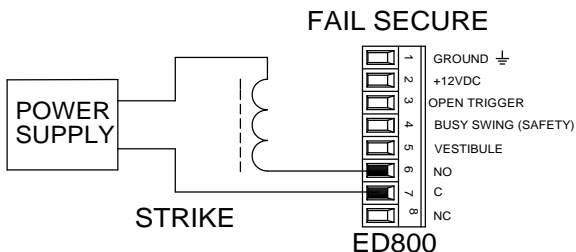
STRIKE INTERFACE

The ED 800 can coordinate the release of an electric strike with the operation of the door. Upon activation of the unit, a signal is immediately sent to operate the strike. The signal will last until the door is open approximately 10°. Door activation may be delayed for 1/2 second to allow the strike to operate (See page 16). The strike will only be signalled when the door is in the closed position to eliminate unnecessary operation.

A 12 Volt DC fail secure electric strike or fail safe electric strike may be powered directly by the ED 800. The maximum power draw is 500 milliamps.



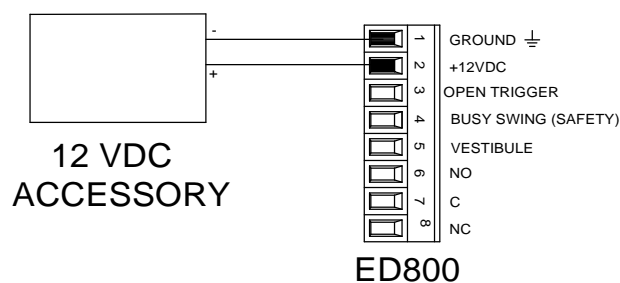
For 24 Volt AC, 24 Volt DC and 12 Volt AC fail secure electric strike, magnetic lock or fail safe electric strike, the ED 800 provides a switch to control the strike. A separate power supply is required for these applications. **The maximum switch rating is 48 Volts AC or DC at 1amp.**



12 VAC, 24 VAC, OR 24 VDC STRIKES/MAG. LOCKS

AUXILIARY POWER OUTPUT

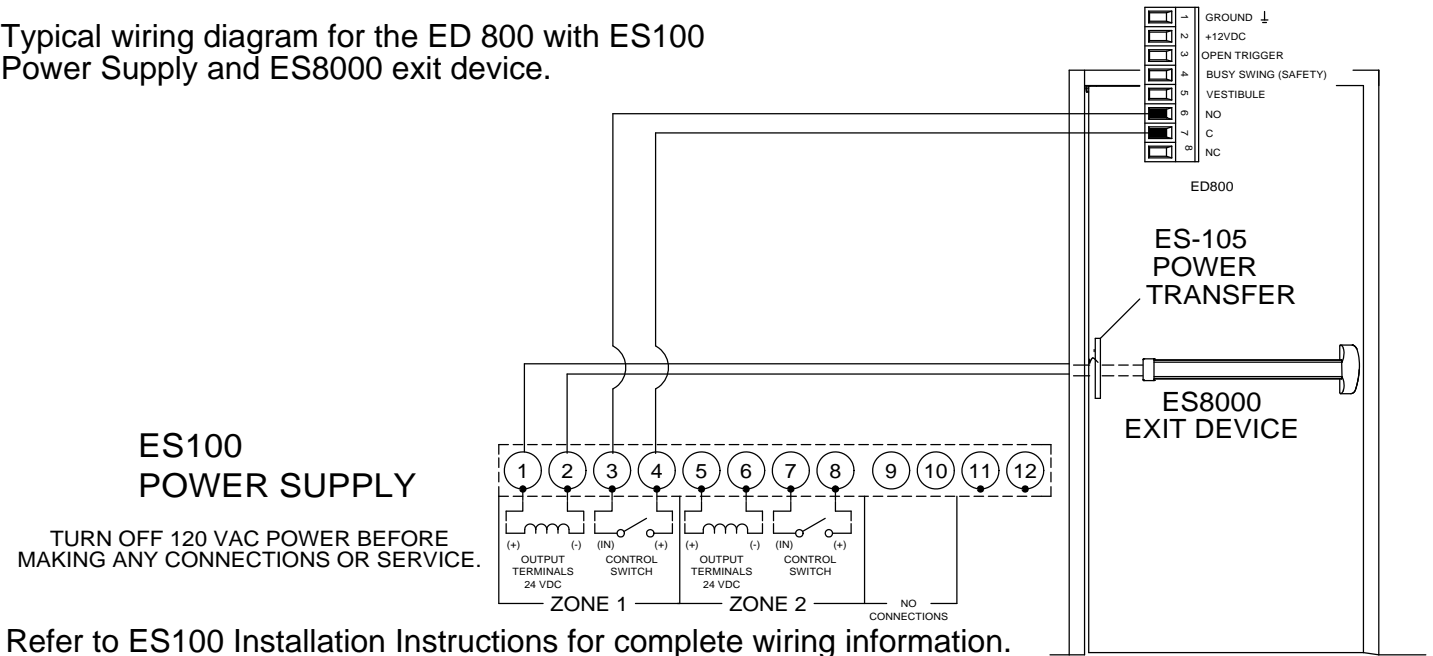
The ED 800 is equipped with an auxiliary power output terminal which can be used to power accessories such as electric strikes or radio frequency receivers. This terminal provides a nominal 12 Volts DC filtered unregulated power source. The voltage range is from 10 to 25 volts at 500 milliamps. **More than one accessory can be powered by the auxiliary power output terminal, however the combined power draw can not exceed 500 milliamps.**



LATCH RETRACTION

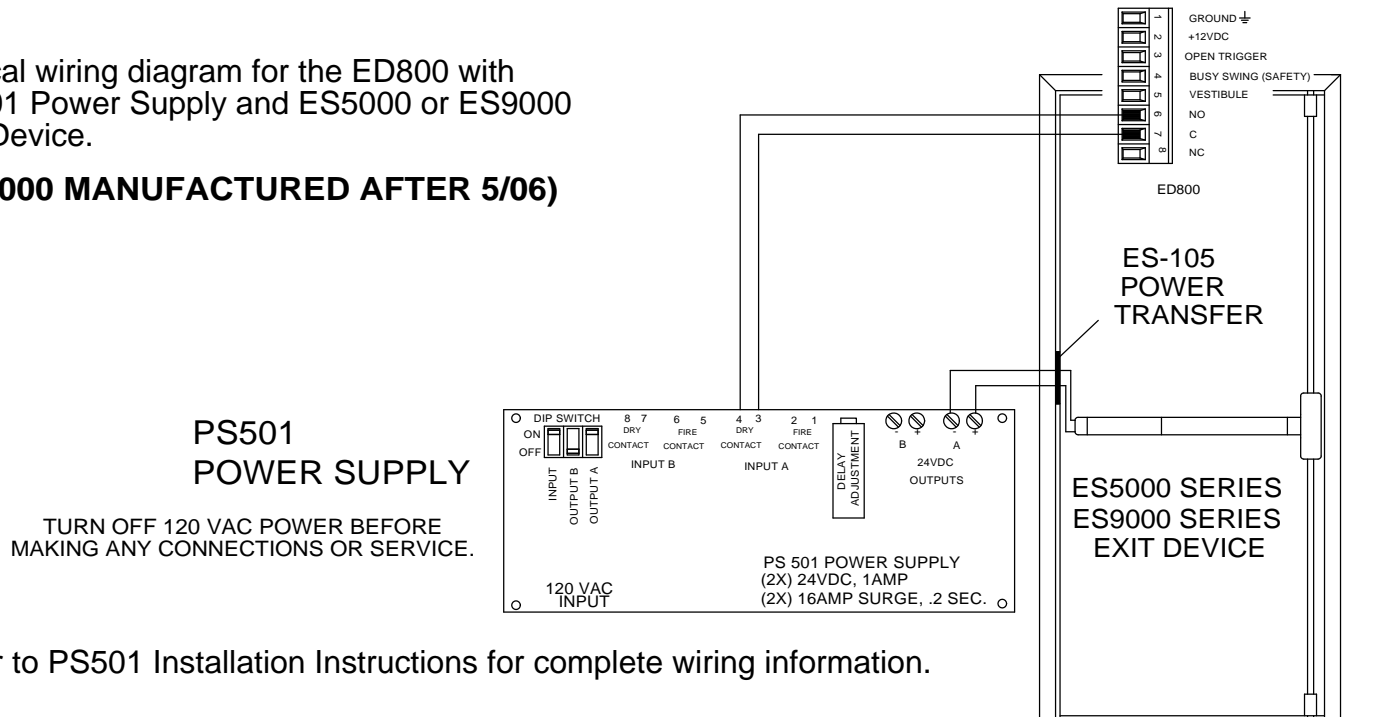
An electric latch retraction function can be coordinated with the ED 800. The ED 800 provides a normally open set of contacts which close momentarily to act as a switch to signal the power supply for the latch retraction. When activated, the contacts close immediately and stay closed until the door is open approximately 10° to provide the signal to the power supply. Door activation may be delayed by 1/2 second to allow the latch to retract (See page 16). **A separate power supply is required for the latch retraction function.**

Typical wiring diagram for the ED 800 with ES100 Power Supply and ES8000 exit device.



Typical wiring diagram for the ED800 with PS501 Power Supply and ES5000 or ES9000 Exit Device.

(ES5000 MANUFACTURED AFTER 5/06)



SIGNAGE

The ED 800 is supplied with a pack of door decals to alert and instruct pedestrian traffic in the operation and use of the door. The decals are applied to the door and should be visible from both sides of the door. The method of activation determines the combination of decals required. Not all decals will be used in every application.



The Caution - Automatic Door decal is required under A156.19, the American National Standards for power assist and low energy power operated doors. The decal shall be mounted on the door at a height of 58 inches +/- 5 inches from the floor to the center of the sign. Two decals are supplied, one for each side of the door. For glass doors, only one decal is required since printing is on both sides.



Decals for doors which are activated by a push button(s) and is applied directly below the Caution - Automatic Door decal on the side of the door where the push button(s) is located.



Decals for doors which are activated by the Push & Go feature and is applied directly below the Caution - Automatic Door decal or the Activate Switch to Operate decal on the pull side of the door.



Decals for doors which are activated by the Push & Go feature and is applied directly below the Caution - Automatic Door or the Activate Switch to Operate decal on the push side of the door.

ELECTRICAL SPECIFICATIONS

ED 800

Power Requirements: 120 Volts AC +10 -15%, 50/60 Hz
Current: 2 Amp
Fuse: 3 Amp - type AGC - size 1/4" x 1 1/4"
Auxiliary Power Output: 12 Volts (nominal) filtered unregulated
Range 10 to 25 Volts DC @ 500mA
Max.Strike Switch Rating: 48 VAC/DC @ 1 Amp Max.(terminals 6,7, 8)

WS-1 Wall Switch

Switch Type: SPDT
Switch Rating: 15 Amp @ 125 or 250 Volts AC

FS-1 Wall Switch

Switch Type: SPDT
Switch Rating: 15 Amp @ 125 or 250 Volts AC

RFR Radio Frequency Receiver

Frequency: 300 MHz std. or 310 MHz jumper selectable
Supply Voltage: 12 - 30 Volts AC/DC
Power Consumption (rest): 16mA
Power Consumption (relay on) 50mA
Relay Contact Rating: 30 Volts AC/DC @ 5 Amp Max.
Numbers of Codes: 1024

WS/RFT-1 Wall Switch

Switch Type: SPDT
Switch Rating: 15 Amp @ 125 or 250 Volts
Frequency: 300 MHz
Range: Normally 50 ft. - depending on local conditions
Numbers of Codes: 1024
Battery Type: 9 Volt NEDA 1604 (Eveready 216 or equivalent)

HH/RFT-1, HH/RFT-2 Transmitter

Transmitter Type: Hand held
Frequency: 300 MHz
Range: Normally 50 ft. - depending on local conditions
Numbers of Codes: 1024
Battery Type: 9 Volt NEDA 1604 (Eveready 216 or equivalent)

KC/RFT-1, KC/RFT-2 Transmitter

Transmitter Type: Key chain
Frequency: 300 MHz
Range: Normally 50 ft. - depending on local conditions
Numbers of Codes: 1024
Battery Type: 12 Volt (Eveready A23 or equivalent)