Instructions For
Installation and Programming

SARGENT®

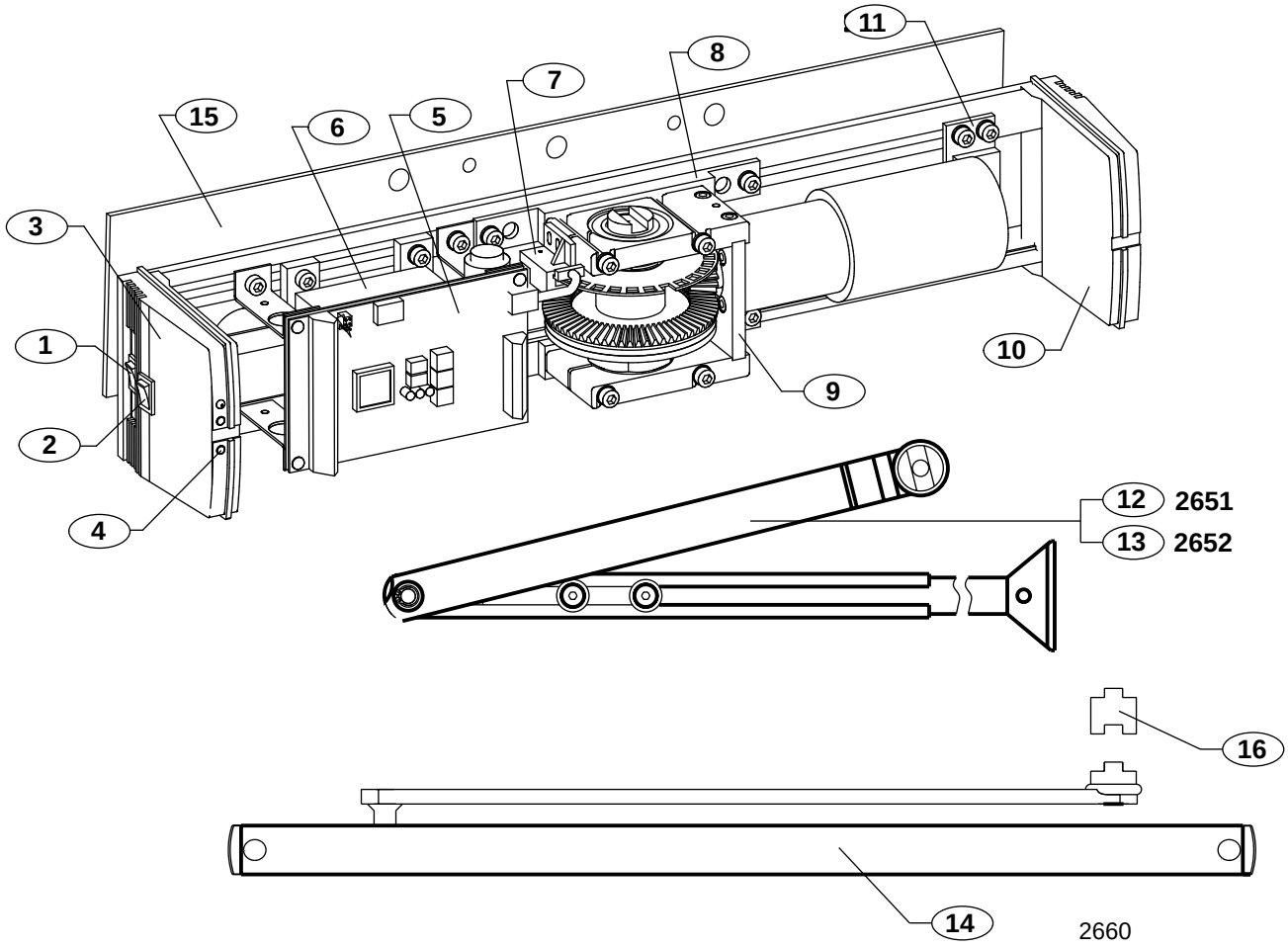
2600 Series
Low-Energy Swing Door Operator

Push and Pull Applications

A7311D

TABLE OF CONTENTS

DOOR OPERATOR COMPONENTS



ITEM	PART NO.	DESCRIPTION	REQ.
1	63-3603	Main Switch	1
2	63-3600	Mode Selector Switch	1
3	63-0607	End Cover	1
4	63-3592	LED Electronics Assembly	1
5	63-3606	Control Unit Assembly	1
6	63-3604	Transformer Assembly	1
7	63-3599	Position Sensor	1
8	63-3605	Side Motor Mount	1
9	63-3602	Motor and Drive Gear Assembly	1
10	63-0606	End Cover	1
11	63-3601	Back Motor Mount	1
12	63-3593	Standard Arm—2651	1
13	63-3594	Extended Arm—2652	1
14	63-3595	Track Type Arm—2660 (Non-Handed)	1
15	63-0608	Mounting Plate	1
16	63-0603	Spindle Extension 3/8”	1
	63-0604	Spindle Extensions 3/4”	
	63-0605	Spindle Extensions 2 3/8”	
17	63-3596	Battery Pack (not shown)	1

WARNINGS AND GUIDELINES

WARNING

The SARGENT 2600 Series Low-Energy Door Operator is intended to be used in low-energy handicap applications. Guidelines for low-energy can be found in ANSI Standard A156.19, American National Standard for Power Assist and Low-Energy Power Operated Doors.

Generally speaking, low-energy doors move slowly, and therefore generate minimal levels of kinetic energy. SARGENT recommends that the hold-open time for a low-energy door be not less than 10 seconds. Also, local fire codes requirements for hold-open time should be taken into consideration.

Minimum opening and closing times for doors of various widths and weights are summarized in the table below.

Minimum Opening Time to Back Check or 80 deg or Minimum Closing Time from 90 deg to Latch Check or 10 deg

"D" Door Width in Inches	"W" Door Weight in Pounds				
	100	125	150	175	200
30	3.0 sec	3.0 sec	3.0 sec	3.0 sec	3.5 sec
36	3.0 sec	3.5 sec	3.5 sec	4.0 sec	4.0 sec
42	3.5 sec	4.0 sec	4.0 sec	4.5 sec	4.5 sec
48	4.0 sec	4.5 sec	4.5 sec	5.0 sec	5.5 sec

Doors of other weights and widths can be calculated using the formula:

$$T = D \frac{\sqrt{W}}{133 \text{ lb-ft}}$$

Where: T = Time in sec

D = Door width in inches

W = Door weight in lb

CLOSING FORCE MUST NOT EXCEED 15 LB FOR A LOW-ENERGY APPLICATION. IF CLOSING FORCE EXCEEDS 15 LB, THE DOOR WILL NOT MEET THE REQUIREMENTS OF ANSI STANDARD A156.19, AMERICAN NATIONAL STANDARD FOR POWER ASSIST AND LOW ENERGY POWER OPERATED DOORS.

LATCHING SPEED MUST BE SUCH THAT THE DOOR TAKES AT LEAST 1.5 SEC TO MOVE FROM LATCHING SPEED STARTING POINT TO FULLY CLOSED.

WHEN INSTALLATION IS COMPLETE, SET CONTROL POINT 15 TO 1, FIRE DOOR MODE. WHEN A FIRE ALARM IS ACTIVATED, THE DOOR IS OPENED MANUALLY AND CLOSED UNDER POWER. IF THIS SETTING IS NOT 1, THE DOOR WILL NOT ACHIEVE UL COMPLIANCE.

FEATURES AND FUNCTIONS

- Programmable door weight up to 275 lbs. (125 Kg)
- All functions are programmable at the Operator or using an optional hand held programmer.
- Door can be activated by a delayed or non delayed impulse (See wiring)
- Battery backup for closing during fire or loss of power
- Adjustable hold open time 0-60 seconds
- Push and go manual opening (Intended to assist physically challenged only)
- Built in 12 or 24 VDC power supply for external locking devices(800mA max @ 24VDC)
- Lock control relay NO/NC operation
- Concealed wiring, standard

INSTALLATION PROCEDURE

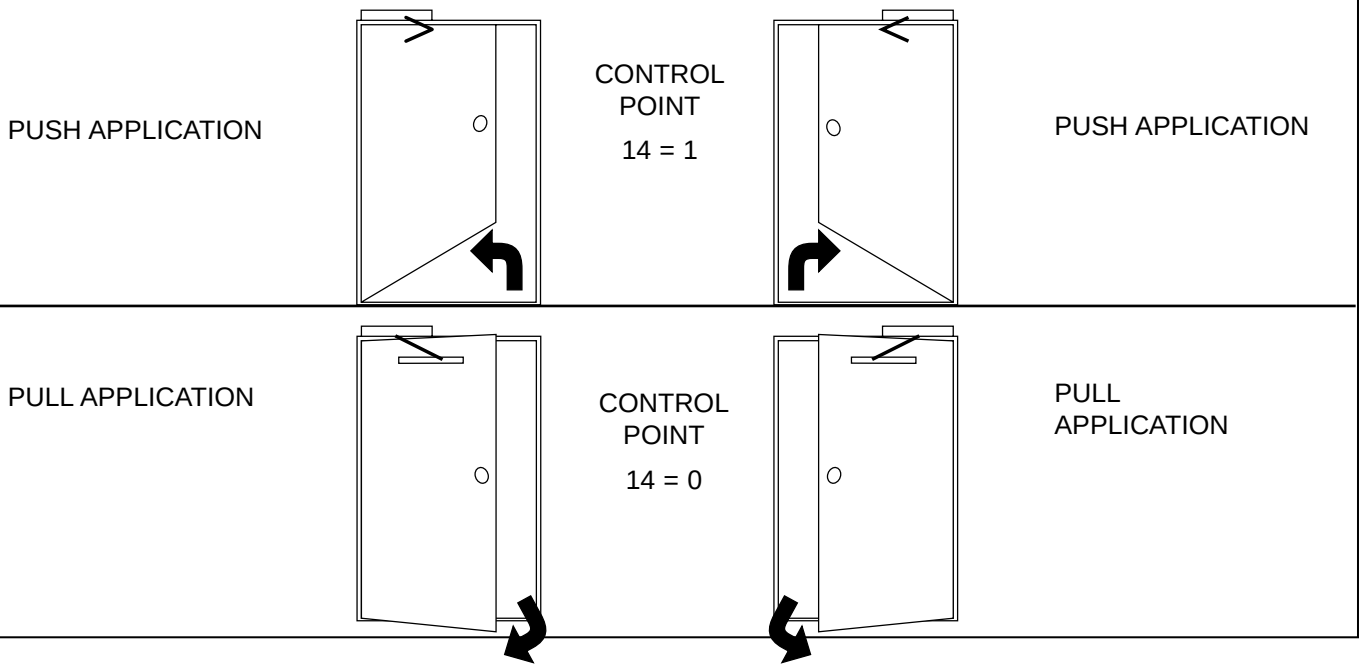
Tools Required

- Electric drill • 2 Flat blade screwdrivers
- 6 mm Allen wrench - Supplied
- 4 mm Allen wrench - Supplied
- #2 Phillips head screwdriver
- #7 drill
- #12-24 tap for metal doors

NOTE: DOOR STOP IS REQUIRED TO ENSURE PROPER OPERATION OF THE DOOR OPERATOR.

Identify Door Application

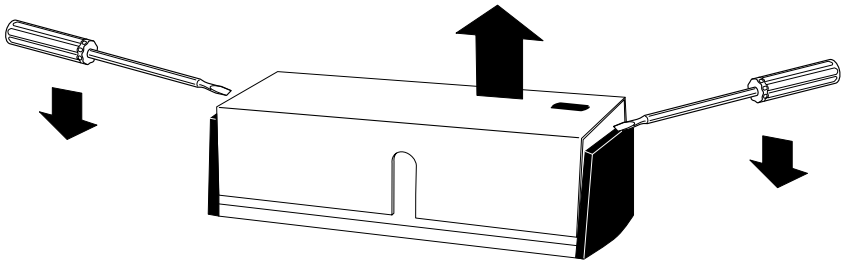
Identify your type of application. This value will be necessary for programming. The 2600 Series Swing Door Operator can be installed in any of four applications:



GO TO APPLICABLE INSTALLATION INSTRUCTIONS ...

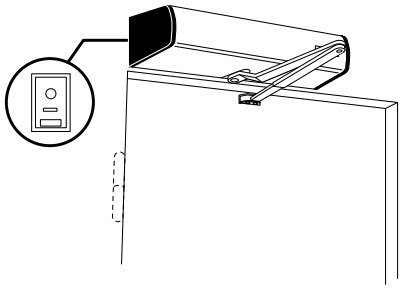
PUSH TYPE APPLICATION INSTALLATION INSTRUCTIONS

Step #1: Carefully remove the cover using two flat screwdriver as shown.



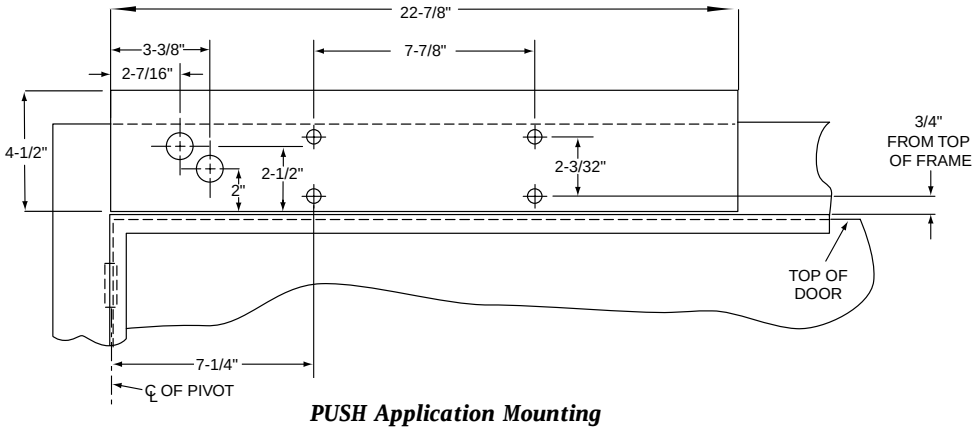
Operator Housing Removal

Step #2: Drill and tap four #12 holes with a #12 x 24 tap and mount the mounting plate to the door frame using four #12 x 24 flat head screws. The conduit end of the mounting plate is to be positioned near the hinge side of the frame.



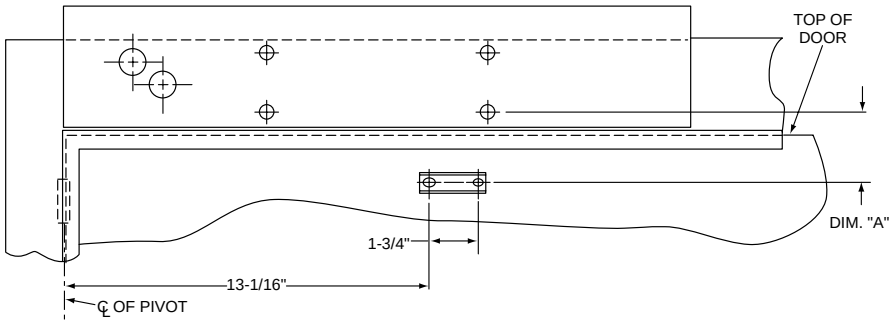
Opening Angle Max. 100°

2651/2652 Shown



PUSH Application Mounting Plate Hole Locations

Step #3: Drill and tap (two places) door arm foot or slide track holes with a #7 drill. Tap holes 12 x 24.



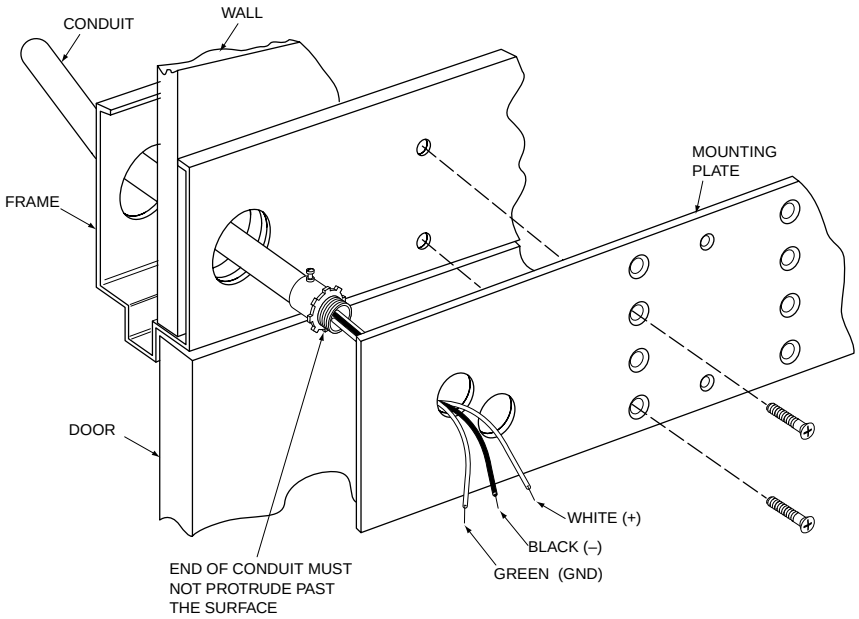
PUSH Type Arm Application

DIM "A"	SPINDLE EXTENSION
1-9/16"	—
1-15/16"	63-0603
2-3/8"	63-0604
3-15/16"	63-0605

PUSH TYPE APPLICATIONS INSTALLATION INSTRUCTIONS

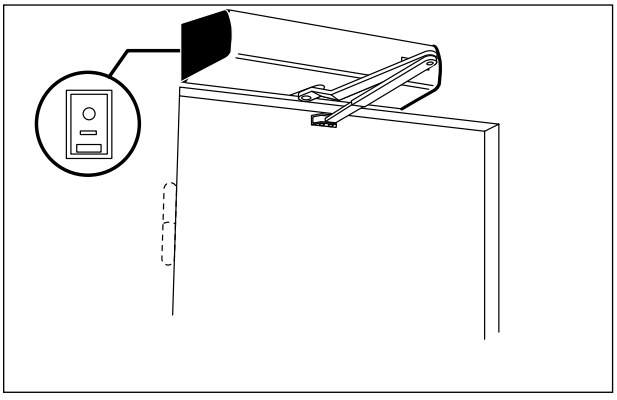
WARNING: Ensure that 115VAC power is OFF before touching wires.

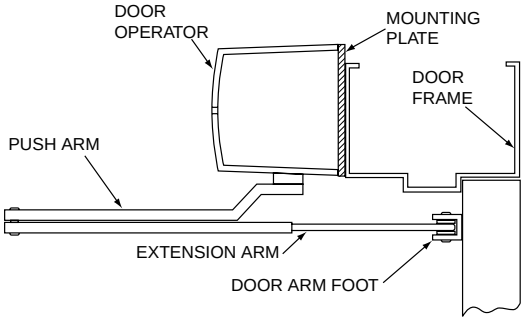
Step #4: Pull conduit and external component wires through frame and cutout in mounting plate. Allow at least 10 inches of exposed wire for electrical connections.



Step #5: Mount the door operator to the mounting plate with four M8x25 screws and washers provided.

Note: Mount the operator with the power switch end cap toward the door hinge.

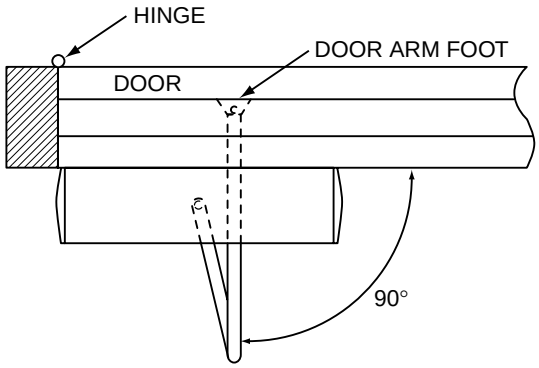




PUSH TYPE APPLICATION INSTALLATION INSTRUCTIONS

Step #6: Mount the push arm.

- Attach the push arm to the door operator spindle using the longer 8mm bolt and lock washer provided
- Attach the door arm foot with two screws
- Position the door arm foot 90 degrees with the door in the closed position and tighten with two 4mm screws



PULL TYPE APPLICATION INSTALLATION INSTRUCTIONS

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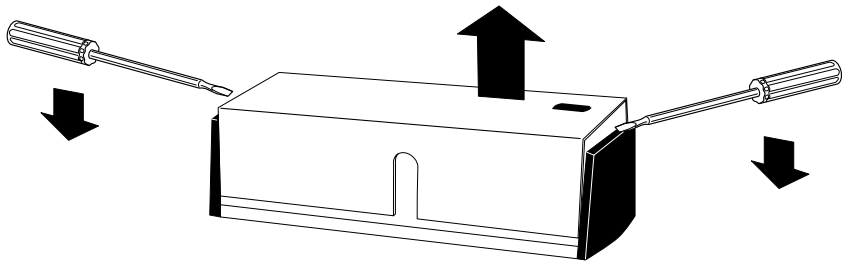

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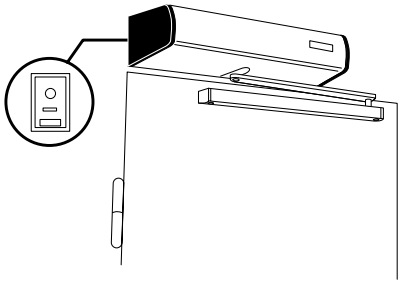
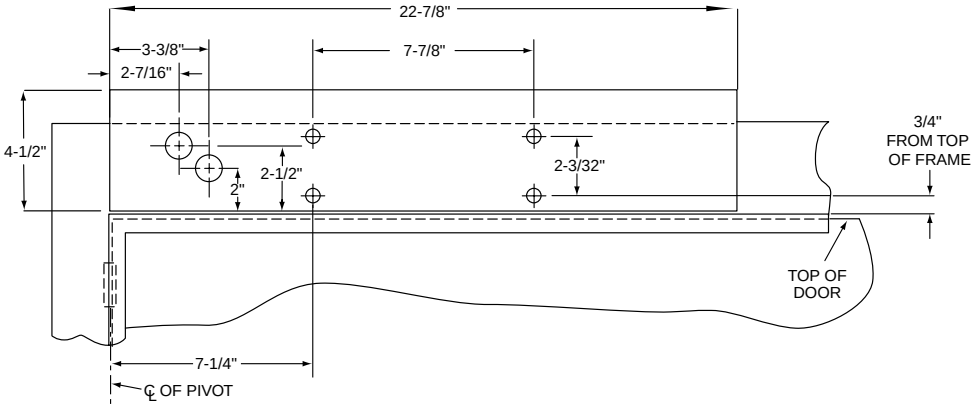


Opening Angle Max. 100°

2660 Shown



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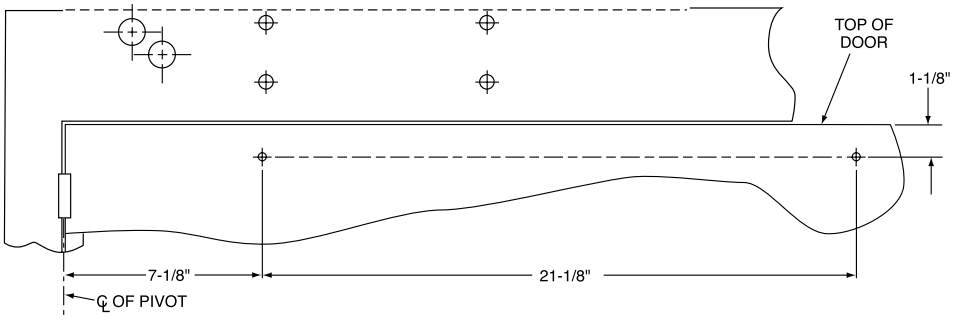

PULL Type Arm Application

PULL TYPE APPLICATION INSTALLATION INSTRUCTIONS

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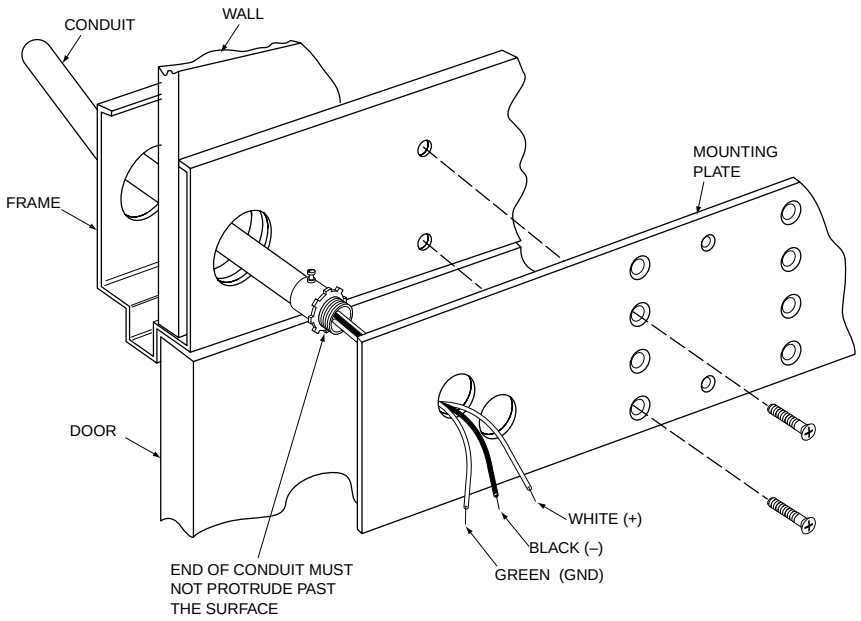
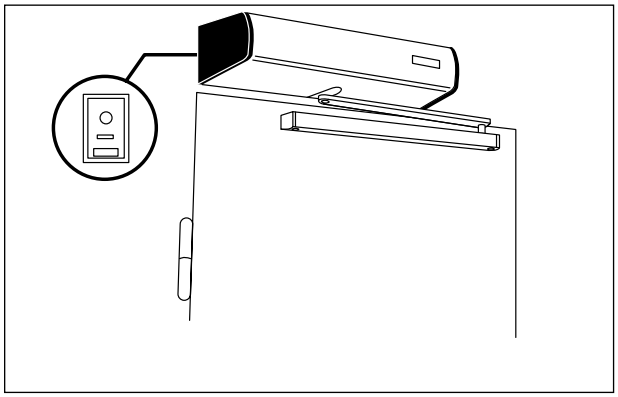
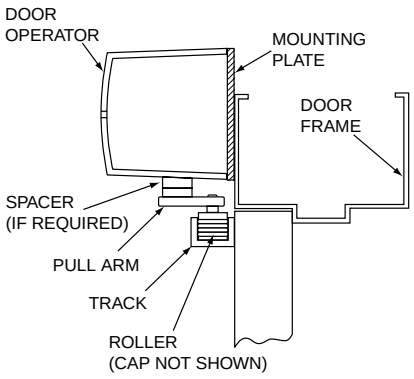


Step #5: Mount the door operator to the mounting plate with four M8x25 screws and washers provided.

Note: Mount the operator with the power switch end cap toward the door hinge.

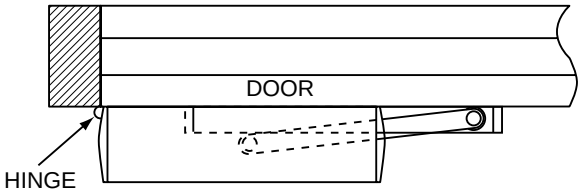




PULL TYPE APPLICATION INSTALLATION INSTRUCTIONS

Step #6: Mount or slide track.

- Attach the slide track with two Phillips screws provided
- Place door arm roller into track
- Line up key way of door arm to the operator spindle
- Attach the door arm to the operator spindle using the longer 8mm bolt provided



INITIAL ELECTRICAL CONNECTIONS

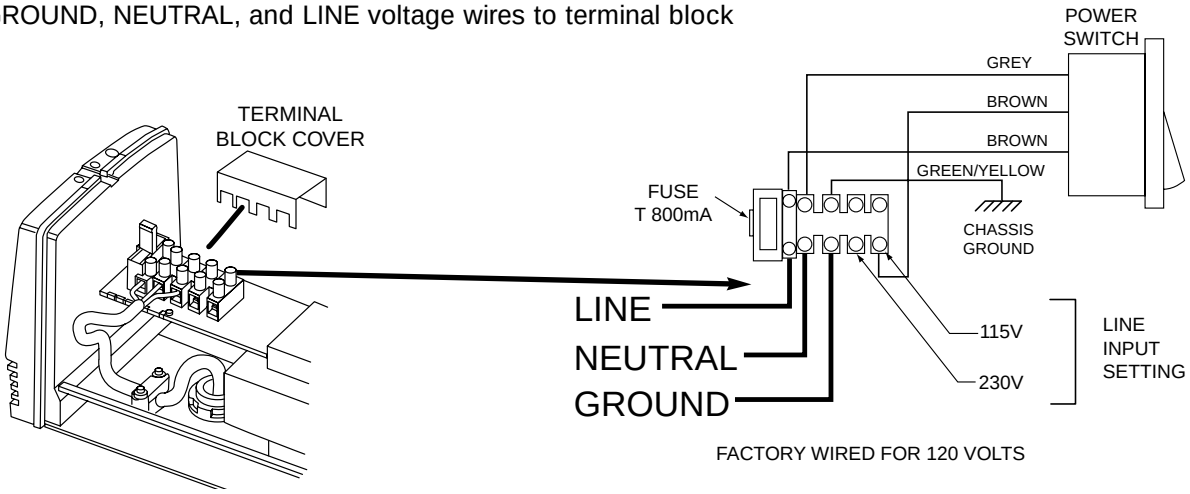
Step #1: Make electrical connections to the operator.

WARNING: Electrical connections should be made by a qualified electrician.

Power Requirements:

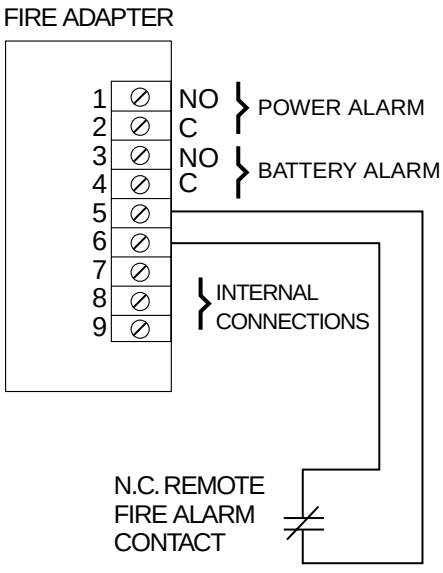
115 VAC, 15 Amp service for one or two operators. Use a dedicated 20 Amp service for three or four operators.

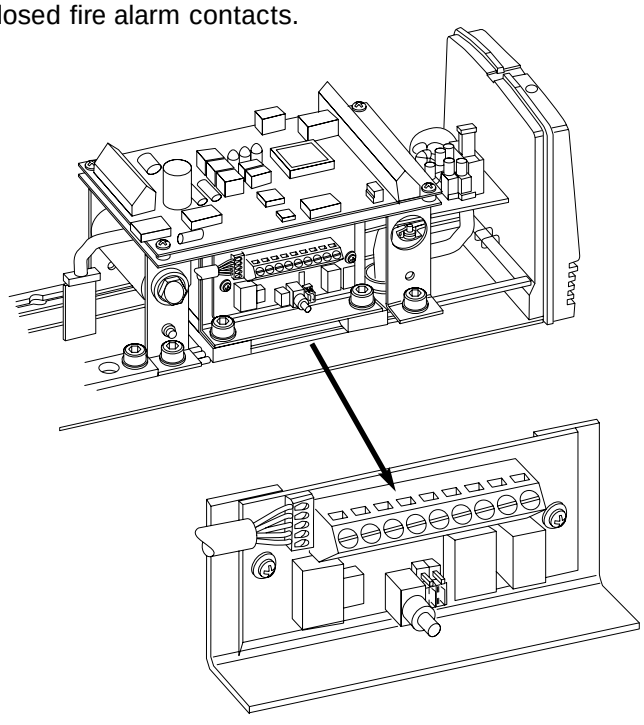
- Be sure main breaker is disconnected
- Remove cover from terminal block
- Attach GROUND, NEUTRAL, and LINE voltage wires to terminal block



Step #2: Make electrical connections, connect external fire alarm system.

Note: Remove factory installed jumper when connecting to a remote fire alarm system. Fire adapter is factory configured for Normally Closed fire alarm contacts.





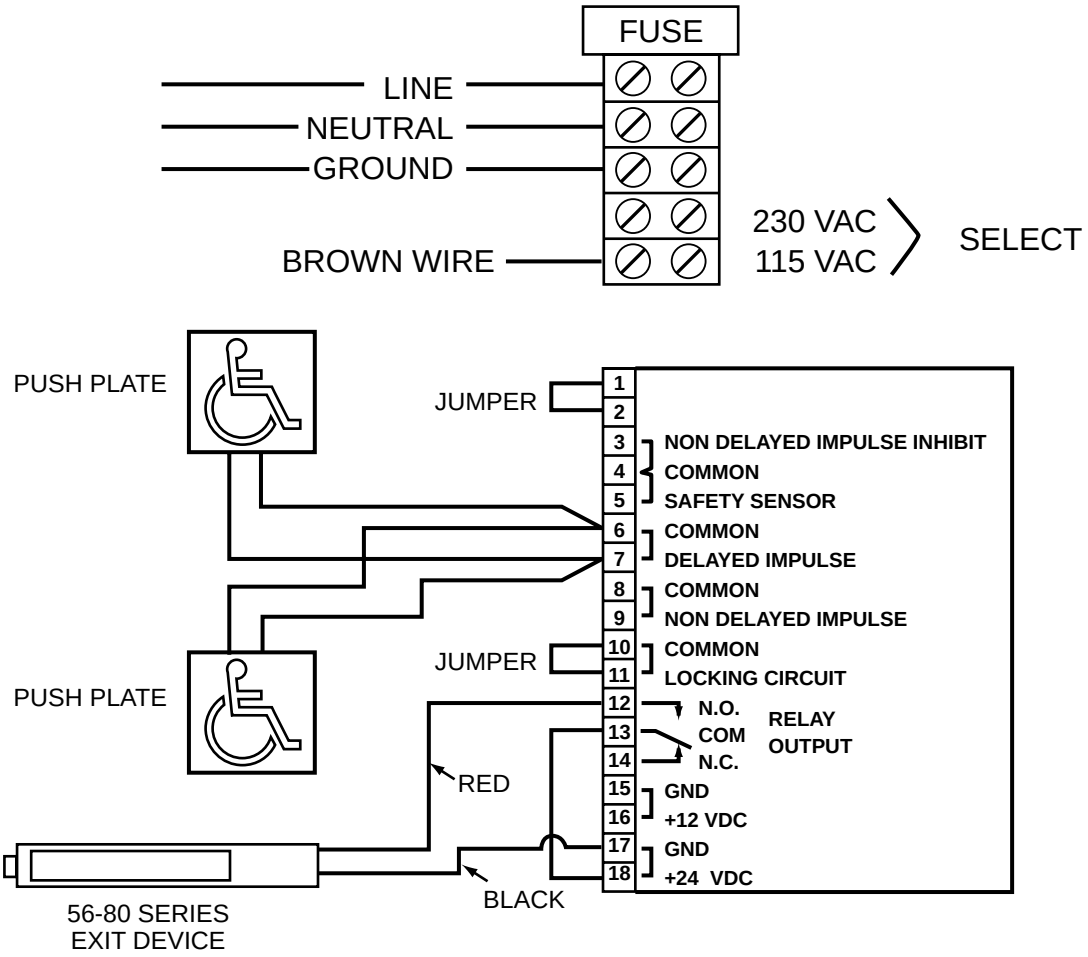
INITIAL ELECTRICAL CONNECTIONS

Step #3: Connect Push Plates and Locking Devices as shown below.

Note: An electric strike could be wired in place of a 56-Latch Retraction Exit Device.

External Wiring: 56-80 Series Exit Device

Operation Description: The push plate signals the 2600 door operator which retracts the latchbolt(s) of exit device after a field adjustable preset delay on the operator, the door will open.



External Connections

External Connections are connections to remote equipment. For example, a switch, sensor, or latch retraction exit device.

Only voltage-free (dry contact) switches can be used to control the SARGENT 2600 Series Low-Energy Swing Door Operator. The total resistance of the control switch and its wiring must not exceed 100 ohms when the switch is closed.

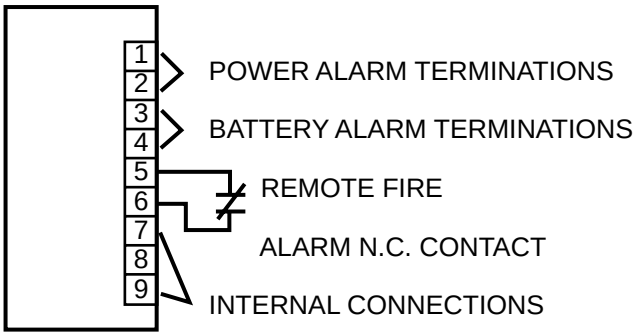
Connections include a program selector, a normal or delayed pulse, and a locking circuit connection. One of the wires running to the switch carried +5V and the other the ground level of the Control Unity, when the switch is open.

SET ALARM JUMPERS

Power Alarm - Terminations 1 & 2 on the Fire Adapter Board

Normally Open Contacts close when the main 115 VAC power is disrupted. This action is unaffected by the jumper positions or loss of battery power.

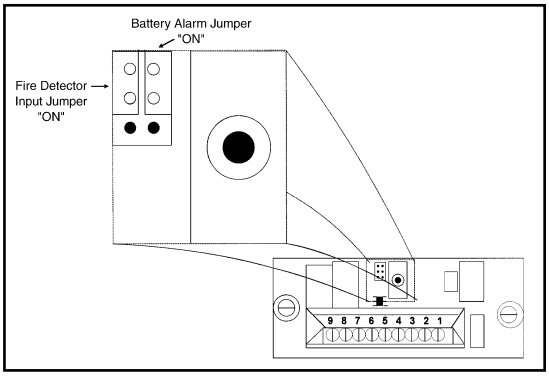
BATTERY ALARM AND FIRE ADAPTER



WARNING: Fire Alarm jumpers MUST be properly set with connectors from an approved fire system. Check your local code requirements.

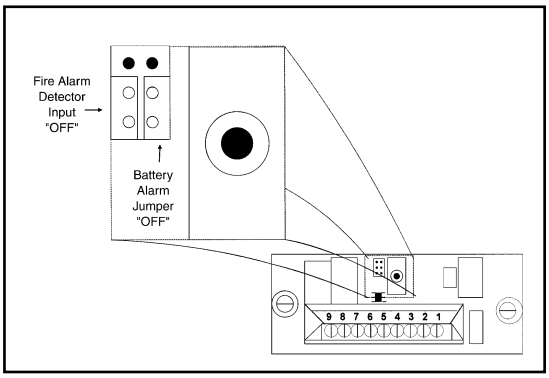
Fire Alarm Detection Jumper

JUMPER POSITION	FUNCTION / OPERATION
"ON"	Normally Open Fire Alarm contact required
"OFF"	Normally Closed Fire Alarm contact required



Battery Alarm Jumper

JUMPER POSITION	FUNCTION / OPERATION
"ON"	Maintained Low Battery Alarm: Normally Open contacts 3 & 4 close, initiating alarm. Must be Reset by push button.
"OFF"	Momentary Low Battery Alarm: Low or disconnected battery condition close contacts 3 & 4 momentarily.



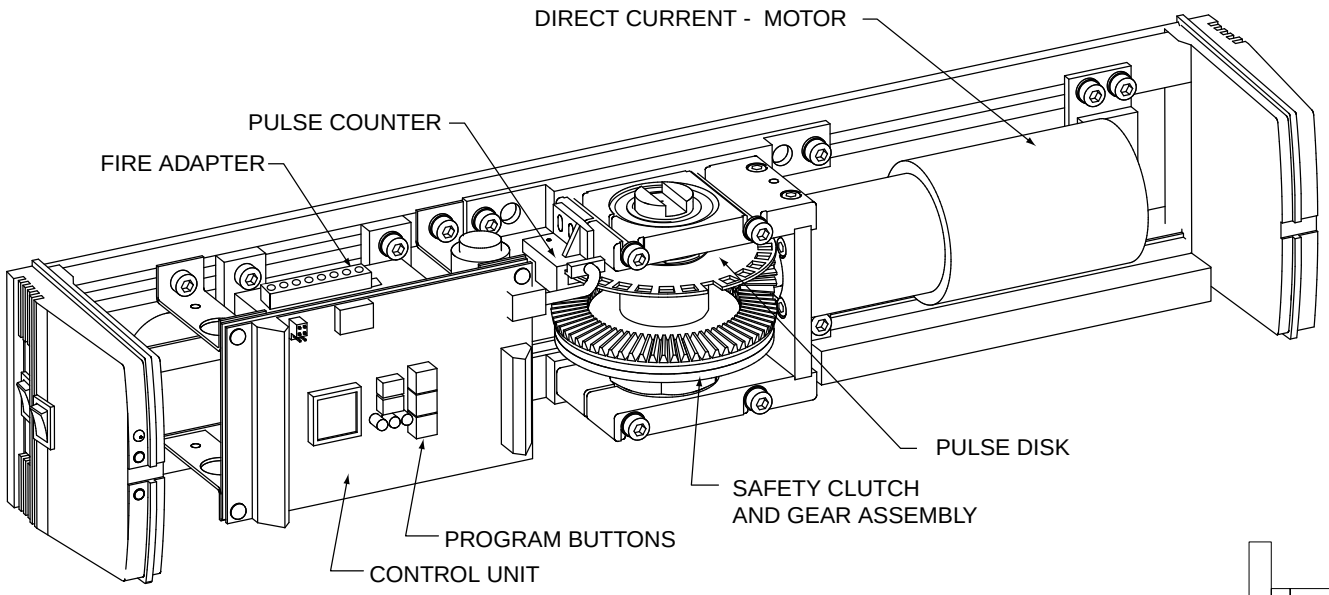
DETAILED PROGRAMMING

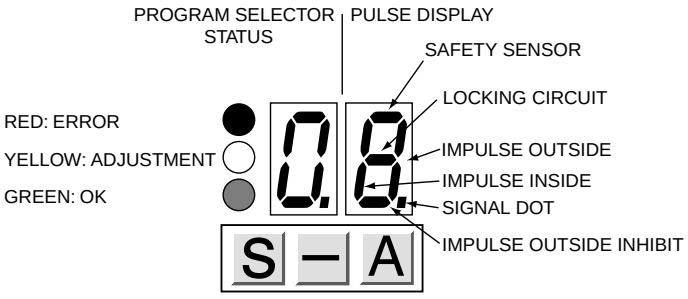
INITIAL SET UP AND PROGRAMMING

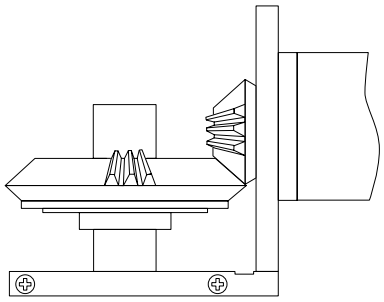
Introduction: Each opening may have individual setting requirements determined by the required function, door size and location and compliance issues. For compliance questions, consult with ANSI requirements or inquire with your local jurisdiction. For special applications or other assistance, consult the factory at 800-810-9473.

Programming With the Control Unit

To access the Control Unit, remove the Operator cover.







(SIDE VIEW SAFETY CLUTCH AND GEAR ASSEMBLY)

Display & Program Buttons

In above view, when you press any of the three program buttons, the left display shows the status of the function switch:

0 = Manual: The door is opened manually, and closed under power.

1 = Auto: The door is opened and closed under power.

2 = Hold Open: The door is held indefinitely at the fully open position.

DISPLAY AND PROGRAM BUTTONS

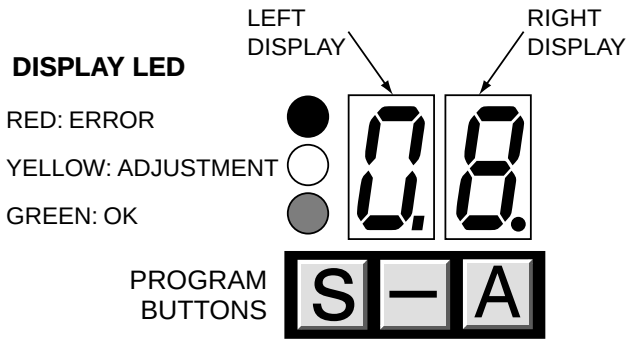
Before Turning Power On

STEP 1: Familiarize yourself with the Program Buttons.

The **S** button "selects" control points 00 ..... 27 and sets the value of the control point.

The **A** button adjusts the control point value.

The – button decreases the control point **S** selection or **A** adjustment.



STEP 2: Set the Power Switch "OFF" and the Mode Selector switch to "MANUAL".

STEP 3: NOTE: Adjusting the Pulse Disk MUST be done first before testing operation. With power "OFF", manually open and close the door to verify the door and operator move smoothly. Observe the direction of spindle rotation during **CLOSING**.

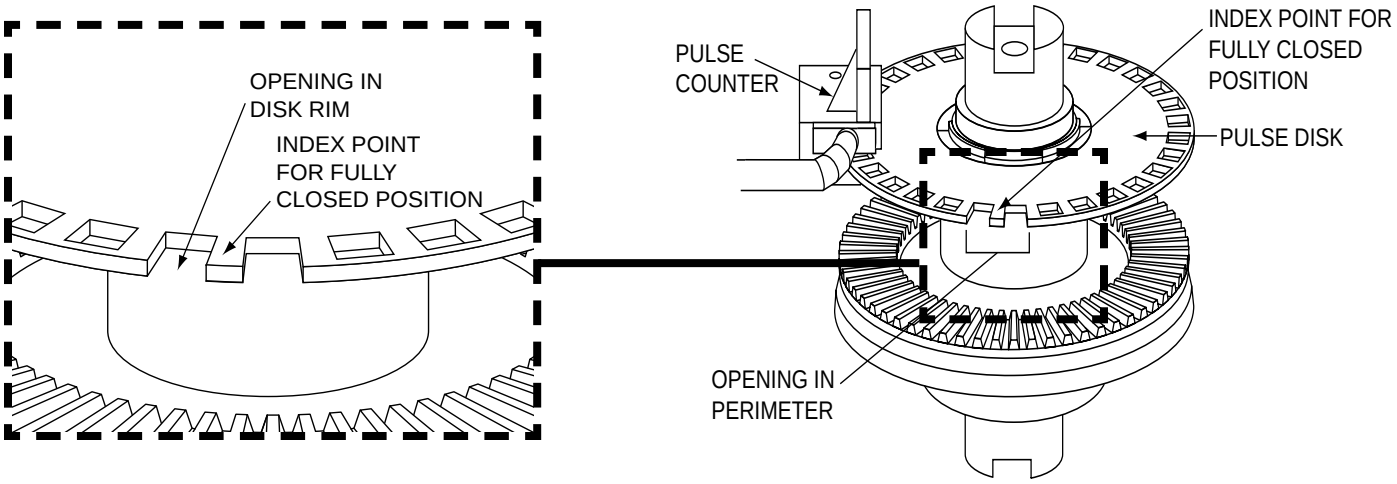
STEP 4: With the door fully closed, turn the power switch to "ON". The RED LED at the end of the operator should be LIT.

If light is not lit, refer to "Restore Factory Settings".
If the light is lit, go to Step 5.

STEP 5: Manually rotate the disk in the direction established for CLOSING until the RED LED turns off. Opening in disk rim goes into the pulse counter. **BE CAREFUL: Do not over travel**.

Restore Factory Settings:

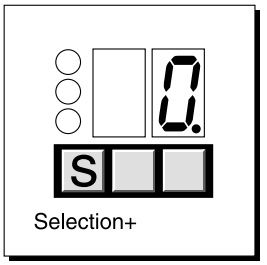
1. Set function switch to MANUAL.
2. Set Control Point 14 to a value of "2".
3. Press the "S" button to enter the value.
4. Disconnect the battery.
5. Turn the door operator OFF.
6. Rotate the pulse disk a couple of inches in the direction the spindle turns to open the door.



DISPLAY AND PROGRAM BUTTONS

STEP 6: Setting Control Points 14 and 15.

- Turn power ON
- Set function switch to MANUAL



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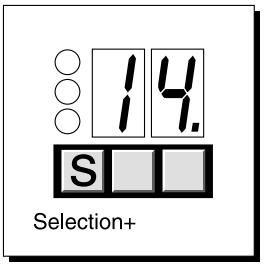
CONTROL POINT 14:

1. Press and hold the **S** button for at least 3 seconds until “0” appears in the left display. Ⓐ
2. After 3 seconds, “0” appears in the right display. Ⓐ
3. Press the “S” button until the value displayed is equal to 14 (If you go beyond 14, press the “-” button to decrease the value). Ⓑ
4. Press and Hold the “A” button until the yellow LED blinks. Set the value to “0” for PULL operation or “1” for PUSH operation by pressing the “A” button until the desired value appears. Press the “S” to select and set the displayed value. “15” appears. Ⓒ



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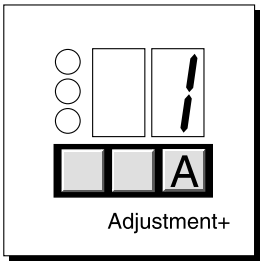

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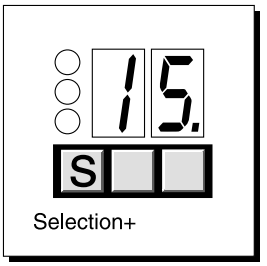
CONTROL POINT 15:

YOU MUST CONNECT THE BATTERY BEFORE PROGRAMMING FOR BATTERY OPERATION!

1. With “15” displayed, press the “A” button until “0” appears. Ⓓ
2. Press “A” again for a value of “1”. Press “S” to select and set “1” as the value. “16” will appear. Ⓔ

You are now ready to test door operation ...



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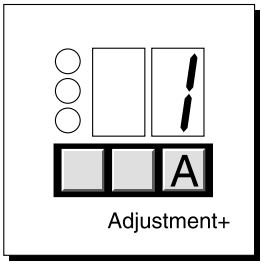
STEP 7: Test the unit.

Place the operator function switch to AUTO. Turn the power switch to the ON position. Press the push plate to activate the door. If no push plate is used, set control point 13 to 1 for PUSH AND GO operation. After a short delay, the door will cycle open. Factory settings will give you reasonable results. Most often, you will need to reset control points for door fully open position (Control Point 1). Refer to the Detailed Programming section and review the CONTROL POINTS chart for a description of the 28 control points.



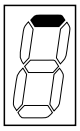
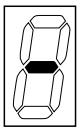
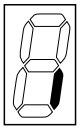
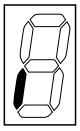
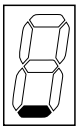
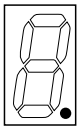
Ⓔ

DISPLAY LED’s

- The RED LED is lit when an error condition has been detected. Refer to Troubleshooting.
- The yellow LED is lit when a Control Point is being adjusted.
- The green LED is lit when the system is operating normally.

Right Display in previous view

The right display reports the status of system components by lighting individual line segments. If a line segment is lit, the component is active; otherwise it is inactive.

Right Display	Status of System Components
	Safety sensor active. A safety sensor is currently sending an impulse to the Door Operator. (Presence Sensor, InfraRed Sensor, etc.)
	Locking circuit active. An electric lock is currently sending an impulse to the Door Operator.
	Non delayed impulse. An outside device, for example a push plate, is currently sending an impulse to the Door Operator.
	Delayed impulse. A delayed impulse device, for example a master door, is currently sending an impulse to the slave Door Operator.
	Inhibit non delayed impulse. Impulses from non delayed devices are currently inhibited; that is, not being accepted by the Door Operator.
	Signal dot. The signal dot is displayed when a Control Point has been selected using the “+” button. The signal dot disappears when a Control Point has been selected, and validated by pressing the “+” button.

PROGRAMMING A CONTROL POINT

Programming a Control Point

Control Points are programmed by means of the three pushbuttons,

S (Control Point Selection), – (Decrement), and **A** (Adjust control Point value).

Procedure

1. Press and hold the S button until the yellow LED is lit (3 sec for a normal Control Point, 5 sec for a sealed Control Point).
   - The number of the currently active Control Point is displayed
   - A signal dot appears in the right display
2. To display the next higher Control Point number, press the S button; to display the next lower Control Point number, press the - button.
3. Select the Control Point to be adjusted
4. When the number of the Control Point to be adjusted is displayed, press the A button.
   - The current value of the Control Point appears in the displays
   - The yellow LED flashes, except for a sealed Control Point
   - The signal dot disappears on the right display
5. To increase the value of the Control Point, press the A button.
   To decrease the value of the Control Point, press the - button.
6. When the correct value is displayed, press the S button.
   - The value is stored in memory
   - The yellow LED remains lit but stops flashing
   - The next higher Control Point number is displayed
7. When you have finished adjusting Control Point values, test door operation. If operation is satisfactory, the door is ready for service.

Quick Reference: Commonly Adjusted Control Points

Control Point	Description	Factory Setting
0	Back Check Angle	35
1	Full Open Door Angle (100° Max.)	42
2	Close check Starting Angle	15
3	Opening / Closing Force	4
5	Opening Speed	4
6	Back Check Speed	4
9	Closing Speed	3
10	Latch Speed	3
17	Delay before opening (delayed impulse)	15

PROGRAMMING A CONTROL POINT

Control Points

The operating characteristics of the Door Operator are adjusted by means of 28 Control Points, numbered 00-27.

At the factory, the Control Points are set at values suitable for the most common swing door application:

- Function: Push See Control Point 14
- Reveal: 2.5 inches See Control Point 1
- Weight: 125 lb. See Control Point 3

You may have to change one or more of the factory settings to fine-tune the Door Operator to your specific application. The information you need to program Control Points is presented on the following pages.

There are three types of Control Points:

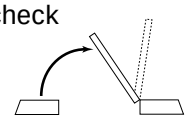
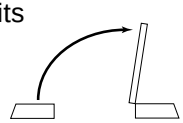
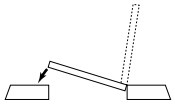
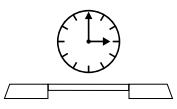
- Settings that specify a unit of measure, for example: seconds.
- Relative values, for example a scale of 1 to 10 representing a range from minimum to maximum.
- On or Off: a feature is activated or deactivated.

SEALED CONTROL POINTS

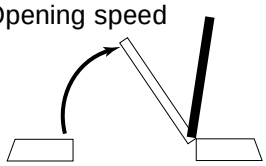
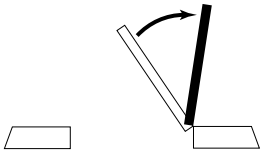
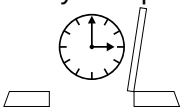
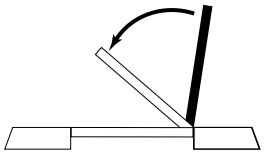
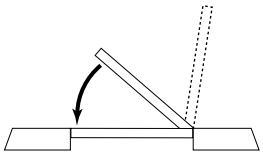
Sealed Control Points

Some Control Points are sealed. These are settings that, once programmed, seldom or never require a change. To make it less likely that a sealed setting be changed by accident, you must hold the **A** button for 5 seconds before it is possible to make an adjustment.

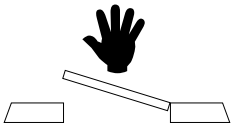
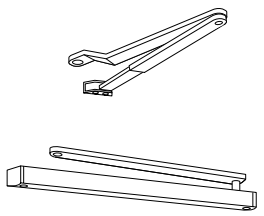
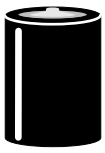
CONTROL POINTS

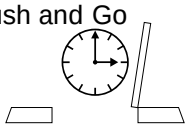
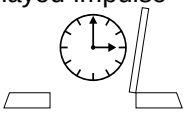
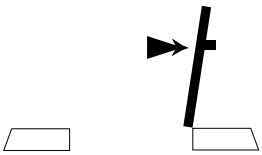
Control Point Number	Description	Value Range	Factory Setting	Comments
00	Back check angle 	3 – 60 units	35	The angle at which the opening door slows from opening speed to back check speed. Each unit in the value range approximately 2 degrees
01	Fully open position units 	3 – 60	42	The angle of the door when it is fully open. • Must be greater than the back check angle • Maximum door opening angle: 100 degrees • Each unit in the value range = approximately 2 degrees per unit
02	Latching speed starting point angle 	15 – 60 units	15	The angle at which the closing door slows from closing speed to latching speed. Recommendation: 10 degrees • Each unit in the value range = approximately 2 degrees • See Control Points Affecting Speed and Closure.
03	Operator force Sealed Control Point 	1 – 10 relative	4	The amount of force the Operator applies to the door to open or close it. 1 = minimum force 10 = maximum force • The lighter the door, the less Operator force is required. • Operator force affects obstruction sensitivity; see Control Points 12 and 19. • See Control Points Affecting Speed and Closure. *WARNING:* ***CLOSING FORCE MUST NOT EXCEED 15 LB FOR A LOW-ENERGY APPLICATION.***
04	Delay time 	0 –15 sec	1.2	When the Operator receives an “open” delayed impulse, the latching device is released immediately; however the opening of the door is delayed to give the latch time to retract. 0 = no delay 15 = about 15 sec delay

CONTROL POINTS

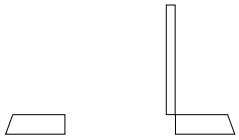
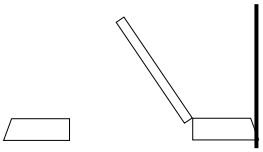
Control Point Number	Description	Value Range	Factory Setting	Comments
05	Opening speed 	1 – 10 relative	4	The speed at which the door moves from fully closed to back check. 1 = minimum speed 10 = maximum speed • Opening speed affects obstruction sensitivity; see Control Point 12.
06	Back check speed 	1 – 10 relative	4	The speed at which the door moves from back check to fully open. 1 = minimum speed 10 = maximum speed • Back check speed must be slower than opening speed. • The Operator is not a door stop. Install a door stop to prevent damage to wall or Operator.
07	Door hold open time: Non delayed impulse 	0 – 60 sec	15	The time the door is held at the fully open position when activated by an non delayed impulse (for example, a push plate). • Door opening time starts when the door reaches fully open position.
08	Operator acceleration time Sealed Control Point 	1 – 10 relative	4	This setting controls how quickly the Operator causes the door to accelerate. 1 = minimum acceleration time (slower) 10 = maximum acceleration time (faster) • See Control Points Affecting Speed and Closing. Note: Don't accelerate too fast.
09	Closing speed 	1 – 5 relative	3	The speed at which the door moves from the fully open position to the latching speed starting point. 1 = minimum speed 5 = maximum speed • Closing speed should be slower than opening speed. • See Control Points Affecting Speed and Closure.
10	Latching speed 	1 – 3 relative	3	The speed at which the door moves from latching speed starting point to fully closed. 1 = minimum speed 3 = maximum speed • Latching speed must be equal to or slower than closing speed. • See Control Points Affecting Speed and Closure. *WARNING:* ***LATCHING SPEED MUST BE SUCH THAT THE DOOR TAKES AT LEAST 1.5 SEC TO MOVE FROM LATCHING SPEED STARTING POINT TO FULLY CLOSED.***

CONTROL POINTS

Control Point Number	Description	Value Range	Factory Setting	Comments
11	Hold-closed force Sealed Control Point 	0 – 10 relative	0	After the door reaches the fully closed position, the Operator applies this force to hold the door closed, for example when there is no latching hardware. 0 = no hold-closed force 10 = maximum hold-closed force After 1 sec. the hold-closed force is reduced to half of its initial value.
12	Obstruction sensitivity	1 – 8	3	A door may encounter an obstruction in its swing path. If the obstruction offers enough resistance, the Operator stalls the door. This setting controls the amount of resistance the door can encounter before it stalls. 1 = minimum sensitivity (minimum resistance) 8 = maximum sensitivity (maximum resistance) If the door is opening, the Operator attempts to open it two times at intervals of 3 sec until the open time has elapsed. If the door is closing, the Operator attempts to close it five times at intervals of 3 seconds and then five times at intervals of 15 seconds. If the obstruction is still present, the Operator attempts to close the door at intervals of 60 seconds. • See Control Point 19. • See Control Points Affecting Speed and Closure.
13	Push and go 	1 or 0 on/off **INTENDED TO ASSIST PHYSICALLY CHALLENGED ONLY**	1	Turn the Push and Go feature on or off. When a pedestrian applies manual force to the door and opens it 6 deg, the Push and Go feature takes over opening the door. 1 = Push and Go feature on 0 = Push and Go feature off.
14	Selection of arm 	0 - 2	1	The standard arm is used in push-function Operators 2651 and 2652; the sliding arm is used in pull-function Operator 2660. 0 = Pull (sliding) Arm. 1 = Push Arm. 2 = Set pulse disk to closed position or resetting to factory settings. Note: You must set the arm selection to 0 or 1 after adjusting closed position.
15	Battery operation 	1 or 0 on/off	0	Battery operation is a required feature. When AC power is lost, the battery takes over and provides power for fire door operation 0 = No battery. This is a factory default setting and MUST be changed to battery operation during installation 1 = Fire door mode. When a fire alarm is activated, the door is opened manually and closes under battery power. Note: When installation is complete, set Control Point 15 to 1. WARNING: IF THIS SETTING IS NOT 1, THE DOOR WILL NOT COMPLY WITH UL.

Control Point Number	Description	Value Range	Factory Setting	Comments
16	Door hold open time: Push and Go 	0 – 60 sec	8.0	The time period for which the door will be held at the fully open position when the Push and Go feature is active (Control Point 13 is set to 1). • For a typical Push and Go application, the door opening time should be 10 sec.
17	Door hold open time: Delayed impulse 	0 – 60 sec	15	The time period for which the door will be held at the fully open position when a delayed impulse is received by the Operator. • For a typical push-plate application, the door opening time should be 15 sec.
18	Operation of latching device relay	1 or 0 on/off	0	A latching device can be controlled by the Operator. 0= In Auto mode, when the Operator receives an impulse, the latching device relay is activated and the latching device is energized. 1= In Auto mode, when the Operator receives an impulse, the latching device relay is not activated and the latching device is not energized.
19	Stall feature (Closing Direction)	1 or 0 on/off	0	Selection of obstruction sensitivity feature operation in closing direction. 0= The door stops and does not move. 1= The door stops, then reopens to the fully open position. • See Control Point 12.
20	Hold-open force  Wind Condition	0 – 10 relative	0	While the door is fully open, the Operator holds it against the door stop to prevent the door from moving, for example because of wind pressure. 0 = No force 10 = Maximum force • Specify this setting after the fully open position has been established. See Control Point 01.
21	Latching device unload force 	0 – 10 relative	0	While the door is in the fully closed position and receives an “open” impulse, the Operator forces the door against the frame stop for 1 sec, making it easier for the latch to release. 0 = No force 10 = Maximum force
22	Latching device relay hold time	1 – 10 sec	2	This setting controls the length of time that the lock control relay is activated. • In a fire door application, the latching device relay hold time should be set to the minimum. • Used for latch retraction devices or electric strikes.

CONTROL POINTS

Control Point Number	Description	Value Range	Factory Setting	Comments
23	Sequencing Sealed Control Point 		0 DO NOT CHANGE	Sequencing (Consult Factory) 1 = A doorway has a pair of doors, one active, the other inactive. The active door is equipped with an astragal (lip). The active door must open first; the inactive door must close first.
24	Sealed Control Point		0 DO NOT CHANGE	NOT USED
25	*Push-open/ push-closed function 	1 or 0 on/off	0	This feature is used when it is inappropriate to specify a door opening time, because of a requirement to hold the door open for a long period of time. 0 = Normal operation (impulse opens door; door closes automatically) 1 = An impulse opens the door. The Operator holds the door open until either: If the door opening time is set to 59 sec. or less in Control Point 07, 16 or 17, the door closes automatically when the door opening time expires; or * If the door opening time is set to 60 sec in Control Point 07, 16 or 17, the door does not close until a second impulse is received.
26	Cycle Counter 	0 – 655355	00	The counter displays the number of times the door has cycled (opened and closed), scrolling two digits at a time starting from the left.
27	Sensor detection zone 	0 – 60	45	A safety sensor can be mounted on the door. This sensor monitors a detection zone, and stops the door when it detects an obstruction. The detection zone changes continually as the door moves through its swing path. If, for example, there is a wall adjacent to the door, the sensor may detect the wall and stop the door before it reaches the fully open position. To prevent this, you can deactivate the sensor just before it reaches the opening angle at which it would detect the wall. Use this Control Point to specify this angle.

CONTROL POINTS AFFECTING SPEED AND CLOSING FORCE

Control Point	Description	Effect on Speed	Effect on Closing Force
2	Starting point of final speed in closing direction.	The higher the value, the earlier the final (lower) speed begins when closing.	
3	The maximum current level allowed for motor. 1 = minimum current 10 = maximum current	If the value is too low, the current is limited, which may cause door speed to be decreased.	Limits the current (and power) to the desired level. Together with Control Point 12, it also sets the current level at which the safety feature is activated.
8	The allowed level for the current to increase in a millisecond. 1 = minimum rate of increase 10 = maximum rate of increase	If the value is too low, the current is limited, which may cause the speed to be decreased.	When the value is low, large changes in current are not allowed, which makes the door movement smoother. High value causes the safety feature to be activated sooner.
9	Closing speed adjustment.	1 = minimum closing speed 5 = maximum closing speed	The kinetic energy is minimum when the speed is lowest.
10	Final speed when closing.	1 = minimum final speed 3 = maximum final speed	The kinetic energy is minimum when the speed is lowest.
12	Safety feature sensitivity 1 = maximum sensitivity 8 = minimum sensitivity	Too low a value may stop the door for a few seconds during closing.	Together with Control Point 03, it sets the current level for the safety feature to be activated. When the safety feature activated, the door movement is arrested.

Programming Suggestions

Door safety is controlled by basic adjustments, particularly Operator force and door speeds.

- The Operator force is an important adjustment. A high value affects both the obstruction sensitivity feature (Control Point 12) and the stall feature (Control Point 19).

WARNING: CLOSING FORCE MUST NOT EXCEED 15 POUNDS FOR A LOW-ENERGY APPLICATION.

- High speed increases the energy transferred in the door, and may cause it to stop incorrectly.

1. Typically, low-energy doors have settings in the range 1 - 4 for Control Points 05, 06, 09 and 10.
2. Adjust the reaction time (Control Point 08) to maximum (10).
3. Adjust the obstruction sensitivity feature (Control Point 12) to lowest value (1).
4. Adjust the Operator force to a low setting, ensuring the obstruction sensitivity feature activates on door moving.
5. Adjust the obstruction sensitivity feature ensuring movement of door. If the value 8 is not sufficient, increase force by one value.
6. Adjust the door opening times (Control Points 07, 16 and 17).

BATTERY OPERATION

WARNING:

If the door operator is to be set up with speeds and forces that exceed ANSI standard A156.19, Low Energy Requirements, the safety sensors must be provided, and the door must be installed in accordance with ANSI A156.10. Contact your local automatic door service company to perform the installation.

Battery Operation

A 12 V battery provides a backup power supply for **closing the door** in two situations:

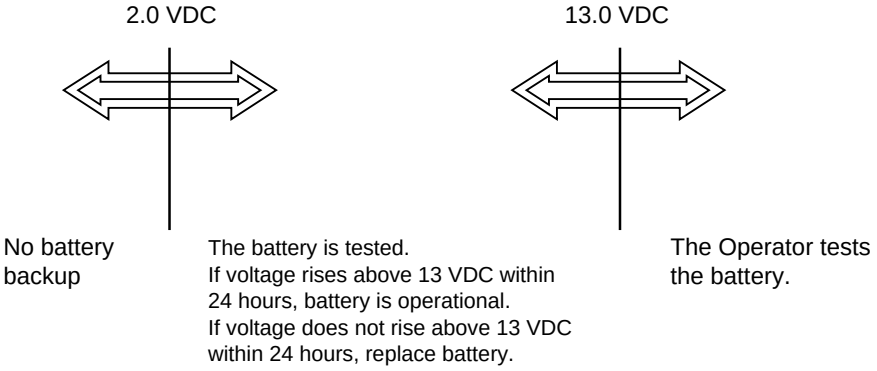
- When the door is used as a fire door
- When a power failure occurs

Note: Battery included must be recharged at 6 month intervals.

Fire Door Use

When the fire alarm is activated, the Door Operator reverts to Manual mode. If the door is open, it closes after a preset delay. Thereafter the door is opened manually and closed automatically after a preset hold open delay.

Battery Test



The battery voltage is checked by the Operator:

While the Operator power is switched on, the Control Unit tests the battery by loading it with 0.4 Amps for 30 seconds. Once the battery is fully charged, it is tested every 12 hours from then on.

- If voltage rises above 13 VDC the battery is good.
- If the voltage does not rise above 13 V after 24 hours of charging, the battery must be replaced.

After the first test, there is no battery alarm for the first 12 hours; then the battery is tested every 12 hours. If voltage falls below 11.5 V, the red LED on the end of the Operator flashes and the battery adapter will provide a signal at a remote monitoring station (if used and the battery alarm jumper has been set for monitoring.) At 11.5 V, the door will cycle about 50 times or more depending how far the door was opened.

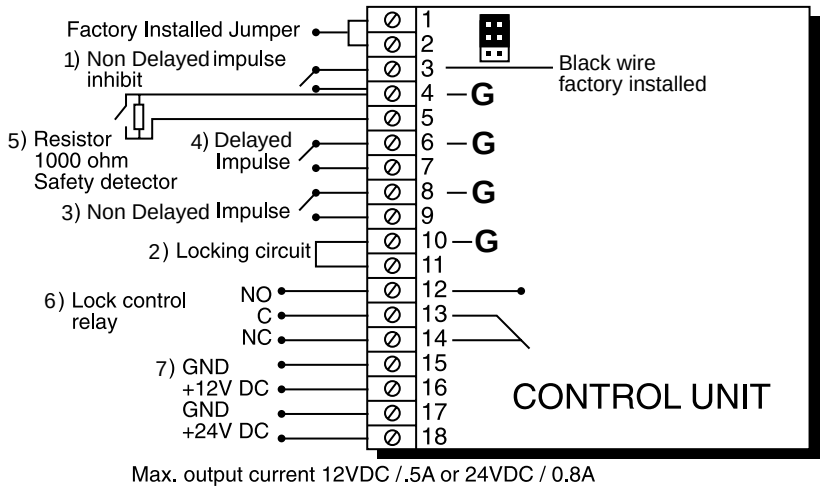
Power Failure In Fire Alarm Mode

If there is a power failure, the Door Operator reverts to battery conservation mode. The Operator is activated when door is opened manually, and closes at a reduced speed after a preset delay. If the door is open when the failure occurs, the door Operator closes it.

NOTE: When the power failure ends, the Door Operator remains in the low-energy state.
One manual opening is required to re-energize the Operator to the mode currently selected by the function switch.

Fire Adapter

A Fire Adapter sends a signal to a remote location indicating a power failure or low battery condition. The adapter is required to meet UL requirements.



Max. output current 12VDC /.5A or 24VDC / 0.8A

Functions

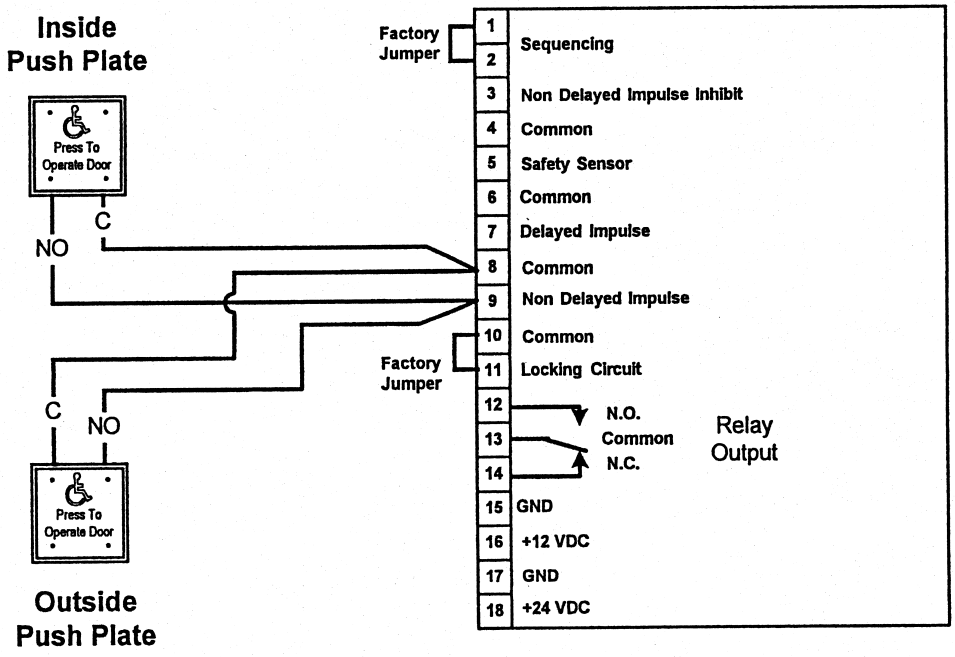
1. **Delayed Impulse Inhibit** - prevents the door opening on a delayed impulse if 3 is grounded to terminal 4.
2. **Locking Circuit** - prevents the door from opening if the circuit is open.
   For example, use a locking circuit microswitch.
3. **Non Delayed Impulse** - the door opens immediately on an impulse. The contacts of an impulse device must be potentially free and have a normally open function.
4. **Delayed Impulse** - the door opens after preset delay (0 - 15 sec).
5. **Safety Sensor** - the sensor's output relay must be voltage free with contacts normally closed. The safety circuit has a closed-circuit control. Connect the 1000 ohm resistance on the block terminal. The total resistance of the safety sensor wiring must not exceed 100 ohms when the switch is closed. The safety sensor stops a door which is about to open if an obstacle is detected in the detection zone. See Control Point 27.
6. **Lock Control Relay** - contact ratings:
   Max power: 0.8A, 30V resistive, 0.3A, 30V inductive
   The relay reacts to an opening impulse. For relay hold time adjustment, see Control Point 22.
7. **12 and 24V DC Outputs** - The Control Unit includes a 12 or 24 VDC regulated power supply with.
   Max current: 24VDC 0.8 A or 12VDC 0. 5 A.

ELECTRICAL WIRING

Typical Application #1

External Wiring: Push Plate Activation

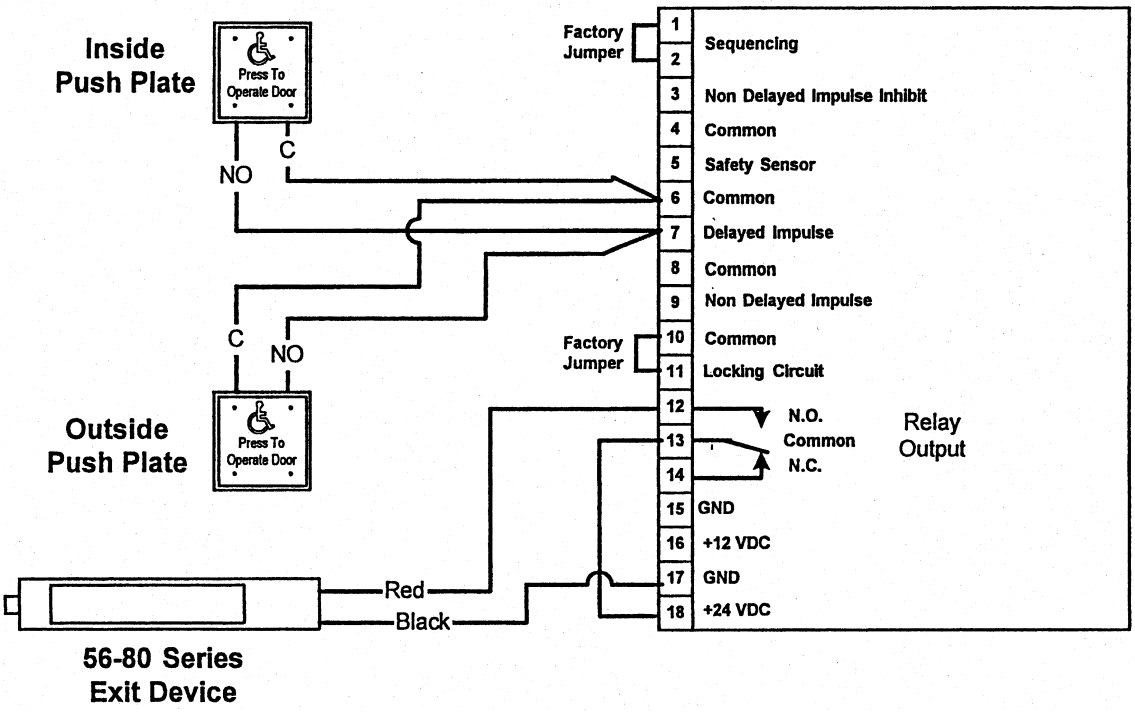
Operation Description: Free Ingress and Egress, Two-way traffic. Either push plate signals the 2600 door operator to immediately open the door automatically.



Typical Application #2

External Wiring: 56-80 Series Exit Device

Operation Description: Two-way traffic. Either push plate signals the 2600 door operator which retracts the 56- latchbolt, then after a field adjustable preset delay on the operator the door will open automatically.

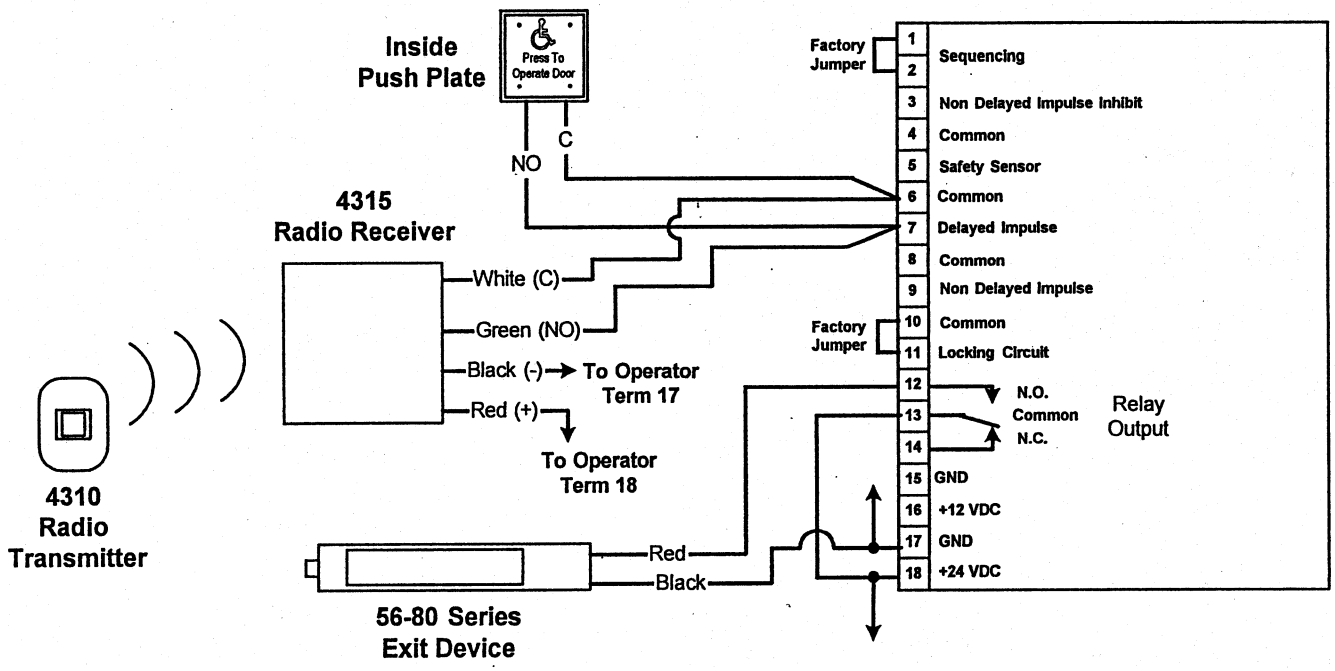


ELECTRICAL WIRING

Typical Application #3

External Wiring: 56-80 Series Exit Device, Push Plate and Radio Control

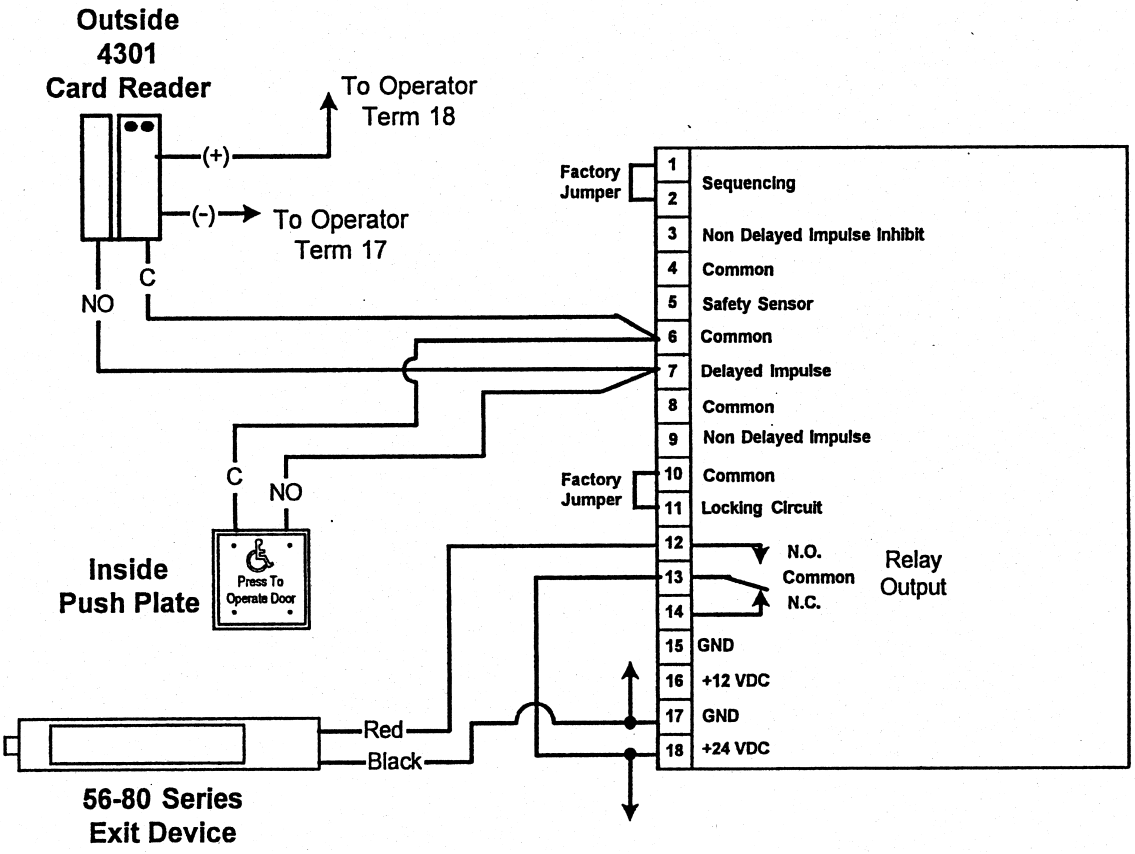
Operation Description: Two-way traffic. Depressing the 4310 Radio Control Transmitter push button signals the 4315 Radio Control Receiver which signals the 2600 door operator which retracts the 56-latchbolt, then after a field adjustable preset delay on the operator the door will open automatically. The Inside Push Plate signals the 2600 Door Operator which retracts the 56- Latchbolt, then after a field adjustable preset delay on the operator the door will open automatically.



Typical Application #4

External Wiring: 56-80 Series Exit Device, Push Plate and 4301 Card Reader

Operation Description: Two-way traffic, Authorized Entry. Swiping a card at the 4301 Card Reader or depressing the Push Plate signals the 2600 Door Operator which retracts the 56- latchbolt of the exit device, then after a field adjustable preset delay on the operator, the door will open. Either push plate signals the 2600 door operator which retracts the 56- latchbolt, then after a field adjustable preset delay on the operator the door will open automatically.

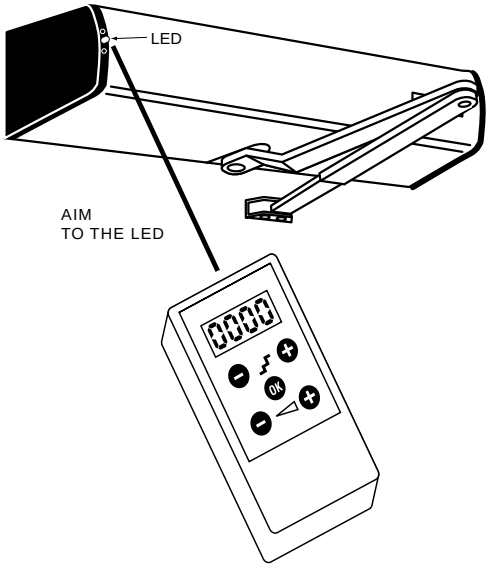


HAND HELD PROGRAMMER (optional)

You can program the Door Operator in either of two ways, using the optional remote programmer or the Control Unit on the Operator.

Programming With the Hand Held Programmer

- Hold the remote programmer within 18 inches of the red LED on the Door Operator and point the remote programmer at the LED.
- Aim the programmer towards the “Power Switch” end of the function switch.



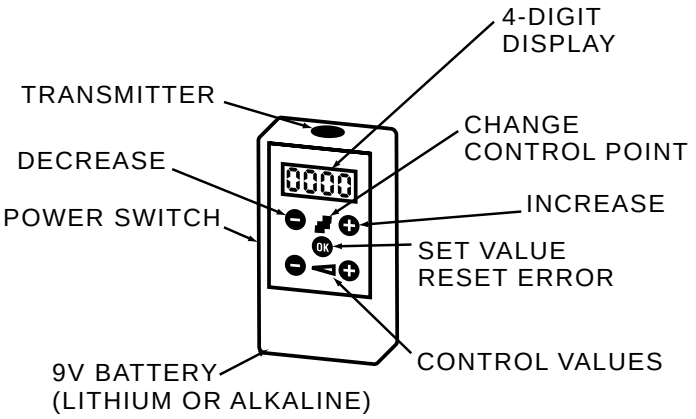
To program the Operator using the Hand Held Programmer

1. Verify that the Operator power switch is set to “ON”.
2. Set the remote control power switch to “ON”.

   Note: Four zero’s will be displayed with the first digit blinking.
3. Aim programmer toward the “Power Switch” end of the Door Operator and press “OK.” at the LED. The hand held programmer will display information about Control Point 0.

- First two digits: 00, the identifier of the Control Point.
- Second two digits: the current value of Control Point 00.

4. Use the lower - and + signs to change the value.
5. When the correct value is displayed, press OK to store the value.
6. Use the upper + sign to display Control Point 01.
7. Use the upper - and + signs to select a Control Point.
8. Use the lower - and + signs to specify the desired value for the Control Point.
9. Press OK to store the value.



USING THE HAND HELD PROGRAMMER TO RESTORE FACTORY SETTINGS

While programming the Door Operator, you may want to restore the factory Control Point settings. You may restore the factory settings in one of two ways:

1. On the Remote Control, press **OK**.
2. Press the lower + and - buttons simultaneously. The message **FClr** appears immediately, and disappears after a few seconds.
3. Set Operator power switch to **OFF**.
4. Turn the Operator pulse disk 1/4 turn in the **OPENING** direction.
5. Set Operator power switch to **ON**. The red LED is lit, and the factory settings are restored.
6. Rotate the pulse disk in the closing direction until the red LED on the end of the Operator goes off.
7. Refer to Quick Start Instructions for programming the Door Operator.

TROUBLESHOOT COMMON PROBLEMS

Note: If the door does not perform properly when first tested, it could be the result of one of the following problems.

Troubleshooting common start up problems.

	Problem	Cause
1	Door operator applies closing force when activated to open	Control Point 14 is set to wrong value of 0 or 1. Swap the value to change handing. Or… Pulse disk was turned in the wrong direction during programming.
2	Door does not fully close	Check pulse disk closed position.
3	Door moves a few inches and then stalls, restarts, stalls, etc.	Operator force set too low for door weight. Increase Control Point 3 value by 1 increment until door opens smoothly.
4	Door operator does not operate	Jumper on terminal 10-11 missing
5	LED display reads E3, door operator does not work	Jumper on terminal 1-2 missing
6	Door cycling without activation of push plates (actuators)	Check wiring of actuators
7	Door delays before opening	Check actuator connection. If connected to terminals 6 & 7, move to terminals 8 & 9.

The red display LED is lit when one of four error conditions has been detected. E will appear in the LEFT display and a fault value will appear in the RIGHT display.

- **El** = safety sensor fault: There is no communication between the Operator and the safety sensor. Check the connections.
- **E3** = button error: The controller is not responding to the program buttons. Consult the factory.
- **E5** = battery fault: The battery is discharged, or missing. If the battery is discharged, charge it. If the battery is missing or will not take a charge, install a new battery.
- **E8** = Eprom error: the microprocessor has failed; replace the controller board.

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