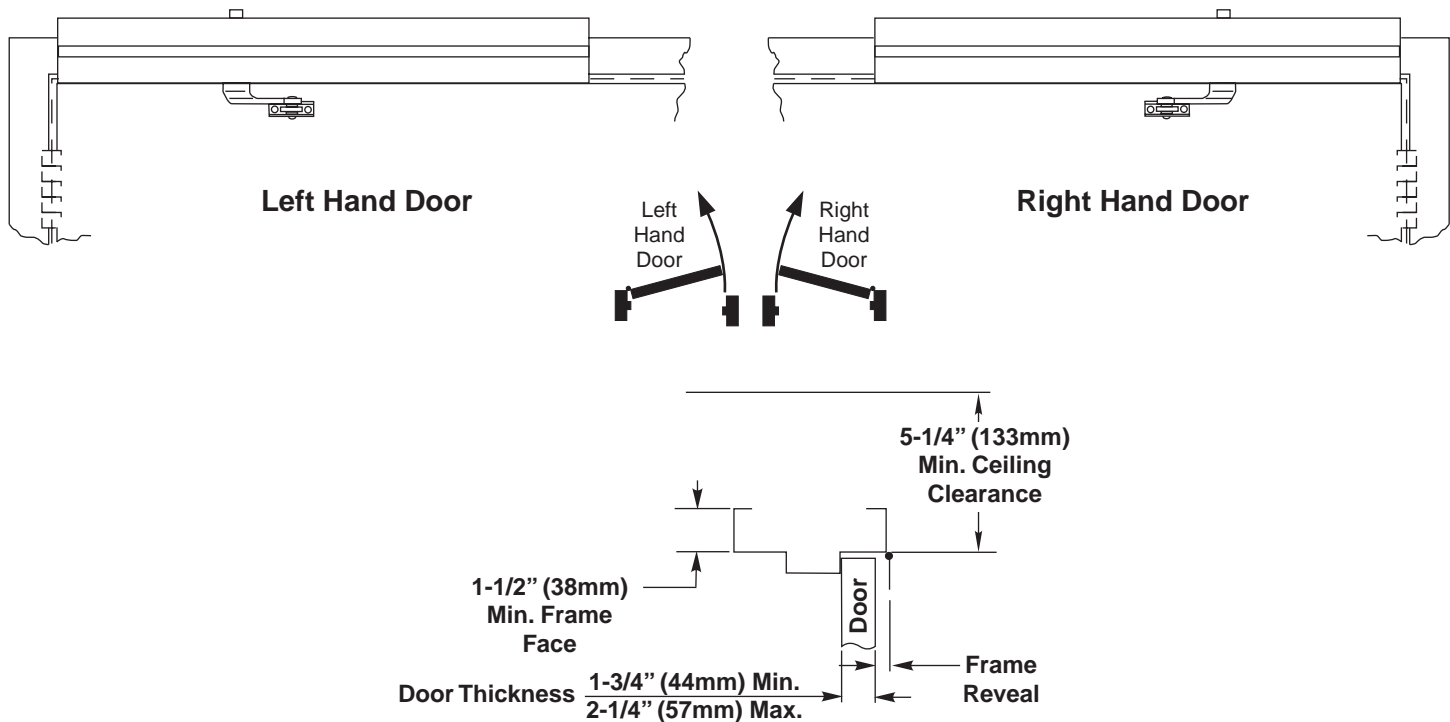


Series 5730–Door Openings 85° to 110° or 111° to 180°  
Double Lever Arm Application for Frame Reveals 3" (76) to 7" (178mm)  
Stop (Push) Side of Door Installation



Requirements

- U.L. labeled fire or smoke barrier door assemblies require that the 120VAC (60Hz) power input to the *LEO* door operator be supplied through normally closed alarm contacts of the alarm system/alarm panel.
- Power input to *LEO* door operator must be 120 VAC (60Hz) to terminals HOT and COM at terminal strip T1. Earthground (GND) to green screw on Backplate.
- All wiring must conform to standard wiring practice in accordance with national and local wiring codes.
- Note: Unless otherwise noted, all dimensions are given in inches (millimeters).
- Minimum suggested and required material thickness for hollow metal frames (skin plus reinforcement) is charted on Page 2.
- For wiring refer to Wiring Instructions on Pages 5 thru 8.
- Unit is Non-Handed.
- Door must be hung on butt hinges [5" (127mm) max. width] or 3/4" (19mm) offset pivots. A separate door and frame preparation template will be supplied for other conditions.
- Door must swing freely through the entire opening and closing cycle before beginning the installation.
- Use of a supplemental door stop is always recommended.

WARNING

120 VOLT POTENTIAL PRESENT. MAKE SURE  
POWER IS TURNED OFF DURING  
INSTALLATION PROCEDURE.

CAUTION

An incorrectly installed or improperly  
adjusted door operator can cause property  
damage or personal injury. These  
instructions should be followed to avoid the  
possibility of misapplication or  
misadjustment.

CAUTION

|                                       |   |  |   |
|---------------------------------------|---|--|---|
| Requirements .....                    | 1 | Input Power Configuration .....                                | 5 |
| General Templating Information .....  | 2 | Inverter Details .....   | 6 |
| Installation Template .....           | 2 | Wiring Diagram - Standard Function with Switches .....         | 6 |
| Component Layout .....                | 3 | Wiring Diagram - Optional Radio Frequency Function .....       | 7 |
| Installation Sequence .....           | 3 | Wiring Diagram - Fail Safe / Fail Secure Electric Strike ..... | 7 |
| Installation Sequence Continued ..... | 4 | Wiring Diagram - Fail Safe Electromagnetic Lock .....          | 8 |
| General Electrical Data .....         | 5 | A.D.A / UL Information .....                                   | 8 |

# General Templating Information

**WARNING:** Make sure that (120V, 60Hz) input power is turned off at facility's main circuit breaker before proceeding with installation.

## General Templating Information

- Before beginning the installation, verify that the door frame is properly reinforced and is well anchored in the wall.
- Unreinforced hollow metal frames and aluminum frames should be prepared and fitted with 1/4-20 blind rivet nuts, furnished by others.
- Concealed electrical conduit and concealed switch or sensor wires should be pulled to the frame before proceeding.

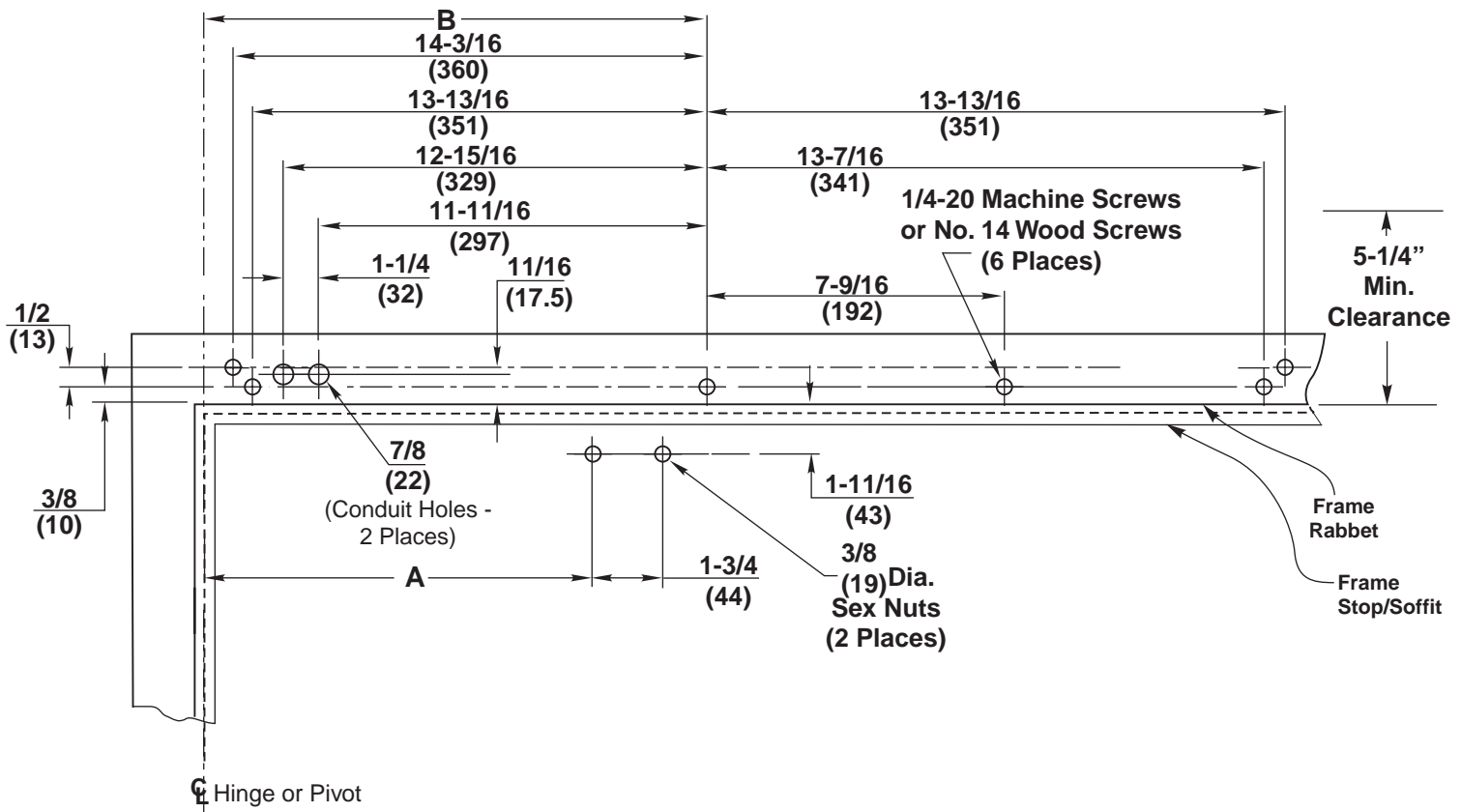
## Fasteners for Frame

- 1/4-20 Machine screws for hollow metal and aluminum.
- No. 14x2-3/4" (70mm) long sheet metal screws for wood.

## Fasteners for Door

- 1/4-20 Machine screws.
- 3/8" diameter x 1-5/8" (41mm) long sex nut.

## Template



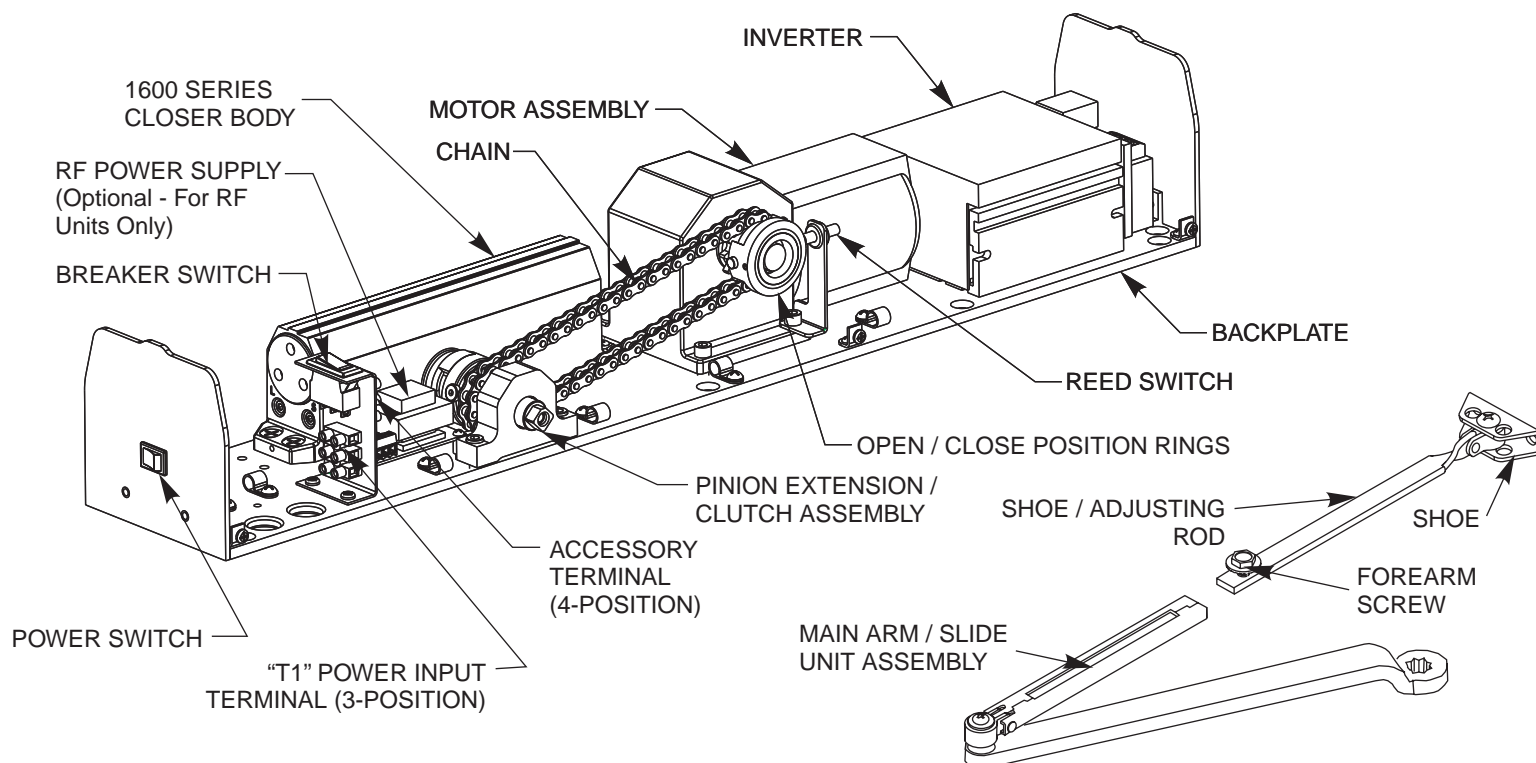
| Hollow Metal Door Frame Reinforcing |                     |                     |
|-------------------------------------|---------------------|---------------------|
| Frame Material                      | Reinforcing         |                     |
|                                     | Recommended         | Min. Required       |
| 12 Ga. .1046 (2.66)                 | 12 Ga. .1046 (2.66) | 18 Ga. .0478 (1.21) |
| 14 Ga. .0747 (1.90)                 | 10 Ga. .1343 (3.41) | 12 Ga. .1046 (2.66) |
| 16 Ga. .0598 (1.52)                 | 10 Ga. .1343 (3.41) | 12 Ga. .1046 (2.66) |
| 18 Ga. .0478 (1.21)                 | 8 Ga. .1644 (4.18)  | 10 Ga. .1343 (3.41) |

| Door Opening Angle | Dim "A"     | Dim "B"      |
|--------------------|-------------|--------------|
| Up to 110°         | 12 (305)    | 15-3/4 (400) |
| 111° to 170°       | 9-1/2 (241) | 13-1/4 (337) |

### Notes:

- All dimensions are given in inches (mm).
- Thickness recommended for reinforcements in hollow metal doors and frames is charted at the left of this page.
- Do not scale drawing.
- Left hand door shown.
- This template information based upon use of 5" (127mm) maximum width butt hinges or 3/4" (19mm) offset pivots. A separate template will be supplied for other conditions.
- Maximum frame reveal is 7" (178mm) for this application.
- Conduit hole nearest to hinge is suggested for 120 VAC power input.

## Component Layout



## Installation Sequence

**Step 1:** Determine hand of door from illustration on Page 1.

**Step 2:** Using template, (Page 2), locate and prepare holes in the frame & door:

### Frame

A. Prepare **six (6)** holes for 1/4-20 machine screws or No. 14 x 2-3/4" (70mm) wood screws. Blind rivet nuts (by others) are suggested for unreinforced hollow metal frames or for aluminum frames.

B. **Concealed Wired Units Only:** Two (2) 7/8" (22mm) diameter holes for conduit, for power input and for switch/sensor wires. **NOTE:** On new construction these holes will generally be drilled by the frame supplier at their shop or at the time the frame is installed in the wall.

### Door

C. Prepare **two (2)** holes for 3/8" diameter sex nuts. Standard units are supplied with sex nuts and screws for 1-3/4" (44mm) thick door. Sex nuts and screws for other door thicknesses are available to order.

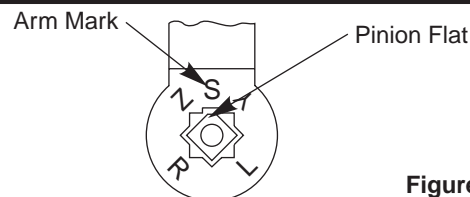
**Step 3:** Remove cover from the unit and set cover & cover screws aside.

**Step 4:** Mount unit to door frame. Select A or B below.

A. **Concealed Wired Units Only:** Connect conduit to frame side of backplate. Fasten unit to door frame (six screws).

B. **Surface Wired Units Only:** Fasten unit to door frame (six screws). Mount conduit bracket (found in screw pack) to unit's backplate with two screws provided. Connect wiring conduit to bracket.

**Step 5:** Install main arm onto pinion shaft of unit at a 90° angle to the door frame. Align arm mark "S" with the flat corner of the pinion shaft square. (See Fig. 1, upper right.)

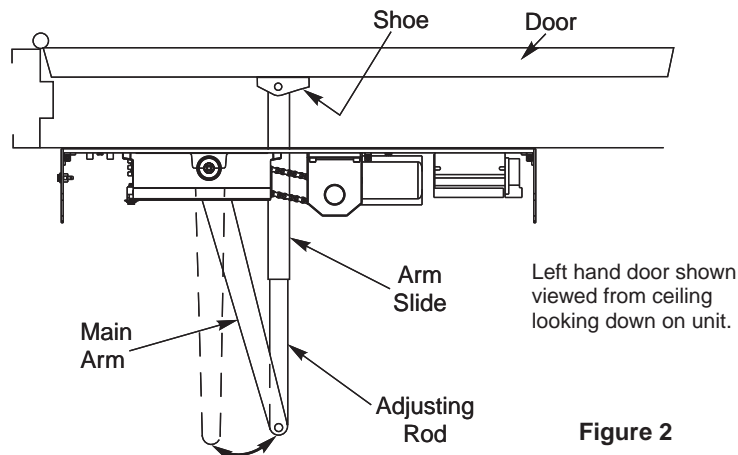


**Figure 1**

**Step 6:** Secure main arm to pinion with 1/4-20 Flange Head Screw provided. Tighten screw with 7/16" wrench or socket.

**Step 7:** Mount arm shoe to door using 2 1/4-20 screws & sex nuts provided with screw pack.

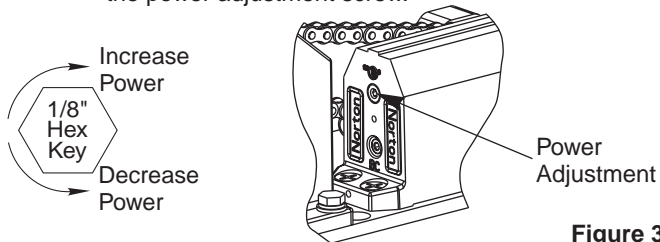
**Step 8:** **PRELOAD ARM** (See Fig. 2, below): Remove 1/4-20 hex head screw on adjusting rod and insert adjusting rod into arm slide. Reinstall 1/4-20 screw and leave loose. Rotate main arm in direction away from the hinge edge until the adjusting rod and arm slide are perpendicular (at a 90° angle) to the door frame. Tighten the 1/4-20 hex head screw on the adjusting rod to secure arm in this new position.



**Figure 2**

## Installation Sequence Continued

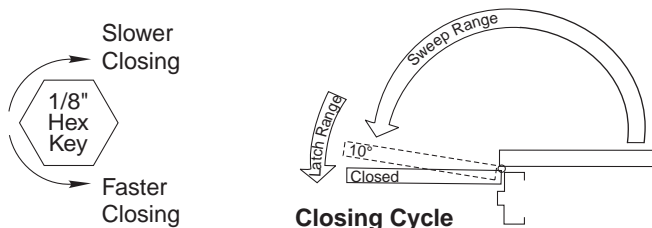
**Step 9:** Adjust closing power of unit (See Fig. 3) - Using a 1/8" allen wrench, turn the power adjustment shaft clockwise to increase door closing power. Door control is shipped set at midpoint of power setting. Maximum closing power can be achieved with 8 (360°) clockwise turns of the power adjustment screw.



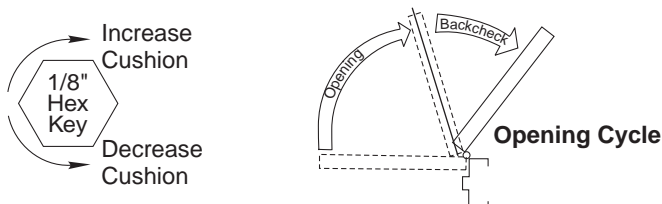
**Figure 3**

**Step 10:** Adjust Hydraulic valves using a 1/8" hex wrench to obtain proper door closing speeds. See following

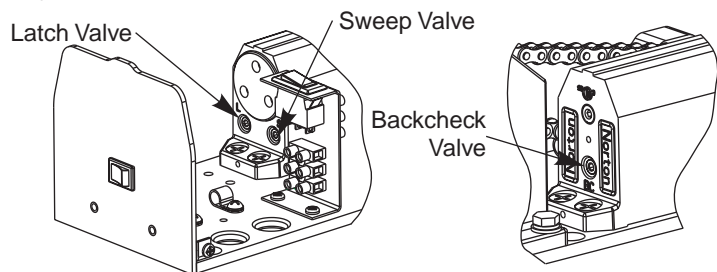
**Closing Cycle** – Make adjustments, as necessary, to the Sweep Speed "S" valve and Latch Speed "L" valve. See Fig. 4 below for location of valves. Turn valves clockwise to reduce speed, counter clockwise to increase speed.



**Opening Cycle** – Adjust Backcheck, "B" valve, as necessary, for hydraulic resistance to door opening in the backcheck range. See illustration at bottom of this page for location of valve.



**NOTE:** Too much Backcheck, "B" valve, can affect the operation of the units pump, preventing units from fully opening the door. This valve may require fine tuning after all other adjustments have been made.



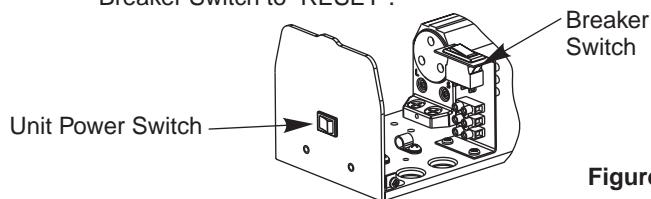
**Figure 4**

**Note:** A.D.A. requires that from an open position of 70°, the door will take at least 3 seconds to move to a point 3" (75mm) from the latched position, measured at the leading edge of the door.

**Step 11:** Make wiring connections using Wiring Instructions on Page 5.

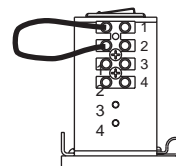
**Step 12:** Turn on facility's main circuit breaker.

**Step 13:** Turn power to unit on at the Unit Power Switch and turn the Breaker Switch to "RESET".



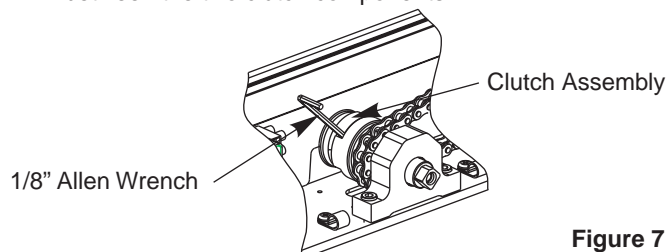
**Figure 5**

**Step 13:** Using a short jumper cable, jump terminals 1 and 2, see Fig. 6 below, to activate unit. When door reaches 20°, switch Breaker Switch to "OFF" position cutting power to the unit. Allow door to fully close (door may be manually pulled closed).



**Figure 6**

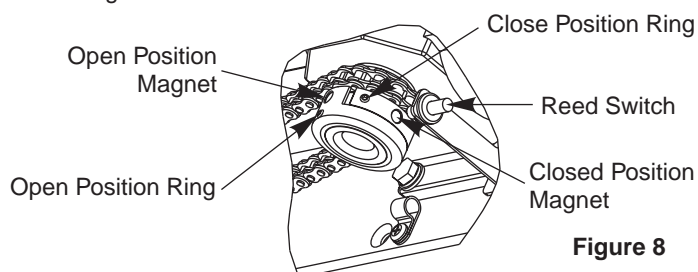
**Step 14:** Once door has fully closed, manually open door slightly and insert a 1/8" allen wrench (provided with screw pack) into the clutch assembly as shown below to create a small gap between the two clutch components.



**Figure 7**

**Step 15:** Manually close door and remove allen wrench from clutch assembly.

**Step 16:** Adjust Closing Ring Position (See Fig. 8) - Loosen 8-32 set screw located on Close Position Ring with 5/64" hex wrench provided. Rotate Assembly until Closed Position Magnet aligns with Reed Switch.



**Figure 8**

**Step 17:** Adjust Open Ring Position - Loosen 8-32 set screw located on Open Position Ring with 5/64" hex wrench provided. Rotate Ring Assembly until Open Position Magnet is approximately 180° from Closed Position Magnet.

**Step 18:** Flip Breaker Switch to "RESET" to turn power on. Jump terminals 1 and 2 (as shown in Step 13) to activate door. Note open position of the door. Allow door to close.

**Step 19:** Loosen and readjust Open Position Ring as necessary to obtain desired door open position. Tighten set screw.

**Step 20:** Make all connections necessary for any accessories to the 4-position terminal on "T1" bracket (see Pages 6 - 8).

**Step 21:** Make necessary adjustments to inverter (see Page 6).

**Step 22:** Replace cover and cover screws.

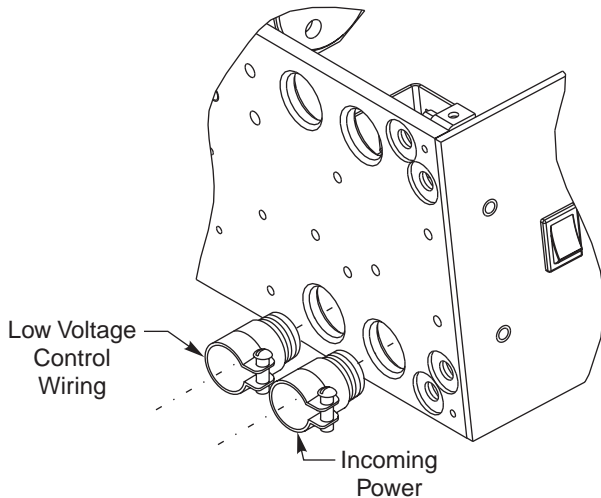
## General Electrical Data

- Maximum current draw of unit is 0.6 amps.
- Breaker Switch protects the motor assembly and inverter and has a 5 amp rating.
- Maximum wire size is:
  - 12AWG at terminals HOT and COM on "T1" Power Input Terminal.
  - 14AWG at terminals 1 thru 4 on Accessory Terminal .
  - 18AWG at terminals 22 thru 25 on "T1" Power Input Terminal.

## Input Power Configurations

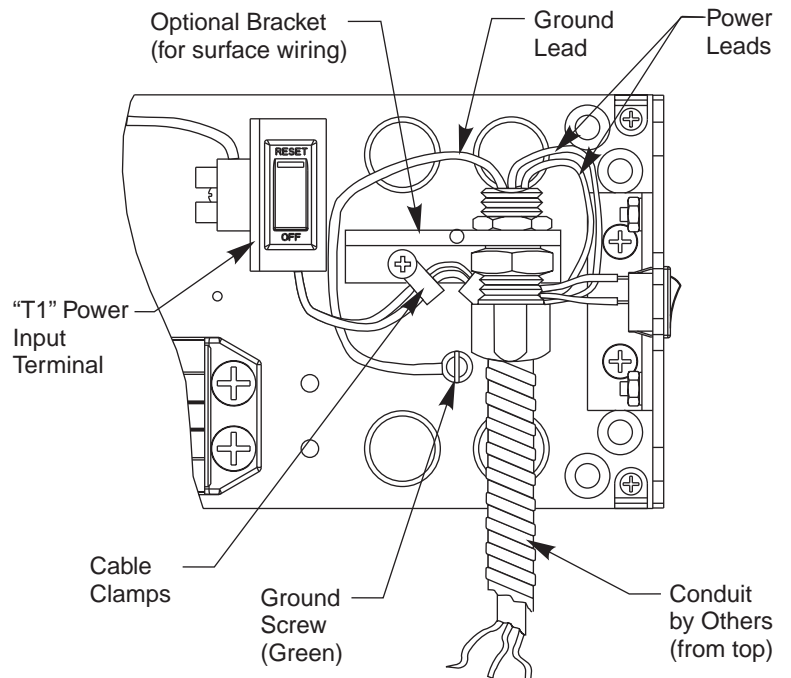
### CONCEALED WIRING

Thread conduit fitting(s) into backplate as shown. A second conduit fitting is required for low voltage control wiring. CHECK LOCAL CODES. Pull conduit out of header and attach to conduit fittings before mounting Operator to door frame. Attach incoming ground wire to backplate with ground screw as illustrated below.



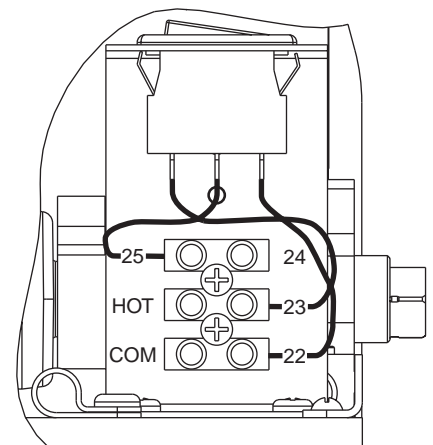
### SURFACE WIRING

An optional bracket is provided for use with surface wiring. Remove the two cable clamp screws and slip the bracket under the cable clamps. Push the cable clamp screw through the bracket holes and tighten. 1/2" conduit fittings can now be installed on the bracket.



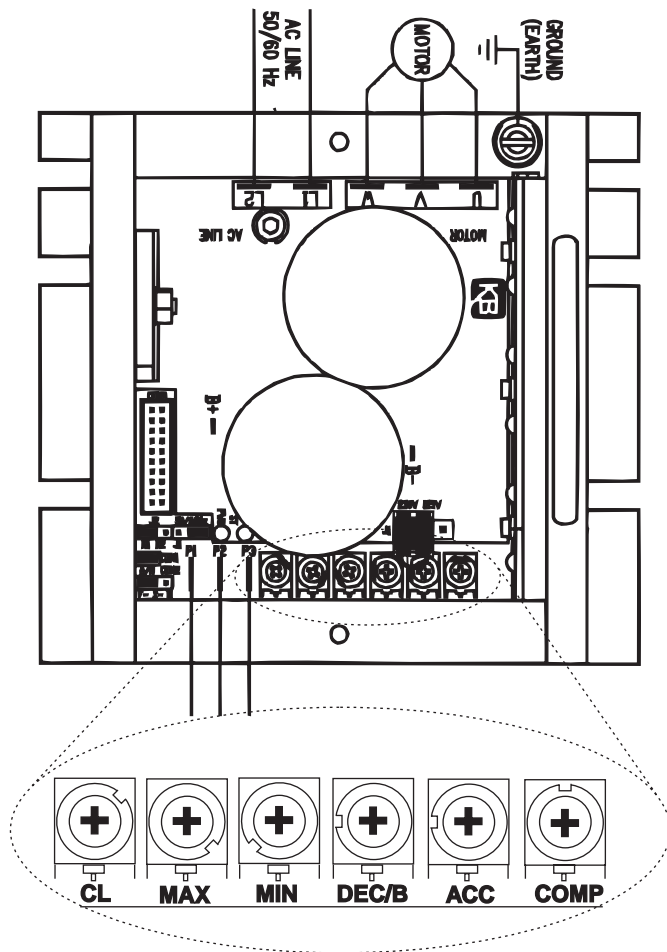
**Ground Wire Connection** – Ground wire must be secured to backplate under head of (green) ground screw nearest to "T1" Power Input Terminal. Screw labeled "GND".

| Terminal | Description                                     |
|----------|---|
| COM      | Common power lead                               |
| HOT      | Hot power lead                                  |
| 25       | Circuit Breaker                                 |
| 24       | Switch  |
| 23       | Circuit Breaker                                 |
| 22       | Common connection to Circuit Breaker / Inverter |





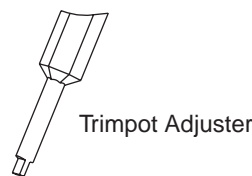
## Inverter Details



| POT   | DESCRIPTION                        | FUNCTION                          |
|-------|------------------------------------|-----------------------------------|
| CL    | Obstruction Detection on Open      | CW - Increase<br>CCW - Decrease   |
| MAX   | Door Open Speed                    | CW - Increase<br>CCW - Decrease   |
| MIN   | Motor Reversing Speed              | CW - Increase<br>CCW - Decrease   |
| DEC/B | Hold Open Time (5 - 30 Seconds)    | CW - Increase<br>CCW - Decrease   |
| ACC   | Door Mounting (Factory Set)        | Full CW - Push<br>Full CCW - Pull |
| COMP  | Motor Torque at Hold Open Position | CW - Increase<br>CCW - Decrease   |

### Inverter Adjustments:

- Based on function adjustment desired, use table above to determine which POT is to be adjusted.
- Using Trimpot Adjuster, shown below and supplied with screw pack, adjust the appropriate POT using illustration on the left.

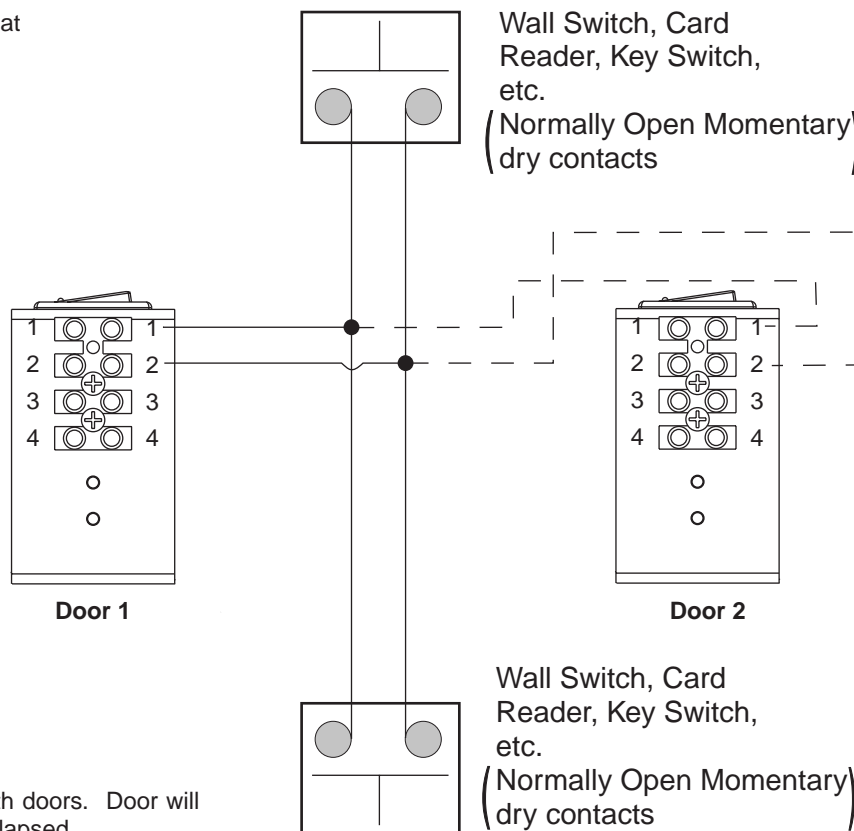


**Note:** Trimpot may be adjusted through slot in finger guard.

## Standard Function with Switches

### Notes:

- Power input to Door Operator Unit is at Power Input Terminal (not shown) 120VAC 60Hz.



### Operation:

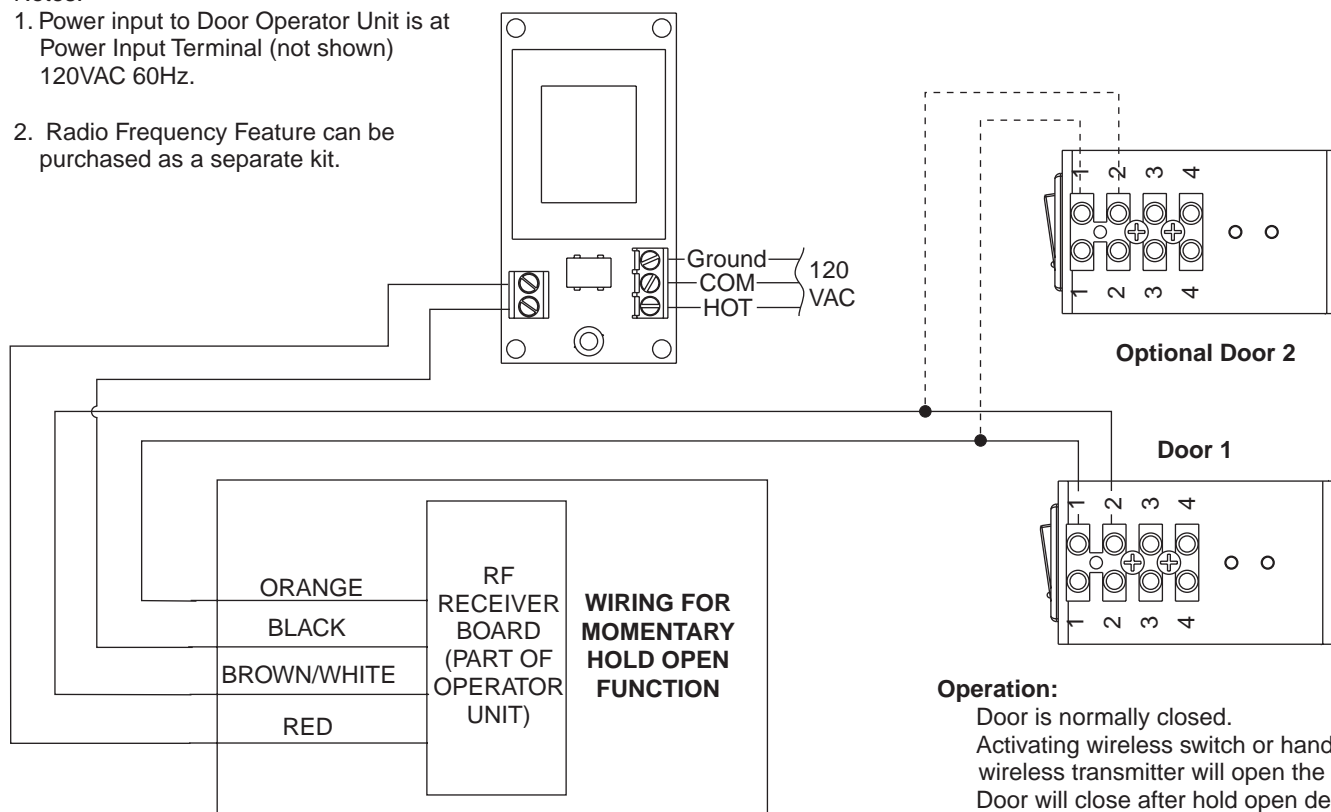
Doors are normally closed.

Activating either switch will open both doors. Door will close after hold open time delay has elapsed.

## Radio Frequency Function Option

### Notes:

1. Power input to Door Operator Unit is at Power Input Terminal (not shown) 120VAC 60Hz.
2. Radio Frequency Feature can be purchased as a separate kit.



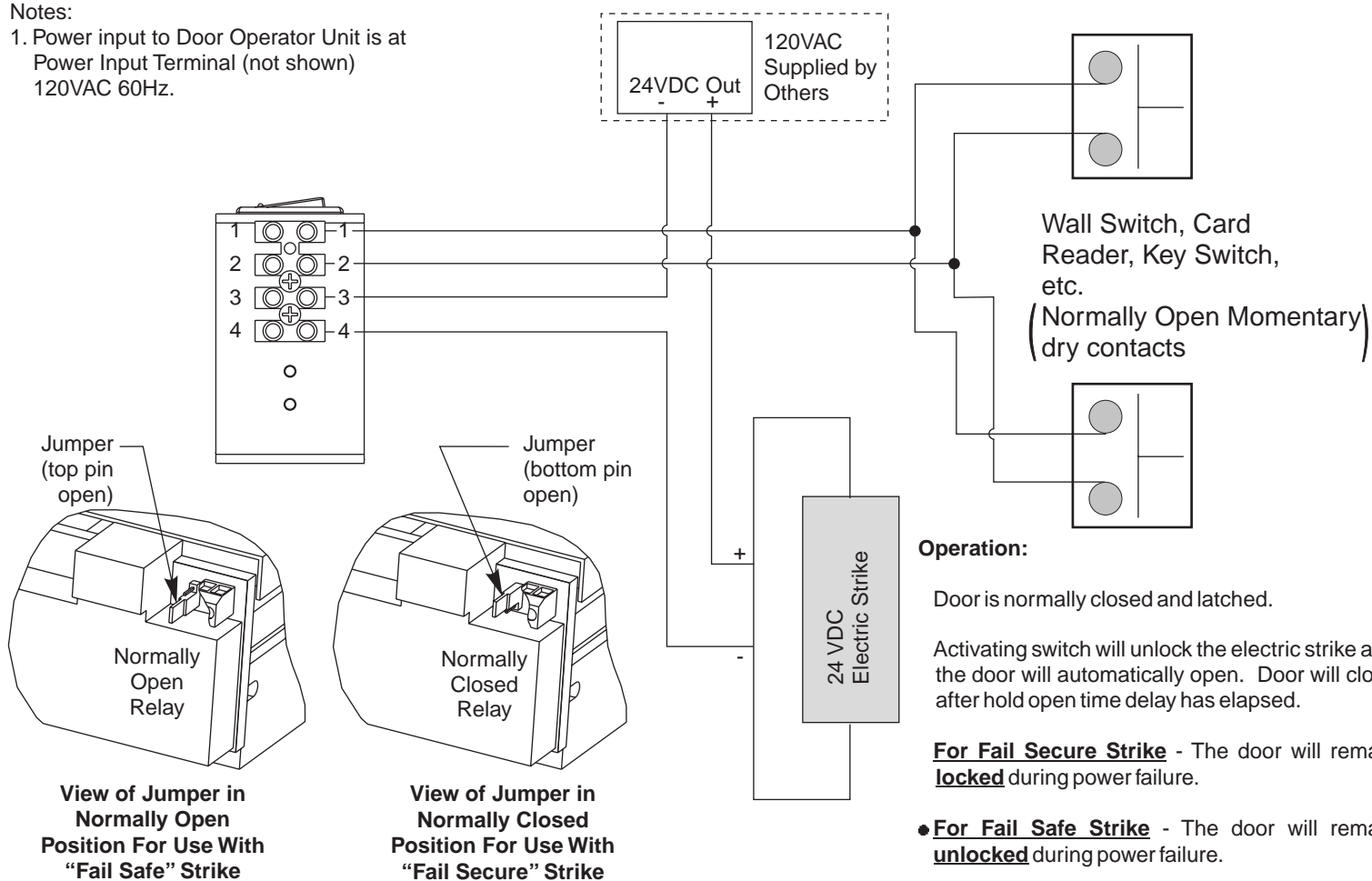
### Operation:

Door is normally closed. Activating wireless switch or hand held wireless transmitter will open the door. Door will close after hold open delay elapses.

## Fail Secure / Fail Safe Electric Strike 24VDC Wiring

### Notes:

1. Power input to Door Operator Unit is at Power Input Terminal (not shown) 120VAC 60Hz.



### Operation:

Door is normally closed and latched.

Activating switch will unlock the electric strike and the door will automatically open. Door will close after hold open time delay has elapsed.

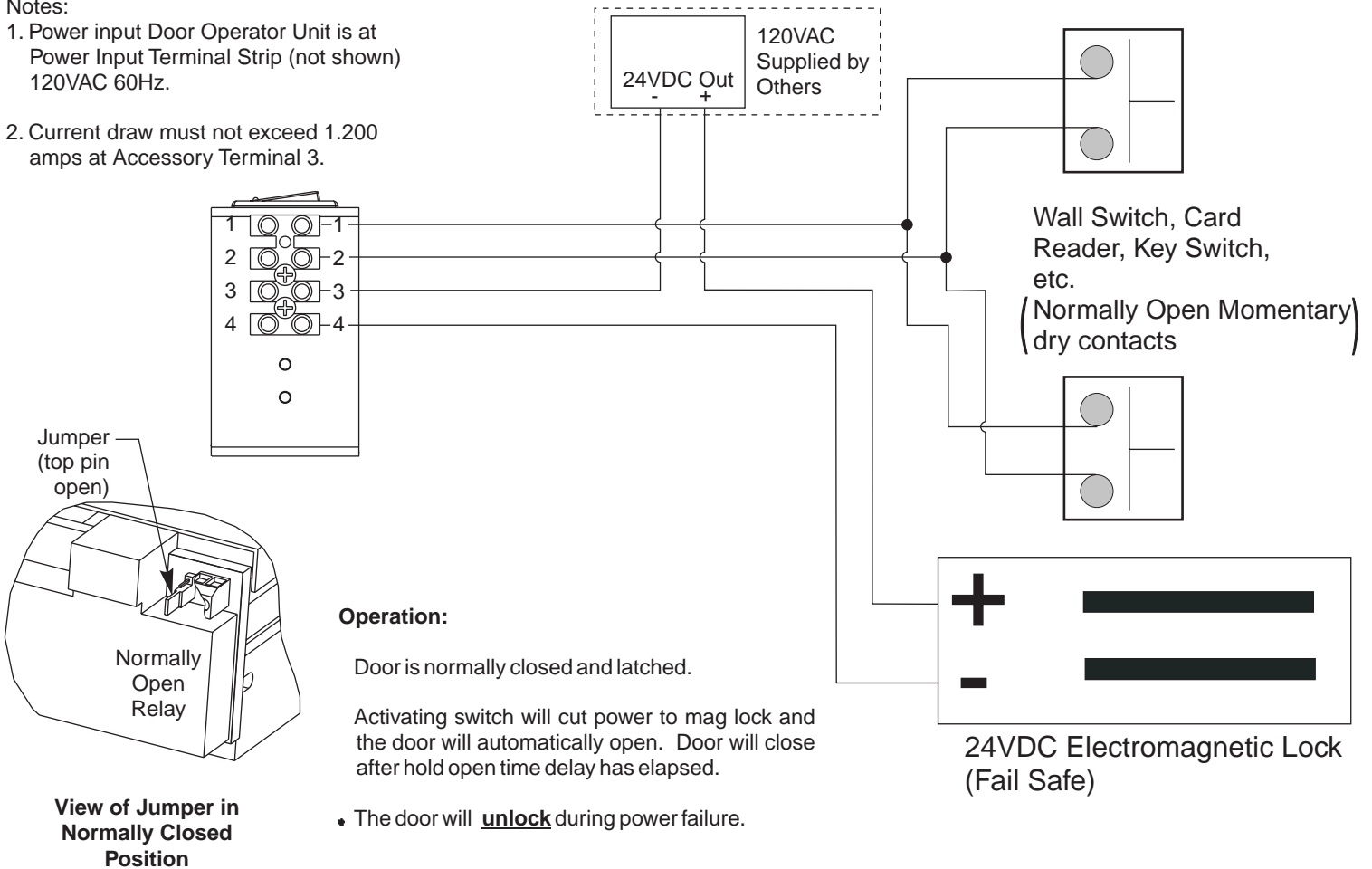
**For Fail Secure Strike** - The door will remain **locked** during power failure.

● **For Fail Safe Strike** - The door will remain **unlocked** during power failure.

# Fail Safe Electromagnetic Lock 24VDC Wiring

## Notes:

1. Power input Door Operator Unit is at Power Input Terminal Strip (not shown) 120VAC 60Hz.
2. Current draw must not exceed 1.200 amps at Accessory Terminal 3.



## A.D.A / UL

### Americans With Disabilities Act (A.D.A.)

These door operators can be installed and adjusted to conform with A.D.A. regulations.

### ANSI Standards



**ANSI A117.1** – These door operators permit door assemblies to conform to the requirements of this specification "for buildings and facilities – **providing accessibility and usability for physically handicapped people**".

- **ANSI A156.19** – These products are designed to conform to this specification "**for power assist and low energy power operated doors**".
  - "PAS" Function is designed to meet or exceed all of the requirements for the "Power Assist Door".
  - "POR" Function is designed to meet or exceed all of the requirements for the "Low Energy Power Operated Door".

### U.L. Listing



Underwriters Laboratories, Inc. listed for use on fire and smoke barrier door assemblies when the 120VAC (60Hz) power input is supplied through the normally closed alarm contacts of a compatible U.L. Listed alarm system or alarm panel.

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[www.nortondoorcontrols.com](http://www.nortondoorcontrols.com)