

# **DC One**

*Sliding Door Retrofit*

**Automatic Sliding Door  
Retrofit Drive Assembly**

**Installation Manual**



**Door Controls USA, Inc.**

**800-437-3667**

**doorcontrolsUSA.com**



## TABLE OF CONTENTS

	<b>pg.</b>
1. COMPONENTS	2
2. HEADER PREPARATION	2
3. DOOR PREPARATION	2
4. MOTOR AND CONTROLLER INSTALLATION	2
5. WIRING OF ACCESSORIES	3
6. DRIVE BELT AND BRACKET INSTALLATION	3
7. CONNECTING POWER	3
8. WALK TEST	3
9. SAFETY TEST AND DOCUMENTATION	4
10. CONTROL LAYOUT	4
11. I/O CONNECTOR LAYOUT AND DESCRIPTION	5
12. HOW TO ENTER PROGRAM MODE	6
13. MENU DISPLAY SCREENS	7
14. PART NUMBERS	12
15. TECHNICAL SPECIFICATIONS	12
16. WARRANTY TERMS	12
17. TROUBLE SHOOTING TIPS	13
18. WIRING DIAGRAMS	14

NOTE: Approximate installation time: 2 to 4 hours – 1 Technician.

## 1. COMPONENTS

- Motor / Gearbox (1)
- Control (1)
- Drive Belt (1) – Optional on some systems
- Belt Brackets (2)
- Idler / Tensioner (1) – When required
- Decal Set (1)
- AAADM Owner's Manual (1)
- AAADM Daily Safety Check Decal (1)
- **OPTIONAL:**
- Bottom Guides (1 or 2)
- Top Rollers (2 or 4)



## 2. HEADER PREPARATION

- **WARNING – Shut off and disconnect all primary electrical power to the door header before proceeding any further.**
- Disconnect all sensor wiring from the control and/or interface board. Keep the wiring available if you intend to re-use the sensors
- Disconnect all safety beam wiring from the control and/or interface board. Keep the wiring available if you intend to re-use the safety beams.
- Disconnect all switches from the control and/or interface. Keep the switches in place if you intend to re-use them for the retrofit.
- Remove the entire existing drive system from the header (motor/gearbox, control, interface, belt, chain, cables, etc.). Do not throw away any mounting hardware as it may be used to mount the DC One components (see drawings).
- BOX CORES and USED COMPONENTS (motor/gearbox, control, etc.) use the return shipping label and ship to Door Controls.

## 3. DOOR PREPARATION

- Remove and replace the bottom guides (If needed).
- Remove and replace top rollers (If needed).
- **IMPORTANT NOTE:**
  - Manual resistance of the sliding panels, with no belt attached, should not exceed 8 lb for bi-parts, or 4 lb for single slides. Use a force gauge to push against the door to slide it open and closed to check the resistance.
  - Be sure to check for mechanical door stops at each end of the header. If door stops are missing, they may be ordered as an accessory from Door Controls.
  - Do not install new belt brackets yet, this will allow more working room when installing the control and related wiring.

## 4. MOTOR AND CONTROLLER INSTALLATION

- Install DC One motor/gearbox and controller per the instructions shown on the enclosed drawing.

## 5. WIRING OF ACCESSORIES

- Complete all wiring. Refer to the wiring diagrams in Sections 11 and 18. Be sure to complete the wiring for any accessories that may be required as well:
  - Activation Sensors
  - Safety Sensors
  - Safety Beams
  - On-Off Switch
  - Emergency Breakout Switch
  - Electric Carriage Lock (accessory)
  - Reduced Opening Switch (accessory)
  - 1-Way Switch (accessory)

## 6. DRIVE BELT AND BRACKET INSTALLATION

- Upon completion of all wiring, the drive belt, related brackets and idler pulley may be installed. Refer to the detailed dimensions drawing that came with the package to determine all mounting locations. When complete, install the drive belt and tension to result in approximately 1" to 2" deflection overall up and down at the center of the greatest span between clamp and pulley. The belt may need to be cut to the correct length. Use a strong pair of wire cutters to make a clean cut.
- Check to make sure there are no wires that could be potentially caught by the moving parts. With the belt installed and tensioned, move the doors manually to their full open and then full closed position and ensure that they slide without binding or obstruction.

## 7. CONNECTING POWER

- Connect and apply main power to the control.
- Perform a factory reset – Refer to Sections 12 and 13.
- Press the TEST button on the DC One control to trigger an activation cycle.
- When the learn cycle is complete, normal operation will resume according to default values set in the control. Fine-tuning of the control may be necessary at this point. Other than door handing and breakout polarity, the most common adjustments are for speed, force and time. Although there are more adjustments if needed. See Sections 12 & 13 for further instructions.

## 8. WALK TEST

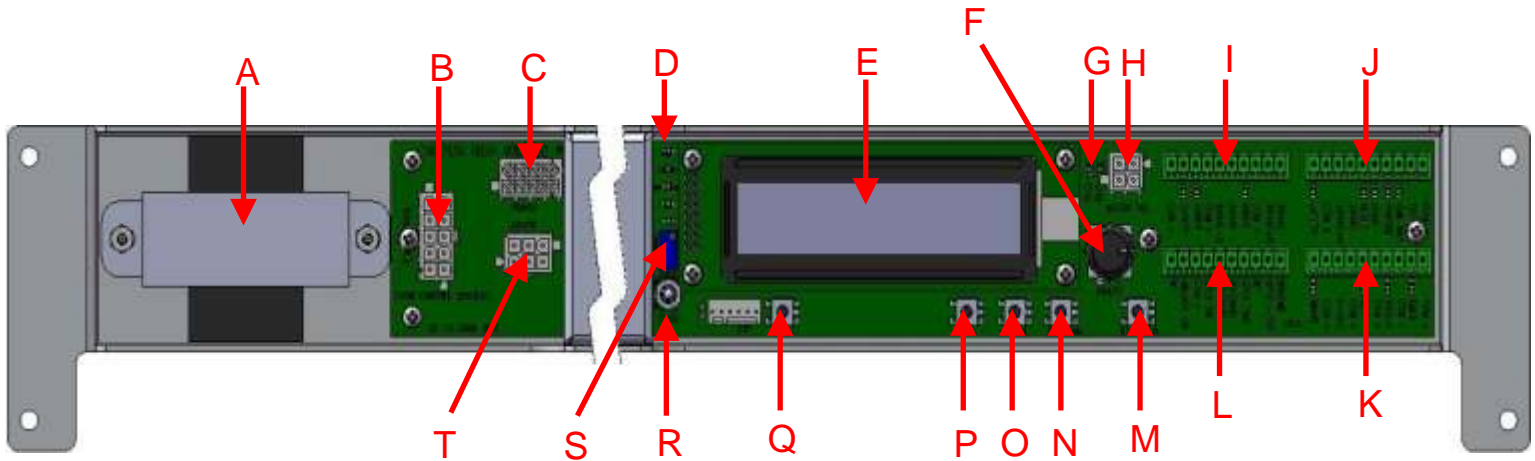
- Check all functions to ensure proper operation
- REMEMBER – Even if a door is designated for 1-way traffic, a secondary activation sensor is still required at the side not intended for approach. The activation zone must extend to at least 24" out from the face of the door
- With the door switch off, make sure the doors are fully closed. Check alignment of doors for proper weather-seal and ensure that door locks properly
- Use walk-test aides such as the dimensional mat shown below, to help outline key distances for testing sensor patterns



## 9. SAFETY TEST AND DOCUMENTATION

- When all DC One and sensor adjustments are complete, perform a thorough safety test to validate proper and safe performance in accordance with current ANSI A156.10 guidelines as well as recommendations prescribed by the American Association of Automatic Door Manufacturers (AAADM). Door Controls recommends this step be performed by an AAADM certified door inspector.
  - Walk toward the door at a normal pace. The door should open when you are about 4 feet from the door.
  - Stand motionless on threshold for at least 10 seconds. The door should not close.
  - Move clear of the area. The door should remain open for at least 1.5 seconds and should close slowly and smoothly.
  - Repeat steps 1 through 3 from the other direction if door is used for two way traffic.
  - Inspect the floor area. It should be clean with no loose parts that might cause the user to trip or fall. Keep traffic path clear.
  - Inspect door's overall condition. The appropriate signage should be present.
  - Have door inspected by an AAADM certified inspector at least annually.
  - DO NOT USE DOOR if it fails any of these safety checks or if it malfunctions in any way.
  
- Be sure to place an AAADM Daily Safety Check decal on the door (usually near the On-Off switch).
- Document all work, obtain signatures on all work orders, and instruct the owner on door operation. Be sure to leave a copy of the AAADM Owner's Manual for sliding doors with the owner or facilities manager.

## 10. CONTROL LAYOUT



- |                                   |                                 |
|-----------------------------------|---------------------------------|
| A. Transformer                    | K. Special Modes Connector      |
| B. Transformer Connector          | L. Lock Connector               |
| C. Power Connector                | M. Test Button (activates door) |
| D. Status LEDs                    | N. Program Button               |
| E. Display Screen                 | O. Down Button                  |
| F. Parameter Adjustment Knob      | P. Up Button                    |
| G. Encoder Status LEDs            | Q. Reset Button                 |
| H. Encoder Connector              | R. Lock Voltage                 |
| I. Sensor Connector               | S. Display Intensity            |
| J. Multifunction Switch Connector | T. Motor Connector              |

## 11. I/O CONNECTOR LAYOUT AND DESCRIPTION

J6			J7		
1	x	Common +	1	x	Common +
2	x	Off	2	x	Emergency Open
3	x	One Way	3	x	Common +
4	x	Partial Open	4	x	Ratchet
5	x	Hold Open	5	x	Common +
6	x	Reset	6	x	Activation
7	x	24 VAC	7	x	Common +
8	x	24 VAC Return	8	x	Breakout
9	x	Common +	9	x	Common +
10	x	Safety	10	x	Night Mode

J5			J8		
1	x	24 VAC	1	x	DC One Lock
2	x	24 VAC Return	2	x	DC One Lock
3	x	Common +	3	x	DC One Lock
4	x	Inner Sensor	4	x	DC One Lock
5	x	24 VAC	5	x	DC One Lock
6	x	24 VAC Return	6	x	DC One Lock
7	x	Common +	7	x	NC
8	x	Outer Sensor	8	x	NC
9	x	Safety	9	x	NC
10	x	Common +	10	x	NC

- J6 – Multifunction Switch – Pins 1 to 6
  - Compatible with DC position switches
    - 5PSW1 – 5 position knob
    - 5PSW2 – 5 position key
    - 6PSW1 – 6 position knob
    - 6PSW2 – 6 position key
  - Off
    - Disables ratchet, inner sensor and outer sensor inputs
    - Locks door if lock is present
    - Control on LED will turn off
  - One Way
    - Disables outer sensor in closed position
    - Yellow LED is on when active
  - Partial Open
    - Door will not fully open
    - Width is adjustable in menu
    - Yellow LED is on when active
  - Hold Open
    - Holds the door in the open position
    - Green LED is on when active
  - Reset
    - Resets position values
    - Door will relearn on next activation
    - Yellow LED is on when active

- J6 – Safety Beams – Pins 7 to 10
  - Activates the door except when in the closed position
  - 24 VAC power to safety beam module
  - Red LED is on when active
  
- J5 – Inner and Outer Sensors
  - Separate 24 VAC connections for sensor power
  - Inner Sensor
    - Activates door except when off or in night mode
    - Green LED is on when active
  - Outer Sensor
    - Activates door except in off, one way, or night mode
    - Green LED is on when active
  - Safety
    - Activates the door except when in the closed position
    - Red LED is on when active
  
- J7 – Special Modes
  - Emergency Open
    - Activates the door during all modes
    - Green LED is on when active
  - Ratchet
    - Activates door and stays open until ratchet is pressed again
    - Does not activate during off, one way, or night mode
    - Green LED is on when active
  - Activation
    - Activates the door during all modes
    - Green LED is on when active
  - Breakout
    - Stops door motion
    - Software selectable polarity (NO/NC)
    - Red LED is on when active
  - Night Mode
    - Disables inner and outer sensors in closed position
    - Door activates with emergency open and activation input only (pin 2 or 6 of J7)
    - Yellow LED is on when active
  
- J8 – Lock
  - Pins 1 to 6 are used to control the DC One lock
  - Lock voltage is selectable between 12 and 24 volts with toggle switch
  - See wiring diagrams for detailed information

## 12. HOW TO ENTER PROGRAM MODE

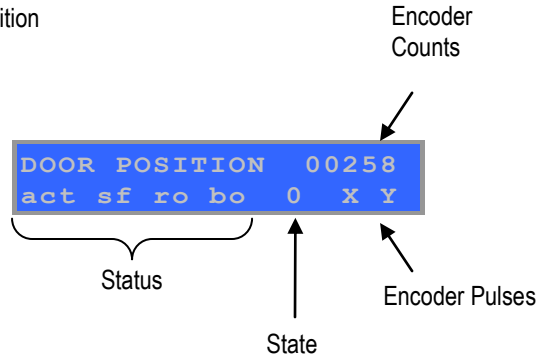
- Press both the RESET and the PROGRAM button.
- Release the RESET button and continue to hold the PROGRAM button
- After the display changes, release the PROGRAM button
- You are now in program mode.
- After making changes, press RESET to exit program mode
- The control will perform a learn cycle on the first activation after a reset



### 13. MENU DISPLAY SCREENS

Pressing the up button will cycle through the menu in the following order.  
 Factory default settings are shown, following a reset.  
 Turning the parameter adjustment knob will change the values for that setting.

- Door Position



This is a status only screen that gives the following information:

- Encoder Counts – shows the actual encoder count relative to door position
- Encoder Pulses – toggles between upper and lower case as encoder pulses are received
- Status – toggles between upper and lower case as status changes
  - act/ACT – Activation
  - sf/SF – Safety
  - ro/RO – Reduced open
  - bo/BO – Breakout
- State – shows the state of the controller
  - 0 – Closed
  - 1 – Opening
  - 2 – Open Deceleration
  - 3 – Open Check
  - 4 – Open
  - 5 – Closing
  - 6 – Close Deceleration
  - 7 – Close Check
  - B – Boost Mode
  - L – Learn Mode
  - O – Obstruction

- Life Cycle Counter



- Indicates the total number of door cycles on the control
- Non-resettable

- Trip Cycle Counter



- Indicates the number of cycles since the trip counter was last reset

- Trip Counter Reset

RESET TRIP COUNTER

- Resets the trip counter
- Resettable in program mode only

- Faults Detected

FAULTS DETECTED  
NONE

- Lists the fault that the control is currently under
  - None
  - Broken or Loose Belt
  - Jammed Door
  - Obstruction Lockout
    - Control will remain in hold open after 3 consecutive obstruction errors
    - Control must be reset or turned off to clear error
    - Off is preferable to prevent a relearn cycle after a reset

- Learn Torque

LEARN TORQUE  
020.5%

- Ranges from 5 to 100%
- Adjustable in or out of program mode

- Learn Open Speed

LEARN OPEN SPEED  
014.8%

- Ranges from 5 to 100%
- Adjustable in or out of program mode

- Learn Close Speed

LEARN CLOSE SPEED  
014.8%

- Ranges from 5 to 100%
- Adjustable in or out of program mode

- Motor Type

SELECT MOTOR TYPE  
DC ONE V3

- Adjustable in program mode only

- Phone Number

DOOR CONTROLS  
800-437-3667

- Software Version

DC ONE V3  
FIRMWARE V 1.15

- Open Speed

OPEN SPEED  
056.3%

- Ranges from 5 to 100%
- Adjustable in or out of program mode

- Close Speed

CLOSE SPEED  
020.9%

- Ranges from 5 to 100%
- Adjustable in or out of program mode

- Open Check Speed

OPEN CHECK SPEED  
012.0%

- Ranges from 5 to 100%
- Adjustable in or out of program mode

- Close Check Speed

CLOSE CHECK SPEED  
012.0%

- Ranges from 5 to 100%
- Adjustable in or out of program mode

- Boost Speed

BOOST SPEED  
030.1%

- Acceleration from a stopped position to check speed
- Ranges from 5 to 100%
- Adjustable in or out of program mode

- Open Deceleration

OPEN DECELERATION  
030

- Adjusts the transition between open and open check
- Higher values cause a more abrupt change between the two speeds
- Ranges from 0 to 255
- Adjustable in or out of program mode

- Close Deceleration

CLOSE DECELERATION  
030

- Adjusts the transition between close and close check
- Higher values cause a more abrupt change between the two speeds
- Ranges from 0 to 255
- Adjustable in or out of program mode

▪ Open Torque

OPEN TORQUE  
072.0%

- Ranges from 0 to 100%
- Adjustable in or out of program mode

▪ Close Torque

CLOSE TORQUE  
072.0%

- Ranges from 0 to 100%
- Adjustable in or out of program mode

▪ Open Check Torque

OPEN CHECK TORQUE  
014.8%

- Ranges from 0 to 100%
- Adjustable in or out of program mode

▪ Close Check Torque

CLOSE CHECK TORQUE  
014.8%

- Ranges from 0 to 100%
- Adjustable in or out of program mode

▪ Open Check Size

OPEN CHECK SIZE 10"

- Ranges from 3" to 18"
- Adjustable in program mode only

▪ Close Check Size

CLOSE CHECK SIZE 05"

- Ranges from 3" to 18"
- Adjustable in program mode only

▪ Reduced Open Size

REDUCE OPEN SIZE 16"

- Ranges from 12" to 72" in 4" increments
- Adjustable in program mode only

▪ Hold Open Time

HOLD OPEN TIME 3s

- Ranges from 1 to 30 seconds
- Adjustable in program mode only

- Door Braking

DOOR BRAKING OFF

- Should only be turned on for heavy doors
- Adjustable in program mode only

- Handing

RIGHT HAND DOOR

- Sets the door to either right or left hand mode
- Adjustable in program mode only

- Lock Type

FAIL SECURE LOCK

- Sets the lock type to either secure or safe, auto detects DC One lock
- Adjustable in program mode only

- Breakout Polarity

BREAKOUT POLARITY NO

- Configures breakout for either normally open (NO) or normally closed (NC) contacts
- Adjustable in program mode only

- Lock Delay

LOCK DELAY OFF

- When enabled, there will be a delay of 1 second between activation and when the door panels move to allow the lock to clear the door path
- Adjustable in program mode only

- Load Factory Defaults

LOAD FACTORY DEFAULT

- Pressing the program key will reset all settings to factory default
- Adjustable in program mode only

**14. PART NUMBERS**

<b>Control</b>	DC1-CONTROL
<b>Motor</b>	DC1-MOTOR
<b>Power Cord</b>	DC1-POWER CORD
<b>Transformer*</b>	DC1-TRANSFORMER
<b>Belt</b>	DC1-BELT
<b>Lock**</b>	DC1-LOCK FAIL SAFE or DC1-LOCK FAIL SECURE

\* Included with control      \*\* Optional

**15. TECHNICAL SPECIFICATIONS**

<b>Power Input</b>	120 Volts AC, Single Phase
<b>Power Consumption</b>	150W Max.
<b>Secondary Power Supply</b>	24 Volt, 1A Max.
<b>Drive Train</b>	Molded Brushed DC Motor with Gear Reduction Assembly
<b>Control</b>	Microprocessor Controller
<b>Maximum Door Weight</b>	400 lbs (200lbs per panel for bi-part)
<b>Operating Environment</b>	-4F to 158F (-20C to +70C) 30% to 85% Relative Humidity

**16. WARRANTY TERMS**

- 1 Year from date of purchase from Door Controls.

## 17. TROUBLE SHOOTING TIPS

- Before wiring any sensors into the DC One control, it is a good idea to apply power and test the door to ensure it will power open and closed when the TEST button is pressed.
  - Use caution during this test as the sensors will not be operational
  
- The following inputs have status LEDs to help identify problems:
  - Power
  - Control On
  - Door Locked
  - Heartbeat
  - One Way
  - Partial Open
  - Hold Open
  - Reset
  - Safety
  - Inner Sensor
  - Outer Sensor
  - Emergency Open
  - Ratchet
  - Activation
  - Breakout
  - Night Mode
  
- The heartbeat LED should be blinking. If not, cycle power on the control. If the heartbeat LED is still not blinking, the control is malfunctioning and should be replaced.
  
- If programming of the control is unsuccessful, it is easiest to restore the default values and then start over, rather than trying to correct any faulty programming.
  
- When power is applied, the door powers open and stays open.
  - Motion or presence sensor output is being held (closed circuit). If unsure which sensor, unplug one by one until fault is isolated. Correct as necessary.
  - Safety beam is blocked or is faulty. Correct as necessary.
  - Door handing is set incorrectly. Enter program mode and change hands.
  
- Door powers closed and then stay closed.
  - Press the TEST button on the face of the DC One control. Door should power open and then close. If it does not open, door handing is set incorrectly. Enter program mode and change hands.
  
- Door will not open or close.
  - As a first step, always check the DC One digital display for error messages and proceed accordingly.
  - Breakout switch is not wired properly. If red light is on for breakout function on I/O interface, it means that the control is in a breakout condition. Check to ensure breakout polarity is set correctly.
  - On/Off switch is not wired properly or it is in the off position. If the switch is in the on position, the green LED to the left of the display will be on.
  
- Important  
Upon completion of your retrofit, ensure all functions of the door perform satisfactorily. Walk-test the door according to AAADM recommended guidelines and correct all discrepancies, if any, before leaving the job site. DO NOT compromise proper performance. If repairs cannot be immediately made, shut the door OFF and inform the owner of any special instructions and corrective actions.

Contact Door Controls for further technical support when needed:

**Door Controls**

321 VZ County Road 4500

Ben Wheeler, TX 75754

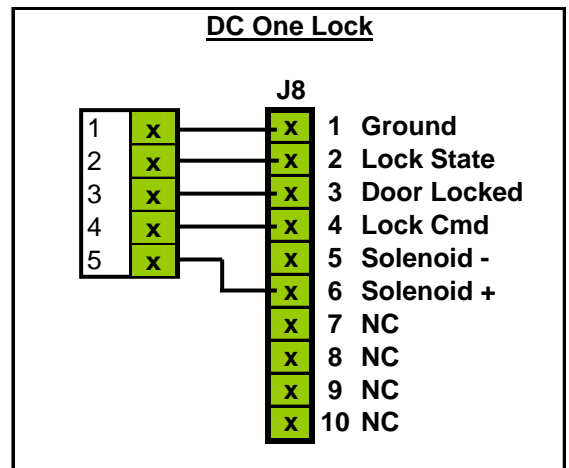
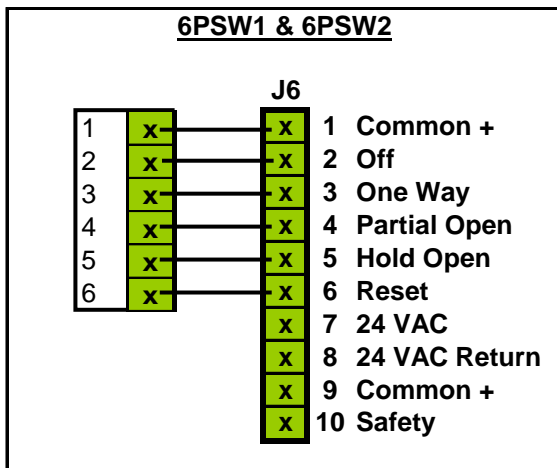
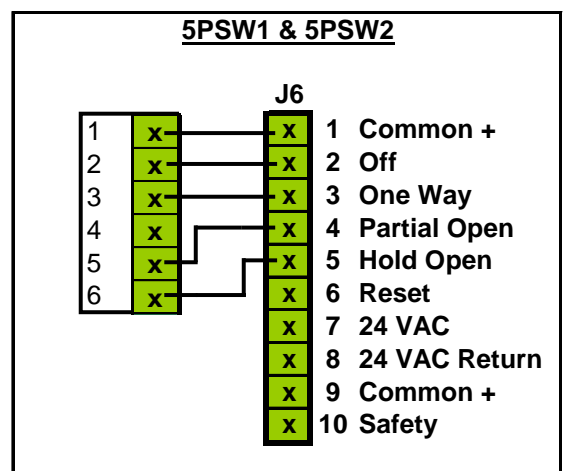
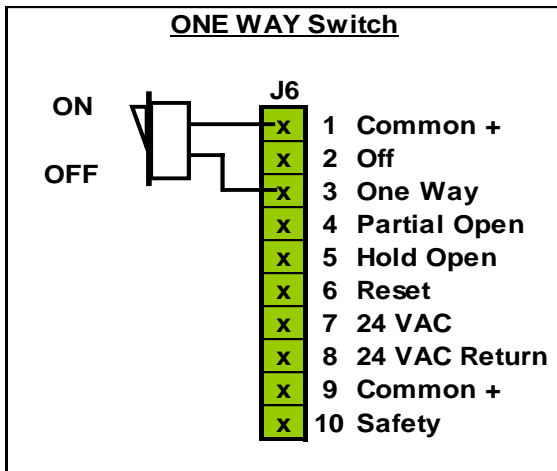
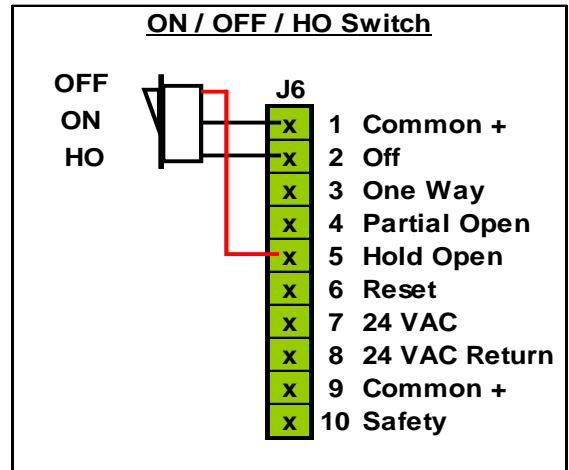
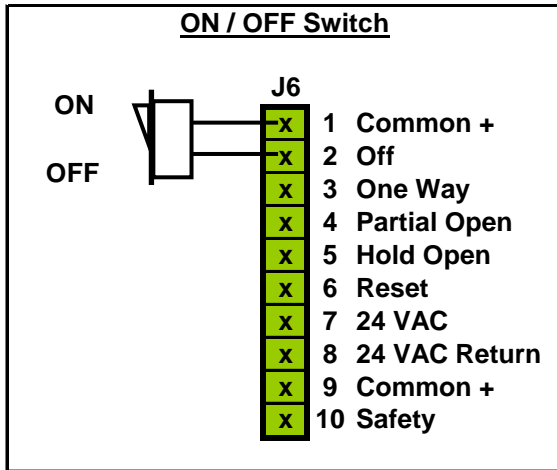
Phone: 1-800-437-3667

Fax: 1-800-356-8858

Email: [parts@doorcontrolsusa.com](mailto:parts@doorcontrolsusa.com)

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

18. WIRING DIAGRAMS

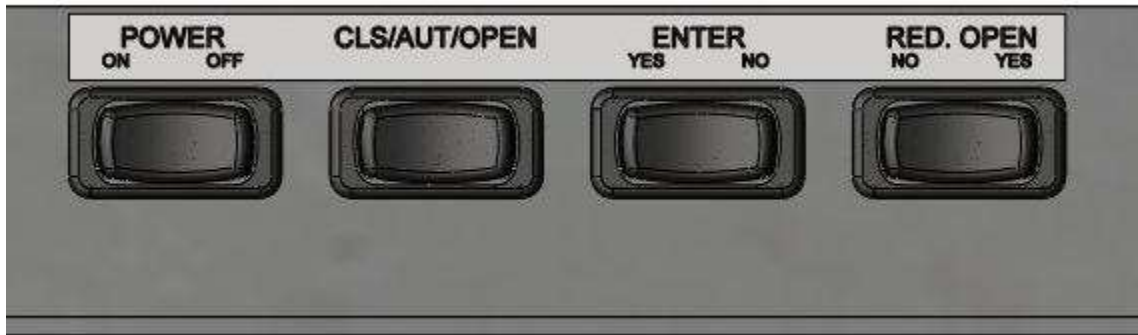




### DURAGLIDE FUNCTION SWITCH

	J6		J7	
ORANGE	X	1	X	PURPLE
BROWN	X	2	X	
BLACK	X	3	X	BLACK
PURPLE	X	4	X	
YELLOW	X	5	X	
	X	6	X	
	X	7	X	
	X	8	X	
	X	9	X	
	X	10	X	

On Stanley Duraglide replace label for function switches with the one included in kit (DC-3392).





**Door Controls USA, Inc.**  
321 VZ County Road 4500  
Ben Wheeler, TX 75754  
Phone: 1-800-437-3667  
Fax: 1-800-356-8858  
Email: [parts@doorcontrolsUSA.com](mailto:parts@doorcontrolsUSA.com)  
[doorcontrolsUSA.com](http://doorcontrolsUSA.com)