TERRA UNIVERSAL.COM
Critical Environment Solutions

Installation and Operating Guide *Document No. 1800-22*

Pre-Hung Swing Door

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Pre-Hung Swing Door

1. General Information

This manual provides the operational and installation guidelines for pre-hung manual and automatic swing doors. The doors are pre-hung to a frame to allow fast and easy mounting with either stainless steel push or pull handles and heavy-duty stainless steel flush-mounted mortised hinges. All hardware locations are reinforced with internal steel backing plates. Doors also include an adjustable ADA compliant heavy-duty hydraulic door closer that meets ANSI Grade 1 standards and a continuous three-sided perimeter gasket for a tight seal. Custom door designs allow for different lock and lever compatibility. The door frame can be customized to a larger thickness on special orders. Following the instructions and recommended maintenance will help ensure a long and efficient service life from the unit.

Figure 1: Left hand reverse stainless steel door with full tempered glass window

Figure 2: Stainless steel automatic door with full tempered glass window and motion sensor

1.1 Stainless Steel Doors

Stainless steel doors have a flush-mount dual-pane window design that simplifies cleaning. They provide resistance to most chemicals and minimize surface particle shedding. Door handles can be used for every application with a cylindrical lockset and angled design for a durable, easy-to-maintain entry point. Stainless steel door options are available for air showers and tunnels.

The BioSafe® CleanSeam™ 316L SS doors are medical-grade, USP-compliant and designed for life science applications, such as biotechnology and drug manufacturing. The continuous-seam welds eliminate cracks and crevices for easy cleaning and sterilization. The BioSafe® product has no gaps and crevices where microbes can colonize, rounded corners for easy disinfection, won't produce contaminants during sterilization, and exceeds cGMP, IEST, ASTM and ISO 14664-1 requirements. BioSafe® models feature an automatic door bottom, which is comprised of a fully concealed drop-down gasket that seals the bottom gap when the door closes.

Figure 3: Stainless steel door provides resistance to chemicals and particle shedding

Figure 4: Automatic door sweep with fully concealed drop-down gasket

1.2 Aluminum Doors

Aluminum doors are pre-hung and can be used for cleanrooms, air showers and tunnels with a durable powder coating formulation that exceeds the ASTM and ISO paint standards for hardness, thickness, humidity resistance, gloss and impact testing. The stand-alone aluminum doors with powder-coated steel frames are ideal for cleanrooms because they can be made to fit any wall thickness. Aluminum doors provide a low cost alternative for facilities with less stringent cleanliness requirements. These doors have excellent UV protection and have good resistance to chemicals and weather.

Figure 1: Powder-coated aluminum-framed door and door frame

1.3 Door Orientation

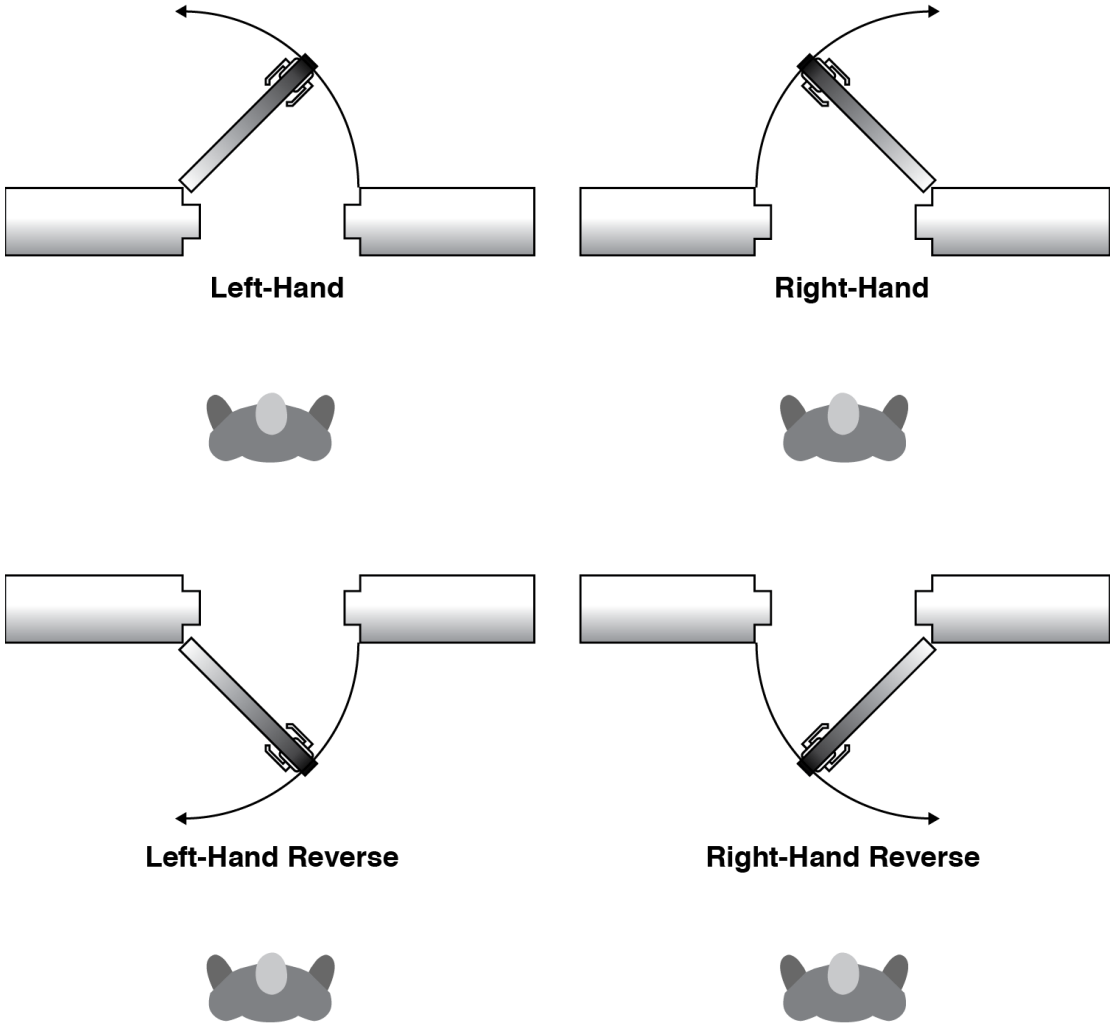


Figure 2: Door swing direction while standing on the SECURE side (keyside) or OUTSIDE of the door

1.4 Part Numbers Covered by Manual

Part Numbers	Door Panel	U-Frame Material	Operation	Opening Action	Height	Width	Window Size
6502-80B-L	304 SS	304 SS	Manual	Single Left Swing	84”	42”	-
6502-80B-R	304 SS	304 SS	Manual	Single Right Swing	84”	42”	-
6502-81B-L	304 SS	304 SS	Manual	Single Left Swing	84”	42”	Half
6502-81B-R	304 SS	304 SS	Manual	Single Right Swing	84”	42”	Half
6502-82B-L	304 SS	304 SS	Manual	Single Left Swing	84”	42”	Full
6502-82B-R	304 SS	304 SS	Manual	Single Right Swing	84”	42”	Full
6502-92B-L	304 SS	304 SS	Manual	Single Left Swing	80”	36”	Full
6502-92B-R	304 SS	304 SS	Manual	Single Right Swing	80”	36”	Full
6502-94B	304 SS	304 SS	Manual	Double Swing	84”	72”	Full
6502-94B-L	304 SS	304 SS	Manual	Single Left Swing	84”	36”	Full
6502-94B-R	304 SS	304 SS	Manual	Single Right Swing	84”	36”	Full
6602-92B-L	304 SS	304 SS	Manual	Single Left Swing	80”	36”	Half
6602-92B-R	304 SS	304 SS	Manual	Single Right Swing	80”	36”	Half
6602-94B	304 SS	304 SS	Manual	Double Swing	84”	72”	Half
6602-94B-L	304 SS	304 SS	Manual	Single Left Swing	84”	36”	Half
6602-94B-R	304 SS	304 SS	Manual	Single Right Swing	84”	36”	Half
6602-96B-L	304 SS	304 SS	Manual	Single Left Swing	80”	36”	-
6602-96B-R	304 SS	304 SS	Manual	Single Right Swing	80”	36”	-
6602-97B	304 SS	304 SS	Manual	Double Swing	84”	72”	-
6602-97B-L	304 SS	304 SS	Manual	Single Left Swing	84”	36”	-
6602-97B-R	304 SS	304 SS	Manual	Single Right Swing	84”	36”	-
6603-80A-L	316 SS	316 SS	Manual	Single Left Swing	80”	36”	Half
6603-80A-R	316 SS	316 SS	Manual	Single Right Swing	80”	36”	Half
6603-81A	316 SS	316 SS	Manual	Double Swing	84”	72”	Half
6603-82A	316 SS	316 SS	Manual	Double Swing	84”	72”	Full
6603-83A-L	316 SS	316 SS	Manual	Single Left Swing	80”	36”	Full
6603-83A-R	316 SS	316 SS	Manual	Single Right Swing	80”	36”	Full
6603-84A	316 SS	316 SS	Manual	Double Swing	84”	72”	-
6603-84A-L	316 SS	316 SS	Manual	Single Left Swing	84”	36”	-
6603-84A-R	316 SS	316 SS	Manual	Single Right Swing	84”	36”	-
6603-85A-L	316 SS	316 SS	Manual	Single Left Swing	80”	36”	-
6603-85A-R	316 SS	316 SS	Manual	Single Right Swing	80”	36”	-
6603-86A-L	316 SS	316 SS	Manual	Single Left Swing	84”	36”	Half
6603-86A-R	316 SS	316 SS	Manual	Single Right Swing	84”	36”	Half
6603-87A-L	316 SS	316 SS	Manual	Single Left Swing	84”	36”	Full
6603-87A-R	316 SS	316 SS	Manual	Single Right Swing	84”	36”	Full
6603-88A-L	316 SS	316 SS	Manual	Single Left Swing	84”	42”	-
6603-88A-R	316 SS	316 SS	Manual	Single Right Swing	84”	42”	-
6603-89A-L	316 SS	316 SS	Manual	Single Left Swing	84”	42”	Half
6603-89A-R	316 SS	316 SS	Manual	Single Right Swing	84”	42”	Half
6603-90A-L	316 SS	316 SS	Manual	Single Left Swing	84”	42”	Full
6603-90A-R	316 SS	316 SS	Manual	Single Right Swing	84”	42”	Full
6710-78-L-PC	Tempered Glass	Powder-Coated Steel	Manual	Single Left Swing	81”	36”	-
6710-78-R-PC	Tempered Glass	Powder-Coated Steel	Manual	Single Right Swing	81”	36”	-
6710-80-PC	Tempered Glass	Powder-Coated Steel	Manual	Double Swing	81”	72”	-
6710-85-PC	Acrylic	Powder-Coated Steel	Manual	Double Swing	81”	72”	-
6710-86-PC	Polypropylene	Powder-Coated Steel	Manual	Double Swing	81”	72”	-
6710-87-PC	Static-Dissipative PCV	Powder-Coated Steel	Manual	Double Swing	81”	72”	-
6710-88-L-PC	Acrylic	Powder-Coated Steel	Manual	Single Left Swing	81”	36”	-
6710-88-R-PC	Acrylic	Powder-Coated Steel	Manual	Single Right Swing	81”	36”	-
6710-89-L-PC	Polypropylene	Powder-Coated Steel	Manual	Single Left Swing	81”	36”	-
6710-89-R-PC	Polypropylene	Powder-Coated Steel	Manual	Single Right Swing	81”	36”	-

Pre-Hung Swing Door

6710-90-L-PC	Static Dissipative PVC	Powder-Coated Steel	Manual	Single Left Swing	81”	36”	-
6710-90-R-PC	Static Dissipative PVC	Powder-Coated Steel	Manual	Single Right Swing	81”	36”	-
6710-97-L-PC	Polycarbonate	Powder-Coated Steel	Manual	Single Left Swing	81”	36”	-
6710-97-R-PC	Polycarbonate	Powder-Coated Steel	Manual	Single Right Swing	81”	36”	-
6710-98-PC	Polycarbonate	Powder-Coated Steel	Manual	Double Swing	81”	72”	-
1998-93	Tempered Glass	304 SS	Automatic	Double Swing	81”	72”	Full
1999-93A	Tempered Glass	304 SS	Automatic	Double Swing	81”	72”	Half
1998-87-R	Tempered Glass	304 SS	Automatic	Single Right Swing	81”	36”	Full
1998-87-L	Tempered Glass	304 SS	Automatic	Single Left Swing	81”	36”	Full
1999-87A-R	Tempered Glass	304 SS	Automatic	Single Right Swing	81”	36”	Half
1999-87A-L	Tempered Glass	304 SS	Automatic	Single Left Swing	81”	36”	Half
1999-95	Tempered Glass	316L SS	Automatic	Double Swing	81”	72”	Full
1999-94	Tempered Glass	316L SS	Automatic	Double Swing	81”	72”	Half
1999-96-R	Tempered Glass	316L SS	Automatic	Single Right Swing	81”	36”	Full
1999-96-L	Tempered Glass	316L SS	Automatic	Single Left Swing	81”	36”	Full
1999-89-R	Tempered Glass	316L SS	Automatic	Single Right Swing	81”	36”	Half
1999-89-L	Tempered Glass	316L SS	Automatic	Single Left Swing	81”	36”	Half
1999-80-L-PC	Tempered Glass	Powder-Coated Steel	Automatic	Single Left Swing	81”	36”	-
1999-80-R-PC	Tempered Glass	Powder-Coated Steel	Automatic	Single Right Swing	81”	36”	-
1999-81-PC	Tempered Glass	Powder-Coated Steel	Automatic	Double Swing	81”	72”	-
1999-86-L-PC	Static Dissipative PVC	Powder-Coated Steel	Automatic	Single Left Swing	81”	36”	-
1999-86-R-PC	Static Dissipative PVC	Powder-Coated Steel	Automatic	Single Right Swing	81”	36”	-
1999-88-L-PC	Polycarbonate	Powder-Coated Steel	Automatic	Single Left Swing	81”	36”	-
1999-88-R-PC	Polycarbonate	Powder-Coated Steel	Automatic	Single Right Swing	81”	36”	-
1999-91-PC	Static Dissipative PVC	Powder-Coated Steel	Automatic	Double Swing	81”	72”	-
1999-92-PC	Polycarbonate	Powder-Coated Steel	Automatic	Double Swing	81”	72”	-

2. Safety

Proprietary Notice	Safety Notice
This manual pertains to proprietary devices manufactured by Terra Universal, Inc. Neither this document nor any portion of it may be reproduced in any way without prior written permission from Terra Universal. Terra Universal makes no warranties applying to information contained in this manual or its suitability for any implied or inferred purpose. Terra Universal shall not be held liable for any errors this manual contains or for any damages that result from its use.	A thorough familiarity with all operating guidelines is essential to safe operation of the product. Failure to observe safety precautions could result in poor performance, damage to the system or other property, or serious bodily injury or death. The following symbols are intended to call your attention to two levels of hazard involved in operation. CAUTION — **Cautions are used when failure to observe instructions could result in significant damage to equipment.** WARNING — **Warnings are used when failure to observe instructions or precautions could result in injury or death.**
The information presented here is subject to change without notice.	

Critical Operation Conditions

- Do not drag door across the floor – door should be lifted and carried when being moved.
- Ensure the slab is secured prior to installation.
- Do not put stress on joints, corners or frames.
- Doors should be handled with clean hands or while wearing clean gloves.

CAUTION

- **The hinged side of the door must be installed at a 90° angle – use leveler – or else the door will not be secure.**
- Ensure that the door will properly fit in the frame opening – recommended frame opening is 1.75” wider and 3.5” higher than the door unit.
- Consult local building code official for applicable building codes and regulations. Local building code requirements supersede recommended installation instructions.
- Doors are intended for use in positive or negative pressure cleanrooms where air movement is acceptable.

WARNING

- **Doors are not hermetically sealed and not intended for spaces mitigating operator exposure to biohazards, chemicals, or nauseating odors.**

3. Setup

Inspect door upon arrival to ensure the door is the correct size, design, machining, and color. Verify proper door swing orientation and check for cosmetic damage. If any conditions raise a concern, do not install the door. Contact Terra for recommendations.

3.1 Required Tools

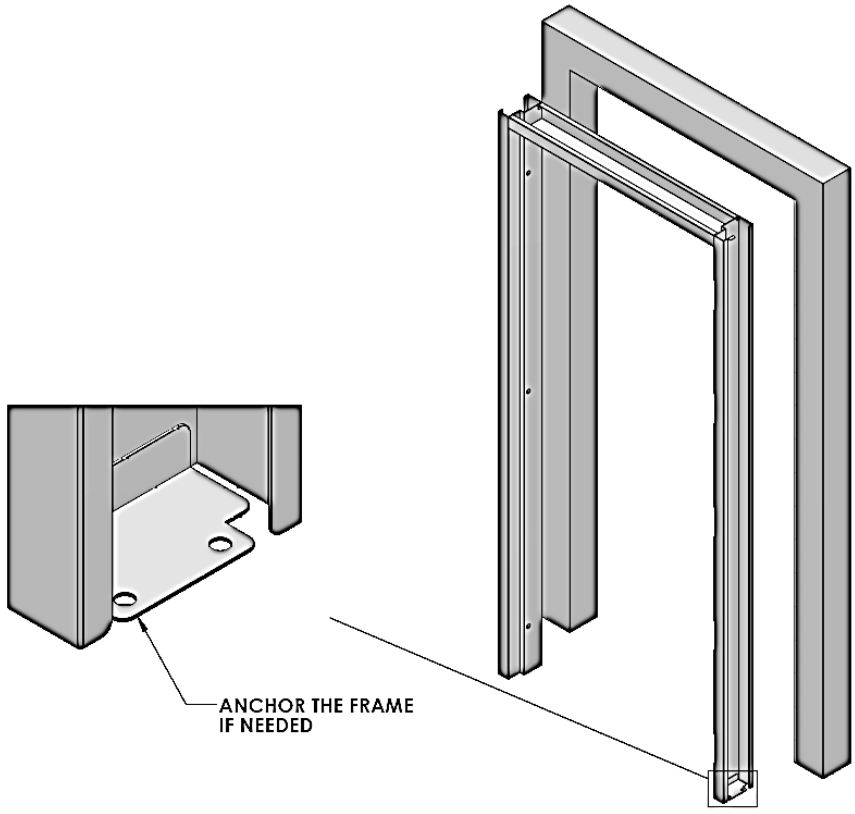
These tools are needed for door assembly:

- Bolts
- Screws
- Screwdriver
- Leveler (bullet or laser; laser preferably)

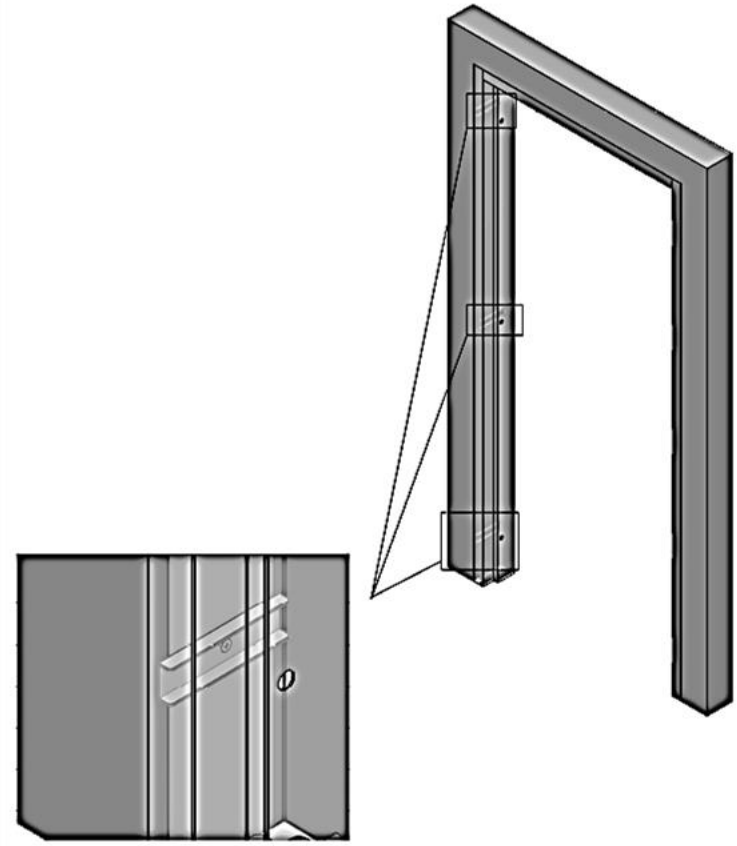
3.2 Installation

The aluminum and stainless steel pre-hung doors use the same knock-down steel U-frame. The U-Frame will arrive assembled and fits on stud frame walls; frames can be customized to various wall thicknesses. Installation requires two or more people to safely and effectively install the door. Before starting installation, make sure the frame opening is the correct width and is perfectly vertical, square and level. If the opening is not correct, it can cause issues with the door fit as well as hardware function.

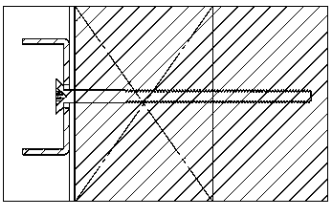
1. Place the U-Frame in the wall opening.
   a. Secure and flush with the wall.
   b. Anchor the frame if needed.

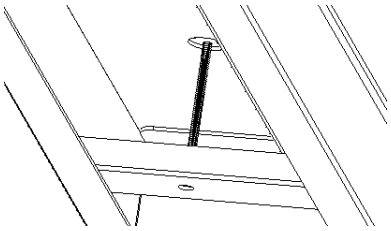


2. Fasten the U-Frame to the wall – use screws to secure the support plates located on the back of the frame.



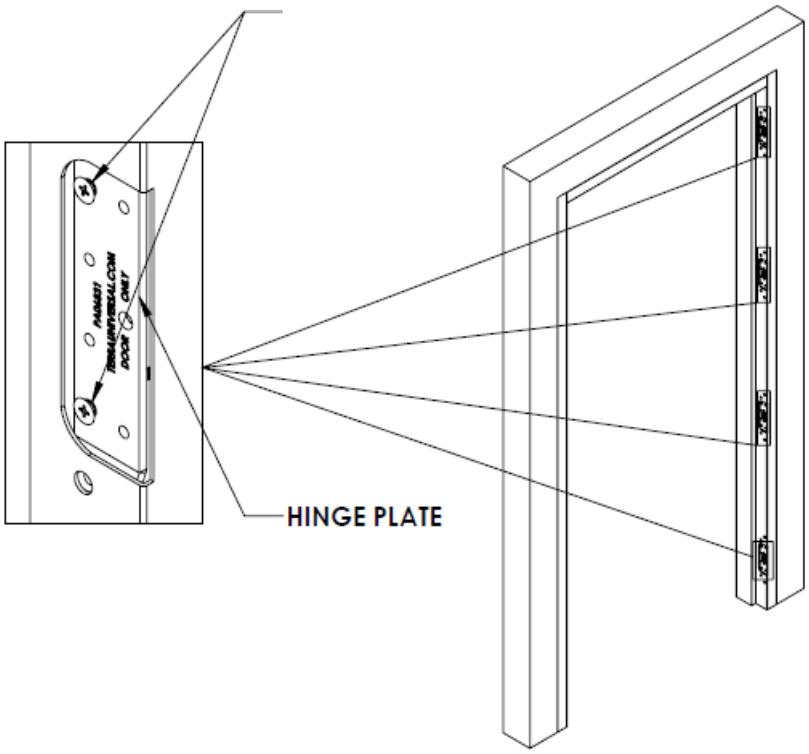
3. Ensure screws are drilled straight into the wall. Drilling screws at an angle could cause door to be misaligned.



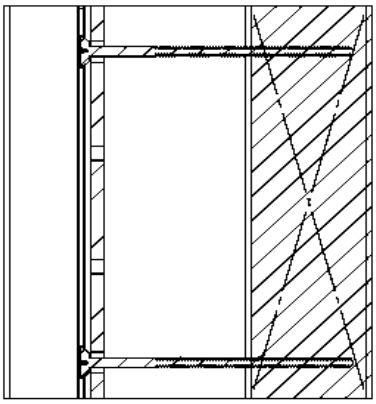


4. Plug the hole with the provided plastic plug.
5. Countersink the two holes on the U-Frame where the screws are shown based on the screws that will be used.
    a. Attach the hinges to the door using the provided machine screws. Do not overtighten screws.

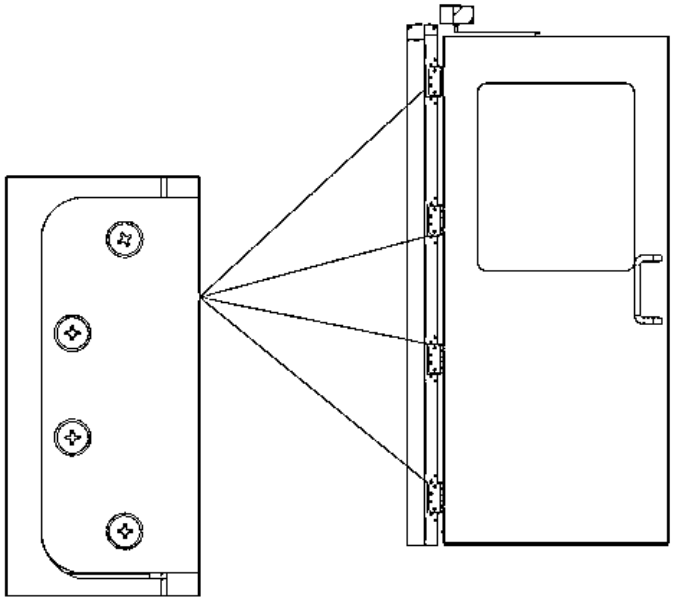
6. Fasten the U-Frame to the wall on the hinge side by inserting screws through the two holes on the hinge plates.



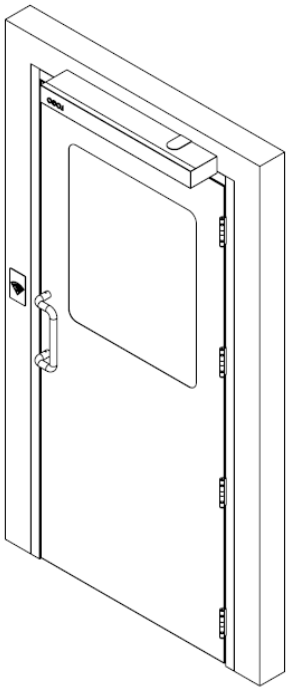
7. Ensure hinge screws are drilled straight into the wall. Drilling screws at an angle could cause door to be misaligned.



8. Position the door near the frame.
9. Lift the door using a wood wedge (or other support) under the door such that door and frame hinge holes are level.
10. Align the top hinge on the door with the top hinge cutout on the frame – install the hinges starting from the top hinge down to the bottom hinge.



11. If installation requires electrical components, install conduits for low voltage wiring.
12. Align the holes on the hinge plate with the holes on the hinge. Screw the door onto the U-Frame.
13. Remove the wood wedge (or other support) from under the door.
14. Close the door to verify proper clearances between the rabbet of the frame and the edge of the door. The door should swing freely. If the door does not swing freely, reference troubleshooting section to understand issues such as bind or alignment.



15. Caulk the gaps between the door and the U-Frame.
16. Install lockset, closer, or any other auxiliary hardware.

4. Manual Doors

Manual doors have a 180° swinging range and a variety of door handles. Stainless steel manual doors feature flush mount dual-pane windows that simplify cleaning. Aluminum manual doors offer an economical alternative with a single-pane window design. Both door designs can be configured with optional two-way swinging hinges. These bidirectional doors can be pushed open from both directions for better traffic flow and improved safety. Additional customizable options are available for compatibility with different electrical strikes, locks and levers for the stainless steel doors. Any custom electrical or mortised lockset hardware must be sent to Terra Universal before any drawings can be completed.

Figure 3: Stainless steel manual door

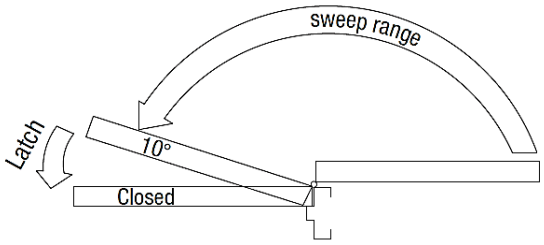
Figure 4: Powder coated aluminum-framed manual door

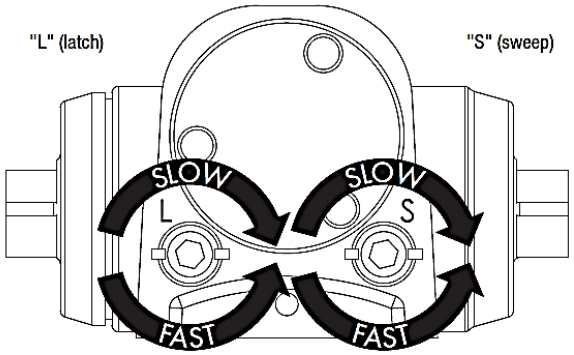
4.1 Hydraulic Door Operator

Adjusting manual door closing speed

Closing Speed Controls

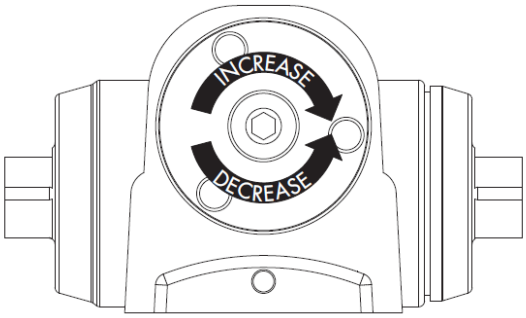
- Valve “S” controls sweep range
- Valve “L” controls latch range





Closing Power Control

- To increase power turn clockwise 13 turns maximum
- To decrease power turn counterclockwise



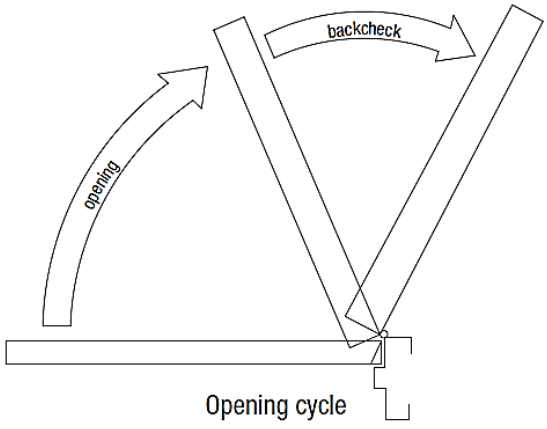
Power Adjustment Chart

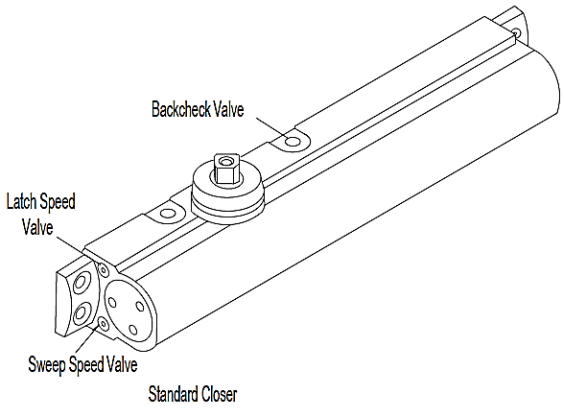
Door Size (Inches)	Full clockwise turns of closer power adjustment nut (from “0” turns)	
	Interior Door	**Exterior Door**
24” – 30” (61 cm – 76cm)	-4	0
30” – 34” (76 cm – 86 cm)	0	5
34” – 38” (86 cm – 97 cm)	6	10
38” – 48” (97 cm – 122 cm)	12	
48” – 54” (122 cm – 137cm)		

Note: Maximum of 20 turns (360°) of power adjustment nut. Closer is shipped at 7 turns from the factory.

Opening Door Control

Backcheck valve controls the hydraulic resistance to door opening.
Never close this valve completely – it is not to provide a position.





5. Automatic Doors

Pre-hung automatic swing doors utilize hands-free operation which reduces the spread of germs and cross-contamination and allows easy access for persons carrying objects or pushing carts. These doors have whisper-quiet operation and are ADA compliant. The door operator is 65% smaller than other manufacturer models and is designed for single door and double door configurations. The door operator allows for 12 programmable options such as opening/closing speeds, hold-open time delay, and opening/closing force with optional integration with control systems. Automatic doors also include advanced power assist during opening cycle so that minimal effort is required when operated manually. The automatic door is shipped pre-hung on the specified frame and arrives ready to install into the wall opening. Automatic doors also include a blow-open feature for smoke ventilation (per NFPA 92B). The automatic door closer is shipped separately from the automatic door.

Figure 5: Automatic powder-coated aluminum swing door with automatic opening sensor

Figure 10: Stainless steel door with partial view tempered glass window and automatic opening sensor

5.1 Power Requirements

- The automatic door closer is shipped separately from the door and includes power cable from the manufacturer of the automatic door closer.
- Power must be hardwired by a certified electrician.
- See below link for an in-depth installation manual for additional automatic door closer details: https://www.dormakaba.com/resource/blob/195044/d2556259cbeb1830cbd7b77a9172fa12/08125310-r021120-ed900--fine-cover--installation-instructions---single-door-pdf-data.pdf

Power Requirements	
Voltage	115V ±10%
Current	6.6 Full Load Amps
Frequency	50/60 Hz

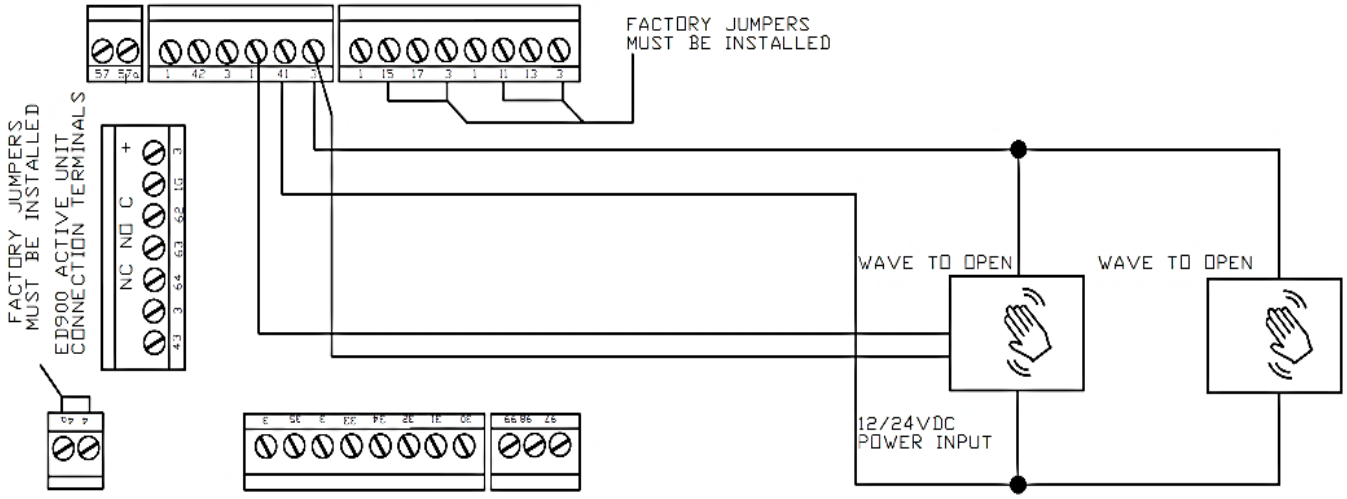


Figure 11: Automatic door closer connection terminals

5.2 Automatic Door Closer

5.2.1 Installation

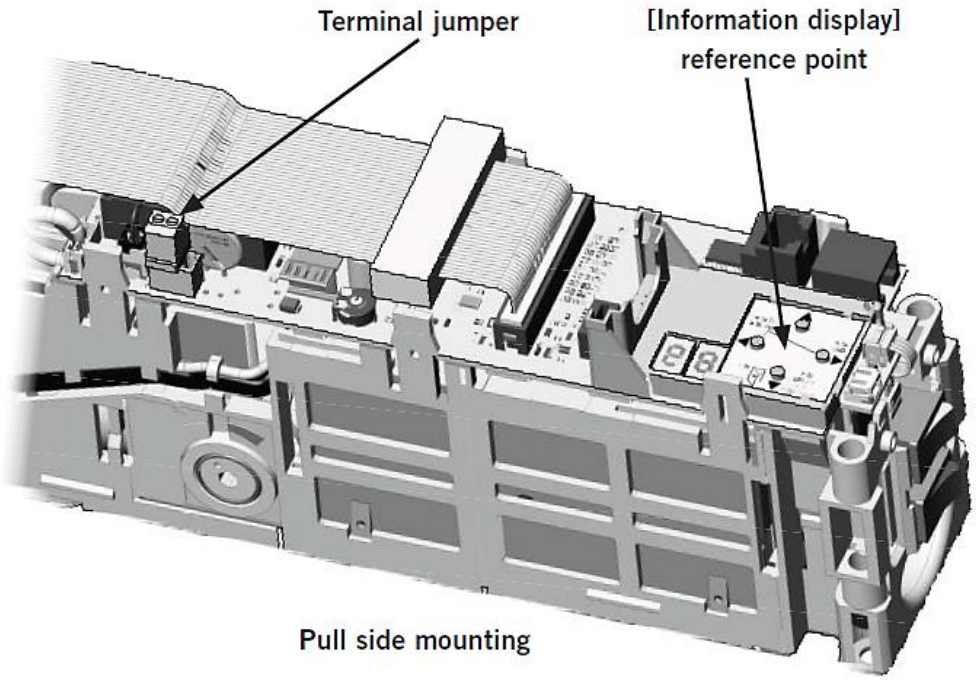
These steps should be completed after the door closer is mounted to the door and U-Frame. Verify the manual settings prior to starting the commission (spring force, closing speed, adjusting of braking circuit).

Step 1: Write your door values in the chart for reference prior to starting the learning cycle. See learning cycle reference charts.

		Coordinating Setting Value
Mount Type	**PUSH or PULL (circle one)**	
Reveal depth measurement: Distance from the face of the mounting surface, to the door face.	**Reveal depth Measurement**	
Door width measurement: Measure the width by the door in inches and divide by 4.	**Door width measurement**	
Door type: single door, double door, etc.		

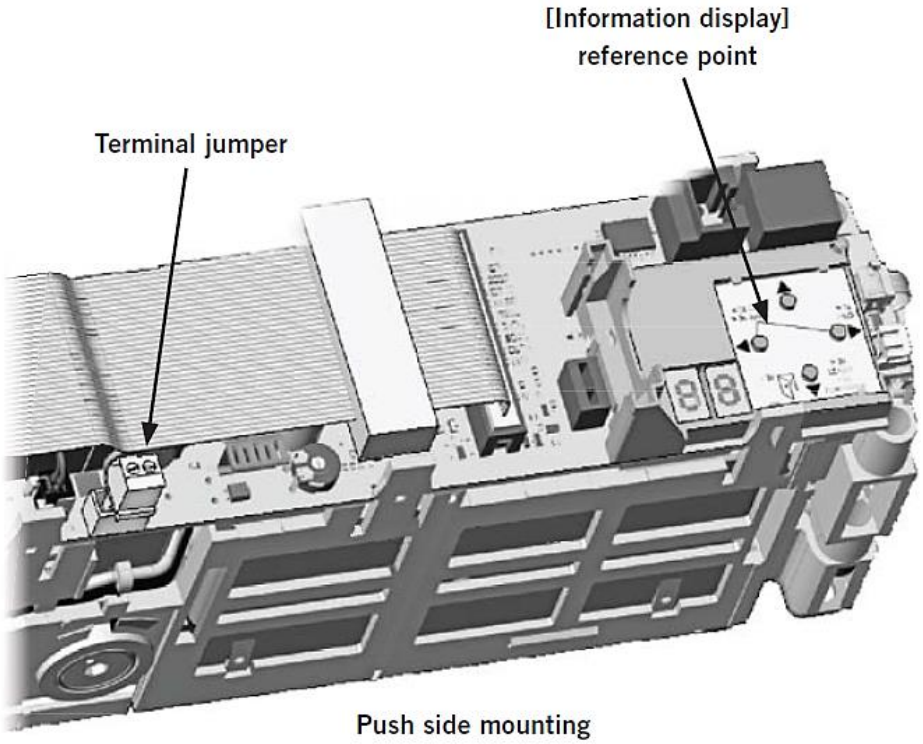
Step 2: Set the green terminal jumper for push or pull side mounting

- Pull side mounting: terminal jumper is positioned **AWAY** from the information display.



Pull side mounting

- Push side mounting: terminal jumper is positioned **CLOSER** to the information display.

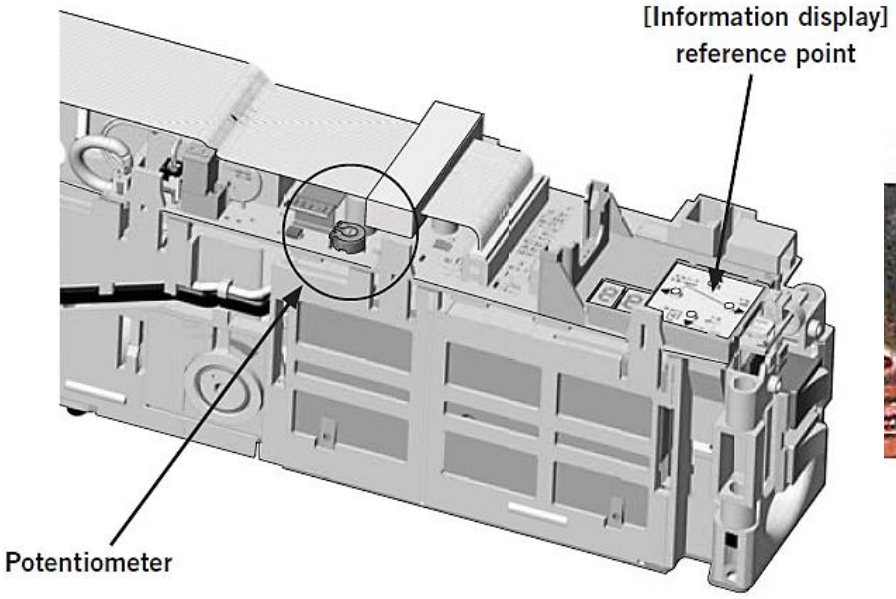


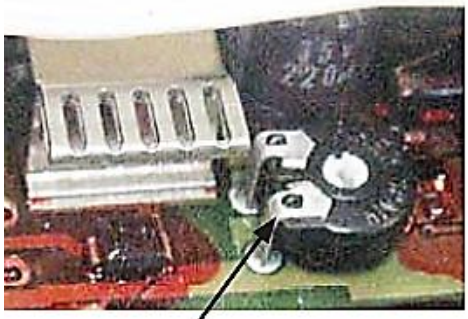
Push side mounting

Step 3: Manually open door to a 90° angle and let it close.

CAUTION

Door should fully close at a speed greater than 3 seconds. If door closes in less than 3 seconds, turn the potentiometer ¼ turn clockwise and repeat step 3.

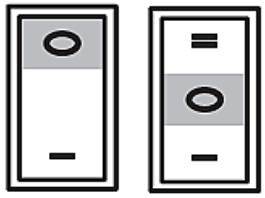




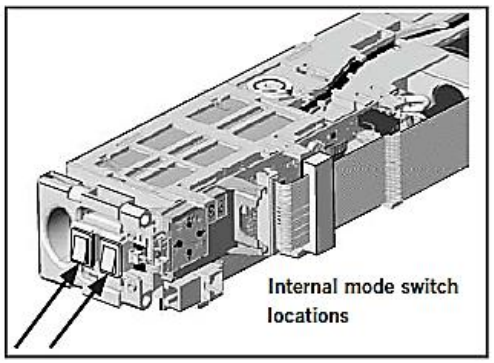
READ THIS BEFORE PERFORMING STEPS 4-6.

NOTE: After turning the internal mode switches and the power switch ON (step 4 & 5), 2 dashed horizontal lines will begin moving up and down in the display. Be sure to press the **BOTTOM** yellow button (Step 6) **WHILE** the 2 horizontal lines are moving up and down.

Step 4: Set the internal mode switches to the OFF position: "O" and "O".

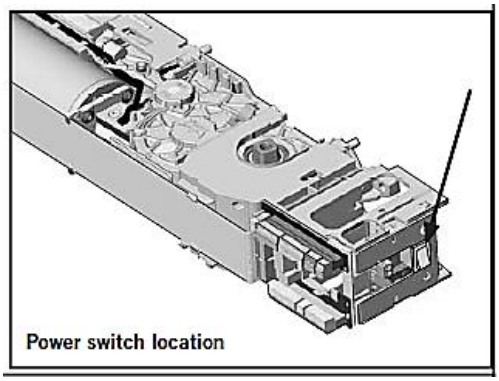


Internal mode switches



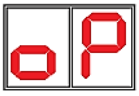
Step 5: Set the power switch to the ON position: "_" – 2 horizontal dashed lines will begin moving up and down for 5 seconds.

Power switch



Step 6: Press BOTTOM yellow button **WHILE** the 2 horizontal lines are moving up and down.

- This will orient the unit for left or right hand mounting
- The unit will continue to scroll information on the display as the process is starting.
- "oP" will be displayed.
- If the button is not pushed while the 2 horizontal lines are moving up and down, turn operator **OFF** and **ON** again to start over.



Note: If at any time during the commissioning process, the  (rotating "o" and "P") appears after approximately 1 minute of inactivity, press and hold the **RIGHT** yellow button until the previous programming step appears. Then continue with the commissioning process.

Learning cycle reference charts located on page 24.

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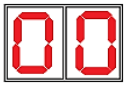
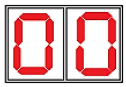
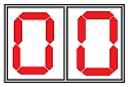
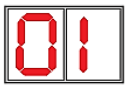
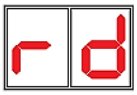
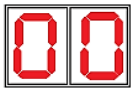
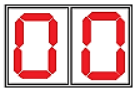
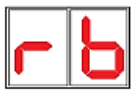
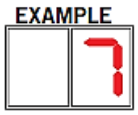
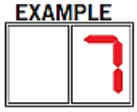
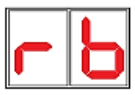
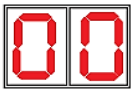
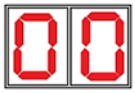
Critical Environment Solutions

Installation and Operating Guide *Document No. 1800-22*

Pre-Hung Swing Door

Step 7: Press and hold **RIGHT** yellow button – display will read "AS". 	**Step 8:** Press **RIGHT** yellow button – display will read "00". 	**Step 9:** Press **RIGHT** yellow button again – "OO" will begin flashing. 	**Step 10:** Toggle **UP** or **DOWN** to select proper value. Pull Side: "00" / Push Side: "01" 
Step 11: Press **RIGHT** yellow button to lock value entered. 	**Step 12:** Press **LEFT** yellow bellow to return to programming menu. 	**Step 13:** Press **BOTTOM** yellow button to move to next item in menu – **Reveal Depth Screen.** 	**Reference door value chart** **Step 14:** Press **RIGHT** yellow button – display will read "00". 
Step 15: Press **RIGHT** yellow button again – "00" will begin flashing. 	**Reference reveal depth charts** **Step 16:** Toggle **UP** or **DOWN** to select proper value. EXAMPLE 	**Step 17:** Press **RIGHT** yellow button to lock value entered. EXAMPLE 	**Step 18:** Press **LEFT** yellow button to return to programming menu. 
Reference Door Value Chart **Step 19:** Press **BOTTOM** yellow button to move to next item in menu.  **Door Width Screen**	**Step 20:** Press **RIGHT** yellow button – display will read "10". 	**Step 21:** Press **RIGHT** yellow button again – "10" will begin flashing. 	**Reference Door Width Chart** **Step 22:** Toggle **UP** or **DOWN** to select proper value. EXAMPLE 
Step 23: Press **RIGHT** yellow button to lock value entered. EXAMPLE 	**Step 24:** Press **LEFT** yellow button to return to programming menu. 	**FOR SINGLE DOORS SKIP TO STEP 30**	**Reference Door Value Chart** **Step 25:** Press **BOTTOM** yellow button to move to next item in menu.  **Door Type Screen**

Pre-Hung Swing Door

<table>
<tr><td>Step 26: Press RIGHT yellow button – display will read “00”.
  </td><td>Step 27: Press RIGHT yellow button again – “00” will begin flashing.
  </td><td>Reference Door Type Chart

Step 28: Toggle UP or DOWN to select proper value.
  </td><td>Step 29: Press RIGHT yellow button to lock value entered.
  </td></tr>
<tr><td>Step 30: Press LEFT yellow button to return to programming menu.
  </td><td>Step 31: Press LEFT yellow button again – display will read “o0”.
  </td><td colspan="2" rowspan="2">Step 32: Press & hold BOTTOM yellow button for 3 seconds.
• Unit will make some automatic movements as it starts the learning process.

DO NOT INTERFERE WITH THESE MOTIONS DURING THIS PROCESS!

• Door will open 70° and STOP at that angle.
• Display will read “04”.
  </td></tr>
<tr><td colspan="2"></td></tr>
<tr><td>Step 33: From the 70° angle, manually push the door open to the desired opening angle (max 110°).

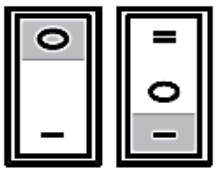
DO NOT ALLOW THE DOOR TO HIT AGAINST ANY FIXED OBJECTS, INCLUDING DOOR STOPS!</td><td colspan="3">Step 34: Press BOTTOM yellow button to continue the learning process.

DO NOT INTERFERE WITH THESE MOTIONS DURING THIS PROCESS!

When complete, display will read “ _ _ “.
  </td></tr>
</table>

Step 35: Set the operator to Automatic Mode.

The unit is now ready to add accessories and switches.



Automatic

Adjust the 2 pole switch to "O".

Adjust the 3 pole switch to "_".

5.2.2 Learning Cycle Reference Charts

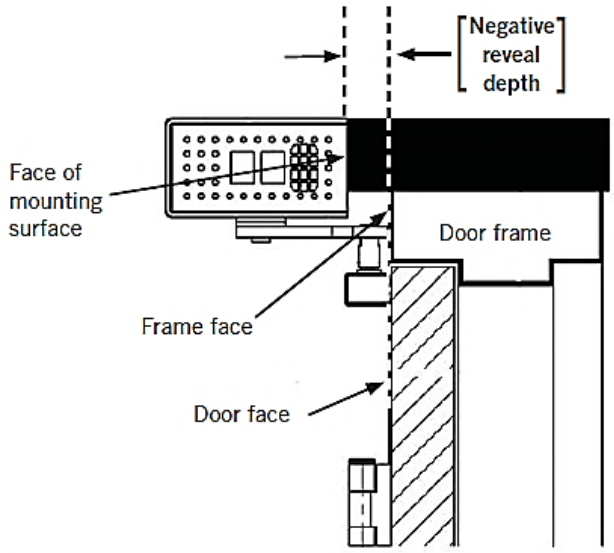
Setting 'AS': Step 7		
Type of Mount	**ED900 Type**	**Value**
Push side	ED900	01
Pull side	ED900T	00

Setting 'rd': Step 13 Reveal Depth Chart	
Reveal in inches	**Value**
-1-1/8	-3
-3/4	-2
-3/8	-1
0	0
3/8	1
3/4	2
1-1/8	3
1-1/2	4
1-7/8	5
2-1/4	6
2-5/8	7
3	8
3-3/8	9
3-3/4	10
4-1/8	11
4-1/2	12
4-7/8	13
5-1/4	14
5-5/8	15
6	16
6-3/8	17
6-3/4	18
7-1/8	19
7-1/2	20
7-7/8	21
8-1/4	22
8-5/8	23
9	24
9-3/8	25
9-3/4	26
10-1/8	27
10-1/2	28
10-7/8	29

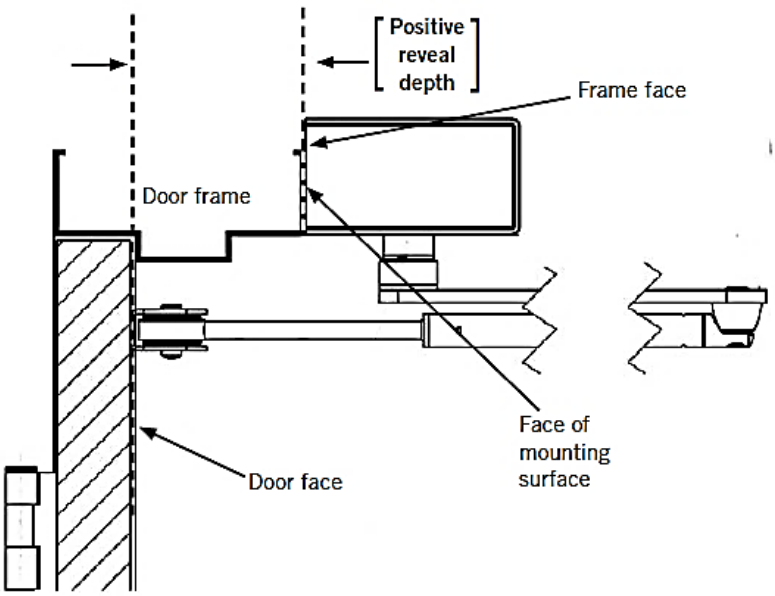
Setting 'rb": Step 19 Door Width Chart	
Door Width in inches	**Value**
28 to 31-7/8"	7
32 to 35-7/8"	8
36 to 39-7/8"	9
40 to 43-7/8"	10
44"	11

Setting 'dl': Step 25 Door Type Chart	
Door Type	**Value**
Single Door	0
Double door leaf (astragal) active door	1
Double door leaf (astragal) passive door	2
Double door leaf (no astragal) active door	3
Double door leaf (no astragal) passive door	4

Negative reveal depth



Positive reveal depth



5.3 Hand Wave Sensors

CAUTION

- Turn off power before attempting wiring procedures.
- Restrict employee access through doorway when conducting tests that may result in unexpected reactions by the door.
- Ensure that moving door parts do not catch any wires – this will prevent damage to the equipment.
- Do not attempt to repair any internal components. All repairs and/or component replacements must be performed by the manufacturer.
- Verify correct line voltage and line stability before installation.

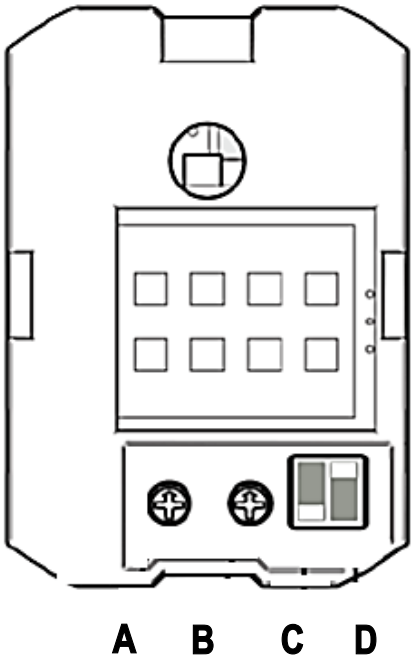
Sensor Adjustments:

A. *Sensitivity potentiometer*: Adjust detection field from 4" to 24" (rotate clockwise to increase)
Factory Default: 4" (fully CCW)

B. *Hold time potentiometer*: Adjust relay hold time from 0.5 seconds to 30 seconds (rotate clockwise to increase)
Factory Default: 0.5 sec (fully CCW)

C. *Output mode switch*: Determines Toggle mode or Timer mode
Toggle (switch up) – detection activates the relay and the relay holds until a second detection deactivates the relay (recommended for switch applications.)
Timer (switch down, factory default) – detection activates the relay for 0.5 seconds to 30 seconds; relay will hold as long as detection occurs.

D. *LED mode switch*: Determines if LED illuminates when in detection or when not in detection.



Specifications	
Technology:	Microwave motion sensor
Radiated Frequency:	24.125 GHz
Radiated Power Density:	< 5 mW/cm²
Voltage:	12 – 24 VAC ±10% 12 – 24 VDC +30% / -10%
Frequency:	50 – 60 Hz
Power Consumption:	< 1.5W
Output: **Max. Voltage** **Max. Current** **Max. switching power**	Relay with switch-over contact (voltage-free) 60 VDC / 125 VAC 1A (resistive) 30W DC / 60 VAC
Detection Range:	4 – 24" (adjustable)
Detection mode:	Motion (bidirectional)
Output hold time:	0.5 – 30 sec
Temperature Range:	-4°F to 131°F (-20°C to 55°C)
Weight:	0.34 lbs

5.4 Interlocks

5.4.1 Set-Up

a. Install the interlock box on top of the ceiling and between the doors that will be interlocked.
b. Verify that the cables from the doors and E-stop will reach the installation location with a minimum of 2" of slack.
c. Twist the quick connectors on the ports on the interlock box without straining the cable ends.
d. Plug the interlock box's power cable into a 120V / 60 Hz compatible outlet.
e. Find a suitable location for E-Stop that is easily accessible in an emergency situation.
f. Attach the quick-connector(s) from the door's electromagnetic locks and E-stop to the interlock box.
    i. Verify the connectors are attached to the correct ports by their label identification.
    ii. Wrap up extra cables length leaving the minimum 2" slack.

5.4.2 Operation

The door interlock box will prevent interlocking doors from opening at the same time and reduce cross contamination. Pull and twist all E-Stops to disengage them and verify that the interlocking system is operational after installation. Test the interlocking mechanism by opening one of the interlocking doors and having another person try to open the other interlocking door. The second door should remain closed; if this is not the case, please refer to the troubleshooting section.

CAUTION

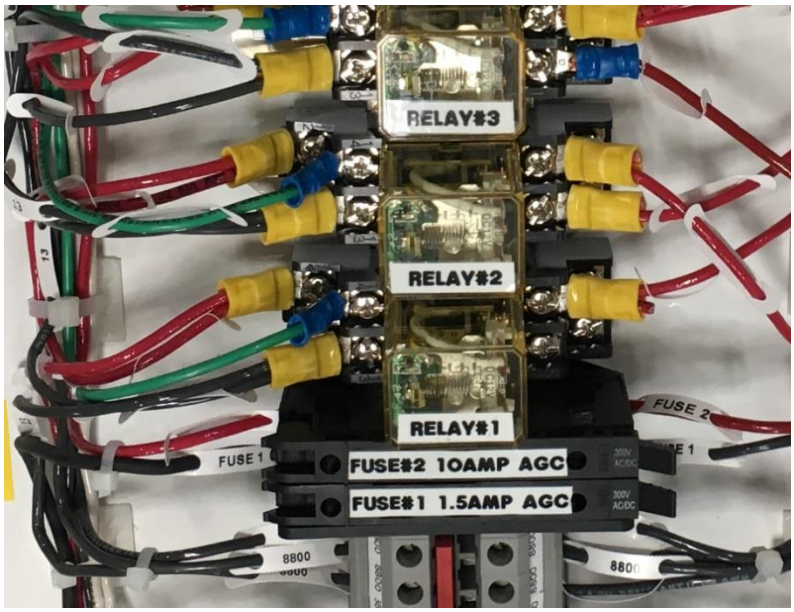
In the event of an emergency, the E-Stop can be pushed in to disable the interlocking. This will allow interlocking doors to open at the same time to aid in evacuation.

5.4.3 Specifications

Specifications	
Voltage	120V, 0.5Amp, 50/60 Hz
Dimensions	11"L X 6"H X 15"D
Weight	5 lbs

5.4.4 Troubleshooting

- Inspect the two fuses that protect the interlock box.
    - The first fuse is for the main line and the other fuse is for the low voltage DC supply.
    - Verify that the fuses are not burnt out. If they are, replace the broken fuses with the same rated fuse.

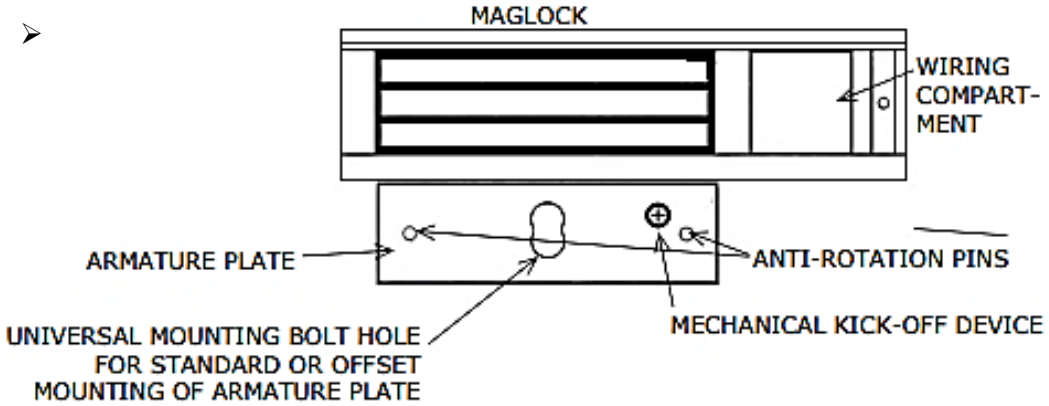


- Check that the E-Stop is not pushed in and engaged.
    - Pull and twist the E-Stop to disengage.

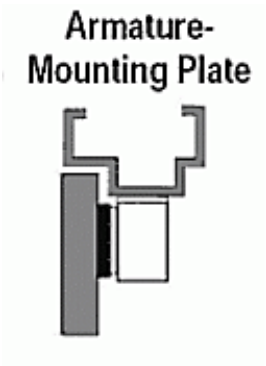
- Verify all cable connections are fitted properly to the interlock box.
    - Removing the quick-connector(s) from the interlock port and check that the quick-connector's pins are not bent or broken; repair if necessary.
    - Reinsert the quick-connector and twist clockwise to lock the connection in place.

- Check maglock and armature plate alignment.
  - Misalignment is indicated with a red color on the status indicator.

- Loosen the mounting bolt and adjust the maglock until the status indicator is no longer red.
  - Do not excessively tighten bolt – armature must float on door.



- The armature plate must cover all magnetic poles of lock.



6. Cleaning

Stainless Steel

- Stainless steel should be cleaned with isopropyl alcohol (or similar cleaning agent).and a non-shedding wiper.
- Confirm other cleaning agents are compatible with stainless steel.
- For cleanroom environments, Terra recommends use of knitted polyester wipers or spun-lace, non-woven blends of cellulose and polyester manufactured and packaged specifically for cleanroom use.
    - These products are manufactured under tightly controlled conditions that restrict the use of binders or chemical treatments that can outgas, and cleanroom packaging and strict lot control ensure optimal cleanliness.

Powder Coated Metal Components

- Use only clean water with slight additives of neutral washing agents (pH 5-8) with the aid of non-abrasive soft cloths, rags or industrial cotton. Strong rubbing is to be avoided.
- Do not use solvents or similar diluents containing ester, ketones, alcohol, aromatics, ethylene glycol or halogenated hydrocarbon.
- Joint sealants and other aids such as glazing aids, lubricant agents, drilling and cutting lubricants which come into contact with coated surfaces, must be pH-neutral and free of paint damaging substances. They must be first subjected to a suitability test.
- Due to the danger of changes in a color tone or effect, a test for suitability is to be undertaken for metallic powder coatings.
- Do not use scratching or abrasive agents.
- Do not use strong acids, alkaline detergents or introfiers.
- Do not use detergents of unknown composition.
- Detergents must not be used at temperatures higher than 77 °F (25 °C).
- Do not use steam-jet devices.
- During cleaning, the façade components surface temperature must not exceed 77 °F (25 °C).
- The maximum exposure period of detergents must not exceed one hour. When necessary, the entire cleaning process can be repeated at least after 24 hours.
- Rinsing with clean cold water should take place immediately after every cleaning process.
- A thorough cleaning of coated components is required to conserve the façade decorative appearance and to reduce the corrosion strain.
- Powder coated surfaces proper maintenance and regular servicing are prerequisites for claims related to any guarantee and require regular cleaning at least once per year.
- Buildings must be cleaned more often when they are located in severe polluted environments such as, a region with increased salt contamination and/or chemical exhausts, a direct area of influence or within the vicinity of an industrial or chemical enterprise, the immediate vicinity of a sea coast or within a defined chemical/radioactive precipitation zone.
- When a coated component is soiled during transportation, storage or assembly, cleaning the component must take place immediately with clear cold or lukewarm water.
- A neutral or weak alkaline detergent can be used against severe soiling.
- Further Information for maintenance and cleaning can be obtained, among others, from the American Architectural Manufacturer's Association (AAMA 610-1979 Cleaning Procedures).

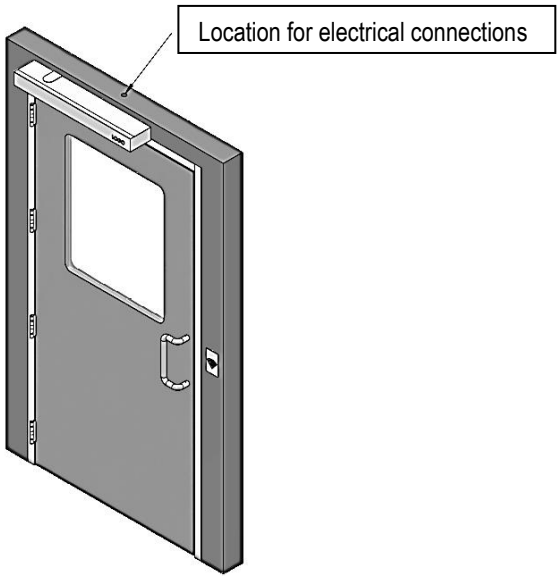
7. Troubleshooting

7.1 Door Frame Alignment

Issue	*Cause*	*Solutions*
Door sag	Loose hinges	• Tighten screws on the hinges.
	Worn hinges	• Replace hinges.
Offset at hinge leaf	Hinges not swaged properly	• Verify specifications for proper hinge swage. • Remove top hinge filler. • Add shims to bottom and/or middle hinge.
Door binding	Hinge bind, against rabbet	• Add shim between frame hinge reinforcement and the hinge leaf. • Add shim between door and the hinge leaf.
	Hinge bind, against stops	• Add shim between door and the frame to move door in desired direction.
Twisted door	Compromised Core	• Insert a piece of wood blocking between door and the frame; apply pressure to the twisted area.
Twisted frame	Wall conditions/ anchoring methods	• Properly set the frame so all corners are 90°.
Thermal Bow	Inside-outside temperature differential	• Temporary condition – will fix itself.
Door does not close evenly	Jamb legs are out of alignment	• Align the plates on each side of the rough opening.
Door clearance too tight	Loose or missing screws/ Hinge reinforcements	• Add shims between the hinge leaf and the door at the bottom and middle hinges.
Door clearance too big	Loose or missing screws/ Hinge reinforcements	• Add shims between the hinge leaf and the door at the top and middle hinges.
Lockset off location	Misalignment	• Alter the strike plate – extend the opening to allow the latch tube to properly engage the strike

Notes:

- Doors include automatic door closers – either the automatic swing door operator or manual door closer.
- For automatic doors:
  - Customers are able to use different electrical strikes on the automatic stainless steel doors – the hardware must be sent to Terra before drawings can be completed.
  - Customers need to drill a 1” hole to run the wire through the door for the electrical connections.



Door is too loose/tight:
Adjust the tension by twisting the screw in Figure 13 to tighten or loosen to the desired level.

Figure 12: Concealed door closer

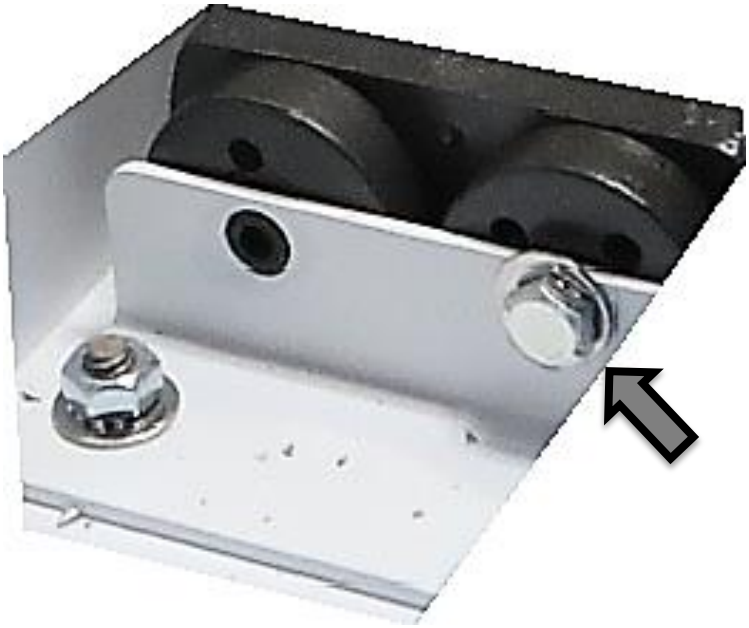


Figure 13: Screw that needs to be adjusted on concealed door closer to fix tension

7.2 Hand Wave Sensor

Issue	*Cause*	*Solution*
Door not responsive to hand wave motion	Faulty sensor or no power	Check power supply. If LED switches on or flashes, power connections are working.
	Detective range too short	Adjust detection zone. Remove any metal plates in front of sensor.
	Incorrect wiring/connection	Check wiring and relay connection
Sensor stays in detection	Environmental conditions influencing sensors	Remove moving objects from around the sensor.
	Wrong output mode	Switch output mode to Timer.
Door remains open after detection/activation	Wrong output mode	Switch output mode to Timer.
	Incorrect wiring/connection	Check wiring and relay connection.

8. Replacement Orders

To order replacement parts or doors, please provide below details. You can find this information on the serial number sticker which is located on the upper left corner of the door. See example of serial number sticker below.

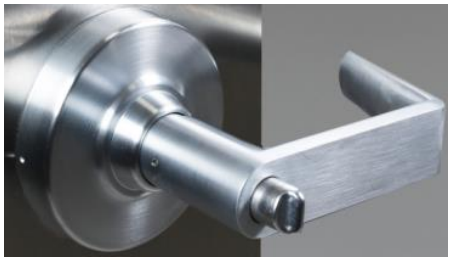
Order Number _____

Serial Number _____

Unit Model Number_____

9. Replacement Parts

Automatic Swing Door Operator	2635-52



Cylindrical Door Handle and Lockset	6603-LP-C
Mortise Door Handle and Lockset	6603-LP-M

Touchless Switch	EL07254

Concealed Door Closer	PA06830

Aluminum Door Closer	PA07979

10. Warranty

Products Manufactured by Terra: Terra Universal, Inc., warrants products that it manufactures to be free from defects for a period of 12 months for parts and 90 days for labor, commencing from the date of shipment. This limited warranty covers parts and labor, but not transportation and insurance charges. Terra's sole responsibility is to repair or replace, at its option, any part of the product that proves defective or malfunctioning during this time limit. In some cases, components incorporated in Terra Universal products are covered by additional warranties from component manufacturers; obtain specific information from Terra sales representatives. Repairs may be completed by 3rd party service agents approved by Terra Universal. Terra Universal reserves the rights to limit this warranty based on a service agent's travel, working hours, the site's entry restrictions and unobstructed access to serviceable components of the product. This warranty is void if the equipment is abused or modified by the customer, is operated outside Terra's operating instructions or specifications, or is used in any application other than that for which it is specified. This warranty does not include routine maintenance or service procedures, shipping damage, nor damage from misuse, intentional or unintentional abuse, neglect, natural disasters, or acts of God.

Products Manufactured by Others: Terra Universal, Inc., warrants that, to the best of its ability, Terra's representations of products that are manufactured by others reflect the manufacturer's representations, subject to change without notice. Sole warranty for these products is the original manufacturer's warranty that is passed forward to the purchaser and constitutes the customer's sole remedy for these products. Detailed warranties for distributed products are available through Terra sales representatives.

Freight Shortage or Damage: Upon receipt of any equipment from Terra Universal, Inc., customer shall immediately unpack and inspect for damage or shortage. The customer shall not accept a damaged package or a short shipment until the carrier makes a "damage or shortage" notation on both the carrier's and customer's copy of the freight bill or delivery receipt. Service title passes when the shipment is loaded, so customer is responsible for filing and collecting a freight claim. Any replacement products must be ordered and paid for separately. For Terra's "Policy and Procedures for Returning Goods," see Terra's Internet site: www.TerraUniversal.com.

Generally, customers can improve the chance of collecting on a freight claim by following these procedures: 1) formally requesting that the carrier inspect the shipment immediately upon suspecting damage or shortage to verify condition; 2) notifying the carrier upon discovery of concealed damage and requesting an inspection within 15 days of receipt, both in person or phone and following up via mail; 3) keeping the shipment as intact as possible, including retaining original packaging materials and keeping the product as close to the original receiving location as possible; 4) holding salvage for disposition by the carrier.

All Claims: Terra Universal expressly disclaims all other warranties, expressed or implied or implied by statute, including the warranties of merchantability or fitness for intended use. Terra Universal is not responsible for consequential or incidental damages arising out of the purchase or use of the products supplied by Terra Universal. Terra Universal is not liable for damage to facilities, other equipment, products, property or personnel of others, or of their agents, suppliers, or affiliated parties, which is caused or alleged to have been caused by products supplied by Terra Universal. In any event or series of events, Terra Universal's total liability for any and all damages whatsoever is limited to the lesser of the actual damages or the original invoice cost of the items alleged to have caused the damage. The customer's sole and exclusive remedy for any cause of action whatsoever is repair or replacement of the non-conforming products or refund of the actual purchase price, at the sole option of Terra Universal. All claims must be made in writing within 90 days of the date the product was shipped. Any claims not made within this time limit shall be deemed waived by the customer. Terra Universal is not responsible for any additional costs of repair caused by poor packaging or in-shipment damage during return.

Warranty Returns: All warranty returns must be authorized in advance by Terra Universal and approved under an RMA. Unless approved in advance for good reason, all returns must be in original condition, including all manuals, and must be packaged in original packaging materials. All returned goods are to be shipped to Terra Universal, freight prepaid at customer's expense. See Terra's "Policy and Procedure for Returned Goods."

Thank you for ordering from
Terra Universal!