★★★★★
TORMAX®
AUTOMATIC

Installation & Service Manual for TX9200/ TX9500 Series with 2301 & 2401 iMotion Slide Door Drive

CONCEALED MOUNT
SURFACE MOUNT
&
FLUSH MOUNT

WARNING - To reduce the risk of injury of persons - Use this operator only with sliding doors.

TORMAX USA INC.
12859 Wetmore Road
San Antonio, TX 78247
210-494-3551
210-494-5930 (Fax)
888-685-3707
www.tormaxusa.com
info@tormaxusa.com

Issue Date: 9/15/2017
P/N: US801453
Version: FW_10.0

TABLE OF CONTENTS

IMPORTANT INFORMATION

SAFETY/ WARNINGS SYMBOLS

NOTE indicates important information specific to the process or steps being performed.

ELECTRICAL VOLTAGE indicates that electrical voltage is present and that caution should be taken to prevent injury or property damage.

CAUTION indicates failure to follow instructions may result in personal injury and/ or property damage.

OPTIONAL COMPONENTS indicates components that are not installed in all systems.

WARNING - Failure to observe the information in this manual may result in personal Injury or damage to equipment. To reduce the risk of injury of persons use this operator only with pedestrian sliding doors.
Save these instructions for future reference.

Installation and Service

Any and all TORMAX equipment must be installed, serviced and inspected by an *AAADM* Certified technician, to meet the current ANSI A156.10 and any local or state building codes.

The person responsible for the daily operation and maintenance of the system is referred to as "End-User".

It is the technicians responsibility:

1. Review the functions of the equipment with the end-user. *Failure to do so, may lead to the improper use, could cause injury to persons and/ or damage to the equipment.*

2. Familiarize the end-user with the Daily Safety Check Decal and how to perform the walk test procedures.

3. Illustrate to the end-user how to place the door out of service (turn off power or place in P mode or OFF mode of operation), if the equipment does not perform as described in the Daily Safety Check Decal.

4. Recommend to the end-user to have their equipment inspected annually by an *AAADM* certified technician.

Glazing

The glazing material of all doors shall comply with the requirements of ANSI Z97.1, American National Standard Performance Specifications and Methods of Test for Safety Glazing Material Used in Buildings.

IMPORTANT INFORMATION

Electrical Requirements for Installation Personnel

Have a licensed electrician:

- Make all mains primary power connections in accordance to federal, state and local regulations.
- Route mains primary power from power distribution panel (10 amp circuit breaker minimum per operator) to the operator.
- Install a service switch or emergency shut OFF switch, if required by customer or per regulations. This is in addition to the mains circuit breaker to interrupt power, switch must be rated @ 10 amp minimum.

Mains Connection

Connection: N + L1 + PE protected on site with fuse 10 AT, protective earth necessary.

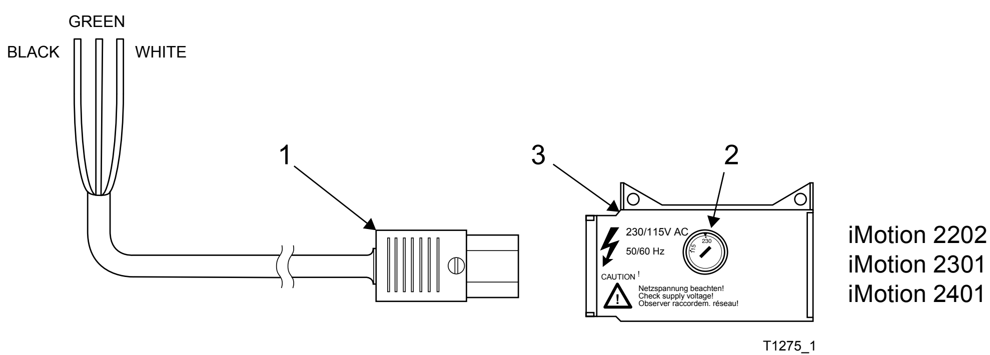
Power rating:

iMotion 2202, 2301: 1 × 230 / 1 × 115 V AC (+5% /– 10 %), 50 – 60 Hz, max. 190 W
iMotion 2401: 1 × 230 / 1 × 115 V AC (+5% /– 10 %), 50 – 60 Hz, max. 310 W

Supply cable: Type H05VV-F, H05RR-F or type S, SO, SJ, SJO, ST, STO, SJT, SJTO or AFS

Before beginning the work described below, check that the mains primary power is switched off. If required, place “Out of Service” tag on breaker or service switch.

It is recommended that any item (i.e. electrical box, conduit) be installed in the header away from moving door components, so not to interfere with the operation of the door.



- Route mains cable (1) through provided cable holders to mains supply (3).
- Check the correct setting of the voltage selector (2).
- Do not apply power to the door until ready for commissioning.
- A system switch (FCP or 3-position switch) must be on site.

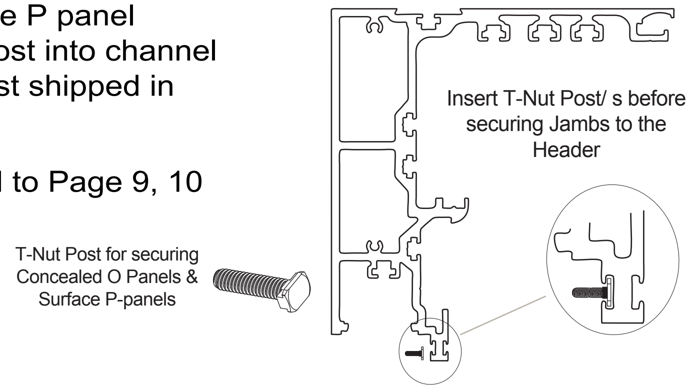
Make sure that the mains cable is secured properly to prevent interference with moving parts of the operator or door system.

The commissioning of the system may only take place through a qualified person trained by the manufacturer and under consideration of the required documents for commissioning and inspection for compliance!

HEADER AND JAMB ASSEMBLY

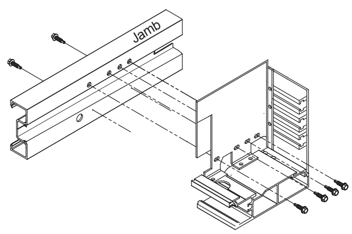
1) Concealed O panel & Surface P panel applications - Install T-Nut Post into channel on lower edge of header. Post shipped in hardware box.

2) Doors with transom, proceed to Page 9, 10 for assembly.

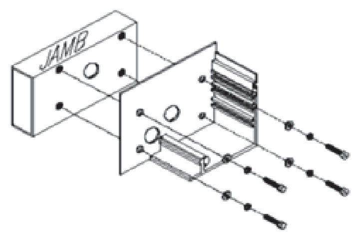


3) Mount the jambs to the header using the supplied hardware as shown below.

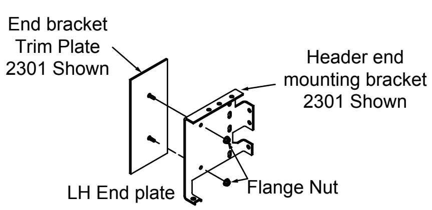
Concealed/ Surface

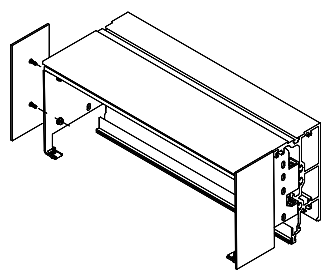


Flush



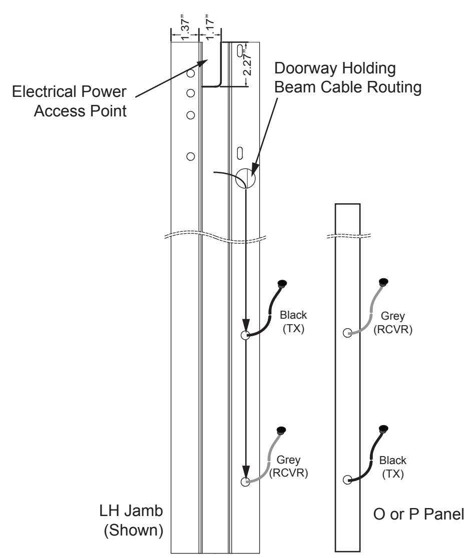
4) Install LH/ RH trim plates onto header end bracket with supplied nuts.





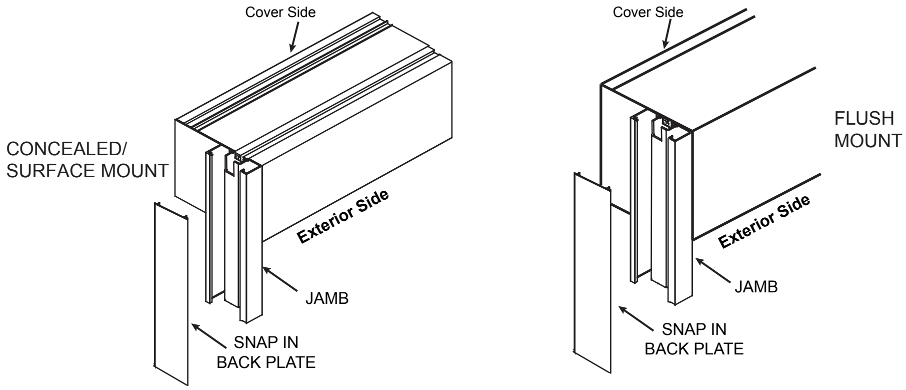
5) TX9500 & TX9200 single slides with jamb mounted Doorway holding beams, route beam cables into and down the jam, connect the beam pigtails.

Inspect & note O or P panel beam locations, install opposite Black (TX) cable and Gray (RCVR) cable in jamb. i.e. Black cable across from a Gray cable.

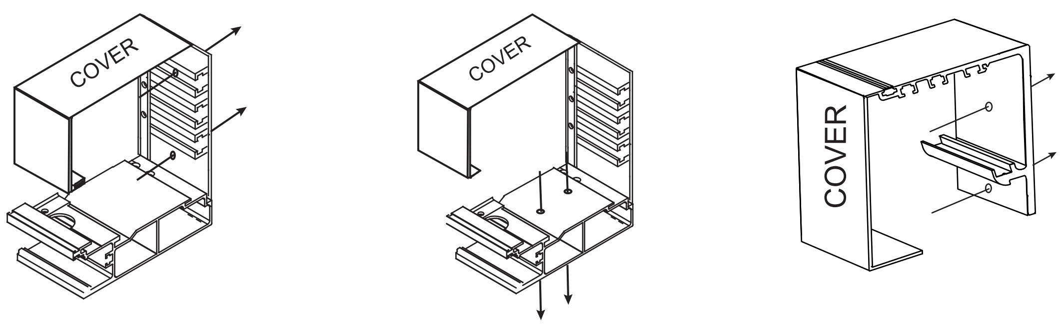


HEADER AND JAMB ASSEMBLY PREPARATION

6) Concealed mount: “snap” in back plate onto the jamb, Surface mount: do not install at this time, first secure jamb to the wall.

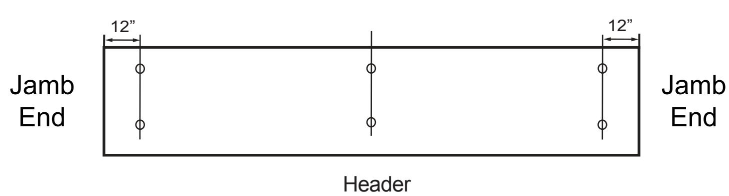


7) Pre- drill the header prior to lifting the unit into place. The hole locations is dependent on the application (Concealed, Surface, Flush).

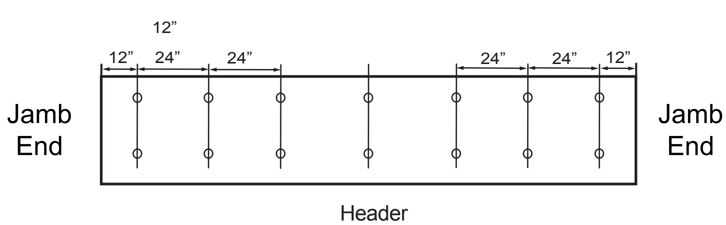


CONCEALED SURFACE FLUSH

8) **Concealed mount** - Minimum of 6 holes should be drilled through the header The holes should be located at both ends and in the center.



9) **Surface & Flush mount** - Holes should be drilled through the header spaced 24” minimum. With the first hole within 12” from the jamb.



HEADER/JAMB ASSEMBLY INSTALLATION - CM

1) Determine the highest point of the floor by using a water level. See Illustration 1. Make note of this point.

Recommend securing the jambs at 3 locations (top, bottom, center) as work environment permits. Select a location to limit visibility on final assembly.

Caution should be taken when lifting assembly into place and should never be done by one person.

2) Lift the header/ jamb assembly into place, level the header according to the floor conditions using appropriate shimming material.

3) Plumb the jambs in both directions. See Illustration 2

4) Type of fasteners and securing locations of the jambs will depend on the work environment. It is suggested that the jambs be secured at three locations. Also, that the fasteners be located to limit visibility on the final assembly.

5) In the event there is nothing to mount the jamb to vertically an L-bracket can be installed at the bottom of the jamb. Install bracket to provide the most support in the least visible location possible. See Illustration 3.

6) If equipped, snap in Jamb filler profile. See Illustration 3.

Illustration 1

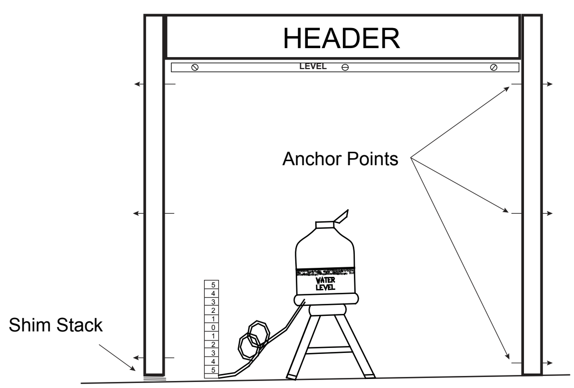


Illustration 2

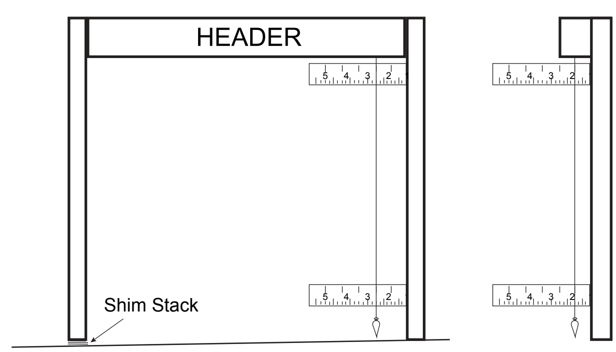
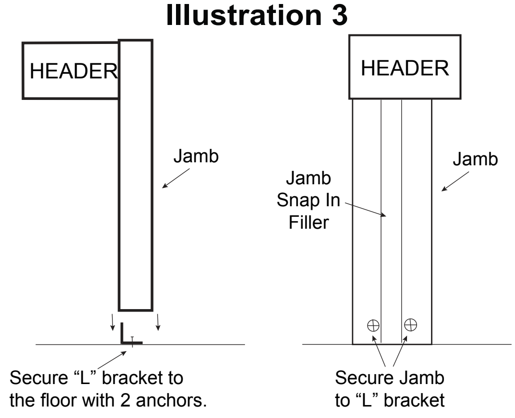


Illustration 3



HEADER/JAMB ASSEMBLY INSTALLATION - SM/ FM

Caution should be taken when lifting assembly into place and should never be done by one person.

1) Recommend securing the jambs at 3 locations (top, bottom, center) as work environment permits. Drill holes through jamb side wall adjacent to the wall.

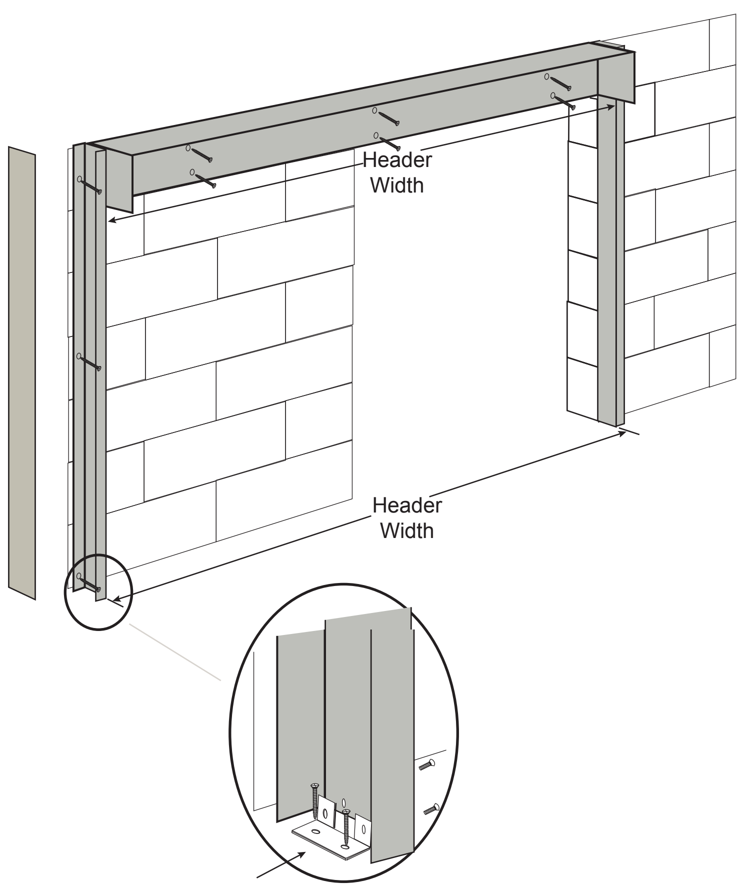
2) Lift the header/ jamb assembly into place, level the header according to the floor conditions using appropriate shimming material.

3) Check both jambs for plumb and square. Check header width at top and bottom of the jambs for proper spacing.

4) Type of fasteners and securing locations of the jambs will depend on the work environment.

5) In the event there is nothing to mount the jamb to vertically, a L-bracket can be installed at the bottom of the jamb. Install bracket to provide the most support in the least visible location possible.

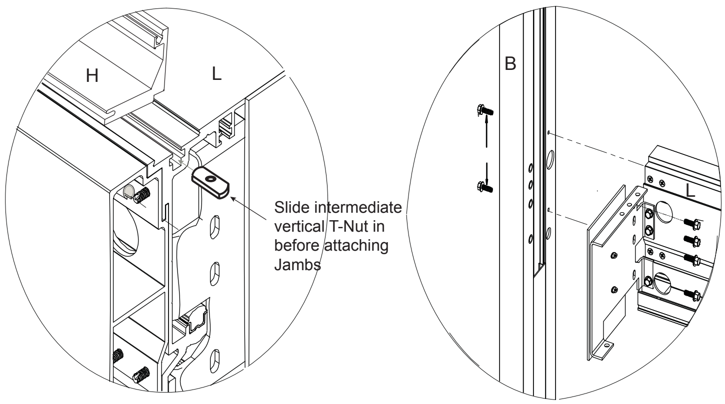
6) Snap jamb back plate onto the jamb.

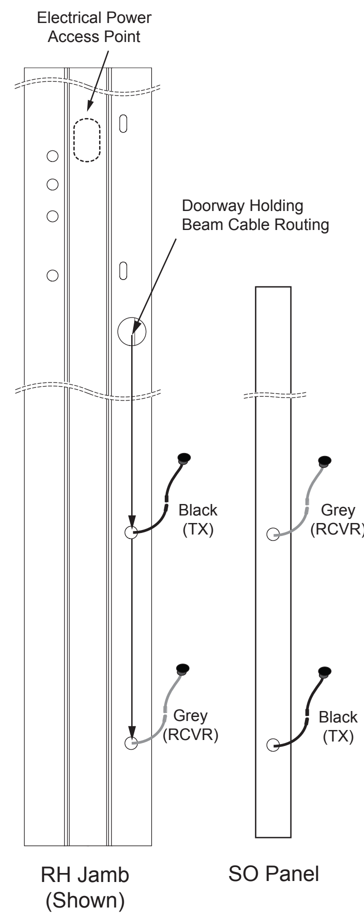


HEADER & TRANSOM ASSEMBLY

Install T-Nuts into channel on top of header before attaching jambs.
T-Nuts used for securing Transom Intermediate Vertical Bracket (G).
Check Accessory Pack for Hardware!

1) Insert T-nuts, attach Jambs (B) to Header (L) with hardware as shown below.

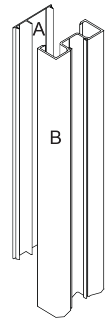


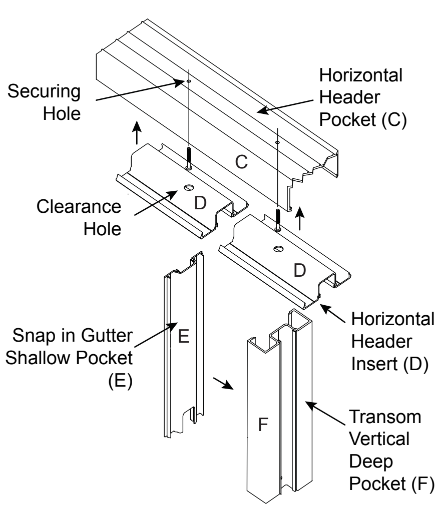


2) Make appropriate clearance hole /s for 120V electrical power cable.

3) If equipped with jamb mounted photo electric (safety) beams, check SO panel beam locations black and grey cables. Route cables down the jamb and connect beams as shown.

4) Snap jamb tube back plate (A) onto jamb (B).





The factory will install Horizontal Header Insert (D) into the Horizontal Header Pocket (C) and Snap in Gutter (E) into Transom Vertical (F), same as jamb extrusion.

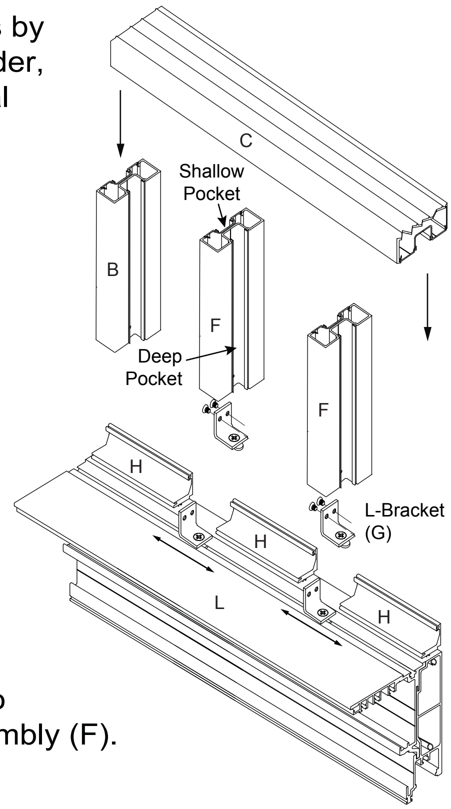
5) Drill a securing hole (size depends on mounting screw) through both Horizontal Header Insert (D) and the Horizontal Header Pocket (C) .

6) Drill a larger clearance hole into the Horizontal Header Insert (D), so that the screw can pass through and secure the Horizontal Header Pocket (C).

HEADER & TRANSOM ASSEMBLY

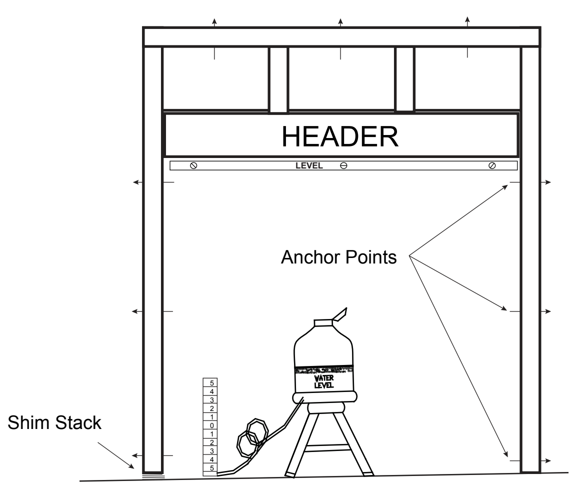
The Snap in Gutter (E) and Transom Vertical (F) have 2 pocket sizes. Never have two (F) assemblies (shallow to shallow) facing each other. **Glass will not fit.**

7) Determine intermediate vertical locations by placing Transom gutter (H) onto the header, verify spacing with openings in Horizontal Header Pocket. Move T-Nuts between Transom Gutter (H).
8) Position L-Bracket so header mounting screw is on deep pocket side of intermediate vertical assembly (F). Loosely secure L-Bracket (G) onto the header (L).
9) Install and secure intermediate vertical assemblys (F) onto L-Bracket with two supplied screws.
10) Snap in Transom Gutters (H), Center intermediate vertical assembly (F), tighten screw into header T-Nut. Install remaining intermediate verticals.
11) Install Horizontal Header Pocket (C) onto jambs (B) and intermediate vertical assembly (F).



Caution should be taken when lifting assembly into place and should never be done by one person.

Refer to page 7 for details in installing and securing the door package.



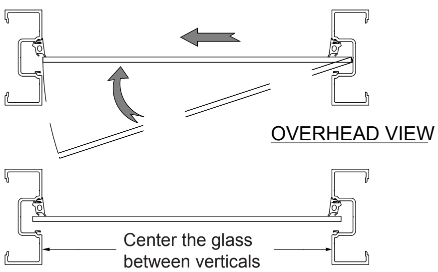
TRANSOM GLASS - TRANSOM ASSEMBLY DETAIL

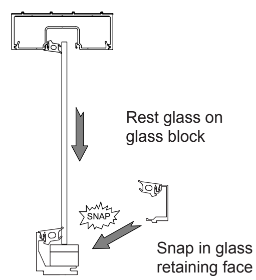
! Glass cleaner can be used as a lubricant to install the vinyl (M,N)

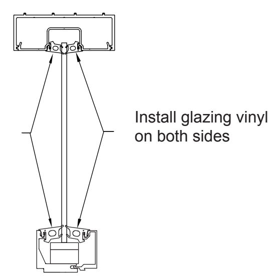
1) Install appropriate glazing block (I - 1” glass, J - 1/4“ glass) onto (H).

2) Install the glass by placing it into the deep pocket on the vertical jamb, once glass clears opposite side vertical, center between pockets and place on glazing blocks.

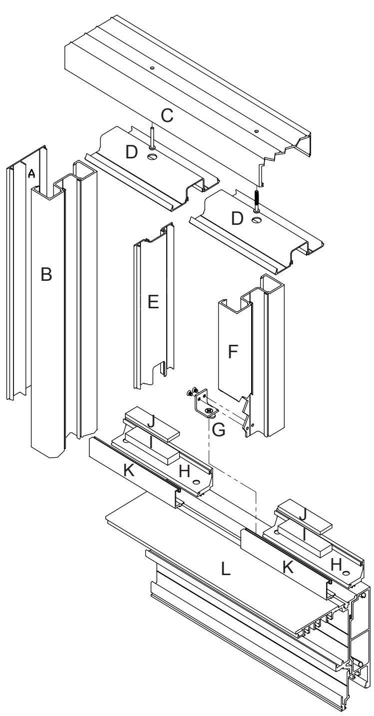
3) Install transom face stop (K) on header and finish by installing the appropriate vinyl (M - 1/4” glass, N - 1/” glass).



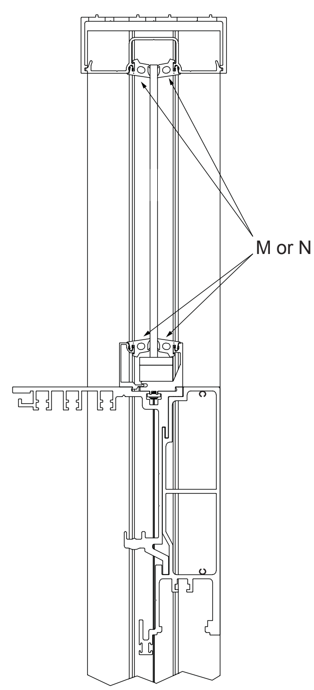




Transom Assembly Detail



A) US800958 Jamb Tube Back Plate
B) US800956 Jamb Tube
C) US800829 Horizontal Header Pocket
D) US800828 Horizontal Header Insert
E) US800957 Snap in Gutter
F) US800956 Transom Vertical , Jamb extrusion
G) US801048 Transom Vertical Bracket
H) US801041 Transom Gutter, top of header
I) US801044 Glazing Block 1” glass
J) US801043 Glazing Block 1/4” glass
K) US801042 Transom Face, top of header
L) US801619 Header
M) US801051 Transom Vinyl, 1/4” glass
N) US800822 Transom vinyl, 1” glass



THRESHOLD INSTALLATION

1) If using a Combination threshold align the threshold to the interior edge of the jamb. See Illustration 1.

2) If using a Double Beveled or Recessed threshold center the threshold to the jamb. See Illustration 1.

Use a chalk line from jamb to jamb to create a reference line.

3) The threshold must be secured to the floor using the appropriate fasteners for the type of floor. Fasteners should be spaced 18“ apart for the length of the threshold, starting 1 1/2” from each end. See Illustration 2.

4) If required use appropriate shim material to level the threshold as shown below. Measure from the top of the threshold to the bottom of the header in 18” inch increments the full width of the header to insure the header and threshold are parallel to each other.

5) The threshold must be supported through its entire length. Mortar works best where a large gap is present, as the threshold could become deformed over time and interfere with door operation.

If a trip hazard is created by leveling the threshold then the transition should be eased to eliminate this hazard.

Illustration 1

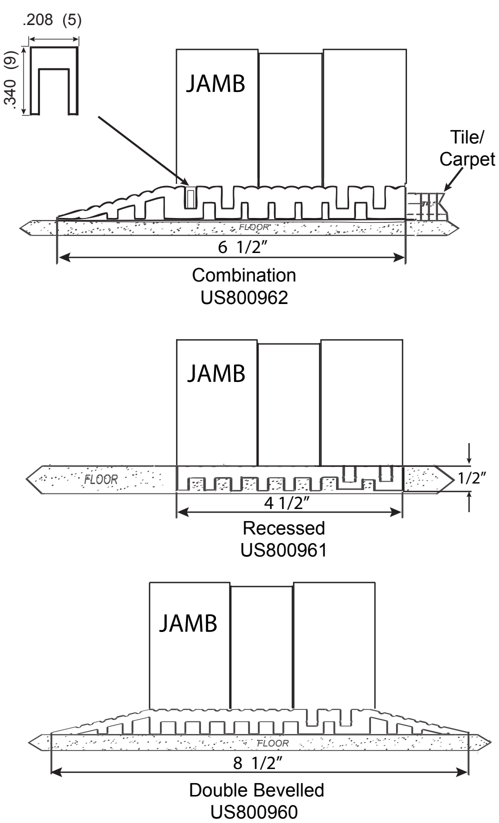
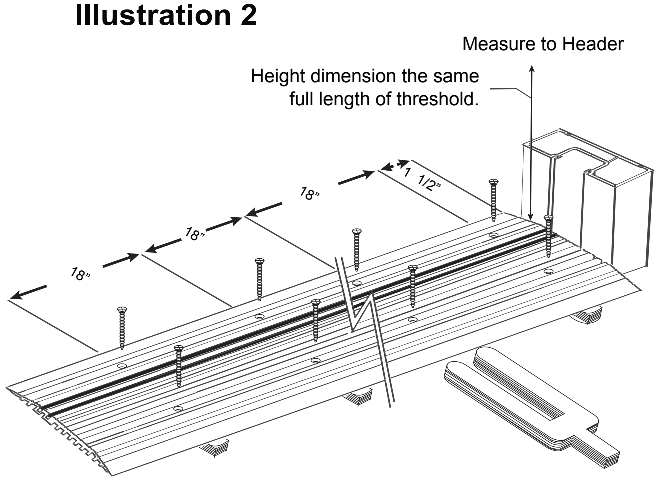


Illustration 2

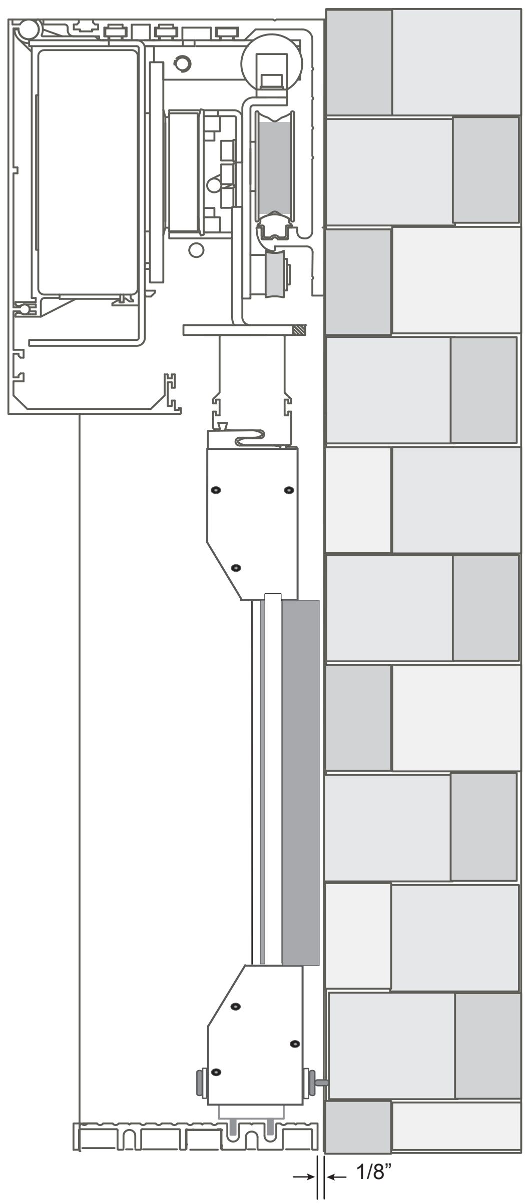


THRESHOLD INSTALLATION - TX9500 FLUSH MOUNT

1) Shim the threshold 1/8” off the wall as shown below.

2) Level the threshold and check the distance to the header for proper clearance of the door panel.

3) Secure the threshold with appropriate hardware and shim as needed.



BOTTOM GUIDE PROFILE INSTALLATION - CONCEALED

! Proper installation of the bottom door guide track is critical to the operation of the sliding door panel and the premature wear of the bottom guide.

1) Create a reference line from jamb to jamb with a chalk line. Place chalk line on interior edge of jambs.

2) Concealed mount - the bottom guide profile is located 1/2” off the chalk line, inside the jambs. See Illustration 1.

3) Surface mount - the bottom guide profile is to be located to the rear of the jamb tube/ s adjacent to the wall. See Illustration 2.

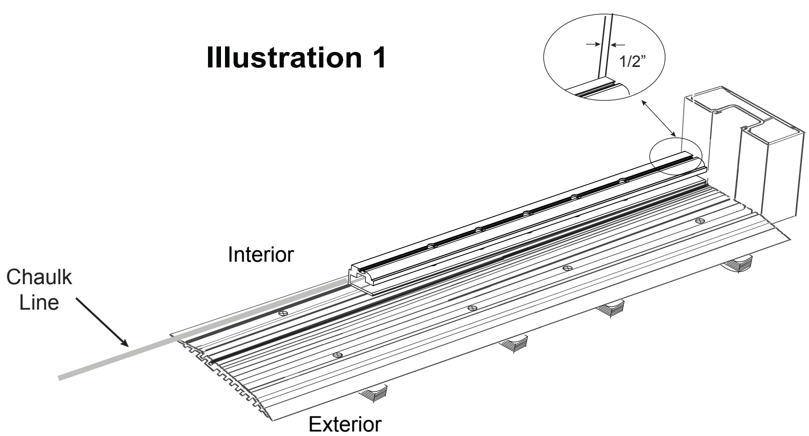
4) Flush mount - utilizes the bottom guide in the threshold. See Illustration 3.

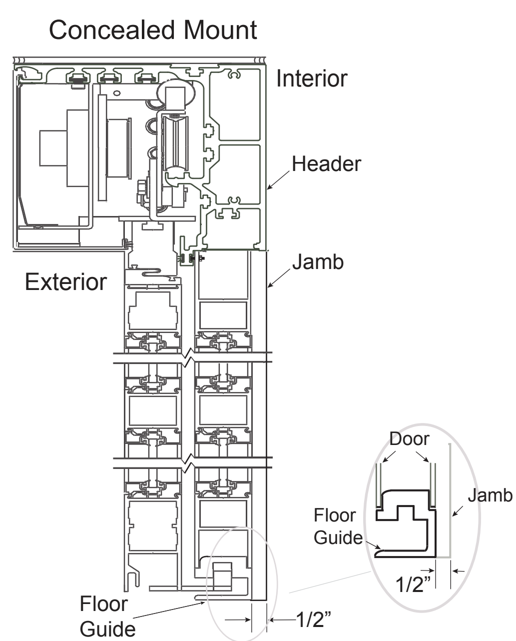
5) Secure the bottom guide profile to the floor or threshold utilizing the appropriate fasteners.

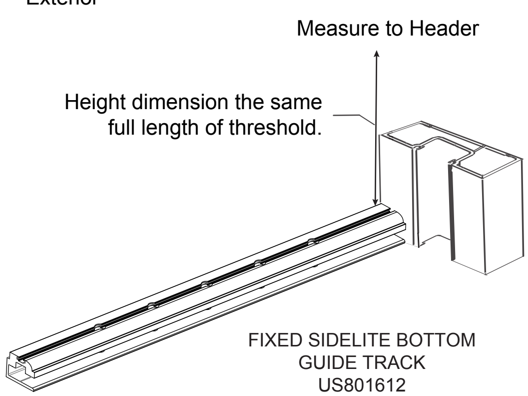
6) To insure that the bottom guide profile is parallel to the header, measure in several locations from the bottom of the header to the top of the bottom guide profile to the header. Support profile the entire length.

! On some models the bottom guide profile is machined across the top on one end. Locate machined edge towards the door opening.

Illustration 1



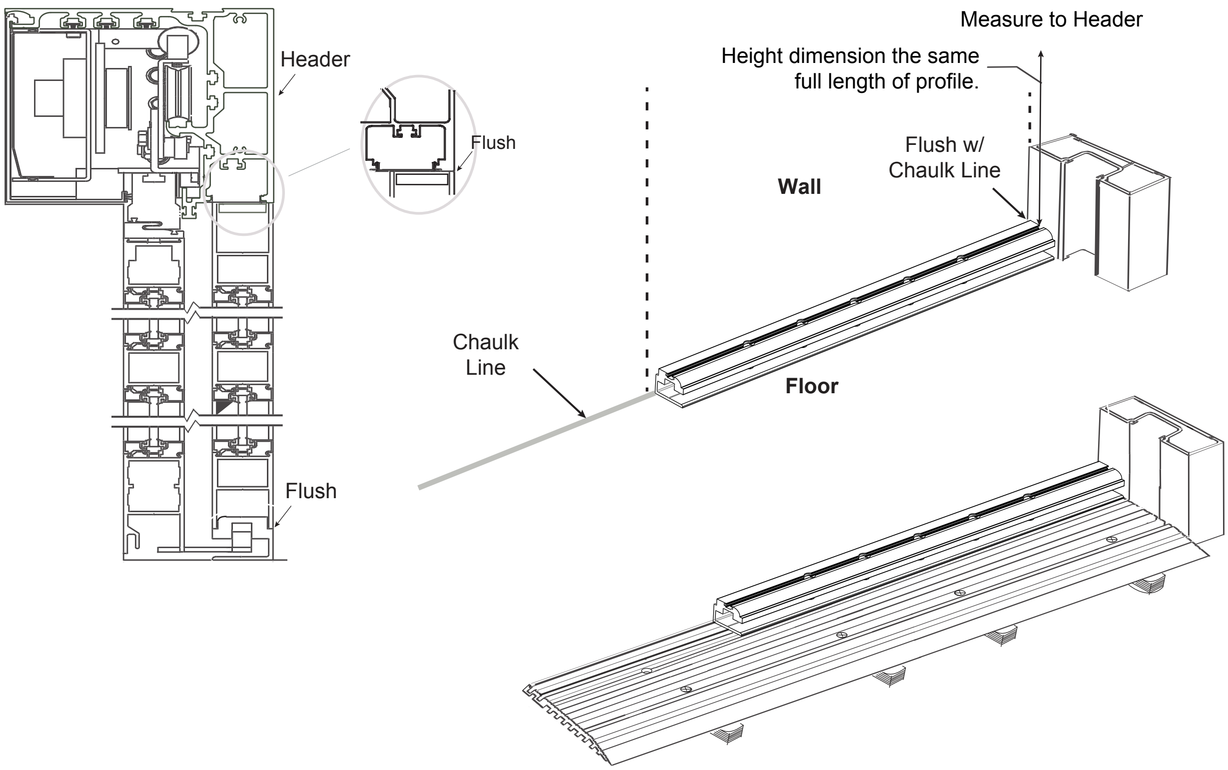




BOTTOM GUIDE PROFILE INSTALLATION - SURFACE/ FLUSH

Illustration 2

Surface Mount



Flush Mount

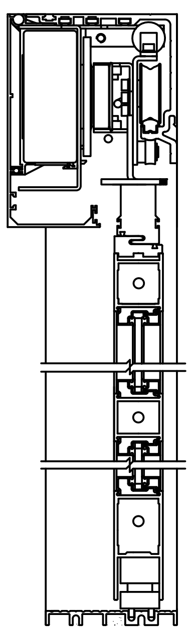
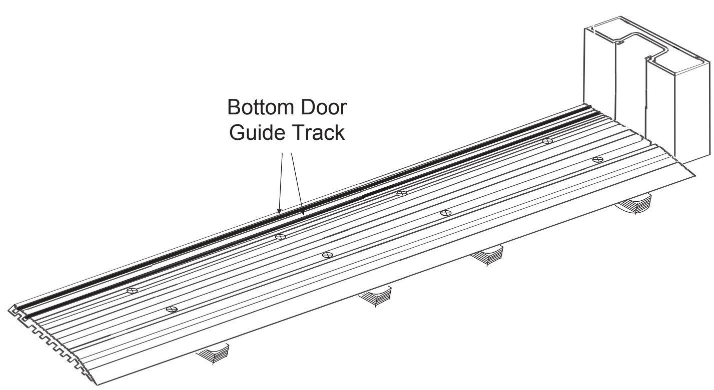


Illustration 3

Flush Mount



O-PANEL INSTALLATION TX9200/ TX9500 - CONCEALED MOUNT

! The factory routes the photo electric (safety) beam cables from the control to the end of the header and down into the Comdor channel.

1) TX9200 - Pull zip tie with beam cables through hole in Comdor cover and route into O-Panel leading stile.

2) Place the O-Panel onto the bottom guide profile and tilted into place. Secure the O-panel with (1/4”-20) nut on header mounting post. See Illustration 1

3) Tighten O-Panel 1/4” set screw (1/2“-13) through the header into the top door rail. See Illustration 1.

4) TX9200 - Install beams into Lead Stile brush holder (P/N US801611). Connect beam heads to cables and snap lead stile holder into lead stile of O-Panel.

5) TX9500 - Install weather stripping (P/N140491)as shown. Be sure to apply a ¼” bead of clear silicone to hold brush holder in place.

Illustration 1

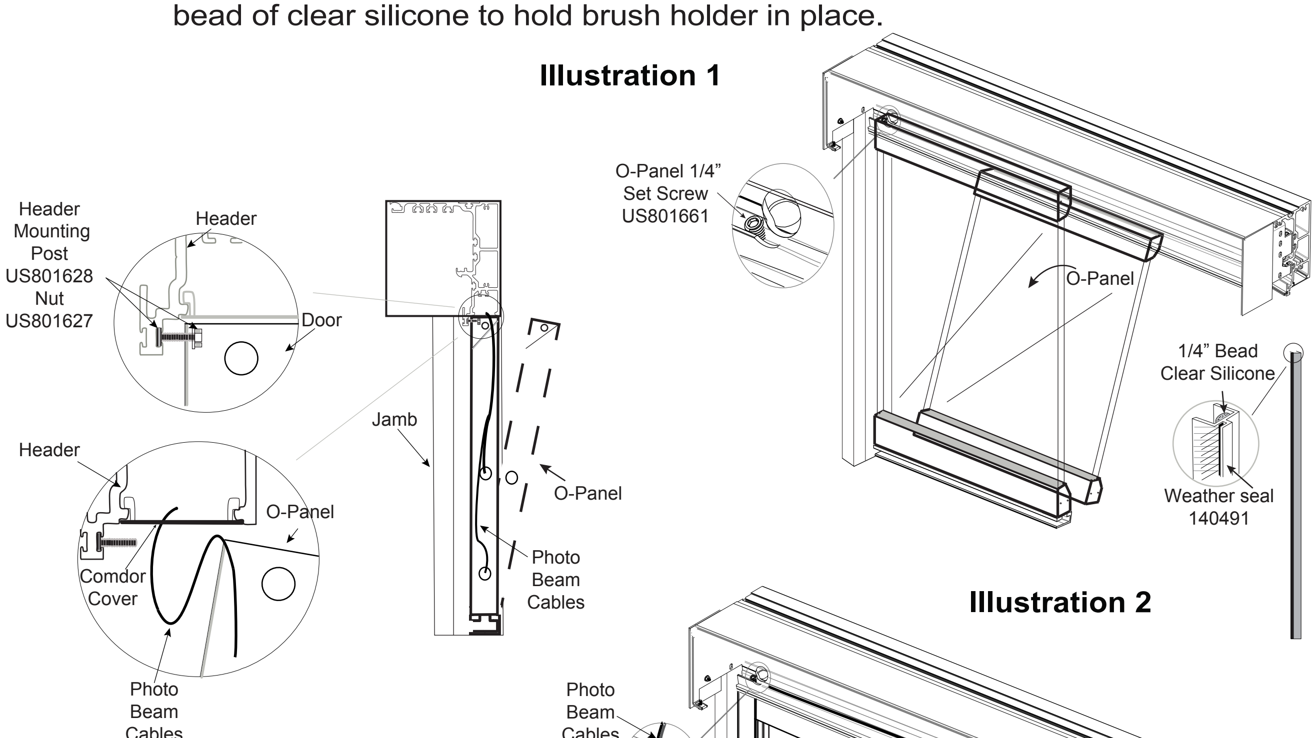
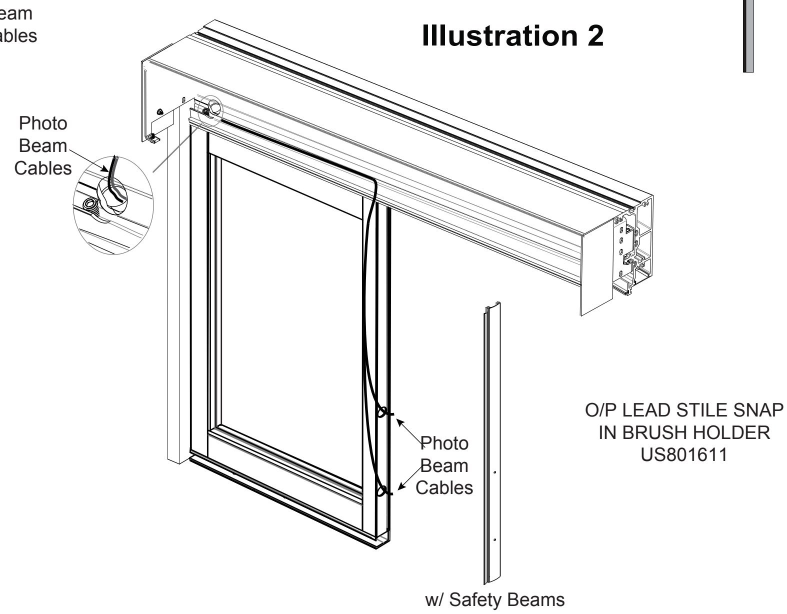


Illustration 2



O-PANEL INSTALLATION TX9200/ TX9500 - SURFACE MOUNT

The factory routes the photo electric (safety) beam cables from the control to the end of the header and down into the Comdor channel.

1) TX9200 - Pull zip tie with beam cables through hole in Comdor cover and route into O-Panel leading stile.

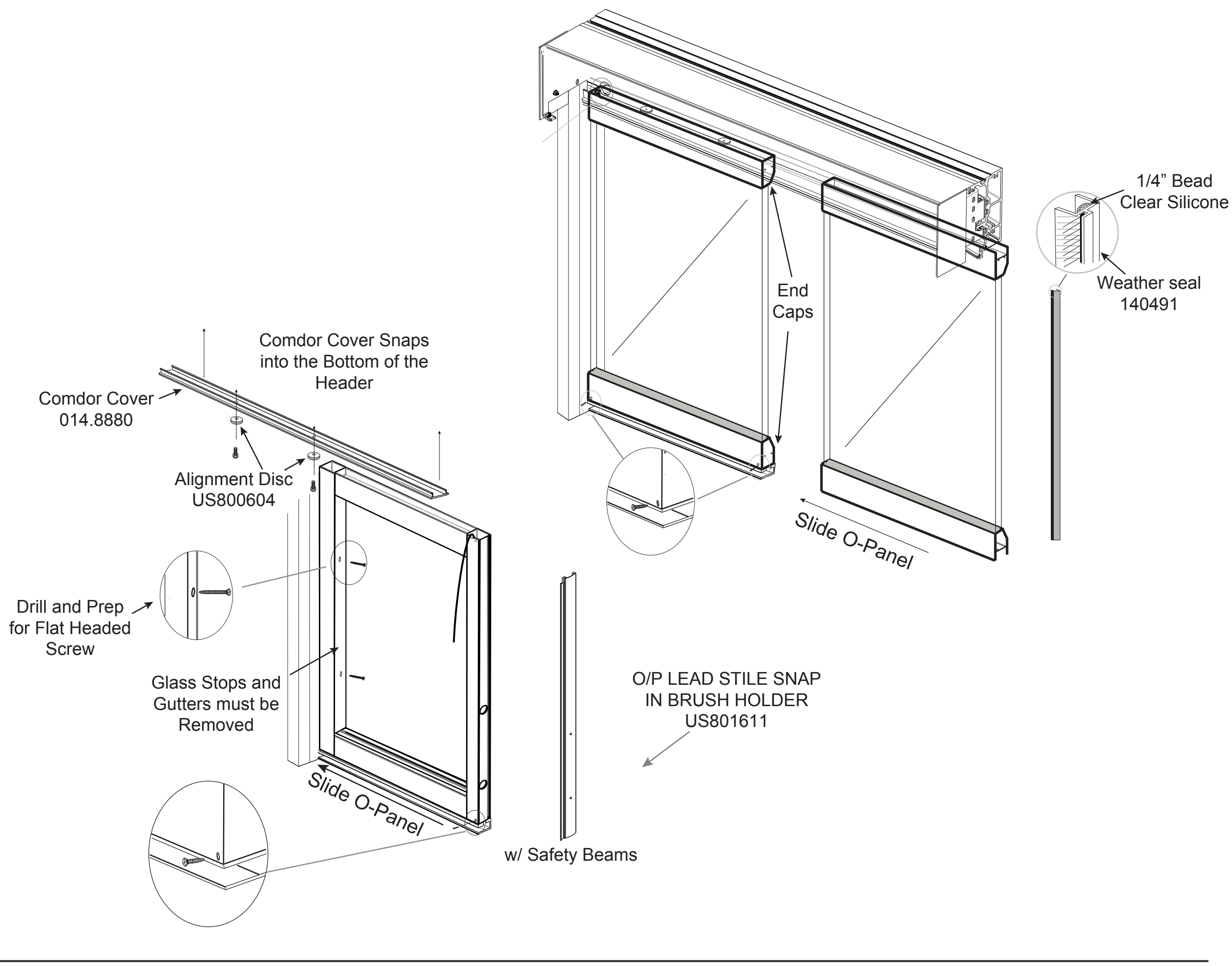
2) The O-Panel will slide onto the bottom door guide profile, while aligning the door with the factory installed alignment discs on the Comdor Cover.

3) TX 9200 - Remove glass stops and gutter, drill and prep door stile for flat head screw(s). Screw to the jamb.

4) Drill and prep bottom door rail or shoe in two places for flat head screw into bottom door guide. **Screw must be placed, so not to get into the bottom guide track and damage the bottom guide.**

5) TX9200 - Install beams into Lead Stile brush holder (P/N US801611). Connect beam heads to cables and snap lead stile holder into lead stile of O-Panel.

6) TX9500 - Install weather stripping (P/N140491)as shown. Be sure to apply a ¼” bead of clear silicone to hold brush holder in place.



P-PANEL INSTALLATION TX9200/ TX9500 - SURFACE MOUNT

The factory routes the photo electric (safety) beam cables from the control to the end of the header and down into the Comdor channel.

1) Pull zip tie with beam cables through hole in Comdor cover and route into P-Panel leading stile

2) Place the P-Panel Stile onto the bottom door profile and slide into place. Secure top of P-Panel stile with spacer & nut on header mounting post.

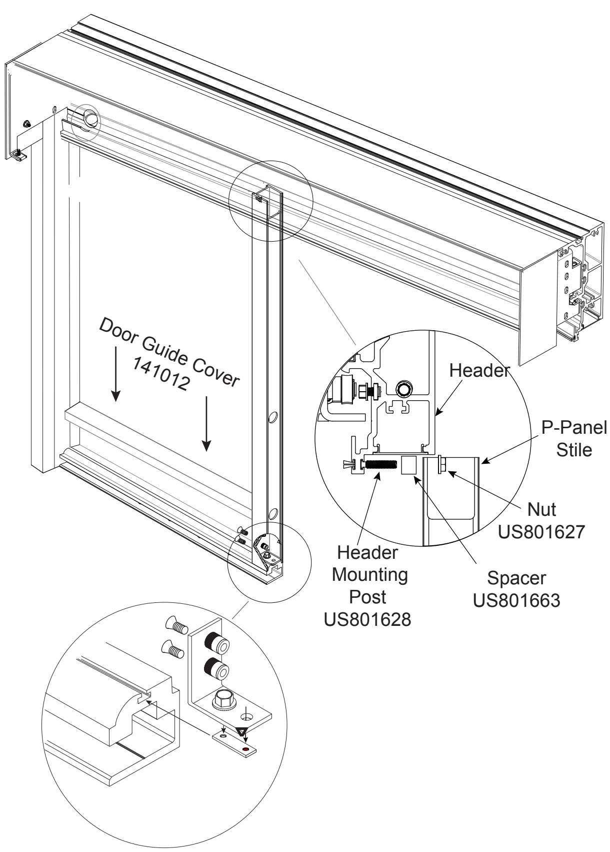
3) Install T-nut into bottom door profile top channel, insert 3/8"/ 10mm hex head bolt through "L" bracket, loosely screwing into T nut.

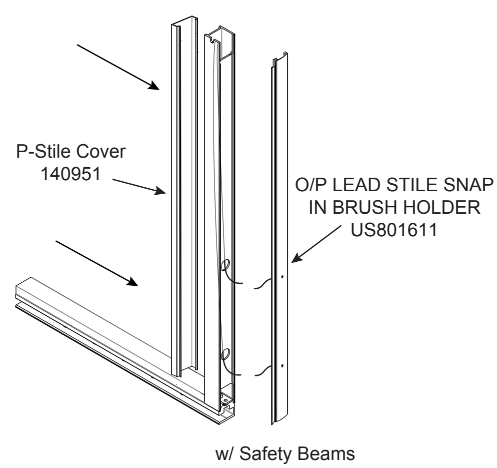
4) Position P-Panel stile adjacent to L-bracket, insert two Philips head screws through the back of the stile into L-bracket.

5) Plumb stile/ bracket, tighten 3/8"/ 10mm hex head bolt

6) Install beams into Lead Stile brush holder (P/N US801611). Connect beam heads to cables and snap lead stile holder into P-Panel.

7) Install P-Stile Cover (P/N 140951) into P-Panel and Door Guide Cover (P/N 141012) into Bottom Guide Profile.





SX-PANEL PREPARATION

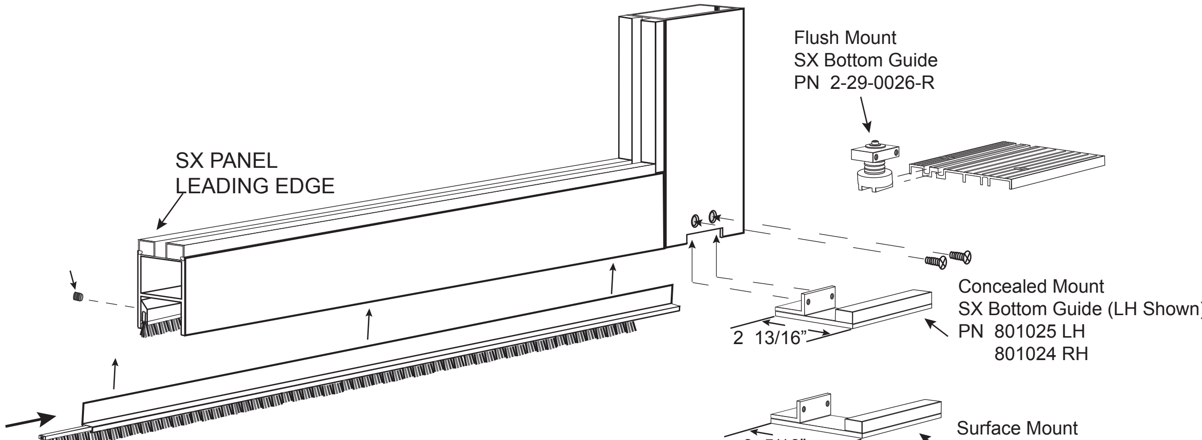
1) Install the appropriate bottom door guide onto the back rail of the SX-Panel with supplied hardware.

2) TX9200 - If equipped with door sweeps, install the pre-assembled sweep/ holder assembly into the bottom of the door and secure with supplied set screw.

3) TX9500 - If equipped with door sweeps, install the pre-assembled sweep/ holder by pressing or tapping into the bottom of the door.

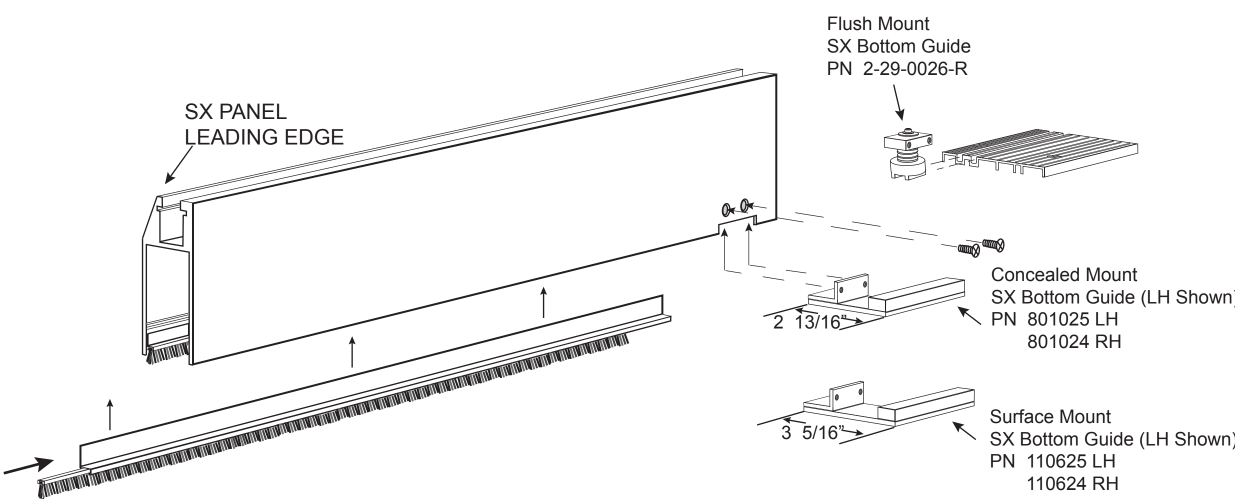
! The door sweep may differ from that shown, depending on the application.

TX9200



Install the pre-assembled door sweep/ holder into the bottom door panel and secure with supplied set screws.

TX9500



SX-PANEL INSTALLATION

! Cross blocking the glass in the door will provide additional support when the SX panel is placed in the breakout position.

! The trolleys with attached belt brackets are shipped with anti-risers tight against the track to prevent damage in shipment. Remaining trolleys are shipped in Accessories box.

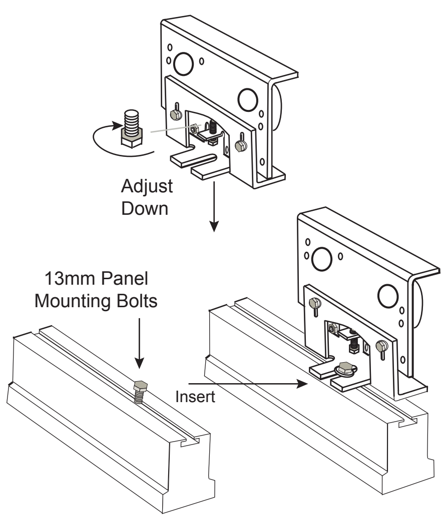
1) Loosen anti-risers to re-position the trolleys. Adjust the height adjustment screw to lower the trolley, as this will help when lifting the door into place.

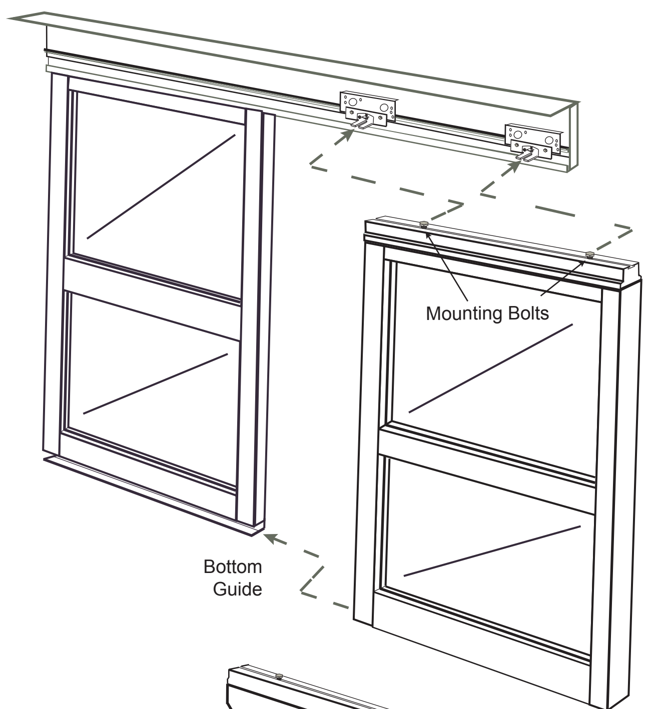
2) Loosen the two 13mm mounting bolts on top of the SX-Panel until only two threads are engaged.

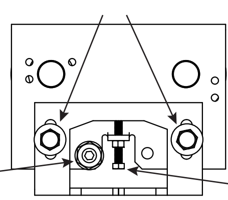
3) Position the door so that it will slide behind the drive unit (control & motor), as you insert the bottom door guide into the bottom door guide profile or guide channel.

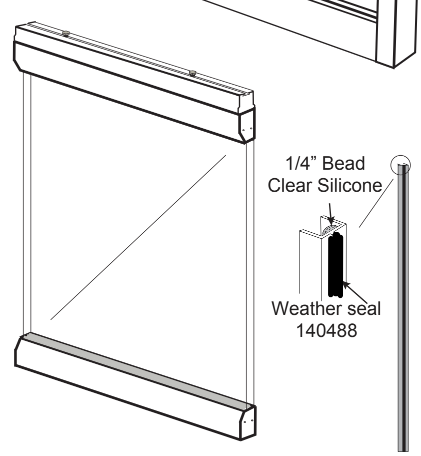
4) Lift door up onto the trolley and tighten panel 13mm mounting bolt.

! TX9500 - Do not install the SX lead brush P/N 140488 1/2” Pile Seal until doors have been installed and adjusted







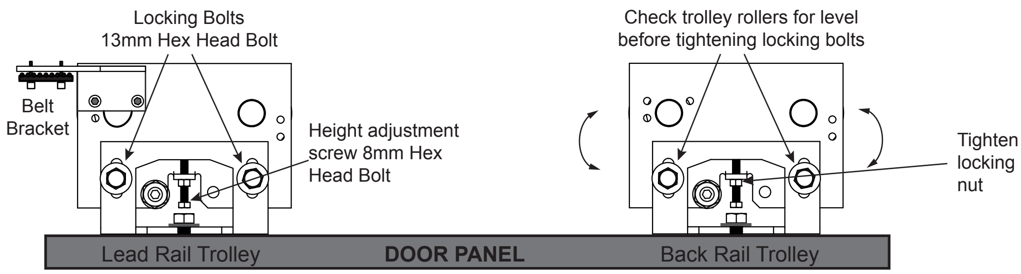


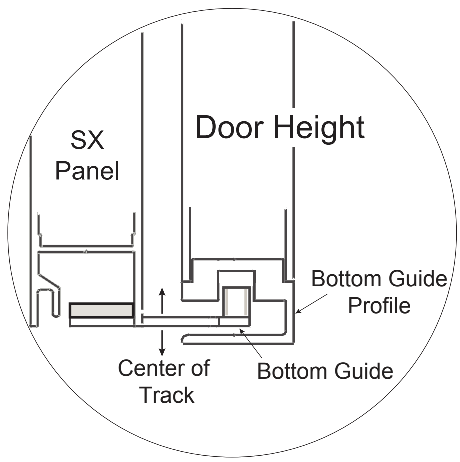
SX-PANEL ALIGNMENT

The alignment of the SX-Panel is critical to the functionality of the sliding door.

1) Loosen the 13mm locking bolts slightly to allow for panel adjustment.

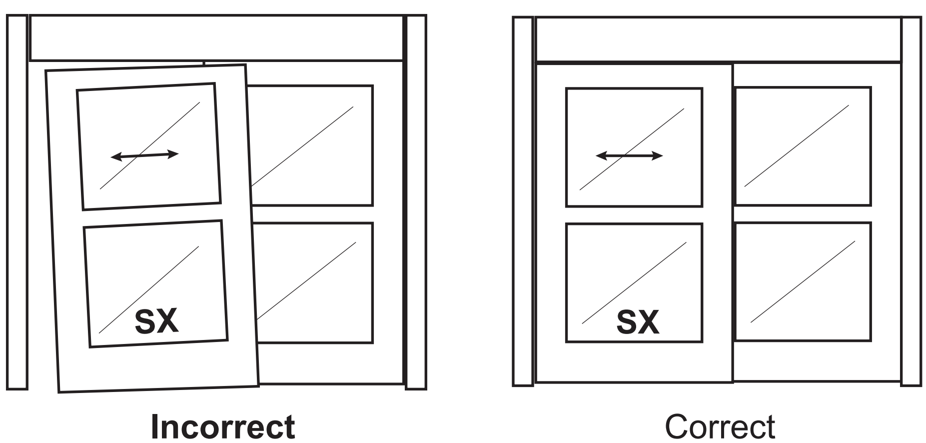
2) Adjust the 8mm door height screw to position the door at the proper operating height and to level the door panel.





3) Fine adjust the door height to line up the sight lines.

4) Tighten the 13mm locking bolts.



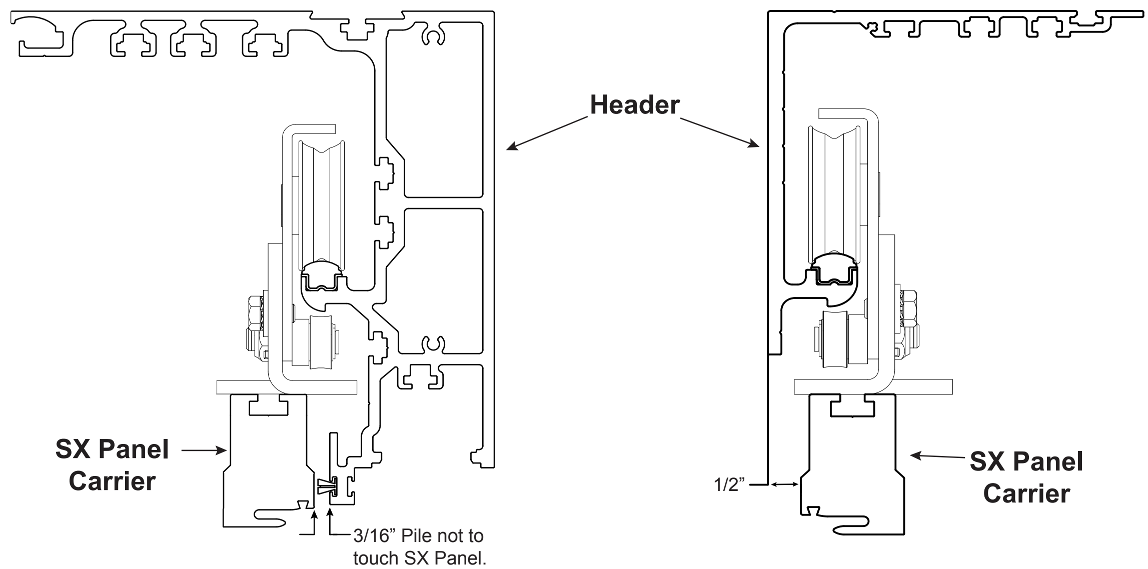
SX-PANEL ALIGNMENT

1) Loosen 13mm mounting bolts on top of carrier.

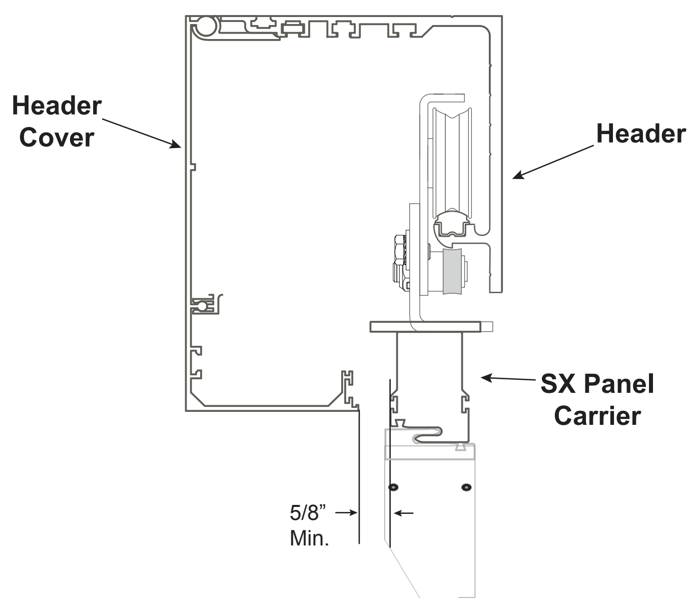
2) Adjust the SX door panel so that it is parallel to the header and does not make contact (minimizing drag) with the weather seal on the header. Tighten 13 mm bolt. See details below.

3) Check the breakout swing of the door.

Concealed/ Surface **Flush**

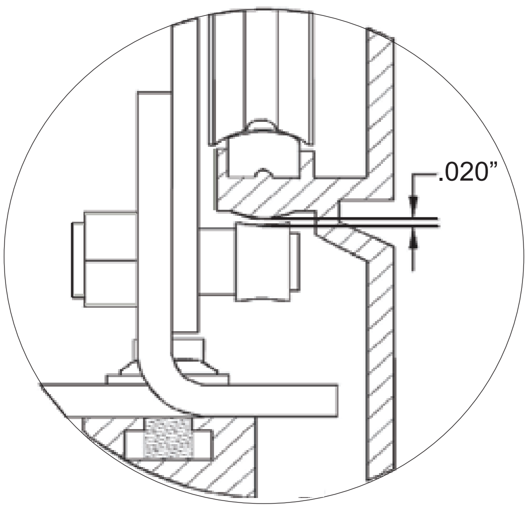


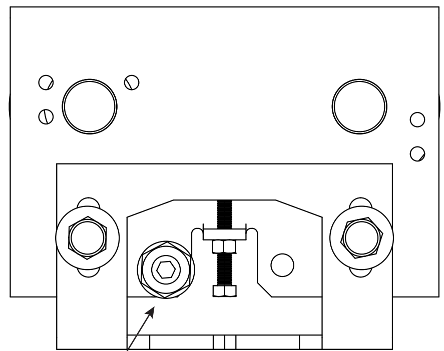
TX9500 Flush



SX-PANEL ALIGNMENT

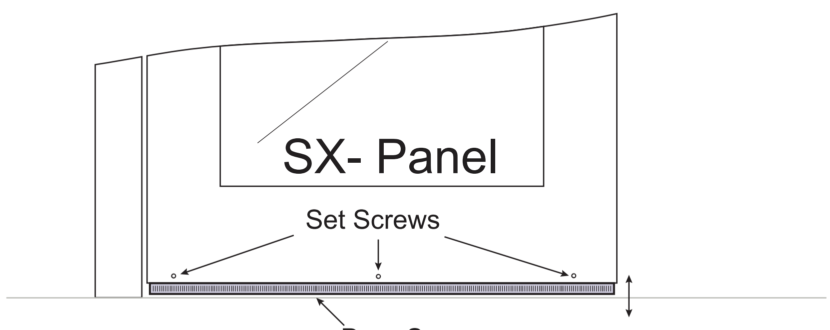
4) Adjust anti-riser 17mm wrench/ 5mm Hex key for a gap of .020” (approximately the thickness of a credit card) between the roller and the track.





Anti-Riser adjustment Nylok Hex Nut w/hex socket adjustment use 17mm wrench for hex nut and 5mm Hex Key to adjust Anti-Riser

5) In the door closed position, loosen door sweep set screws, adjust the door sweep(s) to make slight contact with the floor. Re-tighten set screws.



6) Slide the door panel(s) open and close, checking for drag on the door panel(s). The door panels should slide open & closed freely with two finger pressure. Repeat above steps to eliminate any drag.

ACCESS CONTROL ASSEMBLY

If the door was ordered with the access control feature, the major components (panic device, electric lock) are pre-installed at the factory. Adjustments will need to be made.

1) The door in the closed position, check the alignment of the lock module with relationship to the locking pins located on top of the trolley(s).

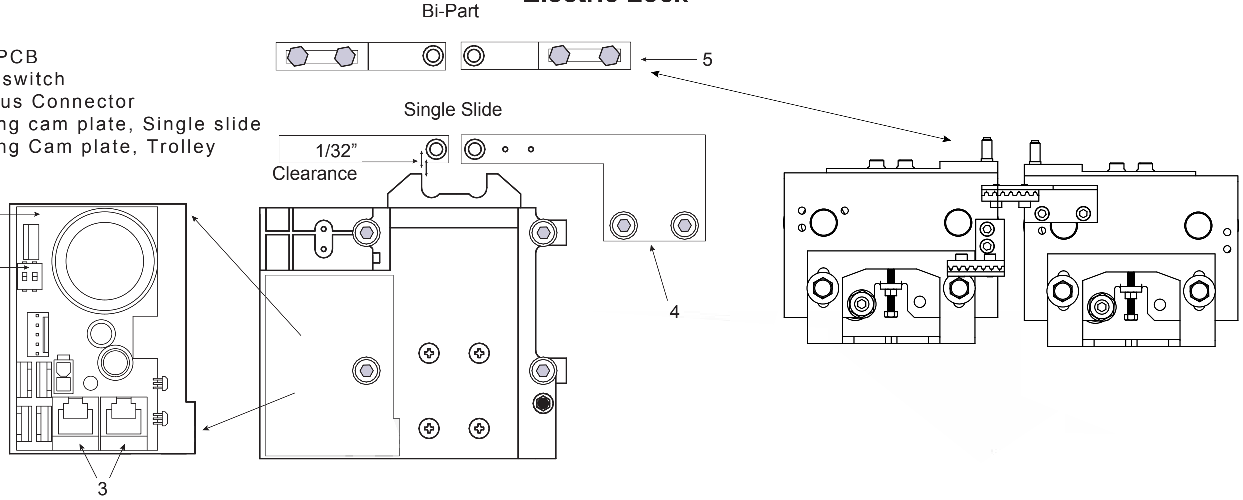
2) Loosen the (4) 4mm Hex head bolts securing the lock module, loosen the 10mm bolts securing the locking cam brackets.

3) Adjust locking cam(s) and lock module for a minimum clearance of 1/32" between locking plate and cam(s). Secure lock module and cam brackets.

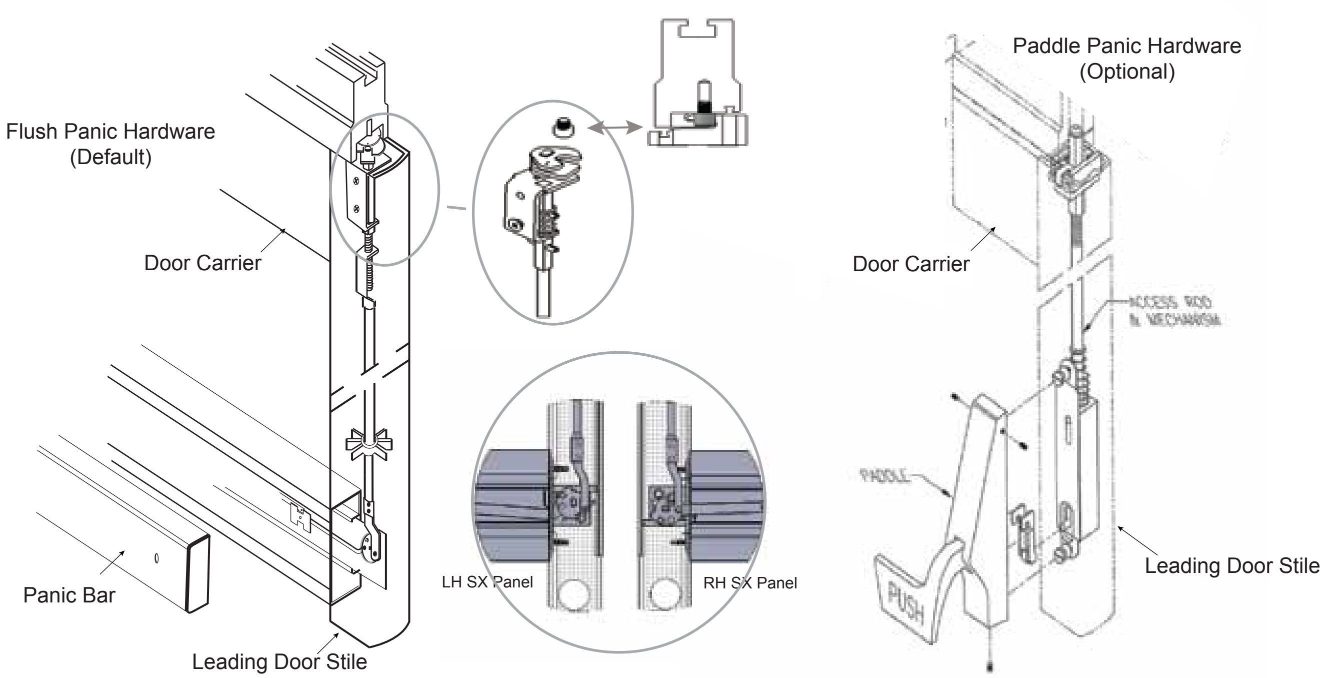
At no point should the locking cams come in contact with each other or the locking plate.

Electric Lock

1 Lock PCB
2 Code switch
3 LIN-Bus Connector
4 Locking cam plate, Single slide
5 Locking Cam plate, Trolley



Panic Hardware

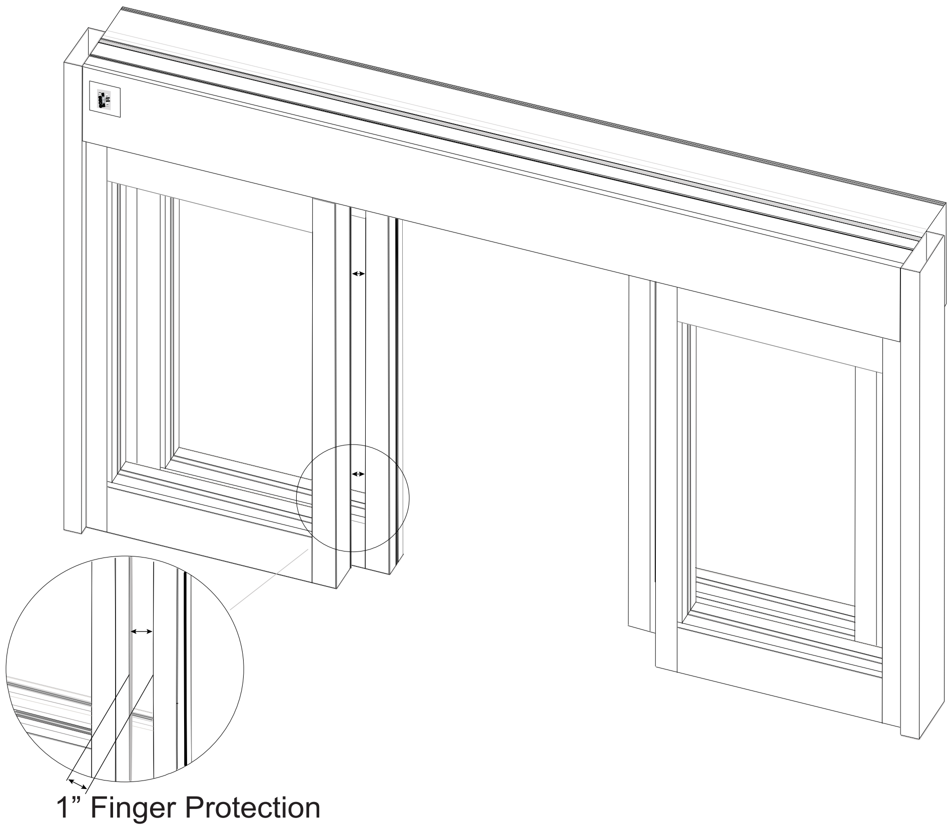


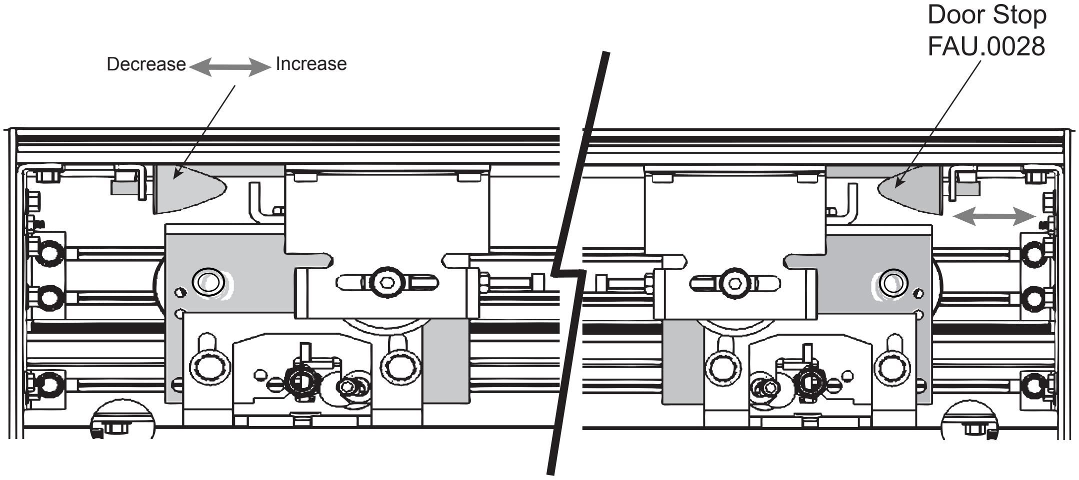
DOOR STOP ADJUSTMENT

1) The SX Panel door stop should be adjusted to provide a 1” gap (Finger Protection) between SX Panel and O-Panel/ P-Panel.

2) To increase the finger guard distance, move the stop towards the door opening direction.

3) To decrease the finger guard distance, move the stop towards the door closing direction.

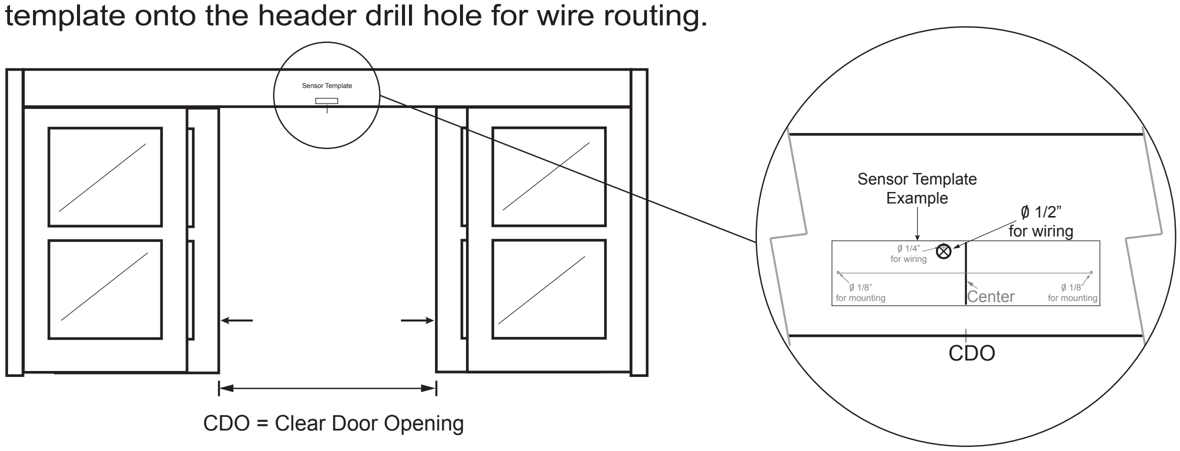




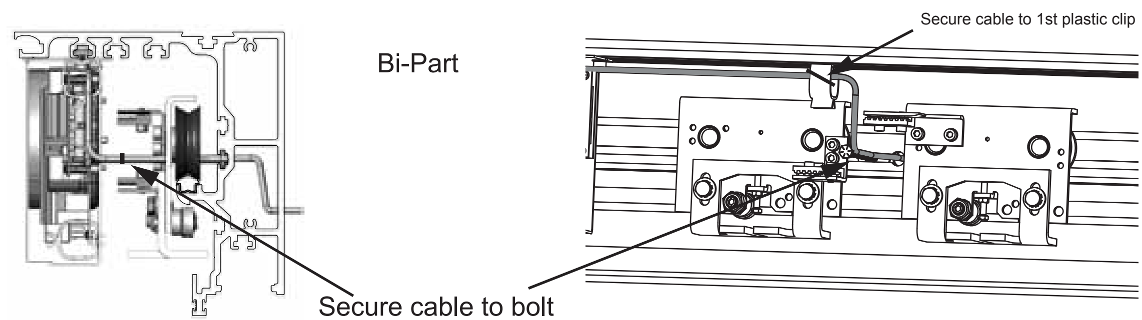
SENSOR ROUTING

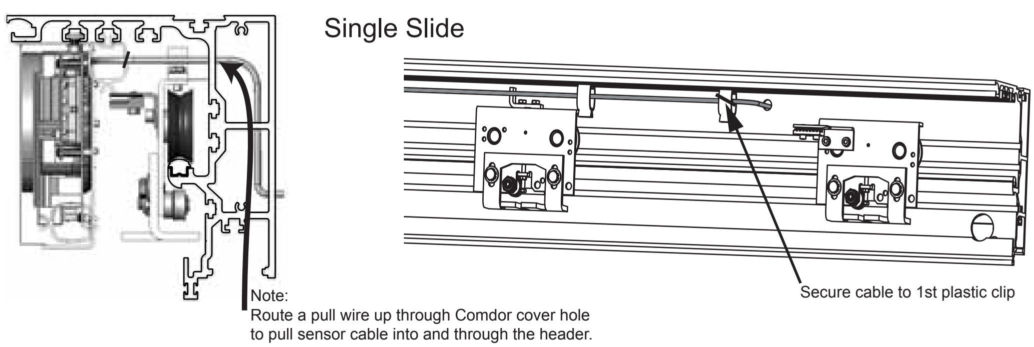
Refer to the sensor manual for maximum mounting height from the floor. The maximum mounting height on the header is 2” measured from the bottom of the header.

1) Determine the center of the Clear Door Opening, align and apply sensor template onto the header drill hole for wire routing.



2) Insert sensor cable through factory drilled holes in the header as shown below and route to the control.





3) Route sensor cable through the header to the control. Keep cables clear of any moving parts. Recommend zip tie cable to 1st plastic clip inside the header for non-cover side sensor.

Do not connect sensor cables to the control at this time. Sensors will be connected after setup is complete.

PRIMARY POWER CONNECTIONS FOR TX9200 - TX9500

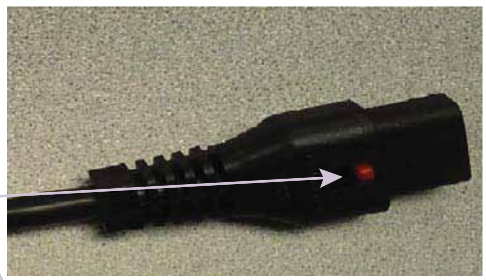
All primary electrical connections should be completed by a licensed electrician!
The unit requires 115 VAC as primary power.

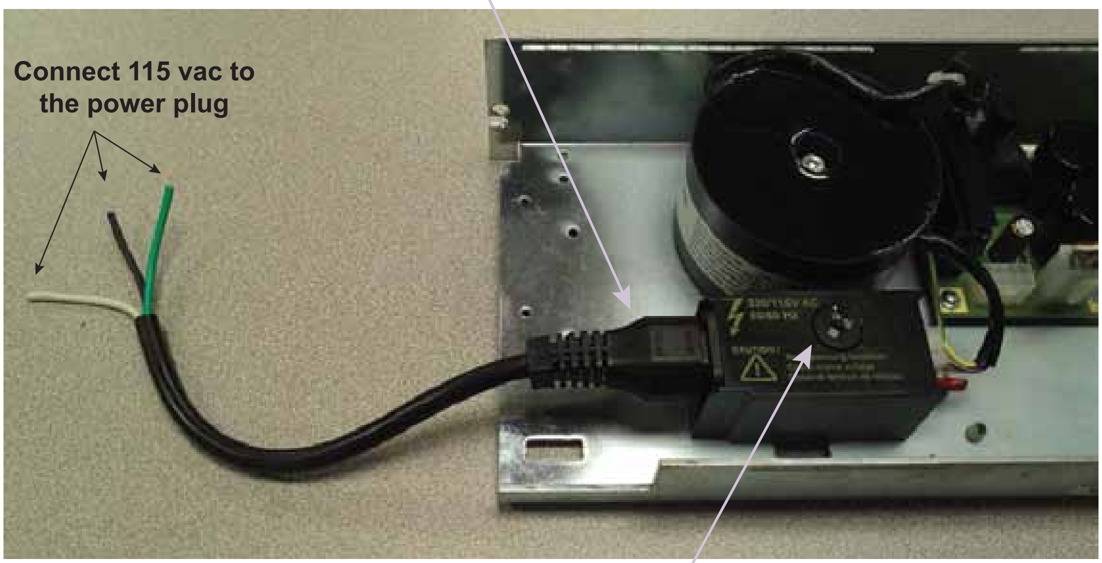
1) Remove power plug by pressing red locking tab to make 115 VAC primary power connections.

2) The factory changes voltage selector switch to 115. When replacing a control in the field the technician needs to check the selector switch.

3) Insert power plug when ready to perform teach-in, programming and overall performance check.

Release for power plug
located on bottom.

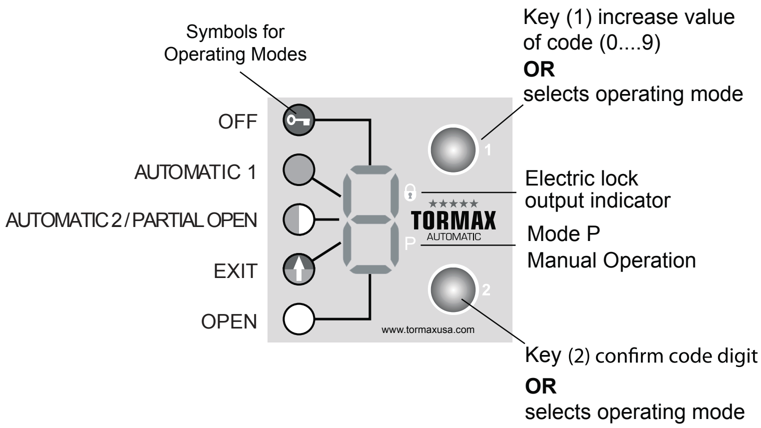




Set to115 v

FUNCTIONAL CONTROL PANEL (FCP) DESCRIPTION / INSTALLATION

The Functional Control Panel (FCP) is the interface between the door system and the end user/ technician. The FCP will be factory installed on the non-cover side of the header or field installed in a remote location dependent on customer requirements.



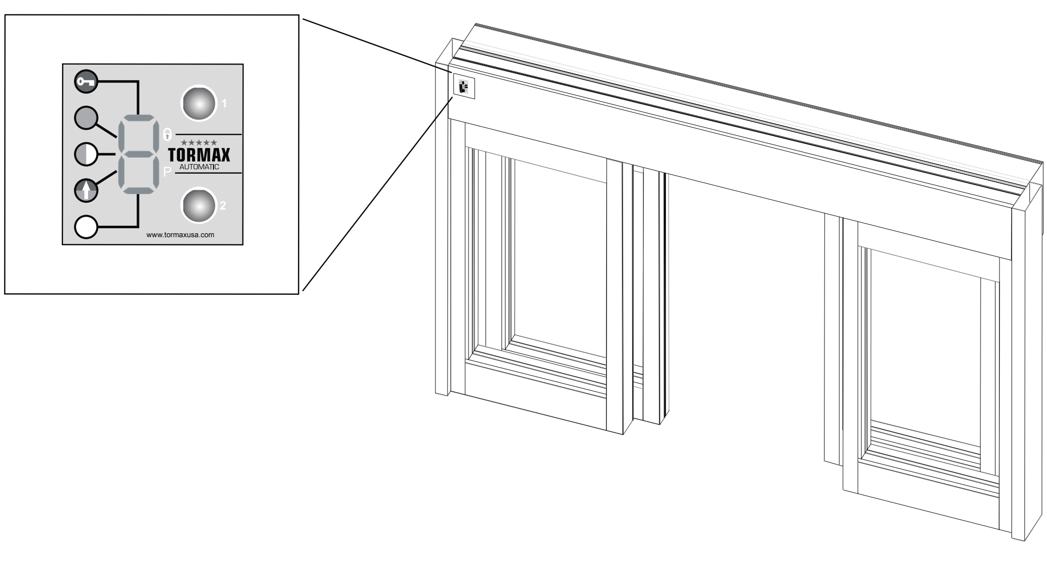
The FCP has 2 function levels:

Level 1 - End user

- Select operating modes
- Display three-digit fault codes.
- Access protected eliminates unauthorized programming.

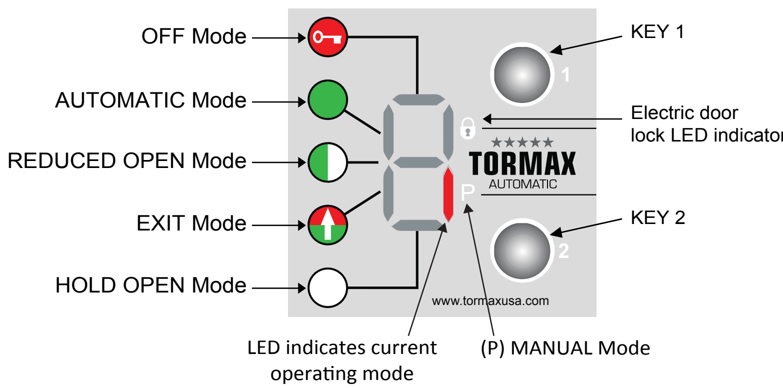
Level 2 - AAADM Certified technician

- Access protection, access code (111)
- Programming door system to comply with the current ANSI 156.10 standard.
- Displays currently set parameter.
- 10 min time out after the last programming entry is made.



DESCRIPTION OF FCP OPERATING MODES

The 6 modes of operation is selectable on the Functional Control Panel (FCP) by utilizing buttons 1 or 2. Button 1 moves LED clockwise, button 2 moves counter clockwise.



OFF Mode

The interior and exterior sensors are inhibited after the door reaches the fully closed position, if equipped with an electric lock the lock will engage. Key switch input will open the door, when activated.

Automatic 1 Mode

Two-way traffic, typical setting for normal operation. This setting allows interior & exterior sensors, key switch and safety device to operate the door.

Automatic 2 Mode (Reduced Opening)

Allows the door to open with a reduced opening width. Door opening width and hold open time can be adjusted. Hold open time adjustment separate from Automatic 1 mode.

EXIT Mode

Allows interior activation and key switch inputs to operate the door system. Exterior activation input is inhibited in door closed position, but becomes active when door is operated by interior activation or key switch inputs.

HOLD - OPEN Mode

Hold the door system open.

P MANUAL OPERATION (P) Mode

Allows the door to be used manually without the use of sensors, push and pull activation. Indicates when the door is in panic/ break-out position.

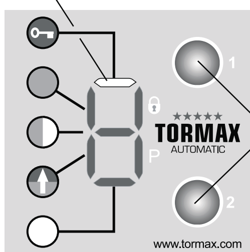
⚠ The technician will clearly explain and demonstrate the modes of Operation to End user.

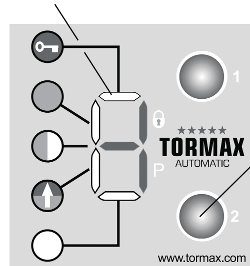
PROGRAMMING WITH THE FCP - EXAMPLES

Button 1 - Increments the number or letter by one (0 - 9,a,b,c,...back to 0)
Button 2 - Confirms or enters the displayed character into the control

Place FCP display into “P” Park/ Manual mode during programming refer to illustration on page 28.

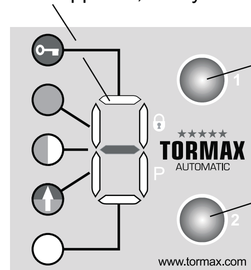
1) Start Access Code





2) Entering Access Code 111

A) Select the number “1” with button 1, confirm/ enter with button 2.
B) Repeat this step two more times entering the code 1-1-1.
C) A letter “P” will display indicating in Program mode.



Example 1: Enter access code 111

Display on FCP

Press both buttons 1,2 simultaneously until	C	is displayed, release both buttons
Press button 2 and	0	is displayed
Press button 1 to display	1	Press button 2 to enter “1”
	0	is displayed
Press button 1 to display	1	Press button 2 to enter “1”
	0	is displayed
Press button 1 to display	1	Press button 2 to enter “1”
	P	is displayed, now in program mode

Time out occurs, if no input is made during 10 s, the FCP reverts back to displaying P, then displays the operating mode.

Within 10 minutes you can enter the programming mode by pressing both keys simultaneously and P will display. If no further adjustments are made after 10 minutes the FCP will time out and require access code re-entry. Repeat example 1.

PROGRAMMING WITH THE FCP - EXAMPLES

3) Start Programming Level

Example 1: Enter code 030 to Detect and store reference distance

Display on FCP

Press both buttons 1,2 simultaneously until	P	displays, release both buttons
Press button 2 and if	0	appears, Press button 2 to enter "0"
If	0	does not appear, Press button 1 until displayed, Press button 2 to enter.
	1	will display automatically
Press button 1 until	3	is displayed, Press button 2 to enter "3"
a slow flashing	0	is displayed
Press button 2 to enter	0	
	P	will rapidly flash for 1 sec
	P	will display for 10 sec then return to operating mode.

A Reference open/ close cycle will be performed, upon activation

Example 2: Enter code 036 to Detect and store door mass (weight)

Display on FCP

Press both buttons 1,2 simultaneously until	P	displays, release both buttons
Press button 2 and if	0	appears, Press button 2 to enter "0"
If	0	does not appear, Press button 1 until displayed, Press button 2 to enter.
	1	will display automatically
Press button 1 until	3	is displayed, Press button 2 to enter "3"
a slow flashing	0	is displayed
Press button 1 until	6	is displayed, Press button 2 to enter "6"
	P	will rapidly flash for 1 sec
	P	will display for 10 sec then return to operating mode.

The process to determine door mass requires the door to be activated multiple times up to 14 times.

After the 2nd code digit has been confirmed, the flashing digit show set value of the parameter (= 3rd digit of the parameter code). If the value is confirmed the FCP will rapidly flash for 1 sec then display "P" again.

Quickly pressing and releasing both buttons simultaneously the FCP will return to displaying the mode of operation.

QUICK START UP

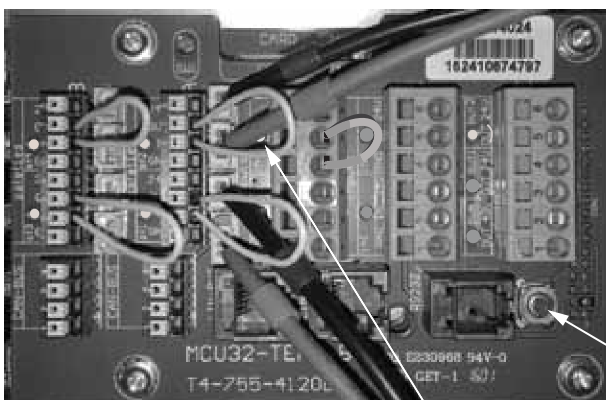
The control will be factory programmed to the function of the application.
Do not perform a factory reset or an Auto-configuration.

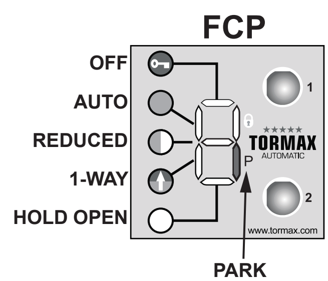
Requirements prior to POWER UP

- Check all fasteners for security.
- Wire routing & connections, LIN - BUS connections are complete and clear of moving parts.
- Do not connect Overhead Sensors to the door control.
- If equipped, connect battery back-up module 8 pin connector to Power Supply board.
- If equipped, with an electric lock check electrical connection (lin-Bus) and for proper clearances between lock and locking posts.
- All mechanical adjustments completed: SX sliding panel adjustments: height adjustment, door sweep height adjusted, no rubbing against weather seals, Bottom Guide/ s, Anti-riser/ s, panel/s move freely/ two finger pressure.

POWER UP - NOTE SAFETIES ARE NOT FUNCTIONING AT THIS TIME. YOU MUST PROHIBIT TRAFFIC FLOW UNTIL COMPLETED. IF YOU CAN NOT STOP TRAFFIC FLOW THROUGH THE DOOR, USE THE SW2 FOR REACTIVATION.

The control should have jumpers placed into terminal A pins 2, 3 and 6, 7 and terminal B pins 2, 3 and 6, 7 as shown below. Confirm that all four LEDs are illuminated, if not reset jumpers.





SW2

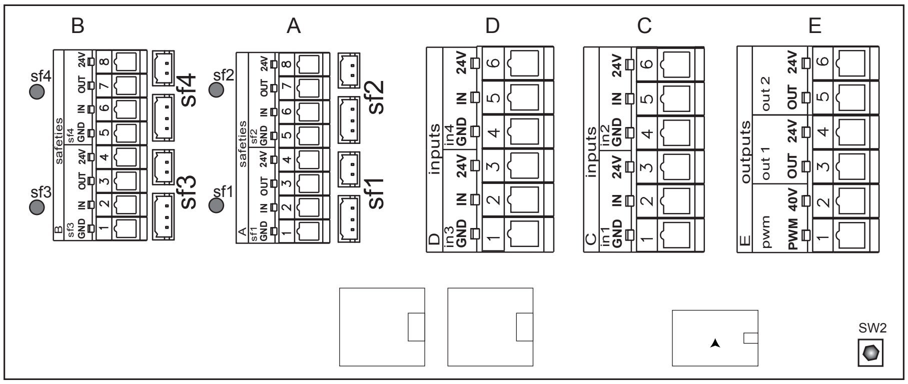
Learn Mode - full open/ closed door positions and door panel weight

1. Check that input in4 terminal D pins 4,5 LED is “ON”, if not:
   A. Change ON/ OFF, ON/ OFF/ HO switch position till LED illuminates as shown above.
   B. If equipped, check breakout beam circuit, beams mounted on the jamb.
2. Enter Code 030, 036 into the FCP display. Reference manual for programming codes with FCP.
3. Change operating mode to “AUTO” on the FCP display.
4. Push-n-release SW2 button to activate the door open. **Note code H65 will display until complete.**
5. Repeat step 4 after Output 2 LED illuminates upon door closing. The process can take up to 14 activations. An audible tone will sound from the control when complete.

If the door does not operate as described in previous steps refer to page 33 for New Installation Troubleshooting.

QUICK START UP/ ADDITIONAL ADJUSTMENTS

SW2 Switch is the small blue button on the control to activate the door if pushed momentarily. When used to activate the door there is no hold open time, door goes fully open and closes immediately.



6. Remove jumpers from safety inputs (sf1,2) A terminal pins 2,3 & 6,7. Check LEDS for sf1,2 remain “ON”. If LEDs remain ON then test photo beam operation during door closing. If LEDs go “OFF” then check photo beams are not blocked, all connections are secure and no pinched wires).

7. Connect self-monitored sensors into terminal B (sf3,4) refer to sensor connection diagrams (pages 41 - 43) for connections and configuration settings. Remove jumpers on B terminal pins 2,3 & 6,7. Check function, operation and adjust the sensors in accordance to ANSI/ BHMA A 156.10 standard.

Additional Adjustments

Below are frequently used adjustments, refer to the Programming Charts section for a more detailed list.

Function Code:	Function:
103	Hold Open Time, Automatic Mode 1
113	Hold Open Time, Automatic Mode 2
212	Closing Speed
224	Close Check Speed
41_	Reduced Opening Width
551	Lock in OFF, EXIT mode

Settings Code:

103 Hold Open Time, Automatic Mode 1

0	1	**2***	3	4	5	6	7	8	9	Code
0	0.5	1	2	3	5	7.5	10	12.5	15	Sec.

113 Hold Open Time, Automatic Mode 2

0	1	**2***	3	4	5	6	7	8	9	Code
0	0.5	1	2	3	5	7.5	10	12.5	15	Sec.

Additional Settings on Programming Table

212 Closing Speed

0	1	2	3	**4***	5	6	7	8	9	Code
3.15	6.3	9.45	12.6	15.75	18.9	22.05	25.2	28.35	31.5	Inch/s

224 Close Check Speed

0*	1	2	3	4	5	6	7	8	9	Code
.59	.63	.71	.82	1	1.18	1.43	1.68	2	2.36	Inch/s

41_ Reduced Opening Width

0	1	2	3	4	5	**6***	7	8	9	Code
10	20	30	40	50	60	70	80	90	100	%

Always inspect and adjust the installation to be in accordance with the current ANSI/ BHMA A156.10 standard.
Test all FCP functions for proper operation.

TROUBLESHOOTING

Troubleshooting - New installations

If the door is running backwards, FCP in HOLD OPEN door physically closed, FCP in OFF (red key) door is physically open.

1. Enter the code listed below for door type to change motor rotation.

	(Code 080)	(Code 081)
Motor Rotation	Clockwise	Counter Clockwise
Door Type	TX9200 Bi-Part, Right Hand Single Slide	TX9200 Left Hand Single Slide

If the FCP is displaying an E33, E39 error code perform the following.

1. Check that jumpers are in all the safety inputs and that LEDs are “ON”, disconnect all sensors. Enter the code 031.

If the FCP is stuck in the P-mode of operation and can not be changed.

1. Check that in4 D terminal, that the LED is “ON”, if so Enter code 038.
   If LED is “OFF” check ON/ OFF or ON/ OFF/ OPEN switch position or if equipped with breakout beam check for proper operation.

If the FCP is stuck in the OFF-mode of operation and can not be changed.

1. Check that in4 D terminal, that the LED is “ON”, if so Enter code 038. If LED is “OFF” check ON/ OFF or ON/ OFF/ OPEN switch position.

If the door does not function correctly with sensors connected (sensors stop the door during opening) check the settings below with the FCP display. To check the settings enter the first two values (function code), the third flashing value (setting), if the setting value does not match value listed then change to the value shown below.

Example: Enter function code 63, if “1” is flashing then let the FCP time out and return to P display.

Example: Enter function code 63, if “0” is flashing then change to “1”, enter the value.

63 “1”	Input in4, D terminal pin 4,5- (1) = Operation mode MANUAL (FCP=P)	038
65 “2”	Input sf2, A terminal - (2) = Safety Closing 1 with reversing function	031
66 ”C”	Input sf3, B terminal - (C) = Safety Closing 2 with reversing function	031
67 ”C”	Input sf4, B terminal - (C) = Safety Closing 2 with reversing function	031

If any of the functions were changed then verify that the input LED /s are ON:
For sf1, sf2, sf3, sf4 -Enter code 031

Contact Tormax Technical support for troubleshooting assistance

TROUBLESHOOTING

Existing installations - Contact Tormax Technical support for troubleshooting assistance and prior to performing a factory reset as it is for extreme cases.

1. Factory Reset - Enter Code 041, (H11 = Operator Type not Defined)

FCP will display H11 = operator type not defined

2. Operator Type - Enter Code

Control Type	2301	2401
Program Code	011	012

FCP will display H14 until entire process is complete

3. Breakout function if equipped - Determine which input terminal the breakout beam or ON/OFF/OPEN switch is wired into. Input LED has to be illuminated before entering codes.

IN4, D terminal pins 4,5	631	038
sf4, B terminal pins 5,6	679	---

4. Safety Functions - Beams in A terminal and Overhead sensors. (i-One, Eagles, motion sensors) **No change needed.**

5. Safety Functions - Beams and overhead combination sensors.(7501, IXIO, i-oneX T) All safety devices should be setup for normally closed, all safety input LEDs ON. Enter Codes

65 “2”	Input sf2, A terminal - (2) = Safety Closing 1 with reversing function
66 ”C”	Input sf3, B terminal - (C) = Safety Closing 2 with reversing function
67 ”C”	Input sf4, B terminal - (C) = Safety Closing 2 with reversing function

6. Place FCP in P manual mode, manually open the door to the full open position.

7. Automatic Configuration - Enter Code

	Press SW2 for 1 Beep (Code 021)	Press SW2 for 2 Beep (Code 022)
Motor Rotation	Clockwise	Counter Clockwise
Door Type	Bi-Part, Left Hand Single Slide	Right Hand Single Slide

8. Place the FCP to Auto Mode and allow the door to fully close, H64 will display. Activate the door by momentarily pressing the SW2 button located on the control. Continue to activate the door with the SW2 button until the “H” learn codes clear and an audible beep tone. Maximum number of cycles 14.

9. Adjust additional functions such as hold open, closing speed, closing check speed... as shown on page 32.

AUTO CONFIGURATION - DETAILS

Automatic configuration consist of the following activities in programming:

SF1 - SF4	The contact type (NO or NC) and monitoring if applicable will be automatically detected. Make sure sensor zones are clear and not in detection.
Lock Unit MCU32-LOCU	The functioning Lock is automatically detected and set to default operation. See programming table for options.
Battery Unit MCU32-BATU	The functioning Battery back-up is recognized if connected.
Input / Output Module MCU32-INOU-A	The functioning I/O module is recognized and saved via the LIN Bus, if the module is connected and coded as module 1 or 2.
Functional Control Panel MCU32-USIN-7-A	The FCP is recognized and saved via the LIN Bus, if connected and coded (1 or 2). The FCP is detected immediately when connected to the LINE Bus input of control.
Power supply Module MCU32-PSUP-40-18-C MCU32-PSUP-40-36-A	The functioning power supply module is recognized and saved, if connected to the control at connector labeled Power Supply.
Reference Run	The door searches for the open and closed end stops, starting with an automatic closing command displaying H64. Activating the door control will start the opening cycle displaying H63. After travel distance is determined it is saved.
Door Dimensions	The doors width and weight are detected during the initial opening cycles for the purpose of calculating check speed & distance, opening & closing speeds and controller settings.

Automatic configuration process consists of cycling the door open and closed until all programming activities are complete. The learning process lasts for a maximum of 14 cycles. The FCP displays “H” codes as a visual aid through the process. When the learn process is complete an audible tone from control and “H” codes on FCP will stop being displayed.

PROGRAMMING TABLE

! Most common parameters used are highlighted. * Indicates Default Value

Code	Function																Note
01 1	Door operator type iMotion 2301																
01 2	Door operator type iMotion 2401																
02 1	Automatic configuration: All Bi-Part, TX9200/ 9430 RH SS, TX9300/ 9420 LH SS																**(SW2: hold 1 Beep)** Contains 030...7, 07x, 08x
02 2	Automatic configuration: TX9200/ 9430 LH SS, TX9300/ 9420 RH SS																**(SW2: hold 2 Beeps)** Contains 030...7, 07x, 08x
03 0	--Detect and store reference way																
03 1	--Detecting and storing of safety facillities 1-4																**(SW2: hold 3 Beeps)** Safety inactive
03 2	--Detecting and storing MCU Lock Module 1																Only with code 572. Check coding on module.
03 3	--Detecting and storing of MCU Battery Module																
03 4	--Detecting and storing of MCU I/O- Module 1+2																Check coding on module
03 5	--Detecting and storing of MCU Power supply Module																
03 6	--Detecting and storing of Door mass																Display H65
03 7	--Detecting and storing of MCU User interface 2																Check coding on module
03 8	Terminal Module: Detecting, storing "in 1-4" (NO,NC,100Hz)																Pulse generators inactive
03 9	I/O Module 1: Detecting, storing of "in 1-4" (NO, NC)																Pulse generators inactive
04 0	Reset																Starts program with calibration run
04 1	Factory Reset																All adjustments back to default values (see *)
04 2	Firmware version																Example: r06_00 = V06.00
04 3	Number of cycles																Example: c10_302 = 10'302 cycles (max. 99?999?999)
04 4	Number of operating hours																Example: h4_002 = 4002 hours (max.99'999'999)
04 5	Delete fault protocol																
04 6	Address of control unit for network																Example: A1 = address no. 1
06 0 *	Control without FRW																FRW = Equipment for rescue and escape routes
06 1...8	Functions with FRW																
07 0...9	--Door mass																Automatic detection contained in 021 / 022
08 0...1 0*	--Rotating direction of drive																0 contained in 021 / 1 contained in 022
10 0...F	Hold-open time of activator in mode of op. AUTO1																
	0	1	2 *	3	4	5	6	7	8	9	A	b	C	d	E	F	code
	0	0.5	1	2	3	5	7.5	10	12.5	15	17.5	20	25	30	45	60	sec.
11 0...F	Hold-open time of activator in mode of op. AUTO2																
	0	1	2 *	3	4	5	6	7	8	9	A	b	C	d	E	F	code
	0	0.5	1	2	3	5	7.5	10	12.5	15	17.5	20	25	30	45	60	sec.
12 0...F	Hold-open time of key switch																
	0	1	2	3	4 *	5	6	7	8	9	A	b	C	d	E	F	code
	0	0.5	1	2	3	5	7.5	10	12.5	15	17.5	20	25	30	45	60	sec.
13 0...9	Delay time Mode of op. OFF																
	0	1	2 *	3	4	5	6	7	8	9							code
	1	3	5	7.5	10	15	20	30	45	60							sec.
14 0...9	Bell active time																0 = Duration identical to trigger duration
	0	1	2 *	3	4	5	6	7	8	9							code
	=imp	0.5	1	2	3	4	5	6	8	10							sec.
15 0...9	Bell intermission																
	0	1	2	3	4	5	6 *	7	8	9							code
	0	0.5	1	2	3	4	5	6	8	10							sec.
16 0...9	Stop time after safety																
	0	1	2 *	3	4	5	6	7	8	9							code
	0	0.5	1	2	3	4	5	6	8	10							sec.
17 0...9	Runtime Battery in mode of op. 2-6																Door opens after switch-off battery
	0	1	2	3 *	4	5	6	7	8	9							code
	10s	1	5	10	30	60	120	240	360	480							sec / min.

* = Default value when factory reset

PROGRAMMING TABLE

! Most common parameters used are highlighted. * Indicates Default Value

Code		Function										Note
18	0...9	Runtime Battery in mode of op. OFF										
		0 *	1	2	3	4	5	6	7	8	9	code
		10s	1	5	10	30	60	120	240	360	480	sec / min.
19	0...9	Airlock timeout										0 = No timeout for airlock function
		0 *	1	2	3	4	5	6	7	8	9	code
		--	10	15	20	25	30	45	60	90	120	sec.
20	1...9	Opening speed										
		0	1	2	3	4	5	6 *	7	8	9	Code
		3.93	7.87	11.8	15.75	19.69	23.62	27.56	31.5	35.43	39.37	inches / s
21	0...9	Closing speed										
		0	1	2	3	4 *	5	6	7	8	9	Code
		3.15	6.3	9.45	12.6	15.75	18.9	22.05	25.2	28.35	31.5	inches / s
22	0...9	Close check speed										
		0	1	2	3 *	4	5	6	7	8	9	Code
		.59	.63	.71	.82	1	1.18	1.43	1.68	2.00	2.36	inches / s
26	0...9 2*	Braking distance opening										9 = max
28	0...9 4*	Braking distance closing										9 = max
30	0...9	Motor force opening										Net force on door edge
		0	1	2	3	4	5 *	6	7	8	9	code
		5	11	22	33	44	55	66	77	88	100	%
31	0...9	Motor force closing										Net force on door edge
		0	1	2	3	4	5 *	6	7	8	9	code
		5	11	22	33	44	55	66	77	88	100	%
33	0...9	Motor force closed position										Net force on door edge > reduce if H73 after 10s!
		0	1	2	3	4 *	5	6	7	8	9	code
		0	20	30	40	50	60	70	80	90	100	N
35	0...9 5*	Reversing sensitivity opening										9 = max
36	0...9 5*	Reversing sensitivity closing										9 = max
39	0...9 5*	Travel distance tolerances (60...300%)										
41	0...9	Opening width reduced										
		0	1	2	3	4	5	6 *	7	8	9	code
		10	20	30	40	50	60	70	80	90	100	%
51	0 *	Operating mode return to last setting on user interface										after terminal operating mode
51	1...6	Operating mode return to mode of op. ...										after terminal operating mode
		1	2	3	4	5	6					code
		OFF	AUT1	AUT2	EXIT	OPEN	MAN.					Mode of Operation
51	7	No operating mode return										after terminal operating mode
55	0 *	Locks in operating mode OFF										
55	1	Locks in operating mode OFF, EXIT										
55	2	Locks in operating mode OFF, AUTO 1+2, EXIT										
56	0 *	Unlocks never in case of power failure										
56	1	Unlocks in AUTO1, AUTO2, EXIT in case of power failure										
56	2	Unlocks in every operating mode in case of power failure										
57	0	Electric strike: current-free locked										
57	1	Electric strike: current-free unlocked										Only for electric strike with 100% duty ratio
57	2 *	Lock type "Lock unit 2301/2401", with autom. configuration										
57	3	Electric strike switch-on range 100%, until door is closed										Only for electric strike with 100% duty ratio

* = Default value when factory reset

PROGRAMMING TABLE

Most common parameters used are highlighted. * Indicates Default Value

Code		Function	Note
57	4	Lock type "STARLOCK", with autom. detection	With Lock Module LOCK-200-A
57	5	Lock type "89 TCP", with autom. detection	With Lock Module LOCK-200-A
58	0...9	Delay time to open	Independent adjustment only with skipper
		0 * 1 2 3 4 5 6 7 8 9	code
		0 0.2 0.4 0.8 1.2 1.6 2.0 2.5 3.0 4.0	sec.
59	0...6	Tension "pwm out" with connection to terminal 40V or 24V**	
		0 1 2 3 4 * 5 6	code
		6 9 12 15 24 12** 24**	V DC
60	0	in1: Operation mode OFF	Contact NO. NC detect with code 038
60	1	in1: Operation mode MANUAL	Contact NO. NC detect with code 038
60	2	in1: Operation mode OPEN	Contact NO. NC detect with code 038
60	3 *	in1: Activator inside	Contact NO. NC, 100Hz detect with code 038
60	4	in1: Activator outside	Contact NO. NC, 100Hz detect with code 038
60	5	in1: Key switch	Contact NO. NC, 100Hz detect with code 038
60	6	in1: Emergency opening except in OFF	Contact NO. NC, 100Hz detect with code 038
60	7	in1: Emergency opening in all modes of op.	Contact NO. NC, 100Hz detect with code 038
60	8	in1: Emergency closing (with locking)	Contact NO. NC, 100Hz detect with code 038
60	9	in1: Operation mode EXIT	Contact NO. NC detect with code 038
61	0...9 4*	in2: Same choice of functions as on "in1"	Contact type detect with code 038
62	0...9 5*	in3: Same choice of functions as on "in1"	Contact type detect with code 038
63	0...9 0*	in4: Same choice of functions as on "in1"	Contact type detect with code 038
64	0	sf1: Safety opening 1 with stop function	Type of connection NO,NC,test detect with code 031
64	1	sf1: Safety opening 1 with creeping function	Type of connection NO,NC,test detect with code 031
64	2 *	sf1: Safety closing 1 with reversing function	Type of connection NO,NC,test detect with code 031
64	3	sf1: Safety closing 1 with creeping function	Type of connection NO,NC,test detect with code 031
64	4	sf1: Safety swing area	Type of connection NO,NC,test detect with code 031
64	5	sf1: Safety stop	Type of connection NO,NC,test detect with code 031
64	6	sf1: Emergency opening except in OFF	Contact NO. NC detect with code 031
64	7	sf1: Emergency opening in all modes of op.	Contact NO. NC detect with code 031
64	8	sf1: Emergency closing (with locking)	Contact NO. NC detect with code 031
64	9	sf1: Mode of op. MANUAL / Break out	Contact NO. NC detect with code 031
64	A	sf1: Safety opening 2 with stop function	Type of connection NO,NC,test detect with code 031
64	b	sf1: Safety opening 2 with creeping function	Type of connection NO,NC,test detect with code 031
64	C	sf1: Safety closing 2 with reverse function	Type of connection NO,NC,test detect with code 031
64	d	sf1: Safety closing 2 with creeping function	Type of connection NO,NC,test detect with code 031
65	0...d C*	sf2: Same choice of functions as on "sf1"	Type of connection detect with code 031
66	0...d 0*	sf3: Same choice of functions as on "sf1"	Type of connection detect with code 031
67	0...d A*	sf4: Same choice of functions as on "sf1"	Type of connection detect with code 031
68	0	out1: Message "door closed"	
68	1	out1: Message “door closed and locked”	
68	2	out1: Message “door open”	
68	3	out1: Message “General fault”	
68	4 *	out1: Bell	
68	5	out1: Message “Mode of operation OFF”	
68	7	out1: Battery in service	
68	9	out1: Message “door is opening or open”	Function visible after 1 door-opening cycle
69	0...9 0*	out2: Same choice of functions as on "out1"	
70	0 *	I/O Module 1: in1: No function	
70	1	I/O Module 1: in1: Operating mode OFF	Contact NO. NC detect with code 039

* = Default value when factory reset

PROGRAMMING TABLE

Most common parameters used are highlighted. * Indicates Default Value

Code	Function	Note
70 2	I/O Module 1: in1: Operating mode AUTOMATIC 1	Contact NO. NC detect with code 039
70 3	I/O Module 1: in1: Operating mode AUTOMATIC 2	Contact NO. NC detect with code 039
70 4	I/O Module 1: in1: Operating mode EXIT	Contact NO. NC detect with code 039
70 5	I/O Module 1: in1: Operating mode OPEN	Contact NO. NC detect with code 039
70 6	I/O Module 1: in1: Operating mode MANUAL	Contact NO. NC detect with code 039
70 7	I/O Module 1: in1: Inhibit switch	Contact NO. NC detect with code 039
71 0...7 0*	I/O Module 1: in2: Same choice of functions as on I/O Module 1: in1	Contact NO. NC detect with code 039
72 0...7 0*	I/O Module 1: in3: Same choice of functions as on I/O Module 1: in1	Contact NO. NC detect with code 039
73 0...7 0*	I/O Module 1: in4: Same choice of functions as on I/O Module 1: in1	Contact NO. NC detect with code 039
74 0 *	I/O Module 1: out1: No function	
74 1	I/O Module 1: out1: Operating mode OFF	
74 2	I/O Module 1: out1: Operating mode AUTOMATIC 1	
74 3	I/O Module 1: out1: Operating mode AUTOMATIC 2	
74 4	I/O Module 1: out1: Operating mode EXIT	
74 5	I/O Module 1: out1: Operating mode OPEN	
74 6	I/O Module 1: out1: Operating mode MANUAL	
74 7	I/O Module 1: out1: "Door is opening"	
74 8	I/O Module 1: out1: “Door is opening or open”	
74 9	I/O Module 1: out1: "Door is closing"	
75 0...9 0*	I/O Module 1: out2: Same choice of functions as on I/O Module 1: out1	
76 0...9 0*	I/O Module 1: out3: Same choice of functions as on I/O Module 1: out1	
77 0...9 0*	I/O Module 1: out4: Same choice of functions as on I/O Module 1: out1	
78 0	User Interface 1: in1: No function	
78 1 *	User Interface 1: in1: User interface lock	Contact NO. Use User Interface from V1.07!
78 2	User Interface 1: in1: Operating mode OFF	Contact NO. Use User Interface from V1.07!
78 3	User Interface 1: in1: Operating mode AUTOMATIC 2	Contact NO. Use User Interface from V1.07!
78 4	User Interface 1: in1: Operating mode EXIT	Contact NO. Use User Interface from V1.07!
78 5	User Interface 1: in1: Operating mode OPEN	Contact NO. Use User Interface from V1.07!
78 6	User Interface 1: in1: Operating mode MANUAL	Contact NO. Use User Interface from V1.07!
78 7	User Interface 1: in1: Emergency closing	Contact NO. Use User Interface from V1.07!
78 8	User Interface 1: in1: Emergency opening in all op. modes	Contact NO. Use User Interface from V1.07!
78 9	User Interface 1: in1: Key switch	Contact NO. Use User Interface from V1.07!
79 0...9 0*	User Interface 1: in2: Same choice as on User Interface 1: in1	Contact NO. Use User Interface from V1.07!
80 0 *	Bell trigger: Safety closing 1	
80 1	Bell trigger: Safety closing 2	
80 2	Bell trigger: Activator inside	
80 3	Bell trigger: Activator outside	
80 4	Bell trigger: Key switch	
82 0 *	No step-by-step control	
82 1	Step-by-step control only for key switch	
82 2	Step-by-step control only for activator inside and outside	
82 3	Step-by-step control for activator inside, outside and key switch	
84 0 *	No emergency opening with MCU32-MBTU	
84 1	Emergency opening with MBTU, Type A, with direct opening	Application see T-1705
84 2	Emergency opening with MBTU, Type B, with cycle operation and opening	Application see T-1705
85 0 *	No airlock function	
85 1	Airlock function for inner door	Application see T-1304
85 2	Airlock function for outer door	Application see T-1304

* = Default value when factory reset

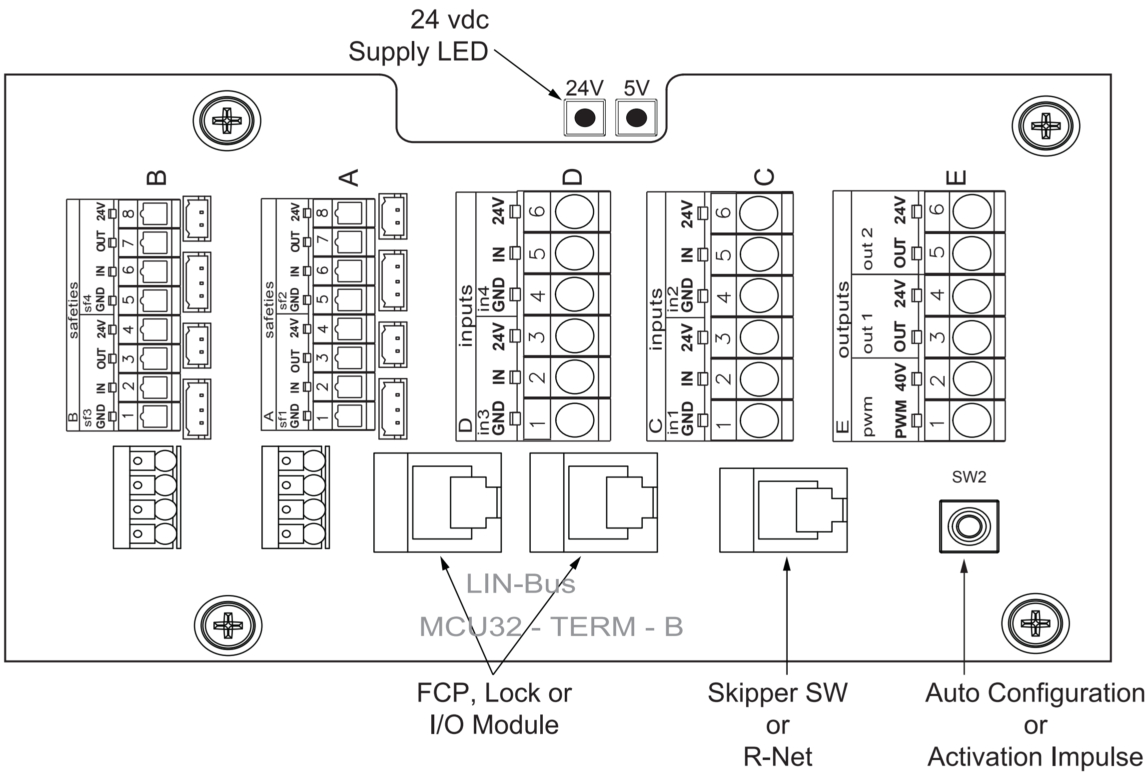
TROUBLE SHOOTING CODES

* E = Error | H = Hint

* No.	Fault	Behaviour of System	Reset
E00	Firmware incompatible to MCU version /D	Safety operating mode or only display	Reset, new version MCU32-BASE
E0x	Internal test negative	Safety operating mode or only display	Reset
E11	MCU Lock 1, wrong position	Door cannot open	Automatically if OK
E20	LIN to Monit. battery mod. MBAT interrupted	-	Reset
E21	LIN to User Interface 1 USIN interrupted	Last mode of operation remains	Automatically if OK
E22	LIN to User Interface 2 USIN interrupted	Last mode of operation remains	Automatically if OK
E23	LIN to s I/O-Modul 1 INOU interrupted	Programmed function will be inactive	Automatically if OK
E24	LIN to s I/O-Modul 2 INOU interrupted	Programmed function will be inactive	Automatically if OK
E25	LIN to Lock Unit 1 LOCU interrupted	Last status remains	Automatically if OK
E26	LIN to Lock Unit 2 LOCU interrupted	Last status remains	Automatically if OK
E29	LIN to Power Supply PSUP-40-36 interrupted	Last status remains	Automatically if OK
E30	Safety clos. creep 2 >1min. active,test neg.	According safety function	Automatically if OK
E31	Safety open 1 >1min. active, test neg.	According safety function	Automatically if OK
E32	Safety op. creep 1 >1min. active, test neg.	According safety function	Automatically if OK
E33	Safety closing 1 >1min. active, test neg.	According safety function	Automatically if OK
E34	Safety clos. creep 1 >1min. active,test neg.	According safety function	Automatically if OK
E35	Safety swing area >1min. active, test neg.	According safety function	Automatically if OK
E36	Safety stop >1min. active, test neg.	According safety function	Automatically if OK
E37	Safety open 2 >1min. active, test neg.	According safety function	Automatically if OK
E38	Safety op. creep 2 >1min. active, test neg.	According safety function	Automatically if OK
E39	Safety closing 2 >1min. active, test neg.	According safety function	Automatically if OK
E40	User-defined input > 1min. active	(Door remains open)	Automatically if OK
E41	Activator inside > 1min. active	Door remains open	Automatically if OK
E42	Activator outside > 1min. active	Door remains open	Automatically if OK
E43	Key switch > 1min. active	Door remains open	Automatically if OK
E46	Emergency open >10min. active	Door remains open	Automatically if OK
E47	Emergency close >10min. active	Door closes and remains closed	Automatically if OK.
E48	Wake up or Push button SW2 > 1min. active	Door remains open	Automatically if OK.
E49	Inhibit switch> 1min. active	Door stand still	Automatically if OK.
E51	Encoder not working	Safety operating mode	Automatic Reset / Reset
E53	Calibration run different from reference	Safety operating mode	Reset
E54	Driveway in op. longer than reference	Safety operating mode	Reset >automatic configuration
E55	Position drift >9mm, toth belt jumping	Only display, auto-correction stops	Automatically if OK / Reset
E56	Door blocked	Saftey operation mode	Reset
E61	Voltage 40V outside of admissible range	Safety operating mode	Automatically if OK
E62	Power Supply 24V (Limit U, I)	Safety op. mode	Automatically if OK
E63	Current in power supply 40V to high	Safety operating mode	Automatically if OK
E64	Motor temperature > 90 ° C, cable interrupted	Safety operating mode	Automatically after cooling down
E65	Control end stage > 100 ° C	Safety operating mode	Automatically after cooling down
E66	Motor control faulty in MCU32-BASE	Safety operating mode	Reset
E67	Motor current to high in long-term	Normal operation	Automatically if OK
E72	Battery Unit MBTU: Charge < 15%	Normal operation	Automatically if OK
E73	Battery Unit MBTU faulty (MBAT or accu)	Normal operation	Reset or disconnect power supply
E8x	Memory or processor test negative	Safety operating mode	Reset
H11	Operator type not defined	Safety operating mode	Program operator type
H14	Automatic configuration not executed	Safety operating mode	Program 021 or 022
H61	Calibration run in opening direction	Searches open position	At the end of movement
H62	Calibration run in closing direction	Searches closed position	At the end of movement
H63	Reference run opening	Measures reference run length	At the end of movement
H64	Reference run closing	Searches closed position	At the end of movement
H65	Learn mode (Weight detection)	Normal operation	After 3-12 opening cycles
H71	Battery mode	Door moves slowly	Power supply return
H73	Motor current in closed position to high	Normal operation	Reset, reduce 33x
H91	Obstacle detection at opening	Door reverses	Automatically, Display 20s.
H92	Obstacle detected at closing	Door reverses	Automatically, Display 20s.
H93	Permanent obstacle at opening	Reset after 5 reversings	Automatically, Display 20s.
H94	Permanent obstacle at closing	Reset after 5 reversings	Automatically, Display 20s

CONTROL CONNECTION DIAGRAM

Function	Control Input	Control Terminals	Code
Inside Activation	Input 1	C1, C2	603
Outside Activation*	Input 2	C4, C5	614
Key Switch**	Input 3	D1, D2	625
Breakout Mode (P)	Input 4	D4, D5	631
Safety Closing w/ Reversing 1	sf1	A1, A2	642
Safety Closing w/ Reversing 1	sf2	A5, A6	652
Safety Closing w/ Reversing 2	sf3	B1, B2	66C
Safety Closing w/ Reversing 2	sf4	B5, B6	67C
Aux. Lock Output***	PWM	E1, E2	-
Bell	Out 1	E3, E4	684
Door Closed	Out 2	E5, E6	690

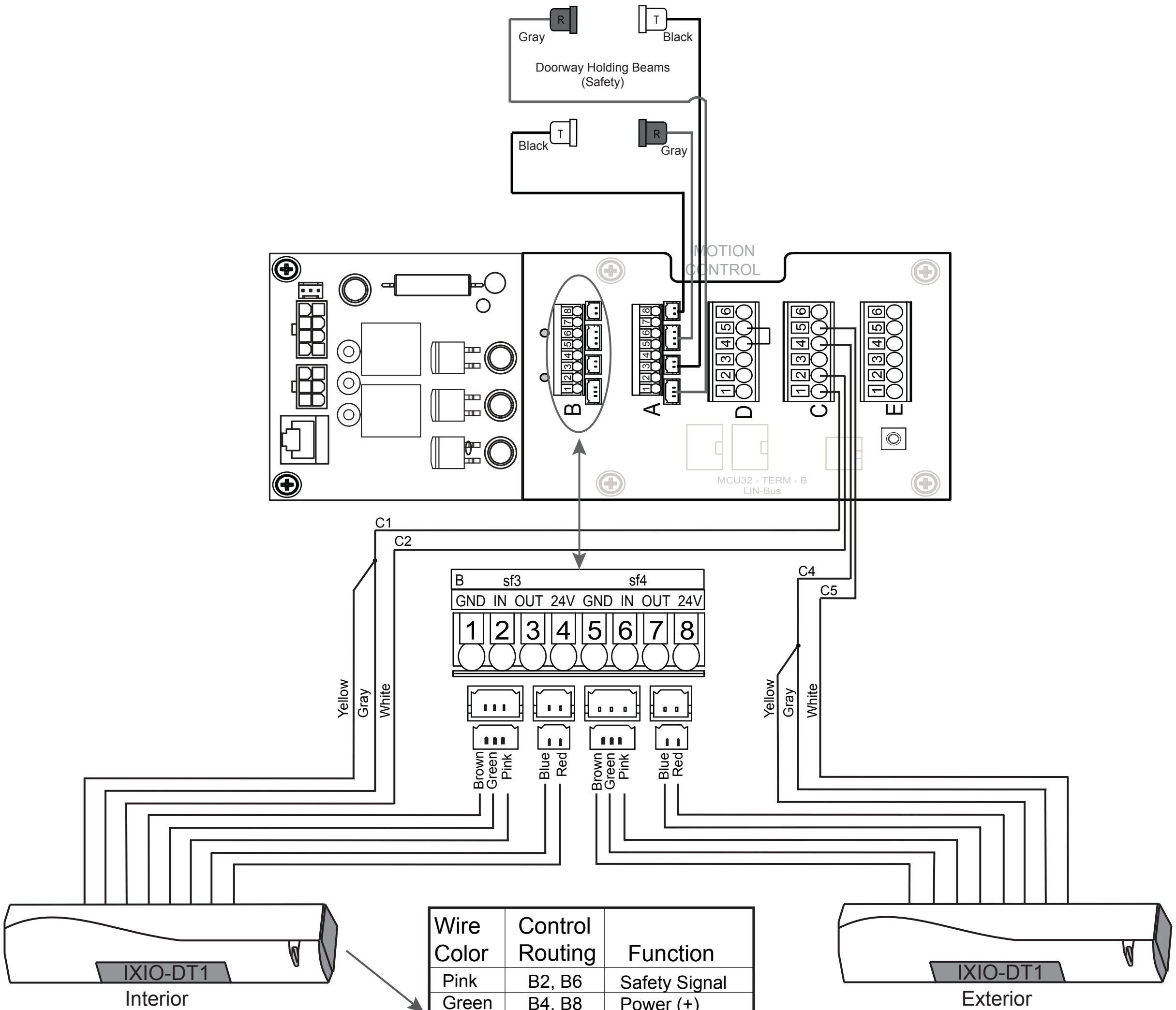


* Functions as a reactivation input when door is One-Way / Exit Mode of operation.
** Activate the door in all modes of operation except in P/ Parked/ Manual/ Breakout.
*** Used as Lock output for swing door applications.

Power Output to Sensors is .75 A max (For 2301 Standard Door Drive).
Power Output to Sensors is 1.5 A max (For 2401 Heavy Duty Door Drive)

CONNECTION DIAGRAM - SENSORS

BEA IXIO -DT1 sensors with Doorway Holding Beams



Wire Color	Control Routing	Function
Pink	B2, B6	Safety Signal
Green	B4, B8	Power (+)
Brown	B1, B5	Power Common
Red	B4, B8	Test
Blue	B3, B7	Test
Yellow	C1, C4	Act Common
Grey	C1, C4	Safety Common
White	C2, C5	Activation

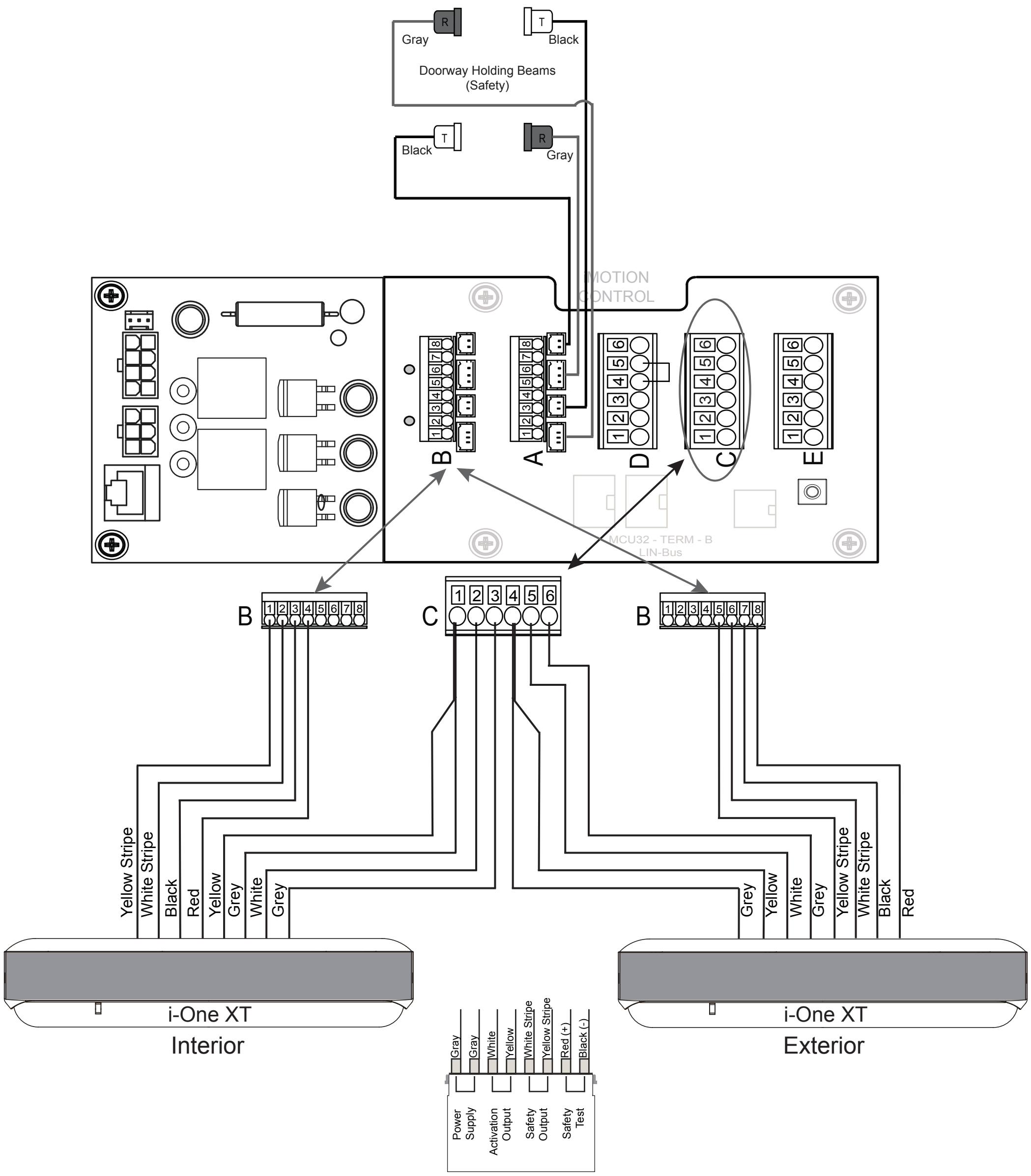
Configure the IXIO sensor as as indicated below:

1. AIR: OUTPUT = NC
2. TEST = ON

Adjusted sensors to comply with current ANSI A156.10 standard. Refer to BEA IXIO User Guide to set up and adjust sensor.

CONNECTION DIAGRAM -SENSORS

i-OneXT sensors with Doorway Holding Beams



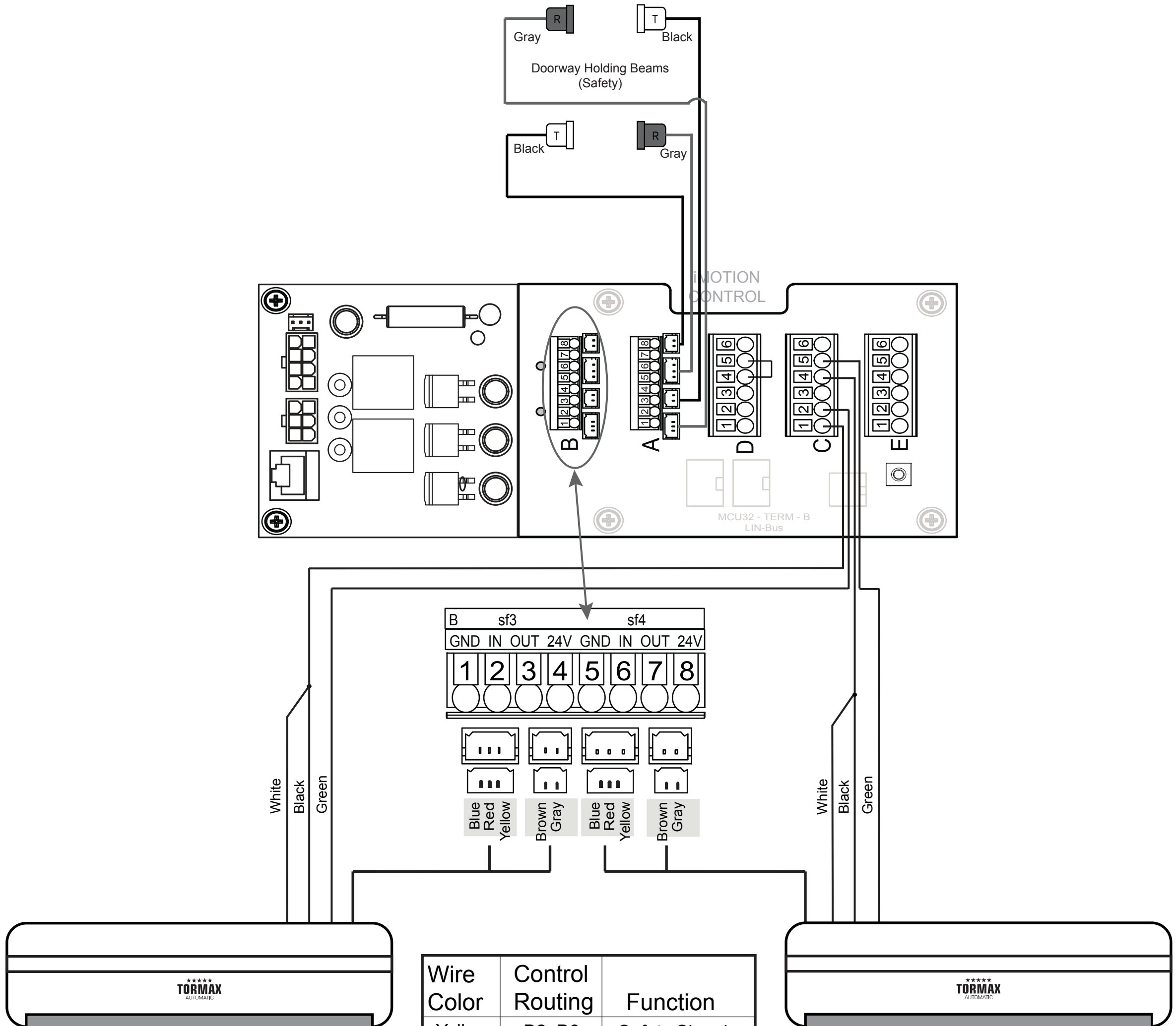
Configure the i-OneXT sensor as indicated below:

1. Simultaneous Output dipswitch 14⬇= OFF
2. Safety Output dipswitch 15⬆= NC
2. Test Input dipswitch 16⬆= Low

Adjusted sensors to comply with current ANSI A156.10 standard. Refer to Optex i-One XT User Guide to set up and adjust sensor.

CONNECTION DIAGRAM - SENSORS

Delta III/ 7501 sensors with Doorway Holding Beams



Interior - Delta III/ 7501

Exterior - Delta III/ 7501

Wire Color	Control Routing	Function
Yellow	B2, B6	Safety Signal
Red	B4, B8	Power (+)
Blue	B1, B5	Power Common
Gray	B4, B8	Test
Brown	B3, B7	Test
White	C1, C4	Act Common
Black	C1, C4	Safety Common
Green	C2, C5	Activation

Confirm the Delta III/ 7501 sensor default values, as the sensor is configured for:

1. Presence Timer dipswitch X1⬇X2⬆= 30 seconds
2. Safety Relay Output dipswitch X7⬇= NC
3. Door Learn dipswitch Y5⬆= OFF
4. Test Input dipswitch Y6⬇= ON

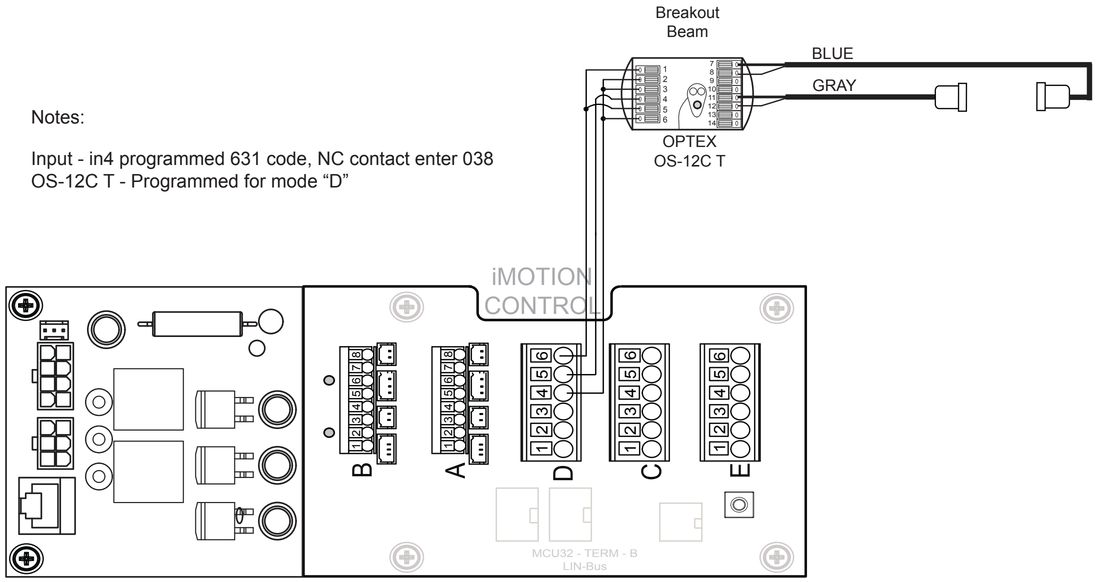
Adjusted sensors to comply with current ANSI A156.10 standard. Refer to Tormax T1781 tus User Guide to set up and adjust sensor.

OPTIONAL BREAKOUT CIRCUIT - ACCESSORY SWITCHES

Optional TX9200, Standard TX9500 Breakout Function - Optex OS-12C T photo beam surface mounted.

Notes:

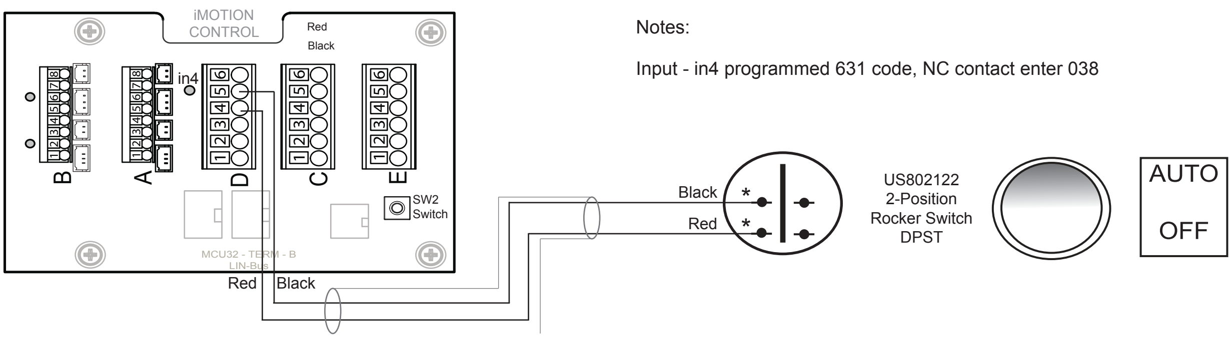
Input - in4 programmed 631 code, NC contact enter 038
OS-12C T - Programmed for mode “D”



Auto - (P) Manual/ Park

Notes:

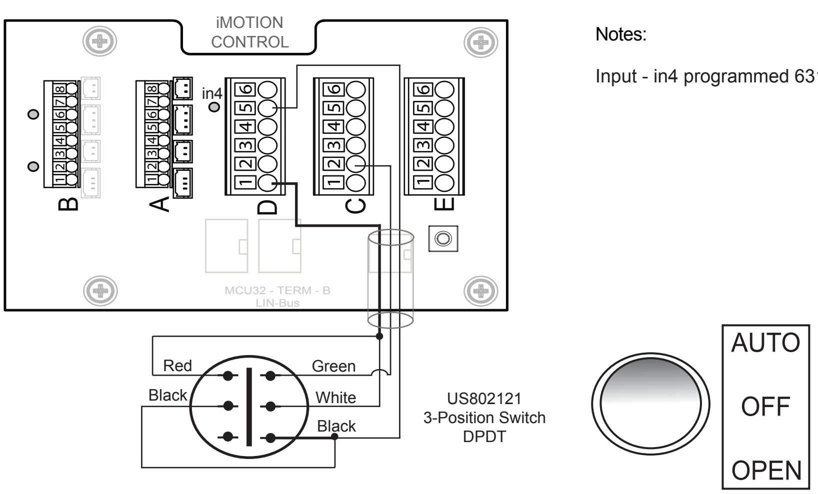
Input - in4 programmed 631 code, NC contact enter 038



Auto - (P) Manual/ Park - Hold Open

Notes:

Input - in4 programmed 631 code, NC contact enter 038



ANSI/ BHMA A156.10

These instructions are for informational purposes, refer to the current version of ANSI/ BHMA A156.10 “American National for Power Operated Pedestrian Doors” standard.

Sliding door systems must be installed, adjusted and inspected for compliance with ANSI/ BHMA.

Important aspects of the installation:

Control mat

- Size of active area and sensitivity.
- Mat Layout/ placement.
- Joining of control mats, trim height.

Sensors

- Pattern size and sensitivity.
- Layout/ placement and location.
- Functionality (Activation, Safety).

Knowing Act

Doors activated by a manual switch must have the switch installed in a location from which the operation of the door can be observed by the person operating the switch. Refer to the latest revision of ANSI/ BHMA A156.10 for specific details for sensor function, time delay and location of Knowing Act switch.

Entrapment

- Closing Speed is one foot per second maximum.
- Break away device(emergency egress) no more than 50 lbf (222 N).
- Closing force no more than 30 lbf (133 N).
- Time delay 1.5 seconds minimum.

Signage

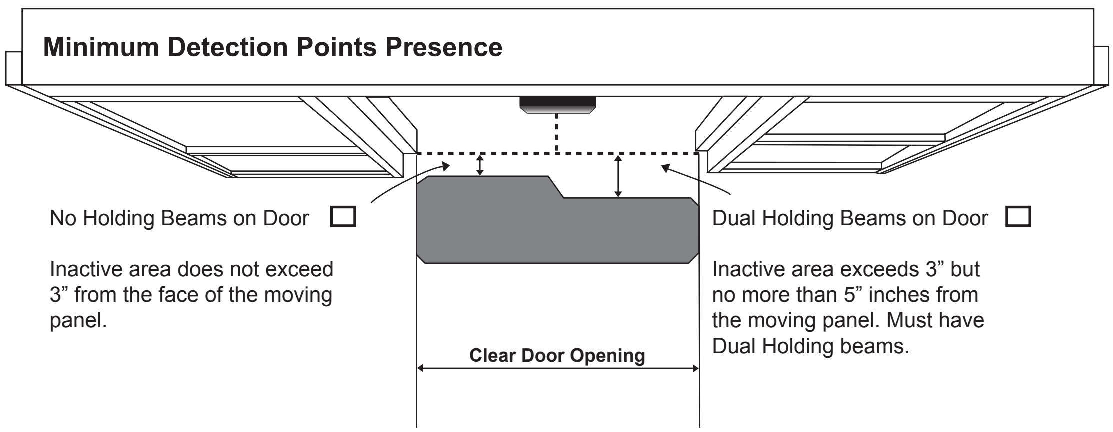
Refer to ANSI/ BHMA for requirements and location.

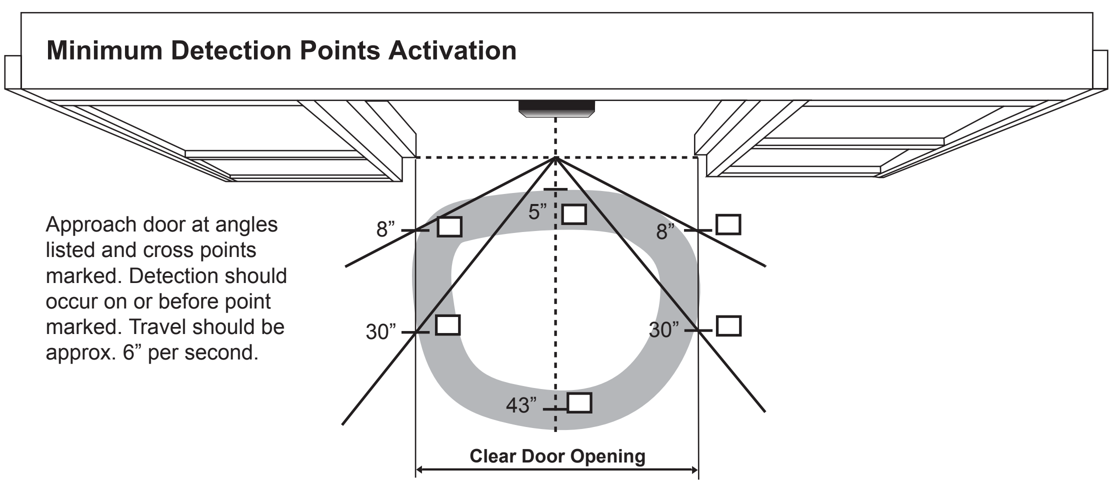
ANSI/ BHMA A156.10 - SENSOR WALK TEST

The walk test should be performed by an AAADM certified inspector to ensure compliance with the ANSI A156.10 standard. Do not leave a door in non-compliance, contact TORMAX or the sensor manufacturer for assistance.

The illustrations show sensor patterns on one side of the door for simplicity, patterns exist on both sides of the door. Drawings not to scale.

1) Perform walk test on each side of the door checking sensor pattern size, sensitivity and function of all sensors to ensure conformance with ANSI/ BHMA standard.





☐ **Passed** ☐ **Failed** ☐ **Initially failed, then passed after adjustment**

FINAL CHECKLIST

Y	N	N/A	
☐	☐	☐	Do the doors slide freely, no binding/dragging?
☐	☐	☐	Are all wires clear from moving parts?
☐	☐	☐	Are all adjustment bolts tight including anti-risers?
☐	☐	☐	Do the break out panels function properly with no obstructions?
☐	☐	☐	Is the breakout switch functioning? (TX9300 & TX9430)
☐	☐	☐	Are there any fault codes flashing on the FCP?
☐	☐	☐	Are all modes on the FCP operating correctly (Off, Auto, Red, Open, Exit, Hold)?
☐	☐	☐	Are the holding beams operating correctly (if equipped)?
☐	☐	☐	Is the lock (electrical or mechanical) functioning properly?
☐	☐	☐	Has an ANSI A156.10 inspection been completed?
☐	☐	☐	Are the Door# decal, Service decal, Daily Safety Check decal all present and in proper location?
☐	☐	☐	Has the Daily Safety Check been reviewed with the Manager?
☐	☐	☐	Have all the FCP functions been reviewed with the Manager?
☐	☐	☐	Was the Owners Manual given to the Manager?
☐	☐	☐	Did the Manager sign the work order/service ticket?

Installer signature/date ______________________________

TECHNICAL SPECIFICATIONS

T-1258 e	Technical Data	TORMAX AUTOMATIC
Area of application	iMotion 2301 2401 Slide Door Drive	12859 Wetmore Road San Antonio, TX 78247 1-888-685-3707 WWW.TORMAXUSA.COM
Release	November 2009	
Use	Technical Specification	

Door Operator Type iMotion 2301 & 2401 Slide Door Drive

Drive System Electromechanical slide door operator with direct drive through AC permanent magnet synchronous motor with external rotor

Control System iMotion MCU32

Mains Connection 1 x 230 / 1 x 115 V AC, 50 – 60 Hz, 10 A

Power Consuption Max. 190 W (For 2301 Slide Door Drive)
Max. 310 W (For 2401 Slide Door Drive)

Sensor Power Supply 24 V DC (+0.5 – 1.5 V) 0.75 A (For 2301 Slide Door Drive)
24 V DC (+0.5 – 1.5 V) 1.5 A (For 2401 Slide Door Drive)
in battery operation min. 16.5 V

Protective Class of Drive IP 22

Ambient Temperature –4 °F to +122 °F

Outputs 24 V DC short circuit proof (within power supply 0.75 A in total) For 2301 Slide Door Drive
24 V DC short circuit proof (within power supply 1.5 A in total) For 2401 Slide Door Drive

CE Approval CE inkl. RoHS, TÜV, ETL

Standards DIN 18650, EN 60335-1, EN 61000-6-2, EN 61000-6-3,
UL 325

Note : iMotion 2401 is a category A drive. It may cause radio interferences in living areas. In this case the user can ask for suitable measures

Durability Class 3 according to DIN 18650-1 Dec. 2005
1,000,000 test cycles with 4,000 cycles per day

For 2301 & 2401 Slide Door Drives

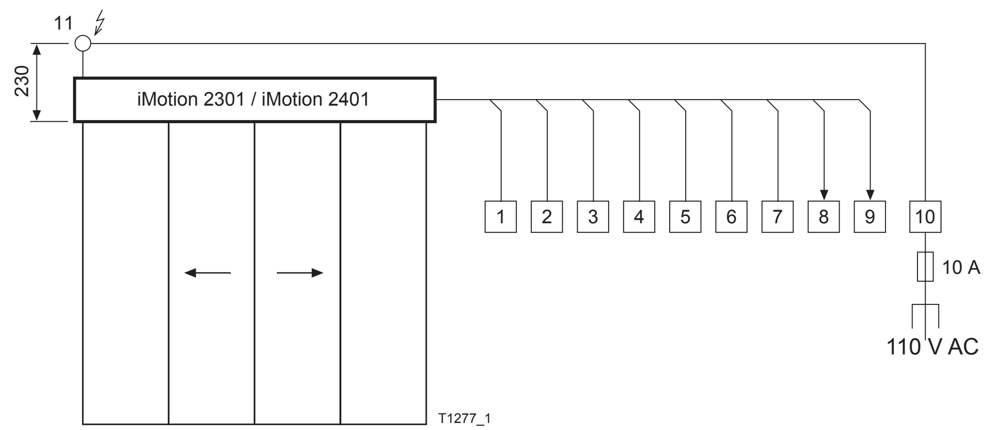
	PACKAGE WIDTH (foot)	MAXIMUM DOOR WEIGHT (LBS) 2301	MAXIMUM DOOR WEIGHT (LBS) 2401
SINGLE SLIDE	7’ - 9’	265 lbs	530 lbs
BI - PART	10’ - 14’	220 lbs	440 lbs
TELESCOPIC SINGLE SLIDE	7’ - 9’	176 lbs	265 lbs
TELESCOPIC BI - PART	10’ - 14’	132 lbs	220 lbs
For larger package width Contact Tormax			

Opening speed 3.9 in/s – 39.4 in/s

Closing speed 3.9in/s – 39.4 in/s

Force at the tooth belt 18.4 – 250 Foot Pounds (For 2301 Slide Door Drive)
29.5 - 295 Foot pounds (For 2401 Slide Door Drive)

T-1277 e	Cable Plan	TORMAX AUTOMATIC
Area of application	iMotion 2301 & 2401 Slide Door Drive	12859 Wetmore Road San Antonio,Tx 78247 1-888-685-3707 www.tormaxusa.com
Release	Jan. 2009	
Use	Wiring Specifications	



No.	Control Cables	Notes	Cable	Length (ft) without screen	Length (ft) with screen
1	Activator/Push-button inside	Stranded wire recommended	4 × 20 AWG	< 95	< 328
2	Activator/Push-button outside	Stranded wire recommended	4 × 20 AWG	< 95	< 328
3	Key-switch	Stranded wire recommended	2 × 20 AWG	< 95	< 328
4	User interface iMotion connected with FCC-connector		Phone ribbon cable 6 x 26 AWG RJ12, 6P6C	< 95	
	User interface iMotion connected with LIN-Adapter		3 × 23 AWG	< 95	< 328
5	Input	Stranded wire recommended	… × 20 AWG	< 95	< 328
6	…		… × 20 AWG	< 95	< 328
7	…		… × 20 AWG	< 95	< 328
8	Message 1 …	Stranded wire recommended	2 × 20 AWG	< 95	< 328
9	Message 2 …	Stranded wire recommended	2 × 20 AWG	< 95	< 328
10	Mains main switch	Stranded wire recommended	3 × 20 AWG		
11	Mains socket	Stranded wire recommended			

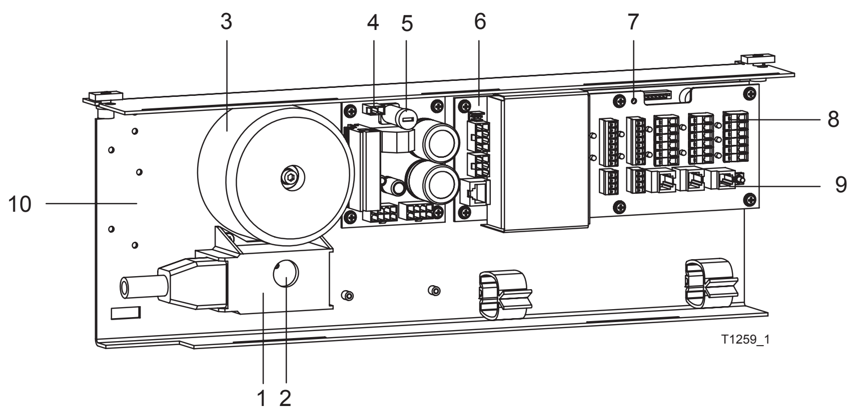
T-1259 e	Module Documentation Control Unit MCU32-CONU-85-18-A	★★★★★ TORMAX AUTOMATIC 12859 Wetmore Road San Antonio, TX 78247 1-888-685-3707 WWW.TORMAXUSA.COM
Area of application	iMotion 2301 and 2401 Slide Door Drives	
Release	November 2009	
Use	Installation and Maintainence	

Purpose

To manage the functions of control system for iMotion 2301 standard and 2401 Heavy duty door door drives

Function

The control unit contains all the necessary control system components for the operation of a sliding door system. It provides the connections and the power supply for the control panel, lock unit, motor unit, battery unit and input / output module. The system configuration is performed through either the control panel MCU32-USIN or through the Skipper software.



1 Power supply MCU32-FLTR-B

2 Voltage selector 230 / 115 VAC

3 Transformer MCU32-TRAF-29-85-A

4 Power supply module MCU32-PSUP-40-18-C

5 Fuse 8AT

6 Base module MCU32-BASE-40-200-A

7 Display power supply 24 V / 5 V

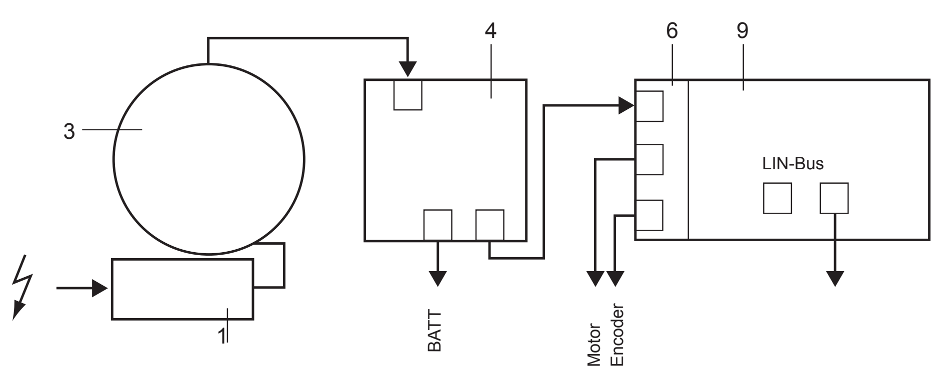
8 Terminal module MCU32-TERM-B

9 Push-button for opening impulse

10 Space for installation of 1 input/output module or 1 relay module

Module Connections

Connectors and terminals may only be connected in the current-free state.

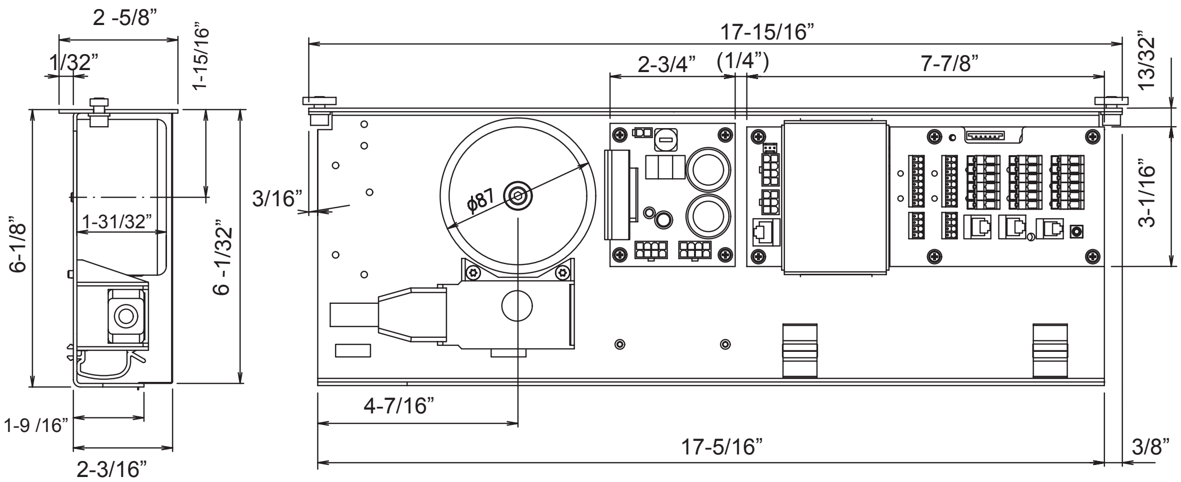


Commissioning

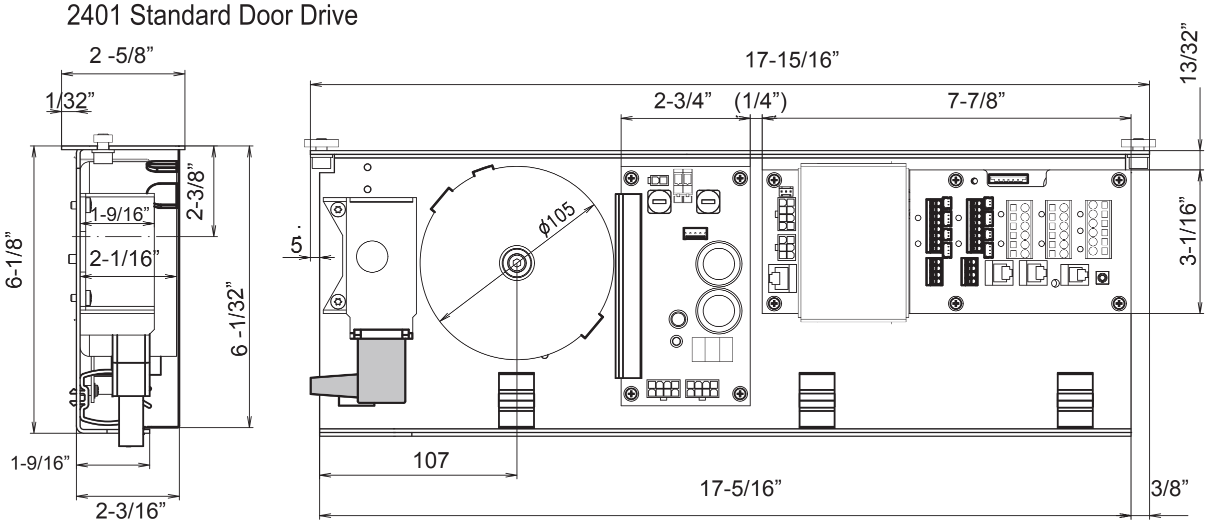
See T-1272.

Component Dimensions

2301 Standard Door Drive



2401 Standard Door Drive



Technical Data

	2301	2401
Mains connection:	115 / 230 V AC, 50-60 Hz	115 / 230 V AC, 50 – 60 Hz
Power consumption:	8 … 190 W	8 – 310 W
Power supply sensors	24 V DC / 0.75 A	24 VDC / 1.5 A
Ambient temperature:	–4°F to +122°F	–4°F to +122°F
Module interfaces:	Motor unit MCU32-MOTU-40-6-A	Motor unit MCU32-MOTU-40-10-A
	Battery unit MCU32-BATU-24-1-B	Battery unit MCU32-BATU-24-1-B
	LIN bus for lock unit MCU32-LOCU-40-7-B	LIN Bus for lock unit MCU32-LOCU-40-7-B
	LIN bus for input/output module MCU32-INOU-A	LIN Bus for input/output module MCU32-INOU-A
	LIN bus for operating unit MCU32-USIN-7-A	LIN Bus for user interface MCU32-USIN-7-A
	RS232 for service software iMotion	RS232 Service Software TCP
	Config Card MCU32-CONF- …	Config Card MCU32-CONF-…

T-1274 e	Module Documentation Motor Unit MCU32-MOTU-40-6-A	★★★★★ TORMAX AUTOMATIC
Area of application	iMotion 2301 & 2401 Slide Door Drive	12859 Wetmore Road San Antonio, TX 78247 1-888-685-3707 WWW.TORMAXUSA.COM
Release	March 2008	
Use	Installation and Maintainence	

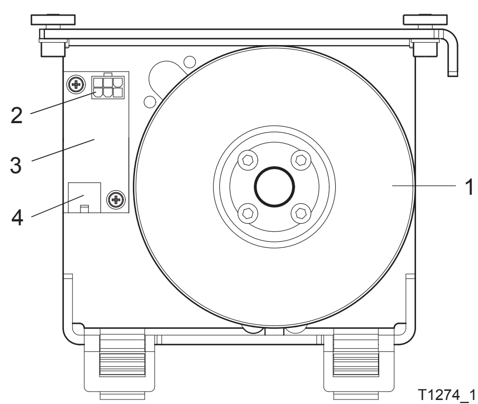
Purpose

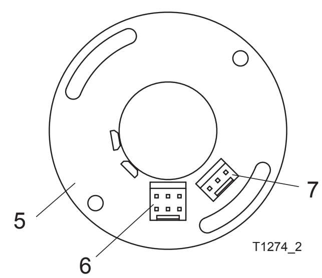
This motor unit is design for 2301 standard and 2401 Heavy duty door drives.

Functional Principle

The motor unit includes MCU32-MOTR-40-6-A (1) (for standard door drive), MCU32-MOTR-40-10-A (1) (for heavy duty drive) with encoder module MCU32-ENCO-24-16-A (5) and brake module MCU32-BRAK-40-3-A (3).

The synchronous motor is attached with permanent magnet and external rotor, which drives the toothbelt directly. The encoder module rotates the motor and determines the door position.The brake module limits the door speed on power interruption or when the motor unit is disconnected from the control module.



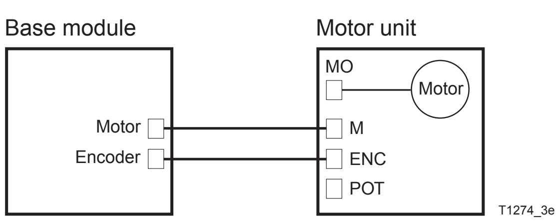


1 Motor
2 Connector MO
3 Brake module
4 Connector M
5 Encoder module
6 Connector ENC
7 Connector POT

Installation

- Connect the motor unit with the base module using the prefabricated motor and encoder cables as shown

Connection Diagram

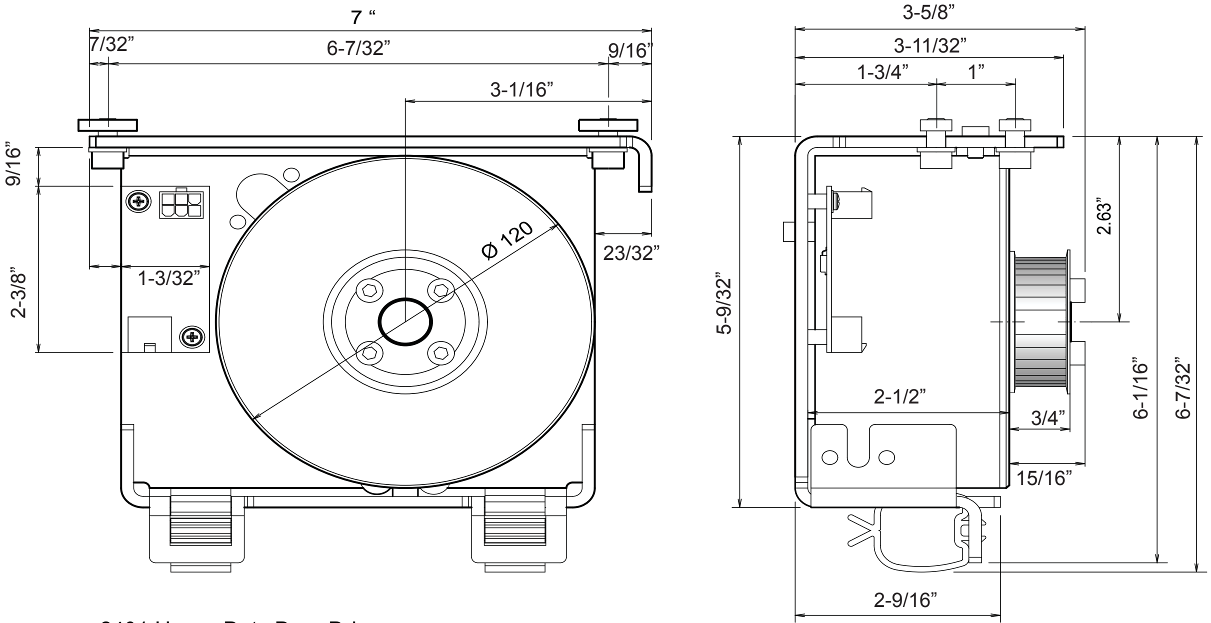


Commissioning

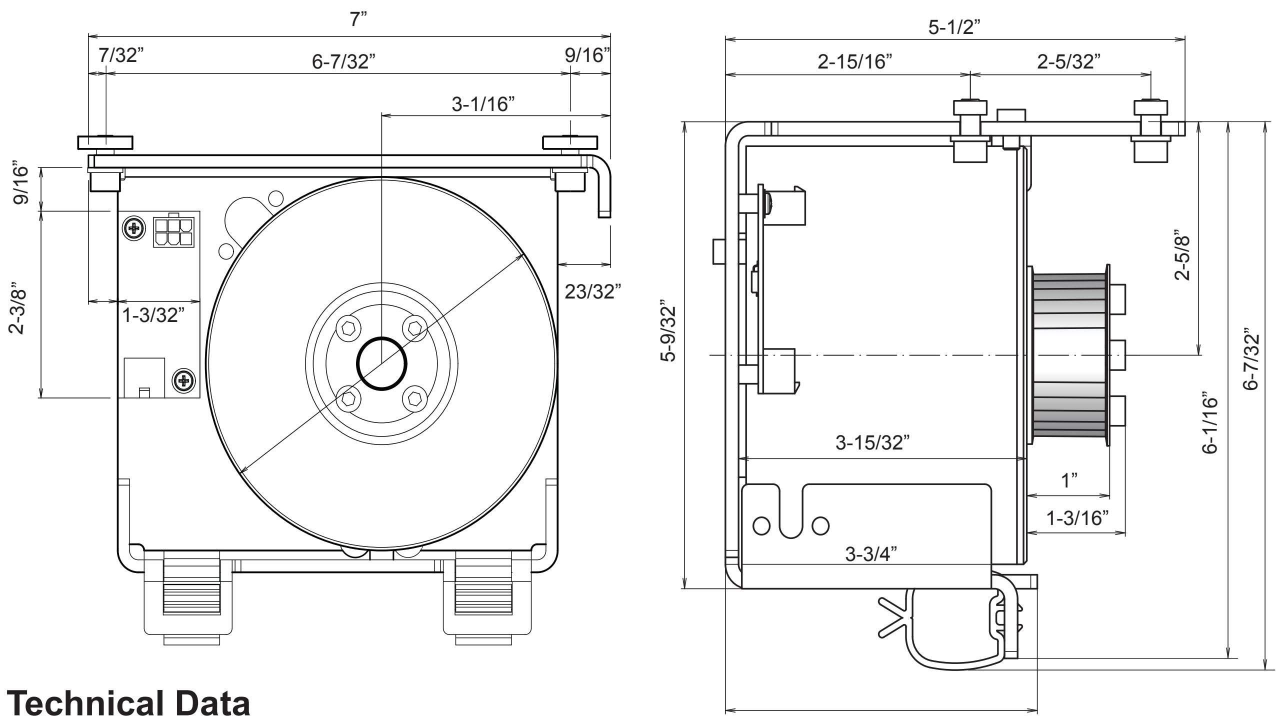
Programming using FCP use T-1272 e

Component Dimensions

2301 Standard Door Drive



2401 Heavy Duty Door Drive



Technical Data

	2301	2401
Rated voltage	17 V Y	22 V Y
Maximum current	10 A (S3)	10 A (S3)
Torque	4.4 Foot Pounds (S3)	7.3 Foot Pounds (S3)
Ambient temperature	–4° F … +122° F	–4° F … +122° F
Overtemperature protection	194° F	248° F
Interfaces	MCU32-BASE-40-200-A	MCU32-BASE-40-200-A
Toothbelt	9/16”	25/32”
Toothbelt module	3/16”	3/16”

T-1265 e	Module Documentation Lock Unit MCU32-LOCU-40-7-B	★★★★★ TORMAX AUTOMATIC
Area of application	iMotion 2301, 2401 Slide Door Drive	12859 Wetmore Road San Antonio,Tx 78247 1-888-685-3707 www.tormaxusa.com
Release	September 2009	
Use	Installation and Maintainence	

Purpose

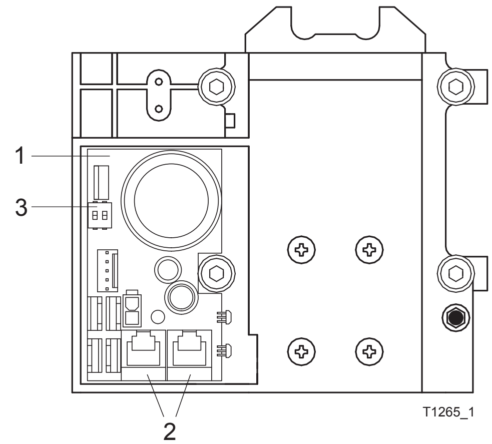
This lock unit is design for 2301 and 2401 slide door drives.It positively locks each SX or X panel.

Functional Principle

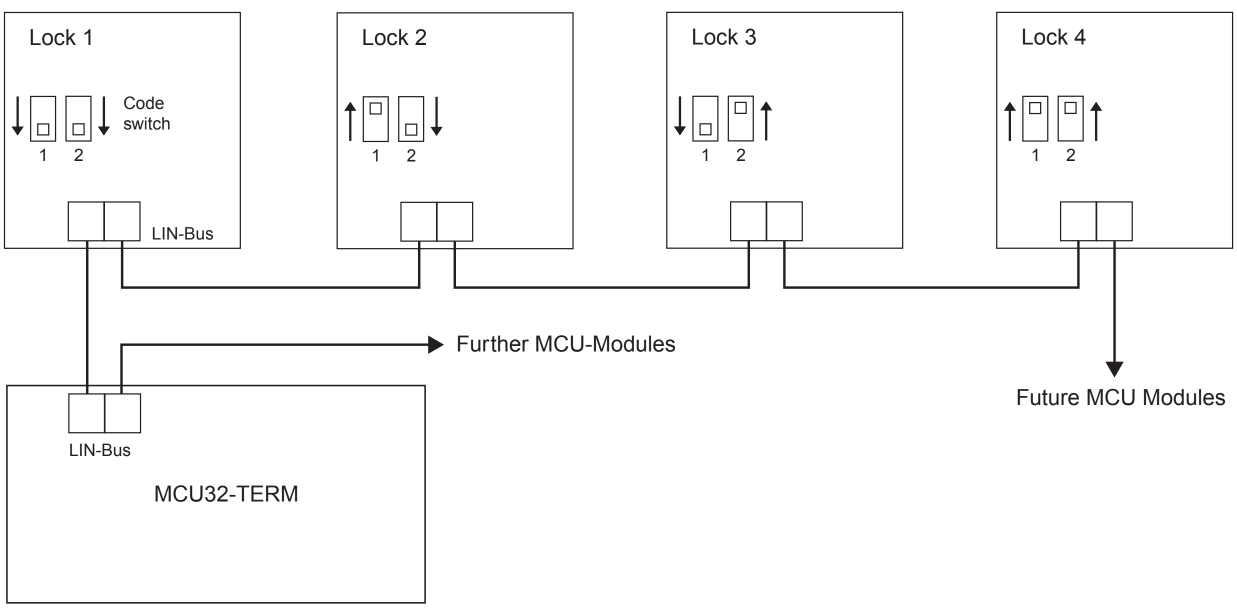
The lock unit includes lock module MCU32-LOCK-40-7-B(1)
The lock unit recieves control commands for locking and unlocking via LIN bus (2) from the base module .

The operating function depends on the programming of the basic control system. For individual functions see programming table.

1) Lock module MCU32-LOCK-40-7-B
2) LIN-Bus
3) Code switch



Connection Diagram



Installation

Mount the lock unit at a suitable position with the 4 screws and groove blocks in the supporting profile.
On single leaf units the counter bolts are attached to the supporting profile.

LIN Connection

- Cut to length and assemble the LIN connection cable on both ends with a FCC 6-pole plug .

.

FCC-plug is polarity sensitive.

FCC 6 pole 98’ Max. FCC 6 pole

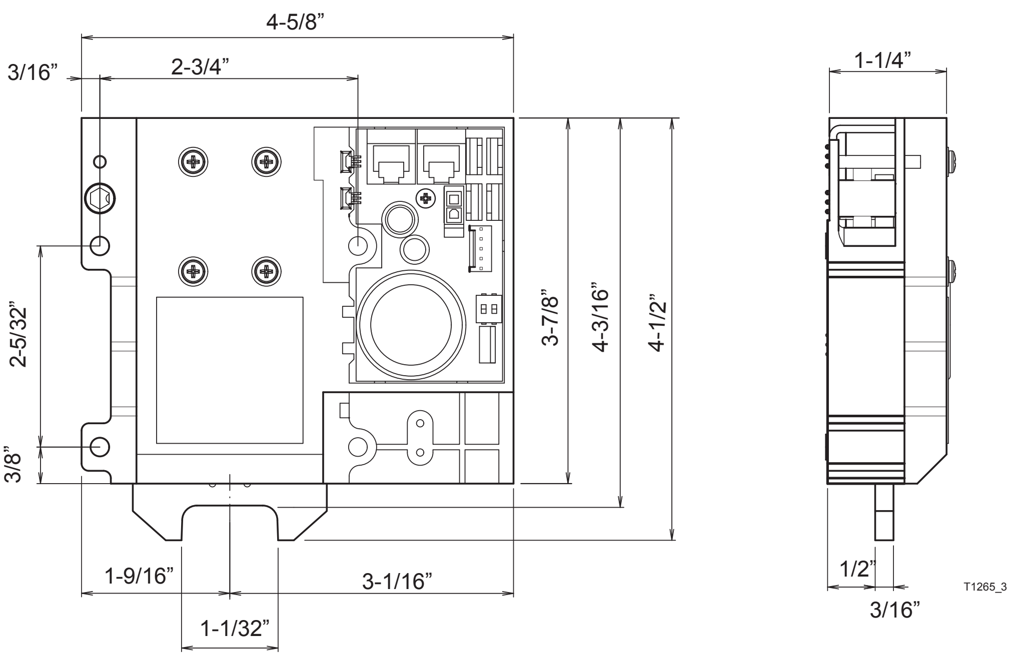
First connect the LIN cable and FCP to the slide door drive then switch the 110 vAC on.

Commissioning

Programming Through FCP See T-1272 e

See programming table for specific lock functions

Component Dimensions



Technical Data

Rated voltage of solenoid	12 V DC
Maximum power of solenoid	40 W
Loading of 24 V sensor power supply	100 mA
LIN Interface	FCC 6-Pol
Length of all LIN cables:	< 98’ (Foot)
LIN cable length between modules:	< 30 m with phone ribbon cable 6 x 0,14 mm^2
	<100 m with LIN-Bus-Adapter MCU32-LADP-A
Ambient temperature	–4 °F … +122 ° F
Interface	MCU32-TERM
	Monitoring for lock 01
	Manual disengagement

T-1268 e	**Module Documentation** **Battery Unit MCU32-BATU-24-1-B**	★★★★★ TORMAX AUTOMATIC
Area of application	iMotion 2301 & 2401 Slide Door Drive	12859 Wetmore Road San Antonio,Tx 78247 1-888-685-3707 www.tormaxusa.com
Release	Feb. 2008	
Use	Installation	

Purpose

This battery unit is design to be used on iMotion 2301 or 2401 Slide Door Drives. The module is used for limited time operation of the system and/or for accomplishment of a final motion into a determined position.

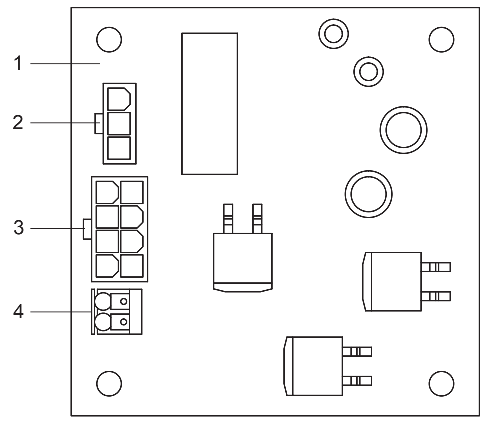
Functional Principle

The battery unit includes the batteries MCU32-ACCU-24-1-A and the battery module MCU32-BATT-24-1-B (1).

The batteries store the energy required to continue system operation on power failure. The battery module contains a charging circuit that charges the batteries in the presence of mains power and/or holds them in the charged state. In order to avoid total discharge, the battery can be switched off with a switch.

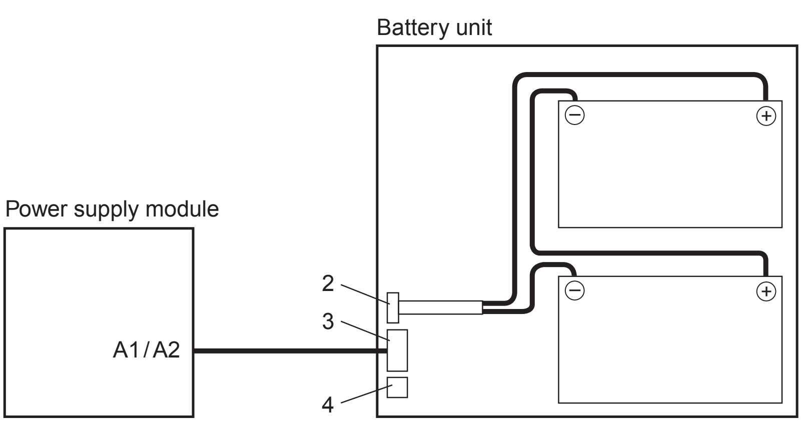
The operational function depends on the programming of the basic control system. See programming table for programming options.

The wake-up function allows renewed switching on with subsequent door opening after the battery has been disconnested. The function depends on the current charge of the accumulators and necessitates a connected key switch (4).



1 Battery module
2 Connector BAT
3 Connector A
4 Terminal key switch

Connection Diagram



Installation

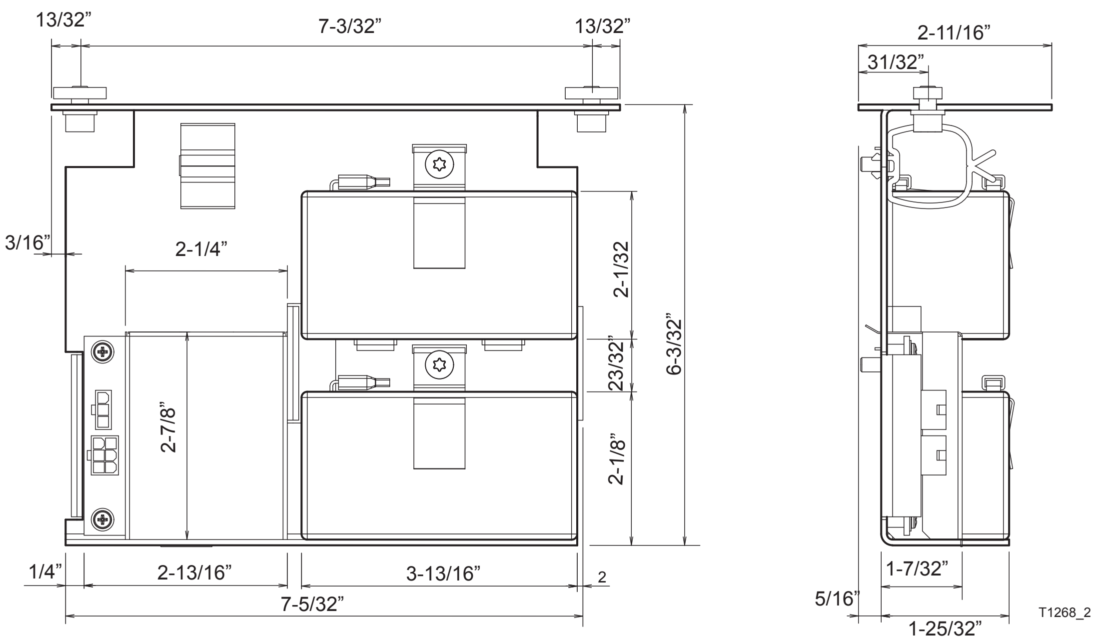
- Mount the battery unit at the suitable position with screws and groove blocks
- Connect the battery unit with the power supply module as shown in the connection diagram

> ⚠ When connecting the batteries make sure that the polarities are not interchanged and the contacts are not short circuited. A sudden discharge may cause an explosion of the batteries. The constituents are highly poisonous.

Commissioning

The battery module is detected automatically during auto configuration.
See Commissioning of the Entire System T-1272e

Component Dimensions



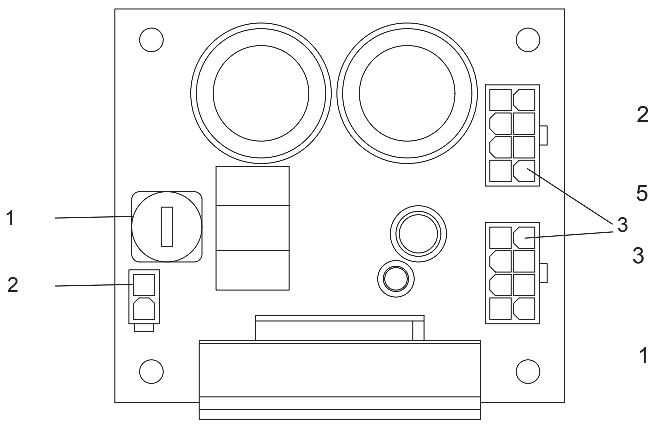
Technical Data

Rated voltage	24 VDC
Maximum power	120 W
Batteries	2 × 12 V / 1.2 Ah (52 × 97 × 43 mm)
Ambient temperature	32° F… +104° F
Interfaces	MCU32-PSUP-40-18-C MCU32-PSUP-40-36-A

T-1269 e	Module Documentation Power Supply Module	TORMAX AUTOMATIC 12859 Wetmore Road San Antonio,Tx 78247 1-888-685-3707 www.tormaxusa.com
Area of application	iMotion 2301 & 2401 Door Drives	
Release	April 2008	
Use	Installation and Maintainence	

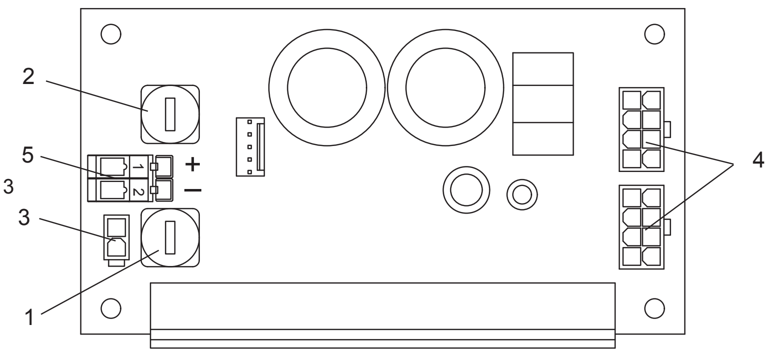
Purpose

To provide intermediate circuit voltage and the 24 V sensor voltage from the transformer or the battery unit.



2301 Door Drive
Power Supply Module : MCU32-PSUP-40-18-C

1 Fuse 8A T (25 V AC)
2 Connector AC for connection to transformer
3 Connector A1 for connection to base module MCU32-BASE-40-200-A or battery module MCU32-BATT-24-1-B



2401 Door Drive
Power Supply Module : MCU32-PSUP-40-36-A

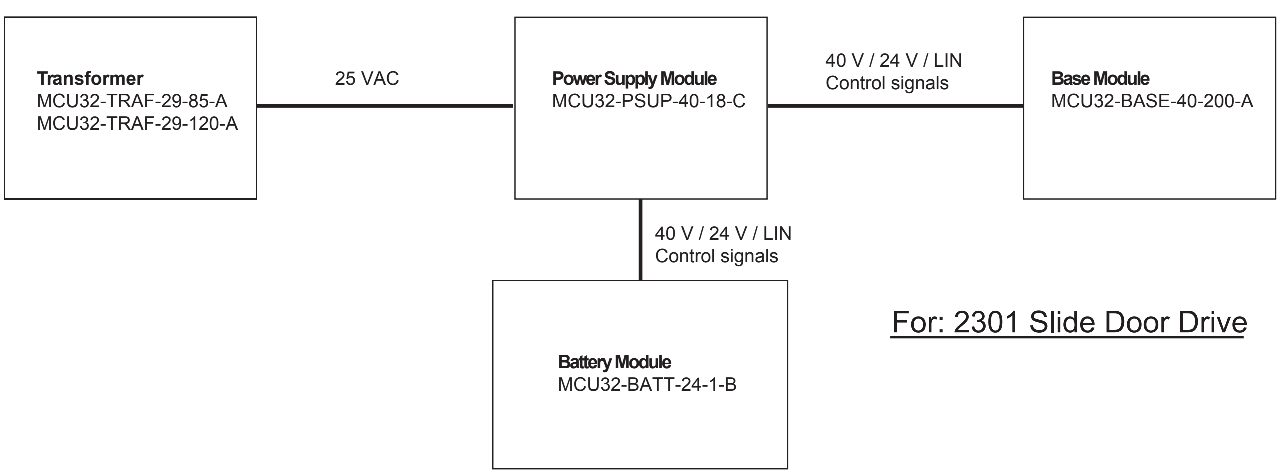
1 Fuse 8-A slow blow (25 VAC transformer)
2 Fuse 5-A slow blow (24 … 42 V ext. DC source)
3 Connector AC for connection to transformer
4 Connector A1 for connection to base module MCU32-BASE-40-200-A or battery module MCU32-BATT-24-1-B
5 DC terminal for connection of external DC source

Installation

The module must be protected against electrostatic discharge (ESD) when touching it.

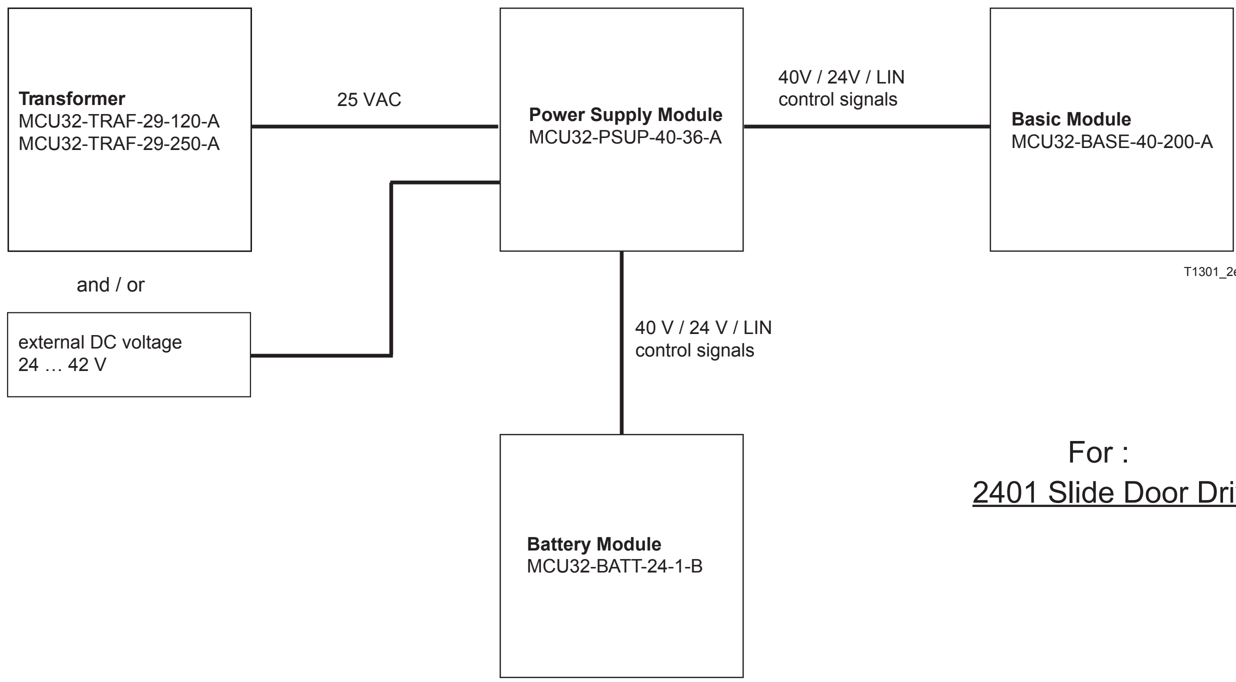
- Fasten the printed circuit board in the power-free state at the designated points.
- Switch on the power supply only after all surrounding MCU32 modules are connected.

Module Connections



For: 2301 Slide Door Drive

Module Connections



For :
<u>2401 Slide Door Drive</u>

Technical Data

	2301	2401
Rated voltage (input, from transformer)	25 V AC	25 V AC
Nominal power (input, from transformer)	85 VA	250 VA
Rated Voltage (input,from ext.DC voltage)	24 V DC ....42 V DC	24 V DC ....42 V DC
Nominal Power (input, from ext.DC Voltage)	-	5 A
Rated voltage (input, from battery module)	-	24 V DC
Maximum power (input, from battery module)	120W	120 W
Maximum current 24 V sensor power supply (output)	0.75 A	1.5 A
Ambient temperature	–4°F to +122°F	–4°F to +122°F
Dimensions length x width x height (mm)	3-1/8”x 2-3/4”x 1-11/16”	5-1/8”x2-3/4”x1-11/16”
Interfaces	Transformer MCU32-TRAF-29-85-A Battery module MCU32-BATT-24-1-B Base module MCU32-BASE-40-200-A	Transformer MCU32-TRAF-29-250-A Battery module MCU32-BATT-24-1-B Base module MCU32-BASE-40-200-A

T-1261 e	Module Documentation Base Module MCU32-BASE-40-200-A	TORMAX AUTOMATIC 12859 Wetmore Road San Antonio, Tx 78247 1-888-685-3707 www.tormaxusa.com
Area of application	**iMotion 2301 & 2401 Slide Door Drive**	
Release	August 2012	
Use	Installation and maintenance	

Purpose

Control system component for iMotion 1301, 1401 Swing Door Drive and iMotion 2202, 2301, 2401 Sliding Door Drive.

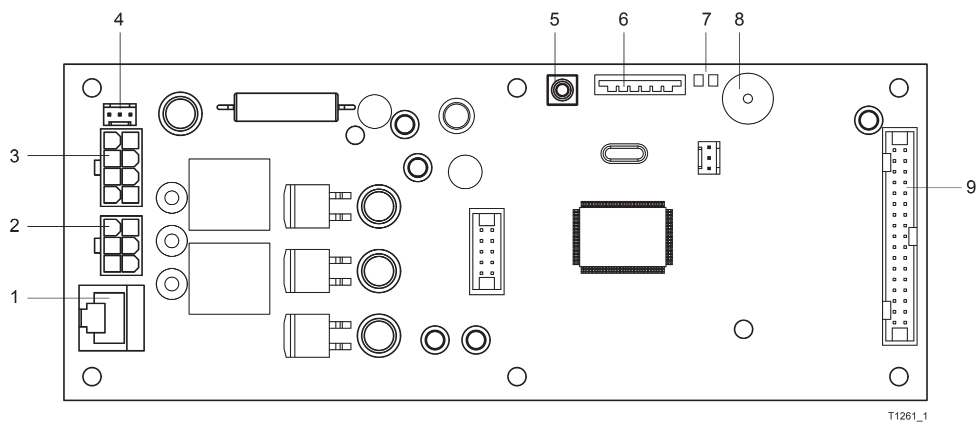
Function

The base module is the central functional control system of the MCU32 module family. The module contains the processor system including a non-volatile (i.e. voltage failure safe) memory for the adjusted values, a 3-phase converter for the motor and the drivers for the interfaces OUT1-2, PWM, as well as LIN and CAN.

The control system can be programmed by means of the software iMotion Skipper or the user interface MCU32-USIN-7-A. For access to the full function range, the configuration card MCU32-CONF is required. The software of the base module „firmware" can be updated by means of a PC or handheld with iMotion Skipper.

The control system is programmed with the FCP.

Base module MCU32-BASE-40-200-A



1 Connection for encoder MCU32-ENCO-24-16-A
2 Connection for motor MCU32-MOTR-40-… (*)
3 Connection for power supply module MCU32-PSUP-40-… (*)
4 Connection for potentiometer, closed position indicator
5 Push-button SW1 (for starting a download)
6 Slot for configuration card MCU32-CONF-… (*)
7 Display for power supply 24 V and 5 V
8 Beeper
9 Connection for terminal module MCU32-TERM-… (*)

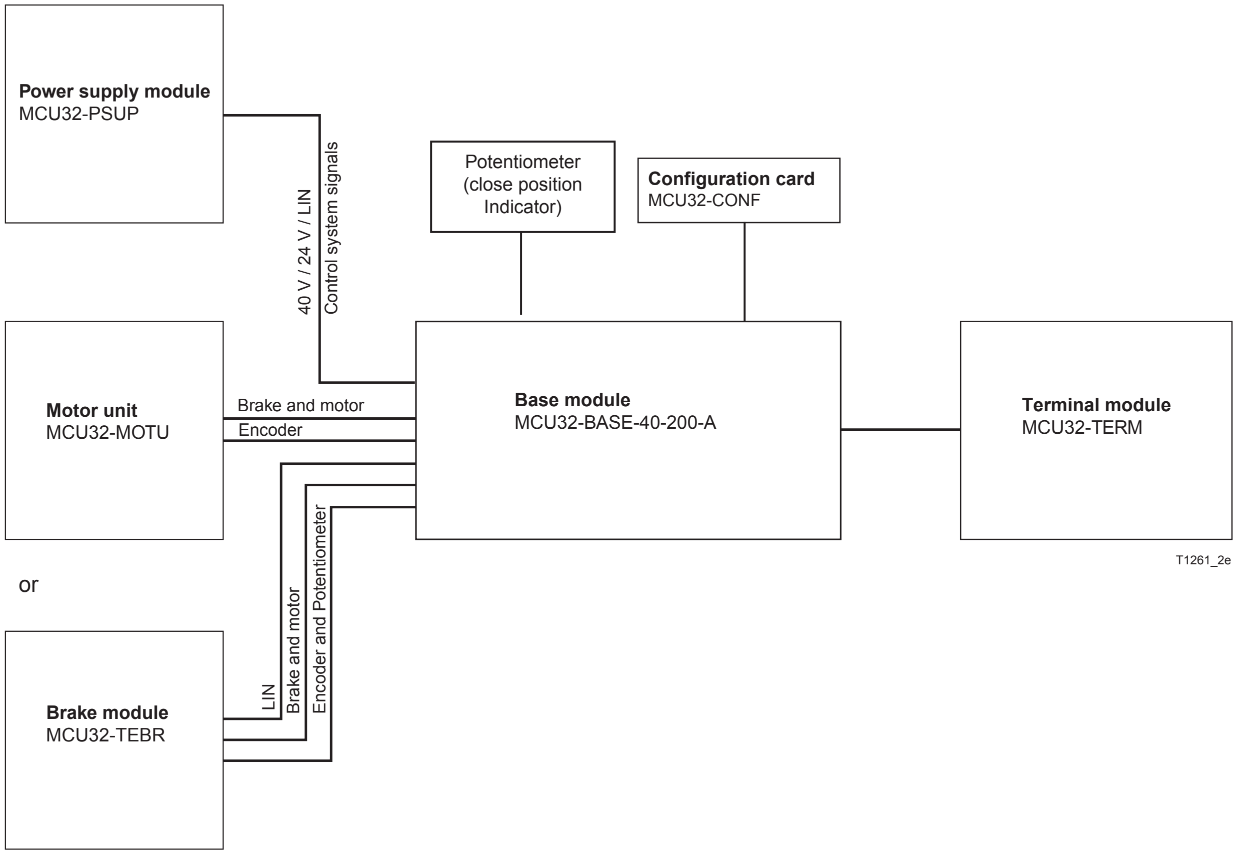
(*) Different versions

Installation

⚠ The module must be protected against electrostatic discharge (ESD) when touching it.

- Fasten the printed circuit board at the predetermined points in the power-free condition.
- Switch on the power supply only after all surrounding MCU32 modules are connected.

Module Connections



Commissioning

Program using FCP see T-1248

Technical Data

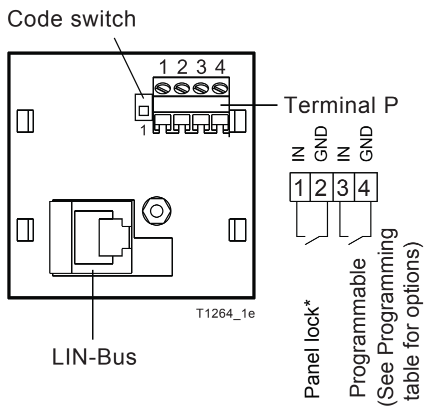
Processor	32 bits, 30 MHz
System monitoring	Complies with DIN 18650 requirements
Ambient temperature	–4°F....+167°F
Overheating protection	for power supply 40 V
Dimensions	7.873x 3.031 inch
Module interfaces:	MCU32-PSUP
	MCU32-MOTU
	MCU32-TERM
	MCU32-CONF
	MCU32-TEBR

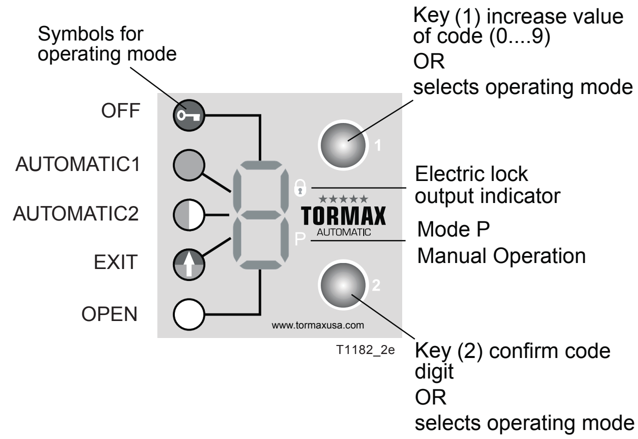
T-1264 e	Module Documentation Function Control Panel (FCP) MCU32-USIN-7-A	TORMAX AUTOMATIC 12859 Wetmore Road San Antonio, TX 78247 1-888-685-3707 www.tormaxusa.com
Area of application	iMotion 1301, 1401 Operators and 2301, 2401 Drives	
Release	October 2008	
Use	Programming and mode selection	

Purpose

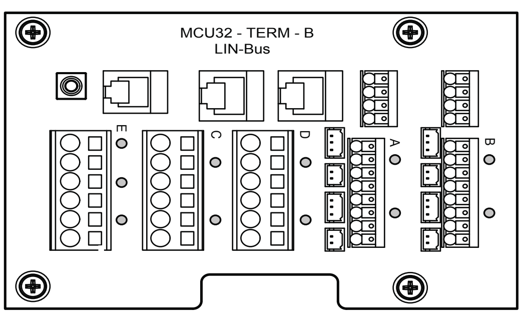
Operating and programming of the automatic door with TORMAX iMotion universal processor.

Functional control panel (FCP) MCU32-USIN-7-A

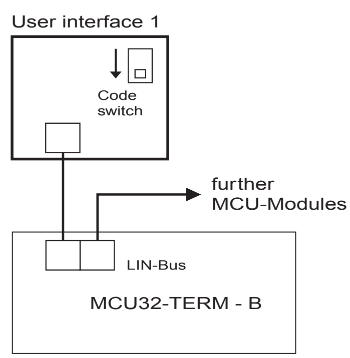




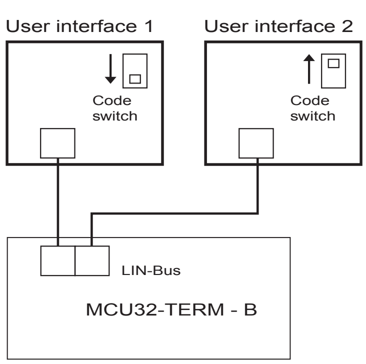
Connection Diagram



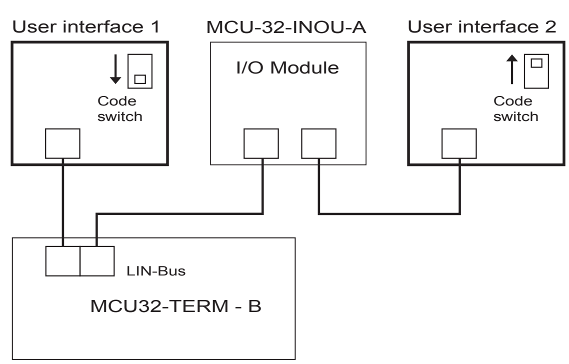
Connection Option 1



Connection Option 2



Connection Option 3



- Switch mains 115 V AC ON after the functional control panel(FCP) is connected.

LIN Connection

- Cut to length and assemble the LIN connection cable on both ends with a FCC 6-pole plug
- FCC plug is polarity sensitive

FCP 6 pole 98’ Max FCP 6 pole

- First connect the LIN cable and FCP to the 2301 or 2401 Door Drive then switch the 115 VAC on.

Technical Data

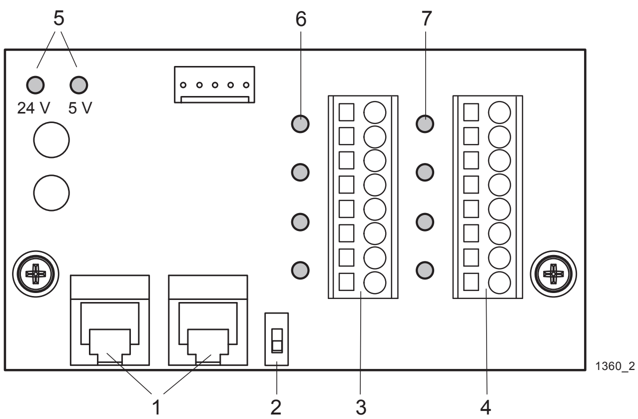
Inputs:	2 × Pull up in: 24 VDC / 3 mA, function programmable
Terminal cross section:	0.5 mm² (strand or wire)
Interface	LIN, FCC 6-Pol
Ambient Temperature:	–4°F…+122°F
Dimensions:	1.7716 inch x1.7716 inch
LIN cable length:	98’ Max

T-1360 e	Module Documentation Input / Output Module MCU32-INOU-A	TORMAX AUTOMATIC 12859 Wetmore Road San Antonio,Tx78247 1-888-685-3707 www.tormaxusa.com
Area of application	iMotion 1301, 1401, 2301, 2401	
Release	January 2010	
Use	Input/Output terminal board	

Purpose

Additional inputs and outputs for automatic door drives with iMotion. Not suitable for time-critical applications such as security or safety functions.

Function

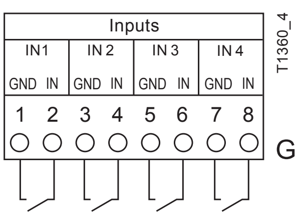


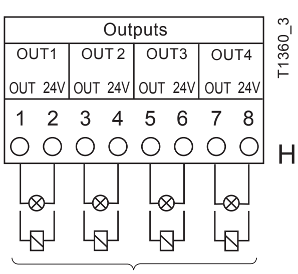
1 LIN-Bus
2 Code switch for LIN address
3 Input 1 … 4
4 Output 1 … 4
5 Display power supply
6 Display status of inputs 1 … 4
7 Display status of outputs 1 … 4

The IO module receives its control commands from the base module via the LIN-Bus (1). The two LIN plugs are identical. Each module must have a unique LIN address which can be set with the code switch (2). The function of the inputs and outputs depends on the programming of the basic control system. See the MCU programming table in the Extranet for the functions.

A self-resetting thermal cut-out protects the control system's 24 V power supply against continuous overload. The thermal cut-out resets itself immediately after the overload is removed.

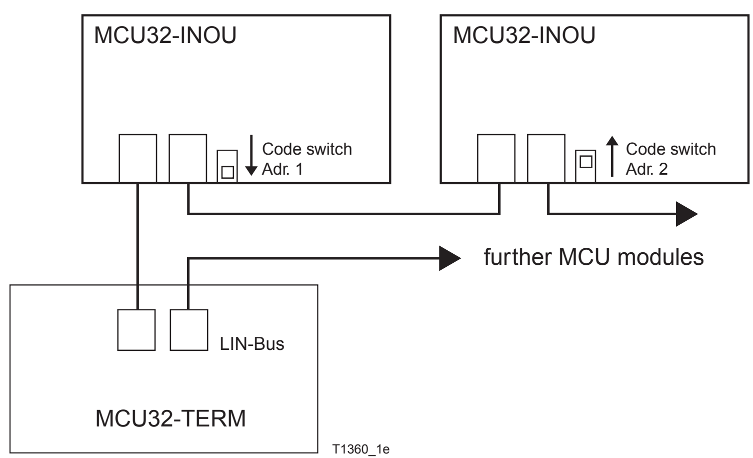
Connection Diagram





Load on the 24 V system max. 25 mA per output.

⚠ The inputs must not be used for security or safety-related functions (e.g. light beams).



⚠ The 24 VDC power supply on this module must not be used as the power supply to sensors.

Installation

The module is installed on the module carrier.

LIN Connection

- Cut to length and assemble the LIN connection cable on both ends with a FCC 6-pole plug (article see TORMAX price list).

The polarity of the FCC-plug is not of importance.

For alternative cable connections via adapter with terminal connection see module documentation LIN-Bus adapter T-1322.

Commissioning

The modules must be coded according to the connection diagram.
The modules are detected automatically when initiating the auto configuration.

See programming table in the manual for input and output functions (021). No functions are programmed as standard.

Technical Data

Inputs:	4 x Pull up in: 24 VDC / 5 mA, function programmable
Outputs:	Transistor out: 24 VDC / Continuous current max. 25 mA, function programmable
Input/output reaction time:	with 1 module MCU-INOU-A < 50 ms with 2 modules MCU-INOU-A < 100 ms
Power supply 24 V:	Total continuous load < 100 mA
Terminal cross section:	0.14 … 1.5 mm^2 (recommended conductor cross section: 0.5 mm^2)
LIN Interface	FCC 6-Pol
Length of all LIN cables:	< 100 m
LIN cable length between modules:	98’ Max
Ambient temperature:	–4° F … +122° F
Dimensions:	2 5/32” - 3 11/16”
Module interface:	MCU32-TERM

TORMAX
AUTOMATIC

Your First Choice for Automatic Doors

TORMAX Sliding Doors

TORMAX Swing Doors

Sales, Installation and Service.
Automatic and Manual Doors

TORMAX USA INC.
12859 Wetmore Road
San Antonio, TX 78247
888-685-3707
www.tormaxusa.com