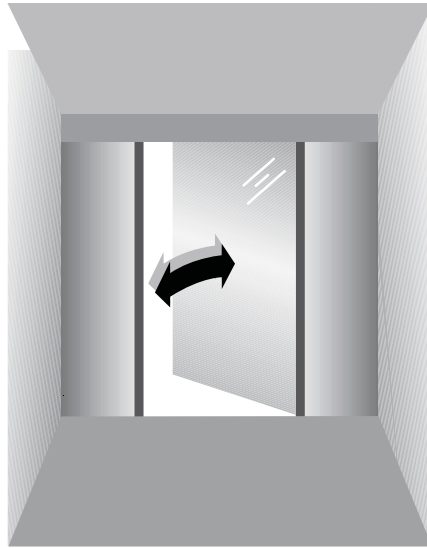




(V - 6.17)



Installation and Operating Manual

iMotion[®] TN 110 Swing Door Operator

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TABLE OF CONTENTS

| SECTION | PAGE |
|--|-------------------------|
| 1 REGARDING THESE INSTRUCTIONS | 3 |
| 2 SAFETY AND INSPECTION | 4 |
| 2.1 PRECONDITIONS FOR THE OPERATION OF THE SYSTEM | |
| 2.2 INTENDED USE | |
| 2.3 TAKING THE SYSTEM OUT OF SERVICE IN CASE OF FAULT | |
| 3 FUNCTIONS OF THE SYSTEM | 5 - 6 |
| 3.1 OPERATING MODES | |
| 3.2 ELECTROMECHANICAL LOCK | |
| 3.3 OPERATION ON POWER FAILURE | |
| 4 TROUBLE SHOOTING | 7 |
| 5 INSTALLATION AND PROGRAMMING | |
| 1289 PREPARATION AND INSTALLATION | 8A - 8I |
| 1315 CABLE PLAN | 9 |
| 1312 CONTROL UNIT MODULE | 10A - 10B |
| 1264 FUNCTION CONTROL PANEL | 11A - 11B |
| 1260 TERMINAL MODULE | 12 |
| 1261 BASE MODULE | 13A - 13B |
| 1360 INPUT/OUTPUT TERMINAL MODULE | 14A - 14B |
| 1359 BATTERY BACK UP MODULE | 15A - 15B |
| 1248 EXPLANATION OF FCP AND PROGRAMMING EXAMPLE | 16A - 16C |
| 1288 SET UP | 17A - 17C |
| 1319 PRIMARY/SECONDARY APPLICATION (SIMULTANEOUS PAIR OR DOUBLE EGRESS) | 18A - 18B |
| 1262 TERMINAL DESIGNATION AND SENSOR INTERFACING PROGRAMMING TABLE | 19A - 19 L 20A - 20B |

REGARDING THESE INSTRUCTIONS

Addressee/Status

The person responsible for operation and maintenance of the system is referred to as "end - user" this designated person or persons should be familiar with the Daily Safety Check Decal and walk test procedure, ask your service representative if you are not.

Area of Application

This document is applicable for swing doors with TORMAX automatic door operator of type:

iMotion® 1301 Swing Door Operator

iMotion® TN110 Swing Door Operator



Explanation of Symbols

In these instructions we have marked all positions which concern your safety with this symbol.

This symbol warns for electric voltage.

Highlighted text must be observed for safe operation disregard may cause damage to the users or the equipment.



Operating functions that are marked by the accompanying symbol corresponds to the default settings however, the technician can reprogram, see programming table for options.



This symbol marks optional components, which are not installed in all system

Symbols for Operating modes.



Operating mode OFF



Operating mode EXIT



Operating mode AUTOMATIC 1



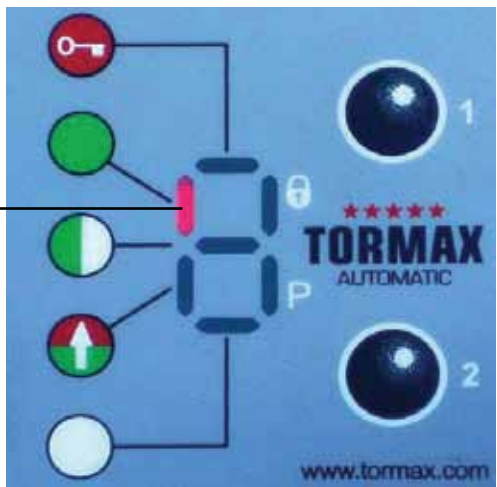
Operating mode OPEN



Operating mode AUTOMATIC 2

P Operating mode P Manual Operation

Led indicates mode



2 Safety



2.1 Preconditions for the Operation of the System

The technician has inspected the door system for ANSI A156.10 or A156.19 compliance.

It is the technicians responsibility to review the functions of the equipment with the end-user. Failure to do so may lead to improper use and could cause injury to persons or damage to the equipment.

Tormax strongly recommends the end-user be familiar with the Daily Safety Check Decal and perform the walk test as instructed every day. If the equipment does not perform as described in the Daily Safety Check Decal turn power off to the equipment or place in P mode, immediately notify your service provider.

The end-user should have their equipment inspected at least annually by a AAADM certified technician.

If the recommendations from this section 2.1 are not performed the manufacture will reject any product liability and warranty.

2.2 Intended Installation Environment

The 1301 swing door operator is an interior mount operator, the operator can operate exterior doors but the header assemblie must be installed on the interior of the building to prevent any damage.

Any other use, or any use exceeding this aim, is deemed as not used in accordance with its intended purpose. The manufacturer will not be liable for damages resulting from such applications. The risk will be borne entirely by the operator of the door system, i.e. the system operator.

Arbitrary changes to the system will exempt the manufacturer from any liability for damage resulting from this.

2.3 Taking the System Out of Service in Case of Fault

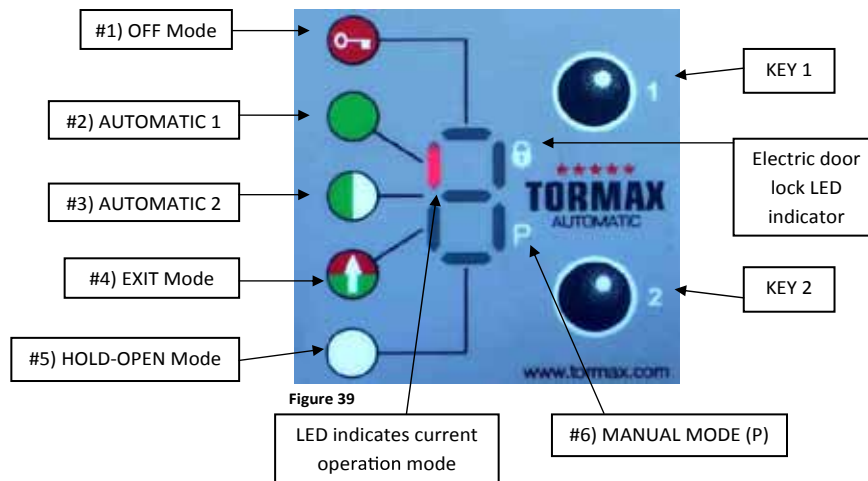
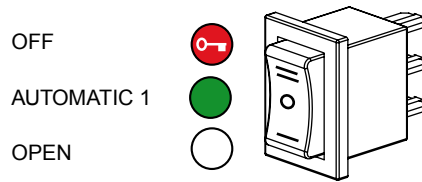
The automatic door system must be taken out of service as soon as faults or deficiencies occur that may impair the safety of people.

- Turn power off to the equipment.
- Select operating mode “P” if system operation will be continued by means of the internal battery backup system.
- * Immedeatley notify your service provider.

3 Functions of the System


3.1 Operating Modes

Modes can be selected with the 6 position Function Control Panel (FCP) or a 3 position rocker switch. The technician will review the appropriate mode switch with the end-user.



a.  OFF Mode

The interior and exterior activators are inhibited after the door reached the fully closed position, if an electric lock has been installed it will be activated. The operator will cycle if a signal is sent to the key switch input.

b.  Automatic 1 Mode


Typical setting for normal operation. This setting allows interior, exterior activators, key switch and safety devices to operate door.

c.  Automatic 2 Mode


Operates with the same characteristics as Automatic 1 OR the operating cycle can be different if taught in with teach in 2.

d.  EXIT Mode

Allows interior activator and key switch inputs to operate the door system. Exterior activator is inhibited while door is closed but becomes active when the door is operated by the interior activator or key switch inputs.

e.  HOLD - OPEN Mode

Hold the door system open.

f.  MANUAL OPERATION (P) Mode

Allows the door to be used manually without the use of sensors or Push n Pull activation.



The technician will clearly explain and demonstrate the modes of Operation



Before the door is placed into operation, Walk test the door in accordance to the AAADM daily safety check decal, if any deficiencies are found turn the door system off and call your service provider, if no deficiencies are found the door system can be put into operation

3.2 Electric Lock Output

The lock output is deactivated when the FCP is placed in the (P) manual mode.

3.3 Operation Upon Power Failure

The following functions are possible according to specifications:

- Immediate Spring Closing
- The operator functions as a manual door closure.
- Continued operation if the operator is equipped with a battery backup.

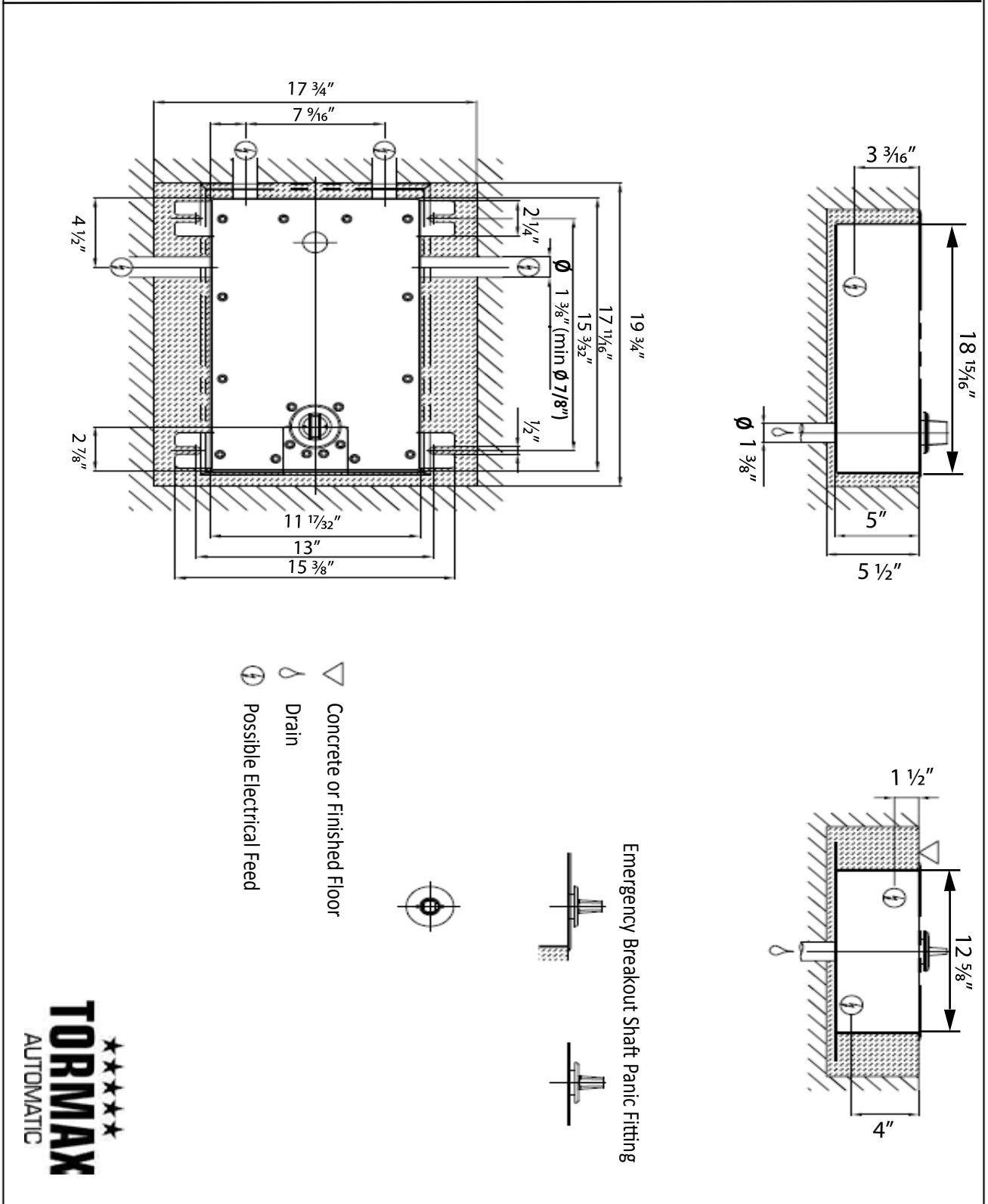
4 Trouble Shooting

* E = Error | H = Hint

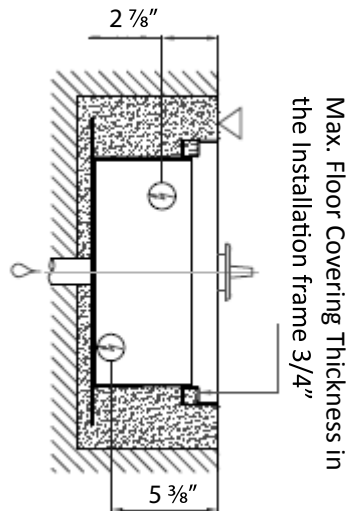
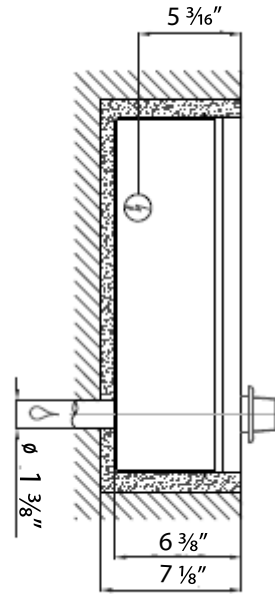
| * No. | Fault | Reaction System | Reset |
|-------|---|---------------------------------------|----------------------------------|
| E00 | Firmware incompatible to MCU version /D | Safety operating mode or only display | Reset, new version MCU32-BASE |
| E0x | Internal test negative | Safety operating mode or only display | Reset |
| E21 | LIN to FCP 1 USIN-7 interrupted | Last mode of operation remains | Automatically if OK |
| E22 | LIN to FCP 2 USIN-7 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-40-7 interrupted | Last status remains | Automatically if OK |
| E26 | LIN to Lock Unit 2 LOCU-40-7 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 |
| E41 | Activator inside > 1min. active | Door remains open | Automatically if O.K. |
| E42 | Activator outside > 1min. active | Door remains open | Automatically if O.K. |
| E43 | Key switch > 1min. active | Door remains open | Automatically if O.K. |
| E46 | Emergency open >10min. active | Door remains open | Automatically if O.K. |
| E47 | Emergency close >10min. active | Door closes and remains closed | Automatically if O.K. |
| E48 | Wake up or Push button SW2 > 1min. active | Door remains open | Automatically if O.K. |
| E49 | Inhibit switch > 1min. active | Door stand still | Automatically if O.K. |
| E51 | Encoder not working | Safety operating mode | Automatic Reset / Reset |
| E52 | Potentiometer not working | Safety operating mode | Reset / Replace potentiometer |
| E54 | Driveway in op. longer than reference | Safety operating mode | Reset >automatic configuration |
| E55 | Position in closed position is drift to much | | Reset |
| E61 | Power supply 40V (Limit U,I,P) | Safety operating mode | Automatically if O.K. |
| E62 | Power supply 24V (Limit U) | Safety op. mode | Automatic if OK. |
| E64 | Motor temp. > 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 current differs from given value | Safety operating mode | Reset |
| E67 | Motor current to high in long-term | Normal operation | Automatically if o.k. |
| E8x | Memory or processor test negative | Safety operating mode | Reset |
| H11 | Operator type not defined | Safety operating mode | Program operator type |
| H12 | Door mass not defined | Safety operating mode | Program door mass |
| H13 | Linkage type not defined | Safety operating mode | Configuration 09x and 090 |
| H14 | Automatic configuration not executed | Safety operating mode | Program 021 or 022 |
| H18 | Configuration error in trajectory | Safety operating mode | Configuration |
| H21 | Teach-In: Door moves >15s before start | Abort Teach-In | New Teach-In |
| H22 | Teach-In: No start within 15s | Abort Tech-In | New Teach-In |
| H23 | Teach-In: Opening movement >15s | Abort Tech-In | New Teach-In |
| H24 | Teach-In: Hold open time >60s | Abort Tech-In | New Teach-In |
| H25 | Teach-In: Closing movement >15s | Abort Tech-In | New Teach-In |
| H26 | Teach-In: Wrong direction at closing | Abort Tech-In | New Teach-In |
| H27 | Teach-In: Differing close position | Abort Tech-In | New Teach-In |
| 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 |
| H66 | Learn mode (Force detection) | Normal operation | After 3-30 opening cycles |
| H71 | Battery mode | Door moves slowly | Power supply return |
| H73 | Motor current in closed position to high | Normal operation | Reset |
| H91 | Obstacle detection at opening | Door reverses | Automatically, Display 20s. |
| H92 | Obstacle detected at closing | Door reverses | Automatically, Display 20s. |
| H93 | Obstacle at same position at opening | Reset after 5 reversings | Automatically, Display 20s. |
| H94 | Obstacle at same position closing | Reset after 5 reversings | Automatically, Display 20s |

| | | |
|---------------------|--------------------------------|--|
| T-1289 e | Preparation and Installation | <p>★★★★★ TORMAX AUTOMATIC</p> <p>12859 Wetmore Road San Antonio, Tx 78247 1-888-685-3707 www.tormaxusa.com</p> |
| Area of application | iMotion TN110 Swing Door Drive | |
| Release | January 2008 | |
| Use | Installation | |

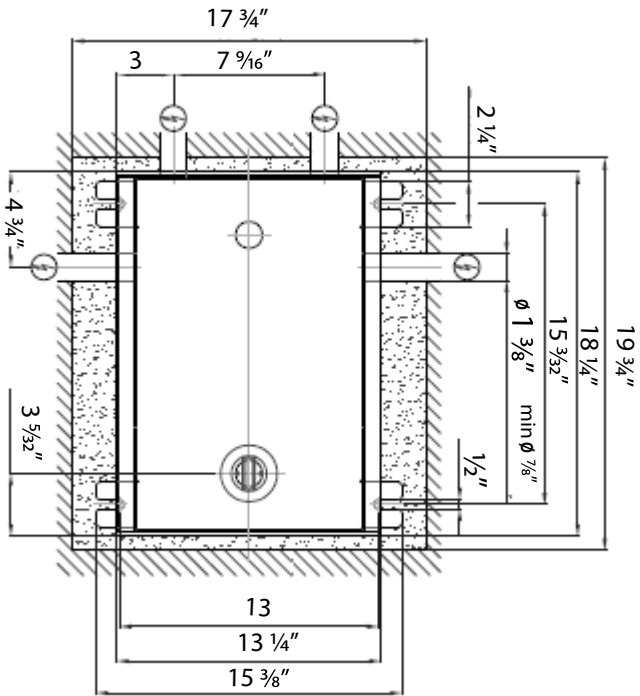
iMotion® TN110 Operator Standard Stainless Steel Cover Box
Option A



**iMotion® TN110 Operator Terrazzo Tile Box
Option B**



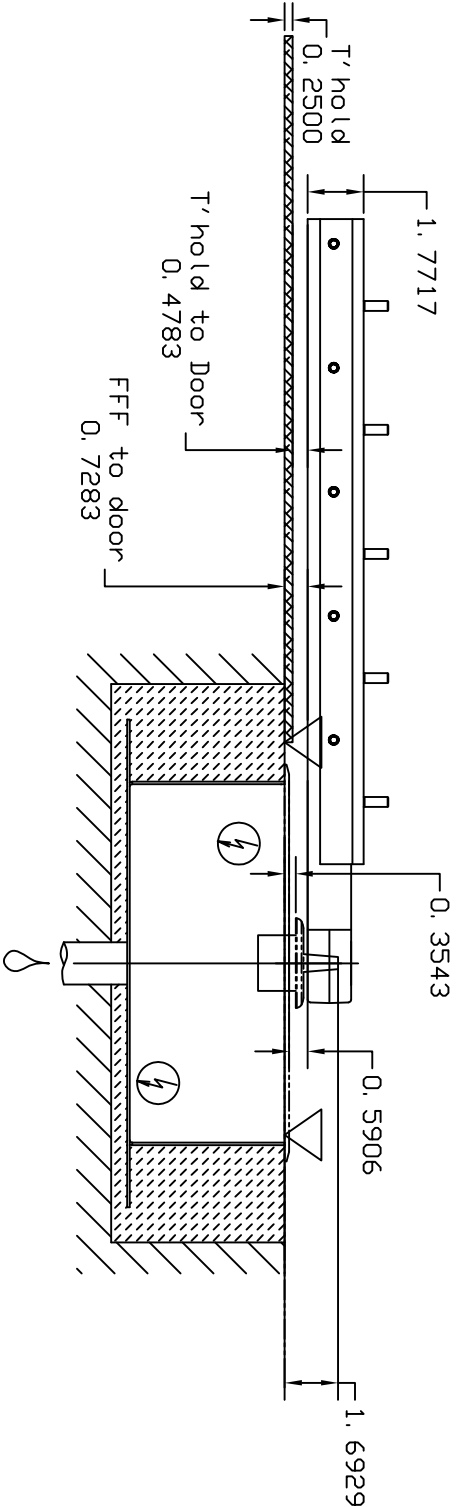
Emergency Breakout Shaft Panic Fitting



- ▽ Concrete or Finished Floor
- Drain
- ⚡ Possible Electrical Feed

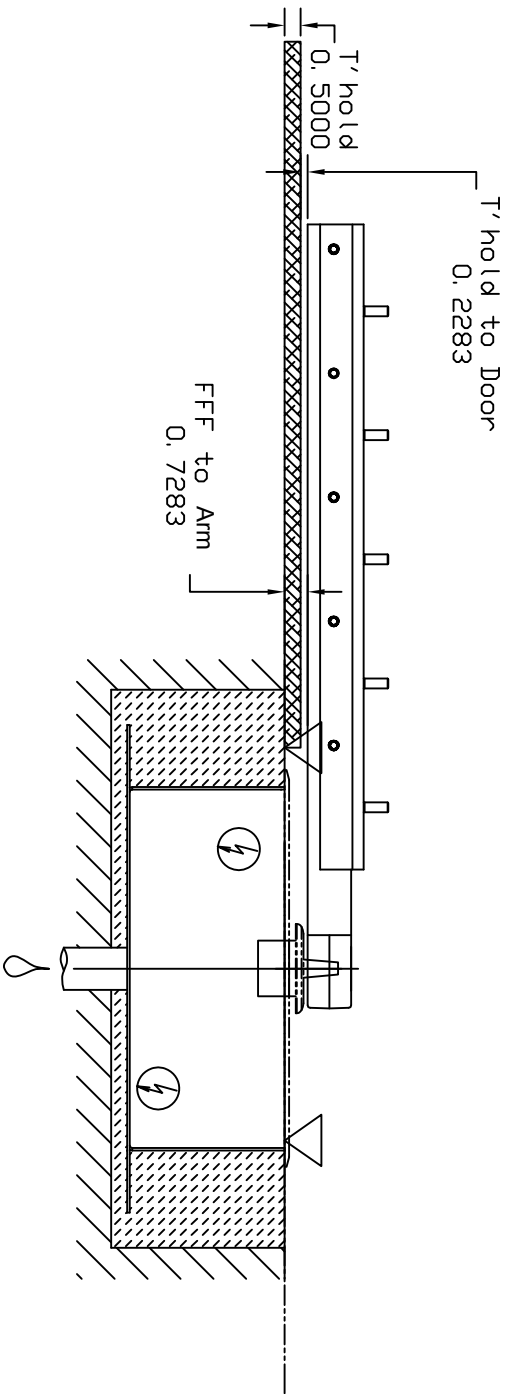


Threshold Analysis

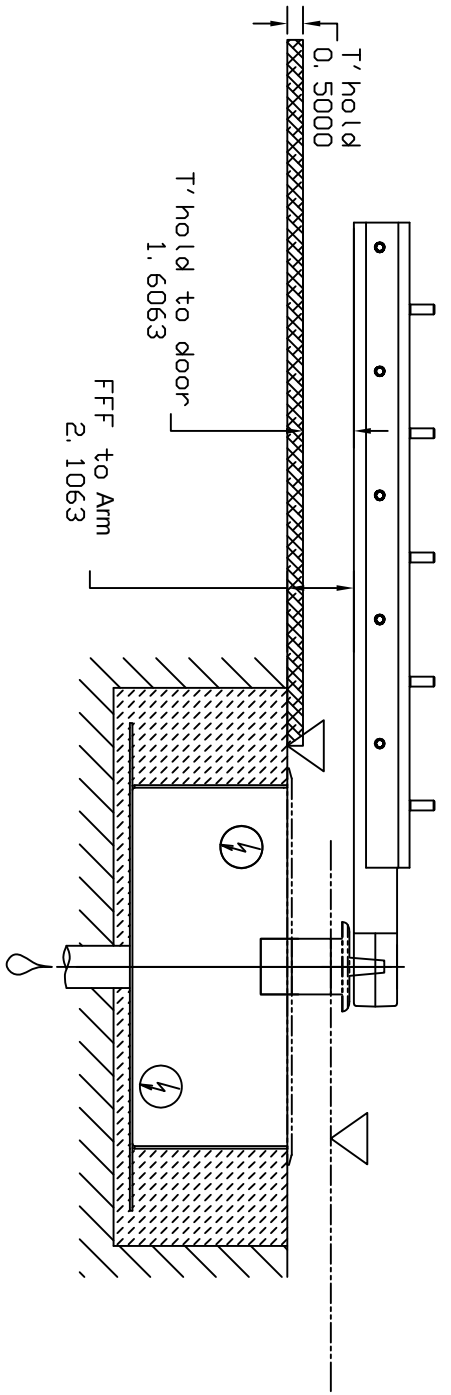


Standard Box
Standard Shaft
1/4" T'hold

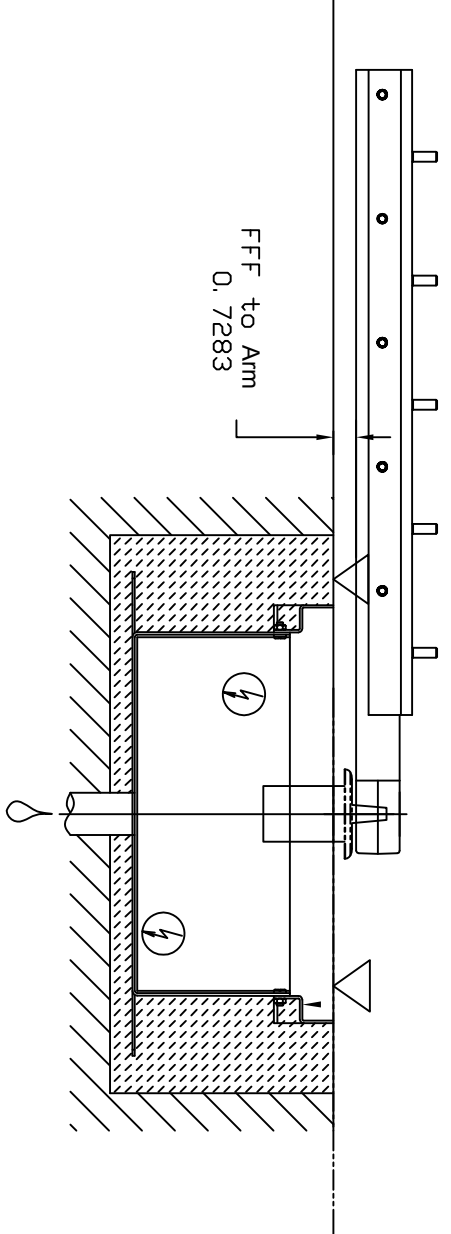
Short Shaft: 64, 5mm
Extended Shaft: 99, 5mm



Standard Box
Standard Shaft
1/2" T'hold



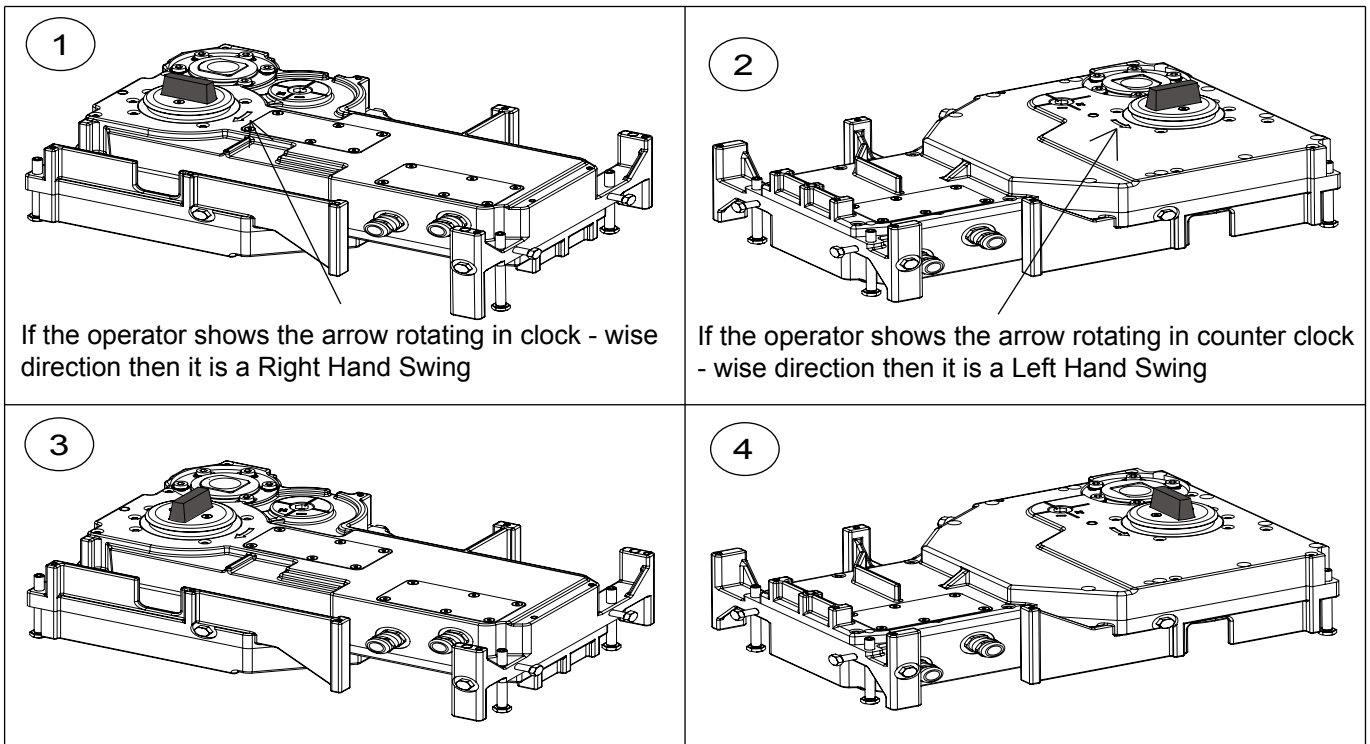
Standard Box
Extended Shaft
1/2" T'hold



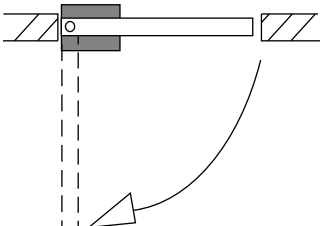
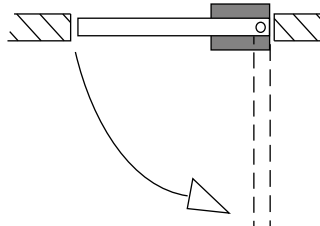
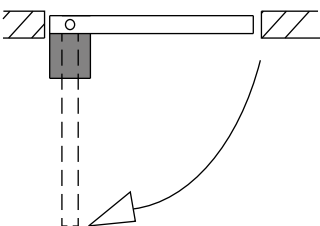
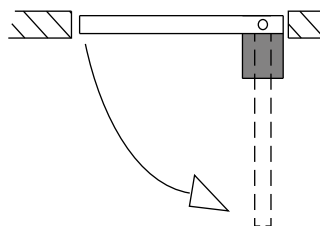
Special Box
Extended Shaft
No T'hold



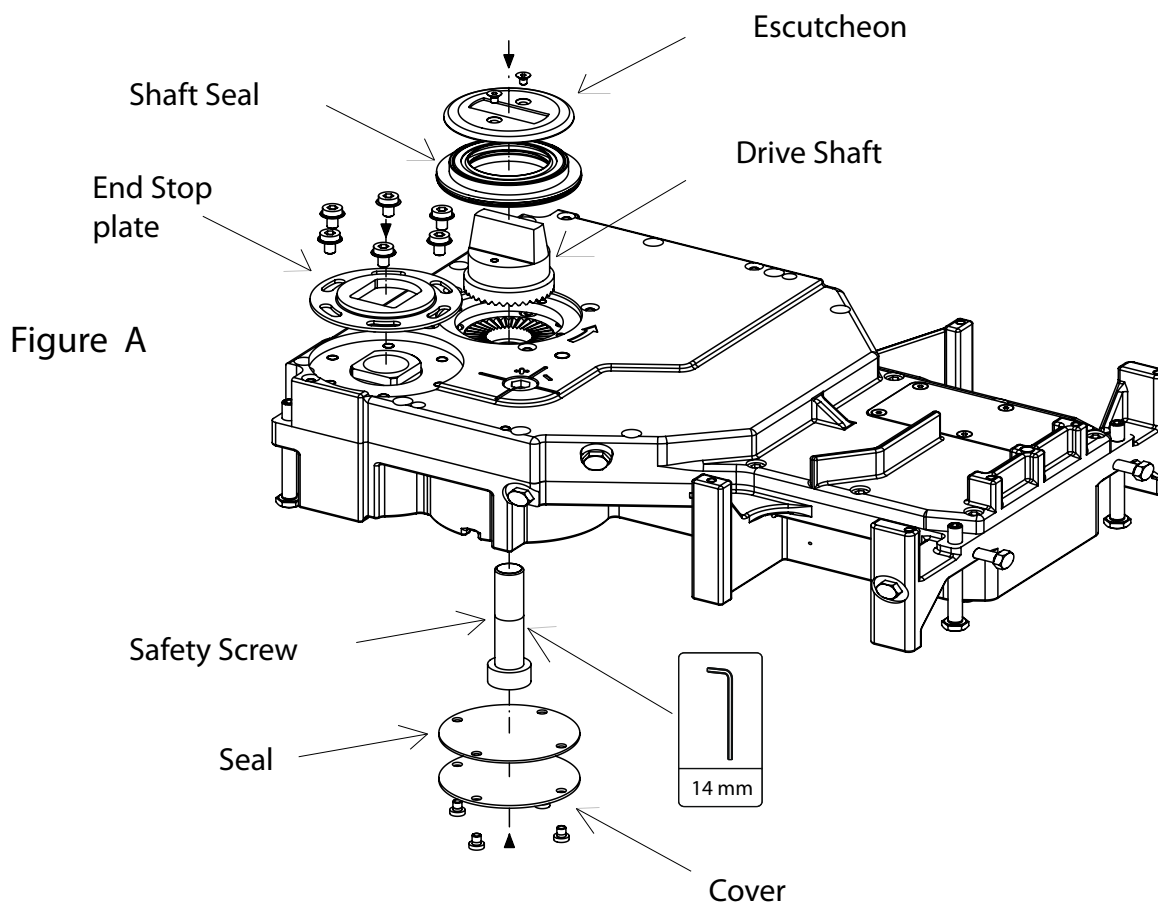
Operators Configurations



Note : TN 110 is a Non - Handed operator, See the arrow on the operator as shown in figure 1 & 2 for the intended direction of swing.

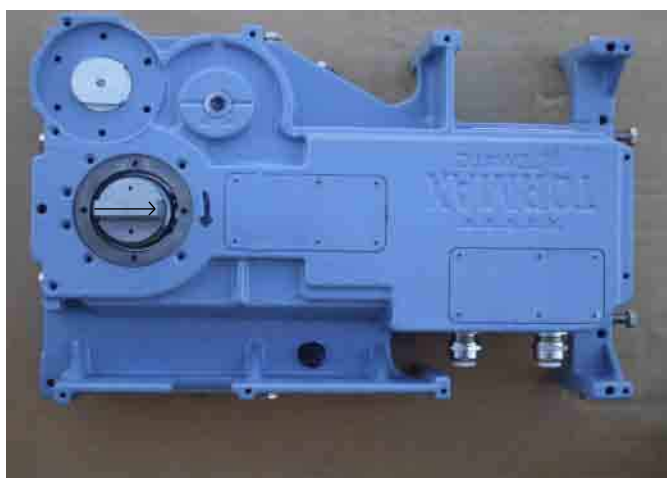
| Drive configuration | Right Hand Swing | Left Hand Swing | Drive configuration |
|---------------------|---|--|---------------------|
| 1 |  |  | 2 |
| 3 |  |  | 4 |

Preparation of the Drive Unit

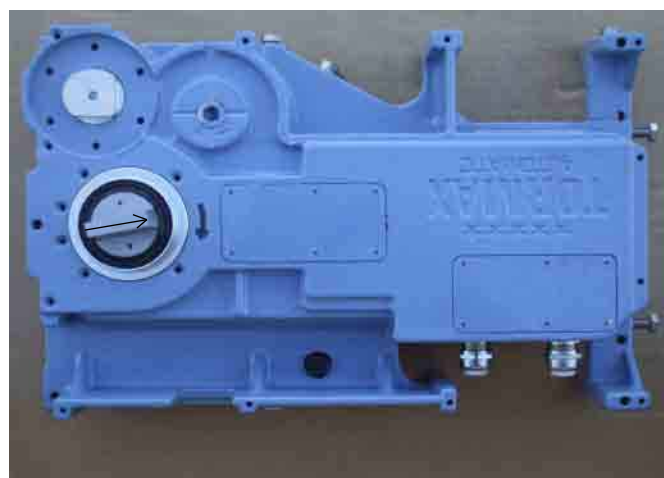


Installing the shaft :

- 1) Insert the drive shaft and shaft seal on to the operator and make sure to carefully align the shaft with the serration on the motor.
- 2) Now manually rotate the drive shaft one tooth turn on the serration of motor, in the direction opposite to the intended swing of the door for the 10 degree preload.



Position of shaft before preload



Position of shaft after 10 degree preload

Right Hand Swing



Position of shaft before Preload

I



Position of shaft after 10 degree preload

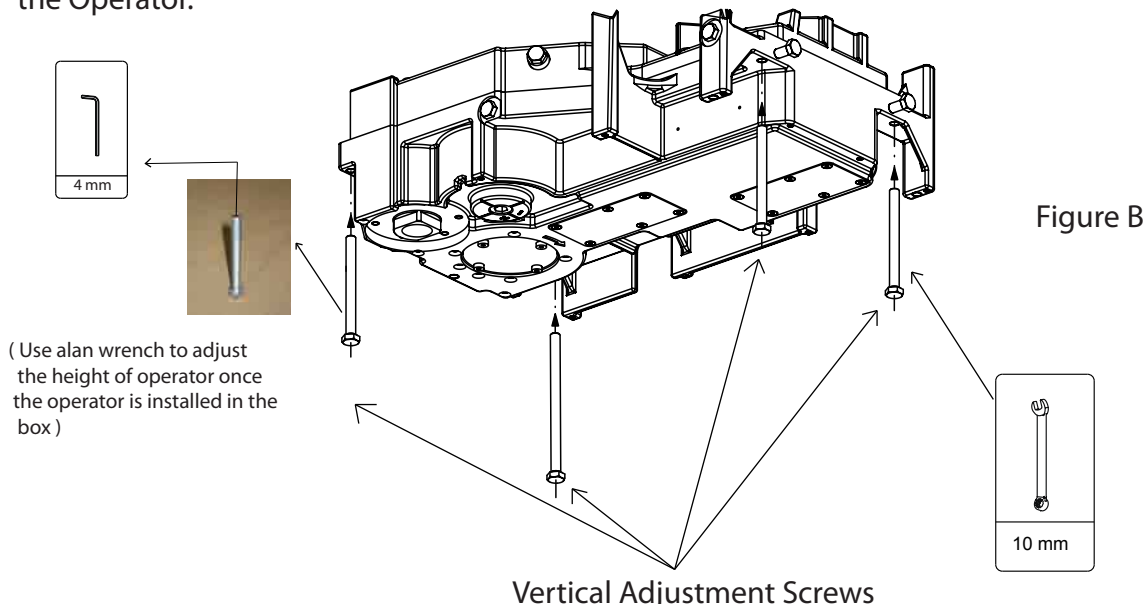
II

Left Hand Swing

- 3) Insert the shaft seal over the drive shaft to hold the shaft at correct location as shown in figure II and then insert the safety screw in the operator as shown in figure A and tighten using 14 mm alan wrench to 221 - foot pound of force

Make sure you hold the shaft in place while tightening the screw until the serration on the shaft shaft interlock with the serration in the motor.

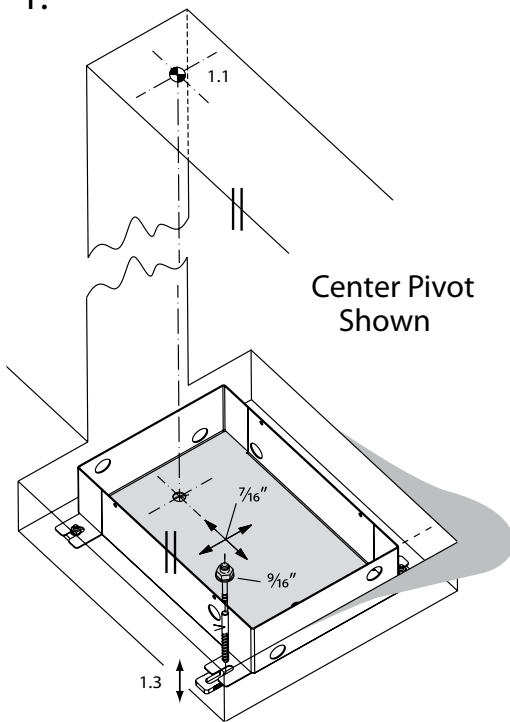
- 4) Attach the seal and cover over the bottom of safety screw as shown in figure A
- 5) Attach escutcheon over the top of drive shaft and shaft seal as shown in figure A
- 6) Attach the end stop plate in the corner of the operator unit with the hex screws provided.
- 7) Install the four vertical adjustment screws in the corners of the drive unit, the bolt heads of the screws should touch the ground as shown in figure B. Use the hex end of the screw to adjust the height of the Operator.



Installation of the Floor Box

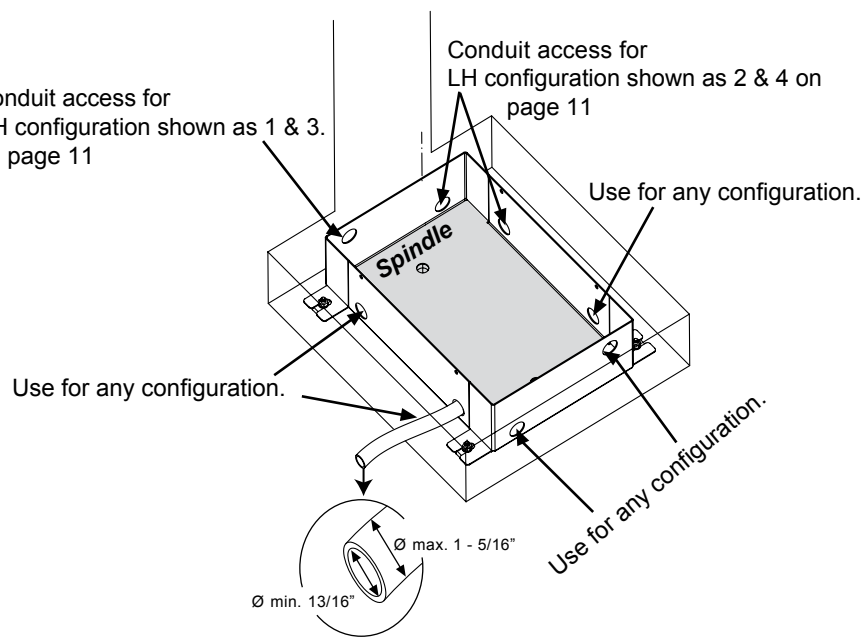
- Before you install the box, make sure the recessed floor has enough space for making adjustments (For dimension of the box see page 8 & 9)
- Ensure that the recessed floor allows to install the floor box in parallel with the door frame as shown in figure 1
- Attach the corners of the floor box using appropriate fasteners as shown in figure 1
- Choose the most accessible hole for your electrical conduit as shown in figure 2 and seal the remaining holes with sealant
- Cement the box into position on all sides with the alignment to the pivot and parallel to the door frame as shown in figure 3

1.

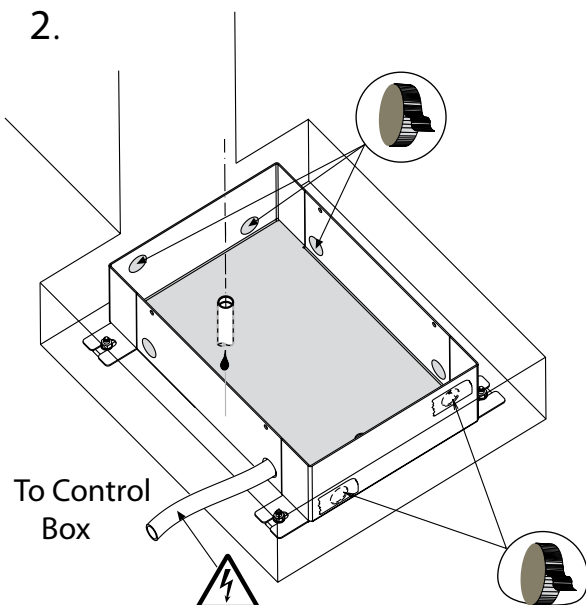


Install the floor box in parallel to the door frame on positions of operator as shown on page 11

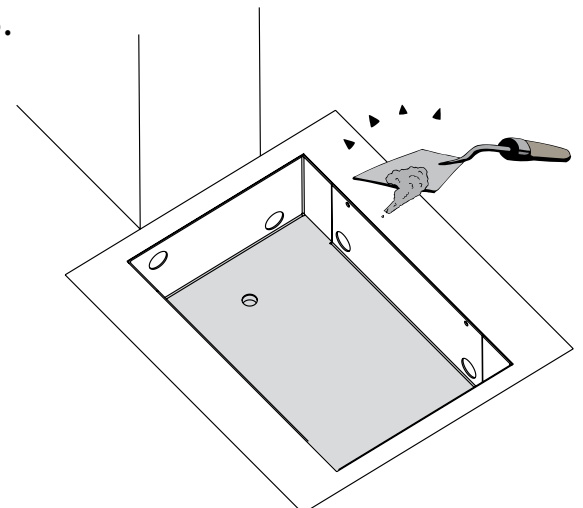
Conduit access for RH configuration shown as 1 & 3. on page 11



2.

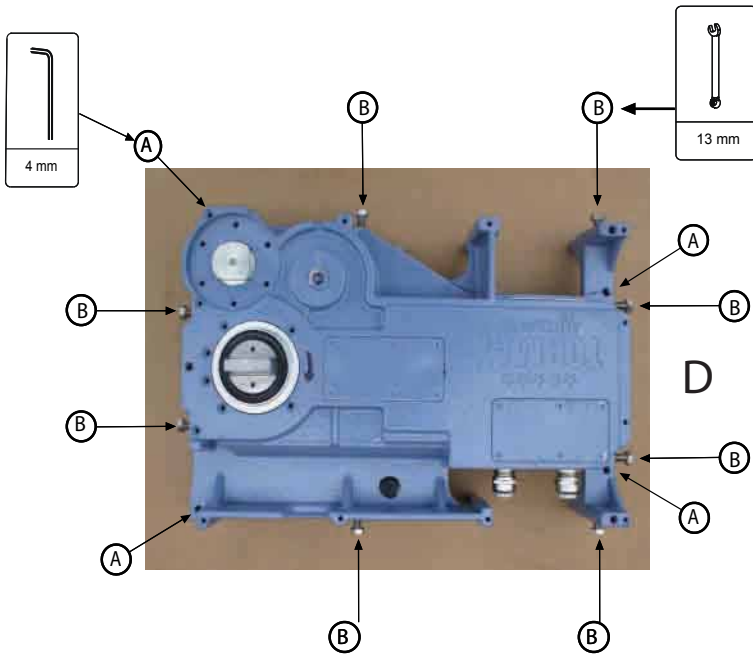
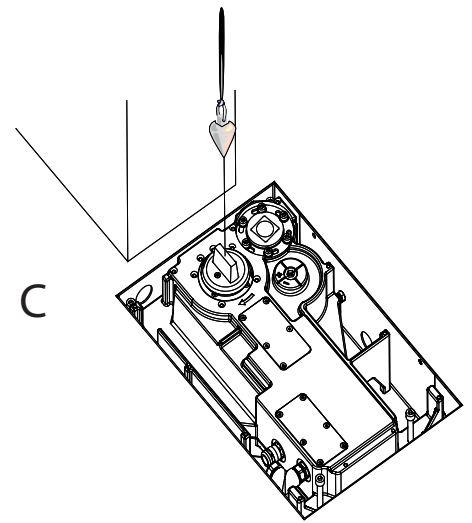


3.



Installing and Adjusting the Drive unit in the floor box

1. Place the operator into the floor box with alignment to the pivot and parallel to the door frame as shown in figure C

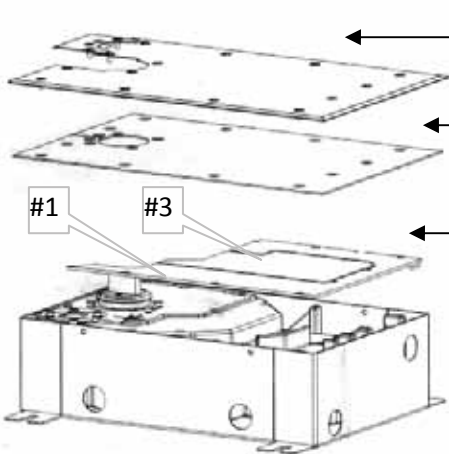


2. Adjust the horizontal vertical alignment of the operator by turning the bolts as shown in figure D

It is important to center and level the operator to avoid injuries and premature wear

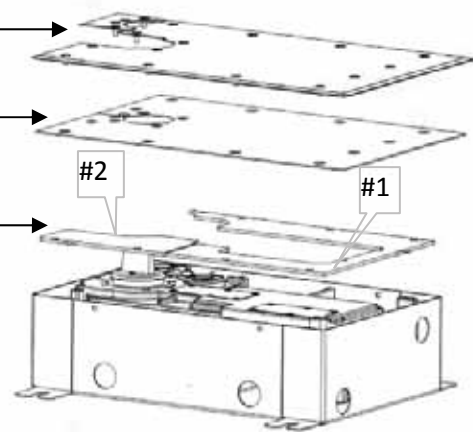
3. Once the operator is centered and levelled with the floor box, secure the operator inside the floor box using bolts as shown (B) in figure D

Drive Direction Counter-clockwise



For Left hand swing align spacers (1 and 3) as shown in the figure above.

Drive Direction Clockwise

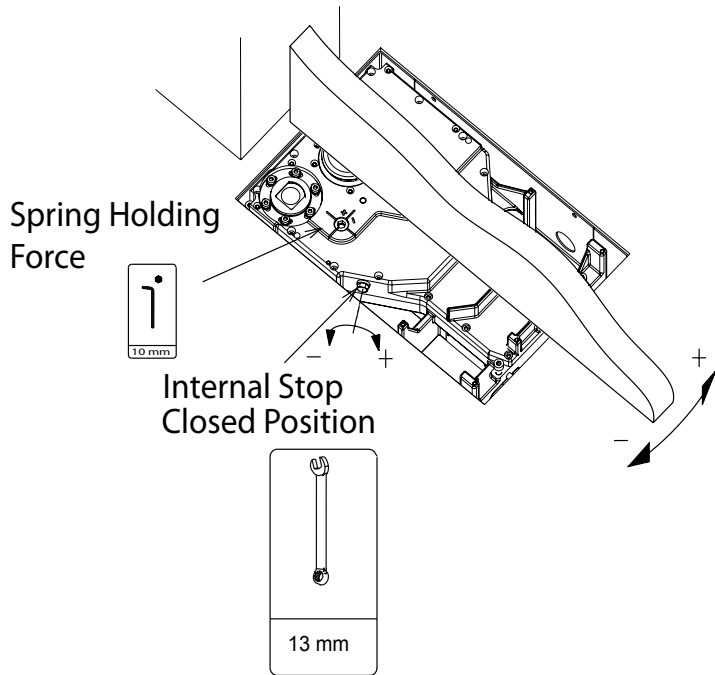


For Right hand Swing (make sure to flip the metal spacer 1 and then align with metal spacer 3 as shown above)

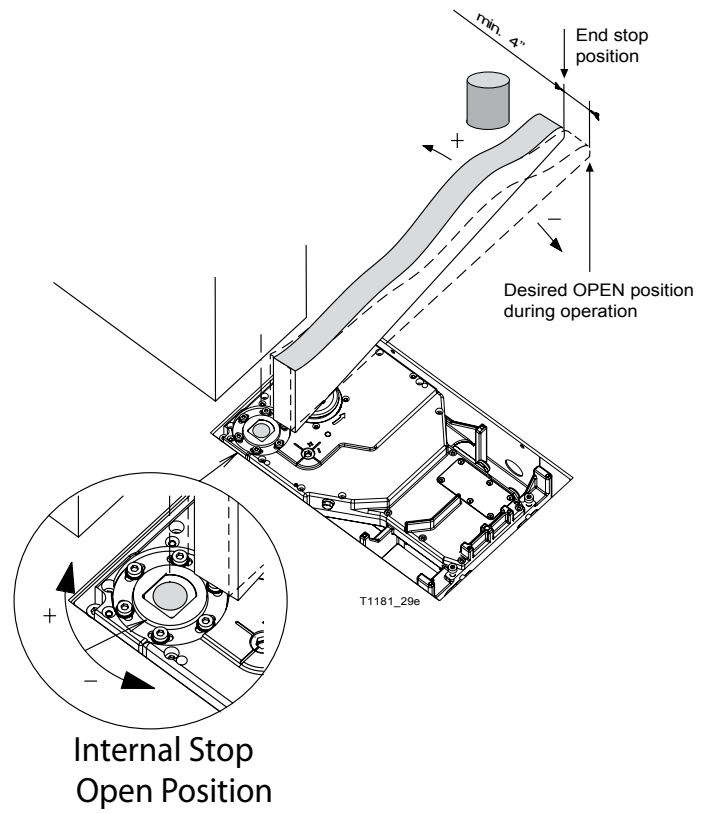
4. Align metal spacer , Rubber seal and cover and then secure them to the operator with the screw provided.

Mechanical Adjustments

Power Open Spring Close

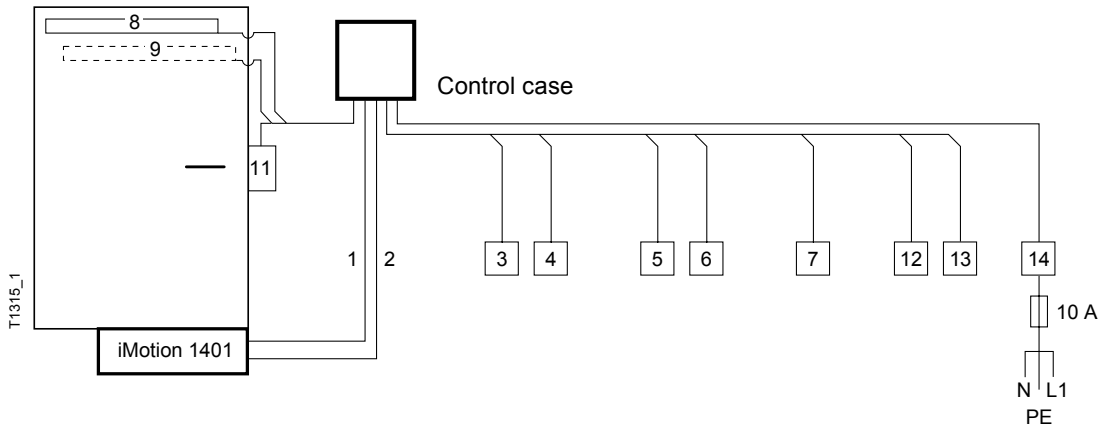


Adjustment of shaft in closed position



Adjustment of shaft in open position

| | | |
|---------------------|--------------------------------|---|
| T-1315 e | Cable Plan | ★★★★★ TORMAX AUTOMATIC 12859 Wetmore Road San Antonio, Tx78247 1-888-685-3707 www.tormaxusa.com |
| Area of application | iMotion TN110 Swing Door Drive | |
| Release | Jan. 2009 | |
| Use | Planning, installation | |



| No. | ☒ | Control Components | Notes | Cable | Length (m) without screen | Length (m) with screen |
|-----|---|---|-------|--|---------------------------|------------------------|
| 1 | | Motor cable | | < 49' : 7 × 16 AWG < 82' : 7 × 14 AWG cable Ø outside max 1/2" | | < 82' |
| 2 | | Encoder cable | | 6 × 20 AWG cable Ø outside min. 5/16" | | < 82' |
| 3 | | Activator/Push-button inside | | 4 × 20 AWG | < 98' | < 328' |
| 4 | | Activator/Push-button outside | | 4 × 20 AWG | < 98' | < 328' |
| 5 | | Key-switch | | 2 × 20 AWG | < 98' | < 328' |
| 6 | | ... | | ... × 20 AWG | | < 328' |
| 7 | | User interface iMotion Connected with FCC-connector | | Phone ribbon cable 6 × 25 AWG RJ12, 6P6C | < 98' | |
| | | User interface iMotion Connected with LIN-Adapter | | 3 × 23 AWG | < 98' | < 328' |
| 8 | | Safety activator closing | | 4 × 20 AWG | < 98' | < 328' |
| 9 | | Safety activator opening | | 4 × 20 AWG | < 98' | < 328' |
| 10 | | ... | | | | |
| 11 | | Door lock | | 2 × 20 AWG | < 82' | < 328' |
| 12 | | Message 1 ... | | 2 × 20 AWG | < 98' | < 328' |
| 13 | | Message 2 ... | | 2 × 20 AWG | < 98' | < 328' |
| 14 | | Mains main switch | | 3 × 15 AWG | | |

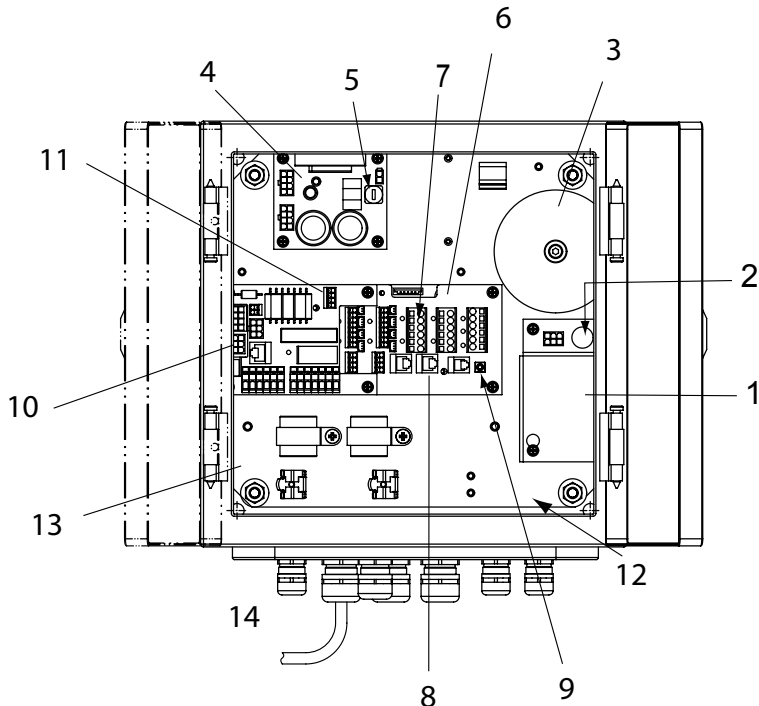
| | | |
|---------------------|--|---|
| T-1312 e | Control Unit Module MCU32-CONU-120-18-A | <p style="text-align: center;">★★★★★ TORMAX AUTOMATIC</p> <p>12859 Wetmore Road San Antonio, Tx 78247 1-888-685-3707 www.tormaxusa.com</p> |
| Area of application | iMotion TN110 Swing Door Drive | |
| Release | January 2009 | |
| Use | Installation | |

Purpose

Control unit for iMotion TN110 Swing Door Drive.

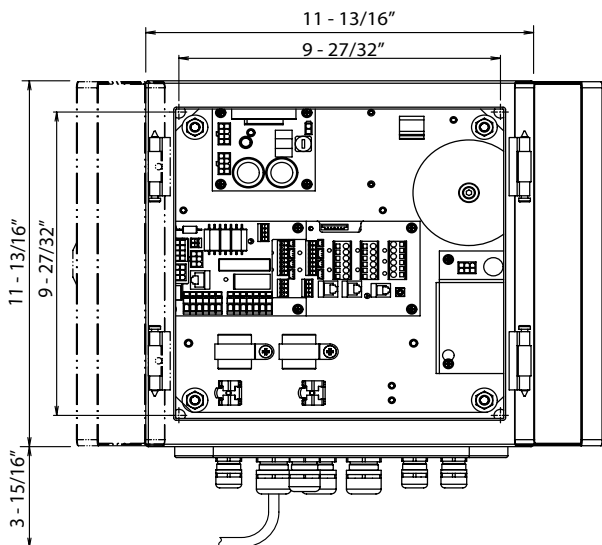
Function

The control unit contains all necessary components for operating an automatic swing door. It provides connections for the operating unit, electric lock, motor unit, battery unit and input / output module. The system can be configured either via the MCU32-USIN operating unit or via iMotion service software.



- 1 Power supply MCU32-FLTR-A
- 2 Voltage selector 230/115VAC
- 3 Transformer 120 VA MCU32-TRAF-29-120-A
- 4 Power supply module MCU32-PSUP-40-18-C or space for power supply module MCU32-PSUP-40-36-A
- 5 Fuse 5AT
- 6 Base module MCU32-BASE-40-200-A
- 7 Config card MCU32-CONF-... slot
- 8 LINBUS
- 9 SW2, Activation
- 10 Brake module with motor connection terminals MCU32-TEBR-40 -100-A
- 11 Terminal for adjusting braking force
- 12 Space for installing a module carrier for 3 modules (input/output module MCU32-INOUE-A, relay module, ...)
- 13 Space for installing battery unit MCU32-BATU-24-1-C
- 14 Cable shield grounding clamp and ferrite shield for interference suppression for the motor and cable.

Component Dimensions



Technical Data

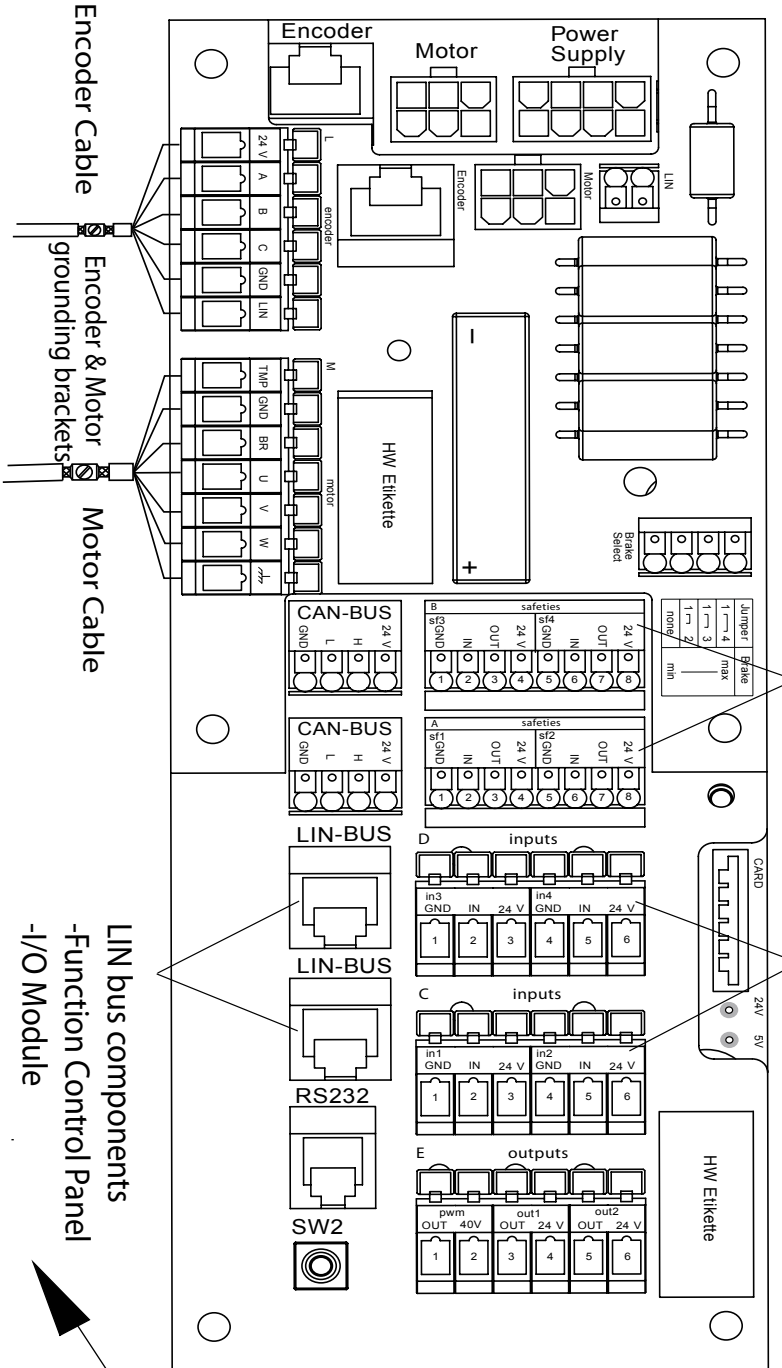
| | |
|---------------------------------|---|
| Drive system | Electromechanical swing door operator with AC permanent magnet synchronous motor and spring for currentless setting |
| Control system | Control unit MCU32 |
| Mains connection | 1 x 230/1 x 115 V AC, 50 – 60Hz, 10A |
| Power consumption | 4 ... 250 W |
| Sensor power supply | 24 V DC/0,75 A |
| Protective class of drive | IP 67 |
| Protective class of control box | IP 55 |
| Ambient temperature | – 4 °F to +122 °F |
| Outputs | 24 V DC short-circuit proof (within power supply 0.75 A in total) |
| Standards | DIN 18650, EN 60335-1, EN 61000-6-2, EN 61000-6-3, UL 325 |
| Durability | Class 3 according to DIN 18650-1 Dec. 2005 1 000 000 test cycles with 4 000 cycles per day |
| Dimension | 17-21/32"×11-17/32"×5" |
| Weight | 86 lb operator alone |
| Opening angle | Max 100° |
| Opening/Closing Speed | Max. 45°/s |
| Hold-open time | 0–60 s; permanently open |

Wiring Connections

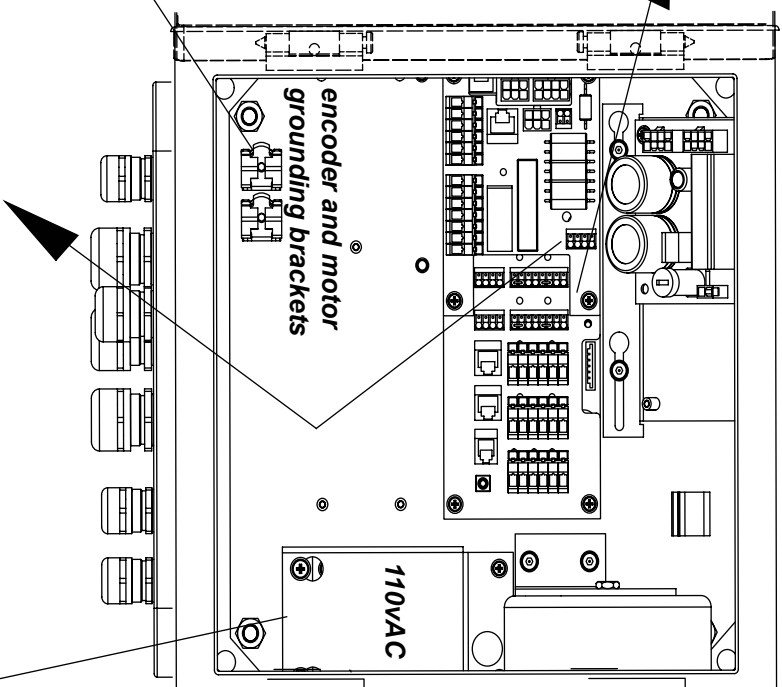
Base Module

Max. 4 programmable safety devices, monitored or with Opener contact

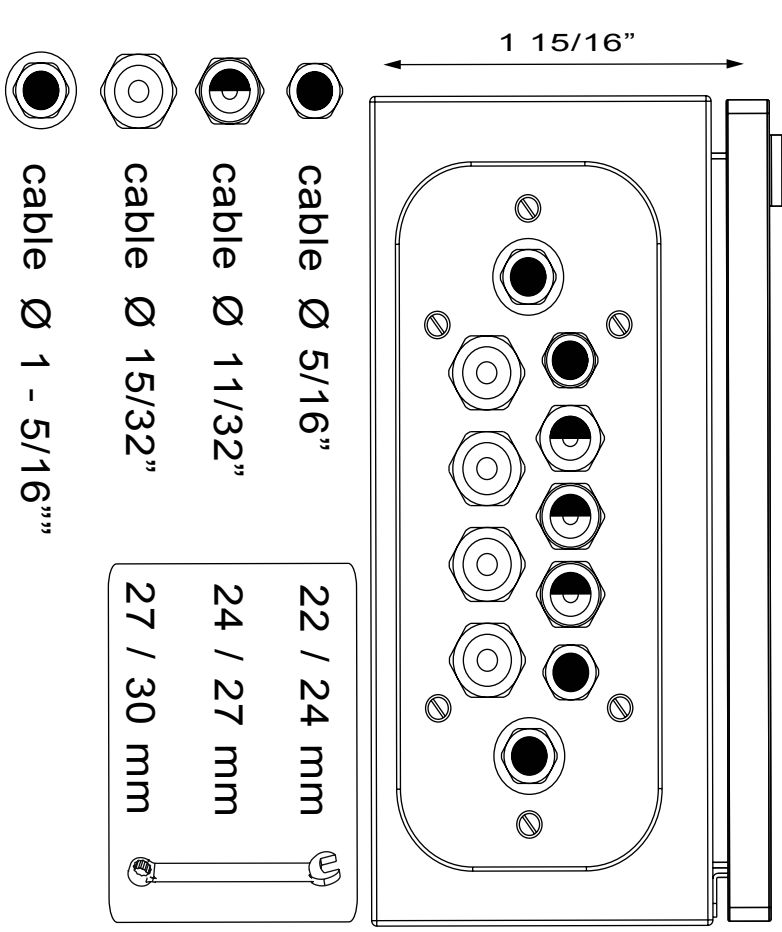
monitored and/or control devices
Max 4 programmable encoders, Feed 24 VDC, max 0.8 A



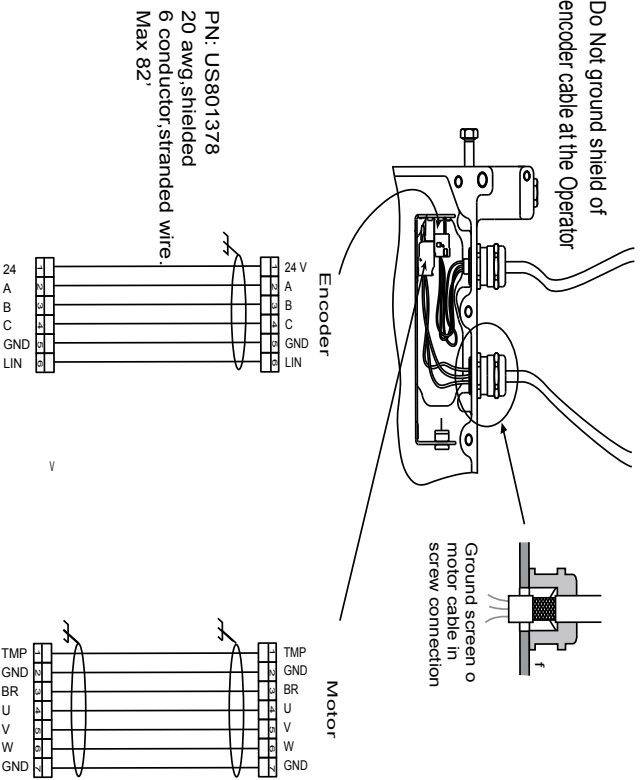
TN110 Control Box



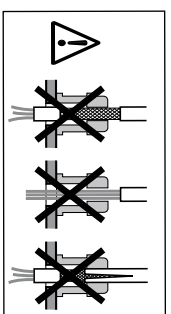
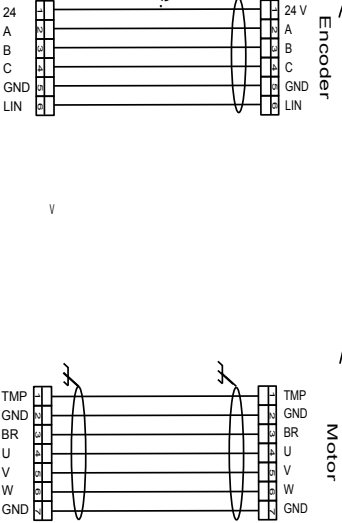
Bottom view of control box



Do Not ground shield of encoder cable at the Operator

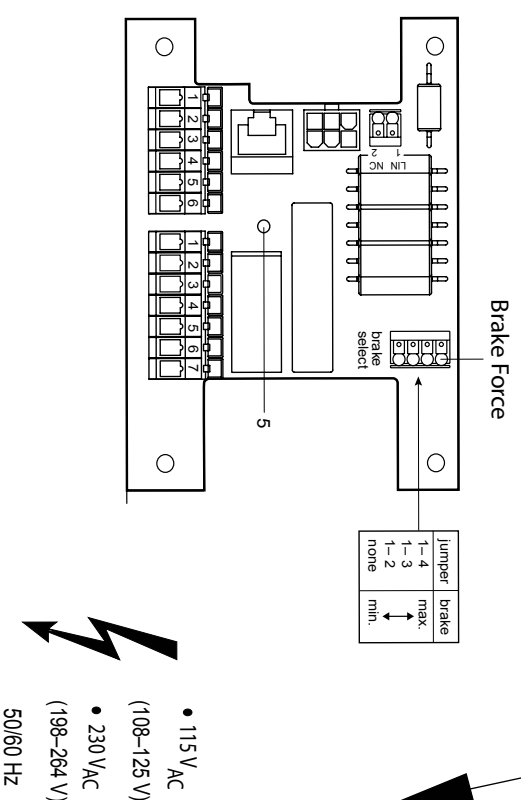


PN: US801378
20 awg, shielded
6 conductor, stranded wire.
Max 82'



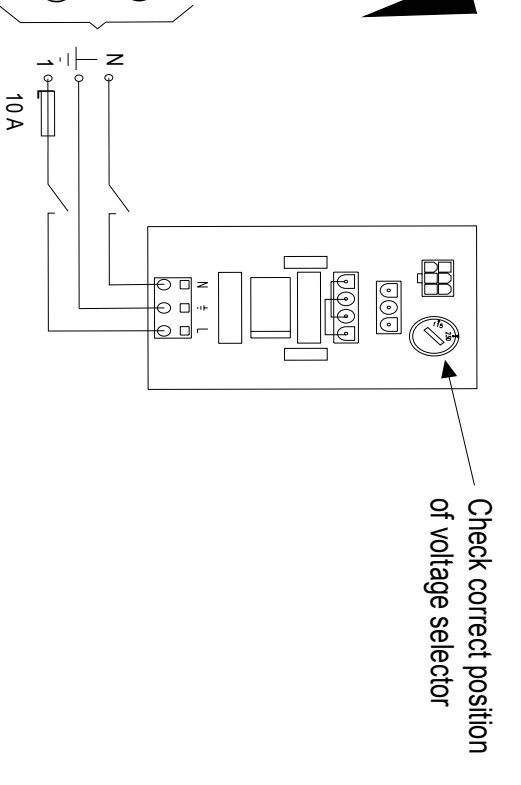
LIN bus components
-Function Control Panel
-I/O Module

Brake Module



• 115 V AC (108-125 V)
• 230 VAC (198-264 V)
50/60 Hz

Mains Connection



Check correct position of voltage selector

T-1312 e

Producer: TORMAX AUTOMATIC

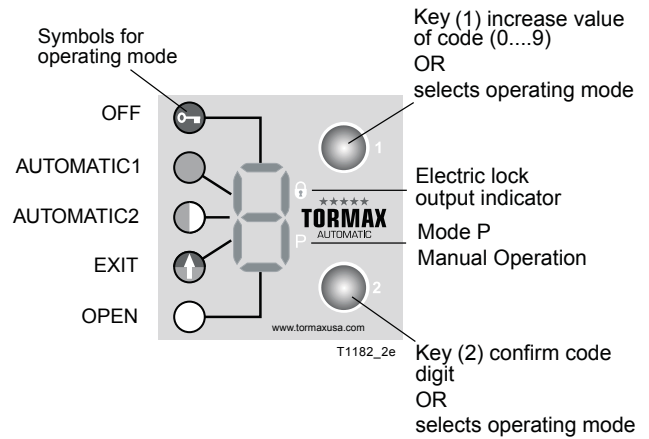
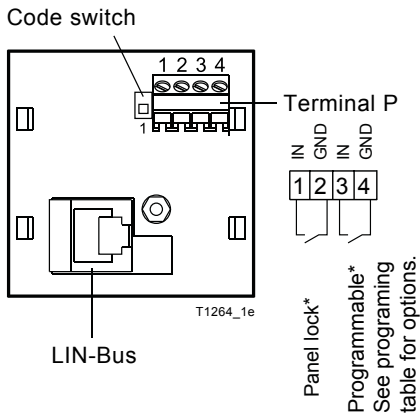
10 B

| | | |
|---------------------|---|--|
| 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 TN110 | |
| Release | October 2008 | |
| Use | Programming and Mode selection | |

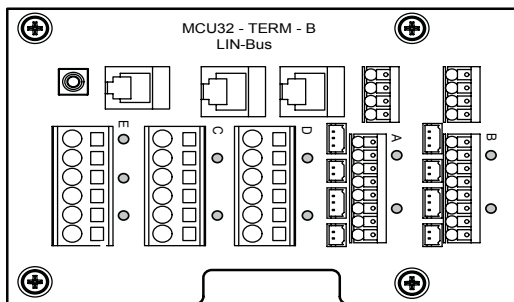
Purpose

Programming and operating the TORMAX iMotion universal processor.

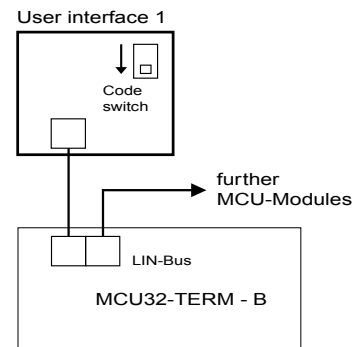
Functional control panel (FCP) MCU32-USIN-7-A



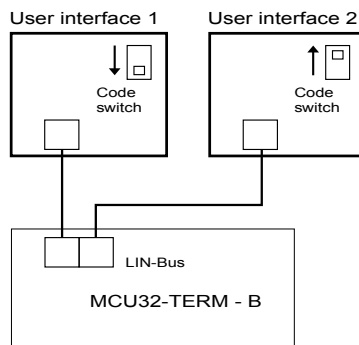
Connection Diagram



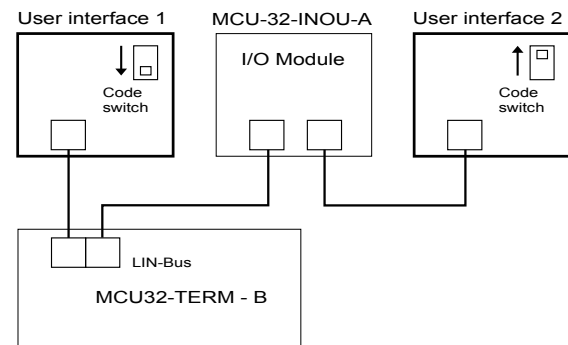
Connection Option 1



Connection Option 2



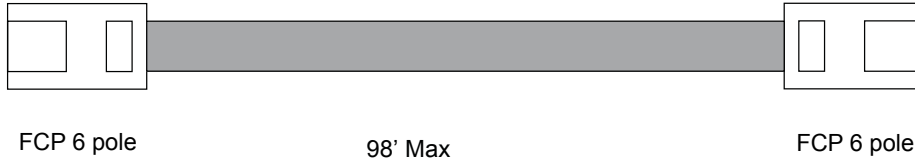
Connection Option 3



- 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



- First connect the LIN cable and FCP to the TN110 operator then switch the 110vAC on.

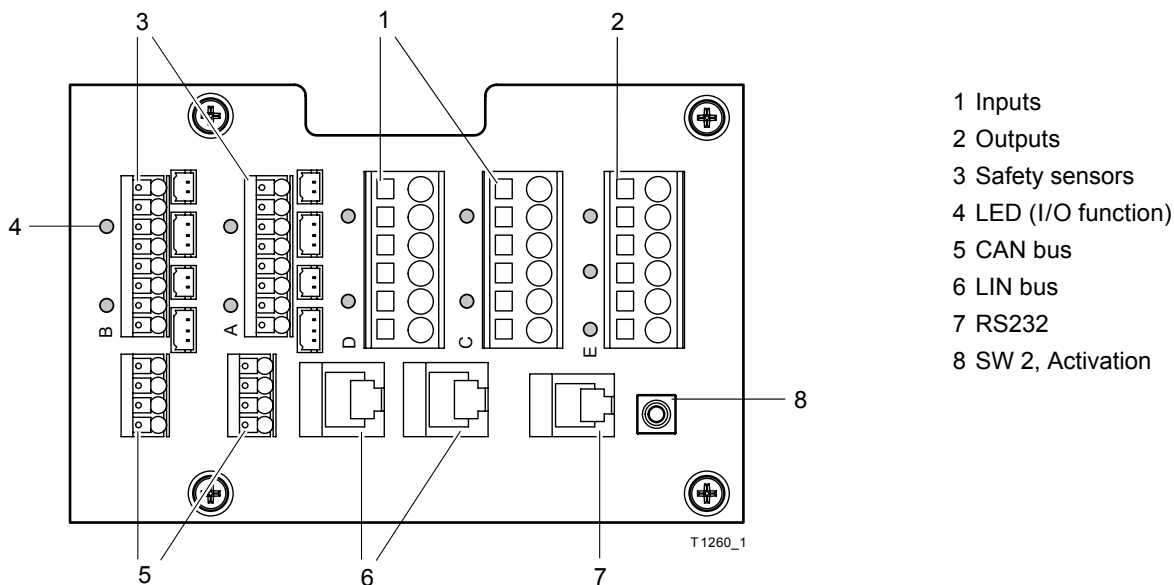
Technical Data:

| | |
|-------------------------|---|
| Inputs | 2 x Pull up |
| Terminal cross section: | 0.5 mm ² (strand or wire) |
| Terminal cross section: | LIN, FCC 6 - Pol |
| Ambient Temperature: | -4°F...+122°F |
| Dimensions: | 1 ²⁵ / ₃₂ " - 1 ²⁵ / ₃₂ " |
| LIN cable length: | 98' Max |

| | | |
|---------------------|--|--|
| T-1260 e | Module Documentation Terminal Module MCU32-TERM-B | ★★★★★ TORMAX AUTOMATIC 12859 Wetmore Road San Antonio, Tx 78247 1-888-685-3707 www.tormaxusa.com |
| Area of application | iMotion TN110 | |
| Release | May 2008 | |
| Use | Input / output terminal board | |

Purpose

Input, output and FCP connections for the iMotion TN110 drives



Installation



The module must be protected against electrostatic discharge (ESD) when touching it. The module may only be laterally touched. Other components must not be touched.

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

Connection Diagrams

See T-1262 for iMotion TN110

Technical Data

| | | |
|--------------------------|--|--|
| Inputs: | 8 × | Pull up in: 24 VDC/3 mA Function is programmable |
| Outputs: | 2 × | Transistor out: 24 VDC /0,75 A max. Function is programmable |
| | 1 × | Transistor pwm out / < 24 W and < 2 A Function and voltage are programmable |
| Load 24 V power supply: | 0.75 A | with MCU32-PSUP-40-18-x |
| | 1.5 A | with MCU32-PSUP-40-36-x |
| Terminal cross-sections: | 1.5 mm ² | (stranded wire conductors or 1 wire) for terminals A, B and CAN BUS |
| | 2.5 mm ² | (stranded wire conductors or 1 wire) for terminals C, D, E |
| Ambient temperature: | -4...+122 °F | |
| Dimensions: | 4 ²³ / ₃₂ " × 3 ¹ / ₃₂ " | |
| Module interfaces: | TORMAX safety sensors with plugable connections | |
| | 2 × LIN / FCC 6 pole for MCU32-USIN, MCU32-INO, MCU32-LOCU | |
| | 1 × RS232 / FCC 4 pole | |
| | 2 × CAN | |

| | | |
|---------------------|---|---|
| T-1261 e | Module Documentation Base Module MCU32-BASE-40-200-A | <p>★★★★★ TORMAX AUTOMATIC</p> <p>12859 Wetmore Road San Antonio, Tx 78247 1-888-685-3707 www.tormaxusa.com</p> |
| Area of application | iMotion 1301,TN 110 Operators and 2301, 2401 Drives | |
| Release | August 2008 | |
| Use | Installation and maintenance | |

Purpose

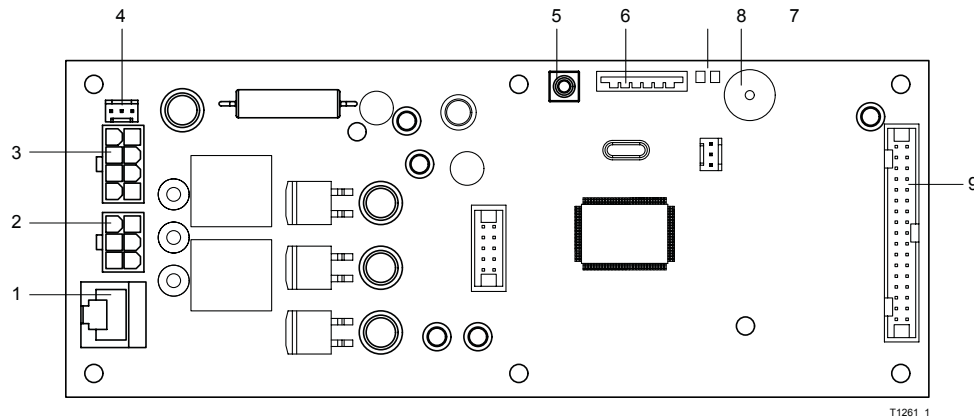
To manage the function of all iMotion 1301,TN 110 swing door operators and iMotion 2301,2401 sliding door drives.

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 is programmed with the FCP.

Base module MCU32-BASE-40-200-A



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

(*) Different versions

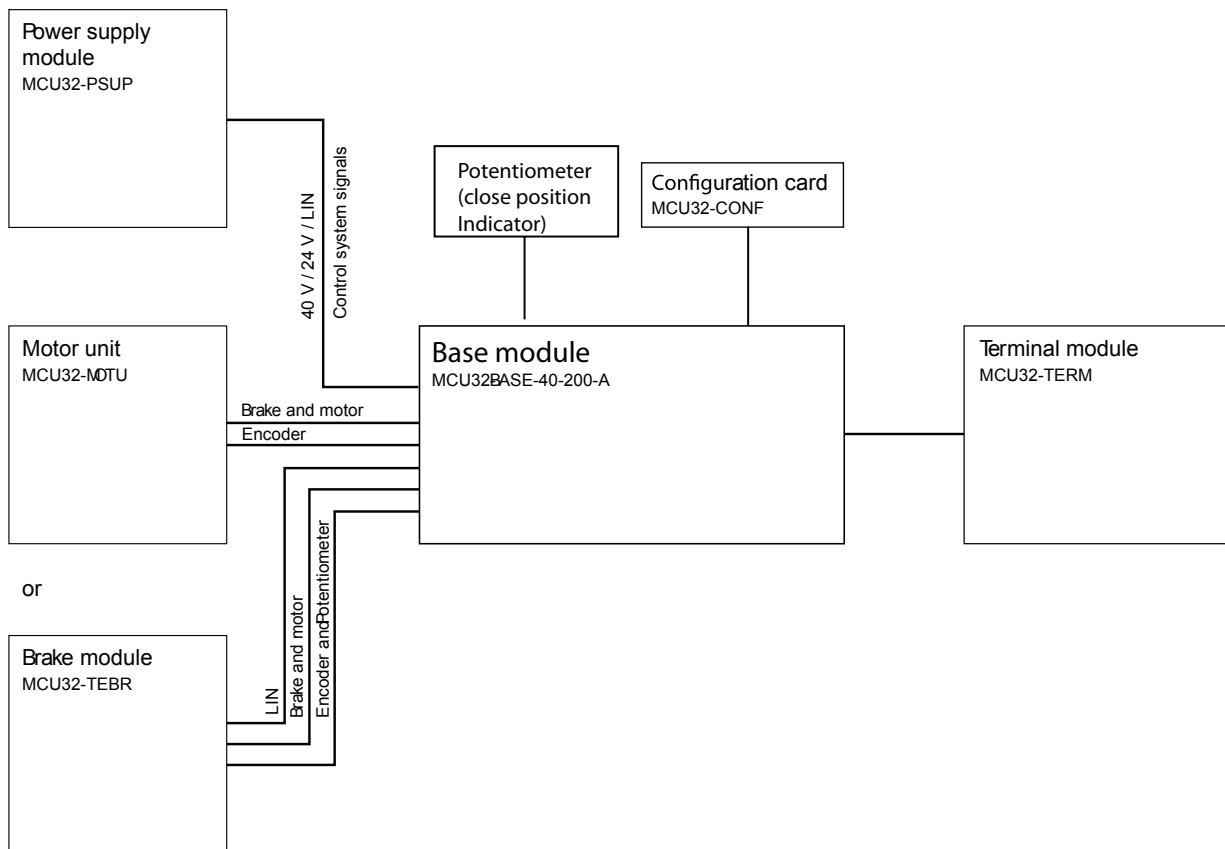
Installation



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-1288

Technical Data

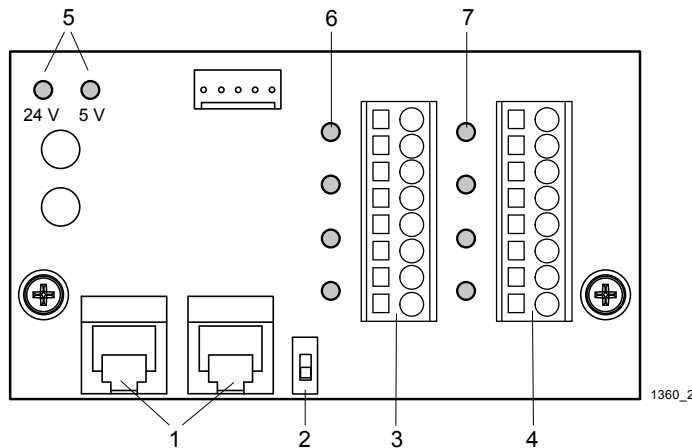
| | |
|------------------------|---|
| Processor | 32 bits, 30 MHz |
| System monitoring | Complies with DIN 18650 requirements |
| Ambient temperature | -4°F....+167°F |
| Overheating protection | for power supply 40 V |
| Dimensions | 7 7/8" - 3 1/32" |
| Module interfaces: | MCU32- PSUP MCU32- MOTU MCU32- TERM MCU32- CONF MCU32- TERB |

| | | |
|---------------------|---|---|
| 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 TN 110 | |
| Release | January 2010 | |
| Use | Input/Output terminal board | |

Purpose

To provide additional Input/Output terminals for the iMotion TN 110 Swing Door Drive.

Function

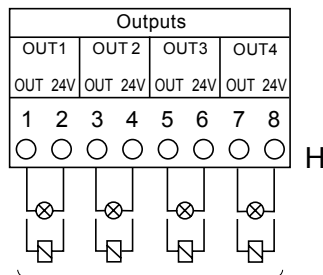
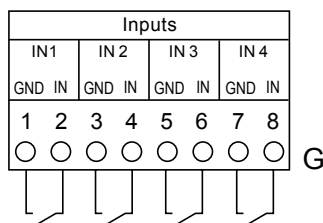


- 1 LIN-Bus
- 2 Code switch for LIN address
- 3 Input 1 ... 4
- 4 Output 1 ... 4
- 5 Display power supply
- 6 Display status of inputs 1 ... 4
- 7 Display status of outputs 1 ... 4

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 programming table 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.

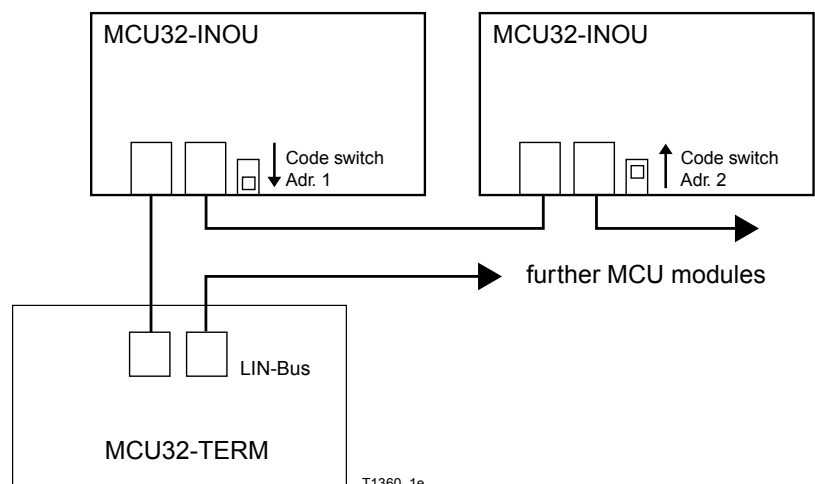
Connection Diagram



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 control unit

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

Max 98'

FCC 6 pole

Commissioning

The modules must be wired according to the connection diagram.

The modules are detected automatically when initiating the auto configuration.

See programming table for input and output functions.

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 |

| | | |
|---------------------|--|--|
| T-1359 e | Module Documentation Battery Backup MCU32-BATU-24-1-C | <p style="text-align: center;">★★★★★ TORMAX AUTOMATIC</p> <p>12859 Wetmore Road SanAntonio, TX 78247 1-888-685-3707 www.tormaxusa.com</p> |
| Area of application | iMotion TN110 Swing Door Drive | |
| Release | July 2009 | |
| Use | Installation | |

Purpose

This battery backup unit is design to be used for iMotion TN110 Swing Door Drive

The module is used for limited - time operation of the system. A further use is the limited - time admission into the building via the key switch during a power failure.

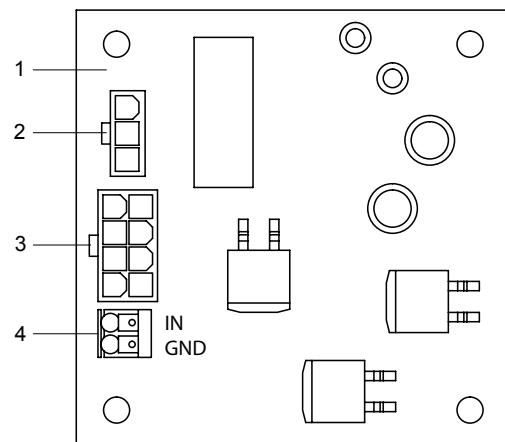
Functional Principle

The battery unit includes the batteries MCU32-ACCU-24-1-C 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.

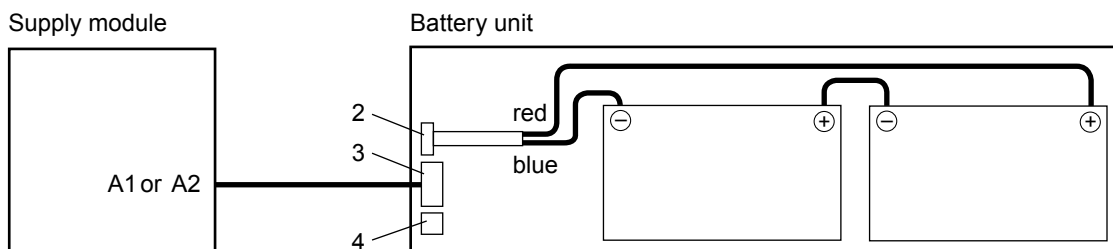
The operational function depends on the programming of the basic control system. See programming table for programming options.

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

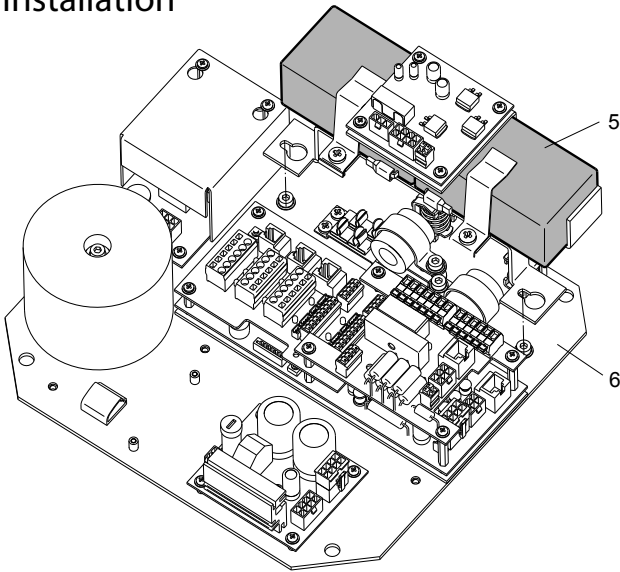


- 1 Battery module
- 2 Connector BAT
- 3 Connector A
- 4 Terminal key switch

Connection Diagram



Installation



- Mount the battery unit (5) onto the control unit (6).
- With the provided cable, connect the battery unit with the power supply module on the control module.

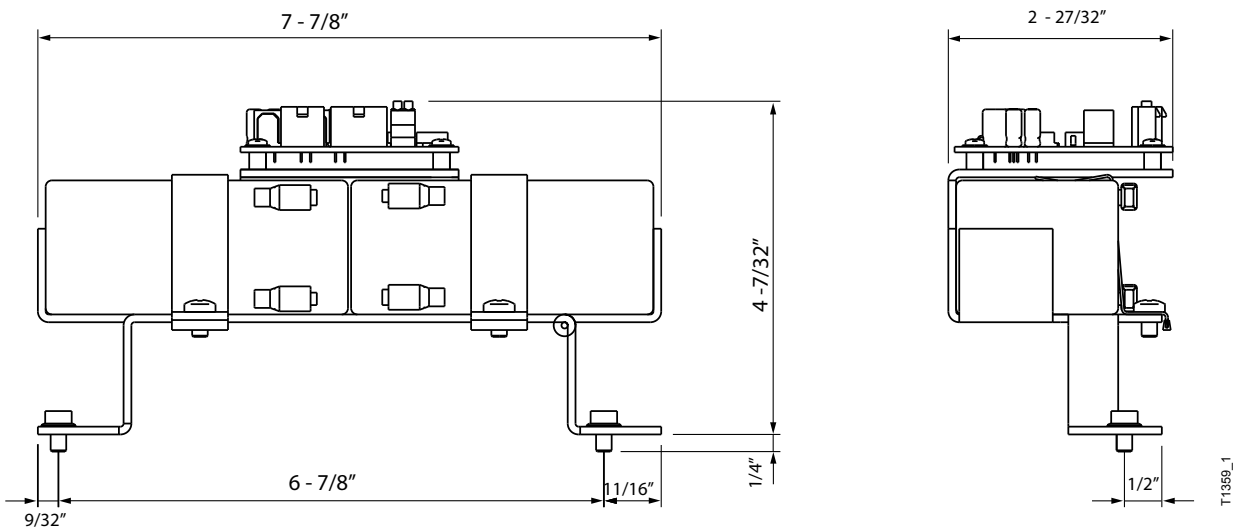


When connecting the batteries make sure that the polarities are not interchanged and the contacts are not short circuited! A sudden discharge may cause an explosion of the batteries! The constituents are highly poisonous!

Commissioning

The battery back up module is detected automatically during auto configuration as shown in T-1288

Component Dimensions



Technical Data

| | |
|---------------------|--------------------|
| Rated voltage | 24 VDC |
| Maximum power | 120 W |
| Batteries | 2 × 12 V/7,2 Ah |
| Ambient temperature | 0 ... +104°F |
| Interfaces | MCU32-PSUP-40-36-A |

| | | |
|---------------------|---|--|
| T-1248 e | Programming with Function Control Panel (FCP) | ★★★★★ TORMAX AUTOMATIC 12859 Wetmore Road San Antonio, TX 78247 1-888-685-3707 www.tormaxusa.com |
| Area of application | iMotion TN 110 | |
| Release | July 2008 | |
| Use | FCP Operation and Function | |

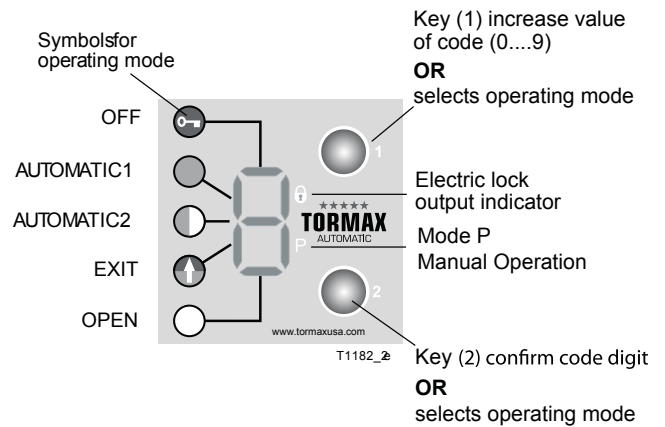
Contents

Function of (FCP) MCU32 User Interface

The FCP has 2 function levels

- Select operating modes by end user
- Programming module for the AAADM certified technician

Programming can only be accessed by a technician who knows the access code. Unauthorized programming is practically eliminated.



Control Level end user

Functions: Choice of the operating mode
Reset

Displays: Current operating mode
Two-digit fault numbers

Access protection: Panellock

Programming Level for the AAADM certified technician

Functions: Input of access code "C"
Programming of max. 100 parameters
in 10 steps

Displays: Currently set parameter

Access protection: Access code (111)

Time out: 10 min. after the last programming entry is made the FCP will time out and technician will be required to enter the access code(111) again to make further adjustments.

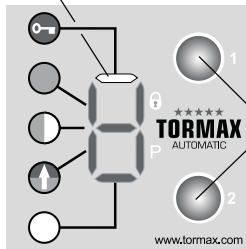
Programming with the FCP

With key 1 the value of the number is always increased (0 to 9 and back to 0)

With key 2 the displayed number is always confirmed.

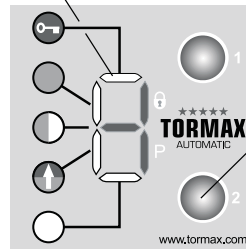
1. Start Access Code

Indication of operating mode



Press keys 1 and 2 simultaneously until "C" appears

Letter C is shown (= Code)



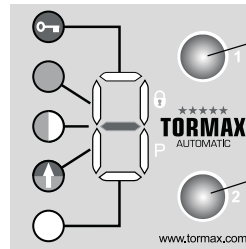
Press key 2 to confirm and 0 will display

2. Entering Access Code 111

Select the number "1" with key 1 and confirm by pressing key 2, repeat this step two more times entering the code 1-1-1

Time out: Occurs if no input is made during 10 s, then the user interface goes back to indicating the operating mode.

Zero appears, ready for code entry

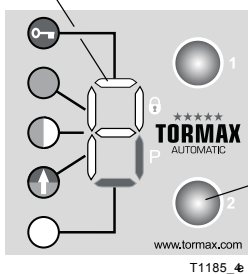


Select first code digit with key 1

Confirm first code digit with key 2

3. Start Programming Level

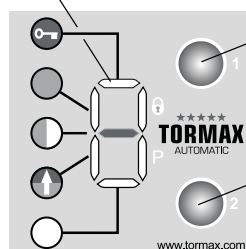
P is shown, ready for programming



Confirm with key 2

4. Entering Parameter Code

Zero appears as first digit of code



Select first code digit with key 1

Confirm with key 2

- Select and confirm the 2nd and 3rd code digit using the same sequence as shown in step 2

Note:

- After the 2nd code digit has been confirmed, the flashing digit shows the set value of the parameter (= third digit of the parameter code). If the value is confirmed the FCP will rapidly flash for 1 sec then display P again.
- By quickly pressing and releasing both keys simultaneously the FCP will return to the set mode.

Time-Out

If no entry is made during 10 s, P is shown again.

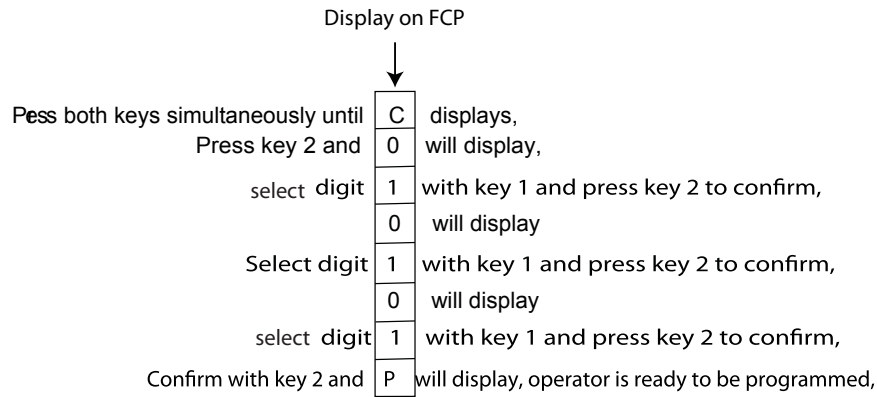
If P is not confirmed during the next 10 s with key 2, the FCP returns to the operating mode.

During the next 10 minutes, pressing both keys simultaneously will cause a direct change to programming level P

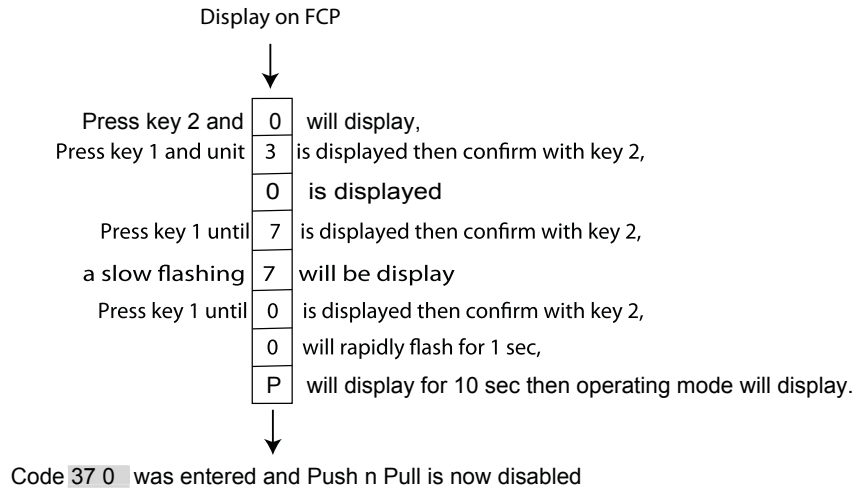
Programming Example

Disable Push n Pull feature with code 37 0 See programming table for other adjustments.

Example 1: Begin by entering the access code 111



Example 2: Enter Code 37 0



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 be protected with the access code, Repeat Example1.

| | | |
|---------------------|--|---|
| T-1288 e | Commissioning | <p style="text-align: center;">★★★★★ TORMAX AUTOMATIC 12859 Wetmore Road SanAntonio, TX 78247 1-888-685-3707 www.tormaxusa.com</p> |
| Area of application | iMotion TN110 Swing Door Drive FW V06.xx | |
| Release | February 2010 | |
| Use | Set Up | |

Precondition

1. All activating and safety devices are to be adjusted in accordance with See T-1262 for input / output designation. the latest ANSI A156.10 or ANSI A156.19 standard.

Note on the content of automatic configuration

| | |
|-----------------------------|--|
| Safetyinputs sf1,2,3,4 | Contact type NC or NO and connection with or without monitoring is automatically detected, safety sensors must not be in detection. |
| Battery unit MCU32-BATU | The functioning module is recognized and saved via the LIN Bus if the module is connected see page 13, operator is powered by BATU in the event of power loss |
| User interface 2 MCU32-USIN | The functioning module is recognized and saved via the LIN Bus if the module is connected as module 1 or module 2 |
| Function Control Panel | The FCP is recognized and saved via LIN Bus if the FCP is connected and coded as shown on page 10. The primary FCP is detected immediately when connected to the LIN Bus input of control as seen on page 10 |
| Reference travelling path | The door looks for the end stops, starting with an automatic closing command or travelling with slow speed depending on the run commands. After detection of both end stops the refernce travelling path is saved. The display shows H63 for the opening motion and H 64 for the closing motion. |
| Spring force | The forces needed (spring and friction) in the opening and closing direction are mapped and amendment are constantly made. If the spring force is subsequently significantly changed , we recommend that a factory reset should be undertaken this will record all aspects of new forces. |

Access Code: " Function control panel will display letter 'c' in this level"

Use code 111 to enter in programming level and FCP will display letter 'P' in this level

Note: Function control panel will time out, if no entry is made within 10 minutes of the last programming entry and technician will be required to enter the access code again to make further adjustments.

Factory Reset:

Enter code 041 to do the factory reset

Programming of the Control System

The sequence of the programming needs to be observed. Damage to the system may result if disregarded The area of the door leaves has to be safeguarded during the programming process. The control system uses an H to indicate which program step is needed next.

1. Operator Type (H11 displayed on FCP = not yet programmed)

Code 016 for operator "iMotion TN 110"

2. Door Leaf Weight (H12 displayed on FCP = not yet programmed)

Program the **code 07..** and corresponding value for the proper estimated door width and weight.

Example:
36" door weighing 882 lb's will have **code 078**.

| | Door width (m) | | | | | |
|--------|----------------|-----|-----|-----|-----|-----|
| | 31" | 36" | 48" | 55" | 63" | 71" |
| Weight | Code 07.. | | | | | |
| 110 lb | 1 | 1 | 1 | 2 | 3 | 3 |
| 220 lb | 1 | 2 | 3 | 4 | 5 | 6 |
| 330 lb | 2 | 3 | 4 | 6 | 8 | 9 |
| 441 lb | 3 | 4 | 6 | 8 | 9 | |
| 551 lb | 3 | 5 | 7 | 9 | | |
| 661 lb | 4 | 6 | 8 | | | |
| 771 lb | 5 | 7 | 9 | | | |
| 882 lb | 5 | 8 | | | | |
| 992 lb | 6 | 9 | | | | |

3. Preload the shaft (H13 will be displayed on FCP = preload not selected yet)

Enter **Code 091** for Spring preload

Note:

After code is entered select the mode to HOLD - OPEN, the door will open 20 degrees then stop, and now change the mode to OFF MODE the door will close to the full closed position.

Enter **Code 090** to terminate the preload procedure

4. Electric Lock Output

Enter **Code: 570** for fail secure **Code: 571** for fail safe **Code: 572** turn off the electric lock

We recommend to turn off the electric lock as it is a default setting with the operator and the door does not have electric lock installed on it.

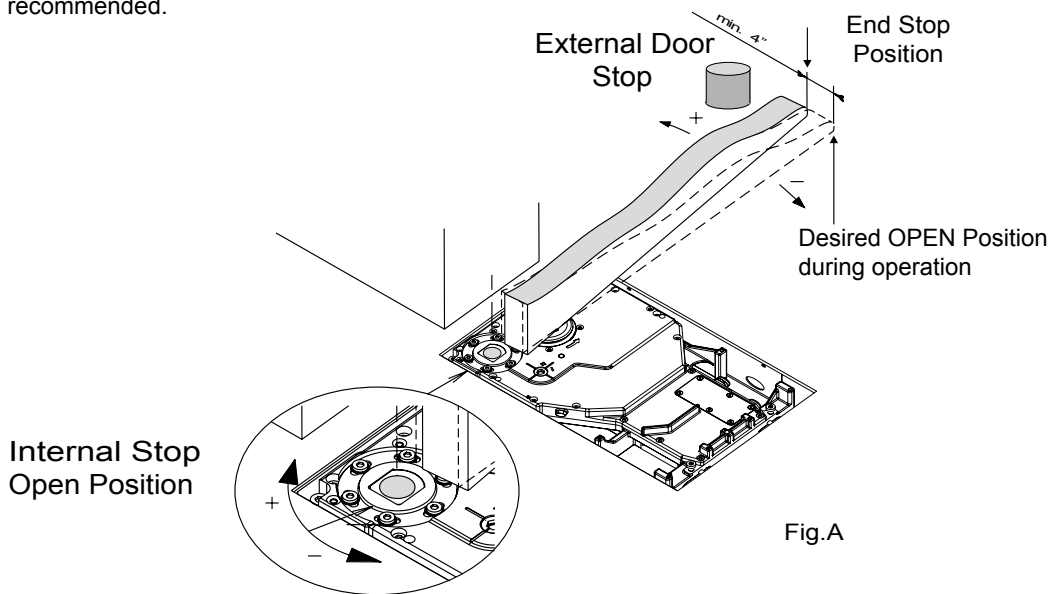
5. Automatic Configuration H14 = automatic configuration not yet completed

Enter **Code: 021** for the automatic configuration of:

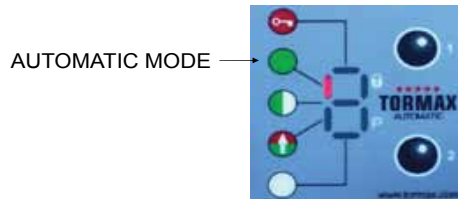
- Safety inputs A sf1, A sf2, B sf3 and B sf4
When Code 021 is entered the contact type will be automatically detected (NO or NC), make sure sensors are not in detection.
- Battery unit MCU32-BATU

6. Teach - in

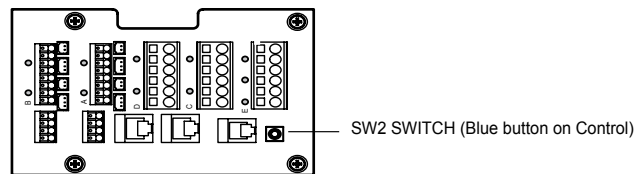
- 1) Adjust the internal door stop as shown in Fig. A to achieve 90° door open position, and put the external door stop as recommended.



- 2) Change the Operating Mode to Automatic Mode (Solid Green Circle on FCP)



- 3) Press and release SW2 in Automatic Operating Mode, the first cycle will be slow as door will look for a positive stop to determine its full open position then complete several opening cycles until learning code(H 66) is no longer displayed on FCP. The learning procedure lasts between 5 - 30 cycles.

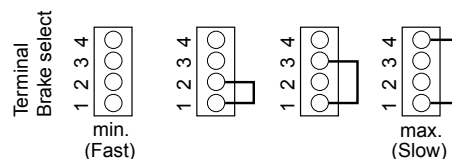


7. Further Functions and Parameters

See the programming table for other adjustments and functions.

8. Brake Force with No Power

Open the door with no power and use jumper to increase the brake force as shown in figure



Brake force →



Always inspect your equipment to be ANSI A 156.10 or A 156.19 compliant depending on your application.

| | | |
|---------------------|---|---|
| T-1319 e | Application Primary / Secondary | <p style="text-align: center;">★★★★★ TORMAX AUTOMATIC</p> <p>12859 Wetmore Road San Antonio, Tx 78247 1-888-685-3707 www.tormaxusa.com</p> |
| Area of application | iMotion 1301, TN 110 Swing Door Operators | |
| Release | November 2008 | |
| Use | Wiring of 1301 or TN 110 operators as a simultaneous pair | |

Purpose

The purpose of this wiring is to synchronize the 1301 or TN 110 paired operators. The application is suitable for paired operators with or without overlapping door leaves.

Function

The door leaves open at the same time when an activation signal is given (interior sensor, exterior sensor or key switch) or by push- pull on the primary. If the door leaves overlap, the secondary drive (Overlapped leaf) should have a delay(See programming table). The hold open time of both the drives is determined by the primary.

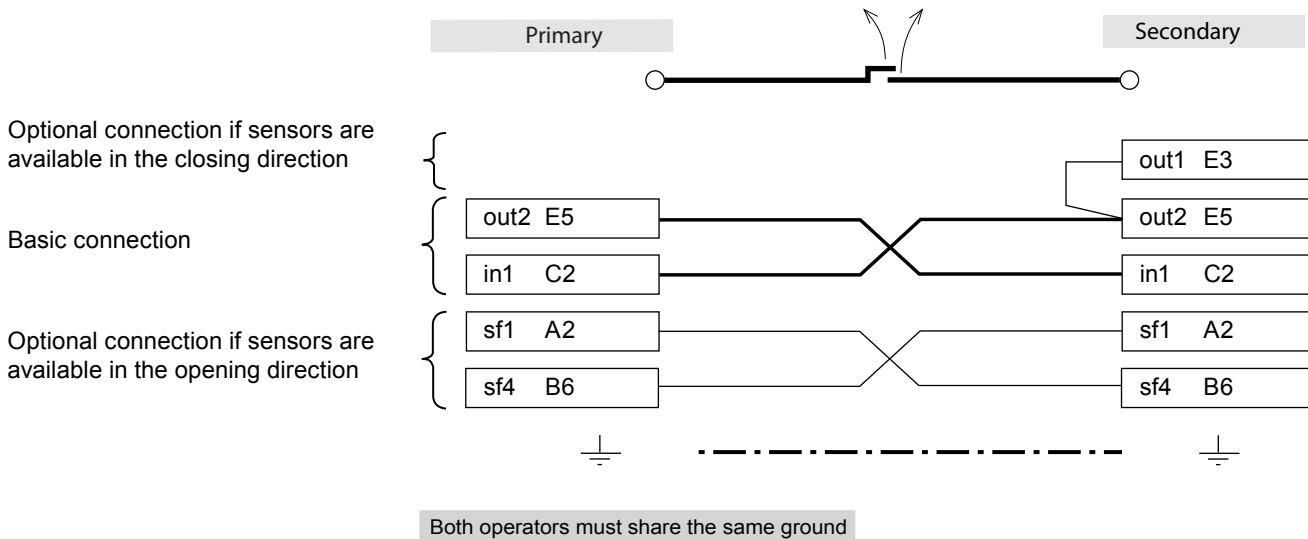
The opening and closing speeds can be individually adjusted to prevent interference between the overlapped door leaf.

The Operating mode is selected by the FCP or 3 position switch located at the primary operator.

When power is lost the closing speeds are controlled by the spring.

Setting 811/812 automatically presets the necessary functions on out2 and sf4 as well as the parameters for the primary secondary application.

Primary / Secondary wiring diagram



| Connections on the Primary operator | Connections on the Secondary operator |
|-------------------------------------|---------------------------------------|
| FCP or 3 position switch | |
| Reactivation A 5-6 | Reactivation A 5-6 |
| Stall, A 1-2 | Stall, A 1-2 |
| Safety Carpet / Mat, B 1-2 | |
| Electric lock, D 1-2 | Electric lock, D 1-2 |

Commissioning and Configuration

After wiring the operators, start-up the systems in the sequence described below.

* See page no. for Access code and Factory reset code

| Primary | Secondary |
|--|---|
| 1. Operator type (H11) Code : 016 | |
| 2. Door leaf Weight (H12) Code : 078 | |
| 3. Preload (H13) (See page 33) | |
| 4. Automatic system configuration when the door is closed (H14) Code : 021 | |
| 5. Manual Teach - In (See page 34) | |
| 6. Carry out a trial opening using SW2 (Complete several opening cycles in AUTOMATIC operating mode until H 66 is no longer displayed on FCP) | |
| 7. Select Operating mode P (Manual Operation) | |
| | 8. Operator type (H11) Code: 016 |
| | 9. Door leaf weight (H12) Code: 078 |
| | 10. Preload (H13) (See Page 33) |
| | 11. Automatic system configuration when the door is closed . Code: 021 |
| | 12. Manual Teach - In (See Page 34) |
| | 13. Carry out a trial opening using SW2 (Complete several opening cycles in AUTOMATIC operating mode until H 66 is no longer displayed on FCP) |
| 14. Code 811 = Primary | 15. Code 812 = Secondary |
| | 16. Set hold open time codes as (100,110 and 120) = 0 |
| 18. Select Operating Mode Automatic 1 to activate | 17. Select Operating mode Automatic 1 before removing FCP |

Revising the Teach-In.

| y r a m i r P | y r a d n o c e S |
|--|--|
| 1. Set Primary to Operating Mode Automatic 1 | |
| 2. Carry out the teach-in (023). The hold-open time applies to both | |
| 3. Carry out a trial opening >button SW2 (Complete several opening cycles in AUTOMATIC operating mode until H 66 goes out (beep) on FCP). | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | 4. Set primary to operating mode P (manual operation) and secure in the open position. |
| | 5. Set the secondary to operating mode AUTOMATIC 1 |
| | 6. Carry out the teach-in. (023) |
| | 7. Carry out a trial opening >button SW2 (Complete several opening cycles in AUTOMATIC operating mode until H 66 goes out (beep) on FCP). |
| | 8. Re-enter code 812. |
| | 9. Set the primary back to operating mode AUTOMATIC 1. |

Note:

The following settings are automatically specified when the codes for Primary and Secondary are set

Code 811: OUT 2 = «open + to open», S4 = opening sensor, Push & Go = switched on, no reduction of closing speed after reversing.

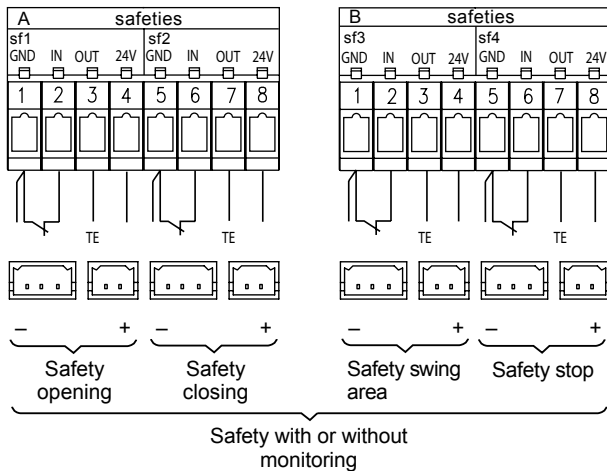
Code 812: OUT2 = «Door, when opening», S4 = opening sensor, Push & Go = switched off, no reduction of closing speed after reversing, hold-open times are zero.

| | | |
|---------------------|--|--|
| T-1262 e | Connection Diagram Terminal Module MCU32-TERM-B | <p style="text-align: center;">★★★★★ TORMAX AUTOMATIC</p> <p>12859 Wetmore Road San Antonio, Tx78247 1-888-685-3707 www.tormaxusa.com</p> |
| Area of application | iMotion TN 110 Swing Door Drive | |
| Release | July 2009 | |
| Use | Input/Output terminal designation | |

Default terminal designation.

Inputs C,D and Outputs E are programmable, see programming table for options.

Safety inputs (non programmable)



TE: Test signal for SMR sensors (Superscan)

Stall - Will stop the door while opening and if no activation signal is being given the door will return to the closed position.

Reactivation - Will reactivate the door when activated and will inhibit after door is fully closed.

Safety - Will safety the door when fully open or fully closed.

Safety stop - Will stop the door in any position.

Activator inside - Activation Signal

Activator outside - Activation Signal inhibits when FCP is in 1 way mode and the door is fully closed.

Key switch Activates the door open in all modes except P(manual mode).

Open - Will hold door open.

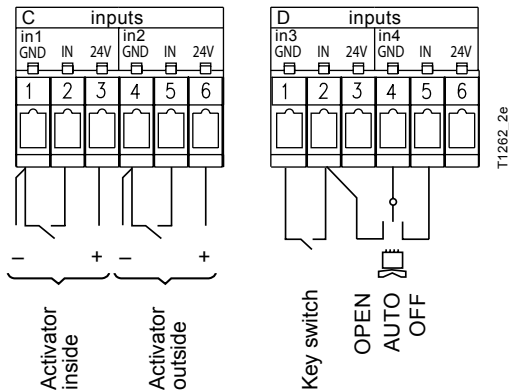
Auto -Automatic operation from both activators.

Off - Inside and Outside sensors are inhibited unless door is activated by Key switch input.

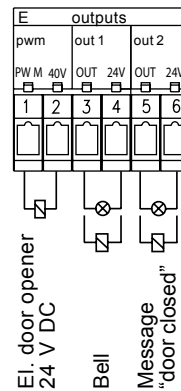
Electric lock - Can power up a maglock or electric strike, 1A max output.

Outputs - Electric Lock had selectable output voltage, see programming table.

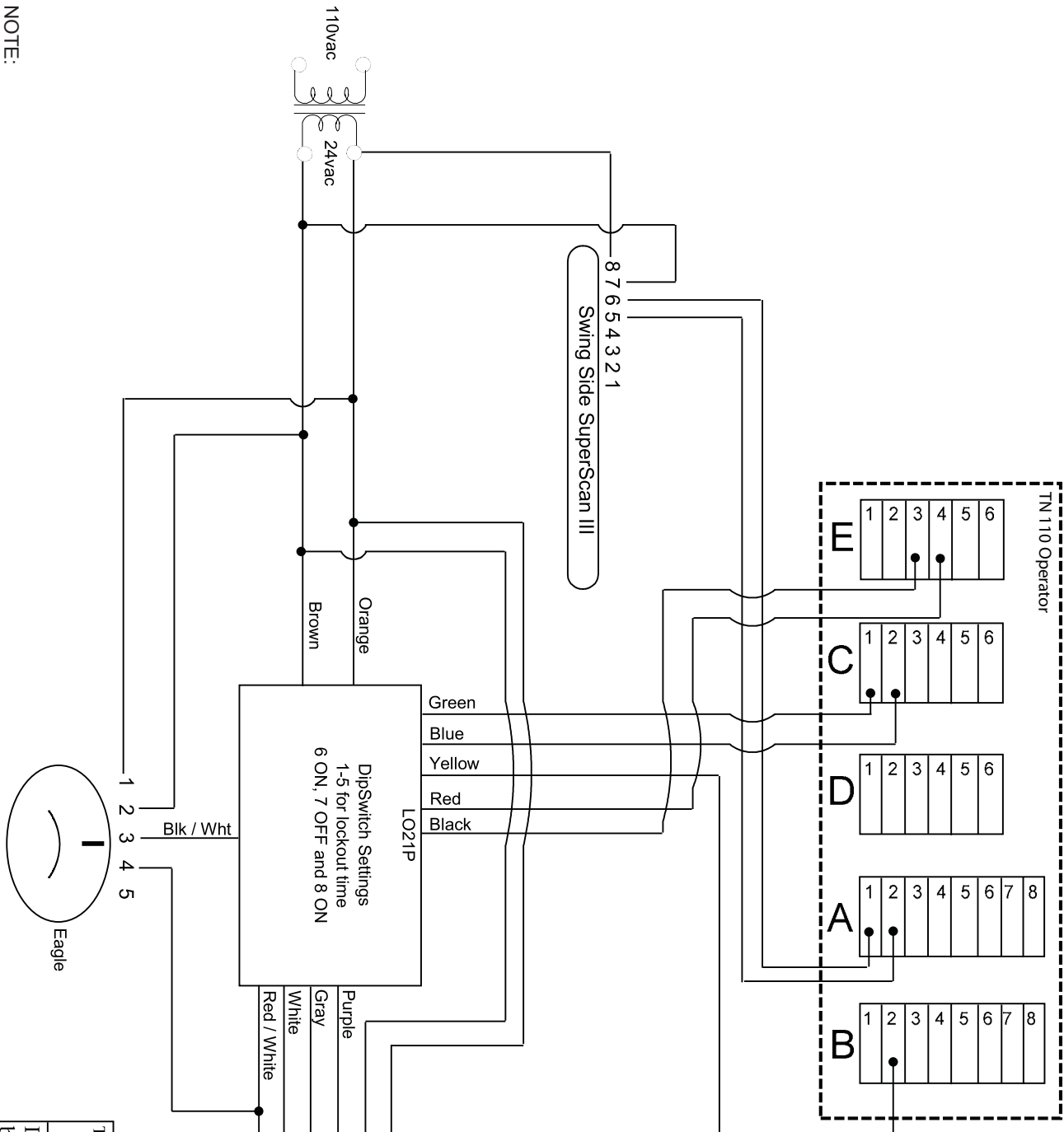
Inputs



Outputs

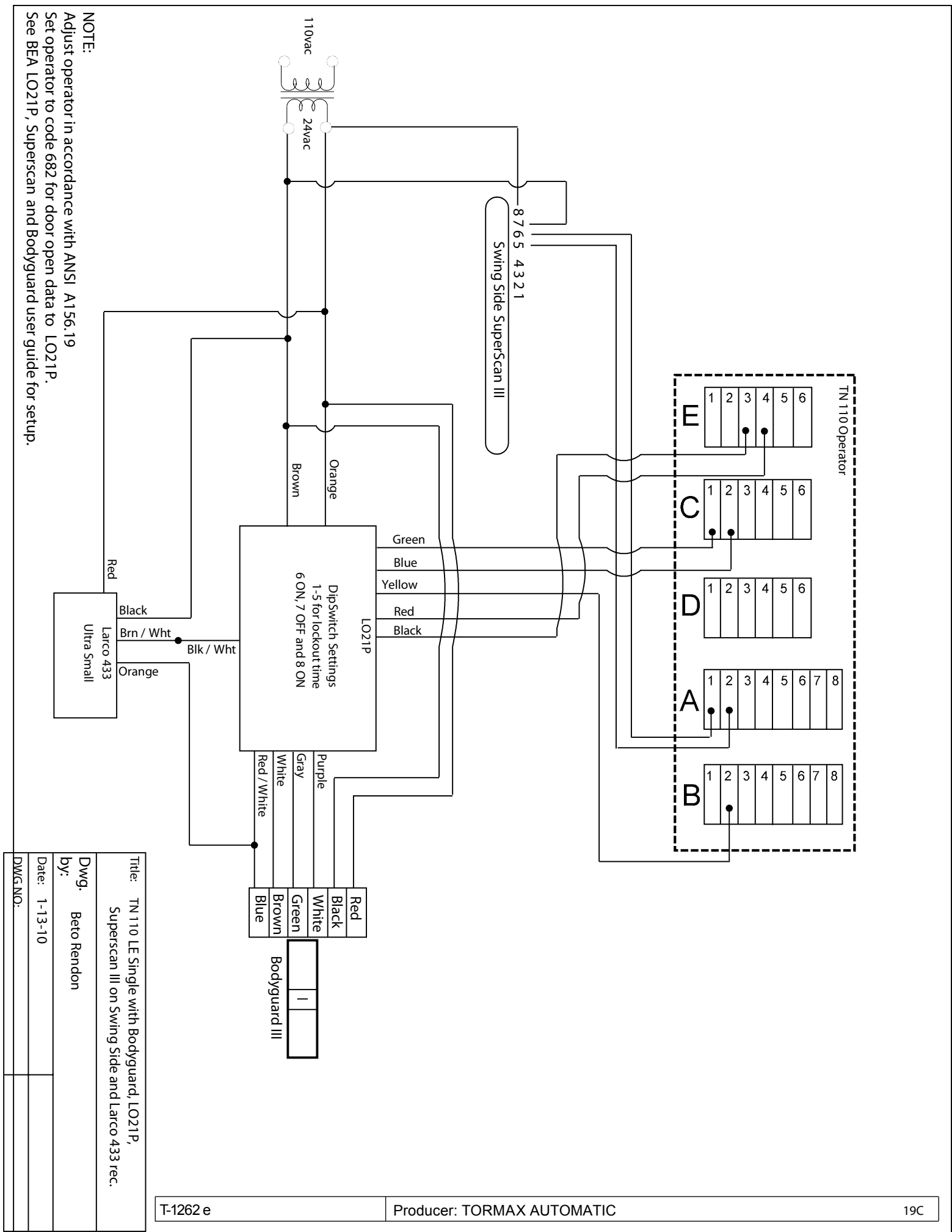


Power output to Sensor is .75 A max.
Power output to lock output is 1 A max.



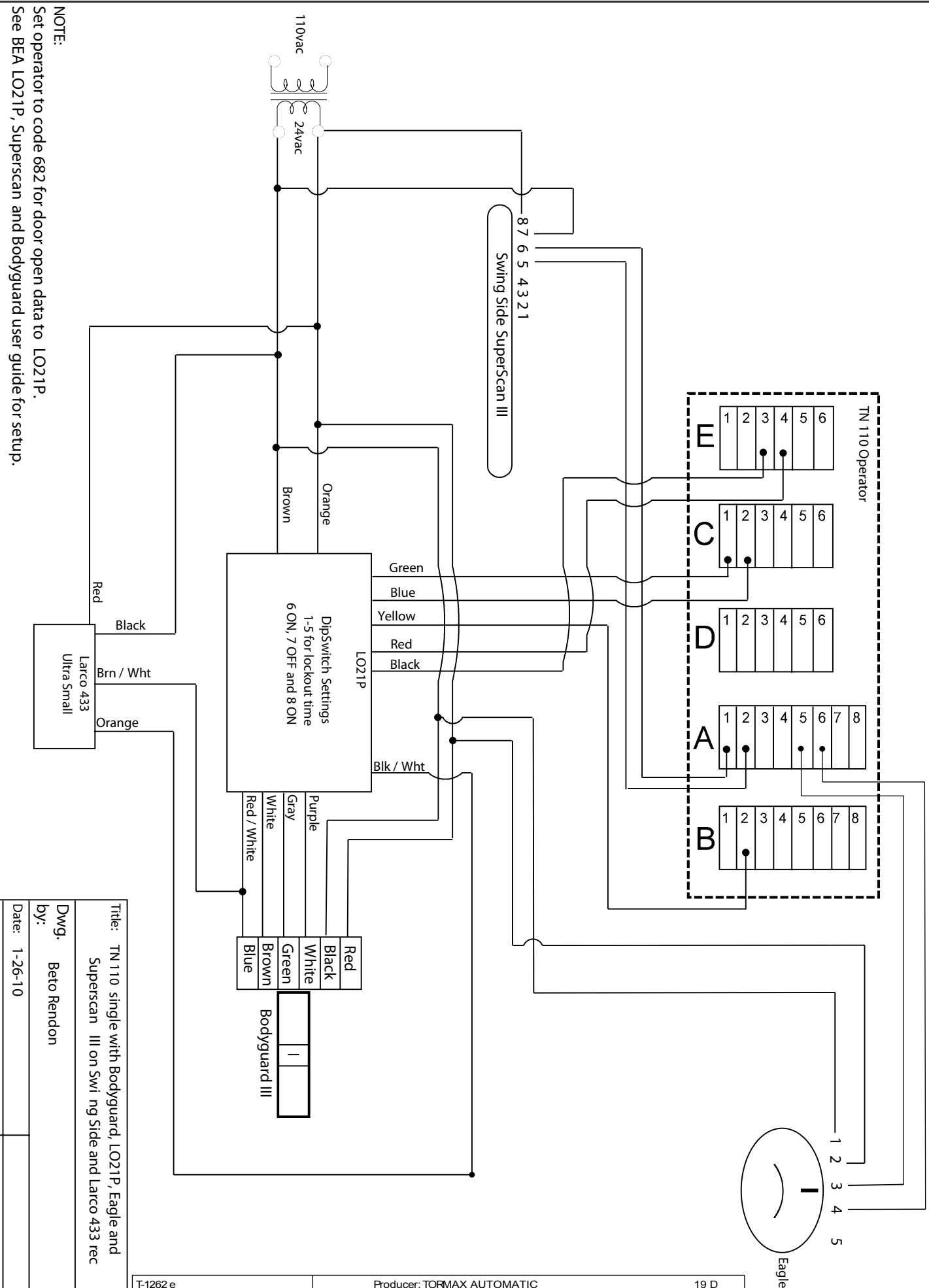
NOTE:
 Set operator to code 682 for door open data to LO21P.
 See BEA LO21P, Superscan and Bodyguard user guide for setup.

| | |
|--|-------------|
| Title: TN 110 single with Bodyguard, LO21P, Eagle and Superscan III on Swing Side. | |
| Dwg. by: | Beto Rendon |
| Date: | 1-7-10 |
| DWG NO: | |



NOTE:
 Adjust operator in accordance with ANSI A156.19
 Set operator to code 682 for door open data to LO21P.
 See BEA LO21P, SuperScan and Bodyguard user guide for setup.

| | |
|----------|---|
| Title: | TN 110 LE Single with Bodyguard, LO21P, SuperScan III on Swing Side and Larco 433 rec. |
| Dwg. by: | Beto Rendon |
| Date: | 1-13-10 |
| DWG. NO. | |



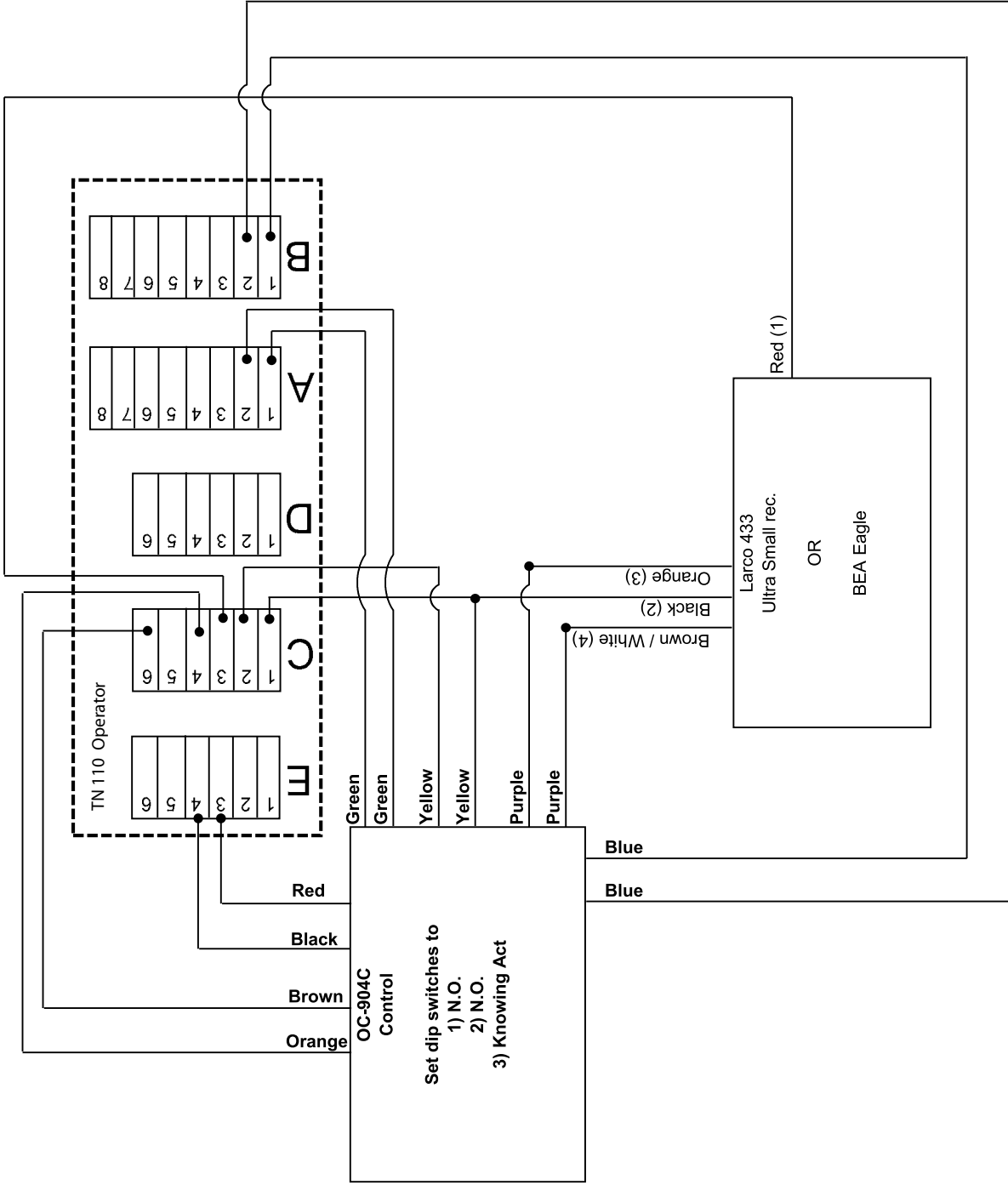
NOTE:
 Set operator to code 682 for door open data to LO21P.
 See BEA LO21P, Superscan and Bodyguard user guide for setup.

Title: TN 110 single with Bodyguard, LO21P, Eagle and Superscan III on Swing Side and Larco 433 rec

Dwg. by: Beto Rendon

Date: 1-26-10

DWG. NO.:



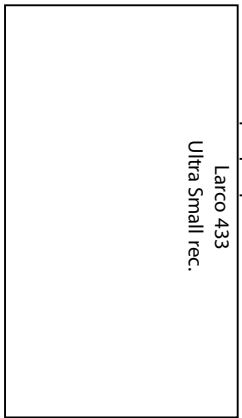
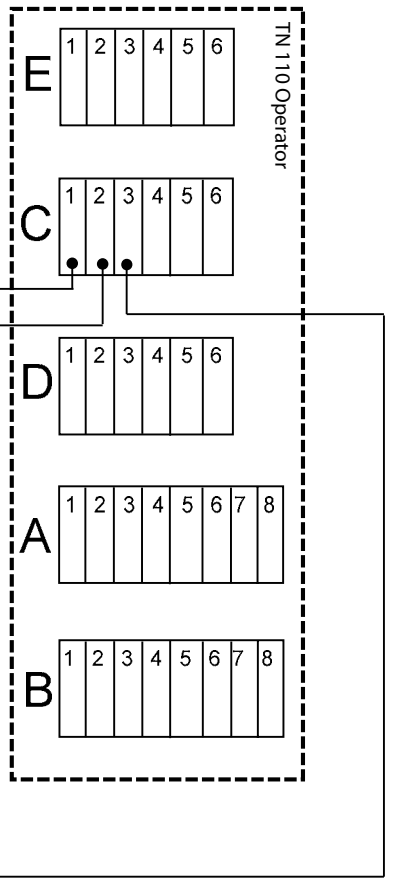
Title: TN 110 Single with Larco 433 rec or Eagle motion sensor and Optex Elite

Dwg. by: Beto Rendon

Date: 3-11-10

DWG.NO:

NOTE:
 Adjust operator in accordance with ANSI A156.10 and / or A156.19
 Set operator to code 682 for door open data to Elite.
 If using a BEA Eagle motion sensor wire as number in ().



Larco 433
Ultra Small rec.

Red

Brown / White
Black
Orange

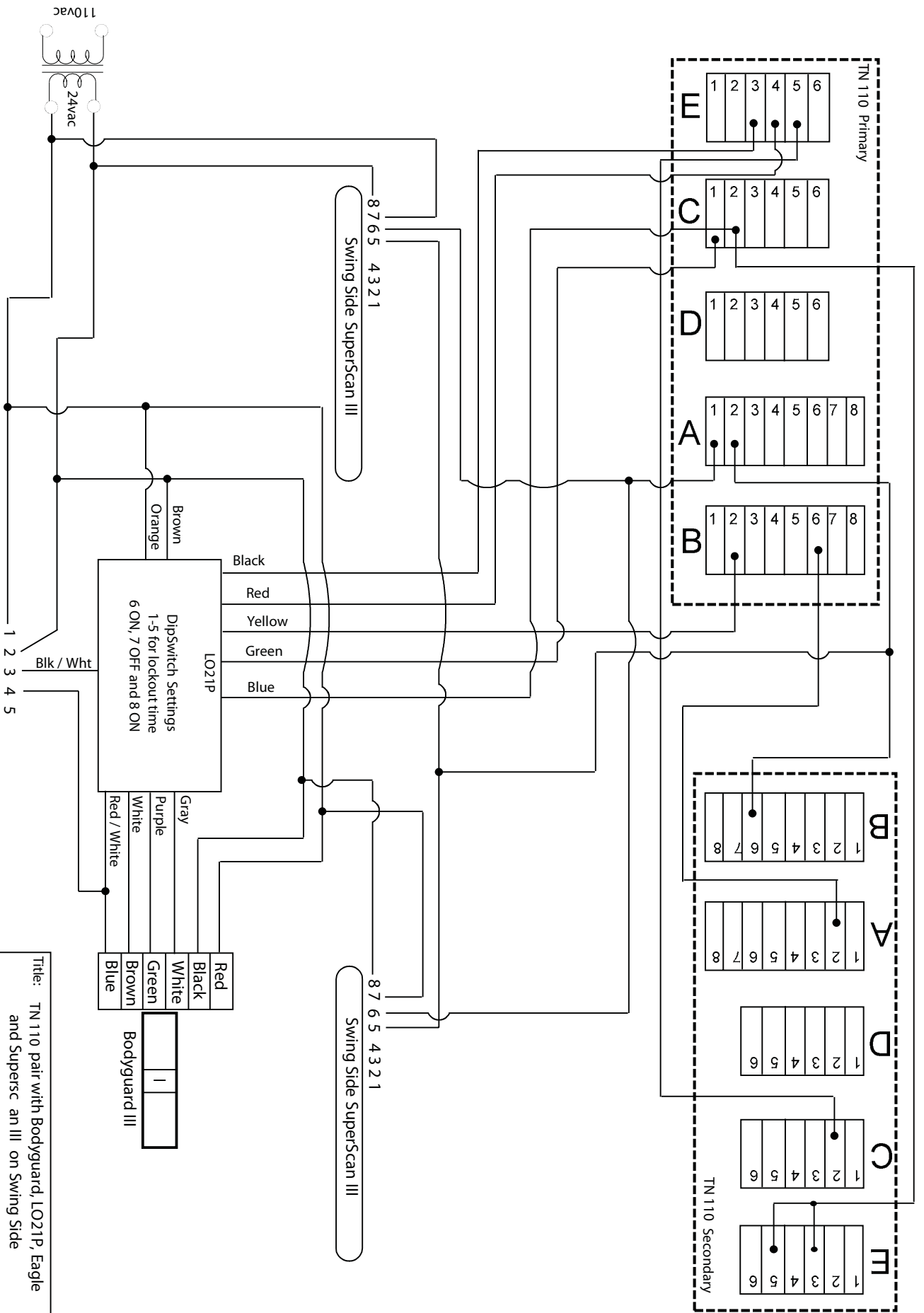
NOTE:
Adjust operator in accordance with ANSI A156.19

Title: TN 110 LE Single with Larco 433 rec.

Dwg. by: Beto Rendon

Date: 1-18-10

DWG. NO.



NOTE:
 See page 23a and 23b for Primary / Secondary setup.
 Set Primary operator to code 682 for door open data to LO21P.
 See BEA LO21P, Superscan and Buddyguard user guide for setup.

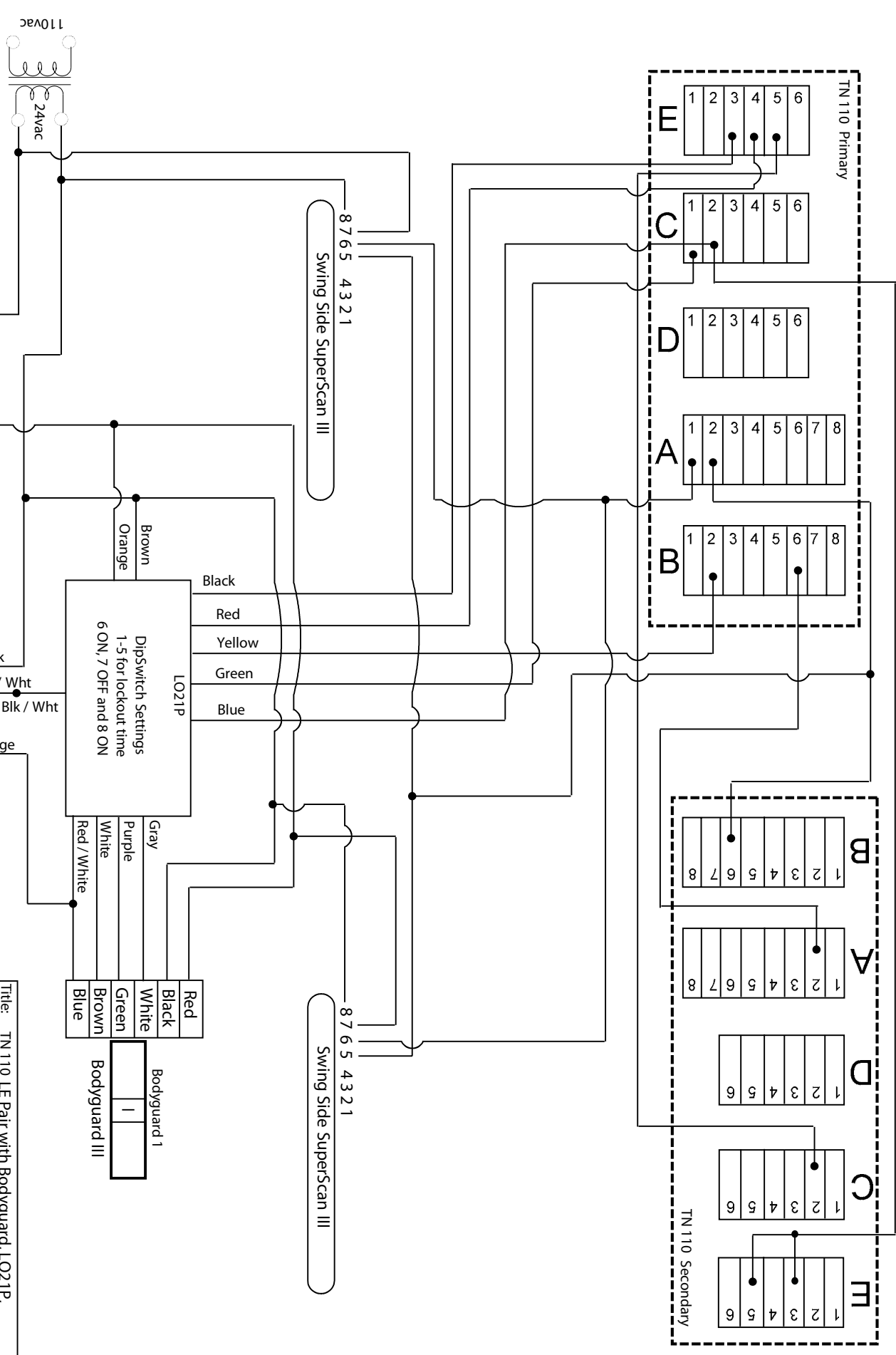


Title: TN 110 pair with Buddyguard, LO21P, Eagle
 and Supersc an III on Swing Side

DWG. by: Beto Rendon

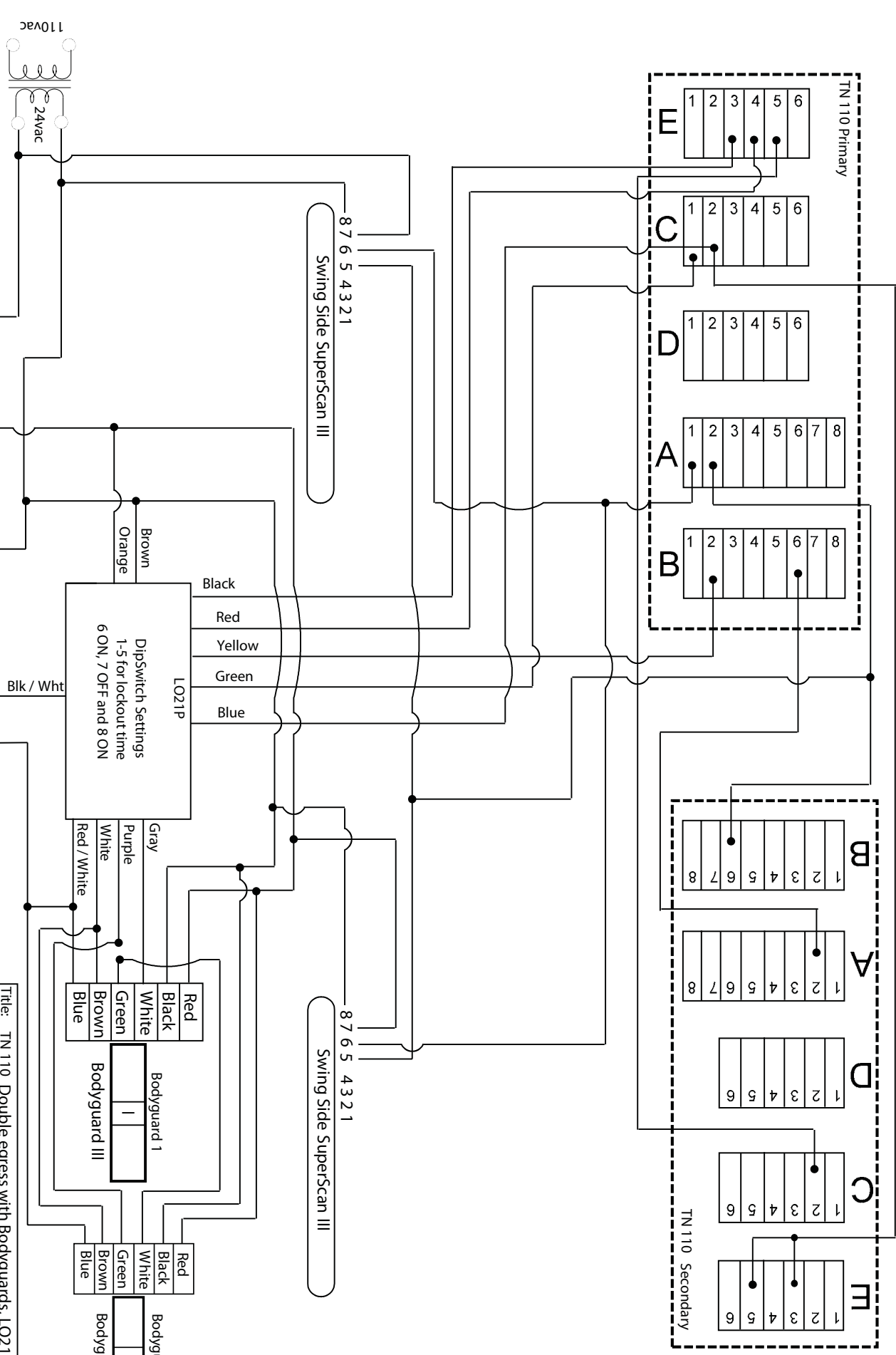
Date: 1-7-10

DWG. NO.



NOTE:
 See page 23a and 23b for Primary / Secondary setup
 Adjust operators in accordance with ANSI A156.19
 Set Primary operator to code 682 for door open data to LO21P.
 See BEA LO21P, Superscan and Bodyguard user guide for setup.

| | |
|----------|---|
| Title: | TN 110 LE Pair with Bodyguard, LO21P, Superscan III on Swing Side and Larco 433 rec |
| DWG. by: | Beto Rendon |
| Date: | 1-7-10 |
| DWG NO.: | |



NOTE:
 See pages 23a and 23b for Primary / Secondary setup
 Adjust operators in accordance with ANSI A156.19
 Set Primary operator to code 682 for door open data to LO21P.
 See BEA LO21P, Superscan and Bodyguard user guide for set up

Red
 Brown / Wht
 Com
 Orange
 NO
 Larco 433
 Ultra Small
 If the Larco receiver is not being used wire Com and NO as noted.

LO21P
 Dipswitch Settings
 1-5 for lockout time
 6 ON, 7 OFF and 8 ON

Red
 Black
 White
 Green
 Brown
 Blue

Bodyguard 1
 Bodyguard 2
 Bodyguard 3

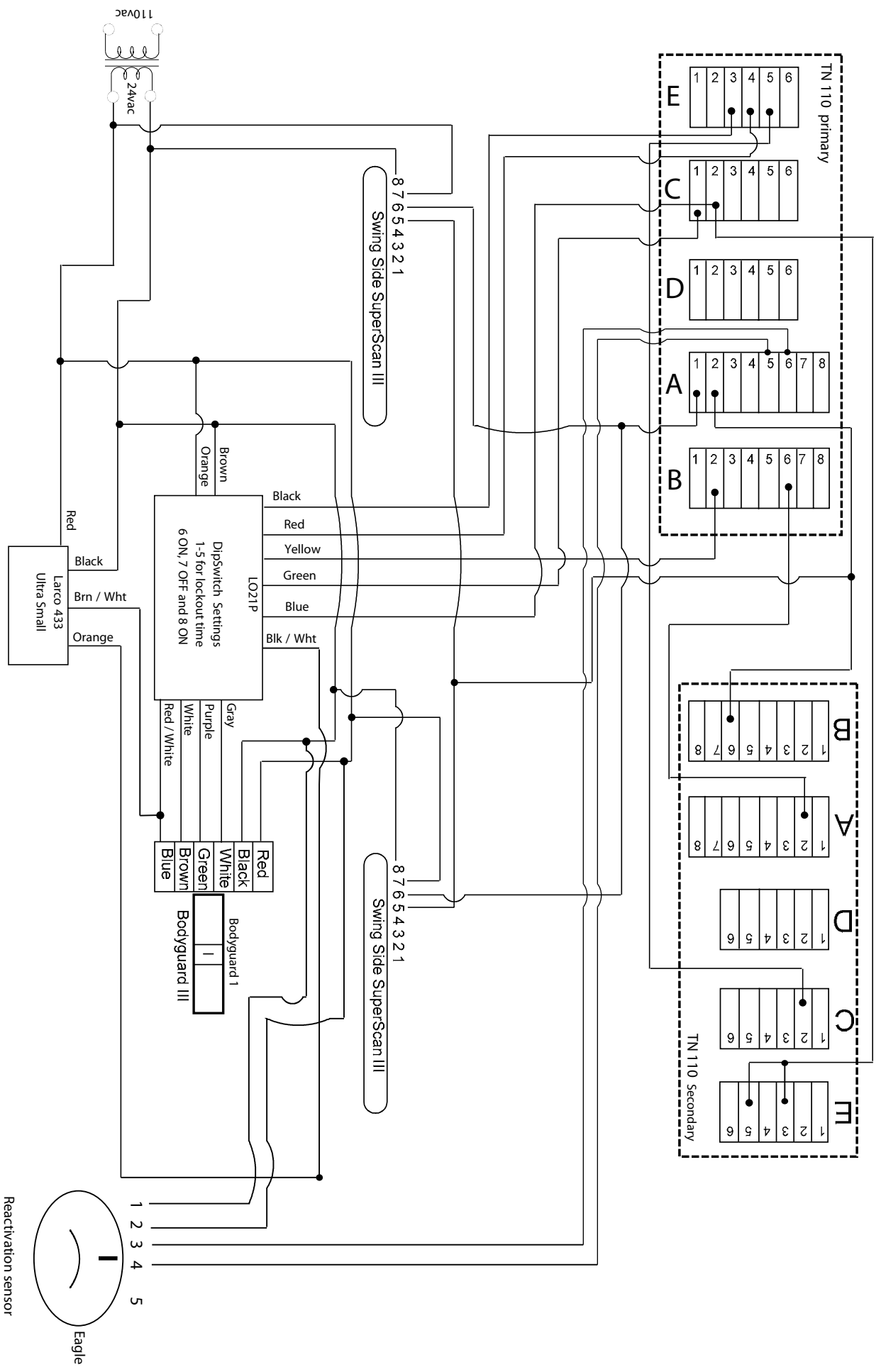
Red
 Black
 White
 Green
 Brown
 Blue

Title: TN 110 Double egress with Bodyguards, LO21P,
 Larco 433 and Superscan III on Swing Side

Dwg. by: Beto Rendon

Date: 1-7-10

DWG NO.:



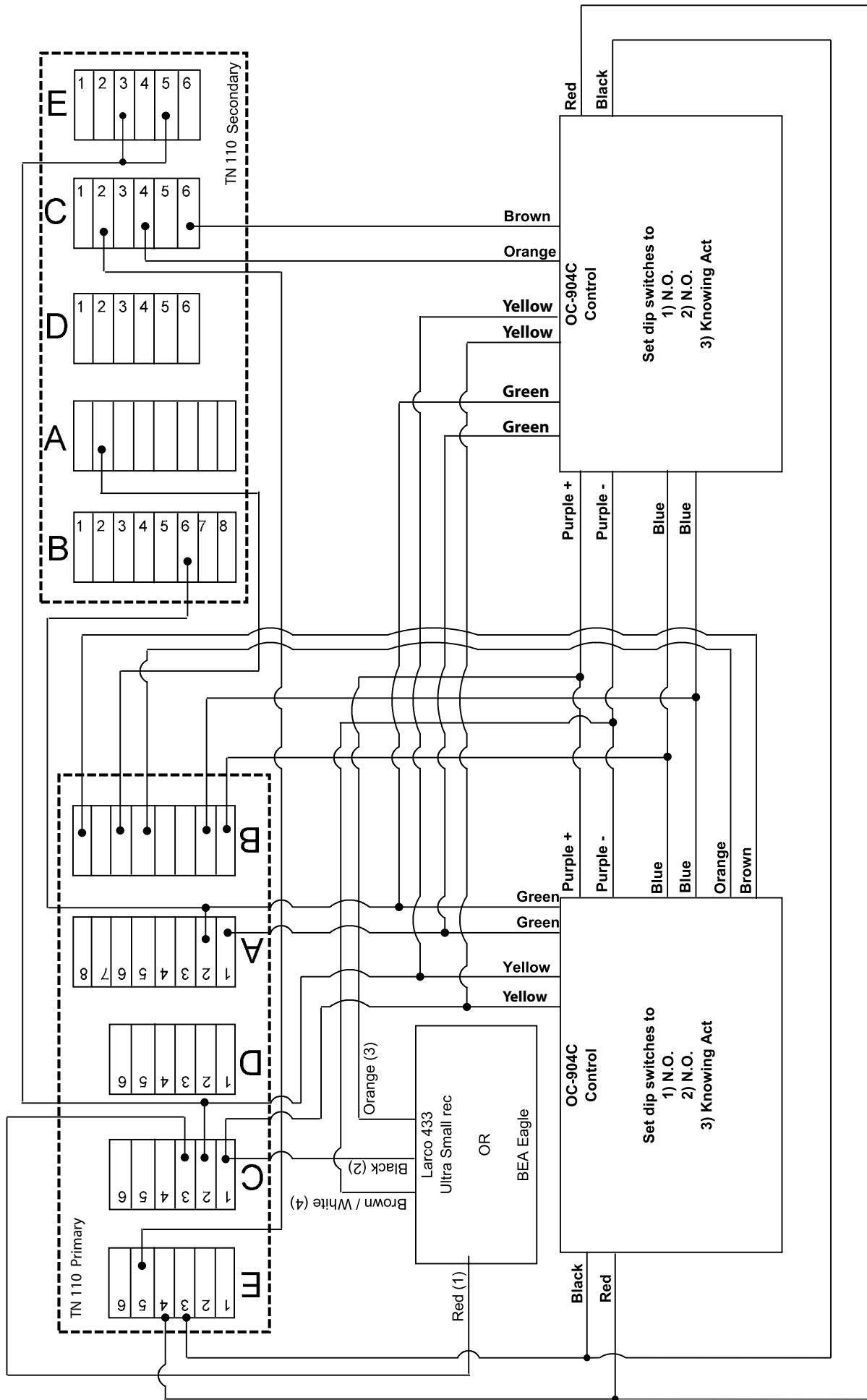
NOTE:
See page 23a and 23b for Primary / Secondary setup
Set Primary operator to code 682 for door open data to LO21P.
See BEA LO21P, Superscan and Buddyguard user guide for setup.

Title: TN 110 Pair with Bodyguard, LO21P,
Superscan III on Swing Side, Eagle as reactivation
sensor and Larco 433 rec

Dwg. by: Beto Rendon

Date: 1-22-10

DWG.NO.



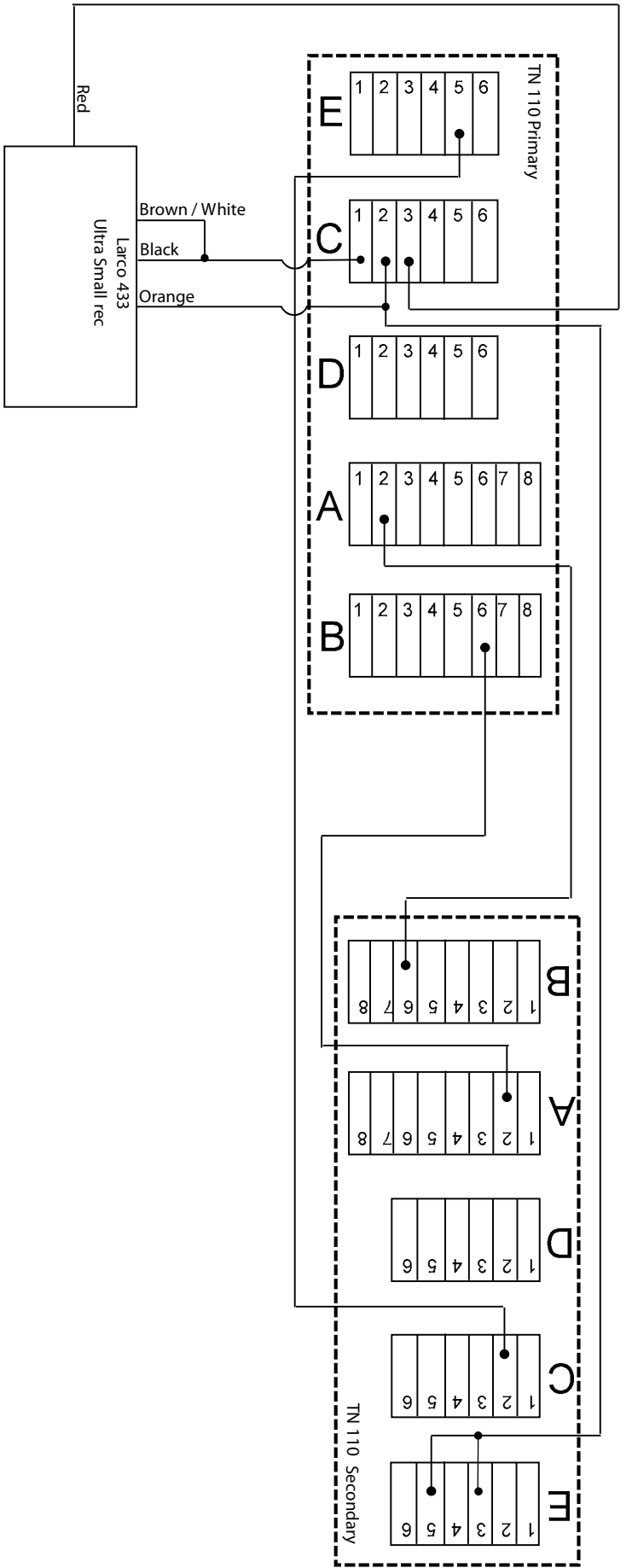
Title: TN 110 Pair with Larco 433 rec or Eagle motion sensor and Optex Elite

Dwg. by: Beto Rendon

Date: 3-11-10


DWG NO:

Note:
 Adjust operators in accordance with ANSI A156.10 and / or A156.19
 Set Primary operator to code 682 for door open data
 If using a BEA Eagle motion sensor wire as number in ()




NOTE:
 See pages 23a and 23b for Primary / Secondary setup
 Adjust operators in accordance with ANSI A156.19

| | |
|---|-------------|
| Title: TN 110 LE Pair with Larco 433 rec. | |
| Dwg. by: | Beto Rendon |
| Date: | 1-18-10 |
| DWG. NO.: | |

| | | |
|---------------------|---|---|
| | Programming Table |  12859 Wetmore Road San Antonio, Tx78247 1-888-685-3707 www.tormaxusa.com |
| Area of application | iMotion TN 110 FW-Version V06.xx | |
| Download | 08 April 2010 | |
| Use | Planning, Start-Up, Maintenance | |


| Code | Function | Note |
|----------|---|--|
| 01 6 | Door operator type iMotion TN110 | |
| 02 1 | Automatic configuration (SW2: till 1. sign) | Contains 030...7 |
| 02 3 | Start Teach-In 1 (AUTO 1) | |
| 02 4 | Start Teach-In 2 (AUTO 2) | |
| 03 0 | --Detect reference way / Delete Teach-In 1 & 2 | |
| 03 1 | --Detecting and storing of safety facilities 1-4 (SW2: till 3.sign) | Safety inactive |
| 03 2 | --Detecting and storing MCU Lock Module 1 | Check coding on module and code 572 |
| 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 force | Display H66 |
| 03 7 | --Detecting and storing of MCU User interface 2 | Check coding on module |
| 03 8 | Terminal Module: Detecting and storing of "in 1-4" | Pulse generators inactive |
| 03 9 | I/O Module 1: Detecting and storing of "in 1-4" | 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) |
| 07 0...9 | --Door mass | |
| 09 0 | End procedure "Installation position" | |
| 09 1 | Spring closing, insallation position 10° | End with code 090 |
| 10 0...9 | Hold-open time of activator in mode of op. AUTO1 | |
| | 0 1 2* 3 4 5 6 7 8 9 | code |
| | 0 0.5 1 2 3 5 10 20 30 60 | sec. |
| 11 0...9 | Hold-open time of activator in mode of op. AUTO2 | |
| | 0 1 2* 3 4 5 6 7 8 9 | code |
| | 0 0.5 1 2 3 5 10 20 30 60 | sec. |
| 12 0...9 | Hold-open time of key switch | |
| | 0 1 2 3 4* 5 6 7 8 9 | code |
| | 0 0.5 1 2 3 5 10 20 30 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 duration | 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. |
| 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. |

* = Default value

| | | |
|---------------------|--|--|
| | Programming Table |  12859 Wetmore Road San Antonio, Tx 78247 1-888-685-3707 www.tormaxusa.com |
| Area of application | iMotion TN110 FW-Version V06.xx | |
| Download | 08 April 2010 | |
| Use | Planning, Start-Up, Maintenance | |


| Code | Function | Note |
|--------------------|---|---|
| 20 0...9 | Speed opening / Speed limit opening | Limitation only valid for "Teach-In 1 + 2" |
| | 0 1 2 3 4* 5 6 7 8 9 10 20 30 40 50 60 70 80 90 100 | code degree / s |
| 21 0...9 | Speed closing* / Speed limit closing | Limitation only valid for "Teach-In 1 + 2" |
| | 0 1 2 3 4* 5 6 7 8 9 8 16 24 32 40 48 56 64 72 80 | code degree / s |
| 22 0...9 | Homing-in-speed close, minimal | Angle see 42x |
| | 0* 1 2 3 4 5 6 7 8 9 2 3 5 8 12 17 23 30 38 47 | Code Degree/s |
| 23 0 | Speed limit at manual opening | Limitation according to course of movement |
| 23 1...9 3* | Speed limit at manual opening | 1 = slow |
| 24 0* | Speed limit at manual closing | Limitation according to course of movement |
| 24 1...9 | Speed limit at manual closing | 1 = slow |
| 26 0...9 2* | Breaking distance opening | Non-applicable after Teach, 0 = short |
| 28 0...9 4* | Breaking distance closing | Non-applicable after Teach |
| 30 0...9 | Motor force opening | Net force on door edge |
| | 0 1 2 3 4 5 6 7* 8 9 10 20 30 40 50 60 70 80 90 100 | code % |
| 31 0...9 | Motor force closing | Net force on door edge |
| | 0 1* 2 3 4 5 6 7 8 9 10 20 30 40 50 60 70 80 90 100 | code % |
| 33 0...9 | Holding closed force | Net force on door edge > reduce if H73 after 10s! |
| | 0* 1 2 3 4 5 6 7 8 9 0 5 7 9 11 14 19 24 32 42 | code Nm |
| 35 0...9 5* | Reversing sensitivity opening | 9 = max |
| 36 0...9 5* | Reversing sensitivity closing | 9 = max |
| 37 0...9 7* | Push-and-Go sensitivity | 9 = max, 0 = off |
| 41 0...9 | Opening width reduced | Non-applicable after Teach |
| | 0 1 2 3 4 5 6* 7 8 9 10 20 30 40 50 60 70 80 90 100 | code % |
| 42 0...9 | Angle for homing in speed | Homing in speed see 22x |
| | 0* 1 2 3 4 5 6 7 8 9 0 1 2 3 5 7 10 15 20 30 | code degre |
| 51 0* | Operating mode return to last setting on Function Control Panel | after terminal operating mode |
| 51 1...6 | Operating mode return to mode of op. ... | after terminal operating mode |
| | 1 2 3 4 5 6 0 0 0 OFF AUT1 AUT2 EXIT OPEN MAN. | code Mode of Operation |
| 51 7 | No operating mode return | after terminal operating mode |
| 55 0 | Locks in operating mode OFF | Only for electric strikes with 100% Duty ratio |
| 55 1 | Locks in operating mode OFF, EXIT | Only for electric strikes with 100% Duty ratio |
| 55 2* | Locks in operating mode OFF, AUTO 1+2, EXIT, P | |
| 57 0* | Electric strike: current-free locked | |
| 57 1 | Electric strike: current-free unlocked | Only for electric strikes with 100% Duty ratio |
| 57 2 | Without electric strike | |
| 57 3 | Electric strike switch-on range 100% | Only for electric strikes with 100% Duty ratio |
| 58 0...9 | Delay time to open | Only valid if electric strike has to unlock |
| | 0* 1 2 3 4 5 6 7 8 9 0 0.2 0.4 0.8 1.2 1.6 2 2.5 3 4 | code sec. |
| 59 1...4 | Voltage Output | |
| | 0 1 2 3 4* 0 0 0 0 0 6 9 12 15 24 | code V DC |
| 60 0 | in1: Operation mode OFF | Contact NO. NC detect with code 038. |

* = Default value

| | | |
|---------------------|---|--|
| | Programming Table |  12859 Wetmore Road San Antonio, TX 78247 1-888-685-3707 www.tormaxusa.com |
| Area of application | iMotion 1401 FW-Version V06.xx | |
| Download | 08 April 2010 | |
| Use | Planning, Start-Up, Maintenance | |

| Code | Function | Note |
|-------------|---|--|
| 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 detect with code 038. |
| 60 4 | in1: Activator outside | Contact NO. NC detect with code 038. |
| 60 5 | in1: Key switch | Contact NO. NC detect with code 038. |
| 60 6 | in1: Emergency open except in OFF | Contact NO. NC detect with code 038. |
| 60 7 | in1: Emergency open in all modes of op. | Contact NO. NC detect with code 038. |
| 60 8 | in1: Emergency close (with locking) | Contact NO. NC 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 NO. NC detect with code 038. |
| 62 0...9 5* | in3: Same choice of functions as on "in1" | Contact NO. NC detect with code 038. |
| 63 0...9 0* | in4: Same choice of functions as on "in1" | Contact NO. NC 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 2* | sf2: Same choice of functions as on "sf1" | Type of connection detect with code 031 |
| 66 0...d 4* | sf3: Same choice of functions as on "sf1" | Type of connection detect with code 031 |
| 67 0...d 5* | 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 error" | |
| 68 4 * | out1: Bell | |
| 68 5 | out1: Message "Mode of operation OFF" | |
| 68 7 | out1: Battery in service | |
| 68 9 | out1: Message "door 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 | Contact NO. NC detect with code 039. |
| 70 1 | I/O Module 1: in1: Operation mode OFF | Contact NO. NC detect with code 039. |
| 70 2 | I/O Module 1: in1: Operation mode AUTOMATIC 1 | Contact NO. NC detect with code 039. |
| 70 3 | I/O Module 1: in1: Operation mode AUTOMATIC 2 | Contact NO. NC detect with code 039. |
| 70 4 | I/O Module 1: in1: Operation mode EXIT | Contact NO. NC detect with code 039. |
| 70 5 | I/O Module 1: in1: Operation mode OPEN | Contact NO. NC detect with code 039. |
| 70 6 | I/O Module 1: in1: Operation 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: Mode of op. OFF | |
| 74 2 | I/O Module 1: out1: Mode of op. AUTOMATIC 1 | |
| 74 3 | I/O Module 1: out1: Mode of op. AUTOMATIC 2 | |
| 74 4 | I/O Module 1: out1: Mode of op. EXIT | |
| 74 5 | I/O Module 1: out1: Mode of op. OPEN | |

* = Default value

| | | |
|---------------------|--|---|
| | Programming Table |  12859 Wetmore Road San Antonio, Tx78247 1-888-685-3707 www.tormaxusa.com |
| Area of application | iMotion TN110 FW-Version V06.xx | |
| Download | 08 April 2010 | |
| Use | Planning, Start-Up, Maintenance | |

| Code | Function | Note |
|-------------|---|---|
| 74 6 | I/O Module 1: out1: Mode of op. MANUAL | |
| 74 7 | I/O Module 1: out1: "Door opens" | |
| 74 8 | I/O Module 1: out1: "door opens + door open" | |
| 74 9 | I/O Module 1: out1: "Door closes" | |
| 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 | Function Control Panel: in1: No function | |
| 78 1 * | Function Control Panel: in1: Panel lock | Contact NO |
| 78 2 | Function Control Panel: in1: Mode of op. OFF | Contact NO |
| 78 3 | Function Control Panel: in1: Mode of op. AUTOMATIC 2 | Contact NO |
| 78 4 | Function Control Panel: in1: Mode of op. EXIT | Contact NO |
| 78 5 | Function Control Panel: in1: Mode of op. OPEN | Contact NO |
| 78 6 | Function Control Panel: in1: Mode of op. MANUAL | Contact NO |
| 78 7 | Function Control Panel: in1: Emergency closing | Contact NO |
| 78 8 | Function Control Panel: in1: Emergency opening in all op. modes | Contact NO |
| 78 9 | Function Control Panel: in1: Key switch | Contact NO |
| 79 0...9 0* | Function Control Panel: in 2: Same choice as on User interface 1: in1 | |
| 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 | |
| 81 0 * | Single door | |
| 81 1 | Primary | Wiring diagram see T-1319 |
| 81 2 | Secondary | Wiring diagram see T-1319 |
| 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 | |
| 85 0 * | No airlock function | |
| 89 2 or 3* | Monitoring: 0=none, 1=only potentiometer, 2=only encoder, 3=both | Please ask TORMAX Support before using! |

* = Default value



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