TORMAX
AUTOMATIC

(V - 6.17)

Installation and Operating Manual

iMotion ®1301 Swing Door Operator

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CONTENTS

The companies Landert Motoren AG and Landert GmbH are certified acoording to ISO 9001

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 correspond 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 AUTOMATIC 1

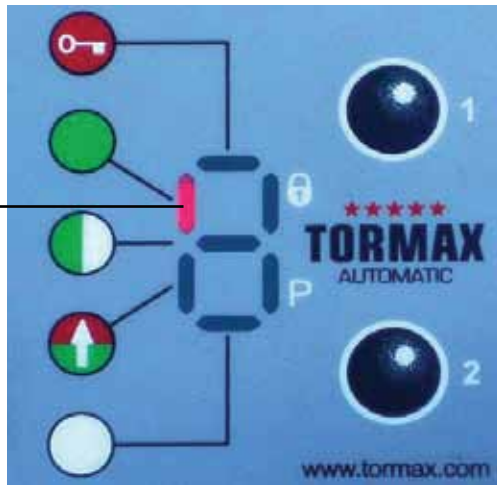
Operating mode AUTOMATIC 2

Operating mode EXIT

Operating mode OPEN

P Operating mode P Manual Operation

Led indicates mode



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

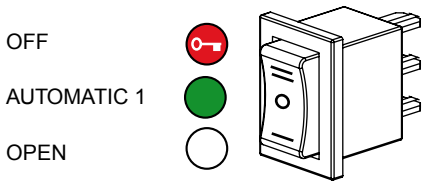
The automatic door system must be taken out of service as soon as faults or deficiencies occur that may impair the safety of people.

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

For information relating to fault indication and trouble shooting see chapter 8.

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.



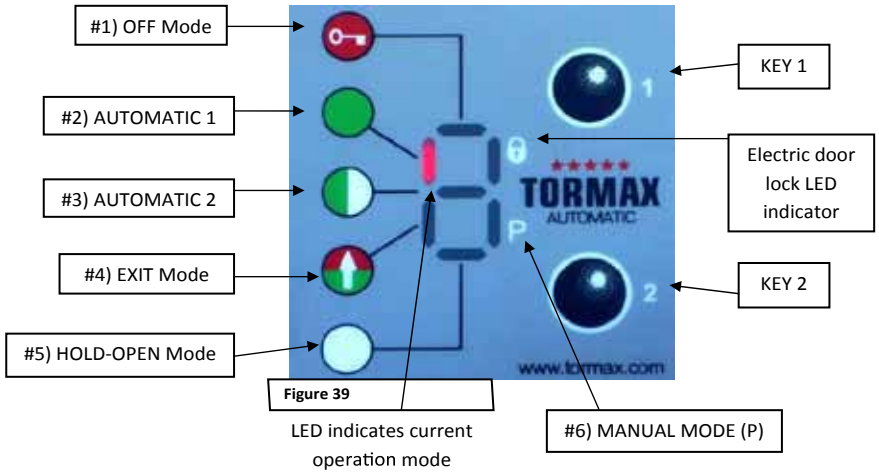


Figure 39

1.  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 activeted. The operator will cycle if a signal is sent to the key switch input.

2.  Automatic 1 Mode

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

3.  Automatic 2 Mode

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

4.  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.

5.  HOLD - OPEN Mode

Hold the door system open.

6.  MANUAL OPERATION (P) Mode

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

The technician will clearly explain and demonstrate the modes of operation.

3.2 Electric Lock Output

The lock output is deactivated when the FCP in 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.

COMMISSIONING

Before switching on the main power supply:

- Unlock any mechanical locks.
- Make sure the door swing path is clear.
- Switch on main voltage and select the operating mode, i.e. AUTOMATIC

The first motion after switching on mains supply for the first time takes place slowly in closing direction with indication of H62. Thereby, the control system checks the position of the door leaf. In this respect care should be taken to ensure that the door can close fully.

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 should now put in operation

T-1248 e	Programming with Function Control Panel (FCP)	★★★★★ TORMAX AUTOMATIC 12859 Wetmore Road SanAntonio, TX 78247 1-888-685-3707 www.tormaxusa.com
Area of application	iMotion 1301, 1401 Operators and 2301, 2401 Drives	
Release	July 2008	
Use	FCP operation and function	

Contents

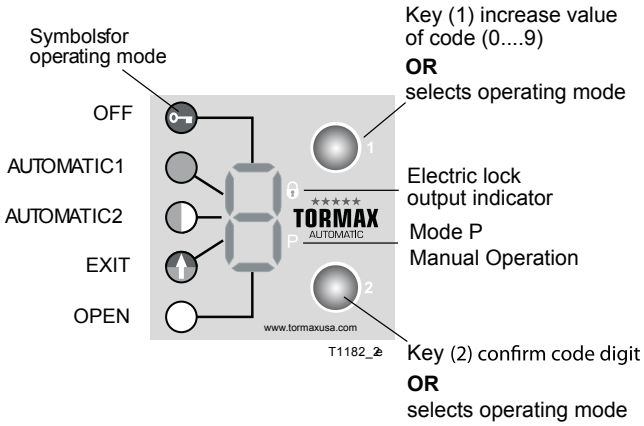
Function of (FCP) MCU32 User Interface

The FCP has 2 function levels

– Select operateing 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)

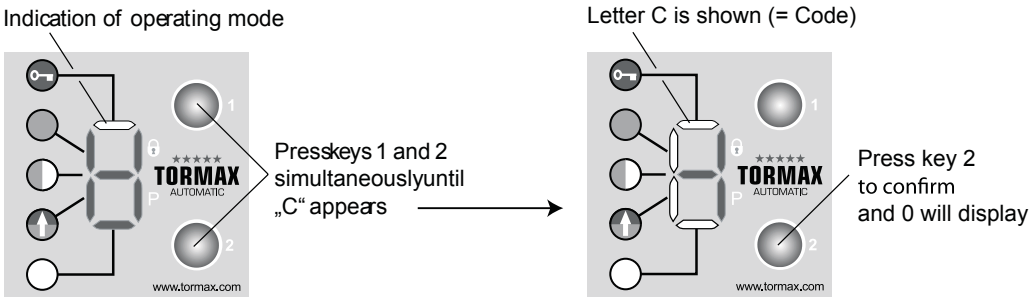
Time out: 10 min. after the last programming entry is made the FCP will time out and technician will be required to enter the access code (111) again to make further adjustments.

Programming with the FCP

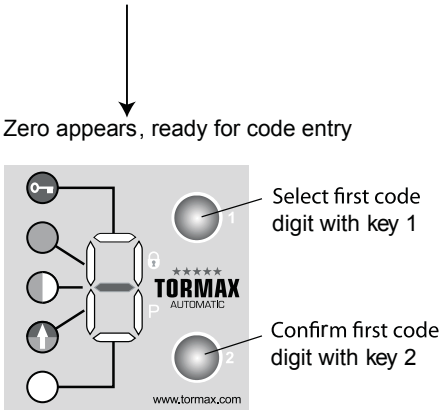
With key 1 the value of the number is always increased (0 to 9 and back to 0)

With key 2 the displayed number is always confirmed.

1. Start Access Code



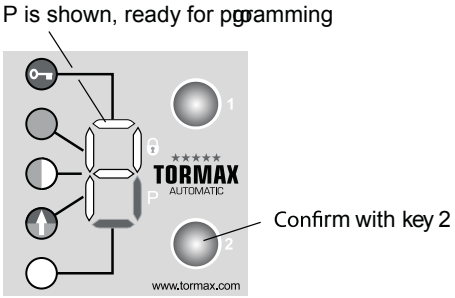
2. Entering Access Code 111



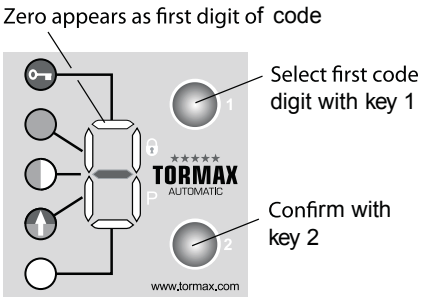
Select the number “1” with key 1 and confirm by pressing key 2, repeat this step two more times entering the code 1-1-1

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

3. Start Programming Level



4. Entering Parameter Code



- 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 vale 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.

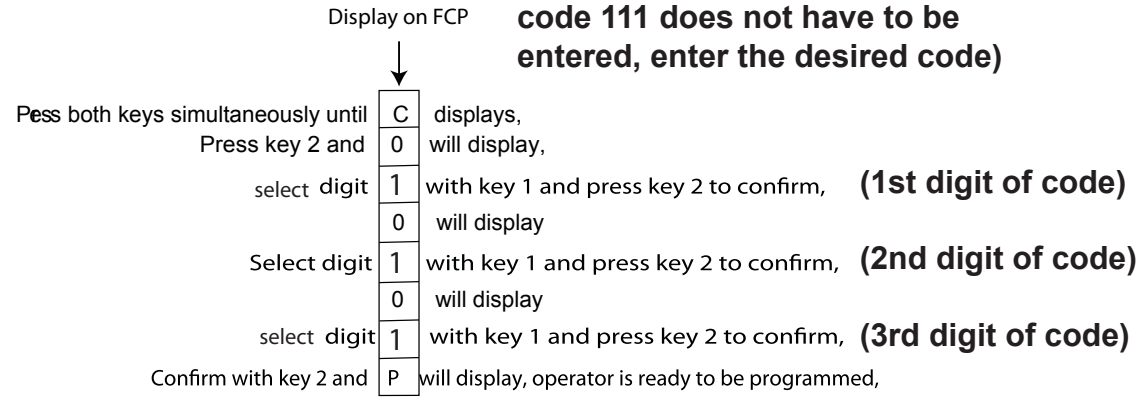
If P is not con firmed during the next 10 s with key 2, the FCP returns to the operating mode.
During the next 10 minutes, pressing both keys simultaneously will cause a direct change to programming level P

Programming Example

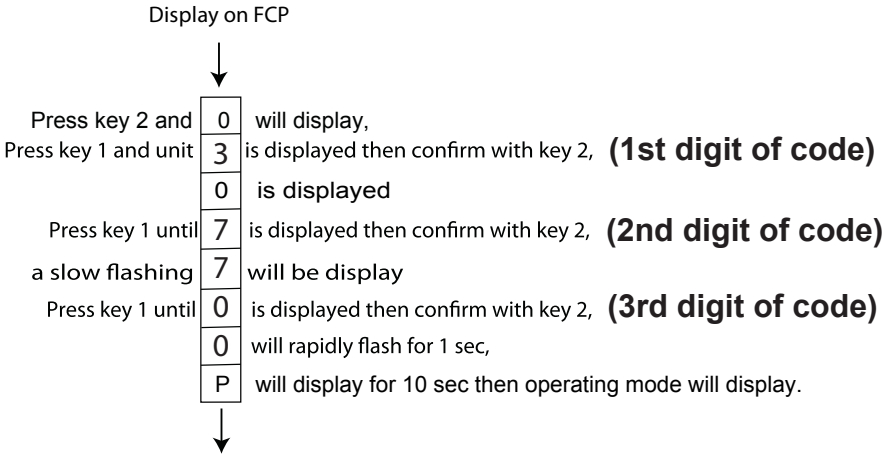
Disable Push n Pull feature with code 37 0 See programming table for other adjustments.

Example 1: Begin by entering the access code 111

(if letter "P" appears the access code 111 does not have to be entered, enter the desired code)



Example 2: Enter code 37 0



Code 37 0 was entered and Push n Pull is now disabled

Enter your code in place of 370 for programming examples.

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 example 1.

Outswing programming for 18 - 20 lb's of spring holding force.

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

Enter **code 015** to designate the operator as a 1301.

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

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

Example:
36" door weighing 440 lb's will have **code 078**.

Door	Width								
	27"	32"	36"	40"	44"	48"	50"	56"	60"
`Weight	Code 07 ..								
22 lb	0	0	0	1	1	1	1	1	2
55 lb	0	1	1	1	2	2	2	3	4
110 lb	1	2	2	3	4	4	5	6	9
165 lb	2	3	3	4	5	6	7	9	
220 lb	2	3	4	5	7	8	9		
275 lb	3	4	5	6	8	9			
330 lb	3	4	6	8	9				
385 lb	4	5	7	9					
440 lb	4	5	8						
551 lb	5	6	9						
661 lb	6	7							
771 lb	7	8							
881 lb	8	9							
992 lb	9								

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

Enter **code 092** then select mode OPEN, motor will rotate 20 deg then stop. Place the arm to the configuration illustrated on page 10 B, while the door is in the full closed position tighten the 6mm bolt to 25 ft lb's.

Enter **code 090** to terminate the procedure.

4. Electric Lock Output

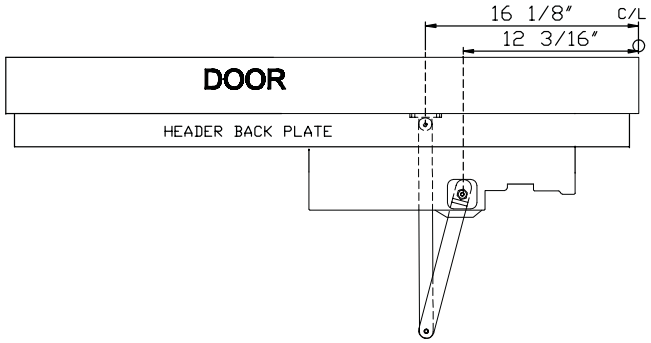
Enter Code: 570 for fail secure Code: 571 for fail safe Code: 572 turn off the electric lock

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.

Continued on page 15 section 5

Outswing 18 - 20 lb's of spring holding force.

Outswing Arm (Reveal 0 -9 7/8")

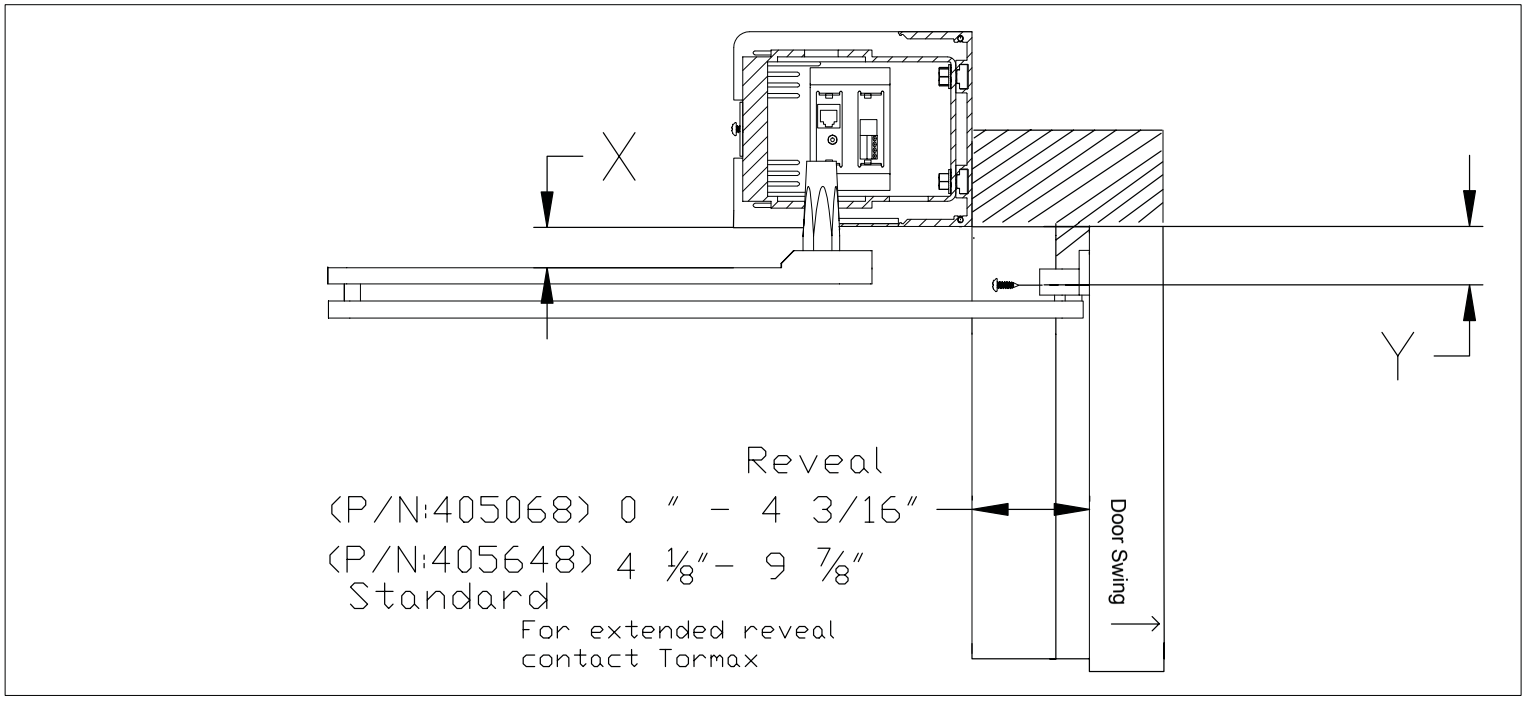


Part No.	Length of shaft	X	Y
141032(std.)	3 7/32"	1 7/16"	1 11/16"
141106(D.E.)	3 15/16"	2 3/16"	2 21/32"
141205	4 27/32"	3 1/16"	3 7/16"

X: Clearance Required

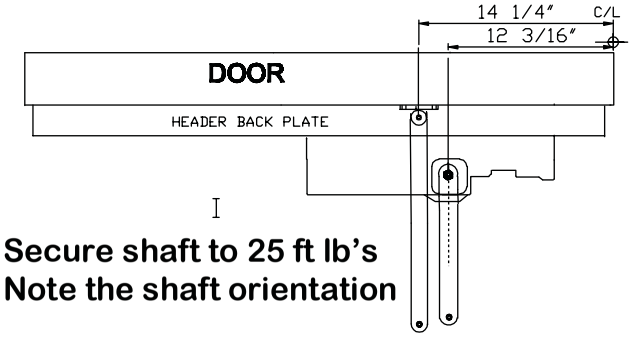
Y: Distance between header back to door mounting shoe

Mounting Height = X - 3/16"



Outswing 8 - 10 lb's of spring holding force.

Outswing Arm (Reveal 0 -9 7/8")



I

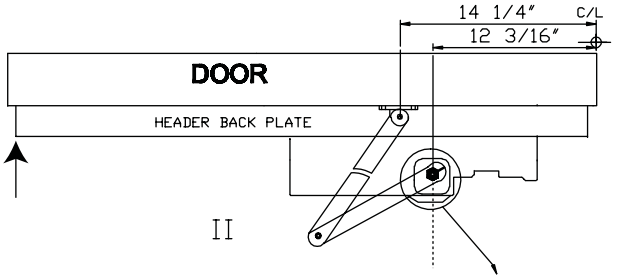
Secure shaft to 25 ft lb's
Note the shaft orientation

Part No.	Length of shaft	X	Y
141032(std.)	3 7/32"	1 7/16"	1 11/16"
141106(D.E.)	3 15/16"	2 3/16"	2 21/32"
141205	4 27/32"	3 1/16"	3 7/16"

X: Clearance Required

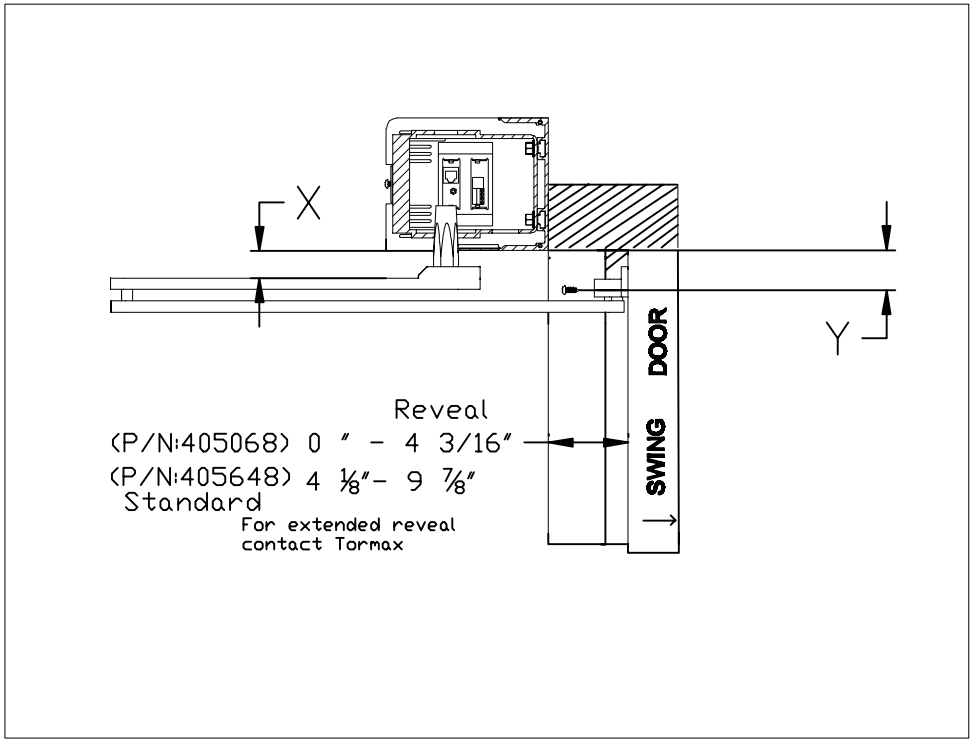
Y: Distance between header back to door mounting shoe

Mounting Height = X - 3/16"



II

Manually rotate arm and connect ball joint.
The door portion arm may need to be cut for proper fitting



Outswing programming for 8 - 10 lb's of spring holding force.

1. Make sure arm is adjusted to the angle as shown on 11A

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

Enter **code 015** to designate the operator as a 1301.

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

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

Example:
36" door weighing 440 lb's will have **code 078**.

Door	Width								
	27"	32"	36"	40"	44"	48"	50"	56"	60"
`Weight	Code 07 ..								
22 lb	0	0	0	1	1	1	1	1	2
55 lb	0	1	1	1	2	2	2	3	4
110 lb	1	2	2	3	4	4	5	6	9
165 lb	2	3	3	4	5	6	7	9	
220 lb	2	3	4	5	7	8	9		
275 lb	3	4	5	6	8	9			
330 lb	3	4	6	8	9				
385 lb	4	5	7	9					
440 lb	4	5	8						
551 lb	5	6	9						
661 lb	6	7							
771 lb	7	8							
881 lb	8	9							
992 lb	9								

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

See page 11A , follow the directions noted on I and II carefully, then continue with programming.

Enter **code 092** then select mode OPEN, the door will open a few inches then stop.

Enter **code 090** to terminate the procedure and the door will return to the closed position.

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.

Continued on page 15 section 5

Inswing programming 0” reveal

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

Enter **code 015** to designate the operator as a 1301.

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

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

Example:
36” door weighing 440 lb’s will have **code 078**.

Door	Width								
	27″	32″	36″	40″	44″	48″	50″	56″	60″
`Weight	Code 07 ..								
22 lb	0	0	0	1	1	1	1	1	2
55 lb	0	1	1	1	2	2	2	3	4
110 lb	1	2	2	3	4	4	5	6	9
165 lb	2	3	3	4	5	6	7	9	
220 lb	2	3	4	5	7	8	9		
275 lb	3	4	5	6	8	9			
330 lb	3	4	6	8	9				
385 lb	4	5	7	9					
440 lb	4	5	8						
551 lb	5	6	9						
661 lb	6	7							
771 lb	7	8							
881 lb	8	9							
992 lb	9								

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

Enter **code 091** then select mode OPEN, the motor will rotate 20 deg then stop. Place the arm to the configuration illustrated on page 12 B, while the door is in the fully closed position then tighten the 6mm bolt to 25 ft lb’s.

Enter **code 090** to terminate the procedure.

4. Electric Lock Output

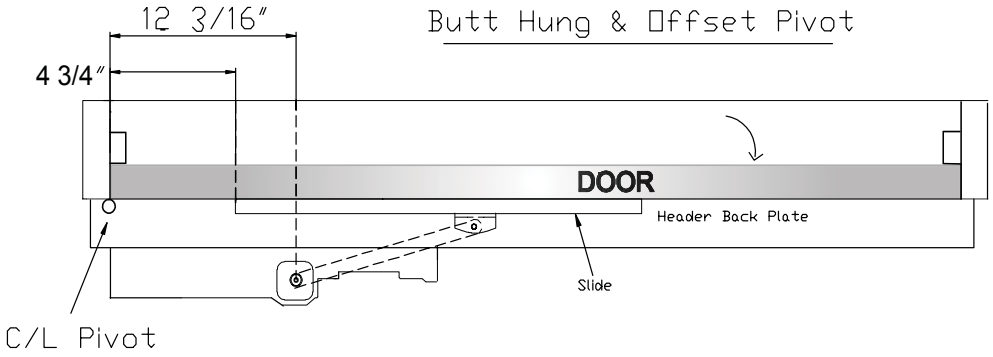
Enter Code: 570 for fail secure Code: 571 for fail safe Code: 572 turn off the electric lock

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.

Continued on page 15 section 5

Inswing 0” reveal

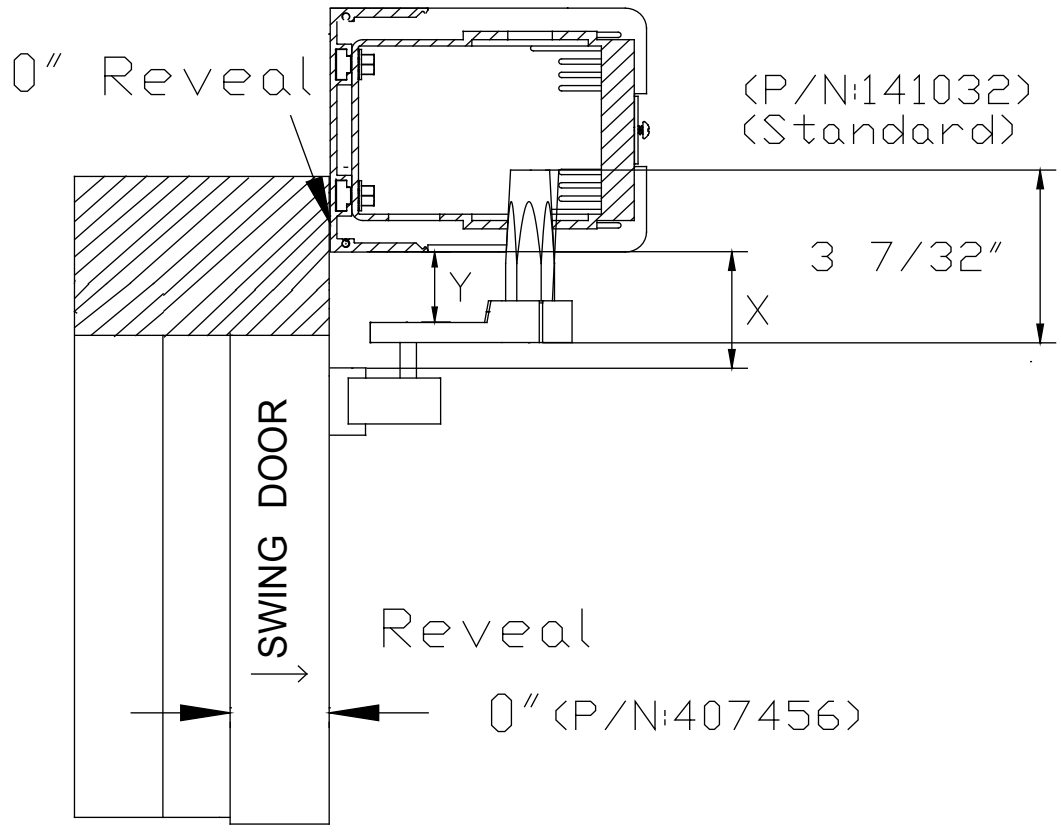
Inswing Arm (0″ Reveal)



Part No.	Length of shaft	X	Y
141032 (std.)	3 7/32″	2 1/8″	1 7/16″
141205	4 27/32″	3 1/2″	3 1/16″
141020	2 5/8″	3 1/4″	7/8″

X : Clearance Required
Y : Distance between header back and slide on the door

Mounting Height = X - 3/16″



Inswing programming 0” - 6” reveal

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

Enter **code 015** to designate the operator as a 1301.

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

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

Example:
36” door weighing 440 lb’s will have **code 078**.

Door	Width								
	27”	32”	36”	40”	44”	48”	50”	56”	60”
`Weight	Code 07 ..								
22 lb	0	0	0	1	1	1	1	1	2
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110 lb	1	2	2	3	4	4	5	6	9
165 lb	2	3	3	4	5	6	7	9	
220 lb	2	3	4	5	7	8	9		
275 lb	3	4	5	6	8	9			
330 lb	3	4	6	8	9				
385 lb	4	5	7	9					
440 lb	4	5	8						
551 lb	5	6	9						
661 lb	6	7							
771 lb	7	8							
881 lb	8	9							
992 lb	9								

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

Enter **code 092** then select mode OPEN, the motor will rotate 20 deg then stop. Place the arm to the configuration illustrated on page 13 B, while the door is in the fully closed position then tighten the 6mm bolt to 25 ft lb’s.

Enter **code 090** to terminate the procedure.

4. Electric Lock Output

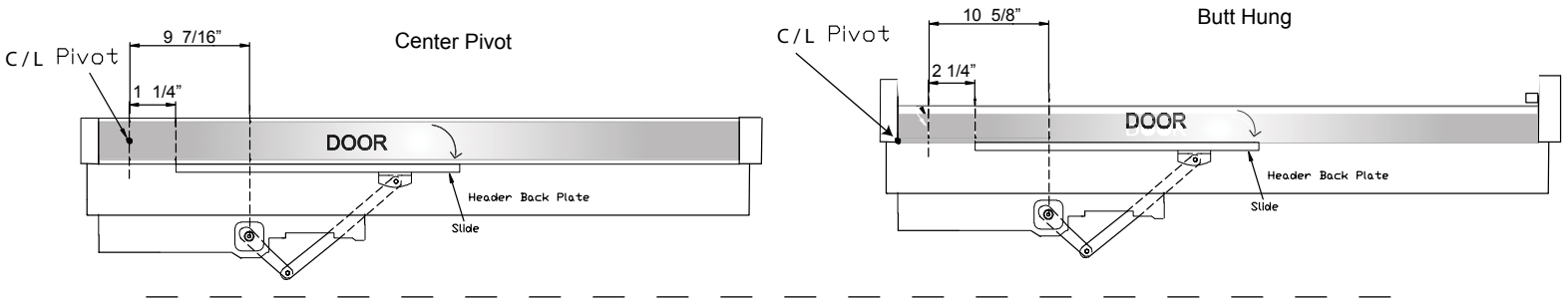
Enter Code: 570 for fail secure Code: 571 for fail safe Code: 572 turn off the electric lock

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.

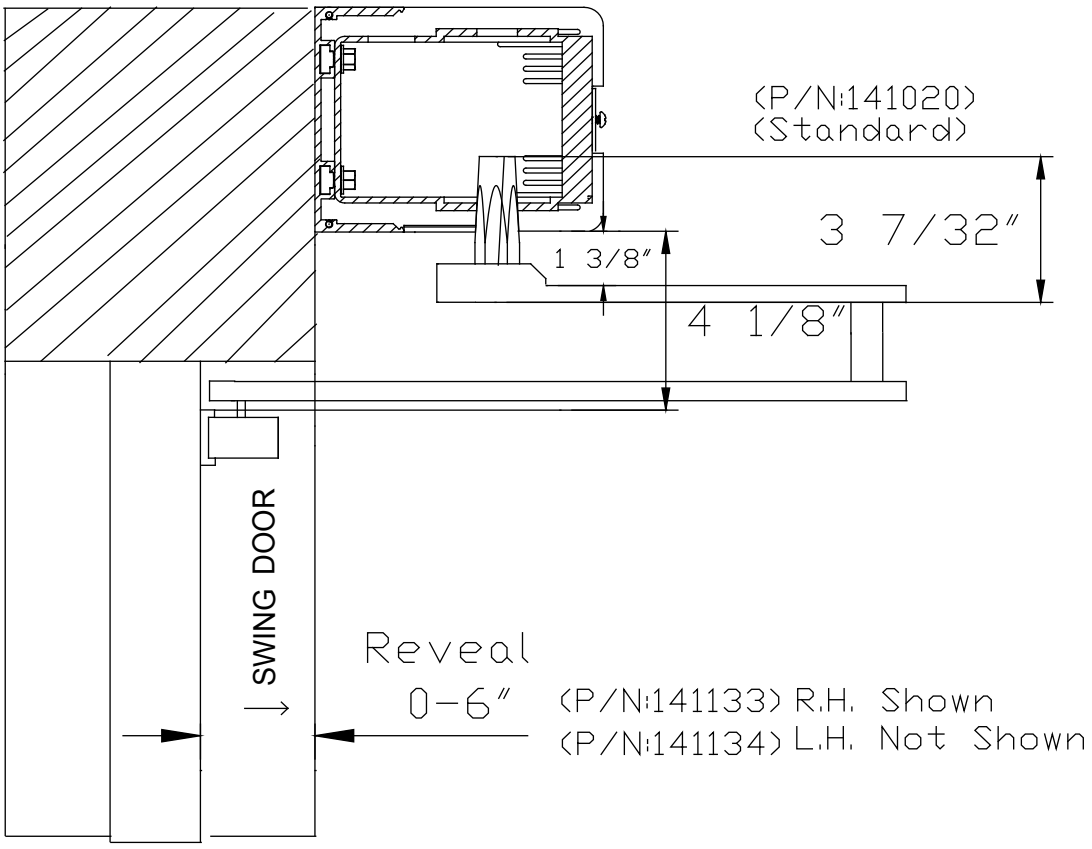
Continued on page 15 section 5

Inswing 0” - 6” reveal

Inswing Arm (0 - 6″ Reveal) R.H. Shown



Mounting Height = 4 1/8″ - 3/16″



T-1319 e	Application Primary / Secondary	★★★★★ TORMAX AUTOMATIC 12859 Wetmore Road SanAntonio,Tx 78247 1-888-685-3707 www.tormaxusa.com
Area of application	iMotion 1301, 1401 Swing Door Operators	
Release	November 2008	
Use	Wiring of 1301 or 1401 operators as a simultaneous pair	

Purpose

The purpuose of this wiring is to synchronize the 1301 or 1401 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.

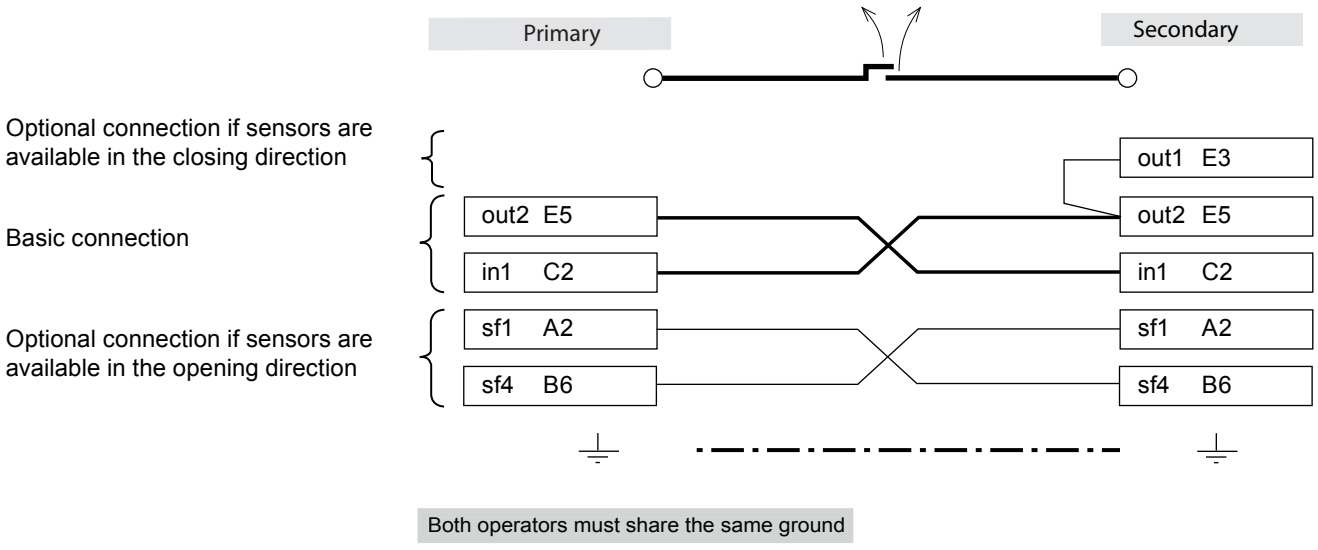
The Operating mode is selected by the FCP or 3 position switch located at the primary operator.

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

See 1262 for input and output functions



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

Note :

See section T - 1248 e on page s 7-9 for programming examples

Commissioning and Configuration

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

Primary	Secondary
1. Operator type (H11) Code : 015	
2. Door leaf Weight (H12) Code : 07?(see page 13 A)	
3. Select the installation configuration and arm preload that fits your application.*	
4. Automatic system configuration when the door is closed (H14) Code : 021	
5. Teach - In" see sections 6 on page no. 15 then return to this page and continue from this point.	
6. Select Operating mode P (Manual Operation)	7. Operator type (H11) Code: 015
	8. Door leaf weight (H12) Code: 07? (see page 13 A)
	9. Select the installation configuration and arm preload that fits your application.*
	10. Automatic system configuration when the door is closed . Code: 021
	11. Teach - In" see sections 6 on page no. 15 then return to this page and continue from this point.
12. Code 811 = Primary	
.	13. Code 812 = Secondary
	14. Set hold open time codes as (100,110 and 120) = 0
	15. Select Operating mode Automatic 1 before removing FCP
16. Select Operating Mode Automatic 1 to activate	

* For Outswing application pair (18 - 20 Lb's of force) See step 3. on page 10 for programming and page 11 for arm configuration.

* For Outswing application pair (8 - 10 Lb's of force) See Step 3 on page 12 for programming and page 13 for arm configuration.

* For Inswing Application Pair (0" Reveal) See step 3 on page 14 for programming and page 15 for dimension and arm configuration

* For Inswing Application Pair (0" - 6" Reveal) See step 3 on page 16 for programming and page 17 for dimension and arm configuration.

* For Double Egress standard application See page no. 14 C for dimension and follow the appropriate programming steps for each arm configuration.

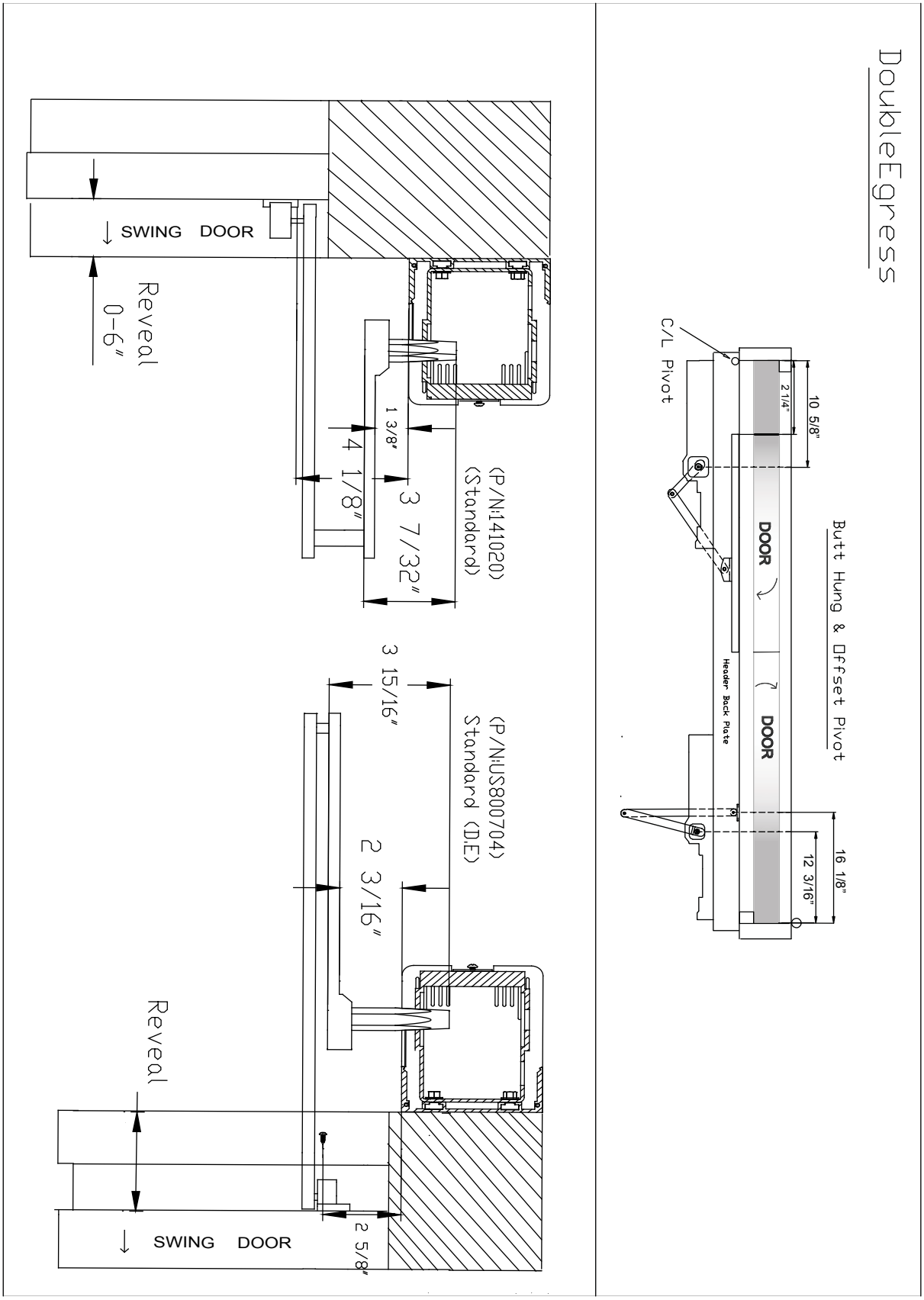
Note:

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.

Double Egress Application



5. Automatic Configuration (H14 = automatic configuration required)

Enter **Code 021** to begin the auto configuration which consists of the following-

- NO or NC will be automatically detected on the safety inputs (SF1 - SF4). Make sure the safety sensors are not in detection when **021** is entered.
- Battery backup US801102
- I/O module US801405

6. **Teach - in**

1) Adjust the internal door stop as shown in Fig. A to achieve 90° door angle and the door arm should not pass beyond 90° as shown in Fig. B

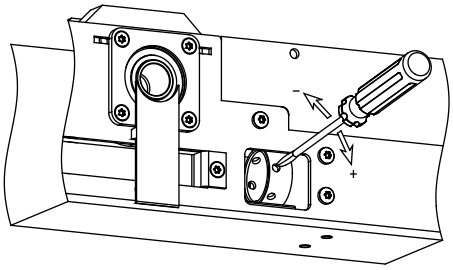


Fig. A

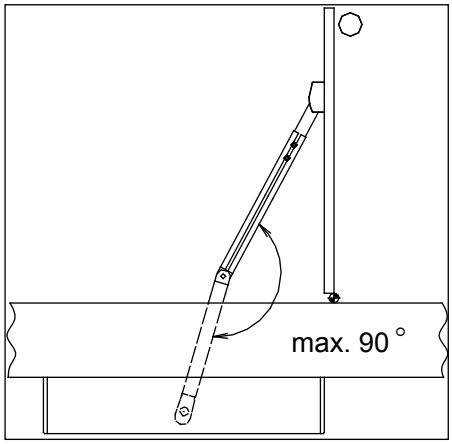
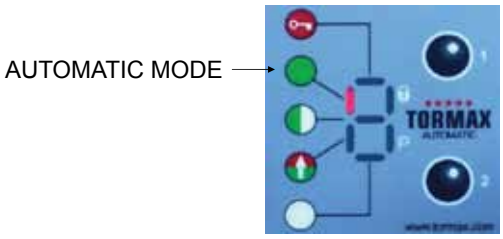
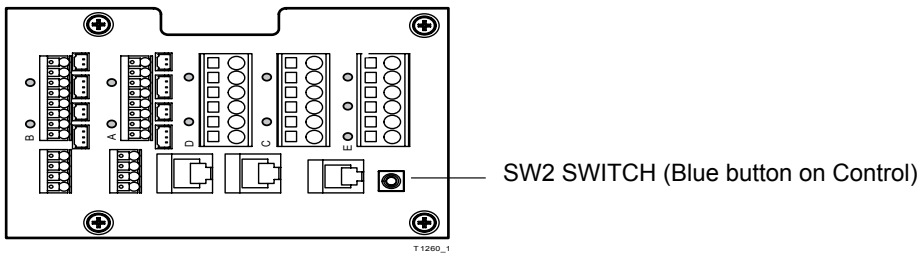


Fig. B

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. **Checking**

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

	Programming Table	★★★★★ TORMAX AUTOMATIC 12859 Wetmore Road San Antonio, TX 78247 1-888-685-3707 www.tormaxusa.com
Area of application	**iMotion 1301 | FW-Version V06.xx**	
Download	05 March 2010	
Use	Planning, Start-Up, Maintenance	

Code		Function	Note
01	5	Door operator type iMotion 1301	
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 facillities 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 2nd FCP	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	
08	0...1	--Rotating direction of drive	0 = Spring opening, 1 = Spring closing
09	0	End procedure "Spring preload"	
09	1	Spring closing, sliding lever, preload 10°	End with code 090
09	2	Spring closing, standard linkage, preload 30°	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	★★★★★ TORMAX AUTOMATIC 12859 Wetmore Road San Antonio, TX 78247 1-888-685-3707 www.tormaxusa.com
Area of application	**iMotion 1301 | FW-Version V06.xx**	
Download	05 March 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	code
		10	20	30	40	50	60	70	80	90	100	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	code
		8	16	24	32	40	48	56	64	72	80	degree / s
22	0...9	Homing-in-speed close, minimal										Angle see 42x
		0 *	1	2	3	4	5	6	7	8	9	Code
		2	3	5	8	12	17	23	30	38	47	Degree/s
23	0	Speed limit at manual opening										Limitation according to course of movement
23	1...9 2*	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	code
		10	20	30	40	50	60	70	80	90	100	%
31	0...9	Motor force closing										Net force on door edge
		0	1 *	2	3	4	5	6	7	8	9	code
		10	20	30	40	50	60	70	80	90	100	%
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	code
		0	5	7	9	11	14	19	24	32	42	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	code
		10	20	30	40	50	60	70	80	90	100	%
42	0...9	Angle for homing in speed										Homing in speed see 22x
		0 *	1	2	3	4	5	6	7	8	9	code
		0	1	2	3	5	7	10	15	20	30	degre
51	0 *	Operating mode return to last setting on FCP										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	0	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										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	code
		0	0.2	0.4	0.8	1.2	1.6	2	2.5	3	4	sec.

* = Default value

	Programming Table	
Area of application	**iMotion 1301 | FW-Version V06.xx**	
Download	05 March 2010	
Use	Planning, Start-Up, Maintenance	

TORMAX AUTOMATIC
12859 Wetmore Road
San Antonio, TX 78247
1-888-685-3707
www.tormaxusa.com

Code		Function	Note
59	1...4	Tension "pwm out"	
		0 | 1 | 2 | 3 | 4 * | 0 | 0 | 0 | 0 | 0	code
		6 | 9 | 12 | 15 | 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 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 (Stall)	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 (Reactivation)	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 (Carpet / Mat Logic)	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 exept 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 choise of functions as on "sf1"	Type of connection detect with code 031
66	0...d 4*	sf3: Same choise of functions as on "sf1"	Type of connection detect with code 031
67	0...d 5*	sf4: Same choise 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	

* = Default value

	Programming Table	★★★★★ TORMAX AUTOMATIC 12859 Wetmore Road San Antonio, TX 78247 1-888-685-3707 www.tormaxusa.com
Area of application	**iMotion 1301 | FW-Version V06.xx**	
Download	05 March 2010	
Use	Planning, Start-Up, Maintenance	

Code		Function	Note
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	
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	FCP 1: in1: No function	
78	1 *	FCP 1: in1: Panel lock	Contact NO
78	2	FCP 1: in1: Mode of op. OFF	Contact NO
78	3	FCP 1: in1: Mode of op. AUTOMATIC 2	Contact NO
78	4	FCP 1: in1: Mode of op. EXIT	Contact NO
78	5	FCP 1: in1: Mode of op. OPEN	Contact NO
78	6	FCP 1: in1: Mode of op. MANUAL	Contact NO
78	7	FCP 1: in1: Emergency closing	Contact NO
78	8	FCP 1: in1: Emergency opening in all op. modes	Contact NO
78	9	FCP 1: in1: Key switch	Contact NO
79	0...9 0*	FCP 1: 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 actvator inside and outside	
82	3	Step by step control for actvator inside, outside and key switch	
85	0 *	No airlock function	

Codes 78 and 79 correspond to the Function Control Panel (FCP)

* = Default value

TROUBLE SHOOTING

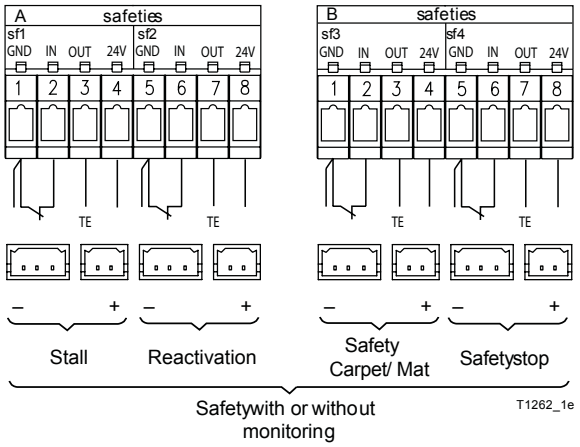
* E = Error | H = Hint

* No.	Fault	Reaction System	Reset
E00	Frrmware 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-1262 e	Connection Diagram Terminal Module MCU32-TERM-B	★★★★★ TORMAX AUTOMATIC 12859 Wetmore Road SanAntonio, TX 78247 1-888-685-3707 www.tormaxusa.com
Area of application	iMotion 1301, 1401 Swing Door Operators	
Release	October 2008	
Use	Input / Output terminal designation	

Default terminal designation.

All inputs and outputs programmable, see page 33 for programming options.



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.

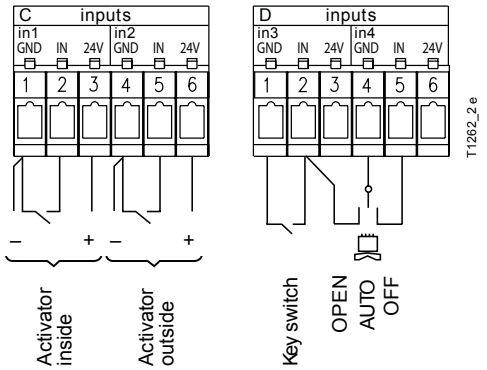
Auto -Automatic operation from both activators.

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

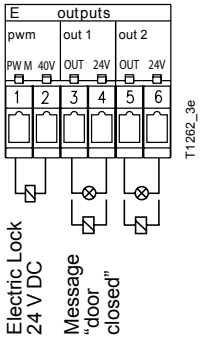
Electric lock - Can power up a maglock or electric strike, 1A max output.

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

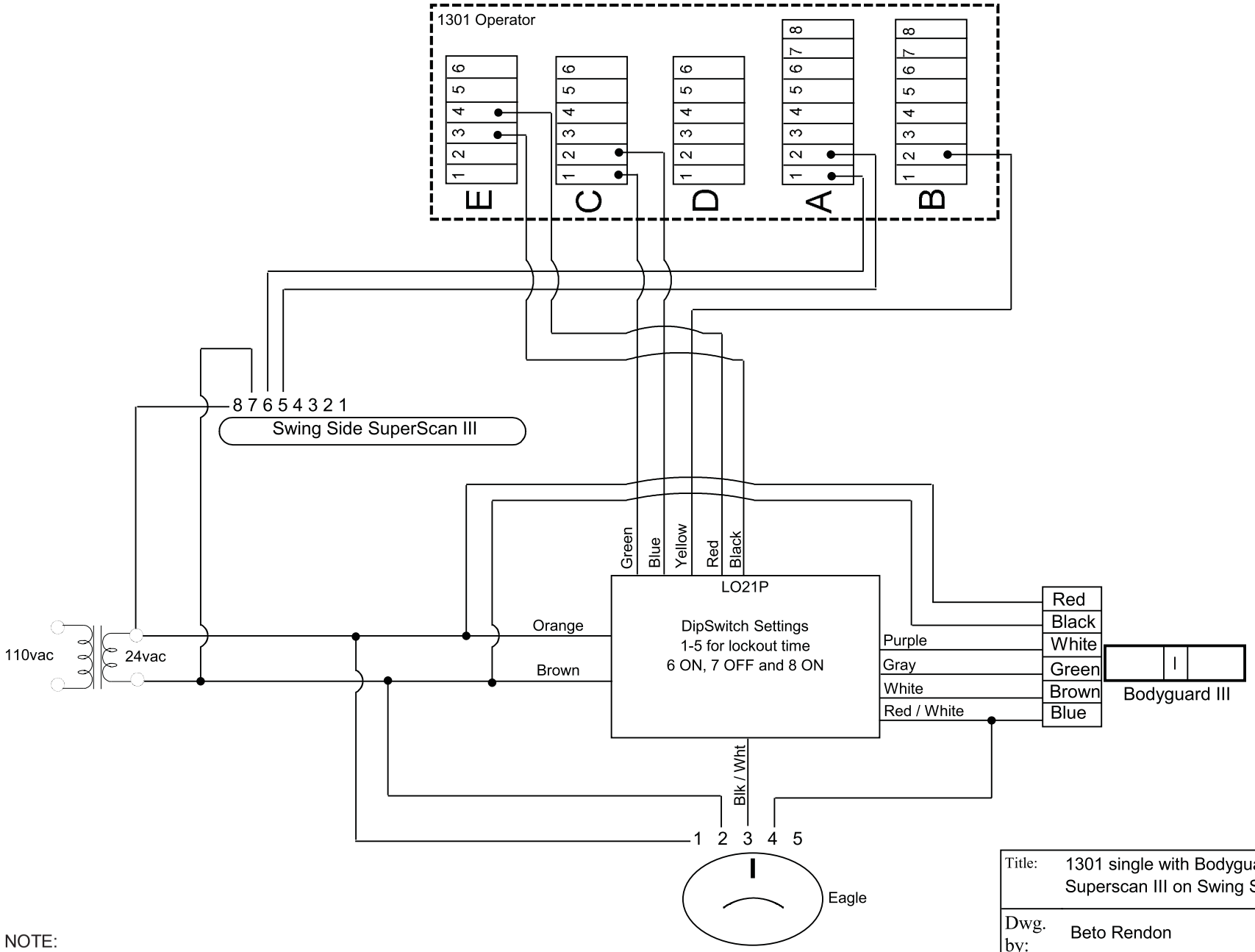
Inputs (programmable)



Outputs (programmable)



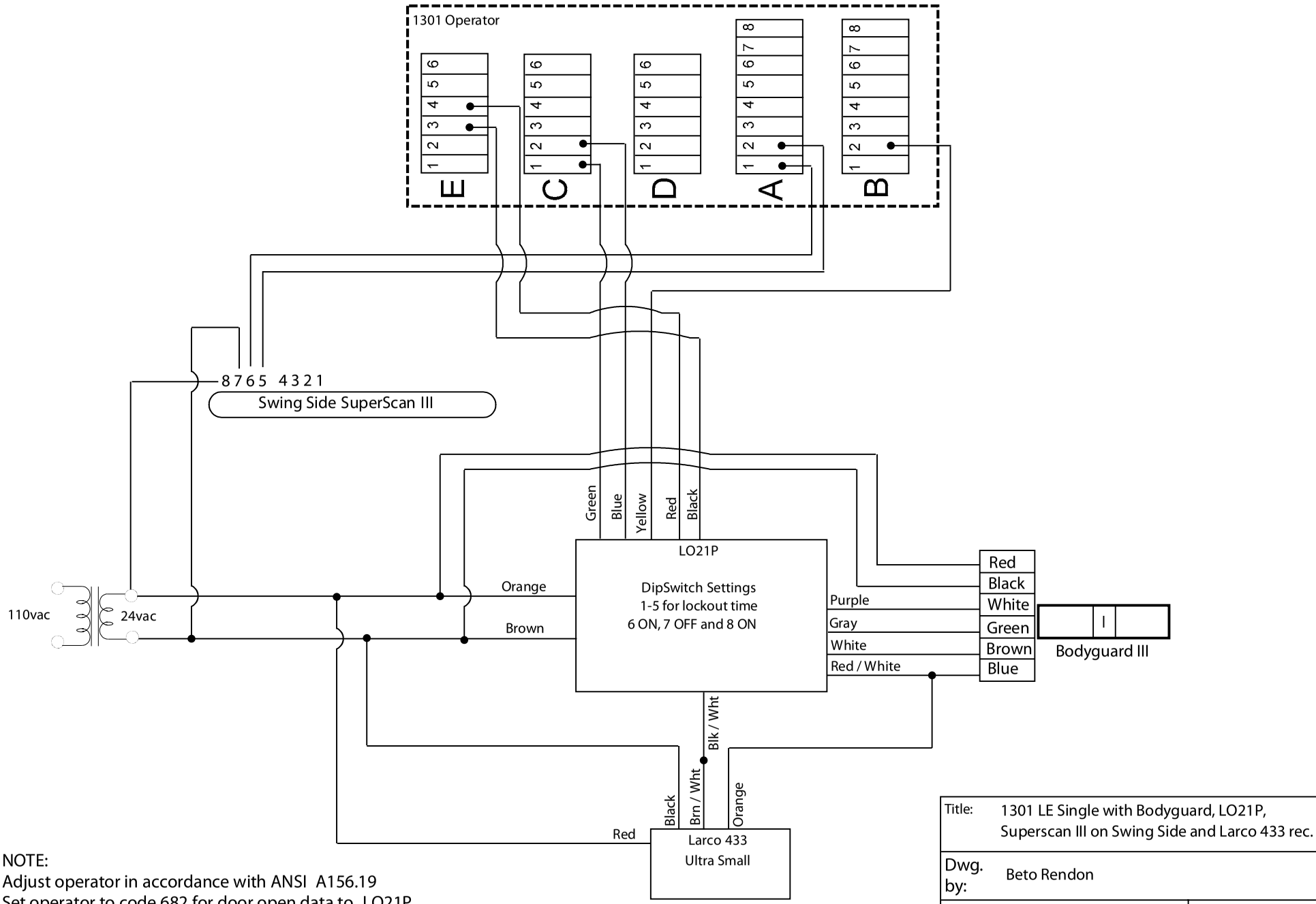
Power output to Sensor is .75 A max.
Power output to lock output is 1 A max.



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

Title:	1301 single with Bodyguard, LO21P, Eagle and Superscan III on Swing Side.
Dwg. by:	Beto Rendon
Date:	1-7-10
DWG NO:	

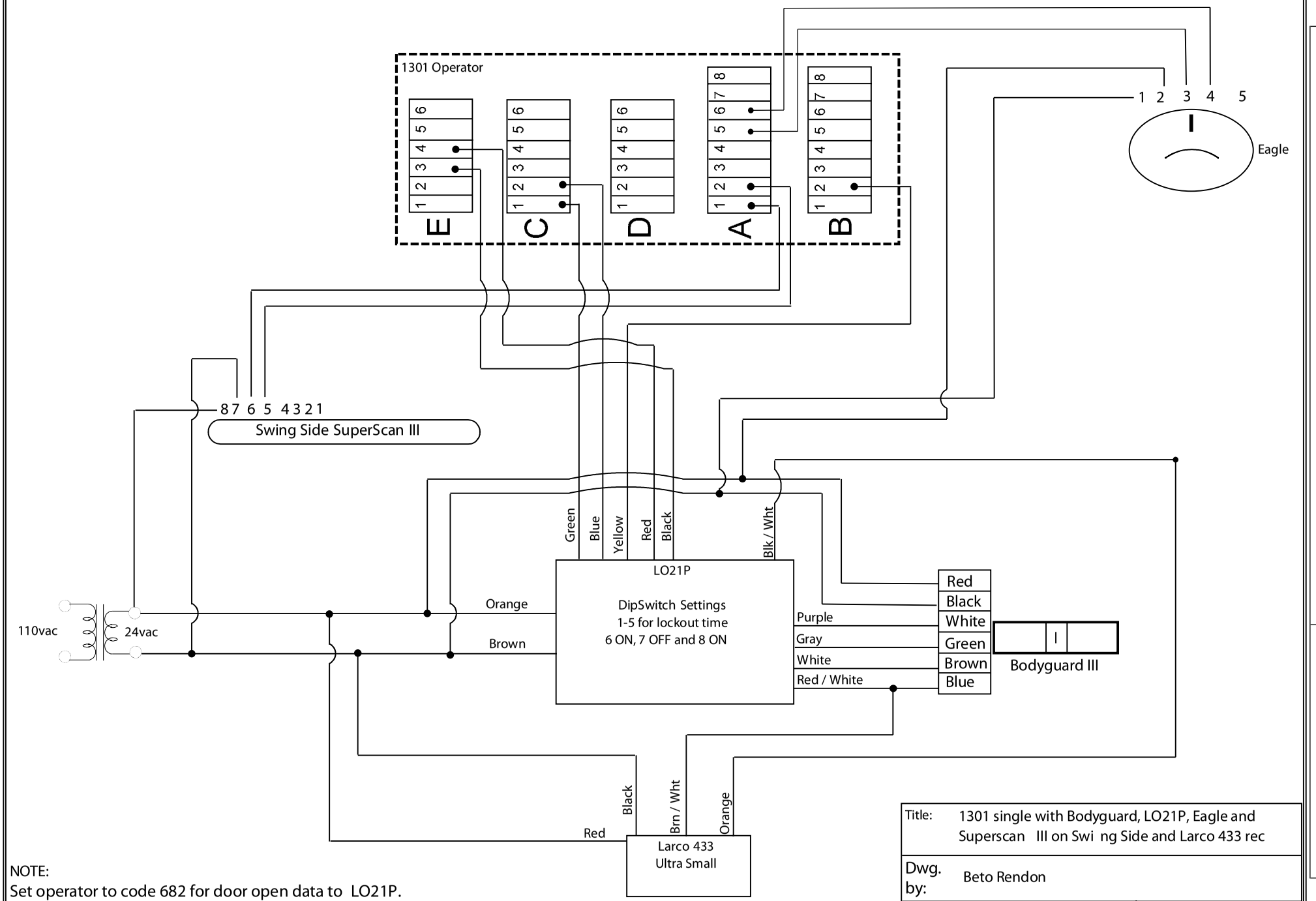
18 B
Producer: TORMAX AUTOMATIC
T-1262 e



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:	1301 LE Single with Bodyguard, LO21P, Superscan III on Swing Side and Larco 433 rec.
Dwg. by:	Beto Rendon
Date:	1-13-10
DWG NO:	

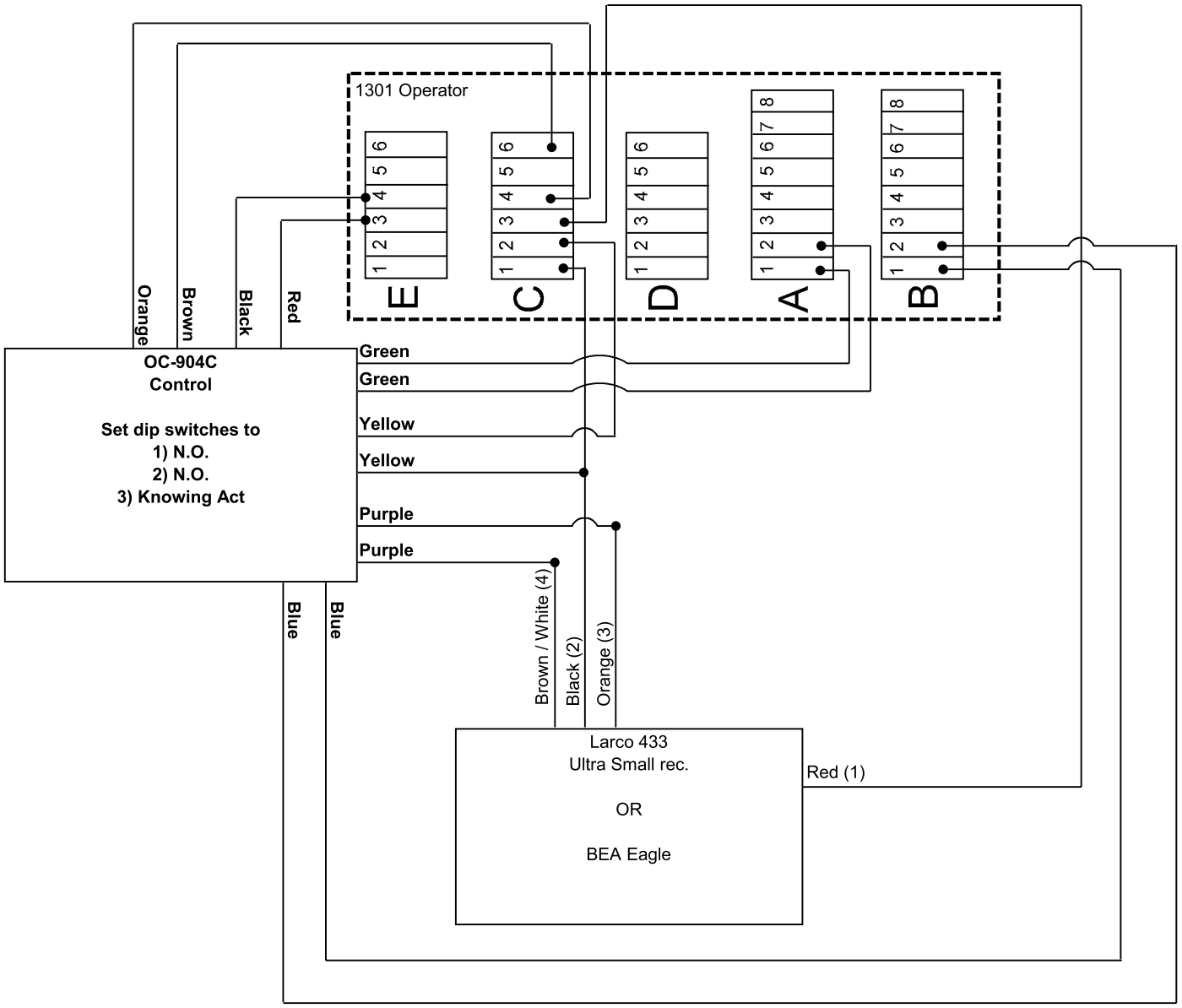
18 C
Producer: TORMAX AUTOMATIC
T-1262 e



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

Title:	1301 single with Bodyguard, LO21P, Eagle and Superscan III on Swi ng Side and Larco 433 rec
Dwg. by:	Beto Rendon
Date:	1-26-10
DWG NO:	

18 D
Producer: TORMAX AUTOMATIC
T-1262 e



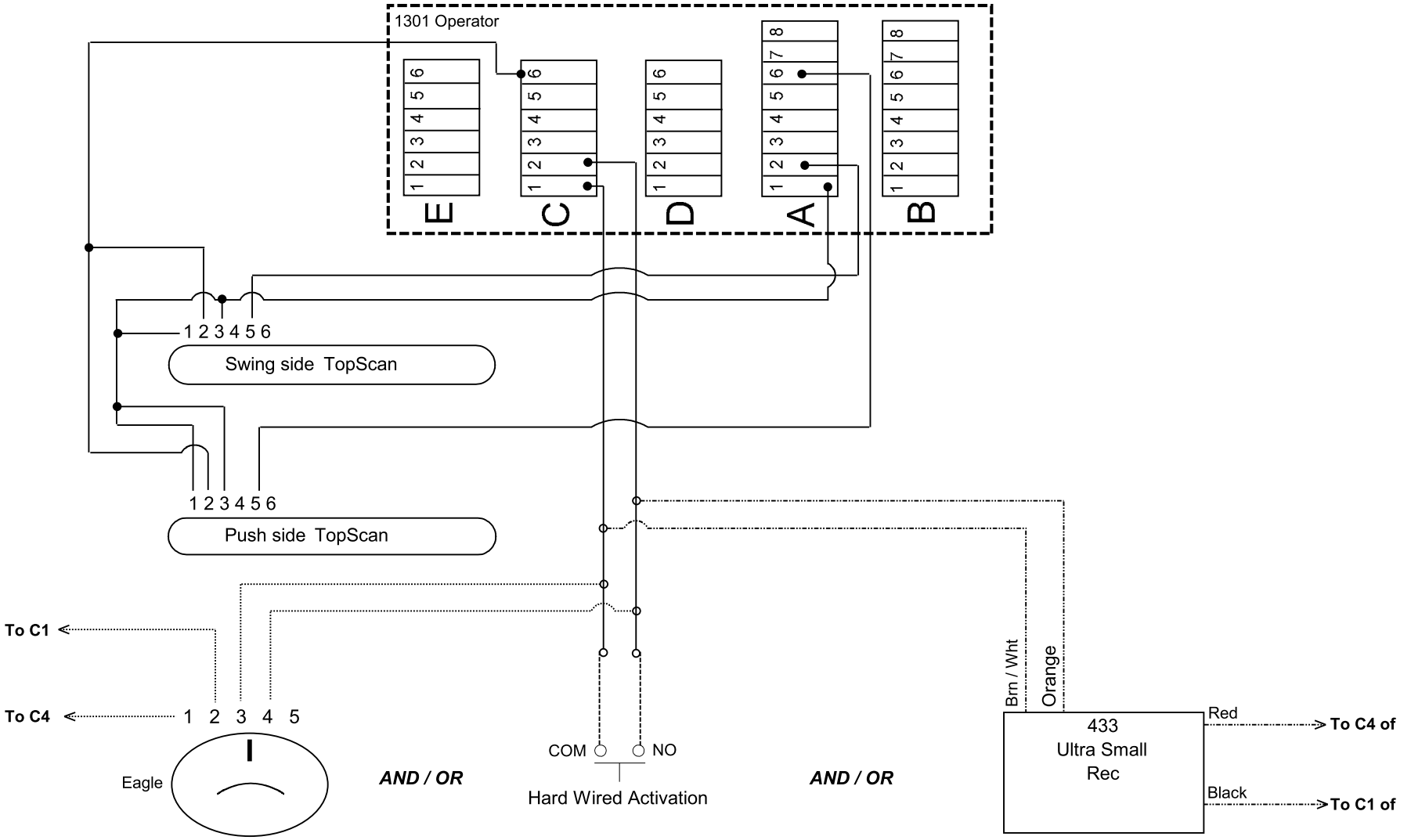
NOTE:
Adjust operator in accordance with ANSI A156.10 and / or A156.19
Set operator to code 682 for door open data to Elite.
If using a BEA Eagle motion sensor wire as number in ( ).

Title:	1301 Single with Larco 433 rec or Eagle motion sensor and Optex Elite
Dwg. by:	Beto Rendon
Date:	3-11-10
DWG NO:	

18 E

Producer: TORMAX AUTOMATIC

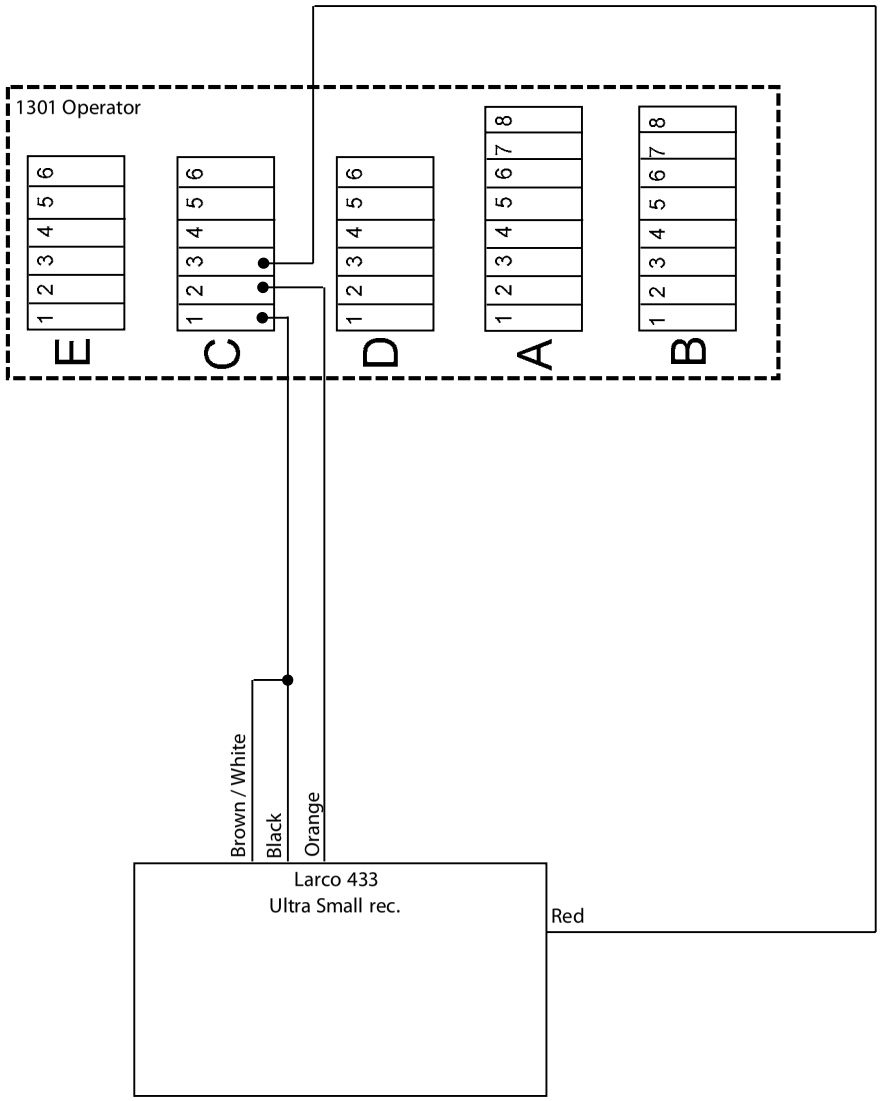
T-1262 e



NOTE:
Adjust operator and sensors if applicable to be in accordance with ANSI A156.10 / A156.19
See Eagle / TopScan / Larco installation manuals for setup and adjustments

Title:	1301 single with TopScans
Dwg. by:	Beto Rendon
Date:	10-28-10
DWG NO:	

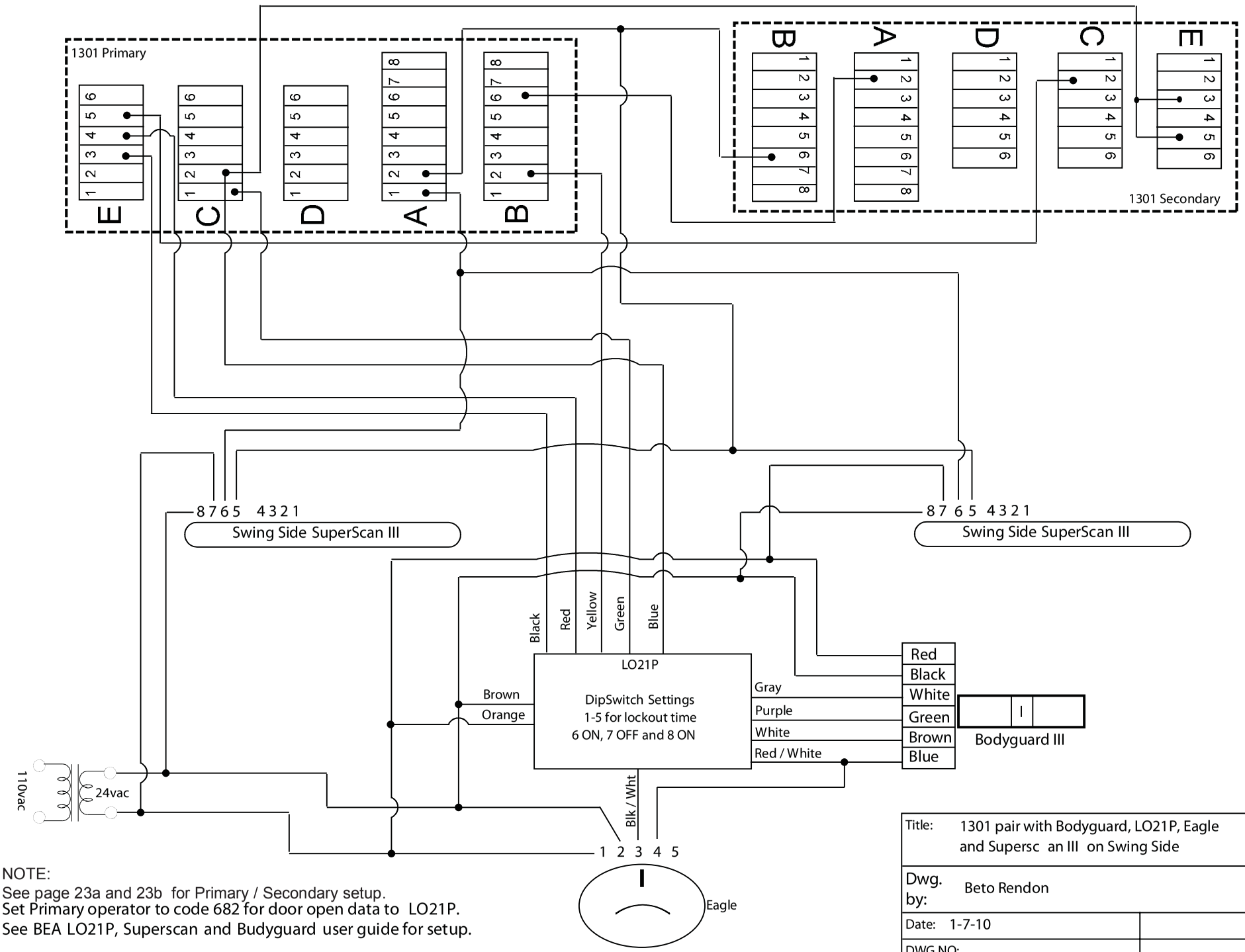
18 F
Producer: TORMAX AUTOMATIC
T-1262 e



NOTE:
Adjust operator in accordance with ANSI A156.19

Title:	1301 LE SIngle with Larco 433 rec.
Dwg. by:	Beto Rendon
Date:	1-18-10
DWG NO:	

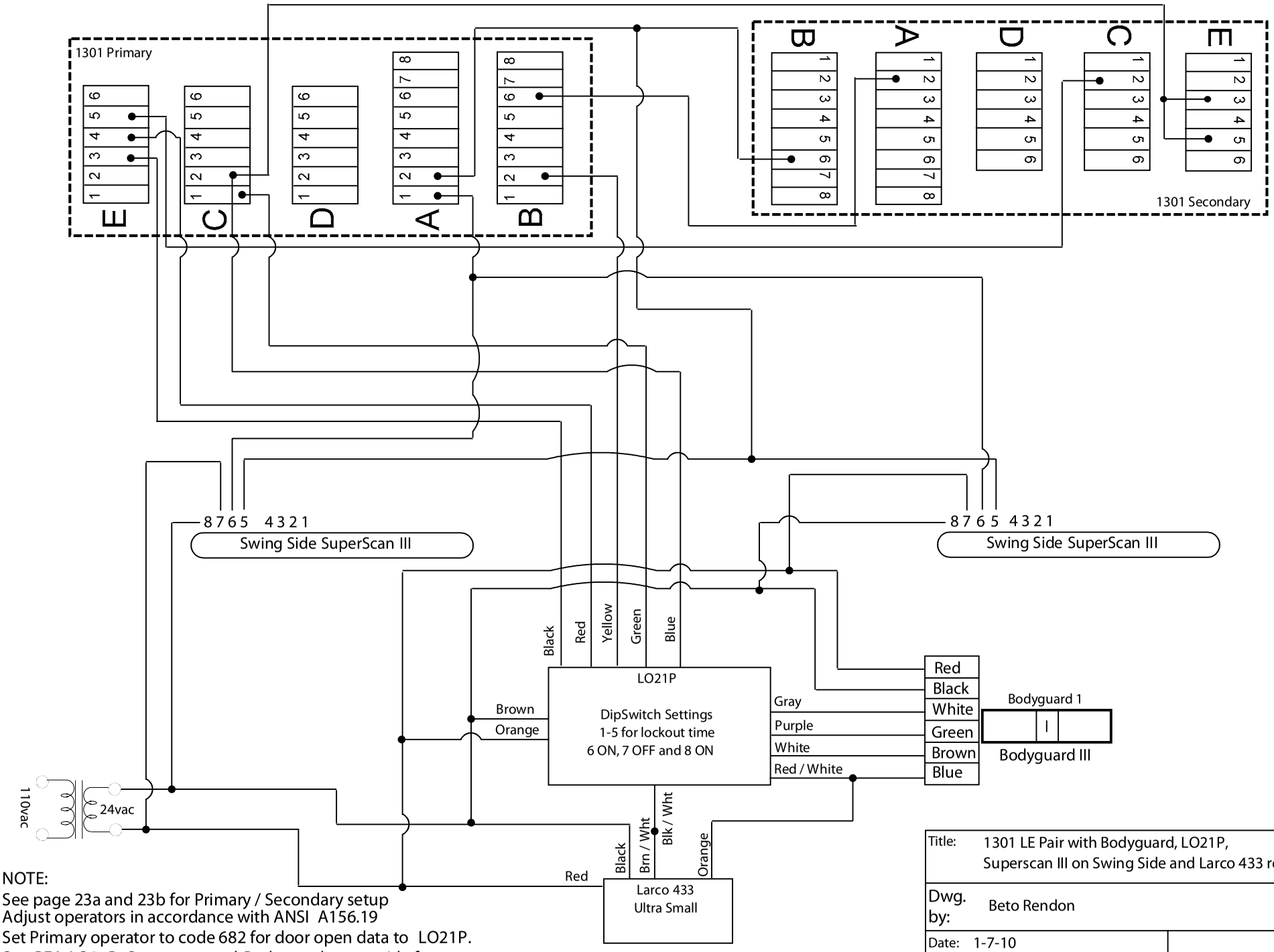
18 G | Producer: TORMAX AUTOMATIC | T-1262 e



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 Budyguard user guide for setup.

Title:	1301 pair with Bodyguard, LO21P, Eagle and Supersc an III on Swing Side
Dwg. by:	Beto Rendon
Date:	1-7-10
DWG NO:	

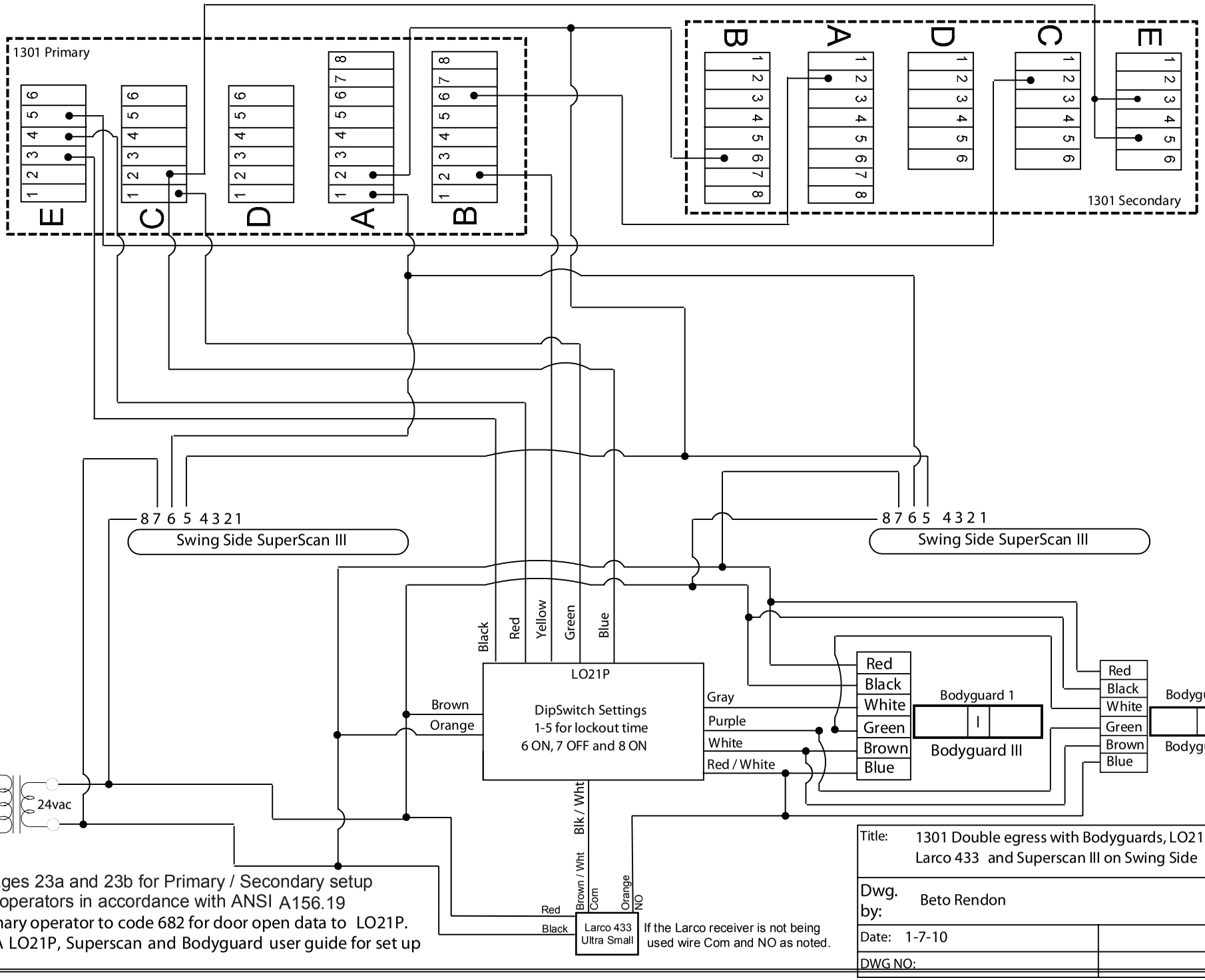
18 H
Producer: TORMAX AUTOMATIC
T-1262 e



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 Budyguard user guide for setup.

Title:	1301 LE Pair with Bodyguard, LO21P, Superscan III on Swing Side and Larco 433 rec
Dwg. by:	Beto Rendon
Date:	1-7-10
DWG NO:	

18 I
Producer: TORMAX AUTOMATIC
T-1262 e



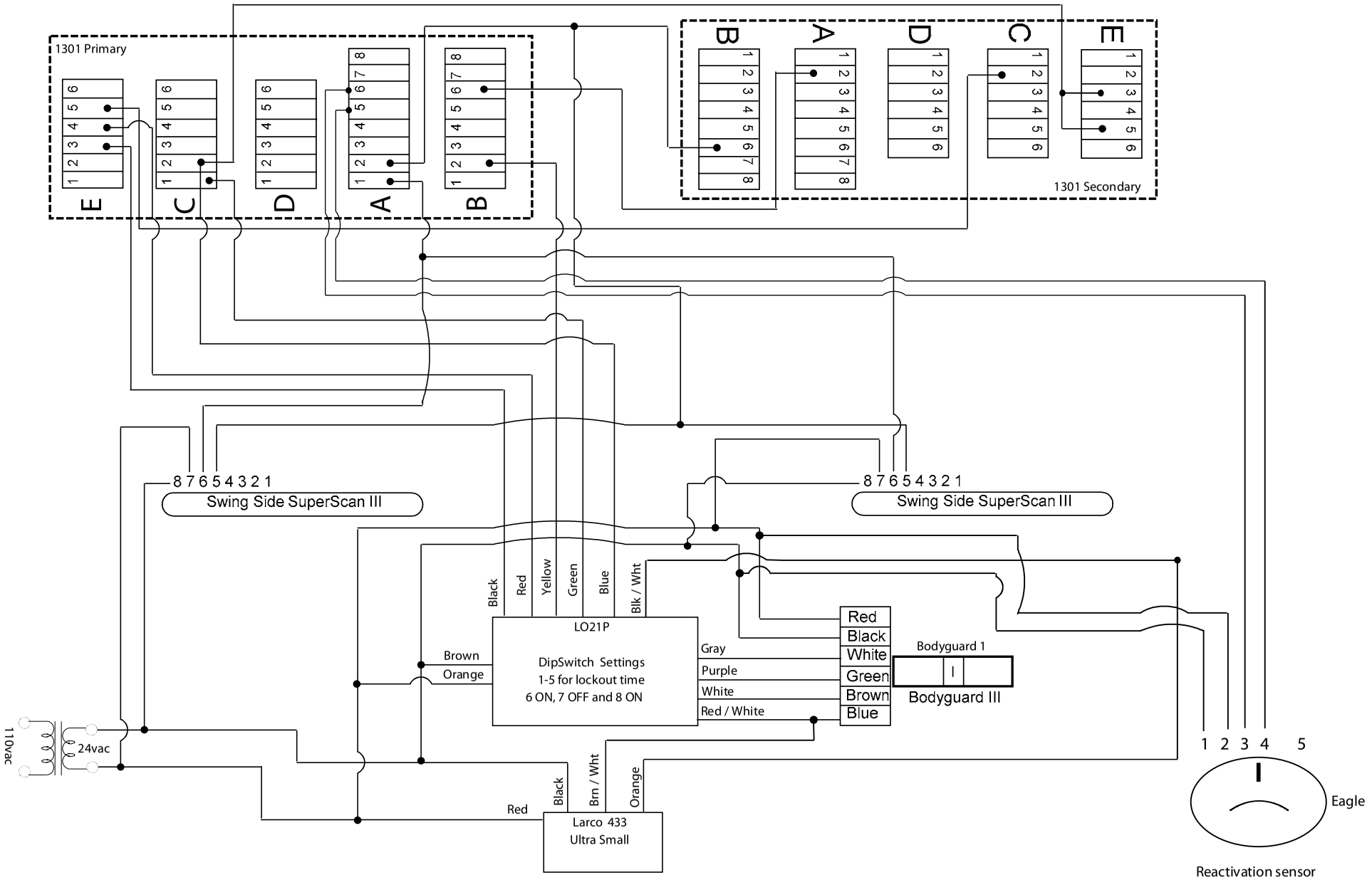
NOTE:
See pages 23a and 23b for Primary / Secondary setup
Adjust operators in accordance with ANSI A156.19
Set Primary operator to code 682 for door open data to LO21P.
See BEA LO21P, Superscan and Bodyguard user guide for set up

Title:	1301 Double egress with Bodyguards, LO21P, Larco 433 and Superscan III on Swing Side
Dwg. by:	Beto Rendon
Date:	1-7-10
DWG NO:	

18 J

Producer: TORMAX AUTOMATIC

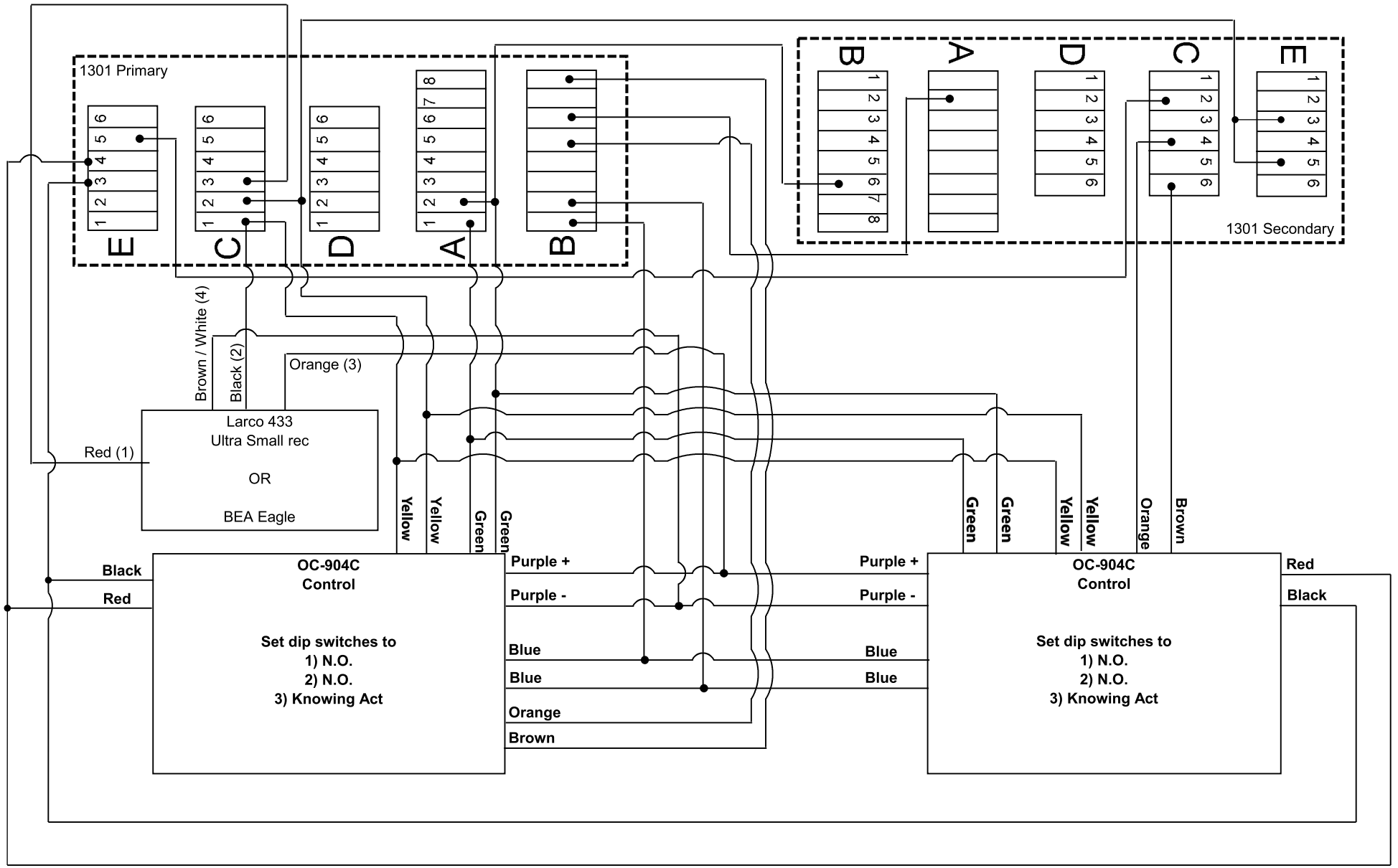
T-1262 e



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 Budyguard user guide for setup.

Title:	1301 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:	

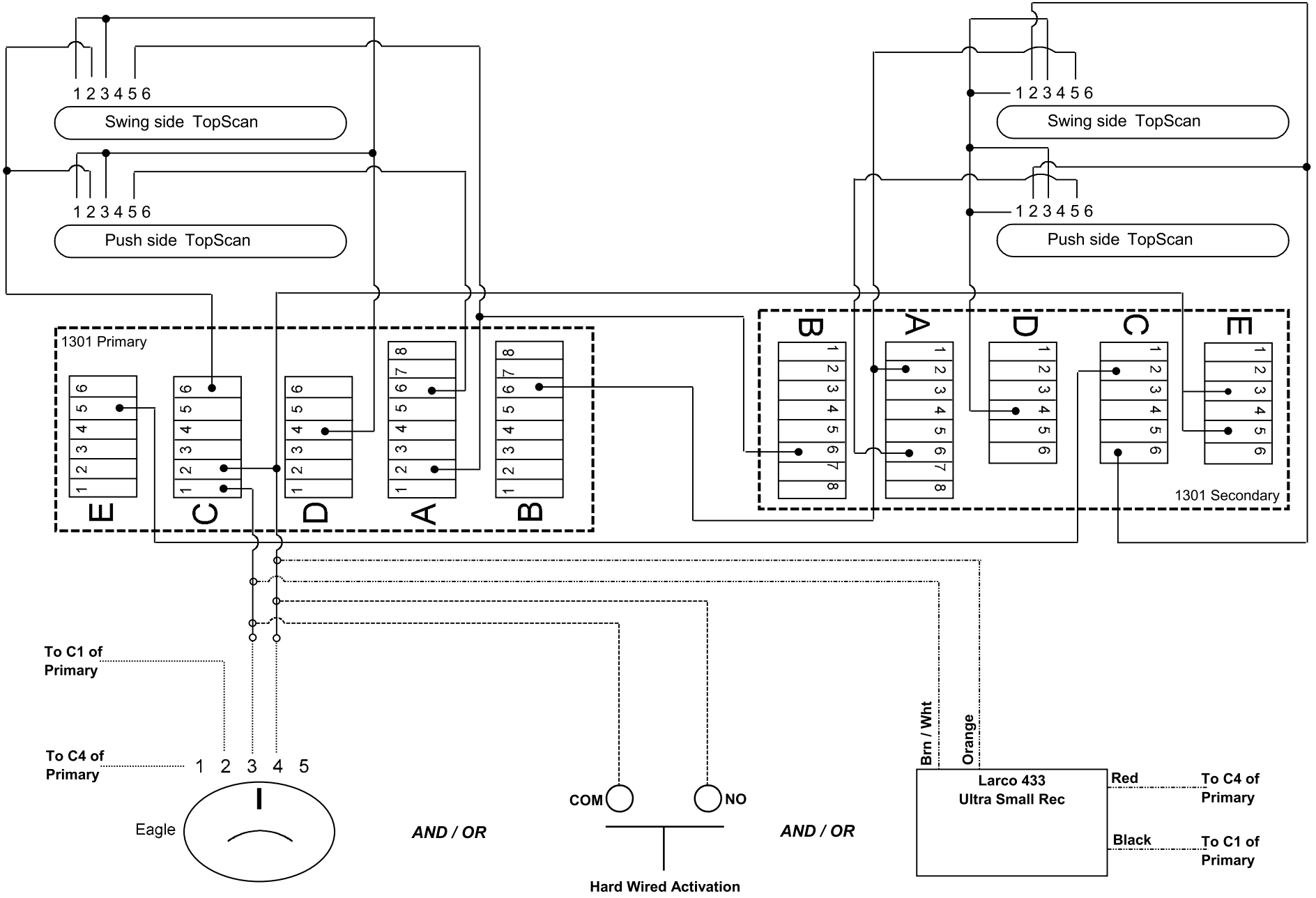
18 K
Producer: TORMAX AUTOMATIC
T-1262 e



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 ()

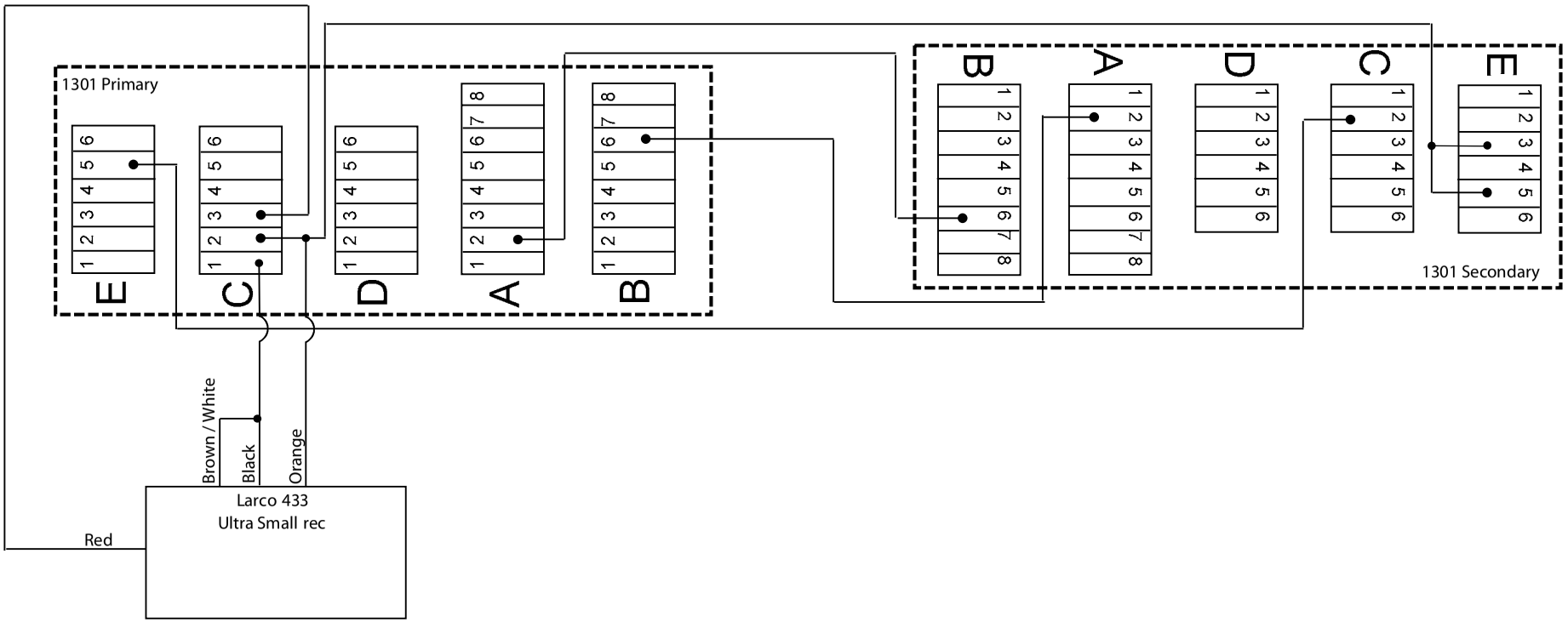
Title:	1301 Pair with Larco 433 rec or Eagle motion sensor and Optex Elite
Dwg. by:	Beto Rendon
Date:	3-11-10
DWG NO:	

18 L
Producer: TORMAX AUTOMATIC
T-1262 e



Note:
Adjust operator and sensors if applicable to be in accordance with ANSI A156.10 / A156.19
See Eagle / TopScan / Larco installation manuals for setup and adjustments

Title:	1301 LE Pair with Larco 433 rec.
Dwg. by:	Beto Rendon
Date:	10-27-10
DWG NO:	



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

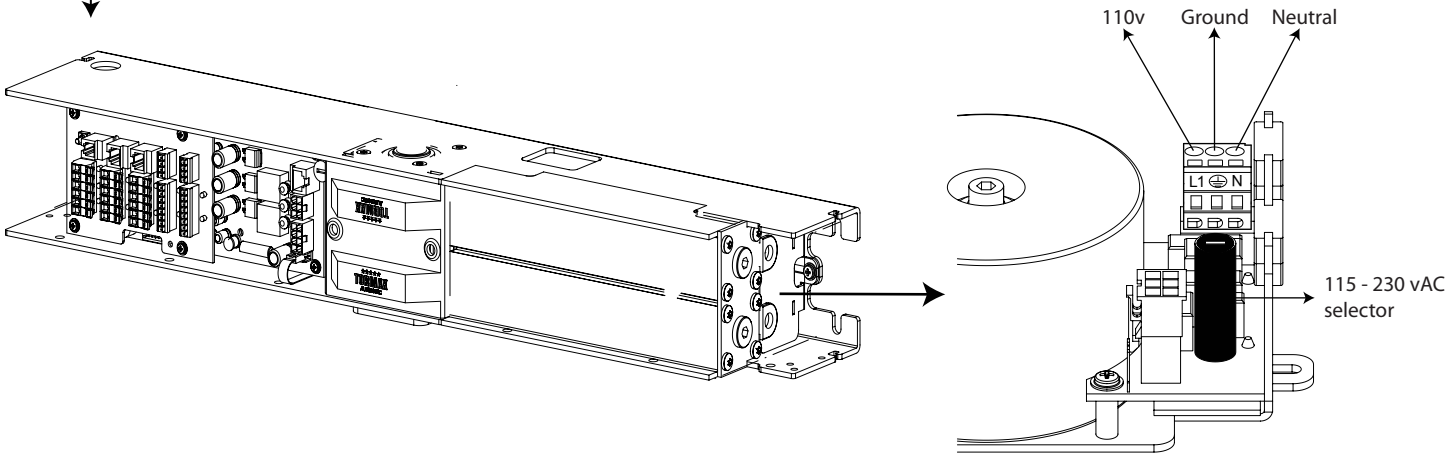
Title:	1301 LE Pair with Larco 433 rec.
Dwg. by:	Beto Rendon
Date:	1-18-10
DWG NO:	

18 N

Producer: TORMAX AUTOMATIC

T-1262 e

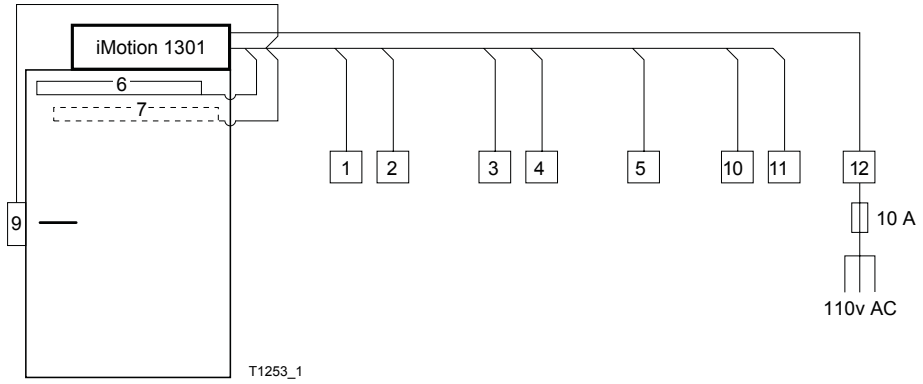
Operator type	iMotion 1301 Swing Door Operator
Drive system	Electromechanical swing door operator with AC permanent magnet synchronous motor, POSC or POPC
Control system	Control Unit 1301 MCU32
Mains connection	1 x 115 VAC or 1 x 230 V AC 50 - 60 Hz, 10 A
Power consumption	5 … 250 W
Sensor power supply	24 VDC/ .75 A
Lock output	6 … 24 VDC/ max. 24 W, max. 2 A
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)
CE approval	Prototype test according to EN14351-1 (pending)
	UL – 325, UL –228
Standards	CE, EN14351-1
Durability	Class 3 according to DIN 18650-1 Dec. 2005 1 000 000 test cycles with 4 000 cycles per day
Operator dimension	3-15/16" H x 5-5/16"W x 25-3/16"L Operator alone
Operator weight	32 lb Operator alone
Opening angle	Out swing: Max. 110°
	In swing: Max. 100°
Hold-open time	0–10 minutes



Remove screw and slide out
for 110v AC input

6. Installation and programming

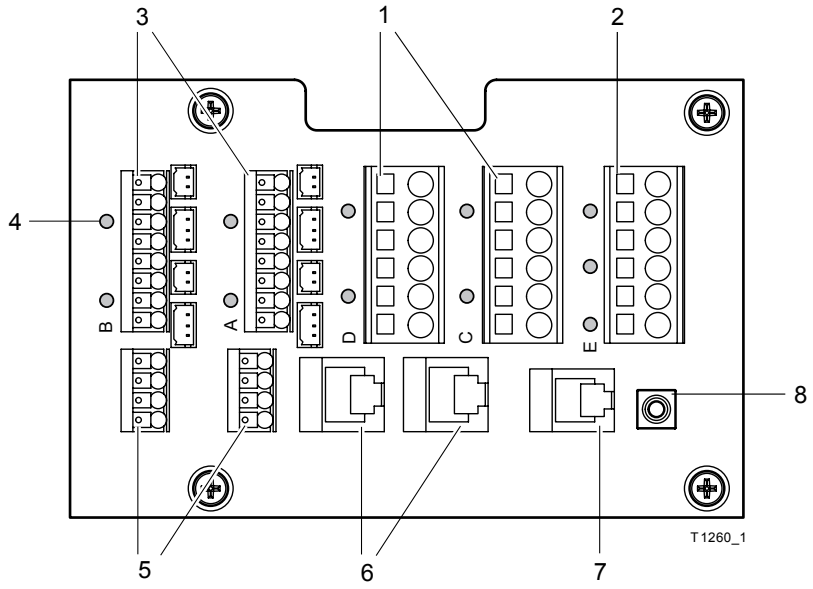
T-1253 e	Cable Plan	★★★★★ TORMAX AUTOMATIC 12859 Wetmore Road SanAntonio,Tx 78247 1-888-685-3707 www.tormaxusa.com
Area of Application	iMotion 1301 Swing Door Operator	
Release	Jan 2009	
Use	Wiring specifications	



No.	☒	Control Components	Notes	Cable	Length (m) without screen	Length (m) with screen
1		Activator/Push-button inside	Stranded wire recommended	4 × 20 AWG	< 30	< 100
2		Activator/Push-button outside	Stranded wire recommended	4 × 20 AWG	< 30	< 100
3		Key-switch	Stranded wire recommended	2 × 20 AWG	< 30	< 100
4		Input	Stranded wire recommended	… × 20 AWG		< 100
5		Userinterface iMotion Connected with FCC-connector		Phone ribbon cable 6 x 0,14 mm ² RJ12,6P,6C	<30	
		Userinterface iMotion Connected with LIN-Adapter		3 × 0,25 mm ²	< 30	< 100
6		Safety activator closing	Stranded wire recommended	4 × 20 AWG	< 30	< 100
7		Safety activator opening	Stranded wire recommended	4 × 20 AWG	< 30	< 100
8						
9		Door lock	Stranded wire recommended	4 × 20 AWG	< 25	< 100
10		Message 1 …	Stranded wire recommended	2 × 20 AWG	< 30	< 100
11		Message 2 …	Stranded wire recommended	2 × 20 AWG	< 30	< 100
12		Mains main switch		3 × 14 AWG		

Purpose

Input, output and FCP connections for the iMotion 1301, 1401 operators and 2301, 2401 drives.



1 Inputs
2 Outputs
3 Safety sensors
4 LED (I/O function)
5 CAN bus
6 LIN bus
7 RS232
8 SW 2, Activation

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-1263 for iMotion Sliding Door Drive and T-1262 for iMotion Swing Door Operator

Technical Data

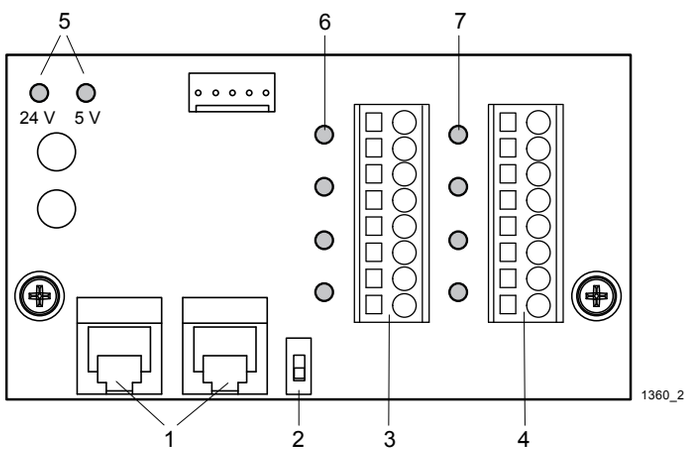
Inputs:	8 ×	Pull up in: 24 VDC / 3 mA Function is programmable
Outputs:	2 ×	Transistor out: 24 VDC / 0,75 A max. Function is programmable
	1 ×	Transistor pwm out / < 24 W and < 2 A Function and voltage are programmable
Load 24 V power supply:	0.75 A	with MCU32-PSUP-40-18-x
	1.5 A	with MCU32-PSUP-40-36-x
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:	120 × 77 mm	
Module interfaces:	TORMAX safety sensors with plugable connections 2 × LIN / FCC 6 pole for MCU32-USIN, MCU32-INOU, MCU32-LOCU 1 × RS232 / FCC 4 pole 2 × CAN	

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

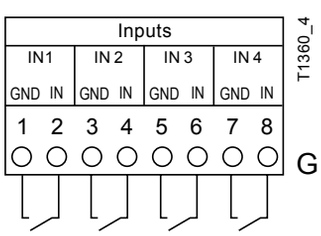


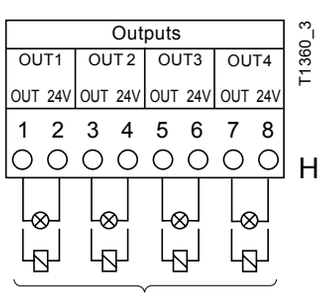
1 LIN-Bus
2 Code switch for LIN address
3 Input 1 … 4
4 Output 1 … 4
5 Display power supply
6 Display status of inputs 1 … 4
7 Display status of outputs 1 … 4

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.

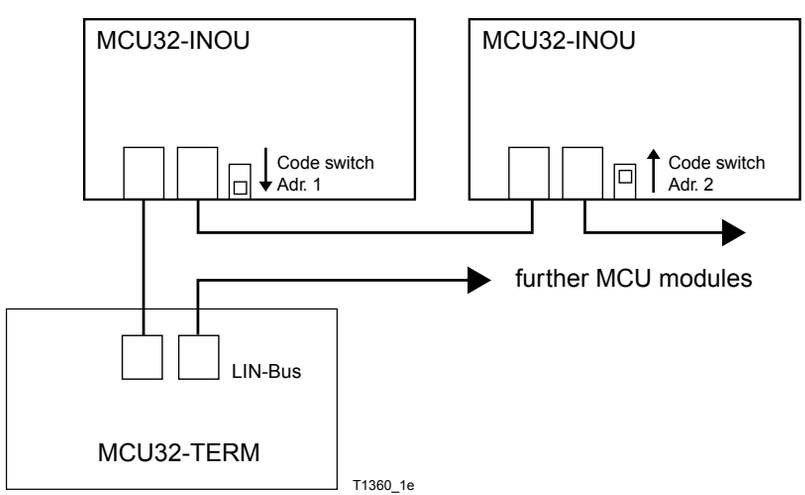
Connection Diagram





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.

Max 98’

FCC 6 pole FCC 6 pole

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 on TORMAX Extranet for input and output functions (021). No functions are programmed as standard.

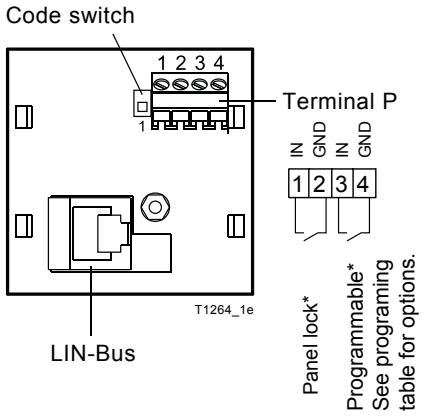
Technical Data

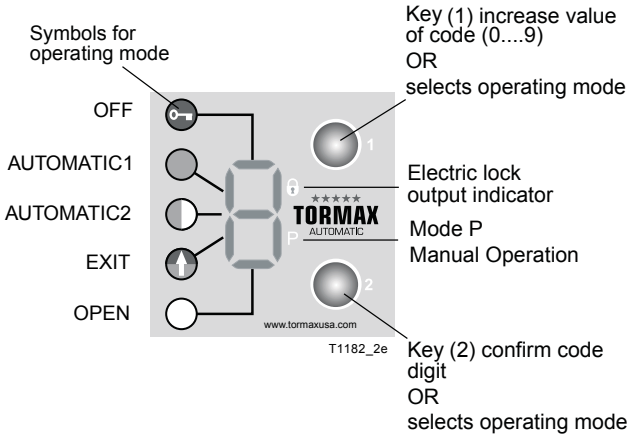
Inputs:	4 x Pull up in: 24 VDC / 5 mA, function programmable
Outputs:	Transistor out: 24 VDC / Continuous current max. 25 mA, function programmable
Input/output reaction time:	with 1 module MCU-INOU-A < 50 ms with 2 modules MCU-INOU-A < 100 ms
Power supply 24 V:	Total continuous load < 100 mA
Terminal 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

Purpose

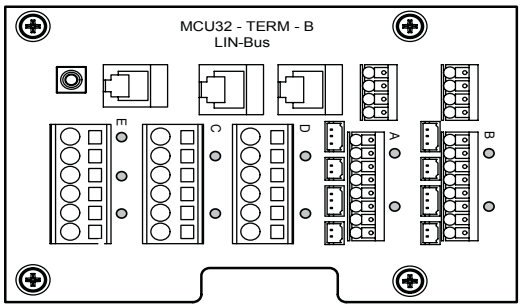
Programming and operating the TORMAX iMotion universal processor.

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

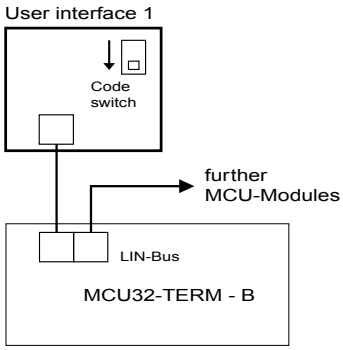




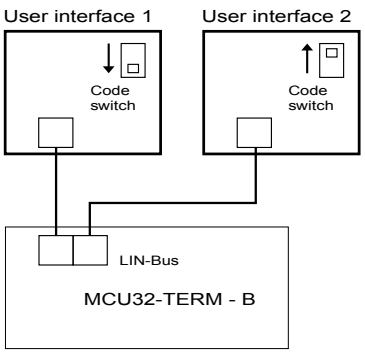
Connection Diagram



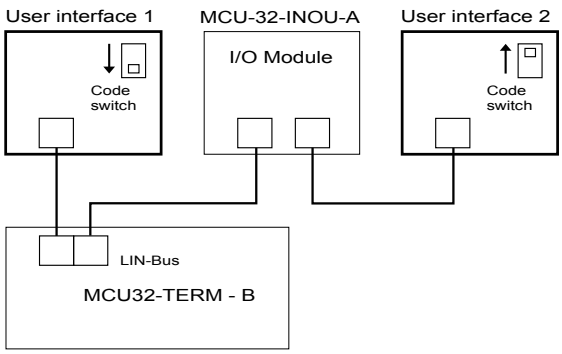
Connection Option 1



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

FCP 6 pole 98’ Max FCP 6 pole

• First connect the LIN cable and FCP to the 1301 operator then switch the 110vAC 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-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 1301,1401 Operators and 2301, 2401 Drives	
Release	August 2008	
Use	Installation and maintenance	

Purpose

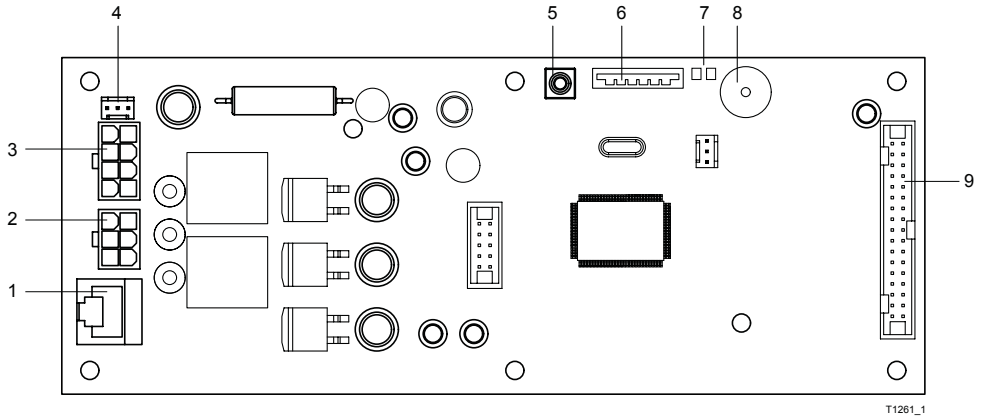
To manage the function of all iMotion 1301,1401swing door operators and iMotion 2301,2401 sliding door drives.

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 witht he 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 SW1
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-… (*)

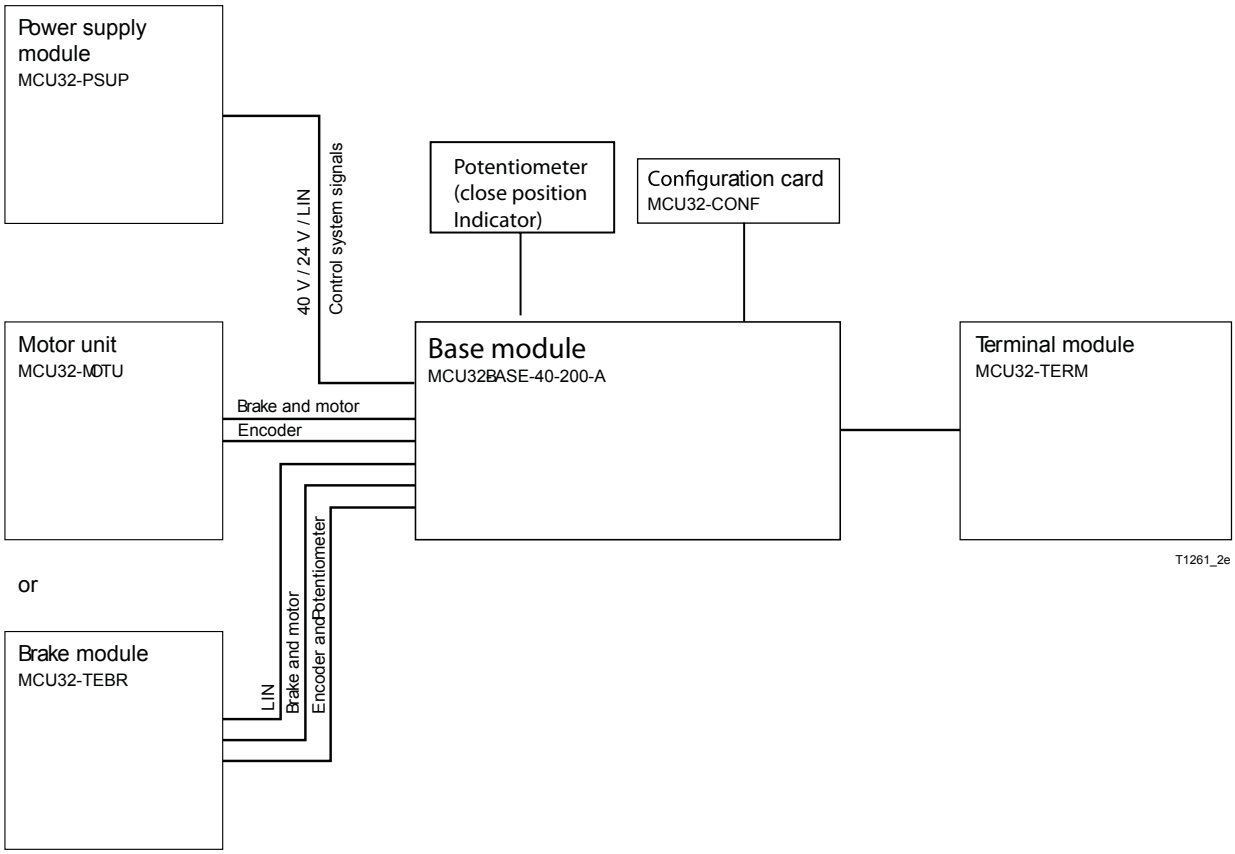
(*) Different versions

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	7.873 x 3.031 inch
Module interfaces:	MCU32- PSUP
	MCU32- MOTU
	MCU32- TERM
	MCU32- CONF
	MCU32- TERB

T-1279 e	Module Documentation Battery Backup MCU32- BATU-24-1-A	★★★★★ TORMAX AUTOMATIC 12859 Wetmore Road SanAntonio, TX 78247 1-888-685-3707 www.tormaxusa.com
Area of application	iMotion 1301 Swing Door Operator	
Release	July 2008	
Use	Installation	

Purpose

This battery backup unit is desing to be used on the iMotion 1301 Swing Door Operator only.

The module is used for limited - time operation of the system and/or for accomplishment of a final motion into a determined position. A further use is the limited - time admission into the building via the key switch during a power failure.

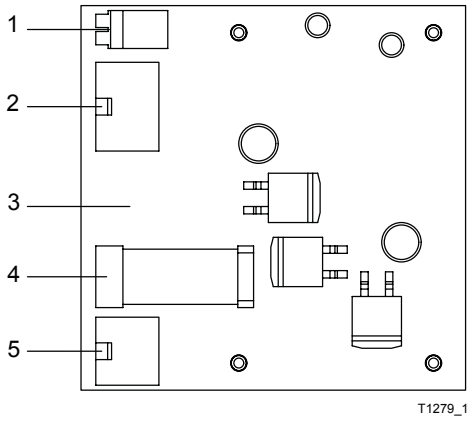
Functional Principle

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

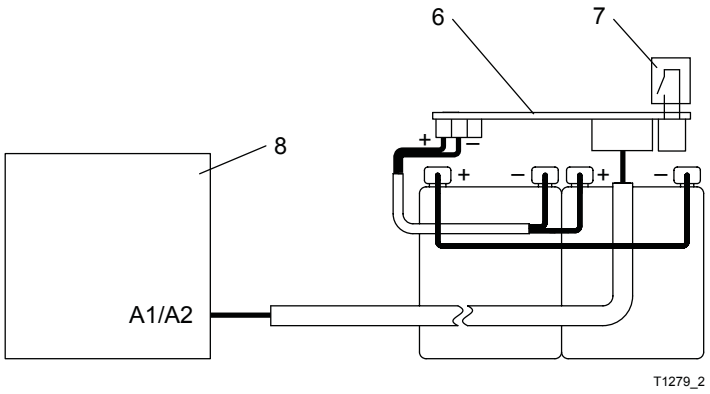
The operational function depends on the programming of the basic control system, see programming table on page 31 for programming options

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 (7).



1 Terminal key switch
2 Connector A
3 Battery module
4 Fuse 3,14 AT
5 Connector BAT
6 Battery unit
7 Key switch (wake-up)
8 Power supply module

Connection Diagram

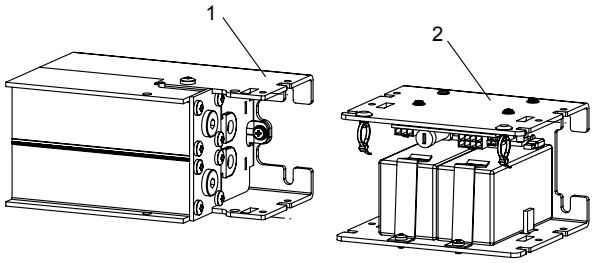


Installation

The battery unit can be installed on the left or right hand side of the operator if header space allows.

- With the provided cable, connect the battery unit with the power supply module on the control unit. (connector A1 or A2).

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!

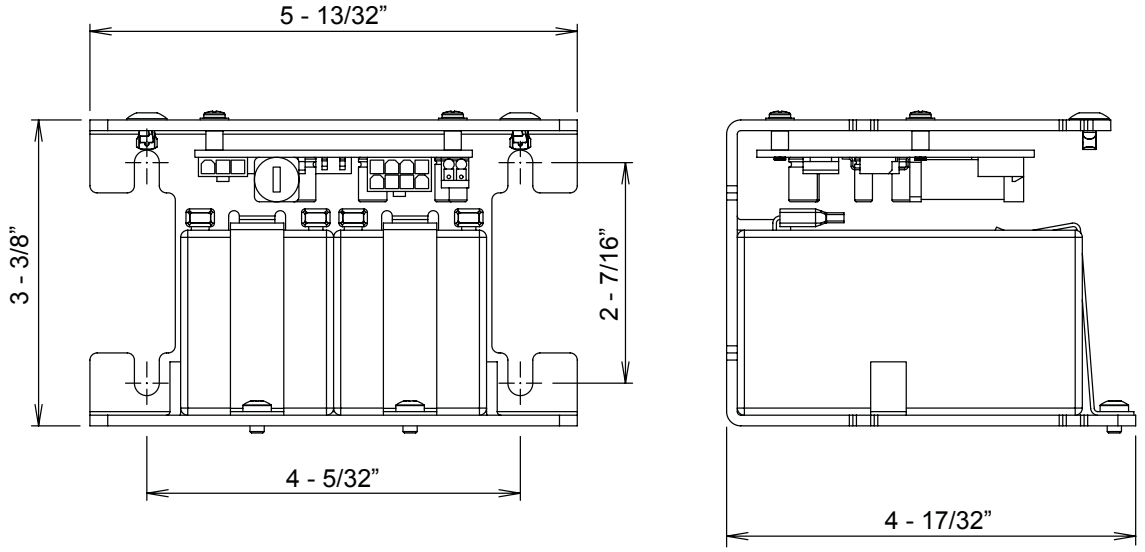


Commissioning

The battery module is detected automatically during auto configuration

See Commissioning of the entire system T -1247

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	0 … + 104 °F
Interfaces	MCU32-PSUP-40-18-B

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