UM 17

Instructions and Proper Use

Remote Keyless Entry

TriMark® DOOR SYSTEMS

Access to Excellence

500-1100 e-FOB / e-PAD System

22310-01 **e-FOB Receiver (Unsealed)**

22311-01/02 **4-Button e-FOB Transmitter**

24470-01 **2-Button e-FOB Transmitter**

Optional Accessories

36429-01 through -06 **Lighted Grab Handle with Keypad**

36448-04 through -10 **e-PAD Keypad**

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Tri*Mark* makes every attempt to assure that information contained in the User Manual is correct and accurate; however, changes in design, dimension and specifications may occur at any time and without notice. Please verify the revision level of this manual (see cover page) by referring to Tri*Mark*'s website under Product Code 500-1100.

Note: Product photos and illustrations may vary from your specific part numbers.

Introduction

This manual provides the necessary information for the proper installation and use of Tri*Mark*'s **500-1100 e-FOB and e-PAD System**. The system includes the following components:

- **e-FOB:** 2 or 4-Button Keyless entry Radiofrequency (RF)
- **e-FOB receiver:** (sometimes called Full-Feature or TMFF)**:** The input/output processor with Radiofrequency (RF) transceiver capabilities to communicate with the e-FOBs. This controller applies ground or power to certain wires to make appropriate output responses, this is called discrete functionality
- **e-PAD or e-GRAB Handle with Keypad (Optional):** A five button plastic or chrome handle. It allows for locking and unlocking functions discrete communication to the e-FOB receiver

The Full-Feature RF receiver and FOB transmitters are programmed and shipped. After making all necessary wiring connections (see appendix pages 23-26), the **e-*PAD*** / **e-*FOB*** system will function as indicated in this manual.

Acronyms

RKE: Remote Keyless Entry. The ability to lock/unlock the door by a button press on the fob.
Fob: The remote that allows RKE to work properly.
OEM: Original Equipment Manufacturer.

General Component Overview

e-FOB

Standard 4-button

22311-01

Standard 2-button

24470-01

Cargo 4-button

22311-02

- 2 or 4-button RKE fob, FCC/IC/CE/UKCA compliant
- RF transceiver that can reach 50 meters through open air depending on installation
- Control main door lock and unlock, plus cargo door lock and unlock
- High security using random number generators and proprietary encryption algorithm between the fob and controller to prevent attacks/hacking

e-FOB Receiver

- Enables wireless communication with e-FOBs
- Fault displaying LED
- Allows for alarm functions
- Able to control Cargo Lock/Unlock
- Compatible with plastic or Chrome keypads
- FCC/IC/CE/UKCA Compliant

22310-01

e-GRAB Lighted Grab Handle with Keypad / e-PAD (Both Optional)

- Entry assist handle incorporates TriMark's e-GRAB or e-PAD keypad into a stylish combo for RV coaches, motor homes and travel trailers
- Button presses with tactile, visual, and audio feedback
- Communicates with the TriMark e-FOB receiver via grounding specific wires
- Chrome is available in standard & doorbell configurations
- Black plastic is available in Horizontal and Vertical configurations

36429-0X

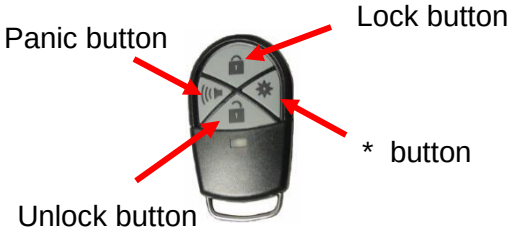
36448-05

36448-04

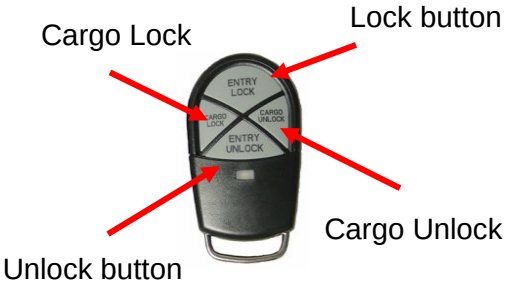
NOTE: Not all equipment or functions described or listed in this manual will be used in your installation. See your OEM owner's manual for your individual vehicle buildout.

Chapter 1: e-FOB Operation and Features

e-FOB Functionality



Button	Standard Fob Functions
Lock	Locks all doors and arms security system
Unlock	Unlocks doors and disarms security system, Also activates dome light
Panic	Activates Panic mode when pressed & held for 2 seconds
*	* Button is OEM defined. Possible uses include Gas cap, hood pop, general access, etc



Button	Cargo Fob Functions
Lock	Locks all doors and arms security system
Unlock	Unlocks doors and disarms security system, Also activates dome light
Cargo Lock	Locks Compartment doors, arms security system
Cargo Unlock	Unlocks Compartment doors, disarms security system

Button	2-Button Fob Functions
Lock	Locks all doors and arms security system
Unlock	Unlocks doors and disarms security system, Also activates dome light

Note:

- While the system is sensed to be running, by the Ignition input being at 12 volts. (C1Pin 2). Only the unlock function will be active. Other functions are deactivated
- For information on changing the default configuration, see DIP switch settings assignment.
- Your system may have FOBs not shown here. Only TriMark FOBs marked with FCCID# TV2 EFOBI, or TV2 EFOBII, will work with this system.

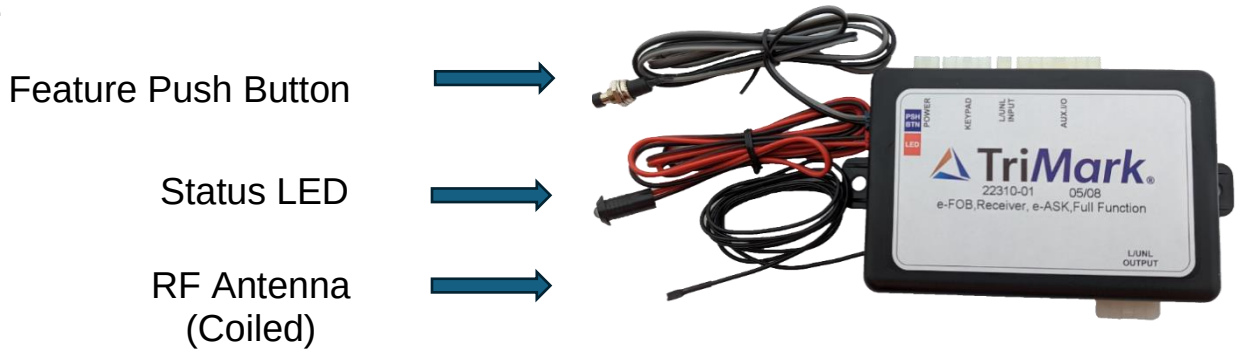
Pressing any button on the fob should cause the LED to flash rapidly. If the fob's LED does not flash, **replace the batteries**. The 4-button fobs are powered by (1) standard CR2032 3V battery. The 2-button fobs use (2) CR 1616 batteries.

Synchronizing e-FOBS to e-FOB Receiver

When you need to replace or add fobs to this **500-1100** Discrete system, you need to sync fobs to the receiver, they will not work with your system until they are sync'd to the receiver. Skipping steps in this procedure will cause the failure in the addition of new FOBs.

PLEASE READ INSTRUCTIONS AND NOTES FULLY BEFORE STARTING THIS TO ENSURE SUCCESS.

Notes: Synchronizing new fobs will unlearn any sync'd fobs previously stored. Make sure you have all the fobs that you wish to sync before starting this process. You must sync all fobs desired to work with your vehicle at the same time. If you sync another fob later, the ones you sync now will be erased.



Synchronizing Process

1. Ensure the Status LED plugged into the controller is not flashing.
    a. If Status LED is flashing perform an unlock to disarm the alarm.
    b. Verify the Status LED and Feature pushbutton are properly installed.
    c. If still flashing, perform emergency override (see page 8) if necessary.
2. Gather all FOBs desired to be used on this controller from this point on, previous and new.
3. Test all FOBs to ensure the FOB LED lights brightly, if not replace batteries as necessary.
4. Ensure ignition is OFF, = no power on the ignition input connector C1 pin2.
5. Press the Feature Push Button deliberately **three times**. Status LED should flash with every press.

6. Wait 3 seconds, the Status LED should come on RED and stay on = **synching window open**.
7. Within 10 seconds of the LED coming on press and release any button on the first FOB.
    a. The Status LED should go OFF and then Back on. If equipped or wired, the horn will sound once.
    b. The programming window 10 second timer resets.
8. Press and release any button on the next FOB.
    a. The Status LED should go OFF and then Back on. If equipped the horn will sound once.
    b. The programming window 10 second timer resets.
9. Repeat Step 8 until all desired FOBs are synchronized.
10. After all desired FOBs are synched wait until the Status Indicator LED goes OFF = **sync window closed**.
11. Test FOBs for operation.

Notes on synchronizing FOBs.

- When new FOBs are synched, ALL previous FOBs are un-synched and need to be re-synched
- If put into synchronization mode and no FOBs are synched the window closes in 10 seconds with no changes
- The FOBs in memory are not lost on a power loss to the controller
- This controller can have up to 60 FOBs in memory
- As soon as the synchronization window closes (Status LED off) the system is fully functional

e-FOB Guidelines

The e-FOB is designed to use commonly available CR2032 or CR1616 batteries. Estimated normal use should have an expected life of 2 years for the fob battery. Variances across commercial battery manufacturers and operating environment conditions may result in deviations from the expected battery life. The following guidelines should be followed to optimize fob battery life and system performance.

Due to the chemical process inherent in batteries, the performance of the e-FOB may be degraded at extreme temperatures. Operating temperature ranges vary across batteries from different manufacturers. For commercially available CR2032 batteries the typical operating temperatures ranges from –0C to +60C.

At cold temperatures, the battery's chemical process is slowed down and can result in reduced fob range performance or an inoperative fob. When the battery is returned to warmer temperatures, normal performance will return. Extreme cold temperatures, below –20C, can cause a battery to freeze and fail due to expansion of internal plastic components. Simply replacing the battery allows the fob to function normally.

At extreme hot temperatures, the battery's chemical process is accelerated. This may result in a reduced life expectancy of the battery. Normal fob range performance can be expected at higher temperatures if manufacturer limits are not exceeded.

Chapter 2: e-FOB Receiver Operation and Features

The e-FOB Receiver is equipped with a Feature Pushbutton and a Status LED. These items may be installed remotely in your vehicle. See your OEM manual for location information. For example:

- The status LED *may* be installed where it can be seen in the dashboard as a security feature, such as showing the alarm being armed
- The pushbutton *may* be installed for the operator to have easier access to it

Feature Pushbutton →

Status LED →

RF antenna(coiled) →

Feature Push button

- Used to initialize different programming modes of the Controller
  - Synchronizing e-FOBs
  - Keypad programming initialization
  - Training wireless switches (such as door ajar sensor)
  - Emergency override procedure. See page below

Status LED

- Red/Green LED plugged into C6-Red Port of the Controller
- Indicates system status.
  - OFF is normal status, alarm disarmed
  - Blinking Red Slow- once every 5-10 seconds = Alarm Armed
  - Blinking Red Fast- twice per second = Alarm Tripped
  - ON Red steady- up to 10 seconds = FOB synchronization mode
  - ON Green Steady-wireless switch synchronization mode

RF antenna

- 42.5inch/107.5cm tinned wire antenna
- Fully extend for best reception. DO NOT TRIM
- For the best reception route away from metal surfaces
- Do not bundle in with other wires or against metal cored ducting

Emergency Override Procedure

To disarm the alarm in the case of lost FOBs, forgotten Entry Codes or equipment failure. The pushbutton in conjunction with the ignition input C1 pin2 allow for the Alarm mode to be reset.

1. Turn the ignition to ON. If the OEM did not equip it, manually apply 12 volts to C1 Pin2. (yellow wire).
2. Press and hold the Feature pushbutton for 3 seconds or until the status LED stops flashing.
3. Turn the ignition to OFF. If manually applied, remove the 12 volts applied to C1 Pin2. (yellow wire).
4. Release the Feature pushbutton.

DIP switch assignments

The discrete system controller has 12 DIP (dual inline position) switches. These switches are used to change the relationship between the system controller and the FOBs and other inputs to the controller in relation to the outputs of the controller.

The setting of these switches should be done with the assistance of either your OEM, service personnel, or TriMark tech support. Changing these switches can result in negative and/or undesirable results if the proper usage of them is not understood.

The DIP switches are located on the long side of the controller with only one connector on it.

Down to the base is ON, up toward cover is OFF.

This table explains in general the function and usage of the DIP switches. Default settings are OFF.

Dip Switch	Switch Name	ON Function	OFF Function
#1	FOB mode Standard or Cargo	Cargo Mode	Standard Mode
#2	FOB L/R buttons	Sustained	Pulse
#3	Unused	Leave OFF	Leave OFF
#4	Unused	Leave OFF	Leave OFF
#5	Headlight Supervision	.25 Second Pulse	30 second Timed
#6	Arm Alarm	1 Lock Button Press	2 Lock Button Presses
#7	Automatic Lock	Auto-lock Enabled	Auto-lock Disabled
#8	Keypad #5 out FOB long unlock	Lights output 5 minutes	Aux. 2 output 5 minutes
#9	Keypad #5 out FOB long unlock	#8 output ON .25 seconds	#8 output ON 5 minutes
#10	Third Unlock Staggered Lock	Output staggered with lock	Output Activated with Unlock
#11	Unused	Leave OFF	Leave OFF
#12	Unused	Leave OFF	Leave OFF

Depending on the DIP switch settings, the Controller will respond to Fob button press events in different ways.

If DIP switch #1 is ON (Cargo Mode) the #1 button is Entry Lock on either Fob.

- Button #3 is Cargo Lock on the four button FOB.
- There is not a Panic Feature in Cargo Mode

If DIP switch #1 if OFF the #1 button is Lock on either FOB.

- Button #3 is the Panic Mode button. Press for 2 seconds.

Two button FOBs have **no provisions** for Cargo Functions or Panic mode.

Detailed explanations of the DIP switch settings.

DIP switch #1: FOB mode Standard or Cargo

- DIP Switch #1 ON: Pressing the center left button of the FOB (Cargo lock) pulses the staggered lock output C4 pin11. Pressing the center right button of the FOB (Cargo Unlock) pulses the Auxiliary and 2nd unlock outputs C4 pin10
- DIP Switch #1OFF: Pressing and holding the center left button of the FOB(Panic) activates Panic mode. The Horn, Headlight, and parking light outputs toggle ON/OFF for 30 seconds while the Siren output is ON for 30 seconds. Pressing the Center-right button on the FOB (*) pulses the Auxiliary output.

DIP switch #2: Sustained Output

- *This switch is ignored if DIP switch #1 is in the OFF position*
- DIP Switch #2 ON: The center-left and center-right buttons of the FOB provide sustained outputs of the C4 pin11(center-left) and C4 pin10 (center right) outputs for up to 30 seconds.
- DIP Switch #2 OFF: The center-left and center-right buttons of the FOB provide 500mS pulse outputs of the C4 pin11(center-left) and C4 pin10 (center right) outputs

DIP switch #3: Unused - Leave OFF

DIP switch #4: Unused - Leave OFF

DIP switch #5: Headlights Supervision

- DIP switch #5 ON: The headlights Flash once with an unlock command
- DIP switch #5 OFF: The headlights are activated with the dome light output. Headlights will remain illuminated for 30 seconds with an unlock command. Arming the alarm or starting the vehicle will deactivate the lights immediately

DIP switch #6: Arm Alarm

- DIP switch #6 ON: A single FOB lock press locks doors and arms the alarm
- DIP switch #6 OFF: The first FOB lock press locks the entry door. The second FOB lock press arms the alarm

DIP switch #7: Automatic Lock/Unlock.

- DIP switch #7 ON: The auto-lock feature is activated. All doors lock 5 seconds after the ignition start. Doors will also unlock when the ignition is turned off. THIS FEATURE IS CANCELLED if a door ajar is sensed when the ignition is started. This helps protect against the locking of keys in vehicles
- DIP switch #7 OFF: The auto-lock feature is deactivated

DIP switch #8: FOB Button #2 press and Keypad button #5 output selection

- DIP switch #8 ON: The (9/0) for standard keypads or the DB button for doorbell keypads provides an output to the headlight output. Also Disables the FOB button #2 long press timer feature for Auxiliary 2 output
    - Pressing and holding the fifth keypad button holds on the Headlight output
    - Pressing and holding the #2 button does not start a 5-minute Auxiliary 2 ON timer
- DIP switch #8 OFF: The (9/0) for standard keypads or the DB button for doorbell keypads provides output to the Auxiliary 2 output. This Enables the Long press on FOB button #2 for 5-minute timer for Auxiliary 2 output
    - Pressing and holding the fifth keypad button holds on the Auxiliary 2 output.
    - Pressing and holding the #2 button on FOB starts a 5-minute Auxiliary 2 output.

DIP switch #9: FOB long Unlock time selection

- DIP switch #9 ON: The (9/0) for standard keypads or the DB button for doorbell keypads provides a half second pulse on the Auxiliary 2 output. THESE OUTPUTS ARE DEPENDANT ON DIP #8. Also Enables a Long press on FOB button #2 and a half second on the Auxiliary 2 output
    - Pressing the fifth keypad button provides a half second pulse to Auxiliary 2 output (doorbell)
    - Pressing and holding the FOB #2 button provides a half second pulse to Auxiliary 2 output
- DIP switch #9 OFF: The (9/0) for standard keypads or the DB button for doorbell keypads provides a constant output on the Auxiliary 2 output. THESE OUTPUTS ARE DEPENDANT ON DIP #8. Also Enables a long press on FOB button #2 for a 5-minute timer for Auxiliary 2 output.
    - Pressing the fifth keypad button provides a constant output on the Auxiliary 2 output.
    - Pressing and holding the #2 button on FOB starts a 5-minute Auxiliary 2 output.

DIP switch #10: Third Unlock/Staggered Lock

- DIP switch #10 ON: The third unlock output is staggered in comparison to the main unlock. Output in standard mode. THESE OUTPUTS ARE DEPENDANT ON DIP #1.
    - The first pressing of the FOB #2 button will unlock the entry.
    - On the second press for the FOB #2 button, activate the third unlock C4 Pin 11.
- Dip switch #10 OFF: The third unlock output actuates in concert compared to main unlock Output in standard mode. THESE OUTPUTS ARE DEPENDANT ON DIP #1.
    - The first pressing of the Fob #2 button will unlock the entry and activate C4 Pin 11.
    - On the second press of the Fob #2 button, activate the second unlock output C4 Pin 10

DIP switch #11: Unused - Leave OFF

DIP switch #12: Unused - Leave OFF

Additional system features

Light Activation

- When the alarm is armed, the parking lights flash and the horn honks
- With an unlock from the Fob, or the keypad, the dome light output activates for 30 seconds

2ND Unlock Output

- Standard Mode DIP switch #1 OFF
  - Pressing the Fob Unlock button (Button #2) twice for a pulse output
  - Enter secure operation #2 from keypad for a pulse output
- Cargo Mode DIP switch #1 ON
  - Press Fob Cargo Unlock button (Button 4) once for a pulse output
  - Enter secure operation #2 from keypad for a pulse output

3RD Unlock / Staggered Lock Output

- This feature is not active in Cargo Mode. DIP switch #1 ON
- If in Standard mode DIP switch #1 OFF
  - Pressing the Fob unlock button (Button #2) once Activates the Entry unlock output
  - Pressing the Fob unlock button (Button #2) twice Activates the 2nd unlock output (cargo)

Auxiliary Output

- This feature in Cargo Mode, DIP switch #1 ON
  - Pressing the Fob Cargo unlock (button #4) activates the Auxiliary 1 & Cargo unlock outputs
- This feature in Standard Mode, DIP switch #1 OFF
  - Pressing the Fob * button (button #4) activates the Auxiliary 1 output only

Auxiliary 2 Output

- This feature output is Dependent on DIP switch #9
- DIP switch #9 ON (DOORBELL)
  - Activating the keypad doorbell input will activate the Auxiliary 2 for ½ of a second
  - Pressing Fob button #2 for 2 seconds will activate the Auxiliary 2 f or ½ of a second
- DIP switch #9 OFF (5-minute timer)
  - Activating the keypad doorbell input will activate the Auxiliary 2 output as long as the input is held active
  - Pressing the Fob button #2 for 2 seconds will activate the Auxiliary 2 output and will stay active for 5 minutes. This timer can be toggled off by pressing Fob button#2 for 2 seconds

Panic Mode

- This feature is only Available in Standard mode DIP switch #1 OFF
  - Pressing and holding the HORN (Button #3) for 2 seconds will activate Panic mode. During Panic mode the Horn, Headlight and Parking light outputs activate ON and OFF for 30 seconds and the siren output is ON for that duration. Pressing the Fob Lock (button #1) or Fob Unlock (button #2) will deactivate Panic mode

Vehicle Alarm

- Arming the Alarm is dependent on Operational mode DIP switch #1, and Arm alarm DIP switch #6

Arming alarm from Fobs

- If in standard mode DIP switch #1. OFF Arming the alarm is Dependent on DIP switch #6
    - DIP switch #6 ON. One press of the Lock button (button #1) arms the alarm
    - DIP switch #6 OFF. Two presses of the Lock button (button #1) arms the alarm

- If in Cargo mode. DIP switch #1. ON Arming the alarm is Fob button #1 and #3 dependent
    - To arm the alarm in Cargo mode, press the Entry Lock (button#1) and then within 5 seconds, press Cargo lock (button #3). These CAN be pressed in either order

Arming alarm from Keypad

Arming the alarm from the Keypad is accomplished the same whether the keypad is a Standard Keypad or a Doorbell Keypad. Pressing and holding the #1 keypad button to perform a Lock all will arm the alarm.

- Standard keypad, press and hold the 1 / 2 keypad button
- Doorbell keypad, press and hold the 1 keypad button

Alarm notifications

The alarm notifications have different patterns depending on the status of the alarm and the inputs active and inactive being applied to the controller.

- Arming the Alarm
    - The Horn & Siren outputs will emit 1 honk and 1 beep on successful Alarm Arming
    - The Status LED illuminates for 5 seconds solid and then Flashes every 2-3 seconds
- Disarming the Alarm
    - The Horn & Siren outputs will emit 2 honks and/or 2 beeps on successful Disarming
    - The Status LED will stop illuminating
- Alarm Set condition failed

  The Horn and Siren outputs will emit 3 honks and 3 beeps when a security input is active when an Alarm is set. The Alarm will still arm and may go off when the security input clears
- Tripping the Alarm
    - After a successful Alarm arming, toggling any of the 3 security inputs or any of the synchronized wireless sensors the alarm will activate causing the following outputs.
        - Horn, Headlight and Parking outputs will activate ON and OFF for 30 seconds
        - The siren output will be activated for 30 seconds
        - The Status LED will be fast flashing 2 times per second for 30 seconds
        - The Starter Kill output will be activated for 30 minutes
- Special Conditions
    - Tripped while away. The alarm has a notification that if while away that the alarm has been tripped and timed out while the owner/operator was away from the vehicle
        - The alarm will indicate that the alarm was activated and has since timed out by giving 4 honks/chirps then the normal 2 honks/chirps indicating previous activation status and current successful alarm disarming

Lock/unlock Confirmation Control

The Siren and Horn confirmation outputs can be canceled via the 4-button Fob only.

- To Cancel the confirmation outputs: Press simultaneously the #1 (top-center) button, and the #2 (bottom-center) button, and the #4 (center-left) button. A single chirp is heard when the confirmation is muted

- To reinstate the confirmation outputs: Press simultaneously the #1 (top-center) button, and the #2 (bottom-center) button, and the #4 (center-left) button. A double chirp is heard when the confirmation is reinstated

Wireless Switches

Wireless switches are rare and primarily used prior to 2010. Wireless switches operate on a 433 MHz RF signal from the switch to the e-FOB receiver. Their sole purpose is to trigger the alarm system which is accomplished by sending an RF message that the switch was triggered. There are several types: magnetic contact, motion, and shock sensors. TriMark no longer sells these, but they are available from several sources. Since we no longer sell these, we cannot provide recommendations.

Synchronizing Wireless Switches

1. Gather sensors to be used.
2. With the ignition off and alarm disarmed.
3. With Status LED and Feature pushbutton installed, press the pushbutton 5 times.
    a. In 2 seconds, the Status LED will light GREEN.
4. Select a memory location (1 through 25) for the sensor.
5. Press the Feature push button a matching number of times to that desired position (1-25).
6. The status LED will flash red when position is selected.
7. Activate the sensor. The horn and siren output will activate once if switch is detected.
8. Repeat steps 4 and 5 to train additional sensors.

Notes on synchronizing Sensors.

- The Status LED turns off after 10 seconds of inactivity and the system will be fully functional.
- The sensors in memory are not lost on a power loss to the controller.
- To erase all sensors.
- Ensure Indicator LED plugged into the controller is not flashing.
    - If flashing perform unlock to disarm the alarm. Or perform emergency override. Page 8
    - Verify the Status LED and Feature pushbutton are properly installed.
    - If still flashing perform emergency override if necessary.
    - Ensure ignition is ON, = 12 volts on the power input connector C1 pin2.
    - Press the Feature Pushbutton 10 times.
    - The horn and siren, (if equipped) will sound once to indicate that the sensors are erased.

Chapter 3: Keypad / e-GRAB Operation and Features

Programming, use, and default codes are slightly different if you have two numbers per button or one button in a doorbell configuration keypad.

ALL TRIMARK KEYPADS USE 5-DIGIT CODES, NO more, NO less.

36448-05

Standard Keypad

36429-01

Doorbell Button

- The authority code is used to create entry codes
- The entry codes are used to unlock the vehicle

This allows for the owner to have one code and make separate codes for someone else.

Default Authority and Entry Codes

Doorbell	Digit 1	Digit 2	Digit 3	Digit 4	Digit 5
Authority	4	4	4	4	4
Entry	1	2	3	4	4
Standard					
Authority	7/8	7/8	7/8	7/8	7/8
Entry	1	2	3	4	5

It is strongly recommended that you change all default codes to codes that you choose. Default codes are commonly known.

Note: If a code has been changed and you don't know what it is, please go to the **Teaching Keypad New Authority / Entry Codes** section.

Keypads Can Store Multiple Entry Codes

- Entry codes can be stored as one Entry code per numbered button on the keypad. Doorbell keypads have 4 numbered buttons, so it can store 4 Entry codes. Standard keypads have 5 numbered buttons so they can store 5 different entry codes
- These Entry codes do not allow different functions, they only allow for multiple users

Keypad Output Functions

The keypad can store one authority code and four entry codes.

- Outputs are accomplished after the ENTRY CODE is entered AND a selection is made (+ Button Option)

The DOORBELL button is ignored when entering user codes and cannot be configured to be used to enter different codes.

- When the ENTRY CODE is entered into the keypad properly the keypad will emit a two-beep tone
- After the two-beep tone there is a 5 second window to select a button option for an OUTPUT
- If no selection is made during the 5 second window the keypad returns to normal mode
- OUTPUTS ARE IN THE CHART BELOW

Standard Keypad Entry Code	+ Button Option	Secure Output	Doorbell Keypad Entry Code	+ Button Option	Secure Output
1,3,5,7,9	1/2	Entry Unlock	1,2,3,4,4	1	Entry Unlock
1,3,5,7,9	3/4	2nd Unlock (cargos)	1,2,3,4,4	2	2nd Unlock (Cargos)
1,3,5,7,9	5/6	N/A	1,2,3,4,4	3	N/A
1,3,5,7,9	7/8	Entry & 2nd Unlock	1,2,3,4,4	4	Entry & 2nd Unlock
1,3,5,7,9	9/0	Toggle Dome Light	1,2,3,4,4	DB	N/A

Locking
No Code is REQUIRED to Lock

- Simply pressing the 1 button for 2 seconds causes the system to perform a Lock All command
- Keypads do not have separate commands for lock entry or lock cargo, they can only Lock All

Unlock the Entrance Door
Enter a valid 5-digit Entry Code (double beep from keypad) followed by button 1 or (1/2)

Example/default codes are shown, your codes should be different. The important item to note is the output that is expected with the 6th button press (+ button option).

Unlock Bay/Cargo Doors
Enter a valid 5-digit Entry Code (double beep from keypad) followed by button 2 or (3/4).

Unlock All Doors
Enter a valid 5-digit Entry Code (double beep from keypad) followed by button 4 or (7/8).

Doorbell (Not available on Standard Keypad)
Pressing this button at any time without a code will cause C4P8 to toggle to ground momentarily which is wired to a doorbell if your motorhome is equipped with one.

Keypad Backlighting

Keypad buttons are lit when pressed and turn off 30 seconds after the last button is pressed.

Lockout Mode

If no Correct ENTRY CODE is entered in 20 button presses the keypad is disabled for 60 seconds. During this 60 second Lockout, the keypad will not beep or respond when buttons are pressed. This feature helps prevent random button attacks.

Dome Light Activation

Any time you press a button on the keypad, the dome light is activated for 30 seconds. When multiple buttons are pressed, the dome light will stay on for 30 seconds from the last button pressed. Pressing either Entry Door or Cargo Door Unlock buttons on Fobs also cause the dome light to activate for 30 seconds.

Keypad Buzzer Feedback

- In normal code entry mode, the keypad will emit 1 short 200mS beep per button press every time
- When the ENTRY CODE is properly entered the keypad will emit two short beeps
- During code *reprogramming* mode the keypad will emit two short beeps per button press
    - This will be covered in depth in the section “Programming the Authority Code”
- On normal power up and keypad reset the keypad will emit a longer 1 second beep
- Three, longer 1-second beeps indicate brownout
    - Brownout means that the keypad is seeing less than 9 volts to its power input

e-GRAB Handle Lighting

- The E-Grab handle rod lighting is an LED, in the upper chrome portion of the handle
- It is powered by a separate source and is wired by the OEM specifically for your coach

Teaching Keypad New Authority / Entry Codes

Please read all the steps in the process before attempting to change the authority code. Know what to expect and pay attention to the appropriate beeps the keypad provides as feedback that you are correctly following the process.

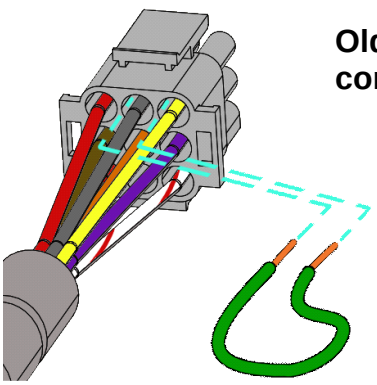
All codes are exactly 5 digits. You may reuse numbers. Changing the Authority Code erases all Entry Codes. It is highly recommended that you change your Authority Code from the default authority code. Select a new authority **before** you start this process.

> Note: There is a video of how to do this (it will not play on Apple tablets).
> https://www.trimarkcorp.com/en/media/Videos/eask/All%20Keypads/index.html

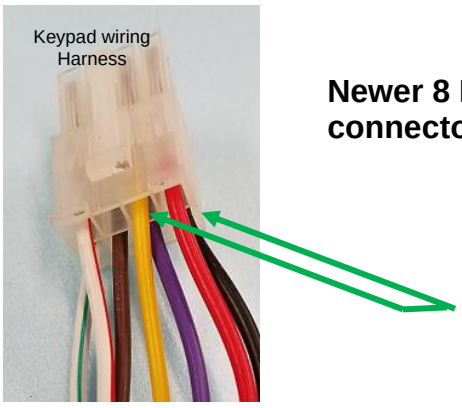
There are two options to put the keypad into Authority Code Learn mode:

Method One: Have a 5 Digit Authority Code chosen before starting!
Useful when you do not have access to the control module, or the ignition input has not been wired (C1 P2). The keypad is plugged into the coach’s wiring harness with an 8 or 9 pin connector. You need to remove the keypad and housing and pull the wires away from the coach to expose this connector. The yellow wire that is in the keypad connector that initiates Authority Code programming mode.

1. With the keypad still plugged in, short the yellow wire to the black wire (GND) momentarily (or press the switch on the steering column if your motor home is equipped with one). This causes the keypad to beep for three seconds, remove the short before the beep stops.



Older 9 Pin connector



Newer 8 Pin connector

2. Enter the desired 5-digit Authority Code, the keypad will beep twice per button press.
3. After the 5th digit is entered, The Keypad will beep 3 times.
4. Enter the 5-digit Authority Code again. The keypad will beep twice per button press.
    a. If the Authority Code is entered twice correctly the keypad will beep 4 times.
    b. If the Authority Code is entered incorrectly, or mistakes are made the keypad **Emits a long beep to indicate a failure to change the code.**
5. After programming the system immediately exits Authority Code learn mode.
6. Test your new Authority code by using it as your temporary Entry Code.
7. If you are looking for simple, and only need 1 entry code, **you can be done at this point and the Authority Code and Entry Code are the same 5-digit code**. This is not recommended, but you only need to remember 1 code. You can test by entering your 5-digit code followed by the desired output button. (1), for example will unlock the entry door.

For greater security, we recommend you use an authority and one or more entry codes.

Method Two:
Useful when the controller power input C1 P2 is wired to the ignition circuit, and the Feature pushbutton is installed.

Feature Push Button →

1. Turn on the ignition. This puts 12 volts on C1 Pin2.
2. Press the Feature pushbutton 3 times.
    i. After 3 seconds the keypad will emit a 3 second beep.
    ii. The keypad is now in Learning mode.
3. Enter your new Authority Code.
    a. If you are in learning mode button presses will respond with double beeps.
    b. On the fifth button press the keypad will emit THREE short beeps.
4. Re-enter your New Authority Code.
    a. On the fifth button press the keypad will emit FOUR short beeps.
    b. Your Authority Code is now reset and is also your position one Entry Code.
5. Test your Authority Code by using it as your temporary Entry Code.

Keypad programming notes.

- The keypad exits learning mode automatically when the Authority code is relearned.
- The Authority Code should only be used to change the Entry Codes. Not left as an Entry Code.
- The Authority Code should be maintained by the owner and distribute Entry codes to others.
- If your keypad is not emitting double beeps during the learning process it is not in learning mode.
- If your keypad emits a LONG 1 second beep, then single beeps after that, mistakes in the code entry were made and it has left learning mode.

Note: We recommend changing the Entry Code when a **vehicle is acquired or sold**. The system automatically clears all Entry Codes and stores an Entry Code the same as your Authority Code in location button 1 any time the Authority Code is changed.

Programming Entry Codes

All codes are exactly 5 digits. You may reuse numbers. Have a number chosen before you start.

1. Press and hold button 5/6 (3 for Doorbell keypads), for 5 seconds. The keypad beeps again and begins flashing when it is held long enough.
2. Enter the 5-digit Authority Code. The keypad will double beep with every button press.
3. If you enter the **correct** Authority Code, you will hear a constant beep - continue to step 4.
    a. If you enter the incorrect Authority Code, you will hear a 1 second beep. Please double check the Authority Code. You then need to go back to step 1.
4. Choose a location to store this code by pressing a location button once.
    Button 1 = Location 1 Button 2 = Location 2 Button 3= Location 3
    Button 4 = Location 4 Button 5 = Location 5 (only standard keypads)
    (Constant beep will end when a location selected)
5. Enter the desired 5-digit Entry Code. The keypad will beep twice per button press. If the keypad is not double beeping with every button press, the keypad is not in learn mode, go back to step 1.
6. Enter the desired 5-digit Entry Code again. The keypad will beep twice per button press.
    a. If the Entry Code is entered twice correctly the keypad will beep 4 times.
    b. If the Entry Code is entered incorrectly or mistakes are made the keypad does a **long beep to indicate a failure to program an entry code.**
7. Test your Entry Code by entering the 5-digit code followed by button 1/2 or 1 and the entry door will unlock.

Entry code notes:

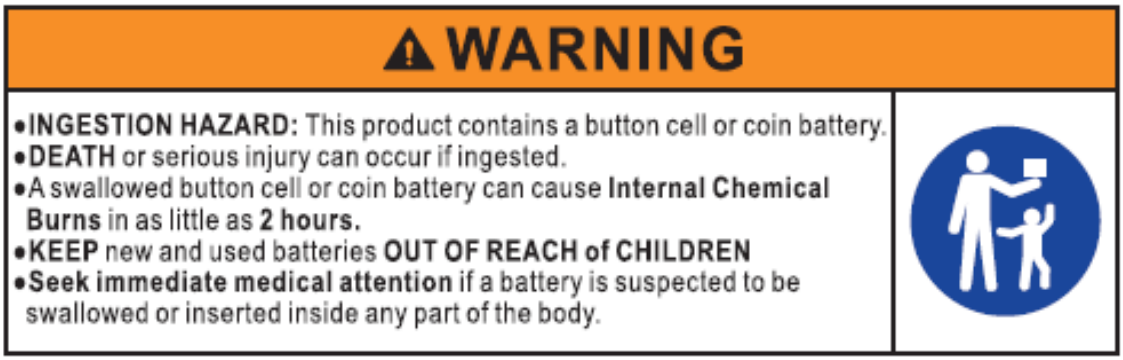
- You may store up to 4 codes in the system for doorbell keypads, 5 codes for standard keypads. You may write over a location by simply programming an entry code over that location.
- If while inputting the Entry code, the keypad emits a long one second beep and stops double beeping, mistakes were made, the keypad leaves code entry mode and the codes will not be changed.
- If code entry mode is entered but no codes are entered after 60 seconds. The keypad will timeout and exit code entry mode and no codes will be changed.
- If you select a position that already has an Entry code stored in it and put in a new Entry code there, the previous Entry code will be overwritten and replaced.

Standard KP	B 1	B 2	B 3	B 4	B 5	Doorbell KP	B 1	B 2	B 3	B 4	B 5
Authority Code						Authority Code					
Position (1/2) Entry code						Position (1) Entry code					
Position (3/4) Entry code						Position (2) Entry code					
Position (5/6) Entry code						Position (3) Entry code					
Position (7/8) Entry code						Position (4) Entry code					
Position (9/0) Entry code						N/A Doorbell button					

This page can be printed and used to write down your vehicle's actual codes

Appendix A: Coin Cell Battery Warning

WARNING: TriMark Keyless Entry Fobs contain a lithium button/coin cell battery. Keep coin cell batteries out of reach of children.



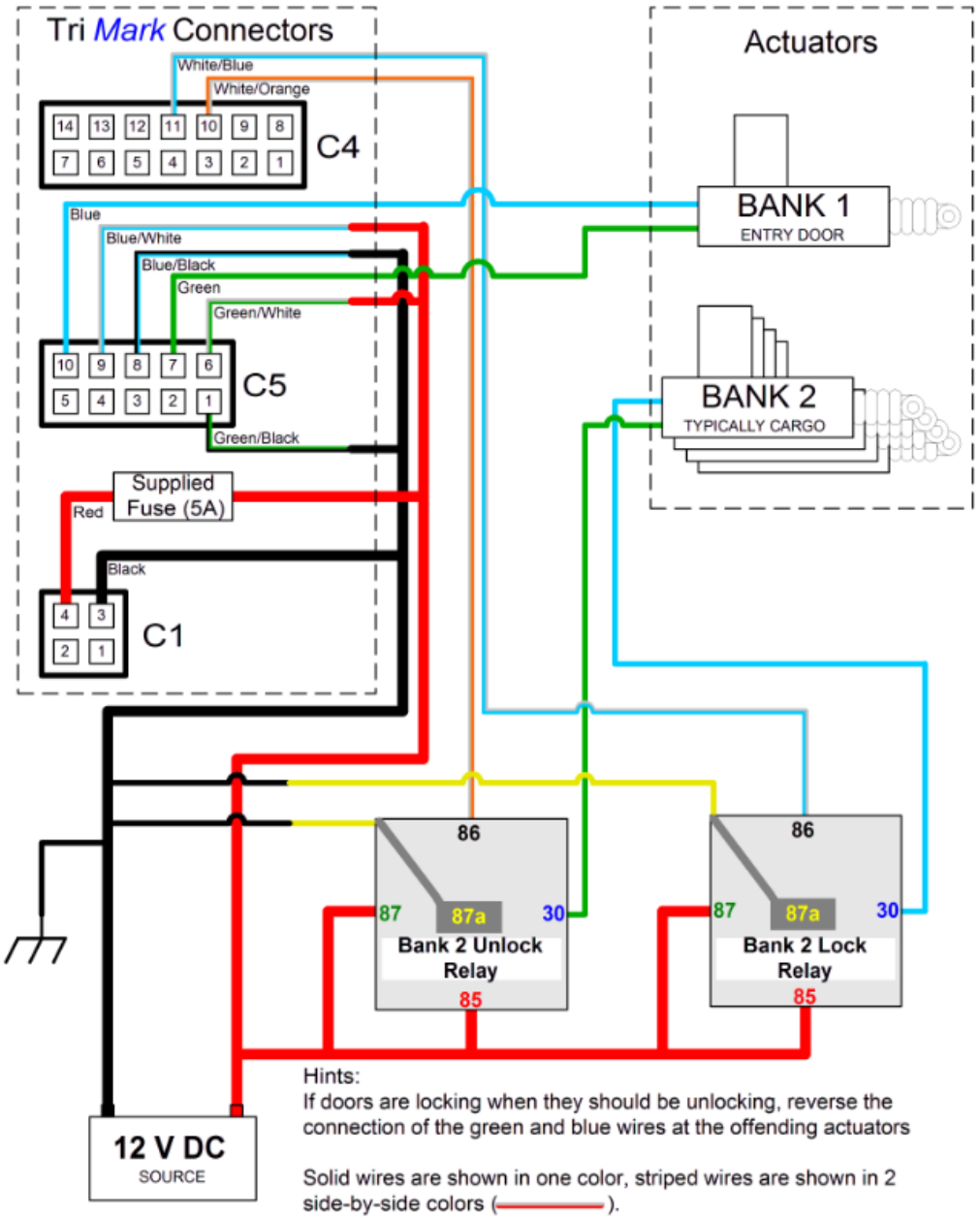
1. Remove and immediately recycle or dispose of used batteries according to local regulations and keep away from children. Do NOT dispose of batteries in household trash or incinerate.
2. Even used batteries may cause severe injury or death.
3. **Call the National Battery Ingestion Hotline (800-498-8666) or the Poison Help Line (800-222-1222) immediately for treatment information if you suspect a child has swallowed or is exposed to button cell or coin batteries.**
4. The compatible battery type is CR2032.
5. The nominal battery voltage is 3V.
6. Non-rechargeable batteries such as the CR2032 are not to be recharged.
7. Do not force discharge, recharge, disassemble, heat above (manufacturer's specified temperature rating) or incinerate. Doing so may result in injury due to venting, leakage or explosion resulting in chemical burns.
8. Ensure the batteries are installed correctly according to polarity (+ and -).
9. Do not mix old and new batteries, different brands or types of batteries, such as alkaline, carbon-zinc, or rechargeable batteries.
10. Remove and immediately recycle or dispose of batteries from equipment not used for an extended period of time according to local regulations.
11. Always completely secure the battery compartment. If the battery compartment does not close securely, stop using the product, remove the batteries, and keep them away from children.

Appendix B: Wiring Diagram

Wiring Diagram - Lock/Unlock 2-Bank Staggered/Cargo System

Notes:
Additional door actuators can be installed in parallel on each bank (i.e. connecting all blue wires together on every relay on the same bank) as appropriate based on amp draw from actuators and amp rating on relays

If amp draw from actuators exceeds the rating of the relay, add an additional relay in parallel (I.E. Connect C4-Pin10 and C4-Pin11 to the 86 terminal of an additional relay pair for more Bank 2 capacity)



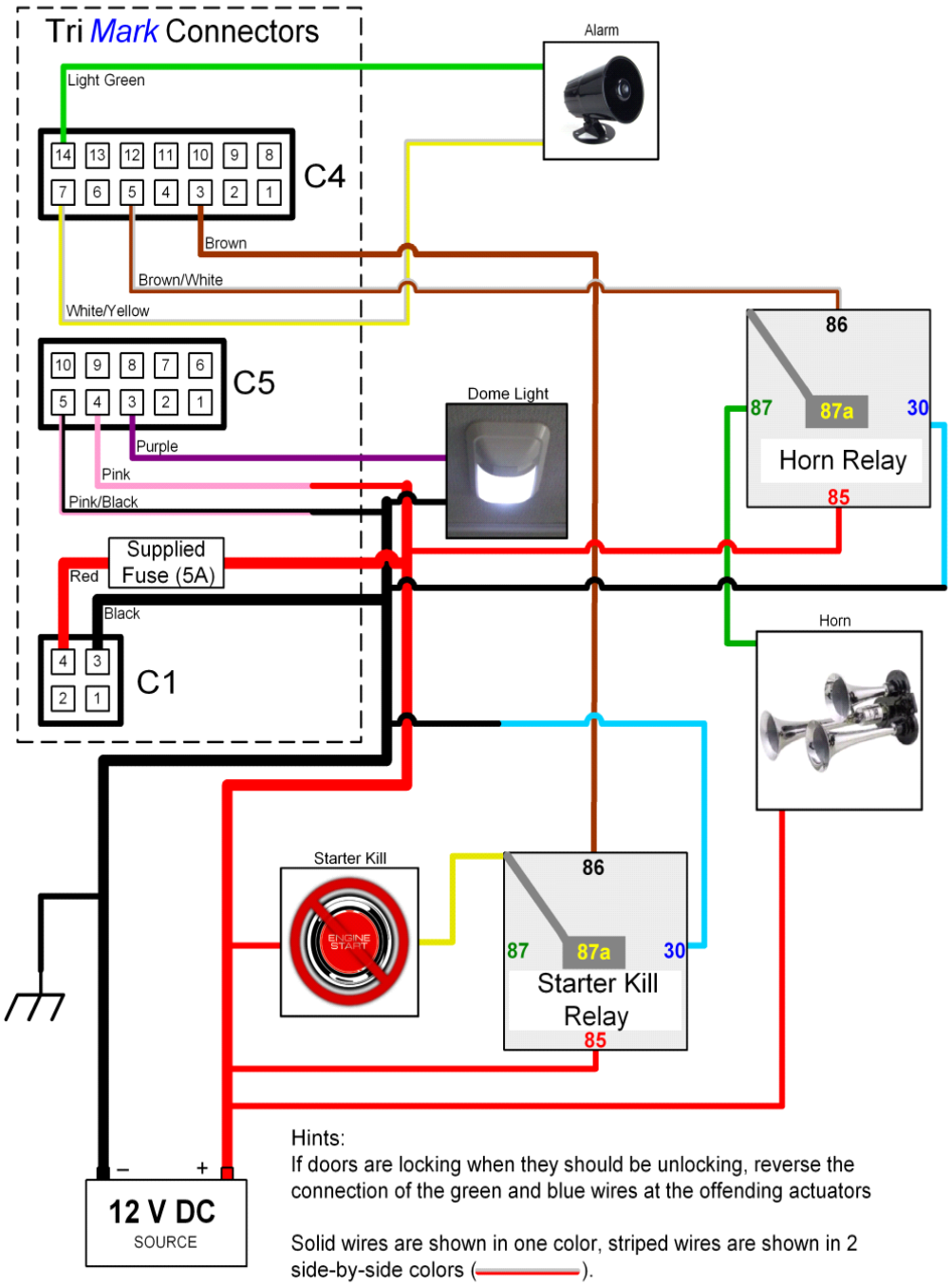
Hints:
If doors are locking when they should be unlocking, reverse the connection of the green and blue wires at the offending actuators

Solid wires are shown in one color, striped wires are shown in 2 side-by-side colors (——————).

Wiring Diagram - Accessory Connections

Notes:
Connectors are shown oriented with the locking tab on top and the wires toward the reader.

All accessory connections are optional, and are not necessary for locking/unlocking operations to function.



Hints:
If doors are locking when they should be unlocking, reverse the connection of the green and blue wires at the offending actuators

Solid wires are shown in one color, striped wires are shown in 2 side-by-side colors (——————).

Appendix C: Installing Components

This system uses low-voltage circuitry and wireless communication. To protect these components and to ensure the device operates as expected, these application notes must be followed.

RF Antenna Guidelines

Typical RF antenna implementation consists of a single wire from the control module. To ensure optimal reception the RF antenna wire should be designed to the following specifications:

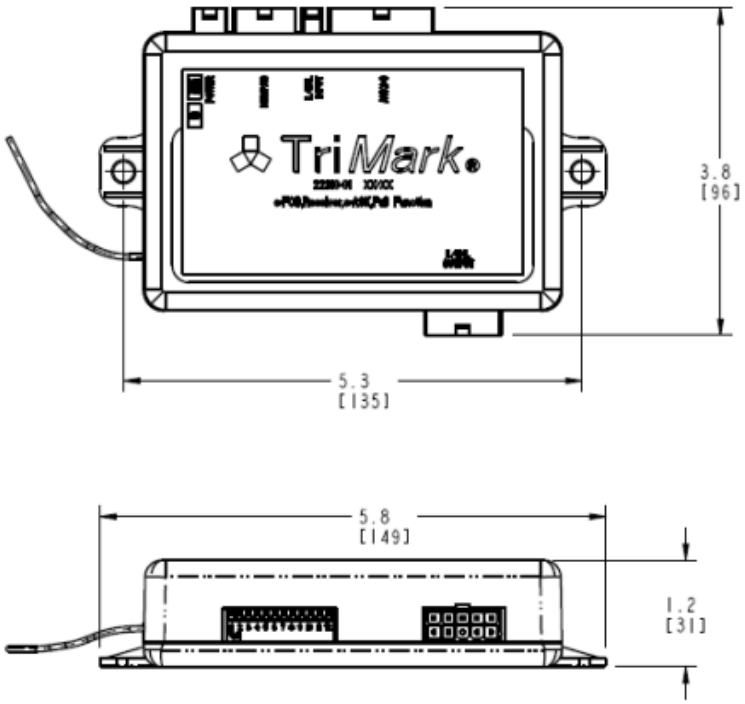
Wire Length:	107.5cm +/- 1cm
Wire Type:	22AWG, Braided tinned

The tip of the antenna wire should also be covered with heat shrink tube or plastic dip to prevent the possibility of bare wire contacting vehicle chassis locations and grounding the antenna.

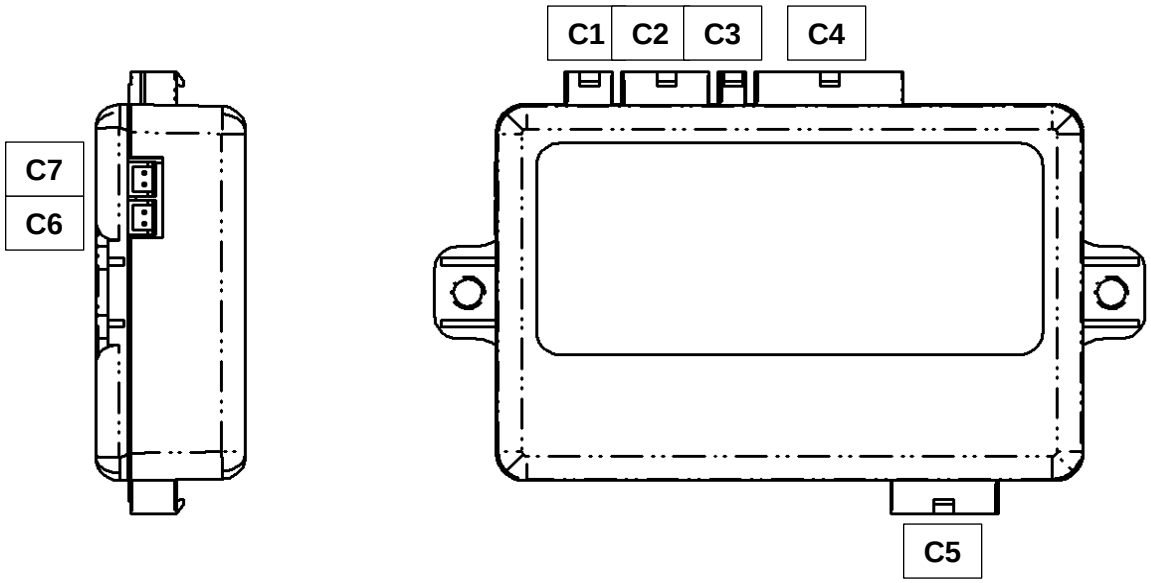
The RF antenna should be placed in an interior location that does not shield RF signals. You may need to try multiple locations to optimize reception. The antennae must be left fully extended and exposed.
Minimize shielding from metal enclosures or chassis body panels that could act as a ground plane.

Looping the antenna, wrapping the antenna around a metallic object, or grouping the antenna wire in with another wire harness may affect the operating range of the remote key Fobs. Routing of the antenna wire near wires with large or rapid voltage fluctuations may also have a detrimental effect on Fob communication. If the antenna wire must be routed with other wires due to vehicle design constraints, care should be taken in harness manufacturing to ensure the antenna wire is routed on the outside of the wire harness bundle and away from wires that have large or rapid voltage fluctuations.

e-FOB Receiver Mounting



Connector Locations and Pin Assignments



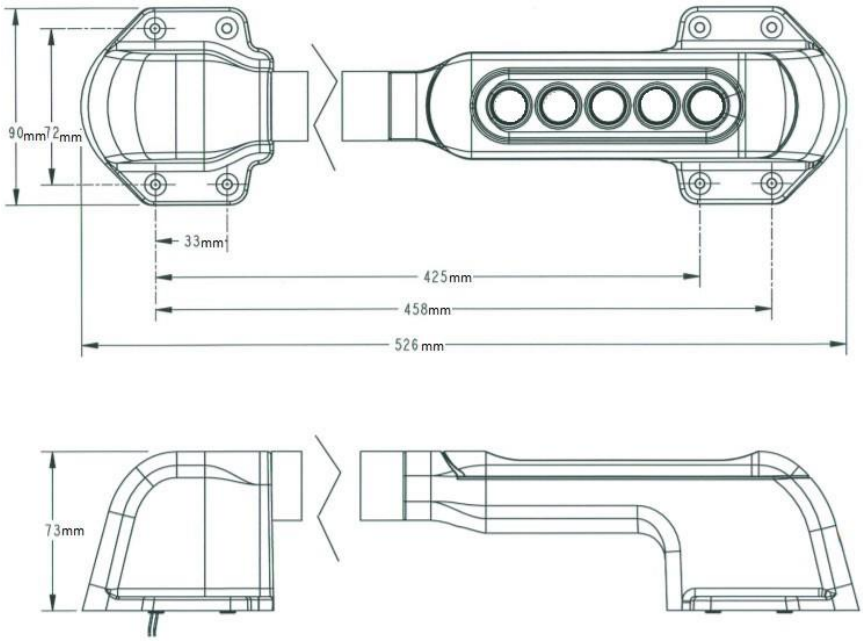
Wire Colors	CONNECTOR C1: 4-PIN HARNESS	PIN
--	--	1
Yellow	Ignition Input	2
Black	Ground Input	3
Red	Power (+12V)	4
Wire Colors	**CONNECTOR C2: KEYPAD HARNESS**	**PIN**
Black	System Ground	1
Purple	Lights/Doorbell Output	2
Brown	3/4 (2) Secure Operation	3
White/Green	Lock All	4
Red	System Power (12V)	5
Yellow	Learn Mode (GND to enter)	6
- -	- -	7
White/Red	1/2 (1) Secure Operation (unlock entry)	8
Wire Colors	**CONNECTOR C3: 2-PIN HARNESS**	**PIN**
Green/White	Lock Input (-)	1
Blue/White	Unlock Input (-)	2

Wire Colors	CONNECTOR C4: 14-PIN HARNESS	PIN
White/Purple	(-) Security Trigger Input 3	1
Orange	Armed Output (-500 mA)	2
Brown	Starter Kill Output (-500 mA)	3
Gray	Lights Output (-500 mA)	4
Brown/White	Horn Output (-500 mA)	5
White/Black	(-) Security Trigger Input 1	6
White/Yellow	Siren Output (A/C)	7
Red/White	Aux. 2 Output (-500 mA)	8
Black /White	Aux. Output (relay 15A)	9
White/Orange	2nd Unlock Output (-500 mA)	10
White/Blue	3rd Unlock/Staggered Lock (-500mA)	11
White	Parking Lights (relay 15A)	12
White/Red	(+) Security Trigger Input 2	13
Light Green	Siren Output (A/C)	14
Wire Colors	**CONNECTOR C5: 10-PIN HARNESS**	**PIN**
Green/Black	Door Lock (N/C) (relay 30A)	1
- -	- -	2
Purple	Dome Light Output (relay 15A)	3
Pink	Dome Light (N/O) (relay 15A)	4
Pink/Black	Dome Light (N/C) (relay 15A)	5
Green/White	Door Lock (N/O) (relay 30A)	6
Green	Lock Output (relay 30A)	7
Blue/Black	Door Unlock (N/C) (relay 30A)	8
Blue/White	Door Unlock (N/O) (relay 30A)	9
Blue	Unlock Output (relay 30A)	10
Wire Colors	**Connector C6: LED**	**PIN**
Black	LED (-)	1
Red	LED (+)	2
Wire Colors	**Connector C7: Programming Button**	PIN
Gray	Programming Button (+)	1
Black	Programming Button (-)	2

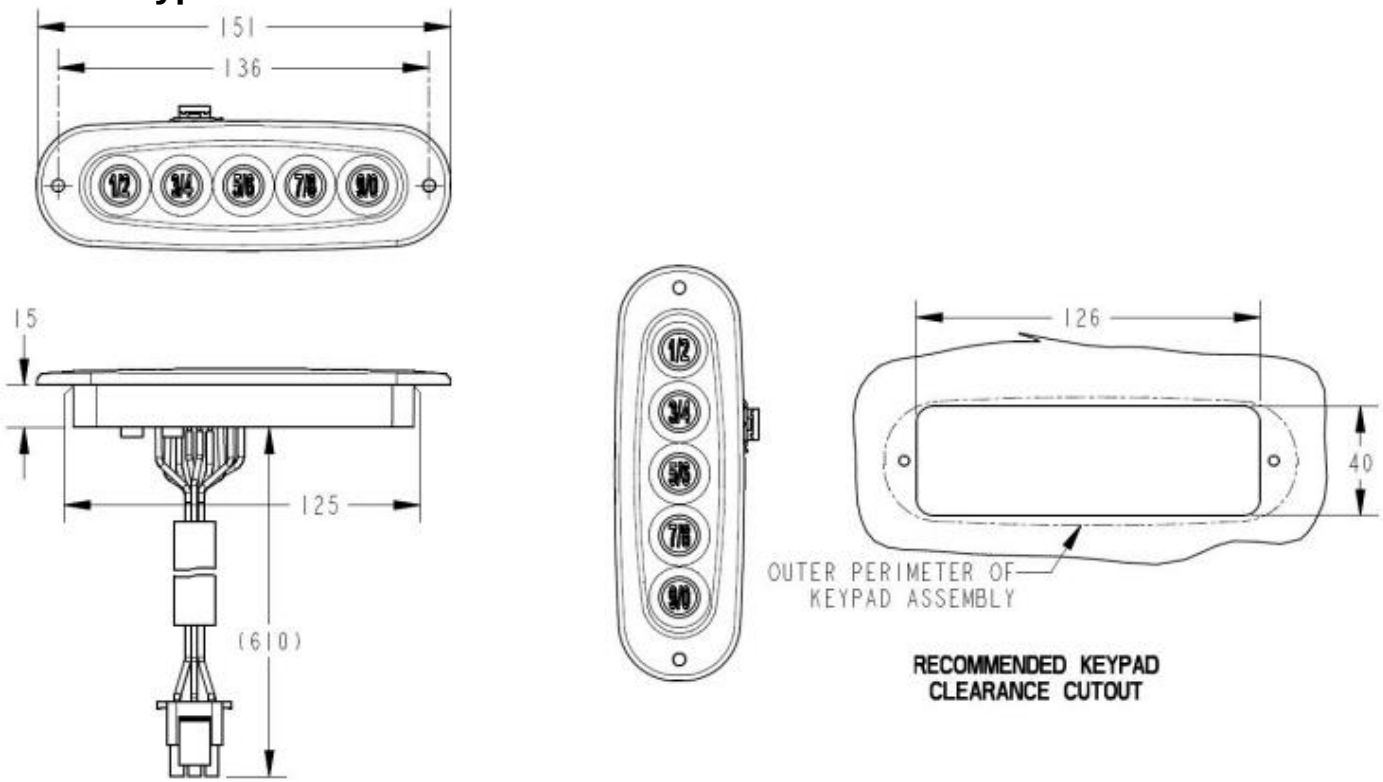
Mating Connector Information

C1	Power input:	Amp 106527-4 (4-pin)
C2	Keypad input:	Amp 106527-8 (8-pin)
C3	Lock/Unlock input:	Amp 106527-2 (2-pin)
C4	Non-relay output:	Amp 1-106527-4 (14-pin)
C5	Relay output:	Amp 1-106527-0 (10-pin)
	Terminals:	Amp 106529-2 for 18-22 AWG wire Amp 794418-1 for 16 AWG wire

e-GRAB Chrome Keypad: 36429-04



e-PAD Keypad: 36448-0X



Appendix D: Troubleshooting

Problem description	Possible solutions
General Problems	
Entry door does not operate from Fobs or Keypad. The Cargo locks operate properly.	Check and clean your Entry door contacts. Are they aligned, stuck down, or damaged?
	Verify power and ground connections on C5.
	If you have a harness and not door contacts, Check for a broken wire.
No operation of system from the Fobs or the Keypad.	Is there power to the control module. Check for power on C1 pin 3.
Always get three chirps when setting the alarm.	Check the three security inputs that are attached to C4 pins 1, 6, and 13 for being active.
e-FOB Hints	
Button presses do not provide the desired output, or no output at all.	Are Fobs lighting brightly? If not replace Fob batteries
	Verify power to RF receiver.
	Re-sync Fobs to RF receiver.
Intermittent operation No Operation Poor RF Range/Reception	Check Fob battery voltage. Batteries may need to be changed every 1-2 years depending on usage.
	Move RF receiver away from enclosed metal areas and fully extend RF antenna.
	Ensure RF antenna is clear of obstructions and not wrapped in bundles of wire or tied directly to metal framing.
	Ensure RF antenna is approximately 42.5 inches (107.5cm) long.
e-GRAB / e-PAD Hints	
No response to button press.	Verify power applied to keypad.
	Verify connection of keypad to system.
Entry code not recognized.	Confirm use of Entry code not Authority code.
	Verify Entry code has not been changed.
	Verify operational order being followed pageX.
Acrylic Rod Developing surface cracks	Petroleum or alcohol-based product used. Use only mild soap and water to clean rod.

Appendix E: Warranty

Tri*Mark* warrants that the products manufactured and sold shall be in accordance with specifications and free from defects in materials and workmanship for a period up to 18 (eighteen) months following the date of delivery to Tri*Mark*'s customer or 12 (twelve) months from the original O.E.M. sale (in-service) date. Where Tri*Mark* does not have design control regarding customer supplied products, materials or specifications, the warranty is limited to non-conforming products.

This warranty is expressly limited to persons who purchase Tri*Mark*'s products for the purpose of resale or use in the ordinary course of the buyer's business. This warranty does not cover any product that if Tri*Mark* Corporation determines (in its sole discretion) that a product's failure or malfunction is due to one or more of the following conditions, such failure or malfunction is EXCLUDED from the warranty provided hereunder: (1) used in a manner that exceeds published engineering specifications; (2) has been abused, misused, disassembled/opened, altered/modified, or improperly installed; (3) is used in an application not previously approved by Tri*Mark*; (4) is used in a manner inconsistent with any instructions and good industry practices regarding its use; (5) wear or deterioration due to environmental conditions; (6) unusual mechanical, physical or electrical stress or (7) is destroyed/damaged by fire, lightning or an act of God. In addition to the above, Tri*Mark* will not warrant any electrical/electronic products with (8) burned or broken traces on the printed circuit board; (9) burned or damaged components; (10) dirt or water residue on the printed circuit board or inside the case; (11) motor failure due to thermal failure; (12) or dead batteries.

This warranty is exclusive, and Tri*Mark* makes no other warranty of any kind whatsoever, expressed, or implied, with respect to the products manufactured and sold by it, whether as to merchantability, fitness for a particular purpose or any other matter. Without prior written authorization from the Board of Directors, no agent, employee, or representative of Tri*Mark* has any authority to bind Tri*Mark* to any affirmation, representation or warranty concerning Tri*Mark* products or parts, except as stated herein.
If any product supplied by Tri*Mark* is found to be defective by Tri*Mark* in its sole discretion, Tri*Mark* reserves the right to replace, rework, repair, or give credit for defective product. Upon confirmation of the defective condition of the subject part either with return of subject part and/or proper documentation, Tri*Mark* will replace such defective product exclusive of any labor, shipping, transportation, or delivery cost associated with the replacement. Tri*Mark* will not be responsible for the cost of removal of a defective product. This remedy shall be the exclusive remedy available for any defects in the products manufactured and sold by Tri*Mark* or for damages resulting from any other cause whatsoever, including without limitation, Tri*Mark*'s negligence.

The purpose of this exclusive remedy shall be to provide the buyer with replacement of products or parts sold by Tri*Mark* found to be defective in materials or workmanship or negligently manufactured. This exclusive remedy shall not be deemed to have failed in its essential purpose so long as Tri*Mark* is willing and able to replace said defective products or parts in the prescribed manner.

WITHOUT LIMITING THE FOREGOING, TRIMARK SHALL NOT BE LIABLE FOR CONSEQUENTIAL OR INDIRECT DAMAGES, ECONOMIC LOSSES, LOSS OF USE, LOST PROFITS, DOWN TIME, OR DAMAGES DUE TO DELAY, WHETHER BY REASON OF BREACH OF WARRANTY, BREACH OF CONTRACT, NEGLIGENCE, STRICT LIABILITY OR OTHERWISE.

This product has been manufactured with methods to ensure high quality and to meet the high expectations of our customers. Tri*Mark* warrants this product to be free from workmanship defects and will remedy issues per Tri*Mark*'s warranty policy.

Remote transmitter Fobs, batteries, and other equipment subject to normal wear and deterioration may need to be replaced periodically by dealer and/or end user and are not covered by this warranty. Tri*Mark* will not be liable for indirect, special, incidental, or consequential damages.

Appendix F: Regulatory Information

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

Le manuel d'utilisation des appareils radio exempts de licence doit contenir l'énoncé qui suit, ou l'équivalent, à un endroit bien en vue et/ou sur les appareils :

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Changes or modifications (moving the LF antenna for example) not expressly approved by the manufacture could avoid the user's authority to operate the equipment.

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Appendix G: RF Exposure Statement

The device shall be used in such a manner that the potential for human contact normal operation is minimized. This equipment complies with RSS-102 radiation exposure limits. This equipment should be installed and operated with a minimum distance of 20 cm between the radiator and your body. This device and its antenna(s) must not be co-located or operating in conjunction with any other antenna or transmitter.

Le dispositif doit être utilisé de manière à minimiser le potentiel de fonctionnement normal par contact humain. Cet équipement est conforme aux limites d'exposition au rayonnement RSS-102. Cet équipement doit être installé et utilisé avec une distance minimale de 20 cm entre le radiateur et votre corps. Cet appareil et son (ses) antenne (s) ne doivent pas être co-localisés ou utilisés conjointement avec une autre antenne ou un autre émetteur

Appendix H: Trademark Statement