500-1300 e-*ASK* PKE System (Passive Keyless Entry)

(UM32~ 500-1300)
40443-01
This manual is for Jayco (Entegra) Systems

TriMark®

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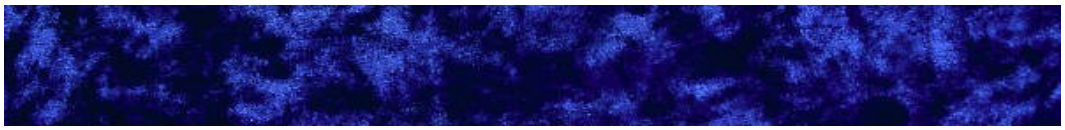


In the event that you have a question regarding the Passive Keyless Entry System, please contact Spartan RV Customer Service at the following contacts before you contact TriMark Corporation:

Spartan Recreational Vehicle Owner Support:

rvcustomerservice@spartanmotors.com
800.543.4277
(Option 1) Customer & Product Support/Chassis information
(Option 2) Owners Training Information
(Option 5) Factory Service & Repair Appointment
(Option 6) Retail, Non-warranty Parts

Table of Contents

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 (back page) by referring to Tri*Mark*'s website under Product Code 500-1300.

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 **e-*ASK*** system. The **e-*ASK* System** comes with the following components:

- **e-*FOB*:** Keyless entry RF FOB transmitter with Passive keyless LF PKS (Passive Keyless Start) ability
- **e-*ASK* I/O Module:** The input/output processor with low frequency (LF) and RF transceiver capabilities
- **Antennas:** LF interior antennas for FOB detection
- **Grab Handle with Keypad:** A five button chrome handle. It allows for locking, unlocking and compartment access functions via a CAN network

This new generation of Tri*Mark*'s **e-*ASK*** not only maintains its previous advantages for controlling door and accessory control, it also adds value to the Original Equipment Manufacturer (OEM) and customer by incorporating remote keyless entry and keyless start into a single package.

The FOBs have typical lock/unlock buttons that can be used up to 50 meters depending on architecture and location. For security reason, RF signals are encrypted using randomly generated numbers. This is what allows the system to start by pressing a button. The system uses the LF/RF messaging to ensure an authorized FOB is within range inside the vehicle. A combination of LF messages and RF responses delivers low power consumption for long battery life.

General Component Overview:

e-*CONTROLLER*

- Enables distributed functionality, such as multiple door control and ignition immobilization, via vehicle RV-C communication
- CAN network functionality with error handling
- Fault displaying LEDs
- LF transceiver (FCC/IC compliant)
- RF transceiver (FCC/IC compliant)
- Programming port
- Selectable visual/audible dip switches

e-*FOB* (37848-01)

37848-01

- Stylish 4-button PKE FOB
- LF transceiver that can reach 1 meter though open air and is FCC/IC/EU compliant
- RF transceiver that can reach 50 meters though open air and is FCC/IC/EU compliant
- Control lock, unlock enables compartment access, lighting, alarm system, and panic operations
- High security using random number generators and proprietary decryption algorithm between the FOB and controller to prevent attacks/hacking

Lighted Grab Handle with Keypad

- Entry assist handle incorporated Tri*Mark*'s e-*ASK* keypad into a stylish combo for RV coaches, motor homes and travel trailers
- Lighted rod and lighted assist keypad for a more enjoyable low visibility experience
- Button presses with tactile, visual, and audio feedback
- CAN network with error handling and communicates with the Tri*Mark* e-Controller
- Fault display both audio and visual
- Water and dust resilient to outdoor environments

Antenna (36159-01)

- Location identifying internal antenna for push to start functionality
- Potted construction ensures environmental protection and durability performance—can be used in exterior or interior locations

36159-01

Standard Operating Procedures — Section 1

Push to Start

Pressing the engine start button will begin the process of detecting a FOB in range (CJ11P2 active). The TriMark system will look in the area of the driver. If the FOB is in range, the FOB will respond with single blink. If the FOB is authorized, the TriMark system will tell the motor controller that it may start the engine.

Running

Once the engine is running, the FOB is not required to keep the vehicle running.

Note: You can drive away without your FOB in the vehicle. You will not be able to start the vehicle again without the FOB present.

Shutdown

With your vehicle in park, a short press of the start/stop button will turn off the vehicle.

Locking (typical)

Press and hold the Button 1/2 button on the keypad or press the lock function on the FOB.

Unlocking Entrance (typical)

Type in the five digit code followed by the 1/2 button or press the unlock function on the FOB.

Note: Programming new codes into your keypad can be found in section **Keypad Operation and Features - Section 3** under Teaching Keypad New Authority / Access Codes.

Alarm Functionality

Arming the Alarm:

By locking the door with the touchpad, “lock/latch all” input (CJ1P10) or the key FOB will attempt to set the alarm.

The word “attempt” is used above because several conditions can block the alarm from being armed:

- Parking brake not set (in gear)
- Any security inputs are in the active state
- Any door ajar input are in the active state

Feedback:

- If you activate the alarm from keypad, the system will send a single pulse to the headlights.
- If you activate the alarm from the FOB, the system will send a single pulse to the headlights and horn/siren.
- If you fail to activate the alarm the siren will sound 3 times.

Disarming/Cancelling the Alarm:

Any of these conditions will cancel an active alarm:

- The vehicle is put into gear
- An unlock command of any entry door
- The alarm timer expires

Tripping the Alarm:

After arming the alarm, if the security input (CJ1) or any of the door ajar inputs are tripped, the alarm will activate. When active, the siren will go off and the headlights will flash for one minute.

Auto Locking

Auto Lock / Unlock

The parking brake is monitored to utilize this auto locking feature:

- Whenever the vehicle parking brake released, a timer is started. Seven seconds later an Entry Lock and latch compartment door is performed.
- Whenever the parking brake goes from “set” to “released,” after an Auto Lock completes, compartment doors cannot be opened until the parking brake is set again and an unlatch function is complete.

Parking Brake		Description
Set	Active	The parking brake is active and the vehicle cannot move. The vehicle is considered “not in use”.
Released	Float	The vehicle will move if no other brakes are applied. The vehicle is considered “in use”. This is usually caused by putting the vehicle into gear.

e-*FOB* Operation and Features (37848) — Section 2

37848-01

FOB Functionality

Button	Function
Lock	Locks all doors and denies bay door access
Unlock	Unlocks entry door with first press, and enables bay door access with a second press. This also activates the dome light output for 60 seconds.
Panic	Holding the button for two seconds activates the Panic feature.
Docking Lights	Toggles dock lights on/off if the parking brake is set. These will be turned off if the parking brake is released or a 10 minute timer has expired.

Pressing a button on the FOB should cause the LED to flash multiple times. The LED will also flash anytime it is located by an antenna. This happens when you start your vehicle and the FOB search near the drivers seat is initiated.

The FOB is powered by a standard 2032 3V battery.

Note: Typical use has 2 years without replacing the batteries. May be subject to variation as the time the FOBs were created is not the day the coach was assembled and sold.

Pairing FOB

You will need to have access to the module to pair FOBs. To understand pin names and functions please reference **Module Operation and Features — Section 4**.

There may be a push button attached to J13P2, if it is not supplied, short CJ13 (learn pin) to CJ11P1 (12Volt pin) when it says "push button".

Note: Programming new FOBs will unlearn any programmed FOBs previously stored. You may learn up to 50 FOBs. Make sure you have all the FOBs that you wish to program before starting this process.

1. Press the push button 3 times within 5 seconds (more than 3 is acceptable)
    a. The system will send a pulse to lock and unlock the entry door
    b. Two LEDs (red and green) located near the dip switches will blink together as long as the controller is in learn mode
2. Press and release a button (any button) on each FOB
    a. The system will send a pulse to lock and unlock the entry door
3. Wait 10 seconds
    a. Entry door unlocks and you exit FOB learn mode

Panic Mode

Activating

The Panic Mode sequence is activated by pressing and holding for 2 seconds the panic button on the FOB. During Panic Mode, siren and headlight outputs are used to draw attention to the vehicle. Panic mode cannot be used if the parking brake is not active (vehicle in gear).

Deactivating

- Panic time of 60 seconds expires
- Unlock command from the FOB
- Unlock from the keypad
- Parking brake inactive (vehicle in gear)

e-ASK Fob Guidelines:

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

The e-ASK fobs are designed to operate in a low power or “sleep” mode. The fobs electronics will “wake up” upon detection of a button press or LF signal from the control module. The fob will return to “sleep” mode once the event that woke it up is completed.

When a fob is in close proximity, 2-3 inches, from other vehicle control units, cell phones or inductive cell phone charger pads, electrical signals from these devices can prevent the fob from returning to “sleep” mode and can reduce battery life. Additionally, when in close proximity to these other electrical devices, their emitted electrical signals can saturate the fobs internal receiving antennas and prevent the fob from receiving proper LF signals.

It is recommended for optimal Fob performance and battery life that a distance of at least 5-6 inches minimum be maintained between fobs and other such mentioned electronic devices.

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

At cold temperature, the batteries chemical process is slowed down and can result in reduce 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 will allow the fob to function normally.

At extreme hot temperatures, the batteries chemical process is accelerated. This will result in a reduced life expectance of the battery. Normal fob range performance can be expected at higher temperatures as long as manufacture limits are not exceeded.

Keypad Operation and Features — Section 3

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

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

This allows for the owner to have one code and have separate codes for other users.

Default access code:

Digit 1	Digit 2	Digit 3	Digit 4	Digit 5
Button 4	Button 4	Button 4	Button 4	Button 4

Default authority code:

Digit 1	Digit 2	Digit 3	Digit 4	Digit 5
Button 1	Button 2	Button 3	Button 4	Button 4

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

Standard Keypad Operation

Note: The dome light will turn on for 30 seconds upon any button press.

Locking

Press and hold the1 button for 2 seconds will lock entrance doors and disable compartment door access.

Unlock the Entrance Door

Put in a valid 5-digit access code (double beep from keypad) followed by Button 1.

Cargo request input

This input activates to ground when the push-button above any cargo door is pressed. If access is granted the corresponding cargo door will unlatch and the buttons should flash green.

Allow Bay/Cargo Unlatch

Put in a valid 5-digit access code (double beep from keypad) followed by Button 3.

Bay/Cargo Unlatch

Press the button next to the compartment you would like to open. If the Bay/Cargo access is enabled (by either the Key Fob unlock button twice, the interior rocker switch or the Keypad), the push buttons

will illuminate green and the compartment will unlatch. If the Bay/ Cargo access is not enabled, the push buttons will illuminate red and deny access.

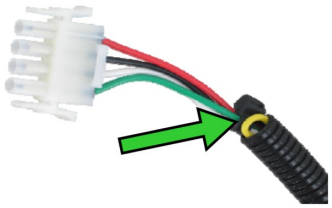
Teaching Keypad New Authority / Access Codes

All codes are exactly 5 digits. You may reuse numbers. Changing the authority code erases all access codes. It is highly recommended that you change your authority code from the default code.

Programming Authority Code:

Note: There is a video of how to do this on https:// www.trimarkcorp.com/en/easkum.aspx, under videos, please select "Programming new keycodes on all other keypads"

In this video:
1/2 button is the 1 button
2/3 button is the 2 button
4/5 button is the 3 button
6/7 button is the 4 button
9/0 button is the doorbell button



Preparation:

The keypad is plugged into the coaches wiring harness with a four pin connector. You will need to unscrew the keypad and pull it away from the coach to expose this connector. The yellow wire that is tucked into the sheathing is the wire that initiates programming mode.

Programming:

1. With the keypad still plugged in, short the yellow wire to the black wire (GND) momentarily. This will cause the keypad to beep for one second.
2. Enter the desired 5-digit code twice (after programming the system will immediately exit learn mode).
3. Test the code by unlocking the entrance door

Note: We recommend changing the access code when RV is acquired. The system automatically stores an access code the same as your authority code in location Button 1.

Programming Access Codes:

Preparation:

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

Programming:

1. Press and hold Button 3 for 5 seconds. The keypad will beep and begin flashing when it is held long enough
2. Enter the 5 digit authority code

a. If you enter the correct code you will hear a constant beep and please continue to step 3
b. If you enter the incorrect code you will hear a 1 second beep. Please double check the authority code

3. Choose a location to store this code
   a. Button 1 = Location 1
   b. Button 2 = Location 2
   c. Button 3 = Location 3
   d. Button 4 = Location 4
4. Enter the desired 5-digit code in twice.
5. Test by unlocking the entry door.

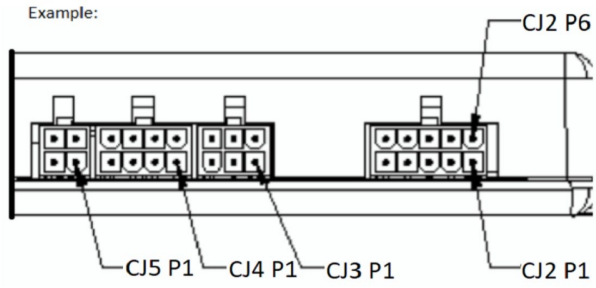
Note: You may store up to 4 codes in the system.

Wire Color	Wire Function
Red	12 Volt battery power
Black	Ground
White	CAN High (communication line)
Green	CAN Low (communication line)

Module Operation and Features — Section 4

Module Connectors and Functions

If you look at the Tri*Mark* IO module with the label pointed up, the numbering system is bottom right to top left (opposite of how you read). (see diagram below)



For all inputs:

- (-) indicates that the inputs normally floats (no predetermined voltage to input) unless a ground signal is placed to activate pin.
- (+) indicates that the inputs normally floats (no predetermined voltage to input) unless a 12V signal is placed to activate pin.
- (+/-) indicates that the inputs normally floats (no predetermined voltage to input) the voltage is the opposite of CJ2 to activate (selectable).

For all outputs:

- (-) upon activation a 500mA ground path will be activated.
- (Relay 20A) a momentary path that is normally ground will be vehicle power (lock unlock doors, extra).

Note: Most fuses are based on wire gauges. Fuses should be gauged accordingly.

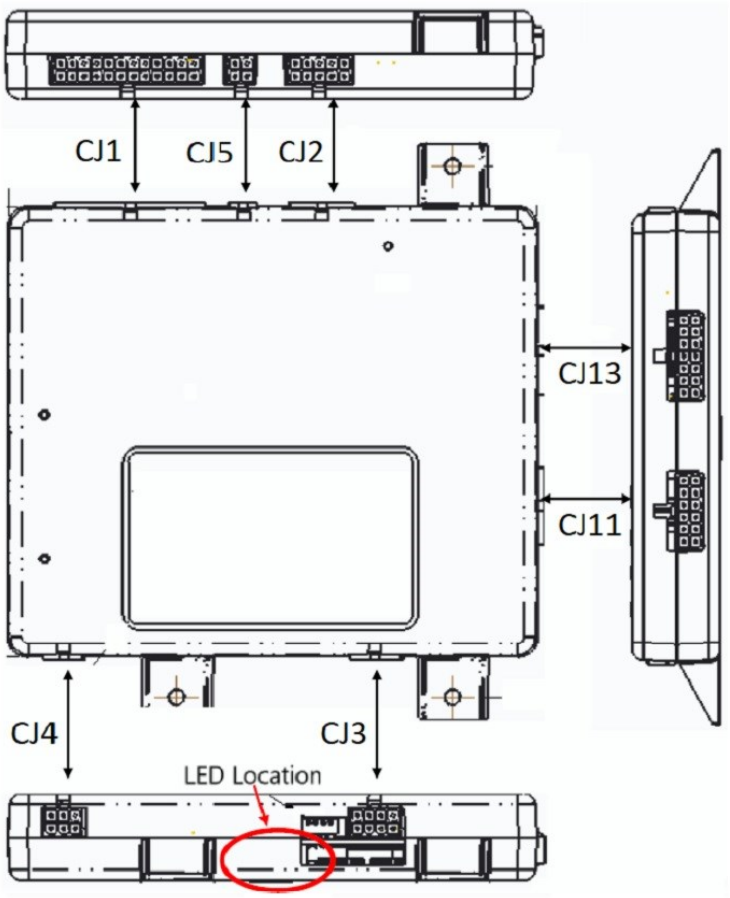
For all Signals:

- Follow CAN/RV-C protocol (see acronyms)

For all Antennas:

- An AC signal (for communications)

Connector Locations



CJ1—Main Chassis Connector 24-Pin

Pin	Input/ Output	Function
CJ1P1	Input (-)	Cargo Access Enable
CJ1P2	Input (-)	Cargo Access Disablee
CJ1P3	Input (-)	Parking Brake
CJ1P4 & CJ1P16	Input	Vehicle Ground
CJ1P5 & CJ1P17	(Relay 30A)	Output not used
CJ1P6 & CJ1P18	(Relay 30A)	Output not used
CJ1P7 & CJ1P19	Input	Vehicle Battery—Powers relays
CJ1P8	(Relay 20A)	Entry Door Unlock
CJ1P9	Input (-)	Unlock Entry
CJ1P10	Input (-)	Cargo access request
CJ1P11	Input (-)	Lock all the entry door and disable compartment door access
CJ1P12	Input (-)	Lock Entry to lock the entry door.
CJ1P13	Input (-)	When the alarm is set, activate Security to activate alarm.
CJ1P14		(Unused Pin)
CJ1P15		(Unused Pin)
CJ1P20		(Unused Pin)
CJ1P21	(Relay 20A)	Entry Door Lock 20A max relay output.
CJ1P22		(Unused Pin)
CJ1P23	Input (-)	Entry Door Ajar Ground this input to indicate any of the entry doors are ajar.
CJ1P24	(Relay 20A)	Dome Light

Note: Grounding CJ1P1 and CJ1P2 together will unlock banks A-D in order.

CJ2—Unassigned Connector 10-Pin

Pin	Input/ Output	Function
CJ2P1	Input	Vehicle Battery—Powers relays
CJ2P2		(Unused Pin)
CJ2P3		(Unused Pin)
CJ2P4	Input (+-)	Not Assigned
CJ2P5		(Unused Pin)
CJ2P6		Vehicle Ground
CJ2P7	Input (+-)	Not Assigned
CJ2P8	Input (+-)	Not Assigned
CJ2P9		(Unused Pin)
CJ2P10		Vehicle Ground

CJ3—External Relay Drivers 8-Pin

Pin	Input/ Output	Function
CJ3P1	Output	12V Regulated Power 12V reference voltage for external relays.
CJ3P2	Output (-)	Horn
CJ3P3	Output (-)	Headlight
CJ3P4	Output (-)	Doorbell
CJ3P5	Output (-)	Cargo Access granted to unlatch
CJ3P6	Output (-)	Door Ajar
CJ3P7	Output (-)	Siren
CJ3P8		(Unused Pin)

CJ4—Relay Outputs 6-Pin

Pin	Input/ Output	Function
CJ4P1	(Relay 20A)	Cargo Red Output
CJ4P2	(Relay 20A)	Cargo Green Output
CJ4P3	(Relay 20A)	Not Assigned
CJ4P4	(Relay 20A)	Not Assigned
CJ4P5	(Relay 20A)	Not Assigned
CJ4P6	(Relay 20A)	Not Assigned

CJ5—Keypad Power 4-Pin

Pin	Input/Output	Function
CJ5P1	Output	Keypad Ground
CJ5P2		(Unused Pin)
CJ5P3	Output	Keypad Power 12V regulated output
CJ5P4		(Unused Pin)

CJ11—Push to Start PKE 12-Pin

Pin	Input/Output	Function
CJ11P1	Input	Vehicle Battery REQUIRED Powers all ICs and relays on CJ11 connector.
CJ11P2	Input (+)	AUTH_REQ Input to request PKS system to locate FOB.
CJ11P3	Output (Relay 20)	Not Assigned
CJ11P4	Output (-)	AUTH_RESP While AUTH_REQ is active, the I/O module will activate this out if an authorized FOB is in range.
CJ11P5	Input (+)	Not Assigned
CJ11P6	Antenna	LF Antenna 1—Interior Area 1 Used to sense FOBs inside the vehicle cab.
CJ11P7	Output (Relay 20)	Door Lights Activates to Power
CJ11P8	Output (Relay 20)	Not Assigned
CJ11P9	Signals	CAN Low Connection to vehicle's CAN bus.
CJ11P10	Signals	CAN High Connection to vehicle's CAN bus.
CJ11P11	Input	Vehicle Ground
CJ11P12	Antenna	LF Antenna 1—Return path Used to sense FOBs inside the vehicle cab.

CJ13—Entry Door PKE 14-Pin

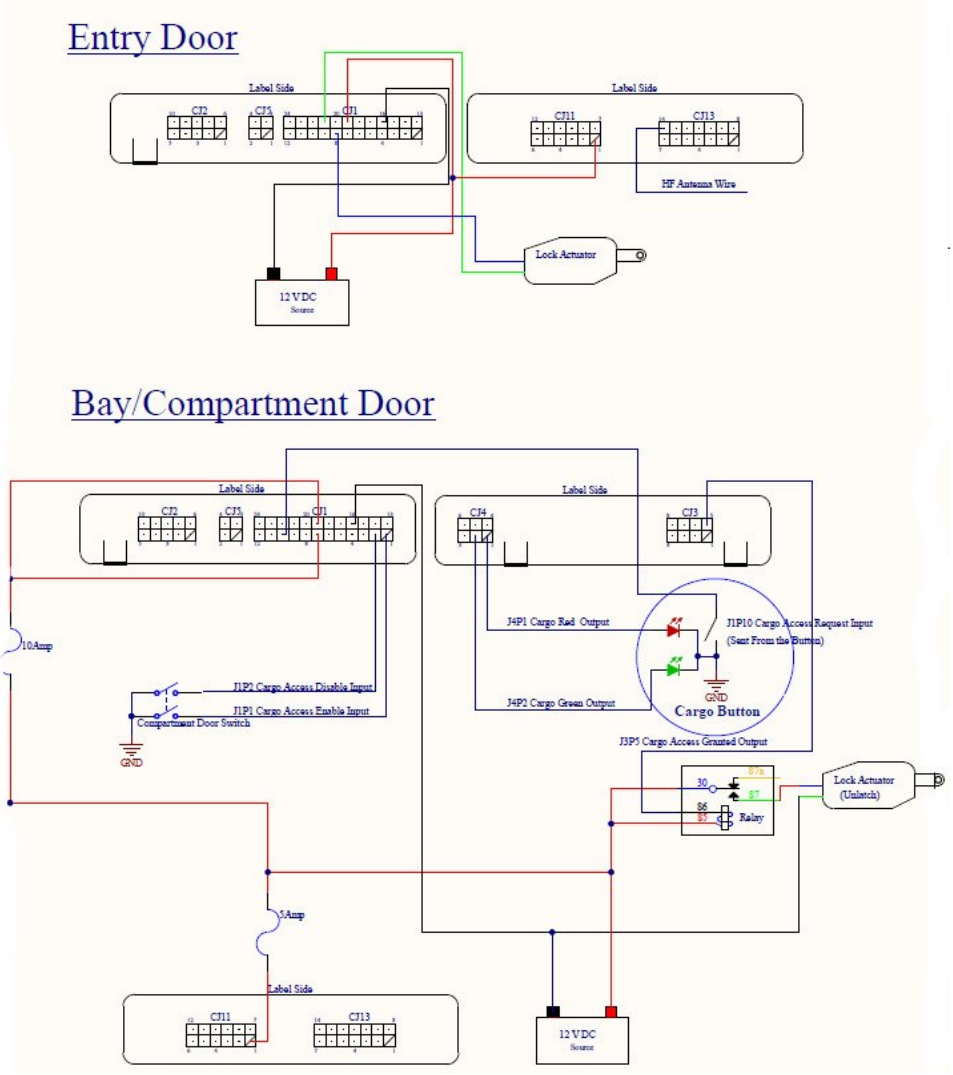
Pin	Input/Output	Function
CJ13P1		Not Assigned
CJ13P2	Input (+)	FOB Learn Mode Request Using this input to program FOBs.
CJ13P3	Output (-)	Not Assigned
CJ13P4	LF3 Antenna	Not Assigned
CJ13P5	LF2 Antenna	Not Assigned
CJ13P6		(Unused Pin)
CJ13P7		(Unused Pin)
CJ13P8	Output	12V Regulated Output only (+250mA)
CJ13P9	Input (+)	Door Ajar Activating this input indicates at least one door is ajar.
CJ13P10	Input	Vehicle Ground
CJ13P11	LF3 Antenna Return	Not Assigned
CJ13P12	LF2 Antenna Return	Not Assigned
CJ13P13	Input	Vehicle Ground
CJ13P14	Antenna	RF Antenna Attached to a wire at least 40” long for HF communication

Dip Switch Settings

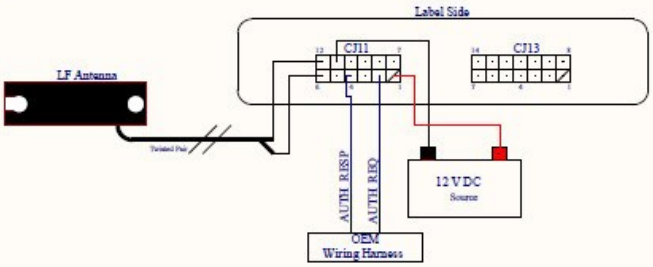
The dip switches are there to enable/disable any visual/audio functions this controller provides. Dip Switches are located next to the CJ3 connector.

Dip Switch	Function
1 (on = Active)	Unassigned
2 (on = Active)	Siren (CJ3P7)
3 (on = Active)	Headlights (CJ3P3)
4 (on = Active)	Horn (CJ3P2)

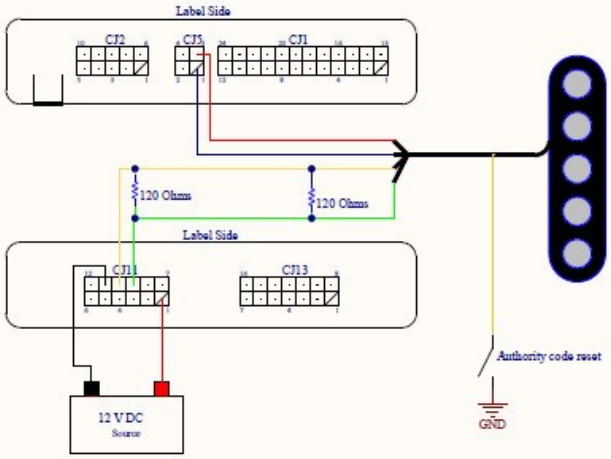
Appendix A: Wiring Diagrams



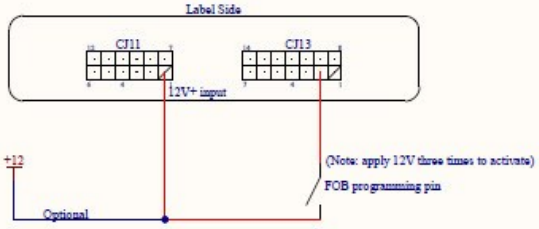
PKS



Keypad

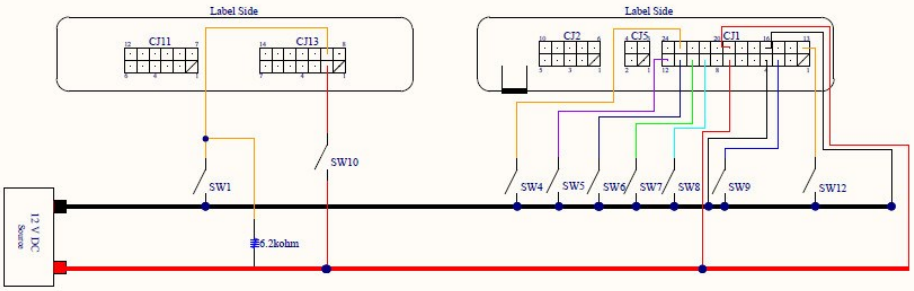


FOB programming

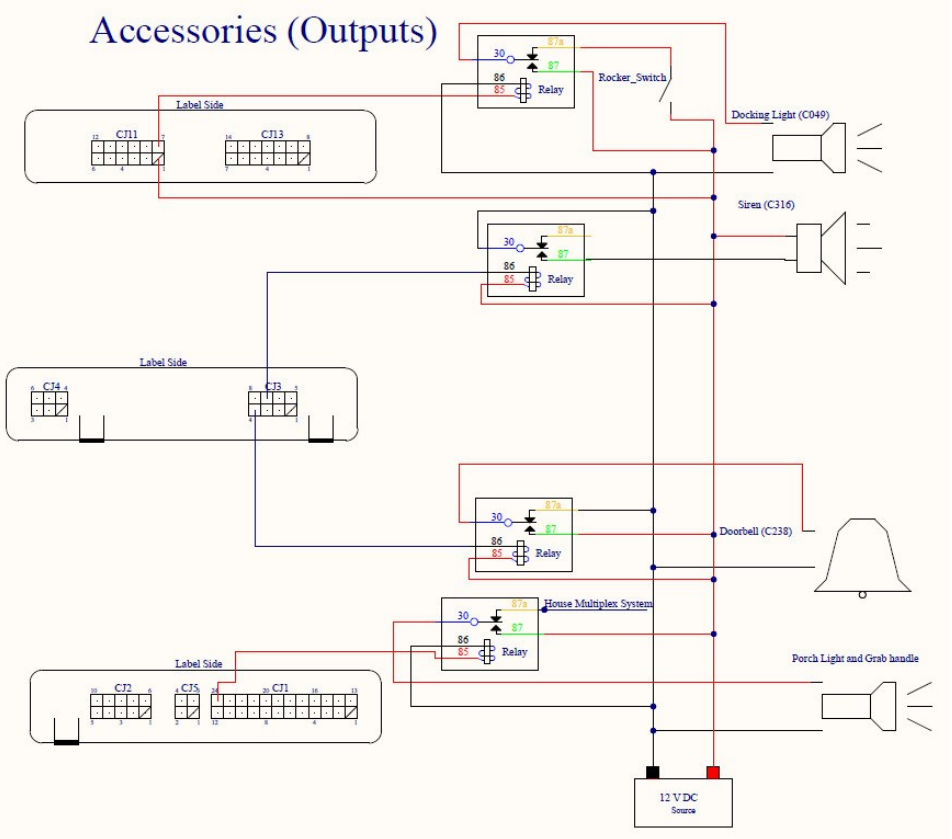


Accessories (Inputs)

SW1 = Door Ajar
SW4 = Entry Door Ajar
SW5 = Lock Entry
SW6 = Lock Entry and deny bay door access
SW7 = Cargo Access Request Input
SW8 = Entry Door Unlock
SW9 = Park Brake input
SW10 = Programming FObs
SW12= Security



Accessories (Outputs)



Appendix B: Mounting e-*ASK* 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.

General Mounting Guidelines:

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 tined

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 functional 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 the controller. 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.

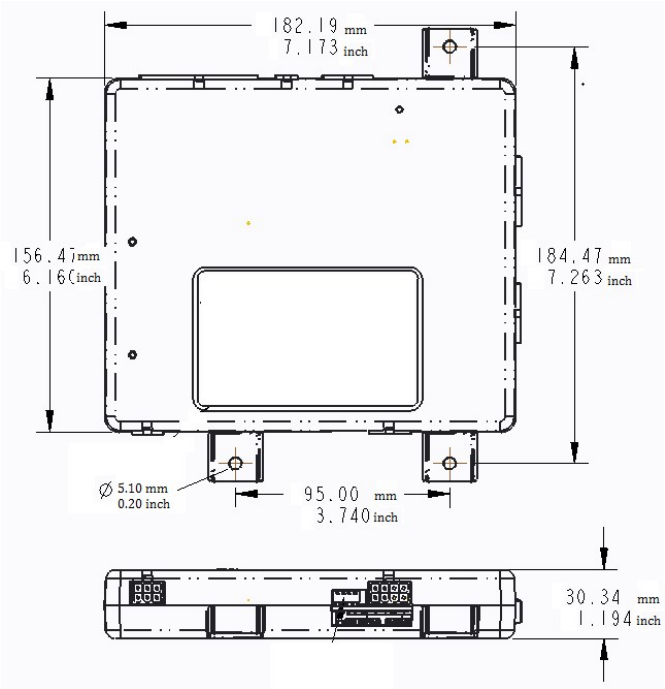
Controller Mounting:

The vehicle control module contains several internal mechanical relays. If a relay is exposed to excessive G-force loads (greater than 30 G), it could toggle unexpectedly. It is important that the control module be mounted in a suitable location to prevent exposure to excessive G-force loads. Examples of poor mounting locations include on or inside doors, near chassis suspension features, or near internal-combustion engines.

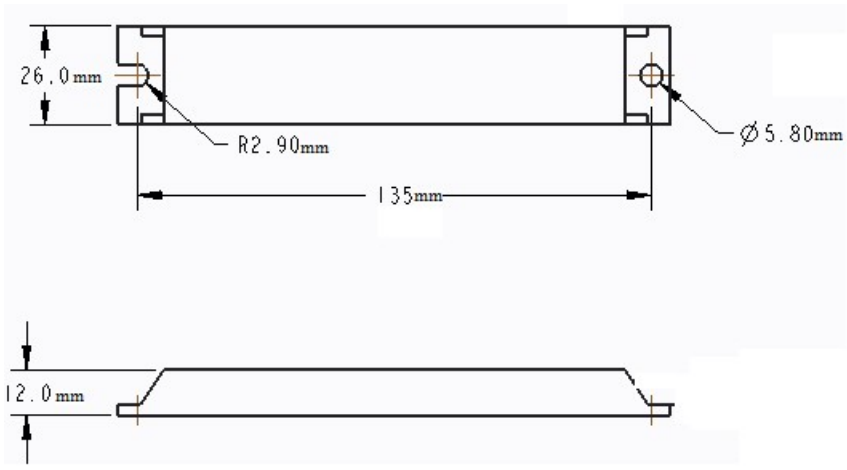
LF Antenna Guidelines

TriMark e-ASK LF antennas are designed to be spaced off any metallic surfaces. Mounting the antenna to a metal surface without the space will result in the antenna's transmitted signal to be absorbed and Fob detection range will be reduced to a few inches. The suggested distance from the metal surface is 3/8" or farther.

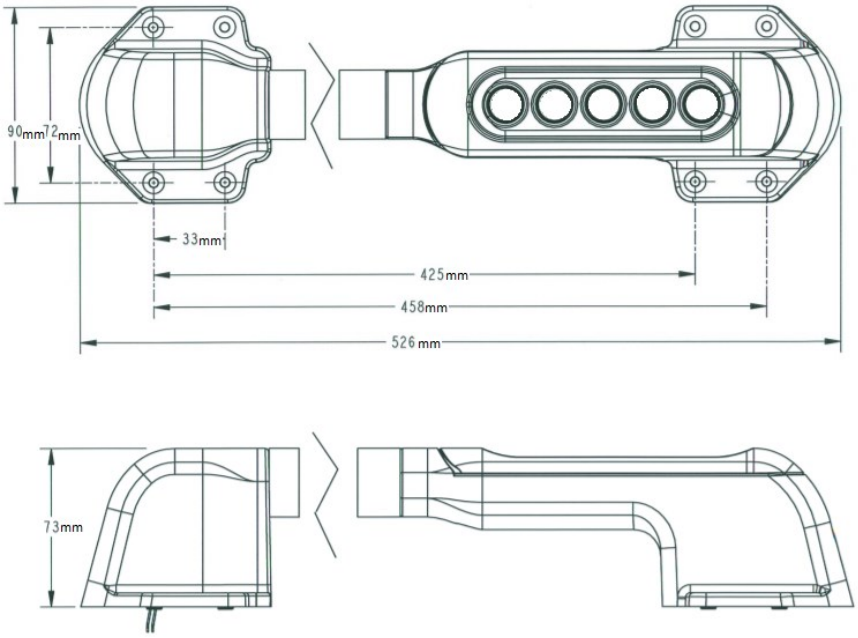
IO module:



LF Antenna: 36159-01



Chrome Keypad:



Appendix C: Acronyms

PKE: Passive Keyless Entry. The ability to unlock the door by placing your hand in the door handle.

RKE: Remote Keyless Entry. The ability to lock/unlock the door by a button press on the FOB

PKS: Passive Keyless Start: The ability to start/stop the vehicle with a button press.

FOB: The remote that allows PKE/RKE/PKS to work properly.

RF/LF: Radio Frequency/Low Frequency. The frequency band that the module and FOB communicate on.

CAN: Controller Area Network: This is a computer BUS system that is highly accurate low data rate system that has been adapted by most vehicles throughout the word.

RV-C: This is the protocols over how to talk over a CAN network. This sets priorities, authentications, and configurations of the messages.

OEM: Original equipment manufacturer.

Appendix D: Error Codes

There is a red and green LED located to the left of the programming port. This is visually shown in the Module Connectors and Functions under Connector Locations. The purpose of these LEDs is to indicate the mode the system is in.

Green LED	Red LED	Software Mode / Current State
On	On	Internal programming occurring
On	Off	Normal full-power operation
Off	Off	No power
Off	Blink X times, then wait 1.5 seconds and repeat	Run-time error detected. The value of "S" indicates the exact error that is detected. The table below give more information of each possible error
Fast blink (5 time/second)	Fast blink (5 time/second)	Pairing FOBs mode

Fault	Exact Error	Errors Blinks "X"
CAN error (continue to Appendix D: Trouble-shooting)	No CAN Traffic for 2 seconds while vehi-cle is in gear	1
CAN error (continue to Appendix D: Trouble-shooting)	A CAN line is above 5VDC	2
LF receiver not re-sponding (continue to Appendix D: Trouble-shooting)	LF Module Communication Error	3
Push to start works however the locks are not working correctly	I/O Expander Module Communication Error	4
CAN error (continue to Appendix D: Trouble-shooting)	CAN Bus Data Erratic No CAN Traffic for 5 seconds	5
Damaged IC chips (continue to Appendix D: Troubleshooting)	EEPROM Read/Write Error	6

Appendix E: Troubleshooting

Note: A **complete power cycle** requires that power is removed for 2 minutes!!!

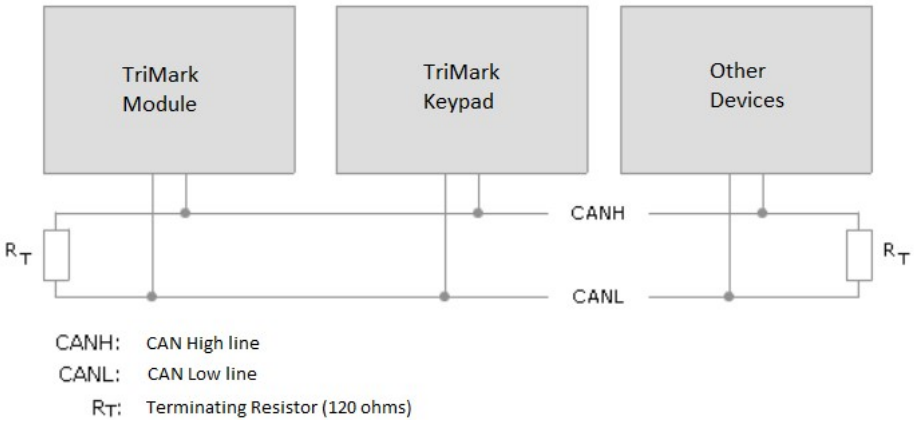
Keypad is not functioning	
No audible beep when button is pressed	Check for power
It beeps one long and two shorter beeps	This is a CAN error and is usually due to wiring harness issues. Please refer to Appendix F: CAN requirements for harness requirements. • The keypad can't communicate with other controllers so it is nonfunctional until the CAN issue is resolved. This includes programming.
	Make sure module has power • There are two LEDs one red and one green. They are located inside the module. One or the other should be blinking or on. Connector Locations section identified the location
	Replace keypad
I put the 5 digit code in and it doesn't do a double beep	Reprogram access code
Pressing the Start button won't start the vehicle	
The button blinks three times and nothing happens	Make sure FOB is near the steering column
	Cycle power to system (please read the "Note" above)
	Replace battery • The LED can blink and still not have the power to send messages
	Check fuses
	Check the CJ13P14 wire. This is an antenna and should be laid out as described in Appendix A: Mounting e-*ASK* Components.
	Check Air pressure levels • Break pressure starts the FOB search protocol. Without the search initiated correctly, this error will occur

The button blinks five times and nothing happens	Re-sync FOBs
	Check power to CJ11 connector
	Check wiring harness for the LF antenna attached to the CJ11 connector (these antennas are bi-directional)
	Check wiring harness CJ11P4 and CJ11P2 (communication lines between the module and vehicle computer) for conductivity
	Check conductivity on CJ11P6 and CJ11P12
	Replace LF antenna
Will not lock or unlock	
Pressing Lock or Unlock will not operate an entry door by keypad rocker switch or FOBs	Clean door contacts • Power is supplied to the actuator through spring loaded metal conductors in the frame. Make sure they are clean.
	Check actuator (replace if needed) • These actuators are 12V bi-directional. You should be able to activate them with a 12VDC one way to lock and the other to unlock.
	Check voltage at door contact • We send a .5 second pulse one direction for lock, and the other for unlock. Most voltmeters average over .75 seconds so you may not see the 12VDC, but you should see your voltmeter move.
	Check Harness for conductivity
	Nothing is happening • Check the fuses • Check system LEDs. For locations of LED please go to section Connector Locations • Check power to the CJ11 connector
The buttons light up, but it does not unlatch	If the buttons illuminate red, they should not unlatch.
	If the buttons illuminate green, they should unlatch. Please check the following • Power to the actuator will unlatch the door • Pin 2 from the cargo door changes voltage when button is pressed

	• Pressing door button will cause Cargo Access Request (CJ1P10) to go to ground (Note: there is an external relay between the door and TriMark module) • Pressing door button will cause Cargo Access Granted (CJ3P5) to go to ground • Pin 3 from the door goes to vehicle power when button is pressed (Note: there is an external relay between the TriMark module and door)
It unlatches, but the Button did not light up	If it should illuminate green • On button press check Green LED Relay (CJ4P2) on the TriMark module • On button press check Pin 5 on the coach door with the issue
	If it should illuminate red • On button press check Red LED Relay (CJ4P1) on the TriMark module • On button press check Pin 4 on the coach door with the issue
The buttons do not light up and it does not unlatch	Check the fuses
	Check the system LEDs. (Note: For locations of LED please go to section Connector Locations)
	Check power to the CJ11 connector
Lock and unlock will not work with the FOB only	Change FOB battery
	Resync FOB(s)
The FOB works but it is intermittent or has bad range	
Sometimes the FOB works and sometimes it doesn't	Arrange the antenna as discussed in General Mounting Guidelines
	Power cycle system
One FOB is not syncing	Make sure to sync all FOBs together
The light and horn stop working	Check dip switches
	Check external relay banks
	Check wiring conductivity

Appendix F: CAN Requirements

- There must be at least two CAN systems on the CANH and CANL.
- There needs to be a resistors at each end of the CAN network (total of two).
- With everything unplugged, the harness must be 60 ohms between CANH and CANL.
- Highly recommended that CANH and CANL wires are twisted together



Warranty — Section 6

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 with regard to customer supplied products, materials or specifications, the warranty is limited to non-conforming product.

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 of 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.

This system 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.

Note: The manufacturer is not responsible for any radio or television interference caused by unauthorized modifications to this equipment. Such modifications could void the user’s authority to operate the equipment.

Notes

Notes

In the event that you have a question regarding the Passive Key-less Entry System, please contact Spartan RV Customer Service at the following contacts before you contact TriMark Corporation:

Spartan Recreational Vehicle Owner Support:

rvcustomerservice@spartanmotors.com
800.543.4277
(Option 1) Customer & Product Support/Chassis information
(Option 2) Owners Training Information
(Option 5) Factory Service & Repair Appointment
(Option 6) Retail, Non-warranty Parts

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