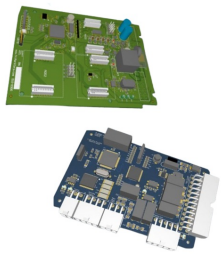

TriMark e-ASK UM 34 Door System Instruction Manual

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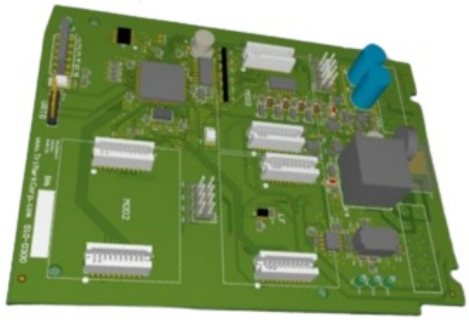

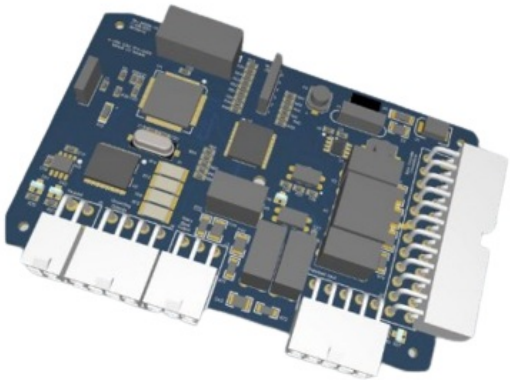

Contents

Introduction

This manual provides the necessary information for the proper use of TriMark's e-ASK System including module and keypad in the Prevost system.

- e-ASK module or controller

- 32-Bit CAN Keypad or Keypad

Push to Start

This vehicle is equipped with an advanced push to start ignition system. The start/ignition sequence is accomplished via CAN messaging between the Prevost Mux Module and the eASK module. When the push button start switch is pressed, the following sequence occurs:

- Foot must press the Brake Pedal, Vehicle must be in “Neutral”, and the “Parking Brake” must be set
- Press the “Start Button”
- The Prevost Mux module sends the e-ASK module a “Start request” command
- The e-ASK module pings LF antenna 2 (searches for fobs in proximity)
- A fob in the proximity of antenna 2 receives the ping and the LED on the face of the fob blinks once
- If an authorized fob is found, the e-ASK module sends an “authorized fob found” message to the Prevost Mux module.
- The Prevost Mux Module performs the remainder of the start sequence
- If an authorized fob was not found, the e-ASK module sends “No authorized fob detected” to the Prevost Mux module

Override/Failsafe: When an authorized fob is not detected, a popup will appear in the dash ‘’KEYFOB NOT FOUND”. There is a 1-minute time period before the Mux module cancels the start request. If a valid code is entered on the keypad during this time, the keypad informs the Mux module via CAN messages that an authorized user is present. The user has 30 seconds to press the start switch a second time to enable engine start.

Lock All

- Key Fob button 1
- Keypad 9/0 button pressed for 1 second (access code not required)

Lock Entry

- Mux Converter Switch (CAN messages)
- Interior cab switch (J2P6) activates (-)

All methods will initiate the following sequence:

- If currently tripped, the alarm will deactivate
- If the entrance door is closed (J1P11=inactive or float)
    - Activates Wake Out (J1P10=GND for 1 second)
    - Attempts arming the alarm (see Alarm)
    - Locks entrance door by pulsing door Lock Relay (J1P5 +, J1P6 -) for ½ second
    - Sends CAN message to MUX for 2 seconds to lock the luggage doors

Unlock Entry/Unlatch

All the following methods will unlock the entry door:

- Key Fob button 2
- Interior cab switch (J2P9) activates (-)
- Mux Converter Switch (CAN Messages)
- Keypad with user password + ½ key within 5 seconds of successful password entry
- All methods will initiate the following sequence:
    - The alarm is deactivated (if currently tripped) and then disarmed.

- Activates Wake out (J1P10=GND for 1 second)
- Unlocks the entrance door by pulsing unlock output (J1P6+, J1P5-) for ½ second
- If button 2 on fob, ½ key on keypad, or cab switch continue being pressed (2 seconds total)
    - Unlatches entrance door by pulsing the unlatch output J2P10 (-) for ½ second

Unlock Luggage
The unlock luggage output (CAN message) occurs with fob luggage (button 4) press and Keypad secure operations (3/4) and (5/6).

Lock and Unlock Confirmation
Lock: If the vehicle is awake and the entrance door is closed, marker lights around the vehicle will flash twice. If the vehicle is in sleep mode, no light confirmation will be done.

Unlock: Entrance step light will illuminate for 30sec.

e-FOB Operation and Features

	Button	Function	Button Press Duration
1	**Lock All**	Locks entry and luggage doors and arms security system.	**Short Press**
2	**UnlockEntry**	Unlocks entrance door and disarms security system. Hold button on to unlatch door.	Short Press: Unlock Entrance Door Long Press: Unlatch Entrance Door
3	**Panic**	Activates panic mode when pressed and held for 2 seconds.	Long PressLII
4	**Luggage Unlock**	Unlocks luggage doors. Does not disarm alarm.	Short Press

Teaching Transmitter FOBs

The keypad is the only method of syncing fobs. The following sequence puts the e-ASK module into a “Fob Learn” mode.

1. Press 5/6 button on the keypad for 5 seconds, listen for double beep
   a. Keypad backlight continuously flashes on/off
2. Enter the 6-digit authority code and listen for double beep
   a. Both keypad LEDs continuously flash amber on/off
3. Press and hold the 7/8 button on the keypad for 5 seconds, listen for double beep
   a. Both keypad LEDs illuminate solid amber
   b. The e-ASK module red & green LEDs will blink rapidly while in learn mode
   c. The entrance door is locked, then unlocked rapidly as audible feedback
   d. If the e-ASK module fails to enter learn mode, the keypad will beep for 2 seconds indicating the error and steps below will not execute.
   e. Fob learn mode is now activated
4. Fob Learn mode
   a. The e-ASK module stays in fob learn mode for 10 seconds without any button activity
   b. Pressing any button of a fob adds that Fob’s serial number to the “Authorized Fobs List”
   c. Each time a fob is added, the 10 second timer resets
   d. When the first fob is added the entire “Authorized fobs list” is erased and a new one is added. Previously sync’d fobs will not function, thus all desired fobs must be sync’d in one sequence
   e. Each time a fob is successfully added, the entrance door will lock, then unlock

Up to 20 transmitters can be synched with an e-ASK module. If more than 20 fobs attempt to be added, they will over-write the first units programmed.

To exit fob learn mode, wait 10 seconds without pressing any Fob buttons, or press any key on the keypad. The keypad returns to its normal Learn Mode with both LEDs blinking amber to indicate it is waiting for the next Learn Mode command. Press 9/0 to exit back to normal keypad operation.

32-Bit CAN Keypad Operation and Features

The Keypad is shipped with a default access code and a unique authority code. The authority code (6 digit) is printed on the product label. Unless the default code has been changed, the access code is:

Access Code

Digit 1	Digit 2	Digit 3	Digit 4
1/2	3/4	5/6	7/8

Authority Code
Code of example shown is 242228

Locking doors with keypad
Press and hold the (9/0) button for 1-2 seconds. An access code is not needed to lock the doors

Keypad Secure Operations
Entering a valid 4-digit access code enables secure operations. After entering an access code, the keypad is enabled for 5 seconds and a fifth button press and release initiates a secure operation.

Keypad 5th button	Function
(1/2)	Unlock Entry Door
(1/2) hold 2 seconds	Unlatch Entry Door
(3/4)	Unlock All
(5/6)	Unlock Luggage

Notes:

- If an unassigned button or no button is pressed while the system is enabled, the keypad reverts to the disabled state.
- A double beep after the 4th digit indicates correct code and readiness for an output command.

Managing Keypad Access Codes
With a valid authority code (unique 6-digit code printed on keypad label) an access code can be added or deleted with the following instructions:

1. Press the 5/6 button for 5 seconds and release 5/6 button, the keypad will beep. The backlighting LED of the keypad will flash indicating Learn Mode is active.
2. Enter the 6-digit authority code (printed on keypad label). If the incorrect authority code is entered, the keypad beeps for 2 seconds and exits learn mode.
3. The keypad will provide two short beeps, both LED's blink yellow, and the backlight flashes. The next entry indicates what function is desired.
   a. 1/2 = Add access code
   b. 3/4 = Delete access code
   c. 7/8 (for 5 Sec) = Learn Fobs
   d. 9/0 = Exit learn mode
   To add a new access code
4. After the 1/2 button press, a 2 second beep indicates the code memory is full and you need to delete codes before adding additional codes, the keypad returns to the main learn mode (step 3 above)
5. After the 1/2 button press + double beep, enter in your new 4-digit access code. The keypad will provide two confirmation beeps.
6. Re-enter new access code. The keypad will provide four confirmation beeps indicating success. If the second

4-digit entry does not match the first, the keypad beeps for 2 seconds and returns to step 3 above.

7. Press 1/2 button and repeat these steps to assign additional access codes. Up to 20 unique user codes can be programmed.

   To delete access codes

8. After the 3/4 key is pressed (step 3 above), if there are no access codes stored in memory, the keypad beeps for 2 seconds and returns to step 3 above. If there are stored codes, the keypad beeps twice.
9. Enter the 4-digit code you wish to delete. If the code does not match a stored code, the keypad beeps for 2 seconds and returns to step 3 above. If the code entered does match a stored code, the keypad beeps twice.
10. Enter the 4-digit code you wish to delete a second time. If it matches the first entry, the keypad beeps 4 times to confirm the code has been removed from the valid access code list. If the code entered the second time does not match the first entry, the keypad beeps for 2 seconds, and returns to step 3 above.

    To delete all user access codes

11. After the 3/4 key is pressed (step 3 above) the keypad beeps twice. Instead of entering a code you wish to delete, press the 1/2 and 9/0 buttons simultaneously.
12. The keypad beeps twice, release both buttons.
13. The authority code must be entered next, entering the wrong code will cause a 2 second beep, and the keypad returns to step 3 above.
14. After the correct authority code is entered, the keypad beeps four times indicating all user codes have been erased, and returns to step 3 above.

To exit the keypad learn mode, press the 9/0 button. The keypad will beep twice and the backlight blinking will stop. If at any time there is 60 seconds of no button activity, learn mode will exit.

Keypad Anti-Tamper Lockout Mode
After repeated attempts to enter codes (5 invalid user codes), the keypad plays a 2 second error beep and enters an inactive mode that disables buttons for 1 minute. The lock indicator flashes red and amber during this state. This helps prevent undesired access by entering random codes. No beep will sound with button press while the system is in the disabled state.

Alarm

Arming sequence:
Arming the alarm requires that all the following conditions are true.

- The Ignition must be “Off”
- Entrance door must be closed, Door ajar input J1P11 is inactive (not grounded)
- Entrance door must be locked, Entrance door key switch J1P8 is inactive (not grounded)

After locking all and a delay of 10 seconds, and the above conditions are met, the system is armed and the anti-theft LED (J2P7) blinks periodically.

If the alarm fails to activate, the only indication it is not armed is the anti-theft LED will not blink.

Full security triggers: any of the following conditions will trip the alarm:

- The Ignition is turned “On”
- Entrance door is opened, door ajar input J1P11 is active (grounded)

- Entrance door is unlocked, Entrance door key switch J1P8 is active (grounded)

The Prevost Mux system is configured at the time of delivery with the following options related to the Alarm: (Prevost Field service personnel can re-configure).

1. Horn + Marker lights flash
2. Marker lights only
3. No Alarm

When the alarm is triggered, the anti-theft LED turns off, and the Prevost MUX module triggers the alarm according to its configuration.

Cancelling the alarm is accomplished via:

- 60 second alarm timer expires
- Any unlock entrance door or unlock all doors from any source (dash switch, fob, keypad, or mux switch) cancels the alarm, cancels the “armed” state, and performs the appropriate function (unlock entrance or unlock all)
- Any lock entrance door or lock all doors from any source will also cancel an active alarm, however the system will once again initiate the arming sequence described above

Full Security vs Reduced Security States
If the entrance door is locked using the interior lock/unlock switch (J2P6), or a Prevost MUX command, the alarm is in a “reduced security” mode where only the entrance door ajar (J1P11) input will trip the alarm. If the Ignition is turned on or the door is unlocked (J1P8=GND), it will disarm the alarm.

If the alarm is armed by the fob or keypad “Lock All Doors” command, the alarm is in **“full security**” mode and any of the trigger inputs will activate the alarm.

Miscellaneous e-ASK Module Features

Wake Up Out

The Wake Up Out signal is activated (J1P10 = GND) for 1 second after any of the following if the system has not been activated in the previous five minutes. This will cause the Prevost Mux module to wake up, process messages, and perform the desired functions.

- Any fob button press
- Entrance door lock or entrance door unlock switch is pressed
- Entrance door is opened
- Entrance door is locked or unlocked
- Any keypad input

Panic Mode
The panic mode (CAN message from the e-ASK module to the Mux module) is activated for 30 seconds by pressing and holding the Fob Panic button for 2 seconds.

Panic is disabled by pressing any fob button (other than the Panic button) or unlocking the entrance door via the

keypad

Replacing the 32-Bit CAN Keypad

For improved security/theft prevention, the keypads and e-ASK controllers are paired at the factory to prevent swap-out violations. If the keypad is changed, the keypad will play a 2 second error beep. The Keypad will not lock/unlock or perform any other keypad functions.

Pairing procedure as follows for replacing a keypad in the field:

- Plug the new keypad into the Prevost harness
- Place an authorized fob inside the vehicle
- Active the Start button described in the first paragraph of this manual
- Once the fob is found, pairing occurs automatically
- Access codes are stored in the keypad. If the keypad is replaced, new user access codes must be entered. See “Managing Keypad Access Codes”.

Replacing the e-ASK Module

- Plug the new e-ASK module into the Prevost harness
- Run an unlock command from the keypad (4- digit access code + 1/2 button)
- Fobs serial numbers are stored in the e-ASK module. If you replace the e-ASK module, you must re-learn fobs. See “Teaching Transmitter FOBs”

Troubleshooting

e-ASK Module Status LED’s
These LED’S are on the e-ASK module’s circuit board. Light pipes in the case help the visibility of the LED’s. The label on the e-ASK module provides basic descriptions, here is the full list of available codes.

Green LED	Red LED	Software Mode	Software Mode / Current State
On	Off	Customer Mode	RUNNING power state
Fast blink	Off	Customer Mode	INITIALIZE power state
Periodic bli nk	Off	Customer Mode	PENDING SLEEP
Off	Off	Customer Mode	SLEEPING power state. Low-power sleep state.
Off	Slow blink for X cyc les then pause	Customer Mode	Run-time error detected, see table below
Fast blink	Fast blink	Fob Learn Mode	Waiting for fob input to add fobs to the Authorized Fob s List

Fault	Run-Time Error Blinks
CAN Bus Communication Error	1
CAN Voltage Out of Range, High, Above 5V	2
CAN Address Conflict	3
EEPROM Read/Write Error	4

Keypad Status LED's and Backlighting

The Keypad back lighting is typically off. When a button is pressed, the backlight illuminates momentarily. After button presses stop, the backlight is low for 30 seconds. After 30 seconds of no keypad activity the keypad back lights turn off again. There are two LED lights on the keypad, one next to the 1/2 key (LED1), and one next to the 9/0 key (LED2). The following tables summarize what they indicate

LED1	LED2	Backlight	Mode	Software State
On	Off	On	Customer Mode	RUNNING power state
Off	Off	Off	Customer Mode	PENDING SLEEP or SLEEPING power state
Off	Alternating red/yellow blinking	On	Customer Mode	Lockout Mode
Slow blink on both LED's for X cycles then pause		On	Customer Mode	Run-time error detected, see table below
Off	Off	Blinking	Keypad Learn Mode	Waiting for Authority Code
Yellow, blinking		Blinking	Keypad LearnMode	Keypad Learn Mode active, waiting for userinput
Yellow	Yellow	Blinking	Keypad Learn Mode	Keypad Learn Mode active, Fob Learn Mode has been activated on the e-*ASK* module

Fault	Run-Time Error Blinks
CAN Bus Communication Error	1
CAN Voltage Out of Range, High, Above 5V	2
CAN Address Conflict	3
EEPROM Read/Write Error	4

Problem Description	Possible Solution
e-*FOB* Hints	
Fob button press does not provide correct operation	Verify power and ground connections to the e-*ASK* module.
	Re-teach the FOB transmitter to the receiver.
No operation or intermittent operation	Mount RF receiver away from enclosed metal areas and fully extend antenna.
	Check FOB transmitter battery voltage. Batteries need to be changed every 1-2 years depending on usage.
Alarm mode starts when powered up	Press Unlock button of FOB transmitter

One particular e-*FOB* function does not work	Check wire connection of affected function at RF module, wiring harness, and e-*ASK* module.
32-Bit CAN Keypad Hints	
No response with button press	Verify power and ground connecti ons to the Keypad.
	Verify that keypad cable is connec ted. (rest of system will function).
Access code is not recognized	Verify that code has not been cha nged. **See Managing Keypad Ac cess Codes.**
	Confirm use of an access code, n ot the authority code.
Key fob works correctly, keypad beeps, but no output	Cycle power to e-*ASK* module.
e-*ASK* + 32-Bit CAN Keypad Hints	
No response in any system element	Verify power and ground connecti ons to the e-*ASK* module.
Red LED slow blinks 1X	Check CAN wiring
Red LED slow blinks 2X	CAN Voltage above 5 V check for short to 12V
Red LED slow blinks 3X	LF Communication error re-power module, if problem persists, replace module
Red LED slow blinks 5X	CAN address conflict, contact Pre vost

Connectors and Pinouts

The following tables and diagrams are provided to show connector and pin assignments for the e-ASK MODULE and the Keypad.

Table 1: CONNECTOR AND PIN INFORMATION

Connector	Mating Connector	Mating Terminals
e-*ASK* Module J1	DEUTSCH DT06-12SA-P012 WEDGE LOCK W12S-P012	DEUTSCH 0462-201-16141 OR1062-16-0122
e-*ASK* Module J2	DEUTSCH DT06-12SB-P012 WEDGE LOCK W12S-P012	
Keypad	APTIV 13521459 GT280CPA 1531 7832	15304719 TERM15366065 SEAL

e-*ASK* Module	**PIN**
J1 CONNECTOR	
UNUSED LF ANTENNA 1	1
GROUND	2
CAN HIGH	3
CAN LOW	4
ENTRANCE LOCK OUTPUT (15A)	5
ENTRANCE UNLOCK OUTPUT (15A)	6
VEHICLE POWER (+12V DC)	7
DOOR KEY SWITCH INPUT (-)	8
UNUSED OUTPUT (-500 mA)	9
WAKE OUTPUT (-500 mA)	10
DOOR AJAR INPUT (-)	11
UNUSED LF ANTENNA 1 RETURN	12

e-*ASK* Module	PIN
J1 CONNECTOR	
UNUSED LF ANTENNA 1	1
GROUND	2
CAN HIGH	3
CAN LOW	4
ENTRANCE LOCK OUTPUT (15A)	5
ENTRANCE UNLOCK OUTPUT (15A)	6
VEHICLE POWER (+12V DC)	7
DOOR KEY SWITCH INPUT (-)	8
UNUSED OUTPUT (-500 mA)	9
WAKE OUTPUT (-500 mA)	10
DOOR AJAR INPUT (-)	11
UNUSED LF ANTENNA 1 RETURN	12
INTERIOR LOCK SWITCH INPUT (-)	6
12V ANTI-THEFT LED SUPPLY	7
ANTI-THEFT LED OUTPUT (-500 mA)	8
INTERIOR SWITCH UNLOCK INPUT (-)	9
ENTRANCE DOOR UNLATCH OUTPUT (-500 mA)	10
UNUSED LF ANTENNA 3 RETURN	11
PKS ANTENNA 2	12

32-Bit CAN Keypad	PIN
J3 CONNECTOR	
VEHCILE POWER (+12V DC)	A
GROUND	B
CAN HIGH	C
CAN LOW	D

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.

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 void 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.

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.

Documents / Resources

	TriMark e-ASK UM 34 Door System [pdf] Instruction Manual e-ASK UM 34 Door System, e-ASK, UM 34, Door System

References

- TriMark Corporation- Latch, Handle, Linkage, Electronic, Hinge, Vehicle door hardware