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e-*ASK*

Electronic Access Security Keyless-entry

e-*ASK* Keyless-entry System Installation & Instructions

Prevost CAN Multiplex System

Rev. A
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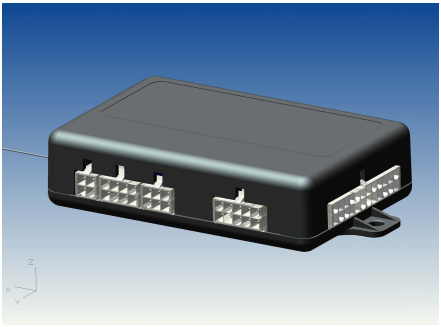
Introduction

This manual provides the necessary information for the proper installation and use of Tri*Mark*'s CAN **e-*ASK*** system including vehicle module and keypad in the Prevost system.



e-*FOB* Operation and Features

Button	Function
Lock All	Locks entry and luggage doors and arms security system.
Unlock Entry	Unlocks entrance door and disarms security system. Hold button to unlatch door.
Panic	Activates panic mode when pressed and held for 2 seconds.
Luggage Unlock	Unlocks luggage doors. Does not disarm alarm.

Lock All Conditions

Lock all from either the fob or keypad will not function if the following conditions exist:

- Ignition is ON
- Entry door is OPEN. (entrance door hinge switch (J1P23) is activated).

e-*PAD* Operation and Features

The e-*PAD* is shipped with a default access code and a unique authority code. The authority code is printed on the product label. Unless the OEM or dealer has changed default codes, the access code is:

Access code:

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

Locking doors with keypad

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

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.

(1/2): Unlock Entry Door
(1/2) hold: Unlatch Entry Door
(3/4): Unlock All
(5/6): Unlock Luggage
(7/8) hold: Panic output

Notes:

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

Unlock Entry

The entrance door will only unlock if both the key switch input (J1P1) and entrance door hinge switch (J1P23) are not activated (input floating). If either of these inputs are activated, the entrance door unlock output (J4P6) will not occur. This applies to fob, keypad and switch input (J1P9). The keypad secure operations of (1/2) and (3/4) can unlock the entrance door.

Unlatch Entry

The unlatch entry output (J1P6) occurs after holding the fob unlock entry button or secure operation (1/2) button for 2 seconds. If the key switch input (J1P1) indicates that the door is already unlocked, an access code is not need to unlatch from the keypad.

Unlock Luggage

The unlock luggage output (J4P4) occurs with fob luggage unlock and secure operations (3/4) and (5/6).

Lock All

The lock all output (J4P5) requires that the ignition (J2P8) be off and the entrance door hinge switch (J1P23) be floating (door closed). This applies to lock all from fob and keypad. The dash mount lock switch (J1P11) works even when the ignition is on.

Additional Features

e-*PAD* Anti-tamper Deactivating Feature

After repeated attempts to enter codes (20 button presses without enabling), the keypad 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 disabled.

e-*Pad* Lighting

The e-*PAD* back lighting is typically off. When a button is pressed, the backlight goes high 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. While training new access codes and fobs the backlighting flashes continually.

Status LED

This LED is on the e-ASK module circuit board. It comes on for one second at power up. If there is a CAN communication error, a long-short-short pattern or five flash sequence is provided. While module is in fob learn mode, the LED blinks continuously.

Miscellaneous e-ASK Module Features

Lock and Unlock Confirmation

This section to be completed by Prevost since the bus multiplexer creates these outputs.

Door Ajar Warning

A triple HEADLIGHT output is provided if entry door or security input is activated when system is locked and alarm attempts to arm. If a door is open or security input activated, the alarm is not armed. Once the security breaches are resolved, the system must be locked again to arm alarm.

Alarm

After locking all and a delay of 10 seconds, the system is armed and the anti-theft LED (J4P8) flashes continuously . The alarm is activated when the entry hinge switch (J1P23), security input (J1P13), or ignition (J2P8) provides an input to the e-*ASK* module. The intrusion/alarm output is on (J4P3).

The extra security input could be connected to external shock sensor, motion detector or other sensing device. When alarm is triggered, the Intrusion/alarm output (J4P3) is activated for 1 minute.

To deactivate alarm mode:

- Unlock entry door via FOB transmitter.
- Unlock system via keypad or unlock entry dash switch.

Reduced Security

If the entrance door is locked using the dash mount switch (J1P11), the security input (J1P13) and key switch input (J1P1) will not set off alarm. If the key switch is activated, it will disarm the alarm. The entrance door hinge switch (J1P23) will set off the alarm.

The intrusion/alarm output is on J4P3.

Wake Up Out

The Wake Up Out signal is activated for 5 seconds after any fob, switch or keypad input if the system has not been activated in the previous 5 minutes. This is a GND output.

Panic Mode

The panic output (J4P2) is activated for 30 seconds from these three inputs:

- Press and hold the Fob Panic button for 3 seconds.
- Enter a valid user code on the keypad then hold the 7/8 button for 3 seconds.
- Press and hold the hidden panic switch (J1P3) for 5 seconds.

Panic is disabled by pressing any fob button or unlocking the entrance door via the keypad.

Teaching Additional Transmitter FOBs

There are 2 ways that the receiver can be put into learn mode. The first uses the CAN keypad. This option allows the receiver to be put into train mode without accessing the module. The 2nd option requires access to the module, but a keypad, and knowledge of the authority code is not needed.

Option 1 (Using keypad and authority code):

1. Hold middle (5/6) button of keypad for 5 seconds. The keypad will beep and the LEDs will flash.
2. Enter authority code (6 digits, printed on keypad label); double beep sounds.
   Hold (7/8) for 5 seconds. A double-beep plays.
3. The receiver module is now in FOB Learn Mode (The LED under the receiver enclosure will be blinking rapidly—this will not be visible unless the enclosure cover is removed).
4. Press the lock button of each fob to be programmed for 5 seconds. Pause for 2 seconds between each fob. Up to 20 fobs may be programmed.
5. Press the (9/0) button **twice** to exit fob learn mode.The keypad will beep twice. Backlight blinking will stop.

Option 2 (if no CAN keypad is connected to network):

1. Disconnect all connectors from e-*ASK* module.
2. Move all DIP switches to the “ON” position.
3. Connect 24-pin connector.

4. Wait for 5 seconds. After start up sequence, PCB mounted LED will flash continuously.
5. Press lock button for 5-seconds.This synchs the first fob transmitter.
6. Press lock button of 2nd fob for 3 seconds.
7. Repeat step 7 until all fobs are synched (up to 20 fobs).
8. Disconnect 24-pin connector from e-*ASK* module.
9. Move DIP switches to initial position. ON-ON-OFF-OFF-OFF-ON-OFF-ON
10. Connect all connectors to module.
11. Verify that fobs are synched to the CAN module and that range is of RF transmission is acceptable.

Please Note:

- Up to 20 transmitters can be synched with an e-*ASK* module. Additional fobs will over write the first units to be programmed..

Teaching Keypad New Access Codes

With a valid authority code (unique 6 digit code that is printed on keypad label) an access code can be programmed with the following instructions.

1. Press the middle (5/6) button for 5 seconds, the keypad will beep. The backlighting LED of the keypad will flash indicating the learn mode.
2. Enter in the 6-digit authority code (printed on keypad label) followed by the (1/2) button. The keypad will provide one short beep. If a long beep occurs the code memory is full and you need to delete codes before adding an additional code.
3. Enter in your new 4-digit access code. The keypad will provide three confirmation beeps.
4. Re-enter new access code. The keypad will provide four confirmation beeps.

Press (1/2) button and repeat steps 3-4 to assign additional access codes. Up to 40 unique user codes can be programmed.

Deleting keypad Access Codes

1. Press the middle (5/6) button for 5 seconds, the keypad will beep. The backlighting LED of the keypad will flash indicating the learn mode.
2. Enter in the 6-digit authority code followed by the (3/4) button. The keypad will provide one short beep. If a long beep occurs there are no access codes to erase.
3. Enter in the 4-digit access code to be removed. The keypad will provide three confirmation beeps.
5. Re-enter access code. The keypad will provide four confirmation beeps.

Repeat process to delete additional access codes.

Troubleshooting

Keypad Hardware test mode: Just after a keypad is programmed it is in hardware test mode. The LEDs blink continuously and each button press turns a different light on. Press the (1/2) and (9/0) buttons at the same time to enter standard operation mode. The keypad will beep and backlighting will stop blinking. Note: keypads will be in standard operation mode when they arrive at Prevost from TriMark.

CAN Error Diagnostic Codes:

The following defines diagnostic code for e-*ASK* module and keypads. Similar codes are used with both types of modules, e-*ASK* module and keypad module. The keypad module using back lighting LED and buzzer for communicating codes while the e-*ASK* module uses red LED on the board for communication.

1) At power up the e-*ASK* module will attempt to claim its address on the CAN bus. This takes 1/4 second. Afterwards, it waits another 1/4 second then sends out a request to all the other nodes on the bus to see who's out there. After this, it turns on both LEDs for 1 second.

This “long blink" of the LEDs is intended to tell you that the CPU reset and why:

- One 1 second blink = normal power on
- Two 1 second blinks = watchdog timer reset the CPU (this indicates a software bug)

- Three 1 second blinks = brownout reset. The power supply fell below the minimum requirement for a moment. This threshold is set for 2.0 V for now.

2) After the long blinks, a series of "short blinks" indicate other errors that may have occurred:

- Two short blinks = the CAN bus is inactive. This means there is an electrical problem with the CAN bus (possibly a problem with bus termination), or simply that the e-*ASK* module is the only node attached to the bus. The I/O module will continue running assuming that it is the only node in the vehicle.
- Three short blinks = the e-*ASK* module couldn't claim its CAN address. This is probably because another I/O module on the bus is set to the same function instance. This is considered a fatal error so the e-*ASK* module will reset itself and try again.

NOTE: CAN communications errors and address claim problems take a while to detect because of the retry code in the I/O module, so if any errors are found the initial power-on long blink will not occur until a couple of seconds after power on.

Problem Description	Possible Solution
e-*FOB* Hints	
Button press does not provide correct operation	Verify power to the e-*ASK* module and RF receiver.
	Re-teach the FOB transmitter to the receiver. Ensure that only Lock button is pressed while in learn mode.
	Verify dipswitch positions are correct for application.
No operation or intermittent operation	Mount RF receiver away from enclosed metal areas and fully extend antennae.
	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.
e-*PAD* Hints	
No response with button press	Verify power to the e-*ASK* module.
	Verify that keypad cable is connected. (rest of system will function).
Access code is not recognized	Verify that code has not been changed. Reassign keypad with instructions starting on page xx.
	Confirm use of an access code, not the authority code.
Key fob works correctly, keypad beeps, but no output	Cycle power to e-*ASK* module.
Unexpected, secure operation	Verify DIP switches are set to correct

occurs	configuration setting.
e-*ASK* Hints	
No response in any system element	Verify power to the e-*ASK* module.
Output relay (external) latches on or off.	Verify that power to relay comes from external relay power pin. .
	Cycle power to system. If condition continues, replace relay.

e-ASK CAN DIP Switch Configuration – Prevost Custom

The CAN module dipswitches must be set exactly to this configuration or the keypad will not communicate with the module and functionality will be unexpected.

- DIP Switch 1: On
- DIP Switch 2: On
- DIP Switch 3: Off
- DIP Switch 4: Off
- DIP Switch 5: Off
- DIP Switch 6: On
- DIP Switch 7: Off
- DIP Switch 8: On

Appendix A: Connectors and Pinouts

The following tables and diagrams are provided to show connector and pin assignments for the **e-*ASK*** CAN Multiplex system.

Table 1: CONNECTOR AND PIN INFORMATION

CONNECTOR	MATING CONNECTOR	MATING TERMINAL
J1	AMP 2-106527-4	AMP 106529-2
J2	AMP 1-106527-0	
J3	N/A	
J4	AMP 106527-8	
J5	AMP 106527-4	

Function	Pin Location
J1 CONNECTOR	
ENT. DOOR KEY SWITCH INPUT (GND)	1
UNASSIGNED INPUT(GND)	2
PANIC INPUT (GND)	3
GROUND	4
UNASSIGNED OUTPUT (RELAY 30A)	5
ENT. DOOR UNLATCH OUTPUT(RELAY 30A)	6
VEHICLE POWER (+12V)	7
UNASSIGNED OUTPUT (RELAY 30A)	8
ENT. DOOR UNLOCK INPUT (GND)	9
UNASSIGNED INPUT(GND)	10
ENT. DOOR LOCK INPUT (GND)	11
UNASSIGNED INPUT(GND)	12
SECURITY INPUT (GND)	13
UNASSIGNED INPUT(GND)	14

UNASSIGNED INPUT(GND)	15
GROUND	16
UNASSIGNED OUTPUT (RELAY 30A)	17
ENT. DOOR UNLATCH OUTPUT(RELAY 30A)	18
VEHICLE POWER (+12V)	19
CAN HIGH	20
ENT. DOOR LOCK OUTPUT (RELAY 30A)	21
CAN LOW	22
ENT. DOOR HINGE SWITCH INPUT (GND)	23
UNASSIGNED (2A GND)	24
J2 CONNECTOR	
VEHICLE POWER (+12V)	1
UNASSIGNED	2
UNASSIGNED	3
UNASSIGNED	4
UNASSIGNED	5
GROUND	6
IGN INPUT POLARITY/COMMON	7
IGNITION INPUT (SEE J2P7)	8
UNASSIGNED	9
GROUND	10
J3 CONNECTOR **THIS CONNECTOR IS NOT USED IN THE PREVOST APPLICATION**	
J4 CONNECTOR	
EXTERNAL RELAY POWER (+12V)	1
PANIC OUTPUT (-500 MA)	2
INTRUSION/ALARM OUTPUT (-500 MA)	3

LUGGAGE UNLOCK OUTPUT (-500 MA)	4
LOCK ALL OUTPUT (-500 MA)	5
ENT. DOOR UNLOCK OUTPUT (-500 MA)	6
WAKE UP OUTPUT (-500 MA)	7
ANTI-THEFT LED OUTPUT (-500 MA)	8
J5 CONNECTOR	
KEYPAD POWER (+12V)	1
CAN LOW	2
GROUND	3
CAN HIGH	4