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

Tri*Mark's* third generation of e-*ASK* Systems consists of a selection of compatible components that allow for complete keyless entry for on- or off-highway vehicle applications. It features Passive Keyless Entry (PKE) and offers optional vehicle mobilization/ immobilization and keyless push button start.

How does passive keyless entry/start work?
No FOB button presses are required, simply placing a hand into the door handle or within range (30 mm) of the external capacitive sensing puck will wake up the PKE controller. The controller sends out a low-frequency (LF) signal, all FOBs within range respond with their serial numbers using a radio frequency (RF) signal at 433MHz The controller compares the serial numbers against a stored list of authorized FOB's. The LF messaging also uses a random numbering scheme back and forth to prevent attacks. If an authorized FOB is within range, the door automatically unlocks.

The FOB's also have typical lock/unlock buttons that can be used from up to 50 meters using RF signals. This messaging is encrypted - the FOB must decrypt the message and send back an appropriate response before the PKE controller will unlock the door.

The keyless start function is facilitated using LF/RF messaging a second time to ensure an authorized FOB is within range inside the vehicle using the same protocol. The controller then communicates to another SAE J1939 device that it's appropriate to mobilize the vehicle also using encrypted messages. The combination of LF challenge and RF response delivers low power consumption and long battery life.

This system allows for standardized hardware architecture and includes a common controller and other peripheral modules. This hardware is tested and validated and can be adapted to other applications with a high level of confidence.

FEATURES/BENEFITS:
- Keyless-entry security and convenience for access door systems through a 'state of the art' electronic interface for the ultimate in end user convenience, functionality and security
- Passive Keyless Entry (PKE) provides for "hands free" unlocking
- Rugged and durable construction - compliant to on-road, off-road, and industrial environmental requirements
- Independent control of multiple door zones
- Common software is used to control the I/O control module, electronic communications (SAE J1939, 250k, SAE J1939 500k or RV-C), but software adaptations can be provided for specific OEM and customer requirements
- Locking/unlocking confirmation
- Lighting and auxiliary output control

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e-FOB:

- Stylish 4-button PKE FOB - operates at 125 kHZ (PKE) and 433 kHZ (RF) transmission (Compliant to FCC-Part 15 and EU RF requirements)
    - o 4 button FOB can be used for other functions such as illumination of work lights as you approach the machine for safe entry or service of the machine
    - o The key FOB can also be used as a normal RF keyless entry so unlocking/locking via button presses is possible - range is approximately 50 meters
- High security with random numbering scheme back and forth between the FOB's and controller to prevent attacks
- Customized graphics possible (buttons and logos)
- Can sync up to 4 FOB transmitters to vehicle
- Passive Start/Immobilization - authorized FOB needs to be located inside the vehicle to allow Passive Start. If the correct FOB is not within range of the internal antenna(s), the vehicle cannot be started.
- 2 FOB styles available: wire form key holder or high style chrome key holder

e-CONTROLLER:

- IP 67 waterproof enclosure with high quality Deutsch connectors – (2) 12 pin connectors or unsealed enclosure with AMP Duac connectors
- Enables distributed functionality, such as multiple door control and ignition immobilization, via vehicle multiplex communication

AVAILABLE:

- Standard kit make up includes: (2) pre-paired PKE remote FOB transmitters, I/O module, external antenna and manual
- Multiplex or discrete communications
- Can add TriMark's 540-0110 e-*PAD* Keypad for true keyless operation
- Optional kits can include: wiring harnesses for all connection points, extra relays, switches, door contacts, actuators, mounting hardware, mounting brackets, door latches, and exterior door handles

590-1200 ANTENNA:

- RFID Antenna (125 kHZ) - 1 external for cab entry (PKE) and 1-2 for interior; immobilization and push to start
- Potted construction ensures environmental protection and durability performance – can be used in exterior or interior locations
- Custom mounting brackets available

REMOTE START:

- Optional Remote Start available with select engines. (Custom software is required to communicate with Engine Control Unit (ECU))

USE WITH:

- TriMark 510-0300 PKE e-Controller (Sealed)
- TriMark 530-0400 PKE FOB
- TriMark 590-1200 PKE Antenna
- TriMark Capacitive sense enabled products
- TriMark puck with Capacitive Sensor for PKE

INSTALLATION:

- Standard 12 VDC power (24 VDC coming soon)
- I/O module is easily installed with (2) 1/4" or M6 screws (not included) and can be mounted in a concealed location

U.S. Patent No. 8,350,669
U.S. Design Patent No. D803,792
Other Patent(s) Pending

e-ASk
Access Security Keyless