



Automotive RF Solutions

**Car Access
and
Tire Pressure Monitoring (TPMs)**

Atmel's Automotive RF System Solutions

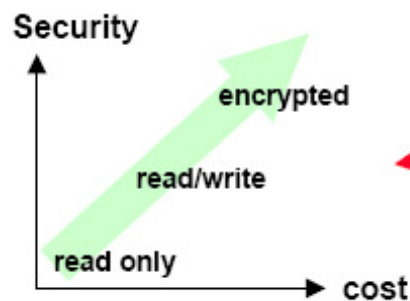
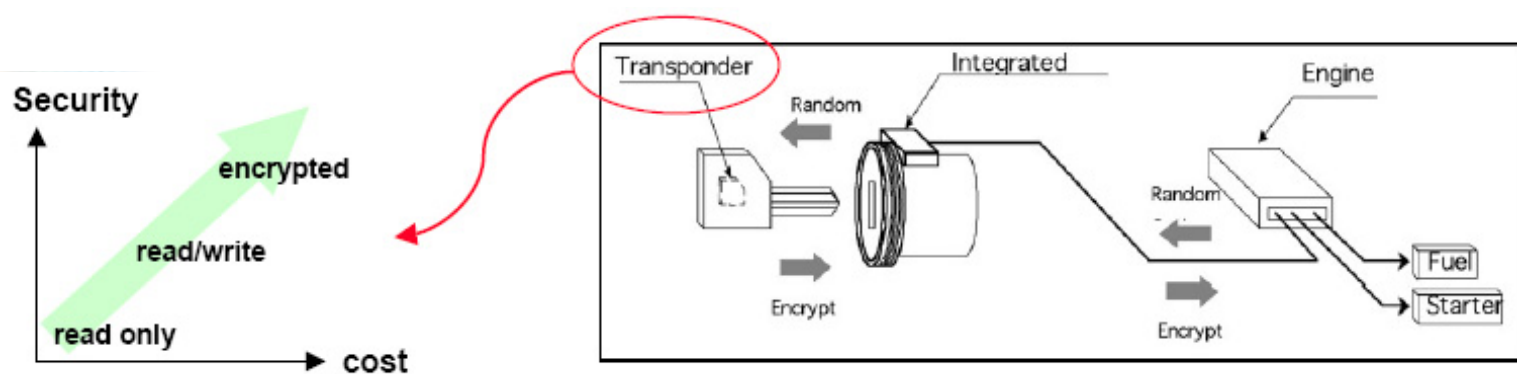
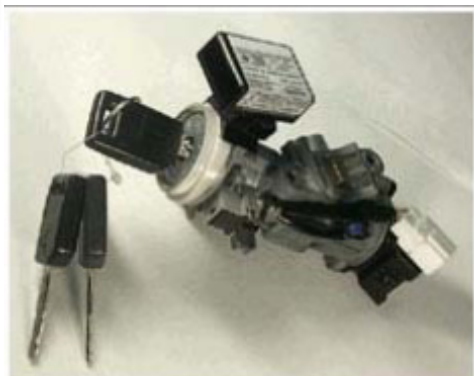
- **Car Access**
 - Immobilizer
 - Remote Keyless Entry (RKE)
 - Passive Entry Go (PEG)
- **TPMS**
 - Direct Measuring System
 - Pressure On Demand (POD)
 - Batteryless System



Immobilizer

Description

The Immobilizer is one of Vehicle Anti-theft systems. Through communication with the Transponder via the keys, the system identifies the improper keys and enables the Engine Control Module to shut off the fuel system or starter to protect the vehicle from theft.



Remote Keyless Entry

Decoder
+
Receiver
RF UHF
in the car



Encoder
+
Transmitter
RF UHF
in the key



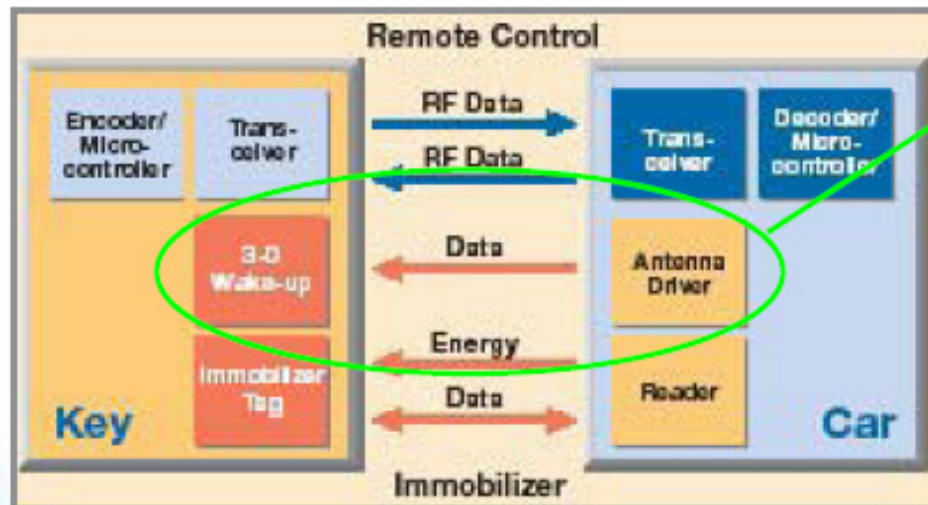
Description

The Remote Keyless Entry is one of possible car access systems. Through communication from the transmitter (or transceiver) via the keys to the receiver (or transceiver) in the car, the system identifies the proper keys and opens the doors.

Passive Entry Go

Description

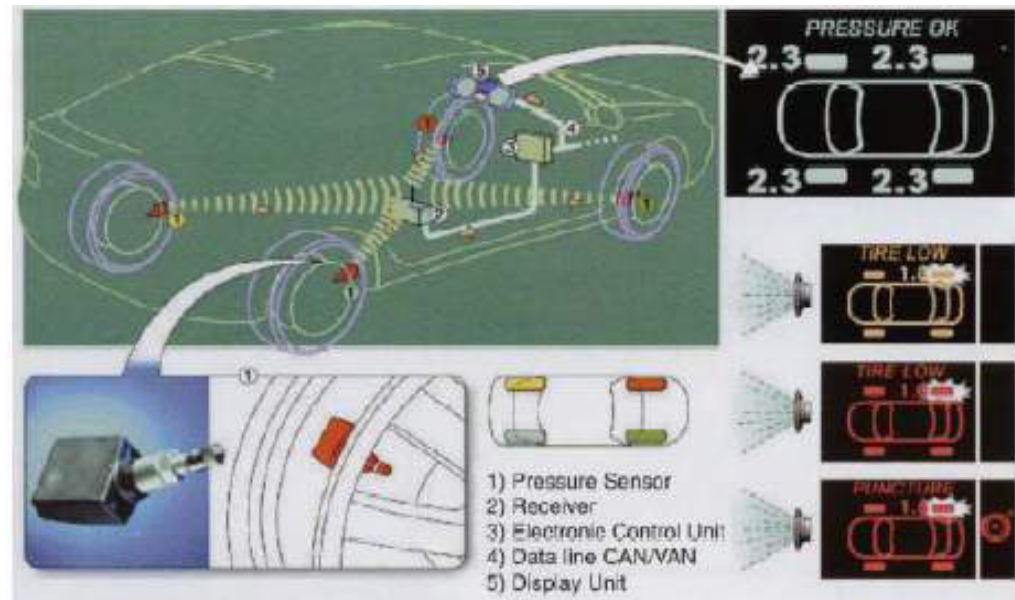
The Passive Entry Go System is one of possible car access systems. It includes the Remote Keyless Entry system. A wake up system based on the LF technology is added. No more button on key is required to open the door .



The wake up system

The Antenna Driver is emitting a 125 kHz signal periodically. When the key or card is near of the car, the signal is detected by a low power 3-D receiver, which enables the RKE communication

Tire Pressure Monitoring



Description

Each Tire contains a module including a battery, a pressure sensor, a MCU and a RF transmitter to transfer pressure data as wireless signal to a central RF receiver. A wake up system can be added (not included in the above picture) to save power and to simplify the system control.

Atmel's Know How

- Receiver
- Transmitter
- Transceiver
- Ultra Low-power Microcontroller
- Base Station
- Transponder
- LF Control



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