

 **eFob Phone as a Key**

VOXX Automotive
SM A VOXX INTERNATIONAL COMPANY



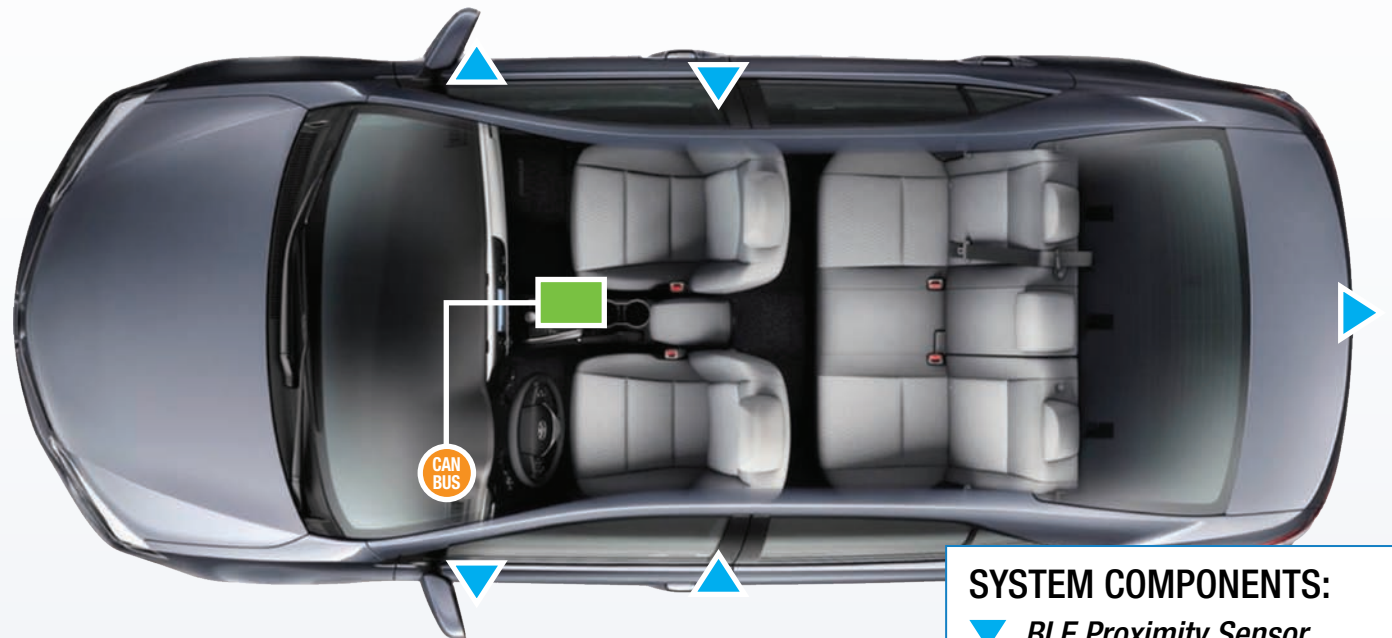
Bluetooth Passive Entry System



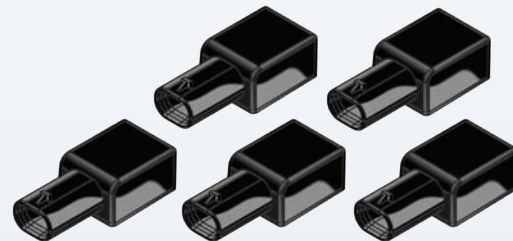
 **eFob**

Bluetooth Passive Entry System
Use your smart phone as a key

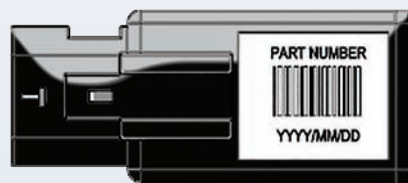
Anticipated BLE Sensor Control Module & efob BLE Sensor placement locations to optimize the accuracy of proximity algorithm.



SYSTEM COMPONENTS:
 ▲ BLE Proximity Sensor
 ■ BLE/CAN Sensor Controller



(5) efob BLE Proximity Sensors



(1) BLE Sensor Control Module

NOTES:

1. MEETS APPLICABLE FUNCTIONAL AND PERFORMANCE PER:
 RG-2000 – SYSTEM – SED
 RG-2001 – BEACON ARCHITECTURE – SRD
 RG-2012 – BEACON PROGRAMMING DIRECTION – SRD
 RG-2009 – DISTRIBUTED AUTHENTICATION AND AUTHORIZATION – SRD
 RG-2010 – SECURITY – SRD
 BLUETOOTH 4.2 COMPLIANT
2. OPERATING REQUIREMENTS (PRELIMINARY)
 OPERATING VOLTAGE: 6~16VDC
 OPERATING CURRENT: 2.3mA TYP, IN ZONE DETECTION MODE
 SLEEP CURRENT: 150uA
 OPERATING TEMP: -40~85C
 STORAGE TEMP: -40~85C
3. SEALED: IP68K
4. ROHS COMPLIANT
5. CERTIFIED Pb FREE
6. MANUFACTURED PER IS-16949 REQUIREMENTS
7. MEETS AUTOMOTIVE ENVIRONMENTAL, DURABILITY and RELIABILITY REQUIREMENTS.
8. SMARTPHONE COMPATIBILITY with ANDROID 4.3 and iOS 7.0 and newer.

SENSOR POSITIONS

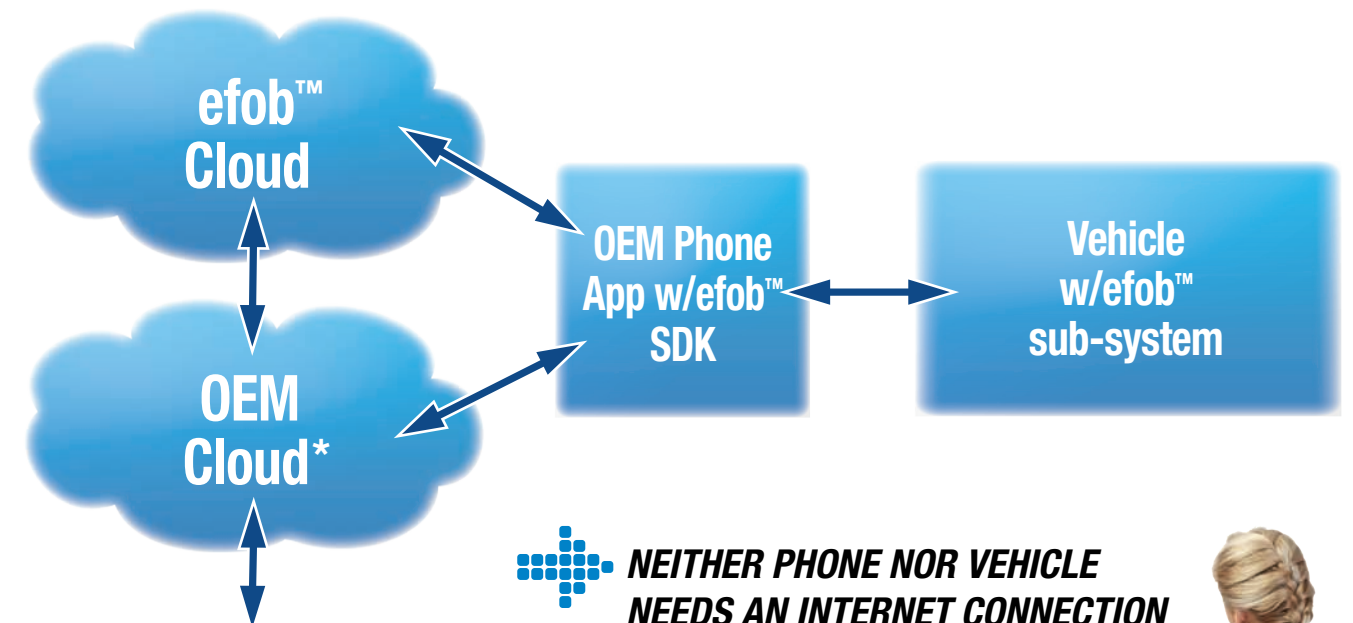
- Passenger & Driver sides Mirror or Door Handle.
- Passenger & Driver sides Door Interior or Interior Lower side B-pillar.
- Trunk/Lift Gate Interior/Exterior.
- Center Console or Center Dash (BLE Sensor Control Module).

* Patent No. US009241235B2 – additional patents pending.

System Components

SYSTEM SECURITY BENEFITS

- Three roots of trust – (2 cloud, 1 phone).
- Standard Internet security techniques (such as online banking).
- Mutual authentication (identity).
- Mutual authorization (features enabled).
- Additional AES encryption layer on top of BLE encryption.



NEITHER PHONE NOR VEHICLE NEEDS AN INTERNET CONNECTION FOR VEHICLE ACCESS.

* It is assumed that the OEM Cloud manages user account, preferences and efob user account.

* Optional Cloudless Solution available.

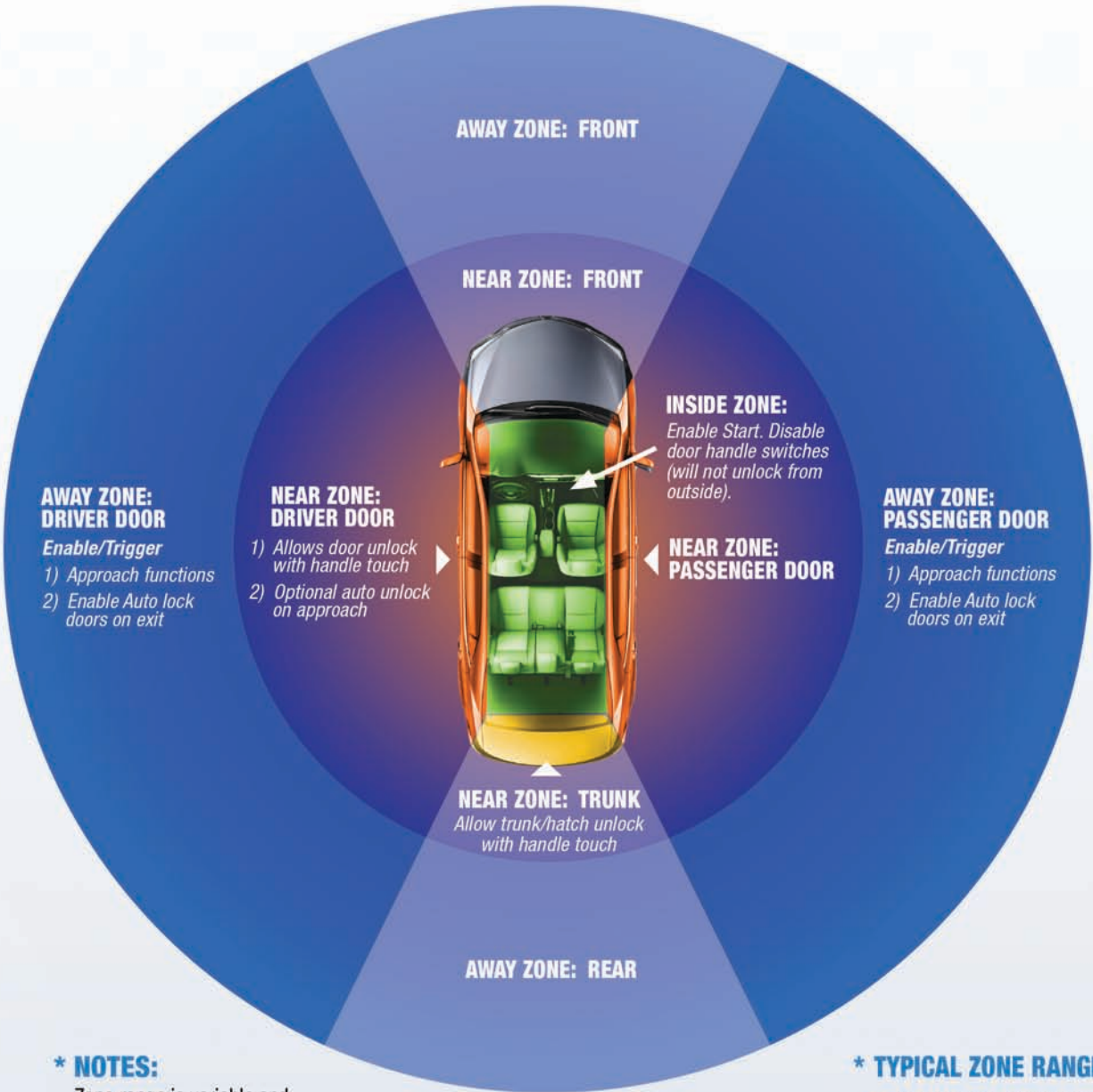
System Architecture



efob ... Bluetooth Passive Entry System

Proximity Detection Zones

Zone statuses as driver approaches vehicle and efob system is detecting the location of the phone.



* NOTES:

Zone range is variable and depends on environmental factors such as RF interference proximity to walls, structures and other vehicles.

* TYPICAL ZONE RANGE

- Inside-outside Detection 0-30cm
- Near Zone 1-3m from vehicle skin
- Away/Approach Zone 7~10m
- Connection Range up to 30m

Connectivity

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