

RKE TRANSMITTER FUNCTIONAL DESCRIPTION

I. PROGRAM INTENT:

The Remote Keyless Entry (RKE) transmitter or key fob is a component in the RKE system. The RKE system includes one receiver and one or more transmitters. The transmitter is a handheld device that transmits the RF signal to the receiver to control several functions on the automobile: Lock, Unlock, Open trunk and Panic Alarm.

The RKE Transmitter herein is a new design and development by Visteon Automotive System, an Enterprise of Ford Motor Company, shall be used for RKE system applications on the automobile.

II. FUNCTION:

The transmitter assembly includes electrical part and mechanical part. The mechanical part includes housing, button keypad, button switches and key ring. The electrical part includes micro controller and subordinate circuit. The transmitter is operated by a 3VDC, coin, lithium battery.

There are 2 types of transmitters designed for North America applications:

- 4-Button: Lock, Unlock, Trunk and Panic - Part number FU3F-15K601-H_
- 3-Button: Lock, Unlock and Panic - Part number YL8F-15K601-A_

Actually, 4-button and 3-button transmitters have same PWB, same electrical circuit and only switch button physically changed to meet functional application requirements:

1. Mechanical part and functions:

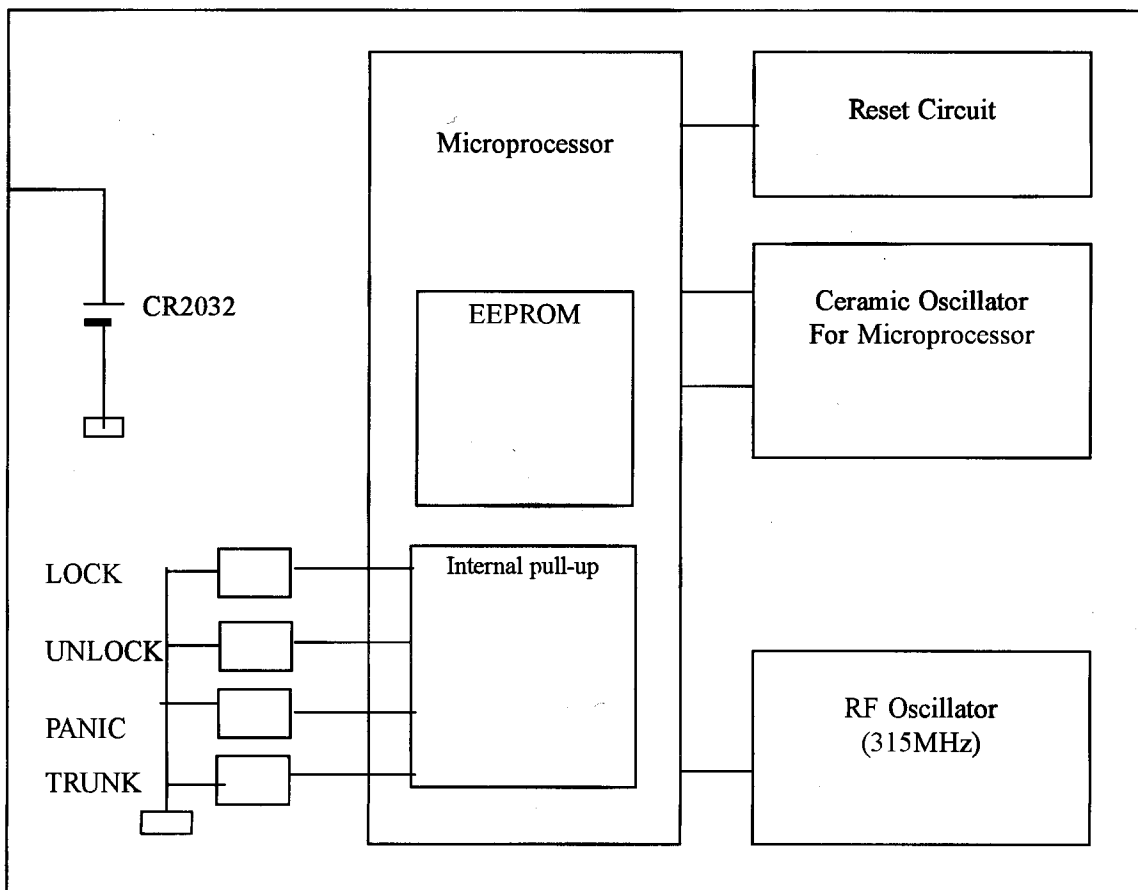
- **Lock** - to lock all doors
- **Unlock** - to unlock the door or all doors.
- **Open Trunk** - to open the trunk
- **Panic alarm** - to activate the horn to sound and the exterior lamps to flash (like an anti-theft alarm)

2. Electrical part and functions:

- In normal condition, the micro and the other circuit stays in "STOP MODE" in order to minimize consumption current. This "STOP MODE" is defined as the status waiting for switch input command.
- When one of the switches is pressed while transmitter is in the "STOP MODE", RESET signal is generated in the micro and the micro starts the operation.
- The micro reads the Transmitter Identification Code (TIC) and "Counter" for rolling code from built-in EEPROM.
- The micro conducts the operation to convert the TIC and "Counter" that was read from EEPROM.
- After completion of data conversion, the transmitter transmits the data along the data

transmission format. The data is transmitted on a single channel containing digital information at the frequency of 315MHz + /-310KHz. The field strength of the transmission at 3 meters distance is 88dBuV/m maximum and 75dBuV/m average. The transmitter signal is 100% amplitude modulated (AM) with a bandwidth of 4KHZ. This bandwidth contains digital signal and has a 2K Baud rate.

- At that time, the minimum 4 packets of data transmitted.
- If the switch is continuously pressed, same data will be transmitted up to 50 packets maximum.
- If the switch status is changed or if the switch is continuously pressed at the moment of the completion of 4-data packet transmission, the "Counter" will be incremented and the transmitter moves to the operation of TIC and Counter conversion mode.
- When the data transmission is completed, "Counter" will be stored at built-in EEPROM. Then Transmitter moves to "STOP MODE".



RKE Transmitter Block Diagram