

OMRON AUTOMOTIVE
ELECTRONICS KOREA

OKA-672R

Receiver, RF Keyless Entry System

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FCC Operation Statement

This device complies with part 15 of the FCC Rules.

Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference
- (2) This device must accept any interference received, including interference that may cause undesired operation.

FCC Compliance Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

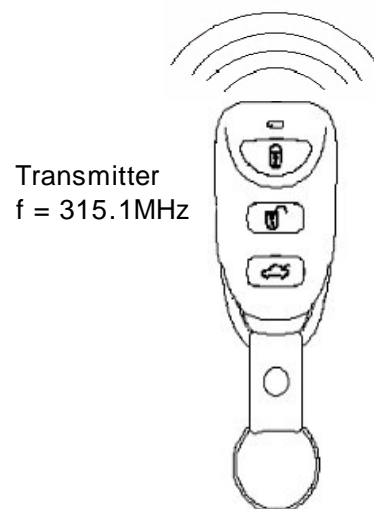
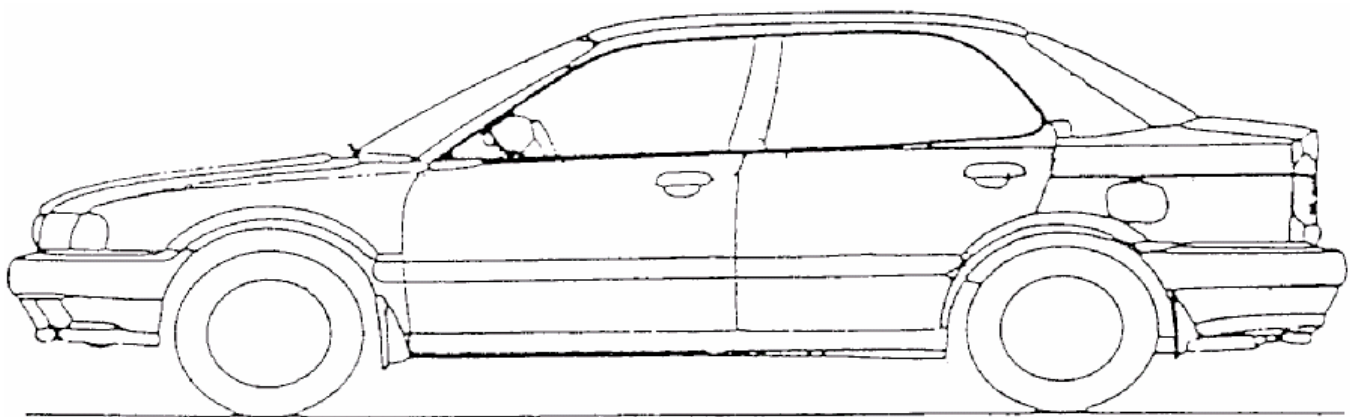
Caution !

Any changes or modifications to the equipment not expressly approved by the party responsible for compliance could void your authority to operate the equipment.

1. Constitution of the Radio Frequency Keyless Entry System for vehicle

The radio frequency keyless entry is a system that it controls locking and unlocking the door and the trunk wireless remote controller. This system consists of three components. The TRANSMITTER is a device that transmits the signal when the button is pressed. The transmission signal consists of several synchronous codes , unique identification code , security code and function code. The RECEIVER is fixed inside the vehicle It works intermittently to prevent the battery exhaustion. When the receiver detects the synchronous code, runs continuously to receive the signals completely. After receiving the signal, the receiver decides which operation will be performed. The user can select the following operations by pressing the button of the remote transmitter.

OPERATION	ACTION
LOCK	lock the door
UNLOCK	unlock the door
PANIC	alarm the siren
TRUNK	open the trunk



2. User's manual (provisionally)

REMOTE TRANSMITTER



You can lock and unlock your vehicle with the remote transmitter.

LOCK

When you push the LOCK button, all the doors will lock.

You cannot lock any of the doors with the remote transmitter if any door is open or the key is the ignition switch.

UNLOCK

When you push the UNLOCK button, all the doors will unlock.

You cannot unlock any of the doors with the remote transmitter if any door is open or the key is in the ignition switch.

PANIC

When you push the PANIC button during 0.5s, Siren will alarm.

TRUNK

When you push the TRUNK button during 0.5s, trunk will open.

3. Block diagram

This is block diagram concerning to the transmitter

This is the block diagram concerning to the receiver.

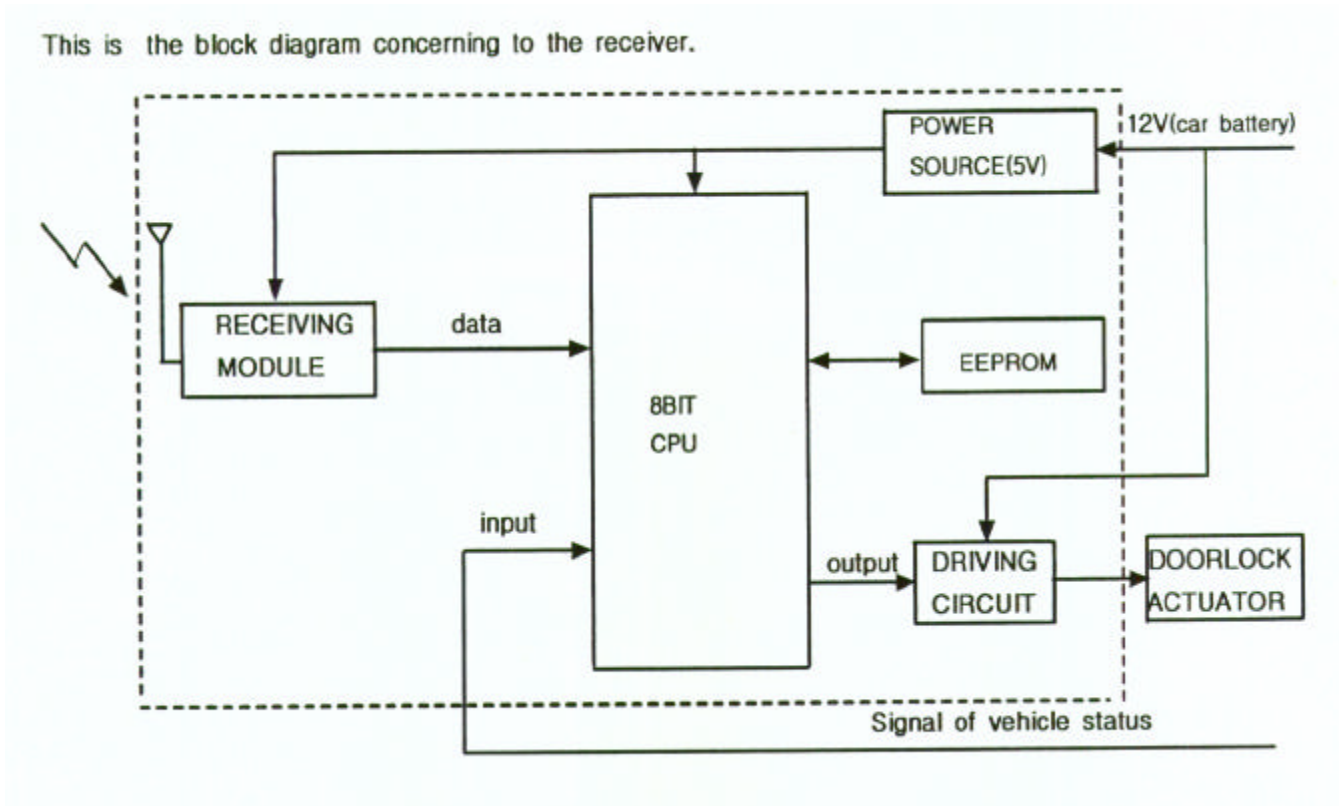


figure 3.1 block diagram of the transmitter

4. Specification

4.1 CPU

Type	uPD78F9116B
	Manufacturer : NEC Corporation
ROM	16 Kbytes
RAM	256 bytes
Clock frequency	4MHz
Clock frequency generation	Crystal resonator
Package	30pin SSOP

4.2 EEPROM

Type	S-93C46XXX
	Manufacture : Seiko, Elec
Memory	1Kbit
Package	8pin SOP

4.3 RF Receiver Module

Type	G8X-73RX
	Manufacture : OMRON - IIDA
Local clock frequency	315.1MHz
Frequency generation	Crystal resonator
Modulation Scheme	FM (Single Superheterodyne)
Bandwidth	±200KHz
Carrier Detect Sensitivity	11dBuVemf

4.4 Others

Dimension	81.5mm x63mm x35mm
Weigh	89g
Battery	CAR Battery (DC12V)
Operation Voltage	DC12V
Operation Temperature	-30 +80

5.Features

5.1 Transmission frame

The transmission begins immediately in case of LOCK and UNLOCK button is pressed.

but TRUNK and PANIC button is begun after 0.5s.

The transmission frame consists of the synchronous frame and the data frame. The synchronous frame has 320bit synchronous codes that it will be used for the receiver to wake up. The data frame consists of 24bit length identification code, 16bit security code and 4bit function code and 8bit crc code. 16m different identification codes are available.

The security code is always changed in case of any of the buttons is pressed. The transmission time is typically 300 milliseconds.

5.2 Battery saving

To prevent the battery exhaustion , the micro-computer of the transmitter is usually inactive. When the button will be pressed, the micro-computer wakes up immediately and judges which button is pressing. Then the micro-computer constructs the transmission frame and radiates it from the antenna .After transmitting, the micro-computer switches stand-by mode by itself.