DESIGNED	CHECKED	APPROVED

G 8 C-501M

Receiver, RF Keyless Entry System

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

The radio frequency keyless entry system controls door lock/unlock by wireless remote control.

This system consists of 2 components：the TRANSMITTER and the RECEIVER.

The TRANSMITTER, when activated by pressing the appropriate button, sends a signal that consists of several synchronous codes, unique identification code and security code and function code.

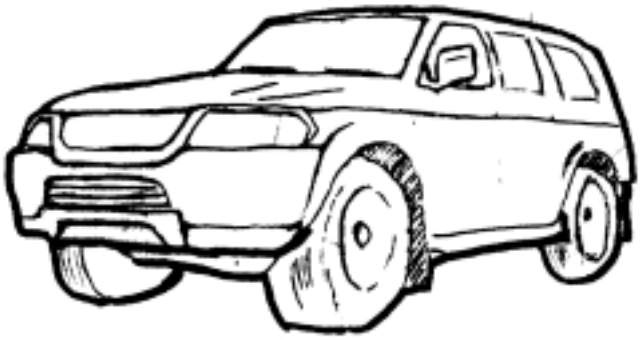
The second component is the RECEIVER, which is installed in the vehicle.

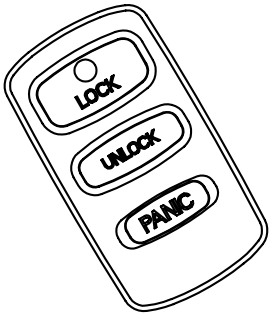
It works intermittently to reduce the battery exhaustion of the car.

It runs continuously to receive signals completely when it detects the synchronous code.

The user can select the following functions by pressing one of two buttons on the TRANSMITTER.

BUTTON	FUNCTION
LOCK	Lock the door
UNLOCK	Unlock the door
PANIC	Starts sounding the horn and flashing the headlight intermittently

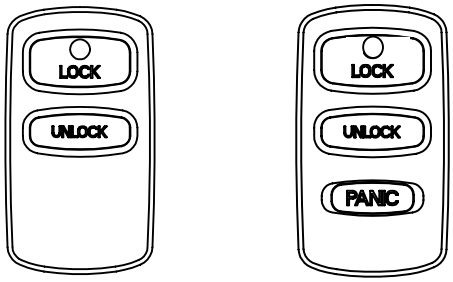




Transmitter
f =313.8～313.9MHz

2. User's manual (provisional)

3BUTTON TRANSMITTER (OMRON TYPE:G8D-525M-A6-C)
2BUTTON TRANSMITTER (OMRON TYPE:G8D-525M-A9-C)



You can control door lock/unlock and panic alarm with the TRANSMITTER.

LOCK

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

You cannot lock the doors with the TRANSMITTER if the key is in the key cylinder.

UNLOCK

When you press the UNLOCK button, to begin with, the driver's door will unlock.

Secondly, if you press it once more continuing the state that driver's door is UNLOCK, all the doors will unlock. You cannot unlock the doors with the TRANSMITTER if key is in the key cylinder. If the doors are not opened within 30 seconds after you unlock the door with the TRANSMITTER, all the doors will be automatically relocked.

PANIC ALARM

When you press the PANIC button, the vehicle starts sounding the horn and flashing the head light intermittently. These functions continue for 175 seconds unless any of the buttons on the TRANSMITTER are pressed.

△ CAUTION

The remote control switch (TRANSMITTER) is a precision electronic device.

Therefore please pay attention to the following:

Do not impose shock to the TRANSMITTER.
Keep the TRANSMITTER dry.
Do not disassemble the TRANSMITTER.

When the TRANSMITTER is opened, avoid getting water and dust, etc inside it. In addition, do not touch the precision electronic parts.

3. Block diagram

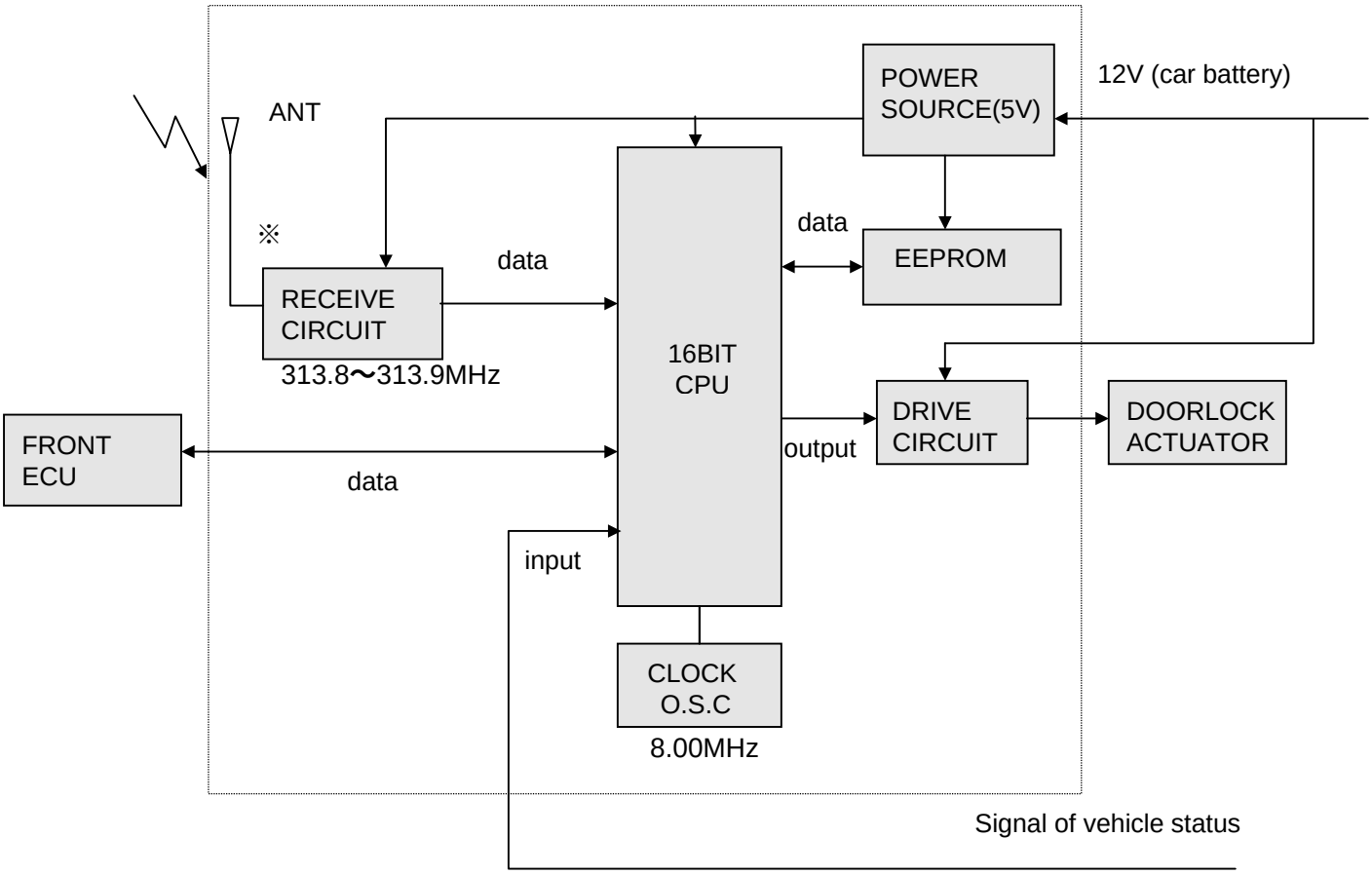


figure 3.1 Block diagram of the receiver

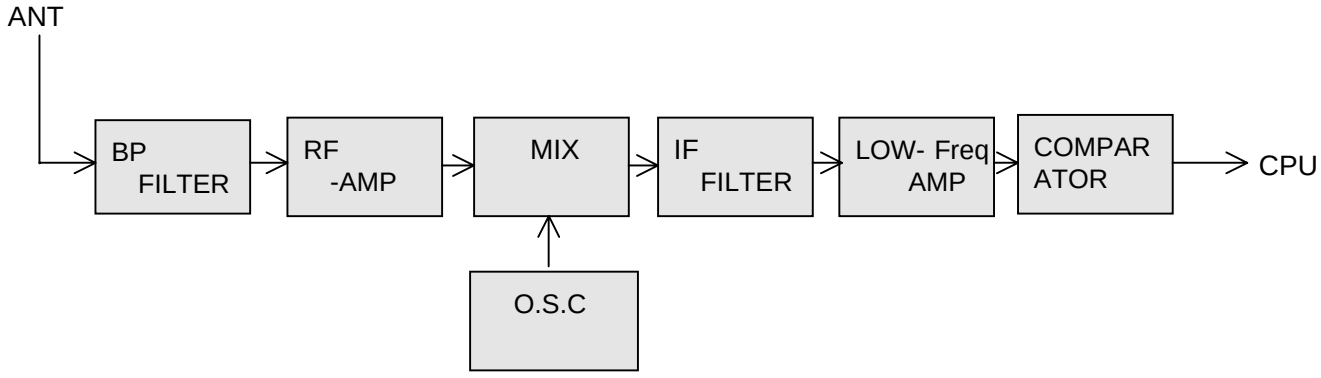


figure 3.2 Block diagram ※RECEIVE CIRCUIT

4. Specification

4.1 CPU

Type	MB90F548GLSPFV-GS
	Manufacturer: FUJITSU
ROM	128Kbyte
RAM	4Kbyte
Clock frequency	8.00MHz
Clock frequency generation	Crystal resonator
Package	100pin LQFP

4.2 EEPROM

Type	S93C56AMFN
	Manufacturer: Seiko instruments.
Memory	2Kbit
Package	8pin MSOP

4.3 RF Receiver Module

Type	G8X-21RX-R
	Manufacturer: IAM
Local clock frequency	10.14MHz
Frequency generation	Crystal resonator
Modulation Scheme	FM
Carrier Detect Sensitivity	3 dBuVemf

4.4 Others

Dimension	187.3mm×80.6mm×39.5mm
Weight	260g
Battery	Car Battery (DC 12V)
Operation Voltage , Current	DC 12V, 120mA
Operation temperature	-30℃ ~+75℃

5. Features

5.1 Door lock control

The RECEIVER sends “LOCK” signal to the door-lock actuators when LOCK button on the TRANSMITTER is pressed. The RECEIVER also sends “UNLOCK” signal to the door-lock actuators when UNLOCK button on the TRANSMITTER is pressed.

These functions don’t work if the key is in the key cylinder.

5.2 Automatic locking

The RECEIVER sends “LOCK” signal to the door-lock actuators if any of the doors are not opened within 30 seconds after UNLOCK button on the TRANSMITTER is pressed.

This function prevents the key from continuing the state of UNLOCK when the UNLOCK button is pressed by accident, such as the key is in user’s pockets.

5.3Theft alarm(panic alarm)

The RECEIVER sends signal to the horn circuit and Front ECU when PANIC button on the TRANSMITTER. Afterward the vehicle starts sounding the horn and flashing the headlight intermittently.

These functions continue for 175 seconds unless any of the buttons on the TRANSMITTER are pressed.

5.4 Battery saving

Because the power source of the receiver is the car battery, it is very important to minimize power consumption. The RECEIVER (CPU: within RECEIVER) works intermittently to reduce the battery exhaustion.

6. SUPPLEMENT

G8C-501M is an integrated controller for function of the car, such as door lock (includes the keyless entry) , theft alarm, turn signal-light, interior light, power window timer, ignition key illumination, warning buzzer, etc. This controller has many input and output signals, some of them are concerned with the keyless entry system. This document refers only to keyless entry system (not refers to other functions.)