

# User Manual

## Key Fob < CG01>

<Hint for the user of this template:  
Replace all yellow shaded text by the project specific information.  
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Decide if it could be possible that more than one model name can be mentioned

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## 1. General Product Information

This document gives an overview of the different device operation modes and the RF transmissions performance of the key model **CG01**. In this document the device is referenced as "key", even if the mechanical backup key might be separated from it.

### 1.1 Trade mark

Continental

### 1.2 Brand

Continental

### 1.3 Manufacturer

Continental Automotive Technologies GmbH  
Siemensstr. 12  
93055 Regensburg  
Germany

### 1.4 Design Location

Continental Automotive Changchun Co., Ltd Shanghai  
538, Dalian Road Shanghai, P.R.China 200082

### 1.5 Manufacturing Locations:

## Plant 1:

Continental Automotive Corporation Changchun Co., Ltd. Jingyue Branch

5800, Shengtai Street

Changchun, Jilin Province, P.R.China 130000

## 2. Operating modes

The key has three main operating modes which differ regarding of the signal transmitting with the RF:

- **Immo**            Immobilizer transponder mode
- **RKE**            Remote keyless functionality
- **PASE**           Passive key functionality including access, engine start, Welcome lighting, Approach Unlock and Walk Away locking.

### 2.1        Operating Temperature

Operating Temperature is  $-40^{\circ}\text{C}$   $+85^{\circ}\text{C}$  for immobilizer function,  $-20^{\circ}\text{C}$  to  $+60^{\circ}\text{C}$  for RKE and PASE function.

### 2.2        Immobilizer Transponder mode

In transponder mode the 3D coil receives a LF transmission from the LF Start authentication antenna and the voltage is rectified by the NCF29A1 microcontroller. The fob receives power exclusively from the rectified voltage of the LF signal from the LF Start authentication antenna. The CR2032 battery of the fob is disconnected by the internal supply switch of the microcontroller. Communication with the vehicle (LF Start authentication antenna) is done via load modulation which dampens the amplitude of the signal transmitted by the LF Start authentication antenna: this is effectively a form of ASK modulation.

The keyfob is only modulating data on the carrier send out of the LF Start authentication antenna.

The keyfob is not sending a LF field back to the LF Start authentication antenna.

## **2.3 Remote keyless functionality**

This mode refers to use the key as a remote control unit to initiate actions on the vehicle such as open or close door latches. RF transmission depends on a user activating (a button pressing) on the key. During the button pressing the amount of telegrams are sent on the RF channel.

## **2.4 Passive key functionality**

For passive key operation no user action on the key side is required. Same operating mode is used for vehicle access, passive engine start, welcome lighting function, approach unlock and walk away closing. The trigger is delivered by the vehicle via an LF data telegram. When the key receives a valid LF message, it responds with RF telegrams and the telegram timing in this mode depends on the key configuration data (sort of time slot concept).

- Keyless Less Entry involves ultra-low power active LF interface
- Low Frequency stage is a receiver without oscillator
- Signal is directly decoded in baseband with basic analog functions
- The Low Frequency stage operates at 125 kHz

For passive key operation, RF messages lengths are lower than RKE short press message.

### **Remarks:**

The maximum operational distance using the hand free mode of this product is: less than 3 meters.

### 3. HW & SW version

HW version: AD

SW version: 43.0

### 4. LF parameters

Key fob is including LF receiver @125kHz.

LF Antenna	
Antenna brand	Sumida
Antenna type	3D coil (125kHz)
Antenna model	A2C03577100, CAS13D31B-722A-CA









### 5. RF parameters

For all RF transmission the following parameters apply:

	RF-Remote	RF-Passive
Center frequency	433.66 MHz/434.18MHz	433.66 MHz
Frequency accuracy	± 20 kHz	± 20 kHz
RF modulation	FSK	FSK
FSK deviation	± 16 kHz nominal	± 19.2 kHz nominal
RF frame data rate	7.8125 kbit/s	9.6 kbit/s
Data coding	Manchester	Manchester
RF power (e.r.p.)	-14 dBm (± 2dB)	-14 dBm (± 2dB)

RF Antenna	
Antenna brand	Continental
Antenna type	internal, PCB loop antenna
Antenna model	None

6. Key fobs Variants

Product reference	Product variant	Drawing Front	Drawing Front
CG01	Lock,Unlock,Trunk 433.66 MHz/434.18MHz (Center:433.92MHz)		
			
			
			

## 7. Regulatory Compliance Notes

### 8.1 FCC

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, and (2) this device must accept any interference received, including interference that may cause undesired operation.

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.

#### FCC Caution:

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

## 8. Warning

- Do not ingest battery. Chemical Burn Hazard
- This product contains a coin/button cell battery. If the coin/button cell battery is swallowed, it can cause severe internal burns in just 2 hours and can lead to death.
- Keep new and used batteries away from children
- If the battery compartment does not close securely, stop using the product and keep it away from children.
- If you think batteries might have been swallowed or placed inside any part of the body, seek immediate medical attention

## 9. Warning sign

