



OPERATIONAL DESCRIPTION/ USER MANUAL

KeyFob Model:RHT433



1. System Overview

The RHT433 is a transmitter designed to provide remote keyless entry, passive entry, passive engine start, and immobilization functionality to the FCA platform, it is part of a larger system provided to FCA by Continental which allows the customer to:

- Remotely start the engine.
- Remotely lock the doors.
- Remotely unlock the doors.
- Remotely open the trunk.
- Remotely find the car.
- Remotely unlock and lock doors in passive mode (PASE).
- Start engine in passive mode (PASE).
- Start the car via push button (IMMO immobilization).
- Use mechanical emergency key as back-up to access to the vehicle.

The system consists of PASE FOB, RFHM, and IMMO. The Remote Keyless Entry (RKE) and Start uses a Radio Frequency (RF) link for communication between the end user and the vehicle; For Passive Entry and Passive Start function, FOB receives LF command from RFHM via a Low Frequency (LF) link and responses back via RF link.

The Immobilization uses a Low Frequency (LF) link for communication/authentication between FOB and IMMO.

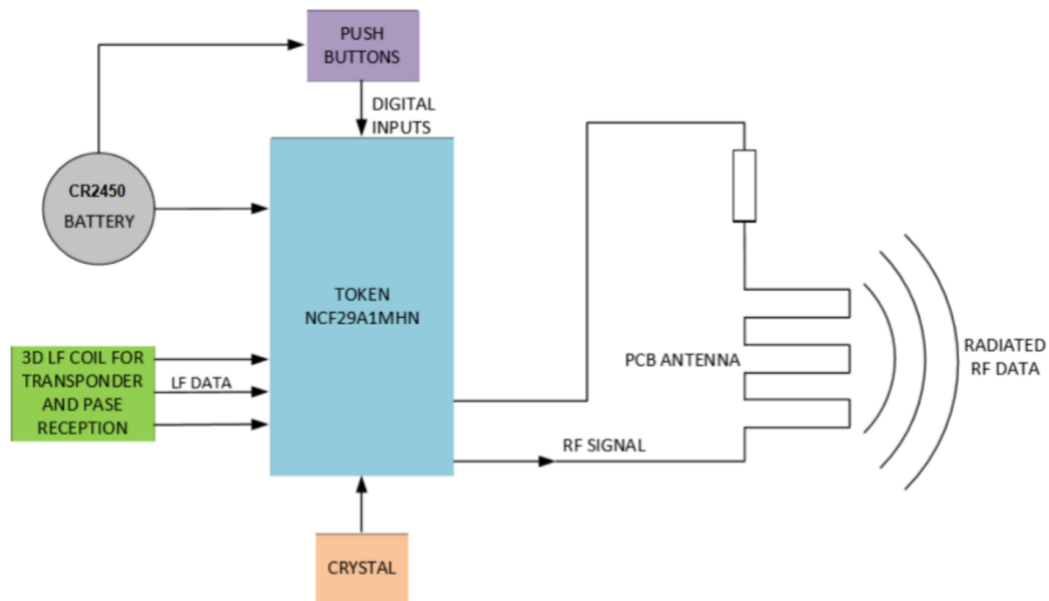
2. TECHNICAL DESCRIPTION

Measurements (L W H):	ca. 77 x 41 x 20 mm
Weight:	ca. 76 g
Operating temp range:	-20°C / + 70°C (limited by the battery)
Carrier frequency:	433,92 MHz/ 315 MHz
Bandwidth:	32kHz for RKE (ASK) and 57kHz for PASE (FSK).
Number of channels:	1
Type of modulation:	ASK for RKE telegrams and FSK for PASE telegrams
FSK deviation range:	+/- 10 kHz +/- 20 kHz
Baud rate:	2.4 kbps for RKE and 9.6 kbps for PASE
Rated Output Power:	-13 dBm (433MHz variant); (-17.5 dBm 315MHz Japan only)
Averaging factor:	433MHz -11.27dB , and 315MHz -11.27dB
Antenna:	PCB loop antenna
Antenna Gain:	H pol=-17.22 dBi, V pol=-36.77dBi
Voltage supply range:	2 up to 3.3V
Power supply:	3V dc battery cell

Manufacturer : **Continental Automotive GmbH**
Siemensstr. 12, 93055 Regensburg, Germany

3. BLOCK DIAGRAM

The block diagram below shows the main electronic units of the RHT433/(Japan: RHT315) Fobik:



DUT block diagram

Crystal Frequency: 27,6MHz

4. Warnings

For safe use, read the instructions carefully!

Battery:

CAUTION!

Risk of explosion, if the battery is replaced by an incorrect type.

Only use battery type CR2450 (3 V)

Batteries must be inserted into the Keyfob with correct polarity (+ and -).

Avoid extreme temperatures or extreme environmental conditions. Risk of explosion

Never dispose batteries to fire. Never try to open batteries. Risk of explosion

The battery is not ordinary waste, discard old batteries to your local recycling.

Never leave children unattended with the keyfob →choking hazard.



Serial product will contain the following additional information on label:

Continental request to the customer (OEM) to place following statements into the vehicle owners manual:

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.

5. Regulatory information

- FCC/ISED Owner Manual statement of compliance

NOTE: If **the device itself** is smaller than 8 cm x 10 cm, the statements of compliance may be included in the device or vehicle owner/operator manual. However, if **the device itself** is larger than 8 cm x 10 cm, then it is required to have **at least** the first paragraph below placed on the **device label or housing**.

This device complies with Part 15 of the FCC Rules and with Industry Canada's licence-exempt RSSs.

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.

Cet appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée à condition que l'appareil ne produise pas de brouillage préjudiciable et qu'il accepte tout brouillage, même celui susceptible d'en compromettre le fonctionnement.

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

-Taiwan

取得審驗證明之低功率射頻器材，非經核准，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。

低功率射頻器材之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。

前述合法通信，指依電信管理法規定作業之無線電通信。

低功率射頻器材須忍受合法通信或工業、科學及醫療用電波輻射性電機設備之干擾。

6. Typical Usage Pattern

AVERAGE FACTOR CALCULATION (STANDARD 47 CFR PART 15C)
FOR RKE PROTOCOL

Maximum transmitting duration in whatever 100ms windows for RKE protocol: 46.67ms (ASK modulation) plus 4ms carrier wave used for battery voltage level information.

⇒ Averaging factor = -11.27dB (including battery information)

One burst has 556.17 ms and the device is sending one burst at short button press.

One burst has the following structure (! Battery info of 4ms, preamble of 46.67ms and 4 frames of 46.67ms):

