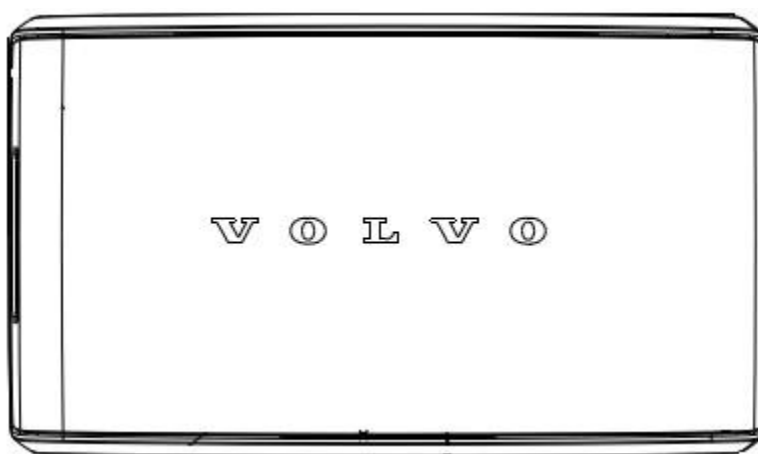




Technical Description 技术说明

GK2A



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1. Functional description 功能说明

The GK2A, as a passive entry vehicle key, is part of a driving authorisation system, which further consists of a Body Control Unit and up to 8 UWB vehicle modules.

GK2 作为一个被动进入的车辆钥匙，是驾驶授权系统的一部分，它还包括一个车身控制单元和最多 8 个 UWB 车辆模块。

Technical Description GK2A

The Body Control Unit in the vehicle initiates the communication to the GK2A over Bluetooth LE. After successful identification, a time-of-flight measurement is triggered bidirectionally between the UWB vehicle module and the GK2A.

车内的车身控制单元通过低功耗蓝牙(BLE)启动与 GK2A 的通信。成功识别后, UWB 车辆模块和 GK2A 之间双向触发飞行时间测量。

The distance is measured between the UWB vehicle module and the GK2A by means of the time of flight based on speed of light.

UWB 车辆模块和 GK2A 之间的距离是通过基于光速的飞行时间来测量的。

The components exchange encrypted data for car access, to start the engine and to locate the key. 各个部件交换加密数据, 用于汽车访问、启动发动机和定位钥匙。

2. User manual 使用手册

GK2A and vehicle BNCM establish a connection and exchange data through BLE.

GK2A 和车辆 BNCM 通过 BLE 建立连接并交换数据。

The distance measurement is a bidirectional communication between key and GU1. The key is called verifier and sends first to the GU1. The GU1 is called prover and sends back, after receiving the verifier signal. The key then computes the distance from the time of flight.

距离测量是钥匙和 GU1 之间的双向通信。钥匙被称为验证器, 首先发送至 GU1。GU1 被称为验证者, 在收到验证者的信号后发回。然后, 钥匙根据飞行时间计算出距离。

The Body Control Unit in the vehicle can automatically operate functions such as unlocking measurements depending on the distance of the key

车辆控制单元可以根据钥匙的距离自动操作解锁测量等功能。



Brand: **Marquardt GmbH**

For CE:

Frequency: BLE 2402MHz ~ 2480MHz

UWB: - Channel 5: 6489.6 MHz Channel 9: 7987.2 MHz

Transmitter Power: BLE: 2.85 dBm UWB: -0.33dBm/50MHz

Manufacturer: Marquardt GmbH

Manufacturer Address: Schloss-str. 16, 78604 Rietheim-Weilheim, Germany.

WARNING

Do not ingest the battery, Chemical Burn Hazard

(The remote control supplied with) 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.

WARNING

1. Replacement of a battery with an incorrect type that can defeat a safeguard;

Disposal of a battery into fire or a hot oven, or mechanically crushing or cutting of a battery, that can result in an explosion;

Leaving a battery in an extremely high temperature surrounding environment that can result in an explosion or the leakage of flammable liquid or gas

A battery subjected to extremely low air pressure that may result in an explosion or the leakage of flammable liquid or gas



2. The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.



3. **CAUTION** For coin/button battery used, please refer for further information to the user manual

FCC Regulations:

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 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 this equipment.

Radiation Exposure Statement:

FCC: This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.

Device may not be employed for the operation of toys. Operation onboard an aircraft, a ship or a satellite is prohibited.

ISED Notice

- ❶ This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions:
 - 1) this device may not cause interference, and
 - 2) this device must accept any interference, including interference that may cause undesired operation of the device.
- ❷ Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:
 - 1) l'appareil ne doit pas produire de brouillage, et
 - 2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.
- ❸ The device is compliance with RF exposure guidelines, users can obtain Canadian information on RF exposure and compliance.

Le présent appareil est conforme Après examen de ce matériel aux conformité ou aux limites d'intensité de champ RF, les utilisateurs peuvent sur l'exposition aux radiofréquences et la conformité and compliance d'acquérir les informations correspondantes.