

TS3304 transponders



Description

The TS3304 transponder is a lightweight and compact model in the PREMID® TS3300 series of transponders. It features read/write capabilities, AES 128 bit security, 4k bytes user data memory and an extremely flexible command structure which facilitates its application in an interoperable environment.

It is designed for a variety of road charging systems including high speed open road tolling, lane based ETC and HOT lanes.

TS3304 is compliant with emerging IEEE 802.11p and 1609 standards for WAVE and ETC.

In addition to its ETC capabilities the TS3304/01A variant also features the capability to declare application dependent data defined by the system operator by pressing the push button and toggling the status of the LEDs.

The TS3304 features driver feedback using a buzzer that may be activated from the Roadside System in a number of configurable ways.

A variety of casing colors and operator defined tampon printing on casing facilitates branding.

The TS3304 is powered by an internal Lithium battery which has a lifetime in excess of six years under normal operating conditions.

The mounting bracket makes installation straightforward and retains the Transponder securely while still allowing transfer to other vehicles. The TS3304 also features an in-bracket detection switch.

Features

- Compatible with IEEE 802.11p specifications
- Compatible with 1609 specifications
- Mutual AES 128 bit authentication to resist spoofing
- Self declaration using push button and LEDs
- User feedback via configurable buzzer tunes
- Six years of battery life



Technical Specification:

Wave Communication

- IEEE 802.11p
- IEEE 1609-3, -4 and -11

Power Supply

- Built-in 3V Lithium battery
- 6 years of battery life

User Memory

- 4 K bytes

MMI

- Buzzer >55dBA @ 1m
- Configurable buzzer tunes

Casing

- Bi-colored PC/ABS

Dimensions

- 70mm*43mm*25mm (30mm including bracket) – 2,76in*1,69in*0,98in (1,18 including bracket)

Weight

- 50g – 0,11lb

Accessories

- Bracket incl. surface cleaner

Temp range, storage

- +4,4°C to +38°C – +40°F to +100°F (IEC 60721-2-1)

Temp range, operating

- -25°C to +85°C – -15°F to +185°F (IEC 60721-2-1, including solar radiation)

Humidity

- Max 95%rel humidity, non condensing (IEC 60721-3-5, Class 5K2)

Vibration

- Random $1m^2/s^2$ 10-200 Hz
 $0.3m^2/s^2$ 200-500Hz (IEC 60721-3-5, Class 5M2)

Shock

- $300m^2/s^2$ half sine
- 6ms, ± 3 axes * 3 shocks (IEC 60721-3-5, Class 5M2)

Free fall

- 1000mm each face

Enclosure

- IP40 (IEC 607529)

Electrostatic discharge

- 4kVp (direct)
- 8kVp (indirect) (IEC 301489-1, -3)

Electromagnetic immunity

- AM 1kHz: 3V/m, 80-1000MHz (IEC 301489-1, -3)

Electromagnetic emission

- 30-230-1000MHz, 40-40/47-47dB μ V/m (IEC 301489-1, -3)

Type Approval

- FCC Certified 47 CFR Part 95L
- UL



Instruction

Package contents:

Please make sure that all components are present and not damaged:

- 1 – TS3304 unit
- 2 – Bracket
- 3 – 1 Cleaning cloth

Installation:

- Unpack the TS3304 unit and the bracket
- Using the enclosed cleaning cloth, clean the surface on the **internal** side of the windscreen, where the TS3304 unit will be mounted. The place to attach the unit is located right beneath the rear view mirror.

ATTENTION: The OBU should not be installed in a manner that will hinder the driver's view in any direction. Do not install, manually operate or function test the OBU while the vehicle is in motion.

The driver of the vehicle is responsible for the correct installation of the TS3304 unit.

- Remove the protective foil from the adhesive on the backside of the bracket and attach the bracket on the cleaned surface. Make sure that the bracket is mounted so when attaching the TS3304 the numbers are displayed correctly to the driver.
- Attach the TS3304 to the installed bracket.

Usage:

- Following this simple installation, the TS3304 unit is now properly mounted and ready to use
- It is possible to remove the TS3304 unit at any time and fix it again onto the bracket, which will remain attached to the windscreen.
- While a TS3304 unit is dismounted, it is possible to carry out simple manipulations with the unit, such as having it checked.
- Changing the status of the numbers on the TS3304 unit is made by pressing the button shortly and pressing it again within 2 seconds.

Checking the status of a TS3304 unit:

- Pressing the button shortly will show the current status by lighting the latest used number on the front.

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Radiofrequency radiation exposure Information:

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

This equipment should be installed and operated with minimum distance of 20cm between the radiator and your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

NOTICE:

Changes or modifications made to this equipment not expressly approved by (Kapsch TrafficCom AG) may void the FCC authorization to operate this equipment and any applicable warranty.