

Transponder Unit TS3204/00A with Tamper Detection

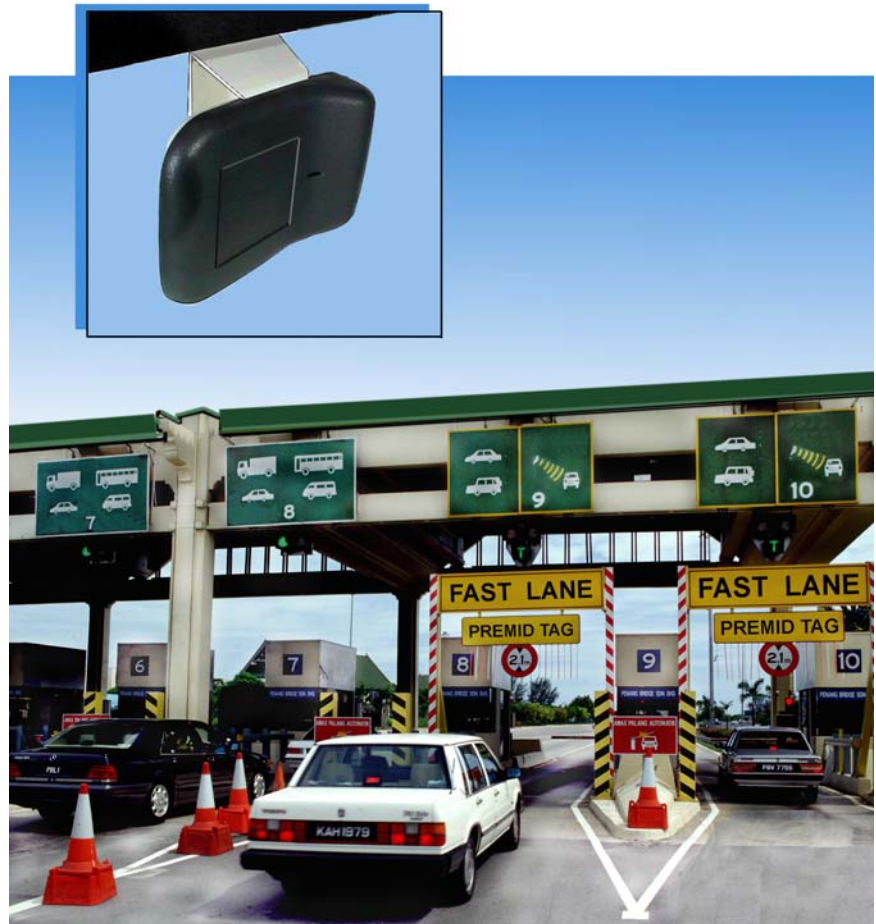
Features

- Read/Write
- CEN DSRC compatible
- GSS compatible
- A1/CARDME/CESARE/PISTA compatible
- Mutual Authentication
- Access Control
- Fast DES and 3-DES
- Several key generations
- Compact and lightweight
- High speed operation
- Fully proven in multi lane
- CEN/ISO EFC compatible
- Supports multiple applications
- 420 bytes of data memory
- Battery lifetime more than 7 years
- Buzzer
- Tamper detection

Description

The Read/Write Transponder Unit TS3204/00A is part of the PREMID® TS3200 family, which includes a range of Transponder Units all able to co-exist within the same system, facilitating a gradual enhancement of capabilities and multi-service systems.

The 420 bytes of user memory and the flexible internal structure, which can be configured in elements and attributes, make the TS3204/00A an excellent choice for road charging and multiple other applications.



Data security and integrity is ensured by cryptographic and other means, similar to those applied in Smart Card technologies.

High speed internal processing enables the use of TS3204/00A in single lane and in multilane free flow systems.

The TS3204/00A contains a buzzer that may be activated from the Roadside System to give information to the driver.

The Transponder Unit is attached to a bracket that is easy to mount on the inside of the vehicle windscreen.

A function for tamper detection will detect if the Transponder Unit has been removed from the mounting bracket.

For additional information, please refer to the TS3200 System Data Sheets

Technical data

TS3204/00A

Communication Link

- ◆ In accordance with:
 - EN 12253 Physical Layer
 - EN 12975 Data Link Layer
 - EN 12834 Application Layer
 - EN 13372 DSRC Profiles
 - EN ISO 14906 EFC Application Interface Definition
 - GSS (Global Specification for Short Range Communication)

Centre Frequency

- ◆ 5,8 GHz

Subcarrier Frequencies

- ◆ 1,5MHz and 2,0MHz

User Memory capacity

- ◆ 420 bytes

Power Supply

- ◆ Built-in 3,6 V Lithium battery

Battery Lifetime

- ◆ More than 7 years
@ 2.000 transactions/year

MMI

- ◆ Buzzer

Tamper Detection

- ◆ Detection if the Transponder is removed from its bracket

Casing

- ◆ Polycarbonate/ABS

MTBF

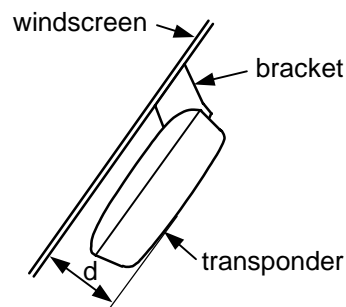
- ◆ 380 000 hours
ref: MIL-HDBK-217F

Accessories

- ◆ Bracket TS3220/00A, TS3220/01A or TS3220/05A including adhesive and cleaning tissue.

Installation in cars (raked windscreens)

- ◆ With bracket TS3220/00A or TS3220/05A **at the top** and centre of the inside of the windscreen (behind or beside the rear view mirror).
Depth of transponder from windscreen (d): 37mm



Dimensions

- ◆ 107mm x 67mm x 28mm
(Transponder without bracket)

Colour

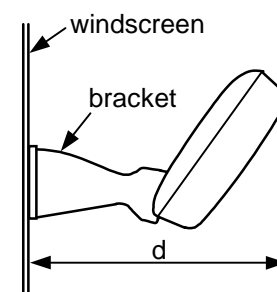
- ◆ White (front side, bracket)
- ◆ Dark grey (rear side)

Weight

- ◆ 75 g

Installation in lorries and buses (vertical/near vertical windscreens)

- ◆ With bracket TS3220/01A **at the bottom** and centre of the inside of the windscreen.
Depth of transponder from windscreen (d): 90mm



Environmental data

Temperature range (Storage)

- ◆ -40 °C to +55 °C
ref: IEC 60068-2-1 Ab and 60068-2-2 Bb

Temperature range

- ◆ -25 °C to +85 °C
ref: IEC 60068-2-1 Ab and 60068-2-2 Bb

Humidity

- ◆ Max. 95% relative humidity, non condensing
ref: IEC 60068-2-56 Cb

Solar Radiation (Survival)

- ◆ 1120W/m², 56 days
ref: ISO 4892-2

Vibration

- ◆ Random 0,005 g²/Hz 5-200 Hz
0,01 g²/Hz 200-500 Hz
3 axes x 100 min
ref: IEC 60068-2-64 Fh

Shock

- ◆ 300 m/s², half sine,
11 ms ±3 axes x 3 shocks
ref: IEC 60068-2-27 Ea

Free fall (Survival)

- ◆ 1000 mm, Each face.
ref: IEC 60068-2-32 Ed

Enclosure

- ◆ IP40
in bracket
ref: IEC 60529

Electrostatic discharge (Survival)

- ◆ 8 kVp, Tr/Th < 1/30 (direct)
15 kVp, Tr/Th < 1/30 (indirect)
ref: EN 61 000-4-2

Electromagnetic immunity

- ◆ Electromagnetic AM field:
100 V/m, 26 – 1000 MHz
ref: EN 61 000-4-3
- ◆ Electromagnetic PM field:
30 V/m, 900 MHz ± 5MHz
30 V/m, 1800 MHz ± 10MHz
ref: ENV 50204

Electromagnetic emission

- ◆ 40-40/47-47 dBµV/m @ 3m
ref: EN55 022

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