

Kapsch TrafficCom

TRP-4030. *Connected Transponder.*

The transponder TRP-4030 combines the proven European DSRC and EFC standards with an additional Bluetooth communication interface. This allows for a connection to smartphones, tablets or the vehicle in order to extend possible services and use-cases also involving a Back-Office system over the internet domain.

The transponder is fully compliant with European DSRC standards targeting applications for EFC, AVI, parking and access control.

The multi-application architecture provides separate security domains for the applications in order for different entities to have access to different parts of the user memory.

The transponder fulfills performance required for demanding applications like multilane-free-flow and stop and go traffic situations.

The Bluetooth interface of the transponder enables a connected device, or a remote Back Office system, to access application data in the transponder.

To facilitate dedicated smartphone application development, a Software Development Kit, SDK, is available for the



most common smartphone operating systems.

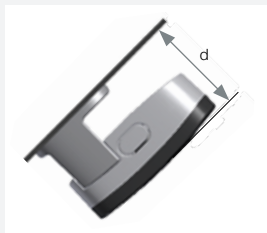
Smartphone applications and Back Office services can also be provided by Kapsch in order to support common services such as e.g. transaction information or personalisation.

The transponder provides feedback to the driver through configurable buzzer

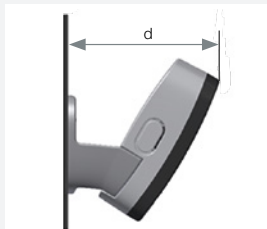
sounds that are activated from the road-side system.

The transponder is easily installed on the windscreen of the vehicle with a bracket. The unit can be removed from the bracket, also providing the functionality of in-bracket detection.

The casing can be customized with a pad-print on the cabin or windscreen side.



Installation in car using TRP-4090-00A (behind or beside the rear view mirror)
Depth of transponder from windscreen: 26 mm.



Installation in heavy vehicle using TRP-4090-01A (at the bottom and centre inside)
Depth of transponder from windscreen: 39 mm.



Features.

- > Product Range: TRP-4030-01A Standard Connected Transponder
- > Optional branding by pad print
- > Fully proven in demanding multi-lane high and low speed applications
- > Compliant with CEN DSRC/EFC/AVI standards
- > Compliant with interoperability specifications and standards
- > Compliant with Bluetooth 4.2
- > High security through mutual authentication, and separate security domains
- > 4 Kbytes of application memory allows multiple applications and several key generations
- > Pairing button and LED-indication

Technical features.

Casing

- > Plastic material PC/ASA
- > Colour windscreen side: White
- > Colour cabin side: Black, Grey or White

Weight

- > 25g

Size

- > 63 x 40 x 15 mm (excluding bracket)

Enclosure

- > IP40, Ref: IEC 60529

Power supply

- > 3V Lithium battery
- > Typical battery lifetime: 5 years (depending on use-cases)
- > Battery-low indication available

User memory

- > RAM/Flash
- > Capacity: 4 Kbytes
- > Access from DSRC or BT interfaces

MMI

- > Buzzer (sound level: 55 dBA @ 1m)
- > Configurable buzzer tunes
- > Button for BT pairing
- > LED-indicator

Accessories

- > Bracket TRP-4090-00A (angled windscreen)
- > Bracket TRP-4090-01A (vertical windscreen)
- > Brackets are supplied with a cleaning tissue and a pre-mounted adhesive
- > Bracket colour: White
- > Customised package for individual transponder including installation manual and bracket

Customisation of casing

- > Optional pad-print on cabin and/or windscreen side
- > Ink-jet or laser printed serial number in text and in bar code (CODE 128)

DSRC compliance

In accordance with:

- > EN 12253 physical layer
- > EN 12795 data link layer
- > EN 12834 application layer
- > EN 13372 DSRC profiles 0/1 L1-B
- > ISO 14906 EFC Application Interface
- > ISO 17264 AVI Application Interface
- > EN 15509 EFC Interoperable Application Profile
- > EN 16312 AVI Interoperable Application Profile
- > GSS 3.2 (Global Specification for Short Range Communication)
- > ETSI ES 200 674-1 Italian DSRC Specification

Bluetooth compliance

- > Bluetooth protocol: 4.2 Low Energy
- > iOS Iphone 5
- > Android Version 4.4

Mean Time Between Failure (MTBF)

- > 450.000 hours
- > Ref: Bellcore Issue 6 Method I Case 3

Environmental conditions

- > Temperature range, storage: +5 °C to +40 °C
Ref: IEC 60721-3-1, class 1K21
- > Temperature range, operation: -25 °C to +85 °C
Ref: IEC 60721-3-5, class 5K2
- > Humidity: Max 95 % relative humidity, non condensing
Ref: IEC 60721-3-5, class 5K2

Vibration

- > Random: 3 m²/s³ 10–200Hz, 1 m²/s³ 200–500Hz
Ref: IEC 60721-3-5, class 5M3

Shock

- > Half-sine 300 m/s², duration 6ms
Ref: IEC 60721-3-5, class 5M3

Free fall

- > 1000 mm, each face

Conformance

Compliant with the following EU directives

- > RED 2014/53/EU
- > RoHS 2011/65/EU
- > WEEE 2012/19/EU