

Vehicle identification

Quickly and easily find the best position for the transponder

The POC is an essential tool for assisting with the setup of any AVI (automatic vehicle identification) installation using UHF technology. During the installation of the reader the optimum direction and angle of the reader is quick and easy to establish. The POC also removes the guesswork when installing transponders by showing the best locations to install them on any vehicle or object.



POC (Proof Of Communication)

Making the correct RFID field strength visible

- > Indicates field strength:
 - > At every position within the field
- > Easy to operate:
 - > No buttons, no switches
- > Precise:
 - > POC behaves like a transponder
- > Save time:
 - > Minimises testing and trial runs

Installation

Optimum performance in 4 steps



1. Mount the reader

The TSU 200 reader with its integrated antenna and just a single cable for power and data is easy to install in very little space.

Depending on the requirements it is possible to set the reading range up to 8m.



3. Position the transponder

The windscreen transponder is integrated in a self-adhesive label which is easy to attach to any windscreen. It is also possible to individually adjust the reading range of the transponder. The transponder will self destroy upon unauthorized removal.



2. Analyze the RFID field

By holding the POC device in the RFID field the brightness of its LED indicates the field strength at that position – and since it behaves precisely as if it were a transponder you know at this point in the field is where a transponder has sufficient RFID field strength to be read. That makes it extremely easy to test if the reader is covering the area properly and where the best position is for the transponder on the windscreen. There is no guesswork and absolutely no need for time-consuming tests.



4. Set the range

Where the transponders reading range is too great it can be adjusted using the RRD (Range Reduction Device). The RRD is a sticker that is designed to be affixed to predefined positions on the windscreen transponder; depending on where it is positioned it reduces the range of the transponder by 66% or 33%.

Making the RFID field strength visible

Long-range RFID identification of vehicles is becoming increasingly established in industry and transport infrastructure. RFID has many advantages over other forms of identification; RFID based access control is automatic and causes no inconvenience to the driver furthermore it is not affected by the weather.

When installing a UHF long-range reader together with passive transponders the challenge has always been to find the best location of the readers and transponders. All too often the performance and range of a reader or transponder is impaired because it is placed in an unfavourable position or is incorrectly aligned when mounted. A particularly difficult challenge is when different types of vehicles (cars, buses, trucks) pass the point of access, because the clearances and alignment of the transponders in the vehicles vary due to the different sizes of the vehicles.

The windshields themselves to which the transponders are affixed present a further challenge as they are often coated to protect them against UV radiation or have integrated windshield heating. These features can significantly impair the working range of the transponder. The goal is to ensure the vehicle is always reliably detected, regardless of the features and characteristics of the vehicle.

To date, it was only possible to optimize these challenging aspects by performing laborious and time-consuming tests. Even then it was not always certain that the field strength was sufficient at the desired position, simply because the strength of the RFID field was not known. The only way was to carry out tests involving fitting the readers and transponders in different positions and angles and testing the various positions for as long as required until the results more or less indicated in which location the majority of transponders were reliably detected. This procedure needed to be repeated for each individual type of vehicle, which is understandably an enormous drain on time and resources.

With the POC (Proof Of Communication) device from deister electronic, specially developed for long range identification, it is now possible for the first time ever to quickly and accurately find the best possible position for the transponder without the need for extensive tests. The POC is simply held at the position desired for the transponder and it indicates how high the field strength is at that precise position.

The POC is slightly bigger than a credit card. It does not have any buttons or other operating elements and it functions fully automatically as soon as it is within range of the RFID field. The brightness of the LED indicates the field strength of the RFID field at any position. If the LED lights up brightly, then the field strength is high. If it shines dimly, then the field strength is low. If the LED does not light up at all, then the POC is out of range or being held in a position where there is a gap in the field.

The brightness of the LED also indicates the effect of the distance from the reader and the alignment of the POC to the reader. The LED will light up only dimly if the POC is held at an unfavourable angle to the reader in a position where the field strength is actually high. However, if the angle is ideal the LED will light up brightly. This indicates that not only

the position but also the correct alignment of the transponder or rather the alignment of both reader and transponder is critical.

Because the POC behaves like a transponder it is able to indicate the interaction with the RFID field in precisely the same manner as a transponder. The specially developed electronics make it possible to receive the RFID field and indicate the field strength by means of an LED without compromising the RFID field. The POC uses the same antenna design as used by a transponder to receive the RFID field. The LED is powered by an integrated battery. Thus the strength of the field received determines only the brightness of the LED, it does not supply it with power. Consequently, the POC behaves precisely like a transponder in the field.

The POC can be described as a type of special test transponder, which precisely simulates a transponder.

In addition to locating a suitable position for the transponder on the windshield and fitting the reader at the right angle the POC can help finely adjust the whole system. An efficient long-range identification system is only ideally set up when all vehicles to be detected achieve a comparable reading distance and can be reliably detected within the whole system.



The windshield transponders from deister electronic are ideal to achieve uniform detection of different types of vehicles and windshield types because their range can be set individually using the RRD (Range Reduction Device). The RRD is a sticker that is designed to be affixed to predefined positions on the windshield transponder; depending on where it is positioned it reduces the range of the transponder by 66% or 33%. Should the windshield transponder work significantly better in one type of vehicle than in another, it is possible to use an RRD to set the transponder accordingly, so that the reader detects both types of vehicle equally well.

The POC, the powerful long range readers TSU 100 and 200, intelligent controllers to control car park barriers and gates and a variety of passive transponders designed to be affixed to the windshield, in the vehicle interior or to the bodywork all belong to the tranSpeed product portfolio from deister electronic.

From the excellent reading range of up to 8m and adaptability to different types of vehicles, it is now possible to significantly reduce the time required to install and configure vehicle identification systems with the aid of the POC.

