

MAYSER®
Polymer Electric

Wireless Safety – Detection of objects trapped in doors using no wires



- safe, wireless transmission system using a transponder
- quick and easy installation
- signal transmission according to IEC 61508 SIL 2
- for swinging and sliding doors in buses and trains

Safe wireless transmission a transponder for buses

Local public transport. That's locomotion without hassle or hectic. Danger situations do, however present themselves here, too. Getting on and off, in power operated swinging and sliding doors. Jostling passengers during peak hours. General confusion. Automatic door movements in such cases can quickly lead to danger situations for persons and objects. Mature safety systems – such as Safety Edges that are monitored for function, for example – avert the danger using simple means. It is enough to touch the Edge for a signal from the controls to bring the closing movement to an automatic halt. Within a fraction of a second.

The problem: mechanically, the complex door movements require very high-quality drives and fixings. Should objects get trapped, a signal has to be transmitted safely and soundly – from the door leaf to the door controls. Cables and tubes have to be run, something that is, more often than not, a challenge, seen from the mechanics side.

The solution: an anti trap system that works without cables or tubes, that complies with the rail and safety standards currently valid and with safety edges that do not require a power supply. Mayser has a high-quality and efficient safety system to offer in their wireless transmission system with a transponder, which was developed keeping bus and train requirements in mind. To protect your passengers.

How does a transponder work?

Transponder technology has been put to use extremely successfully for many years now in many different areas. Be it to record time, for access control, as an immobiliser or for identifying animals. Basically, the transponder system is made up of two components: a mobile or stationary reader and an input-output media, called a transponder. Information is passed between the reading unit and the transponder using radio waves. In the past few years Mayser has worked on taking the transponder

technology further, in order to put it to use as a safe, wireless transmission system on power operated swinging and sliding doors. The system is the result of many years of experience in what safety technology for buses and rail vehicles is all about.

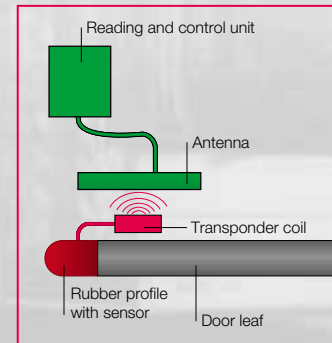
The components that make up the Mayser transponder transmission system

- Reading and control unit, and an antenna
- Transponder coil and sensor with an integrated Mayser transponder.

The working principle and the design of the Mayser transponder system are conceivably simple: the reading and control unit is connected to the antenna. In order to read the transponder the reading and control unit builds up an electromagnetic field. If the transponder coil is within this field, the transponder at the other end of the sensor is then activated and it returns its information per radio waves.

The Mayser transponder operates such that the switching states and the functional monitoring of the sensor are safely transmitted. Mayser has a patent for this technique.

Sliding doors



Position system using and trains



The advantages of the Mayer system at a glance

- simple and quick installation, ideal for very tight spaces
- very reliable as the cables do not bend or twist
- IP67 for the components mounted to the door
- safe signal transmission in accordance with IEC 61508 SIL 2
- no complicated mechanics required
- suitable for retrofitting



Application principles of the wireless signal transmission system

High-quality, efficient safety systems – adapted to suit the individual vehicle requirements, both from a technical and a visual point of view – that is what the name Mayer stands for. It is our aim to continue to improve passenger safety. Safe, reliable and efficient, that is our motto.

■ Position monitoring:

for position monitoring the sensor is only monitored if the doorleafs are in the "closed" position (anti drag system).



Standards and safety regulations

■ Rail

- IEC 61508 SIL 2
Safety of devices
- DIN 19250 AK3
Process measuring and control equipment
- EN 50155
Electric safety
- EN 50121
EMC

■ Bus

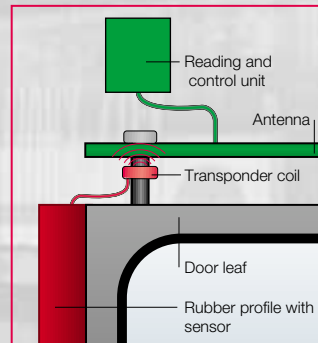
- e1 certification according to 95/54/EG
EMV

Due to the fact that the transponder coil only has to be in a certain position in the field, very short antennas can be employed here. Position monitoring is often used in rail vehicles.

■ Process monitoring:

In this case the sensor is continuously monitored. The transponder coil does not leave the antenna field. Used especially often in buses.

Internal swing doors



Mayer ADS system

Engineers at Mayer have been successful in developing a safety system that can detect objects 5mm thick, dynamically even objects that are only 1 mm thick. This might be necessary for example, if an item of clothing gets caught in the doors. When the item of clothing is pulled the ADS system, which is very sensitive, reacts immediately, thus offering passengers a higher level of safety.

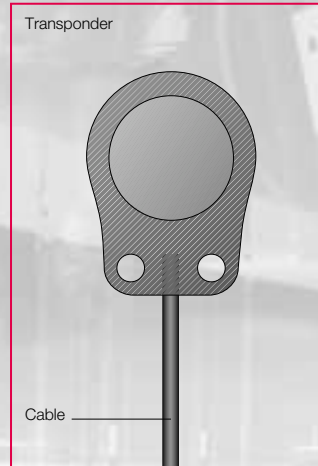
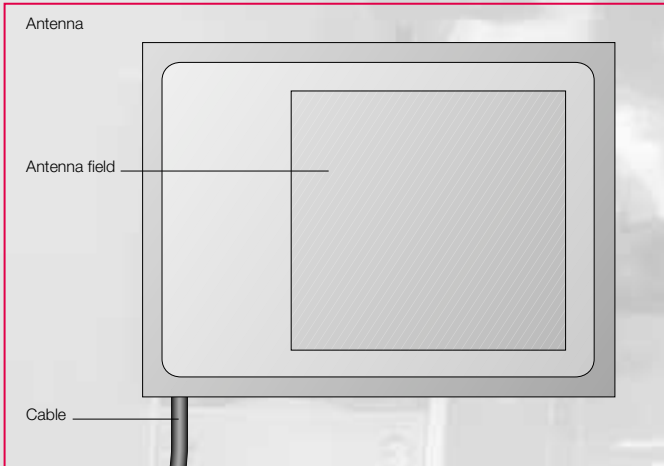
... Interested? Ask us for more information.



Technical Data

Reading and control unit SG-ÜST 118

Connecting voltage: 24 to 110 V DC
 Safety circuits: 2
 Safety level: IEC 61508 SIL 2
 Protection class: IP40

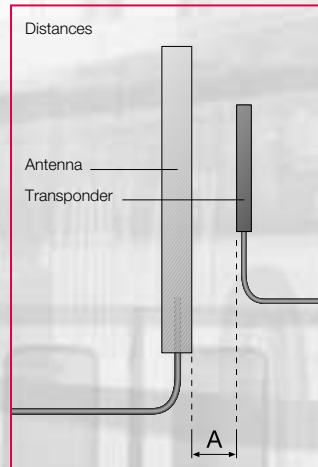
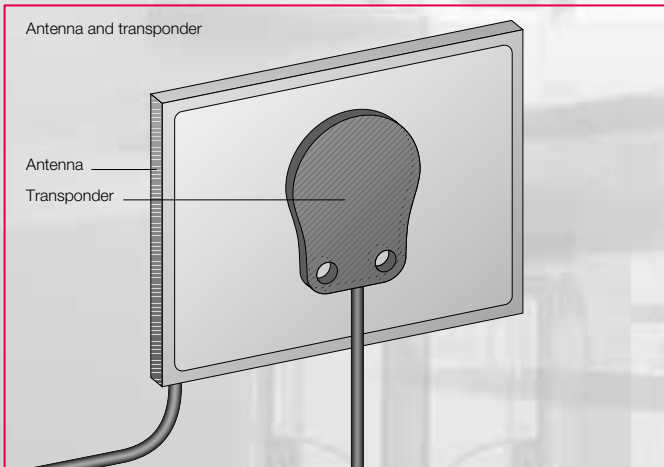


Antenna

Dimensions: 80 x 60 x 12 mm
 Cable: 2x 0.5 mm²
 Protection class: IP67

Transponder

Dimensions: 46 x 33.5 x 6.1 mm
 Cable: 2x 0.5 mm²
 Protection class: IP67



Distances between antenna and transponder

The installation setup determines the distance A. Depending on the material of the mounting surface, various antennas can be required.

e.g. transponder parallel to the antenna, antenna mounted to:
 non-metal, $A \leq 50$ mm
 metal $A \leq 40$ mm

The name Mayser stands for safety. Thanks to many years of experience in tactile sensors we now have the largest possible know-how in safety systems at our disposal. We regard the opening up of new areas of application as one of our main objectives. So that we can continue to serve you in the future as a competent partner in all matters relating to safety technology in buses and rail vehicles.



Mayser Safety Systems for buses and trains.

Monitored-for-function Electric Safety

Edges and Step Sensors, Mini Safety Edges components for swivel step protection and components for ramps/extending steps. With these products Mayser has high-quality, efficient safety systems to offer that suit requirements particular to buses and rail vehicles.

Talk to our bus and train experts. They would be delighted to help you.

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