MAYSER®

Innovative by tradition.

Public transport

Mayser makes public transport safe.

Keeps the passenger safe when entering and exiting

The entry and exit area of buses and rail vehicles is a central place of danger in public transport. A safe system for obstacle detection is an important subject – not only for passengers and transport services, but also for manufacturers of vehicles and vehicle doors. The Mayser system which can also be retrofit provides this safety.

The following safety components are used:

- Safety edges (safety elements)
- Sensor profiles
- Non-touch detection system
- Safety steps
- Control units

Mayser safety systems provide more than legal standards call for. In terms of product quality, Mayser is leading and first in Europe in the field of drag detection. The high availability of systems makes Mayser an important partner for the safety during entry and exit and leads to reduced cycle times.

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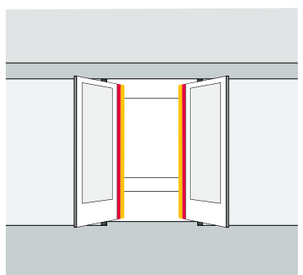
1 Areas of application

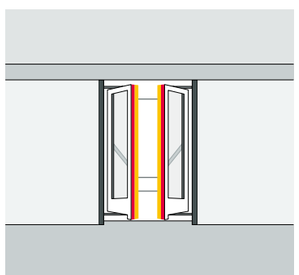
Mayser offers non-touch safety systems and pressure-sensitive sensors for buses and rail vehicles. The sensors stop dangerous movements on automatically controlled doors and provide reliable obstacle detection and bump protection.

The special-purpose sensors we design satisfy even the toughest requirements:

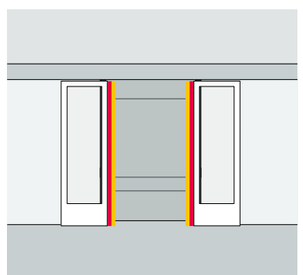
- Directional initialisation (e.g. by dog leads)
- Detection of lower arms at swing doors
- Safety steps with extension protection
- Fireproof models



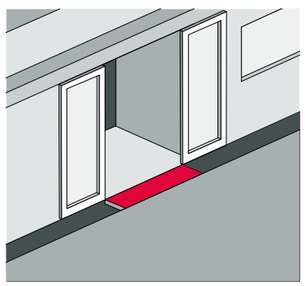
External swing door



Internal swing door



Sliding swing door



Power step

2 Our solutions

Sensor profiles & rubber profiles with safety elements

The rubber profiles on the doors contain integrated safety elements. Ideally suited for finger protection, the profiles already react to very small objects to stop the closing motion of the door.

Non-touch detection system

Sensor profiles that are integrated in the main closing edge react without touch to people in the immediate vicinity of the sensor. They, thereby, protect people from being bumped.

Safety steps

Safety steps are pressure-sensitive surface sensors used in ramps and power steps for the entry and exit area of buses and rail vehicles.

3 Sensor profiles & rubber profiles with safety elements

Rubber profiles with safety elements as well as sensor profiles already react to very small objects to stop the closing motion of the door. The movement of the door is stopped before an injury can occur. Responsible for this are sensors that secure the closing edges against pinching hazards. Mayser also offers specially developed fire-resistant sensors.

Safety edge with retracted safety element

Technical data

	Safety element	Sensor profile
Operating principle	Pressure-sensitive	Pressure-sensitive
Areas to be protected	Main closing edge Secondary closing edge	Main closing edge Secondary closing edge
Degree of protection	IP67	IP67
Applied standards	UNECE-R 107 EN 14752 VDV 111 VDV 157	UNECE-R 107
Fire protection standard	EN 45545-2 UNECE-R 118	UNECE-R 118
Electronic model	Switch principle Closed-circuit current principle	Switch principle Closed-circuit current principle
Customised-specific modification options	Customised profile design Development of safety elements according to customer requirements	Customised profile design Development of safety elements according to customer requirements

The Mayser brands RailFR® and RoadFR are fire-resistant sensors and cables which comply with the standards EN 455 45-2 R26 Level HL3 and UNECE-R 118 even without rubber profile.

Sensor profile

Your benefits

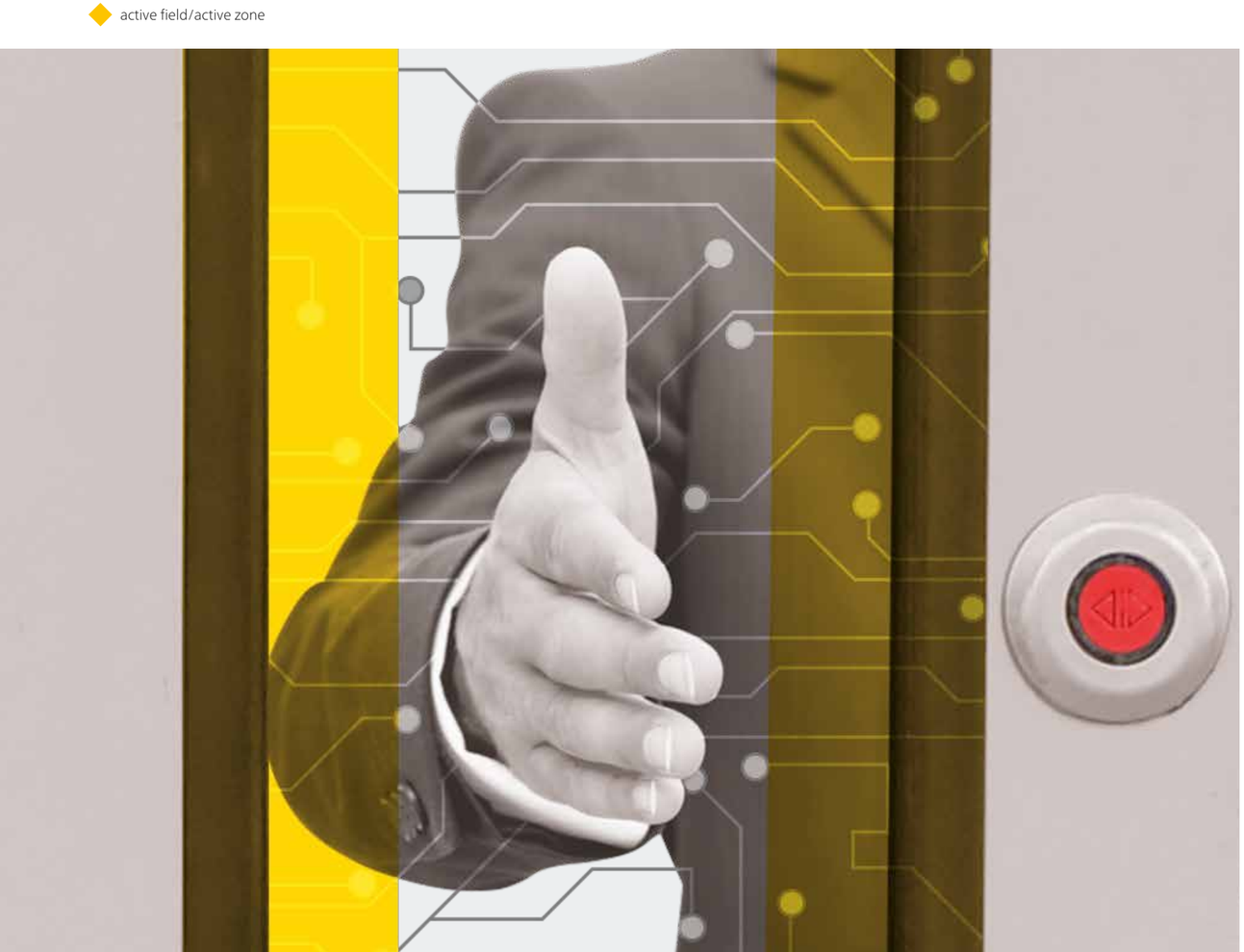
- Monitoring of the safety elements according to the closed-circuit current principle
- Meets all legal requirements
- Professional competence / know-how in the industry
- Broad range of sensors
- Very flexible for customised-specific adjustments
- High project competency
- Directional initialisation

4 Non-touch detection system

This non-touch detection system is a non-touch system on the basis of a capacitive sensor. It prevents passengers from being bumped or knocked over at bus and train doors. If a passenger approaches the active zone of the sensor, then its electrical field changes. This information is evaluated by the control unit and forwarded to the door control. The closing motion is then stopped. The non-touch detection system is a convenience function that is integrated in the Mayser rubber profile.

Suitable for reequipment and retrofitting.

active field/active zone



Technical data

Operating principle	Capacitive Non-touch detection
Areas to be protected	Main closing edge Secondary closing edge
Degree of protection Evaluation unit Sensor	 IP65 IP67
Applied standards	EN 50155 EN 45545 EN 50121-3-2 EN 14752 EN 50125-1 VDV 111 VDV 157
Electronic model	Semiconductor output (switch output)
Profile geometry	Adjustment to door kinematics
Customised-specific modification options	External swing door Internal swing door Sliding swing door
Temperature	–40 °C to +55 °C

Your benefits

- Resistant to water, dust, extraneous light, leaves, snowfall
- Advantageous effect on the cycle times when compared to light curtains
- Solution integrated in the door system
- Non-touch detection directly at the main closing edge
- Reliably prevents touching and knocking over of passengers
- Additional convenience function for drag detection

5 Safety steps

Mayser safety steps are plane protection devices for the entry and exit area of buses and rail vehicles. The surface sensors form pressure-sensitive surfaces at aids like ramps and power steps.

Technical data

Overall height	7 – 8 mm
ISO 13856-1	
Actuation force	< 150 N
B10D	> 4x 10^6
Covering	Round nub structure 2K coating, structure surface
Slip protection	R11, R12
Degree of protection: IEC 60529	IP67
ISO 4649: Abrasion resistance	< 100 mg
Operating temperature	–25 °C to +70 °C
Customised-specific modification options	Shape Colour

Your benefits

- Individually adjusted surface geometry
- Minimal quantities
- Complete solution provider
- Automatic monitoring of the function according to the closed-circuit current principle
- Maintenance-free
- Resistant to environmental influences and normal chemical influences

6 Supplementary products

Captas

Captas, the non-touch button, operates with capacitive sensors. The sensor system is constantly surrounded by a defined electric field. If a hand approaches the sensor, this causes the field to change. The system detects this capacitive change and transmits the signal.

The non-touch system is resistant to both disturbances and weather. This allows reliable operation in any weather and it can even be triggered when wearing gloves.

Possible application for the sensor include opening doors or requesting a green light at traffic light systems.

Your benefits

- Non-touch
- Hygienic
- Weather-resistant
- Can be triggered when wearing gloves
- Standardised, electromagnetic compatibility

Platform screen doors

Trains pulling in and passing through the station pose a risk to people waiting on the platform. Platform screen doors are an excellent option to cut these hazards down to a minimum. All Mayser pressure-sensitive protection devices can be incorporated into platform screen doors and protect the passenger in the door area by both pressure-sensitive and non-touch measures.

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Foam Technology & Moulding **Safety Technology** **Headwear**

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