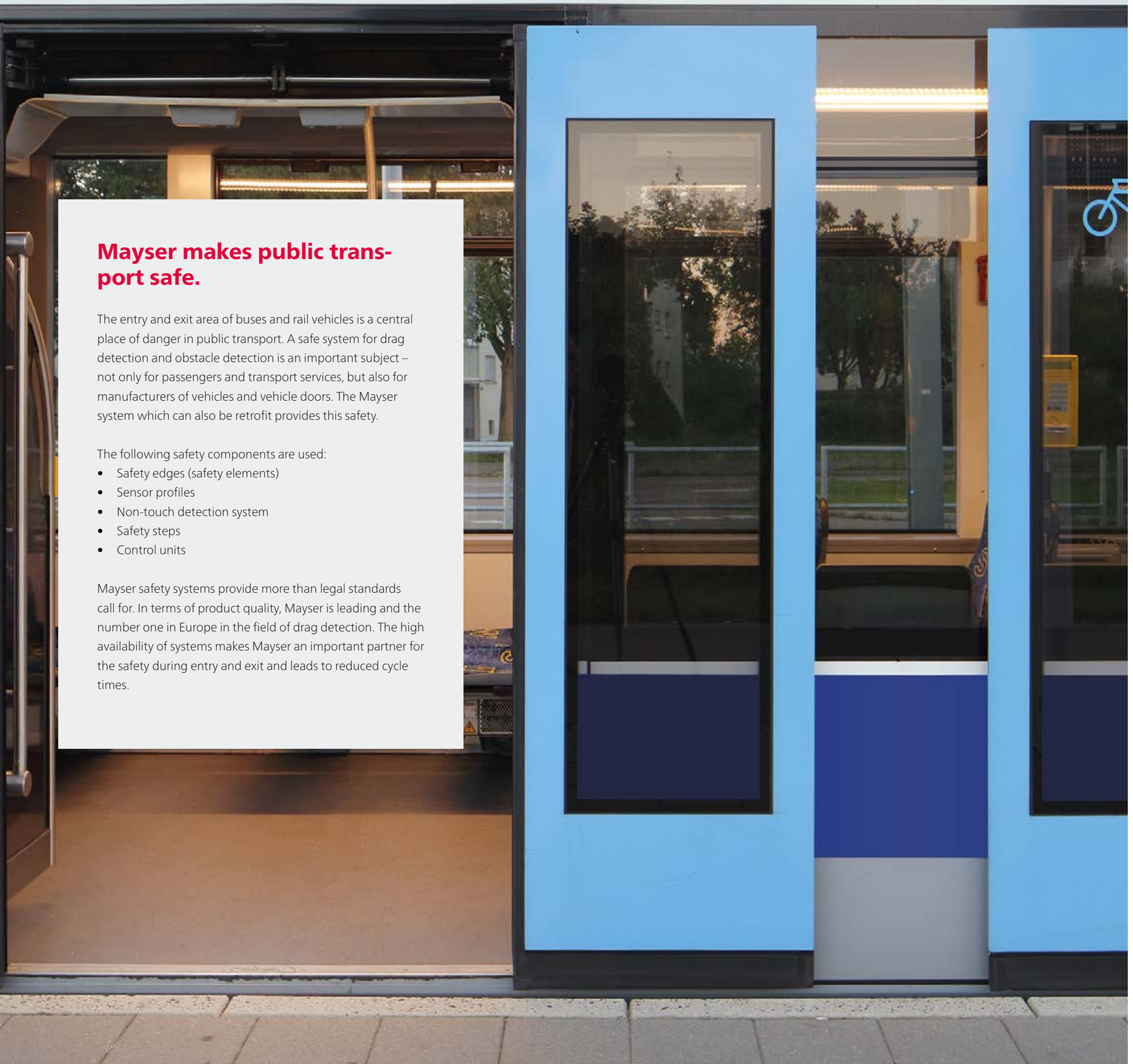
MAYSER®

Innovative by tradition.

Public transport

Mayser makes public transport safe.



Mayser makes public transport safe.

The entry and exit area of buses and rail vehicles is a central place of danger in public transport. A safe system for drag detection and 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 the number one 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.

Table of contents

1 Our solutions

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 as well as lower arm and drag detection – even in cases of fire. Additional safety is provided by surface sensors like safety steps with extension protection.

We offer solutions for applications including:

- External swing doors
- Internal swing doors
- Sliding swing doors

Pressure-sensitive sensors Non-touch sensor technology

Safety edges with safety elements & sensor profiles

The non-touch finger protection profiles on the doors contain integrated safety elements. They already react to very small objects to stop the closing motion of the door.

Non-touch detection system

Finger protection profiles that are integrated in the main closing edge react without touch to people in the direct critical vicinity of the sensor. They prevent getting caught.

Safety steps

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

2 Safety edges with safety elements & sensor profiles

Safety edges 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 pinching edges against pinching hazards. Mayser also offers specially developed fire-resistant elements.

Safety edges with retracted safety element

Technical data

	Switching 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 version	• Switch principle • Closed-circuit current principle	• Switch principle • Closed-circuit current principle
Customised 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 adjustments
- High project competency

3 Non-touch detection system

This system is a non-touch obstacle detection system on bus and train doors on the basis of a capacitive sensor. The sensor detects conductive objects. 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 finger protection profile.

Suitable for re-equipment and retrofitting.

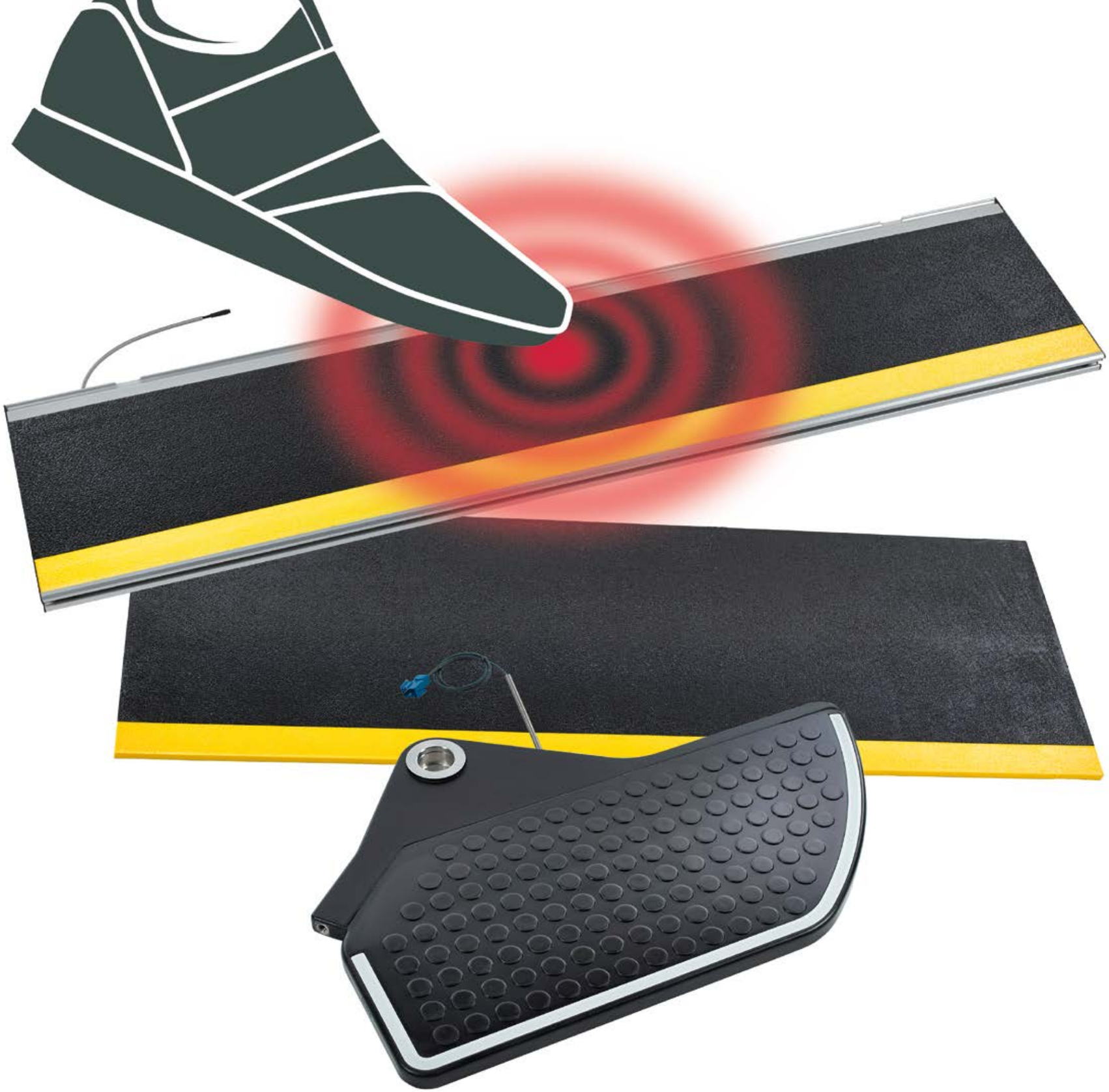
active field / active zone

Technical data

Operating principle	• Capacitive • Non-touch detection
Areas to be protected	• Main closing edge • Secondary closing edge
Degree of protection	
Evaluation unit	• IP65
Sensor	• IP67
Applied standards	• EN 50155 • EN 45545 • EN 50121-3-2 • EN 14752 • EN 50125-1 • VDV 111 • VDV 157
Electronic version	• Semiconductor output (switch output)
Profile geometry	• Adjustment to door kinematics
Customised 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
- Safely prevents the bumping and knocking over of passengers
- Additional convenience function for drag detection



4 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 modification options	• Form • 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

MAYSER®

Innovative by tradition.

www.mayser.com

Mayser GmbH & Co. KG
Bismarckstrasse 2
88161 Lindenberg
GERMANY

Phone: +49 8381 507-0
info.lindenberg@mayser.com

Mayser GmbH & Co. KG
Örlinger Strasse 1–3
89073 Ulm
GERMANY

Phone: +49 731 2061-0
info.ulm@mayser.com

Mayser France
Les Aunettes
12M Bd. Louise Michel
91030 Evry Cedex
FRANCE

Phone: +33 1 6077-3637
france@mayser.com

Mayser USA, Inc.
6200 Schooner Drive
Belleville, MI 48111
USA

Phone: +1 734 858-1290
usa@mayser.com

Mayser Rožňava spol. s.r.o.
Gemerska 564
04951 Brzotin
SLOVAKIA

Phone: +421 58-7884870
roznava@mayser.com

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