MAYSER®

Innovative by tradition.

Industry, Automation & Logistics

Mayser makes factory facilities safe.

More safety for machine assemblies & logistics

Production and storage processes are increasingly automated to increase economic efficiency. That requires reliable protection of danger zones on machines, systems and transfer lines in industrial production and storage halls according to the Machinery Directive. Mayser specialises in securing pinching and shearing edges as well as in detecting people to keep them from being bumped.

Mayser offers pressure-sensitive protection devices that can be combined with each other, thus providing a comprehensive approach to ensuring the necessary protection. The measures dependably detect and safeguard people and reliably protect the entire working environment of the area directly surrounding the machine, all the way to the transfer lines.

Pressure-sensitive and non-touch protection devices are used:

- Safety mats
- Safety edges and sensor profiles
- Ultrasonic sensors
- Safety bumpers

Mayser technology allows addressing safety risks with a highly individual approach. All safety components from Mayser comply with the EN ISO 13849 and/or EN ISO 13856 standards and therefore meet the requirements of the Machinery Directive.

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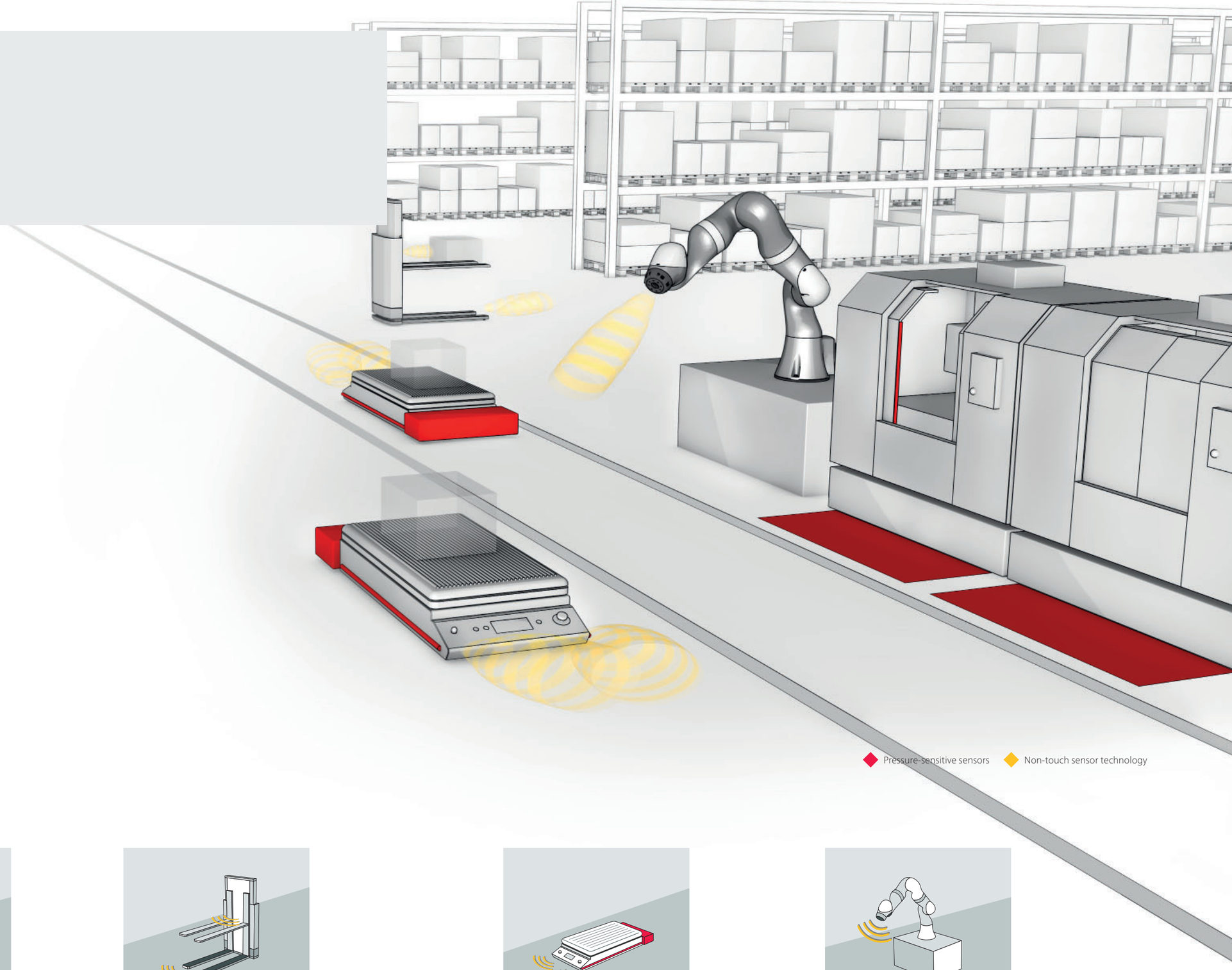
1 Areas of application

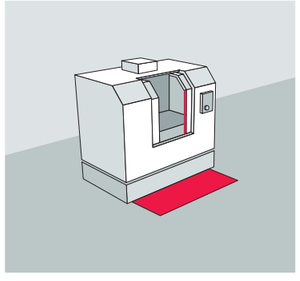
Our pressure-sensitive protection devices are used wherever automated processes can threaten the safety of people. The system features access detection of any type for hazardous areas in the vicinity of machines and transfer lines, but also provides obstacle detection for protection at linear closing edges, and collision protection for automated guided vehicle systems (AGVS).

With low pressure on the safety mats, safety edges or the safety bumper, a signal is sent to the evaluation device which deenergises the voltage-free relay contacts or the OSSD outputs. The dangerous movement is stopped and a safe condition created.

We offer solutions for applications including:

- Dangerous movement areas in production halls
- Movable elements in mechanical engineering
- Collision protection for AGVs
- Storage area checks in logistics





Machine safety

Logistics

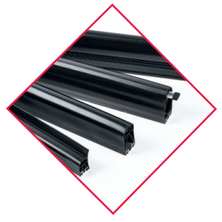
AGV systems

Tool protection

2 Our solutions

Safety mats

Pressure-sensitive safety mats detect persons in dangerous movement areas (e.g. on robots and machines). This solution is especially suitable for dirty environmental conditions.



Safety edges, miniature safety edges & sensor profiles

Safety edges provide anti-pinch protection for people at pinching and shearing edges.

Ultrasonic sensors

These sensors offer non-touch monitoring of dangerous movement areas. As soon as a person steps into the ultrasonic field, the movement of a machine or an AGVS is reduced or stopped.

Safety bumpers

Safety bumpers protect people against machine components with long overtravel distances, for instance in machining centres, AGVs, measuring machines and lifting platforms.

2 Safety mats

Safety mats serve to detect a presence in dangerous movement areas, for instance on machines or in collaboratively used space with cobot applications.

The presence of humans or objects in the protected area slows or stops the movement of the machine or the robot.

Technical data

	SM 15	SM 11	SM 8	TS
General data				
Height	15	11	8	11
Covering	GM1 GM4 GM5	2-component coating structured surface	Rubber surface topping with moulded ramp edge	Rubber surface coating (+ moulded logo)
Colours	black, green, yellow	black	black	black
Functional data				
Chemical resistance	+++	++	+	+
Degree of protection	IP65	IP65	IP65	IP65
Forms	variable	variable	standard sizes, rectangular	standard sizes, rectangular
Maximum size (single mat)	1.5 m^2	1.5 m^2	1.5 m^2	1.6 m^2
Structure of ramps	mitre cut according to drawing	Standard with corner joints, no drawing	moulded profile	standard with corner joints, no drawing
Safety mat system	max. 10 per control unit	max. 10 per control unit	max. 10 per control unit	max. 10 per control unit
Applied standards	ISO 13856-1 ISO 13849-1	ISO 13856-1 ISO 13849-1	ISO 13856-1 ISO 13849-1	ISO 13856-1 ISO 13849-1
Operating principle	NO	NO	NO	NO
Terminal resistance	•	•	•	•
4 conductor connection	•	•	•	•
Slip protection	R9	R9	R9	R9
Special version	•	•		

Your benefits

- Maintenance-free
- Robust construction
- Resistant to environmental influences and normal chemical influences
- Reliable functionality in dirty environmental conditions

3 Safety edges · miniature safety edges · sensor profiles

Safety edges are sensors that provide anti-pinch protection at pinching and shearing edges.

If the safety edge encounters an obstacle, a signal is triggered that makes it possible to immediately stop the dangerous movement.

Your benefits

- Diverse profile geometries
- Maintenance-free
- Custom-tailored solutions possible
- Optimal solution for different installation heights
- High degree of protection (IP67)
- Pre-assembly or DIY installation possible

Technical data

	Safety edge	Miniature safety edge / anti-pinch sensor	Sensor profile
Operating principle	Pressure-sensitive Non-touch	Pressure-sensitive	Pressure-sensitive
	NC contact and NO contact principle	NO contact principle	NO contact principle
Overall height	20 – 137 mm	4 – 16 mm	20 – 70 mm
Actuation angle	up to ±45°	up to ±45°	up to ±50 °
DIY solution		•	•
Applied standards	EN 12978 ISO 13849-1 ISO 13856-2	ISO 13849-1 ISO 13856-2	EN 12978 ISO 13856-2 ISO 13849-1
Degree of protection	IP67	IP67	IP67
Operating temperature	min. –20 °C max. +55 °C	min. –25 °C max. +80 °C	min. –25 °C max. +55 °C
Actuating distance	8 – 17 mm	≤ 1.0 mm	6 – 8 mm
Rubber envelope profile	EPDM NBR CR	TPE	TPE
Custom adaptation	Bending radii Angled geometries Active ends		

4 Ultrasonic sensors

Environment, access and area monitoring via ultrasound is the ideal solution for non-touch detection of persons and objects. If a person or object is detected in the monitored field, an automatic movement (robot, AGVS, machine) can be slowed or stopped. Even the smallest objects are reliably detected across the entire distance, regardless of material, form, transparency and colour.

Your benefits

- Non-touch monitoring of three-dimensional spaces
- Two very small ultrasonic transducers that can be positioned freely and separately from the electronics, and they will fit anywhere
- Reliably detects people but also objects made of various materials regardless of shape, transparency and colour
- Insensitive to contamination, extraneous sound, air flows and moisture, and thus suitable for ambient surveillance, collision protection or access control
- Detects virtually without blind zone in an elliptical sound field (+/–17°, +/–5°) up to a distance of 2.50 meters
- A teach-in function allows the system to learn the complete measuring environment

Additional advantages of ultrasonic safety

- Dual-channel system for personnel safety
- Certified according to ISO 13849-1, Category 3 PL d
- Unique development in the ultrasonic field

Technical data

	Ultrasonic safety	**Industrial ultrasonic sensor USi®**
		
Measuring principle	Ultrasonic pulse echo method	Ultrasonic pulse echo method
Applied standards	IEC 60947-5-2, IEC 60204-1	IEC 60947-5-2, IEC 60204-1
Safety category	EN ISO 13849, Category 3 PL d	
Operating temperature	–30 °C to +50 °C	–25 °C to +80 °C
IEC 60529: Degree of protection Evaluation unit Sensor	 IP65 IP69K	 IP65 IP69K
Ultrasonic frequency	Typ. 103 kHz	103 kHz
Sound field geometry	±17° / ±5°	±17° / ±5°
Measurement frequency	33 Hz	Typ. 20 Hz (2 – 250 Hz)
Response time	Typ. 100 ms (for multiple scan 3)	Typ. 150 ms (3 – 500 ms)
Measurement distance	Typ. 200 cm (1 – 250 cm)	Typ. 2000 mm (10 – 2500 mm)
Resolution	1 cm	1 mm
Connection type	M12 plug-in connector	M12 plug-in connector
Connecting voltage U_S	DC 21 to 28 V	DC 15 to 30 V, reverse polarity protection
Input current	150 mA (evaluation unit with two ultrasonic transducers, with no output circuit)	Typ. 80 mA (40 to 150 mA)
Power consumption	max. 3.6 W	max. 2.5 W (without load)
OSSD outputs as **safe outputs**	2 OSSD per connected ultrasonic transducer results in 2 x 2 safe PNP semiconductor outputs, each with 150 mA, short-circuit-proof, cross-circuit monitored	
Outputs OUT as message outputs	1 output for each connected ultrasonic transducer, for 2 x 1 PNP semiconductor outputs, each with 150 mA	USi®-PP: 4 x Power FET PNP USi®-IP: 1 x 4 to 20 mA 3 x Power FET PNP USi®-UP: 1 x 0 to 10 V 3 x Power FET PNP
Interface / software	USB 2.0	USB 2.0

5 Safety bumpers

Safety bumpers protect people against machine components with long overtravel distances, for instance in machining centres, AGVs, measuring machines and lifting platforms.

Safety bumpers thus expand the range in the collision protection system field.

Typical applications are protection in mechanical engineering, stage technology, medical technology and on large, heavy gates. Safety bumpers provide collision protection on automated guided vehicle systems.

Technical data

Operating principle	Pressure-sensitive (NC contact or NO contact principle)
Max. depth	
Standard version	400 mm
Bumpers based on drawings	1200 mm
Areas to be protected	Pinching and shearing edges Collision protection
Applied standards	ISO 13856-3 ISO 13849-1
Degree of protection	IP54 (up to IP 65 possible)
Operating temperature	–20 °C to +55 °C
Surfaces	PUR skin Polyester coverings Resistant against sparks during welding Synthetic leather
Chemical resistance (depending on the surface)	Diluted acids Alkaline solutions Cleaning products Lubricants Alcohol Disinfectants Bodily fluids Oils
Customer-specific adjustment options	Form Design Layout

Your benefits

- ✓ High-quality materials and craftsmanship
- ✓ Custom solutions
- ✓ All RAL colours possible
- ✓ Virtually all geometries possible
- ✓ Maintenance-free
- ✓ Safety bumpers adjust to various applications with their design, form and surface, regardless of external influences like weather or chemicals
- ✓ Optional fire resistance

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