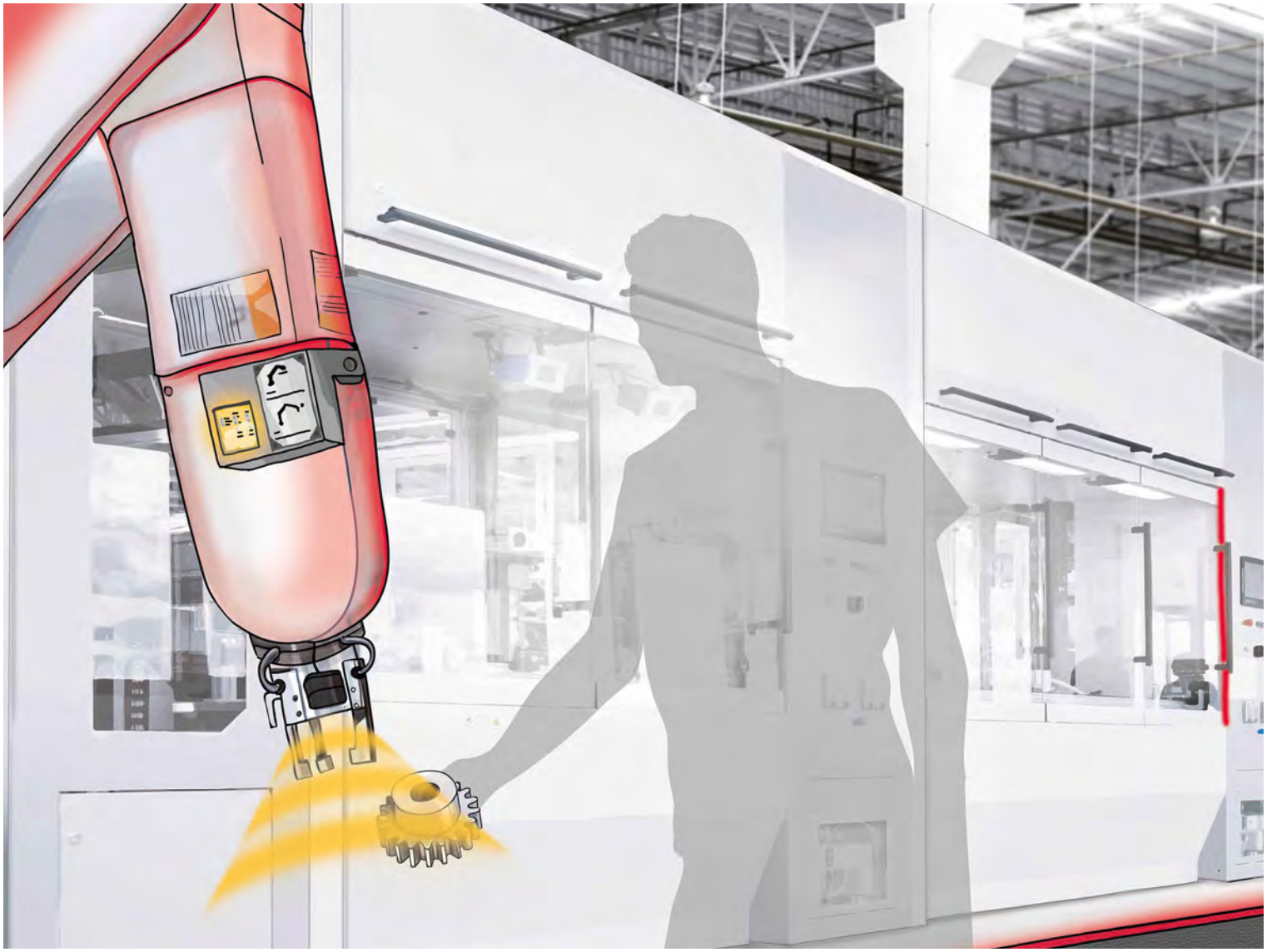
MAYSER®

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 raise economic efficiency. That requires reliable protection of danger zones on machines, systems and transfer lines in industrial production and storage halls according to the machine guidelines. Mayser specialises in securing pinching and shearing edges.

Mayser offers a safety system whose components can be installed individually or in combinations. It thus enables a holistic problem-solving approach. The entire working environment of the area directly surrounding the machine to the transfer lines is hereby secured reliably and according to the standards.

Pressure-sensitive and non-touch safety components are used:

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

Mayser technology allows addressing safety risks with a highly individual approach. The sensors can be read out electrically in parallel with an evaluation device working according to the closed-circuit current principle. All safety components of Mayser are tested in accordance with EN ISO 13849 and/or EN ISO 13856 and thus comply with the safety-related requirements of the Machinery Directive.

Table of contents

1 Our solutions

Areas of application

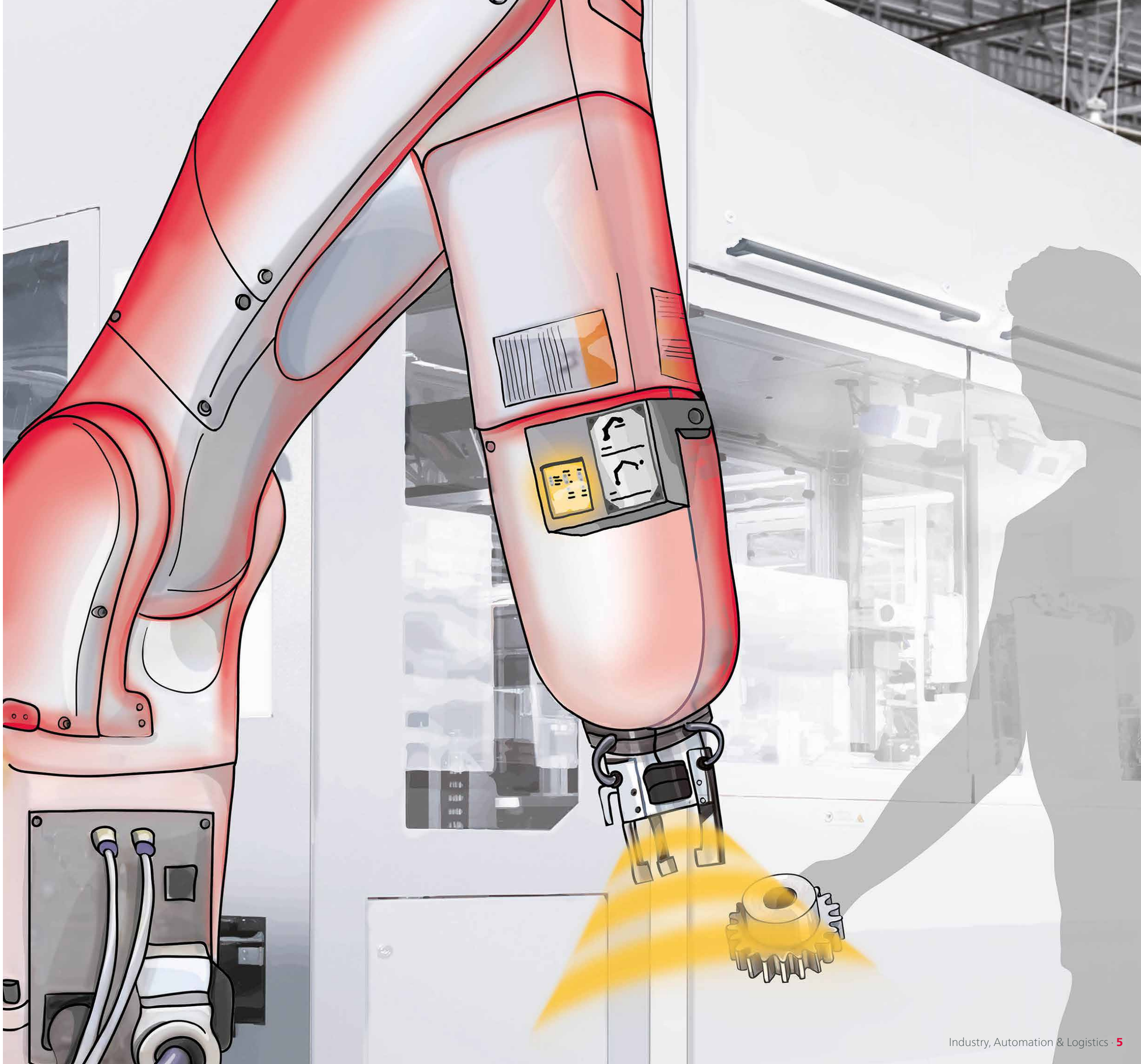
Our safety protection system is used wherever automated processes can threaten the safety of humans and objects. The system offers surface protection of any form for compromised areas in the environment of machines and transfer lines, but also provides obstacle detection for linear closing edge securing 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 automated guided vehicles (AGVs)
- Storage area checks in logistics

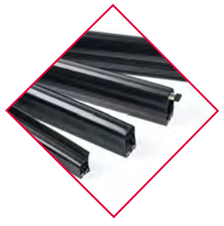
◆ Pressure-sensitive sensors ◆ Non-touch sensor technology



Pressure-sensitive sensors Non-touch sensor technology

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 obstacle detection for people at pinching and shearing edges.

Ultrasonic sensors

These sensors offer non-touch detection for 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 bumper

These impact cushions serve as impact protection with automatic processes with long overtravel distances, for instance at machining centres, automated guided vehicle systems, 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 safe room 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
Topping	GM1 GM4 GM5	2 component coating structured surface	rubber surface topping with moulded ramp edge	rubber surface topping (+ 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
Design of ramps	mitre cut according to drawing	standard with corner joints, no drawing	moulded profile	standard with corner joints, no drawing
Pressure-sensitive 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
Method of operation	NO	NO	NO	NO
Terminal resistance	•	•	•	•
4 conductor connection	•	•	•	•
Slip resistance	R9	R9	R9	R9
Special version	•	•		

Your benefits

- Maintenance-free
- Robust system setup
- Resistant to environmental influences and normal chemical influences
- Reliable operation in dirty environmental conditions

3 Safety edges · miniature safety edges · sensor profiles

Safety edges are sensors that provide obstacle protection at pinching and shearing edges. If the safety edge encounters an obstacle, then the dangerous movement is stopped immediately.

Your benefits

- Various profile geometries with safety edges
- Maintenance-free
- Customised solutions possible
- Optimal solution for different installation heights
- High degree of protection possible (IP67)
- Pre-assembly or DIY possible

Technical data

	Safety edge	Miniature safety edge / obstacle detection	Sensor profile
Method of operation	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	±30° to ±45°	up to ±45°	±45° to ±50°
DIY		•	•
Applied standards	EN 12978 ISO 13856-2 ISO 13849-1	ISO 13849-1	EN 12978 ISO 13856-2 ISO 13849-1
Degree of protection	IP67	IP65	IP65
Operating temperature	min. –20 °C max. +55 °C	min. –25 °C max. +80 °C	min. –25 °C max. +55 °C
Actuation distance	8–17 mm	≤ 1.0 mm	6–8 mm
Rubber outer profile	EPDM NBR CR	TPE	TPE
Customised adjustment	bend radii angled geometries active ends		

4 Ultrasonic sensors

The environment, access and area monitoring via ultrasound is the ideal solution for non-touch detection of persons and objects and distance measurement. If a person or an 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 passenger safety
- Certified according to ISO 13849-1, Category 3 PL d
- Unique development in the ultrasonic field

Technical data

	Ultrasonic safety	**Ultrasonic industrial 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	-10 °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	typ. 2000 mm (100–2500 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 OSSDs 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, results in 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

6 Safety Bumper

Safety bumpers serve for impact protection and are active impact cushions made of soft polyurethane foam with integrated safety sensors.

The soft foam body protects people against injuries and prevents damage to objects with short and long stopping distances. 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 serve for collision protection on automated guided vehicle systems (AGVS).

Technical data

Operation principle	pressure-sensitive (NC contact or NO contact principle)
Max. depth	
Standard version	500 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 sythetic leather
Chemical resistance (depending on the surface)	diluted acids alkaline solutions cleaning products lubricants alcohol disinfectants bodily fluids oils
Customised adjustment options	form design layout

Your benefits

- Prevents occupational accidents
- High-quality materials and processing
- Customised solutions
- All RAL colours possible
- Nearly 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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EN_V03_201708