



INVISIBLE PROTECTION

SENSORS FOR THE PROTECTION AND MOVEMENT OF PEOPLE AND VEHICLES



A black and white photograph of a person in a dark suit walking through a glass door. The person is seen from the back, talking on a mobile phone and carrying a bag. The door is part of a larger glass structure, possibly an entrance to a building. The floor is highly reflective, showing a clear reflection of the person and the door. In the background, a car and a stroller are visible through the glass. Above the door, there is a sign with a downward arrow and a person icon. The overall scene is in a modern, well-lit interior space.

In all situations, Pepperl+Fuchs sensors offer non-contact safety that does not deviate from the task at hand. After all, there are definitely more pleasant contacts in life than with an automatic door.



It is hard to imagine modern everyday life without escalators, automatic pedestrian doors, industrial doors and elevators. They open automatically, detect obstacles, and react to approaching people and objects. Invisible systems protect us throughout day-to-day life. Pepperl+Fuchs' sensors are indispensable to the function and reliability of these systems.

INVISIBLE PROTECTION

Pepperl+Fuchs sensors ensure the secure operation of automatic pedestrian doors, industrial doors, escalators, and elevators. Applications include: activation, protection and monitoring of automatic doors, turnstiles, industrial doors, commercial and industrial gates start-up controls for escalators and safeguarding systems for the closing edges of elevator doors.

Sensor systems can be aligned optimally to meet the broadest range of requirements. Conditions for automatic doors in retail centers and shopping malls are quite different to those in hospitals or nursing homes. Different criteria define sensor technology on industrial doors or warehouse entries where there is a combination of vehicular and pedestrian traffic. On escape and emergency routes and with fire doors, however, safety regulations and maximum reliability take priority.

Here, safety is the most important aspect. Pepperl+Fuchs sensors are always developed to the most recent DIN safety standards and EN ISO/IEC norms. We also actively contribute to the committees that write these standards. In addition to personal protection, the relevant EMC guidelines are also taken into consideration so that with increasing use in modern building technology, electronic devices do not interfere with each other.

Our sensors install seamlessly and discretely for worry-free, automated operation.

Trust in INVISIBLE PROTECTION. When it has to work, you can rely on Pepperl+Fuchs' sensors

Pepperl+Fuchs has one of the largest and most extensive ranges of industrial sensors that covers a broad spectrum of applications.

With distribution and manufacturing sites at all major points on the globe, Pepperl+Fuchs supplies all regional markets and enables Plug-and-Play sensor installation on-site.

Over 4,000 employees develop, produce and distribute products for automation in more than 30 countries and ensure that these continue to meet and exceed the constantly increasing market requirements.

PEPPERL+FUCHS

An important field for sensors outside of industrial automation is automating doors, industrial gates, industrial gate systems and elevators. Automatic door systems rely on robust sensor systems to keep them working and keep them safe. From photoelectric sensors that can detect direction and differentiate between people and vehicles, light grids that monitor elevator doors and microwave motion detectors for sliding or swinging doors, to sensors that provide absolute positioning and protection against pinch points and collisions, Pepperl+Fuchs has a sensor to suit your needs. In fact, we have the largest and most diverse selection of sensor systems in the world.

Pepperl+Fuchs offers a range of innovative and marketable sensing technologies that are tailored to these applications. We've been supplying sensors to the door and elevator industry for over 25 years.

- We provide comprehensive advice.
- We always come to your site.
- We find a solution for your application.
- We provide a customized solution to meet your needs.
- Your satisfaction is our aim!

Trust in INVISIBLE PROTECTION.
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SENSORS FOR AUTOMATIC DOORS AND TURNSTILES

- Radar sensors
 - Passive infrared scanners
 - Active infrared area scanners
 - Active infrared scanners
 - Thru-beam sensors
 - Retroreflective sensors
 - Thru-beam light grids
 - Inductive sensors
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SENSORS FOR DOORS IN PUBLIC TRANSIT

- Active infrared scanners
- Thru-beam sensors
- Ultrasonic sensors

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SENSORS FOR INDUSTRIAL DOORS

- Radar sensors
 - Distance sensors
 - Loop detectors
 - Active infrared scanners
 - Thru-beam sensors
 - Retroreflective sensors
 - Diffuse mode sensors
 - Safety light grids
 - Inductive slot sensors
 - Inductive sensors
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SENSORS FOR ELEVATORS

- Radar sensors
 - Active infrared area scanners
 - Passive infrared scanners
 - Thru-beam sensors
 - Retroreflective sensors
 - Thru-beam light grids
 - Distance sensors
 - Distance measurement sensors
 - Safety light grids
 - Photoelectric slot sensors
 - Positioning systems
 - Inductive slot sensors
 - Rotary encoders
 - Inductive sensors
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SENSORS FOR ESCALATORS AND MOVING WALKWAYS

- Radar sensors
 - Thru-beam sensors
 - Inductive sensors
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SENSORS FOR FIRE PROTECTION DEVICES

- Thru-beam sensors
- Retroreflective sensors

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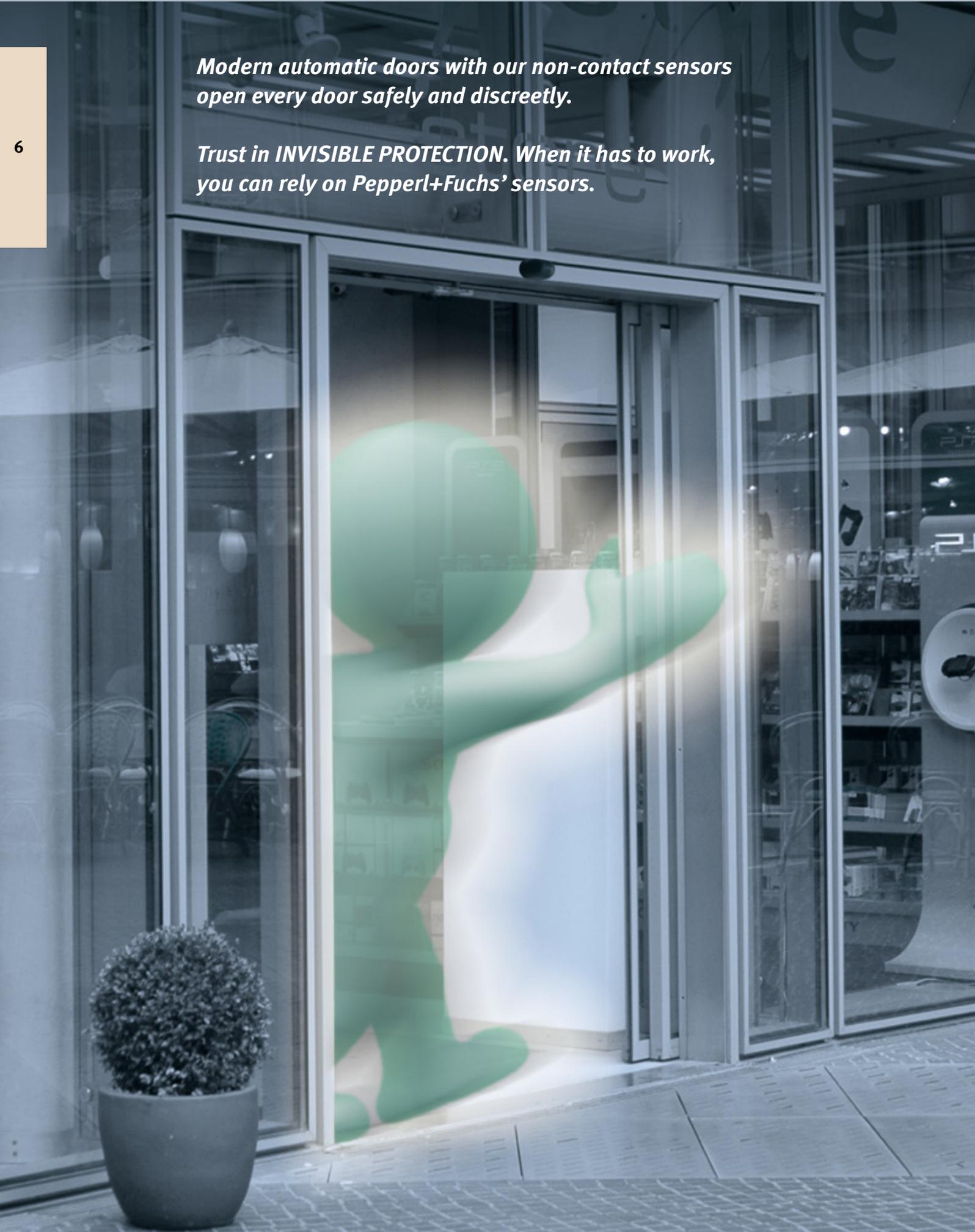
SENSORS FOR COMMERCIAL AND INDUSTRIAL GATE SYSTEMS

- Distance sensors
 - Loop detectors
 - Active infrared scanners
 - Retroreflective sensors
 - Diffuse mode sensors
 - Inductive sensors
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Modern automatic doors with our non-contact sensors open every door safely and discreetly.

*Trust in **INVISIBLE PROTECTION**. When it has to work, you can rely on Pepperl+Fuchs' sensors.*



When classifying sensor functionality we differentiate between the following door types:

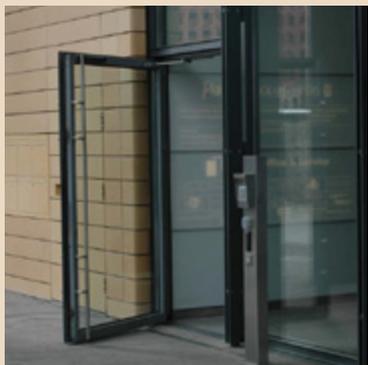
SLIDING DOORS



CONVENIENT AND SECURE OPERATION OF AUTOMATIC DOORS

Convenience, as it relates to an automatic door, means that it opens independently, at the right time, every time. This falls under the responsibility of door activation sensors. They detect when someone approaches and activate the door-opening mechanism. Our motion sensors are equipped with adjustable detection areas and functions such as direction detection and cross-traffic suppression. This clearly enhances the functionality of automatic doors, preventing unnecessary opening and closing, increasing the service life of the door mechanism, and saving costs on heating and air conditioning. Our sensors are robust, tamperproof, immune to rain, vibration, and reflection, and simple to operate.

SWINGING DOORS



Safety is an essential concern for all forms of automation. When the automatic doors open and close, it is imperative that they do not hit anybody and cause injuries. Securing and monitoring closing door edges is a top priority. Sensors prevent the door from closing if people or animals stop in the area around the door. An automatic teach-in function continually adjusts the sensors to the ever-changing conditions of their surroundings and guarantees fault-free protection.

REVOLVING DOORS



Optimum collision protection is particularly important with swinging and revolving doors. Here it is essential that people are detected when the doors are opened so the door can remain open if necessary. In addition to high-performance and more reliable detection, these sensors are particularly flexible and easy to operate. The detection characteristics can be individually aligned and continuously adjusted. In addition to stationary operation, they also operate when in motion, providing the option of being mounted on revolving or swinging doors.

With certification in accordance with DIN 18650 as category 2 testable, non-contact safety equipment (NCSE), Pepperl+Fuchs equipment offers maximum safety.

TURNSTILES



The product portfolio also includes sensors that fulfill the special requirements of public transit systems. They are certified and approved in accordance with rail standard EN 50155 or have E1 approval.

SENSORS FOR AUTOMATIC DOORS AND TURNSTILES

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Series	RADEC
Functioning principle	Radar sensors
Description	Standard microwave motion sensor with basic functionality
Function	Opening
Application	
Detection area	
Technical specifications	<ul style="list-style-type: none"> ■ Reliable movement detection of people and vehicles ■ Adjustable sensitivity ■ Modifiable detection area ■ Direction monitoring ■ Cross-traffic suppression ■ Wall and ceiling mount
Detection area	4.5 m x 2 m/2 m x 4.5 m
Installation height	Max. 4 m
Operating voltage	12 to 36 V DC/12 to 38 V AC
Switching output	Relay
Operating temperature	-20 °C to 60 °C
Connection	Connector strip with 2.5 m connecting cable
Dimensions	101 mm x 60 mm x 59 mm
Versions	<ul style="list-style-type: none"> ■ Mono (no direction detection) ■ Stereo with direction detection) ■ Black housing ■ Silver housing ■ White housing

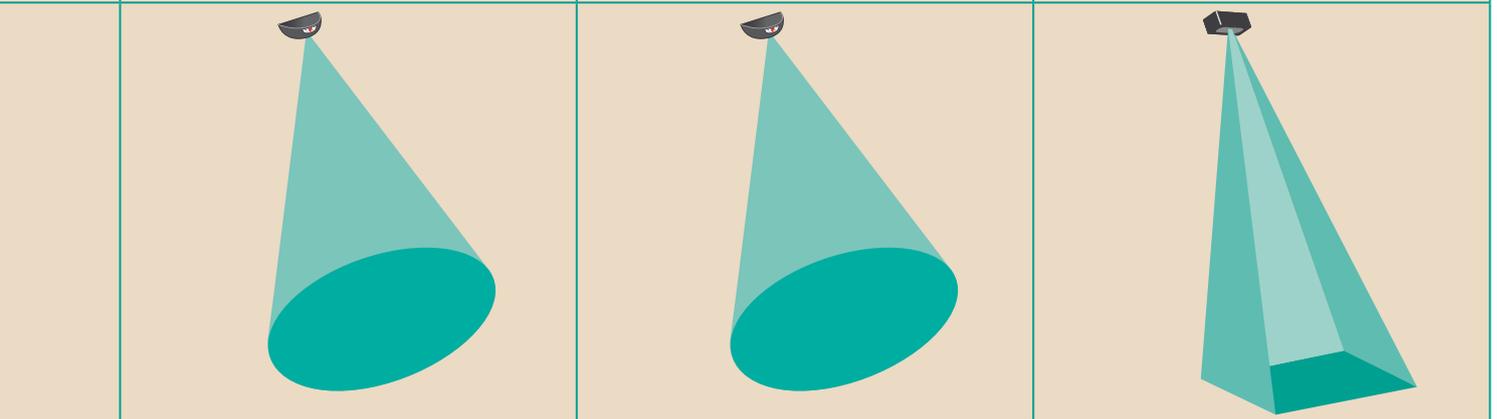


RMS	RMS-FRW	PIR20
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Radar sensors	Radar sensors	Passive infrared scanners
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Premium microwave motion sensor with additional intelligent functions	Premium microwave motion sensors with integrated self-monitoring for escape and exit routes 	Presence sensors based on infrared thermal radiation for detecting people
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Opening	Opening	Opening
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- | | | |
|--|--|--|
| <ul style="list-style-type: none"> ■ Reliable movement detection of people and vehicles ■ Easily programmable with DIP switch and 16 basic pre-programmed settings ■ Direction monitoring ■ Cross-traffic suppression ■ Turtle mode | <ul style="list-style-type: none"> ■ Reliable movement detection for emergency and escape routes ■ Self-monitoring ■ Approved in accordance with AutSchR ■ Remote controllable ■ Direction monitoring ■ Cross-traffic suppression ■ Turtle mode | <ul style="list-style-type: none"> ■ Detect people by their thermal emission +/- 0.5 °C ■ Operates only in the event of motion ■ Compact design ■ Precise and continuous adjustment of the detection field through aperture and zoom function ■ Suitable for flush-mounting |
|--|--|--|

4.5 m x 2 m/2.5 m x 3 m/4 m x 2 m	2.5 m x 3.5 m	1.8 m x 2.6 m
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Max. 4 m	Max. 3 m	Max. 5 m
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12 to 36 V DC/12 to 38 V AC	12 to 36 V DC	12 to 30 V DC/12 to 24 V DC
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Relay	Relay/voltage/frequency	Relay
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-20 °C to 60 °C	-20 °C to 60 °C	-20 °C to 60 °C
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Connector strip with 5 m connecting cable	Connector strip with 3 m connecting cable	Screw terminals
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123 mm x 65 mm x 57 mm	123 mm x 65 mm x 57 mm	56 mm x 23 mm x 45 mm
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- | | | |
|--|--|--|
| <ul style="list-style-type: none"> ■ Mono (no direction detection) ■ Stereo (with direction detection) ■ Extra wide detection area ■ Remote controllable ■ FCC approval for North America ■ Black housing ■ White housing ■ Silver housing | | <ul style="list-style-type: none"> ■ Black housing ■ White housing |
|--|--|--|



Series	FLT-D	PROSCAN	LT2 · LTK2
Functional principle	Active infrared area scanners	Active infrared scanners	Active infrared scanners
Description	Combination sensor for opening and protection	Multi-beam sensor with self-learn function for monitoring	Precision sensor for very long detection range
Function	Area sensors with two detection fields	Protection	Protection
Application			
Detection area			
Technical specifications	<ul style="list-style-type: none"> Continuous area detection with 20 programmable detection fields Teach-in mode Configuration of field sizes, teach-in mode, sensitivity, switch type and master/slave operation Test item detection in accordance with EN 12650 	<ul style="list-style-type: none"> Fan-shaped detection field with max. of 12 beams Adjustable for different door widths Single teach-in phase Automatic configuration to changing floors/surroundings Increased sensitivity midspan 	<ul style="list-style-type: none"> Choice of operating modes: Background suppression ignored objects/ Background evaluation uses the background as reference for detecting difficult targets Adjustable detection range and timer functions
Detection area	2.2 m x 1.5 m (full field)	2.3 m x 80 mm (full field)	Diameter of the light spot 50 mm at 2 m and 150 mm at 6 m
Installation height	Max. 2.2 m	Max. 2.5 m	Max. 2.5 m or 6 m
Operating voltage	12 to 30 V DC/12 to 30 V AC	12 to 38 V DC or 12 to 38 V DC/12 to 28 V AC	LT2: 15 to 35 V DC LTK2: 11 to 48 V DC/12 to 24 V AC
Switching output	Relay	1 PNP or relay	LT2: 2 PNP or 1 NPN/1 PNP LTK2: Relay
Operating temperature	-20 °C to 60 °C	-20 °C to 60 °C	-20 °C to 60 °C
Connection	Terminal block	Fixed cable	M12 quick disconnecter fixed cable
Dimensions	250 mm x 60 mm x 45 mm	102 mm x 45 mm x 32 mm	150 mm x 64 mm x 49 mm
Versions		<ul style="list-style-type: none"> Test input PNP output NPN output Operating voltage DC Operating voltage AC/DC Adjustable time between teach cycles 	<ul style="list-style-type: none"> Test input Two-channel version with two independent detection areas Installation height 2.5 m Installation height 6 m Operating voltage DC with NPN output Operating voltage DC with PNP output Operating voltage AC/DC with relay output Quick disconnect Fixed cable connection



FLT-8

AIR20

AIR30

Active infrared area scanners

Active infrared scanners

Active infrared scanners

Area scanners with long detection range for detecting people and objects

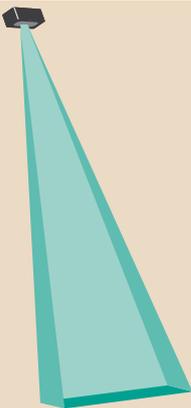
Single-beam diffuse mode sensor for securing closing edges or as an opening impulse sensor

Single-beam diffuse mode sensor with precise light beam for monitoring main and secondary closing edges

Protection

Opening and protection

Protection



- 3 or 4 beams in a housing form the sensing field
- 500 mm x 500 mm maximum detection range
- Various operating modes: Background suppression ignores objects beyond a selected area/background evaluation uses background as reference to detect difficult objects

- Fine, precise light beam with long sensing range
- Background suppression
- Compact design
- Immune to ambient lighting
- Suitable for moving or stationary mounting

- Accurate beam direction with the very small light spot diameter
- Various operating modes: Background suppression ignores objects beyond a selected area/background evaluation uses background as reference to detect difficult objects
- Adjustable detection range

500 mm x 500 mm or 50 mm x 500 mm or 300 mm x 500 mm

Diameter of the light spot 60 mm at 1.3 m

Diameter of the light spot 50 mm at 2 m

Max. 2.8 m

Max. 2.2 m

Max. 2.5 m

15 to 48 V DC or 15 to 48 V AC/DC

12 to 30 V DC/ 18 to 28 V AC

10 to 30 V DC or 10 to 48 V DC/11 to 38 V AC

2 PNP or 1NPN/1PNP or relay

Relay

1 PNP or relay

-20 °C to 60 °C

-20 °C to 60 °C

-20 °C to 60 °C

M16 quick disconnect or fixed cable

Terminal block

Fixed cable

150 mm x 64 mm x 52 mm

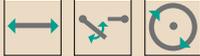
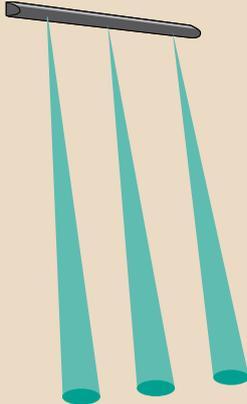
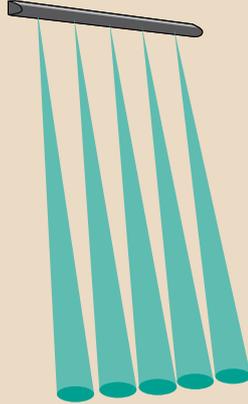
68 mm x 25 mm x 49 mm

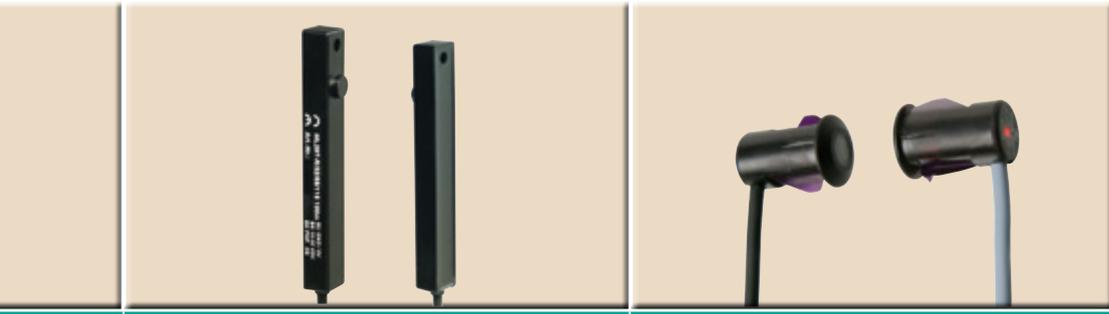
102 mm x 45 mm x 32 mm

- Background suppression (-H)
- Background evaluation (-HW)
- Counter function and direction detection (CLS)
- Operating voltage DC with NPN/PNP output
- Operating voltage DC with 2 PNP outputs
- Operating voltage AC/DC with relay output
- Light-on or dark-on switching
- Quick disconnect or fixed cable connection

- Background suppression (-H)
- Background evaluation (-HW)
- Operating voltage DC with 1 PNP output
- Operating voltage AC/DC with relay output
- Light-on
- Light-on/dark-on selectable
- Test input
- Flush-mounted version



Series	TOPSCAN	TOPSCAN-S
Functional principle	Active infrared scanners	Active infrared scanners
Description	Mobile single and multi-beam light curtain for individual protection	Mobile single and multi-beam light curtain for TÜV certification  
Function	Protection	Protection
Application		
Detection area		
Technical specifications	<ul style="list-style-type: none"> ■ Configurable with 1, 2 or 3 sensor modules (beams) ■ Various profile lengths from 330 mm to 1,350 mm ■ Each beam can be adjusted individually ■ Switchable background suppression and evaluation ■ Adjustable closing edge direction ■ Test input 	<ul style="list-style-type: none"> ■ Configurable with 1 to 6 sensor modules (beams) and a broad range of profile lengths ■ Category 2, tested and certified to DIN 18650 ■ Modular structure with master/slave modules ■ Each beam can be adjusted individually ■ Profile lengths from 310 mm to 1,400 mm ■ Emitter can be adjusted for left or right edge ■ Test specimen recognition across the complete door width
Detection area	Per beam 75 mm x 75 mm at 2 m	Per beam 75 mm x 75 mm at 2 m
Installation height	Max. 2.5 m	Max. 2.5 m
Operating voltage	17 to 30 V DC	24 V DC
Switching output	Relay	Relay
Operating temperature	-20 °C to 60 °C	-10 °C to 50 °C
Connection	Screw terminals	Screw terminals
Dimensions	Profile length x 42 mm x 37 mm	Profile length x 42 mm x 37 mm
Versions	<ul style="list-style-type: none"> ■ 1-beam ■ 2-beam ■ 3-beam ■ Different profile lengths for different door widths 	<ul style="list-style-type: none"> ■ 1-beam ■ 2-beam ■ 3-beam ■ 4-beam ■ 6-beam ■ Different profile lengths for different door widths

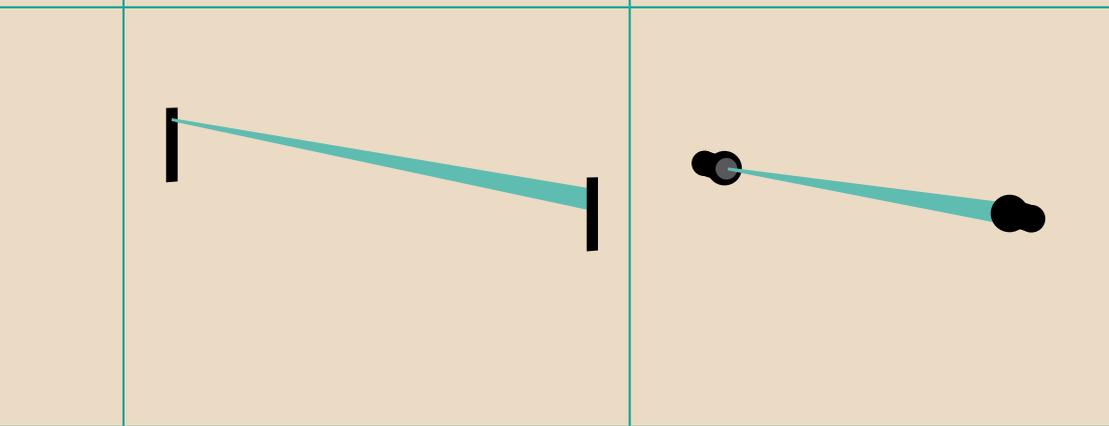


ML29 · ML30	BB10
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Thru-beam sensors	Thru-beam sensors
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Miniature bar photoelectric sensor, ideal for installation in door profile or frame	Miniature phototoelectric Plug-In sensor photoelectric sensor, ideal for installation in doors and turnstiles
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Protection	Protection
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|---|---|
| <ul style="list-style-type: none"> ■ Very slender miniature model ■ Infrared light ■ Integral circuit with no external control interface unit ■ Test input ■ Easy installation – Plug and Play | <ul style="list-style-type: none"> ■ Very compact model ■ Infrared light ■ Integral circuit with no external control interface unit ■ Narrow opening angle suitable for mounting in pairs ■ Plug-in housing for 13 mm hole |
|---|---|

	Diameter of the light spot 250 mm at 1 m or 1,300 mm at 6 m
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Sensing range max. 6 m or max. 8.5 m	Sensing range max. 4 m or 8 m
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11 to 30 V DC	10 to 30 V DC
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1 NPN or 1 PNP	1 NPN or 1 PNP
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-20 °C to 60 °C	-40 °C to 60 °C
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Fixed cable or M8 quick disconnect	Fixed cable
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11.6 mm x 85.2 mm x 9.2 mm	22 mm x 12.5 mm x 12.5 mm
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- | | |
|--|---|
| <ul style="list-style-type: none"> ■ Sensing range 6 m ■ Sensing range 8.5 m ■ PNP output ■ NPN output ■ Light-on ■ Dark-on ■ Quick disconnect ■ Fixed cable connection ■ Dual-beam version (master/slave) ■ 1 or 2 mounting holes | <ul style="list-style-type: none"> ■ Sensing range 4 m ■ Sensing range 8 m ■ PNP output ■ NPN output ■ Light-on ■ Dark-on ■ Test input ■ Frequencies F1, F2 or F3 |
|--|---|

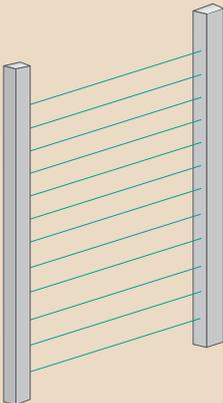
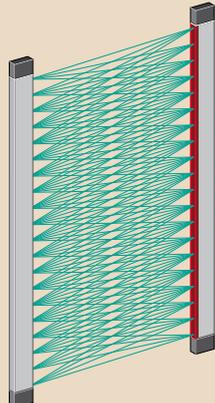
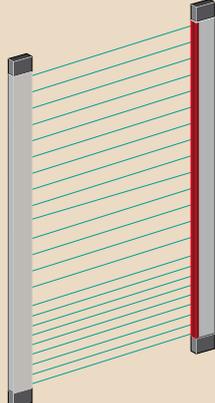
INDUCTIVE SENSORS

Our range of inductive sensors for automatic doors and turnstiles can be found on pages 46/47.

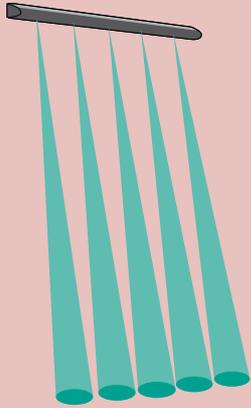
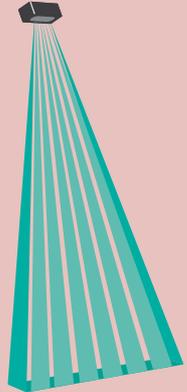


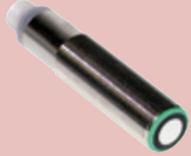
Series	ML100-6/ML100-55	GLV18-6/GLK18-6
Functional principle	Retroreflective sensor	Retroreflective sensor
Description	Single-beam miniature photoelectric sensor with long detection range for detecting people and objects	Single-beam M18 cylindrical sensor for detecting people, objects, and vehicles
Function	Monitoring	Monitoring
Application		
Detection area		
Technical specifications	<ul style="list-style-type: none"> Miniature design All-metal thread mounting Infrared light Light-ON/dark-ON switch Sensitivity adjuster Works reliably on reflector 	<ul style="list-style-type: none"> Short M18 plastic housing Red light Fine, sharp light spot Light-on/dark-on switching Works reliably on reflector
Detection area	Diameter of the light spot: 500 mm at 7 m	Diameter of the light spot: 250 mm at 6.5 m
Installation height	Sensing range: max. 7 m / max. 9 m	Sensing range: 6.5 m or 8 m
Operating voltage	10 to 30 V DC	GLV18: 10 to 30 V DC GLK18: 20 to 250 V AC/DC
Switching output	1 PNP or 1 NPN	GLV18: 2 PNP or 1 PNP GLK18: N-channel MOSFET
Operating temperature	-30 °C to 60 °C	-20 °C to 60 °C
Connection	Fixed cable	Fixed cable or M8 quick disconnect
Dimensions	11 mm x 31 mm x 20 mm	M18 x 44 mm or M18 x 60 mm
Versions	<ul style="list-style-type: none"> Version without polarisation filter (-6) Version with polarisation filter (-55) 	<ul style="list-style-type: none"> Front lens orientation with 8 m sensing range Side lens orientation (-S) with 6.5 m sensing range Operating voltage DC with PNP output Operating voltage DC with 2 PNP outputs Operating voltage AC/DC with MOSFET output Quick disconnect Fixed cable connection



	LGS100	AL2109	AL20/40
	Thru-beam light grids	Thru-beam light grids	Thru-beam light grids
	Light grid for monitoring large areas	Light grid with fine resolution for detecting people and objects 	Light grid with long sensing range for detecting people and objects
	Monitoring	Monitoring	Monitoring
			
			
	<ul style="list-style-type: none"> ■ Integrated controller ■ Beam gap 100 mm ■ Various field heights from 100 mm to 3 m ■ Super-fast object detection ■ Infrared light ■ Test input ■ Configuration via touch field without software 	<ul style="list-style-type: none"> ■ Conformity to EN 81-70 and EN 12015/16 ■ Integrated controller ■ Infrared light ■ Extremely dense monitoring field with 135 beams and up to 7 times crossover ■ Object detection up to 'zero distance' ■ Automatic adjustment of beam configuration ■ Blanking of defective beams ■ Insensitive to reflection and ambient light 	<ul style="list-style-type: none"> ■ Integrated controller ■ Infrared light ■ Dense sensor field enables detection of small objects ■ Automatic adjustment of beam configuration for maximum resolution ■ Operation and status LEDs ■ Insensitive to reflection and ambient light
	Field height max. 3 m	Field height 1.8 m	Field height 1.65 m
	Sensing range: max. 6 m or 8 m	Sensing range: max. 3.5 m	Sensing range: max. 5.6 m
	18 to 30 V DC	11 to 30 V DC	12 to 30 V DC
	1 push-pull output for detection field and 3 push-pull outputs for height control	1 PNP/NPN	1 PNP/1 NPN
	-10 °C to 60 °C (optionally to -30 °C)	-10 °C to 55 °C	-10 °C to 60 °C
	Fixed cable with M12 quick disconnect (pigtail)	Fixed cable or M8 quick disconnect	Fixed cable or M12 pigtail
	20 mm x 30.5 mm x field height + 159 mm	9 mm x 34 mm x 2 m	Profile width x 30 mm x 2 m
	<ul style="list-style-type: none"> ■ Sensing range 6 m ■ Sensing range 8 m ■ Field heights of 100 mm to 3 m ■ Low temperature version to -30 °C 	<ul style="list-style-type: none"> ■ Quick disconnect ■ Fixed cable connection ■ Version with ATEX approval for zone 2 and 22 (TÜV 08 ATEX 554855 X) 	<ul style="list-style-type: none"> ■ Profile width 12 mm (ALXX12) ■ Profile width 16 mm (ALXX16) ■ Beam gap 20 to 44 mm (AL20XX) ■ Beam gap 40 to 88 mm (AL40XX) ■ Pigtail connector ■ Fixed cable connection



Series	TOPSCAN	PROSCAN-T
Functional principle	Active infrared scanners	Active infrared scanners
Description	Single- and multi-beam light curtain to protect against collision	Multi-beam sensor with self-learn function for monitoring large areas with E1 approval
Function	Protection	Protection
Detection area		
Technical specifications	<ul style="list-style-type: none"> ■ Configurable with up to 5 sensor modules (beams) ■ Each beam can be adjusted individually ■ Switchable background suppression and evaluation ■ Test input 	<ul style="list-style-type: none"> ■ Fan-shaped detection field with 12 beams ■ Dynamic closing edge monitoring over the entire width of the door ■ Adjustable for different door widths ■ Single teach-in phase ■ Automatic adjustment to surroundings and weather
Detection area	Per beam 75 mm x 75 mm at 2 m	2.3 m x 80 mm (full field)
Installation height	Max. 2.5 m	Max. 2.5 m
Operating voltage	17 to 30 V DC	12 to 38 V DC
Switching output	Relay	1 PNP
Operating temperature	-20 °C to 60 °C	-20 °C to 60 °C
Connection	Screw terminals	Quick disconnect (AMP) or fixed cable
Dimensions	Profile length x 42 mm x 37 mm	102 mm x 45 mm x 32 mm
Versions	<ul style="list-style-type: none"> ■ 1-beam ■ 2-beam ■ 3-beam ■ 4-beam ■ 5-beam ■ Different profile lengths up to 1,350 mm for different door widths 	<ul style="list-style-type: none"> ■ Different versions with preset field sizes ■ Test input ■ Control input ■ Quick disconnect ■ Fixed cable connection

		
AIR30	ML29-T	UB500-18GM75
Active infrared scanners	Thru-beam sensors	Ultrasonic sensors
Single-beam diffuse mode sensor for monitoring main and secondary closing edges	Single-beam miniature bar photoelectric sensor, ideal for installation in door frames with certification in accordance with rail standard EN 51155	M18 ultrasonic sensor for measuring distance in entry systems for rail vehicles
Protection	Protection	Protection
		
<ul style="list-style-type: none"> ■ Fine, precise light beam with long sensing range ■ Narrow, tight beam monitors extremely close to closing edge ■ Switchable background suppression or background evaluation 	<ul style="list-style-type: none"> ■ Very slender miniature model ■ Ideal for installation in profiles or frames ■ Infrared light ■ Integrated switch ■ Test input ■ Easy installation – Plug and Play 	<ul style="list-style-type: none"> ■ Single head system ■ Adjustable output functions ■ Selectable ultrasonic beam width ■ Teach-in input and synchronization options ■ Temperature compensation ■ Degree of protection IP65
Diameter of the light spot 50 mm at 2 m	Sensing range: max. 3.5 m	Adjustable 30 to 500 mm
Max. 2.5 m	–	–
10 to 48 V DC/ 11 to 38 V AC	10 to 32 V DC	10 to 30 V DC
Relay	1 PNP	1 PNP or analog output
-20 °C to 60 °C	-25 °C to 60 °C	-25 °C to 70 °C
Fixed cable	Fixed cable	M12 quick disconnect
102 mm x 45 mm x 32 mm	11.6 mm x 85.2 mm x 9.2 mm	M18 x 85 mm
<ul style="list-style-type: none"> ■ Flush-mounted version ■ Light-on ■ Light-on/dark-on selectable ■ Test input 		<ul style="list-style-type: none"> ■ PNP output ■ Analog output



*Should the industrial door open only for vehicles or for people as well? Our sensors can be programmed to detect vehicles or people, ensuring secure and effective automatic industrial doors. Trust in **INVISIBLE PROTECTION** and customise your industrial door sensing requirements.*

When classifying sensor functionality we differentiate between the following gate types:

ONE-PIECE, LIFT-UP DOORS



MORE EFFECTIVE AND SECURE OPERATION OF AUTOMATIC INDUSTRIAL DOORS

It is important to guarantee convenient and secure operation with automatic industrial doors. Is it also important to have an effective opening and closing function that supports the operation and logistics as much as possible. Several sensor systems are available for automatic opening that are tailored to the particular requirements in this area. The compact, powerful, and extremely robust sensors are ideal for high mounting locations or long sensing distances, and they are easy to install. They come with simple setting options, hassle-free setup and low-maintenance operation. Configurable detection fields and sensing ranges enable adjustment to a vast range of door dimensions. Mounting heights of up to seven meters are no problem.

SWING DOORS



The door sensors have the ability to differentiate between pedestrians and vehicles. An optional extra is for the industrial door to open only on the approach of a vehicle not a pedestrian.

The issue of security is also extremely important with automatic doors. With any up or downward movements of the door, appropriate proper sensor system eliminates the risk of injury at the closing edges.

SECTIONAL DOORS



Also available are robust door sensors with a range of operating principles that are not affected by adverse conditions. With long sensing ranges and a variety of adjustment options, they provide automatic low-cost protection for entry routes.

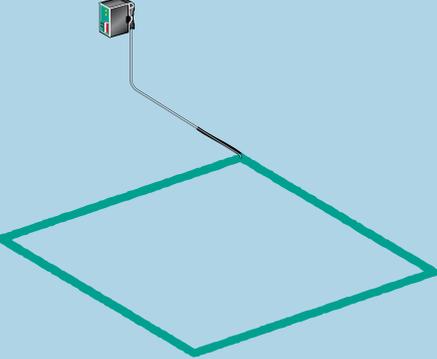
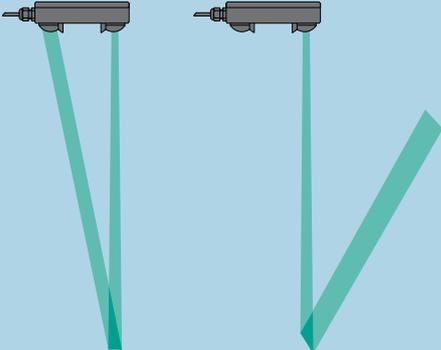
This product area is rounded off with end position controls for the actuators. Pepperl+Fuchs offers a range of inductive sensor solutions in a wide variety of models.

HIGH-SPEED DOORS





Series	RMS-G
Functional principle	Radar sensors
Description	Premium door openers with differentiated person and vehicle detection
Function	Opening
Application	
Detection area	
Technical specifications	<ul style="list-style-type: none"> ■ Sensor differentiates between person/vehicle detection and opens the door depending on the situation ■ Extra wide detection area and long sensing range ■ Programmable, also available with remote control ■ Direction monitoring
Detection area	7 m x 6 m at installation height of 5 m / 8 m x 5 m at installation height of 7 m
Installation height	Max. 7 m
Operating voltage	12 to 36 V DC/ 12 to 28 V AC
Switching output	2 relay outputs
Operating temperature	-20 °C to 60 °C
Connection	Plug-in screw terminals with 8 m connecting cable
Dimensions	123 mm x 65 mm x 57 mm
Versions	<ul style="list-style-type: none"> ■ FCC approval for North America ■ Black housing ■ White housing ■ Vehicle detection up to 60 km/h (40 mph) (version -HS)

		
VDM28	LC10	LT2 · LTK2
Distance sensors	Loop detectors	Active infrared scanners
Optical laser distance sensors for long sensing ranges, can be used in difficult ambient conditions	Universal sensor system for detecting vehicles	Precision sensor for very long detection range
Opening	Opening and protection	Protection
		
		
<ul style="list-style-type: none"> ■ Extremely resistant to interference due to direct Pulse Ranging Technology (PRT) measurement process ■ Short response time ■ High repeat accuracy ■ Largely independent of measuring environment ■ Not impaired by dust, fog, or extraneous light ■ For low-temperature applications to -30 °C 	<ul style="list-style-type: none"> ■ Complete control interface for wire loops laid in the floor ■ Reliable detection of vehicles from long distances ■ Various operating modes ■ Test function ■ Boost function to increase sensitivity ■ Fault indications in the event of loop breaking or short circuit 	<ul style="list-style-type: none"> ■ Choice of operating modes: Background suppression ignores objects beyond a selected area/background evaluation uses the background as reference to detect difficult targets ■ Adjustable detection range and timer functions ■ Test input for sensor function
Diameter of the light spot < 10 mm at 8 m	Loop inductance 100 to 1000 µH Loop frequency 20 to 120 kHz	Diameter of the light spot 50 mm at 2 m and 150 mm at 6 m
Sensing range 50 m to reflector Sensing range 8 m or 15 m to background	Sensing range depends on wire loop laid	Max. 2.5 m or 6 m
10 to 30 V DC	24 V DC/115 V AC/230 V AC/24 V AC	LT2: 15 to 35 V DC LTK2: 11 to 48 V DC/12 to 24 V AC
1 push-pull output + analog output 2 push-pull outputs	Relay	LT2: 2 PNP or 1 NPN/1 PNP LTK2: Relay
-30 °C to 50 °C	-20 °C to 70 °C	-20 °C to 60 °C
M12 quick disconnect or fixed cable	Socket with terminal	M12 quick disconnect or fixed cable
25.8 mm x 88 mm x 55 mm <ul style="list-style-type: none"> ■ Sensing range 50 m (only to reflector) ■ Sensing range 15 m ■ Sensing range 8 m ■ Laser class 1 or 2 ■ Push-pull and analog output ■ 2 push-pull outputs ■ Quick disconnect ■ Fixed cable connection 	37.5 mm x 75 mm x 71 mm <ul style="list-style-type: none"> ■ Operating voltage 24 V AC ■ Operating voltage 24 V DC ■ Operating voltage 115 V AC ■ Operating voltage 230 V AC ■ 1 loop channel ■ 2 loop channels ■ Direction detection 	150 mm x 64 mm x 49 mm <ul style="list-style-type: none"> ■ Installation height 2.5 m ■ Installation height 6 m ■ Operating voltage DC with NPN output ■ Operating voltage DC with PNP output ■ Operating voltage AC/DC with relay output ■ Quick disconnect ■ Fixed cable connection



Series	ML8 SERIES	ML17 SERIES
Functional principle	Retroreflective and thru-beam sensors	Retroreflective and thru-beam sensors
Description	Basic miniature photoelectric sensor for detecting people, objects and vehicles	Miniature photoelectric sensor for detecting people, objects and vehicles, can be installed anywhere
Function	Protection	Protection
Application		
Detection area	<p>Thru-beam</p> <p>Retroreflective</p>	<p>Thru-beam</p> <p>Retroreflective</p>
Technical specifications	<ul style="list-style-type: none"> Miniature design, robust, and waterproof Ideal for installation in door frames or profiles Flexible mounting options 	<ul style="list-style-type: none"> Compact universal housing for front mounting with M18 thread and thru-holes for side mounting Ideal for installation in door frames or profiles Robust and waterproof Adjustable sensitivity
Diameter of the light spot	Approx. 180 mm at 3.5 m	–
Sensing range	Thru-beam: 4.5 m Retroreflective: 3.5 m	Thru-beam: 20 m Retroreflective: 5 m
Operating voltage	10 to 30 V DC	10 to 30 V DC
Switching output	1 PNP or push-pull output	2 push-pull outputs
Operating temperature	-30 °C to 55 °C	-20 °C to 55 °C
Connection	M8 quick disconnect or fixed cable	M8 quick disconnect or fixed cable
Dimensions	23 mm x 31 mm x 11 mm	29 mm x 15 mm x 34.5 mm
Versions	<ul style="list-style-type: none"> Thru-beam sensor Retroreflective sensor 1 PNP output Push-pull output Light-on Dark-on Quick disconnect Fixed cable connection 	<ul style="list-style-type: none"> Thru-beam sensor Retroreflective sensor Quick disconnect Fixed cable connection

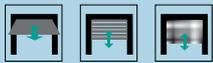


GLV18/GLK18 SERIES

Retroreflective and thru-beam sensors

Single-beam M18 cylindrical sensor for detecting people, objects and vehicles

Protection



Thru-beam



Retroreflective



- Sturdy plastic M18 housing
- Ideal for installation in door frames or profiles
- Flush installation mounting set available
- Straight or right-angled optical light exit
- Most compact and economic universal voltage device on the market
- Mounting equipment included with delivery

Approx. 200 mm at 5.5 m

Thru-beam: 25 m
Retroreflective: 8 m

GLV18: 10 to 30 V DC
GLK18: 20 to 250 V AC/DC

GLV18: PNP or NPN
GLK18: N-channel MOSFET

-20 °C to 60 °C

M12 quick disconnect or fixed cable

39.6 mm x 18 mm or 69 mm x 18 mm

- Thru-beam sensor
- Retroreflective sensor
- Straight light exit
- Side light exit
- Operating voltage DC
- Operating voltage AC/DC
- Quick disconnect
- Fixed cable connection



28 SERIES/29 SERIES

Retroreflective and thru-beam sensors

Robust compact photoelectric sensor with long detection range for single-beam gate protection

Protection



Thru-beam



Retroreflective



- Robust and waterproof housing with multiple mounting options
- Long sensing ranges
- No discernible interference emissions on any frequencies
- Immune to ambient lighting
- Particularly immune to interference from service radios and mobile phones

Approx. 290 mm at 17 m

Thru-beam: 40 m/90 m
Retroreflective: 14 m/17 m/21 m/42 m

RL: 10 to 30 V DC
RLK: 12 to 240 V AC/DC

RL: 2 PNP or push-pull output
RLK: Relay

-20 °C to 60 °C

Terminal compartment or M12 quick disconnect or fixed cable

25.8 mm x 88 mm x 54 mm

- Thru-beam sensor
- Retroreflective sensor
- Laser light or red light
- Adjustable timer functions
- Terminal compartment, quick disconnect or fixed cable connection
- Set with mounting set and reflector

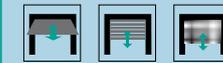


31 SERIES

Retroreflective and thru-beam sensors

Basic photoelectric sensor with universal voltage for detecting people, objects and vehicles

Protection



Thru-beam



Retroreflective



- Robust and waterproof ultrasonically welded housing
- Good optical service data despite narrow housing
- Very user-friendly with simple settings and alignment
- Immune to ambient lighting

Approx. 240 mm at 8 m

Thru-beam: 43 m
Retroreflective: 12 m/16.5 m

24 to 240 V DC/12 to 240 V AC

Relay

-25 °C to 55 °C

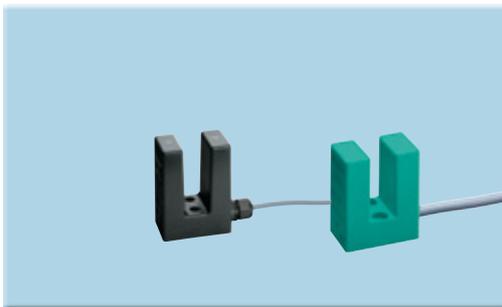
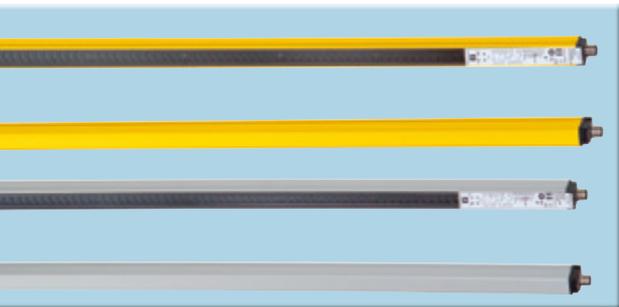
Fixed cable

18 mm x 62 mm x 35 mm

- Thru-beam sensor
- Retroreflective sensor
- Light-on
- Dark-on
- Set with mounting set and reflector



Series	61 SERIES
Functional principle	Thru-beam and retroreflective sensors; diffuse mode sensor
Description	Basic photoelectric sensor with universal voltage for detecting people, objects, and vehicles
Function	Protection
Application	
Detection area	
Technical specifications	<ul style="list-style-type: none"> ■ Robust and waterproof housing ■ Adjustable timer functions and operation modes ■ Sensitivity/test range adjuster ■ Immune to ambient lighting ■ Can be used in very low temperatures
Detection area	Retroreflective sensor and diffuse mode sensor approx. 350 mm at 18 m or 17 mm at 1 m Thru-beam sensor: approx. 840 mm at 20 m
Sensing range	Retroreflective and thru-beam sensor: max. 25 m Diffuse mode sensors: max. 1.5 m or 4.7 m
Operating voltage	24 to 240 V DC/12 to 240 V AC
Switching output	Relay or push-pull output
Operating temperature	-40 °C to 55 °C
Connection	M12 quick disconnect or fixed cable
Dimensions	45 mm x 74 mm x 49 mm
Versions	<ul style="list-style-type: none"> ■ Thru-beam sensor ■ Retroreflective sensor ■ Diffuse mode sensor ■ Quick disconnect ■ Fixed cable connection ■ Relay output ■ Push-pull output



SLCT/SLCTS SERIES

SJ15/SJ30 SERIES

Safety light grid

Inductive slot sensors

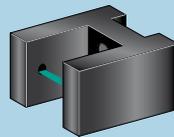
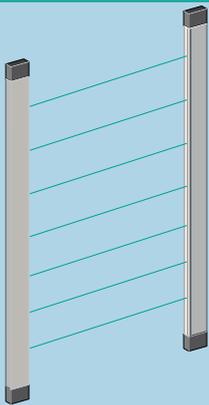
Narrow safety light grid with TÜV approval for detecting people and vehicles



Slot initiators for non-contact end position control

Protection

End position switch-off



- Protection field height of 200 mm to 2,400 mm
- Designs in type 2 (SLCT) or type 4 (SLCS) in accordance with EN ISO/IEC 61496-1
- Extremely slim housing
- Integrated evaluation
- Immune to ambient lighting
- Installable on three sides

- Very accurate switching points

Protection field height 200 mm to 2,400 mm in 100 mm steps

–

Max. 8 m

Slot width 15 mm or 30 mm

24 V DC

10 to 30 V DC or 20 to 253 V AC

PNP

PNP or 2-wire AC

-30 °C to 60 °C

- 25 °C to 70 °C

M12 quick disconnect

Fixed cable

20 mm x 30 mm x protection field height + 119 mm

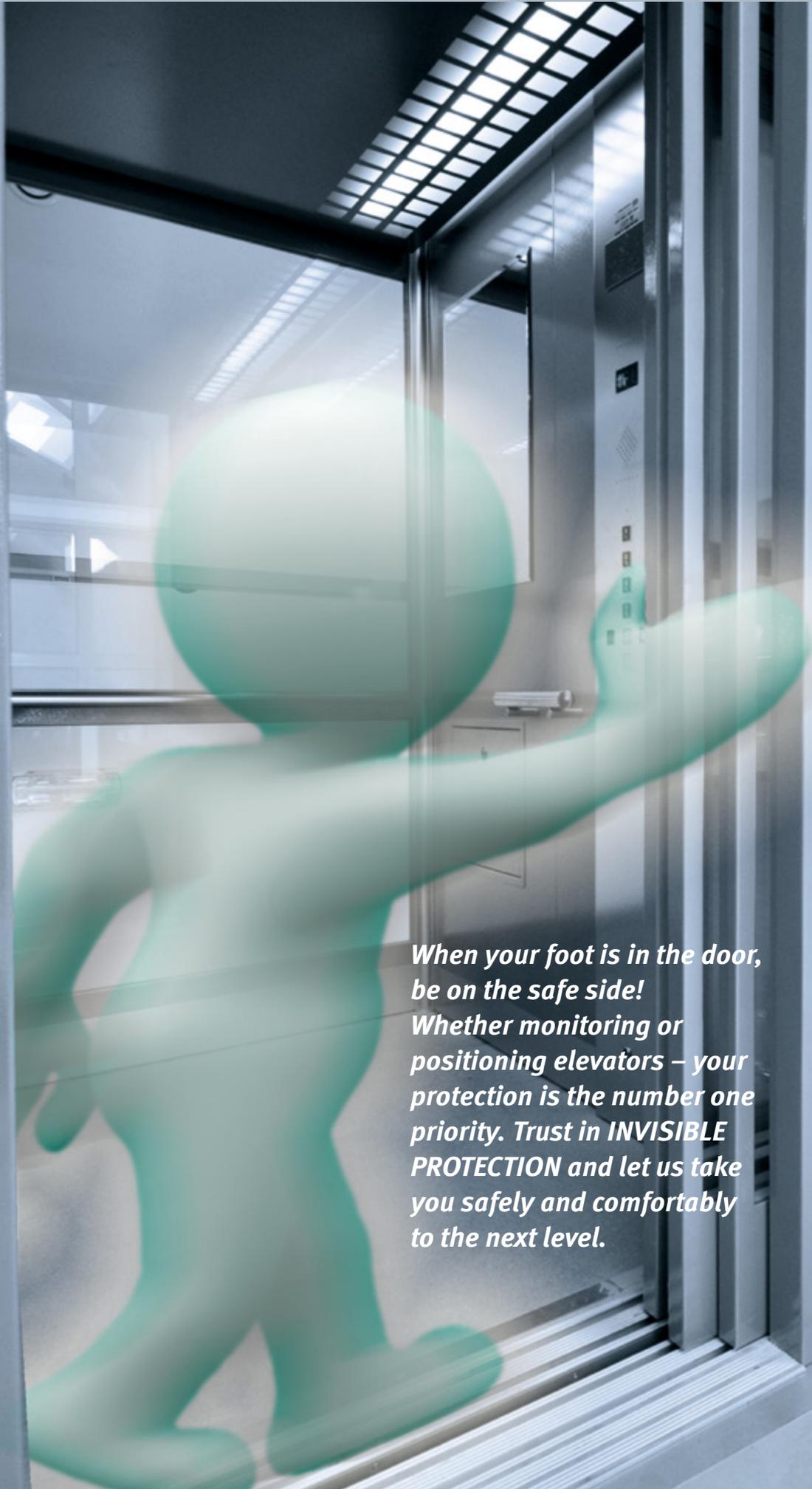
48 mm x 30 mm x 60 mm (SJ15), 34mm x 51mmx 110mm (SJ30)

- Different protection field heights
- SLCT: Self-testing (type 2)
- SLCS: Self-monitoring (type 4)
- Resolution 30 mm
- Resolution 90 mm

- Slot width 15 mm (SJ15)
- Slot width 30 mm (SJ30)
- PNP output
- 2-wire AC NC contact
- 2-wire AC NO contact

INDUCTIVE SENSORS

Our range of inductive sensors for industrial gates can be found on pages 46/47.



*When your foot is in the door,
be on the safe side!
Whether monitoring or
positioning elevators – your
protection is the number one
priority. Trust in **INVISIBLE
PROTECTION** and let us take
you safely and comfortably
to the next level.*



CONTINUOUS MONITORING AND RELIABLE POSITIONING OF ELEVATORS

Your protection is paramount in this area. When operating elevators, it is essential that the elevator door does not collide with or injure passengers when closing.

Our narrow elevator light grid enables reliable protection in relation to elevator doors, passenger monitoring and access control. The special features include dynamic beam crossing with up to 135 active beams, reliable object detection down to a distance of zero millimeters, and extremely high resistance to ambient light. These fulfill the demanding requirements of the popular glass elevators that are synonymous with modern architecture and innovative technology.

These systems continue to fulfill the most recent standards in accordance with EN81-70 and EN12016. These reliable light grid solutions not only provide convenience and protection for elevator passengers, they are also a cost-effective investment in terms of installation, setup, and maintenance. Typical fields of application include hotels, skyscrapers, shopping malls, hospitals, and retirement homes.

Single-beam sensors offer a simpler and more economic option for protecting the cab doors. The extra slim and yet robust housing enables mounting in the narrowest of gaps in door frames or other spaces. A selection of single-beam sensors in small housings or with a universal voltage supply are available.

A precise load-independent positioning of the elevator cab, soft braking, and smooth travel also add to the comfortable operation of elevators. With a broad range of sensor technologies, Pepperl+Fuchs can respond to the requirements of each individual application. The range extends from simple photoelectric slot sensors, rotary encoders, and special slot-type initiators to extremely precise distance measurement devices and positioning systems that are accurate to the millimeter - non-contact and comprehensive.



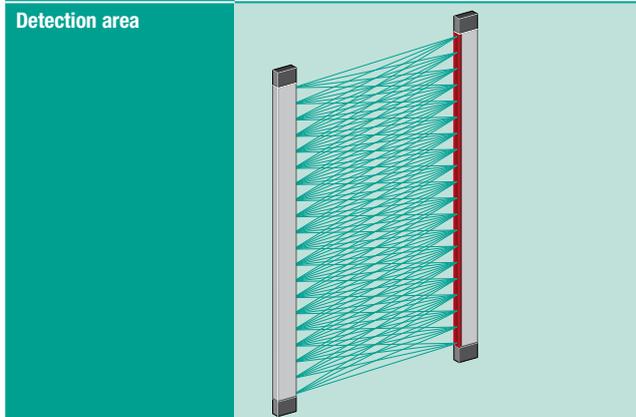
Series	ML17 SERIES	GLV18/GLK18 SERIES	28 SERIES/29 SERIES
Functional principle	Retroreflective and thru-beam sensors	Retroreflective and thru-beam sensors	Retroreflective sensors
Description	Miniature photoelectric sensor for detecting people, objects and vehicles can be installed anywhere	Single-beam M18 cylindrical sensor for detecting people, objects and vehicles	Robust compact photoelectric sensor with long sensing range for detecting people, objects and vehicles
Function	Protection	Protection	Protection
Detection area	<p>Thru-beam</p> <p>Retroreflective</p>	<p>Thru-beam</p> <p>Retroreflective</p>	<p>Retroreflective</p>
Technical specifications	<ul style="list-style-type: none"> ■ Compact universal housing for front mounting with M18 thread and thru-holes for side mounting ■ Ideal for installation in frames or profiles ■ Robust and waterproof ■ Adjustable sensitivity 	<ul style="list-style-type: none"> ■ Sturdy plastic M18 housing ■ Ideal for installation in frames or profiles ■ Flush installation mounting set available ■ Straight or right-angled optical light exit ■ Most compact and economic universal voltage device on the market ■ Mounting equipment included with delivery 	<ul style="list-style-type: none"> ■ Robust and waterproof housing with multiple mounting options ■ Long sensing ranges ■ No discernible interference emissions on any frequencies ■ Immune to ambient lighting ■ Particularly immune to interference from service radios and mobile phones
Diameter of the light spot	–	Approx. 200 mm at 5.5 m	Approx. 290 mm at 17 m
Sensing range	Thru-beam: 20 m Retroreflective: 5 m	Thru-beam: 25 m Retroreflective: 8 m	14 m/17 m/21 m/42 m
Operating voltage	10 to 30 V DC	GLV18: 10 to 30 V DC GLK18: 20 to 250 V AC/DC	12 to 240 V AC/DC
Switching output	2 push-pull outputs	GLV18: PNP or NPN GLK18: N-channel MOSFET	Relay
Operating temperature	-20 °C to 55 °C	-20 °C to 60 °C	-20 °C to 60 °C
Connection	M8 quick disconnect or fixed cable	M12 quick disconnect or fixed cable	Terminal compartment
Dimensions	29 mm x 15 mm x 34.5 mm	39.6 mm x 18 mm or 69 mm x 18 mm	25.8 mm x 88 mm x 54 mm
Versions	<ul style="list-style-type: none"> ■ Thru-beam sensor ■ Retroreflective sensor ■ Quick disconnect ■ Fixed cable connection 	<ul style="list-style-type: none"> ■ Test input ■ PNP output ■ NPN output ■ Operating voltage DC ■ Operating voltage AC/DC 	<ul style="list-style-type: none"> ■ Laser light or red light ■ Adjustable timer functions ■ Light-on ■ Dark-on ■ Set with mounting set and reflector ■ Version for safety devices on fire doors (approval in accordance with VdS test report FSA)

		
31 SERIES	91 SERIES	BB10
Retroreflective sensors	Retroreflective sensors	Thru-beam sensors
Basic photoelectric sensor with universal voltage for detecting people, objects and vehicles	Basic photoelectric sensor with universal voltage for detecting people, objects and vehicles	Hold-beam photoelectric sensors in plug-in housing for 13 mm hole
Protection	Protection	Protection
		
<ul style="list-style-type: none"> ■ Robust and waterproof ultrasonically welded housing ■ Good optical service data despite narrow housing ■ Very user-friendly due to simple settings and alignment ■ Immune to ambient lighting 	<ul style="list-style-type: none"> ■ Slim housing suitable for small columns ■ Sturdy plastic housing ■ Various mounting options 	<ul style="list-style-type: none"> ■ Very compact model ■ Infrared light ■ Integral circuit with no external control interface unit ■ Narrow opening angle suitable for mounting in pairs ■ Test input
Approx. 240 mm at 8 m	Approx. 160 mm at 4 m	Approx. 1,300 mm at 6 m
12 m or 16.5 m	Max. 9 m	Max. 8 m
24 to 240 V DC/12 to 240 V AC	RL: 12 to 30 V DC RLK: 96 ... 264 V AC RL/38a: 12 to 30 V DC/18 to 28 V AC	10 to 30 V DC
Relay	RL: 1 NPN/1 PNP RLK: Relay	1 NPN or 1 PNP
-25 °C to 55 °C	-25 °C to 55 °C	-40 °C to 60 °C
Fixed cable	M12 quick disconnect or fixed cable	Fixed cable
18 mm x 62 mm x 35 mm	19.5 mm x 85 mm x 50 mm	22 mm x 12.5 mm x 12.5 mm
<ul style="list-style-type: none"> ■ Light-on ■ Dark-on ■ Set with mounting set and reflector 	<ul style="list-style-type: none"> ■ Operating voltage DC with NPN/PNP ■ Operating voltage AC with relay ■ Operating voltage AC/DC with relay ■ Infrared light ■ Red light ■ Light-on ■ Dark-on ■ Quick disconnect ■ Fixed cable connection 	<ul style="list-style-type: none"> ■ PNP output ■ NPN output ■ Light-on ■ Dark-on



Series	AL2109
Functional principle	Thru-beam light grids
Description	Light grid with fine resolution for detecting people and objects 

Function	Protection
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Technical specifications	<ul style="list-style-type: none"> ■ Conformity to EN 81-70 and EN 12015/16 ■ Integrated controller ■ Infrared light ■ Extremely dense monitoring field with 135 beams and up to 7 times crossover ■ Object detection up to 'zero distance' ■ Automatic adjustment of beam configuration ■ Blanking of defective beams ■ Insensitive to reflection and ambient light
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Detection area	Field height 1.8 m
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Sensing range	Max. 3.5 m
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Operating voltage	11 to 30 V DC
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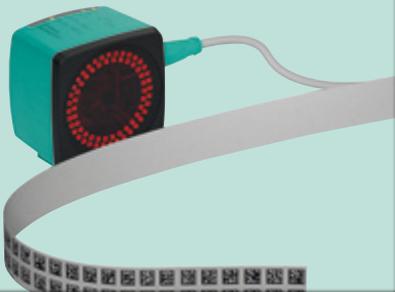
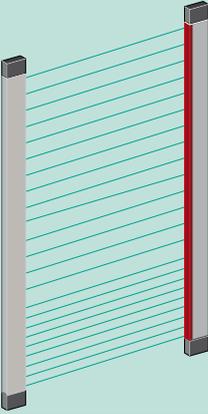
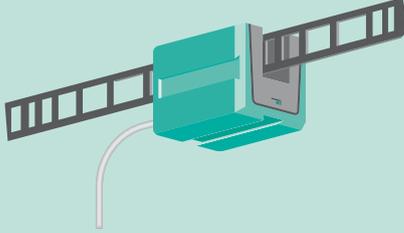
Switching output	1 PNP/1 NPN
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Operating temperature	-10 °C to 55 °C
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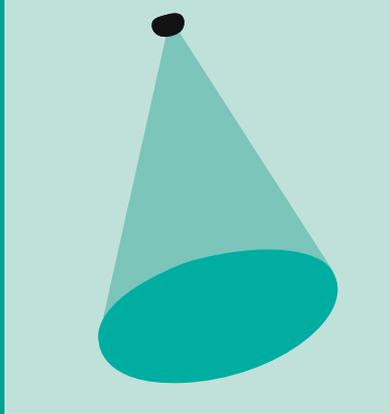
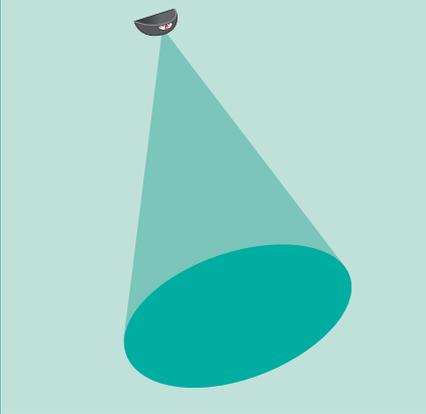
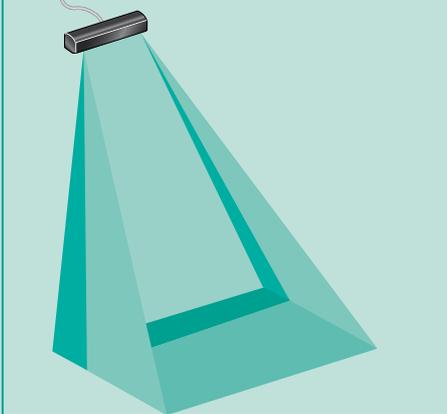
Connection	Fixed cable or M8 quick disconnect
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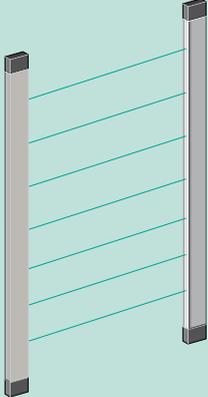
Dimensions	9 mm x 34 mm x 2 m
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Versions	<ul style="list-style-type: none"> ■ Light-on ■ Dark-on ■ Quick disconnect ■ Fixed cable connection ■ Version with ATEX approval for zone 2 and 22 (TÜV 08 ATEX 554855 X)
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AL20/AL40	PCV	WCS
Thru-beam light grids	Incident light positioning system	Positioning systems
Light grid with high sensing range for detecting people and objects	Reliable position detection system with 2D code tape and the latest camera technology	Non-contact, absolute position detection system
Protection	Opening and protection	Protection
		
<ul style="list-style-type: none"> ■ Integrated controller ■ Infrared light ■ Dense sensor field enables detection of small objects ■ Automatic adjustment of beam configuration for maximum resolution ■ Operation and status LEDs ■ Insensitive to reflection and ambient light ■ Blanking of defective beams 	<ul style="list-style-type: none"> ■ Absolute positioning system on 2 axes ■ Noncontact, silent, and wear-free ■ Output of position, speed and other customer information ■ Extremely reliable positioning using Data Matrix codes ■ Self-adhesive code strip for fast installation 	<ul style="list-style-type: none"> ■ Absolute and non-contact measurement ■ Optimized for control and elevator systems ■ Reliable position calculation at object speeds of up to 12.5 m/s ■ Output of position and speed ■ Slip-free system ■ Self-diagnostics and automatic dirty/dusty lens recognition
Field height 1.65 m	Read field: 40 mm x 25 mm	Measuring length: Max. 327 m
Max. 5.6 m	Read distance: 80 mm	—
12 to 30 V DC	15 to 30 V DC	10 to 30 V DC
1 PNP/1 NPN	1 to 3 switching outputs, PNP	—
-10 °C to 60 °C	-10 °C to 40 °C	0 to 60 °C
Fixed cable or M12 pigtail	M12 quick disconnect	M12 quick disconnect
Profile width x 30 mm x 2 mm	70 mm x 70 mm x 50 mm	90 mm x 99 mm x 115 mm
<ul style="list-style-type: none"> ■ Profile width 12 mm (ALXX12) ■ Profile width 16 mm (ALXX16) ■ Beam gap 20 to 44 mm (AL20XX) ■ Beam gap 40 to 88 mm (AL40XX) ■ Pigtail connector ■ Fixed cable connection 	<ul style="list-style-type: none"> ■ Read head with RS422 and RS485 interface ■ Data Matrix code strip up to 10 km long 	<ul style="list-style-type: none"> ■ Read head with RS485 interface ■ Stainless steel code rail up to 314.5 m long



Series	RADEC	RMS	FLT-D
Functional principle	Radar sensors	Radar sensors	Active infrared area scanners
Description	Standard microwave motion sensor with basic functionality	Premium microwave motion sensor with intelligent additional functions	Area sensors with two detection fields
Function	Monitoring	Monitoring	Monitoring
Detection area			
Technical specifications	<ul style="list-style-type: none"> ■ Reliable movement detection of people and vehicles ■ Adjustable sensitivity ■ Modifiable detection area ■ Direction monitoring ■ Cross-traffic suppression ■ Wall and ceiling mountable 	<ul style="list-style-type: none"> ■ Reliable movement detection of people and vehicles ■ Easily programmable with DIP switch and 16 pre-programmed basic settings ■ Direction monitoring ■ Cross-traffic suppression ■ Turtle mode 	<ul style="list-style-type: none"> ■ Continuous area detection with 20 programmable detection fields ■ Teach-in mode ■ Configuration of field sizes, teach-in mode, sensitivity, switch type and master/slave operation ■ Test item detection in accordance with EN 12650
Detection area	4.5 m x 2 m/2 m x 4.5 m	4.5 m x 2 m/2.5 m x 3 m/4 m x 2 m	2.2 m x 1.5 m (full field)
Installation height	Max. 4 m	Max. 4 m	Max. 2.2 m
Operating voltage	12 to 36 V DC/12 to 38 V AC	12 to 36 V DC/ 12 to 38 V AC	12 to 31 V DC/ 12 to 30 V AC
Switching output	Relay	Relay	Relay
Operating temperature	-20 °C to 60 °C	-20 °C to 60 °C	-20 °C to 60 °C
Connection	Connector strip with 2.5 m connecting cable	Connector strip with 5 m connecting cable	Terminal block
Dimensions	101 mm x 60 mm x 59 mm	123 mm x 65 mm x 57 mm	250 mm x 60 mm x 45 mm
Versions	<ul style="list-style-type: none"> ■ Mono (no direction detection) ■ Stereo (with direction detection) ■ Black housing ■ Silver housing ■ White housing 	<ul style="list-style-type: none"> ■ Mono (no direction detection) ■ Stereo (with direction detection) ■ Extra wide detection area ■ Remote controllable ■ FCC approval for North America ■ Black housing ■ White housing 	

		
FLT-8	PIR20	SLCT SERIES
Active infrared area scanners	Passive infrared scanners	Safety light grid
Area scanners with long detection range for detecting people and objects	Presence sensors based on infrared thermal radiation for detecting people	Narrow safety light grid with TÜV approval for detecting people and vehicles 
Monitoring	Monitoring	Protection
		
<ul style="list-style-type: none"> ■ 3 or 4 beams in a housing form the detection area ■ 500 mm x 500 mm maximum detection range ■ Various operating modes: Background suppression ignores objects beyond a selected area/background evaluation uses background as reference to detect difficult objects 	<ul style="list-style-type: none"> ■ Detection of people by modifying the thermal image +/-0.5 °C ■ Operates only in the event of motion ■ Compact design ■ Precise and continuous adjustment of the detection field through aperture and zoom function ■ Suitable for flush-mounting 	<ul style="list-style-type: none"> ■ Protection field height of 200 mm to 2,400 mm ■ Type 2 according to EN ISO/IEC 61496-1 ■ Extremely slim housing ■ Integrated evaluation ■ Immune to ambient lighting ■ Installable on three sides
500 mm x 500 mm/50 mm x 500 mm/300 mm x 500 mm	1.8 m x 2.6 m	Protection field height 200 mm to 2,400 mm in 100 mm steps
Max. 2.8 m	Max. 5 m	Max. 8 m
15 to 48 V DC/ 15 to 48 V AC/DC	12 to 30 V DC/12 to 24 V DC	24 V DC
2 PNP or 1 NPN/1 PNP or relay	Relay	PNP
-20 °C to 60 °C	-20 °C to 60 °C	-30 °C to 60 °C
M16 quick disconnect or fixed cable	Screw terminals	M12 quick disconnect
150 mm x 64 mm x 52 mm	56 mm x 23 mm x 45 mm	20 mm x 30 mm x protection field height + 119 mm
<ul style="list-style-type: none"> ■ Background suppression (-H) ■ Background evaluation (-HW) ■ Counter function and direction detection (CLS) ■ Operating voltage DC with NPN/PNP output ■ Operating voltage DC with 2 PNP outputs ■ Operating voltage AC/DC with relay output ■ Light-on or dark-on switching ■ Quick disconnect or fixed cable connection 	<ul style="list-style-type: none"> ■ Black housing ■ White housing 	<ul style="list-style-type: none"> ■ Different protection field heights ■ Resolution 30 mm ■ Resolution 90 mm



Series	VDM28	VDM100
Functional principle	Distance sensors	Distance measurement devices
Description	Optical laser distance sensors for long sensing ranges, can be used in difficult ambient conditions	Optical laser distance measurement devices for long sensing ranges for accurate positioning of elevator car
Function	Positioning	Positioning
Detection area		
Technical specifications	<ul style="list-style-type: none"> Extremely resistant to interference due to direct Pulse Ranging Technology (PRT) measurement process Short response time High repeat accuracy Largely independent of measuring environment Not impaired by dust, fog, or extraneous light For low-temperature applications to -30 °C 	<ul style="list-style-type: none"> Noncontact position measurement with direct Pulse Ranging Technology (PRT) measurement process Ultrafast data acquisition Resistant to interference and ambient light Long sensing ranges SSI interface Simple configuration
Detection area	Diameter of the light spot < 10 mm at 8 m	Diameter of the light spot approx. 15 cm at 50 m
Mounting height/ Sensing range	Sensing range 50 m to reflector Sensing range 8 m or 15 m to background	Sensing range: 50 m/150 m/300 m
Operating voltage	10 to 30 V DC	18 to 30 V DC
Switching output	1 push-pull output + analogue output 2 push-pull outputs	2 PNP in/outputs, independent
Operating temperature	-30 °C to 50 °C	-10 °C to 50 °C
Connection	M12 quick disconnect or fixed cable	M12 quick disconnect
Dimensions	25.8 mm x 88 mm x 55 mm	170 mm x 140 mm x 100 mm
Versions	<ul style="list-style-type: none"> Sensing range 50 m (to reflector) Sensing range 15 m Sensing range 8 m Laser class 1 or 2 Push-pull and analog output 2 push-pull outputs Quick disconnect Fixed cable connection 	<ul style="list-style-type: none"> Sensing range 50 m Sensing range 150 m Sensing range 300 m



GL SERIES

SJ15/SJ30 SERIES

VARIKONT L

Photoelectric slot sensors

Inductive slot sensors

Inductive sensor

Photoelectric slot sensor for non-contact and easy positioning of elevators



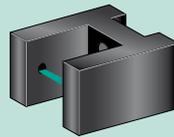
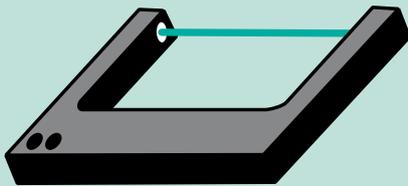
Slot initiators for non-contact end position control

Inductive compact sensors for non-contact detection of metallic objects

Positioning

Positioning

Positioning



- High switching frequency
- Simple electric installation as only one device needs to be wired
- No calibration of the optical axes required
- Robust and wear-free
- Immune to ambient lighting

- Suitable for positioning of elevators
- Very accurate switching points
- Simple electric installation as only one device needs to be wired
- No calibration required

- Cube design
- Tool-free, quick mounting with new quick-clamping lever
- Flexible targeting with rotating and swiveling sensor head
- Long switching distances up to 40 mm
- Operating mode recognizable from all angles with unique four-corner LEDs
- Degree of protection IP69K

Slot widths: 10 mm/20 mm/30 mm/50 mm/80 mm/120 mm/220 mm

Slot width 15 mm or 30 mm

Flush sensing range: 20 mm
Nonflush sensing range: 40 mm

–

–

Switching element function: PNP complimentary

10 to 30 V DC

10 to 30 V DC or 20 to 253 V AC

10 to 30 V DC

1 PNP

PNP or 2-wire AC

4-wire DC

-10 °C to 60 °C

-20 °C to 60 °C

-25 °C to 85 °C

M8 quick disconnect

Fixed cable

M12 quick disconnect

39.6 mm x 18 mm or 69 mm x 18 mm

48 mm x 30 mm x 60 mm (SJ15), 34mm x 51mm x 110mm (SJ30)

67 mm x 40 mm x 40 mm

- Various slot widths from 10 mm to 220 mm
- Infrared light (-IR)
- Red light (-RT)
- Laser light (-LAS)
- EX-version with ATEX approval for zone 2

- Slot width 15 mm (SJ15)
- Slot width 30 mm (SJ30)
- PNP output
- 2-wire AC NC contact
- 2-wire AC NO contact

- NBB20-L2M-A2-V1
- NBN40-L2M-A2-V1

INDUCTIVE SENSORS

Our range of inductive sensors for elevators can be found on pages 46/47.

ROTARY ENCODER FOR ELEVATORS



Series	RHI58N	RH190	RSI58/RVI58
Functional principle	Incremental rotary encoder	Incremental rotary encoder	Incremental rotary encoder
Description	Basic hollow shaft rotary encoder for high-quality rotational speed control and precise positioning	Special hollow shaft rotary encoder for high-quality rotational speed control in elevator construction	Recessed hollow shaft rotary encoder for high-quality rotational speed control and precise positioning
Function	Positioning/rotational speed	Positioning/rotational speed	Positioning/rotational speed



Technical specifications	<ul style="list-style-type: none"> ■ European industrial standard \varnothing 58 mm ■ Hollow shafts \varnothing 10, 12, 15 mm ■ Up to 50,000 pulses/revolution 	<ul style="list-style-type: none"> ■ Compact design \varnothing 90 mm ■ Hollow shafts \varnothing 16, 20, 24, 25, 30, 38, 45 mm ■ Up to 50,000 pulses/revolution ■ Very high resolution and accuracy 	<ul style="list-style-type: none"> ■ European industrial standard \varnothing 58 mm ■ Recessed hollow shaft 10 and 12 mm ■ Solid shaft 6 and 10 mm ■ Servo flange or clamping flange ■ Up to 50,000 pulses/revolution
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Pulse count	Max. 50,000	Max. 50,000	Max. 50,000
Output/interface	Push-pull or RS422	Push-pull or RS422	Push-pull or RS422
Operating voltage	10 ... 30 V DC or 5 V DC	10 to 30 V DC or 5 V DC	10 to 30 V DC or 5 V DC
Max. rotational speed	max. 6,000 min ⁻¹	Max. 3,500 min ⁻¹	Max. 12,000 min ⁻¹
Operating temperature	-5 °C to 80 °C (flexible cables) -20 °C to 80 °C (fixed cables)	-5 °C to 70 °C (flexible cables) -20 °C to 70 °C (fixed cables)	-5 °C to 80 °C (flexible cables) -20 °C to 80 °C (fixed cables)
Connection	Fixed cable	Fixed cable and quick disconnect type 9416	Fixed cable and quick disconnect type 9416
Dimensions	\varnothing 58 mm x 38 mm	\varnothing 90 mm x 48.5 mm	RSI: \varnothing 58 mm x 44 mm RVI: \varnothing 58 mm x 46 mm

Versions	<ul style="list-style-type: none"> ■ Push-pull output ■ 5 V with RS422 interface ■ 10 to 30 V with RS422 interface 	<ul style="list-style-type: none"> ■ Push-pull output ■ 5 V with RS422 interface ■ 10 to 30 V with RS422 interface 	<ul style="list-style-type: none"> ■ Push-pull output ■ 5 V with RS422 interface ■ 10 to 30 V with RS422 interface
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TVI40/TVI50

Incremental rotary encoder

Small-scale solid shaft rotary encoder for precise detection of rotational speed and positioning

Positioning/rotational speed

CXM58

Absolute rotary encoder

Absolute rotary encoder with application profile for elevator systems DSP417 (lift profile)

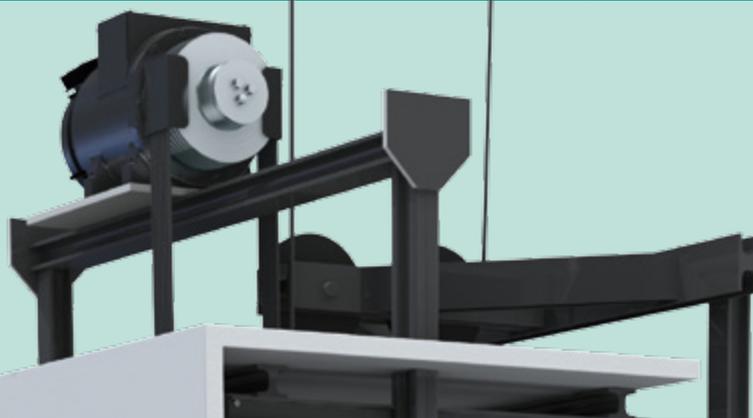
Positioning

CVM58S

Safety absolute rotary encoder

Rotational speed with integrated functional safety for safe stop and safe rotational speed in conjunction with safe control

Reliable positioning



- Robust and compact design
- Solid shaft
- Up to 1024 pulses/revolution
- Resilient metal disk
- Favourable target/line device

Max. 1,024

Push-pull/RS422 interface with 5 V

4.75 to 30 V DC

Max. 6,000 min⁻¹

-10 °C to 70 °C

Fixed cable

TVI40: ø 40 mm x 37 mm
TVI50: ø 50 mm x 39 mm

- Push-pull output
- 5 V with RS422 interface

- European industrial standard ø 58 mm
- DSP 406, Class 1 and 2
- Galvanically isolated CANopen interface
- Addressing via DIP switch in removable housing cover
- Two end switches

Transfer rate: max. 1 MBit/s

CANopen interface

10 to 30 V DC

max. 12,000 min⁻¹

-40 °C to 85 °C

Terminal compartment

Multiturn: ø 58 mm x 110 mm
Single turn: ø 58 mm x 94 mm

- Multiturn resolution 14 Bit
- Total resolution 30 bit
- Recessed hollow shaft
- Solid shaft

- European industrial standard ø 58 mm
- DSP 406/301/304, Class 1 and 2
- Galvanically isolated CANopen interface
- SIL3 according to EN ISO/IEC 62061
- PI e according to EN ISO/IEC 13849-1
- Servo flange or clamping flange
- Two end switches

Transfer rate: max. 1 MBit/s

CANopen interface

10 to 30 V DC

max. 12,000 min⁻¹

-30 °C to 70 °C

Terminal compartment

Multiturn: ø 58 mm x 138 mm
Single turn: ø 58 mm x 122 mm

- Multiturn resolution 14 Bit
- Total resolution 30 bit
- Servo flange or clamping flange



*Do you want to restrict or allow access?
Trust in INVISIBLE PROTECTION and let us
provide a non-contact solution for
trouble-free and secure access.*



EFFICIENCY AND SERVICE FOR ESCALATORS

Escalators make our day-to-day life easier. To reduce energy costs and save on wear, it is helpful if they stop or operate at a reduced speed when not in use. They should then start operation again as soon as someone steps on them. Our small standard photoelectric or motion sensors enable the escalators to automatically start as soon as people are detected.



COMMERCIAL AND INDUSTRIAL GATE SYSTEMS

Commercial and industrial gate systems provide optimal security and guarantee efficient control of entrance and exit areas. Various sensors and systems help in this regard as activation sensors and to monitor the gate closing areas.

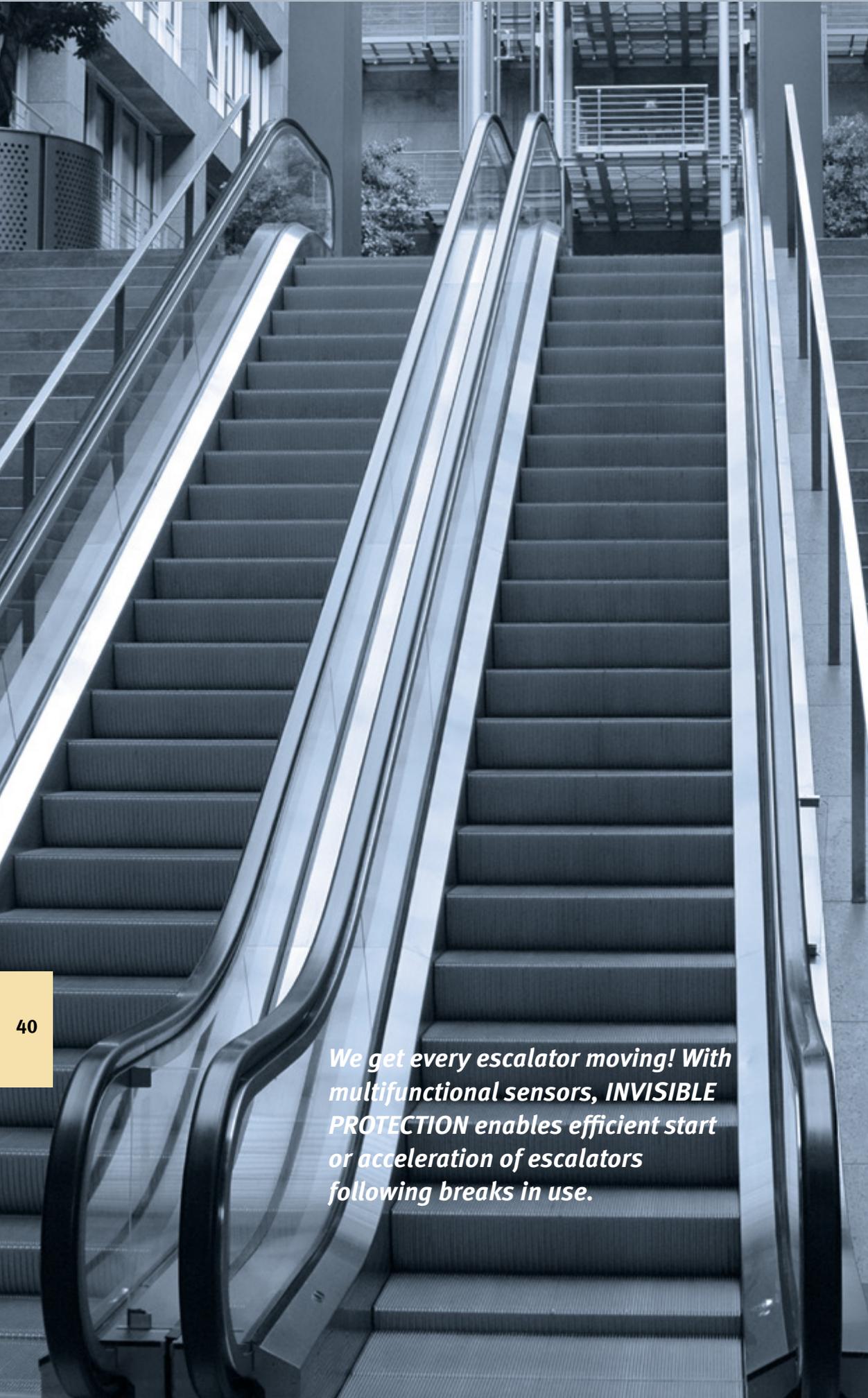


PROTECTION WITH FIRE DOORS: IGNORES SMOKE AND DETECTS PEOPLE

Fire barriers such as fire doors and fire dampers are designed to prevent fires and smoke from spreading along corridors, passages or chutes. This kind of barrier usually remains permanently closed, but can stay open in exceptional cases if the protected route is used very frequently. However, an automatic closing mechanism with a safety monitor is then required.

Pepperl+Fuchs' multifunctional fire protection sensors offer greater reliability and a wider range of functions for applications of this nature.

The Property Insurers Association has certified and approved these sensors in accordance with VdS test report FSA.



*We get every escalator moving! With multifunctional sensors, **INVISIBLE PROTECTION** enables efficient start or acceleration of escalators following breaks in use.*

Series

Functional principle

Description

Function

Detection area

Technical specifications

Detection area

Mounting height/
Sensing range

Operating voltage

Switching output

Operating temperature

Connection

Dimensions

Versions



RADEC	ML8 SERIES	BB10
Radar sensors	Thru-beam sensors	Thru-beam sensors
Standard microwave motion sensor with basic functionality	Basic miniature photoelectric sensor for detecting people, objects, and vehicles	Miniature phototoelectric photoelectric sensors in plug-in housing for 13 mm hole
Activation	Activation	Activation
		
<ul style="list-style-type: none"> ■ Reliable movement detection of people and vehicles ■ Adjustable sensitivity ■ Modifiable detection area ■ Direction monitoring ■ Cross-traffic suppression ■ Wall and ceiling mountable 	<ul style="list-style-type: none"> ■ Miniature design, robust and waterproof ■ Ideal for installation in door frames or profiles ■ Flexible mounting options 	<ul style="list-style-type: none"> ■ Very compact model ■ Infrared light ■ Integral circuit with no external control interface unit ■ Narrow opening angle suitable for mounting in pairs ■ Test input
4.5 m x 2 m	Diameter of the light spot approx. 180 mm at 3.5 m	Diameter of the light spot 1300 mm at 6 m
Max. 4 m	Sensing range: max. 4.5 m	Sensing range: max. 8 m
12 to 36 V DC/12 to 38 V AC	10 to 30 V DC	10 to 30 V DC
Relay	1 PNP	1 NPN or 1 PNP
-20 °C to 60 °C	-30 °C to 55 °C	-40 °C to 60 °C
Connector strip with 2.5 m connecting cable	M8 quick disconnect or fixed cable	Fixed cable
101 mm x 60 mm x 59 mm	23 mm x 31 mm x 11 mm	22 mm x 12.5 mm x 12.5 mm
<ul style="list-style-type: none"> ■ Mono (no direction detection) ■ Stereo (with direction detection) ■ Black housing ■ Silver housing ■ White housing 	<ul style="list-style-type: none"> ■ Quick disconnect ■ Fixed cable connection 	<ul style="list-style-type: none"> ■ PNP output ■ NPN output ■ Light on ■ Dark on



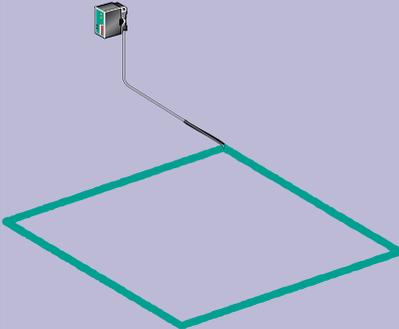
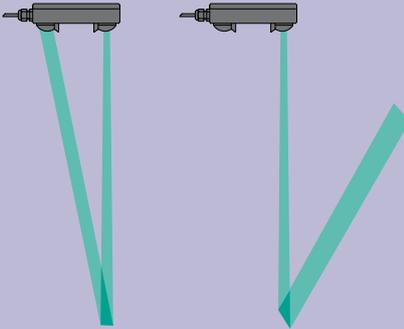
*Fire doors close automatically in the event of a fire and can only be opened to leave the building. Our fire protection sensors ignore smoke and reliably detect people and objects. **INVISIBLE PROTECTION** provides reliable operation even in the event of a fire.*

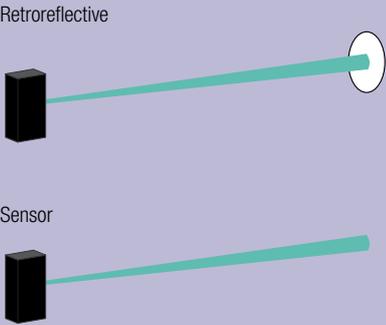
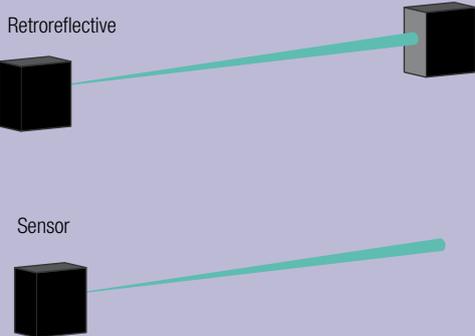


Series	MLV12 SERIES	28 SERIES
Functional principle	Retroreflective sensors	Retroreflective and thru-beam sensors
Description	Small-scale fire protection sensor	Compact fire protection sensor
Function	Protection	Protection
Detection area		 
Technical specifications	<ul style="list-style-type: none"> ■ Approval in accordance with VdS test report FSA and externally monitored manufacture ■ In the event of fire, smoke is ignored but people and objects in smoke are reliably detected ■ High contact protection ■ Immune to ambient lighting ■ Multiple device installation possible, no cross-talk 	<ul style="list-style-type: none"> ■ Approval in accordance with VdS test report FSA and externally monitored manufacture ■ In the event of fire, smoke is ignored but people and objects in smoke are reliably detected ■ Immune to ambient lighting ■ Multiple device installation possible, no cross-talk
Diameter of the light spot	Approx. 70 mm at 2 m	Approx. 50 mm at 3 m
Sensing range	Max. 2.1 m	Thru-beam: max. 10 m Retroreflective: max. 3 m
Operating voltage	10 to 30 V DC	12 to 240 V AC/DC
Switching output	1 PNP and 1 NPN	Relay
Operating temperature	-40 °C to 60 °C	-40 °C to 60 °C
Connection	M12 quick disconnect (can be turned 90°)	Terminal compartment with cage tension spring terminals
Dimensions	41.5 mm x 49 mm x 15 mm	25.8 mm x 88 mm x 65.5 mm
Versions		<ul style="list-style-type: none"> ■ Thru-beam sensor ■ Retroreflective sensor

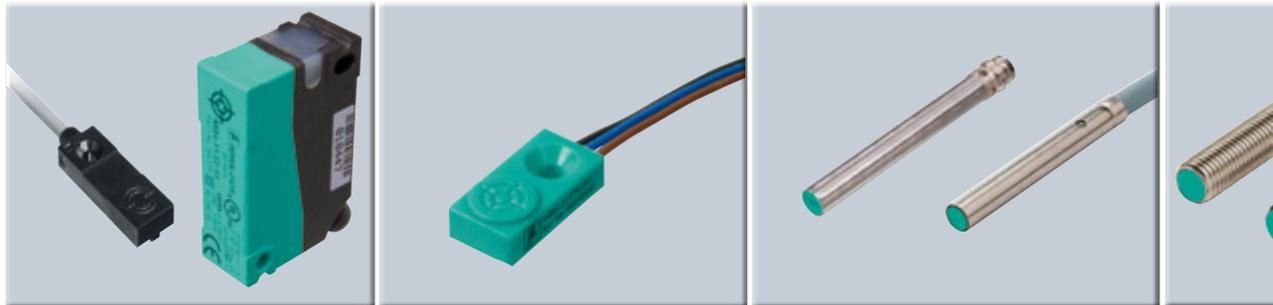
SENSORS FOR COMMERCIAL AND INDUSTRIAL GATE SYSTEMS



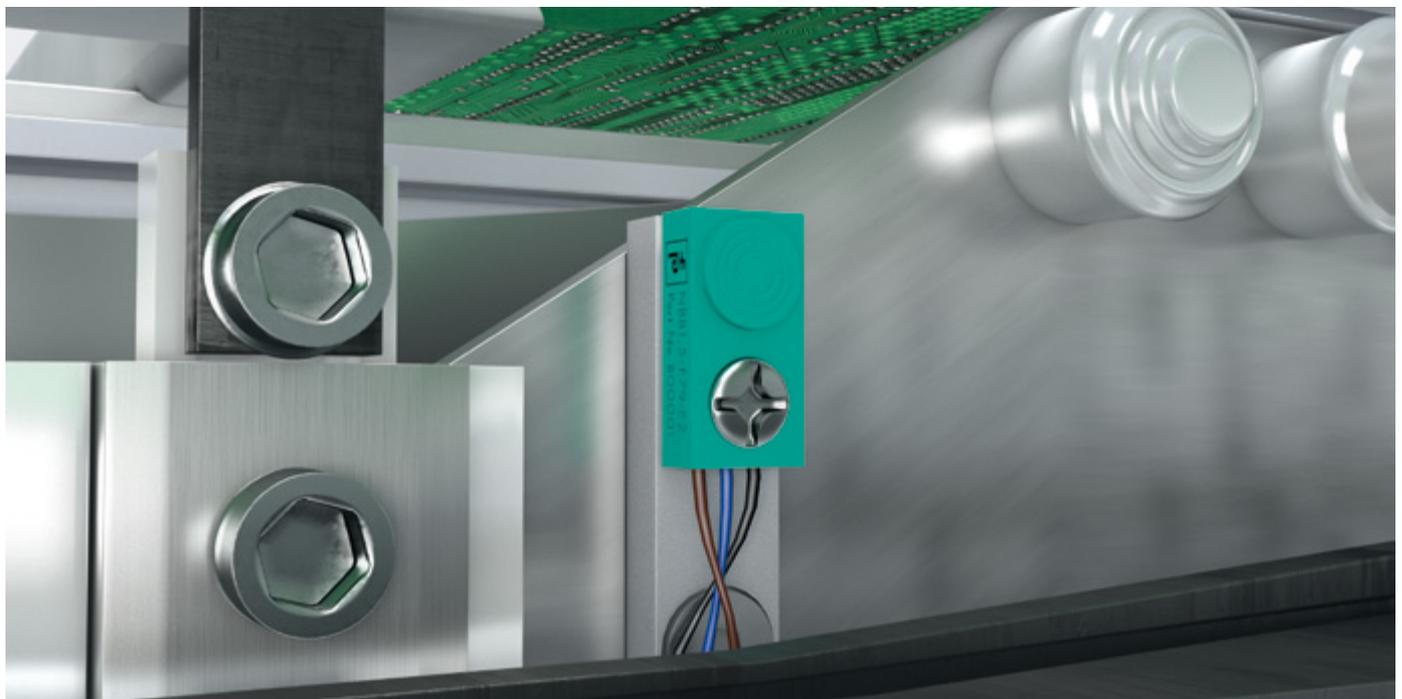
Series	VDM28	LC10	LT2 · LTK2
Functional principle	Distance sensors	Loop detectors	Active infrared scanners
Description	Optical laser distance sensors for long sensing ranges, can be used in difficult ambient conditions	Universal sensor systems for detecting vehicles	Precision sensors for very long detection range
Function	Open	Opening and protection	Protection
Detection area			
Advantages	<ul style="list-style-type: none"> ■ Extremely resistant to interference due to direct Pulse Ranging Technology (PRT) measurement process ■ Short response time ■ High repeat accuracy ■ Largely independent of measuring environment ■ Not impaired by dust, fog or extraneous light ■ For low-temperature applications to -30 °C 	<ul style="list-style-type: none"> ■ Complete control interface for wire loops laid in the floor ■ Reliable detection of vehicles from long distances ■ Various operating modes ■ Test function ■ Boost function to increase sensitivity ■ Fault indications in the event of loop breaking or short circuit 	<ul style="list-style-type: none"> ■ Choice of operating modes: Background suppression ignores objects/background evaluation uses the background as reference to detect difficult targets ■ Adjustable detection range and timer functions ■ Test input
Diameter of the light spot	<10 mm at 8 m	Loop inductance 100 to 1000 µH Loop frequency 20 to 120 kHz	Approx. 150 mm at 6 m
Mounting height/ Sensing range	8 m or 15 m to background	Sensing range depends on wire loop laid	Max 6 m
Operating voltage	10 to 30 V DC	24 V DC/115 V AC/230 V AC/24 V AC	LT2: 15 to 35 V DC LTK2: 11 to 48 V DC/12 to 24 V AC
Switching output	1 push-pull output + analogue output 2 push-pull outputs	Relay	LT2: 2 PNP or 1 NPN/1 PNP LTK2: Relay
Operating temperature	-30 °C to 50 °C	-20 °C to 70 °C	-20 °C to 60 °C
Connection	M12 quick disconnect or fixed cable	Socket with terminal	M12 quick disconnect or fixed cable
Dimensions	25.8 mm x 88 mm x 55 mm	37.5 mm x 75 mm x 71 mm	150 mm x 64 mm x 49 mm
Versions	<ul style="list-style-type: none"> ■ Sensing range 15 m ■ Sensing range 8 m ■ Push-pull and analogue output ■ 2 push-pull outputs ■ Quick disconnect ■ Fixed cable connection 	<ul style="list-style-type: none"> ■ Operating voltage 24 V AC ■ Operating voltage 24 V DC ■ Operating voltage 115 V AC ■ Operating voltage 230 V AC ■ 1 loop channel ■ 2 loop channels ■ Direction detection 	<ul style="list-style-type: none"> ■ Operating voltage DC with NPN output ■ Operating voltage DC with PNP output ■ Operating voltage AC/DC with relay output ■ Quick disconnect ■ Fixed cable connection

		
28 SERIES/29 SERIES	31 SERIES	61 SERIES
Retroreflective sensors and diffuse mode sensors	Retroreflective sensors	Retroreflective sensors and diffuse mode sensors
Robust compact photoelectric sensor with long sensing range for detecting people, objects and vehicles	Basic photoelectric sensor with universal voltage for detecting people, objects and vehicles	Basic photoelectric sensor with universal voltage for detecting people, objects and vehicles
Protection	Protection	Protection
 <p>Retroreflective</p> <p>Sensor</p>	 <p>Retroreflective</p>	 <p>Retroreflective</p> <p>Sensor</p>
<ul style="list-style-type: none"> ■ Robust and waterproof housing with multiple mounting options ■ Long sensing ranges ■ No discernible interference emissions on any frequencies ■ Immune to ambient lighting ■ Particularly immune to interference from service radios and mobile phones 	<ul style="list-style-type: none"> ■ Robust and waterproof ultrasonically welded housing ■ Good optical service data despite narrow housing ■ Very user-friendly due to simple settings and alignment ■ Immune to ambient lighting 	<ul style="list-style-type: none"> ■ Robust and waterproof housing ■ Adjustable timer functions and operation modes ■ Sensitivity/test range adjuster ■ Immune to ambient lighting ■ Can be used in very low temperatures
Approx. 35 mm at 12 m	Approx. 200 mm at 6 m	Retroreflective sensor: approx. 350 mm at 18 m Diffuse mode sensors: 17 mm at 1 m
Retroreflective: 14 m/21 m Sensor: 700 mm/2000 mm	Max. 12 m	Retroreflective sensor: max. 25 m Diffuse mode sensors: max. 1.5 m or 4.7 m
RL28: 24 V DC RLK29: 24 to 230 V AC/DC	24 to 240 V DC/12 to 240 V AC	24 to 240 V DC/12 to 240 V AC
RL28: 2 PNP RLK29: Relay	Relay	Relay
-20 °C to 60 °C or -40 °C to 60 °C (RL28)	-25 °C to 55 °C	-40 °C to 55 °C
Terminal compartment or M12 quick disconnect or fixed cable	Fixed cable	M12 quick disconnect or fixed cable
25.8 mm x 88 mm x 54 mm	18 mm x 62 mm x 35 mm	45 mm x 74 mm x 49 mm
<ul style="list-style-type: none"> ■ Retroreflective sensor ■ Diffuse mode sensor ■ Light-on ■ Dark-on ■ With or without sensitivity adjuster ■ Terminal compartment, quick disconnect or fixed cable connection ■ Supplied with mounting set and reflector ■ Version with heated front lens (RL28) 	<ul style="list-style-type: none"> ■ Light-on ■ Dark-on ■ Supplied with mounting set and reflector 	<ul style="list-style-type: none"> ■ Retroreflective sensor ■ Diffuse mode sensor, energetic ■ Quick disconnect ■ Fixed cable connection

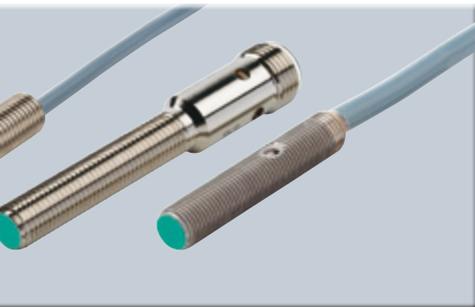
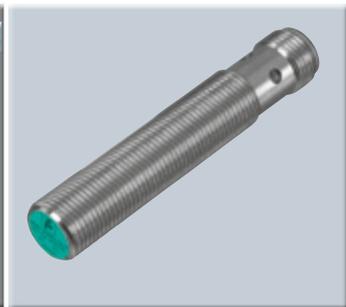
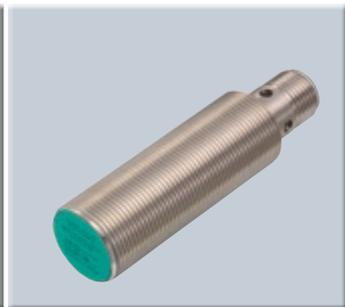
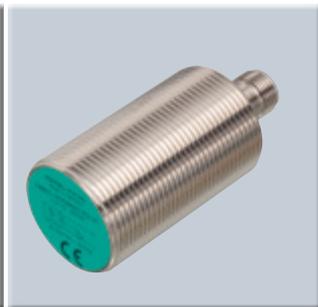
INDUCTIVE SENSORS FOR END POSITION CONTROL FOR AUTOMATIC DOORS,

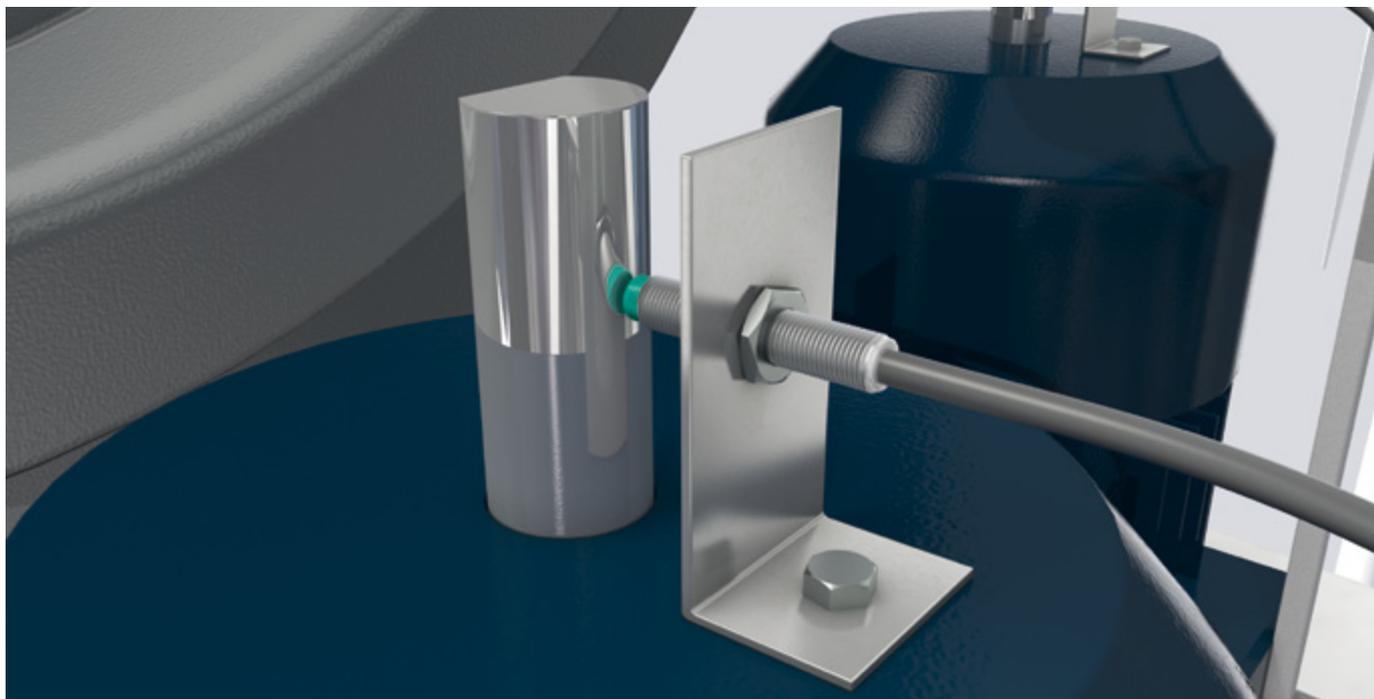


Series	F1 AND F29 SERIES	F79 SERIES	4M AND 6.5M SERIES	
Functional principle	Inductive sensors	Inductive sensors	Inductive sensors	
Description	Non-contact detection of metal objects	Non-contact detection of metal objects	Non-contact detection of metal objects	
Function	End position control of electromechanical actuators	End position control of electromechanical actuators	End position control of electromechanical actuators	
Model	Cube design	Flat, rectangular design	Cylindrical design Smooth housing	
Sensing range	Flush: 4 mm Non-flush: 4 mm or 8 mm	Flush: 1.5 mm	Flush: 0.8 mm or 2 mm	
Switching element function	PNP NO contact or NPN NO contact	PNP NO contact or NPN NO contact	PNP NO contact or NPN NO contact	
Operating voltage	10 to 30 V DC	10 to 30 V DC	10 to 30 V DC	
Output	3-wire DC	3-wire DC	3-wire DC	
Operating temperature	-25 °C to 70 °C	-25 °C to 70 °C	-25 °C to 70 °C	
Connection	M8 quick disconnect or fixed cable	Fixed cable	M8 quick disconnect or fixed cable	
Dimensions	26 mm x 40 mm x 12 mm	16 mm x 4 mm x 8 mm	ø 4 mm x 25 mm or ø 6.5 mm x 25 mm/30 mm	
Versions	<ul style="list-style-type: none"> ■ F1 design ■ F29 design ■ Quick disconnect ■ Fixed cable connection 		<ul style="list-style-type: none"> ■ Quick disconnect ■ Fixed cable connection 	



ELEVATORS, ESCALATORS AND GATE SYSTEMS

			
5GM AND 8GM SERIES	12GM SERIES	18GM SERIES	30GM SERIES
Inductive sensors	Inductive sensors	Inductive sensors	Inductive sensors
Non-contact detection of metal objects	Non-contact detection of metal objects	Non-contact detection of metal objects	Non-contact detection of metal objects
End position control of electromechanical actuators	End position control of electromechanical actuators	End position control of electromechanical actuators	End position control of electromechanical actuators
Cylindrical housing with M5 or M8 thread	Cylindrical housing with M12 thread	Cylindrical housing with M18 thread	Cylindrical housing with M30 thread
Flush: 0.8 mm or 1.5 mm or 2 mm Non-flush: 2 mm	Flush: 2 mm or 4 mm Non-flush: 4 mm	Flush: 5 mm or 8 mm Non-flush: 8 mm	Flush: 10 mm or 15 mm Non-flush: 15 mm
PNP NO contact or NPN NO contact	PNP NO contact or NPN NO contact	PNP NO contact or NPN NO contact	PNP NO contact or NPN NO contact
10 to 30 V DC	10 to 30 V DC	10 to 30 V DC	10 to 30 V DC
3-wire DC	3-wire DC	3-wire DC	3-wire DC
-25 °C to 70 °C	-25 °C to 70 °C	-25 °C to 70 °C or -40 °C to 40 °C	-25 °C to 70 °C or -40 °C to 40 °C
M8 or M12 quick disconnect or fixed cable	M12 quick disconnect or fixed cable	M12 quick disconnect or fixed cable	M12 quick disconnect or fixed cable
M5 x 25 mm M8 x 25 mm; 40 mm; 50 mm	M12 x 50 mm	M18 x 50 mm	M30 x 50 mm
<ul style="list-style-type: none"> ■ Quick disconnect ■ Fixed cable connection 	<ul style="list-style-type: none"> ■ Quick disconnect ■ Fixed cable connection 	<ul style="list-style-type: none"> ■ Quick disconnect ■ Fixed cable connection ■ Extended temperature range to -40 °C 	<ul style="list-style-type: none"> ■ Quick disconnect ■ Fixed cable connection ■ Extended temperature range to -40 °C



YOUR APPLICATION. OUR CHALLENGE.

PROCESS INTERFACES

- Intrinsically safe barriers
- Signal conditioners
- Fieldbus infrastructure
- Remote I/O systems
- HART interface solutions
- Wireless solutions
- Level measurement
- Purge and pressurization systems
- Industrial monitors and HMI solutions
- Explosion protection equipment
- Solutions with process interfaces

INDUSTRIAL SENSORS

- Proximity sensors
- Photoelectric sensors
- Industrial vision
- Ultrasonic sensors
- Rotary encoders
- Positioning systems
- Inclination and acceleration sensors
- AS-Interface
- Identification systems
- Logic control units

