



# Solutions for Elevators & Escalators



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# INTRODUCTION

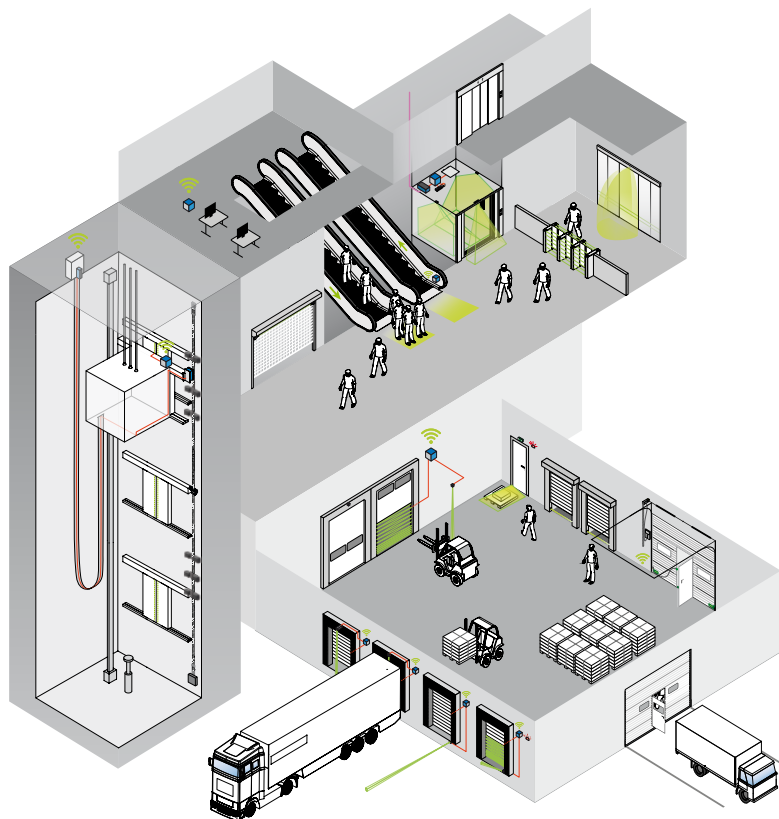
## YOUR PARTNER OF CHOICE - TODAY AND TOMORROW

With our deep domain expertise in the elevator industry and our tireless curiosity, we aim to predict the future needs of our customers and strive to find practical solutions that others haven't considered. This has led to industry-wide innovations such as 3D camera devices for entrance area monitoring or complete SIL3-certified positioning and safety systems.

Together with our trusted partners, we are applying this foresight in the first predictive maintenance platform for elevators based on an IoT-enabling light curtain. Our solution is easy to install and connects all assets in a portfolio, regardless of their brand or age. It opens up great opportunities for additional revenue streams, cost savings and efficiency gains.



This is the first step in our IoT journey, and we will continue to broaden our offering. We aim to radically simplify the elevator hoistway and connect its components, as well as to provide full transparency about the activities in and around the elevator cabin with our Smart Cabin concept. We see elevators as an integral part of a connected smart building ecosystem.



A core pillar of CEDES has always been safety – we protect people and objects by providing safe and reliable solutions. We also protect our customers by nurturing trusting, long-lasting, collaborative relationships and by making meaningful advancements without compromising our standards of high quality and reliability. Our rigorously engineered products are made to perform in the real world.

Reliable service belongs to this approach. In order to streamline our production and logistics processes, we have recently opened a new production facility in Romania, offering our customers greater flexibility and proximity. We are your local and global partner. We will help you to find the right solution for your needs and to future-proof your business.

# ELEVATOR DOOR

## 2D AND 3D SENSOR SOLUTIONS

CEDES' extensive range of light curtains sets the standard for elevator door safeguarding. They offer cost-effective and ultra-reliable 2D protection.

The 3D camera technology enhances the sensor portfolio around the elevator cabin and provides high performance entrance-area monitoring.



CEDES 2D light curtain technology offers reliable door monitoring.



CEDES 3D camera technology offers high-performance entrance area monitoring.

## ELEVATOR DOOR

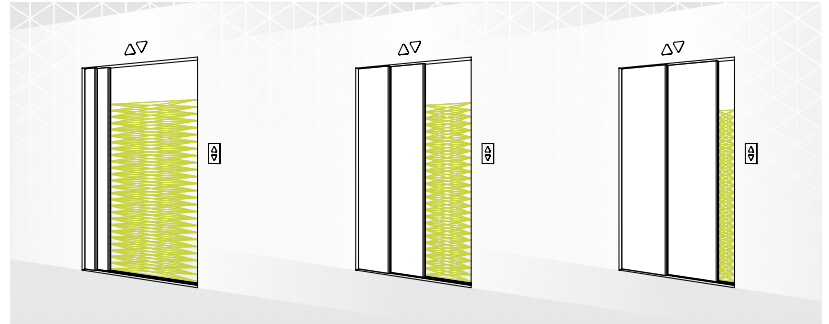
### DOOR SAFEGUARDING

#### cegard/Mini-CC



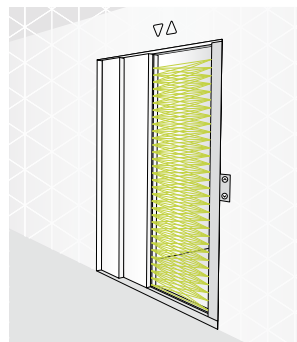
cegard/Mini-CC fulfills all EN 81-20 and ASME A17.1-2016 / CSA B44-16 requirements and offers criss-cross beam protection until the automatic doors are fully closed. It features an integrated controller, PNP/NPN output and requires much less power than most other light curtains.

- ▶ Ideal for both static and dynamic applications
- ▶ IP65 (standard) and IP67 (waterproof) as well as ATEX versions available
- ▶ Front and side mounting
- ▶ 5-year warranty for all cegard/Mini-CC systems with 36 elements



### DOOR SAFEGUARDING

#### easygard

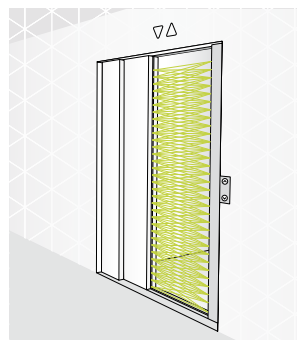
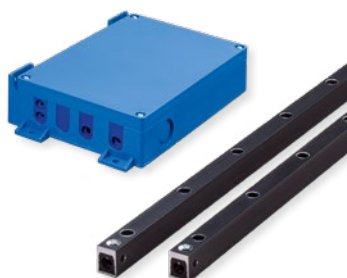


CEDES easygard light curtains offer an excellent performance and meet highest quality expectations. The different output and profile types have been developed to offer the best possible and most price-efficient solution for each application. The sensors can be wired directly into the elevator door controller or for high voltage applications via an external CEDES SPS Switching Power Supply with relay output.

- ▶ Suitable for center and side opening
- ▶ Multiple criss-cross beams for reliable object detection
- ▶ Criss-cross light beams remain active until doors are fully closed
- ▶ Easy installation
- ▶ Different system types for cost optimization

### MODERNIZATION

#### cegard/Mini-MOD



cegard/Mini-MOD can be installed anywhere thanks to its range up to 5 m and universal voltage. It features a relay output for easy integration into existing systems and is ideal for retrofitting using different optimized door mounting kits.

- ▶ Universal voltage of 20 ... 265 VAC or 20 ... 375 VDC
- ▶ IP67 edges version available

## ELEVATOR DOOR

### ENTRANCE AREA MONITORING

#### IMS 100 Pro



IMS 100 Pro's reliable entrance area monitoring offers increased protection for passengers approaching the elevator cabin and improves overall elevator efficiency. It is designed to complement the safeguarding provided by light curtain-equipped elevators.

- ▶ Detects moving people and objects
- ▶ Simple integration and mounting for both new and existing installations
- ▶ Suitable for side and center opening doors
- ▶ Improves elevator efficiency by reducing door opening times

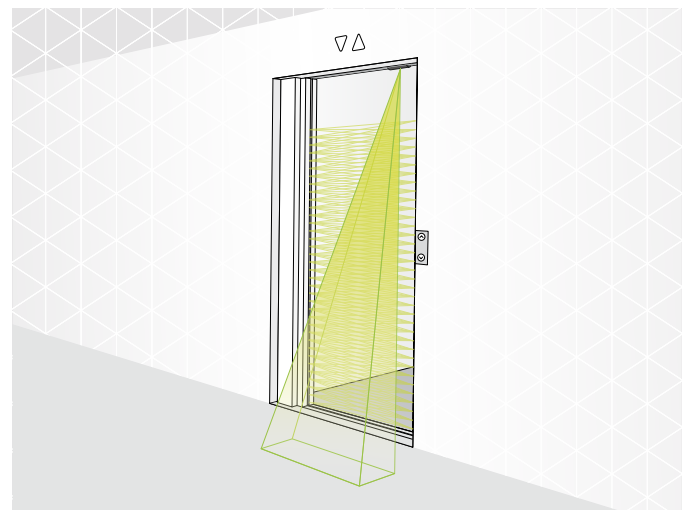
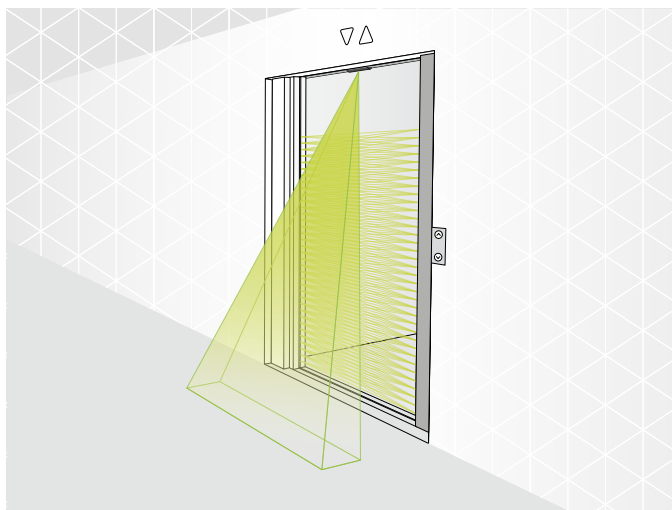
### DOOR & ENTRANCE AREA SAFEGUARDING

#### CabSafe™ System



The 2019 North American Elevator Safety Code (ASME A17.1-2019 / CSA B44-19) defines new and clarifies existing requirements for the means of detecting persons or objects between the doors (2D) or approaching the elevator (3D). CEDES CabSafe™ system, consisting of a controller, a 2D light curtain and a 3D TOF sensor, can fulfill all these code requirements and more.

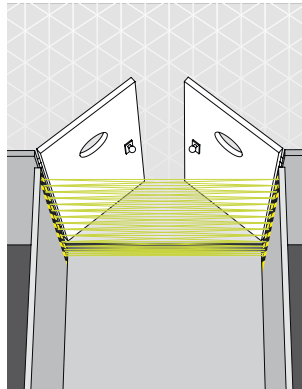
- ▶ Reduces risk of accidents caused by being hit by the doors
- ▶ Reduces risk of damage caused by objects striking the elevator doors
- ▶ Reliable detection of people and objects in front of the cabin using TOF technology
- ▶ Ideal for both new installations and modernization
- ▶ Flush and surface mounting options available
- ▶ Third-party certified to fulfill ASME A17.1-2019 / CSA B44-19 requirements



## ELEVATOR DOOR

### MODERNIZATION

cegard/Lift

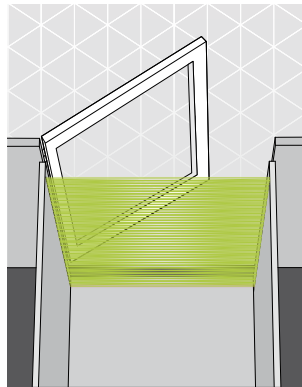


cegard/Lift safety light curtain is designed to be installed in elevators where the elevator car has no doors. It avoids having to fit doors to an existing elevator installation which reduces both volume and performance.

- ▶ Test input enables the testing of the LI system (EN ISO 13849-1)
- ▶ LX /LY systems for elevators without test signal
- ▶ Simple installation and integration with existing elevator controllers
- ▶ Available for applications in ATEX areas (Zone 2/22)

### PLATFORM ELEVATOR SAFEGUARDING

GridScan/Mini-SR

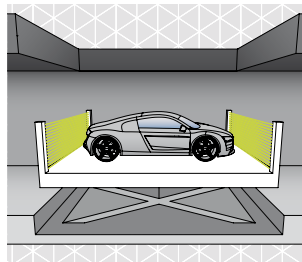


GridScan/Mini-SR is EN ISO 13849-1 certified and fulfils Performance Level D without the need for a test by the elevator controller.

- ▶ Criss-cross beams
- ▶ Ideal for EN 81-41 certified elevators
- ▶ Optimized to prevent optical bypassing
- ▶ Electrical synchronization for increased ambient light immunity
- ▶ Relay output (direct wiring into the safety circuit)
- ▶ 24 VDC and 230 VAC versions available
- ▶ Cross-section only 12 mm × 16 mm, side and front mounting possible

### CUSTOMIZED LIGHT CURTAIN

cegard/Max custom made



cegard/Max custom made provides detection and safeguarding for various types of elevators. It can be fully customized even for very low quantities to match a customer's needs.

The following features can be customized

- ▶ Edge length
- ▶ Resolution
- ▶ Cascaded systems
- ▶ Enclosure rating (up to IP67)
- ▶ Cable length
- ▶ Fixed/pluggable cables
- ▶ Color

Other features

- ▶ Almost no mechanical overhead to fit every application
- ▶ Wide input-voltage range and relay output
- ▶ Intelligent self-calibration



## ELEVATOR CABIN

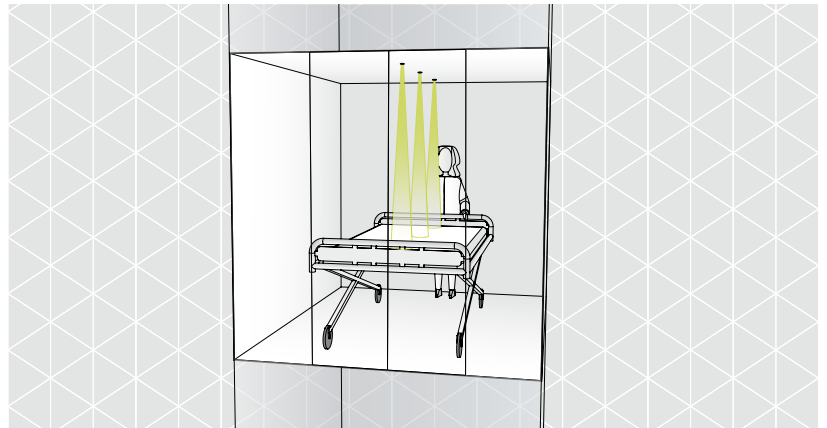
### BED DETECTION

TOF/Spot



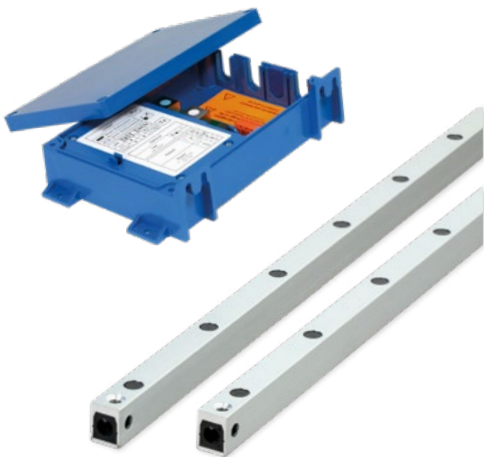
The CEDES bed detection system utilizes TOF/Spot to detect when a bed or hospital trolley is placed in an elevator. When a bed is detected, the sensors tell the elevator controls to send the elevator directly to the floor selected by the person accompanying the bed. This eliminates unnecessary stops, gives patients more privacy and spares waiting passengers a lot of additional frustration.

- ▶ No key switch, transponder card or destination-selection control is necessary
- ▶ Reliably detects beds
- ▶ Improves elevator efficiency by eliminating unnecessary stops



### EMPTY CABIN DETECTION

cegard/Max  
custom made



cegard/Max custom made, mounted just above floor level inside an elevator cabin, can be used to ensure an elevator is empty before allowing it access to restricted floors.






- ▶ Almost no mechanical overhead to fit every cabin
- ▶ Wide input voltage range and relay output
- ▶ Intelligent self-calibration





# From sensor to the cloud

## Unlocking the power of data in elevator sensors with IoT

-  Reduce the number of callbacks through root cause analysis
-  Make unplanned service visits plannable - react to wear and tear in advance
-  Reduce maintenance time thanks to remote condition monitoring
-  Advise your customers on possible modernizations and optimizations based on machine data
-  Provide customers with an overview of all assets to improve building user experience

### Reduce corrective maintenance

Data-driven maintenance enables service technicians and facility managers to significantly reduce breakdowns. The system automatically sends alerts. Facility managers can decide upon the appropriate actions and monitor the results.

### Optimize preventive maintenance

Enables service technicians to fix issues on the door opening system before impacting the comfort and productivity of building occupants.

### Enable predictive maintenance

Data collected across the sensors, stored and computed, provides greater insight for improved long-term maintenance and life-cycle management.



DOOR PERFORMANCE ANALYSIS



TRAFFIC ANALYSIS & PEOPLE FLOW



RIDE QUALITY MONITORING



ADVANCED REPORTING CAPABILITIES



REMOTE CONDITION MONITORING



DATA PRIVACY & CYBER SECURITY



**IOT-ENABLING LIGHT CURTAIN**

cegard/Smart

- ▶ Easily mounted on the cab doors
- ▶ Suitable for center and side-opening applications
- ▶ Meets the requirements of ASME A17.1-2016 / CSA B44-16 and earlier, ASME A17.5-2019 / CSA B44.1:19 and EN 81-20:2020 standards
- ▶ Multiple criss-cross beams for reliable detection remain active up to complete door closure
- ▶ Optimized elevator door diagnostics
- ▶ EU and US version of the control unit available (US version with 2 antennas)



User interfaces optimized for technicians, dispatchers, managers and building operators



More about SKYLER Elevate

**IOT SERVICE FROM RELAYR**

SKYLER Elevate

- ▶ Powered by relayr, an ISO 27001-certified company
- ▶ Continuously monitors data from cegard/Smart sensors to detect door malfunctions, evaluate door performance, and generate alerts 24/7
- ▶ Easy data visualization with dashboards available from any connected device
- ▶ Enables data-driven maintenance and provides near-real-time status of the elevator

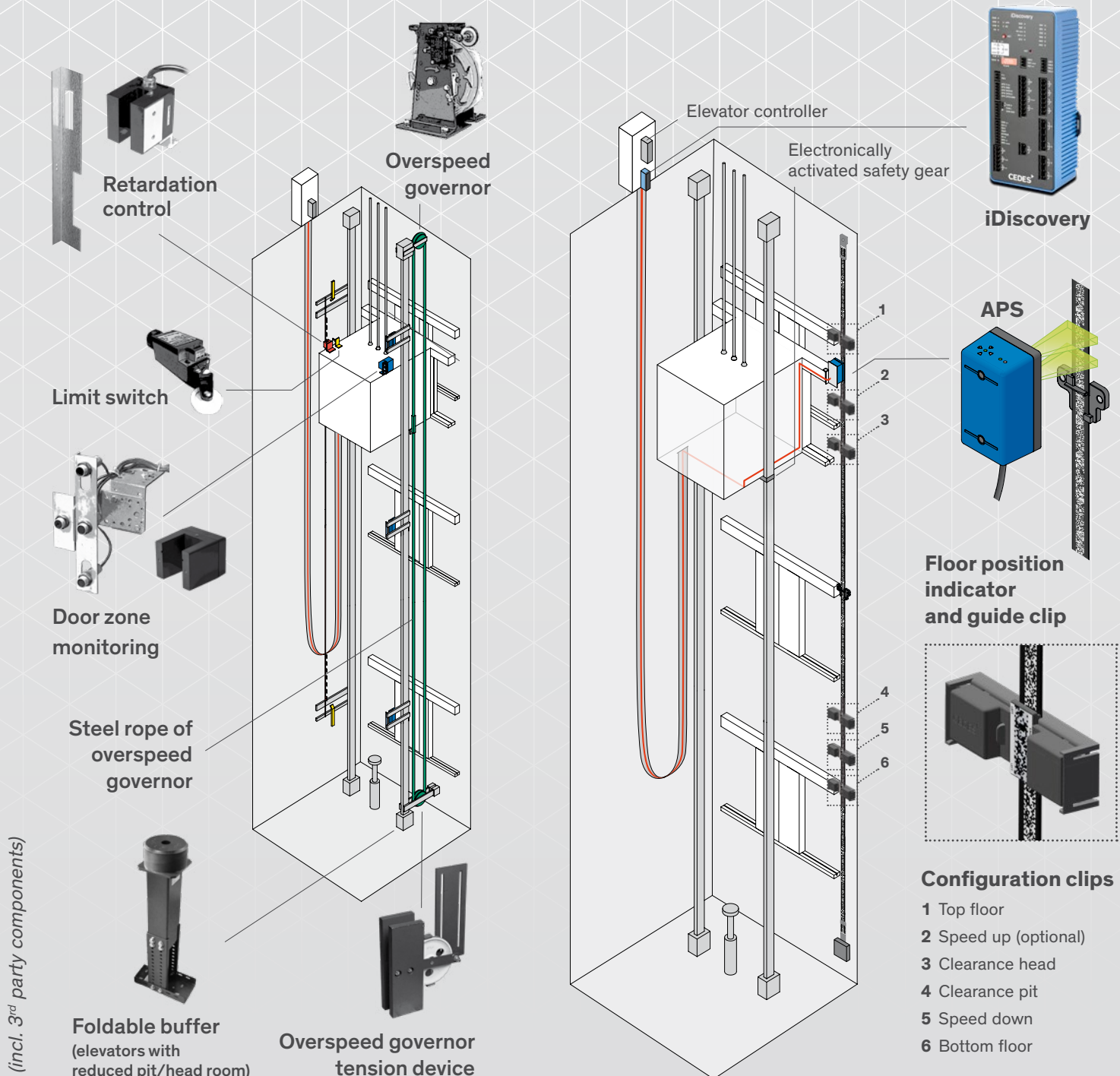


# SIMPLIFIED HOISTWAY

CEDES' range of hoistway information products offer leading-edge technology, backed by 30 years of valuable experience in the elevator hoistway environment. They range from slot-type sensors for elevator positioning to a new generation of products that provide absolute

positioning and position supervision. These offer a highly integrated system that eliminates the need for many individual systems and components currently required by a conventional elevator. All this for new facilities, modernization and retrofitting projects.

## CONVENTIONAL VS. SIMPLIFIED HOISTWAY



(incl. 3<sup>rd</sup> party components)

## ELEVATOR HOISTWAY

### ABSOLUTE POSITIONING SYSTEM

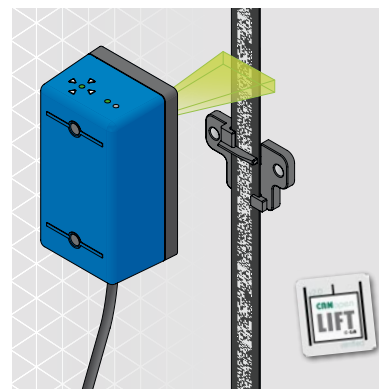
## APS



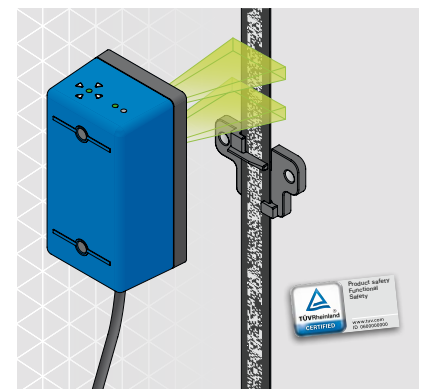
APS is a contactless absolute positioning system for elevators. It supports speeds of up to 20 m/s and distances of up to 1,500 m.

- ▶ Floor level detection using position indicator clips
- ▶ Wear-free, contactless principle, noiseless
- ▶ Tape is guided by clips, and always stays in position (even at high speed)
- ▶ Simple and flexible mounting
- ▶ CAN or RS485 (C-Series one - CANopen) interface
- ▶ S-Series SIL 3 certified

#### APS C-SERIES ONE



#### APS S-SERIES



### HOISTWAY POSITIONING

## easyvane



- ▶ High repetitive accuracy of 0.5 mm
- ▶ Immunity to smoke, dust and dirt thanks to a high light reserve
- ▶ Easy mounting
- ▶ Ready to install cable and plug available
- ▶ Impressive price-performance ratio

## GLS 326



- ▶ High repetitive accuracy of 0.5 mm
- ▶ Immunity to smoke, dust and steam thanks to a high light reserve
- ▶ Robust design with twin microprocessors
- ▶ Short-circuit-proof PNP semiconductor-output
- ▶ LED status indicator for each channel

## GLS 526



- ▶ High repetitive accuracy of 0.5 mm
- ▶ Immunity to smoke, dust and steam thanks to a high light reserve
- ▶ LED displays switching status for each channel
- ▶ LED and status output to check light reserve
- ▶ Separate output for error display

## POSITION SUPERVISOR UNIT

# iDiscovery

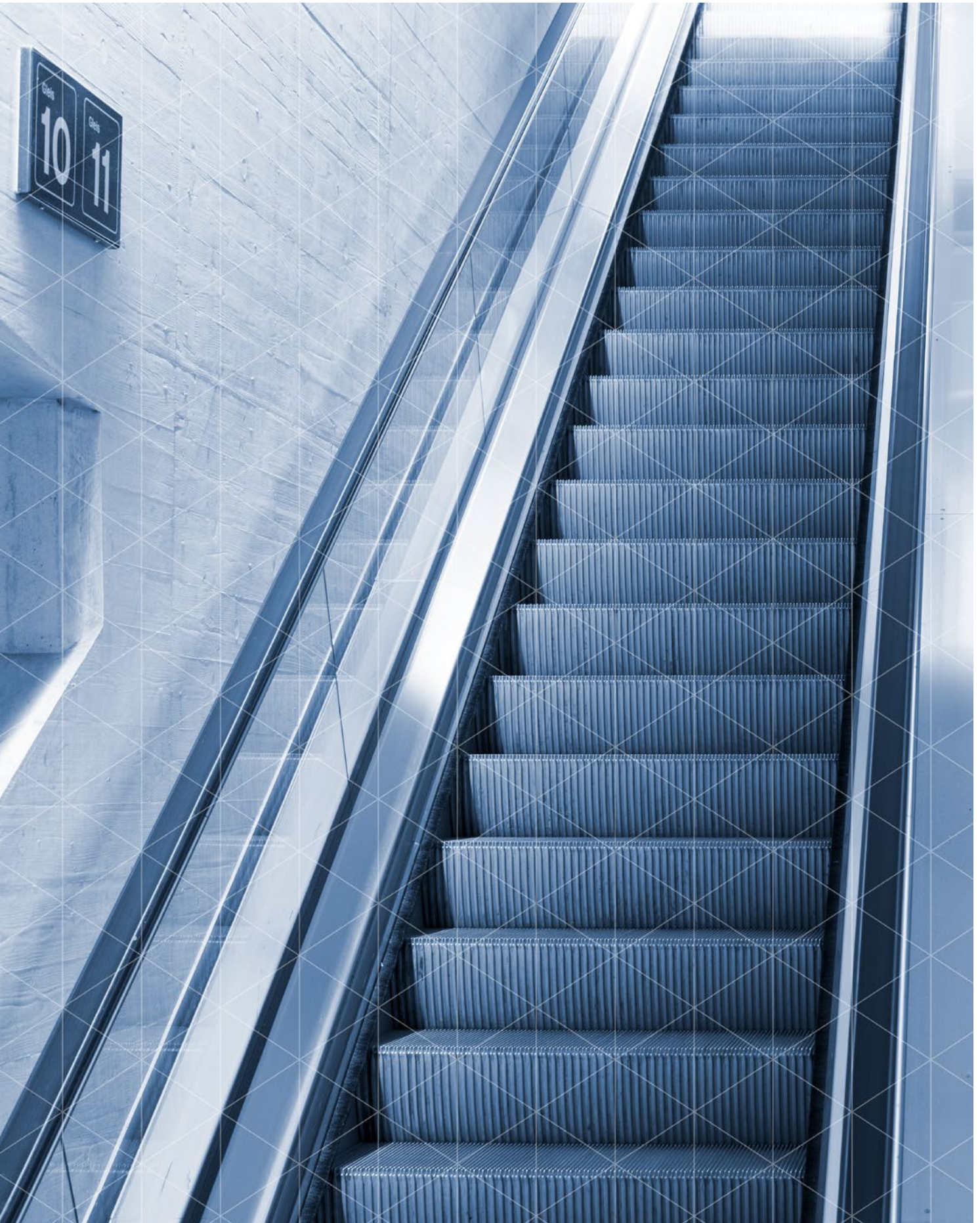


iDiscovery is a powerful SIL 3 and EN 81-20/50 compliant position supervisor unit. In conjunction with CEDES' APS (Absolute Positioning System), it takes over safety-relevant functions of an elevator. It also includes enhanced inspection functions for elevators with reduced headroom or pit (EN 81-21). The system features a purely electronic overspeed governor to trip an electrically activated safety gear.

- ▶ Highly integrated system makes many of the currently used individual systems and components obsolete
- ▶ Simple configuration of safety-relevant parameters with configuration clips
- ▶ Significantly reduces the cost and complexity of the elevator as well as installation and maintenance time



	iDiscovery	iDiscovery eOSG	iDiscovery eOSG & Inspection
Door monitoring	✓	✓	✓
Leveling, re-leveling and preliminary operation with open doors	✓	✓	✓
Detection of unintended car movement (UCM)	✓	✓	✓
Overspeed detection with different speed limits	✓	✓	✓
Retardation control / ETSL	✓	✓	✓
Final limit switches	✓	✓	✓
Bridging of door contacts for maintenance (BYPASS)	✓	✓	✓
Check if door contacts are faulty (bridged)	✓	✓	✓
Inspection limit switches	✓	✓	✓
Electronic overspeed governor		✓	✓
Safety gear monitoring		✓	✓
Extended inspection limit switches <ul style="list-style-type: none"> <li>• Additional limit switch according to EN 81-21</li> <li>• Pre trigger in case working space according to EN 81-20 has been activated</li> </ul>		✓	
Safety spaces in case of reduced headroom and/or pit <ul style="list-style-type: none"> <li>• Reduced top/bottom clearances according to EN 81-21</li> <li>• Working space according to EN 81-20</li> </ul>		✓	

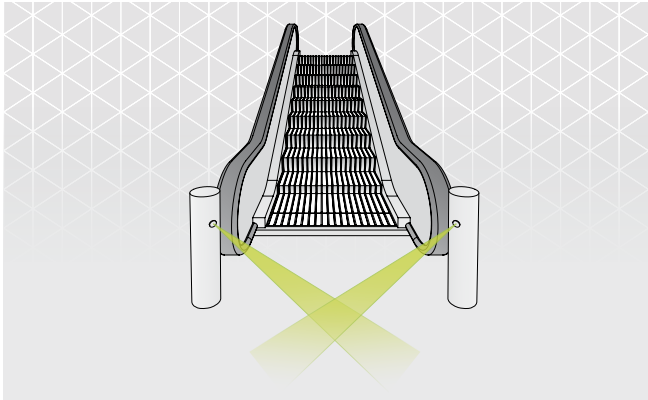




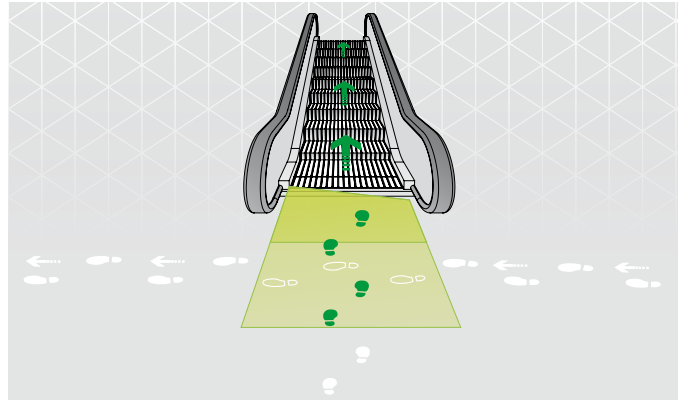
## ESCALATOR

CEDES sensors are designed to provide new levels of comfort and safeguarding for escalator passengers. Conventional sensors activate an escalator whenever there is any movement within the escalator's entrance

area. CEDES' sensors can precisely define a detection area and blank out cross-traffic. This increases energy efficiency by ensuring the escalators only run when there are intending passengers.



Conventional presence detection.



Cross-traffic detection for increased energy efficiency.

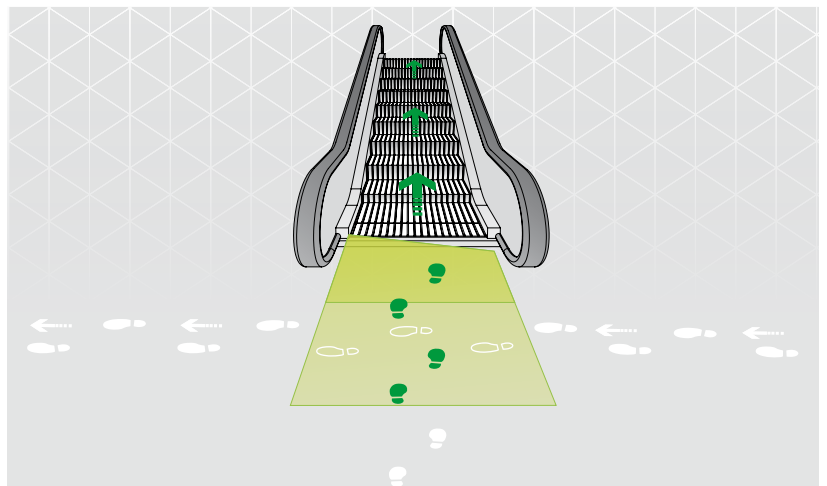
## ACCESS MONITORING

### TOF/Start



The TOF/Start is a compact yet powerful sensor which detects people or objects approaching an escalator and speeds it up in time for them to step comfortably and safely aboard.

- ▶ Individual setting of the detection area
- ▶ Detection area operates with all types of background
- ▶ Ignores cross-traffic
- ▶ Reliable detection at entrance and exit area



## SUSTAINABILITY

Sustainability is at the root of everything that we do. The technologies our partners invest in today – which are the technologies CEDES is at the forefront of developing – will have a lasting impact on the future of our planet and the communities we serve.



### CO<sub>2</sub> NEUTRAL BY THE END OF 2024

We cover 20% of our energy consumption with the photovoltaic system installed on the roof, and 80% with CO<sub>2</sub>-neutral power purchased from REPOWER AG. We are also planning to connect to district heating from the GEVAG waste incineration plant.



### SOLAR ENERGY

1,750 square meters – that's the total surface of solar panels installed on the roof of our Science Park building in Landquart. The photovoltaic system will provide around 360'000 kWh electricity per year and reduce our CO<sub>2</sub> emissions by 65 tons per year!



### E-MOBILITY

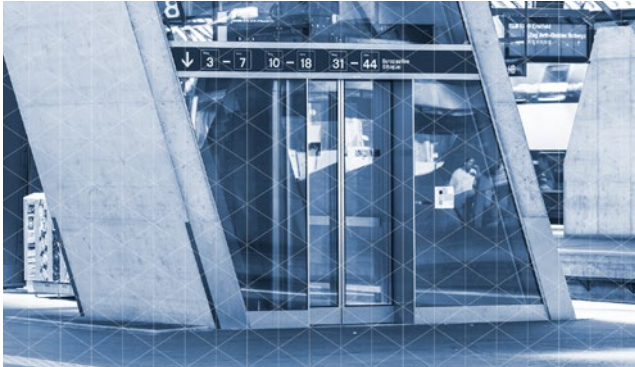
E-cars, e-bikes, e-scooters: more and more CEDES employees use electrically powered vehicles to commute to work. Specially designated parking spaces and PLUG'N'ROLL charging stations are at their disposal in the Science Park. On top of that, we are planning to replace our current company cars with e-cars.



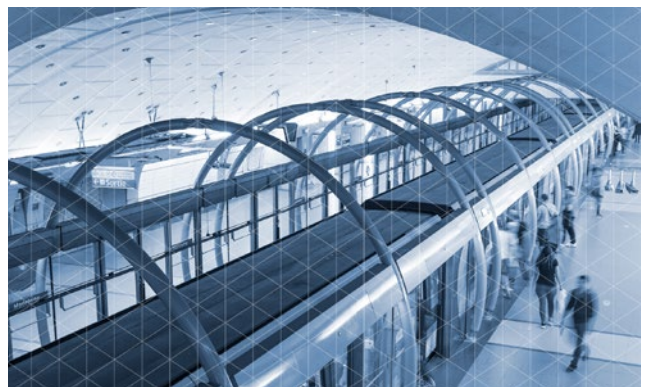


# Learn more about our application markets

## ELEVATOR & ESCALATOR



## ENTRANCE AUTOMATION



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