



Orthos PIL-M02

SENSOR CONTROLLED ONE-WAY CORRIDORS

KABA®

- > Background and requirements
- > Examples and dimensions
- > Personal security
- > Sensors for directional identification
- > Presence sensors
- > Components
- > Filter sequence
- > Technical description
- > Settings and electrical connections

Orthos PIL-M02: The Modular System for Sensor-Controlled One-Way Corridors



Background

- > Airports are required to prevent illegal arrivals or departures.
- > The technical facilities must be protected against damages by unauthorized persons.
- > An area requiring special protection is the passenger transfer
 - > From airside (secure area)
 - > To landside (public area)
 - > Here, sensor-controlled corridors provide an effective contribution in this area.
- > The Schengen Agreement requires a separation of persons coming from EU or Non-EU countries. (For "Schengen passengers" no passport control is required when passing from airside to landside.)
- > One-way corridors allow a quick and secure passage from airside to landside.



Orthos PIL-M02: The Modular System for Sensor-Controlled One-Way Corridors



Principle

- > Secure passage from one area to another without the possibility of a backflow of people.
- > Frequently used at airports to achieve a controlled transfer of all passengers from airside (secure area) to landside (public area).
- > The modular system consists of a combination of several quickly reacting door systems.
- > The desired security level can be achieved by means of different unit lengths and different sensor technology.
- > A sophisticated system of sensors ensures a high level of security for the building and the safety of people.

Requirements

- > Free passage towards landside, doors open automatically
- > High capacity
- > Authorized passage of staff towards airside using card reader
- > Checking for wrong direction
- > Can be integrated into existing floors and buildings, modular system
- > Users with hand luggage

Orthos PIL-M02: The Modular System for Sensor-Controlled One-Way Corridors



Structure/modular system

- > Orthos PIL-M02 (abbr. PIL): Full-height personal interlock with single action door. Delimitation of secured area and public area. Automatic opening and closing. Currentless closing. Optionally locked or unlocked.
- > Charon HSD-L05 (abbr. HSD): Fast half-height swing door. Prevents passages in the opposite direction. Automatic opening and closing. If currentless can be rotated freely.
- > Personal guiding bars (PGB): Guides passengers and protects the doors
- > Side walls (MDE): Glass construction
- > Special sensor technology: Detecting, counting, monitoring, supervising

Opposite direction recognition

- > With increasing length of the filter, the probability that one of the doors closes is higher
- > More sophisticated sensor technology leads to more reliable detection of intruders

Capacity/flow of people

- > At a walking speed of 1 m/s (3.6 km/h) and a distance of 1 m from person to person 60 persons/min can pass. At a distance of 1.5 m, 40 persons/min can pass
- > From a technical point of view higher capacities are possible

Examples and Dimensions

Single unit (1 corridor), short

- > 1 single action door (PIL)
- > 1 swing door (HSD)
- > Personal guiding bar (PGB)
- > Opening, safety and security sensors

Passage width: 640 to 950

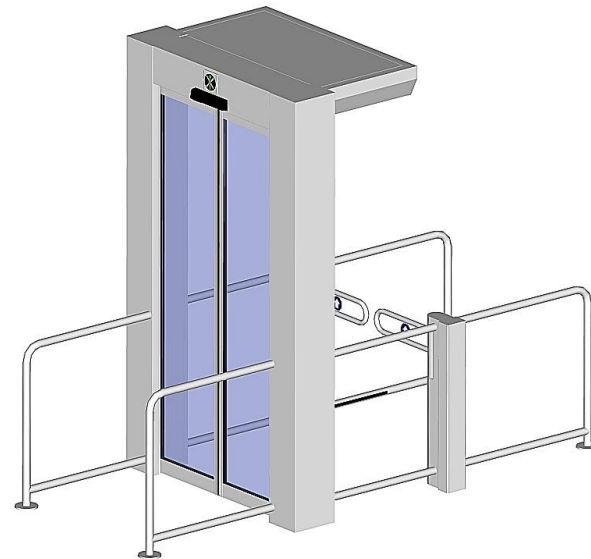
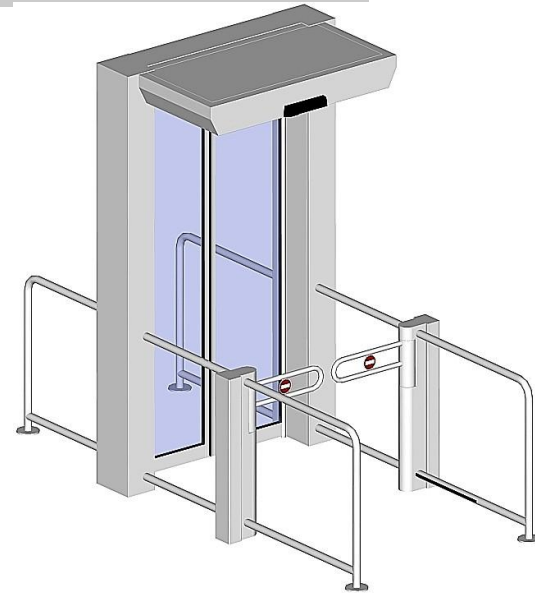
(Minimum width for barrier-free access: 900)

Width: 1076 to 1386 mm

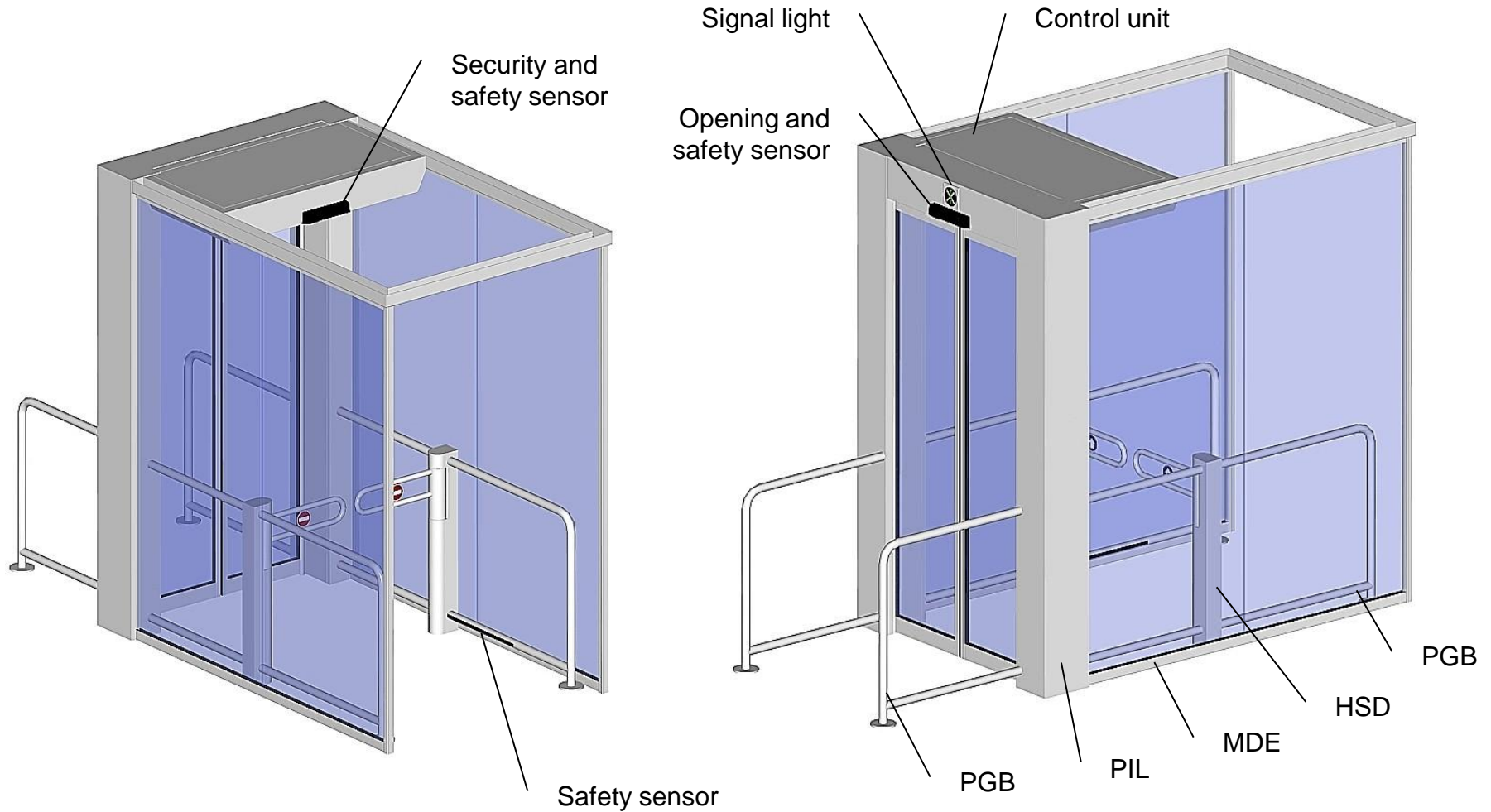
Length: approx. 3000 mm

Passage height: 2100 mm

Total height: 2300 mm



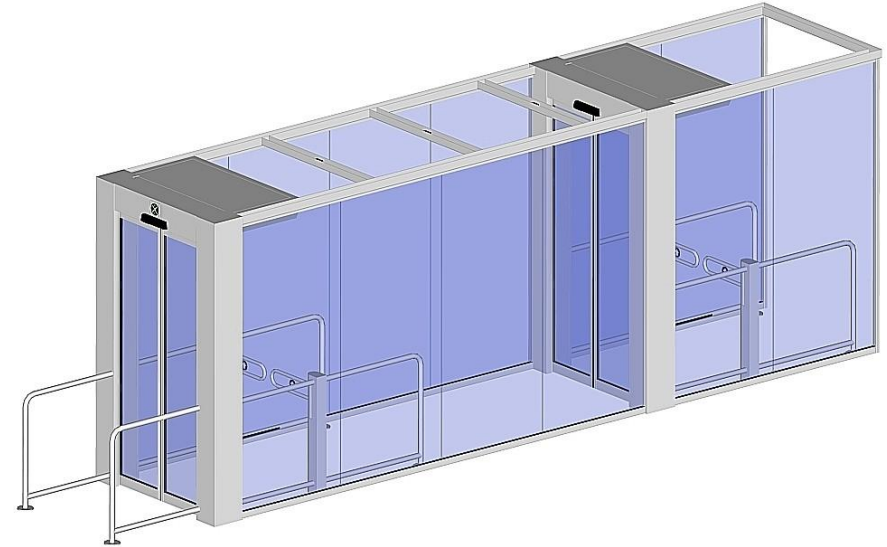
Examples and Dimensions



Examples and Dimensions

Single unit (1 corridor), long

- > 2 single action doors (PIL)
- > 2 swing doors (HSD)
- > Sidewalls in toughened glass, 10 mm
- > Personal guiding bar (PGB)
- > Opening, safety and security sensors



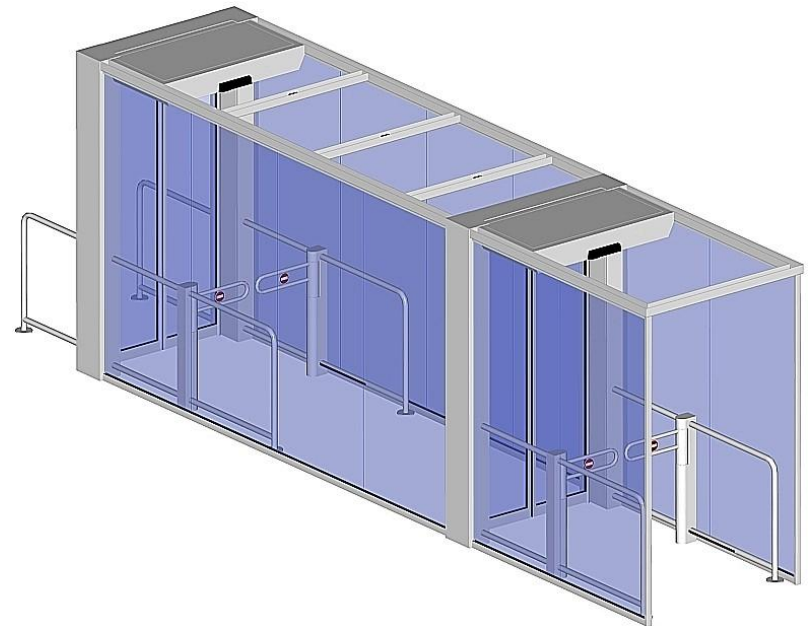
Passage width: 640 to 950 mm
(Minimum width for disabled persons: 900)

Width: 1076 to 1386 mm

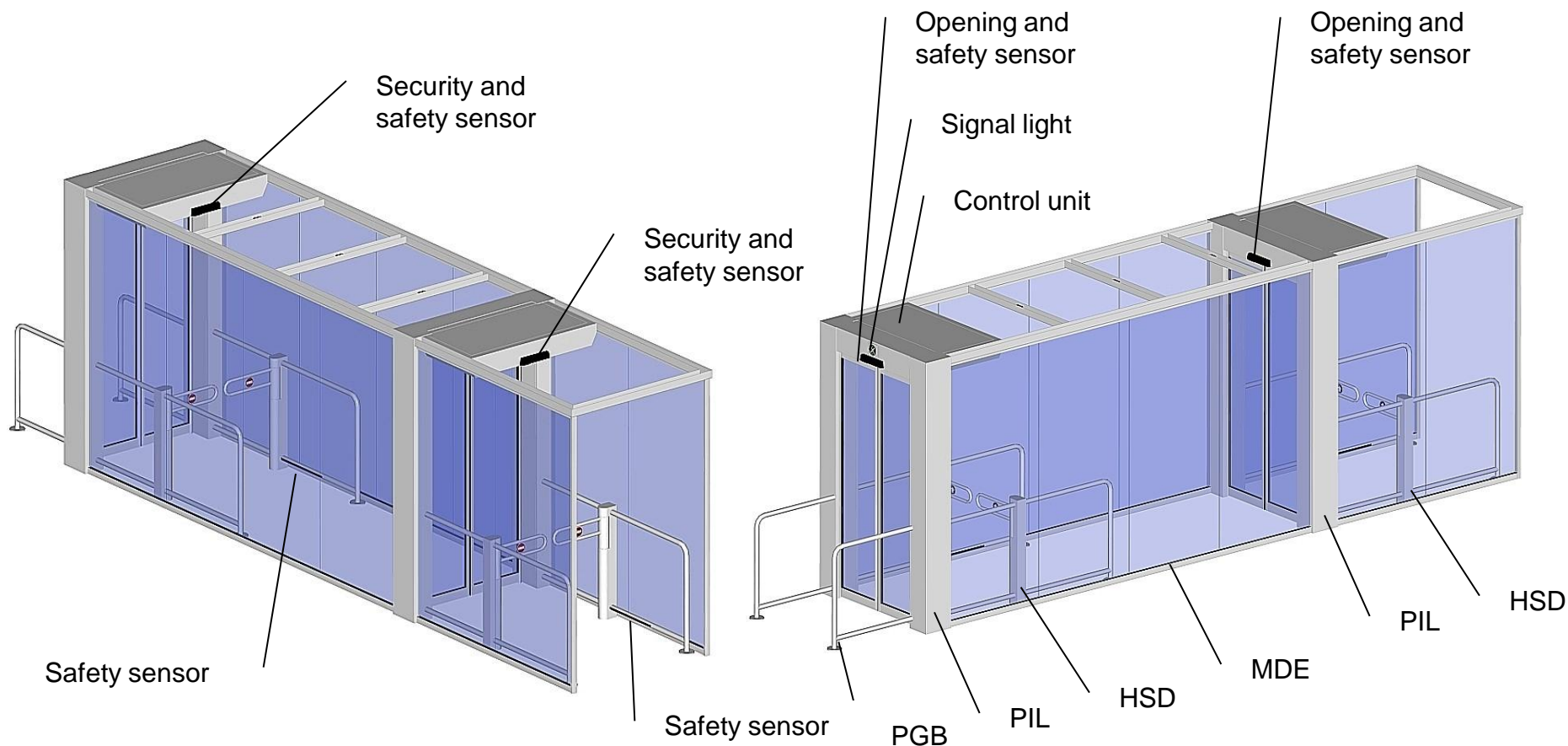
Length: approx. 5000 to 7000 mm

Passage height: 2100 mm

Total height: 2300 mm



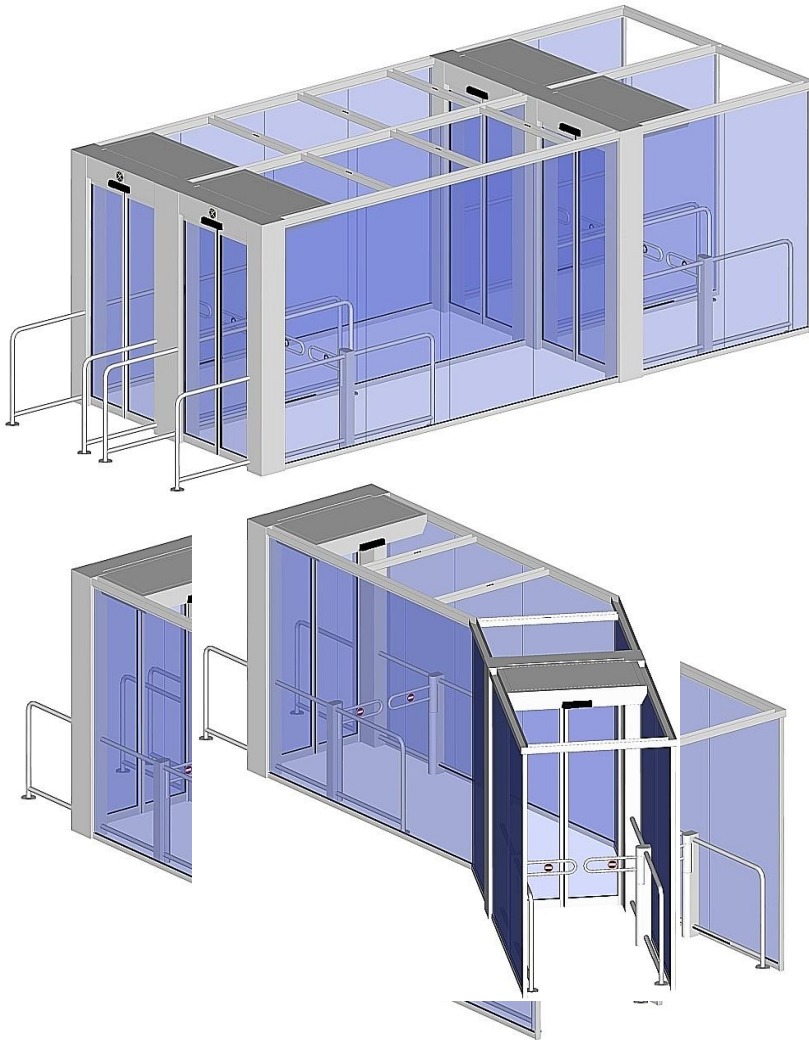
Examples and Dimensions



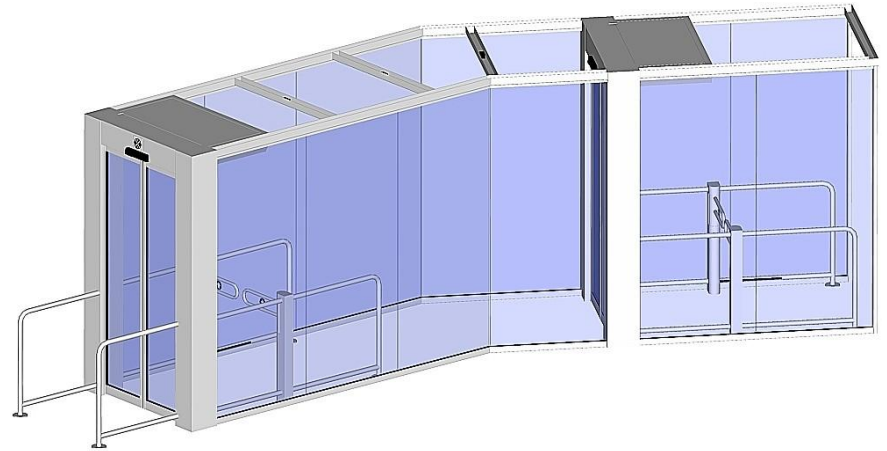
Examples and Dimensions



Double unit



Angular unit



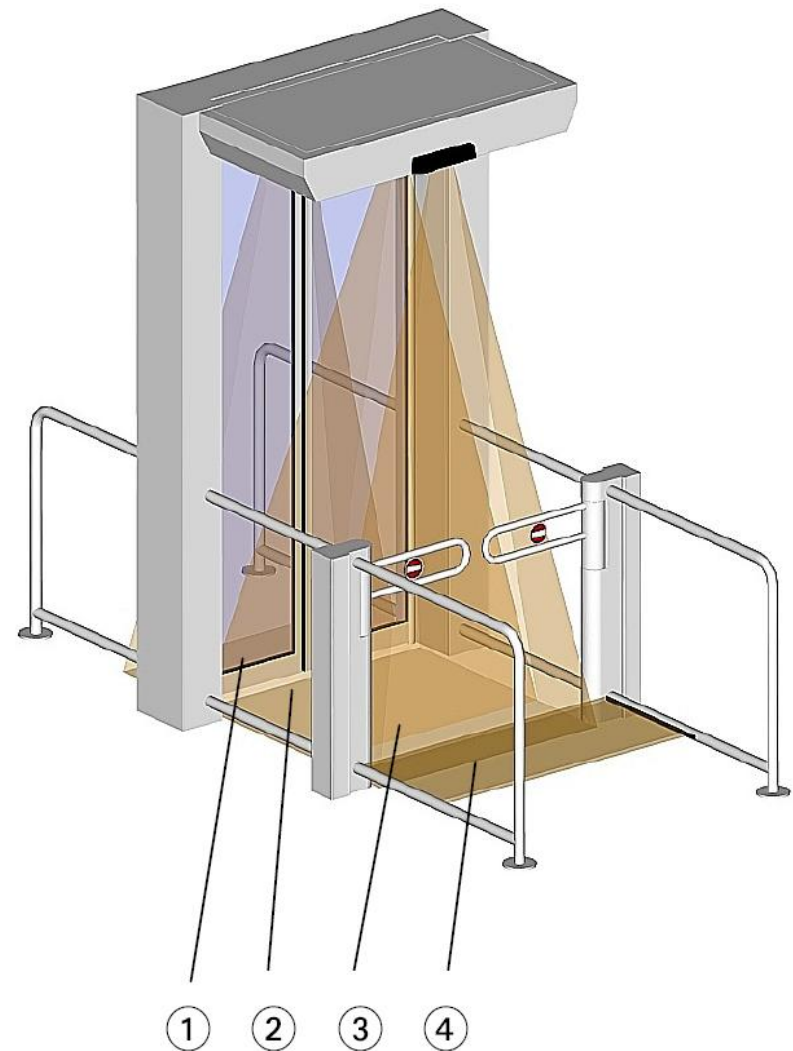
- > **Top priority: No dangerous contact with persons**

- > Power limited drive (PIL)
- > Low energy drive (HSD)
 - 1 Light curtain in front of door
 - 2 Light sensor spot in rotation area
 - 3 Light curtain in front of door
 - 4 Light grid in rotation area

Prior to every movement the safety sensors check if the rotation area is clear.

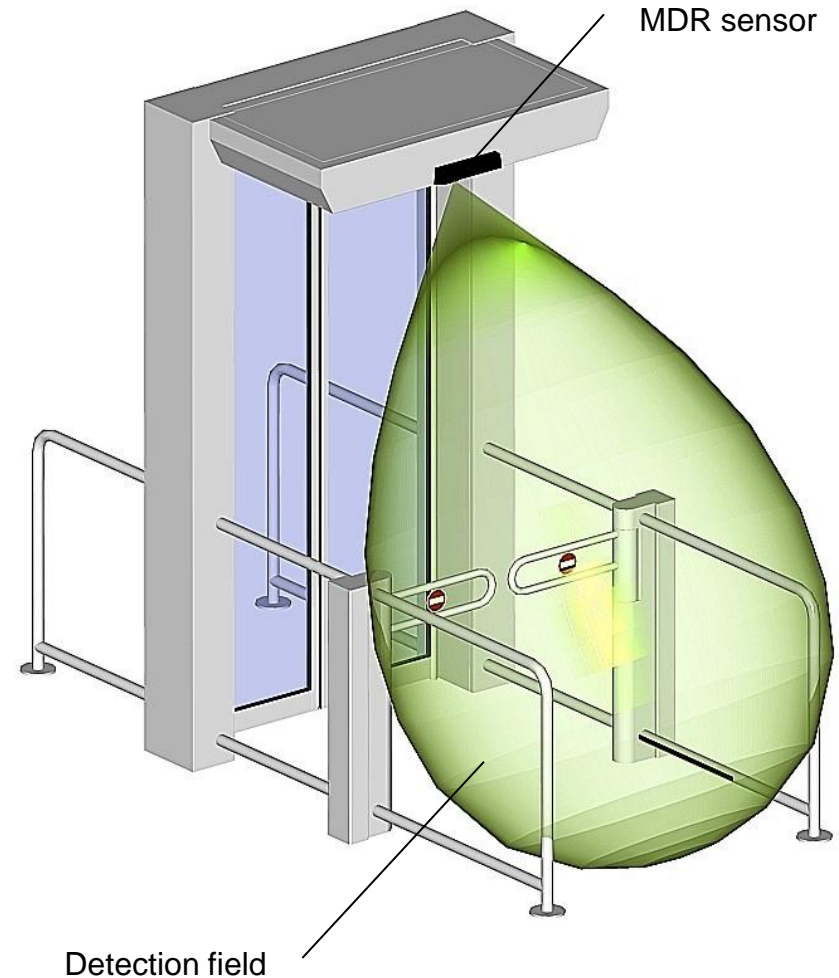
- > Standard: if the safety sensor is occupied it will not close in the standard function.
- > Higher security demand: During an alarm with occupied safety sensor the PIL closes at a lesser speed and with lower power
- > In case of an alarm the HSD always closes at a slower speed and with less power.

See document: "Risk assessment Orthos PIL-M02"



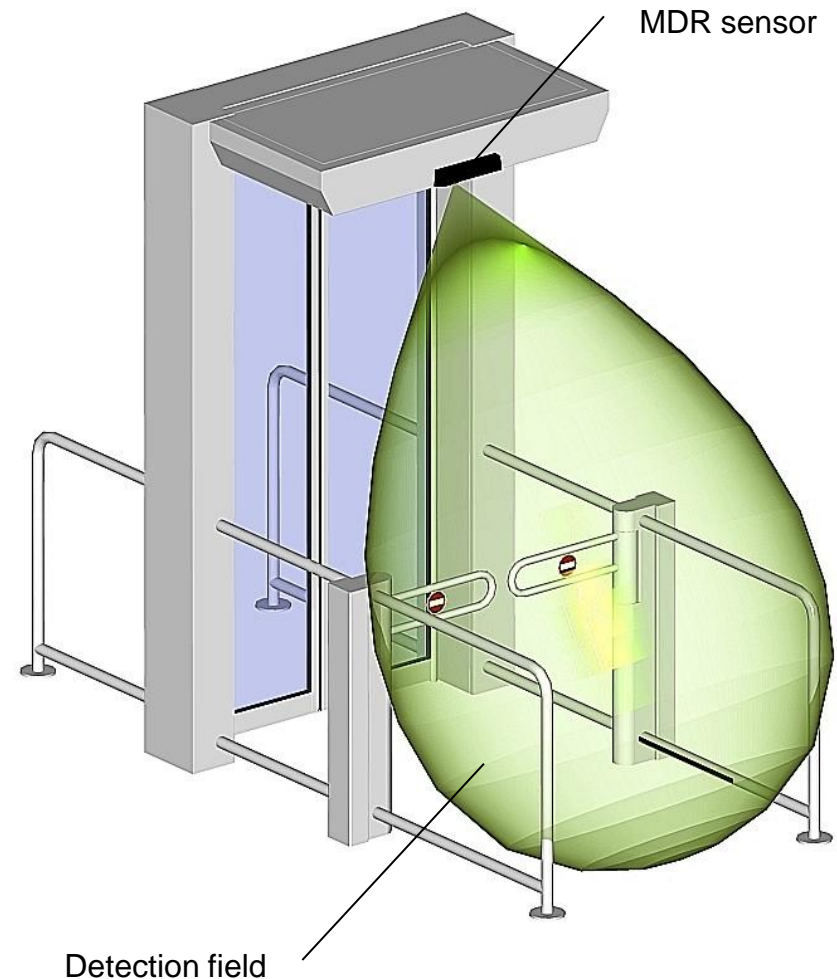
Microwave Direction Recognition MDR

- > Radar detection
- > Detects persons and materials
- > Sensitivity and field size can be adjusted in 9 steps
- > Sensor can be blocked to prevent unauthorised settings using remote control
- > MDE side wall recommended



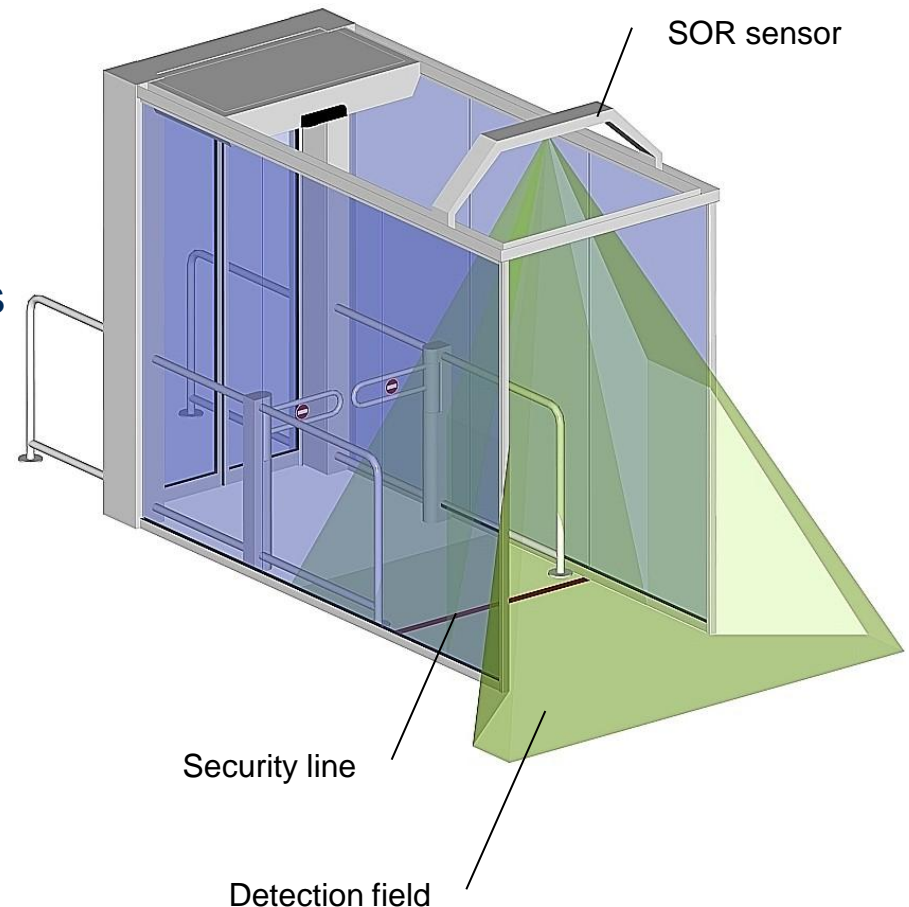
Microwave Direction Recognition MDR

- > False alarms may be triggered if metal objects are carried through the filter
- > Standing or slowly moving persons cannot be detected.
- > In case of a high pedestrian flow in the passage direction it is possible that a person coming towards is not detected.
- > False alarms caused by adjacent on-site metal surfaces, e.g. on the floor or at the side panel.
- > A person who hides behind another person is not detected.



Simple Optical Recognition SOR

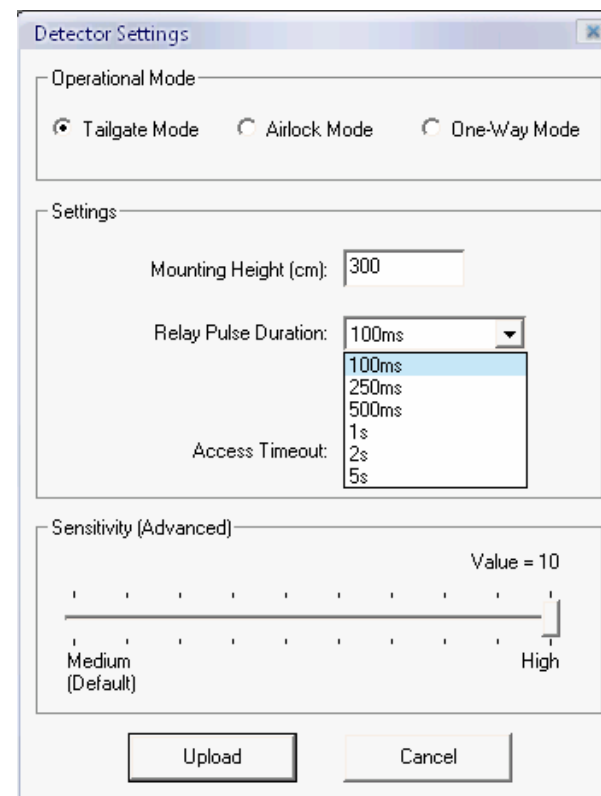
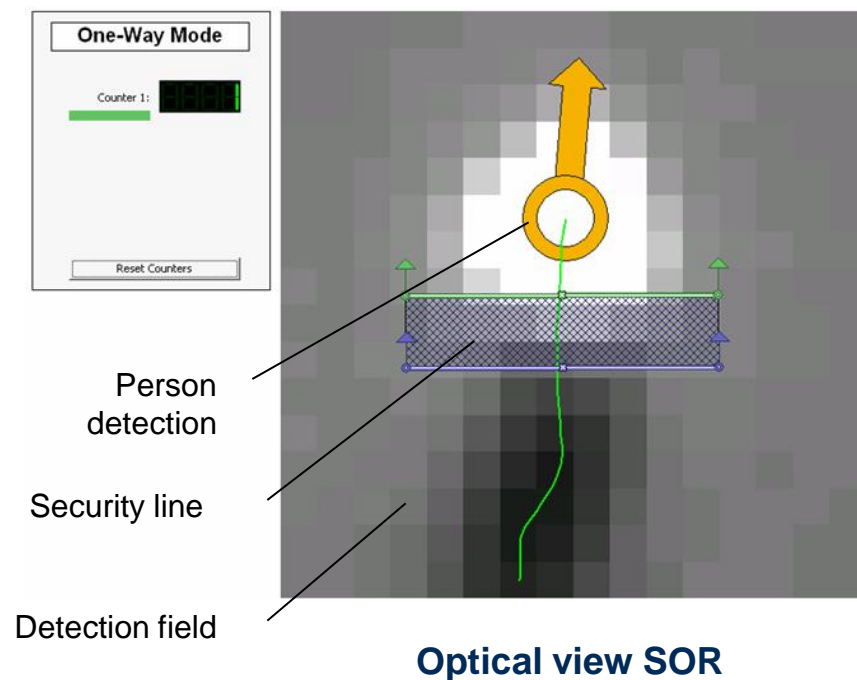
- > Infrared detection
- > Detects persons
- > Security line can be freely defined
- > Sensitivity can be adjusted in 10 steps
- > Indoor use only
- > Standing or very slowly moving persons cannot be detected
- > Installation height 2.5 to 3.2 m
Optimum: 2.6 m
- > MDE side wall approx. 1 m longer



Passback Sensors



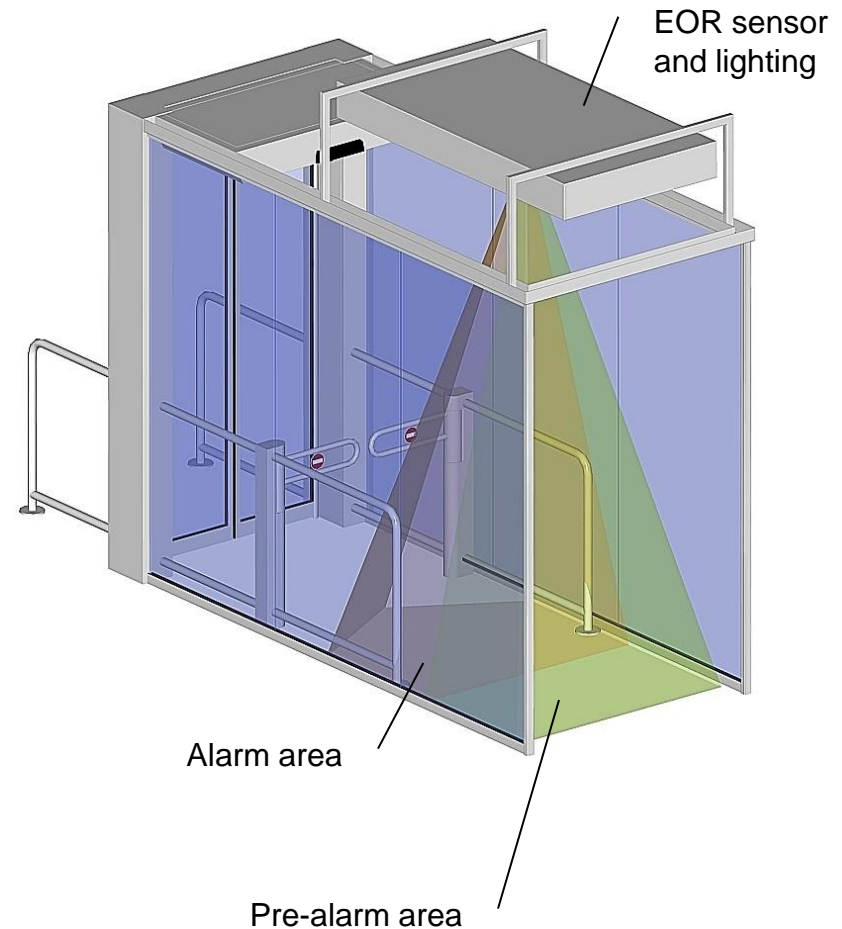
Simple Optical Recognition SOR



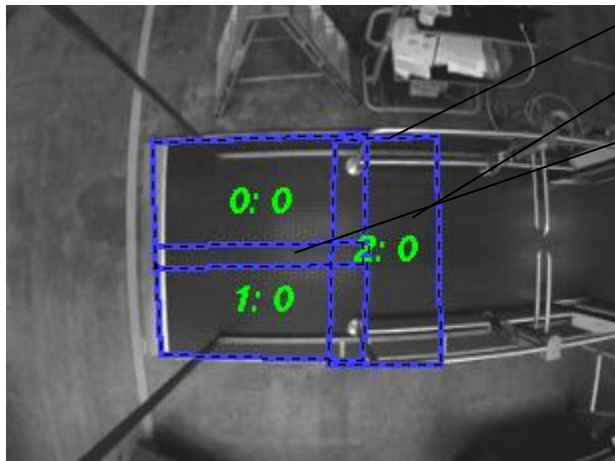
Detector settings SOR

Extended Optical Recognition EOR

- > Video detection, alarm video available
- > Detects persons and materials
- > Alarm and pre-alarm area can be freely defined, depth approx. 1.8 m
- > Direction matrix
- > Adjustable sensitivity
- > People counter (optional)
- > Ethernet and FTP connection
- > Indoor use only
- > Very slowly moving persons can be detected
- > Standing persons can be detected
- > Bright light spots and incident light can disturb sensitivity
- > Fluorescent lighting and evaluation in lighting box above corridor
- > Installation height 2.6 to 4.5 m
Optimum: 3.0 m and higher
- > MDE side wall approx. 1 m longer

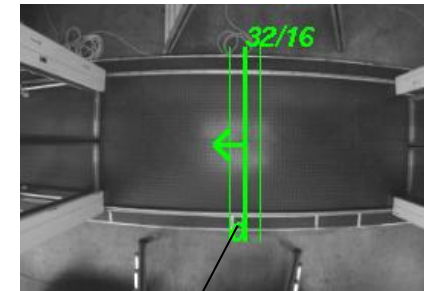


Extended Optical Recognition EOR

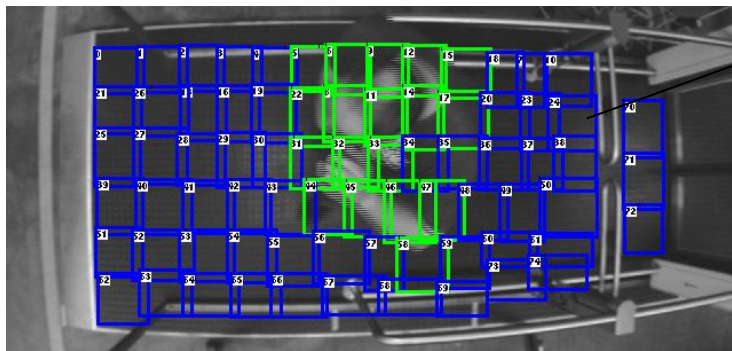


EOR detection (standard)

- Presence area
- Alarm area
- Pre-alarm area

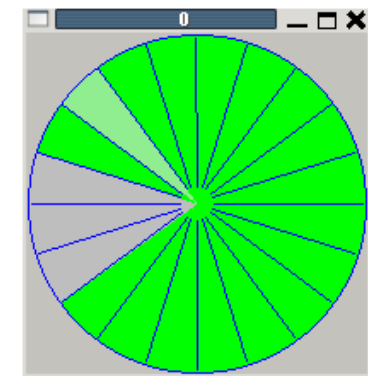


Counting line
Person counting (optional)



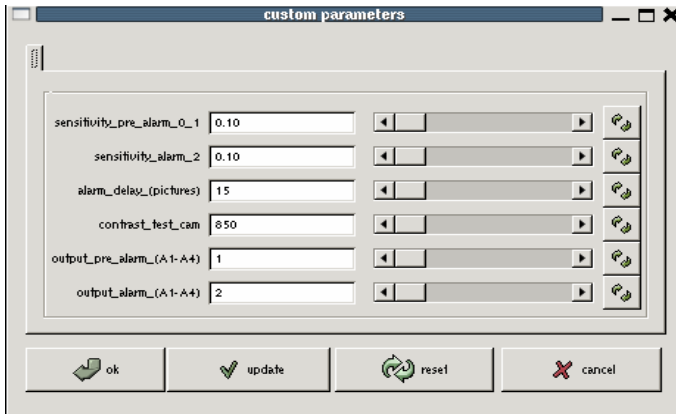
HSPD detection (optional)

HSPD detection fields,
depending on
background objects
greater than approx.
50x50 mm

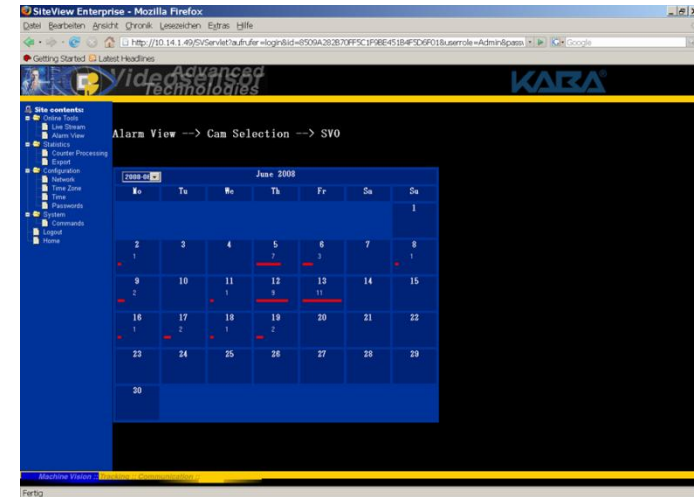


Direction matrix

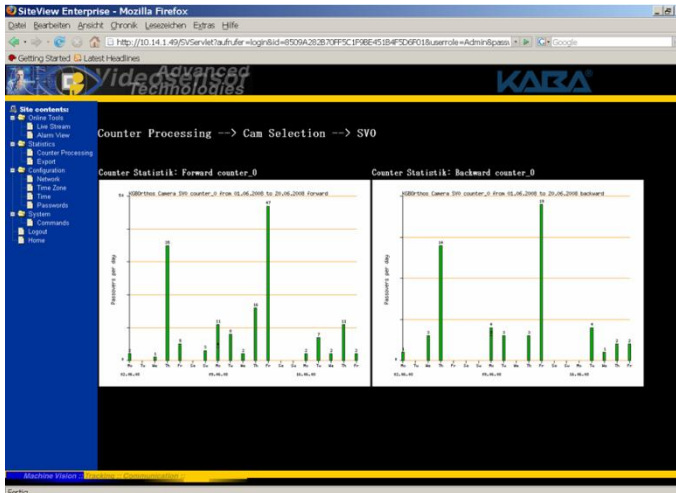
Extended Optical Recognition EOR



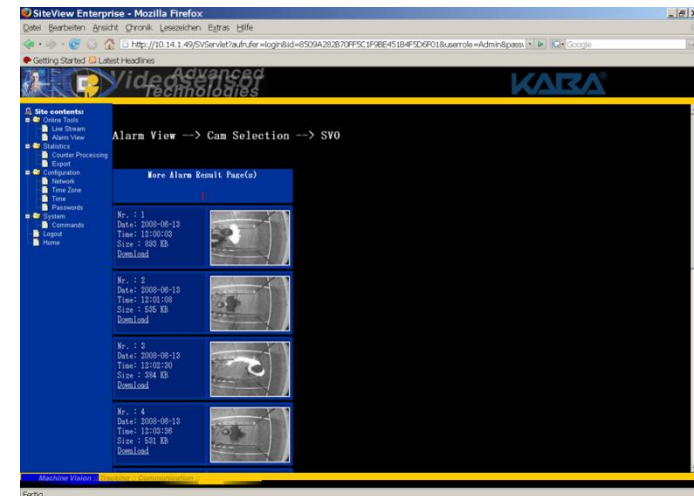
Parameter settings



Alarm calendar



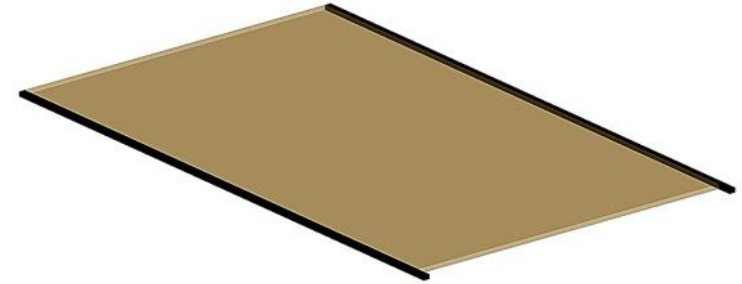
Counter statistics



Alarm video

> Light grid for wide passages

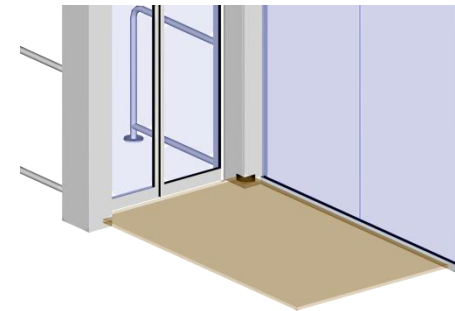
- > Project-specific length
- > Detection via floorboard of lock
- > When integrated in limiting plate additional detection strips are included
- > Combination with sensor spot in angular corridors



Light grid

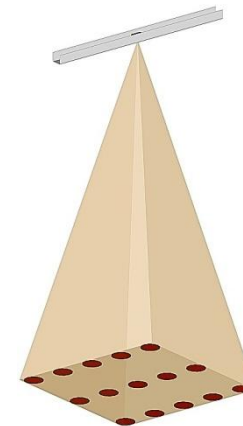
> Laser scanner

- > Installation in Orthos PIL portal foot
- > Detection via corridor floor
- > Object recognition as from approx. 10 x 10 x 10 cm



Laser scanner

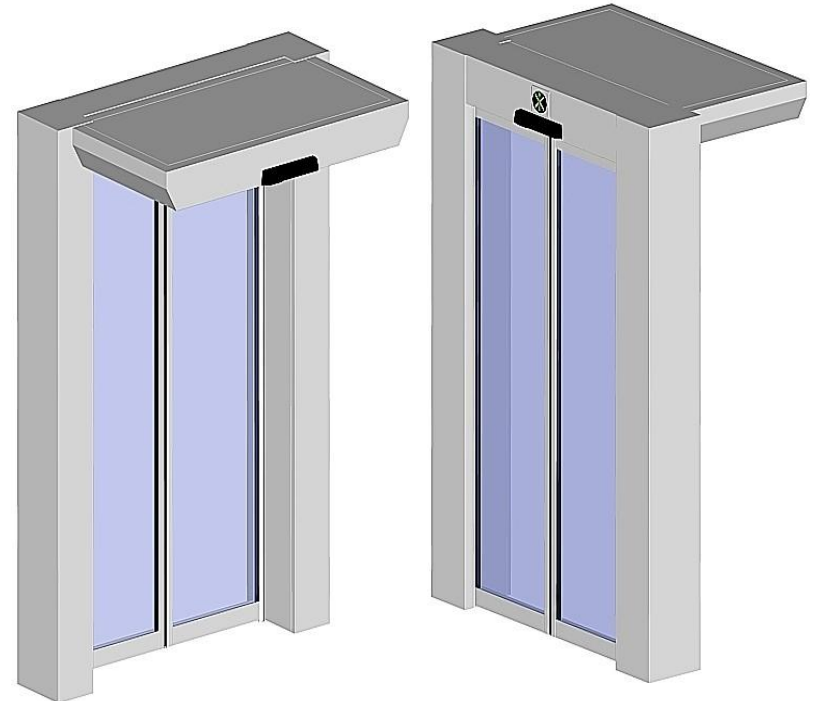
- > Sensor array 1 x 1.2 m for standard corridors
 - > Volume control from top in pyramid form
 - > 15 detection spots for each sensor
 - > A correct detection is not possible in case of a reflecting or changing floor covering, e.g. inlaying mats. Use uniform and low reflecting floor coverings.
 - > Lighting with a high proportion of infrared light may impede the sensor
 - > The sensor is activated if an object or person is located in the detection field.
 - > The sensor has a hold time. Motionless objects (e.g. suitcases) or persons are stored as a new background image following an adjustment. This means that they are no longer detected



Light array

PIL-M02

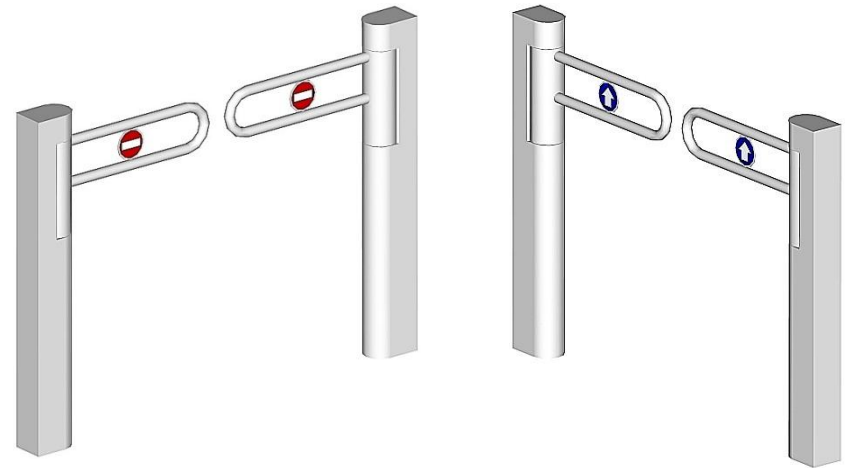
- > Full-height single action door in toughened glass, 6 mm
→ Solid barrier when closed
- > Prevents passages to secure area or the handing over of objects
- > Opened by radar sensor on airside
- > Contains MDR radar sensor on landside (recognises passages in opposite direction)
- > Presence sensor in ceiling
 - > To open the HSD
 - > For alarm evaluation
- > Finish: stainless steel or powder-coated
- > Traffic lights red/green (cross/arrow),
- > Power-limited drive, monitoring of the swinging range
- > Closing speed ≤ 2.0 sec.



Passage height	2100 mm
Passage width	640 to 950 mm

Half-height swing door (HSD)

- > Quick two-wing barrier to prevent passages in opposite direction
- > Opening and closing sensors are integrated in the PIL
- > Monitoring of the swinging range by means of light grids at foot level
- > Finish: stainless steel
- > Low energy drive with additional safety sensors
- > Closing speed ≤ 0.5 sec.

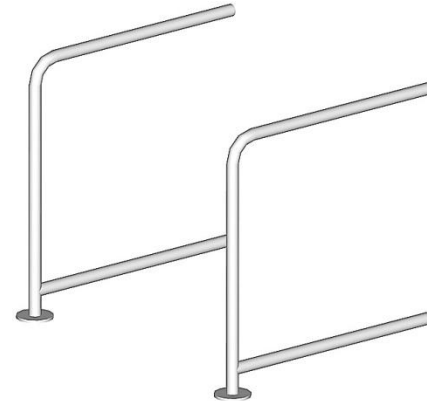


Total height:	900 mm
Passage width:	640 to 950 mm

PGB (for PIL)

- > Personal guiding bar in entrance area
- > Guides passengers to the opening sensor
- > Finish: stainless steel

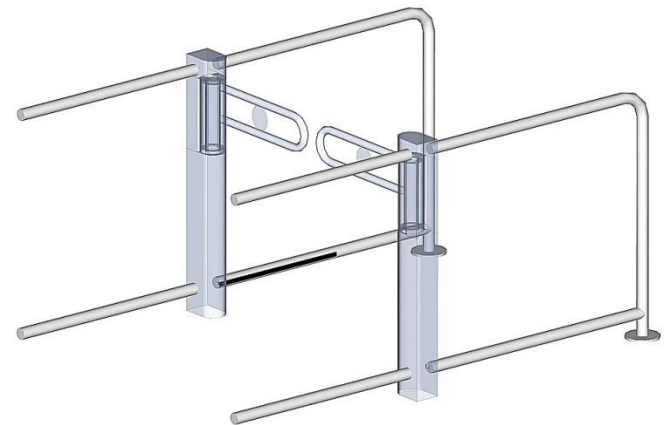
Total height: 875 mm
Passage width: 640 to 950 mm



PGB (for HSD)

- > Personal guiding bar in the HSD swinging range
- > Integrated light barriers
- > Finish: stainless steel

Total height: 875 mm
Passage width: 640 to 950 mm



Orthos PIL-M02: Components

Side walls (MDE)

- > Metal door elements with toughened glass, 10 mm
- > Form a corridor between the PILs
- > Held in a floor rail at the bottom
- > Cable duct at the top
- > Finish: stainless steel or powder coated
- > Angular version (optional)

Total height 2300 mm

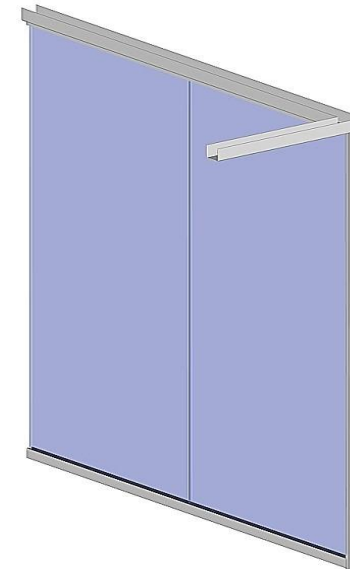
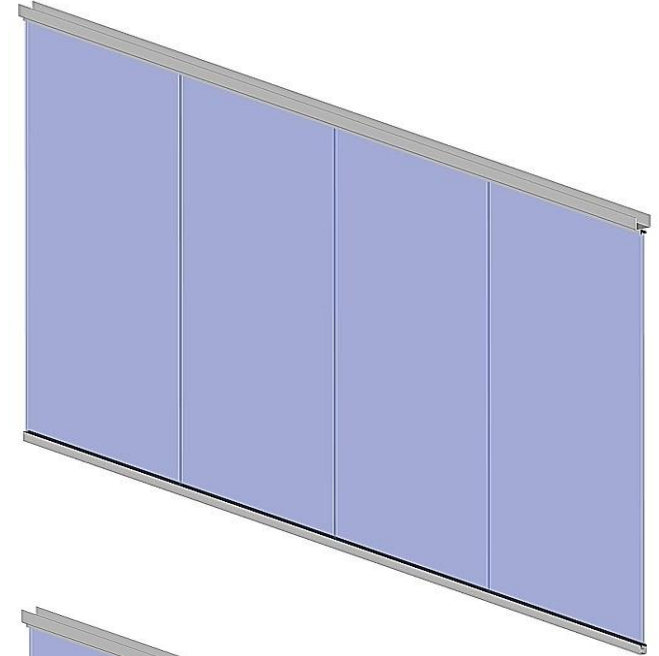
Total length 3750 mm

Side walls (MDE)

- > Metal door elements with toughened glass, 10 mm at filter end
- > Reinforced frame and edge protection
- > Held in a floor rail at the bottom
- > Cable duct at the top
- > Finish: stainless steel or powder coated

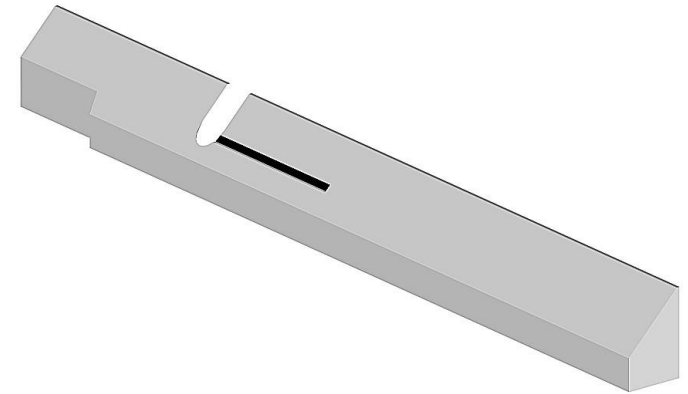
Total height: 2300 mm

Total length: 1908 mm



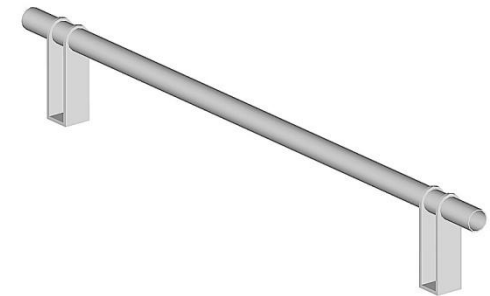
Limiting plate in foot area

- > Protects side walls and swing doors against impact from suitcases, pushchairs, etc.
- > Integrated light barriers and swing doors
- > Easier cleaning due to even surfaces
- > Finish: stainless steel



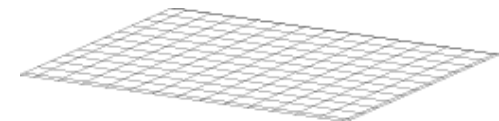
Limiting bar

- > Protects side walls and swing doors against impacts by suitcases, pushchairs, etc.
- > Finish: stainless steel



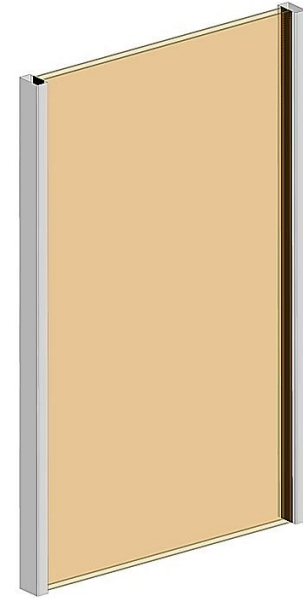
Throw over protection

- > Perforated plate, free cross-section > 50 %
(In case of smaller cross-section a smoke detector is required)
- > Finish: stainless steel



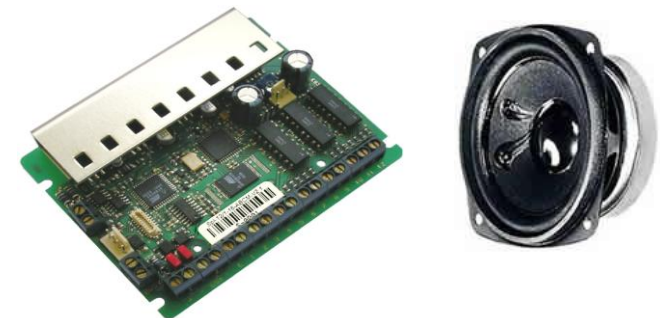
Direction recognising sensor grid

- > On landside at the end of the MDE
- > To detect obstacles thrown into the filter
- > Full corridor height
- > During a permissible passage the sensor grid is not active in the opposite direction



Voice module

- > High-quality voice module for free programming, memory for approx. 92 seconds
- > High-performance loudspeaker for best sound reproduction
- > Depending on the system configuration messages can be output with regard to events



Orthos PIL-M02: Functions



- > Automatic operation ⇔ Group interlocking
- > One-way operation from air to land side with free passage (LED lights up), opposite direction sensors are activated
- > Group interlocking with two-way locked doors (LED flashes), opposite direction sensors are deactivated



- > Blocked
- > Interlock is out of service, passage through reader signal possible
- > Opposite direction sensors are deactivated



- > Released
- > All doors open, free passage
- > Opposite direction sensors are deactivated



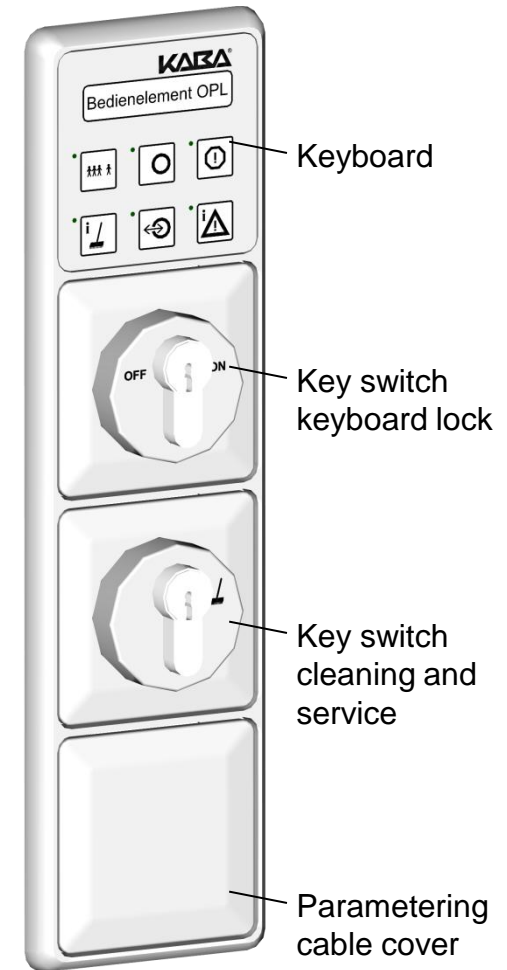
- > Expert inspection
- > Doors can be checked in accordance with DIN 18650
- > Opposite direction sensors are deactivated



- > Technical malfunction
- > Information display with various blinking codes during malfunctions
- > Errors that can be automatically fixed are not permanently displayed



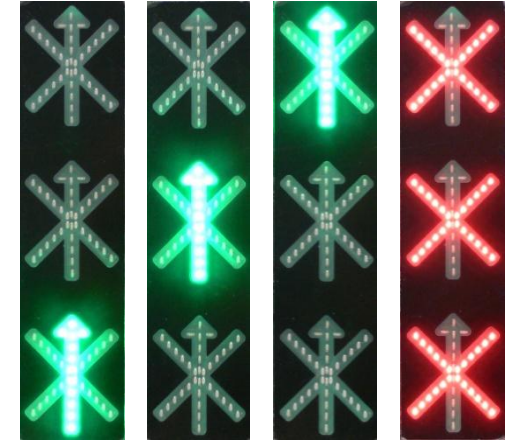
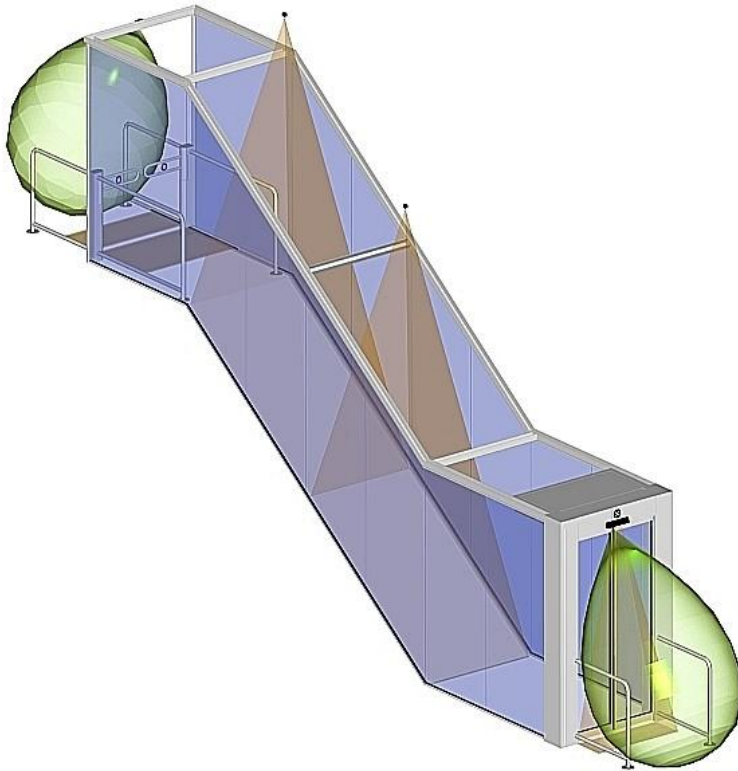
- > Cleaning or service
- > Information display for cleaning or service mode



OPL operating panel

Running light in the PIL portal

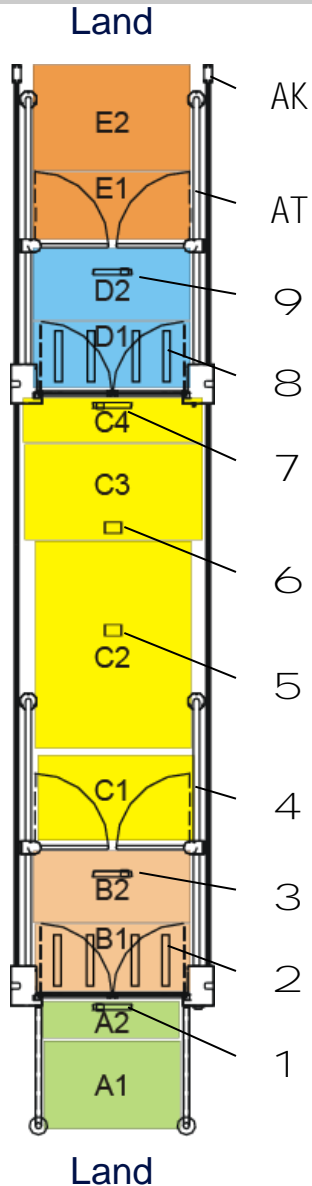
- > Three arrow and cross pictograms with LEDs in the portal of the swing door unit
- > Installations height: approx. 1700 mm



Customer-specific design

- > Realisation of creative requirements and special demands
- > Adaptation to the building geometry, etc.

Orthos PIL-M02: Sensors / Filter Sequence



	Sensor	Zone	Function
AK	1 Open/Protection	A1/A2	Opens PIL-Air / protective sensor PIL Air
AT	2 Protective sensor	B1	Swinging area monitoring, opens HSD
9	3 Opposite direction/Protection	B2/C2	Closes all doors when passage in opposite direction is detected, keeps HSD open
8	4 Light grid	C1	Monitors swinging area for HSD
7	5 Presence detection	C2	Alarm evaluation, clearing sequence
6	6 Presence detection	C2	Alarm evaluation, clearing sequence
5	7 Open/Protection	C3/C4	Opens PIL-Land/Protective sensor PIL Land
4	8 Protective sensor	D1	Swinging area monitoring, opens HSD
3	9 Opposite direction/Protection	D2/E2	Closes all doors when passage in opposite direction is detected, keeps HSD open
AT	Light grid	E1	Monitors swinging area for HSD
2	AK Light grid	E2	detects objects that are cast into the filter (optional)
1			

Orthos PIL-M02: Planning the Interlock



Personal security

- > Definition of the protective sensors and their evaluation in the project risk assessment

Protection

- > Sensors for opposite direction detection
- > Sensors for presence detection
- > Number of doors
- > Throwing detection
- > Form of the interlock (angular, etc.)

Configuration with the equipment checklist

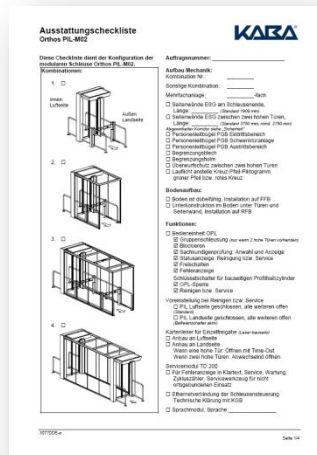
- > Components
- > Activation
- > Checkbacks
- > Special requirements



Risk assessment
30614



Operating
instructions
30733



Equipment checklist
30770

External activation (basic unit)

- > Manual alarm reset
- > Increased security requirement
- > Single release entry
- > Single release exit

External activation (with additional I/O interface)

- > Blocking passage
- > Service/cleaning inside
- > Service/cleaning outside
- > General release/Full opening
- > Expert inspection
- > Emergency release
- > Group interlocking
- > Smoke or fire detection system
(full opening)

Checkbacks (basic unit)

- > Opposite direction alarm relay
- > Technical malfunction relay
- > Expert inspection relay activated
- > Service/cleaning operation relay activated
- > Group or individual interlocking relay
activated
- > Blocking relay activated
- > Emergency release relay activated
- > General release relay activated

Ethernet connection

- > To be clarified on a project-specific basis

A man and a woman are walking together in a modern, brightly lit shopping mall. The woman is wearing a blue top and white pants, carrying a purple shoulder bag. The man is wearing a grey V-neck sweater over a white shirt and white pants, carrying a green and purple shopping bag with the 'kate spade' logo. In the background, a 'VALENTINO' store is visible. A semi-transparent white banner is overlaid across the middle of the image.

Thank you very much for your attention

KABA®