

# User Manual

## FlipFlow TWIN



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# 1 Regulations

## 1.1 Important safety instructions



### **DANGER**

#### **Serious injury or death from unattended children playing**

- Reduce the risk of serious injury or death
  - Read and follow all safety instructions.
  - Never allow children to play near or inside the installation.
  - Children may only use the installation under the supervision of an adult.



### **CAUTION**

#### **Unexpected OPENING / CLOSING of the installation**

- Crushing and bruising due to the OPENING / CLOSING of the installation
  - No persons or objects are allowed in the opening area of the door.
  - No safety devices (sensors) should be removed or disabled.
  - Do not rush through a door that is already closing.
  - Always keep the moving system within sight until it is completely open/closed.



### **WARNING**

#### **Missing settings and maintenance of the system**

- May cause serious injury or death
  - Test the safety devices of the door at least once a day (see chapter „FlipFlow daily safety check“)
  - Keep the installation properly operating and balanced
  - Call a record technician for service or have trained door systems technician make repairs to the installation
  - Save these instructions

## 1.2 General safety and accident prevention regulations



### **NOTICE**

This device was not intended to be used by persons (including children) with limited physical, sensory or mental abilities, or with the absence of experience and/or lack of knowledge, unless they are being supervised by a person responsible for their safety or received instruction on how to use the device.

Children should be supervised to ensure that they do not play with the device.



### **IMPORTANT**

Do not allow children to play with the device or its regulating and/or control devices, including remote controls.

**IMPORTANT**

When using motion detectors, make sure that no moving objects such as flags, plants, etc. enter the detection areas of the motion detectors

**IMPORTANT**

In order to avoid malfunctions, the system must *NOT* be disconnected from the mains overnight!

**IMPORTANT**

If malfunctions that endanger the safety of individuals occur, the system must be turned off. It may not be turned back on until the problem has been resolved by a professional and the danger no longer exists.

**IMPORTANT**

Safety devices (e.g. sensors, protective wings) must not be dismantled or put out of operation.

**! CAUTION**

**Malfunctions and risk of falling from debris gathering under the floor mat!**

- Door breakdown, bruises, broken bones
- The floor mat or floor covering must be even and securely installed.
- Debris that gathers under the floor mat must be removed regularly.

**! CAUTION**

**Unexpected OPENING / CLOSING / ROTATION**

- Bruises and contusions from the door wings/apron
- No persons or objects are allowed in the opening area of the door.
- No safety devices (sensors) should be removed or disabled.
- Do not rush through a door that is already closing.

**! DANGER**

**Electric shock**

- Electric shock, burns, death.
- Disconnect the drive from the power supply during cleaning, maintenance and replacement of parts.

### 1.3 Presentation of warning signs

Various symbols are used in this guide for easier understanding:



#### **NOTICE**

Useful advice and information to ensure correct and efficient workflow of the system.



#### **IMPORTANT**

Specific details which are essential for trouble-free operation of the system.



#### **IMPORTANT**

Important details which must be read for proper function of the system.



#### **CAUTION**

Against a potential hazardous situation that can lead to minor personal injury and property damage.



#### **WARNING**

Against a latent hazardous situation that can lead to severe injuries or death and cause substantial property damage.



#### **DANGER**

Against an imminent hazardous situation that can lead to severe injury or death.



#### **DANGER**

Against an imminent or latent hazardous situation that could lead to electric shock and cause serious injury or death.

### 1.4 Intervention rules on sites

Subject to general labor laws:



#### **IMPORTANT**

Before starting with inspection and maintenance, it is necessary to ensure that a side entrance can be used by third parties. It is highly recommended to have a pedestrian barrier around the complete door!



#### **IMPORTANT**

All repairs and service work must be performed by qualified personnel. Technicians must have good general technical knowledge and a good knowledge of the current standards and regulations.

***IMPORTANT***

Before starting work on the door, ensure that all equipment and tools are in good working order and conform to current safety standards.

***IMPORTANT***

Do not change the components of the automation system in any way.

***NOTICE***

Labeling and information must be visible to everyone.

***NOTICE***

Ensure regularly that all safety systems are in good working order.

---

## 2 Preparation advice

### 2.1 Necessary training

The record training center fulfils all relevant training requirements you will be faced with (consultancy, inter-company training, customized training etc.) and puts its skills at your disposal by providing you with its training catalogue.

We offer a wide range of training that can be tailor-made to meet your specific needs.

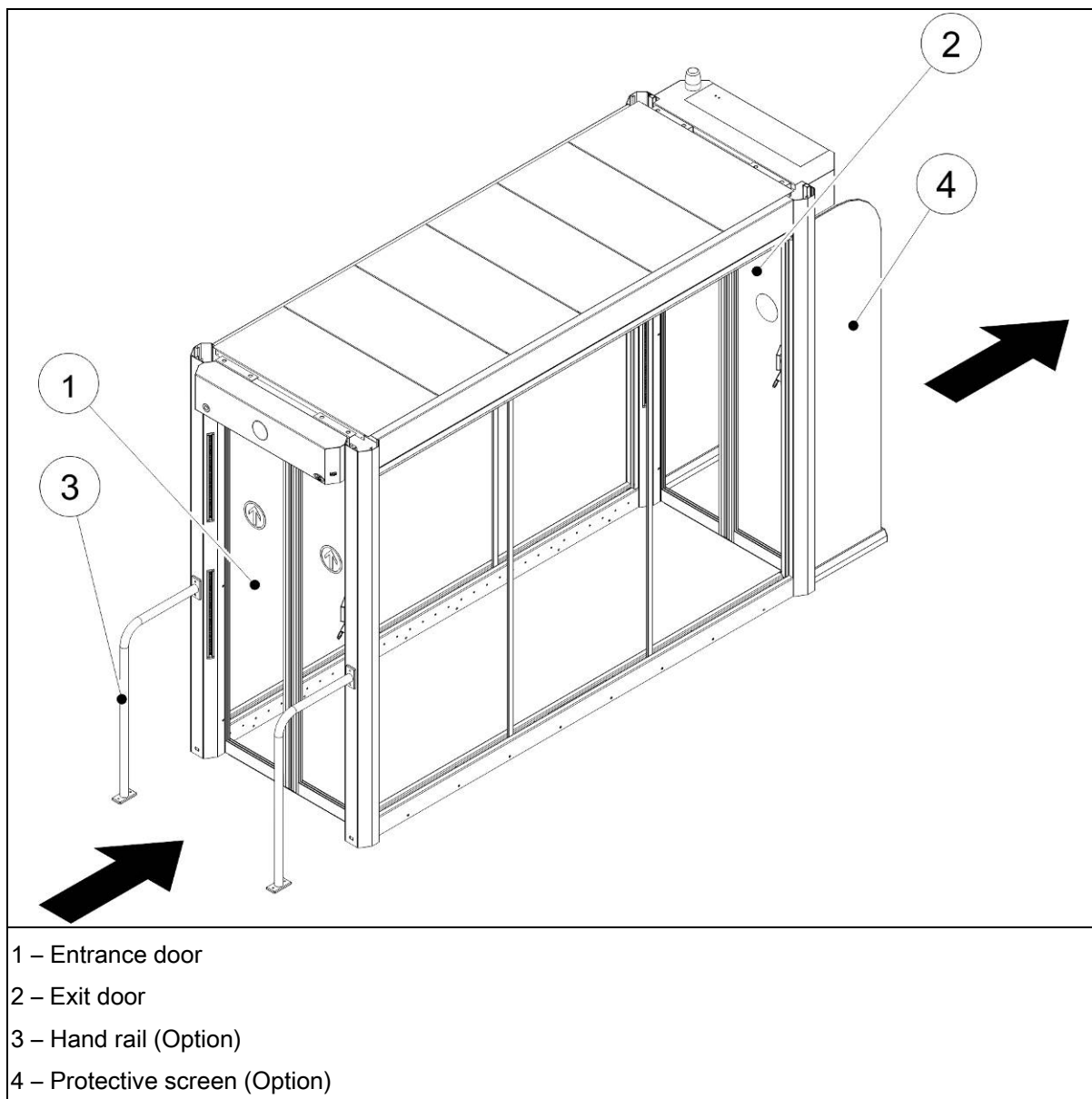
**Training is set out in detail in the Training Program, created especially for the FlipFlow.**

We strongly advise taking a training course before installing the FlipFlow at a client's site in your region. A specific training course also deals with the maintenance of the anti-pass-back tunnel, and in order to reduce inconvenience and on-site servicing time, we recommend you attend this training course.

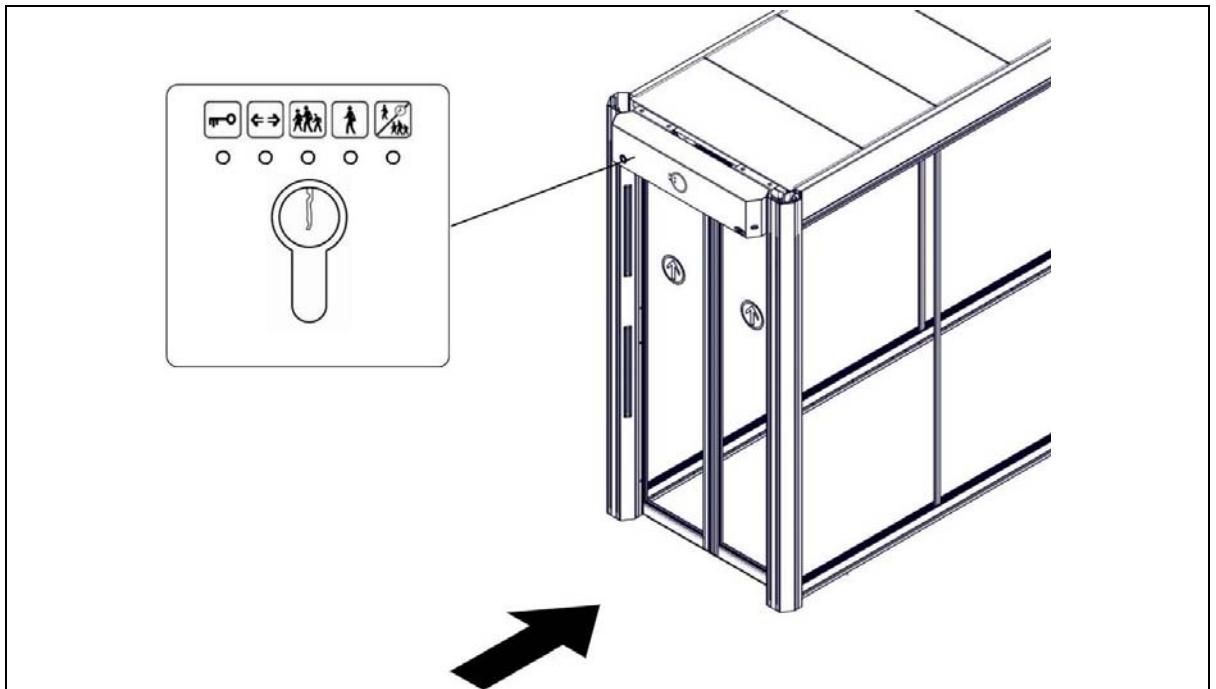


3 FlipFlow Twin description

3.1 General presentation



### 3.2 Control panel position



The control panel BDE-S (for the selecting the operating mode) is located in the on the cladding behind the cover of the entrance door.

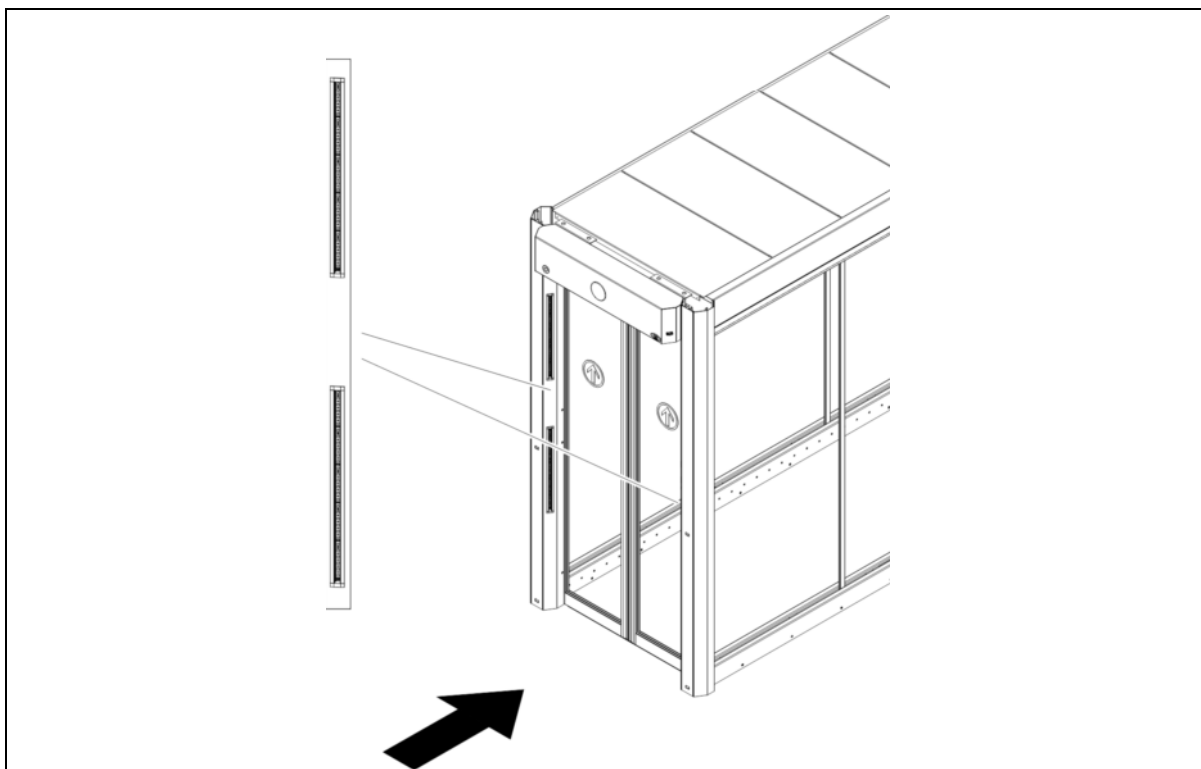
The control panel BDE-S for the FlipFlow

<p>The detailed view of the control panel BDE-S shows five icons in a row: a key, a double-headed arrow, two people walking, a single person walking, and a person with a cart. Below each icon is a small circle. At the bottom of the panel is a large keyhole.</p>	<p>This control panel is used to switch between the various operating modes of the FlipFlow. Switching to the CLOSED/LOCKED mode also performs a manual reset of the system.</p>
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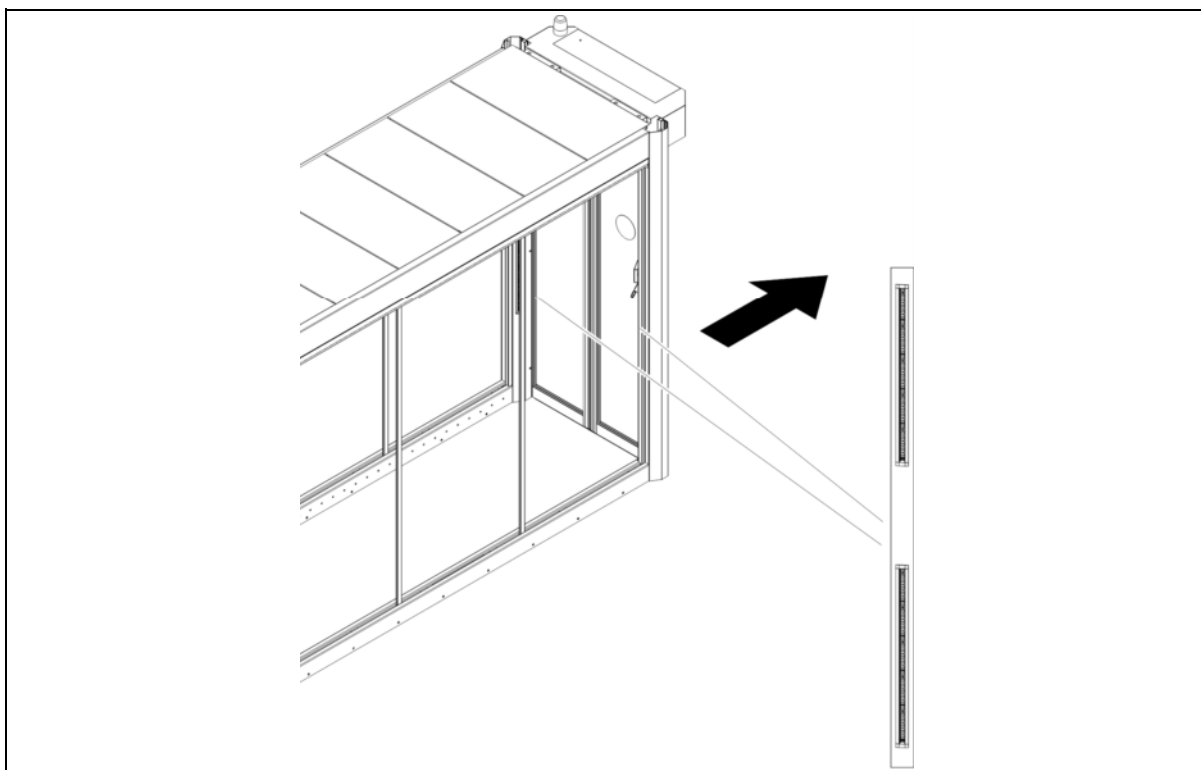
### 3.3 FlipFlow traffic lights

Signaling depends on the operating mode selected and the choice of options ordered. The standard basic version of the FlipFlow is equipped with a set of red, yellow and green LED-Strips on the entrance door. How the LED-Strips operate is explained under the various operating modes of the FlipFlow.

3.3.1 Entrance door signals

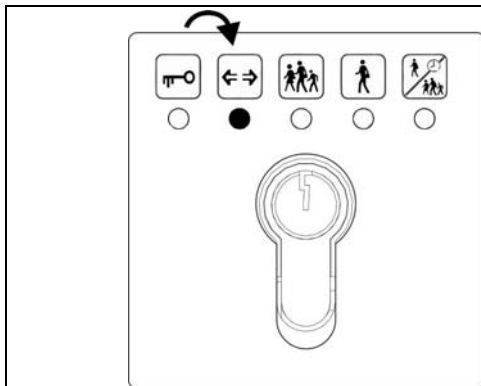


3.3.2 Exit door signals



## 4 Description of use

### 4.1 How to operate the BDE-S control panel



The BDE-S has a standard European half-cylinder.

The BDE-S is a 5 position, key operated control panel; simply insert the key and then turn until the desired selection corresponds with the indicator lit.

Each rotation of the key changes which LED is lit.

## 5 Operating modes and functions

### 5.1 CLOSED and LOCKED operating mode

<p>Also serves as a manual reset</p> <p>Status of the FlipFlow:</p> <ul style="list-style-type: none"> <li>▪ Illumination is off.</li> <li>▪ LED-Strips and pictograms are red.</li> <li>▪ Doors are closed and locked.</li> </ul>	



#### NOTICE

**Configurable:**

- Option to enable detection in tunnel to open the exit door.

### 5.2 OPEN operating mode

<p>Status of the FlipFlow:</p> <ul style="list-style-type: none"> <li>▪ Illumination is on.</li> <li>▪ Entrance door is open.</li> <li>▪ Exit door is open.</li> <li>▪ LED-Strips at entrance are green.</li> <li>▪ LED-Strips at exit are green.</li> <li>▪ Entrance pictogram is green.</li> </ul>	



**NOTICE**

**Configurable:**

- Activation / deactivation of the sensors and movement detection.



**IMPORTANT**

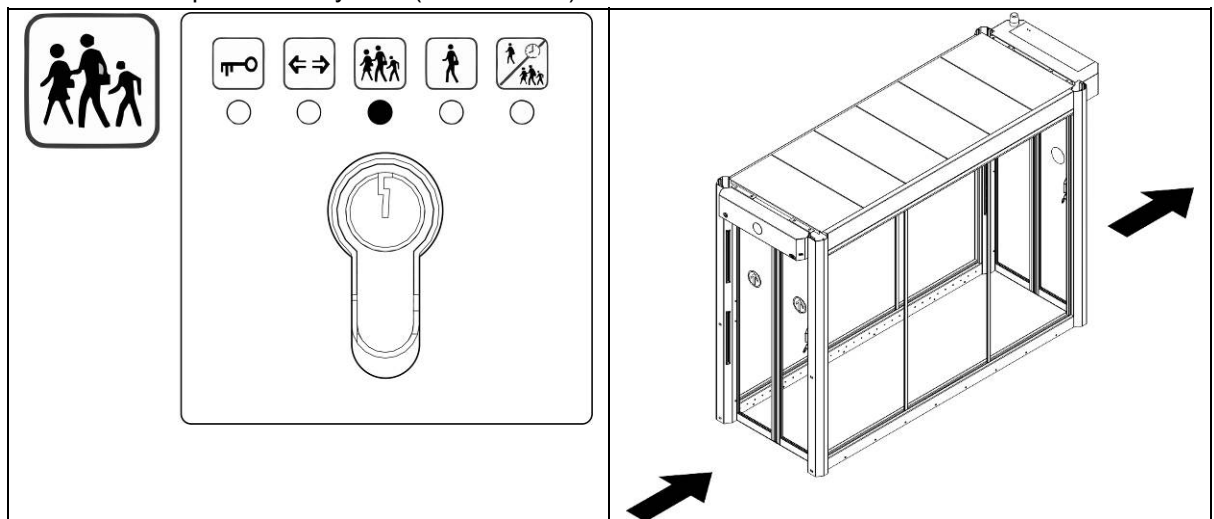
**In this mode, the security level is compromised!**

If detection in the tunnel is deactivated, it is possible to pass through in both directions without triggering an alarm.

If detection is activated, it is only possible to pass in the authorized direction without triggering an alarm.

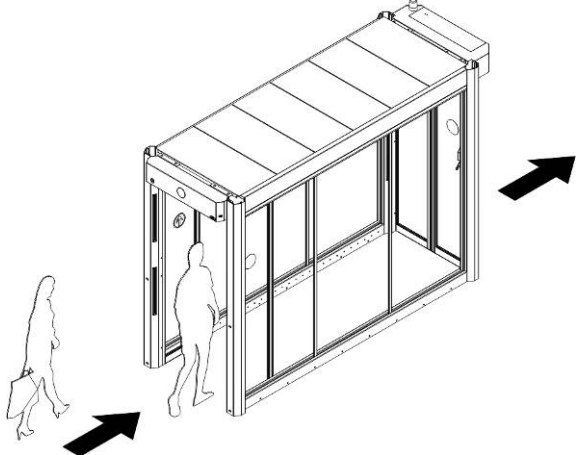
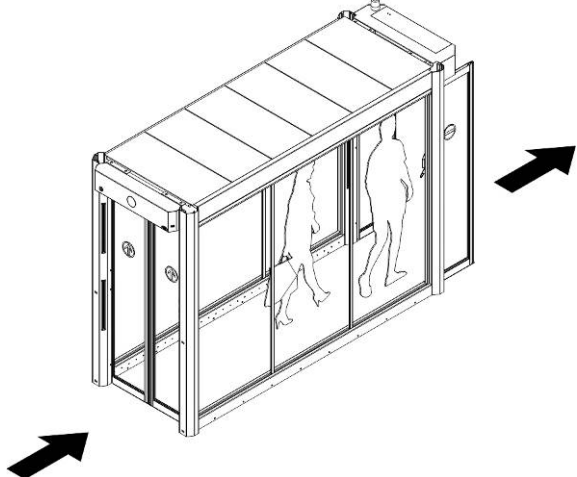
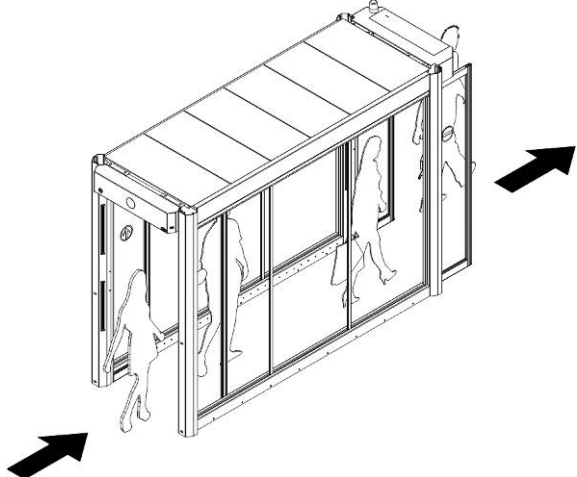
**5.3 FLOW operating mode**

FLOW mode offers a wide variety of passage possibilities as there are no restrictions for the doors to open simultaneously, although maintaining a certain level of security thanks to a very low response time of the anti-pass-back system (TOF-Sensor).



**Initial state:**

- Illumination is on.
- Entrance door is closed.
- Exit door is closed.
- LED-Strips are green.
- Entrance pictogram is green.

	<p>Cycle:</p> <ul style="list-style-type: none"> <li>▪ A passenger arrives in front of the entrance radar, the door opens.</li> </ul>
	<ul style="list-style-type: none"> <li>▪ A passenger enters the tunnel, the door closes again (if another passenger arrives, the door stays open).</li> </ul>
	<ul style="list-style-type: none"> <li>▪ A passenger arrives in front of the exit door, and the door opens.</li> <li>▪ The passenger exits the tunnel, the door closes again (if another passenger arrives, the door stays open).</li> </ul> <p>End of cycle.</p>



**NOTICE**

**Configurable:**

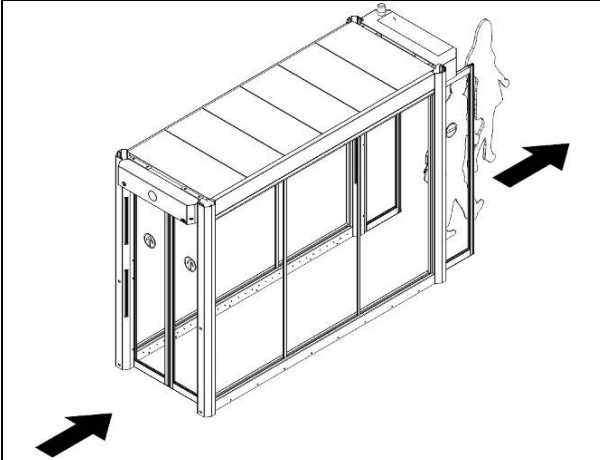
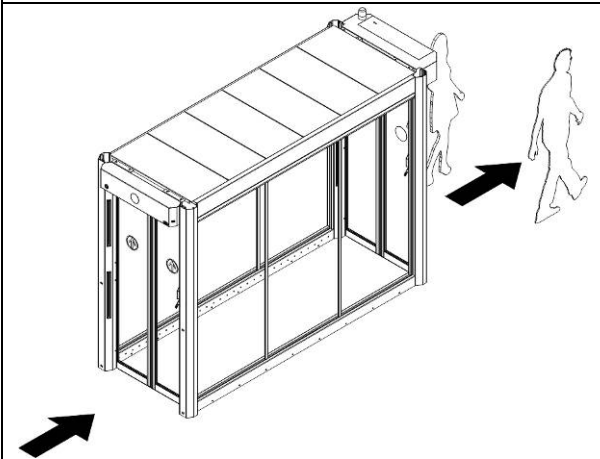
- Door and alarm timer delays.
- Choice of reaction: whether error or intrusion.

### 5.4 INTERLOCK operating mode

INTERLOCK mode has fewer passage varieties than FLOW mode but offers maximum security, even between two arrivals, a time where the number of passengers is low.

<p>Initial state:</p> <ul style="list-style-type: none"> <li>▪ Illumination is on.</li> <li>▪ Entrance door is closed.</li> <li>▪ Exit door is closed.</li> <li>▪ LED-Strips are green.</li> <li>▪ Entrance pictogram is green.</li> </ul>	
	<p>Cycle</p> <ul style="list-style-type: none"> <li>▪ A passenger arrives in front of the entrance radar, the door opens.</li> </ul>
	<ul style="list-style-type: none"> <li>▪ A passenger enters the tunnel; the entrance door closes as long as nobody else enters within a configurable time and/or the number of passengers has reached the limit allowed; once the decision to close the entrance door is made, the entrance LED-Strips turns red.</li> <li>▪ The LED-Strips on the exit door flashes to indicate to the passenger to wait.</li> </ul>



	<ul style="list-style-type: none"> <li>▪ The exit door opens as soon as the entrance door is closed. Simultaneously, the exit door LED-Strips switches to green and the entrance door LED-Strips flashes.</li> <li>▪ The tunnel empties, the exit door closes again.</li> </ul>
	<ul style="list-style-type: none"> <li>▪ To increase the flow of persons and to minimize the eventual waiting time, the entrance door opens again, if the exit door is closed and the INTERLOCK is empty. After a short waiting time, the entrance door will close again. If another passenger enters the detection field of the tunnel, the FlipFlow will return to its normal INTERLOCK-Mode.</li> </ul> <p>End of the cycle</p>



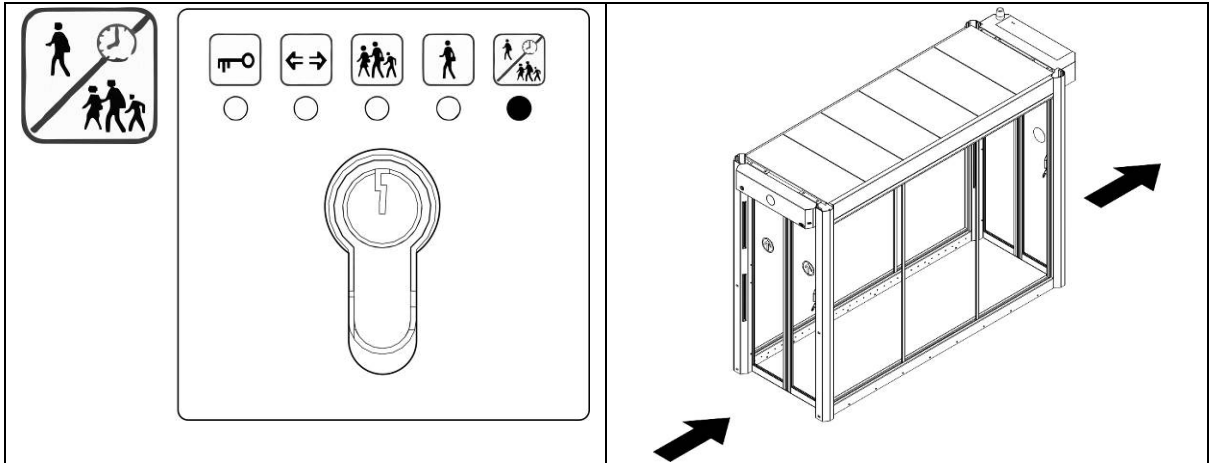
**NOTICE**

**Configurable:**

- Max. number of passengers admitted into the tunnel.
- Door and alarm timer delays.
- Lights flashing mode.

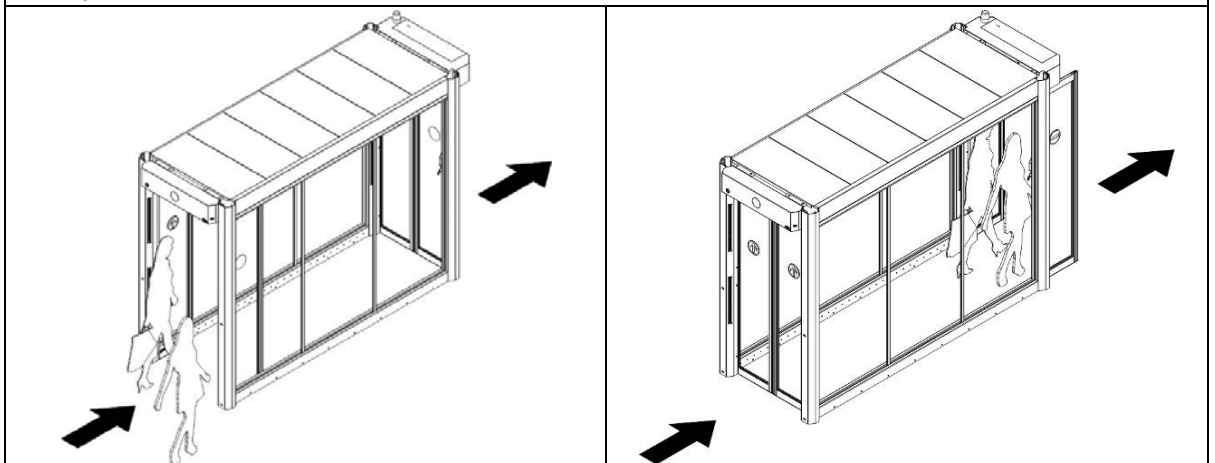
### 5.5 INTERLOCK operating mode / AUTO-FLOW

The automatic selection allows one to combine the advantages of both operating modes in relation to safety and the best passenger comfort. During low traffic periods (which present the highest risks), the FlipFlow switches to INTERLOCK mode to ensure a maximum level of security. When traffic intensifies (reducing the possibility of objects or people going back against the direction of flow), the FlipFlow adjusts its level of security to increase passage capacity and automatically switches to FLOW mode.



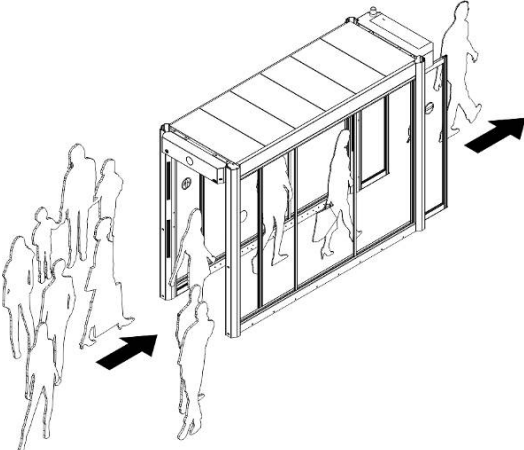
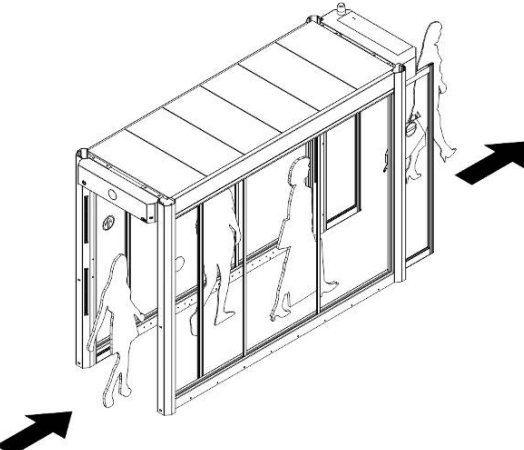
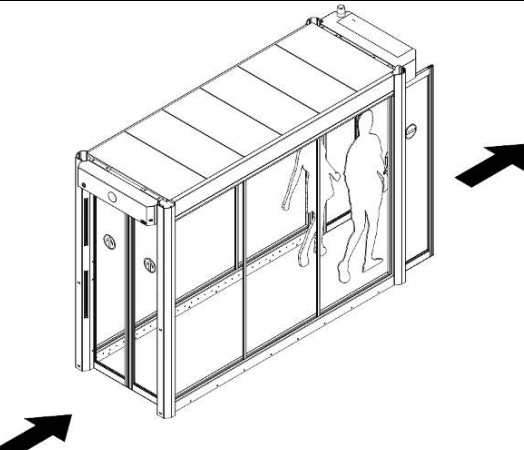
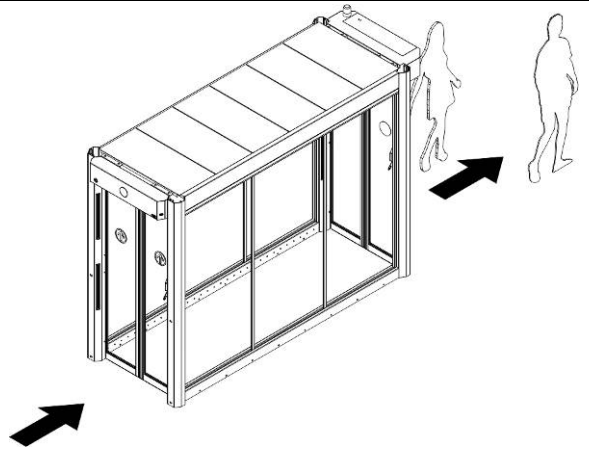
Initial state:

- Illumination is on.
- Entrance door is closed.
- Exit door is closed.
- LED-Strips are green.
- Entrance pictogram is green.
- FlipFlow is in INTERLOCK mode.



Cycle

When passenger flow is low, the FlipFlow operates in INTERLOCK mode as described above.

	<ul style="list-style-type: none"> <li>▪ If the number of passengers exceeds the pre-set threshold value the FlipFlow changes to FLOW mode and operates as described above.</li> </ul>
	<ul style="list-style-type: none"> <li>▪ The flow level is higher than the fixed threshold value the FlipFlow remains in FLOW mode and operates as previously described.</li> </ul>
	
<ul style="list-style-type: none"> <li>▪ The flow drops below the fixed threshold value the FlipFlow switches back to INTERLOCK mode and operates as described above.</li> </ul>	

**NOTICE**



**Configurable:**

- Flow and Interlock mode parameters.
- Flow - > Interlock threshold value.
- Interlock - > Flow threshold value.

## 5.6 POWERSAVE function

If the FlipFlow is not used for a certain time, the lights turn off and switch back on automatically for the next cycle.



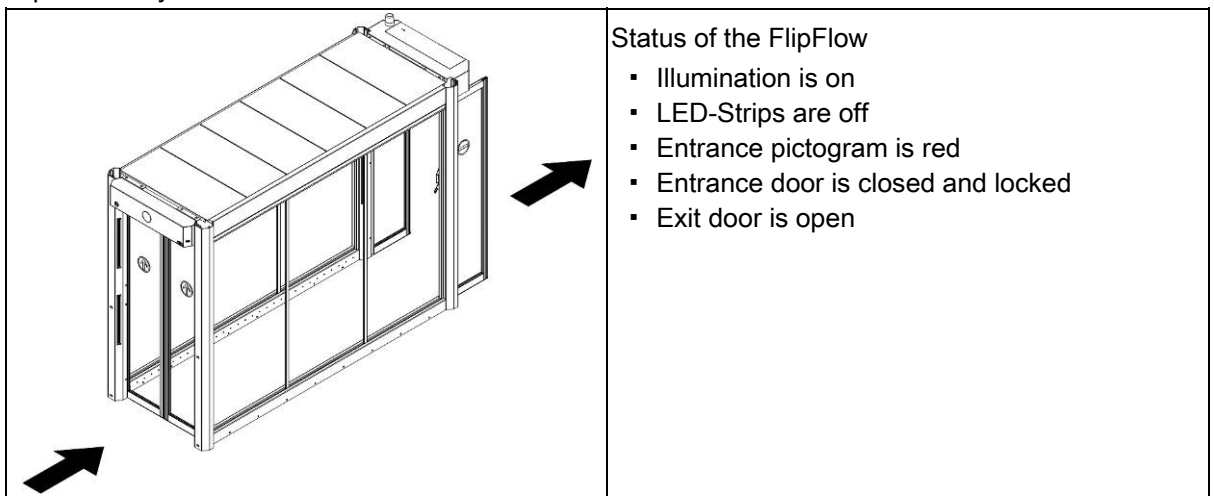
### NOTICE

#### Configurable:

- Activation / deactivation of functions.
- Setting the idle time delay.

## 5.7 CLEANING mode

This mode allows the FlipFlow to be cleaned without triggering an alarm while keeping the entrance door closed and locked. This mode can be activated by pressing a switch on the FlipFlow. This switch is provided by the customer.



### NOTICE

#### Configurable:

- Setting the cleaning time duration
- Setting the warning time duration

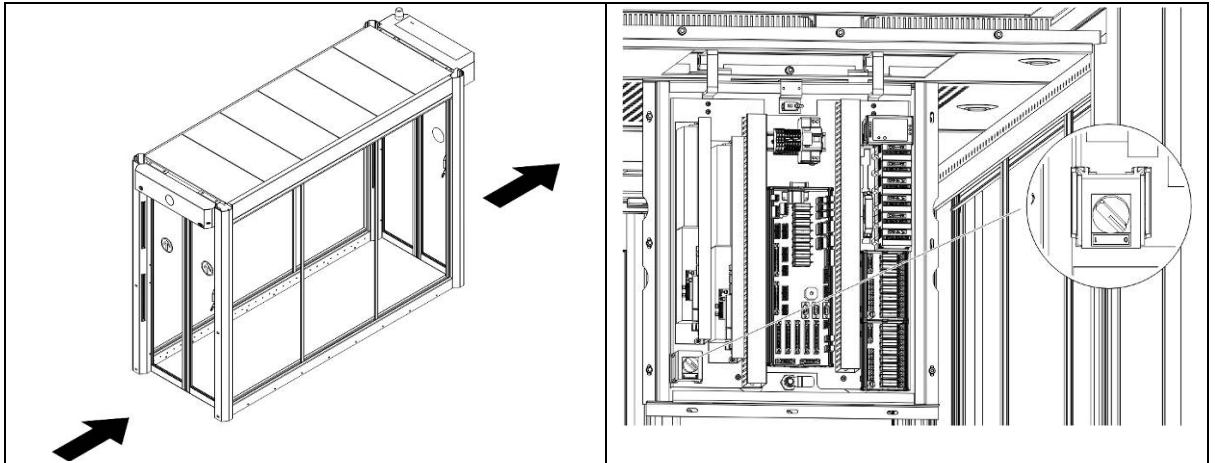
### Exiting cleaning mode

This mode can be exited in two ways:

- The service personnel deactivate this mode themselves before the set time expires and the FlipFlow goes back to the operating mode previously set.
- The Flipflow sends an audible signal indicating that the set time has expired, after a second time delay, the FlipFlow will prepare to close. If the tunnel is empty, it will go back to the previous operating mode. If not, the alarm will continue to sound until the service personnel has evacuated the tunnel.

### 5.8 TEST mode – without alarm function

This function allows the FlipFlow operating modes to be tested without triggering an alarm (no alarm signal transmitted to the BMS). This function can be activated by turning the rotary button on the control panel. This function can be used in any operating mode of the FlipFlow. The FlipFlow then operates normally but without an alarm function. The BMS is immediately informed that maintenance is in progress in this particular tunnel. An acoustical tone sounds at regular intervals as a reminder.



**Status of the FlipFlow**

- Depending on the mode selected.



**NOTICE**

**Configurable:**

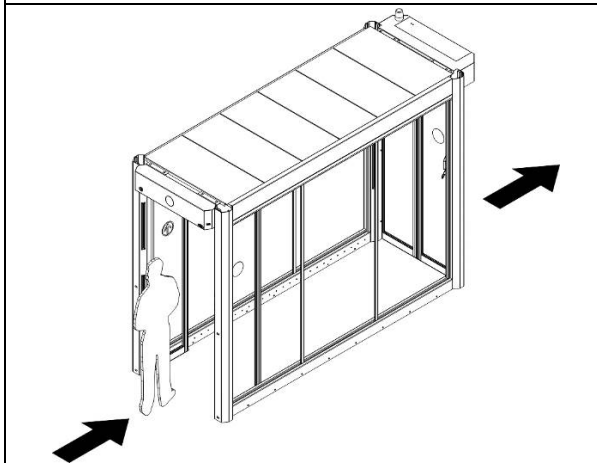
- Activate/deactivate surveillance of the service display
- Select operating mode parameters

### 5.9 MAINTENANCE mode

This operating mode allows the service technician access without triggering an alarm. This function can be activated with a local key switch provided by the customer.

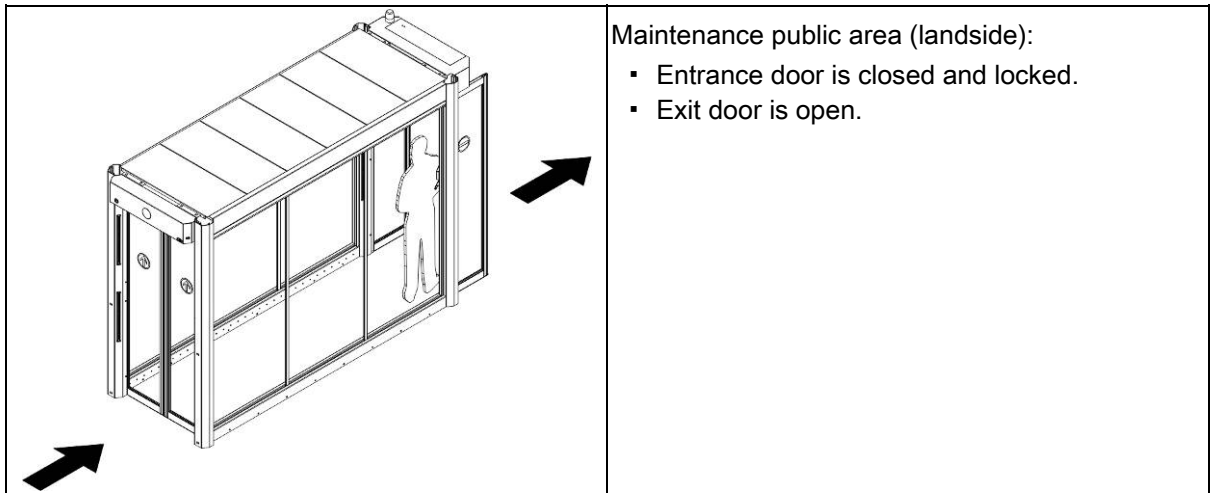
**Status of the FlipFlow**

- Illumination is on
- LED-Strips are yellow
- Entrance and exit pictograms are red



**Maintenance secure area (airside):**

- Entrance door is open.
- Exit door is closed and locked.



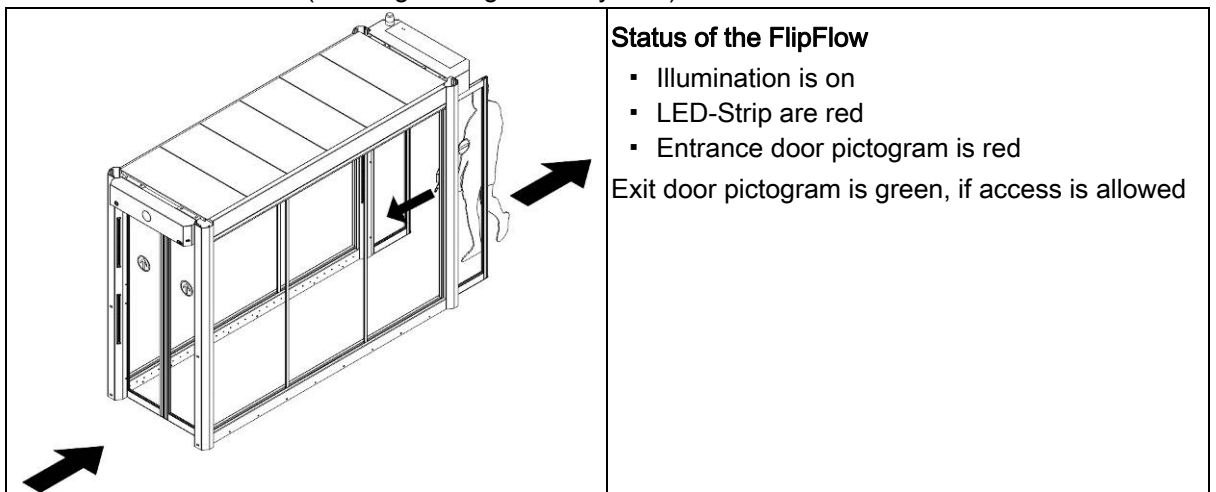
**NOTICE**

**Configurable:**

- Opening side (land / air)
- Blink delay

**5.10 Authorized access airside**

When this function is activated, an authorized person is entitled to pass through the FlipFlow in the opposite direction. This function can be activated with a button or switch provided and installed by the customer or via the BMS (Building Management System).



**Cycle:**

If the tunnel is empty and locked, then the middle and exit door will open in this function and after a delay time or person detection in tunnel 1, the middle and exit door will close again. If there is still a person inside the tunnel 1, then the entrance door will open to allow the person to leave the tunnel and then the entrance door will close again. If the tunnel is empty then the FlipFlow will return to the previously set operating mode.

If there is still a person in the tunnel or a new person has entered the tunnel, the middle and exit door will open and the person must leave the system in the exit direction.

**5.11 Emergency opening**

	<p>When this function is activated, the FlipFlow doors open regardless of the status of the safety sensors. This mode is activated in case of fire or emergency by a remote switch in the building management system. This switch is provided by the customer and will interrupt the connection between pin 3 and pin 4 on PM11 on the circuit board of each tunnel.</p>
--	--

**5.12 Emergency closing**

	<p>When this function is activated, the FlipFlow entry door will close regardless of the status of the safety sensors. This mode is activated by a remote switch in the building management system. This switch is provided by the customer and will interrupt the connection between pin 1 and pin 2 on PM11 on the circuit board of the first tunnel.</p>
--	---

**5.13 Power failure**

	<p>In the case of a main power failure, the UPS battery back up for the door will close the entry door and open the middle and exit doors regardless of the status of the safety sensors. Once the power is back, the FlipFlow will resume with the same operating mode selected before the power failure.</p>
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# 6 FlipFlow daily safety check



## IMPORTANT

Please perform once per day the following safety check

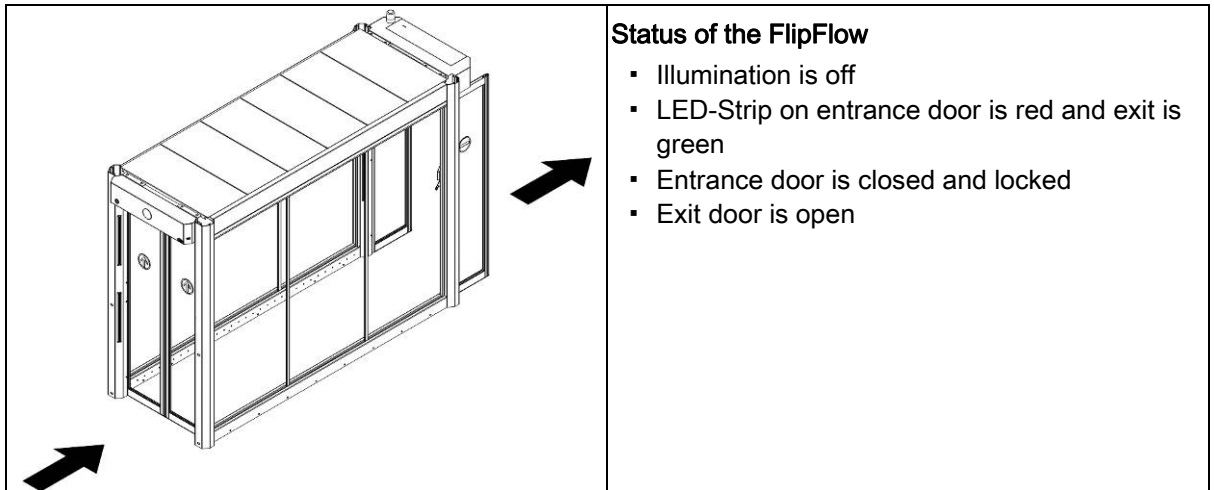
Daily safety check	
<p>1. Set the FlipFlow to "FLOW" mode.</p> <p>2. Approach the entry door and remain in the safety beam zone of the open door for 10 seconds.</p> <p>The door should not close.</p>	
<p>3. Move forward one step and remain between the door wings under the overhead door wing safety sensor for 5 seconds.</p> <p>The door should not close.</p>	
<p>4. Move forward and repeat step 2 and 3 for the middle and the exit door.</p>	
<p>5. Beware, at the exit door the door wing safety sensor is at the outside of the door header.</p>	



## 7 Conduct during power failure (battery pack optional)

In the case of a power failure, the entrance door closes and locks, the exit door unlocks and opens. The FlipFlow remains in this position until the main power supply returns. This function is only possible with an optional battery pack.

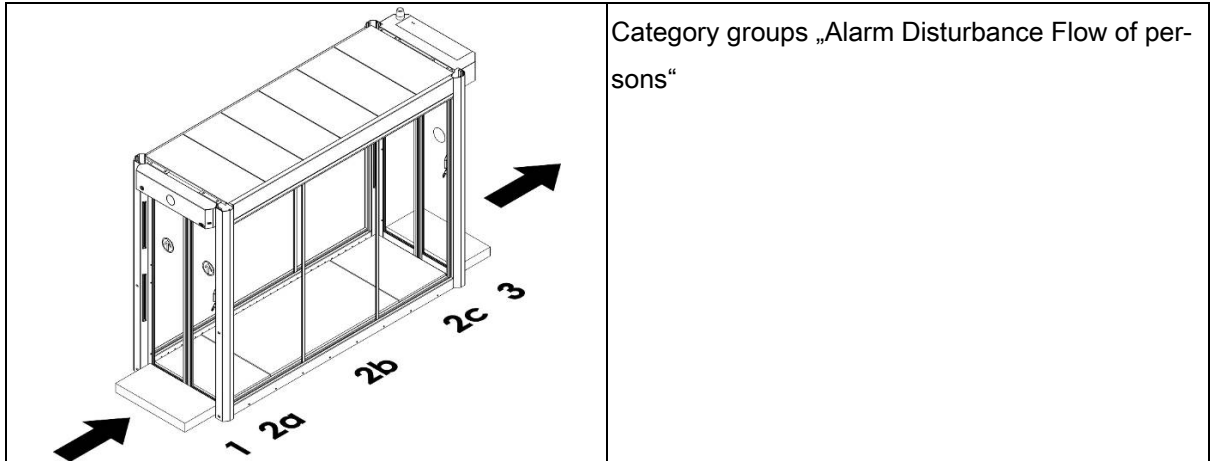
Without the battery pack, the FlipFlow will stop in its current position and the doors can be opened manually.



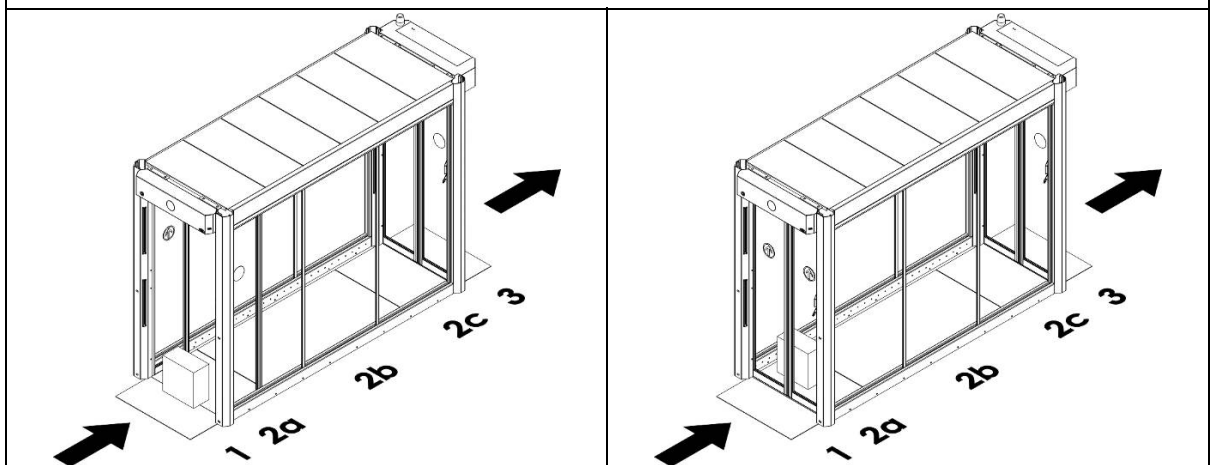
## 8 Possible errors / alarms

### 8.1 Wrong direction alarm

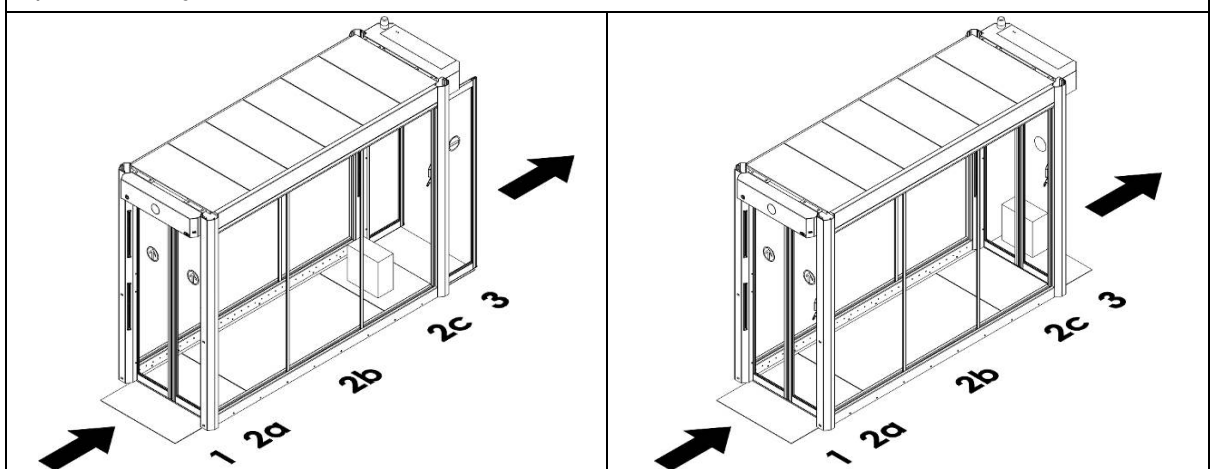
Below a list of situations which can set off a wrong direction alarm (=buzzer). Adjustable timers are implemented to manage the offset of these alarms.



A person or object remains under the entrance door or in zone 2a, the entrance door closes.



A person or object remains under the exit door or in zone 3, the exit door closes.



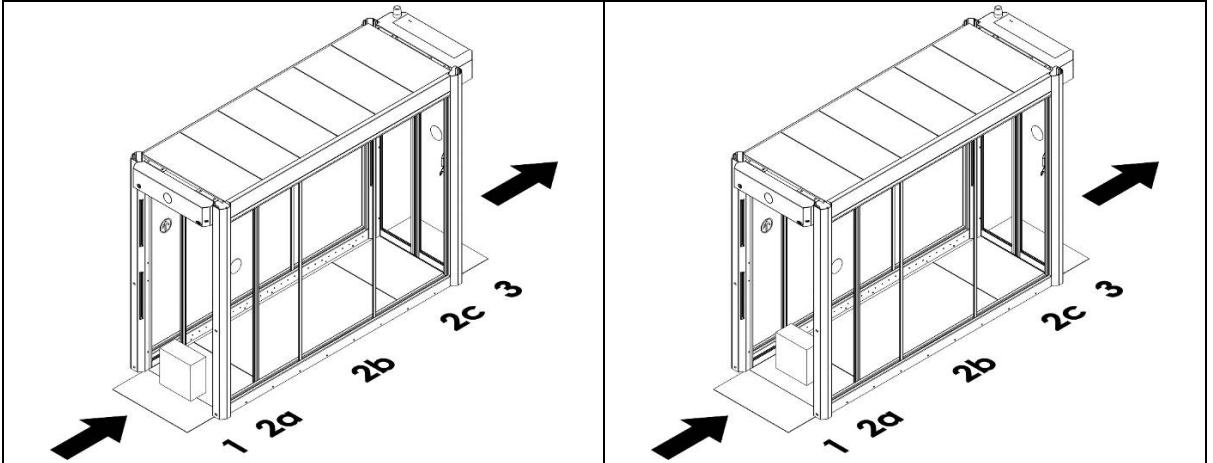


## NOTICE

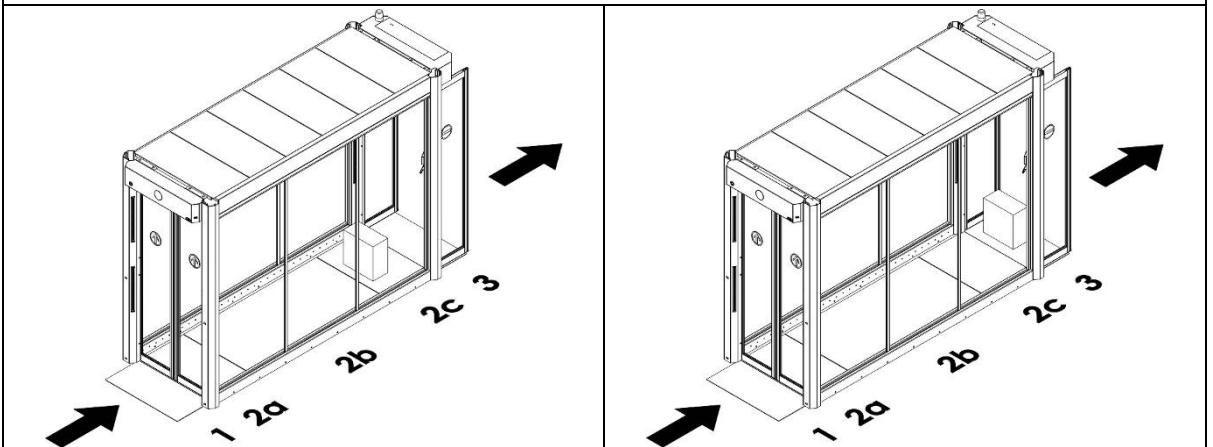
### Configurable:

- Setting all timers relevant to triggering the alarms

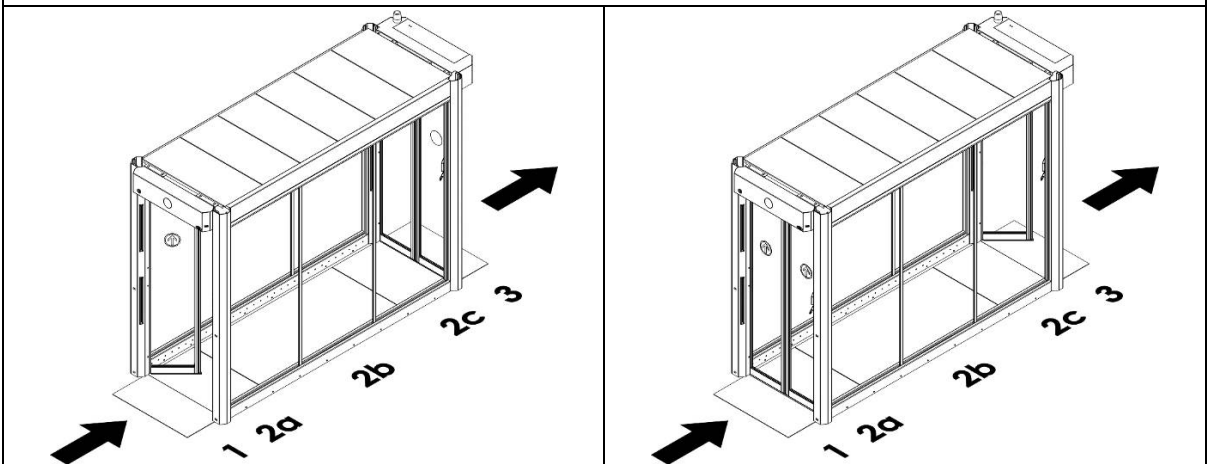
A person or object remains under the entrance door or in zone 2a, the entrance door opens.



A person or object remains under the exit door or in zone 3, the exit door opens.



The entrance and exit doors are no longer in their end positions.



- The entrance door is not open (or closed) when it should.

- The exit door is not open (or closed) when it should.

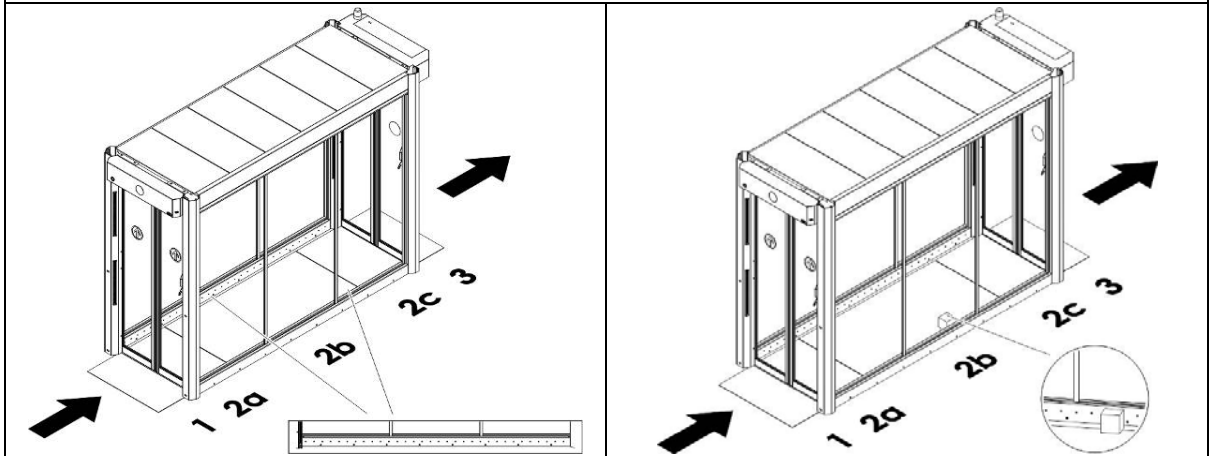


## NOTICE

### Configurable:

- Setting all timers relevant to triggering the alarms

With this option, entrance door closed, a presence is detected on the floor.

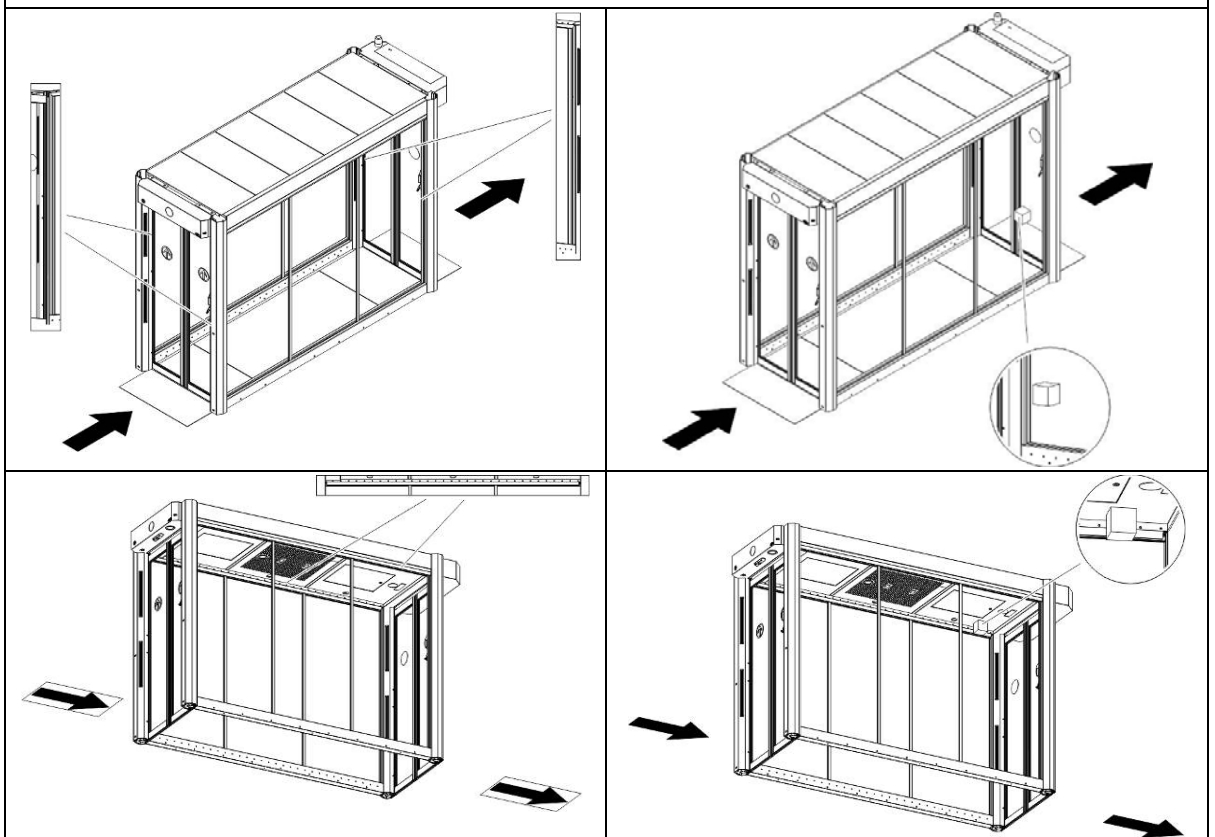


## NOTICE

### Configurable:

- Activation/deactivation of floor detection in FLOW mode

With this option, entrance door closed, a presence is detected on the wall or ceiling.



With this option, activating of the emergency open button generates a technical alarm.

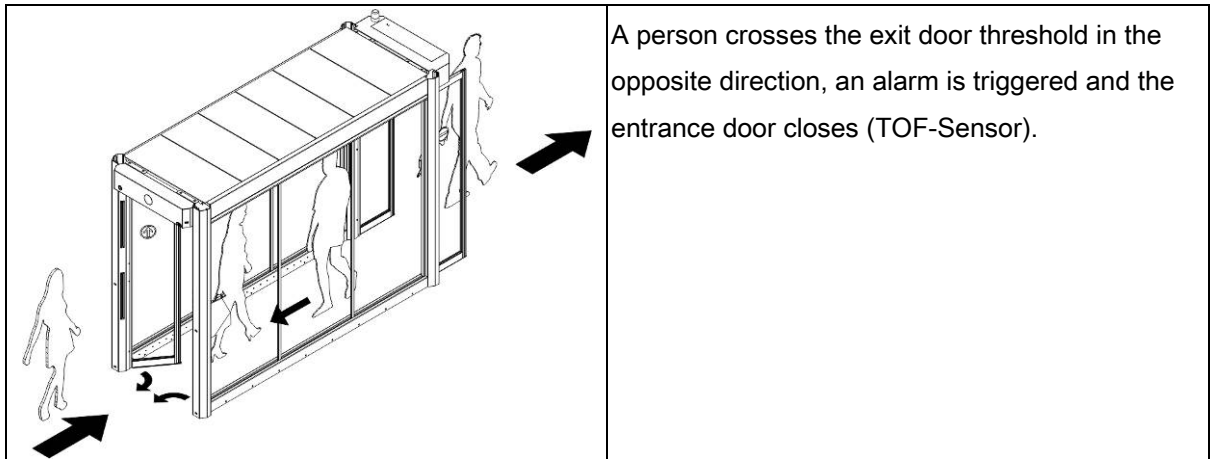


## NOTICE

### Configurable:

- Setting all timers relevant to triggering the alarms

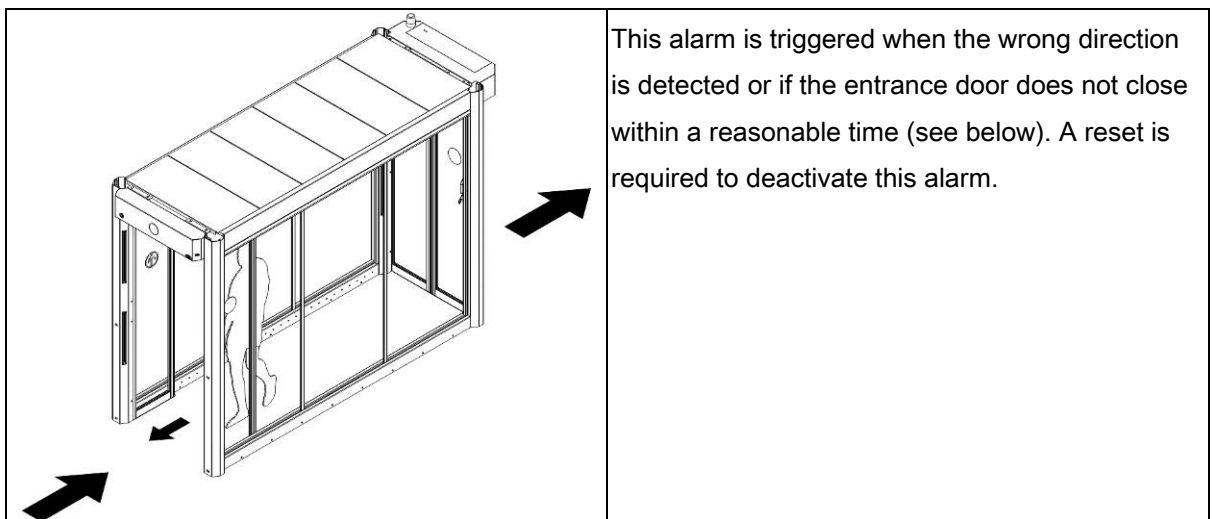
### Example of the anti-pass-back system operation



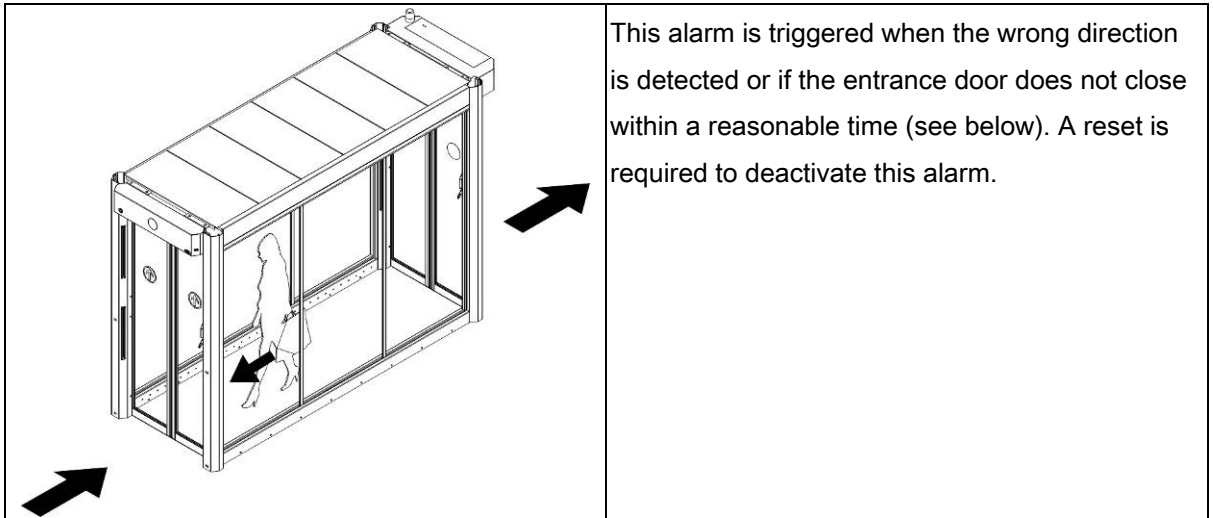
## 8.2 Technical alarms

This alarm is triggered if a traffic flow interruption has lasted too long or if a technical error has been detected. A reset is required to deactivate this alarm. A ringtone sounds at regular intervals as a reminder.

## 8.3 Intrusion alarm



## 8.4 Anti-pass-back alarm



### NOTICE

#### Configurable:

- Timer settings
- Choice of reaction types



### NOTICE

In order to limit the number of false intrusion alarms when the wrong direction is detected by the cameras and the entrance door is not closed, the FlipFlow will measure the time it takes to close the entrance door and compares it with referenced time:

If the closure time is less than the reference time, an anti-pass-back alarm is triggered.

If, on the other hand, the time is longer or equal to the reference time, an intrusion alarm is triggered.



### NOTICE

This reference time has been preset in the factory using very precise closing speed data, so it is important not to modify it!

## 9 BMS information

It is possible to receive and transmit information to the FlipFlow BMS (Building Management System) via dry contact relays. A rotary dial for selecting the operating mode in each vestibule installed is also provided for controlling the FlipFlow from a distance.

### 9.1 Instructions sent from the BMS

An emergency opening command, with absolute priority.

An emergency close command, closes and locks the entrance door and opens the exit door, priority over operating modes.

Switches manually to FLOW mode if INTERLOCK mode has been selected locally and vice versa.

This function depends on the passenger flow.

### 9.2 Information received by the BMS

An intrusion alarm has been detected.

An anti-pass-back alarm has been detected.

An object or a person has been located in the detection zone of the vestibule for a long period of time.

An object or a person has been located in the detection zone of presence and is blocking the passage, or a FlipFlow electrical component is defective.

Provides information about the position of the entrance door: closed or locked.

Indicates that there are no alarms, the FlipFlow is working properly: passengers can pass through.

Indicates that a person is working on the FlipFlow, or that it is in no alarm mode.

Indicates that the maintenance hatch is open.

Indicates that the emergency open button has been activated; requires a manual reset.

The FlipFlow is being cleaned.

Provides information about the position of the exit door: closed or locked.

Indicates the state of the power supply.

The FlipFlow is in FLOW mode.

The FlipFlow is in OPEN mode.

The FlipFlow is in LOCKED mode.

The FlipFlow is in INTERLOCK mode.



#### **NOTICE**

##### **Configurable:**

- Logic information (No/Nc)
- Information about the doors positions