

# FIRSTLANE FL9X2

Glazed swing gates

## TECHNICAL MANUAL

(Translated from the original French version)

Rev. 03 • Updated 02/2024



**FL** *FirstLane*<sup>™</sup>





## TABLE OF CONTENTS

1.	Presentation .....	5
2.	Safety warnings .....	6
3.	General symbols .....	7
4.	Terminology .....	8
5.	Description .....	9
5.1.	The range .....	9
5.1.1.	FirstLane .....	9
5.1.2.	FirstLane S .....	9
5.1.3.	FirstLane PLUS .....	10
5.2.	General dimensions .....	11
5.2.1.	FirstLane .....	11
5.2.2.	FirstLane S .....	12
5.2.3.	FirstLane PLUS .....	13
5.3.	Conventions .....	14
5.4.	Technical specifications .....	15
5.5.	Location of the external components .....	16
5.5.1.	Right Housing .....	16
5.5.2.	Intermediate Housing .....	17
5.5.3.	Left Housing .....	18
5.6.	Location of internal components .....	19
5.6.1.	Right Housing .....	19
5.6.2.	Intermediate Housing .....	20
5.6.3.	Left Housing .....	21
5.6.4.	Gear motor assembly .....	22
5.6.4.1.	Gear motor for FirstLane low .....	22
5.6.4.2.	Gear motor for FirstLane high and FirstLane with IP44 .....	22
5.6.5.	Heating control block (option) .....	23
5.6.6.	Ip44 (optional except on FirstLane Plus) .....	24
6.	Operation .....	25
6.1.	Operating principle .....	25
6.1.1.	Moving obstacle .....	25
6.2.	Powered Operation Mode .....	26
6.3.	State of Obstacles at Rest .....	26
6.4.	Operating Mode by Direction of Passage .....	26
6.5.	Passage Authorizations .....	26
6.6.	Locked Open Mode .....	26
6.7.	Power Failure .....	27
6.8.	Technical fault .....	27
6.9.	Violations .....	27
6.9.1.	'Intrusion' violation .....	27
6.9.2.	'Tailgating' violation .....	27
6.9.3.	'Wrong way' violation .....	27
6.10.	Sound and Light Alarms .....	28
6.10.1.	Dynamic status light .....	28
6.10.2.	Dynamic status and orientation lights .....	29
6.10.3.	Buzzer .....	30



6.11.	Detection.....	31
6.11.1.	DIRAS cells.....	31
7.	Installation.....	34
7.1.	Storage.....	34
7.2.	Unpacking.....	34
7.3.	Recommended installation tools.....	34
7.4.	Site preparation work.....	34
7.5.	Installation plan.....	35
7.5.1.	FirstLane - low.....	35
7.5.2.	FirstLane - high.....	36
7.5.3.	FirstLane PLUS - low.....	37
7.5.4.	FirstLane PLUS - high.....	38
7.6.	Installing the equipment.....	39
7.6.1.	Handling.....	39
7.6.2.	Floor anchoring.....	39
7.7.	Electrical connections.....	40
7.7.1.	Inter-housing connection - W51 - "CAN" CONNECTION.....	40
7.7.2.	Inter-housing connection - W50 - "24 V POWER SUPPLY" CONNECTION.....	41
7.7.3.	Inter-housing connection - W16.....	41
7.7.4.	Connection to the main terminal block.....	42
7.8.	Commissioning.....	43
7.9.	Retrofitting an existing FirstLane installation.....	43
8.	Maintenance.....	44
8.1.	Recommended tools.....	44
8.2.	Recommended torque.....	44
8.3.	Removing the front plate.....	45
8.4.	Switching the equipment on/off.....	46
8.5.	Removing the glass top cover.....	47
8.6.	Removing the kinematic panel.....	48
8.7.	Removing the mobile obstacle.....	48
8.7.1.	Moving the AERO obstacle low and high.....	49
8.8.	Adjusting the end positions of the mobile obstacle.....	50
8.9.	Increasing the Visibility of Mobile Obstacles.....	51
8.10.	Removing the fixed obstacle.....	52
8.11.	Removing the motor board support.....	53
8.12.	Maintenance.....	54
8.12.1.	Maintenance of surfaces.....	54
8.12.2.	Maintenance programmes.....	54
8.13.	Maintenance Kits.....	56
8.14.	Spare Parts.....	56
9.	Troubleshooting.....	57
10.	Prolonged stop/Disposal/Destruction.....	57
11.	Assignment of circuit board components.....	58
11.1.	DIRAS Transmitter Circuit Board AS1642.....	58
11.2.	DIRAS Receiver Circuit Board AS1643.....	58
11.3.	Motherboard (CPU) AS1190.....	59
11.4.	Customer Input/Output Circuit Board AS1612.....	60

11.5. Motorization circuit board AS1613 (FirstLane low) .....	61
11.6. Motorization circuit board AS1633 (FirstLane high) .....	62
11.7. Dynamic light circuit board AS1656 (option) .....	64
11.8. CAN end of BUS circuit board .....	65
11.9. CAN addresses of the various circuit boards .....	65
12. Electrical diagrams .....	66
13. Control logic AS1190 .....	66
14. Declaration of Conformity .....	67

## TABLE OF ILLUSTRATIONS

<i>Fig. 1 - Dimensions - FirstLane low</i> .....	11
<i>Fig. 2 - Dimensions - FirstLane - high</i> .....	11
<i>Fig. 3 - Dimensions - FirstLane S - low</i> .....	12
<i>Fig. 4 - Dimensions - FirstLane S - high</i> .....	12
<i>Fig. 5 - Dimensions - FirstLane PLUS - low</i> .....	13
<i>Fig. 6 - Dimensions - FirstLane PLUS - high</i> .....	13
<i>Fig. 7 - Direction of passage</i> .....	14
<i>Fig. 8 - External components of the right housing</i> .....	16
<i>Fig. 9 - External components of the intermediate housing</i> .....	17
<i>Fig. 10 - External components of the left housing</i> .....	18
<i>Fig. 11 - Internal components of the right housing</i> .....	19
<i>Fig. 12 - Internal components of the intermediate housing</i> .....	20
<i>Fig. 13 - Internal components of the left housing</i> .....	21
<i>Fig. 14 - Gear motor for FirstLane low</i> .....	22
<i>Fig. 15 - Gear motor for FirstLane high</i> .....	22
<i>Fig. 16 - Right/intermediate heating control block in direction A (option)</i> .....	23
<i>Fig. 17 - Left heating control block direction B (option)</i> .....	23
<i>Fig. 18- IP44</i> .....	24
<i>Fig. 19 - Transmission of motion</i> .....	25
<i>Fig. 20 - Static light</i> .....	28
<i>Fig. 21 - Dynamic lights</i> .....	29
<i>Fig. 22 - DIRAS detection cells</i> .....	31
<i>Fig. 23 - AS1642 transmitter</i> .....	31
<i>Fig. 24 - AS1643 receiver</i> .....	31
<i>Fig. 25 - Cross beam principle</i> .....	32
<i>Fig. 26 - Authorized passages</i> .....	32
<i>Fig. 27 - Prohibited passages</i> .....	33
<i>Fig. 28 - Levelling</i> .....	34
<i>Fig. 29 - Installation plan - FirstLane - low</i> .....	35
<i>Fig. 30 - Installation plan - FirstLane - high</i> .....	36
<i>Fig. 31 - Installation plan - FirstLane PLUS - low</i> .....	37
<i>Fig. 32 - Installation plan - FirstLane PLUS - high</i> .....	38
<i>Fig. 33 - Floor mounting - FirstLane standard</i> .....	39
<i>Fig. 34 - Floor mounting - FirstLane PLUS or with IP44 option</i> .....	39
<i>Fig. 35 - Inter-housing connection - W51</i> .....	40



Fig. 36 - Inter-housing connection - W50 .....	41
Fig. 37 - Inter-housing connection - W50 .....	41
Fig. 38 - Connection to the main terminal block .....	42
Fig. 39 - Removing the front plate .....	45
Fig. 40 - Power off/on .....	46
Fig. 41 - Removing the top cover for the FirstLane low .....	47
Fig. 42 - Removing the top cover for the FirstLane high .....	47
Fig. 43 - Removing the kinematic panel .....	48
Fig. 44 - Removing the mobile obstacle for the FirstLane low .....	48
Fig. 45 - Removing the mobile obstacle for FirstLane high .....	49
Fig. 46 - Removing the AERO mobile obstacle .....	49
Fig. 47 - Adjusting the end positions of the mobile obstacle .....	50
Fig. 48 - Self-adhesive chequerboard (0/6980/623) .....	51
Fig. 49 - Positioning of the chequerboard sticker .....	51
Fig. 50 - Removing the fixed obstacle .....	52
Fig. 51 - Removing the motor board support .....	53
Fig. 52 - Motherboard AS1190 .....	59
Fig. 53 - Circuit board I/O AS1162 .....	60
Fig. 54 - AS1613 motorization circuit board .....	61
Fig. 55 - AS1633 motorization circuit board .....	62
Fig. 56 - Dynamic light circuit board AS1656 .....	64
Fig. 57 - CAN end of bus circuit board .....	65
Fig. 58 - CAN addresses .....	65
Fig. 59 - EC declaration .....	67

## 1. PRESENTATION

Thank you for choosing a glass turnstile from the new FirstLane range, which has been designed and manufactured by Automatic Systems.

Thanks to its black body in painted steel or stainless steel, and the elegance of a glass or laminate top cover, FirstLane access lanes have been designed to integrate perfectly with any type of architecture.

### The main advantages are:

- A design in keeping with the latest architectural trends
- An intuitive user experience
- The quality and reliability of Automatic Systems products and services
- Innovative technologies

Thanks to its swing gates, the FirstLane combines high bi-directional flow with maximum safety, without compromising user safety.

Because of its DIRAS detection system, which consists of a high-density matrix of infra-red emitter/receiver photocell beams, the FirstLane follows user progress through the lane and ensures their safety when opening/closing the obstacles.

The new detection algorithms guarantee top-class performance for detecting tailgating (even when people are very close to each other) and other types of fraud.

The new FirstLane range is divided into 3 categories:

- **FirstLane** with its black painted steel body and low and high glass obstacles
- **FirstLane S** with its stainless steel body and low and high glass obstacles
- **FirstLane PLUS** with its stainless steel body and low and high AERO obstacles in a painted steel sheet

Many configurations and options are available to cover all cases that are likely to be encountered when controlling pedestrian access: different obstacle heights, dynamic status lights, complete stainless steel finish, IP44, evacuation route button according to the EN 13637 standard.

We are sure that your purchase will fully meet your requirements for many years and, to that end, would strongly advise you to read this manual carefully.

It will assist you when unpacking, installing, commissioning and maintaining your product.

Proper installation and regular maintenance will ensure effective operation of the product and will significantly increase the life-span of its components.

Despite the care taken when preparing this manual, some points may seem incorrect or unclear. If this is the case, please do not hesitate to contact us with your remarks or questions.

## 2. SAFETY WARNINGS



Read this document carefully and in full before using the device and keep it in a safe place for future use. Failure to comply with the instructions in this document may lead to damage to the device as well as potentially serious physical injuries.

- This manual must be available to all persons working on the equipment: installers, maintenance operators, end users, etc.
- The FirstLane range of gates is intended to control the access of people and cannot be used for any other purpose without risk to the user or the integrity of the equipment. In particular, they are NOT intended to facilitate pedestrian traffic and should NOT be used as a regular entry/exit gate. Automatic Systems cannot be held responsible for damage resulting from inappropriate use of the equipment.
- Employees working on the premises must be trained in the use of automatic gates beforehand. Failure to provide such training to users may result in serious accidents or injuries.
- For safety reasons, children (users less than one (1) meter in height) must be supervised by an adult at all times when in the vicinity of the housing and when passing through the gate. When the gate is used by a child accompanied by an adult, the child must precede the accompanying adult.
- Extreme care must also be taken with animals, which must be leashed and kept under the control of their master at all times.
- Do not install this equipment in an explosive area.
- Do not add unapproved accessories. Besides changing the technical characteristics of the product, this could cause galvanic corrosion, or 'battery effect', and reduce the durability of the equipment over time.
- The contractor must ensure that local standards are observed when installing the equipment.
- All work on the equipment must be carried out by qualified personnel. Any work on this product that is unauthorized or carried out by an unqualified technician will automatically void the manufacturer's warranty.
- It is mandatory to wear personal protective equipment (PPE) when performing any work:



- Cut-resistant gloves must be worn when performing mechanical actions and/or actions involving intentional or inadvertent touching of sheet metal parts or the frame.
- Access to the mechanism should be limited to personnel who are aware of the electrical and mechanical risks associated with careless handling.
- For all operations that do not require the equipment to be powered up, turn off the power at the distribution panel or at the circuit breaker (⇒ Illustration 9, Chap. 5.6).
- All internal components that are likely to be powered or in movement must be handled with caution.
- The use of gloves or antistatic wristbands (Electronic Static Discharge) is essential when handling electronic circuit boards, otherwise the warranty may be voided.
- The equipment is configured in a mode that minimises risks for its users. All modifications of parameters must be carried out knowingly by qualified personnel, and Automatic Systems accepts no liability for such modifications.
- If the product is re-sold, it is the responsibility of the reseller to ensure - when offering, selling and installing each piece of equipment - that the environment and expected use of the equipment take into account the technical characteristics of the equipment while also respecting these guidelines.
- The seller must defend and indemnify Automatic Systems from any claims against Automatic Systems due to the seller's failure to comply with the above obligations.
- If an operation does not require the motor or logic to be powered up, cut the power supply before opening the bodywork. Otherwise, disconnect the power supply using the circuit breaker (⇒ Illustration 9, Chap. 5.6).
- Besides maintenance activities, it is forbidden to use the equipment without one or more parts of the housing.



## 3. GENERAL SYMBOLS

The following symbols are used in this manual and/or are present as labels on the equipment.



This symbol is used to highlight a **tip** that may help to improve understanding of the product.



Quick **reminder** or **advice** useful for understanding how the product works.



This symbol is used to highlight an **important instruction** for correctly using and/or maintaining the **product**.



**Caution:** This symbol is used to highlight the **risk of injury or material damage**.



This symbol is used to highlight the **risk of electric shock or electrocution**.



This symbol is used to highlight the **risk of cutting yourself**.



This symbol is used to identify the **principal ground connection point**.  
(Either in the form of an affixed label or directly engraved on a mechanical part).



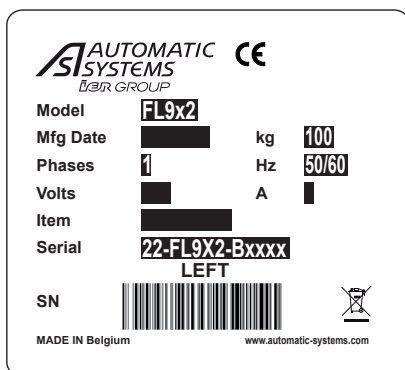
This symbol is used to indicate the **tool** required for the relevant operation.



This symbol indicates that the equipment **conforms with European standards and directives**.



This symbol indicates that the equipment must **be disposed of in accordance with the applicable European Directives** (DEEE 2012/19/EU).



Product identification label.

## 4. TERMINOLOGY

<b>AS</b>	Automatic Systems.
<b>Lane</b>	Passage delimited by 2 housings.
<b>Array</b>	A set of several contiguous lanes
<b>DIRAS</b>	Infrared Detection Technology developed by Automatic Systems.
<b>Reader</b>	Equipment used to validate the user's travel ticket. (Not supplied by Automatic Systems).
<b>Maintenance interface</b>	Tool that allows direct connection to an Automatic Systems lane, for configuration, monitoring, diagnosis & maintenance operations (⇒ dedicated manual).
<b>Housing</b>	Element delimiting the lane and containing the obstacles and their opening mechanisms, the detection cells, the control logic, and the readers.
<b>Right Housing</b>	Lane housing located on the right side in passage direction A.
<b>Left Housing</b>	Lane housing located on the left side in passage direction A.
<b>Intermediate Housing</b>	Housing separating 2 lanes and equipped with 2 moving obstacles of identical dimensions. The intermediate housing is the left housing of one lane and the right housing of the other lane.
<b>Hybrid Housing</b>	Housing separating 2 different types of lane (600 passage / 900 passage) and equipped with 2 moving obstacles of the same height.
<b>Hybrid Intermediate Housing Right</b>	The narrow passage is on the right side of the housing when looking in direction A
<b>Hybrid Intermediate Housing Left</b>	The narrow passage is on the left side of the housing when looking in direction A
<b>Obstacle</b>	Element creating the obstruction to passage.
<b>Security</b>	Equipment's capability to prevent breaches.
<b>Direction A</b>	Direction of passage for which the CPU board (AS1190) is located in the right housing.
<b>Direction B</b>	Direction of passage, contrary to direction A.
<b>Safety</b>	Protection of users when using the equipment.
<b>RFID</b>	Radio-frequency identification technology commonly used in contactless readers.
<b>Dynamic orientation light</b>	Electroluminescent dynamic orientation light indicating the lane status. It allows good visibility from afar, thus ensuring high throughput.
<b>Dynamic status light</b>	Electroluminescent dynamic status light close to the reader integration area, indicating that the user is authorized to pass.
<b>PRM</b>	Abbreviation used for Person of Reduced Mobility.
<b>TBD</b>	to be defined

## 5. DESCRIPTION

### 5.1. THE RANGE



Installation in a configuration (group of several lanes of identical or different widths) is possible.

#### 5.1.1. FIRSTLANE

FIRSTLANE - LOW



FIRSTLANE - HIGH



#### 5.1.2. FIRSTLANE S

FIRSTLANE S - LOW



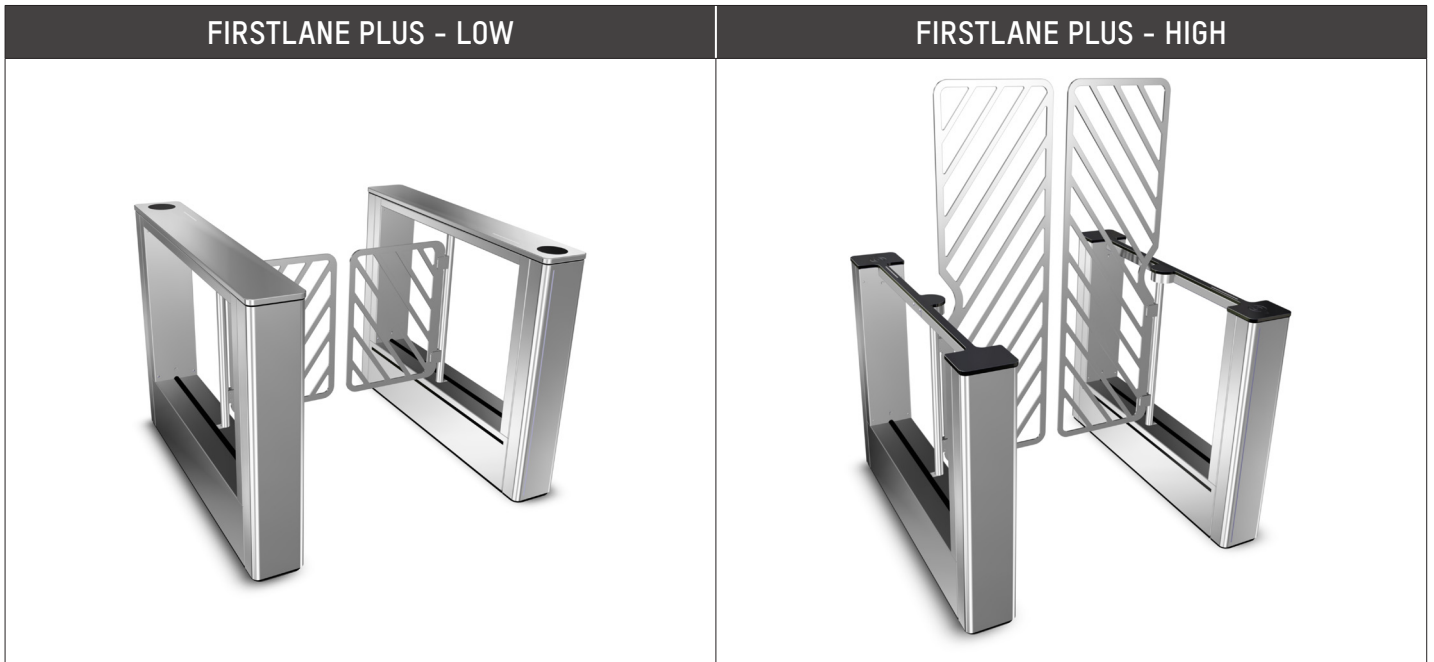
FIRSTLANE S - HIGH





# FIRSTLANE FL9X2

## 5.1.3. FIRSTLANE PLUS



## 5.2. GENERAL DIMENSIONS

### 5.2.1. FIRSTLANE

#### FirstLane - LOW

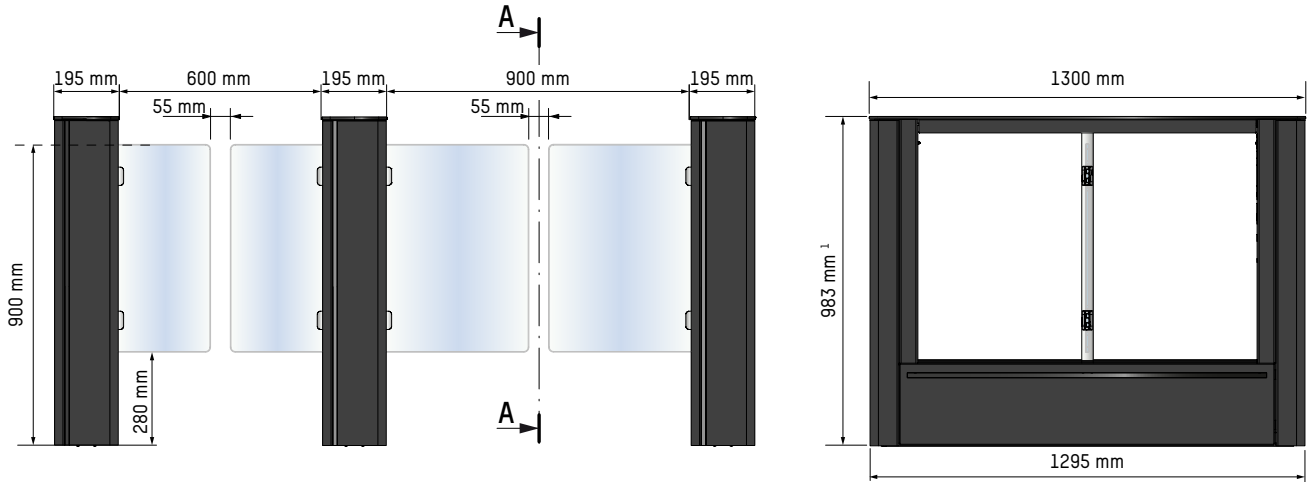


Fig. 1 - Dimensions - FirstLane low

- <sup>1</sup> Height with glass top cover (STANDARD) : 983 mm.  
Height with black laminate top cover : 990 mm.

#### FirstLane - HIGH

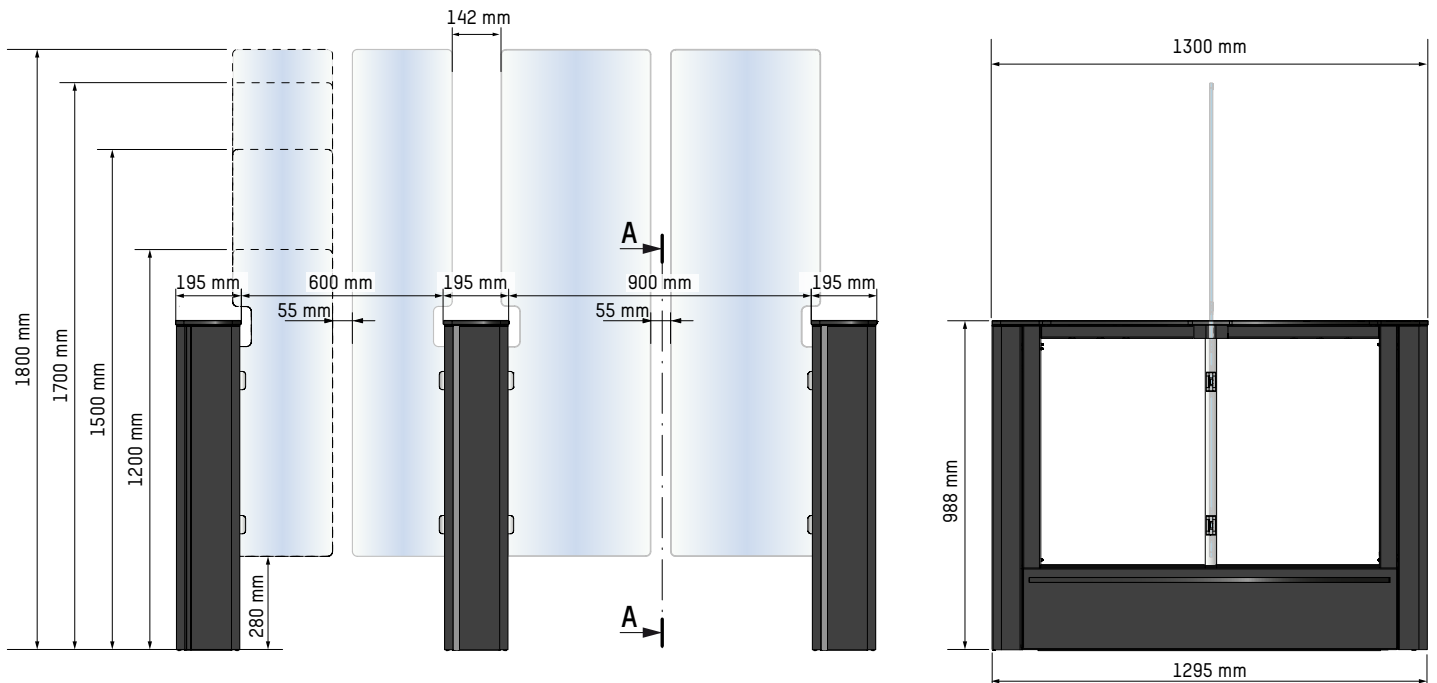


Fig. 2 - Dimensions - FirstLane - high

## 5.2.2. FIRSTLANE S

### FirstLane S - LOW

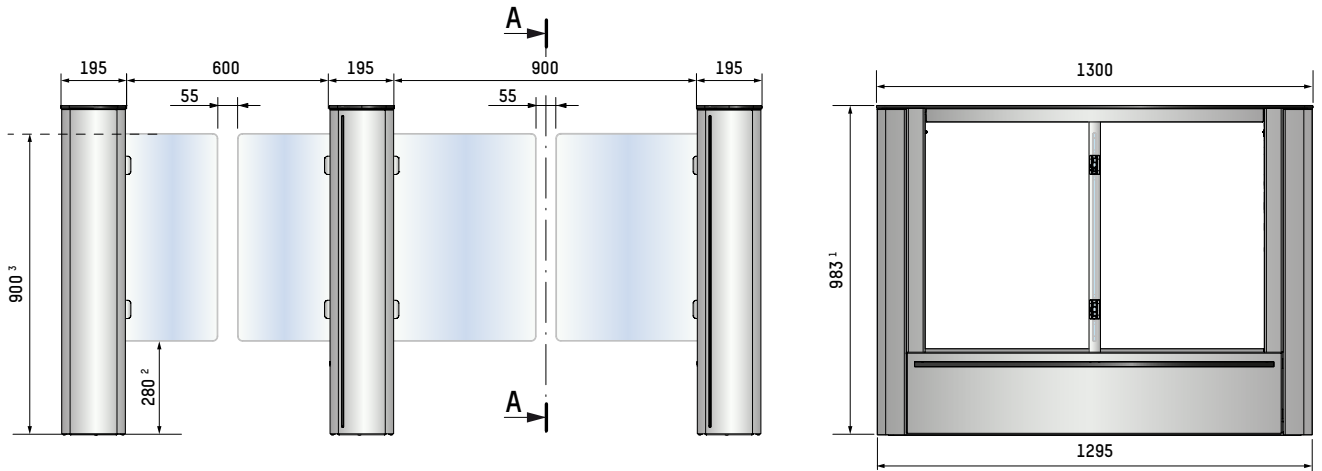


Fig. 3 - Dimensions - FirstLane S - low

- 1 Height with glass top cover (STANDARD) : 983 mm.  
Height with black laminate top cover : 990 mm.  
Height with stainless steel top cover : 997 mm.  
Height with stainless steel top cover + IP44 option : 1005 mm.
- 2 Obstacle clearance (STANDARD) : 280 mm.  
Obstacle ground clearance with IP 44 option : 288 mm.
- 3 Height of the obstacle from the ground with IP 44 option : standard height + 8 mm.

### FirstLane S - HIGH

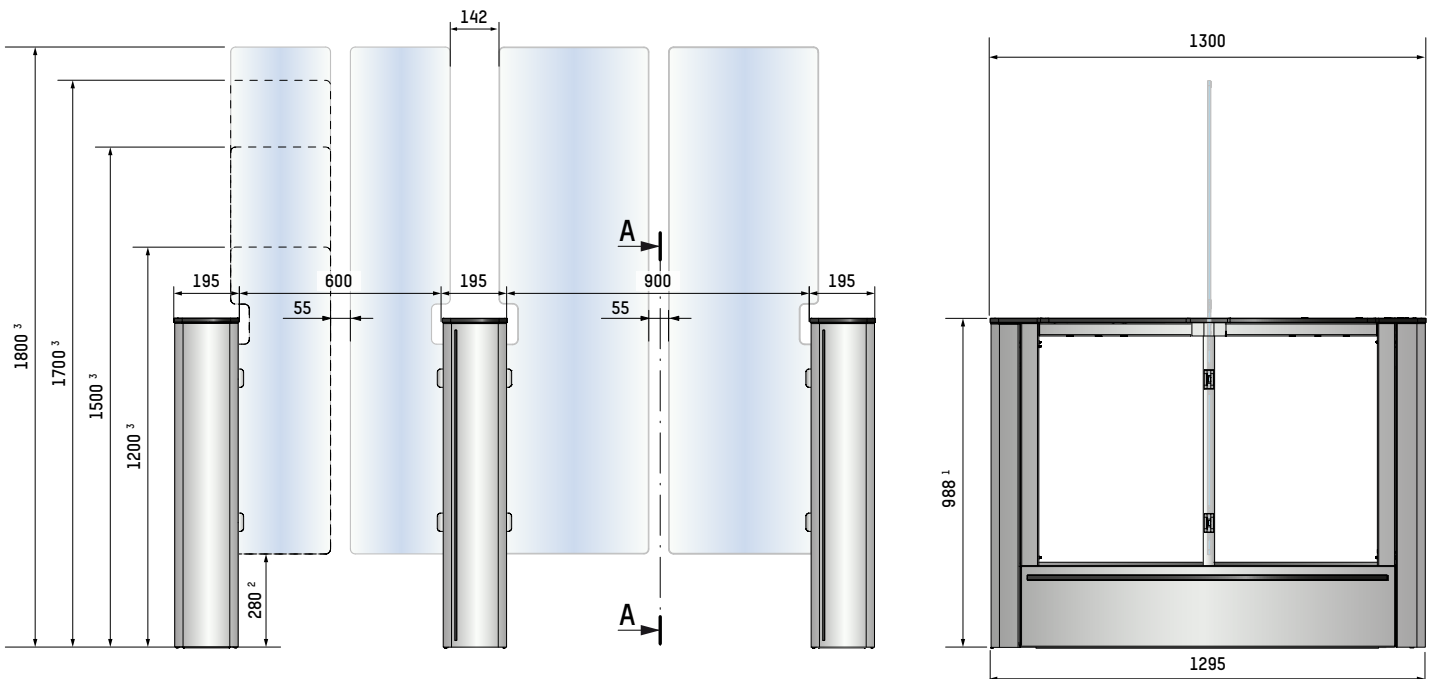


Fig. 4 - Dimensions - FirstLane S - high

- 1 Height with black laminate top cover (STANDARD) : 988 mm.  
Height with black laminate top cover + IP44 option : 996 mm.
- 2 Obstacle clearance (STANDARD) : 280 mm.  
Obstacle ground clearance with IP 44 option : 288 mm.
- 3 Height of the obstacle from the ground with IP 44 option : standard height + 8 mm.

## 5.2.3. FIRSTLANE PLUS

### FirstLane PLUS - LOW

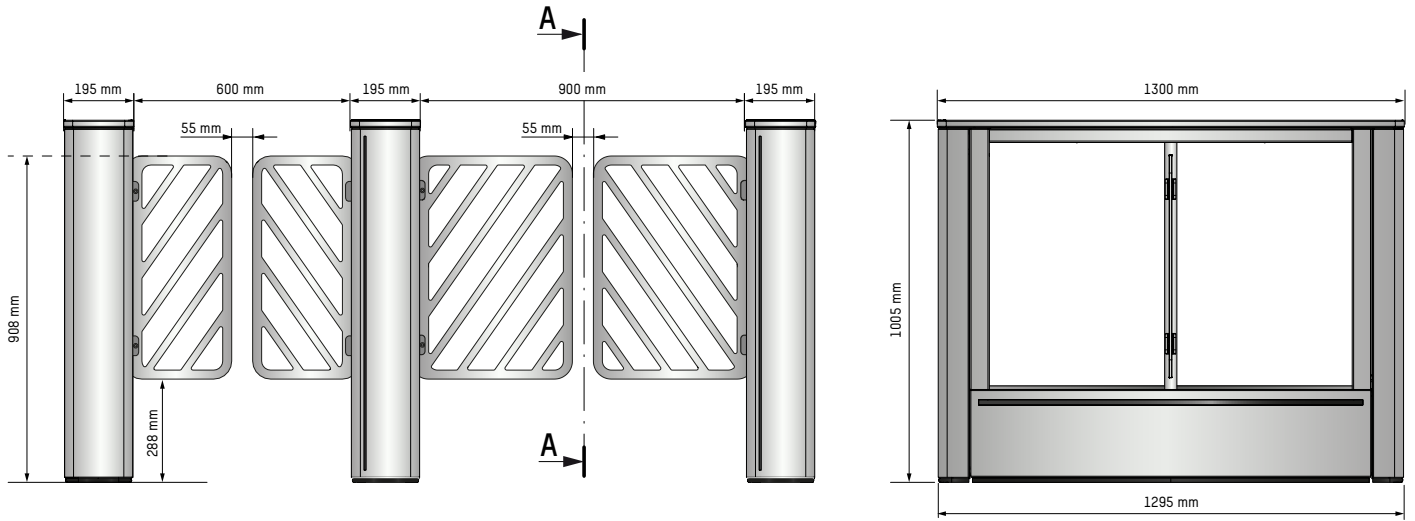


Fig. 5 - Dimensions - FirstLane PLUS - low

### FirstLane PLUS - HIGH

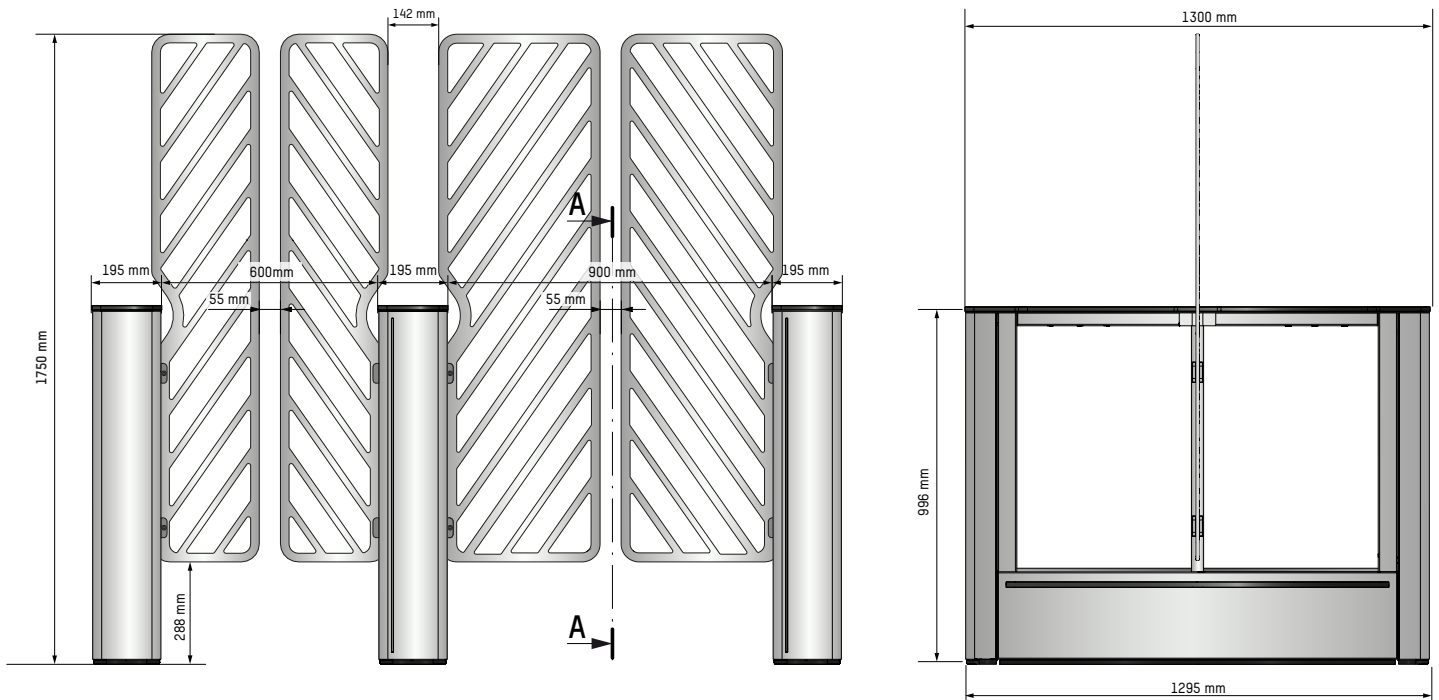


Fig. 6 - Dimensions - FirstLane PLUS - high

## 5.3. CONVENTIONS

The images below depict a low FirstLane housing setup.

The gates can of course be installed individually or in a group. In the latter case, where the conventional direction is A, a left-hand gate, a right-hand gate and intermediate gates will be defined, with the possibility of the latter being hybrid: i.e. linking two lanes of different widths.

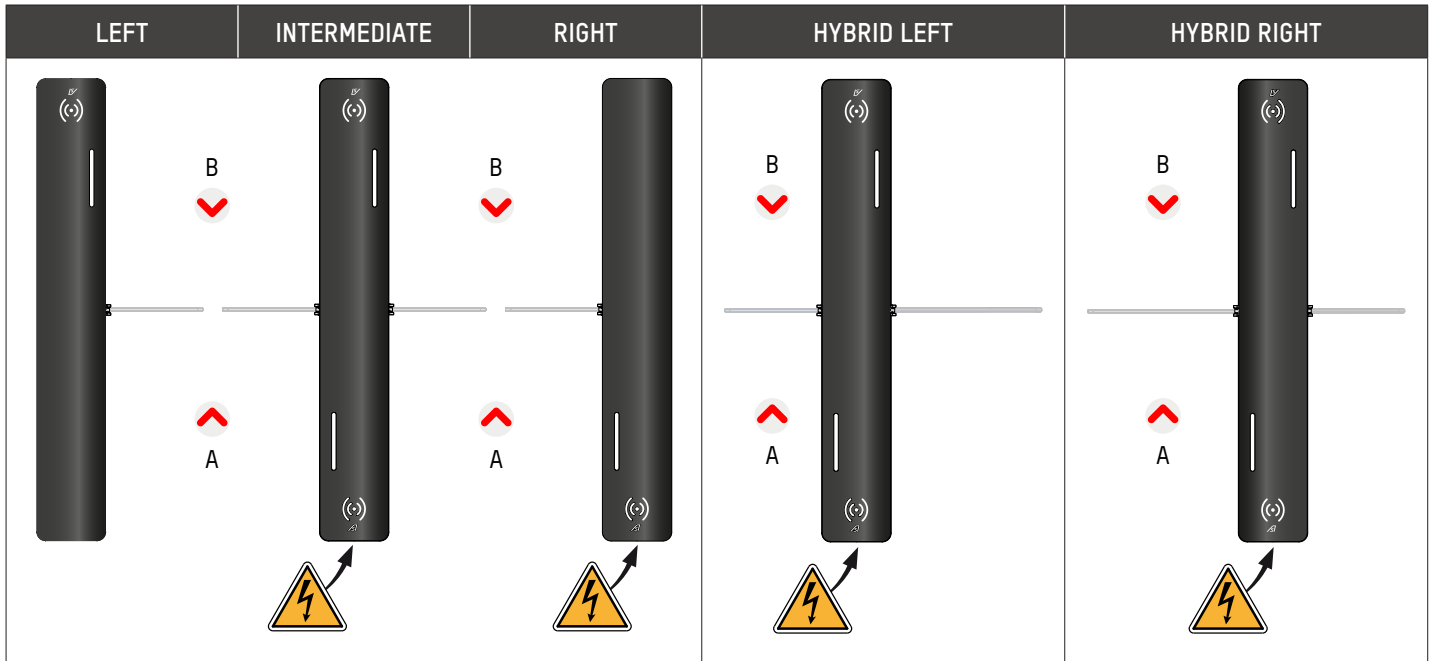


Fig. 7 - Direction of passage



## 5.4. TECHNICAL SPECIFICATIONS

Power supply	Single phase 110 VAC (5 A)-240 VAC (3 A) (+/- 10%) - 50/60 Hz + Ground <sup>1</sup>
Consumption	At rest: 40 W Working: 85 W Maximum: 150 W
Motors (2 motors per lane)	24 VDC - Output power 86 W
Min. opening/closing times	0.7 seconds <sup>2</sup>
Ambient temperature during use	+0° to +50°C
Ambient relative humidity	< 95%, without condensation
MCBF (Mean Cycles Between Failures)	<b>5,000,000</b> cycles, in compliance with recommended maintenance
Sound level	55 dB to 1 m distance
Free passageway (L)	600 or 900 mm
Protection rating	IP40 <sup>3</sup> - IP44 <sup>4</sup>
<b>CE</b>	Complies with European standards

		FIRSTLANE - LOW	FIRSTLANE - HIGH
Weight (STANDARD housing) (without obstacles)	Right Housing	87 kg	82 kg
	Intermediate Housing	102 kg	97 kg
	Left Housing	85 kg	76 kg

			NARROW OBSTACLE	WIDE OBSTACLE
Weight (glass obstacles)	FirstLane - LOW	<b>900 mm</b>	4.6 kg	6.9 kg
	FirstLane - HIGH	<b>1200 mm</b>	6.7 kg	10.11 kg
		<b>1500 mm</b>	8.9 kg	13.5 kg
		<b>1700 mm</b>	10.4 kg	15.7 kg
		<b>1800 mm</b>	11.2 kg	16.8 kg

<sup>1</sup> Not to be connected to a floating network or to a high-impedance earthed industrial distribution network.

<sup>2</sup> Depending on the size of the obstacles.

<sup>3</sup> For the standard FirstLane and FirstLane S versions

<sup>4</sup> For the optional FirstLane S version and standard FirstLane PLUS version

## 5.5. LOCATION OF THE EXTERNAL COMPONENTS



The following figures apply to both standard versions and wide versions.

### 5.5.1. RIGHT HOUSING

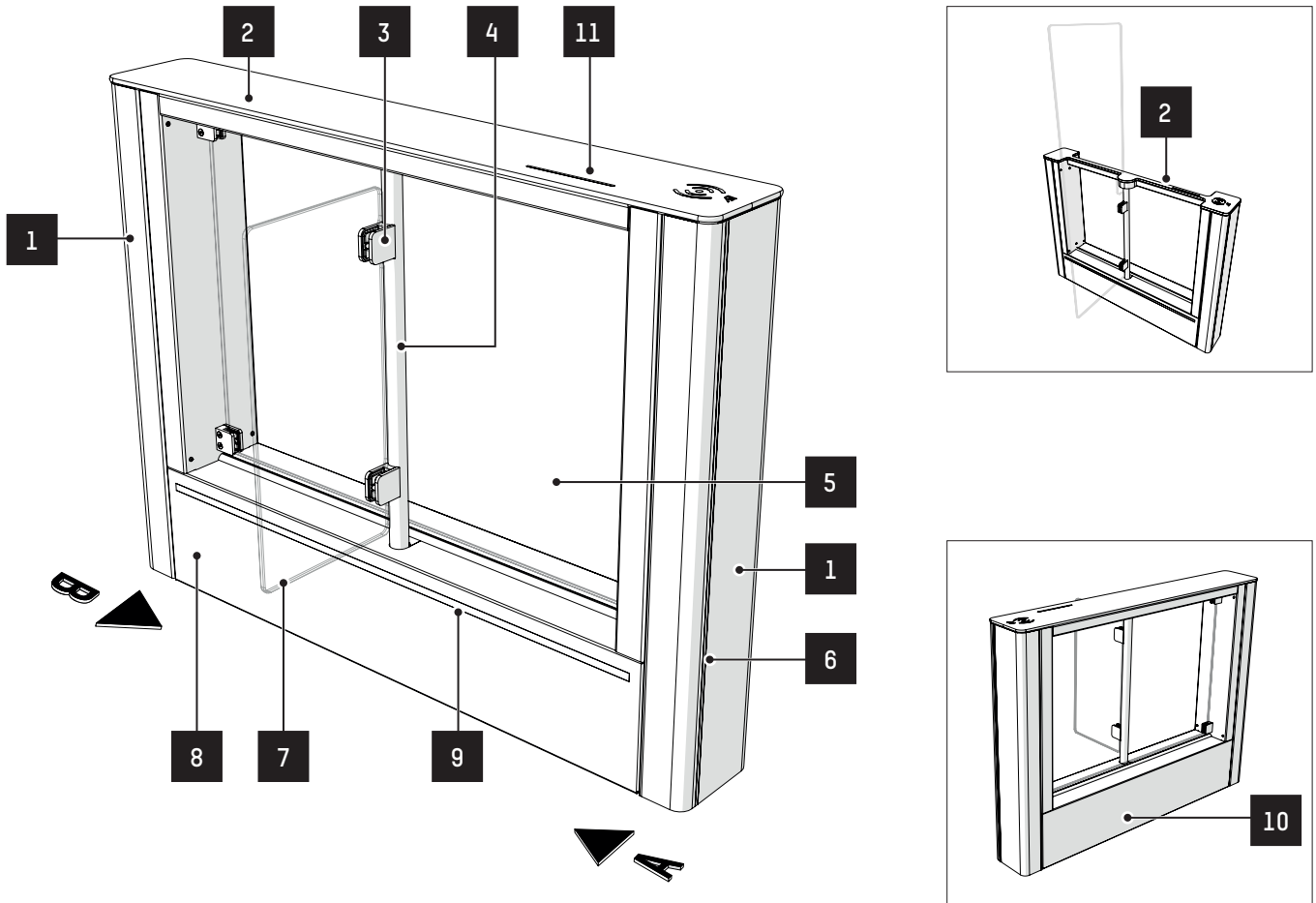


Fig. 8 - External components of the right housing

REF.	DESCRIPTION	REF.	DESCRIPTION
1	Front panel	7	Mobile obstacle
2	Top cover <sup>(1)</sup>	8	Panel for access to the mechanism(s)
3	Obstacle pivot shaft	9	DIRAS detectors (Receiver) behind a tinted screen
4	Mobile obstacle fixing clip	10	End panel
5	Fixed obstacle (Option)	11	Static status light <sup>(2)</sup>
6	Dynamic orientation light (Option)		

**(1) Low glass version:**

Standard: Glass Shelf  
 Optional: Black laminate or stainless steel top cover

**High glass version:**

Standard: Black laminate top cover

(2) Optional: Dynamic status light.

## 5.5.2. INTERMEDIATE HOUSING

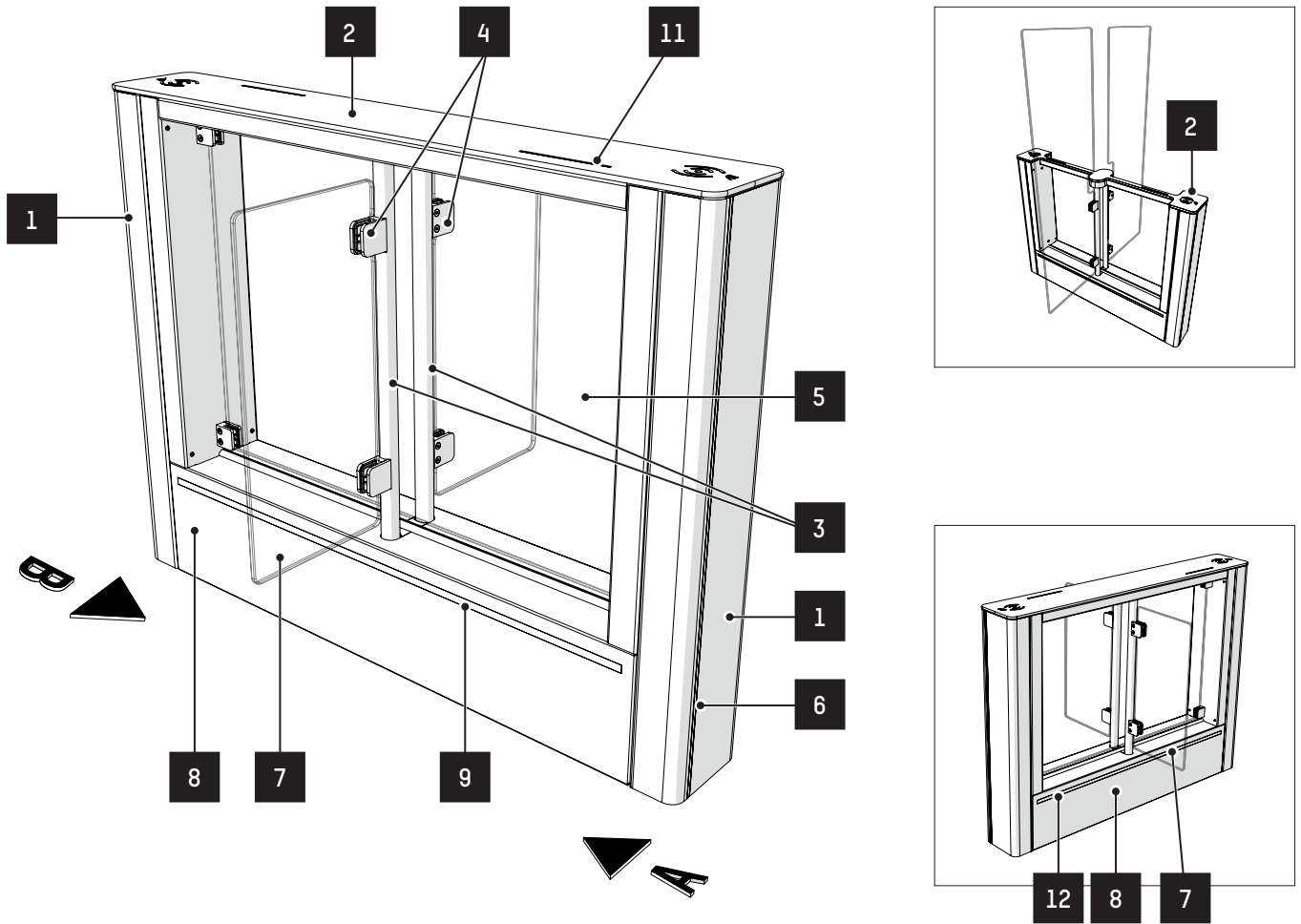


Fig. 9 - External components of the intermediate housing

REF.	DESCRIPTION	REF.	DESCRIPTION
1	Front panel	7	Mobile obstacle
2	Top cover <sup>[1]</sup>	8	Panel for access to the mechanism(s)
3	Obstacle pivot shaft	9	DIRAS detectors (Receiver) behind a tinted screen
4	Mobile obstacle fixing clip	11	Static status light <sup>[2]</sup>
5	Fixed obstacle (Option)	12	DIRAS detectors (Transmitter) behind a tinted screen
6	Dynamic orientation light (Option)		

**[1] Low glass version:**

Standard: Glass Shelf  
 Optional: Black laminate or stainless steel top cover

**High glass version:**

Standard: Black laminate top cover

[2] Optional: Dynamic status light.

## 5.5.3. LEFT HOUSING

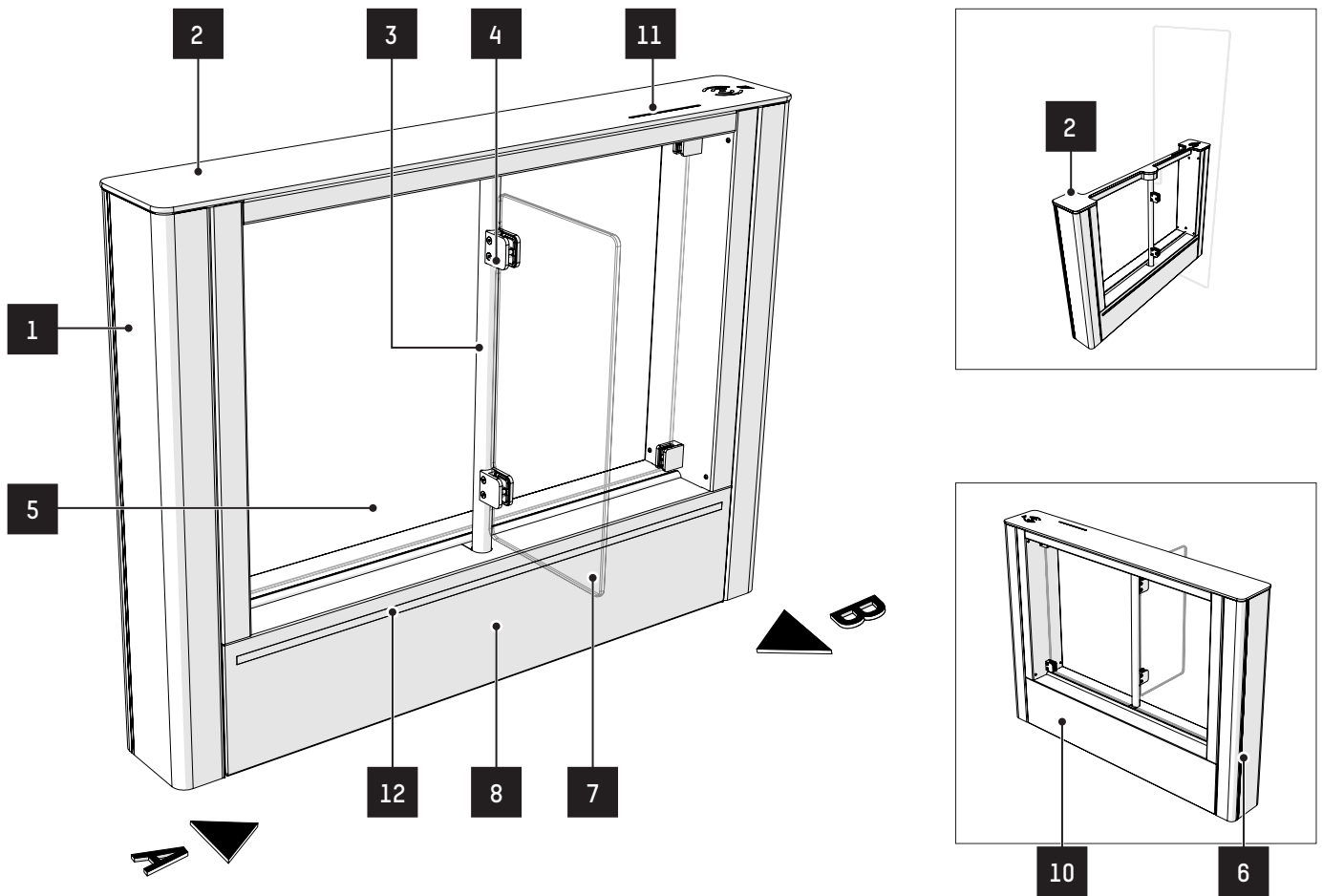


Fig. 10 - External components of the left housing

REF.	DESCRIPTION	REF.	DESCRIPTION
1	Front panel	7	Mobile obstacle
2	Top cover <sup>(1)</sup>	8	Panel for access to the mechanism(s)
3	Obstacle pivot shaft	10	End panel
4	Mobile obstacle fixing clip	11	Static status light <sup>(2)</sup>
5	Fixed obstacle (Option)	12	DIRAS detectors (Transmitter) behind a tinted screen
6	Dynamic orientation light (Option)		

**(1) Low glass version:**

Standard: Glass Shelf  
 Optional: Black laminate or stainless steel top cover

**High glass version:**

Standard: Black laminate top cover

(2) Optional: Dynamic status light.

## 5.6. LOCATION OF INTERNAL COMPONENTS

### 5.6.1. RIGHT HOUSING

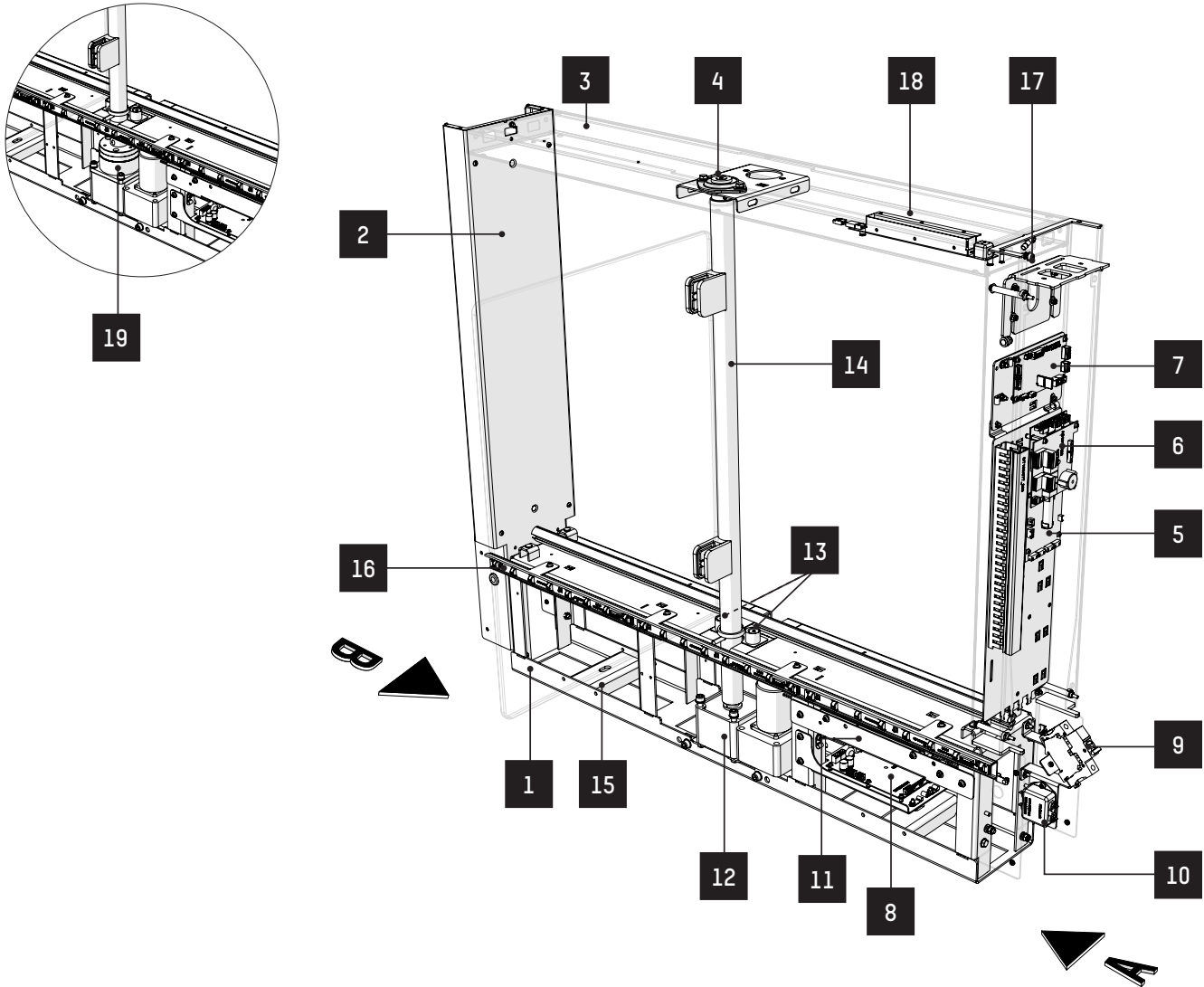


Fig. 11 - Internal components of the right housing

REF.	DESCRIPTION	REF.	DESCRIPTION
1	Base frame	10	Sector filter
2	Frame upright	11	24 VDC 14 A power supply
3	Frame top rail	12	Gear motor
4	Bracket	13	End stops (2x)
5	CPU board - AS1190	14	Motion transmission shaft
6	I/O circuit board - AS1612	15	Fixing clamp (2x)
7	Dynamic lights circuit board - AS1656 (Option)	16	DIRAS detection cell (Receiver) (3x)
8	Motorization circuit board: low glass version - AS1613 high glass/ IP44 / FirstLane PLUS versions - AS1633	17	Reader support
		18	Status indicator light channel set
		19	Brake (option)
9	Main circuit breaker 5A		

## 5.6.2. INTERMEDIATE HOUSING

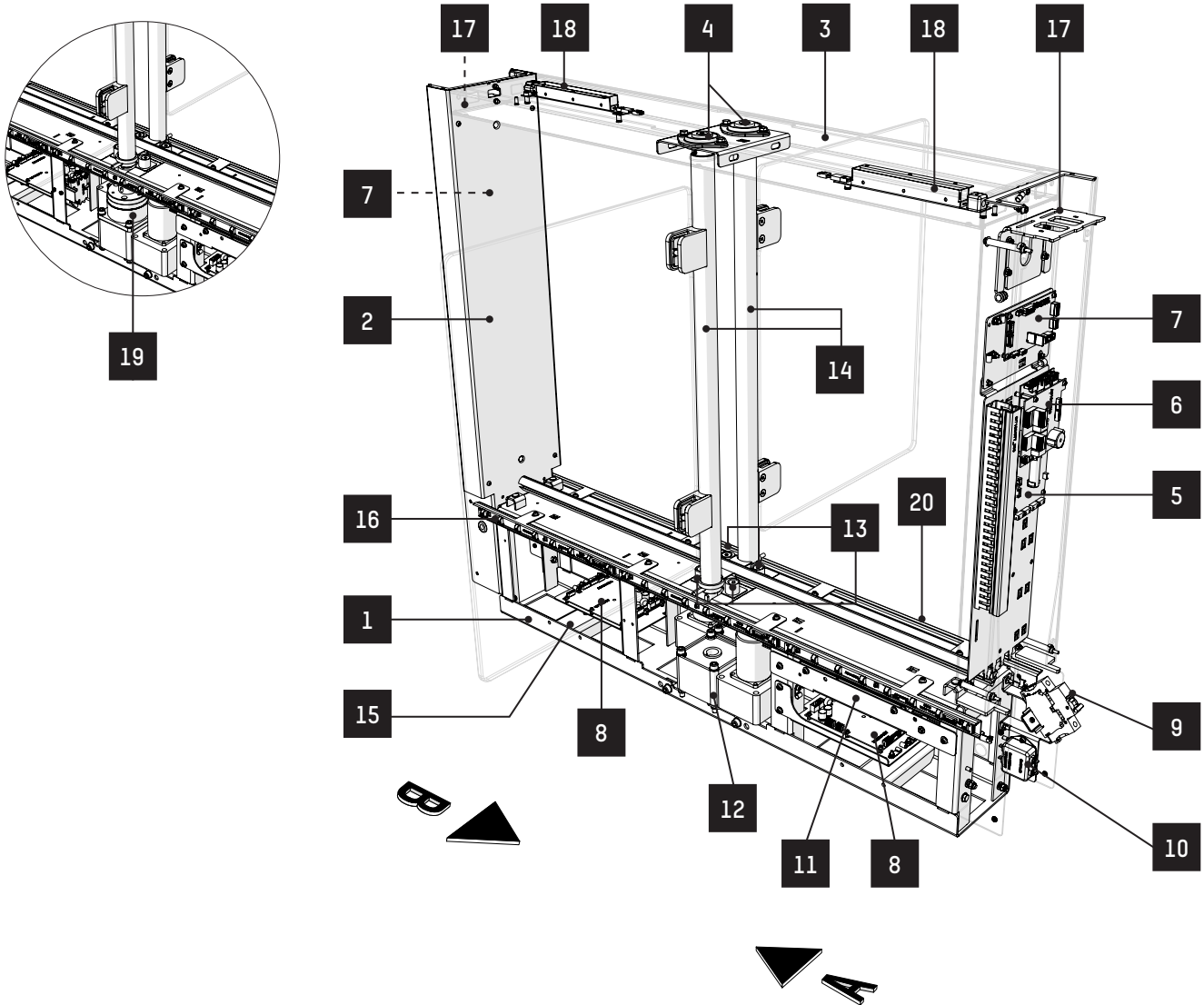


Fig. 12 - Internal components of the intermediate housing

REF.	DESCRIPTION	REF.	DESCRIPTION
1	Base frame	10	Sector filter
2	Frame upright	11	24 VDC 14 A power supply
3	Frame top rail	12	Geared motor (2x)
4	Bracket	13	End stops (4x)
5	CPU board - AS1190	14	Motion transmission shaft (2x)
6	I/O circuit board - AS1612	15	Fixing clamp (2x)
7	Dynamic lights circuit board - AS1656 (Option) (2x)	16	DIRAS detection cell (Receiver) (3x)
8	Motorization circuit board (2x): low glass version - AS1613 high glass/ IP44 / FirstLane PLUS versions - AS1633	17	Reader support (2x)
		18	Status indicator light channel set (2x)
		19	Brake (option) (2x)
9	Main circuit breaker 5A	20	DIRAS detection cell (Transmitter) (3x)

## 5.6.3. LEFT HOUSING

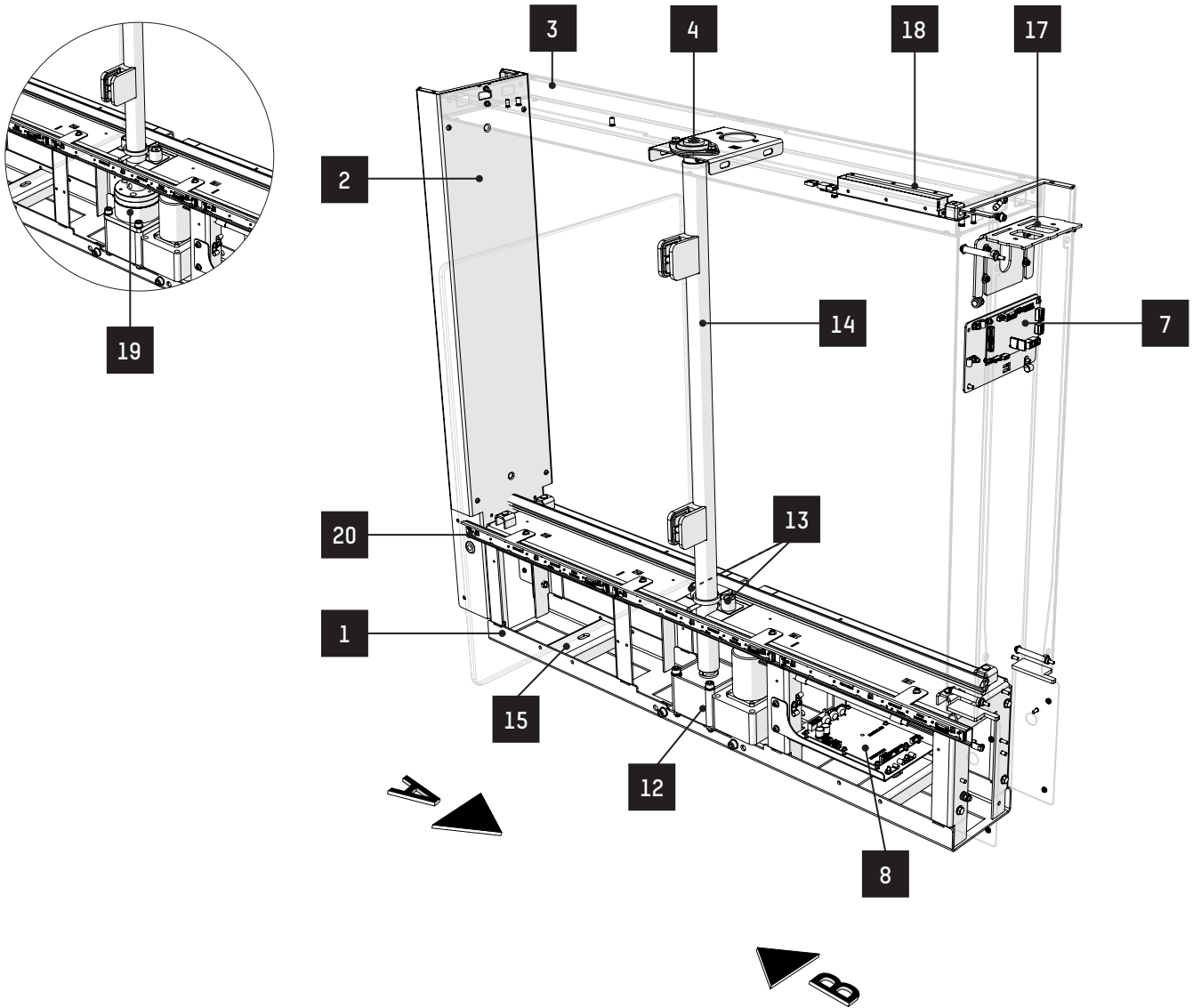


Fig. 13 - Internal components of the left housing

REF.	DESCRIPTION	REF.	DESCRIPTION
1	Base frame	12	Gear motor
2	Frame upright	13	End stops (2x)
3	Frame top rail	14	Motion transmission shaft
4	Bracket	15	Fixing clamp (2x)
7	Dynamic lights circuit board - AS1656 (Option)	17	Reader support
8	Motorization circuit board: low glass version - AS1613 high glass/ IP44 / FirstLane PLUS versions - AS1633	18	Status indicator light channel set
		19	Brake (option)
		20	DIRAS detection cell (Transmitter) (3x)



The 24 VDC 14 A power supply delivers the power needed to operate a complete lane.

## 5.6.4. GEAR MOTOR ASSEMBLY

### 5.6.4.1. GEAR MOTOR FOR FIRSTLANE LOW

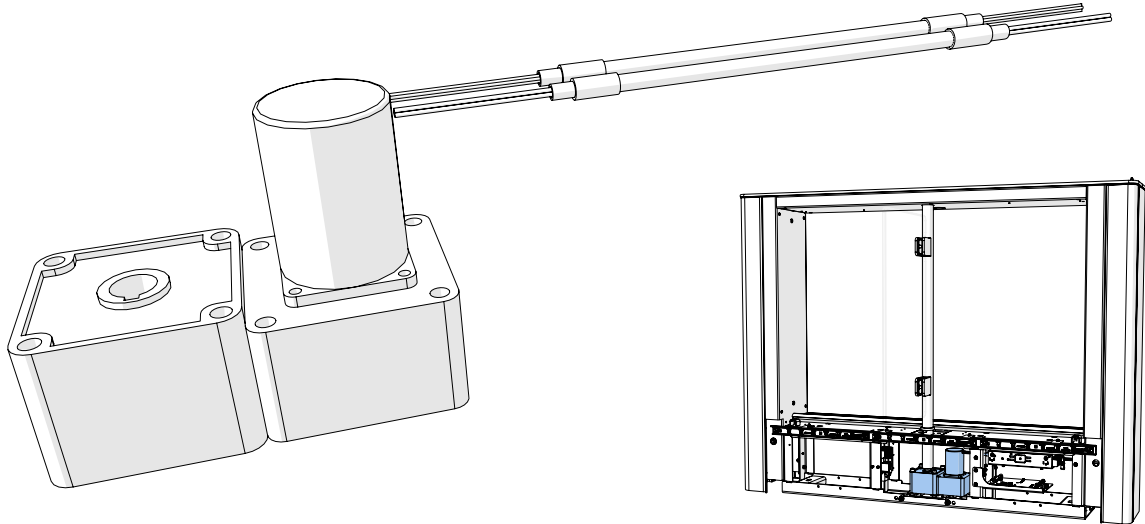


Fig. 14 - Gear motor for FirstLane low

### 5.6.4.2. GEAR MOTOR FOR FIRSTLANE HIGH AND FIRSTLANE WITH IP44

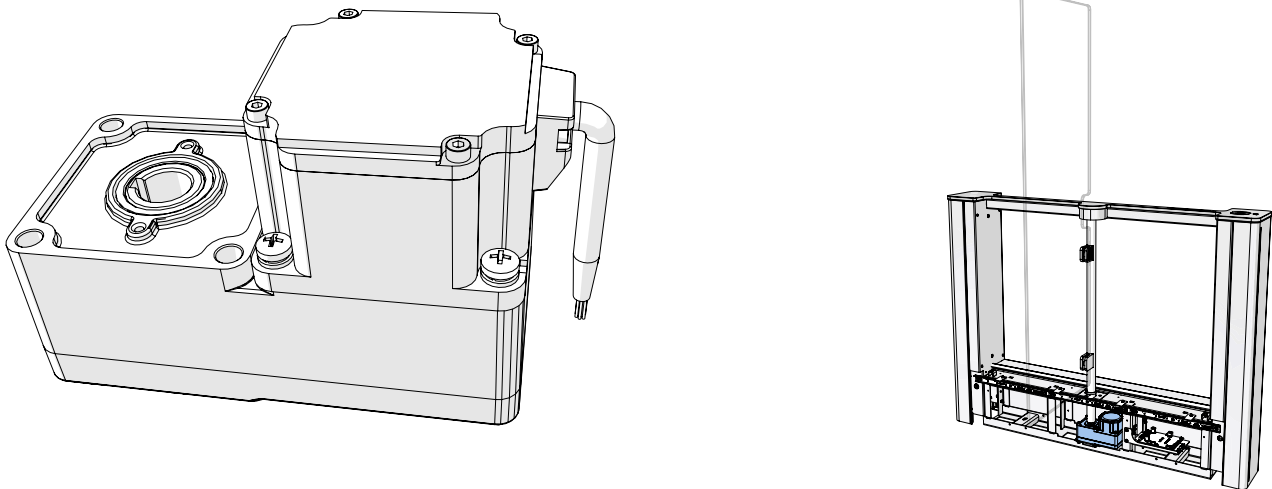


Fig. 15 - Gear motor for FirstLane high



## 5.6.5. HEATING CONTROL BLOCK (OPTION)

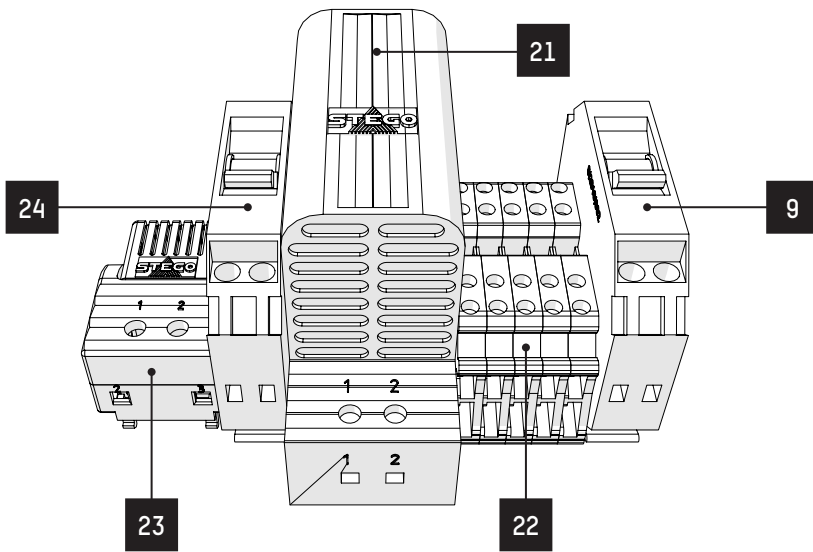


Fig. 16 - Right/intermediate heating control block in direction A (option)

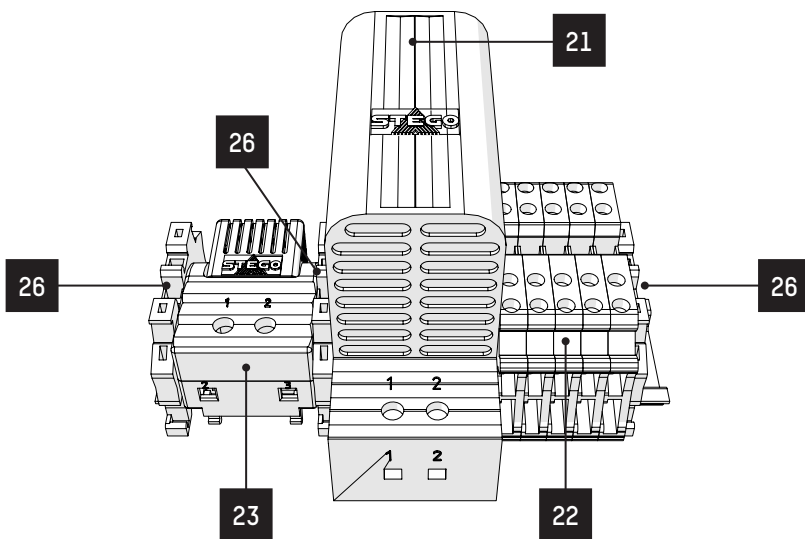
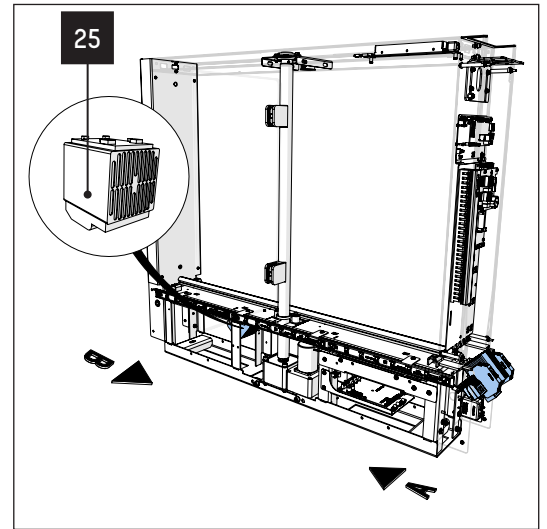
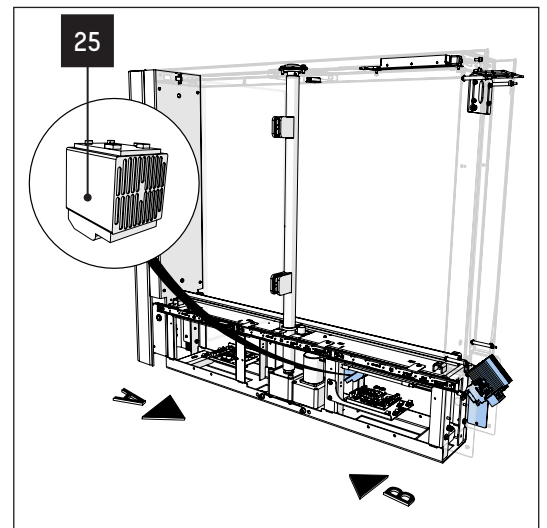


Fig. 17 - Left heating control block direction B (option)



REF.	DESCRIPTION	REF.	DESCRIPTION
9	Main circuit breaker 5A	24	Heater specific circuit breaker 5A
21	Heating resistance:	25	Motor heater
22	Junction blocks	26	Terminal block stop (3x)
23	Fixed range thermostat: TEMPERATURE OFF = 10°C TEMPERATURE ON = 0°C * no thermostat on an intermediate housing in direction B		

## 5.6.6. IP44 (OPTIONAL EXCEPT ON FIRSTLANE PLUS)

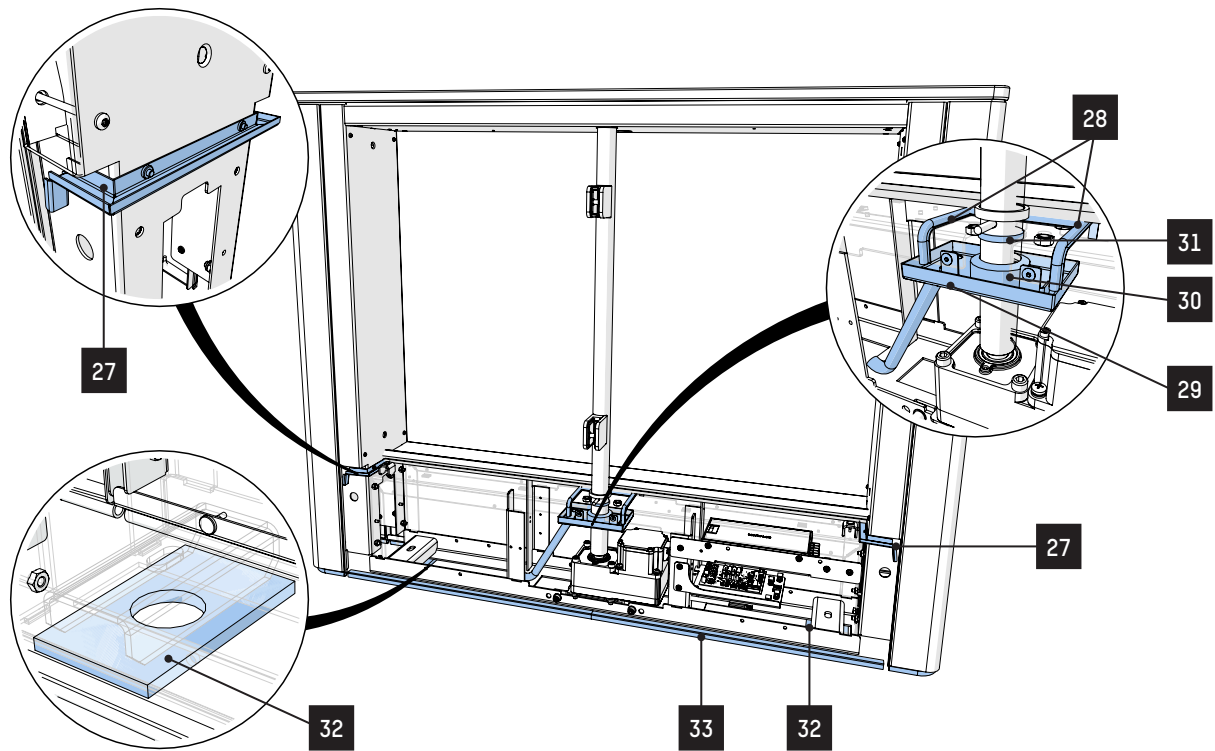


Fig. 18- IP44

REF.	DESCRIPTION	REF.	DESCRIPTION
27	Gutter assembly (x2)	31	Seal
28	Black silicone adhesive seal on base	32	8 mm PVC plate (x2)
29	Collecting tray assembly with evacuation pipe	33	Seal
30	Seal ring assembly with seal		

## 6. OPERATION

### 6.1. OPERATING PRINCIPLE

The movement of the geared motor (1) is directly transmitted to the mobile obstacle (5) via the main transmission shaft (2).

The clamps (4) make the connection between the moving obstacle and the transmission shaft.

The shaft is held in a vertical position by a fixed bearing (3) in the upper part of the mechanical frame.

To prevent the obstacles from being opened manually, a brake option is available that is coupled to the geared motor.



If someone attempts to manually open the mobile obstacles, the brake locks the kinematics to prevent fraud.

The motor is equipped with Hall sensors to ensure that the exact position of the mobile obstacle is known at all times.

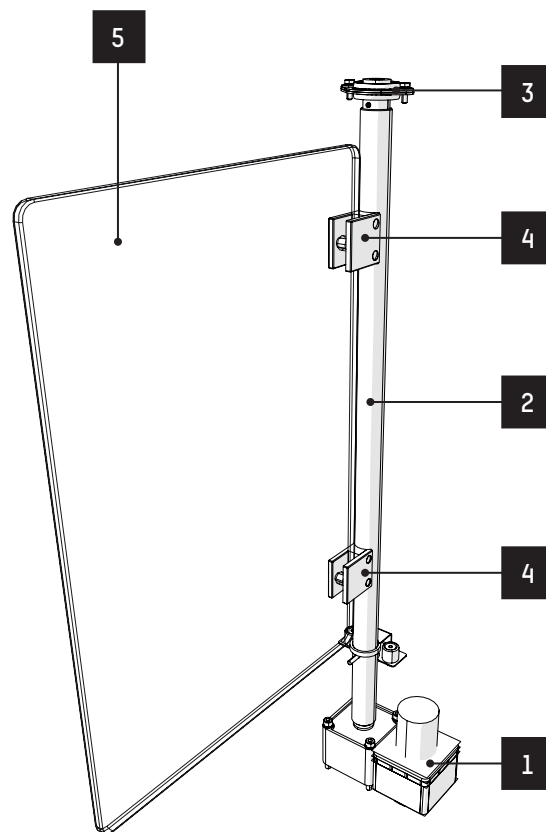


Fig. 19 - Transmission of motion

#### 6.1.1. MOVING OBSTACLE

The passage obstacle consists of 2 mobile obstacles (⇒Item. 7, Chap. 5.5 ) that disappear completely against the housing in the open position, leaving the lane completely free.

Each mobile obstacle is controlled via its own geared motor.

To exclude potential hazards for the user, the mobile obstacles are made of safety glass with rounded edges (no sharp edges). The torque applied during closing is less than prescribed under applicable safety standards, so that the obstacle can be stopped by the user without any major impact (even in the case of children). The obstacles never close when a person is detected in front of them (security zone).

The gaps between the obstacles and the housing are reduced to a minimum to prevent fingers being caught and unwanted objects ending up inside the housing.

## 6.2. POWERED OPERATION MODE

The **FirstLane** lanes operate in 'SECURI-SAFE' mode.

This mode focuses on **Safety**: when an attempt is made to force open the lane in one of the 2 directions (detected by the angular encoder), the on-board electronics will power the motor to prevent the obstacles from being forced open.

When the electromagnetic brake option is installed on the product, the brake will then be engaged to lock the obstacles.

## 6.3. STATE OF OBSTACLES AT REST

At rest, obstacles may be in one of the following states (configurable):

- **NC** = Normally Closed (default mode, and referred to in the descriptions in this manual, unless otherwise indicated): When idle, the obstacles are in the closed position and open upon receiving passage authorization. Passage breaches (intrusion & fraud) are signalled by audible and visual alarms (dynamic lights), and the obstacles are held in the closed position or close automatically in order to prevent intrusion into the secured zone.
- **NO** = Normally Open: At rest, the obstacles are in the open position. The obstacles only close if a user attempts to pass through without authorization. In this case, audible and visual alarms will also be activated.
- **FAL** = Free Access Lane: The obstacles are in the open position in the direction of evacuation at all times (direction B). Only sound and light alarms are activated in case of unauthorized access and breaches.

## 6.4. OPERATING MODE BY DIRECTION OF PASSAGE

Except in the event of technical fault or evacuation (when the lane is automatically configured), operating mode can be configured independently in both directions of passage:

- **Free**: any pedestrian may pass through the lane in the corresponding direction.
- **Controlled**: only a pedestrian with passage authorization may pass through the lane in the corresponding direction. Breaches are detected in this mode.
- **Locked**: pedestrians cannot pass through the lane in the corresponding direction.

## 6.5. PASSAGE AUTHORIZATIONS

The passage authorization signal must be sent to an Input of circuit board AS1612. (⇒ Chap. 11.4, page 60)

When an authorization signal is received, two (2) (configurable) timers will start, corresponding to the time allowed for the user to enter and pass through the lane, after which the obstacles will close.

Successive passage authorizations are stored for each direction and authorize the corresponding number of passages, regardless of the order of arrival in each direction.

## 6.6. LOCKED OPEN MODE

When **Locked Open** mode is activated, the obstacles are opened and remain open, so that passage through the lane takes place freely in both directions.

This operating mode has priority over all the other modes.

The **Locked Open** mode is triggered by an external contact (input CN5 on circuit board AS1612) and is active as long as the input is active.

## 6.7. POWER FAILURE

The operating mode in the event of a power failure will be one of the following, regardless of the powered operating mode:

- As **standard**: once the motor is no longer powered, the obstacle is free and can then be opened with a simple push.
- **With the brake option**: the brake returns to its rest position and unlocks the obstacle, which can then be opened with a simple push.

## 6.8. TECHNICAL FAULT

Technical faults are signalled by an output of circuit board AS1612 and on the Maintenance Interface, and are listed in the "Faults and Remedies" chapter.

Faults are classified in 2 categories: minor and major. Only certain major faults cause the obstacles to be closed and the lane to be placed out of service; other faults will not affect the operating mode.

## 6.9. VIOLATIONS

A violation is an unauthorized movement in the lane:

- ⇒ **Intrusion**: the user does not pass through the obstacles,
- ⇒ **Fraud**: the user passes through the obstacles.

For each direction of passage, violations are defined as described below.

When a violation is detected:

- The obstacle closes slowly.
- The buzzer sounds.
- The dynamic lights make the corresponding movements in the part of the lane where the violation occurred.
- A signal is sent to I/O circuit board AS1612.

### 6.9.1. 'INTRUSION' VIOLATION

An intrusion is said to have occurred when someone is detected in the lane when it is at rest.

It is declared after a certain time delay, which allows the user in the lane to present passage authorization.

### 6.9.2. 'TAILGATING' VIOLATION

This violation is declared when an unauthorized person follows an authorized user during their passage.

### 6.9.3. 'WRONG WAY' VIOLATION

This violation is declared when an unauthorized person is detected in one direction while an authorized passage is under way in the other direction.

## 6.10. SOUND AND LIGHT ALARMS

### 6.10.1. DYNAMIC STATUS LIGHT

The static status light is integrated into the top cover and located near the reader integration area. It indicates the user's access authorization and operates independently in both directions.

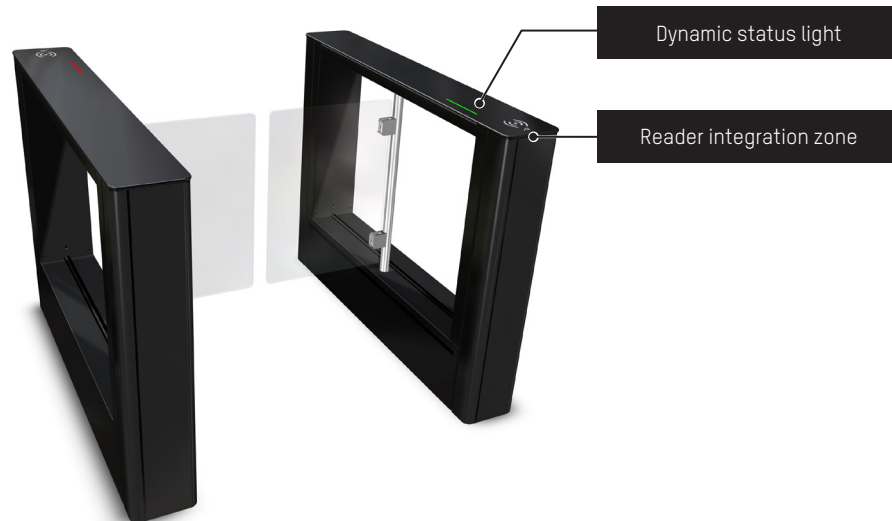







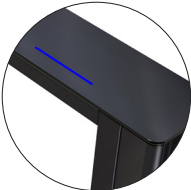


Fig. 20 - Static light

In the factory configuration, the following colour conventions apply to the status of FirstLane:

DYNAMIC STATUS LIGHT	MEANING	DYNAMIC STATUS LIGHT	MEANING
	<b>RED (FIXED)</b> ⇒ Passage forbidden ⇒ Passage under way in the wrong direction ⇒ Lane Out of Service. ⇒ Lane locked closed		<b>OFF</b> ⇒ Lane powered off
	<b>RED (FLASHING)</b> ⇒ Breach detected ⇒ Invalid badge control		<b>WHITE (FIXED)</b> ⇒ Lane initialising
	<b>GREEN (FIXED)</b> ⇒ Free mode (opens if presence detected)		<b>YELLOW (FIXED)</b> ⇒ Lane in Maintenance mode.
	<b>GREEN (FLASHING)</b> ⇒ Access to lane authorized in the direction shown ⇒ Lane in Evacuation mode		<b>BLUE (FIXED)</b> ⇒ Lane in Controlled mode, waiting for a request for passage authorization

## 6.10.2. DYNAMIC STATUS AND ORIENTATION LIGHTS

The dynamic status light is integrated into the top cover and located near the reader integration area. It indicates the user's access authorization and operates independently in both directions.

The dynamic orientation light is integrated into the stand. It indicates the status of the lane and allows good visibility from a distance, thus ensuring high throughput.

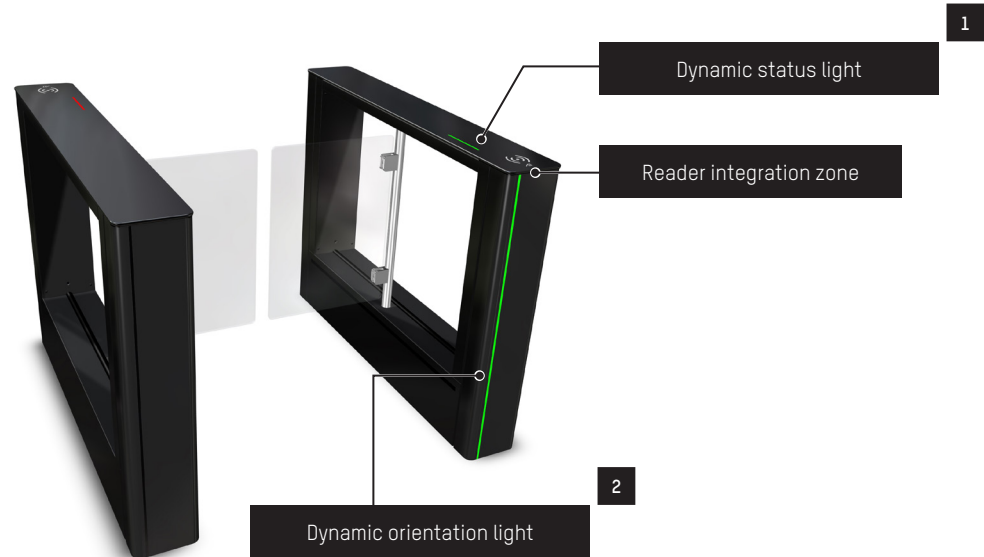



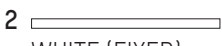

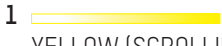
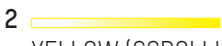
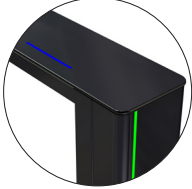

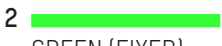


Fig. 21 - Dynamic lights

In the factory configuration, the following colour conventions apply to the status of FirstLane:

DYNAMIC LIGHTS		MEANING
	OFF	⇒ Lane powered off
	1  WHITE (FIXED) 2  WHITE (FIXED)	⇒ Lane initialising
	1  YELLOW (SCROLLING) 2  YELLOW (SCROLLING)	⇒ Lane in Maintenance mode.
	1  BLUE (FIXED) 2  GREEN (FIXED)	⇒ Lane in Controlled mode, waiting for a request for passage authorization

DYNAMIC LIGHTS		MEANING
	1  GREEN (FIXED) 2  GREEN (FIXED)	⇒ Free mode (opens if presence detected) ⇒ Normally open mode (obstacles are permanently open in the chosen direction and close when an attempt is made to pass in the opposite direction)
	1  GREEN (FLASHING) 2  GREEN (FLASHING)	⇒ The corridor is in "Evacuation" mode in the "Exit" direction and in the "Entry" direction. <div style="border: 1px solid black; padding: 5px;"> It is possible to change the colour of the pictograms when the appliance is in evacuation mode. ⇒ <b>Maintenance Interface Manual V07R0X</b> (Chap. "Configuring I/O")</div>
	1  GREEN (FLASHING) 2  GREEN (FIXED)	⇒ Access to lane authorized in the direction shown <div style="border: 1px solid black; padding: 5px;"> Once the obstacles have been cleared, the user loses his or her authorization to pass through.</div>
	1  RED (FLASHING) 2  RED (FLASHING)	⇒ Breach detected.
	1  RED (FLASHING) 2  RED (FIXED)	⇒ Invalid badge control
	1  RED (FIXED) 2  RED (FIXED)	⇒ Passage forbidden. ⇒ Passage under way in the wrong direction ⇒ Lane locked closed
	1  RED (FIXED) 2  RED (FLASHING)	⇒ Lane Out of Service

### 6.10.3. BUZZER

The buzzer is activated when an anomaly is detected during the passage sequence:

- Continuous sound ⇒ Intrusion or prolonged presence in the security zone during opening/closing.
- Intermittent sound ⇒ Fraud.



## 6.11. DETECTION

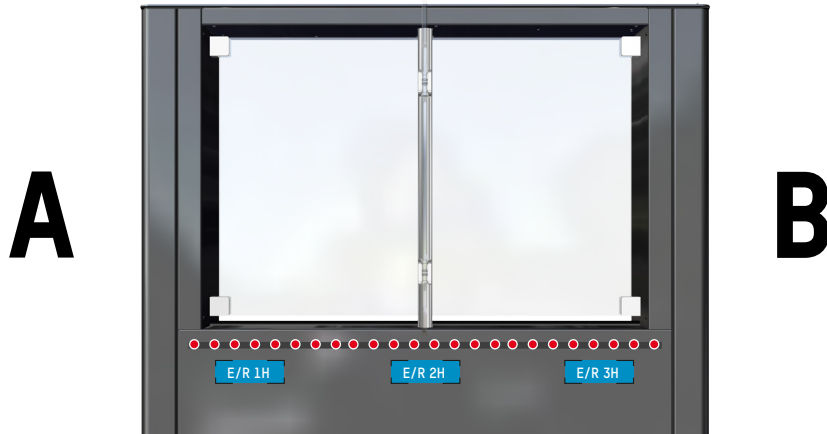


Fig. 22 - DIRAS detection cells

The DIRAS cells are of the Transmitter/Receiver type. They are grouped by 8 on electronic boards. The transmitter cells are located on the left housing, and the receiver cells on the right housing.

The program manages the passages, and determines breaches in relation to the cell masking sequence.

Each lane is divided into different detection zones:

The cells located on either side of the obstacles define a security zone with a configurable length. This zone ensures the safety of passengers by preventing the obstacles from opening or closing when a passenger comes too close to them (regardless of whether the user is authorized or not). If the security zone is extended, the safety of the passenger is prioritised over anti-fraud protection. By reducing the security zone, the anti-fraud protection is prioritised over the safety of the passenger.

In PRM mode, detection is inhibited: anti-fraud detection is deactivated to reduce the number of false alarms due to atypical readings of passengers with wheelchairs, bikes, pushchairs, etc. A simple detection mechanism is used to prevent the obstacles from closing on passengers or their luggage

### 6.11.1. DIRAS CELLS

AS1642 transmitter



Fig. 23 - AS1642 transmitter

AS1643 receiver



Fig. 24 - AS1643 receiver

The DIRAS infrared detection cells, which are developed by Automatic Systems, are strips of Transmitter/Receiver cells. They are grouped by 8 on electronic boards.

The transmitter cells are located in the left housing and the receiver cells in the right housing.

Each lane is equipped with 24 pairs of T/R cells (48 cells). The physical distance between two cells is approx. 45 mm but, thanks to the virtual beams created by the cross beams, this distance is reduced to 23 mm.

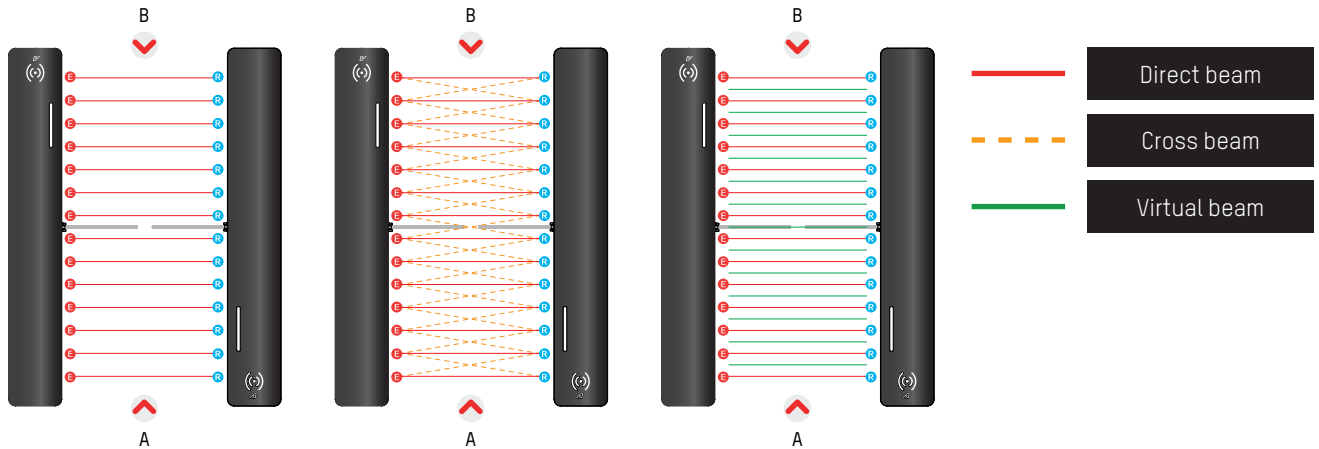


Fig. 25 - Cross beam principle

This high cell density makes it possible to use a detection algorithm, called a tracking algorithm, which predicts the position of the user and is able to detect objects/spaces greater than 23 mm (*which is very small compared to commercially available networks of cells*). This algorithm manages passages and determines breaches based on the match between this prediction and the cell masking sequence.

The advance leg tracking algorithm, combined with the location of the DIRAS and the high cell density, enables:

- Effective detection of Tailgating.
- Trolleys to be differentiated from people because they have a specific signature.
- Detection of children of all sizes.
- Detection of U-turn before/after the obstacle.
- Detection of users moving in the wrong direction.
- Detection of crawling users (highly unlikely).
- A continuously active security zone (because there are no obstacles passing in front of the cells).
- Major reduction in false alarms due to luggage (because tracking is activated as soon as the lane is entered).

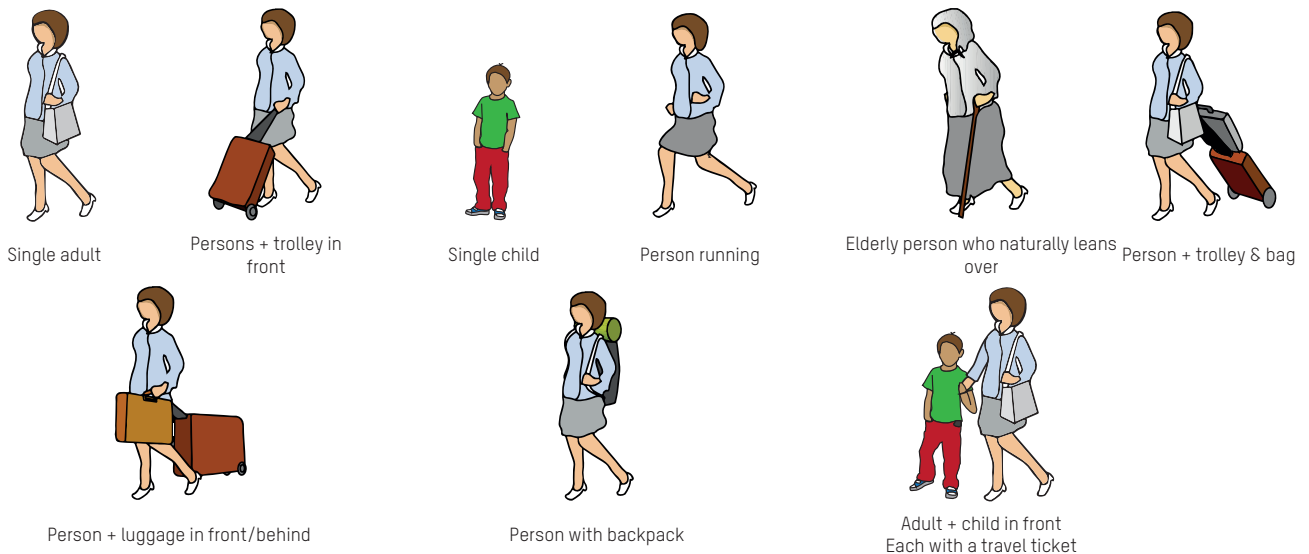


Fig. 26 - Authorized passages



2 persons following each other



2 persons side by side

Fig. 27 - Prohibited passages

For wide lanes, type PRM, the maintenance interface allows the obstacles to be configured so that they open partially (as opposed to fully during standard operation). In this case, when a person validates their badge when entering a PRM lane, anti-fraud detection is activated and the gate opens to leave only a passage of 600 mm instead of 900 mm in order to reduce fraud.

The PRM lanes have greater widths and therefore allow side-by-side fraud, which is difficult to detect with lateral detection.

## 7. INSTALLATION



INSTALLATION WORK MUST BE CARRIED OUT IN ACCORDANCE WITH LOCAL STANDARDS, SAFETY INSTRUCTIONS (⇒ CHAP. 2, PAGE 6) AND THE INSTALLATION PLAN BELOW.

### 7.1. STORAGE

Prior to installation, avoid impacts with the equipment and leave it in its original packaging in a dry place, protected from dust, heat and the weather (see also "Technical specifications", page 15).

**Extreme** storage temperature range: -30 to +80 °C.

### 7.2. UNPACKING

When the equipment arrives on-site, please check that it is complete and in good condition.

If, for some reason, damage has occurred during transport, please check that the transport document is in good condition and, if necessary, report the incident to Automatic Systems.

### 7.3. RECOMMENDED INSTALLATION TOOLS



- Standard electrical tools.
- Flat spanner set.
- Set of Allen keys.
- Spirit level.
- Hammer drill + concrete drill bits - Ø 15 x 100.
- Standard protective equipment: gloves, goggles, hard hat and safety shoes.

### 7.4. SITE PREPARATION WORK

The equipment is designed for indoor use, protected from the elements.

Preliminary installation work on the equipment must be carried out in accordance with the installation plan (⇒ Chap. 7.5). In particular, this applies to laying conduits for electrical cables.

The gate must be mounted on a concrete or other non-combustible material floor that is resistant to the torque applied when tightening the anchor bolts (50 Nm).

The floor must be perfectly flat (no bumps). The maximum authorized (longitudinal and transverse) slope between the housings is 0.15% (to ensure transmission of detection beams). The slope must be constant (no change in direction allowed).

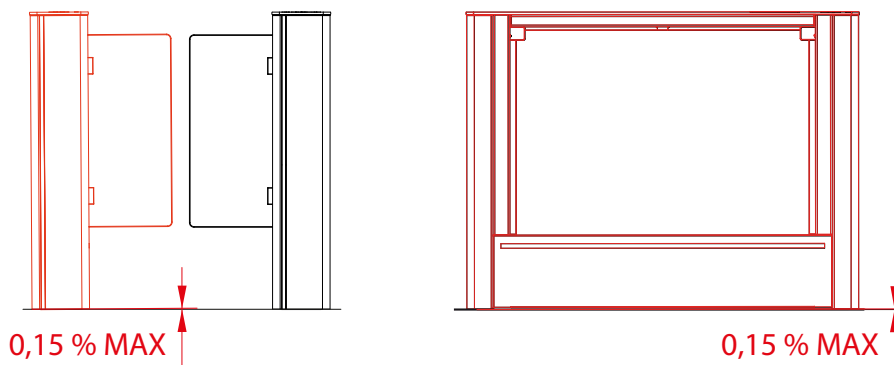


Fig. 28 - Levelling

## 7.5. INSTALLATION PLAN

### 7.5.1. FIRSTLANE - LOW

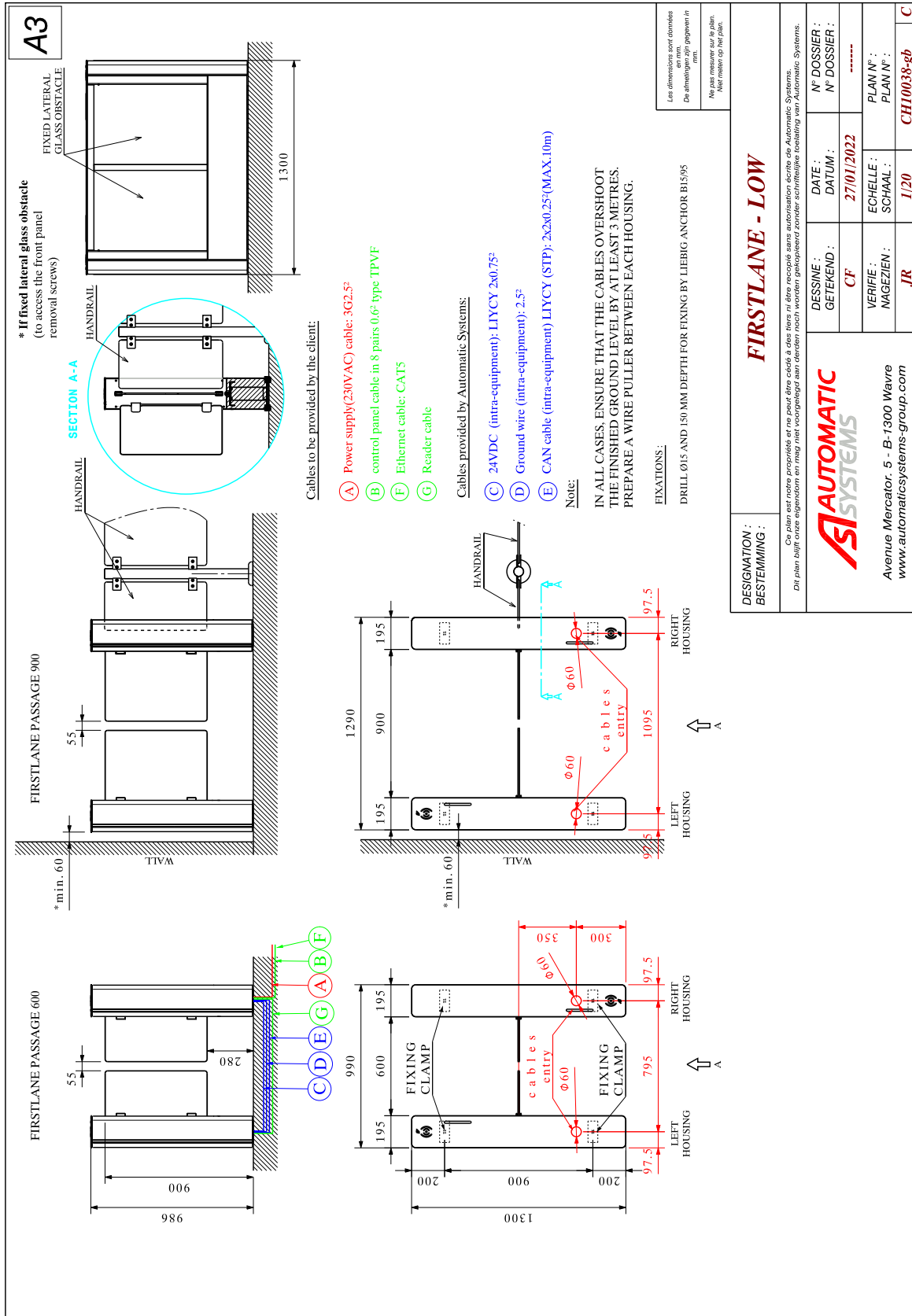


Fig. 29 - Installation plan - FirstLane - low

## 7.5.2. FIRSTLANE - HIGH

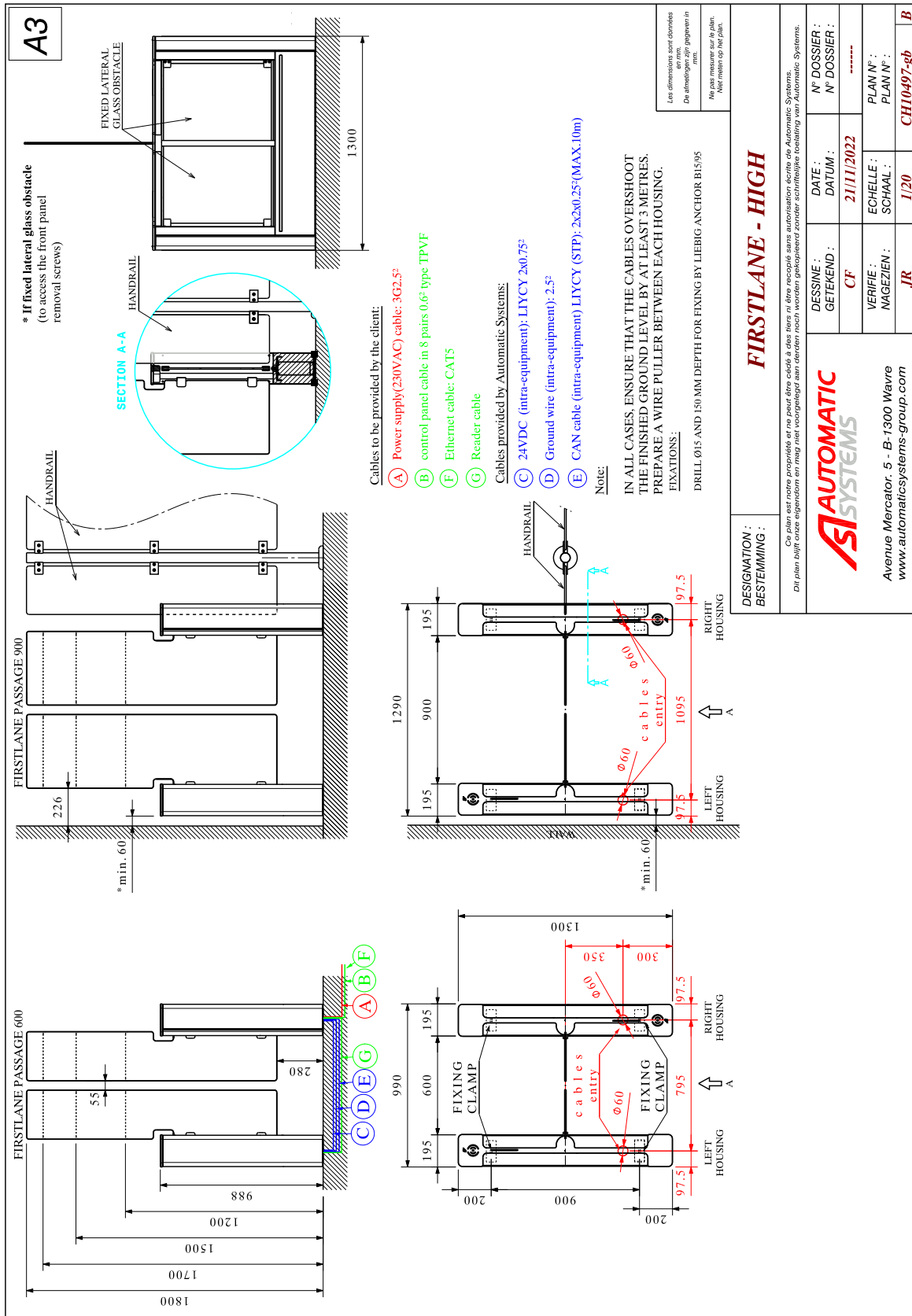


Fig. 30 - Installation plan - FirstLane - high

## 7.5.3. FIRSTLANE PLUS - LOW

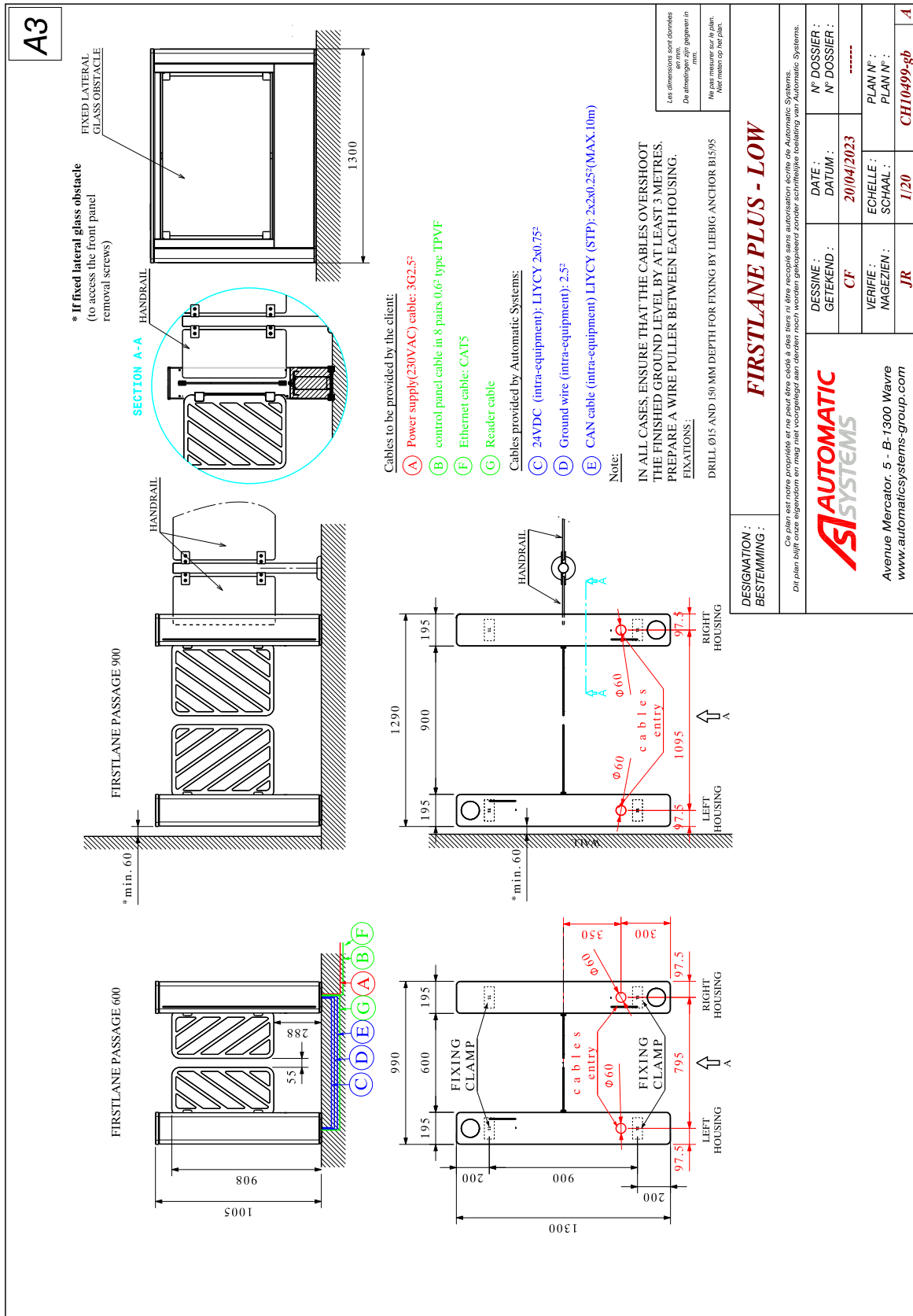


Fig. 31 - Installation plan - FirstLane PLUS - low

## 7.5.4. FIRSTLANE PLUS - HIGH

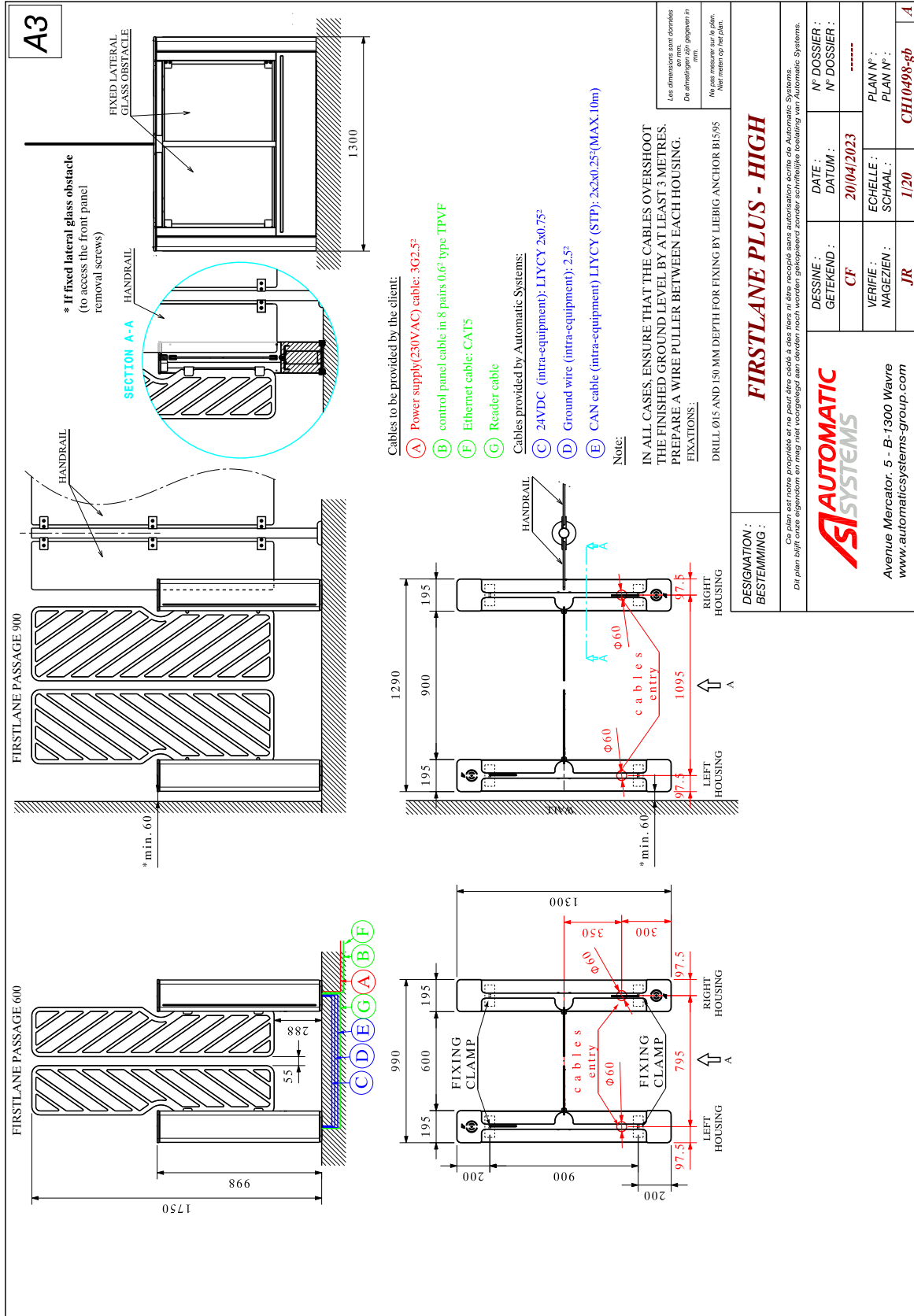


Fig. 32 - Installation plan - FirstLane PLUS - high



## 7.6. INSTALLING THE EQUIPMENT



**THE EQUIPMENT MUST BE ANCHORED TO THE FLOOR BEFORE IT BECOMES ACCESSIBLE TO USERS!**

**AUTOMATIC SYSTEMS CANNOT BE HELD RESPONSIBLE FOR ANY ACCIDENTS OR DAMAGE TO EQUIPMENT DUE TO IMPROPER FLOOR ANCHORING.**

### 7.6.1. HANDLING

The equipment can be handled using a forklift truck or a transpallet. In both cases, the lifting force must be applied to the base frame.

### 7.6.2. FLOOR ANCHORING

This essentially entails the following tasks:

- Study the set-up and positioning of the equipment based on the general layout of the site.
- Prepare the holes in the floor in accordance with the installation plan.
- Make sure that the holes are drilled with a diameter suitable for the 2 expansion bolts that you are going to use (recommended type: model B15/95, ref. 0/7420/300).

Automatic Systems provides M10 expansion bolts to be tightened with a minimum torque of 50 Nm. The location of the expansion bolts is shown on the installation plan (⇒ Chap. 7.5). However, it is essential to adapt the fixtures and procedure to the environment and the type of surface on which the housing will be mounted. Furthermore, it is essential for the work to be approved by an engineer specialized in the field.

- Check the correct location of the cable passage by following the installation plan.

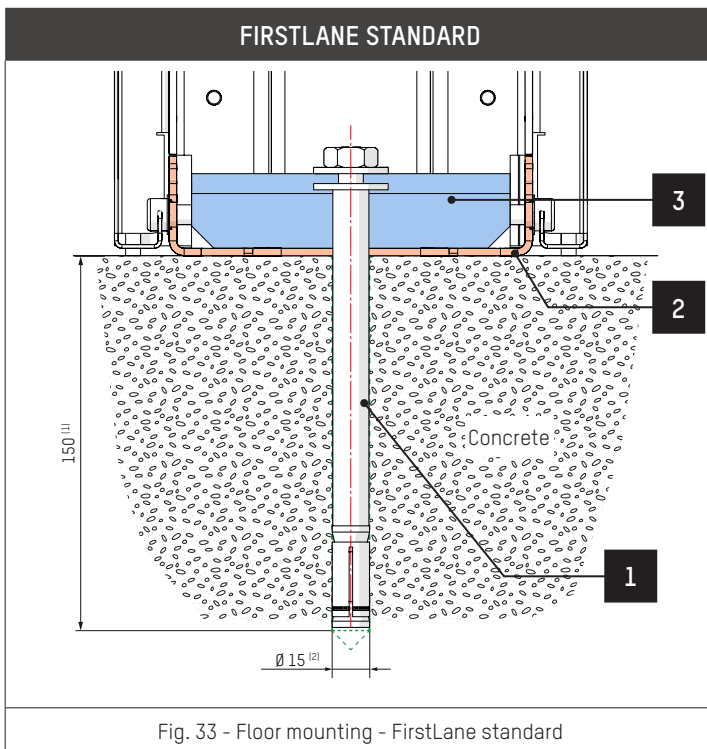


Fig. 33 - Floor mounting - FirstLane standard

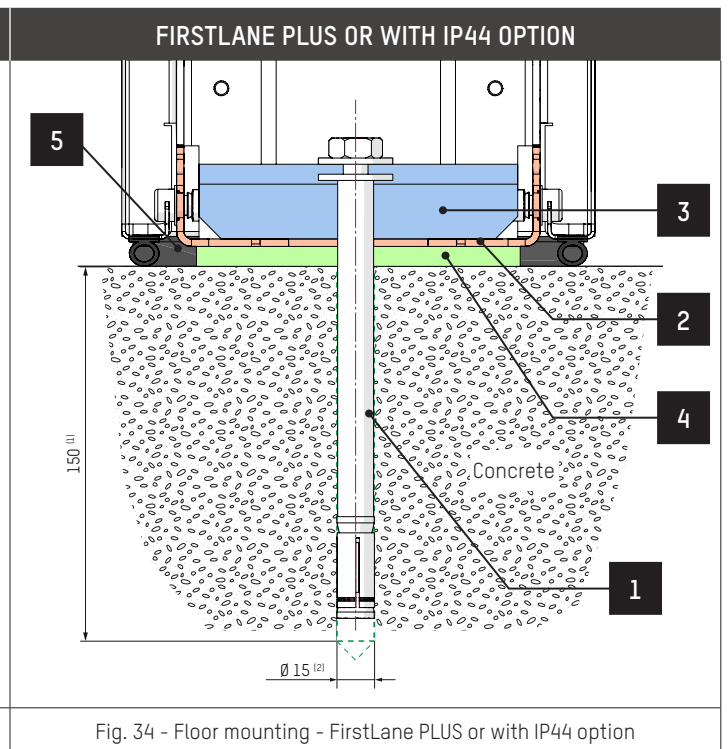


Fig. 34 - Floor mounting - FirstLane PLUS or with IP44 option

REF.	DESCRIPTION	REF.	DESCRIPTION
1	Anchor pin (2)	4	8 mm PVC plate (prevents premature corrosion of the body)
2	Base frame		
3	Clamps	5	Seal

<sup>(1)</sup> Drilling depth

<sup>(2)</sup> Drilling dia.

## 7.7. ELECTRICAL CONNECTIONS



Electrician's toolkit: screwdriver, cutting pliers, stripping pliers, etc.

The connections must be made in accordance with the installation plans (⇒ Chap. 7.5) and electrical diagrams, which remain the reference.

The power and control cables shown on the installation plan are the responsibility of the user.

The control cables must be separated from power cables to avoid interference.



**BEFORE CONNECTING THE POWER SUPPLY, IT IS ESSENTIAL TO MAKE A GROUND CONNECTION USING A CABLE WITH A MIN. CROSS SECTION OF 2.5 MM<sup>2</sup>.**

**DO NOT CONNECT TO A FLOATING NETWORK OR TO A HIGH-IMPEDANCE EARTHED INDUSTRIAL DISTRIBUTION NETWORK.**



The connections shown below are for inter-housing connections for a standard product.

If your product is equipped with one or more options, refer to the electrical diagrams that correspond to this or these options.

For each lane:

- Uncouple the stand located on your right, in the direction of passage A ⇒ B, taking care not to damage the grounding braid (⇒ Chap. 8.3).
- Cut the circuit breaker (⇒ Chap. 11.3).

### 7.7.1. INTER-HOUSING CONNECTION - W51 - "CAN" CONNECTION

Connect the two AS1613/AS1633 circuit boards to each other using cable CAN W51.

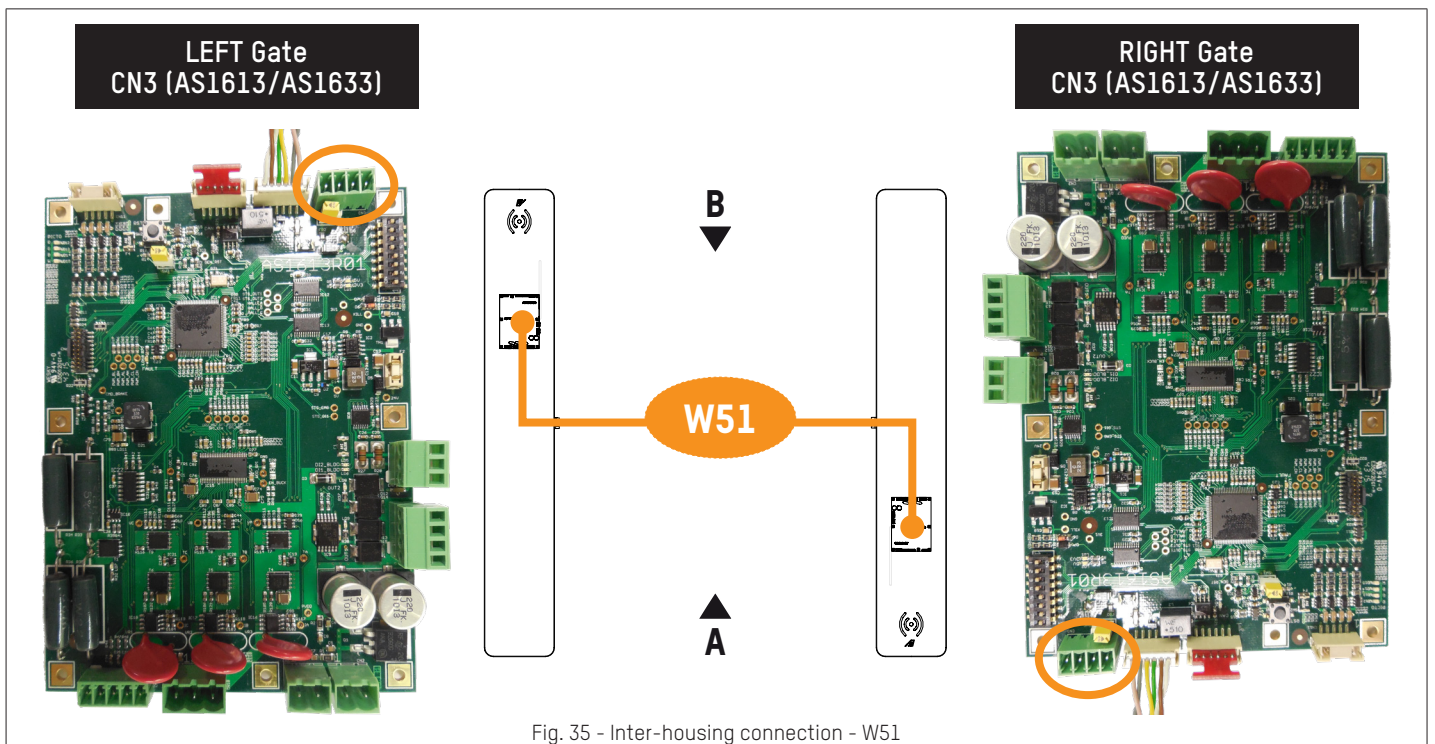
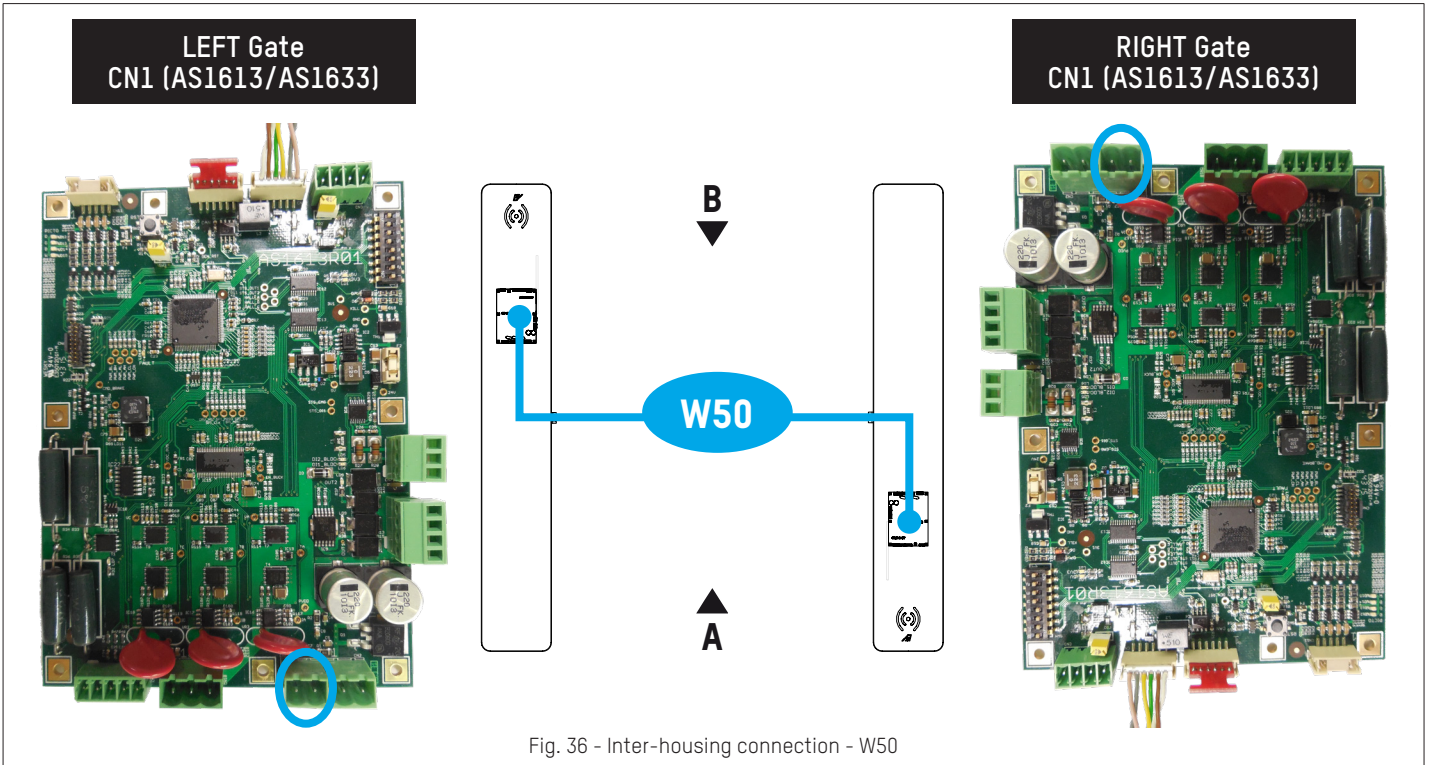


Fig. 35 - Inter-housing connection - W51

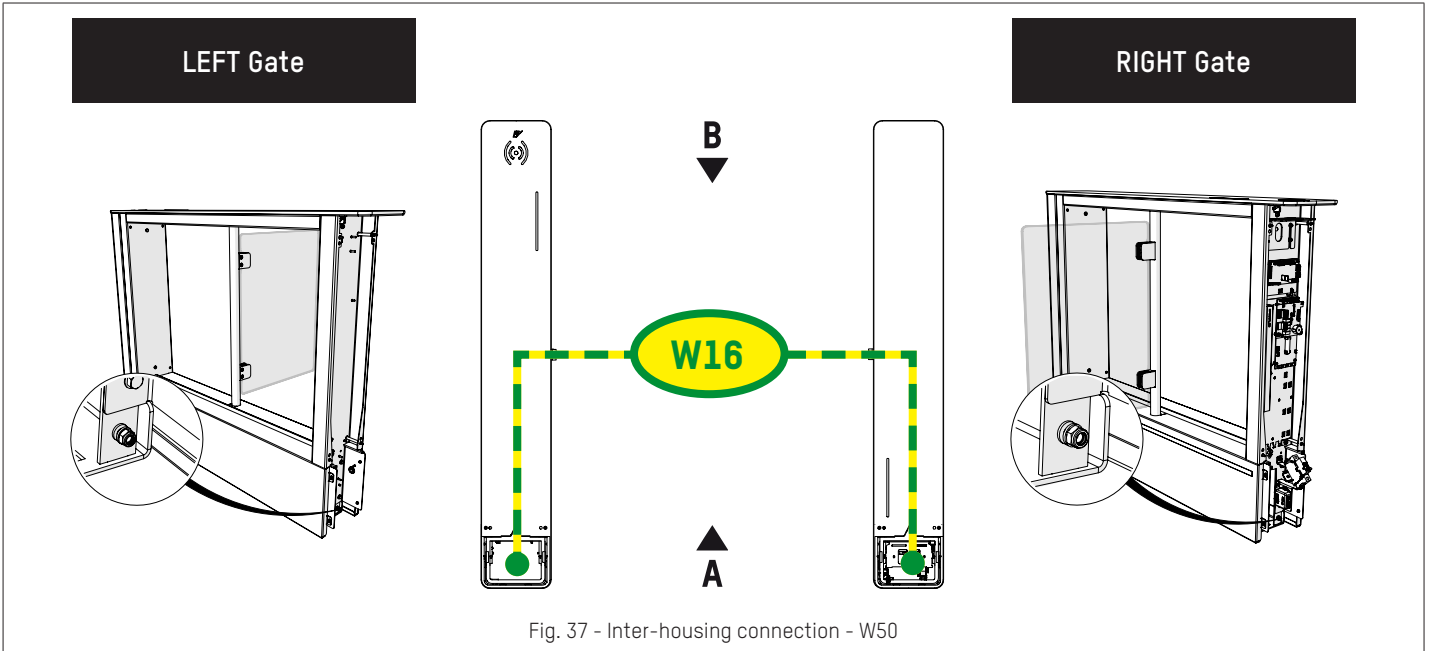
## 7.7.2. INTER-HOUSING CONNECTION - W50 - "24 V POWER SUPPLY" CONNECTION

Connect the two AS1613/AS1633 circuit boards to each other using power cable W50.



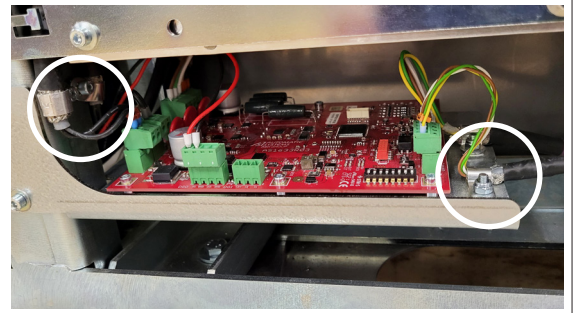
## 7.7.3. INTER-HOUSING CONNECTION - W16

Install the equipotential bonding between both housings using cable W16.





WHEN SETTING UP THE INTER-HOUSING CONNECTIONS, IT IS IMPERATIVE TO PROPERLY GROUND (RE-SHIELD) EACH CABLE, IN EACH OF THE HOUSINGS CONCERNED, IN ORDER TO PREVENT THE DEVICE FROM MALFUNCTIONING!



Shorten the inter-housing cables as much as possible, to have clean wiring and limit electromagnetic interference (EMC).



**Specific equipment required:** cutter, stripping pliers, capping pliers, cutting pliers, cable tips.

## 7.7.4. CONNECTION TO THE MAIN TERMINAL BLOCK

Connect the two (2) phases of the power supply (single phase 120/230 VAC - 50/60 Hz) and the ground to the main terminal block using a cable with a min. cross section of 2.5 mm<sup>2</sup>. Protect the upstream line with a 16A circuit breaker.

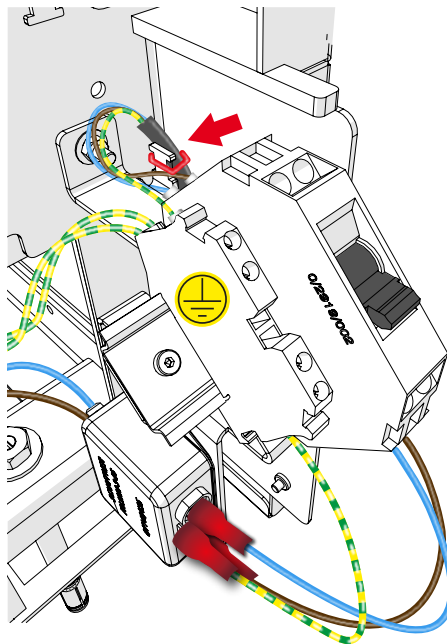


Fig. 38 - Connection to the main terminal block

## 7.8. COMMISSIONING



IT IS IMPORTANT TO MAKE SURE THAT THE AS1606 CIRCUIT BREAKER (CAN BUS END) IS PLUGGED INTO THE CONNECTOR OF THE LAST DIRAS V3 CIRCUIT BREAKER. (⇒ELECTRICAL TECHNICAL DOSSIER)

1. Turn on the main circuit breaker (⇒ Ref. 9, Chap. 5.6) to power up the equipment and close the extension covers. On power-up, the obstacles will run an opening and closing cycle to determine the end opening positions of the device. The dynamic orientation and status lights will be **WHITE**.
2. Configure the lane via the Maintenance Interface (obstacle dimensions, opening speed, etc.) ⇒ see specific manual.
3. Open and close several times using the available controls (reader, remote control, etc.), and check the obstacle position in the open and closed positions.
4. Make sure that the obstacles open completely when an evacuation order is issued.
5. Pass through several times and check that the pictograms and buzzer operate properly.
6. Make sure that optional equipment (monitoring panel, etc.) and customer-incorporated equipment (reader, etc.) is operating correctly.

## 7.9. RETROFITTING AN EXISTING FIRSTLANE INSTALLATION



BECAUSE THE ANCHORING DISTANCE BETWEEN THE HOUSINGS HAS BEEN CHANGED, A DIFFERENCE OF 5 mm IN THE PASSAGE WIDTH BETWEEN THE HOUSINGS IS POSSIBLE IF THE EXISTING ANCHORING POINTS OF THE OLD INSTALLATION ARE USED.

PLEASE INFORM THE END CLIENT TO SEE IF A SOLUTION CAN BE FOUND!

## 8. MAINTENANCE

ALL MAINTENANCE WORK ON THE EQUIPMENT MUST BE CARRIED OUT IN ACCORDANCE WITH SAFETY REQUIREMENTS IN CHAPTER 1.



GROUND WIRES MUST INTERCONNECT ALL MOVING METALLIC PARTS (NOT BOLTED TO THE FRAME). SPECIAL ATTENTION MUST BE PAID WHEN DISASSEMBLING THESE ELEMENTS SO THAT THE WIRES ARE NOT DAMAGED.

IT IS IMPERATIVE TO RECONNECT THEM DURING REASSEMBLY.

### 8.1. RECOMMENDED TOOLS



- Wrench or screwdriver TORX - N° 20 (T20, TX20, etc.);
- Electrician's toolkit: screwdrivers, pliers, etc. (For electrical connection);
- Mallet (to anchor the equipment to the floor);
- Ratchet wrench + extension + socket set;
- PC + mini USB or RJ45 Ethernet cable or supervision panel. (Optional) (To configure the lanes);
- Set of Allen keys;
- Flat spanner set.

### 8.2. RECOMMENDED TORQUE

Recommended torque for tightening screws and nuts, unless otherwise specified:

TYPE OF SCREW	TORQUE (NM)
M2	0.32
M3	1.15
M4	2.65
M5	5.2
M6	8.9
M7	14.5
M8	22

TYPE OF SCREW	TORQUE (NM)
M10	43
M12	75
M14	119
M16	182
M18	250
M20	355
M22	480

## 8.3. REMOVING THE FRONT PLATE



The front plate on your right, in direction A  $\Rightarrow$  B, contains the electric board, which features with various electronic circuit boards and the circuit breaker for switching off the power supply to the lane.

The front plate located on your right, in passage direction B  $\Rightarrow$  A, only contains the AS1656 circuit board (if dynamic lights option).

1. Remove the 4 mounting screws of the body and pull the front plate forward.
2. Then remove the grounding braid and disconnect the dynamic light in the stand if the front plate needs to be removed completely.



**A GROUND BRAID CONNECTS THE STAND TO THE BODY OF THE HOUSING:**

- BE CAREFUL NOT TO PULL IT OFF BY PULLING THE STAND TOO HARD WHEN REMOVING IT.
- DO NOT FORGET TO CONNECT THE GROUND BRAID WHEN REASSEMBLING THE STAND.



It is easier to remove the stands if the glass upper plate has been removed beforehand.

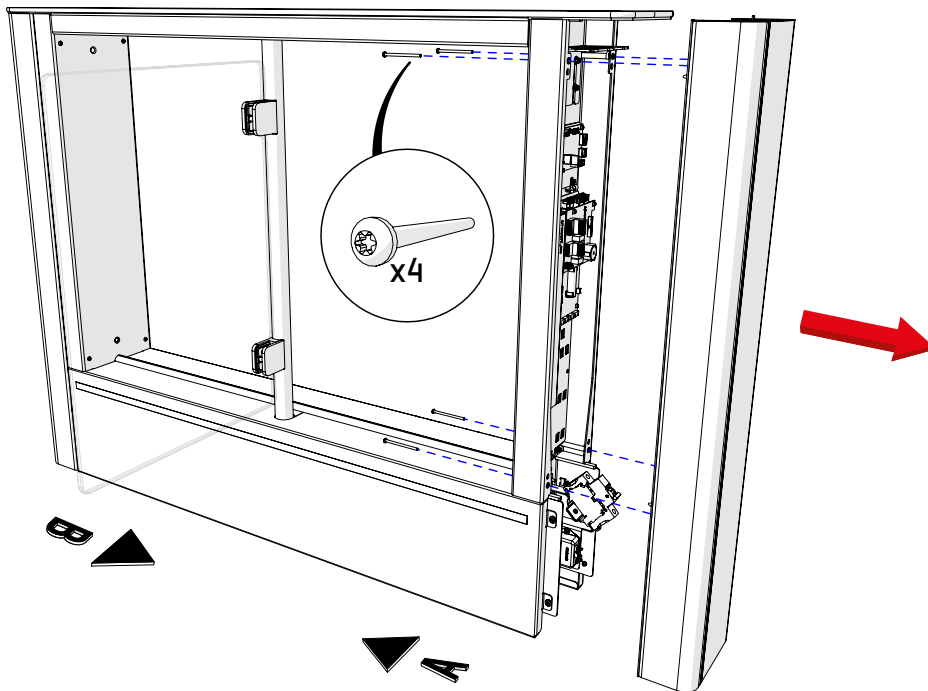


Fig. 39 - Removing the front plate

## 8.4. SWITCHING THE EQUIPMENT ON/OFF

1. Remove the front plate located on the right-hand side, in direction of passage A ⇒ B. (⇒ Chap. 8.3, page 45)
2. To power off, switch the main circuit breaker lever down.
3. To power up, switch the main circuit breaker lever up.

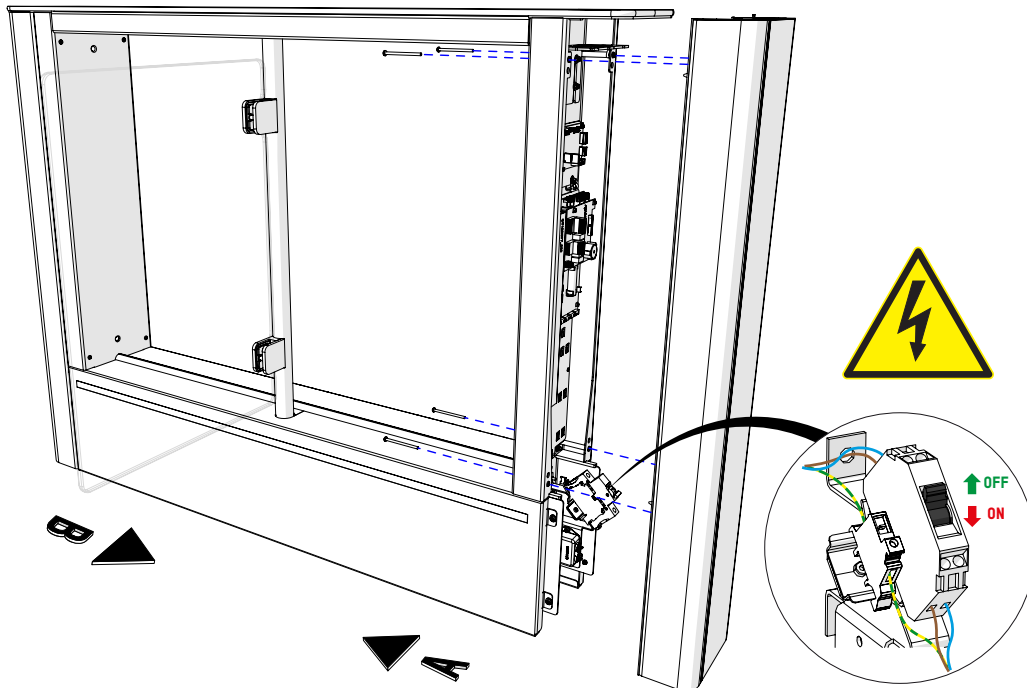


Fig. 40 - Power off/on



When the housing is powered off, and the brake option is installed, the brake(s) will unlock and the obstacles will be free.

When the housing is powered up, during start-up of the CPU:

- the dynamic status lights will be switched off.
- the dynamic orientation lights will be red (only in the centre).

This is followed by an initialization phase during which the dynamic lights turn white and the obstacles move to their end positions.

When the equipment is operational, the dynamic lights indicate the operating mode defined by the direction of passage.



## 8.5. REMOVING THE GLASS TOP COVER

### FirstLane low:

1. Remove the front plate located on the right-hand side, in direction of passage A ⇒ B. (⇒ Chap. 8.3, page 45)
2. Turn the equipment off. (⇒ Chap. 8.4, page 46)
3. Remove the 6 screws that hold the top cover to the profile on the upper railing.

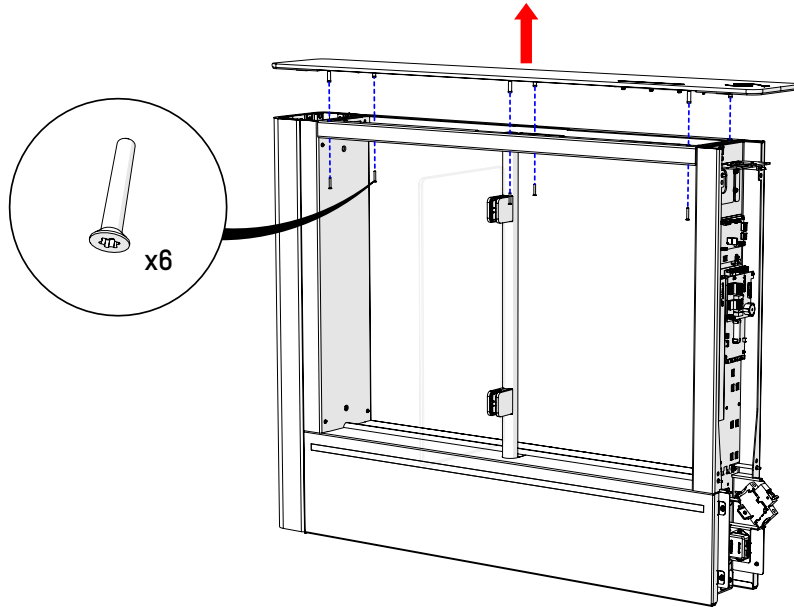


Fig. 41 - Removing the top cover for the FirstLane low

### FirstLane high:

1. Remove the 2 front plates. (⇒ Chap. 8.3, page 45)
2. Turn the equipment off. (⇒ Chap. 8.4, page 46)
3. Remove the 4 screws that hold the top cover to the profile on the upper railing.
4. Remove the 2 screws, as well as the 2 fan washers and 2 flat washers that hold the top cover at the 2 ends of the housing.

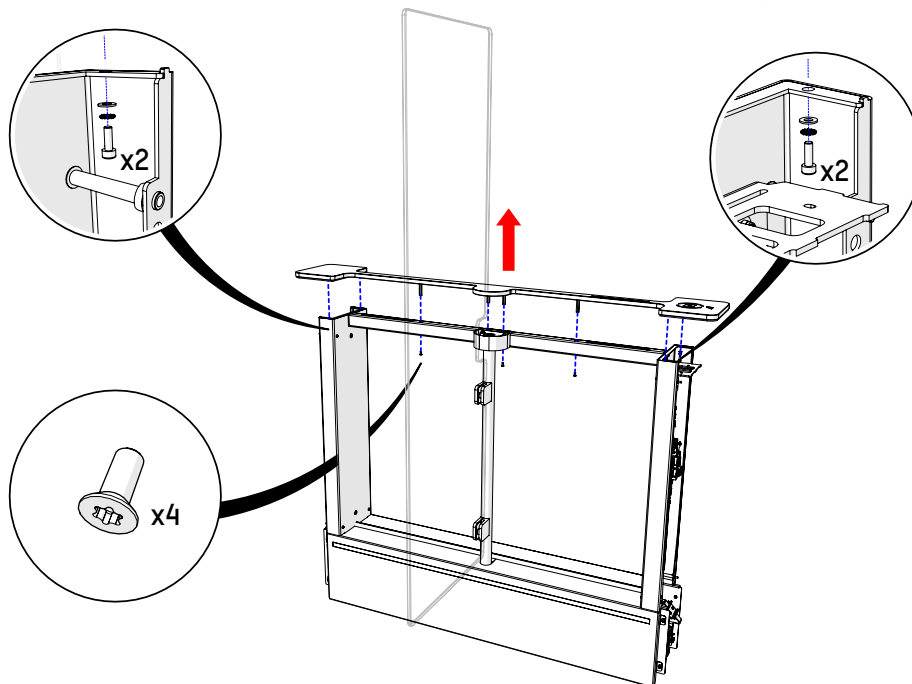


Fig. 42 - Removing the top cover for the FirstLane high

## 8.6. REMOVING THE KINEMATIC PANEL

1. Remove the 2 front plates. (⇒ Chap. 8.3, page 45)
2. Turn the equipment off. (⇒ Chap. 8.4, page 46)
3. Then remove the 4 screws + the 4 fan washers that hold the panel on the base frame.
4. Pull the panel forward to remove it completely.

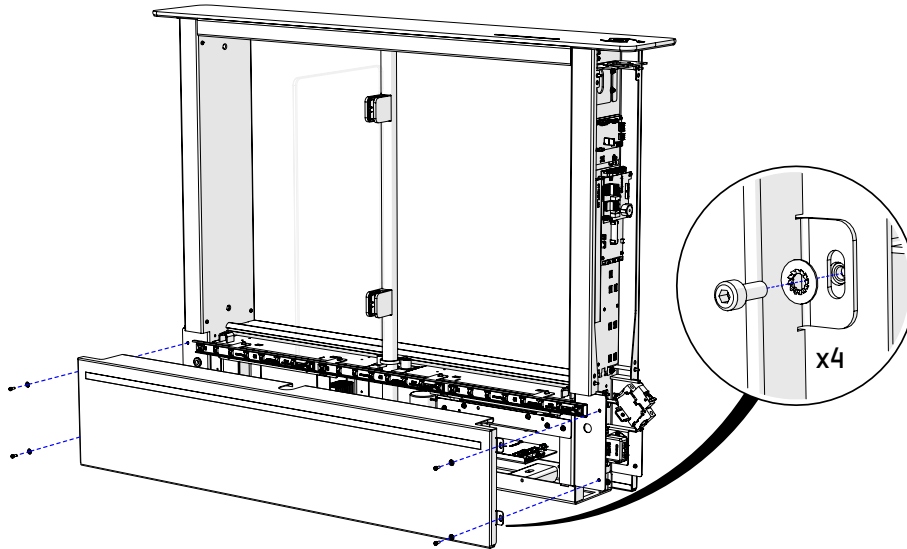


Fig. 43 - Removing the kinematic panel

## 8.7. REMOVING THE MOBILE OBSTACLE

### FirstLane low:

1. Remove the front plate located on the right-hand side, in direction of passage A ⇒ B. (⇒ Chap. 8.3, page 45)
2. Turn the equipment off. (⇒ Chap. 8.4, page 46)
3. While holding the obstacle (1) so that it cannot fall, remove the 4 screws (2) that hold the bases of the 2 glass clamps (3). Be careful not to lose the 2 bushings (4) and the 2 support pins (5) located in the holes of the obstacle.
4. Place the mobile obstacle in a safe location.

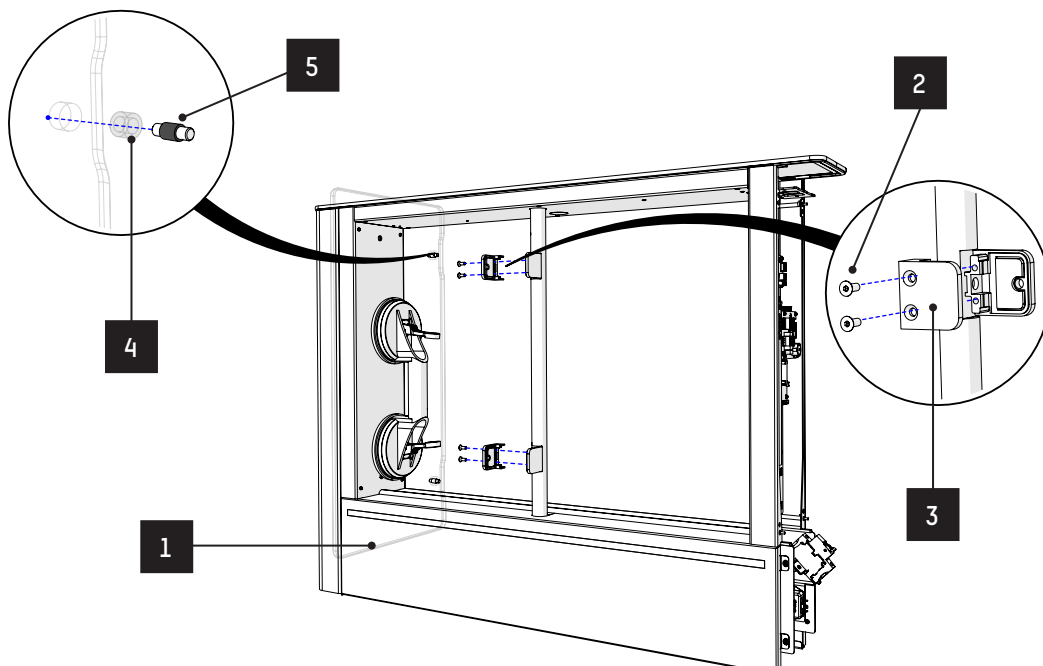


Fig. 44 - Removing the mobile obstacle for the FirstLane low

## FirstLane high:

1. Remove the front plate located on the right-hand side, in direction of passage A ⇒ B. (⇒ Chap. 8.3, page 45)
2. Turn the equipment off. (⇒ Chap. 8.4, page 46)
3. While holding the obstacle (1) so that it cannot fall, remove the 6 screws (2) that hold the bases of the 2 glass clamps (3). Take care not to lose the 2 spacers (4) located in the holes of the obstacle.
4. Place the mobile obstacle in a safe location.

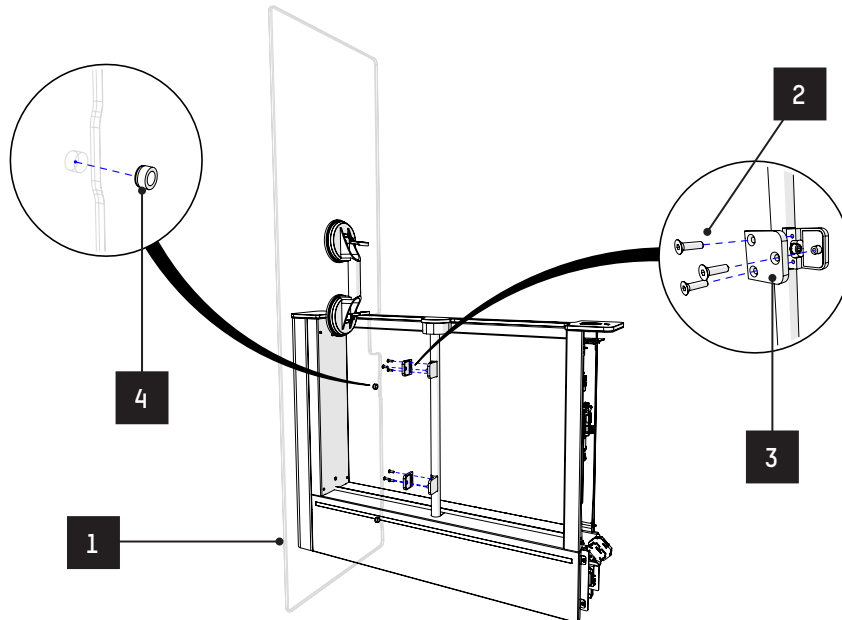


Fig. 45 - Removing the mobile obstacle for FirstLane high



For aesthetic reasons, the fastening screws of the glass clamps (that hold the mobile obstacle on the transmission shaft) are located on side B.

## 8.7.1. MOVING THE AERO OBSTACLE LOW AND HIGH

The clamp system is the same as for the FirstLane high. (⇒ Fig. 45, page 49)

While holding the AERO obstacle (1) so that it cannot fall, remove the 6 screws (2) that hold the bases of the 2 glass clamps (3). Take care not to lose the 2 spacers (4) located in the holes of the obstacle.

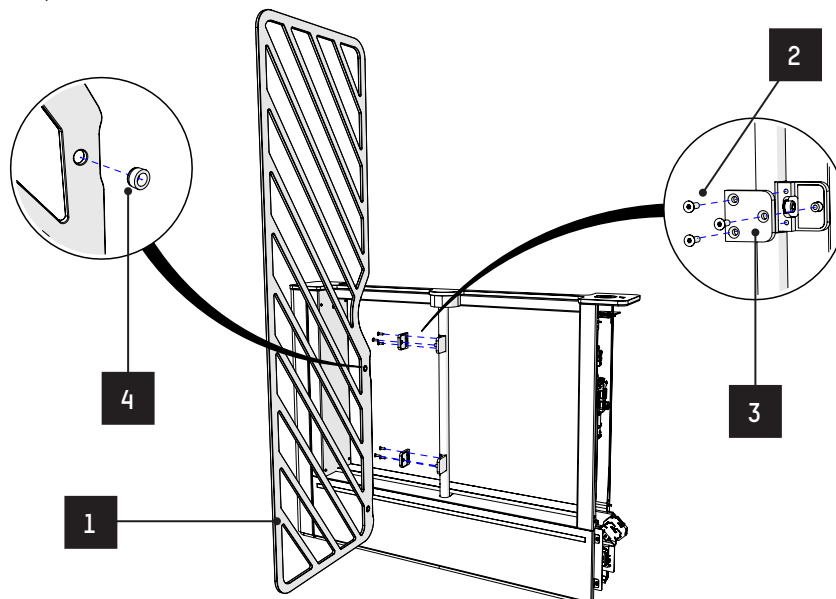


Fig. 46 - Removing the AERO mobile obstacle

## 8.8. ADJUSTING THE END POSITIONS OF THE MOBILE OBSTACLE

1. Remove the 2 front plates. (⇒ Chap. 8.3, page 45)
2. Turn the equipment off. (⇒ Chap. 8.4, page 46)
3. Remove the kinematic panel on the side of the stops where you must make your adjustments. (⇒ Chap. 8.6, page 48)
4. Using an Allen wrench, loosen the screw of the stop (1) and adjust the eccentric stop (2) by turning it.
5. Turn the kinematic axis (3) so that the end positions of the obstacle (4) are parallel to the user's direction of passage. Repeat the same step on the other stop.

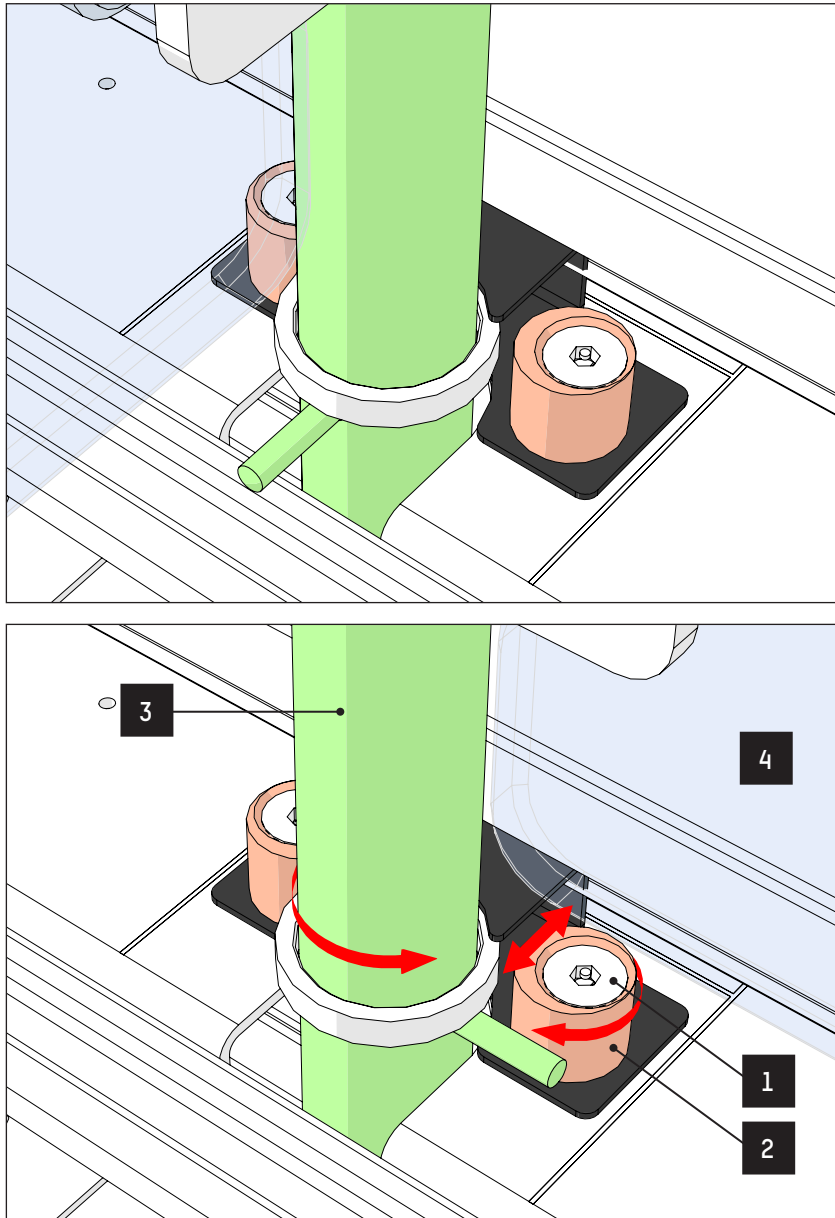


Fig. 47 - Adjusting the end positions of the mobile obstacle

## 8.9. INCREASING THE VISIBILITY OF MOBILE OBSTACLES



Fig. 48 - Self-adhesive chequerboard (0/6980/623)

As soon as the height of mobile obstacles exceeds 1500 mm from the ground, Automatic Systems recommends applying a chequered sticker to increase the visibility of obstacles and thus prevent users from accidentally colliding with them.



This sticker is supplied as standard with every FirstLane product and can therefore be applied to mobile obstacles of all heights.

The information below explains how to place the chequered sticker in order to optimise the visibility of obstacles:

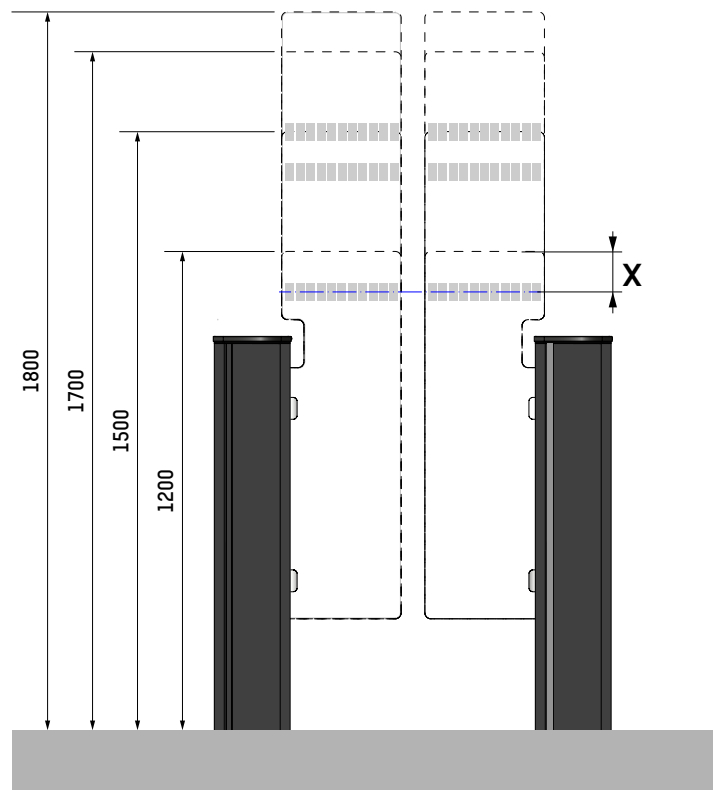


Fig. 49 - Positioning of the chequerboard sticker

OBSTACLE HEIGHT	X <sup>1</sup>
1200	100
1500	100
1700	200
1800	300

1 x = distance between the horizontal axis of the chequered sticker and the top of the mobile obstacle.

## 8.10. REMOVING THE FIXED OBSTACLE

1. Remove the front plate located on the right-hand side, in direction of passage A ⇒ B. (⇒ Chap. 8.3, page 45)
2. Turn the equipment off. (⇒ Chap. 8.4, page 46)
3. For easy disassembly, put shims (foam) under the glass to hold it.
4. Unscrew the 8 screws (1) on the 4 fixed glass clamps (2).



Not all screws are on the same side.

5. Turn the glass slightly ( $\pm 15^\circ$ ) (3) so that it can be removed from the housing.

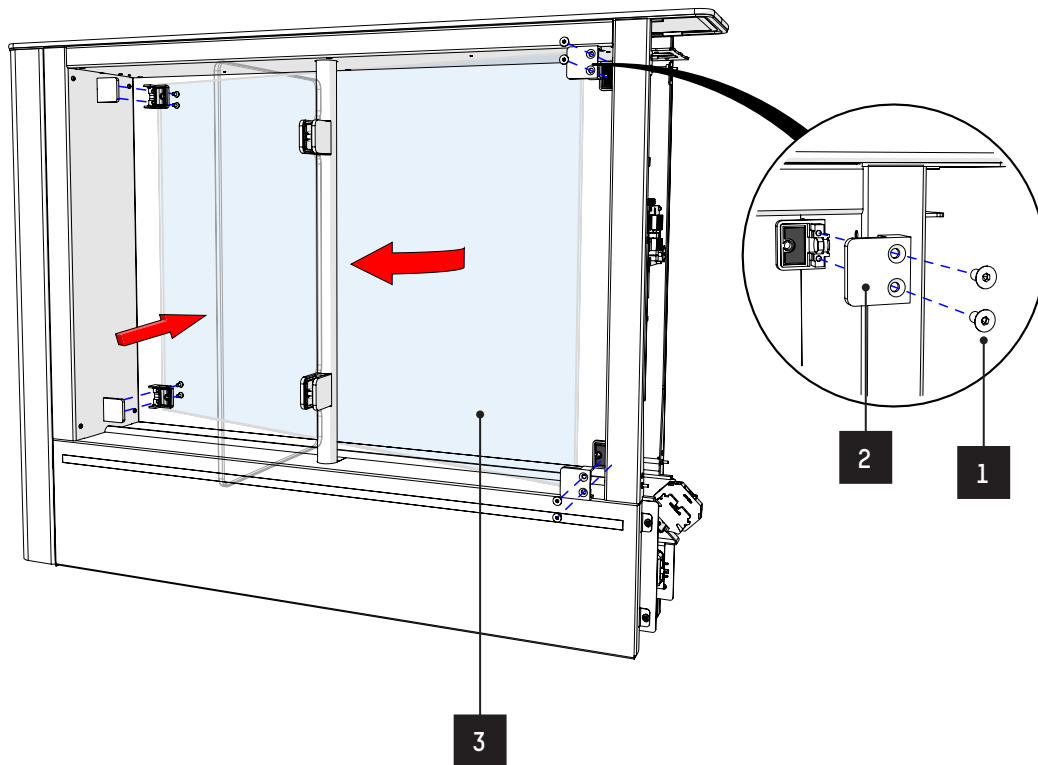


Fig. 50 - Removing the fixed obstacle

## 8.11. REMOVING THE MOTOR BOARD SUPPORT



Removing the support of the motor board allows easier access to the cable sheaths coming from the ground as well as the ground fixing clamp.

1. Remove the front plate located on the right-hand side, in direction of passage A ⇒ B. (⇒ Chap. 8.3, page 45)
2. Turn the equipment off. (⇒ Chap. 8.4, page 46)
3. Remove the interior kinematic panel (⇒ Chap. 8.6, page 49).
4. Remove the upper connectors (1) on the left on the motor board (2) (do not disassemble the shielding clamps).
5. Remove the two fixing screws (3) and the two washers (4) from the motor board support (5).
6. Leave the other cables (6) coming from the right in place and move the support to free up space to access the cables coming from the ground and the ground fixing clamp (7).

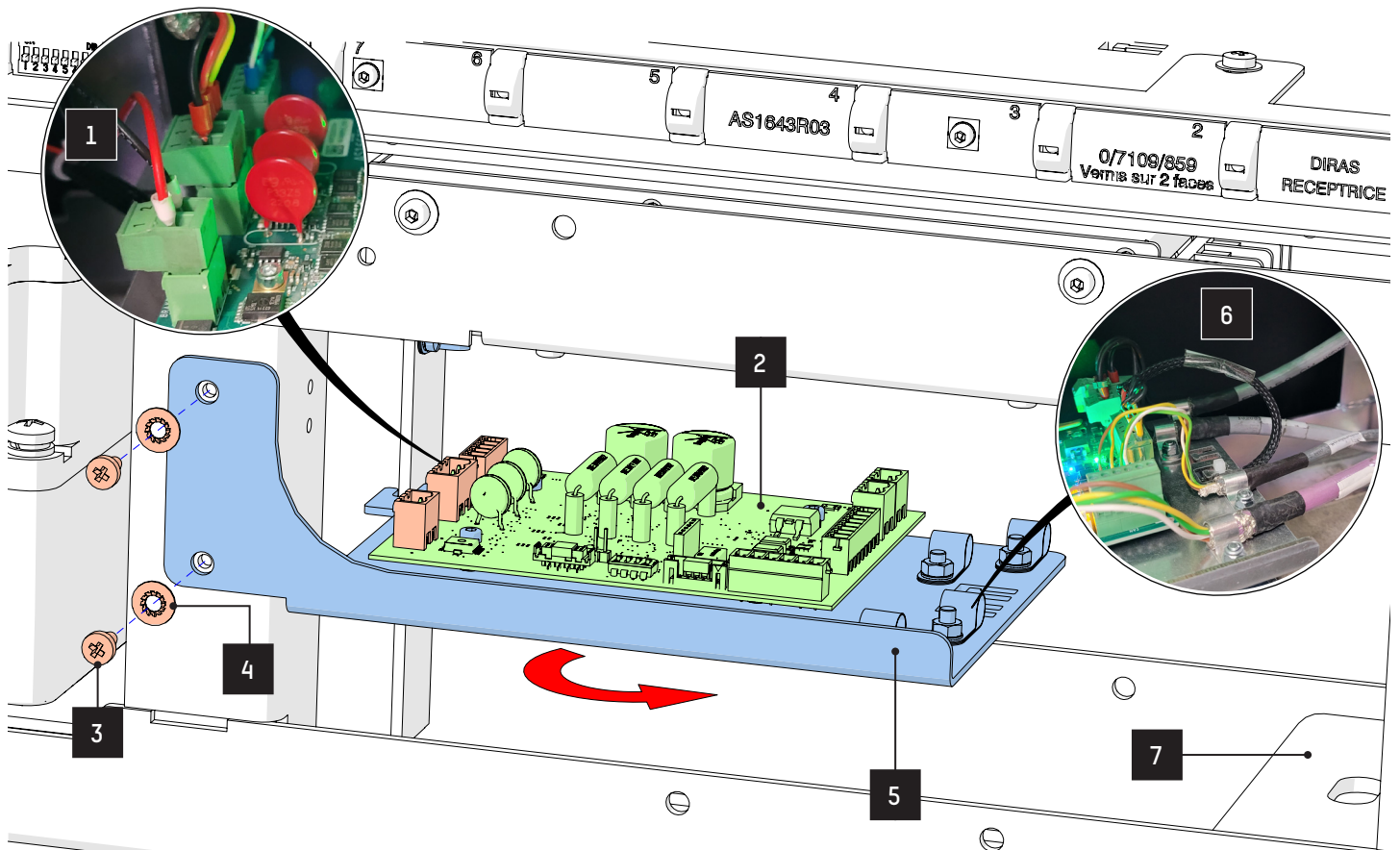


Fig. 51 - Removing the motor board support

## 8.12. MAINTENANCE

Maintenance must be carried out in accordance with the safety rules. Maintenance frequencies:

- every **6 months** for FirstLane installed outdoors
- every **12 months or 1,000,000 cycles**

### 8.12.1. MAINTENANCE OF SURFACES

**Regularly (to be carried out by the customer):**

Clean the exterior housing with a cloth that has been moistened with a stainless steel cleaner (do not spray the product on the housing). Automatic Systems can supply an approved product, under reference 0/6031/000.
Clean the mobile obstacles and the glass side-walls with a glass cleaner. Automatic Systems can supply an approved product, under reference 0/3081/000.
DIRAS cleaning/check and DIRAS screen (torn canvas, dust, condensation, scratches on DIRAS screens, etc.).

### 8.12.2. MAINTENANCE PROGRAMMES

		REFERENCES	EVERY 6 MONTHS	EVERY 12 MONTHS OR 1,000,000 CYCLES
<b>Tests via WEBPAGE</b>  <b>(to be done at the beginning and end of the intervention)</b>	Diras signal tests (power <1500) - DIRAS claw/screen cleaning.			•
	CAN bus tests (0% error).			•
	Status and orientation light operation tests (⇒ Chap. 6.10, page 28) + Buzzer (fraud)			•
	Passage authorization tests and performing passages/fraud.			•
	Check behaviour of the equipment in case of an evacuation order.			•
	"Zero" position of the obstacles in closed position.			•
	Perform a cycle test for 1-2 minutes to ensure proper operation without abnormal noise.			•
<b>Check</b>	Free movement of obstacles in POWER OFF mode.			•
	Electrical connections			•
	Check the voltage of the main power (230V or 110V)			•
	Check the voltage of the regulated power supply 24 VDC ± 1% and adjust it if necessary using the potentiometer located on the inside of the power supply.			•
	Grounding of shielded cables.			•
	Fixing of equipotential bar (ground braids).			•
	Stability of the housing and the tightening of the nuts of the floor anchoring clamps.			•
	Clamping of fixed and mobile windows (replacement of clamps if necessary).	CLM-E-0015874		•
	Operation of the brake.			•



		REFERENCES	EVERY 6 MONTHS	EVERY 12 MONTHS OR 1,000,000 CYCLES
<b>Only With IP44 Option (OUTDOOR)</b>	Cleaning/checking clogging of collecting tray + evacuation pipe (leaves, fir tree needles, etc.).	CSA-E-0102387	•	•
	Cleaning/Checking clogging of angle brackets (leaves, fir tree needles, etc.).	CSA-E-0102807	•	•
	DIRAS cleaning/check and DIRAS screen (torn canvas, dust, condensation, scratches on DIRAS screens, etc.).		•	•
	Checking/Replacing bonded seal under cover (and against the ground).	JNT-E-0110691	•	•
	Cleaning/brushing STAINLESS STEEL housing (to avoid corrosion). Recommended specific tools: SCOTCH Brite 7447 sponge - Dimension 155X224mm (0/3625/000).		•	•
	Clean the exterior housing with a cloth that has been moistened with a stainless steel cleaner (do not spray the product on the housing). Automatic Systems can supply an approved product, under reference 0/6031/000.		•	•
<b>Replacement</b>	Checking/Replacing the seals of the stand and under the top covers.	JNT-E-0111997 JNT-E-0110659 JNT-E-0112303 JNT-E-0110207		•
<b>Lubrication</b>	-			
<b>Tests via WEBPAGE (to be done at the end of the intervention)</b>	Reset the cycle counter to zero (to know the number of cycles between 2 interventions).			

The maintenance frequency must be adapted to the conditions in which the equipment is used, especially when placed in an oxidizing atmosphere: at the entrance to a swimming pool (heated and chlorinated atmosphere), by the sea, in an industrial environment, etc.

The use of antistatic gloves or bracelets (ElectroStatic Discharge) is essential when handling electronic printed circuit boards, at the risk of the warranty being voided.

Automatic Systems reserves the right to deny warranty coverage if there has been an apparent lack of maintenance.

## 8.13. MAINTENANCE KITS

KIT REFERENCE	DESIGNATION	KIT ITEM REFERENCES	QUANTITY
KIT-FL9X0-V2-0001	Maintenance KIT FirstLane LOW + Glass top cover	JNT-E-0112303	2
		JNT-E-0111997	4
KIT-FL9X0-V2-0002	Maintenance KIT FirstLane LOW + Black laminate or STAINLESS STEEL top cover	JNT-E-0110207	2
		JNT-E-0110659	2
		JNT-E-0111997	4
KIT-FL9X0-V2-0003	Maintenance KIT FirstLane LOW + Black laminate or STAINLESS STEEL top cover + IP44 option	JNT-E-0110207	2
		JNT-E-0110659	2
		JNT-E-0111997	4
		JNT-E-0110691	1
		0/3625/000	1
KIT-FL9X0-V2-0004	Maintenance KIT FirstLane HIGH	JNT-E-0112303	2
		JNT-E-0111997	4
KIT-FL9X0-V2-0005	Maintenance KIT FirstLane HIGH + IP44 Option	JNT-E-0112303	2
		JNT-E-0111997	4
		JNT-E-0110691	1
		0/3625/000	1

## 8.14. SPARE PARTS

⇒ Refer to separate catalogue, available on Partner Portal.

For all orders, indicate the information on the nameplate of the equipment for which the spare parts will be used:

- Serial number
- Model (FL9X0, FL9X2, FL960 or FL970)
- Type (left, right, intermediate)

## 9. TROUBLESHOOTING

This product has been designed so that a self-test can be carried out.

The result of this self-test is visible in the **States** page of the Maintenance Interface.

Refer to the appropriate manual.

## 10. PROLONGED STOP/DISPOSAL/DESTRUCTION

If the equipment is not going to be used for a long period of time, it is recommended to:

- Store it in the same conditions as before installation (⇒ Chap. 7.6, page 39).
- Leave it powered on, so that the battery of the CPU board (AS1190) remains charged.



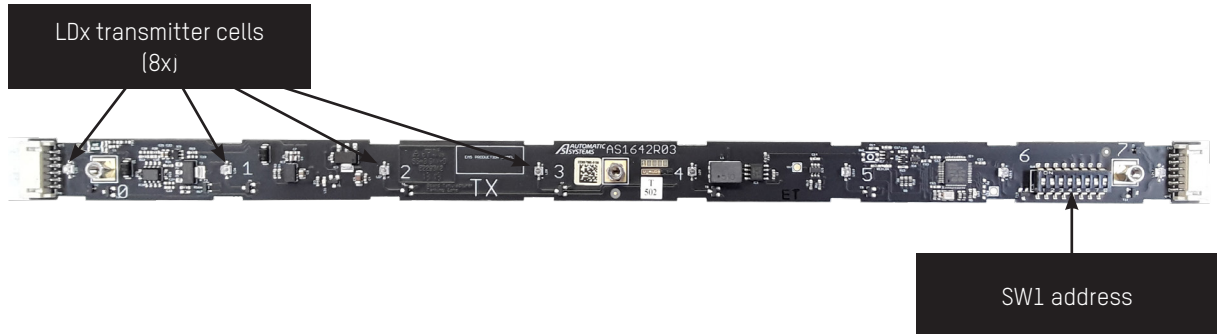
If the equipment was stored with power off and ambient temperature below 15 °C (5 °F), it is important to allow it to warm up for 30 minutes at least one (1) hour before powering up.

- Make sure that the equipment is protected from bumps and knocks.
- Perform several passages before attempting to check proper operation.  
When the equipment is taken out of service, dispose of the various machine components in the appropriate manner (metal parts, electronic components, etc.) according to the applicable regulations.

When the equipment is taken out of service, dispose of the various machine components in the appropriate manner (metal parts, electronic components, etc.) according to the applicable regulations.

## 11. ASSIGNMENT OF CIRCUIT BOARD COMPONENTS

### 11.1. DIRAS TRANSMITTER CIRCUIT BOARD AS1642



- LDx : Transmitter cell.
- SW1 : Address of the circuit board in the CAN network (⇒ see wiring diagrams).

### 11.2. DIRAS RECEIVER CIRCUIT BOARD AS1643



- ICx : Receiver cell.  
(The Receiver side of the cell is used during the circuit board self-test)
- SW1 : Address of the circuit board in the CAN network (⇒ see wiring diagrams).

## 11.3. MOTHERBOARD (CPU) AS1190

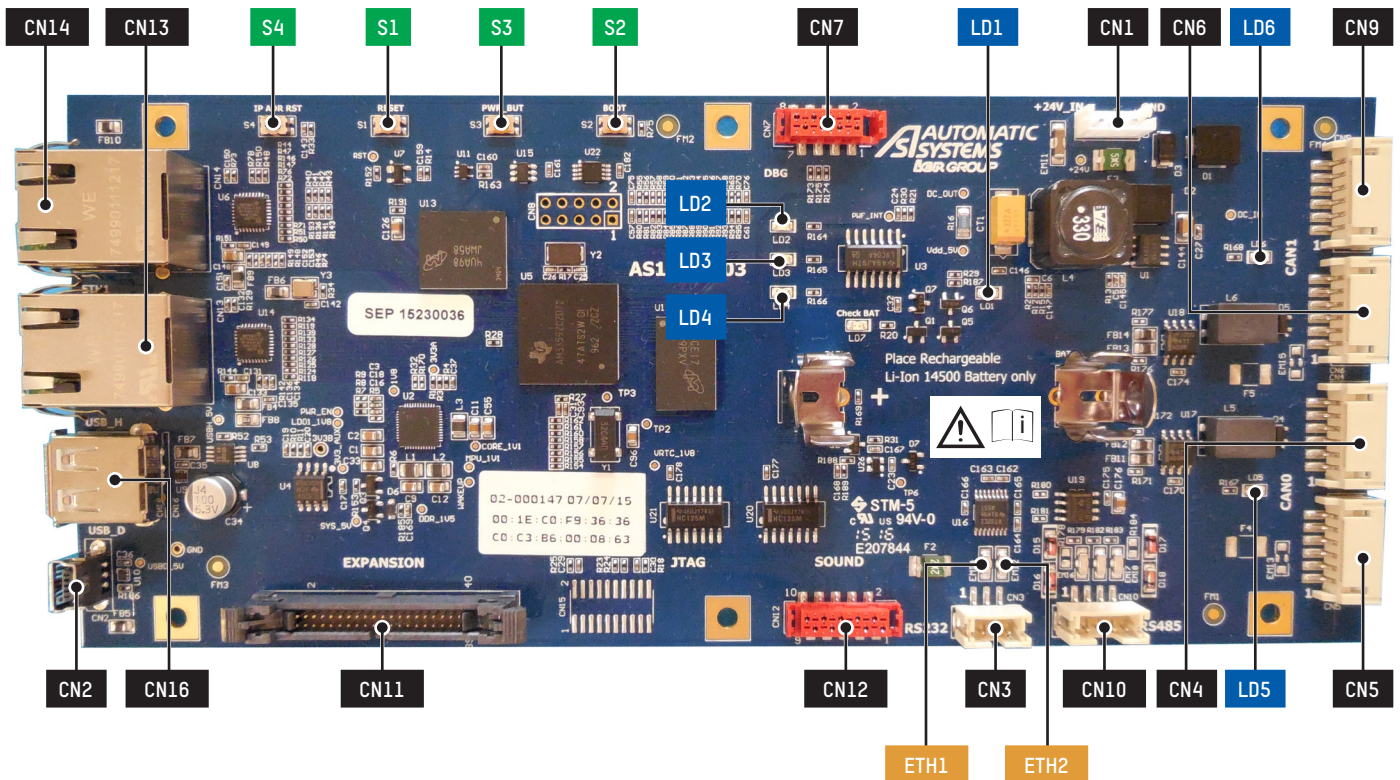


Fig. 52 - Motherboard AS1190

CN1	24 VDC power supply
CN2	USB device
CN3	RS232 link
CN4	CAN 0 Bus
CN5	CAN 0 Bus
CN6	CAN 1 Bus
CN7	COM serial debug link
CN9	CAN 1 Bus
CN10	RS485 link
CN11	I/O extension BUS
CN12	I2S interface with AS 1106 circuit board (speech synthesis)
CN13	Ethernet100 Mbps RJ45 link
CN14	Ethernet100 Mbps RJ45 link
CN16	USB 2.0 host

LD1	● Green	Voltage present indicator light
LD2	● Yellow	EMMC memory access
LD3	● Green	LED user
LD4	● Red	CPU activity (heartbeat) indicator light
LD5	● Yellow	CAN 0 bus node status indicator light
LD6	● Yellow	CAN 1 bus node status indicator light
LD7	● Red	Incorrect battery position indicator light

ETH1	● Yellow	Ethernet connector 1 activity indicator light
ETH2	● Yellow	Ethernet connector 2 activity indicator light

S1	CPU Reset
S2	Program Restart
S3	Shutdown
S4	Recovery of factory IP address (192.168.0.200) if pressed at start-up or for 20 sec.



**IF LED LD7 IS LIT (RED), WHICH INDICATES INCORRECT BATTERY POSITION, INVERT THE POSITION OF THE BATTERY IN ITS HOLDER.**



**RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE. DISPOSE OF USED BATTERIES IN ACCORDANCE WITH THE INSTRUCTIONS IN (⇒ CHAP. 10).**

## 11.4. CUSTOMER INPUT/OUTPUT CIRCUIT BOARD AS1612

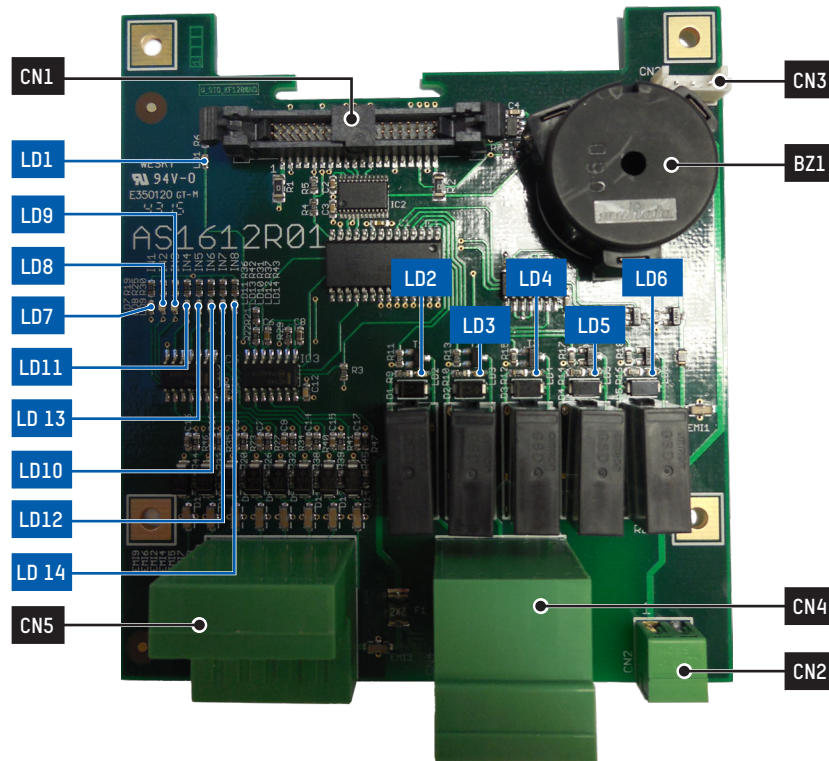


Fig. 53 - Circuit board I/O AS1162

BZ1: buzzer with adjustable volume and tone via the Maintenance Interface.

CN1	CPU INTERFACE

CN2	24 VDC POWER SUPPLY
1	+24 VDC
2	GND

CN3	24 VDC POWER SUPPLY
1	GND
2	Not used
3	+24 VDC

CN4	CUSTOMER OUTPUT/ RELAY CONNECTOR	DEFAULT
1	NO relay 1	Fraud
2	NO relay 2	Passage A
3	NO relay 3	Passage B
4	NO relay 4	Closed position
5	NO relay 5	Technical fault
6	COM relay 1	-
7	COM relay 2	-
8	COM relay 3	-
9	COM relay 4	-
10	COM relay 5	-

CN5	CUSTOMER INPUT CONNECTOR	DEFAULT
1	+24 VDC	-
2	IN 1	Forced opening
3	IN 2	Request passage A
4	IN 3	Request passage B
5	IN 4	PRM A mode
6	GND	PRM B mode
7	+24 VDC	-
8	IN 5	PRM B mode
9	IN 6	Locked closed
10	IN 7	Locked Open A
11	IN 8	Locked Open B
12	GND	-

LD1	●	Green	+5 V activity indicator light
LD2	●	Green	Relay 1 activity indicator light
LD3	●	Green	Relay 2 activity indicator light
LD4	●	Green	Relay 3 activity indicator light
LD5	●	Green	Relay 4 activity indicator light
LD6	●	Yellow	Relay 5 activity indicator light
LD7	●	Yellow	Input 1 activity indicator light

LD8	●	Yellow	Input 2 activity indicator light
LD9	●	Yellow	Input 3 activity indicator light
LD10	●	Yellow	Input 4 activity indicator light
LD11	●	Yellow	Input 5 activity indicator light
LD12	●	Yellow	Input 6 activity indicator light
LD13	●	Yellow	Input 7 activity indicator light
LD14	●	Yellow	Input 8 activity indicator light

## 11.5. MOTORIZATION CIRCUIT BOARD AS1613 (FIRSTLANE LOW)

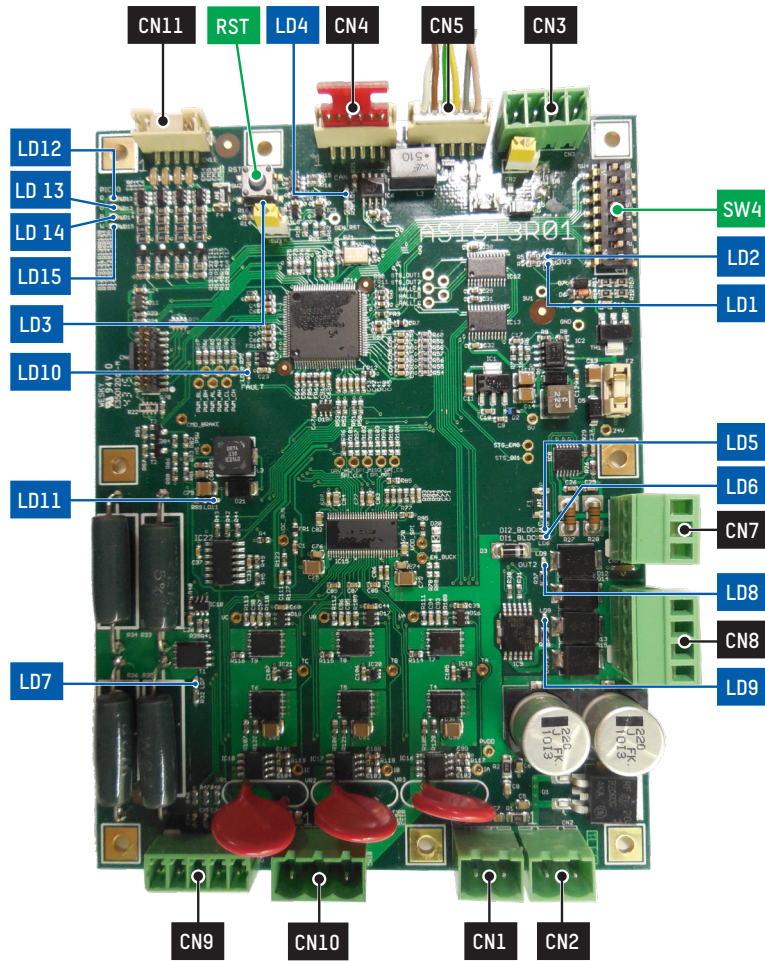


Fig. 54 - AS1613 motorization circuit board

CN1	POWER INPUT 24VDC
1	+24 VDC
2	GND

CN2	POWER OUTPUT 24VDC
1	+24 VDC
2	GND

CN3	INTER-HOUSING CAN BUS
1	GND
2	CAN +
3	CAN -
4	GND

CN4	LOCAL CAN BUS (CPU)
1	+24 VDC
2	GND
3	CAN +
4	CAN -
5	GND
6	+24 VDC

CN5	CAN BUS LOCAL <sup>(2)</sup>
1	+24 VDC
2	GND
3	CAN +
4	CAN -
5	GND
6	+24 VDC

CN6	PROGRAMMING AS <sup>(1)</sup>
-----	-------------------------------

CN7	DIGITAL INPUTS
1	+24 VDC
2	IN 2
3	IN 1

CN8	DIGITAL OUTPUTS
1	OUT 1
2	GND
3	OUT 2
4	GND

CN9	MOTOR ENCODER
1	Hall A
2	Hall B
3	Hall C
4	+ 12VDC
5	GND

CN10	MOTOR POWER SUPPLY
1	Phase C
2	Phase B
3	Phase A

CN11	PICTOGRAM <sup>(2)</sup>
1	Red
2	Green
3	Blue
4	White
5	GND

<sup>(1)</sup> Reserved for factory programming by Automatic Systems.

<sup>(2)</sup> Not used.

LD1	●	Green	3.3 VDC indicator light
LD 2	●	Green	5 VDC indicator light
LD 3	●	Green	Activity indicator light - Watchdog
LD 4	●	Yellow	CAN activity indicator light
LD 5	●	Green	Digital input 2 activity indicator light
LD 6	●	Green	Digital input 1 activity indicator light
LD 7	●	Yellow	Dynamic braking indicator light
LD 8	●	Yellow	Digital output 2 activity indicator light
LD 9	●	Yellow	Digital output 1 activity indicator light

LD 10	●	Red	Technical fault indicator light
LD 11	●	Green	6 VDC indicator light
LD 12	●	Green	Dynamic lights managed by AS1656 <sup>(1)</sup>
LD 13	●	Green	Dynamic lights managed by AS1656 <sup>(1)</sup>
LD 14	●	Green	Dynamic lights managed by AS1656 <sup>(1)</sup>
LD15	●	Green	Dynamic lights managed by AS1656 <sup>(1)</sup>

SW4	CAN address DIP switches
RST	Motorized control circuit board reset button

<sup>(1)</sup> Not used.

## 11.6. MOTORIZATION CIRCUIT BOARD AS1633 (FIRSTLANE HIGH)

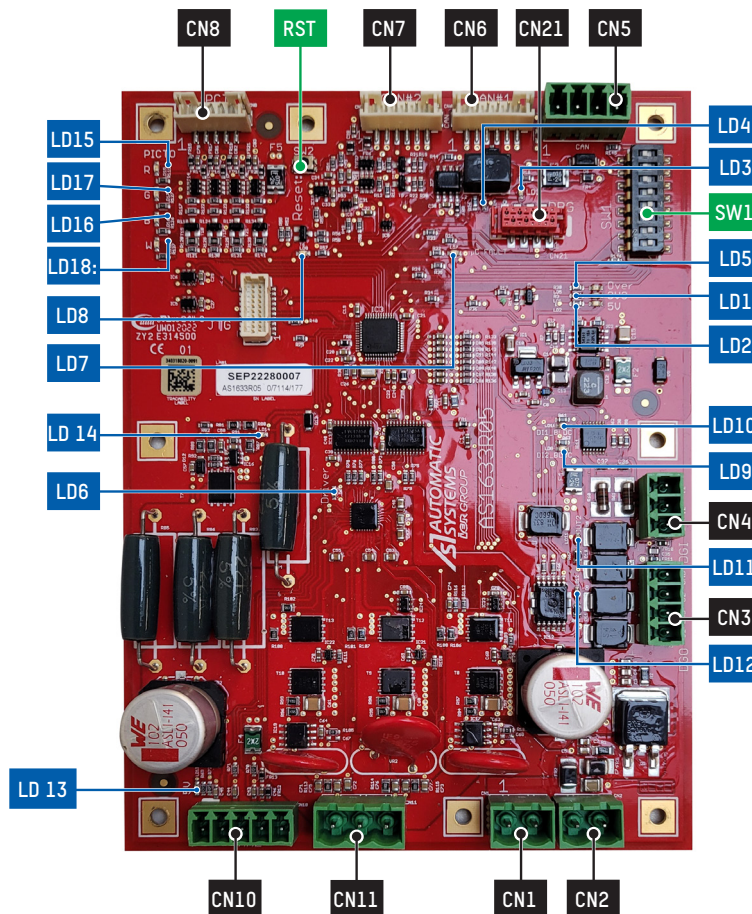


Fig. 55 - AS1633 motorization circuit board



CN1	POWER INPUT 24VDC
1	+24 VDC
2	GND

CN2	POWER OUTPUT 24VDC
1	+24 VDC
2	GND

CN3	DIGITAL OUTPUTS
1	OUT 1
2	GND
3	OUT 2
4	GND

CN4	DIGITAL INPUT
1	+24 VDC
2	IN 2
3	IN 1

CN5	INTER-HOUSING CAN BUS
1	GND
2	CAN +
3	CAN -
4	GND

CN6	CAN BUS LOCAL <sup>(2)</sup>
1	+24 VDC
2	GND
3	CAN +
4	CAN -
5	GND
6	+24 VDC

CN7	LOCAL CAN BUS (CPU)
1	+24 VDC
2	GND
3	CAN +
4	CAN -
5	GND
6	+24 VDC

CN8	PICTOGRAM <sup>(2)</sup>
1	Red
2	Green
3	Blue
4	White
5	GND

CN9	PROGRAMMING AS <sup>(1)</sup>
-----	-------------------------------

CN10	MOTOR ENCODER
1	Hall A
2	Hall B
3	Hall C
4	+ 12VDC
5	GND

CN11	MOTOR POWER SUPPLY
1	Phase C
2	Phase B
3	Phase A

<sup>(1)</sup> Reserved for factory programming by Automatic Systems.

<sup>(2)</sup> Not used.

LD1	●	Green	3.3 VDC indicator light
LD 2	●	Green	5 VDC indicator light
LD 3	●	Green	CAN BUS power supply indicator light
LD 4	●	Yellow	CAN activity indicator light
LD 5	●	Red	OVER indicator light
LD 6	●	Red	DRIVE status indicator light
LD 7	●	Red	Microprocessor FAULT indicator light
LD 8	●	Green	Activity indicator light - Watchdog
LD 9	●	Green	Digital input 2 activity indicator light
LD 10	●	Green	Digital input 1 activity indicator light
LD 11	●	Yellow	Digital output 2 activity indicator light

LD 12	●	Yellow	Digital output 1 activity indicator light
LD 13	●	Green	5 VDC ENCODER indicator light
LD 14	●	Yellow	Brake system indicator light
LD15	●	Green	Dynamic lights managed by AS1656. <sup>(1)</sup>
LD16	●	Green	Dynamic lights managed by AS1656. <sup>(1)</sup>
LD17	●	Green	Dynamic lights managed by AS1656. <sup>(1)</sup>
LD18:	●	Green	Dynamic lights managed by AS1656. <sup>(1)</sup>

SW4	CAN address DIP switches.
RST	Motorized control circuit board reset button.

<sup>(1)</sup> Not used.

## 11.7. DYNAMIC LIGHT CIRCUIT BOARD AS1656 (OPTION)

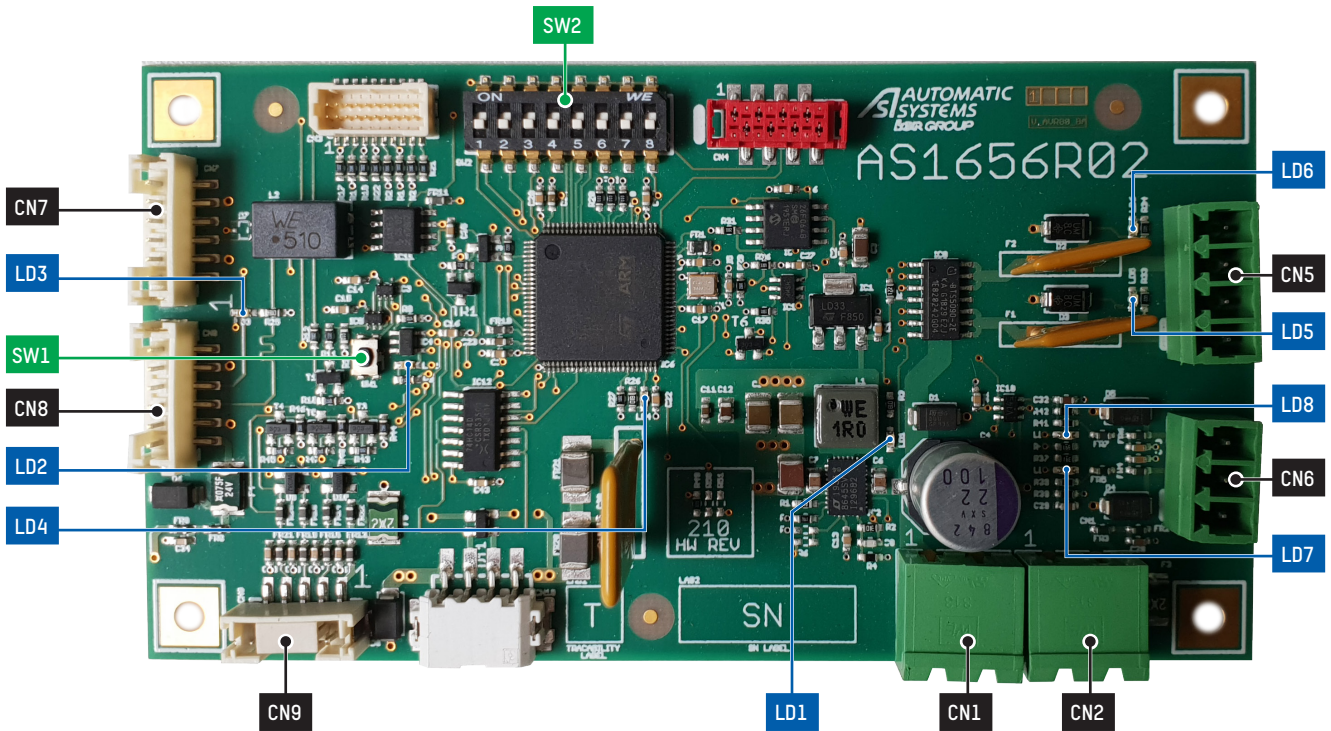


Fig. 56 - Dynamic light circuit board AS1656

CN1	POWER INPUT 24VDC
1	+24 VDC
2	GND

CN2	POWER OUTPUT 24VDC
1	+24 VDC
2	GND

CN6	DIGITAL INPUTS
1	+24 VDC
2	IN 1
3	IN 2

CN5	DIGITAL OUTPUTS
1	OUT 1
2	GND
3	OUT 2
4	GND

CN7	LOCAL CAN BUS (DIRAS E)
1	+24 VDC
2	GND
3	CAN +
4	CAN -
5	GND
6	+24 VDC

CN8	LOCAL CAN BUS (AS1613)
1	+24 VDC
2	GND
3	CAN +
4	CAN -
5	GND
6	+24 VDC

CN9	DYNAMIC LIGHTS
1	+5 VDC
2	I2C INT
3	I2C SDA
4	I2C SCL
5	GND

LD1	● Green	Voltage present indicator light
LD2	● Green	Activity indicator light - Watchdog
LD3	● Yellow	CAN Bus status indicator light
LD4	● Red	Fault indicator light
LD5	● Yellow	Digital output 1 activity indicator light
LD6	● Yellow	Digital output 2 activity indicator light

LD7	● Green	Digital input 1 activity indicator light
LD8	● Green	Digital input 2 activity indicator light

SW1	Reset button
SW2	CAN address DIP switches
CN4	Debug connector

## 11.8. CAN END OF BUS CIRCUIT BOARD

This terminator is placed on the CAN connectors of the last DIRAS V3 circuit boards (E1 & R3).

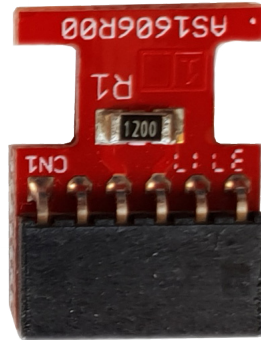


Fig. 57 - CAN end of bus circuit board

## 11.9. CAN ADDRESSES OF THE VARIOUS CIRCUIT BOARDS

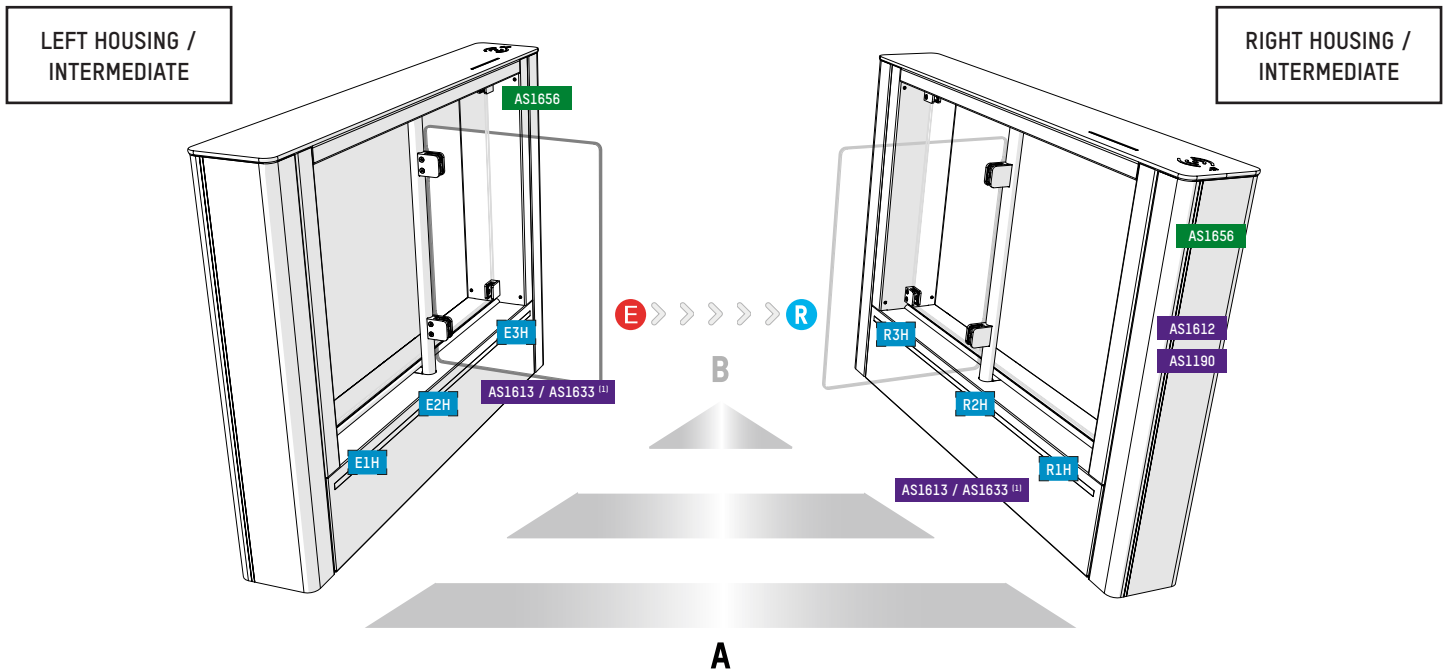


Fig. 58 - CAN addresses

LEFT/INTERMEDIATE HOUSING		
REFERENCE	CIRCUIT BOARD	CAN ADDRESS
E1H	AS1642	00010101
E2H	AS1642	10010101
E3H	AS1642	01010101
	AS1613/AS1633	00000111
	AS1656	10000011

RIGHT/INTERMEDIATE HOUSING		
REFERENCE	CIRCUIT BOARD	CAN ADDRESS
R1H	AS1643	00010001
R2H	AS1643	10010001
R3H	AS1643	01010001
	AS1613/AS1633	10000111
	AS1656	00000011
	AS1190	-
	AS1612	-

## 12. ELECTRICAL DIAGRAMS

See the **Electrical Technical File** provided with the device or accessible via the links below:



## 13. CONTROL LOGIC AS1190



## 14. DECLARATION OF CONFORMITY



### DECLARATION OF CONFORMITY

We, undersigned,

**AUTOMATIC SYSTEMS s.a.**  
Avenue Mercator, 5  
1300 Wavre  
BELGIQUE

Herewith declare that the following machine:

**Security entrance lane  
FIRSTLANE (FL9X2)**

is in accordance with the conditions of the following Directives, standards and other specifications:

- Machinery Directive 2006/42/EC.
- Low-voltage Directive 2014/35/EU.
- Electromagnetic compatibility Directive 2014/30/EU.
- Directive RoHs (Restriction of Hazardous Substances) 2011/65/EU.
- EN 12100:2010: Safety of machinery – General principles for design – Risk assessment and risk reduction (ISO 12100:2010).
- IEC 60204-1 / A1 : 2016: Safety of machinery - Electrical equipment of machines - Part 1: General requirements.
- EN 61000-6-3 / A1 : 2011: Electromagnetic compatibility (EMC) - Generic standards - Emission standard for residential, commercial and light-industrial environments.
- IEC 61000-6-2 : 2016: Electromagnetic compatibility (EMC) - Generic standards - Immunity standard for industrial environments.
- EN 13637 - Electrically controlled closing systems for use in escape routes.

Made in WAVRE,  
Date: 2023.01.13

Nicolas PÉQUEUX | Director of Engineering



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Fig. 59 - EC declaration







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