AUTOMATIC SYSTEMS

SMARTLANE

Security entrance lane

TECHNICAL MANUAL

(Translated from the original French version)

Rev. 05 • Update 11/2023

SmartLane™

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1. PRESENTATION

Thank you for choosing a product from the **SmartLane** range designed and manufactured by Automatic Systems. We are confident that your purchase will give you many years of satisfaction and, to this end, we invite you to read the following information carefully in order to benefit fully from your product.

Despite the care taken in the preparation of 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.

PRIOR WARNING

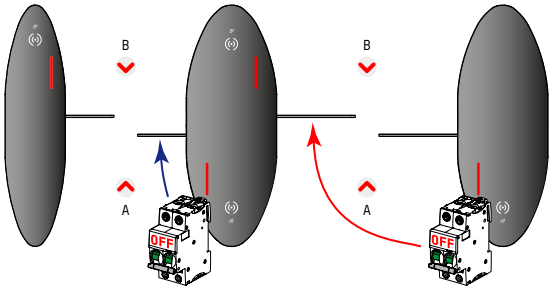
YOUR SMARTLANE PRODUCT CONTAINS AN ELECTRICAL POWERTRAIN AND VARIOUS OTHER ELECTRICAL COMPONENTS. NEGLIGENCE DURING ANY WORK CAN HAVE SERIOUS CONSEQUENCES FOR YOUR SAFETY. FROM SUCH TIME AS YOU OPEN THE BODYWORK, SWITCH OFF THE GENERAL POWER SUPPLY TO THE EQUIPMENT. BE VERY CAREFUL WHEN HANDLING ANY INTERNAL COMPONENTS THAT CAN BE TURNED ON OR ARE IN MOTION.

2. SAFETY WARNINGS

- This manual must be available to all persons working on the equipment: installer, maintenance operator, end user, etc.
- The SmartLane 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, it is 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 unit 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.
  If regular use by children is anticipated, Automatic Systems recommends installing all the specific options provided to optimise the level of protection.
- 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 non-approved accessories (contact between different metals causes galvanic torque that is detrimental to the corrosion resistance of the equipment)
- The contractor shall 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.
- Personal protective equipment (PPE) must be worn when working:

- Mechanical actions and/or actions involving intentional or inadvertent touching of sheet metal parts or the frame must be carried out with cut-resistant gloves.
- Access to the mechanism should be limited to personnel who are aware of the electrical and mechanical risks involved in careless handling.
- For any operation that does not require the equipment to be powered up, turn off the power at the distribution panel or at the circuit breaker (⇨ Ref. **0**, Chap. 4.8, page 20).

WHEN WORKING ON AN INTERMEDIATE CABINET, SWITCH OFF THE CIRCUIT BREAKERS OF BOTH LANES TO PREVENT THE OBSTACLES FROM MOVING!



- The obstacles spring open automatically in the event of a mains loss > 150 ms.
  - Before working on the mechanism, check that the obstacles are open.
- Any internal component likely to be energized 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 minimal risk mode for its users. Any modification of the settings must be carried out with full knowledge of the all the considerations involved by qualified personnel and Automatic Systems accepts no liability for such modification.
- In the event of resale of the product, it is the responsibility of the reseller to ensure, when offering, selling and installing each piece of equipment, that the environment and foreseeable use of the equipment take into account the technical characteristics of the equipment and respect these prescriptions.
- The seller shall defend and indemnify Automatic Systems from any claims against Automatic Systems due to the seller's failure to comply with the above obligations.
- For any operation that does not require the motor or logic to be powered up, cut the power supply before opening the bodywork.
- Otherwise, disconnect the power supply by means of the circuit breaker located on the electrical board of the device (⇨ Ref. **20**, Chap. 4.7).

3. GENERAL SYMBOLS

The following symbols are used in this manual or as labels on the equipment:

This symbol is used to highlight **a tip** that may help you better understand the product.

Reminder or **quick tip** useful for understanding how the product works.

This symbol is used to highlight **an important instruction** for the correct use and/or maintenance of the product.

Important! : This symbol is used to highlight a **risk of injury or material damage.**

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

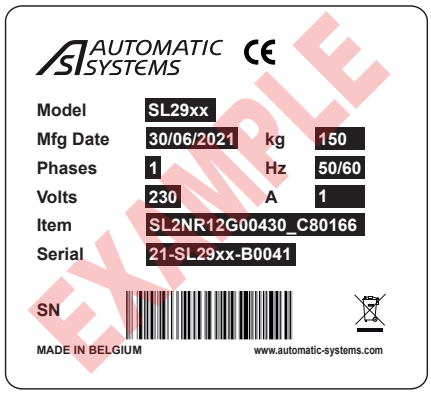
This symbol is used to highlight a **risk of cutting yourself**.

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 **tools** required for the relevant operation.

This symbol indicates that the equipment **conforms to 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.

	Reference article = significant codification (SL2NR12G00430) + PBA index (C80166)
	Serial number = year of production + model + country of manufacture code followed by the serial number index.

4. DESCRIPTION

4.1. TERMINOLOGY

AS	**Automatic Systems**
MB	AS1190 motherboard or control logic.
Lane	Passage defined by the width of the obstacle.
DIRAS	Infrared Detection Technology developed by Automatic Systems.
Reader	Equipment used to validate the user's travel ticket. (Not supplied by AS).
Maintenance interface	Tool that allows direct connection to a SmartLane lane, for configuration, monitoring, diagnosis and maintenance operations (⇨ see dedicated manual).
Obstacle	Element creating the obstruction to passage.
Security	Equipment's capability to prevent breaches.
Direction A	Direction of passage where the control logic (**MB**) and the power board (FI + main circuit breaker) are located in the right-hand unit.
Direction B	Passage in opposite direction to direction A
Safety	Protection of users during use of the equipment.
PRM	Abbreviation used for Person of Reduced Mobility
ASD	Actuated Safety Device. (Only for France)
EM	Electromagnet
CR	Card, badge reader, etc.
RFID	Radio-frequency identification technology commonly used in contactless readers.
ASSY.	An assembly consisting of several components.
DTE	(Dossier Technique Électrique) Electrical Technical File: file containing all the electrical diagrams of the product.
FI	Frequency inverter.

4.2. DIRECTION OF PASSAGE

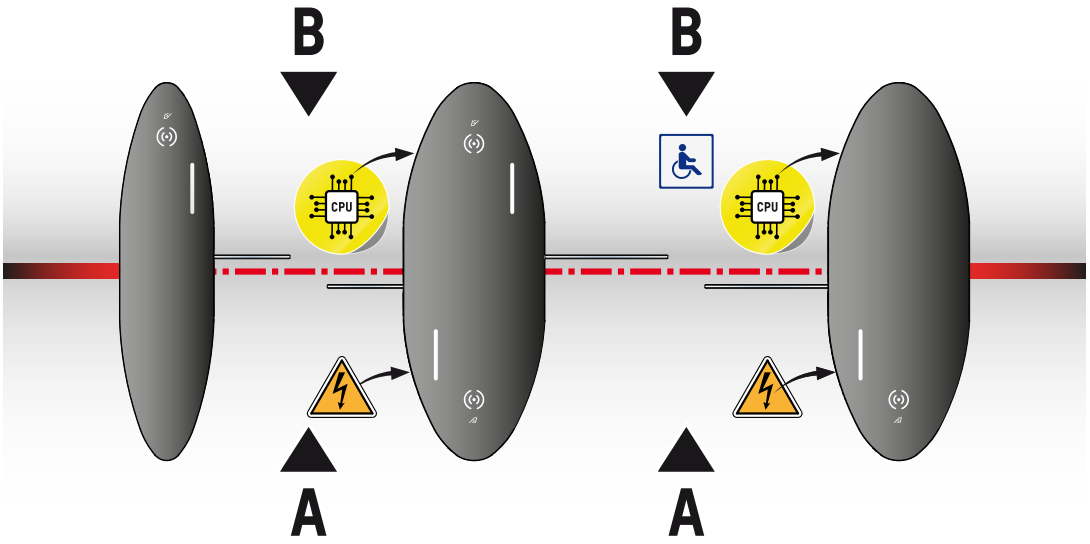


Fig. 1 - Direction of passage

4.3. GENERAL DESCRIPTION

The gate is composed:

1. of a retractable pane constituting the barrier to passage,
2. of a cabinet housing the obstacle movement mechanism, the detectors ensuring security and safety, as well as the electronic logic controlling the unit,
3. optional housing extensions to increase the number of detectors to ensure anti-fraud control and to integrate a ticket reader or other validator.

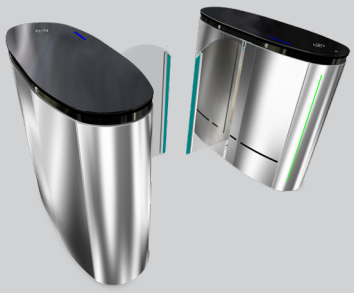
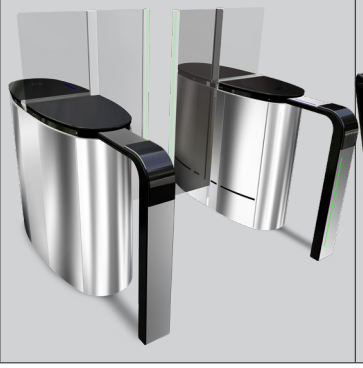
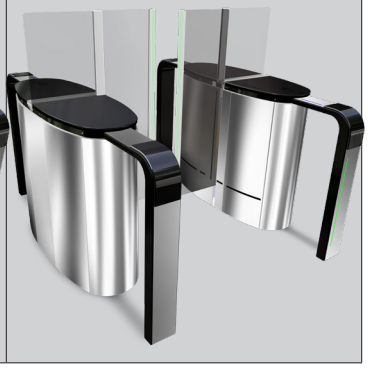
Fig. 2 - Illustration of a standard lane configuration with two (2) extensions

4.4. RANGE

The SmartLane gates control the access of pedestrians with or without luggage, in both directions, guaranteeing high levels of security and safety.

They are available in two (2) widths of passage (lane), according to the width of the obstacle, as shown in the table below:

Standard SmartLane	Without extension	1 extension *	2 extensions *
Standard obstacle Passage width of 600 mm *Passage for users with ordinary mobility*			

Wide SmartLane	Without extension	1 extension *	2 extensions *
Wide obstacle Passage width of 900 mm *Passage for users with reduced mobility*			

* Option

The gates can of course be installed singly or in a group. In the latter case, the conventional direction being A, a left-hand gate (**1**), a right-hand gate (**6**) and intermediate gates (**2, 3, 4** and **5**) will be defined, with the possibility of the latter being hybrid (**3** and **5**): i.e. linking two lanes of different widths.

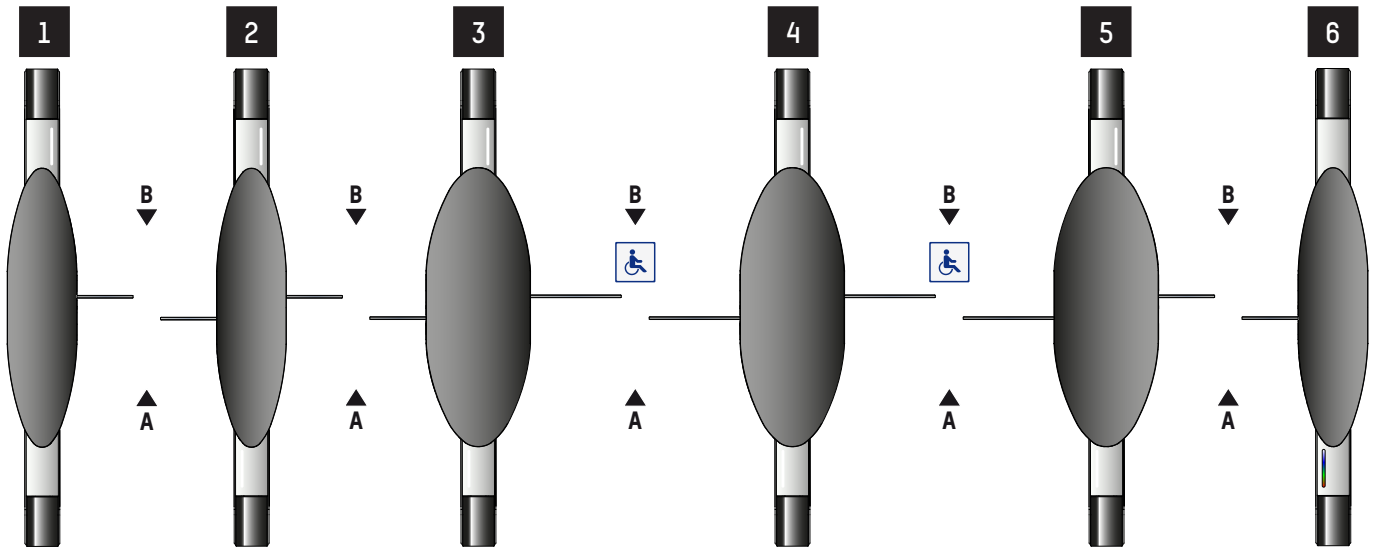


Fig. 3 - Example of SmartLane products

REF.	DESIGNATION
1	Standard SmartLane Left
2	Standard SmartLane Intermediate
3	Intermediate SmartLane Hybrid Left
4	Wide SmartLane Intermediate
5	Intermediate SmartLane Hybrid Right
6	Standard SmartLane Right

4.5. GENERAL DIMENSIONS

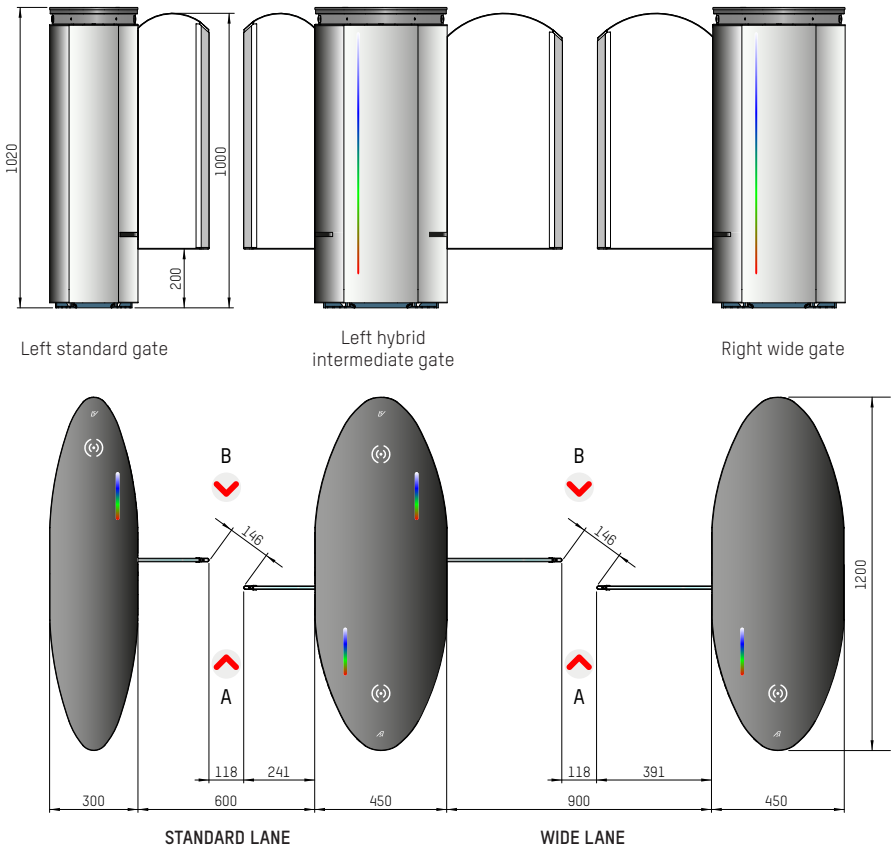


Fig. 4 - General dimensions (No extensions)

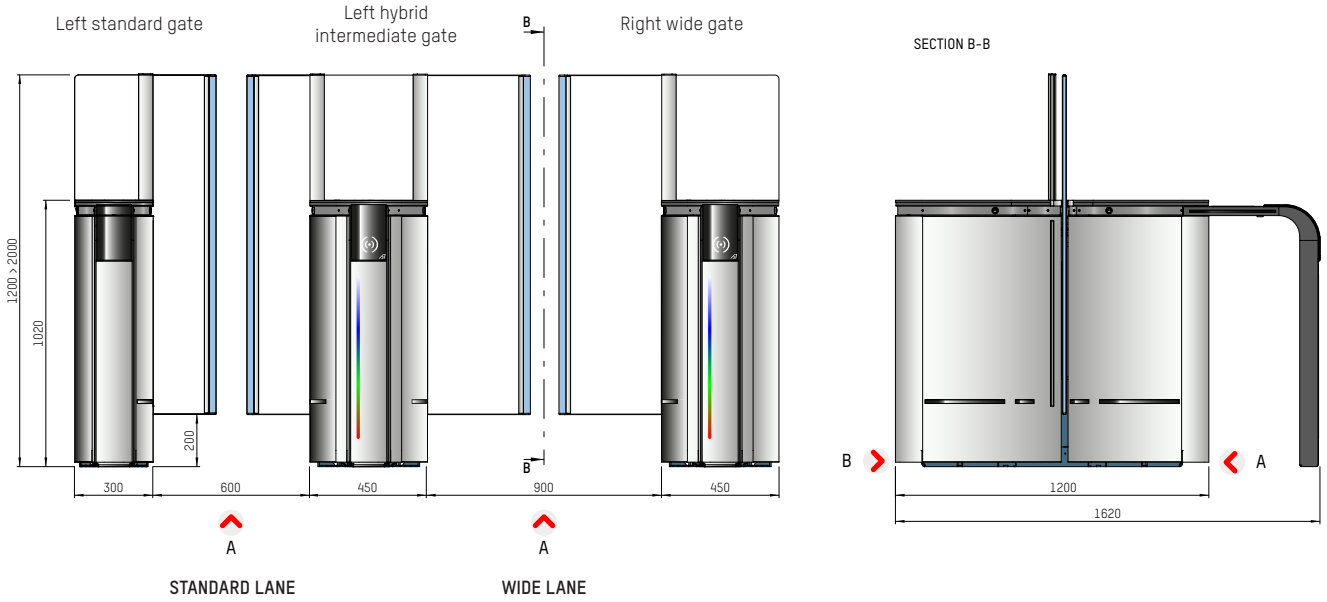


Fig. 5 - General dimensions (With optional extensions in one direction)

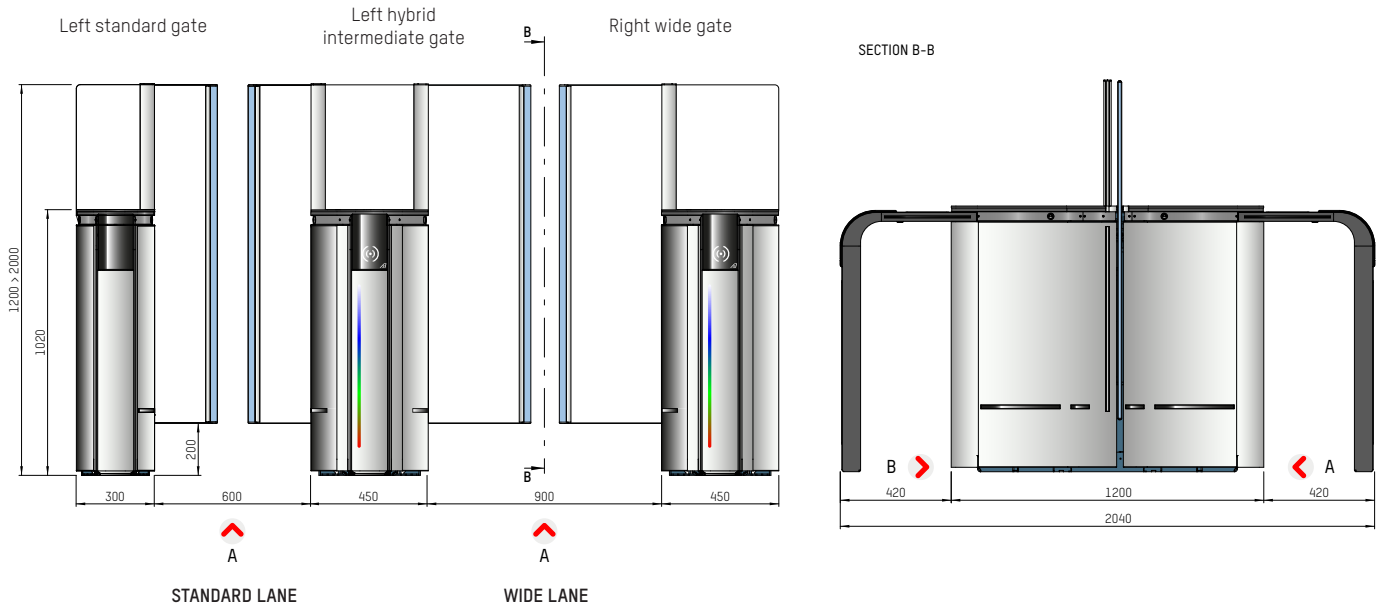


Fig. 6 - General dimensions (With optional extensions in both directions)

The overall dimensions and footprint are the same for a housing extension orhousing extension with filler stainless steel panels.

4.6. TECHNICAL SPECIFICATIONS

Power supply [1]	Single phase 230 VAC - 50/60 Hz + Ground
Motor	Three-phase asynchronous 120 W
Standby consumption	100 W / lane
Operating consumption	150 W / lane
Peak consumption	315 W / lane
Detection	Ensured for users taller than 1 m (however, the safety of persons or objects less than one (1) meter in height is ensured against unintentional closing of the obstacles).
Materials	Cabinet, boards, panels in 304 stainless steel with a minimum thickness of 1.5 mm
Treatment	Internal mechanical parts (frame, connecting rod, crank, etc.) made from metal treated against corrosion by RoHS electro-zinc plating.
Ambient operating temperature	0 to +50 °C
Extreme storage temperature	from -30 to + 80 °C
Ambient relative humidity	<95%, without condensation
Operating time [2]	0.7 seconds, opening time Minimum 0.8 seconds, closing time, depending on configuration
Impact force	Provided that the mobile obstacles are fitted with silicone protection, the equipment does not exceed the impact force thresholds prescribed by the future European standard EN17352 (impact forces less than 400N according to Chapter 6.3, Appendix C).
MCBF	**10,000,000** mean cycles between failures, in compliance with recommended maintenance [3]
MTTR	< 30 minutes.
IP	40
CE	Complies with European standards [4]

(1) Do not connect to a floating network or to a high-impedance earthed industrial distribution network.

(2) Minimum operating time, which can be set, excluding the enabling of the access control system. The passage request memorisation function makes it possible to accelerate the flow: no closing of the obstacle between two (2) requests.

(3) Maintenance operations are detailed in the product's Technical Manual. (⇨ Chap. 8.28.2, page 87)

(4) The Moving Obstacle Protection Profile option is required to meet the impact force standards.

Each lane is protected by a 10A circuit breaker.

THE POWER SUPPLY MUST BE PROTECTED BY A 16 A CIRCUIT BREAKER + 30 mA DIFFERENTIAL CIRCUIT BREAKER.

	STANDARD LANE (MOBILE OBSTACLES H: 1000)	
Free passage (L)	600 mm	
	Left or Right unit, without option	Intermediate unit, without option
Net weight (kg)	140	180
	WIDE LANE (MOBILE OBSTACLES H: 1000)	
Free passage (L)	900 mm	
	Left or Right unit, without option	Intermediate or Hybrid intermediate unit, without option
Net weight (kg)	180	225

4.7. LOCATION OF THE EXTERNAL COMPONENTS

The following illustrations apply to both standard units and wide units.

4.7.1. LEFT UNIT

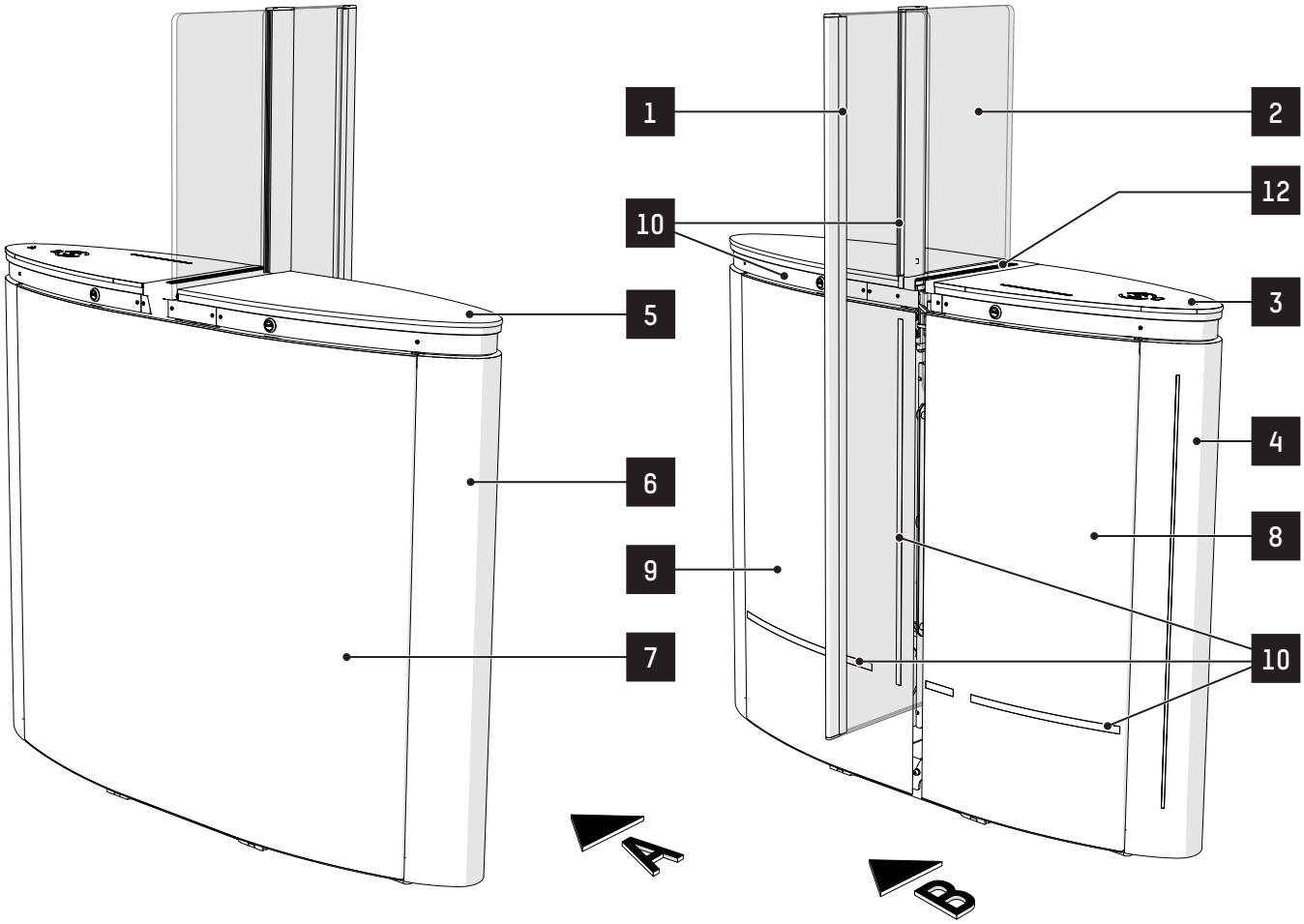


Fig. 7 - Location of the external components of the Standard SmartLane gate, left

REF.	DESIGNATION
1	Mobile obstacle
2	Fixed obstacle [1]
3	Glass plate with dynamic status light/RFID logo
4	Front panel with dynamic orientation light
5	Glass plate without dynamic status light / RFID logo
6	Front panel without dynamic orientation light
7	Rear panel
8	Right panel
9	Left panel
10	DIRAS detectors (Transmitter) behind a tinted screen
12	Flap

1 If mobile obstacle height ≥ 1200 mm

4.7.2. RIGHT UNIT

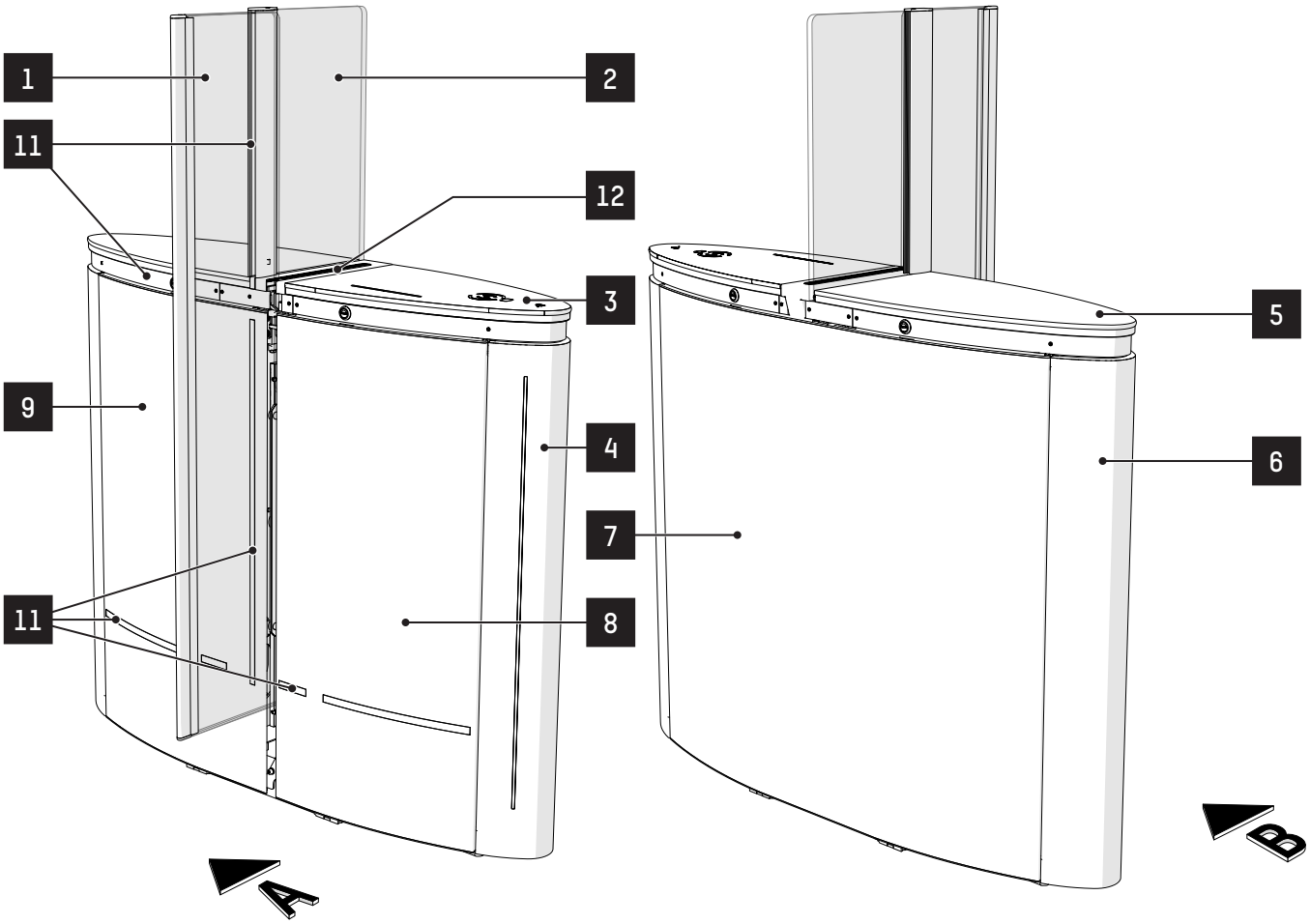


Fig. 8 - Location of the external components of the Standard SmartLane gate, right

REF.	DESIGNATION
1	Mobile obstacle
2	Fixed obstacle [2]
3	Glass plate with dynamic status light/RFID logo
4	Front panel with dynamic orientation light
5	Glass plate without dynamic status light / RFID logo
6	Front panel without dynamic orientation light
7	Rear panel
8	Right panel
9	Left panel
11	DIRAS detectors (Receiver) behind a tinted screen
12	Flap

2 If mobile obstacle height ≥ 1200 mm

4.7.3. INTERMEDIATE UNIT

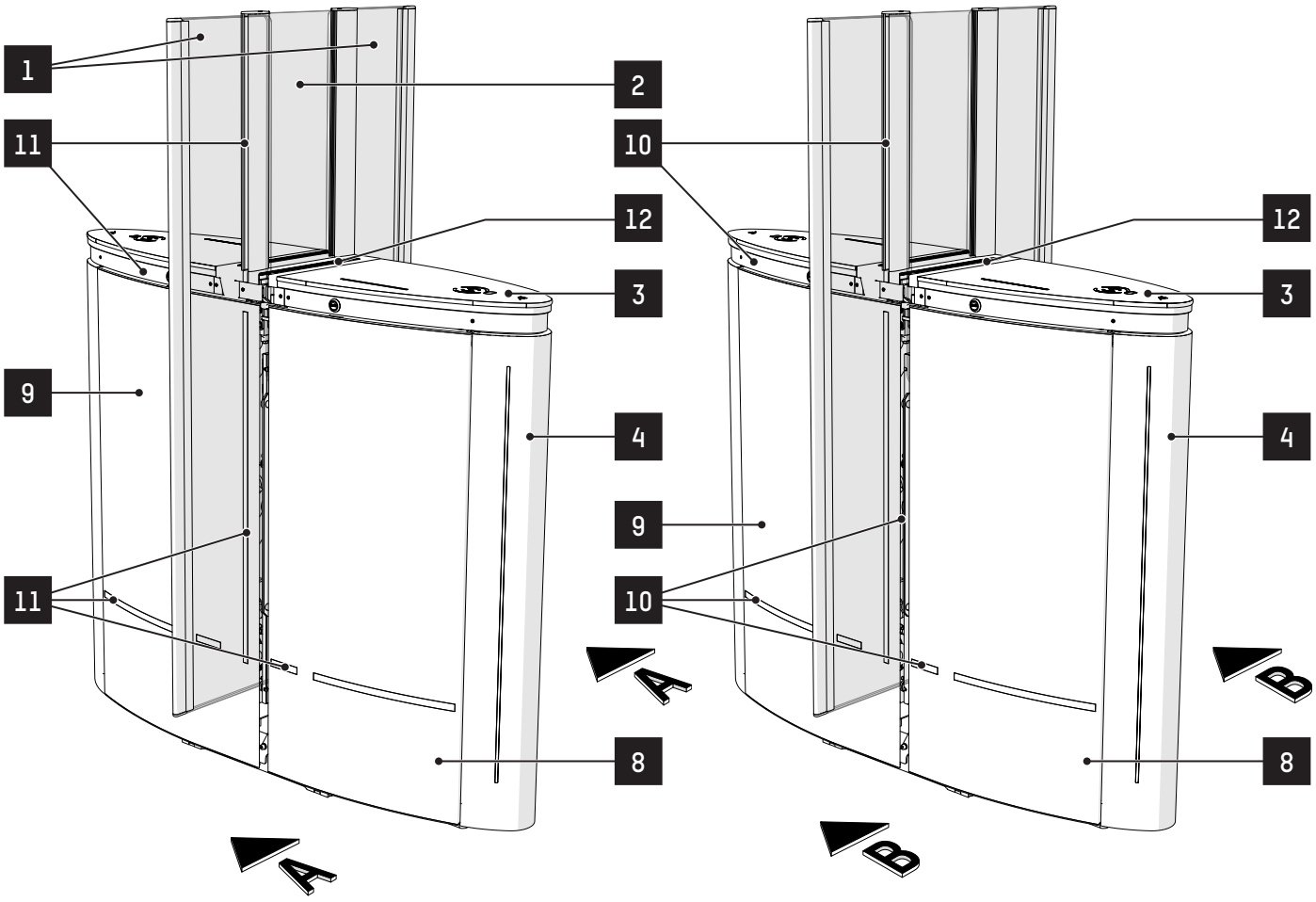


Fig. 9 - Location of the external components of the Standard SmartLane gate, intermediate

REF.	DESIGNATION
1	Mobile obstacle
2	Fixed obstacle [3]
3	Glass plate with dynamic status light/RFID logo
4	Front panel with dynamic orientation light
8	Right panel
9	Left panel
10	DIRAS detectors (Transmitter) behind a tinted screen
11	DIRAS detectors (Receiver) behind a tinted screen
12	Flap

3 If mobile obstacle height ≥ 1200 mm

4.8. LOCATION OF THE INTERNAL COMPONENTS

4.8.1. RIGHT CABINET

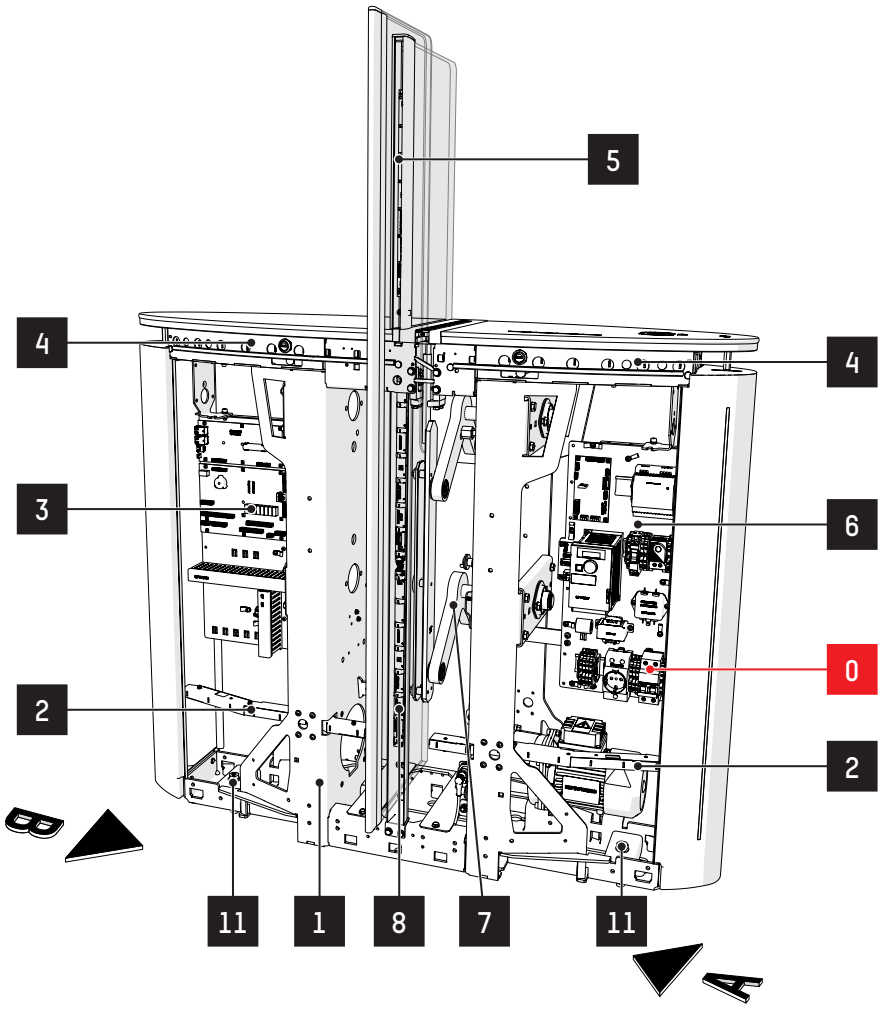


Fig. 10 - Internal components - Right cabinet

REF.	DESIGNATION
0	Main circuit breaker
1	Frame
2	Assy. DIRAS (Receiver) low plane [4]
3	Assy. - Logic board, right
4	Assy. DIRAS (Receiver) high plane
5	Assy. Fixed obstacle detection (Receiver) [5]
6	Assy. Board power
7	Assy. Kinematics
8	Assy. DIRAS (Receiver) vertical plane
11	Fixing clamp

4 ⇨ 'Trolley' type reinforced DIRAS electronic detection option
5 E/R cell if mobile obstacle height = 1200 mm, DIRAS if mobile obstacle height ≥ 1500 mm.

4.8.2. LEFT CABINET

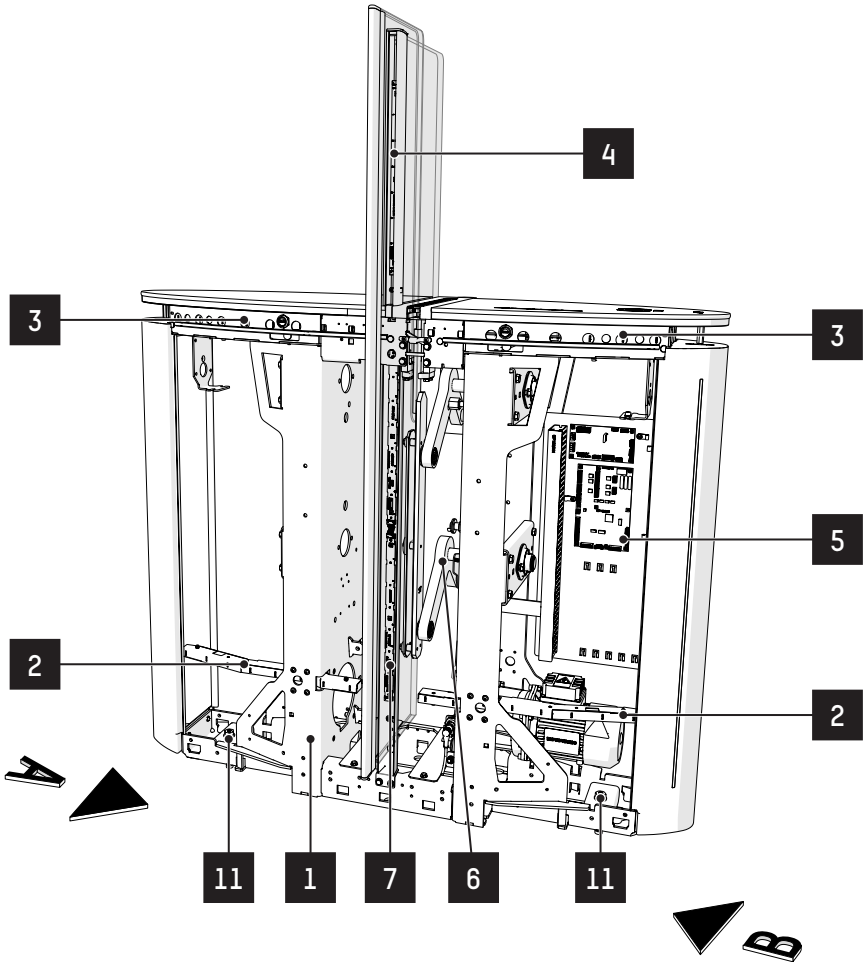


Fig. 11 - Internal components - Left cabinet

REF.	DESIGNATION
1	Frame
2	Assy. DIRAS (Transmitter) low plane [6]
3	Assy. DIRAS (Transmitter) high plane
4	Assy. Fixed obstacle detection (Transmitter) [7]
5	Assy. Logic board, left
6	Assy. Kinematics
7	Assy. DIRAS vertical plane (Transmitter)
11	Fixing clamp

6 ⇨ 'Trolley' type reinforced DIRAS electronic detection option
7 E/R cell if mobile obstacle height = 1200 mm, DIRAS if mobile obstacle height ≥ 1500 mm.

4.8.3. INTERMEDIATE CABINET

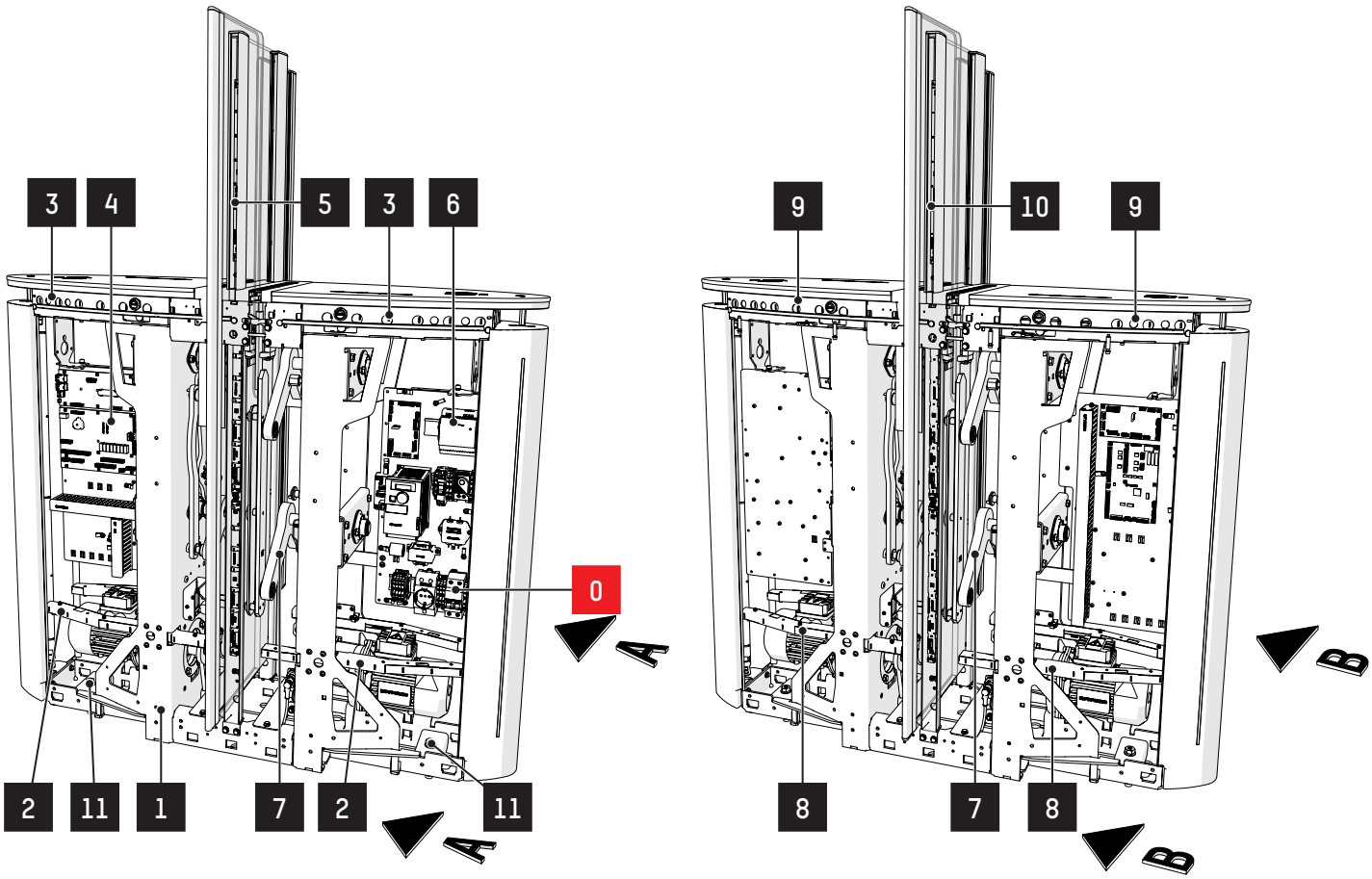


Fig. 12 - Location of internal components - 3

REF.	DESIGNATION
0	Main circuit breaker (⇨ Fig. 15, page 24)
1	Frame
2	Assy. DIRAS (Receiver) low plane [8]
3	Assy. DIRAS (Receiver) high plane
4	Assy. Logic board, intermediate
5	Assy. Fixed obstacle detection (Receiver) [9]
6	Assy. Board power (⇨ Fig. 15, page 24)
7	Assy. Kinematics (2x)
8	Assy. DIRAS (Transmitter) low plane [10]
9	Assy. DIRAS (Transmitter) high plane
10	Assy. Fixed obstacle detection (Transmitter) [11]
11	Fixing clamp

8 ⇨ 'Trolley' type reinforced DIRAS electronic detection option
9 E/R cell if mobile obstacle height = 1200 mm, DIRAS if mobile obstacle height ≥ 1500 mm.
10 ⇨ 'Trolley' type reinforced DIRAS electronic detection option
11 E/R cell if mobile obstacle height = 1200 mm, DIRAS if mobile obstacle height ≥ 1500 mm.

4.8.4. OPTIONAL EXTENSIONS

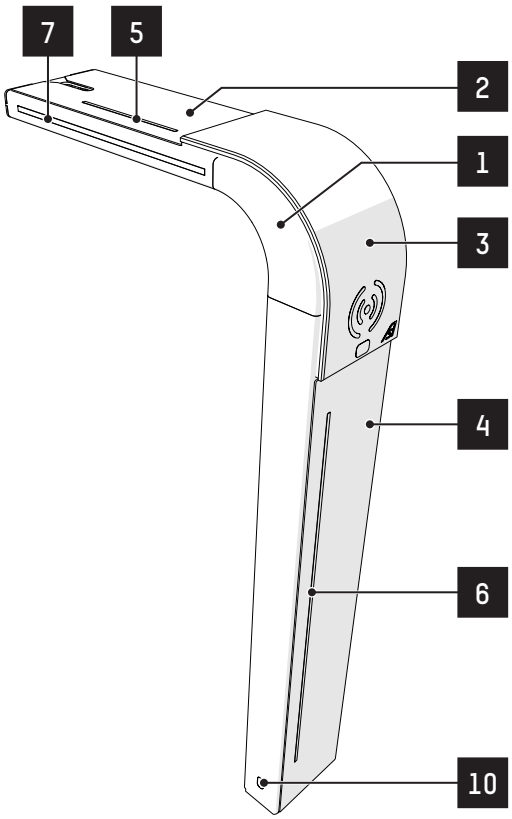


Fig. 13 - Housing extension

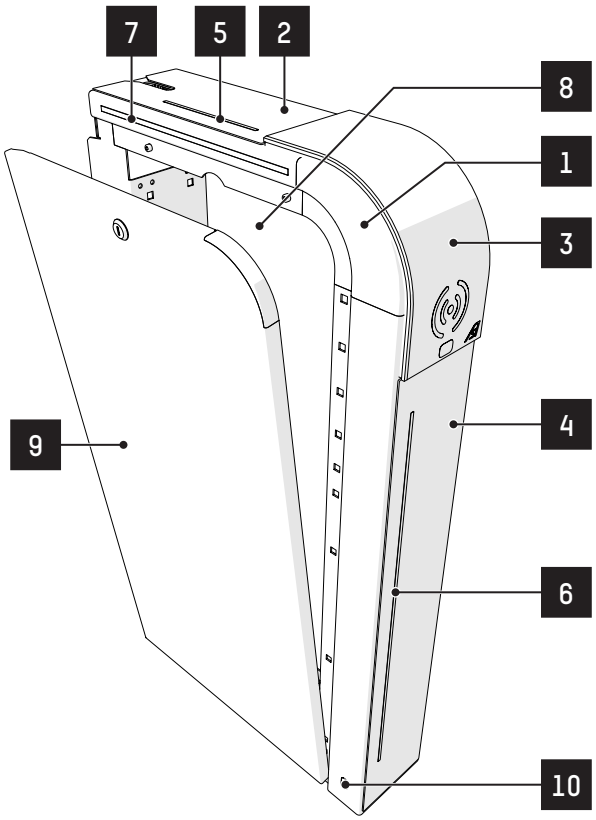


Fig. 14 - Housing extension with filler stainless steel panels

REF.	DESIGNATION
1	Frame extension
2	Upper panel
3	Cover
4	Front panel
5	Dynamic status light
6	Dynamic orientation light
7	Assy. DIRAS (Transmitter and/or Receiver) high plane
8	Assy. Right extension gate
9	Assy. Left extension gate
10	Optional early detection cell

4.8.5. ASSY. BOARD POWER

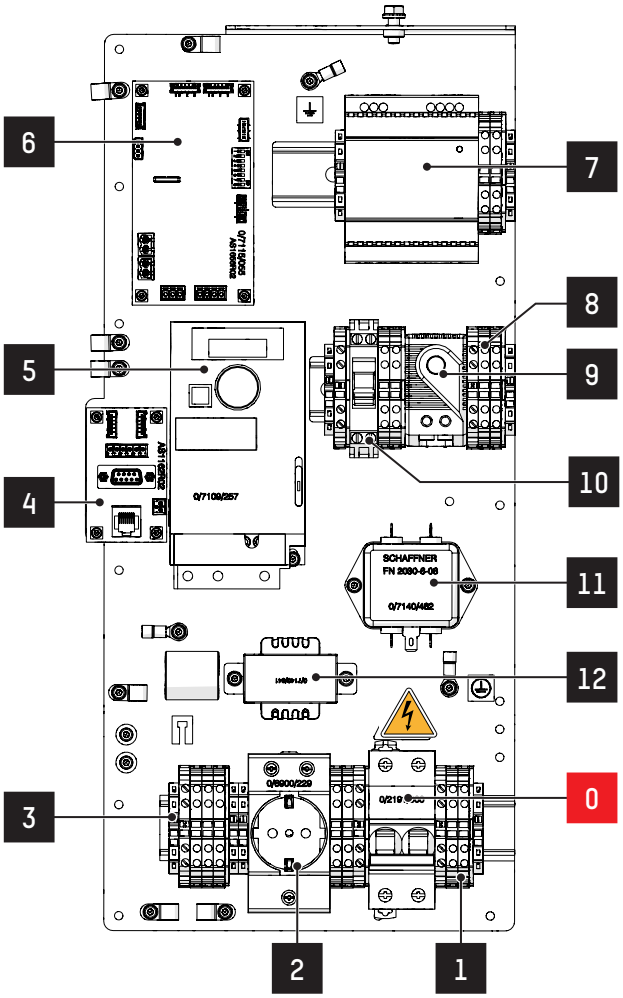


Fig. 15 - Board power

REF.	DESIGNATION
0	Main circuit breaker
1	Power supply terminal block
2	DIN rail mono socket option
3	Motor cable connection terminal block
4	AS1162 board - Variable drive Can
5	Variable frequency inverter ATV320
6	AS1656 board - Dynamic LED strip
7	Regulated power supply
8	Secondary terminal block
9	Heating option
10	Frequency inverter protection
11	Sector filter
12	Self

4.8.6. ASSY. - LOGIC BOARD, RIGHT

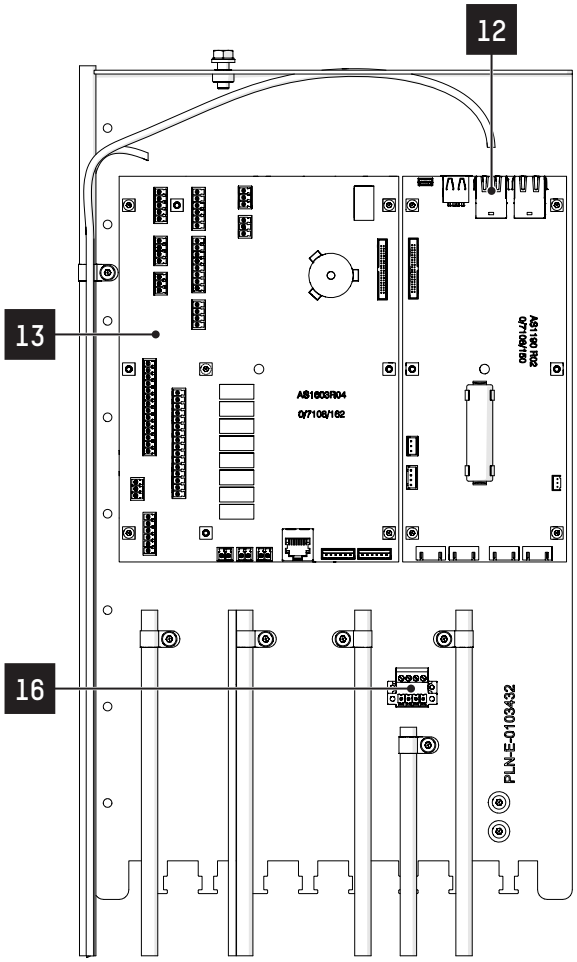


Fig. 16 - Right board

REF.	DESIGNATION
12	AS1190 circuit board - Motherboard
13	AS1603 circuit board - E/S main interface board
16	4-Pole through base

4.8.7. ASSY. LOGIC BOARD, INTERMEDIATE

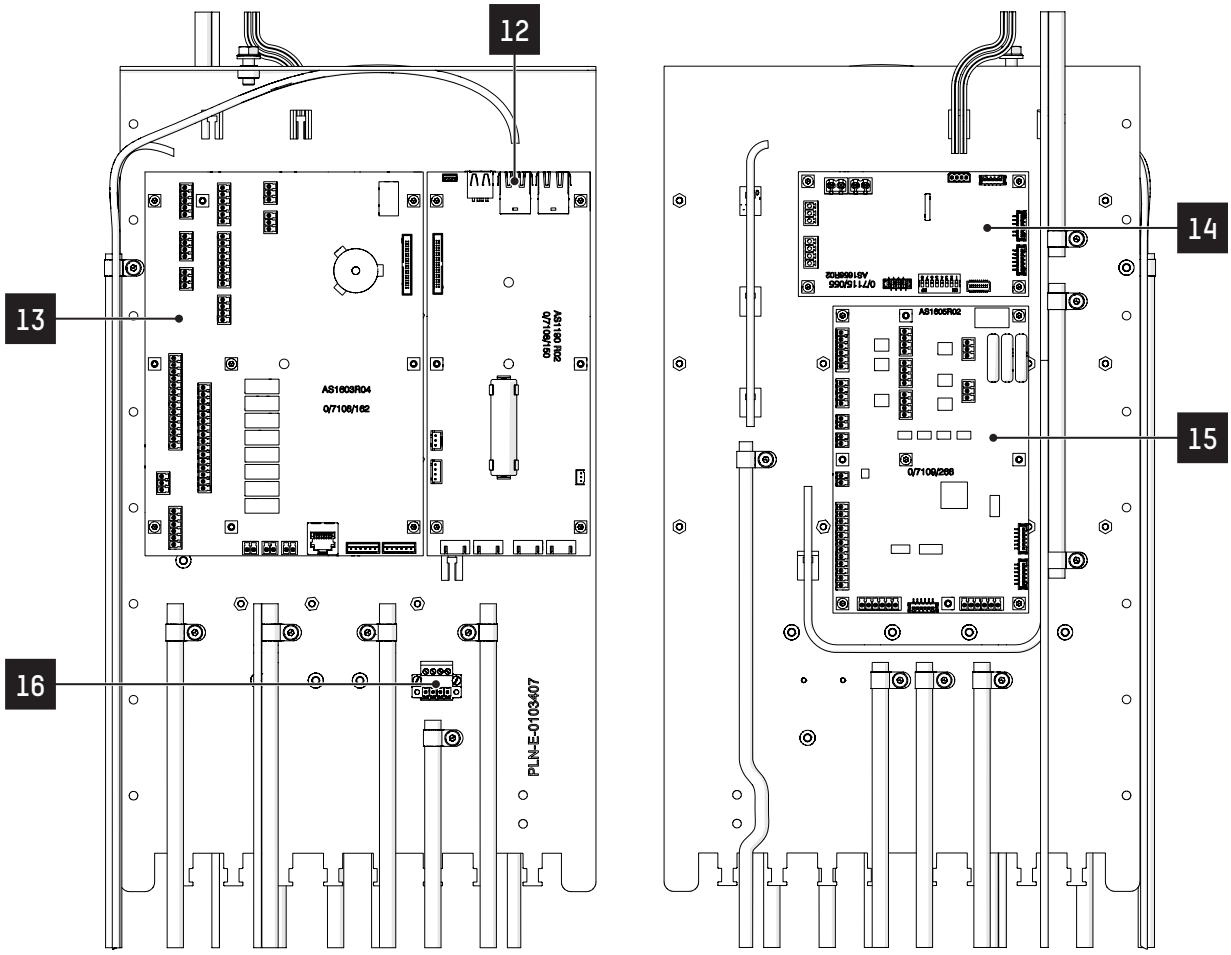


Fig. 17 - Intermediate board

REF.	DESIGNATION
12	AS1190 circuit board - Motherboard
13	AS1603 circuit board - Main and E/S interface board
14	AS1656 circuit board - Dynamic LED strip
15	AS1605 circuit board - Main and E/S interface board
16	4-Pole through base

4.8.8. ASSY. LOGIC BOARD, LEFT

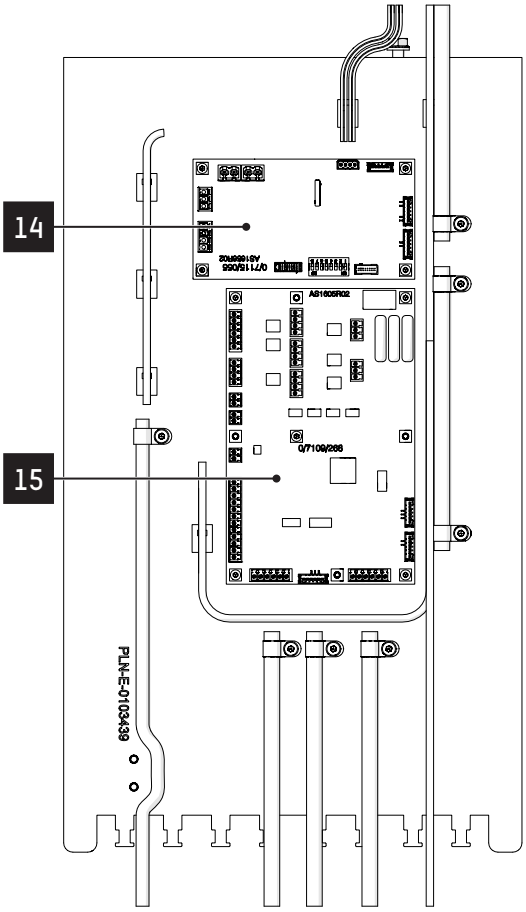


Fig. 18 - Left board

REF.	DESIGNATION
14	AS1656 circuit board - Dynamic LED strip
15	AS1605 circuit board - Main and E/S interface board

5. INSTALLATION

THE INSTALLATION WORK MUST BE CARRIED OUT IN ACCORDANCE WITH LOCAL STANDARDS, SAFETY INSTRUCTIONS (⇨ PAGE 8) AND THE INSTALLATION PLAN BELOW.

5.1. ON-SITE WORK PREPARATION

The SmartLane range of gates is designed to be installed inside buildings, protected from the weather.

The preliminary installation work on the equipment must be carried out in accordance with the installation plan (⇨ Chap. 5.6).

This applies in particular to the laying of conduits for electrical cables (⇨ Chap. 5.6).

5.2. FLOOR LEVELLING GUIDELINES

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

The floor must be perfectly flat (no bumps). The maximum allowed (longitudinal and transverse) slope between the units is 2° (to ensure transmission of the detection beams). The slope must be constant (no change in direction allowed).

The slope should be the same for all gates in a series.

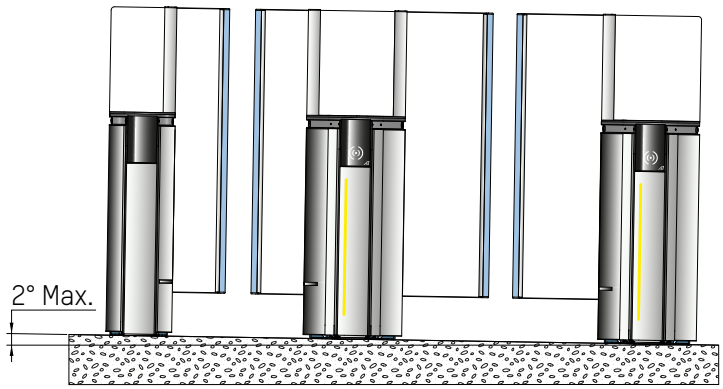


Fig. 19 - Maximum slope - Front view

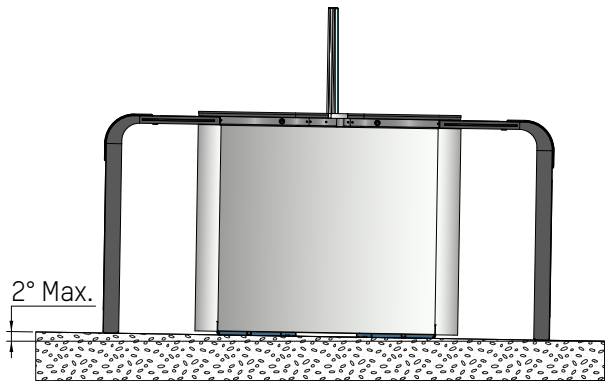


Fig. 20 - Maximum slope - Side View

5.3. MAXIMUM FLATNESS TOLERANCE OF THE FLOOR FROM CABINET TO CABINET

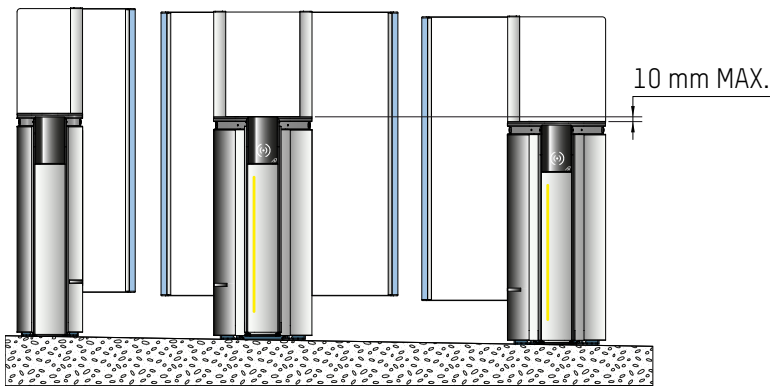


Fig. 21 - Maximum flatness tolerance

- If this tolerance is exceeded (⇨ Fig. 22), the floor must be levelled with grout before the gates are installed.

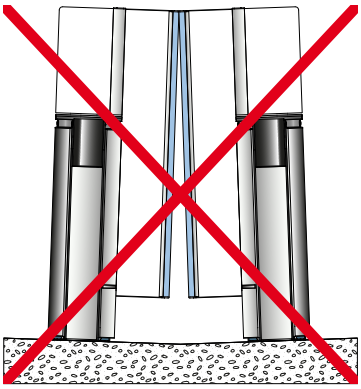


Fig. 22 - Do not exceed the flatness tolerance.

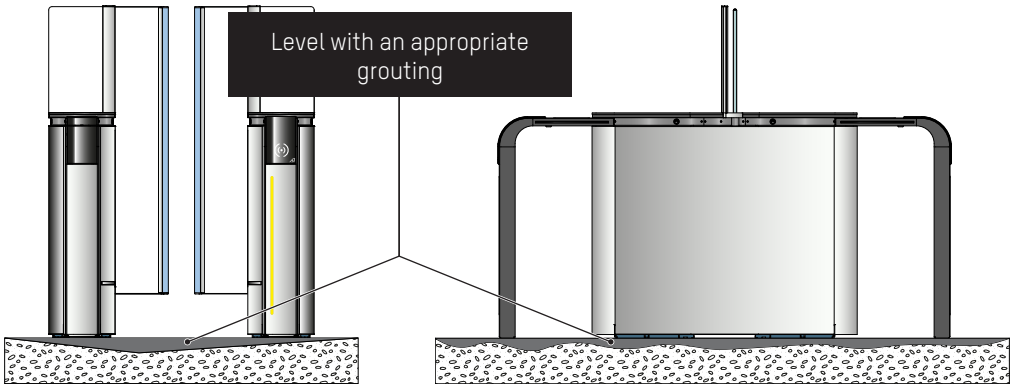


Fig. 23 - Levelling the floor

- If the floor is uneven or has an uneven surface, Automatic Systems recommends grouting as shown below. (⇨ Fig. 23)
- Steel shims can be added between the gate frame and the fixing surface.
- The thickness of the shims should not exceed **10 mm** for each unit.

The entire base of the gate must lie flat on the floor. Under no circumstances should it be supported by its anchor points alone.

To ensure that the gate rests evenly over its entire footprint, stainless steel shims (supplied with the system) may be required.

NB!
THE CENTRAL AREA OF THE GATE (AREA WHERE THE MOVING GLASS OBSTACLES RETRACT INTO THE GATE) MUST BE PARTICULARLY WELL SUPPORTED. INADEQUATE SUPPORT WILL CAUSE VIBRATIONS DURING NORMAL OPERATION.

5.4. STORAGE

Prior to installation, avoid any impact on 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 16).

Storage temperature range: -30 to +80 °C.

5.5. RECOMMENDED TOOLS

- Electrician's toolkit: screwdrivers, pliers, etc. (For electrical connection);
- Mallet (to anchor the equipment to the floor);
- Drill + drill bits suitable for the type of floor, up to 15 mm dia. (To anchor the equipment to the floor);
- Ratchet wrench + articulated with dial + extension + socket set. (To anchor the equipment to the floor and various other operations);
- Cat 6 S/FTP unshielded Ethernet cable + RJ45 connector + crimping pliers. (To connect the lane to the network, if necessary);
- PC + mini USB or RJ45 Ethernet cable or supervision panel. (Optional) (To configure the lanes);
- Circlip pliers;
- Set of Allen keys.

5.6. INSTALLATION PLANS

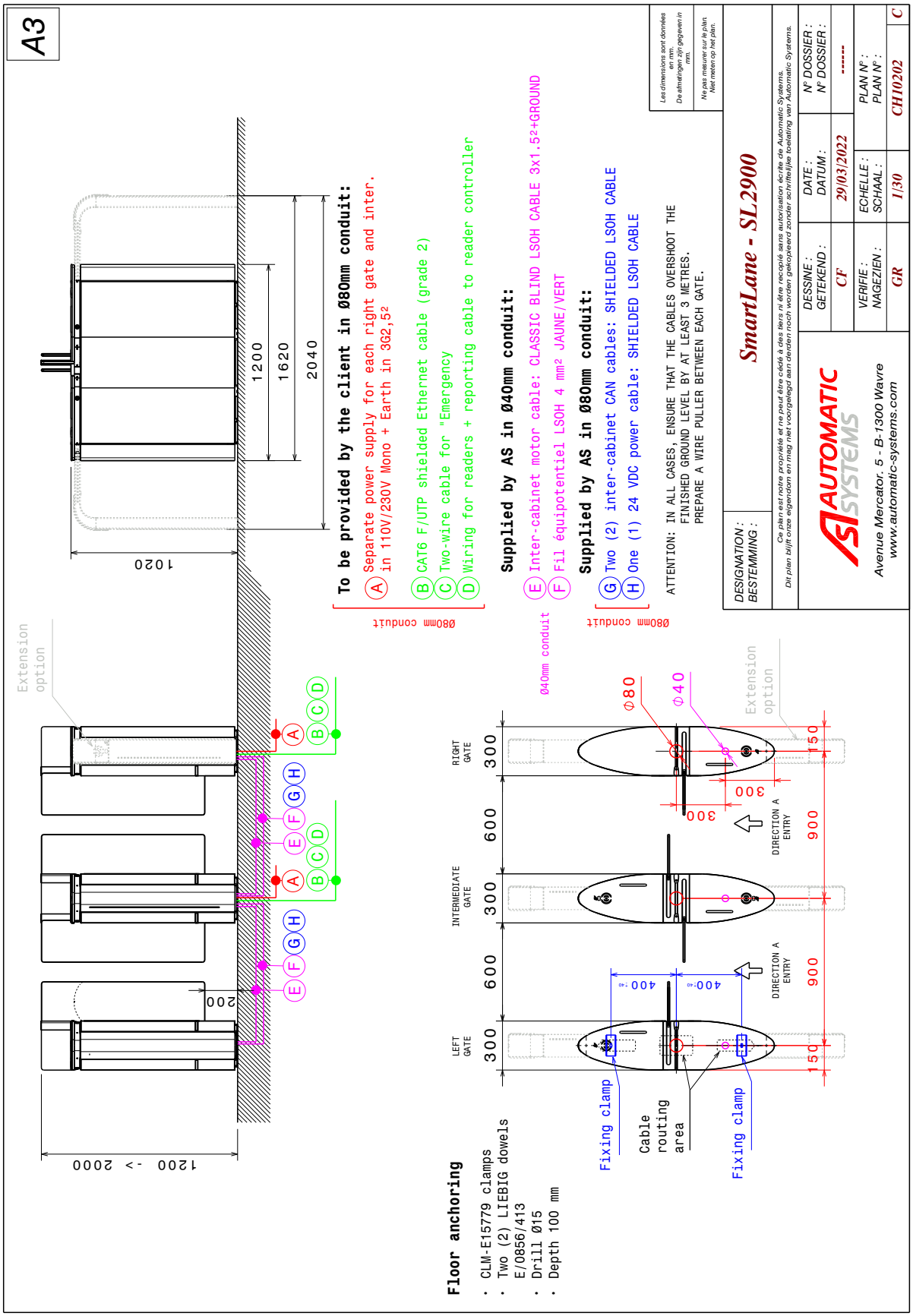


Fig. 24 - Standard SmartLane installation plan (CH10202)

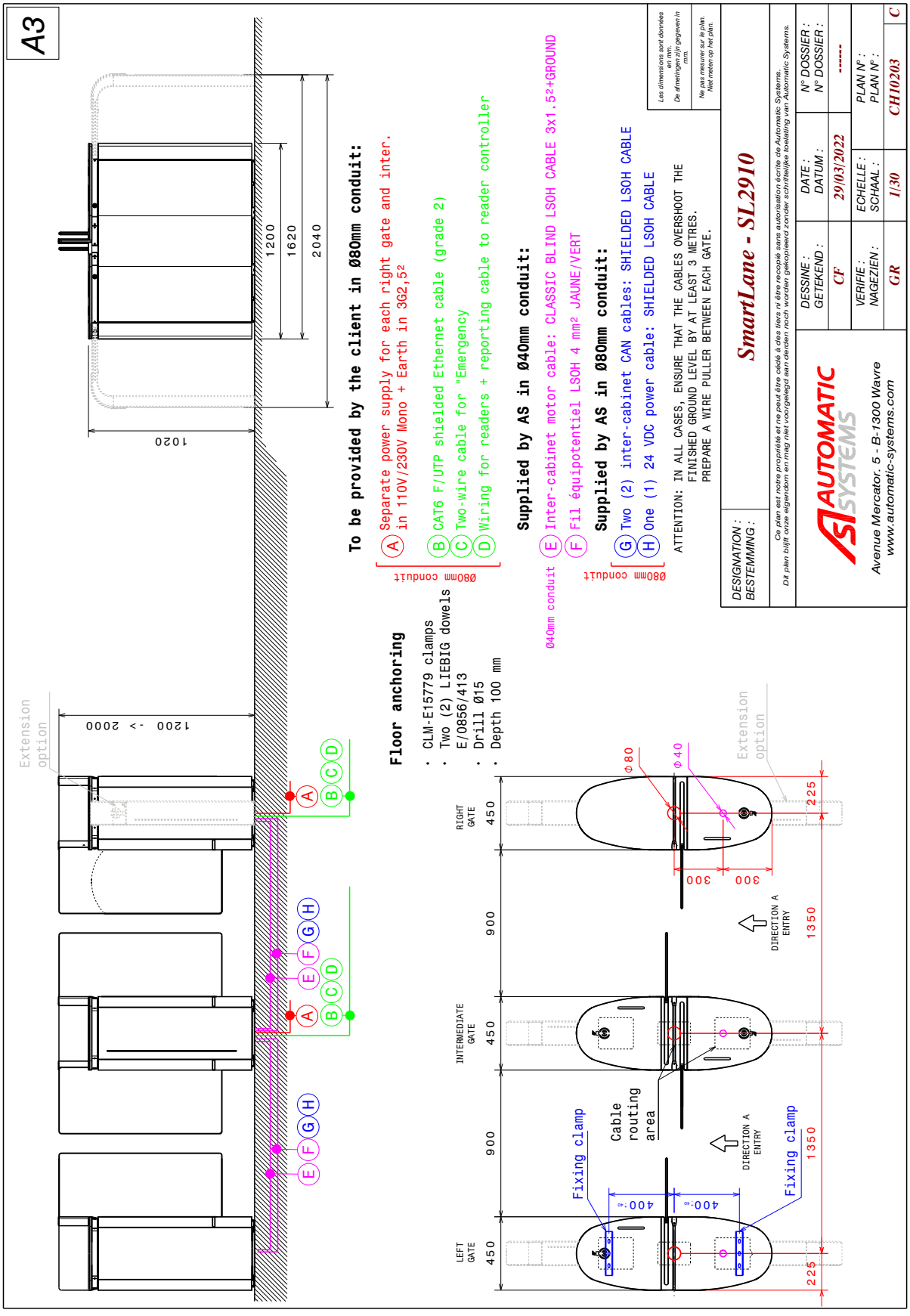


Fig. 25 - Wide SmartLane installation plan (CH10202)

5.7. UNPACKING

Unpack the device(s) without damaging it.

Sort the various components of the packaging and recycle them appropriately.

5.8. INSTALLING THE EQUIPMENT

NB!
THE EQUIPMENT MUST BE ANCHORED TO THE FLOOR BEFORE BEING MADE ACCESSIBLE TO USERS!
AUTOMATIC SYSTEMS CANNOT BE HELD RESPONSIBLE FOR ANY ACCIDENT OR DAMAGE TO EQUIPMENT DUE TO IMPROPER FLOOR ANCHORING.

5.8.1. HANDLING

The equipment can be handled:

- By means of bars or slings passed through the openings (**A**) provided in the frame.

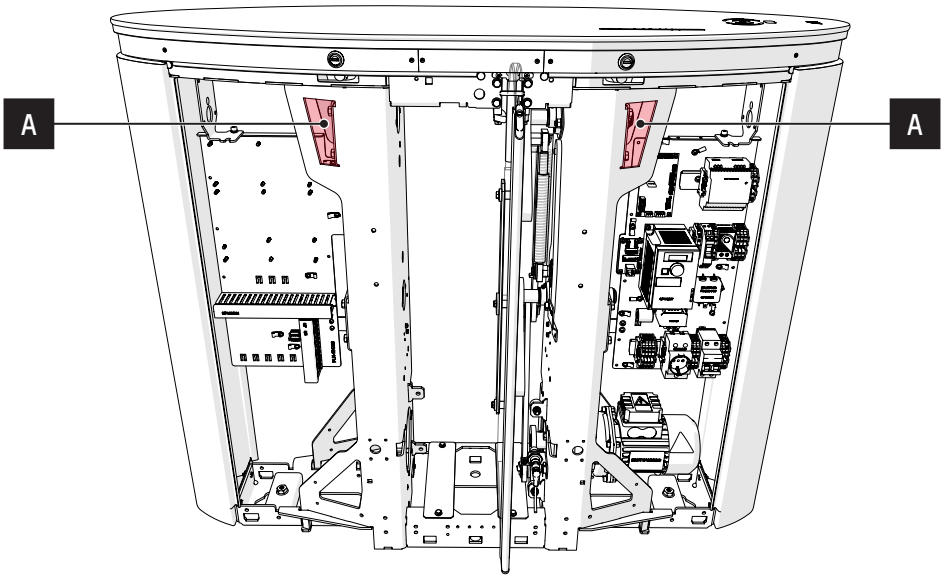


Fig. 26 - Handling

- Using a forklift or a pallet truck. In both cases, the lifting force must be applied to the fixed frame (⇨ Ref. **1**, Chap. 4.8).

5.8.2. FLOOR ANCHORING

Each cabinet is anchored to the floor by means of two (2) clamps, two (2) anchor bolts, two (2) flat washers and two (2) M10 nuts.

Each extension, if any, is anchored to the floor by means of two (2) anchor bolts.

The location of the anchoring points is shown on the installation drawing corresponding to the type of gate (Standard or Wide), Chap. 5.6, page 30

To anchor the appliance to the floor, Automatic Systems supplies, in addition to the two (2) fixing clamps, two (2) M10 anchor bolts, designed for use in concrete, which must be tightened with a minimum torque of 50 Nm.

If another type of anchor bolt is used than the one indicated above, refer to the manufacturer's instructions.

IT IS ESSENTIAL TO ADAPT THE ANCHORS AND THE ANCHORING PROCEDURE TO THE ENVIRONMENT AND THE TYPE OF SURFACE ON WHICH THE EQUIPMENT WILL BE MOUNTED. FURTHERMORE, IT IS ESSENTIAL THAT THE WORK BE APPROVED BY AN ENGINEER SPECIALIZED IN THE FIELD.

1. Mark the anchoring points of the equipment on the floor, referring to the installation drawing, Chap. 5.6, page 30.

Drill + drill bits suitable for the type of floor + mallet (if necessary).

The packaging used to protect the product during transport includes a template that can be used when marking the anchoring points of the device.

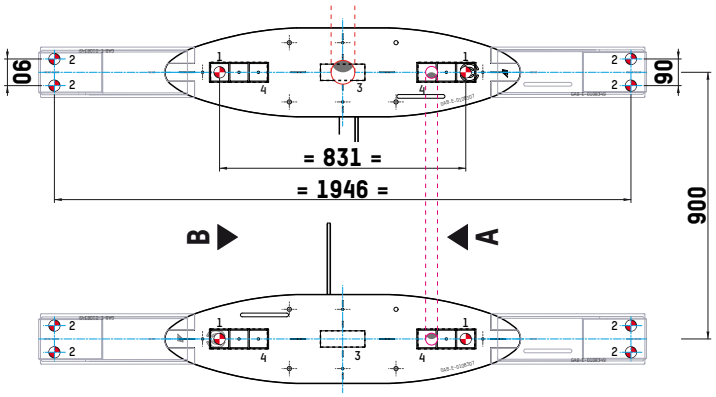


Fig. 27- Marking the anchoring points for the Standard SmartLane with template(s)

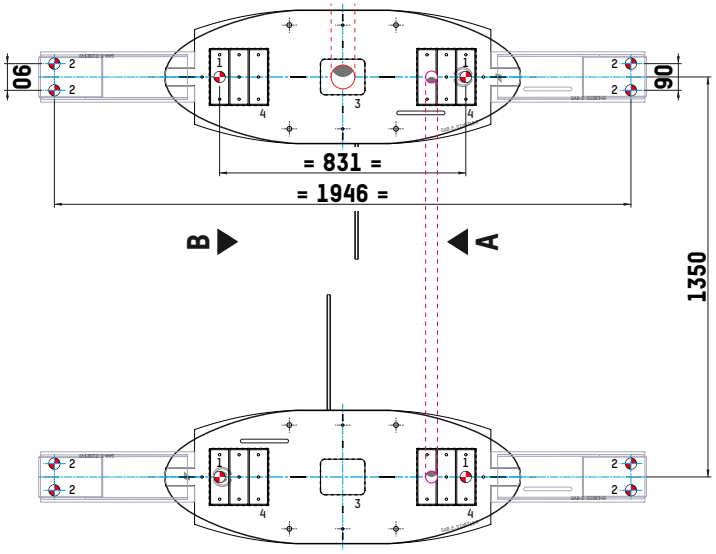


Fig. 28 - Marking the anchoring points for the Wide SmartLane with template(s)

REF.	DESIGNATION
1	Cabinet anchoring points
2	Anchoring points for optional extension(s)
3	(Central) routing area for power cables
4	(Lateral) routing area for inter-cabinet cables

2. Drill the two anchoring points of the equipment into the floor using a concrete drill, 15 mm dia., to a depth of 100 mm.

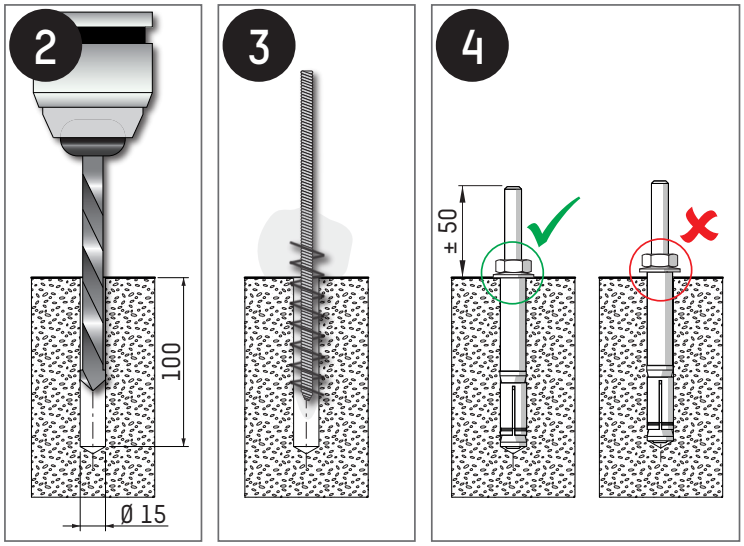


Fig. 29 - Drilling / Dust removal

3. Remove dust from the drilled holes.
4. Insert into each of the holes an expansion plug, supplied by Automatic Systems, taking care to leave the threaded rod of the expansion plug protruding at least 50 mm above the finished floor level once the plug is anchored in the floor.
5. Place the device frame on top of the expansion plugs, taking care not to damage the various cables and orientate it according to the installation plan page 30.
6. Place the fixing clamps and the anchoring elements provided for this purpose (flat washers and M10 nuts), without tightening.

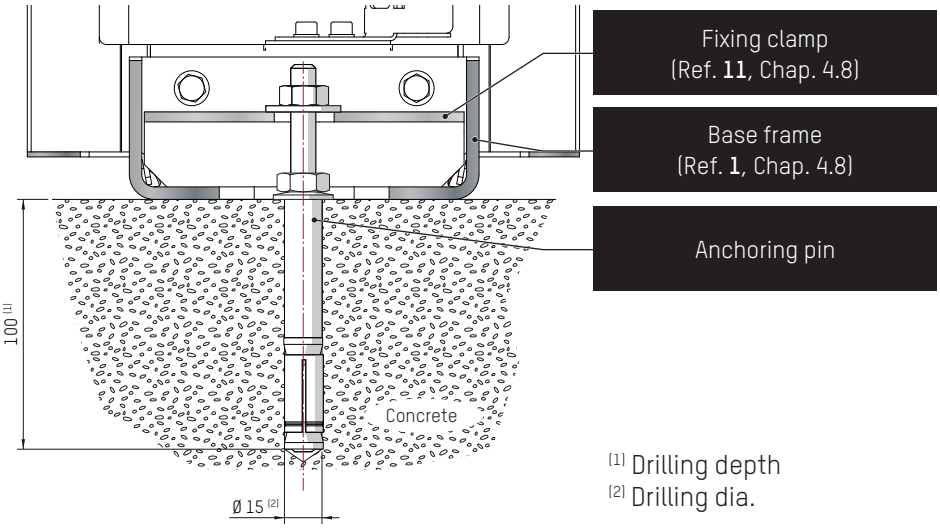


Fig. 30 - Clamping principle

7. Adjust the base of the appliance by placing shims under the frame if necessary.
8. After adjusting the base, properly fasten the equipment.

Flat spanner set or ratchet wrench with extension and 17 socket.

5.9. ELECTRICAL CONNECTIONS

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

The connections must be made in accordance with the installation drawings (⇨ page 30) and electrical diagrams, which remain the reference.

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

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

PRIOR TO CONNECTING THE POWER SUPPLY, IT IS ESSENTIAL TO MAKE A GROUND CONNECTION USING A CABLE WITH A MIN. CROSS SECTION OF 2.5 MM².

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

For each lane:

- Remove the lateral panel of the cabinet located on the right-hand side, in direction of passage A ⇨ B (⇨ Chap. 8.3.1, page 54).
- Switch off the power to the gate via the main circuit breaker (⇨ Chap. 8.3, page 54).
- Then remove the side panels of the cabinet on your left.

The left panel on side A gives access to the inter-cabinet cable routing area.

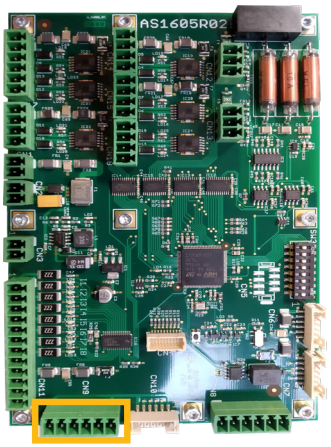
The left side panel B gives access to the left/intermediate electronic board.

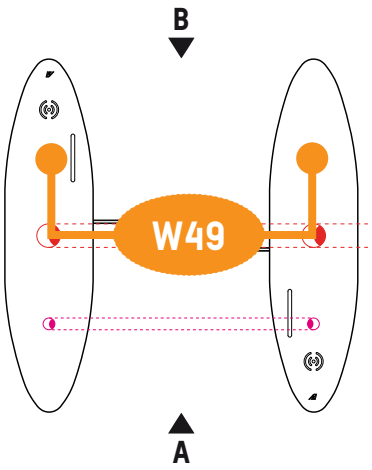
Using the CAN cable **W49** (CAN 1), connect:

- the **4-pole through base** (Fig. **16**), on the **RIGHT** (⇨ Fig. 16, page 25) or **INTERMEDIATE** (⇨ Fig. 17, page 26) board
- to the **CN9** connector of the **AS1605 board**, on the **INTERMEDIATE** (⇨ Fig. 17, page 26) or **LEFT** board (⇨ Fig. 18, page 27)

(See electrical diagrams 1SL204.002B ⇔ 1SL204.003A

LEFT or INTERMEDIATE gate CN9 (AS1605)





RIGHT or INTERMEDIATE gate 4P through base

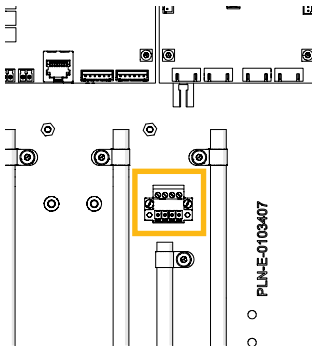


Fig. 31 - Inter-cabinet connection - W49

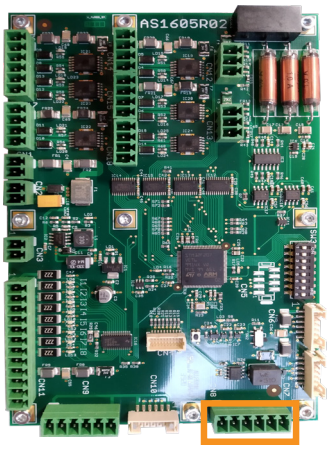
BE MINDFUL OF THE COLOUR OF THE WIRES WHEN CONNECTING THEM TO THE THROUGH BASE!
CONNECT THE SHIELDING PROPERLY!

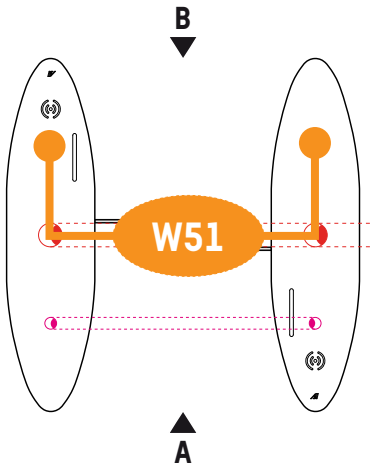
Using the **W51** cable (CAN 0), connect:

- the **CN8** connector of the **AS1605 board**, on the **LEFT** (⇨ Fig. 18, page 27) or **INTERMEDIATE** board (⇨ Fig. 17, page 26)
- to the **CN21** connector of the **AS1603 board**, on the **RIGHT** (⇨ Fig. 16, page 25) or **INTERMEDIATE** board (⇨ Fig. 17, page 26)

(See electrical diagrams 2SL204.002A ⇔ 2SL204.003A

LEFT or INTERMEDIATE gate
CN8 (AS1605)





RIGHT or INTERMEDIATE gate
CN21 (AS1603)

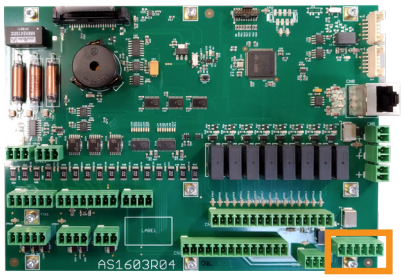


Fig. 32 - Inter-cabinet connection - W51

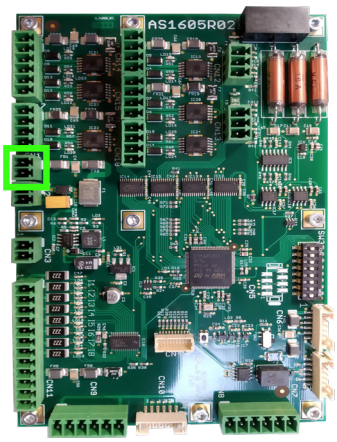
CONNECT THE SHIELDING PROPERLY!

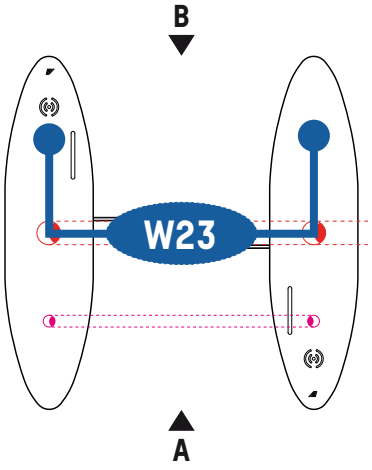
Using the **W23** cable (24 VDC), connect:

- the **CN1** connector of the **AS1605 board**,on the **LEFT** (⇨ Fig. 18, page 27) or **INTERMEDIATE** board (⇨ Fig. 17, page 26)
- to the **CN3** connector of the **AS1603 board**, on the **INTERMEDIATE** (⇨ Fig. 17, page 26) or **RIGHT** board (⇨ Fig. 18, page 27)

(See electrical diagrams 2SL204.002A ⇔ 2SL204.003A

LEFT or INTERMEDIATE gate
CN1 (AS1605)





RIGHT or INTERMEDIATE gate
CN3 (AS1603)

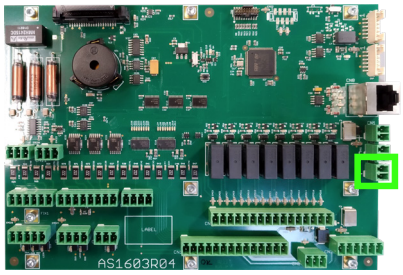
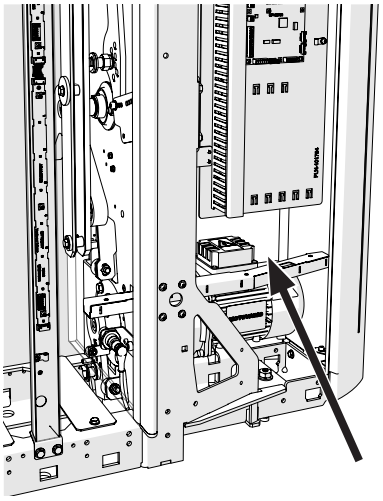


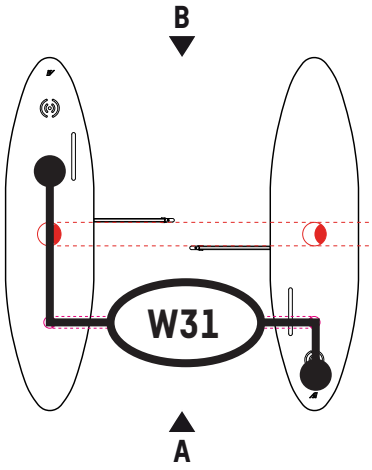
Fig. 33 - Inter-cabinet connection - W23

Connect the motor cable **W31** of the left gate to the dedicated terminal on the board power of right gate.

See electrical diagram 2SL204.001A

LEFT or INTERMEDIATE gate





RIGHT or INTERMEDIATE gate

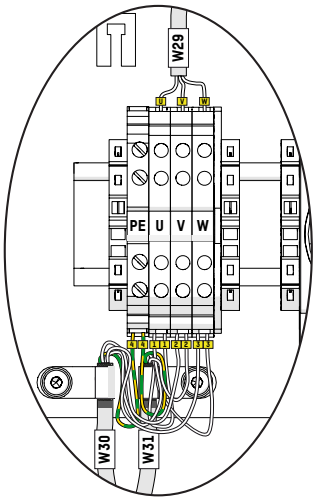
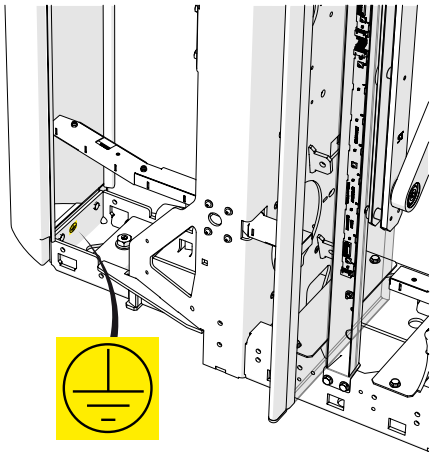


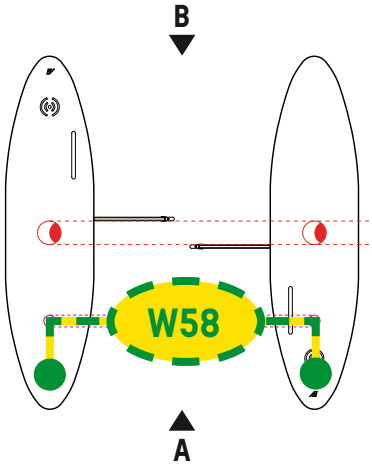
Fig. 34 - Inter-cabinet connection - W31

Install the equipotential bonding between both frames using cable W58.

See electrical diagram 2SL204.001A

LEFT or INTERMEDIATE gate





RIGHT or INTERMEDIATE gate

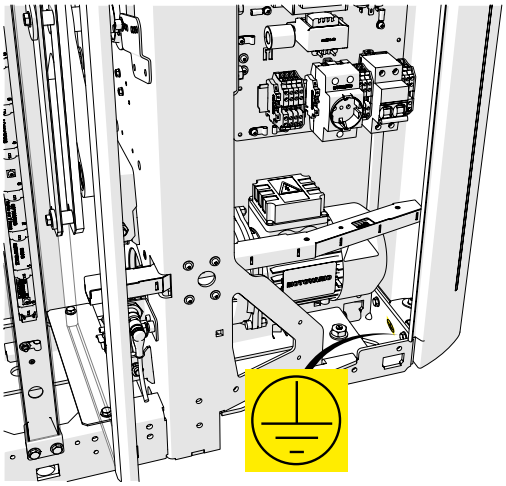


Fig. 35 - Inter-cabinet connection - W58

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 min. cross section 2.5 mm². Protect the upstream line with a 16A circuit breaker.

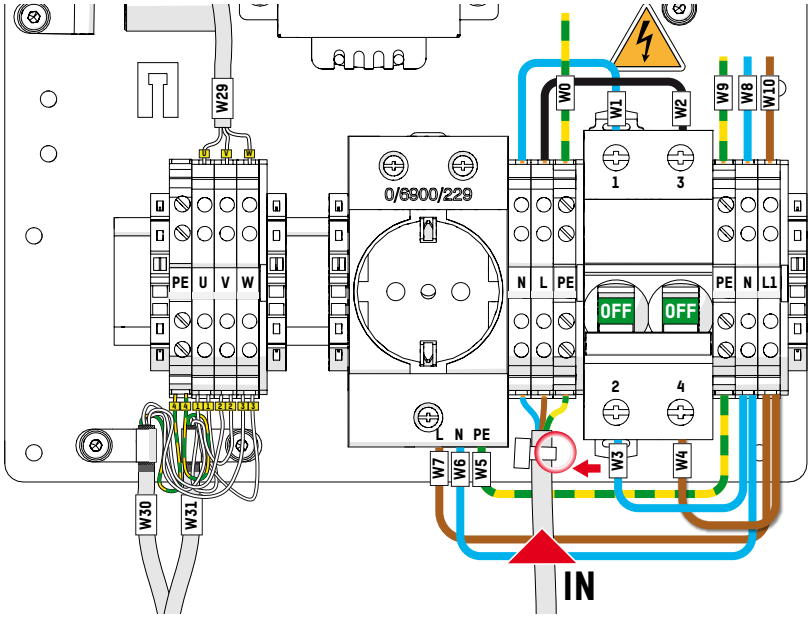


Fig. 36 - Connection to the main terminal block

NB!
USE THE HOLE DIRECTLY BELOW AND TO THE RIGHT OF THE CIRCUIT BREAKER TO SECURE THE MAINS CABLE TO THE BOARD WITH A PLASTIC CLAMP.

5.10. COMMISSIONING

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 to one (1) hour before powering up.

Switch on the main circuit breaker to power up the equipment. (⇨ Chap. 8.3, page 54)

On power-up, the obstacles will go through an opening and closing cycle to determine the end opening positions of the product.

During the restart phase, the dynamic orientation lights are fixed red and the dynamic status lights are switched off, giving way to the configuration defined in the Maintenance Interface once the product is operational.
If necessary, configure the lane via the Maintenance Interface (opening speed, mode, colour of the dynamic lights, etc.) ⇨ see specific manual.

Perform several openings and closings using the available controls (reader, remote control, etc.) and check the obstacle position in the open and closed positions.

Check that the obstacles open completely when an evacuation order is issued.

Pass through several times and check that the pictograms and buzzer operate properly.

Check that the optional equipment (monitoring panel, etc.) and customer-incorporated equipment (reader, etc.) is operating correctly.

6. DESCRIPTION

6.1. SOUND AND LIGHT ALARMS

6.1.1. DYNAMIC FUNCTION AND ORIENTATION LIGHTS

The dynamic status light is integrated into the glass upper plate 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 in the front panel. It indicates the status of the lane and allows good visibility from a distance to ensure a large flow of passage.

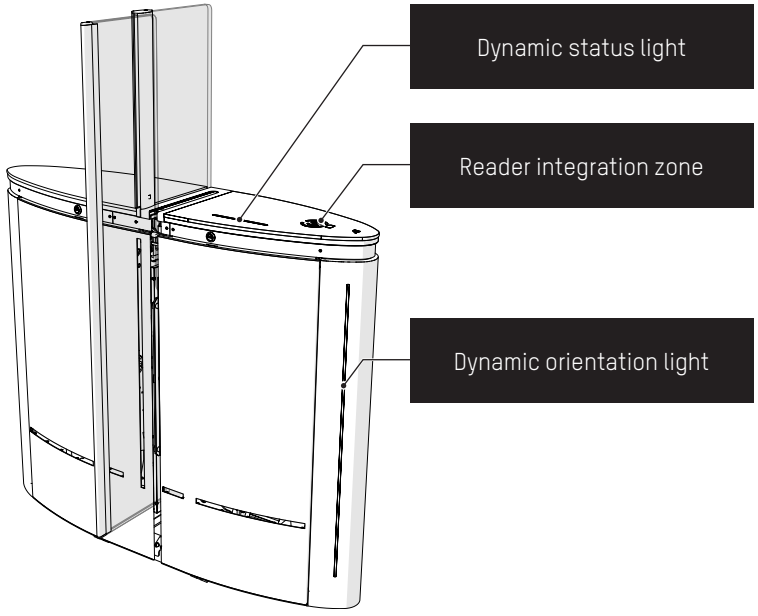
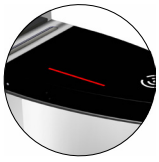
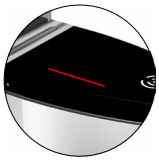
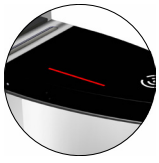
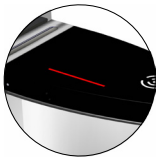
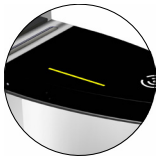


Fig. 37 - Dynamic lights

By default, the dynamic lights will work as follows:

DYNAMIC STATUS LIGHT	DYNAMIC ORIENTATION LIGHT	MEANING
 OFF	 OFF	• Lane powered off
 WHITE (FIXED)	 WHITE (FIXED)	• Lane initialising (Only during factory installation of the product or if the initial configuration of the product has been changed via the service interface)
 BLUE (FIXED)	 GREEN (FIXED)	• Lane in Controlled mode, waiting for a request for passage authorization

DYNAMIC STATUS LIGHT	DYNAMIC ORIENTATION LIGHT	MEANING
 GREEN (FLASHING)	 GREEN (FLASHING)	• The lane is in 'evacuation' mode in the direction shown.
 GREEN (FLASHING)	 GREEN (FIXED)	• Access to lane authorized in the direction shown.  Once the obstacles have been cleared, the user loses his or her authorization to pass through.
 GREEN (FIXED)	 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).
 RED (FIXED)	 RED (FIXED)	• Breach detected. • Evacuation in the reverse direction.
 RED (FLASHING)	 RED (FIXED)	• Invalid badge control.
 RED (FIXED)	 RED (FIXED)	• Passage forbidden. • Passage under way in the wrong direction. • Lane locked closed.
 RED (FIXED)	 RED (FLASHING)	• Lane out of service.
 YELLOW (SCROLLING)	 YELLOW (SCROLLING)	• Lane in Maintenance mode.

6.1.2. 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.

6.2. DETECTION

The SmartLane is mainly equipped with DIRAS detection cells, detection cells using **I**nfra-**R**ed, developed by Automatic Systems.

However, when the SmartLane is configured with 1200 mm high mobile obstacles, a classic E/R (transmitter/receiver) cell is used as a safety device in the corresponding fixed obstacle. (⇨ Fig. 41, page 43)

This type of classic cell will also be used when the SmartLane is equipped with the 'Early Detection' option. (⇨ Fig. 41, page 43)

The DIRAS cells are arranged in strips of eight (8) Transmitter ((⇨ Fig. 42, page 43) and (⇨ Fig. 44, page 44)) or Receiver ((⇨ Fig. 43, page 43) and (⇨ Fig. 45, page 44)) cells.

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

Each lane is equipped with at least 32 pairs of T/R cells (64 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.

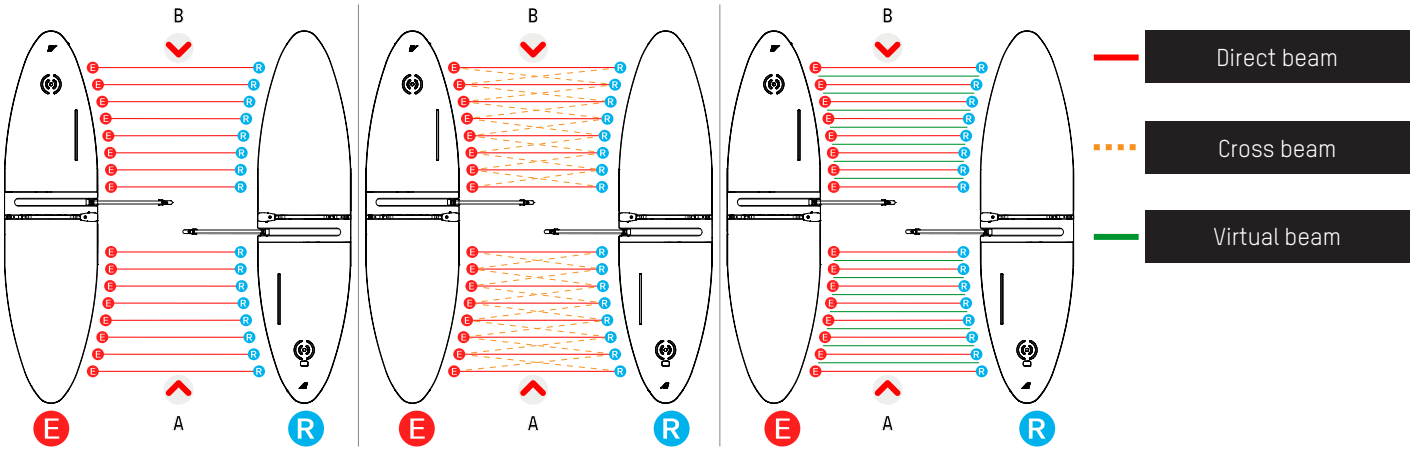


Fig. 38 - Cross beam principle

This high cell density allows the use of 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, allows for:

- Effective tailgating detection;
- Trolleys have a specific signature that allows them to be differentiated from human beings;
- 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);
- Existence of a continuously active security zone (because there are no obstacles passing in front of the cells);
- Great reduction in false alarms due to luggage (because tracking is activated as soon as the lane is entered).

Single adult

Persons
+ trolley in front

Single child

Person running

Elderly person who
naturally leans over

Person
+ trolley & bag

Person + luggage in front/behind

Person with backpack

Adult + child in front
Each with a travel ticket

Fig. 39 - Authorized passages

Two (2) people, one after the other

Two (2) people side by side

Fig. 40 - Prohibited passages

6.2.1. LAYOUT OF THE CELLS

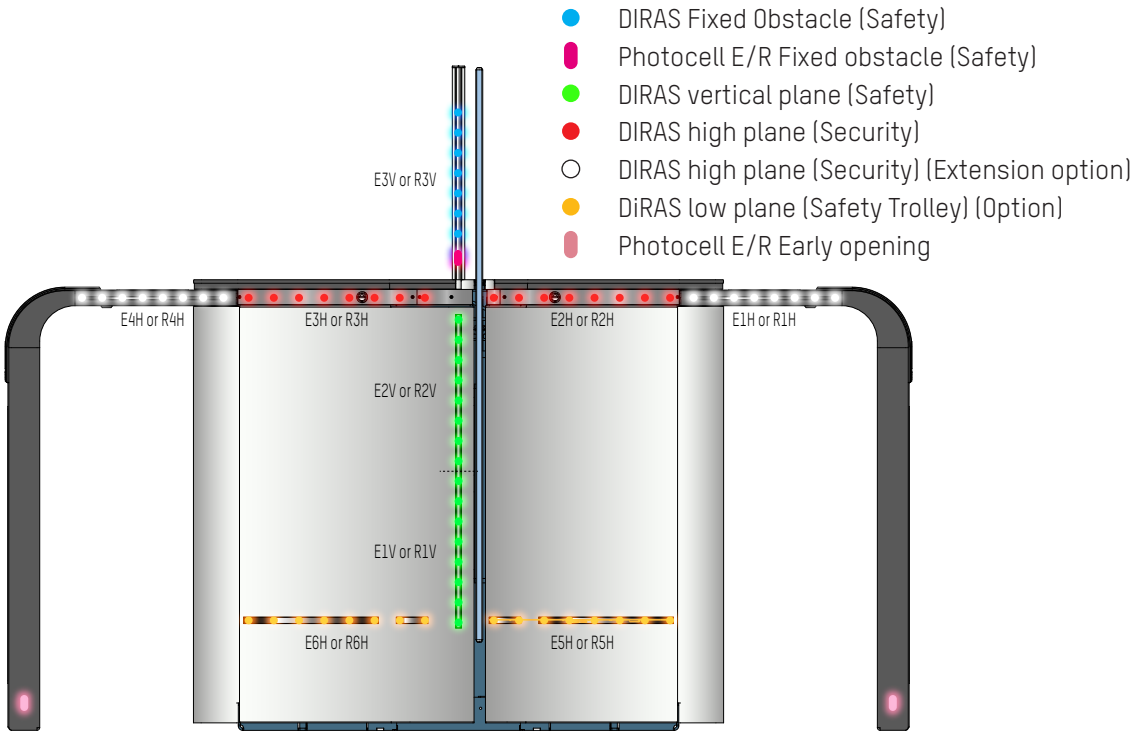


Fig. 41 - Layout of the detection cells

6.2.2. DETECTION MANAGEMENT

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 prohibiting the opening or closing of the obstacles when a passenger comes too close to them (regardless of whether the user is authorized or not). By extending the security zone, the passenger safety takes priority over anti-fraud protection. By reducing the security zone, anti-fraud protection takes priority over passenger safety.

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

6.2.3. DIRAS CELLS

AS1642 transmitter

Fig. 42 - AS1642 transmitter

AS1643 receiver

Fig. 43 - AS1643 receiver

6.2.4. DIRAS CURVED CELLS

AS1652 curved cells

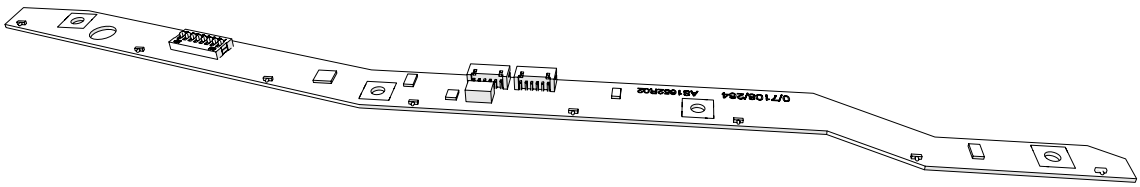


Fig. 44 - AS1652 transmitter

AS1653 curved receivers

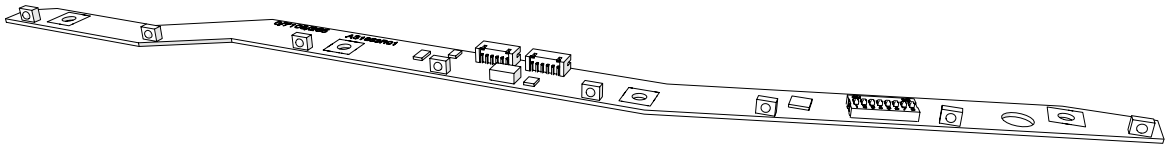


Fig. 45 - AS1653 receiver

6.2.5. TRANSMITTER/RECEIVER PHOTOCELLS

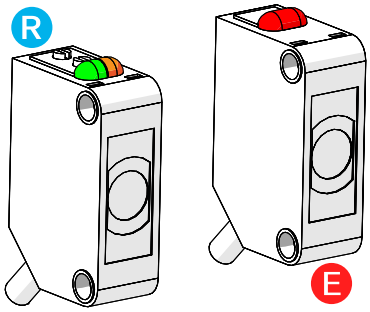


Fig. 46 - Detection photocell (T/R)

IN ORDER NOT TO INTERFERE WITH THE DIRAS CELLS, THE PHOTOCELLS ARE POSITIONED AS FOLLOWS:

- TRANSMITTER PHOTOCELL ⇨ IN THE RIGHT GATE;
- RECEIVER PHOTOCELL ⇨ IN THE LEFT GATE.

6.3. MECHANICAL TRANSMISSION OF MOTION

Each mobile obstacle is controlled by its own geared motor. The intermediate gates thus contain two (2) geared motors, controlled by two (2) different logics (one (1) per lane).

The movement of the geared motor (**6**) is transmitted to the mobile obstacle (**1**) by means of a connecting rod (**8**) / crank (**5**) system linked to the lower (**9**) and upper (**12**) shafts by means of a secondary connecting rod (**10**). This system also ensures the mechanical locking of the obstacle in both positions (open and closed) by the alignment of the connecting rod and the crank: it is then impossible to open the obstacle manually.

The baseboard (**2**), which connects the mobile obstacle to the upper and lower shafts, is used to secure the mobile obstacle.

It is equipped with a guide tube (**15**) at the top, which connects to the tie rod (**14**) of the flap that is fitted to the gate when the height of the moving obstacle is greater than 1 metre.

The flap, which slides in the flap guide (**13**), closes the passage area of the moving obstacle in the upper part of the gate.

The angular position of the unit (and thus of the obstacle) is transmitted to the control logic by an inductive sensor (**3**) measuring the distance separating it from the crank (**5**) (which has a spiral form on the crankshaft.

A preloaded balance spring (**11**) assists the geared motor both for opening and closing the obstacle.

In the event of a power failure, an intrinsic mechanical device ensures the automatic opening of obstacles. This device consists of a compressible mechanical rubber stop (**4**) and is assisted by the balance spring(s).

As an option, an electromagnetic locking system (**7**) makes it possible, in the event of a power failure, to block the crank in order to lock the obstacle in the open position (obstacle completely retracted into the body).

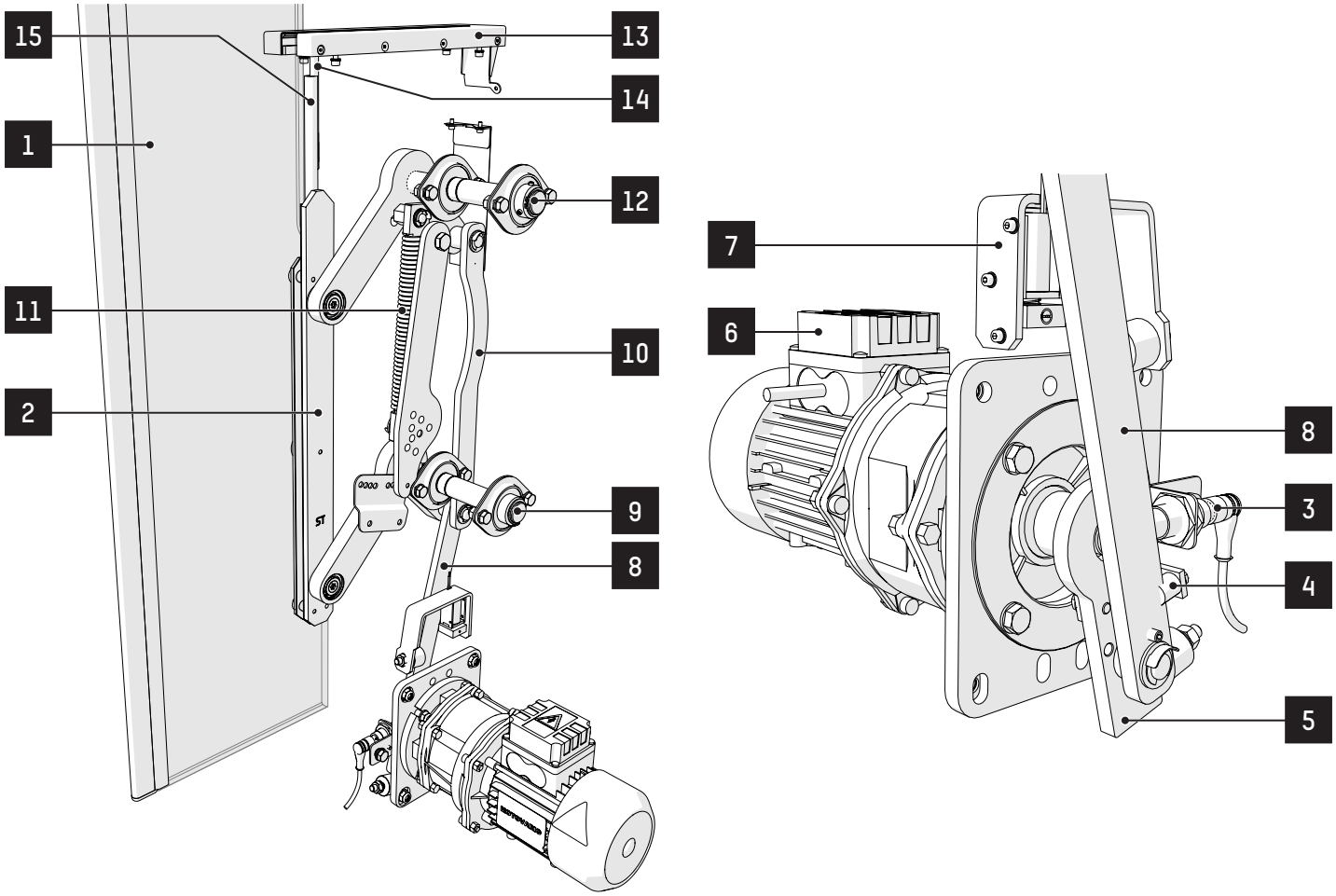


Fig. 47 - Transmission of motion

6.4. MOBILE OBSTACLE

The passage obstacle consists of two (2) mobile obstacles (⇨ Fig. **1**, Chap. 4.7) that slide completely into the cabinet in the open position, leaving the lane completely free.

To exclude any 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 by the 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 cabinet are reduced to a minimum to prevent fingers being caught and unwanted objects ending up inside the cabinet.

6.5. FIXED OBSTACLE

The purpose of the fixed obstacle is to prevent the passage over the cabinet of the gate and contributes to the overall aesthetics of the lane by ensuring the visual continuity of the obstacles.

As soon as the height of the mobile obstacles is equal to or greater than 1200 mm (in relation to the floor), the gate shall always be equipped with corresponding mobile obstacles.

The latter shall always be equipped with a detection system (individual cell or DIRAS cell) to increase the safety of the user when passing through the obstacle area.

The fixed obstacle is located:

- After the moving obstacle in direction A ⇨ B for the right-hand gate;
- Between the moving obstacles for the intermediate gate;
- Before the mobile obstacle in direction A ⇨ B for the left gate.

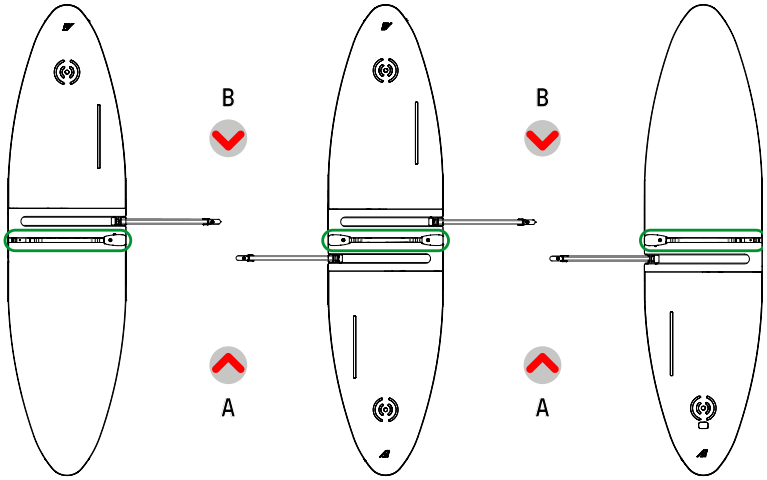


Fig. 48- Location of fixed obstacle(s)

7. OPERATION

7.1. POWERED OPERATION MODE

When idle, in controlled mode, the dynamic status light is blue and the dynamic orientation light is green. (⇨ Chap. 6.1, page 39)

When the control logic managing the gate receives a request for passage (caused by masking the first cells, a pushbutton, a reader, a console, etc.) it opens the obstacles if the passage authorization conditions are met (⇨ Chap. 7.4, page 47).

As soon as the passage is authorized, the dynamic status light changes to green, the obstacles open and a time interval is set, corresponding to the time during which the passage is authorized. At the end of this,

- Either the passage has not been started. The authorization is then cancelled and the gate returns to the idle status (obstacles closed or open, according to the defined configuration. (⇨ Maintenance Interface ▶ Configuration ▶ Mode configuration ▶ Operating mode)
- Or the passage is in progress and the program controls whether it is carried out without breach (⇨ Chap. 7.12, page 49) and that the user leaves the corridor.

Before closing the obstacles again, the program makes sure that no-one is still in front of the obstacles.

7.2. OBSTACLES IDLE STATUS

When idle, the obstacles may be in one of the following statuses:

- **NC** (Normally Closed) = default mode: When idle, the obstacles are in the closed position and open upon receipt of 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 any intrusion into the secured zone.
- **NO** = Normally Open: When idle, the obstacles are in the open position. The obstacles only close if a user attempts to pass through without authorization. In this case, too, audible and visual alarms are activated.
- **Optical** = Lane in free access mode: 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.
- **Locked closed** = The obstacles are blocked in a closed position, prohibiting any passage in both directions.

The status of the obstacles when idle is defined in the Maintenance Interface ▶ Configuration ▶ Mode configuration ▶ Operating mode.

7.3. OPERATING MODE BY DIRECTION OF PASSAGE

Except in the event of technical fault or evacuation (when the lane is automatically configured), the 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. In this mode, breaches are detected.
- **Locked**: no pedestrian may pass through the lane in the corresponding direction.

7.4. PASSAGE AUTHORIZATIONS

The passage authorization must be sent to one of the inputs (E4 - E5) of the AS1605 circuit board or to one of the inputs (E13 - E14) of the AS1603 circuit board (Electrical Technical File).

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

7.5. EVACUATION MODE

When the **evacuation** 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, except in the event of crawling detection (several trolley detection cells are obstructed upstream and downstream of moving obstacles), so as not to injure the user.

It is triggered:

- Via an external contact (input E5, CN19 of the AS1603 circuit board or input E8, CN11 of the AS1605 circuit board) and is active as long as the input is active;
- Via the optional supervision panel;
- Via the optional SmartTouch or/and Smart & Slim.

7.6. POWER FAILURE

The operating mode in the event of a power failure is one of the following, regardless of the operating mode under power:

- As standard: once the motor is no longer powered, the obstacle is released via an intrinsic mechanical device and opens to completely clear the passage. If the obstacle has not completely cleared the passage, it can be manually pushed back into the bodywork.
- With the locking solenoid option, it is possible to lock the obstacle in its end open position to ensure that the passageway is completely free.

7.7. TECHNICAL FAULT

Technical faults are signalled on the Maintenance Interface, and are listed in the “Troubleshooting” chapter.

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

7.8. OBSTACLE LOCK

The obstacle is locked in its end positions by means of a connecting rod/crank system.

7.9. ANALOG INDUCTIVE POSITION SENSOR

An analog inductive sensor coupled to the gearmotor via the crank handle gives the exact position of the obstacle at any time.

7.10. SAFETY DEVICES

One safety input for connection of a safety cell, inductive loop, etc. is provided on the I/O circuit boards (AS1603 and AS1605).

7.11. PROPER USE

1. Before using a SmartLane security entrance lane, the user should always check the status of the lane:
   - If the dynamic status light is blue and the dynamic orientation light is green, the user must present their card and wait for the dynamic status light to turn green before entering the lane.
   - If both the dynamic status light and orientation light are green, the user is authorized to cross the lane.
   - If the dynamic status and orientation lights are both red, the user must stay outside the lane and wait for the dynamic lights to return to one of the previous statuses.
2. Once the user receives permission to enter the lane, they must present their card (if required) and quickly cross the lane.
3. The following user must repeat steps 1 and 2.

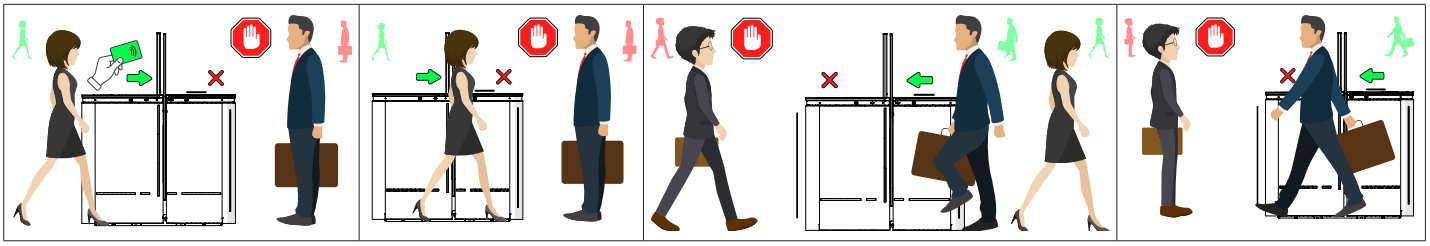


Fig. 49 - Proper use

7.12. BREACHES

Breaches are abnormal (unauthorized) movements in a lane.

They are only generated in automatic mode ("**OPTIONS**" ⇨ "**Operation**" menu) and are divided into two categories:

- Intrusions: breaches without crossing the obstacle,
- Fraud: breaches with crossing the obstacle.

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

When a breach is detected:

- The obstacle is closed again, in so far as there is no-one in front of the safety cells (xx6 and xx7),
- The buzzer sounds if it has been activated (it is continuous for an intrusion and intermittent for a fraud),
- Dynamic function and orientation lights turn red,
- After the cause of the breach has been removed, the latter is maintained for approximately 1 s (can be set via the maintenance interface) so as to also be able to sound the alert in the event of fast breaches.

The gate then returns to the status it was in before the intrusion (in particular the memorized requests for passage remain).

The ranges of cells mentioned for the intrusions below are those defined for a standard gate. However, they can be set differently via the maintenance interface.

The breaches are defined in the examples below for direction A but are also valid for direction B.

7.12.1. "WHEN IDLE" BREACH

When the gate is at rest, a breach is detected as soon as the cells configured for this purpose are obstructed and no permission to pass has been granted.

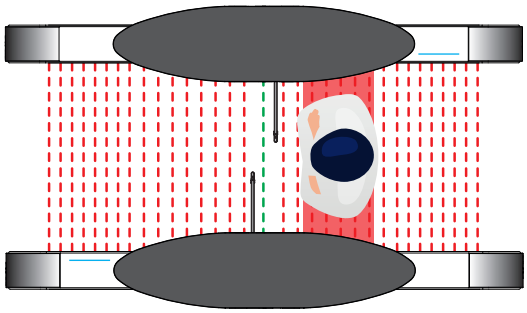


Fig. 50 - "When idle" Breach

The **Pre-alarm interval** is activated to allow time for the user to request permission to pass.
At the end of this time, the buzzer sounds.

In this mode, no fraud is possible, as the movable glass obstacles remain closed until the protection zone is released and a passage authorization is granted.

7.12.2. "WRONG WAY" BREACH

The intrusion is declared when a person is detected in a direction while a passage in the other direction is in progress, except in the particular case of an operation in control mode in one direction and free in the other, where by default, a passage in the free direction does not generate an intrusion when a passage in the control direction is in progress.

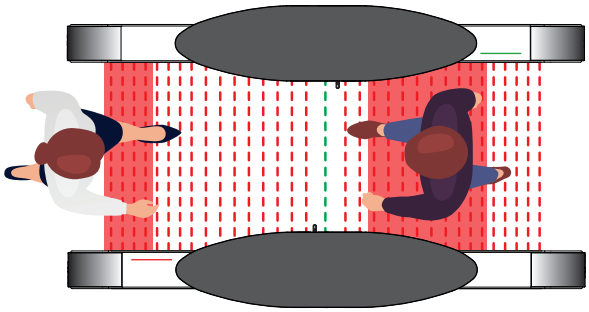


Fig. 51 - "Wrong way" breach

7.12.3. "TAILGATING AFTER AUTHORIZED PASSAGE" BREACH

After the obstacles have been passed by an authorized person, detection by the cells configured for this purpose of another person following in the same direction and without authorization triggers a breach.

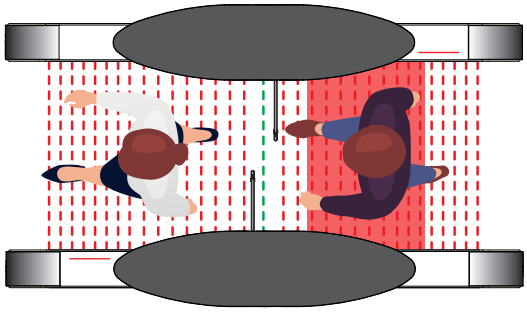


Fig. 52 - "Tailgating after authorized passage" breach

7.12.4. "TAILGATING BEFORE AUTHORIZED PASSAGE" BREACH

This breach is declared when, among the groups of cells, two (2) groups are activated and separated by at least one free cell.

Considering the number of cells involved, this detection is only possible for a gate with an extension.

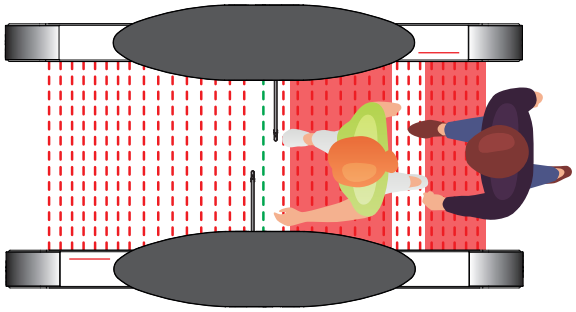


Fig. 53 - "Tailgating before authorized passage" breach

A user carrying luggage must therefore carry them with him or her in order to mask one group of cells at the same time and to avoid being declared in breach.

7.12.5. "GROUPING BEFORE AUTHORIZED PASSAGE" BREACH

This breach is declared when several consecutive groups of cells are activated.

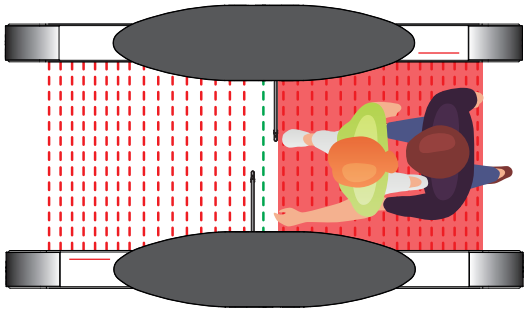


Fig. 54 - "Grouping before authorized passage" breach

This intrusion will also be declared when the user carries bulky luggage with them.

7.12.6. "SECURITY ZONE" BREACH

A presence in the opening security zone prevents the opening of obstacles if they are closed.

A presence in the closing security zone prevents the obstacles from closing if they are open.

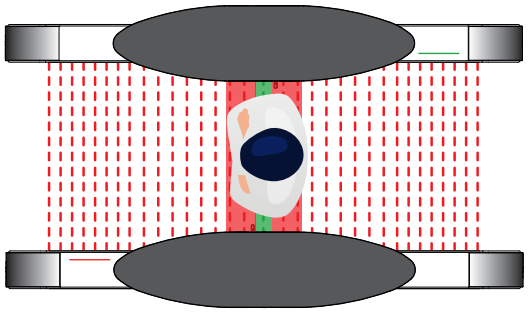


Fig. 55 - "Security zone" breach

7.12.7. "STOLEN TICKET" BREACH

This breach is declared when a presence is detected before a group of cells at the time passage authorization is requested.

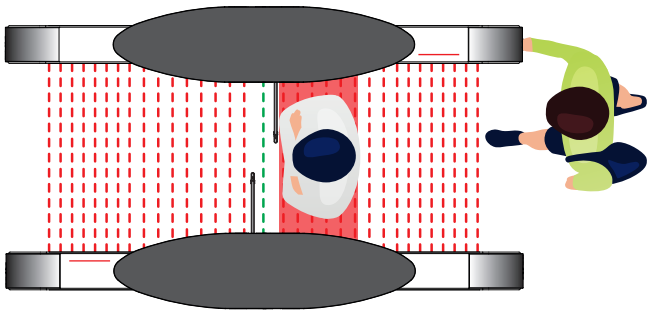


Fig. 56 - "Stolen ticket" breach

7.12.8. "OBSTACLE PREVENTED FROM CLOSING" BREACH

The breach is declared when the obstacle does not reach its end closing position after five (5) attempts (⇨Maintenance Interface), and this is the case during two (2) consecutive closing sequences (⇨ Maintenance Interface).

7.12.9. "OBSTACLE PREVENTED FROM OPENING" BREACH

The breach is declared when the obstacle does not reach its end opening position during two (2) consecutive opening sequences (⇨ Maintenance Interface),

8. MAINTENANCE

ALL MAINTENANCE WORK ON THE EQUIPMENT MUST BE CARRIED OUT IN ACCORDANCE WITH THE REQUIREMENTS IN THE SAFETY WARNINGS: ⇨ CHAP. 2, PAGE 8.
THE GROUND WIRES MUST INTERCONNECT ALL MOVING METALLIC PARTS (NOT BOLTED TO THE FRAME). SPECIAL ATTENTION SHOULD BE PAID DURING DISASSEMBLY OF THESE ELEMENTS SO AS NOT TO DAMAGE THESE WIRES. 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 TIGHTENING 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

Fig. 57 - Tightening torque

8.3. SWITCHING THE EQUIPMENT ON/OFF

8.3.1. REMOVING THE SIDE PANEL ON THE RIGHT - DIRECTION A

The following procedure is identical for all panels.

For an end panel, it is necessary to operate both locks to unlock the panel.

1. Insert the key(s) into the lock(s) located in the band above the panel and turn counter-clockwise (90°) to unlock; (⇨ Fig. 58)
2. Tilt the panel slightly towards you and pull it upwards without tearing the ground strap;
3. Unplug the ground strap.
4. Place the panel in a safe place, out of the way, so that it cannot be damaged.

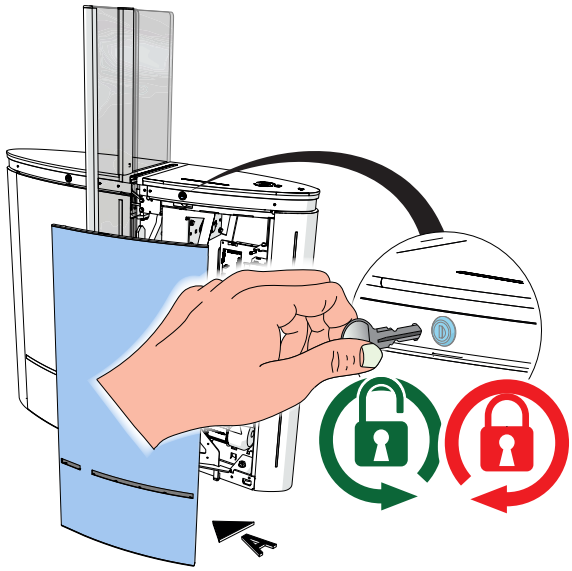


Fig. 58 - Right side panel removal - side A

8.3.2. POWER OFF

Remove the right side panel - side A / direction A, as described in the previous chapter (⇨ Chap. 8.3.1), and turn the main circuit breaker to **OFF**.

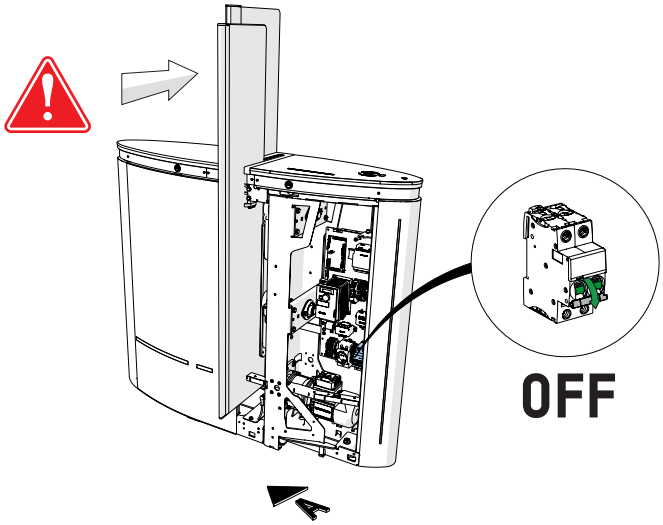


Fig. 59 - Power off

IF THE MOBILE OBSTACLES ARE IN THE CLOSED POSITION WHEN THE POWER IS SWITCHED OFF, THEY WILL OPEN AND RETRACT INTO THE CABINET, FREEING THE WAY!

8.3.3. POWER ON

Set the main circuit breaker to **ON.**

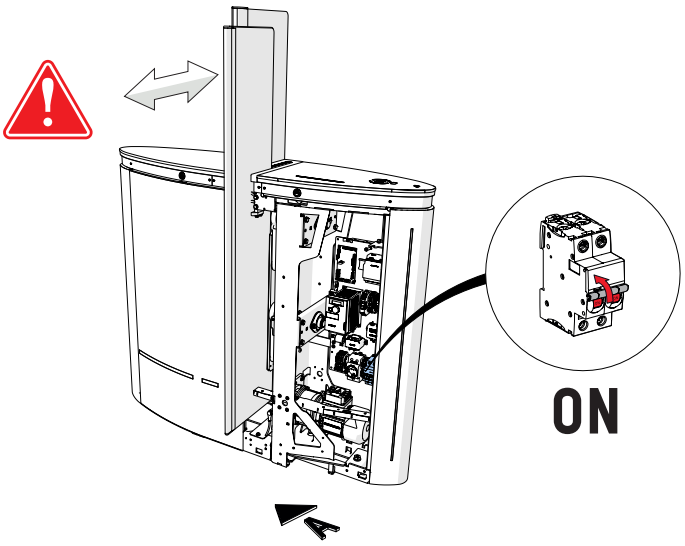


Fig. 60 - Power on

THE OBSTACLES WILL START MOVING (INITIALISATION PHASE) IN ORDER TO DEFINE THE EXTREME OPENING AND CLOSING POSITIONS!

During the restart phase, the dynamic status light is off and the dynamic orientation light is solid red.[12]

When the restart phase is over, the dynamic status light is blue and the dynamic orientation light is green.[12]

Once the cycle is complete, replace the right side panel - side A (⇨ Chap. 8.6, page 57).

8.4. ADJUSTING THE OBSTACLE CLOSING POINT

In its initialisation phase, the device will automatically search for the obstacle's opening and closing end points.

If, however, it is found that the mobile obstacle does not reach its opening and/or closing limits, please consult the Maintenance Interface manual.

12 Standard programming.

8.5. LOCKING THE MOBILE OBSTACLE IN THE OPEN/CLOSED POSITION

Set of Allen keys.

In order to increase the safety of the technician during the various maintenance operations, a device for locking the obstacle is integrated in the gate.

To enable this device, mobile obstacle in open and closed position:

1. Unlock the system by removing the screw (**2**), the fan washer (**3**) and the flat washer (**4**);

DO NOT TOUCH THE SCREW (A) AS IT IS FACTORY FITTED WITH A LOCK NUT, ALL ADJUSTED WITH A SUITABLE TIGHTENING!

2. Manually move the obstacle to the open or closed position;
3. Rotate the locking plate (**1**) 90° around the screw (**A**) in an anti-clockwise direction and position it under the mobile obstacle to prevent it from moving.
   In the same movement, the rear part of the blocking plate obstructs the passage of the side panel, preventing the panel from being inserted when the locking device is active.

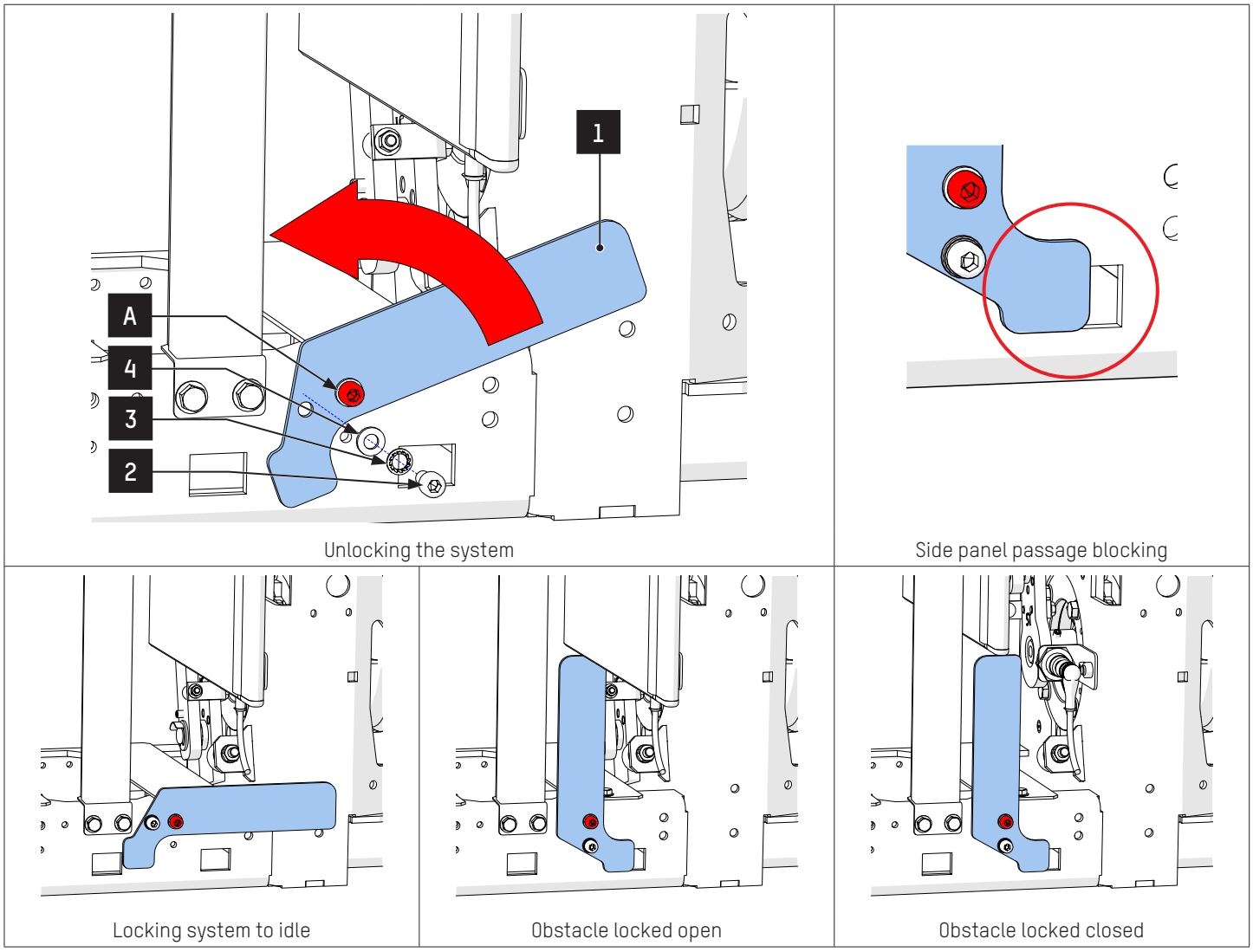


Fig. 61 - Locking/unlocking of the mobile obstacle

8.6. FITTING A PANEL (SIDE OR END)

The procedure is identical for all panels.

For an end panel, it is necessary to operate both locks to unlock the panel.

1. Tilt the panel slightly and align the lower panel fixing tabs **(A)** with the corresponding slots in the frame (**A'**);
2. Once the tabs are inserted in the slots, press the panel against the frame, making sure that the upper locking tab (**B**) is correctly positioned in the corresponding slot in the frame (**B'**).
3. Lock the panel by turning the lock(s) clockwise (90°).

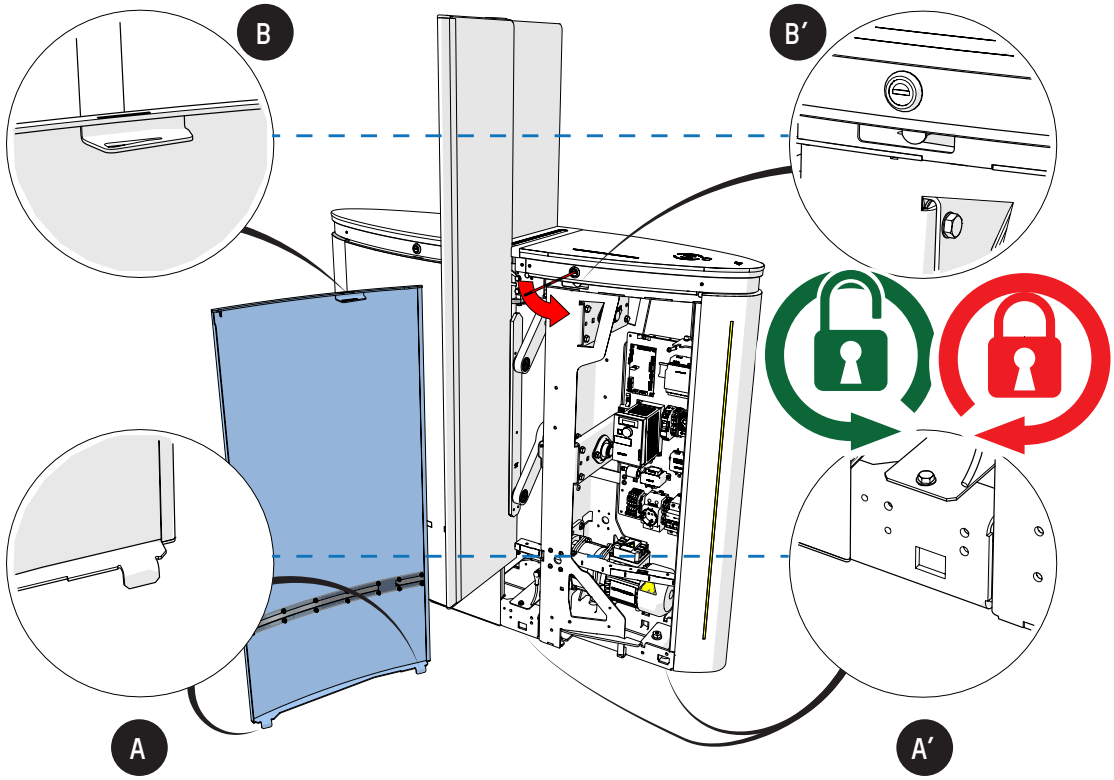


Fig. 62 - Installing a panel

8.7. REMOVING THE FIXED OBSTACLE

Flat spanner or 10 mm ratchet.

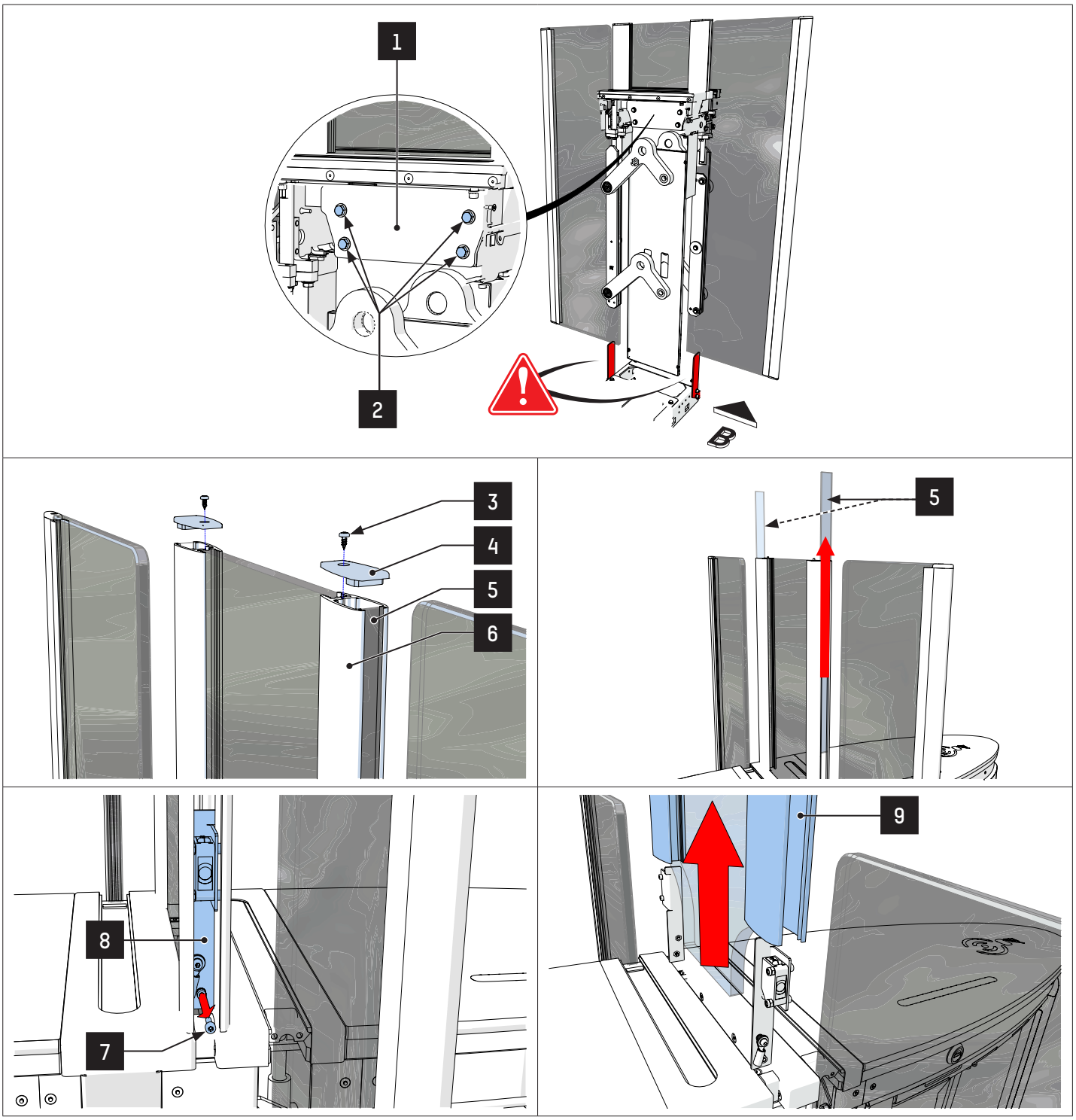


Fig. 63 - Removing the fixed obstacle

The number of fixing screws (**2**) depends on the width of the obstacle.

The items below refer to the Fig. 63 of the previous page.

1. Turn off the power supply to the equipment (⇨ Chap. 8.3, page 54).
2. Then remove the right side panel - side B (⇨ Chap. 8.3.1, page 54).

In the case of a left-hand gate, after switching off the corridor via the right-hand gate, remove the left-hand side panels - side A and B.

In the case of an intermediate gate, after also switching off the right-hand lane via the right-hand gate, remove the remaining panels.

3. Lock the obstacle(s) in the open position (⇨ Chap. 8.5, page 56)
4. If the fixed obstacle is equipped with one or more aluminium profiles with security cell(s):
   - For each aluminium profile, unscrew the fixing screw (**3**) from the top cap (**4**) and remove the protective screen (**5**) by sliding it into the profile (**6**) ;

Security profile(s) with DIRAS cell:

- Disconnect the cable connecting the DIRAS electronic board to the equipment.

Safety profile(s) with REFLEX sensor:

- Unscrew the fixing screw (**7**) of the cell support (**8**) so as to disconnect the cell assembly from the fixed obstacle (**9**).

5. Loosen, but do not unscrew, the fixing screws (**2**) holding the fixed obstacle in (**9**) the clamp (**1**);
6. Pull the fixed obstacle upwards and place it in a safe position.

In the case of a fixed obstacle with a retro-reflective sensor, this will remain in place once the mobile obstacle has been removed.

8.8. INSTALLING A FIXED OBSTACLE (AFTER POSSIBLE REPLACEMENT)

If the obstacle that has been replaced was equipped with a DIRAS cell, retrieve it from the old obstacle and install it in the new one.

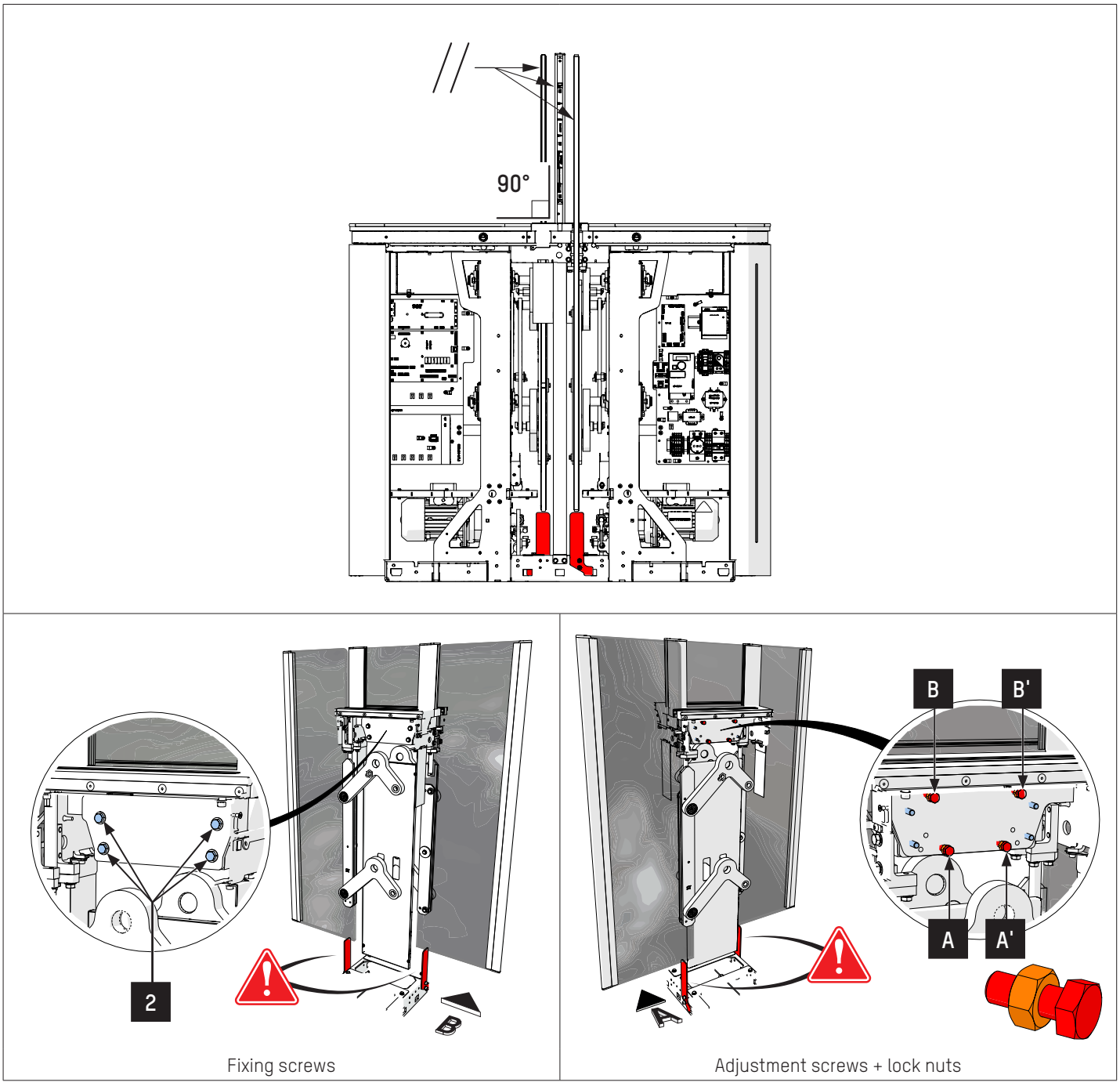
If the obstacle that was replaced was equipped with a REFLEX cell, position the cell assembly correctly in the profile when installing the obstacle.

1. Install a new strip of crepe paper on the lower part in contact with the clamp (**1**);
2. Insert the fixed obstacle until it rests on the plate and/or the flap guide;
3. Tighten the screws (**2**);
4. Reconnect the DIRAS cell or fix the REFLEX cell support in the aluminium profile;
5. Adjust the position of the fixed obstacle (⇨ Chap. 8.9, page 60);
6. Unlock the mobile obstacle(s);
7. Replace the side panels with the exception of the side panel - side A giving access to the power board;
8. Switch on the gate and wait for the end of the initialisation phase;
9. Check the status of the gate via the maintenance interface and mainly the status of the fixed obstacle cell. If necessary, adjust the REFLEX cell (⇨ Chap. 8.22, page 76);
10. Switch the device off again and fit the protective screen (**5**) into the aluminium profile, finishing by fitting the plug;
11. Turn on the power supply to the device;
12. Replace the right side panel - side A.

8.9. ADJUSTING THE FIXED OBSTACLE

The integrated adjustment system makes it possible to adjust:

- The perpendicularity of the fixed obstacle in relation to the unit shelves.
- And/or the parallelism of the fixed obstacle in relation to the mobile obstacles.



Fixing screws

Adjustment screws + lock nuts

Fig. 64 - Adjusting the fixed obstacle

1. Switch off the unit (⇨ Chap. 8.3, page 54) and remove all side panels;
2. Lock the mobile obstacle(s) in the open position (⇨ Chap. 8.5, page 56)

3. If the top of the fixed glass panel is to be moved to side **A**:
   - On **side B**, unlock, but do not unscrew , the fixing screws (**2**) holding the obstacle in the clamp (**1**);
   - Slightly tighten the two (2) set screws **A** and **A'** on **side A**, to straighten the obstacle towards **side A** .
   - Tighten the fixing screws (**2**) on **side B** and check the parallelism between the fixed obstacle and the mobile obstacle.

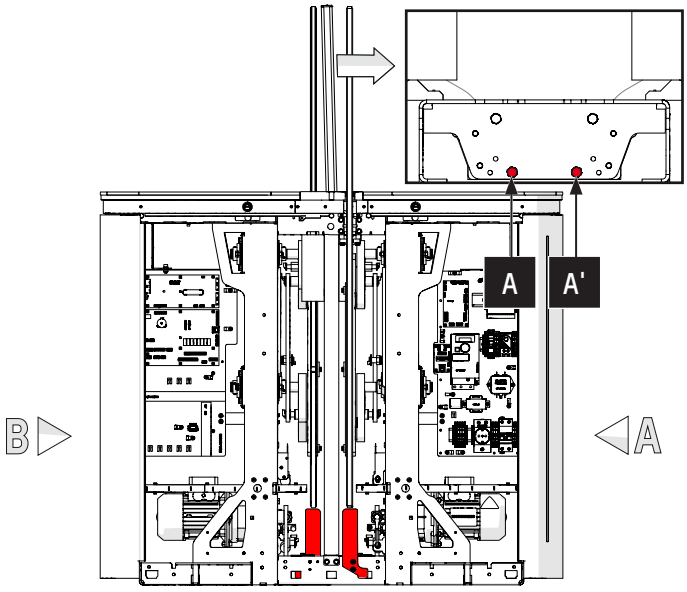


Fig. 65 - Straightening the mobile obstacle (To side A)

   - Lock the positioning of the fixed obstacle by securing the corresponding locknuts.

4. If the top of the fixed glass panel is to be moved to side **B**:
   - On **side B**, unlock, but do not unscrew , the fixing screws (**2**) holding the obstacle in the clamp (**1**);
   - Slightly tighten the two (2) set screws **B** and **B'** on **side B**, to straighten the obstacle towards **side B** .
   - Tighten the fixing screws (**2**) on side B and check the parallelism between the fixed obstacle and the mobile obstacle.

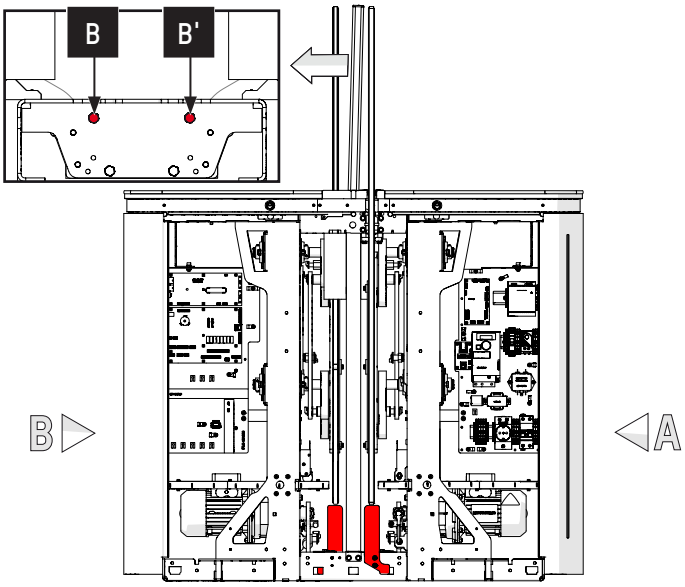


Fig. 66 - Straightening the mobile obstacle (To side A)

   - Lock the positioning of the fixed obstacle by securing the corresponding locknuts.

When installing the fixed glass panel for the first time (without prior adjustment), first check the adjustment of the fixed glass panel with the screws **A**, **A'**, **B** and **B'**unpressurised (loose) and with the screws (**2**) tightened.

8.10. REMOVAL / INSTALLATION OF THE MOBILE OBSTACLE

Ratchet wrench with extension and 17 socket + Circlip pliers + Allen key set.

Depending on the size of the obstacle, a second person may be required to safely perform this operation.

1. Switch off the equipment (⇨ Chap. 8.3, page 54);
2. Then remove the side panel(s) on either side of the movable obstacle to be replaced (⇨ Chap. 8.3.1);
3. As the mobile obstacle has opened and fully retracted into the body, pull the obstacle forward so as to align one of the crank locking holes [13] (**B**) with the one on the lower connecting rod. Screw in the stainless steel set screw (**C**) until it is sufficiently tight in the crank hole.
   This will allow you to work without the risk of the mechanism moving and the baseboard will be correctly positioned, behind the vertical DIRAS detection, making the anchoring points of the mobile obstacle accessible;

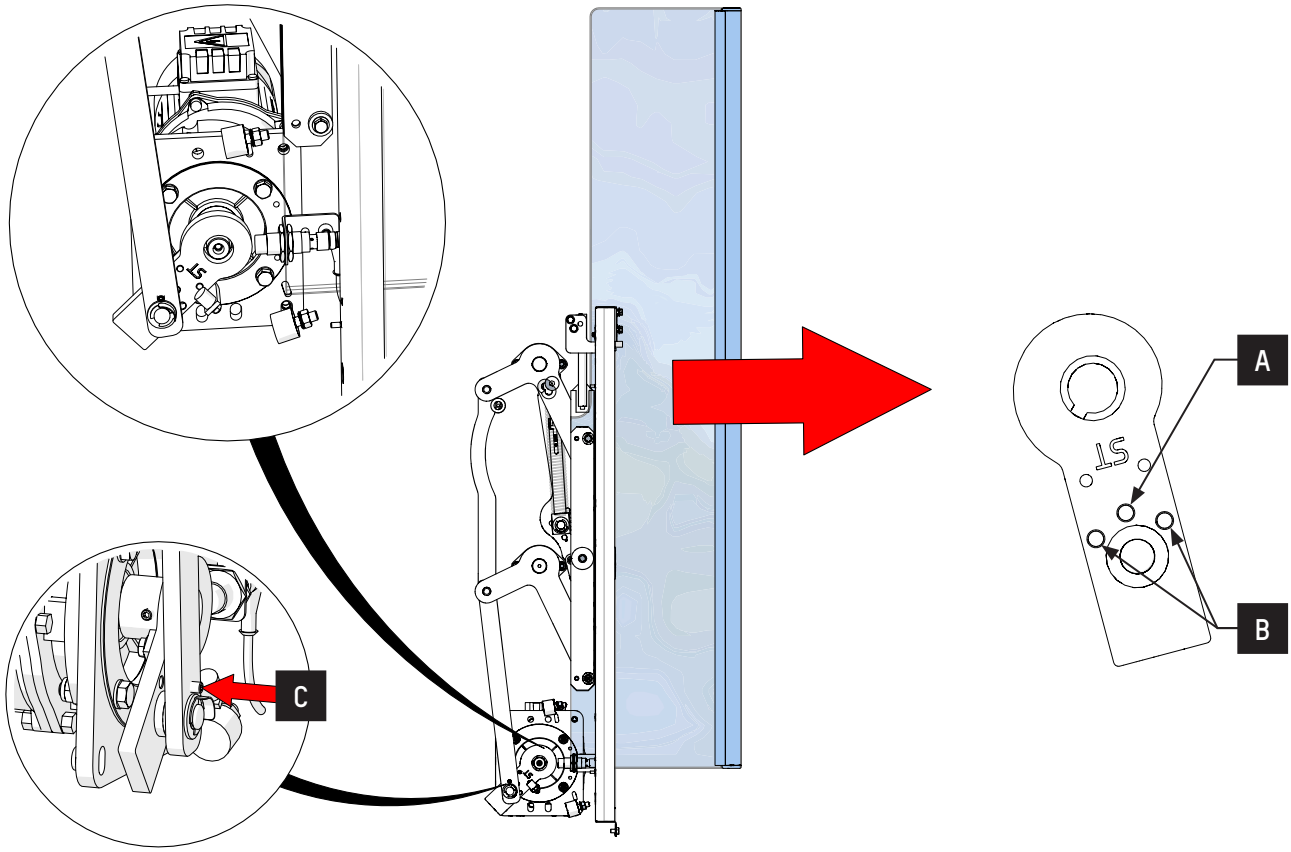


Fig. 67 - Replacing the mobile obstacle

REF.	DESIGNATION
A	Hole for locking the mobile obstacle in the open position
B	Holes for locking the mobile obstacle in the maintenance position
C	Locking screw

13 Depending on the type of mechanism: left or right.

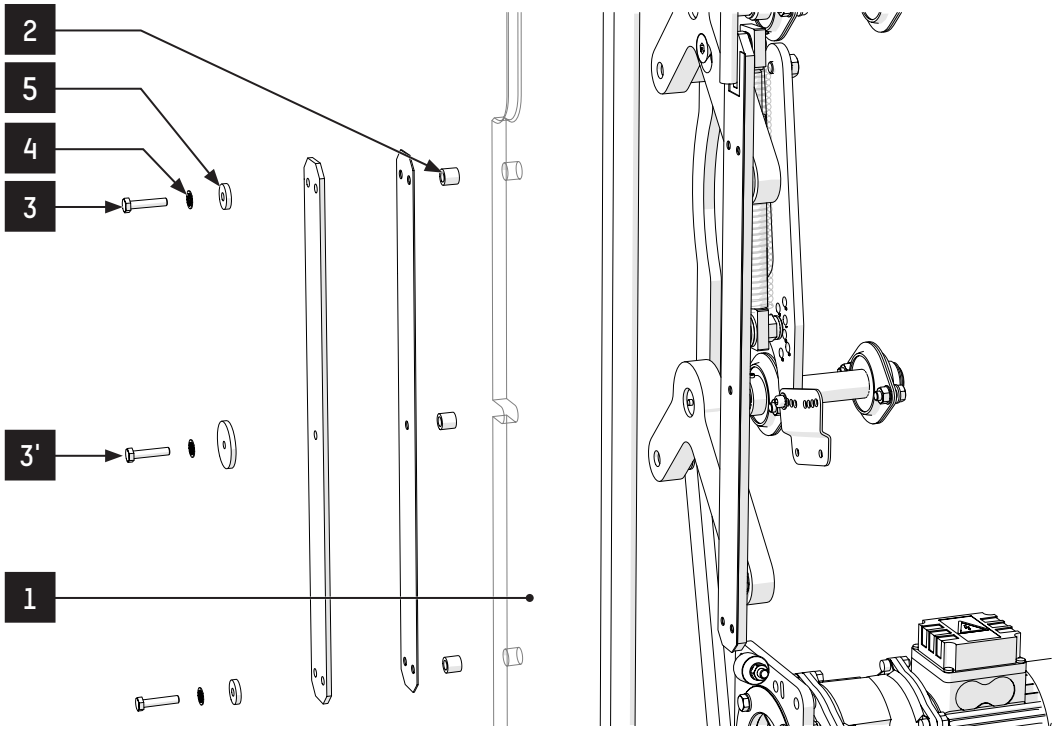


Fig. 68 - Fixing elements for mobile obstacle

4. Loosen screw (**3'**) partially (without removing it);
5. Unscrew the two (2) screws (**3**) completely and remove the associated washers (**4**) and (**5**), taking care to hold the obstacle to prevent it from tipping over;
6. Remove the mobile obstacle (**1**) by bringing it back to the centre of the lane;
7. Place the nozzles (**2**) in the new mobile obstacle and, if necessary, replace the nozzle associated with the screw (**3'**);
8. Insert the new obstacle by resting on the screw **3'** and replace the different elements;
9. Adjust the verticality of the mobile obstacle before finally tightening the three (3) fixing screws (**3**) and (**3'**);
10. Unscrew the locking screw (**C**) to release the kinematics.
11. Replace the panels, keeping the right panel - side A - for the end and taking care to reconnect the various ground braids;
12. Turn on the power supply to the device (⇨ Chap. 8.3, page 54);
13. Replace the right panel - side A once the initialisation has been completed, taking care to reconnect the various ground braids.

8.10.1. INCREASING THE VISIBILITY OF MOBILE OBSTACLES

Fig. 69 - Self-adhesive checkerboard (AUT-E-0007169)

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 hitting them.

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

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

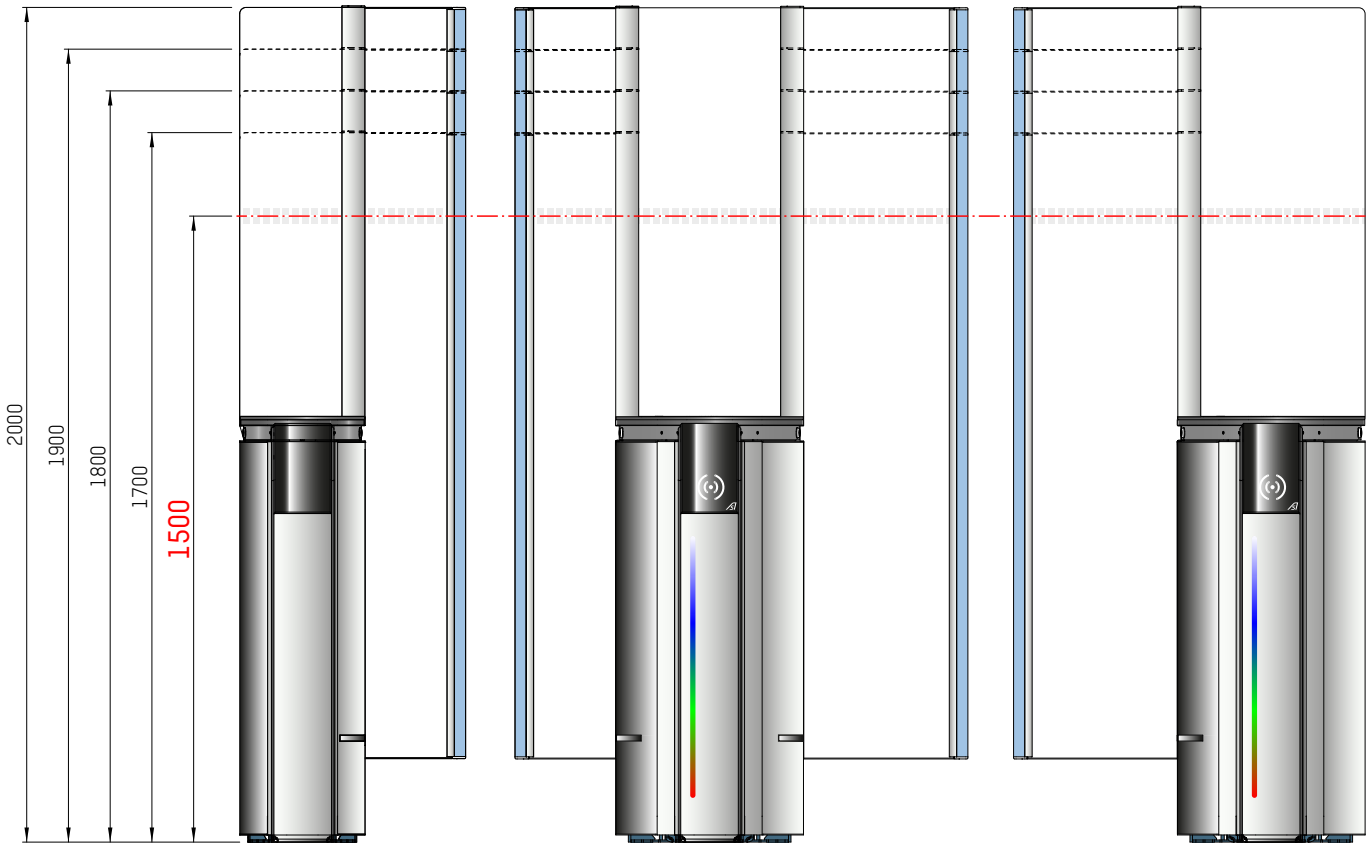


Fig. 70 - Positioning of the checkerboard sticker

8.11. REPLACING THE PROTECTIVE SEAL ON THE MOBILE OBSTACLE

1. Unscrew the Torx screw (**3**) and remove the spacer (**4**) from one of the two (2) plugs (**5**) (located on either side of the protective seal).
2. Pull the protective seal (**2**) out of the aluminium profile (**1**);
3. Spray water into the profile to facilitate the insertion of the new seal;
4. Push the new seal onto the profile;

> The seal is intentionally longer than the profile and must be compressed when inserted into the profile (do not shorten it).

5. Screw the plug back on.

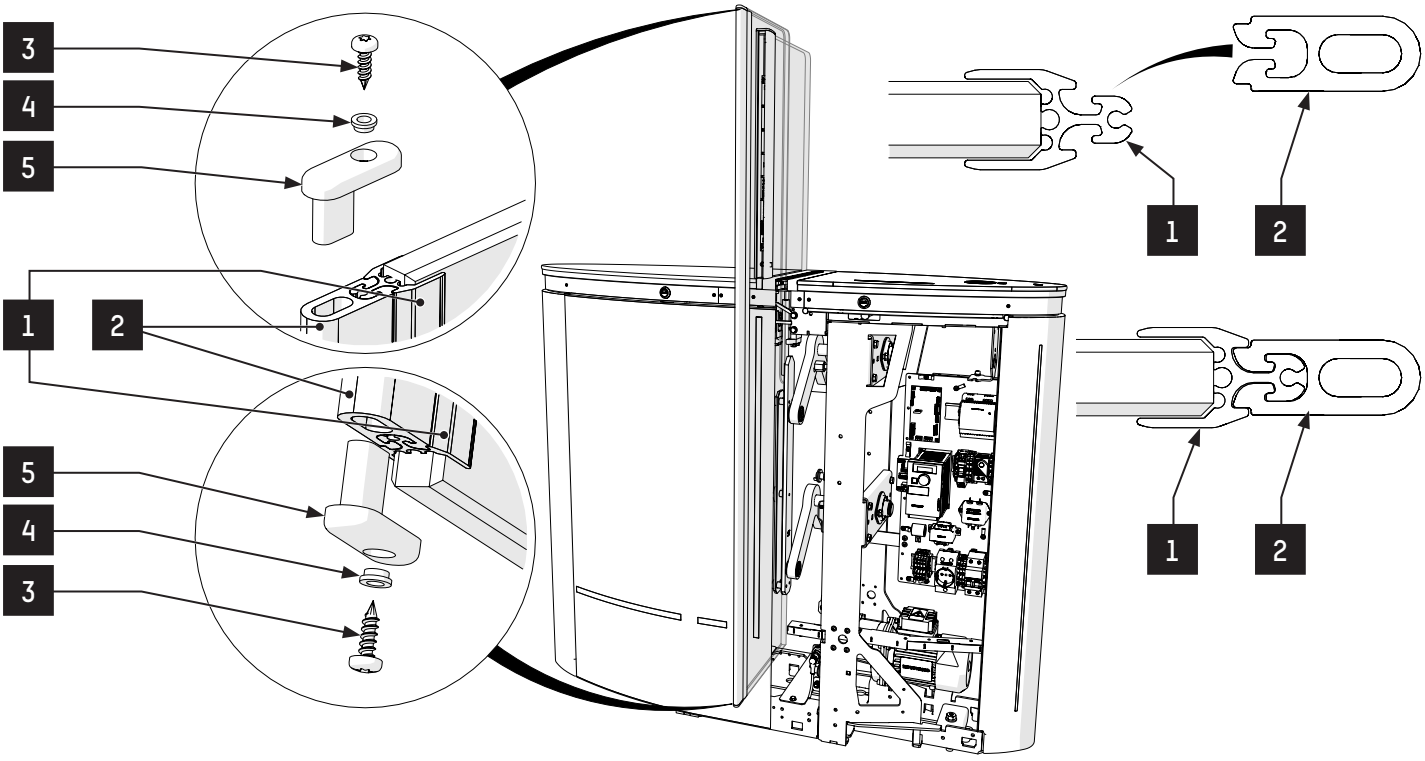


Fig. 71 - Replacing the protective profile

8.12. REMOVAL / INSTALLATION OF THE CLOSING FLAP

1. Switch off the equipment (⇨ Chap. 8.3, page 54);
2. Then remove all side panels (⇨ Chap. 8.3.1, page 54);
3. Lock the relevant kinematics in the maintenance position and remove the relevant mobile obstacle (⇨ Chap. 8.10, page 62);

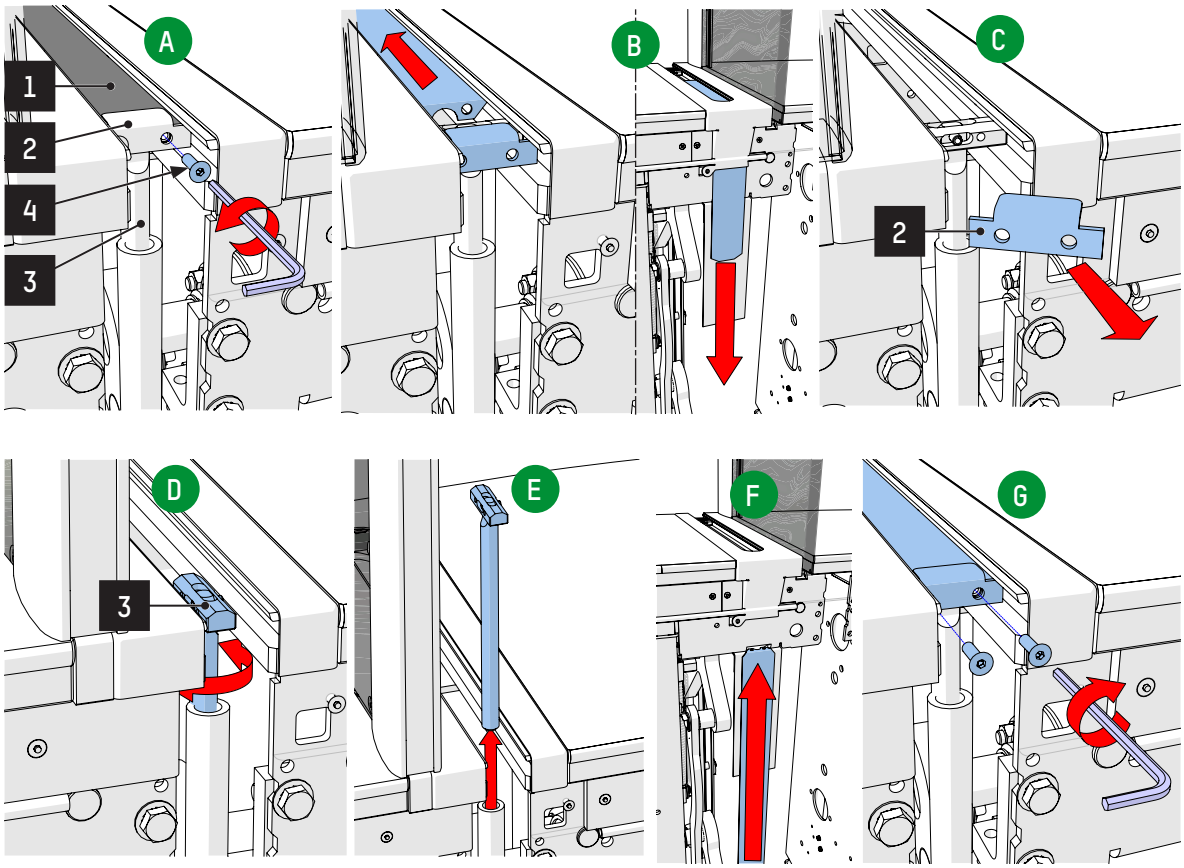


Fig. 72 - Removal / replacement of the closing flap

4. Remove the two fixing screws (**4**) holding the closing flap (**1**) and the clamp (**2**) to the tie rod (**3**); ⇨ [**A**]
5. Slide the closing flap (**1**) backwards and pull it out; ⇨ [**B**]
6. Pull out the fixing clamp (**2**); ⇨ [**C**]
7. Rotate the tie rod (**2**) so that it can be pulled out; ⇨ [**D**] & [**E**]
8. Grease the tie rod and reinstall it, ensuring that it is properly seated in the side guides;
9. Insert the new closing flap from the rear, making sure it is properly seated in the side guides; ⇨ [**F**]
10. Place it between the tie rod and the fixing clamp and fix it (screw **4**)); ⇨ [**G**]
11. Unlock the kinematics and make a few movements to check that the closing flap slides properly;
12. Reinstall the mobile obstacle (⇨ Chap. 8.10, page 62);
13. Reinstall the side panels except for the right side panel - direction A (⇨ Chap. 8.6, page 57)
14. Switch on the unit (⇨ Chap. 8.3, page 54) and replace the right side panel - direction A.

8.13. REMOVING / INSTALLING THE CLOSING FLAP

1. Switch off the equipment (⇨ Chap. 8.3, page 54);
2. Then remove all side panels (⇨ Chap. 8.3.1, page 54);
3. Remove the relevant mobile obstacle (⇨ Chap. 8.10, page 62);
4. Remove the shelf on the side of the guides to be removed / replaced (⇨ Chap. 8.15, page 69);
5. Remove the closing flap (⇨ Chap. 8.12, page 66);

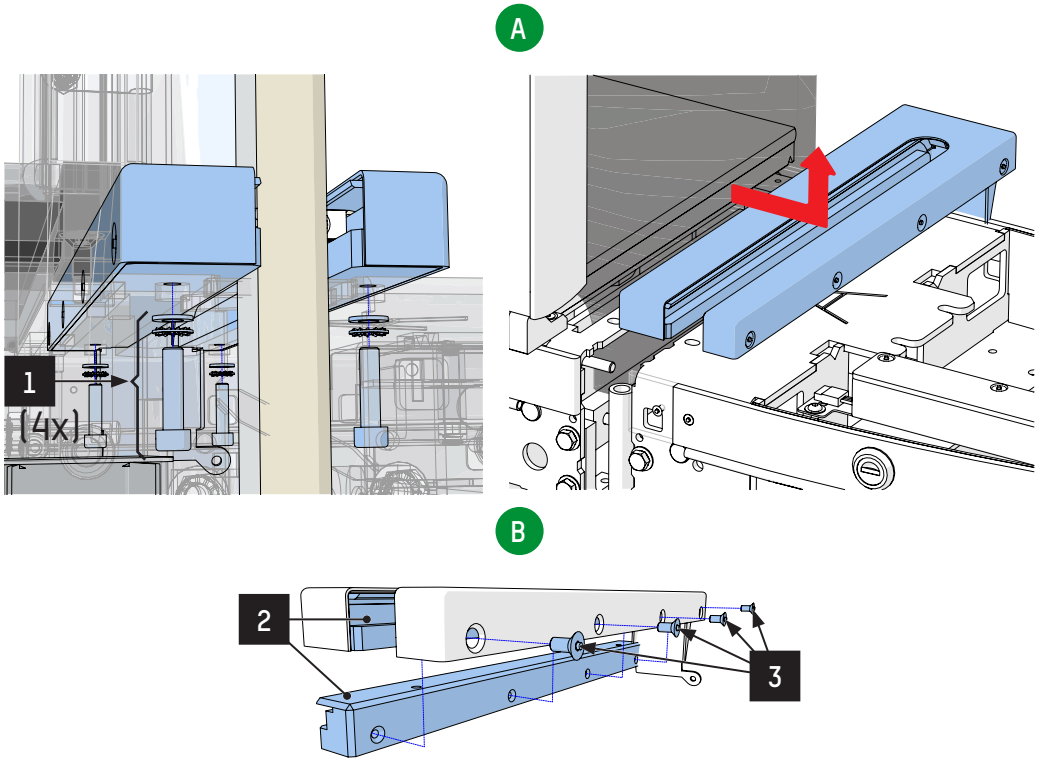


Fig. 73 - Removing / replacing the closing flap guides

6. Remove the fixing elements (**1**) of the guide assembly and slide it under the fixed obstacle before extracting it; ⇨ [**A**]
7. Unscrew the 4 fixing screws (**3**) and remove the used flap guides (**2**); ⇨ [**B**]
8. To reassemble, after replacing the guides, follow the different steps in reverse order.

8.14. ADJUSTING THE POSITION OF THE CLOSING FLAP GUIDE

For ease of installation, the flap guide fixing screws can be pre-mounted on the frame before fitting the flap guide.

1. Switch off the equipment (⇨ Chap. 8.3, page 54).
2. Then remove all side panels (⇨ Chap. 8.3.1, page 54).
3. Lock the relevant kinematics in the closed position (⇨ Chap. 8.5, page 56).
4. Position the flap guide fully in the slit and tighten the 2 fixing screws.

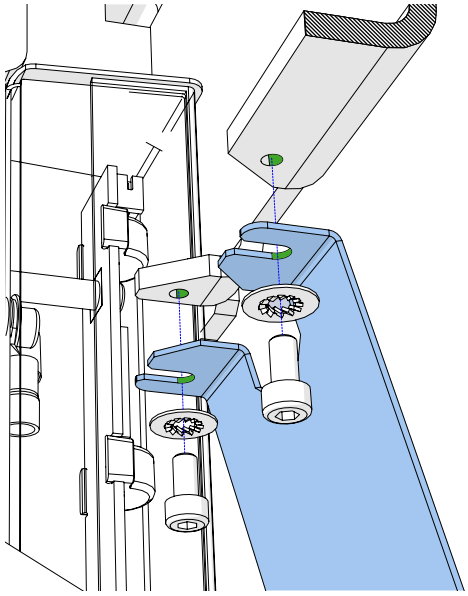


Fig. 74 - Flap guide adjustment (Fixing)

5. When the obstacle is retracted, check that the flap guide is 1mm ±1mm from the baseboard of the kinematics.

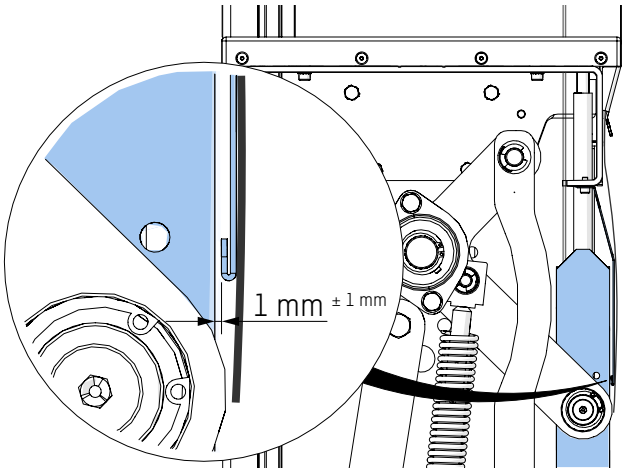


Fig. 75 - Flap guide adjustment (Clearance)

6. If necessary, manually straighten the flap guide to correct the adjustment.

8.15. REMOVING THE COVER PLATE

8.15.1. REMOVING A SHORT PLATE (UNITS WITH HIGH GLASS OBSTACLES)

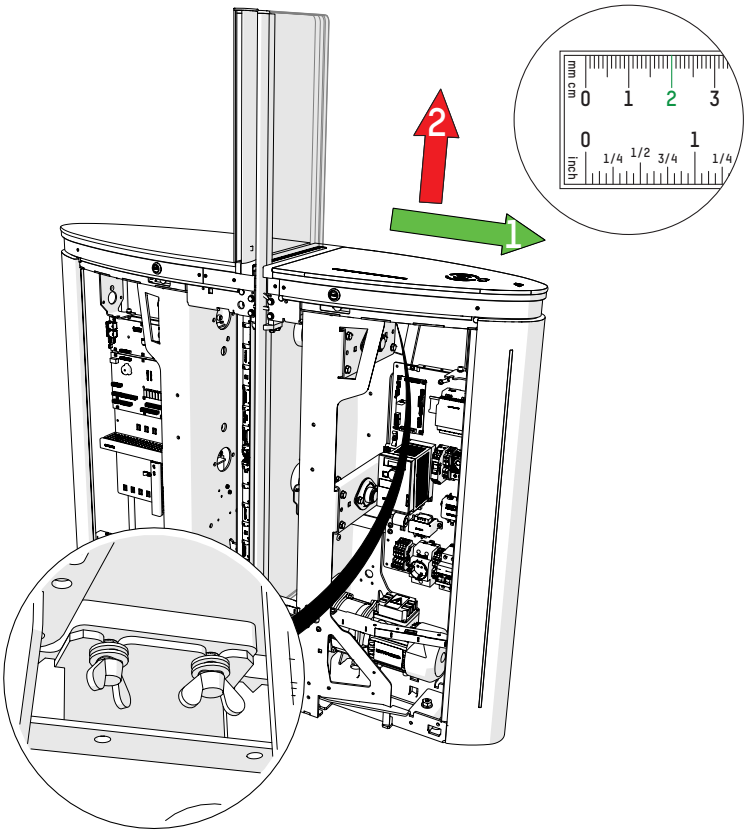


Fig. 76 - Removing a short plate

1. Switch off the device (⇨ Chap. 8.3, page 54) and remove the panel located under the short plate to be removed;
2. Unlock the two (2) butterfly screws, without removing them;
3. Slide the plate ± 20 mm forward (towards the front) and then lift it off.
4. Remove the plate safely.

8.15.2. REMOVING A LONG PLATE (UNITS WITH LOW GLASS OBSTACLES)

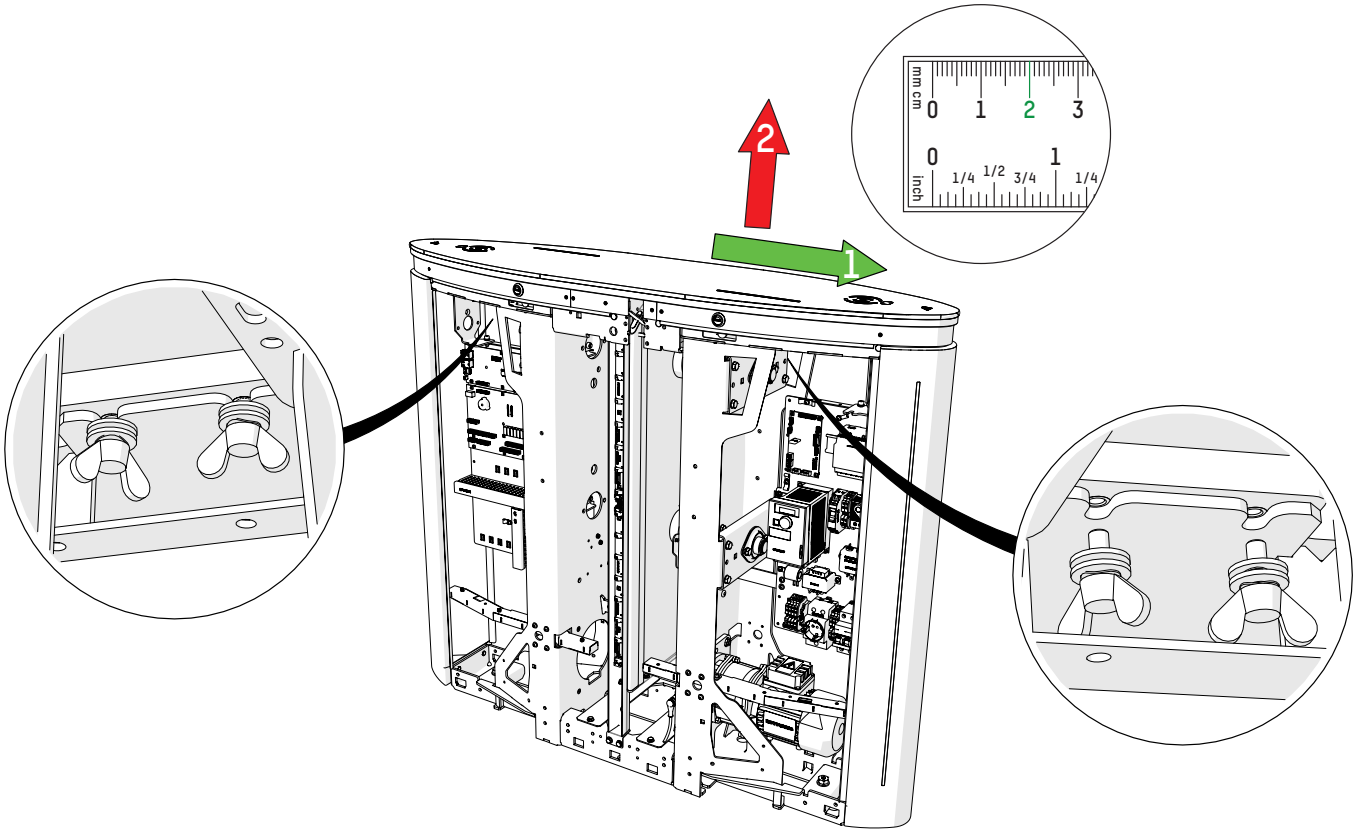


Fig. 77 - Removing a long plate

1. Switch off the device (⇨ Chap. 8.3, page 54) and remove the second panel located under the long plate to be removed;
2. On the one side, remove the two (2) butterfly screws and put them in a safe place so that they can be used later to replace the plate;
3. On the other side, unlock the two (2) butterfly screws, without removing them;
4. Slide the plate ± 20 mm forward (towards the front) and then lift it off.
5. Remove the plate safely.

8.16. INSTALLING THE COVER PLATE

1. Align the plate fixing spacer with the round shape of the slide rail closest to the nose of the gate;
2. Position the plate so that the space between the spacer and the lock nut fits into the channel of the rail;

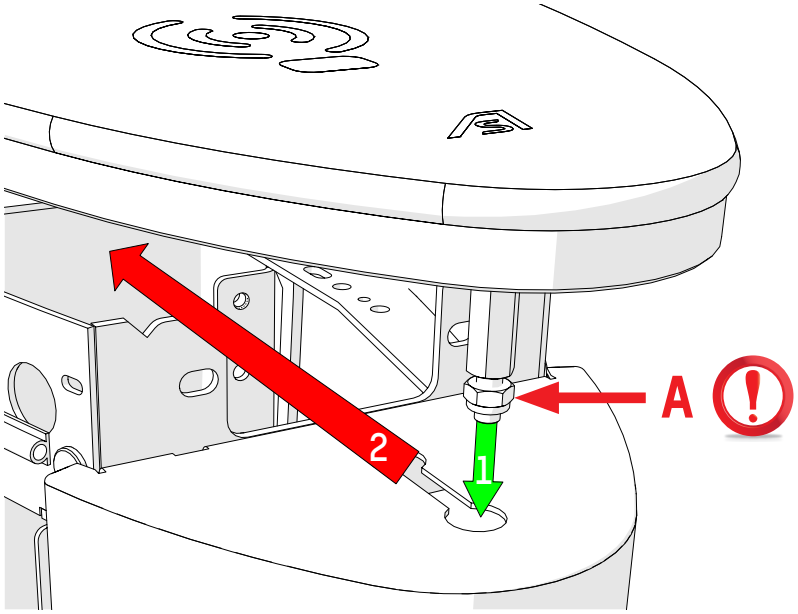


Fig. 78 - Installing the cover plate

3. Slide the cover plate ± 20 mm towards the centre of the gate so that the two (2) butterfly screws are correctly positioned in the slots of the frame. (⇨ Fig. 79)

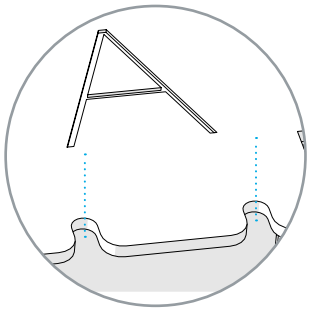


Fig. 79 - Installing the cover plate - Frame fixing points

4. Tighten the two (2) butterfly screws to secure the plate.

For a long plate, also fix the plate on the opposite side with two (2) butterfly screws.

THE NUT A (⇨ FIG. 76) IS SET AT THE FACTORY TO ENSURE THAT THE COVER PLATE IS MOUNTED WITHOUT GAP. PLEASE **DO NOT TIGHTEN THIS NUT** AFTER THE COVER PLATE HAS BEEN INSTALLED, AS THIS MAY DEFORM THE COVER PLATE AND/OR CAUSE IT TO COME OFF.

8.17. REMOVING A HOUSING EXTENSION

1. Turn off the power supply to the device (⇨ Chap. 8.3, page 54);
2. Remove the cover (⇨ Fig. 80) :
   - Insert the key in the lock, located under the horizontal strip of the extension, and turn counter-clockwise;
   - Pull the cover upwards;
   - Place the cover in a safe place, out of the way, so that it cannot be damaged.
3. Remove the front panel of the extension (⇨ Fig. 81):
   - Slightly unscrew the two (2) nuts with integrated lock washers so that the front panel can be removed:
     - o Pull the front panel upwards and out of the extension frame;
     - o Place it in a safe place, out of the way, so that it cannot be damaged.

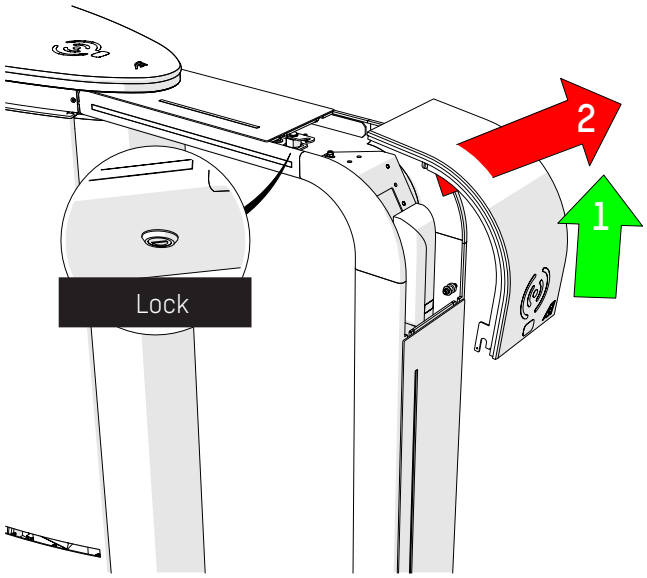


Fig. 80 - Removing the extension cover

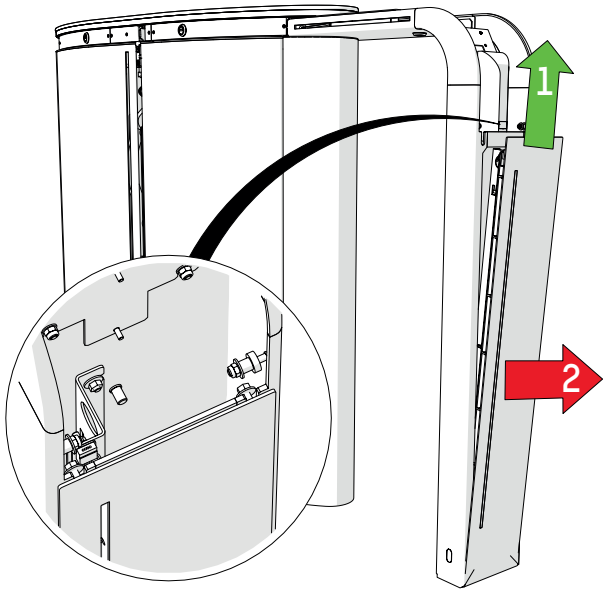


Fig. 81 - Removing the extension front panel

4. Unscrew the two (2) nuts and remove the washers from the two (2) fixing points located in the foot of the extension frame, as shown in detail **A** in the figure below;

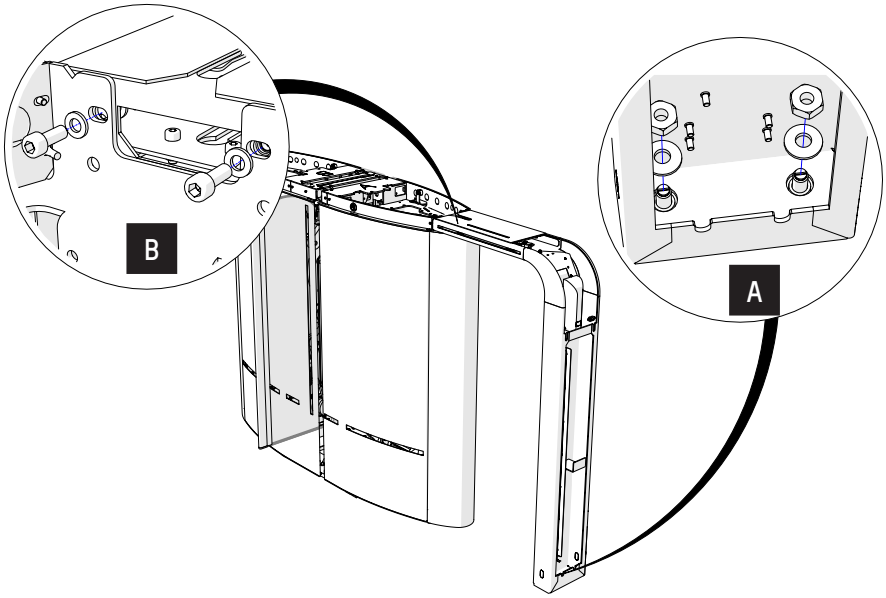


Fig. 82 - Housing extension fixing points

5. Unscrew the two (2) screws, nuts and washers holding the extension to the main frame of the gate at the top, as shown in detail **B** in the figure above;
6. Place the extension in a safe place, out of the way, so that it cannot be damaged.

8.18. REMOVING A HOUSING EXTENSION WITH FILLER STAINLESS STEEL PANELS

1. Remove the right side panel - side A (⇨ Chap. 8.3, page 54);
2. Turn off the power supply to the device (⇨ Chap. 8.3, page 54);
3. Remove the cover (⇨ Fig. 80, page 72):
   - Insert the key in the lock, located under the horizontal strip of the extension, and turn counter-clockwise;
   - Pull the cover upwards;
   - Place the cover in a safe place, out of the way, so that it cannot be damaged.
4. Remove the front panel of the extension (⇨ Fig. 81, page 72):
   - Slightly unscrew the two (2) nuts with integrated lock washers so that the front panel can be removed:
     - o Pull the front panel upwards and out of the extension frame;
     - o Place it in a safe place, out of the way, so that it cannot be damaged.
5. Unscrew the two nuts and remove the washers from the two (2) fixing points located in the foot of the extension frame, as shown in detail **A** in the figure below;

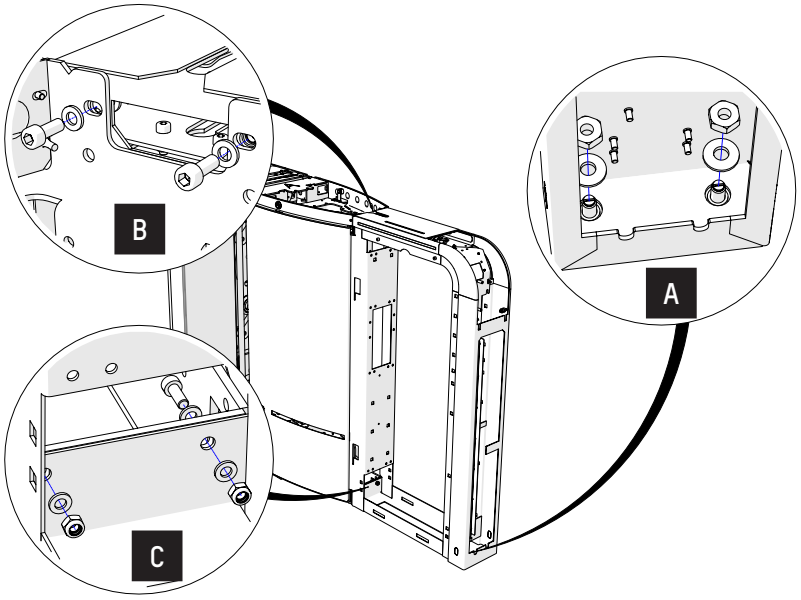


Fig. 83 - Housing extension with filler stainless steel panels fixing points

6. Unscrew the two (2) screws, nuts and washers holding the extension to the main frame of the gate at the top, as shown in detail **B** in the figure above;
7. Unscrew the two (2) screws, nuts and washers holding the extension to the main frame of the gate at the bottom, as shown in detail **C** in the figure above;
8. Place the extension in a safe place, out of the way, so that it cannot be damaged.

8.19. ADJUSTING THE CLEARANCE FOR THE PASSAGE OF THE MOBILE OBSTACLES

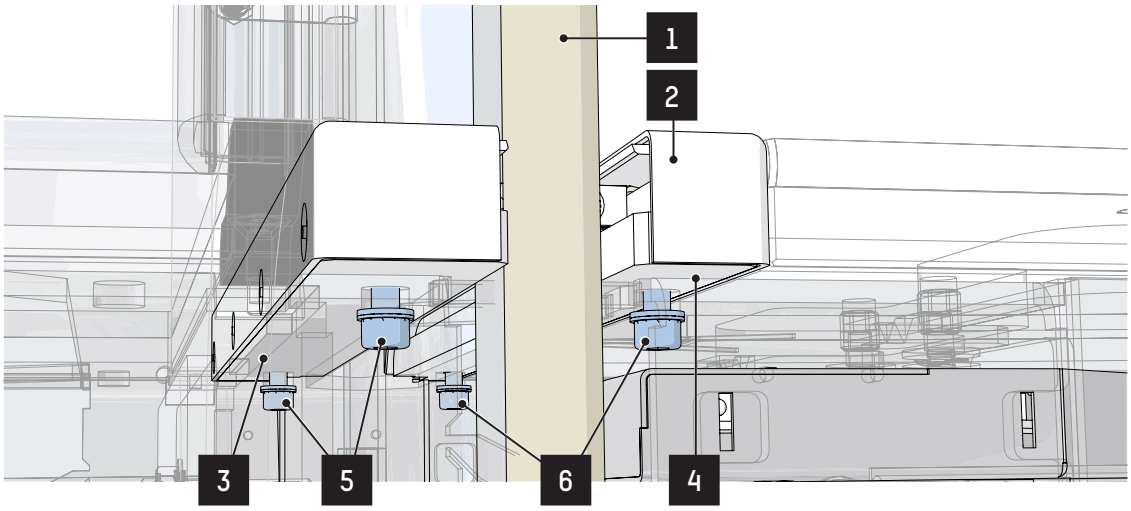


Fig. 84 - Adjusting the passage of the high mobile obstacle in the flap guide

1. Turn off the power supply to the device (⇨ Chap. 8.3, page 54);
2. Remove the side panels (⇨ Chap. 8.3, page 54);
3. Loosen, without unscrewing, the four (4) fixing screws (**5**) and (**6**) of the flap guide assembly (**2**).

> The number of fixing screws depends on the width of the obstacle.

4. Position the flap guide on the fixed glass panel side against the glass panel (Ref. **3** in the figure above) and tighten the fixing screws (**5**).
5. Adjust the second part of the flap guide (**2**) so that the opening between the two guides is **21 mm** and then tighten the fixing screws (**6**).

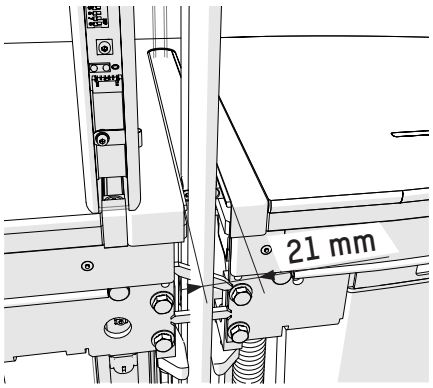


Fig. 85 - Adjusting the flap guides

6. Manually make a few movements with the mobile obstacle to check that the flap slides correctly and without excessive friction in the flap guides. If necessary, readjust the flap guide (**2**) to obtain a smooth movement of the flap in the guides.

8.20. ADJUSTING THE FIXED OBSTACLE

The fixed obstacle can be adjusted by means of a set screw system:

- Perpendicular to the plate;
- Parallel to the mobile obstacle.

1. Remove all side and end panels; (⇨ Chap. 8.3, page 54) ;
2. Extend and lock the mobile obstacle to allow access;

8.21. ADJUSTING THE KINEMATICS

IT IS IMPORTANT TO SET UP THE KINEMATICS CORRECTLY TO:
- ENSURE PROPER ALIGNMENT OF ALL MOVING PARTS AND AVOID FRICTION;
- CORRECTLY CENTRE THE FLAP'S TIE ROD IN ITS GUIDE SYSTEM.

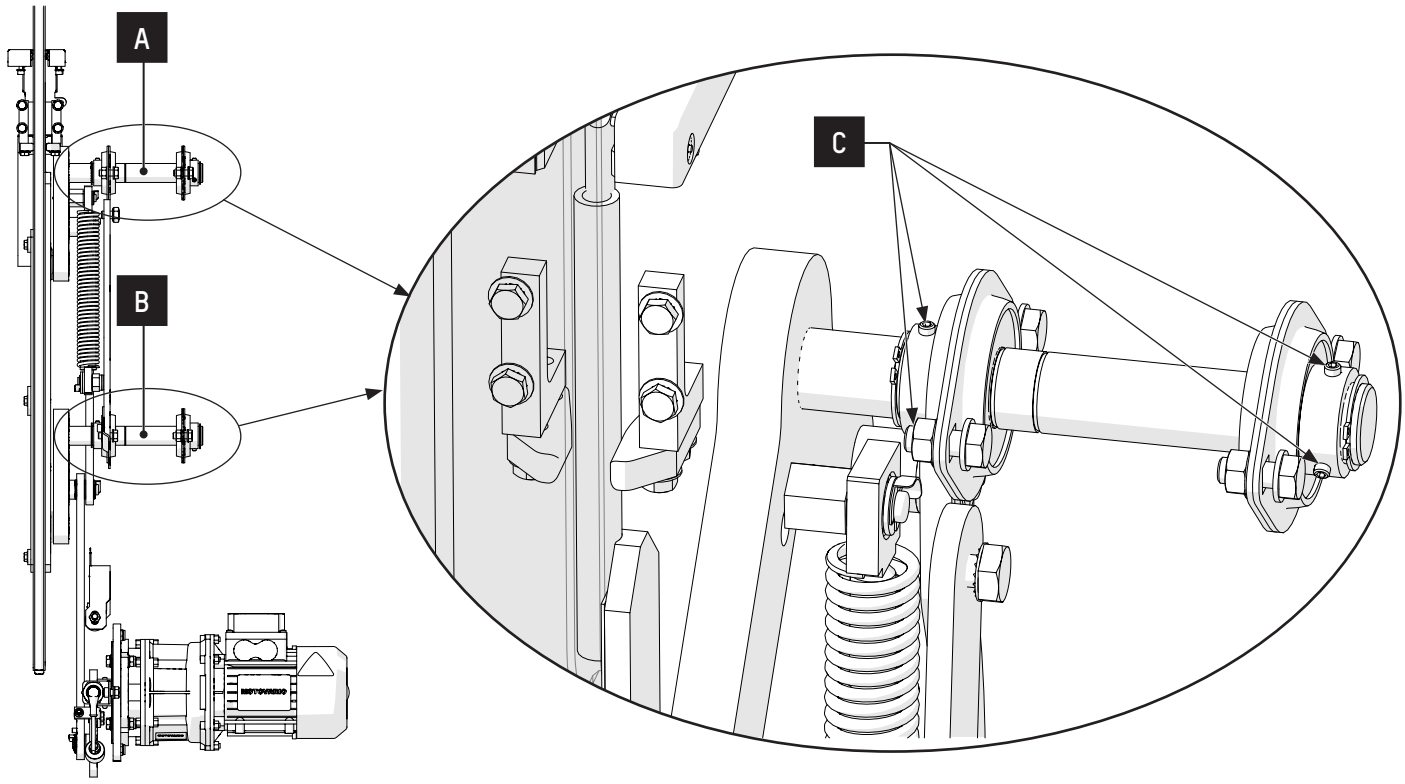


Fig. 86 - Adjusting the kinematics (Alignment)

To align the top and bottom pins and centre the tie rod in the middle of the flap guide system:

1. Loosen the set screws of the four (4) brackets;
2. Slide the top and bottom pins longitudinally so that the moving obstacle, tie rod and flap are correctly aligned with the flap guide assembly and guide blocks;
3. Tighten the bracket set screws;
4. Manually move the moving obstacle and check that the movement is free, without excessive friction, and that the tie rod of the flap moves in the middle of the flap guide, over its full range;
5. Also check that the system unlocks correctly during a power failure.

By default, the crank should be extended 0.8 mm from the motor shaft.

If the upper and lower shafts are to be significantly misaligned, the crank must also be realigned with the motor shaft.

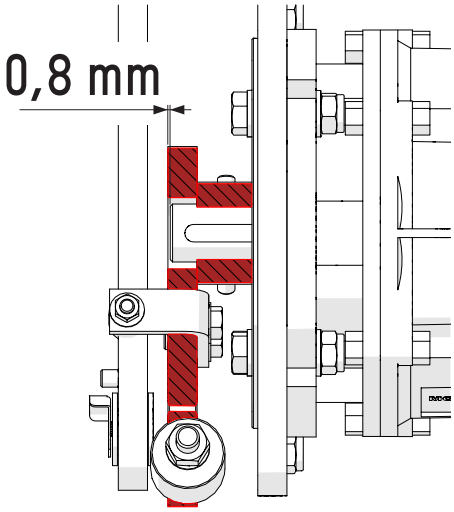


Fig. 87 - Adjusting the motor crank (Alignment)

To realign the crank on the motor shaft:

1. Loosen the two (2) set screws;
2. Move the crank handle in the desired direction on the motor shaft;
3. Tighten the set screws;
4. Manually move the mobile obstacle and check that the movement is free and without excessive friction.
5. Also check that the system unlocks correctly during a power failure.

8.22. REMOVING AND ADJUSTING THE DETECTION PHOTOCELLS

On the SmartLane in general, detection is carried out by straight and curved DIRAS cells.

However, for the following two (2) cases, detection is carried out by a classic Transmitter/Receiver type cell:

- In the case of a fixed obstacle with a height of 1200 mm, in relation to the floor;
- In the case of early opening detection, in the foot of the extensions.

The **Transmitter** photocells are located in the gate on your **right** in direction A;

The **Receiver** photocells are located in the gate to your **left** in direction A.

The location of the photocells is shown in Chap. 6.2.1.

8.22.1. REMOVING THE PHOTOCELL FROM THE FIXED OBSTACLE

To access the high security photocell (fixed obstacle H > 1200) of the lane in question, it is necessary to:

1. Remove the right side panel - side A (⇨ Chap. 8.3.1, page 54);
2. Turn off the power supply to the device (⇨ Chap. 8.3, page 54);
3. On the side of the cell to be replaced, unscrew the fixing screw (**3**) from the top plug (**4**) and remove the protective screen (**5**) by sliding it out off the aluminium profile (**6**) (⇨ Fig. 88);

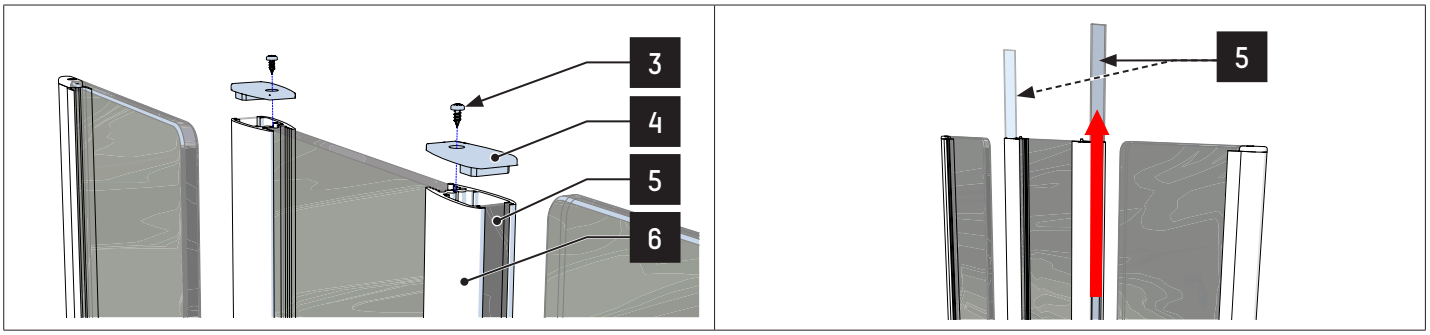


Fig. 88 - Removing the plug(s) and screen(s) of the fixed obstacle

For a DIRAS cell: (⇨ Fig. 89)

4. Disconnect the cable connecting the DIRAS electronic board to the equipment;
5. Remove the fixing elements (**10**) of the cable on the cell support;
6. Without unscrewing it, loosen the pressure screw (**7**) of the cell support (**8**) so as to disconnect the cell assembly from the fixed obstacle (**9**);
7. Remove the DIRAS support assembly by sliding it upwards into the aluminium profile (**6**).

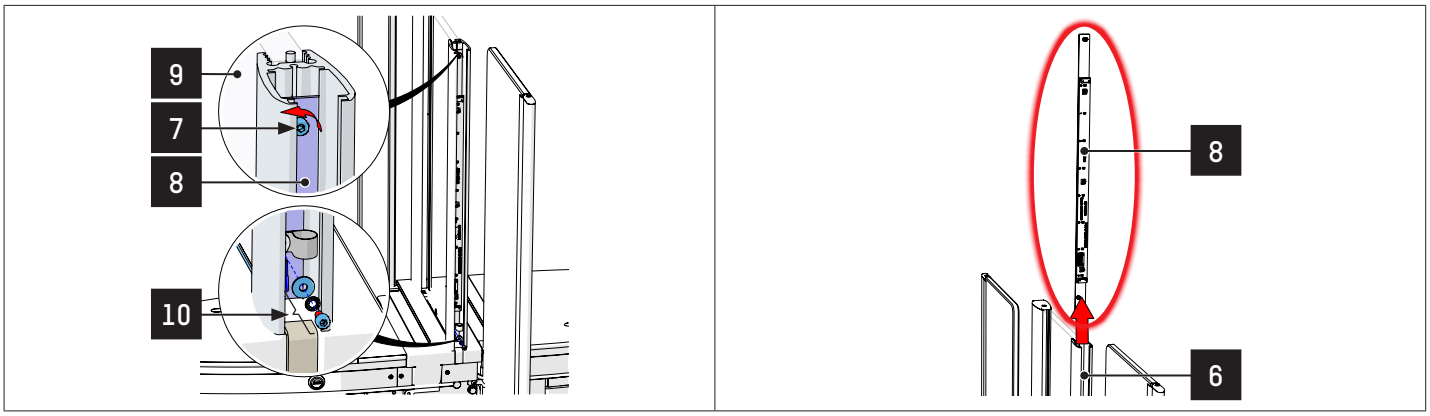


Fig. 89 - DIRAS cell removal

8. Place the new cell on the support and replace the assembly in the aluminium profile;
9. Make the various connections (cell cable and earth connection);
10. Fix the cell assembly in the aluminium profile;
11. Replace the side panels with the exception of the side panel - side A giving access to the power board;
12. Switch on the gate and wait for the end of the restart phase;
13. Check the status of the gate via the maintenance interface and mainly the status of the fixed obstacle cell.

For a REFLEX cell: (⇨ Fig. 90)

4. Without unscrewing it, loosen the pressure screw (**7'**) of the cell support (**8'**) so as to disconnect the cell assembly from the fixed obstacle (**9**);
5. Disconnect the cell from the AS1603 or AS1605 board (depending on the configuration) and remove all the fixing points of the cell cable all along its path;
6. Remove the fixing elements (**10**) of the ground cable on the cell support;
7. Remove the cell support assembly by sliding it upwards into the aluminium profile (**6**).
8. Remove the two (2) fixing screws (**11**) and lock nuts (**12**) to remove the cell;

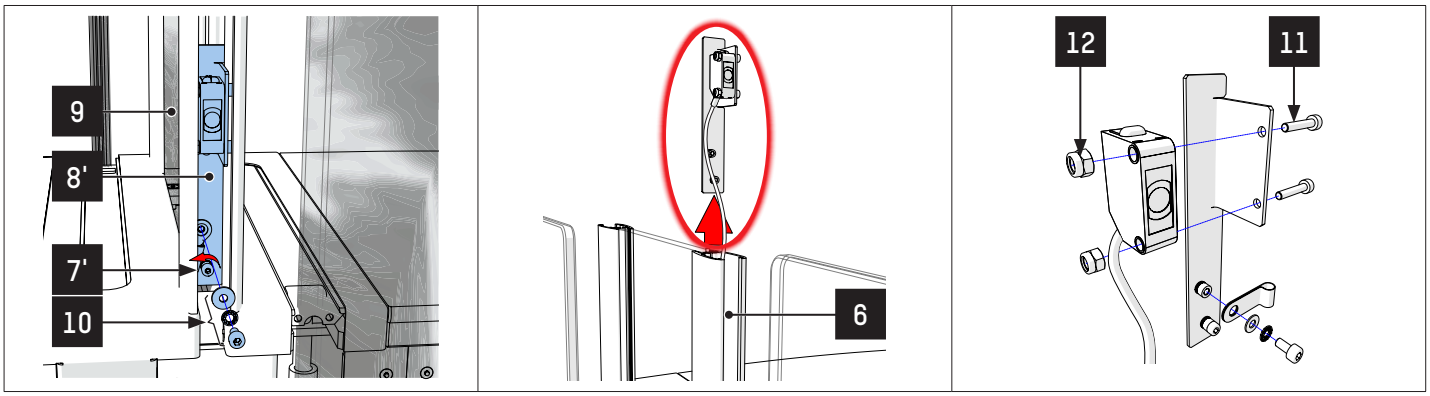


Fig. 90 - Removing the REFLEX cell

If necessary, and to make it easier to extract the REFLEX cell cable under the fixed obstacle, **without unscrewing them**, loosen the fixing screws holding the fixed obstacle in the clamp.

! DO NOT FORGET TO REATTACH THE OBSTACLE ONCE THE CELL HAS BEEN REPLACED !

9. Place the new cell on the support and put the assembly back into the aluminium profile while making the cable follow the same path to the AS1603 or AS1605 electronic board (depending on the configuration);
10. Fix the cell assembly in the aluminium profile and reattach the ground cable correctly;
11. Replace the side panels with the exception of the side panel - side A giving access to the power board;
12. Switch on the gate and wait for the end of the restart phase;
13. Check the status of the gate via the maintenance interface and mainly the status of the fixed obstacle cell. If necessary, adjust the REFLEX cell (⇨ Chap. 8.22, page 76);
14. Switch the device off again and fit the protective screen (**5**) into the aluminium profile, finishing by fitting the plug;
15. Turn on the power supply to the device;
16. Replace the right side panel - side A.

8.22.2. ADJUSTING THE PHOTOCELLS

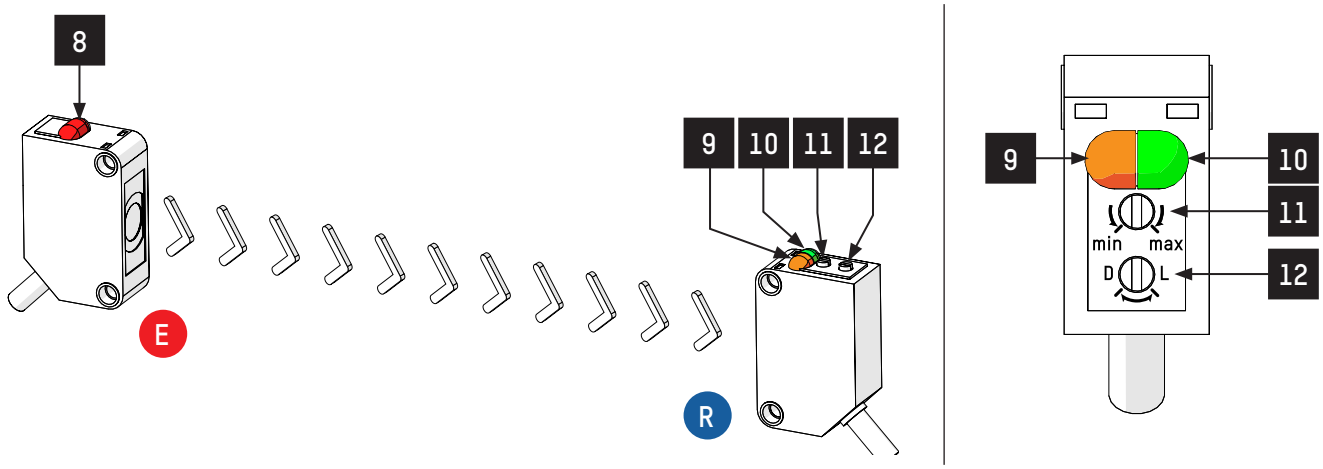


Fig. 91 - Adjusting the photocells

The red light (**8**) is on when the Transmitter cell is fed and in proper working order.

The green stability light (**10**) is on when the Receiver cell is fed and in proper working order.

The orange operating light (**9**) is on when the Receiver photocell detects the beam. It therefore switches off when the cells are not correctly aligned or when a gate user cuts the beam.

The sensitivity selector (**11**) is used to adjust the beam intensity.

The operating mode selector switch (**12**) must always be set to **L** (Light on) (= fully anticlockwise).

The photocells are adjusted in the three steps described below.

In all cases:

- Use an opaque, non-reflective material (e.g. cardboard or paper) to interrupt the beam from the cell being adjusted.

Step 1: Alignment

- Set the sensitivity selector (**11**) to the centre of the range (between min. and max.).
- If necessary, align the cell with the transmitter by acting directly on the photocell support until the orange operating indicator (**9**) lights up.

Step 2: Adjusting the beam intensity

The purpose of this setting is to limit the strength of the transmitted signal, which could otherwise cause the detection to malfunction.

- Set the sensitivity selector (**11**) to min. (fully counter-clockwise).
- Then turn the selector slowly clockwise to gradually increase the signal output until the orange operating indicator (**9**) lights up continuously.
- Turn the selector switch by another 30°.

Too strong a signal will interfere with the passage detection!

Step 3: Final test

- Interrupt the beam on the transmitter photocell side and ensure that the orange light (**9**) goes out.
- Interrupt the beam on the receiver photocell side and ensure that the orange light (**9**) goes out.
- Pass normally through the lane and ensure that the orange light (**9**) goes out.
- For each of the three tests described above, make sure that the corresponding input on the AS1603 board, for the transmitter photocell, and AS1605, for the receiver photocell, also goes out. If this is not the case, check the wiring and connections of the cells.

When the beam is exactly perpendicular to the strip of the transmitter cell, the strip could act as a mirror and reflect the beam, which is then not detected.

To remedy this, slightly misalign the cell by acting on its support.

- If one of these tests is not satisfactory, repeat the entire adjustment from step 1.

8.23. REMOVAL OF THE SOFT STOP

THIS OPERATION MUST BE CARRIED OUT EVERY YEAR OR EVERY 1,000,000 CYCLES!

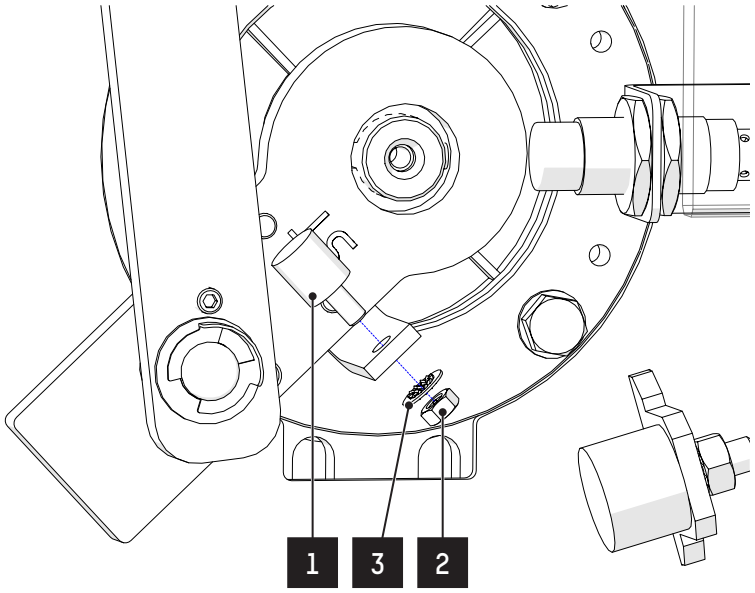


Fig. 92 - Removal of the soft stop

1. In order to remove the soft stop, you must first remove the right-hand removable panel on side A (⇨ Chap. 8.3.1, page 54) and switch off the device (⇨ Chap. 8.3, page 54);
2. Then remove the side panels on either side of the stop to be replaced (⇨ Chap. 8.3.1);
3. Set the kinematics to maintenance mode, as for changing a mobile obstacle (⇨ Chap. 8.10, page 62);
4. Unscrew the nut (**2**) and remove the fan washer (**3**);
5. Remove the soft stop from its support and put it aside.
6. Follow the same process in reverse order to install the new stop.

8.24. REPLACING AND ADJUSTING THE BALANCE SPRING

8.24.1. REPLACING THE SPRING

1. Remove the right side panel on side A (⇨ Chap. 8.3.1, page 54);
2. Turn off the power supply to the device. (⇨ Chap. 8.3, page 54). If necessary, also cut the power supply to the adjacent lane;
3. Manually move the kinematics to the open position (obstacle fully retracted into the housing);
4. Lock the position of the obstacle (⇨ Chap. 8.5, page 56) ; ⇨ [**A**]
5. Remove the fixing elements (**1**) from the compass (**2**) on the compass mount (**3**); ⇨ [**B**]
6. Rotate the compass to allow for slow dissipation of any potential energy still present in the balancing spring; ⇨ [**C**]
7. Using a 20 mm spanner, unscrew the lower spring pivot from the compass; ⇨ [**D**]
8. Manually place the kinematics in the closed position (obstacle completely out of the housing) and lock the mobile obstacle; ⇨ [**E**]
   The kinematics positioned in this way allows easy access to the upper pivot fixing screw; ⇨ [**F**]
9. Remove the upper pivot fixing screw and remove the spring; ⇨ [**G**]
10. Remove the clips and washers from the upper and lower pivots and remove both pivots; ⇨ [**H**]

IN AN INTERMEDIATE UNIT, IT WILL BE NECESSARY TO LOCK THE ADJACENT LANE OBSTACLE ALSO IN THE CLOSED POSITION TO GAIN ACCESS TO THE UPPER PIVOT OF THE SPRING ASSEMBLY SAFELY!

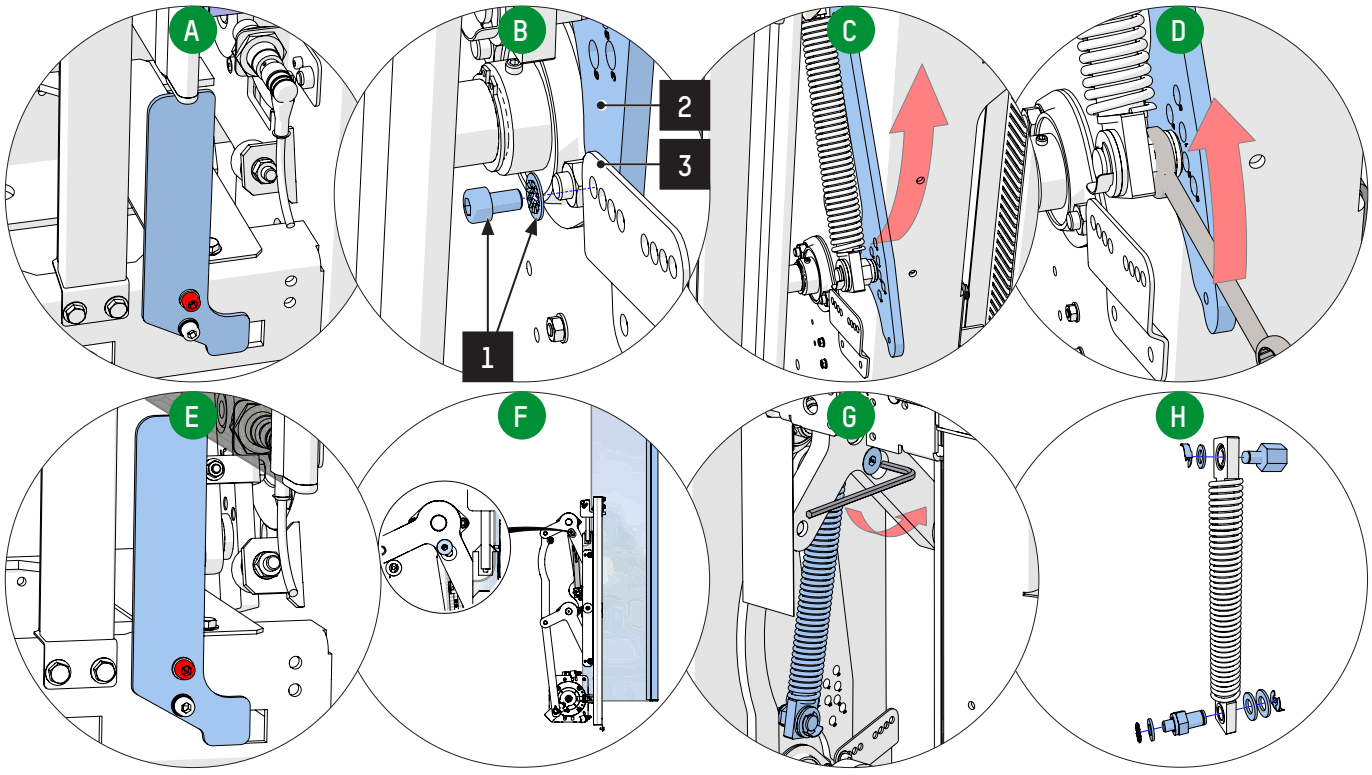


Fig. 93 - Removing the spring

11. Follow the same process in the reverse order for reassembly and, if necessary, do not release the obstacle in the adjacent lane until the last moment.

8.24.2. ADJUSTMENT OF THE BALANCE SPRING

The following figures and tables show the different fixing and adjustment points of the spring(s) for different obstacle heights.

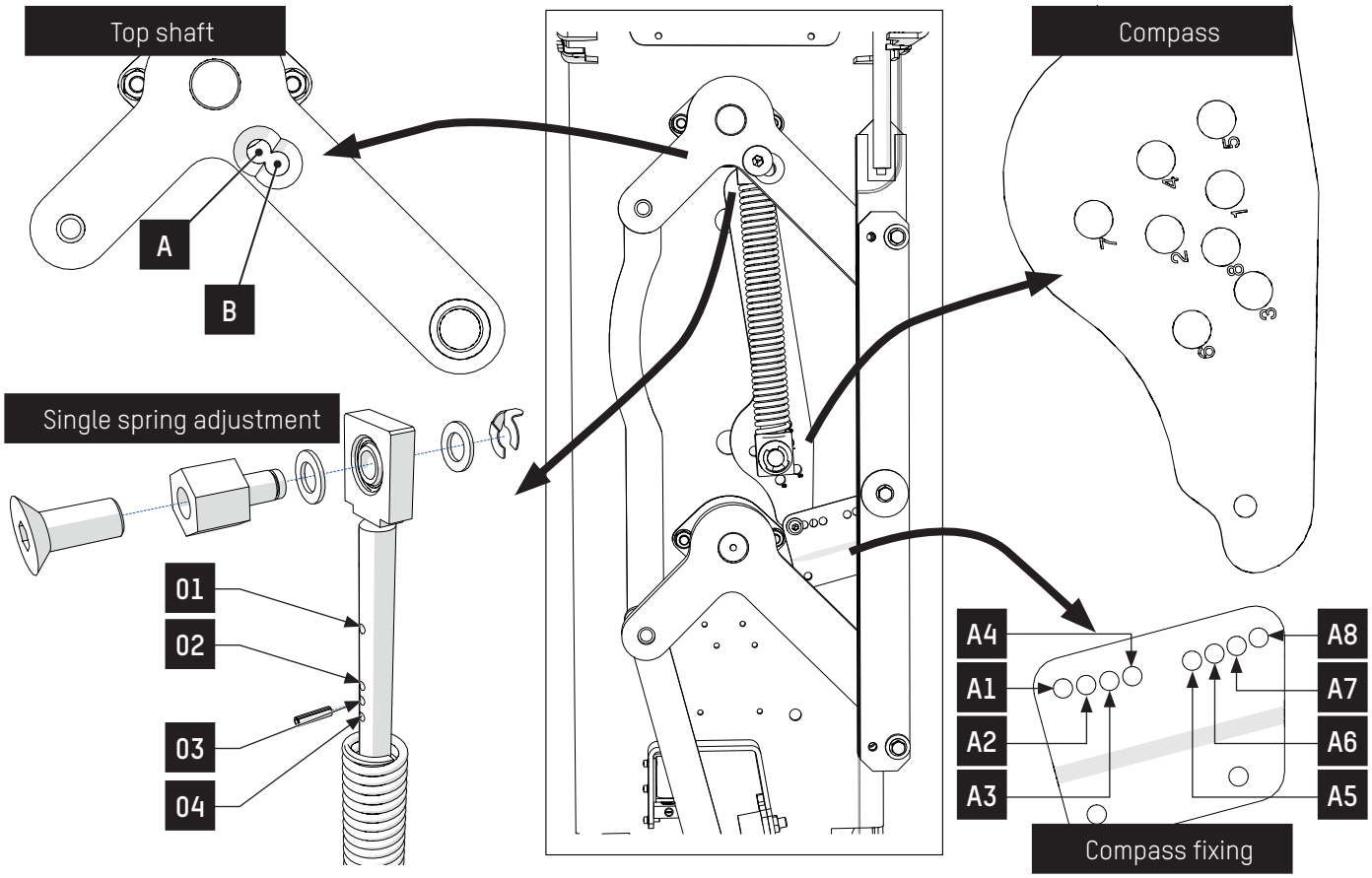


Fig. 94 - Single spring adjustment

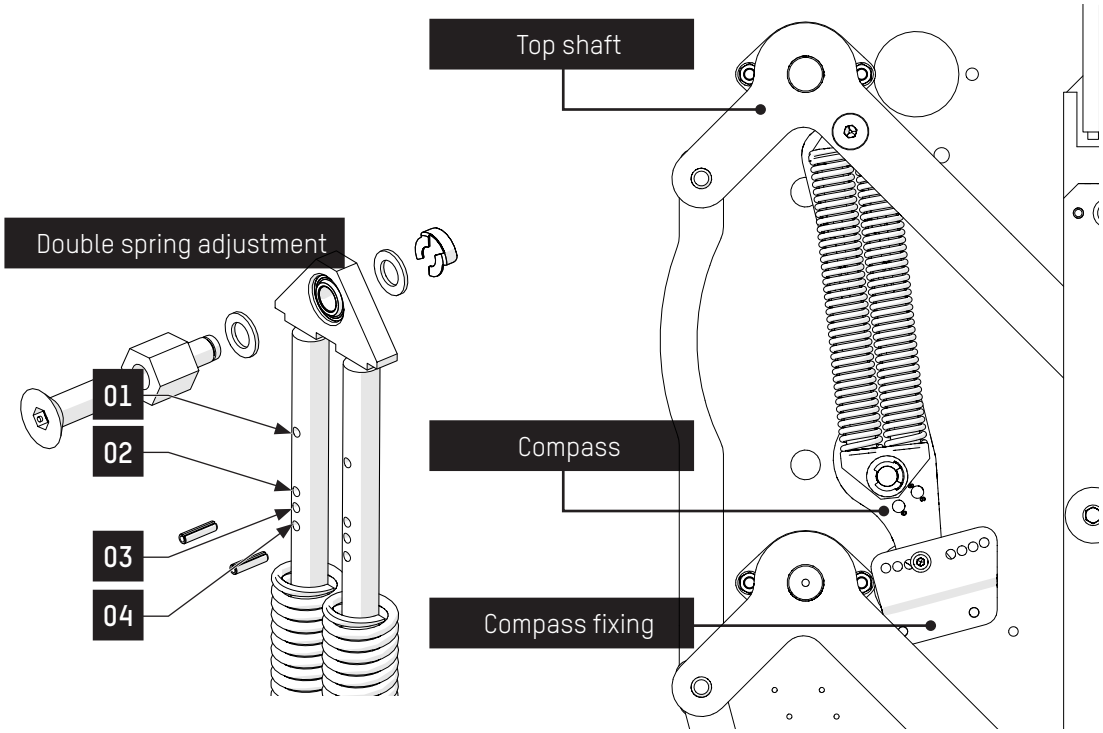


Fig. 95 - Double Spring Adjustment

The 'Compass' and 'Compass Mounting' components are identical to those of the standard kinematic. (⇨ Fig. 94, page 82)

STANDARD SMARTLANE				
NARROW OBSTACLE WITH/WITHOUT PROFILE	SPRING TYPE	SHAFT POSITION	COMPASS POSITION	COMPASS FIXING POSITION
1000	Single **04**	A	8	A8
1200	Single **02**	A	1	A6
1500	Single **02**	A	1	A7
1700	Single **02**	A	1	A6
1800	Single **02**	B	1	A5
1900	Single **02**	B	1	A4
2000	Single **02**	B	1	A4

WIDE SMARTLANE			
WIDE OBSTACLE WITH/WITHOUT PROFILE	SPRING TYPE	COMPASS POSITION	COMPASS FIXING POSITION
1000	Single **02**	1	A4
1200	Double **04**	3	A1
1500	Double **02**	7	A2
1700	Double **02**	7	A3
1800	Double **02**	7	A3
1900	Double **02**	7	**A3**
2000	Double **02**	7	**A3**

8.25. REMOVING A MOTOR

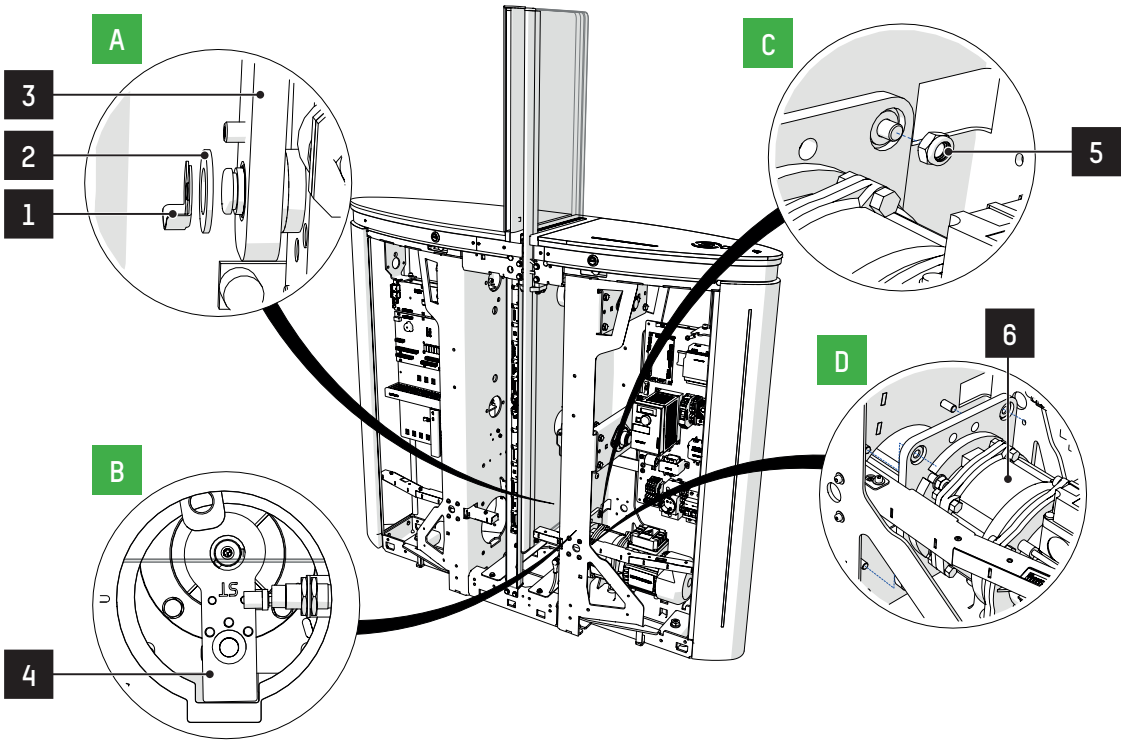


Fig. 96 - Removing a motor

1. Remove the right side panel on side A (⇨ Chap. 8.3.1, page 54);
2. Turn off the power supply to the device (⇨ Chap. 8.3, page 54);
3. Remove the side panel on the side of the motor to be removed (⇨ Chap. 8.3.1);
4. Position the obstacle at its bottom dead point to dissipate any potential energy in the connecting rod-crank system;
5. Disconnect the motor at the power terminal block;
6. Remove the clip (**1**) and the polyamide washer (**2**) in order to disengage the lower connecting rod (**3**) from the motor crank (**4**) (⇨ step **A**);
7. Release the lower connecting rod (**3**) by levering the motor crank (**4**);
8. Rotate the motor crank to align it with the frame cut-out (⇨ step **B**);
9. In the presence of a low plane detection, release the DIRAS by undoing its fixing brackets and, if necessary, the various shielding connections made on the cover and the CAN connections;
10. Remove the four (4) nuts (**5**) fixing the motor (⇨ step **C**);

The motor remains suspended from the studs crimped into the frame.

11. Lift and pull the motor while making sure that the crank handle passes through the frame cut-out (⇨ step **D**);
12. Place the motor in a safe place, out of the way, so that it cannot be damaged.
13. To reinstall the motor, follow the same process in the reverse order.

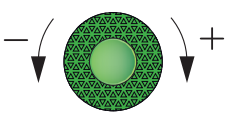
8.26. CONFIGURING THE VARIABLE FREQUENCY INVERTER ATV320

8.26.1. CHANGING THE FREQUENCY CONVERTER SETTINGS

- Disconnect the Ethernet cable from the variable frequency inverter;
- Open the variable frequency inverter cover;
- Enter the configuration settings (⇨ Chap. 8.26.2);
- Switch off the variable frequency inverter via the variable frequency inverter's dedicated circuit breaker;
- Reconnect the variable frequency inverter's Ethernet cable;
- Power up the variable frequency inverter again via the variable frequency inverter's dedicated circuit breaker.

Fig. 97 - Variable frequency inverter ATV320

8.26.2. ENTERING THE CONFIGURATION SETTINGS INTO THE VARIABLE FREQUENCY INVERTER

 = ENT	Press the green knob to enter the variable frequency inverter's menus and/or to confirm
	Turn the green knob to scroll through the menus/parameters
 = ESC	Press **ESC** to exit the menu

8.26.3. SMARTLANE SPECIFIC CONFIGURATION SETTINGS (NEW GENERATION)

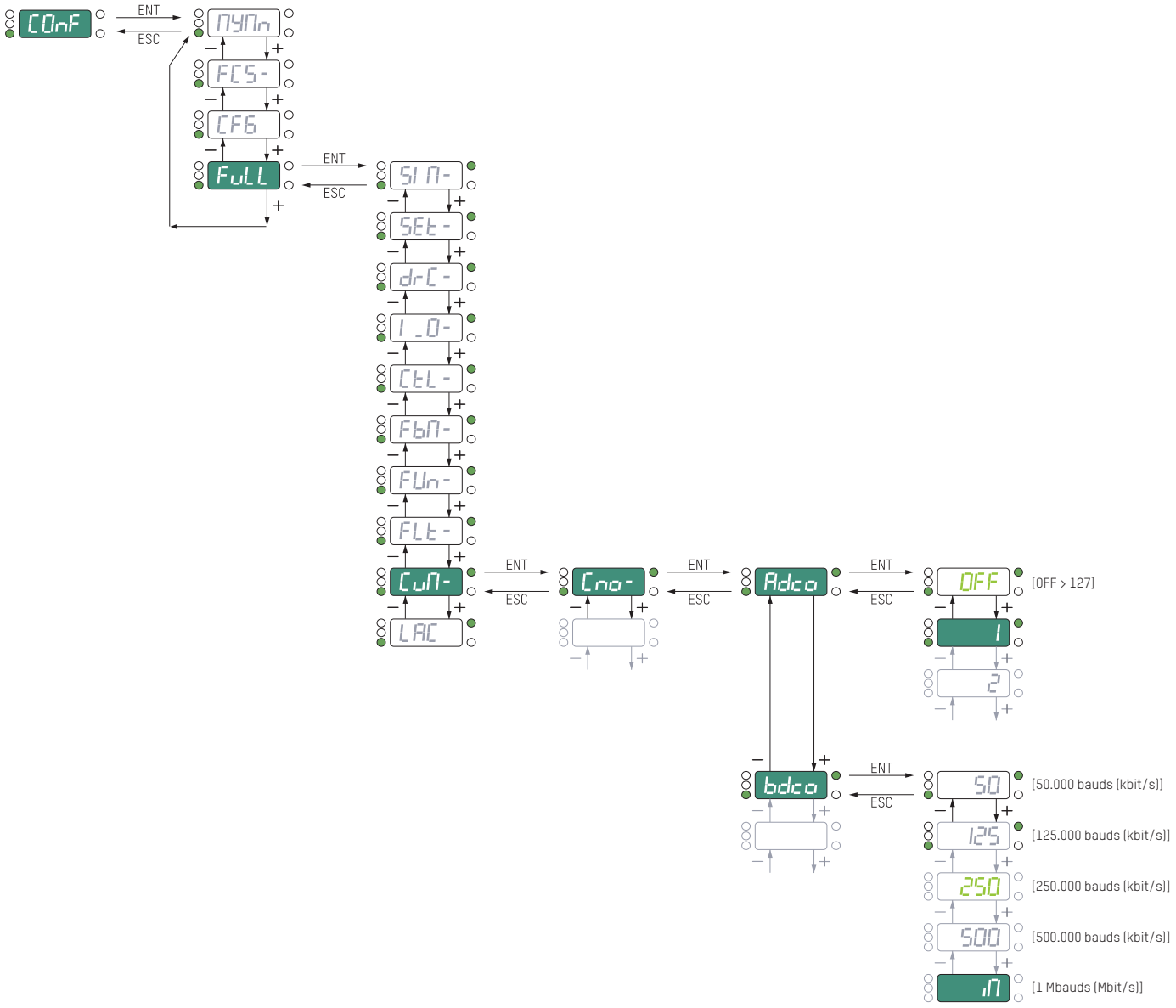


Fig. 98 - Variable frequency inverter menu tree

MENU	SETTING	DESIGNATION	VALUE	COMMENT(S)
CONF ▶ FULL ▶ COM	AdCo	CAN Open address	1	Address N°1
CONF ▶ FULL ▶ COM	bdCo	CAN Open speed	1M	1 Mbit/s

8.27. ADJUSTING THE HEIGHT OF THE DIRAS 'TROLLEY DETECTION' CELLS

Detection cells available as an option.

The height of the 'Trolley' detection cells must be precisely adjusted so that the cell beams pass correctly through the openings in the side panels.

The heights to be observed are shown below:

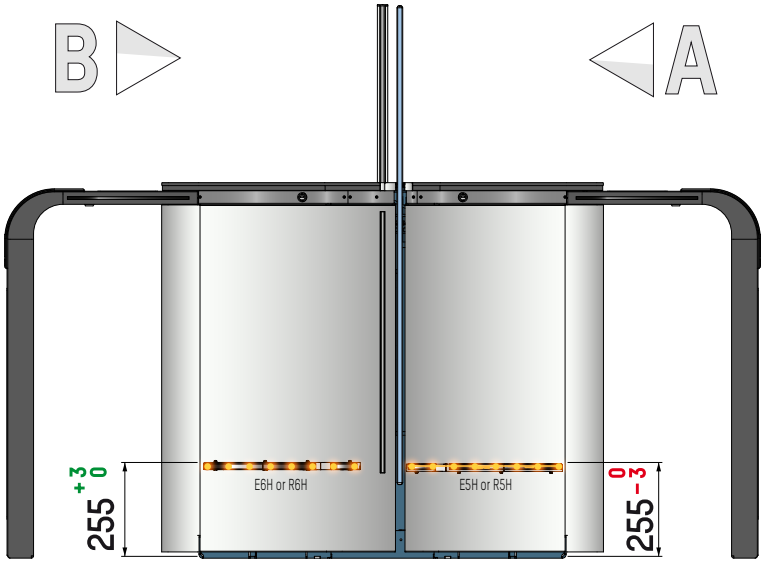


Fig. 99 - Trolley detection cell height

How to take the measurement:

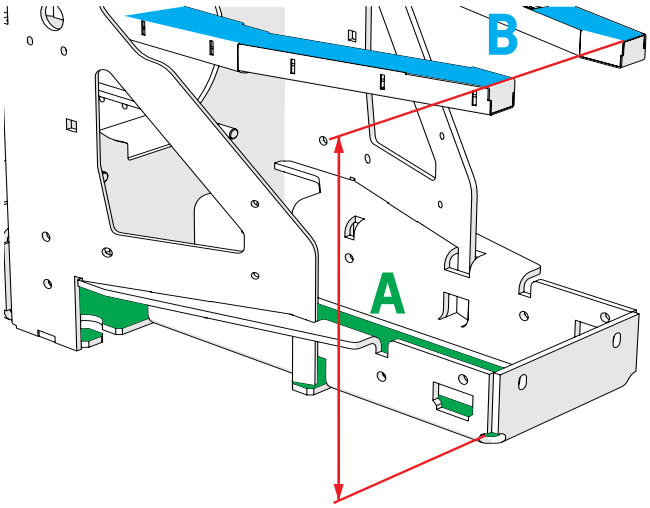


Fig. 100 - Measuring the height of the Trolley detection cells

The correct measurement is taken from the base of the frame (inside) [**A**] to the top surface of the DIRAS support [**B**].

8.28. MAINTENANCE

8.28.1. MAINTENANCE OF SURFACES

To retain the surface appearance and avoid any oxidation deposits or marks, it is strongly recommended to regularly treat the sheets with a product specially designed for this purpose.

Automatic Systems can provide an approved product under reference 0/6031/00.

THE USE OF UNSUITABLE PRODUCTS CAN CAUSE EVEN GREATER DAMAGE:
THE USE OF HYDROCHLORIC ACID IS STRICTLY FORBIDDEN!
HOT HOUSEHOLD BLEACH, EVEN DILUTED, IS STRICTLY FORBIDDEN!
IT IS ALSO STRICTLY FORBIDDEN TO CLEAN THE EQUIPMENT USING A PRESSURISED WATER SPRAY DEVICE!

Dos:	Don'ts:
• Use a sponge or a soft nylon brush (except for gloss or mirror polish finishes*);* • Brush in the direction of the polish lines; • Clean using a soft, non-fluffy cloth.	Use: • Metallic brushes or sponges; • Hard brushes; • Brushes on 'gloss' or 'mirror polish' finishes; • Abrasive scouring pads or powders; • Chlorinated or other unsuitable products.

Automatic Systems reserves the right to deny warranty coverage in the case of an apparent lack of maintenance.

8.28.2. PREVENTIVE MAINTENANCE

THE MCBF, THE MEAN NUMBER OF CYCLES BETWEEN FAILURES, IS SUBJECT TO SCRUPULOUS OBSERVANCE OF MAINTENANCE. IT IS THEREFORE IMPERATIVE THAT MAINTENANCE BE CARRIED OUT IN ACCORDANCE WITH THE FOLLOWING!

THE MAINTENANCE OPERATIONS MUST BE PERFORMED IN ACCORDANCE WITH THE SAFETY WARNINGS! (⇨ CHAP. 2, PAGE 8)

Regularly:

1. Clean the bodywork using a product intended for stainless steel. Automatic Systems can supply an approved product under reference 0/6031/000.

THE FREQUENCY OF MAINTENANCE MUST BE ADAPTED TO THE CONDITIONS OF USE OF THE GATE, 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.

2. Clean the obstacles using a window-cleaning product.
3. Vacuum and clean the masking strip of the cells and the lenses of their optional classic cells using a soft rag soaked in an anti-static and non-aggressive cleaning agent.
   NEVER USE PAINT THINNERS OR ANY OTHER ORGANIC SOLVENT.

8.29. MAINTENANCE PROGRAMMES (PER LANE)

MAINTENANCE A

Every year or 1,000,000 cycles, whichever comes first.

Time required: 1 hour/unit.

MAINTENANCE ACTIVITIES (REPLACE PARTS AS REQUIRED)	
CHECK	
• The complete opening of the obstacle in the event of a power failure.(⇨ Chap. 8.3, page 54)	☐
• The condition of the electrical connections, in particular those detailed in Chap. 5.9, page 35, as well as the tightness of the connectors on the various electronic boards.	☐
• The stability of the unit and the tightness of the nuts of the floor anchoring clamps (⇨ Chap. 8.2, page 53).	☐
• Check the flap for wear and dirt (⇨ Chap. 4.7, item **12**) in order to ensure it slides properly and replace it if necessary.	☐
• Check the condition of the kinematic end stops (⇨ Chap. 6.3, item. **3** and **5**) and replace them if necessary.	☐
• The tightness of the gear motor and bearings (greased for life).	☐
REPLACE	
• The rubber release stop in case of power failure. (⇨ Chap. 8.23, page 80)	☐
GREASE WITH LUBRICATE / GREASE [14]	
• The flap tie rod (⇨ Chap. 6.3 , item **15**).	☐
TEST VIA THE MAINTENANCE INTERFACE ▶ Unit tests [15]	
• The status of the DIRAS cells via **DIRAS signal strength;**	☐
• CAN BUS **via Diagnostics;**	☐
• EDF and EDO via **Outputs and Pictograms**;	☐
• the passage authorisations and passages via **Movement ▶** Movement	☐

MAINTENANCE B

Every two years or 2,000,000 cycles, whichever comes first.

Time required: 1 ½ hours / unit.

MAINTENANCE ACTIVITIES (REPLACE PARTS AS REQUIRED)	
CHECK	
• All points included in **MAINTENANCE A**	☐
REPLACE	
• The rubber release stop in the event of power failure. (⇨ Chap. 8.23, page 80)	☐
• The double balancing spring assembly (large unit)	☐

14 Lubricate with an anti-corrosive multipurpose grease (Automatic Systems can supply the appropriate product under the reference 0/3565/000.
15 Connect the power supply to the device. (⇨ Chap. 8.3, page 54)

MAINTENANCE C

Every three years or 3,000,000 cycles, whichever comes first.

Time required: 2 hours/unit

MAINTENANCE ACTIVITIES (REPLACE PARTS AS REQUIRED)	
CHECK	
• All points included in **MAINTENANCE A**	☐
REPLACE	
• The rubber release stop in case of power failure. (⇨ Chap. 8.23, page 80)	☐
• Single balancing spring assembly (narrow unit)	☐
• The closing flap (⇨ Chap. 8.12, page 66)	☐
• The guide strip of the closing flap	☐

MAINTENANCE D

Every four years or 4,000,000 cycles, whichever comes first.

Time required: 1 hour ½ / unit.

MAINTENANCE ACTIVITIES (REPLACE PARTS AS REQUIRED)	
CHECK	
• All points included in **MAINTENANCE A**	☐
REPLACE	
• The rubber release stop in case of power failure. (⇨ Chap. 8.23, page 80)	☐
• The double balancing spring assembly (large unit)	☐

MAINTENANCE E

Every five years or 5,000,000 cycles, whichever comes first.

Time required: 1 hour/unit.

MAINTENANCE ACTIVITIES (REPLACE PARTS AS REQUIRED)	
CHECK	
• All points included in **MAINTENANCE A**	☐
REPLACE	
• The rubber release stop in case of power failure. (⇨ Chap. 8.23, page 80)	☐
• Kinematic end stops.	☐

8.30. SUMMARY TABLE OF MAINTENANCE PROGRAMMES

		NARROW	WIDE	MAINTENANCE				
				A	B	C	D	E
				1 year or 1Mo cycles	2 years or 2Mo cycles	3 years or 3Mo cycles	4 years or 4Mo cycles	5 years or 5Mo cycles
Check	Obstacle opening if power cut.			●	●	●	●	●
	Electrical connections			●	●	●	●	●
	Stability of the unit and the tightening of the nuts of the floor anchoring clamps			●	●	●	●	●
	Wear and tear and dirt on the flap to ensure it slides correctly and replace it if necessary.			●	●	●	●	●
	Kinematic end stops and replace them if necessary.			●	●	●	●	●
	The tightness of the gear motor and bearings (greased for life).			●	●	●	●	●
Replacement	Unlocking stop of the kinematics.	0/6012/000	0/6012/000	●	●	●	●	●
	Single balance spring assembly - narrow unit.	AME-E-0101118-02 or AME-E-0101118-04				●		
	Double balance spring assembly - wide unit.		MEC-E-0101125-02 or AME-E-0101125-04		●		●	
	Closing flap.	ACA-E06987	ACA-E-0102104			●		
	Guide strip of the closing flap	CCH-E11765	CCH-E11765			●		
	Kinematic end stop.	0/3551/000	0/3551/000					●
Lubrication	Flap pull			●	●	●	●	●
	Upper ball of the balancing spring			●	●	●	●	●
Tests via Maintenance Interface	Diras signal tests (power <1500).			●	●	●	●	●
	CAN bus tests (0% error).			●	●	●	●	●
	Luminous picto tests (R+G+B+W)			●	●	●	●	●
	Passage authorisation tests + passage			●	●	●	●	●

8.30.1. RECOMMENDED SPARE PARTS

The items used below refer to the chapter Chap. 4.8. Location of the internal components, page 20.

ELECTROMECHANICAL COMPONENTS					
ITEM NO.:	FIGURE NO.	DESIGNATION	ARTICLE NO.	QUANTITY	MODEL
	Fig. 46	Retro-reflective sensor (5m cable)	0/7107/777	1	All
4	Fig. 47	Analog inductive sensor	0/7140/284	1	All
5	Fig. 47	Cylindrical stop M5x10 (Ø12.5x13.5) [16]	0/6012/000	1	All
3	Fig. 47	Cylindrical stop M8x20 (Ø25.5x19) [17]	0/3551/000	2	All
	Fig. 47	Flap assembly with tie rod (narrow)	ACA-E06987	1	Standard
		Flap assembly with tie rod (wide)	ACA-E-0102104	1	Wide
4	Fig. 15	Frequency inverter 0.37kW 230V	0/7109/257	1	All
	Fig. 94	Ass. single balancing spring	RSA-E06176-xx [18]	1	Standard
	Fig. 96	Ass. double balancing spring	MEC-E-0101125-xx [19]	1	Wide
6	Fig. 15	Stabilised power supply 24VDC	0/7114/108	1	All
12	Fig. 16 & 17	AS1190 circuit board - Motherboard	0/7108/150_TESTE	1	All
13	Fig. 16 & 17	AS1603 circuit board - Main and E/S interface board	0/7108/162_TESTED	1	All
14	Fig. 17	AS1656 circuit board - Dynamic LED strip	0/7115/055	1	All
15	Fig. 17	AS1605 circuit board - Main and E/S interface board	0/7109/268	1	All
	Fig. 42	DIRAS Transmitter Circuit Board right AS1642	0/7109/856_QZ	1	All
	Fig. 44	DIRAS Transmitter Circuit Board curved AS1642	0/7115/514	1	All
	Fig. 43	DIRAS receiving circuit board right AS1643	0/7109/858_QZ	1	All
	Fig. 45	DIRAS receiving circuit board curved AS1653	0/7115/515	1	All
0	Fig. 15	Main circuit breaker	0/2191/000	1	All
9	Fig. 15	Circuit breaker protection FI	0/2919/002	1	All
8	Fig. 47	Solenoid H 2406 - F. 24V.DC 100% ED	0/6920/311	1	All
	Fig. 38	Ass. LED strip dynamic function lighting	0/7115/052	1	All
	Fig. 38	Ass. LED strip dynamic direction lighting	0/7115/053	1	All

For any other parts refer to the SmartLane spare parts catalogue.

For all orders, indicate the information shown on the equipment nameplate that the spare parts are to be used for:

- Serial number
- Model
- Type (left, right, intermediate)

The use of gloves or antistatic wristbands (Electronic Static Discharge) is essential when handling electronic boards, otherwise the warranty may be lost.

When replacing an electronic circuit board, set its CAN address and the end of bus board (⇨ Electrical Technical File).

16 Unlocking stop
17 Open/closed mechanical stop
18 The spring assembly depends on the height of the mobile obstacles. Please specify the height of the mobile obstacles when ordering.
19 The spring assembly depends on the height of the mobile obstacles. Please specify the height of the mobile obstacles when ordering.

8.31. 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 ***STATUS*** page of the Maintenance Interface:

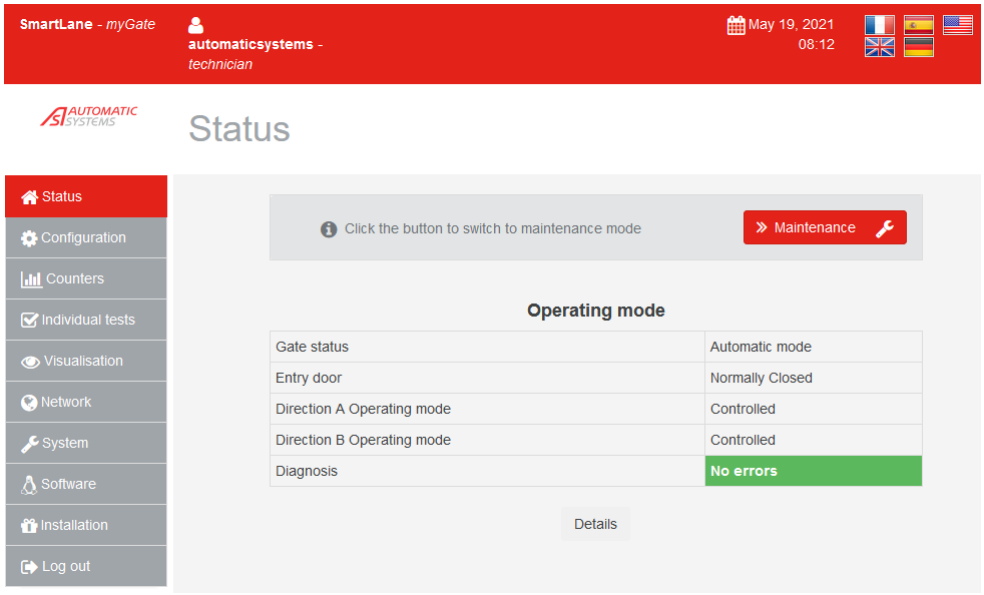


Fig. 101 - Statuses page (Maintenance Interface)

⇨ Refer to the respective manual.

8.32. DIELECTRIC STRENGTH AND LEAKAGE CURRENT TEST

The inverters have an integrated EMC filter. As a result, they have a leakage current to earth. If the leakage current creates compatibility problems with your installation (residual current device or other), you can limit it by deactivating the Y-capacitors as shown below. In this configuration, the device does not meet the EMC requirements according to IEC 61800-3.

Use the following instructions [20] to configure the inverter for operation on an IT network or a grounded impedance network.

1. Remove the power terminal cover;
2. The switch is factory set to the position shown in detail **1**;
3. To disconnect the built-in EMC filter, set the switch to the position shown in detail **2**;
4. Replace the front cover.

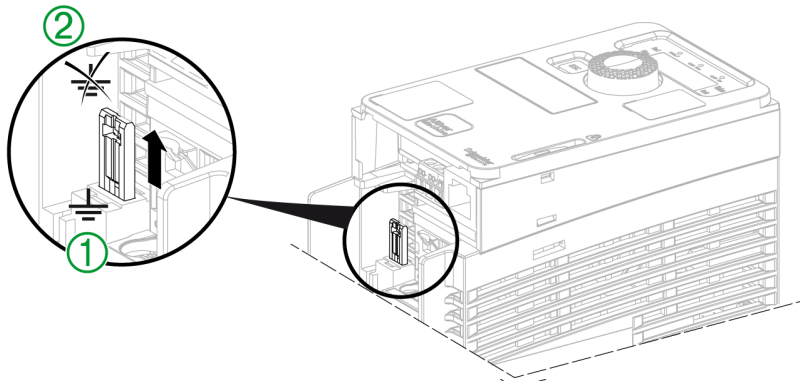


Fig. 102 - Disconnecting the built-in EMC filter from the ATV320 frequency inverter

20 Extract from Schneider Electric: Altivar Machine ATV320 Inverter Drives for Asynchronous and Synchronous Motors - Installation Guide

8.33. STORAGE

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 the installation (⇨ Chap. 5.4, page 29).
- Leave it powered on, to maintain the charge of the battery of the CPU board (AS1190).

> 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 to one (1) hour before powering up.

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

8.34. DISPOSAL / DESTRUCTION

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

9. ASSIGNMENT OF CIRCUIT BOARD COMPONENTS

9.1. TRANSMITTER DIRAS BOARDS (AS1642 & AS1652)

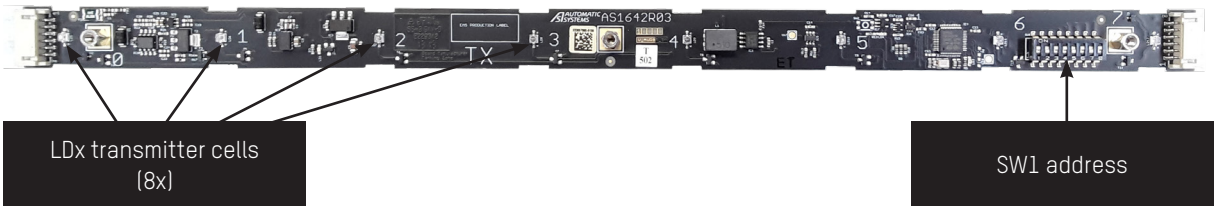


Fig. 103 - Assignment of components: AS1642 circuit board

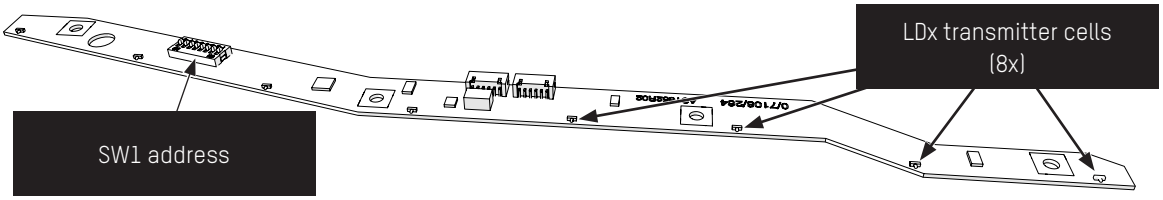


Fig. 104 - Assignment of components: AS1652 circuit board

LDx : Transmitter cell.

SW1 : Address of the circuit board in the CAN network (⇨ see wiring diagrams).

9.2. RECEIVER DIRAS CIRCUIT BOARD (AS1643 & AS1653)

Fig. 105 - Assignment of components: AS1643 circuit board

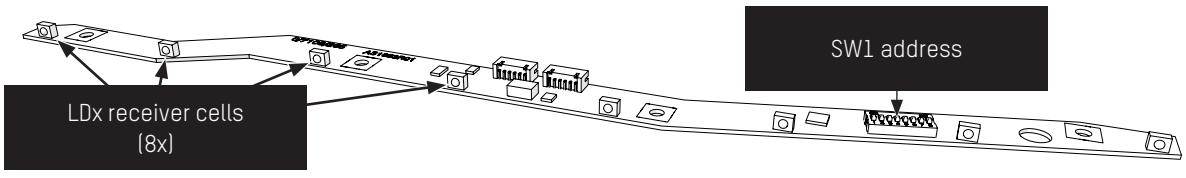


Fig. 106 - Assignment of components: AS1653 circuit board

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).

9.3. MOTHERBOARD (CPU) AS1190

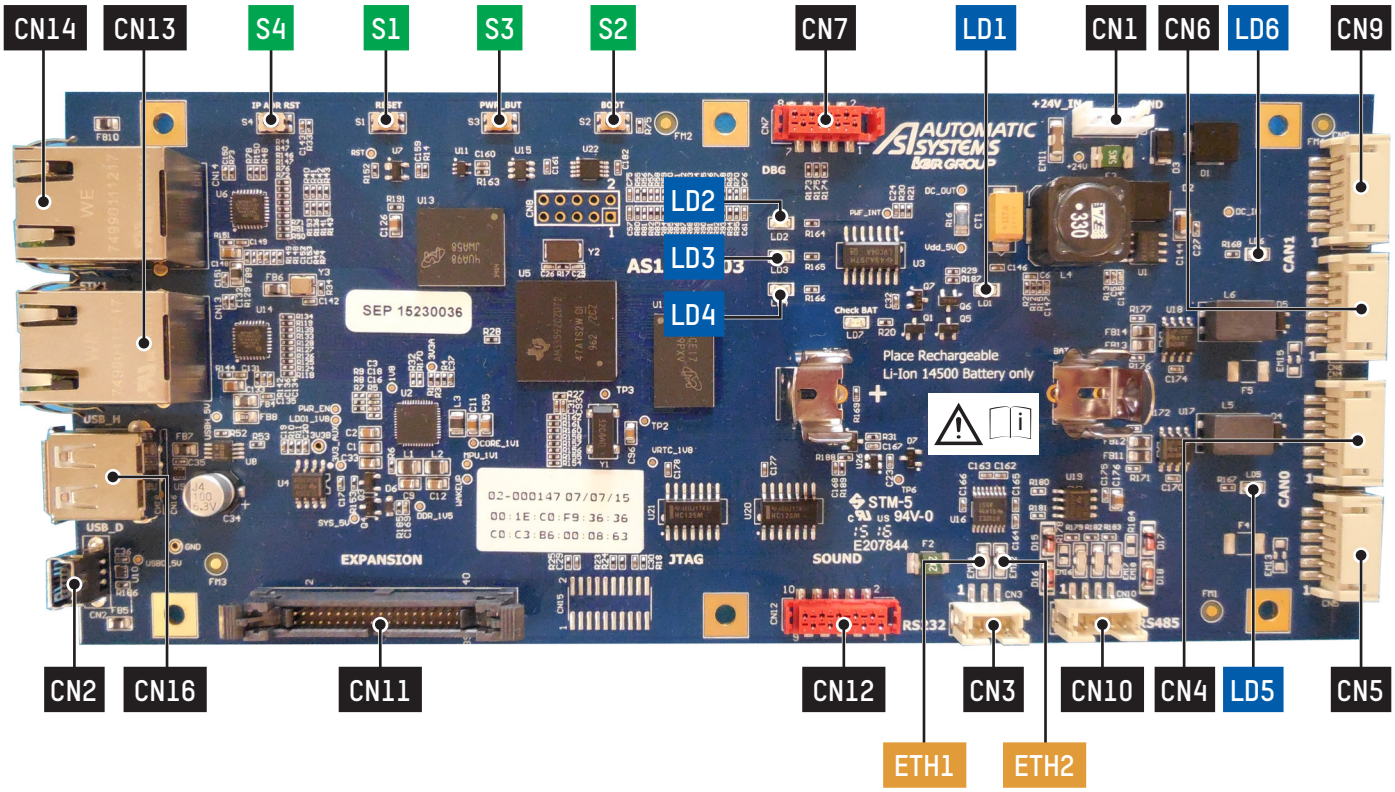


Fig. 107 - Motherboard AS1190

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 the AS1106 circuit board. (Text-to-speech card)
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, WHICH INDICATES THE INCORRECT POSITION OF THE BATTERY, IS LIT (RED), 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. 8.33, PAGE 93).

9.4. AS1603 CIRCUIT BOARD - MAIN AND E/S INTERFACE BOARD

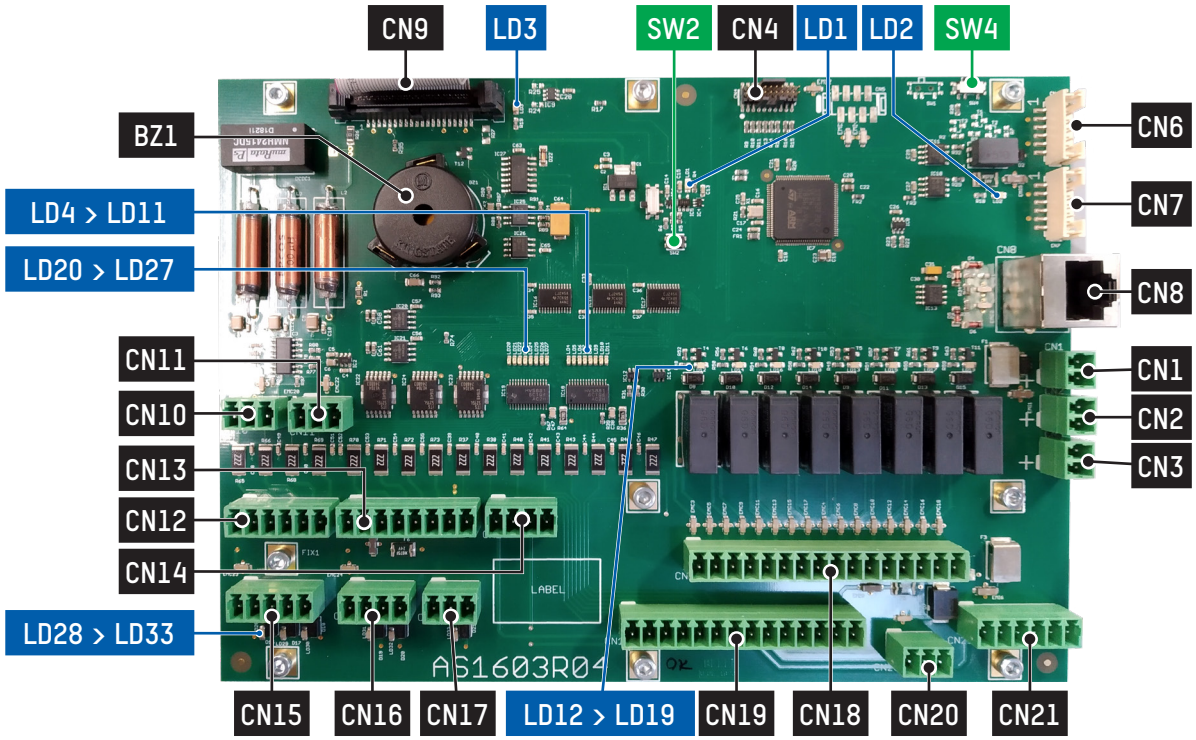


Fig. 108 - AS1603 circuit board - Main and E/S interface board

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

CN1	24 VDC POWER SUPPLY
1	+24 VDC
2	GND
CN6	CAN 0 BUS
CN7	CAN 1 BUS
CN8	RJ45 ETHERNET LINK.
CN9	CPU INTERFACE
CN12	ADDITIONAL INPUTS
1	+24 VDC
2	+24 VDC
3	E9
4	E10
5	E11
6	E12
CN13	ADDITIONAL INPUTS
1	+24 VDC
2	+24 VDC
3	E13 (Authorization in direction A)
4	E14 (Authorization in direction B)
5	E15
6	E16
7	GND
8	GND
CN16	NOT USED
1	+24 VDC
2	
3	
4	GND

CN2	24 VDC POWER SUPPLY
1	+24 VDC
2	GND
CN10	TRANSMITTER CELLS
1	+24 VDC
2	S
3	GND
CN14	EMERGENCY
1	Emergency loop
2	GND
3	+24 VDC
4	E8 (Emergency button)
CN18	RELAIS
1	Relay contact 1 (Direction of passage A)
2	
3	Relay contact 2 (Direction of passage B)
4	
5	Relay contact 3 (Obstacles closed)
6	
7	Relay contact 4 (Technical failure)
8	
9	Relay contact 5 (Locking of card reader A)
10	
11	Relay contact 6 (Locking of card reader B)
12	
13	Relay contact 7 (Fraud & Intrusion)
14	
15	Relay contact 8
16	

CN3	24 VDC POWER SUPPLY
1	+24 VDC
2	GND
CN11	MOT1 POSITION SENSOR
1	+24 VDC
2	S
3	GND
CN15	NOT USED
1	+24 VDC
2	
3	
4	
5	GND

CN19	INPUTS
1	EI (Locked open)
2	E2 (Locked closed)
3	E3 (Free mode A)
4	E4 (Free mode B)
5	E5 (evacuation)
6	E6
7	E7
8	+24 VDC
9	
10	
11	
12	
13	
14	

CN17	ELECTROMAGNET
1	+24 VDC
2	S9
3	GND

CN20	EMERGENCY
1	+ 24VDC
2	Elergency
3	GND

CN21	CAN 0
1	+ 24VDC
2	GND
3	CAN +
5	CAN -
5	GND
6	+ 24VDC

CN4	JTAG

LD1	●	Green	+5 V activity indicator light
LD 2	●	Yellow	CAN activity indicator light.
LD 3	●	Red	Integrated security indicator light
LD 4	●	Green	Input 1 activity indicator light
LD 5	●	Green	Input 2 activity indicator light
LD 6	●	Green	Input 3 activity indicator light
LD 7	●	Green	Input 4 activity indicator light
LD 8	●	Green	Input 5 activity indicator light
LD 9	●	Green	Input 6 activity indicator light
LD 10	●	Green	Input 7 activity indicator light
LD 11	●	Green	Input 8 activity indicator light (Emergency)
LD 12	●	Green	Relay 1 activity indicator light
LD 13	●	Green	Relay 2 activity indicator light
LD 14	●	Green	Relay 3 activity indicator light
LD15	●	Green	Relay 4 activity indicator light
LD16	●	Green	Relay 5 activity indicator light
LD17	●	Green	Relay 6 activity indicator light

LD18:	●	Green	Relay 7 activity indicator light
LD19	●	Green	Relay 8 activity indicator light
LD20	●	Green	Output 1 activity indicator light
LD21	●	Green	Output 2 activity indicator light
LD22	●	Green	Output 3 activity indicator light
LD23	●	Green	Output 4 activity indicator light
LD24	●	Green	Output 5 activity indicator light
LD25	●	Green	Output 6 activity indicator light
LD26	●	Green	Output 7 activity indicator light
LD27	●	Green	Output 8 activity indicator light
LD28	●	Yellow	Dynamic status light Blue
LD29	●	Yellow	dynamic status light Red
LD30	●	Yellow	Dynamic status light Green
LD31	●	Yellow	Dynamic orientation light Red
LD32	●	Yellow	Dynamic orientation light Green
LD33	●	Yellow	Output 9 activity indicator light (EM)

9.5. AS1605 CIRCUIT BOARD - MAIN AND E/S INTERFACE BOARD

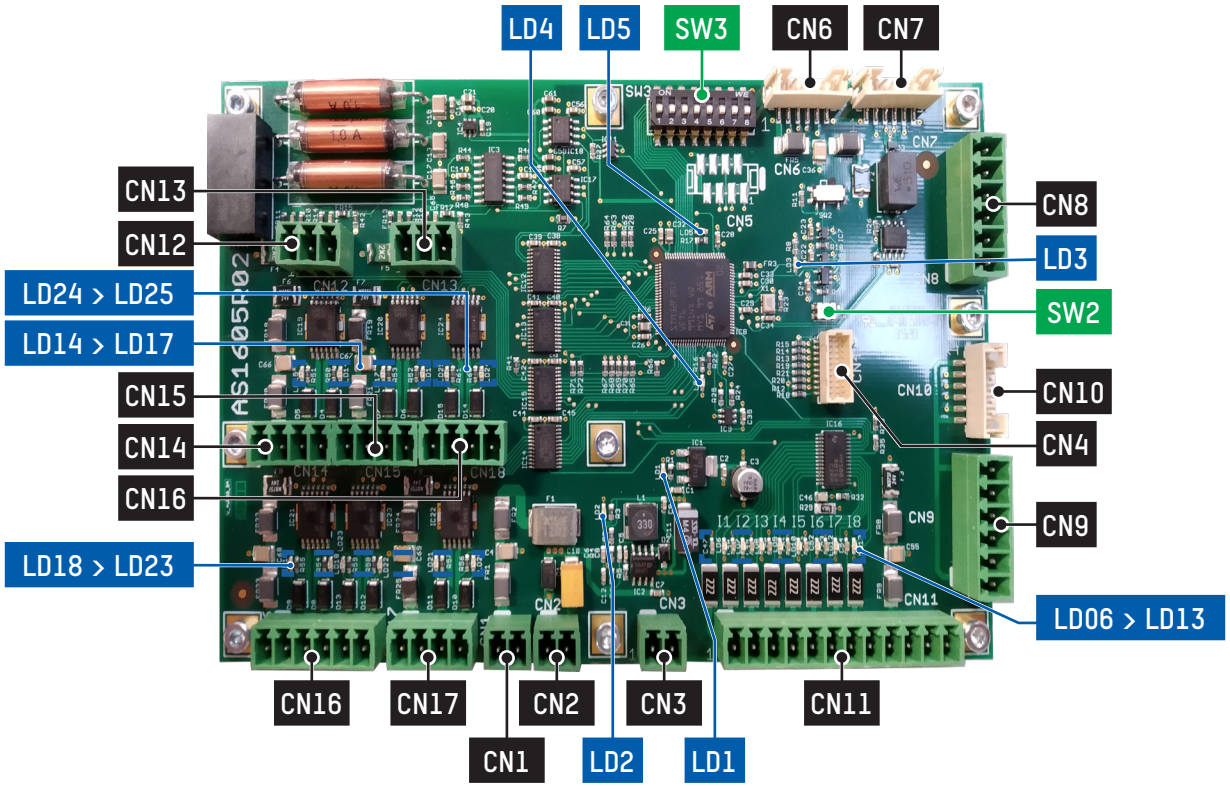


Fig. 109 - AS1605 circuit board - Main and E/S interface board

CN1	24 VDC POWER SUPPLY
1	+24 VDC
2	GND
CN4	PROGRAMMING (AS)
CN8	CAN 0
1	+24 VDC
2	GND
3	CAN +
5	CAN -
5	GND
6	+24 VDC
CN11	INPUTS
1	E1 (Security cell)
2	E2 (Cell direction B)
3	E3 (Cell direction A)
4	E4 (Authorization in direction A)
5	E5 (Authorization in direction B)
6	E6 (Locked open)
7	E7 (Locked closed)
8	E8 (evacuation)
9	+24 VDC
10	
11	
12	

CN2	24 VDC POWER SUPPLY
1	+24 VDC
2	GND
CN6	CAN 0 BUS
CN9	CAN 1
1	+24 VDC
2	GND
3	CAN +
5	CAN -
5	GND
6	+24 VDC
CN12	NOT USED
1	+24 VDC
2	S
3	GND
CN14	NOT USED
1	+24 VDC
2	
3	
4	GND
CN17	NOT USED
1	+24 VDC
2	
3	
4	GND

CN3	24 VDC POWER SUPPLY
1	+24 VDC
2	GND
CN7	CAN 0 BUS
CN10	CAN 1 BUS
CN13	MOT2 POSITION SENSOR
1	+24 VDC
2	S
3	GND
CN15	NOT USED
1	+24 VDC
2	
3	
4	GND
CN16	NOT USED
1	+24 VDC
2	
3	
4	
5	
6	GND
CN18	ELECTROMAGNET (*)
1	S (*)
2	GND (*)
3	S
4	GND

LD1	●	Green	3.3V presence indicator light
LD 2	●	Green	5V presence indicator light
LD 3	●	Green	Watchdog indicator light
LD 4	●	Yellow	CAN indicator light
LD 5	●	Red	Failsafe indicator light
LD 6	●	Green	Input 1 activity indicator light
LD 7	●	Green	Input 2 activity indicator light
LD 8	●	Green	Input 3 activity indicator light
LD 9	●	Green	Input 4 activity indicator light
LD 10	●	Green	Input 5 activity indicator light
LD 11	●	Green	Input 6 activity indicator light
LD 12	●	Green	Input 7 activity indicator light
LD 13	●	Green	Input 8 activity indicator light

LD 14	●	Yellow	Dynamic status light 1 Green
LD15	●	Yellow	Dynamic status light 1 Red
LD16	●	Yellow	Dynamic status light 2 Green
LD17	●	Yellow	Dynamic status light 2 Red
LD18:	●	Yellow	Dynamic status light Green
LD19	●	Yellow	Dynamic status light Red
LD20	●	Yellow	Dynamic orientation light Green
LD21	●	Yellow	Dynamic orientation light Red
LD22	●	Yellow	Dynamic status light White
LD23	●	Yellow	Dynamic status light Blue
LD24	●	Yellow	Output 2 activity indicator light (EM)
LD25	●	Yellow	Output 1 activity indicator light (EM)

9.6. CAN END OF BUS CIRCUIT BOARD

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

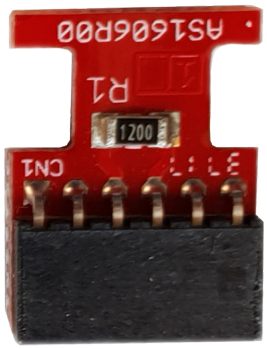


Fig. 110 - CAN end of bus circuit board

9.7. DYNAMIC LIGHT BOARD AS1656

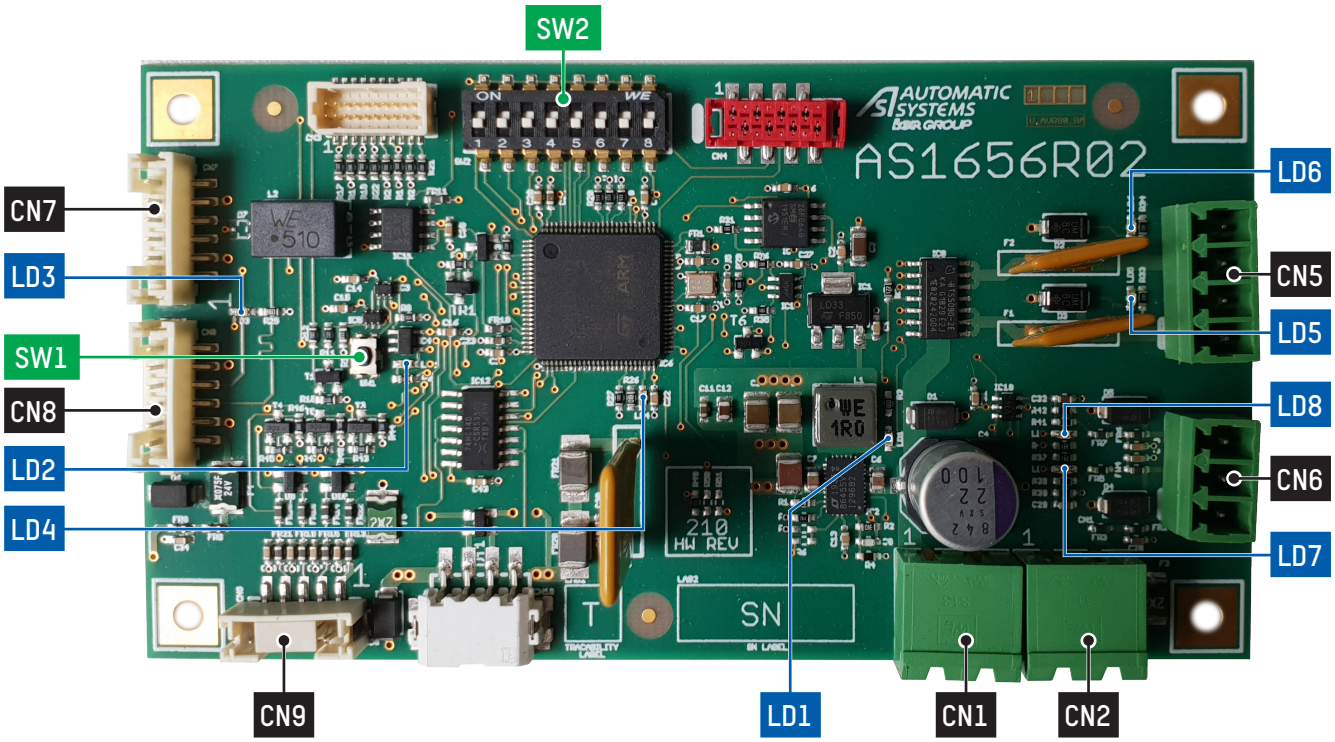


Fig. 111 - Dynamic light board AS1656

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
LD 2	●	Green	Watchdog
LD 3	●	Yellow	CAN bus statua
LD 4	●	Red	Defect present
LD 5	●	Yellow	Digital output 1 status
LD 6	●	Yellow	Digital output 2 status
LD 7	●	Green	Digital input 1 status
LD 8	●	Green	Digital input 2 status

SW1	Reset button
SW2	CAN address DIP switches
CN4	Debug connector

9.8. CAN ADDRESSES OF THE DIFFERENT CIRCUIT BOARDS

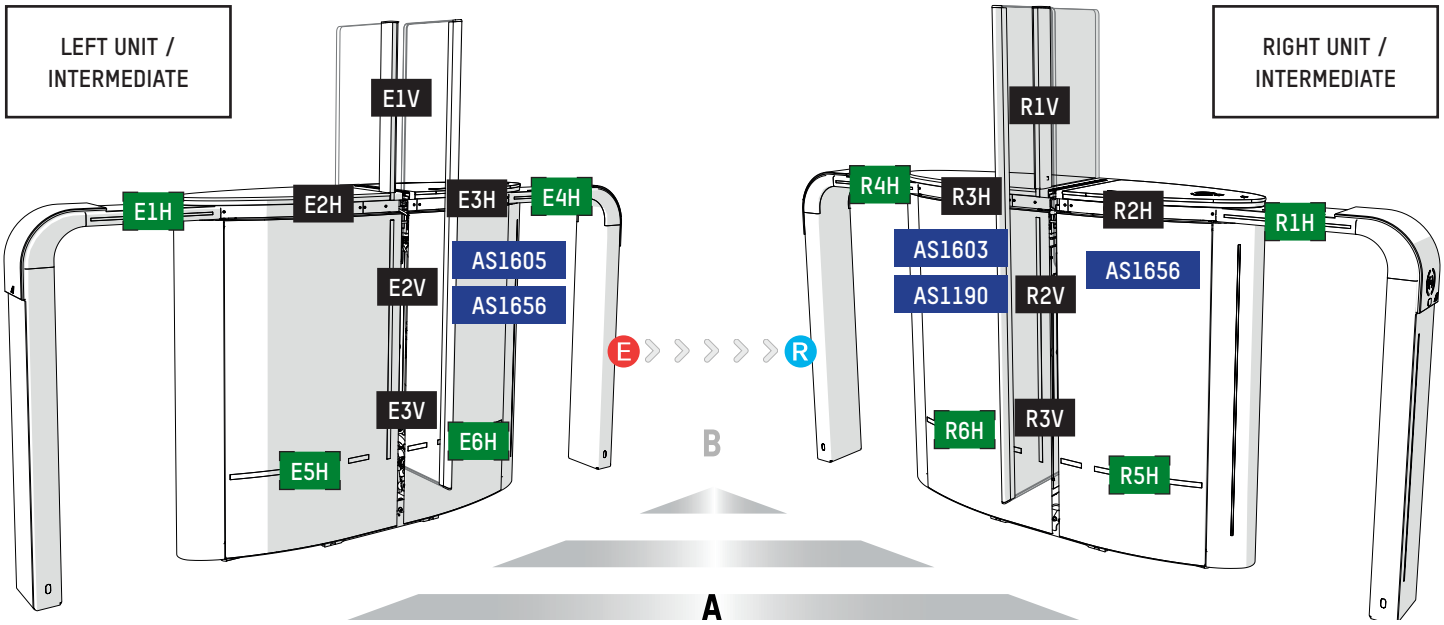


Fig. 112 - CAN addresses

LEFT/INTERMEDIATE UNIT		
REFERENCE	BOARD	CAN ADDRESS
E1H *	AS1642	00010101
E2H	AS1652	10010101
E3H	AS1652	01010101
E4H *	AS1642	11010101
E5H	AS1652	00100101
E6H	AS1652	10100101
E1V	AS1642	00110101
E2V	AS1642	10110101
E3V	AS1642	01110101
	AS1605	10000011
	AS1656	00100011

RIGHT/INTERMEDIATE UNIT		
REFERENCE	CIRCUIT BOARD	CAN ADDRESS
R1H *	AS1643	00010001
R2H	AS1653	10010001
R3H	AS1653	01010001
R4H *	AS1643	11010001
R5H	AS1653	00100001
R6H	AS1653	10100001
R1V	AS1643	00110001
R2V	AS1643	10110001
R3V	AS1643	01110001
	AS1190	
	AS1603	00000011
	AS1656	11000011
	ATV320	10000001

(*) With optional extension

10. CUSTOMISATION

To customise your equipment, we advise you to contact the sales manager of your region who will be able to guide you in this step.

10.1. REGULATED HEATING (OPTIONAL)

For use at low temperatures, from 0 to -20°C, the SmartLane should be equipped with an optional regulated heating.

As shown in the illustration below, this consists of two components:

- The heater (**1**) will be placed on a DIN rail fixed to the main frame;
- The thermostat (**2**) will also be placed on a DIN rail on the power board.

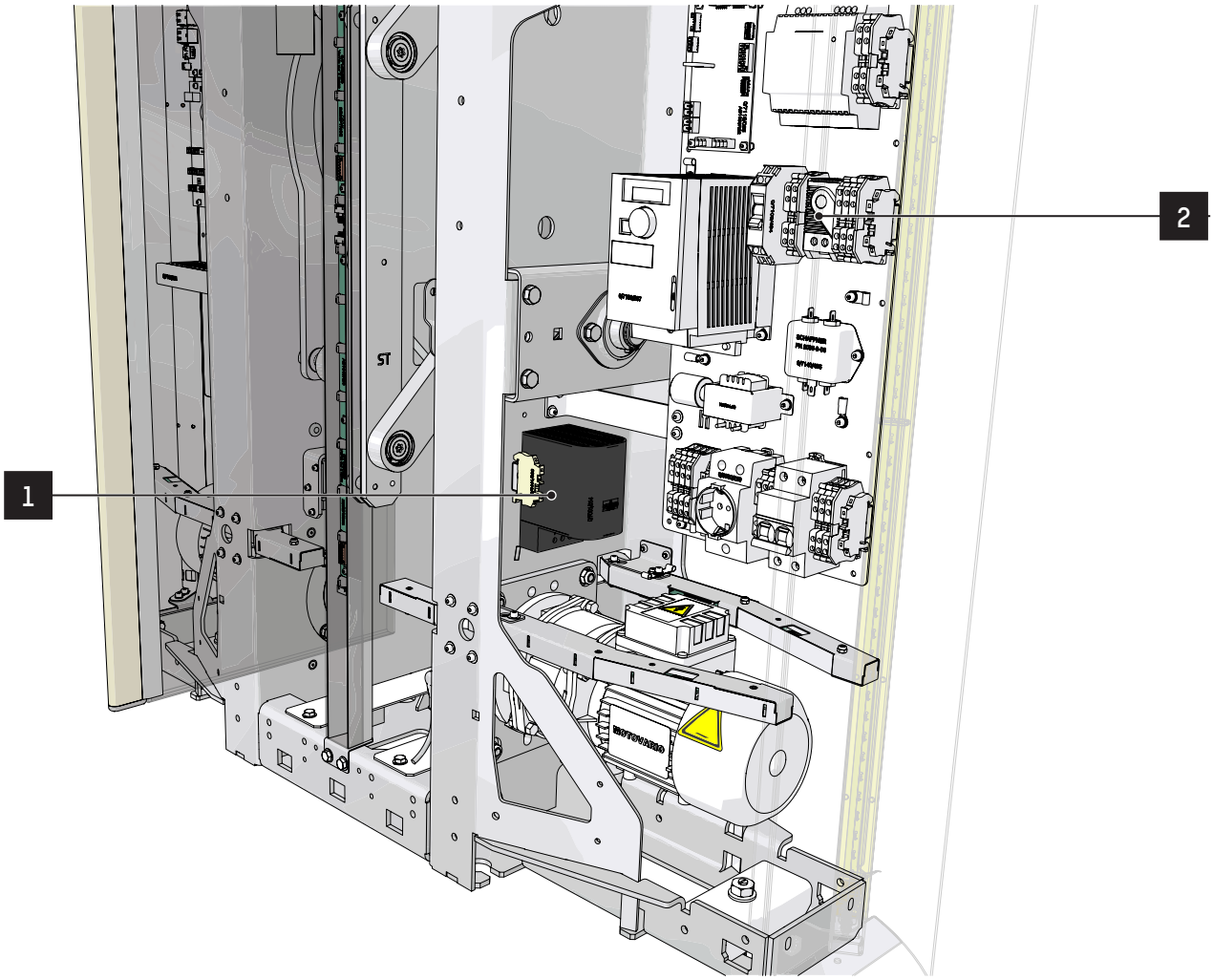


Fig. 113 - Optional regulated heating

For the wiring of the various elements, refer to the Electrical Technical File (**DTE**) supplied with the device.

10.2. AUTO-TRANSFORMER - 120 V > 230 V (OPTIONAL)

For countries with a 120 V mains supply, an auto-transformer (**1**) to increase the voltage is required, as the SmartLane is designed to operate at 230 V only.

This is attached directly to the main frame.

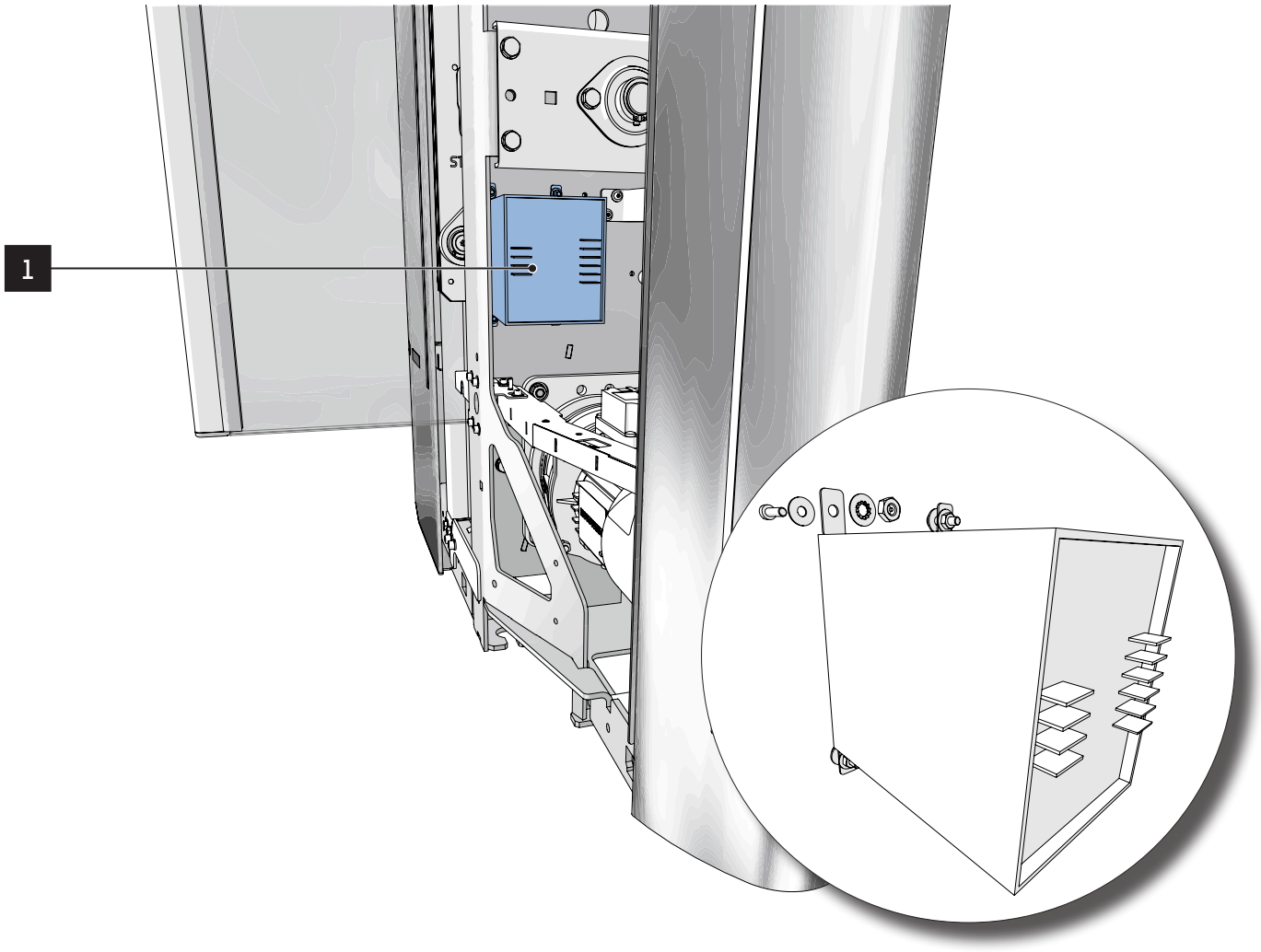


Fig. 114 - Optional auto-transformer (120 V ⇨ 230 V)

For the wiring of the various elements, refer to the Electrical Technical File (**DTE**) supplied with the device.

11. WIRING DIAGRAMS

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

SCAN ME

CLICK HERE

12. EC DECLARATION OF CONFORMITY

IF, FOR AESTHETIC OR OTHER REASONS, THE MOVABLE OBSTACLES ARE NOT SUPPLIED WITH A PROTECTIVE PROFILE, THE CE CONFORMITY BECOMES NULL AND VOID.

AUTOMATIC SYSTEMS

CE

EC declaration of conformity

bsi. ISO 9001 Quality Managment

bsi. ISO 14001 Environmental Management

We, undersigned,

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

Herewith declare that the following machine

Security entrance lane

SmartLane (SL 2900) - Standard Lane

SmartLane (SL 2910) - Wide Lane

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.

Made in WAVRE,
Date: 2021.06.16
Name: Nicolas Péqueux
Function: Engineering Director

Fig. 115 - CE Declaration

NOTES

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