

***Bidirectional motorised gate***  
***type « PMD 335-336-337-338-340 »***

# **FIELD MANUAL**

**(Translated from the French original notice)**

**Rev 7**

*Automatic Systems reserves the right to change the characteristics of its products without notice.*

## Revisions

Revision	Date	Author	Checked	Nature
00				
01				
02				
03				
04	2010-08-30	MFy		Changing the variable speed controller model (> ATV12) and adapting the parameters.
05	2010-11-03	MFy		<ul style="list-style-type: none"> <li>• ATV12 frequency converter parameters modified.</li> <li>• Electric diagram updated.</li> </ul>
06	2011-03-04	MFy		<ul style="list-style-type: none"> <li>• Ch.3.5: AS1029 is optional</li> <li>• Electric diagrams updated.</li> </ul>
07	2012-05-16	MFy		<ul style="list-style-type: none"> <li>• Ch.3.5: J4 terminals corrected.</li> </ul>

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## 1. INTRODUCTION

We thank you for choosing the bidirectional, motorised swinging gate type "PMD335-340" designed and manufactured by Automatic Systems. We are confident that your purchase will fully meet your requirements. However, in order to obtain maximum satisfaction from this equipment for a maximum period of time, we strongly advise you to read this manual carefully before installing the equipment.

Although this manual has been prepared with great care, some information may seem erroneous or unclear to you. In this case, please do not hesitate to contact us with your remarks or questions.

### **WARNING :**

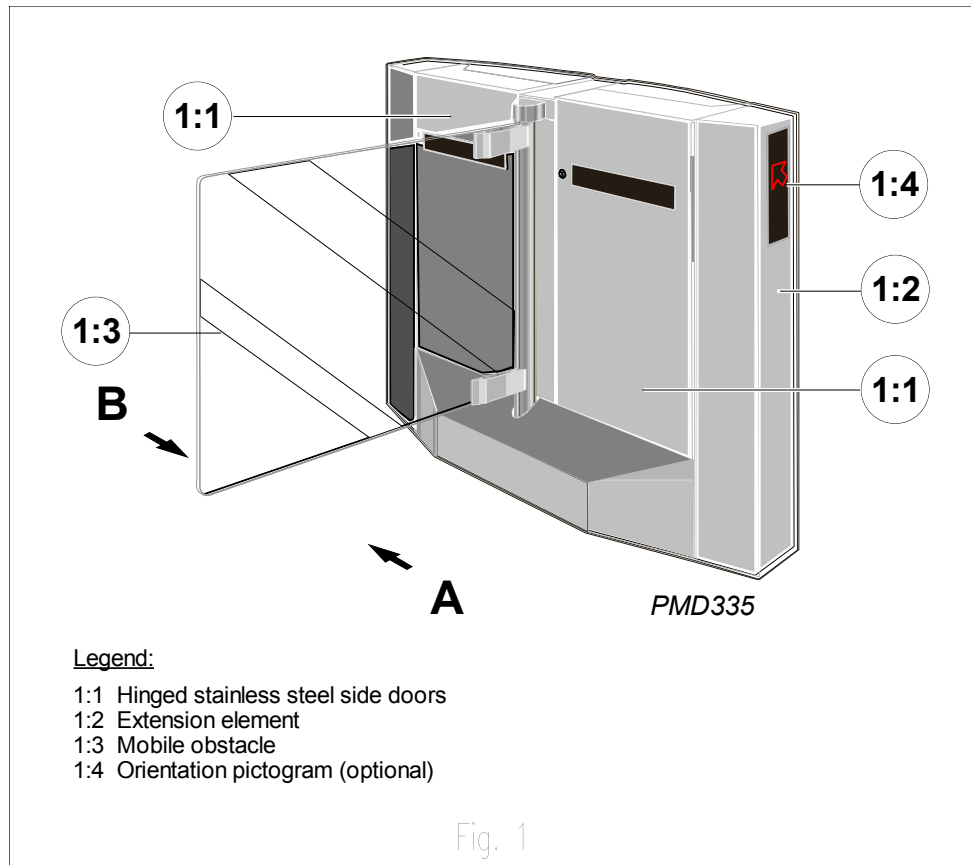
YOUR PMD BIDIRECTIONAL MOTORISED GATE COMPRISES A MECHANISM AND VARIOUS ELECTRICAL COMPONENTS. ANY NEGLIGENCE DURING AN INTERVENTION IN THE MACHINE MAY SERIOUSLY ENDANGER YOUR SAFETY. AS SOON AS YOU OPEN THE HOUSING, SWITCH OFF THE MAIN MAGNETO-THERMAL CIRCUIT BREAKER (2:9) LOCATED BEHIND THE LATERAL DOOR (1:1) BE CAREFUL IN HANDLING ANY INTERNAL ELEMENT WHICH MIGHT BE UNDER POWER OR COULD BE SET IN MOTION.

WHEN WORKING ON THE CIRCUITS, IT IS RECOMMENDED NOT TO:

- UNWIRE CABLES WITHOUT MARKING THE TERMINAL ON WHICH IT IS CONNECTED;
- REMOVE THE CONNECTOR WITHOUT MARKING ITS PRECISE LOCATION.

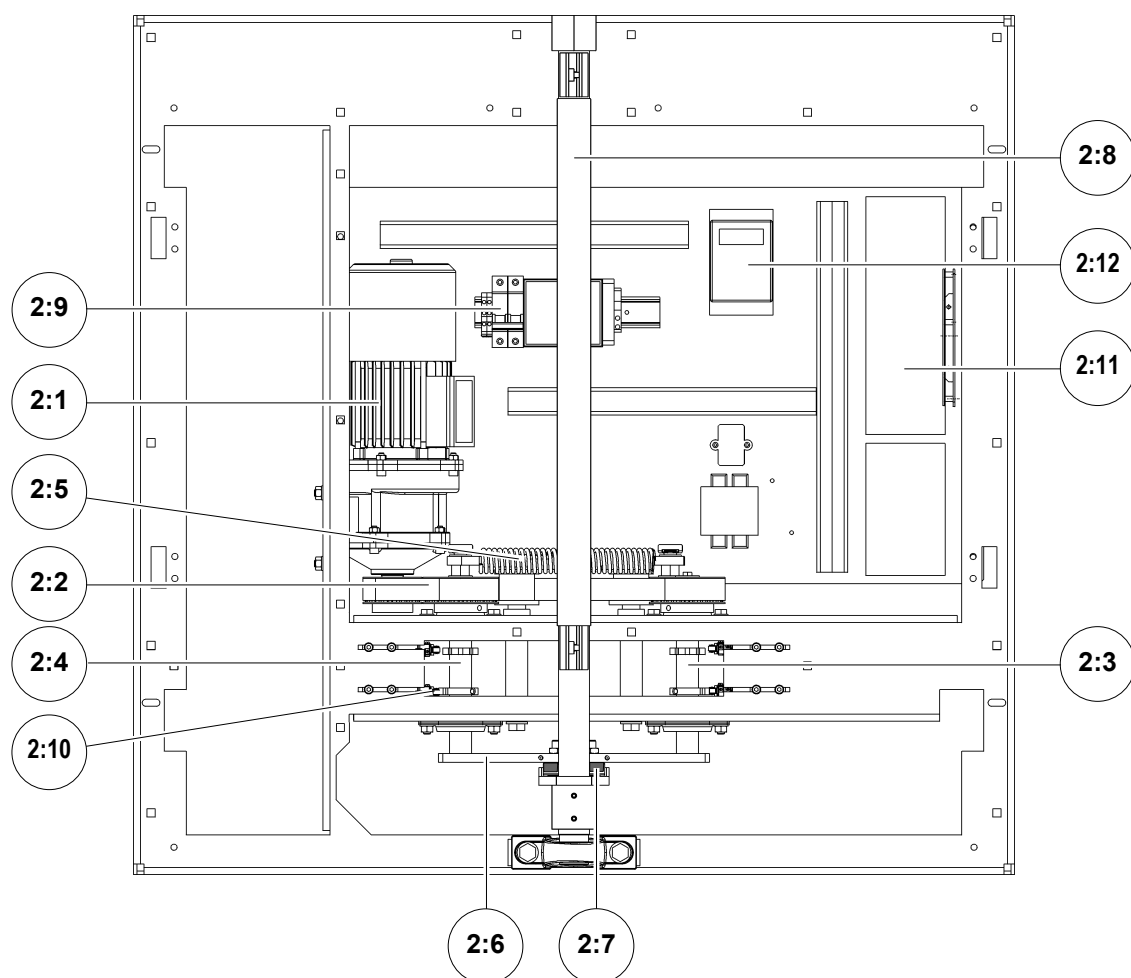
## 2. GENERAL

### 2.1. General view



**Note :** Conventionally and as a general rule, the user will be considered as passing in direction "A" when the gate is on their right-hand side, and as passing in direction "B" when the gate is on their left-hand side.

## 2.2. Sectional view

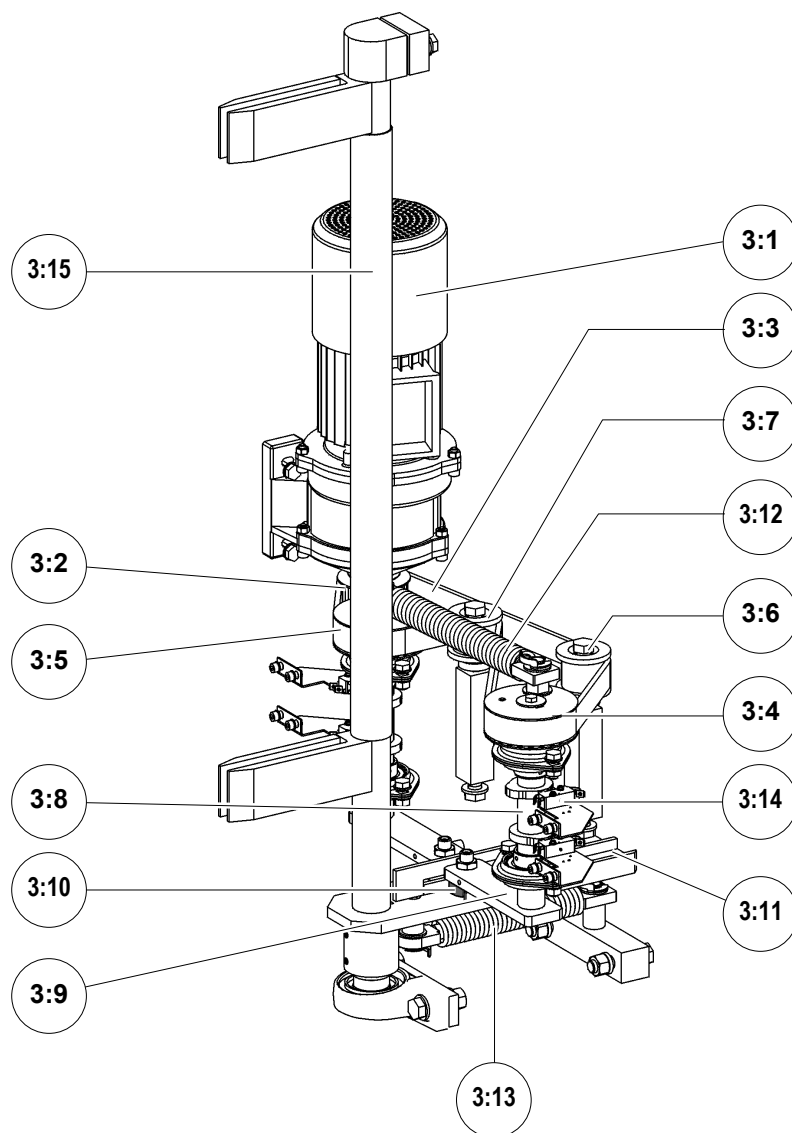


### Legende

2:1	Geared motor	2:7	Roller
2:2	Transmission belt	2:8	Obstacle shaft
2:3	Transmission shaft direction A	2:9	Circuit breaker and connection block
2:4	Transmission shaft direction B	2:10	Limit switches
2:5	Unlocking spring	2:11	Electronic control logic
2:6	Crank	2:12	Variable speed controller

Fig. 2

## 2.3. Mechanical assembly



### Legend

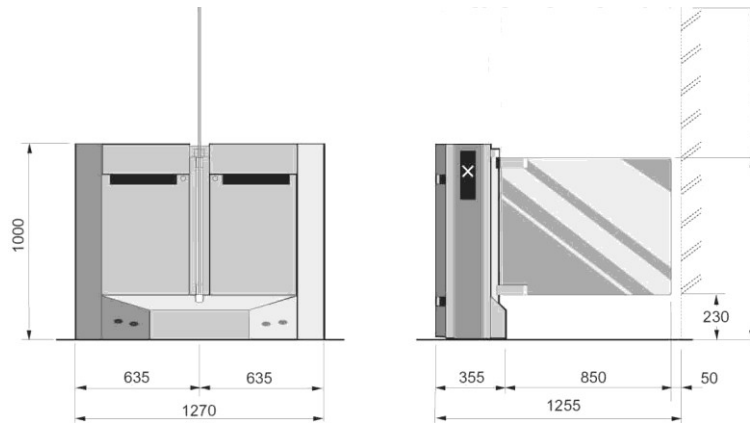
3:1	Geared motor	3:9	Crank
3:2	Driving pulley	3:10	Roller
3:3	Transmission belt	3:11	Roller guiding rail
3:4	Driving pulley for shaft A	3:12	Unlocking spring
3:5	Driving pulley for shaft B	3:13	Anti-panic spring
3:6	Pulley for geometry setting	3:14	Limit switch
3:7	Pulley for tension setting	3:15	Obstacle shaft
3:8	Transmission shaft direction A		

Fig. 3

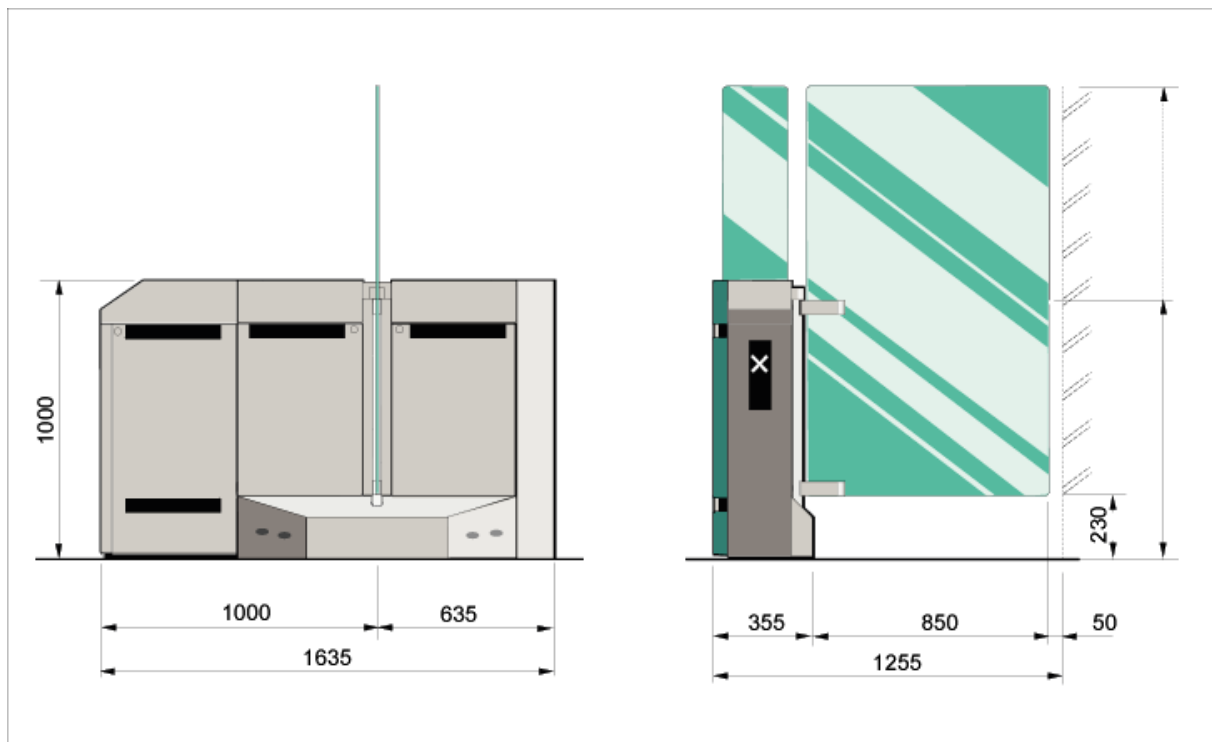


## 2.4. General dimensions

PMD 335



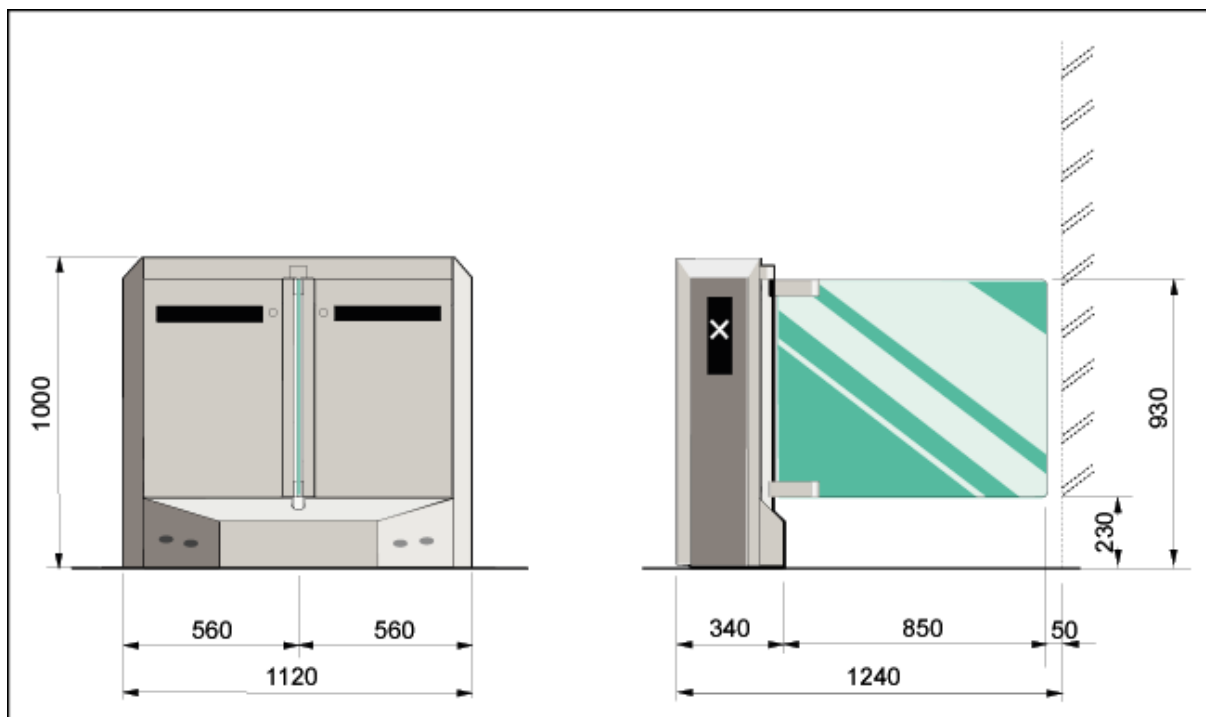
PMD 336



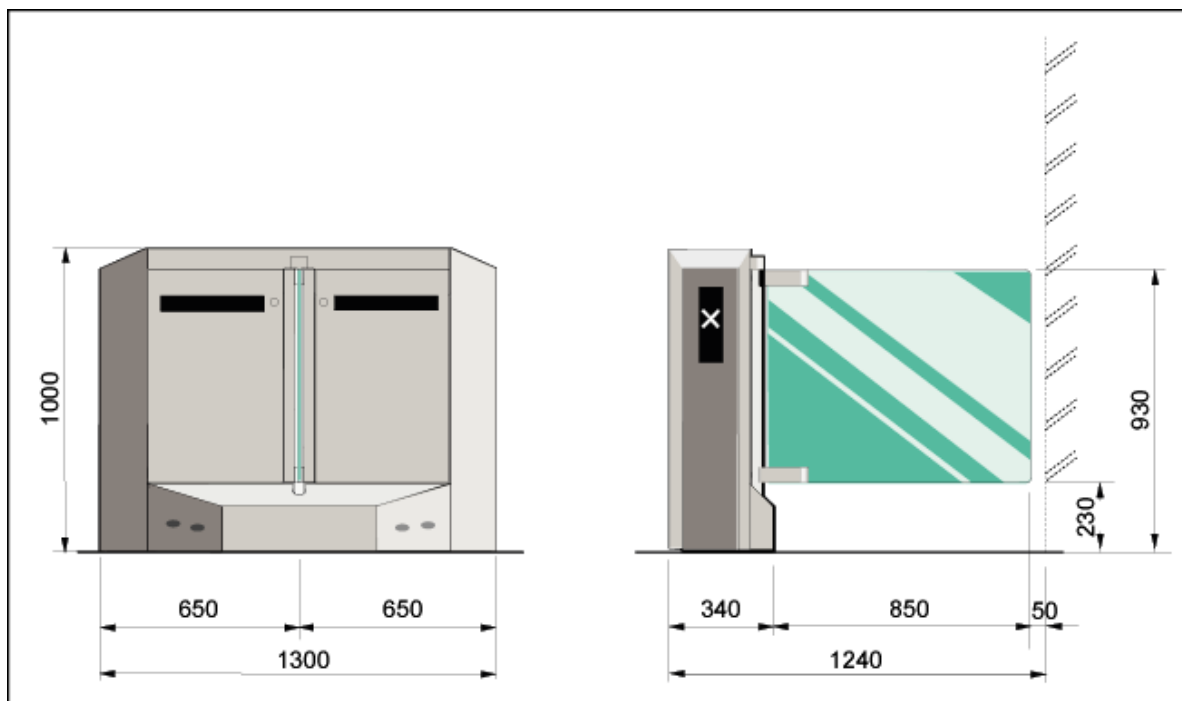
PMD 337



PMD 338



PMD 340

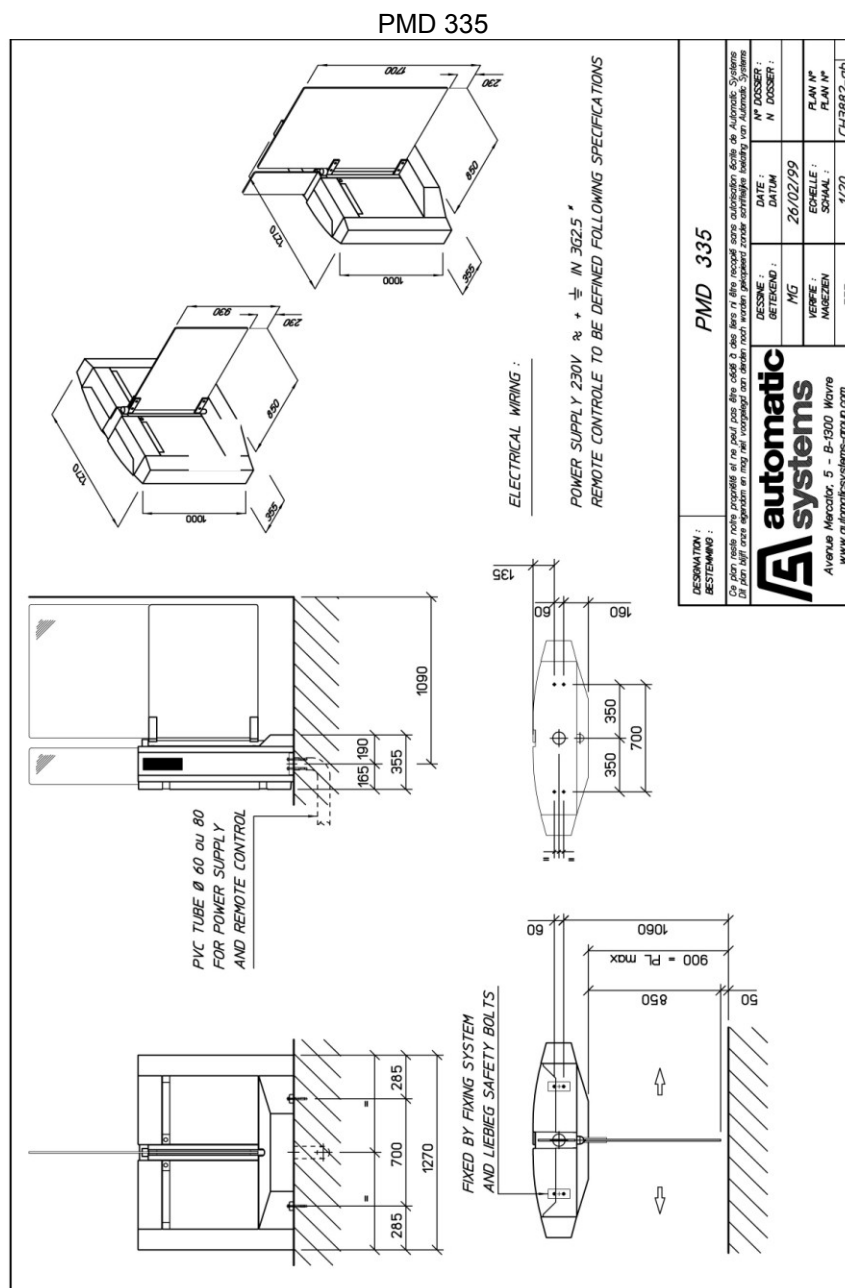


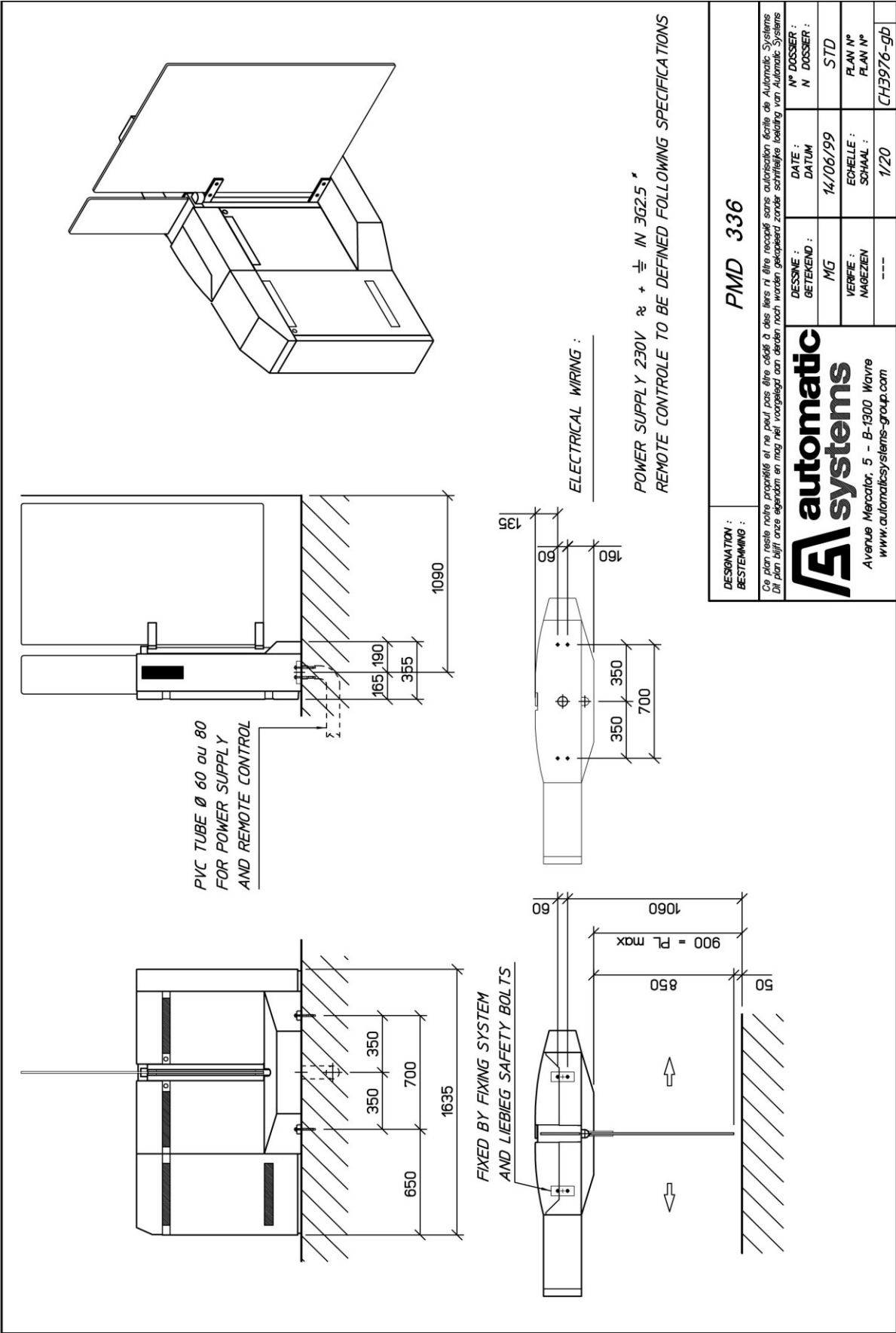
## 2.5. Installation plans (with wiring)

### • Work not supplied :

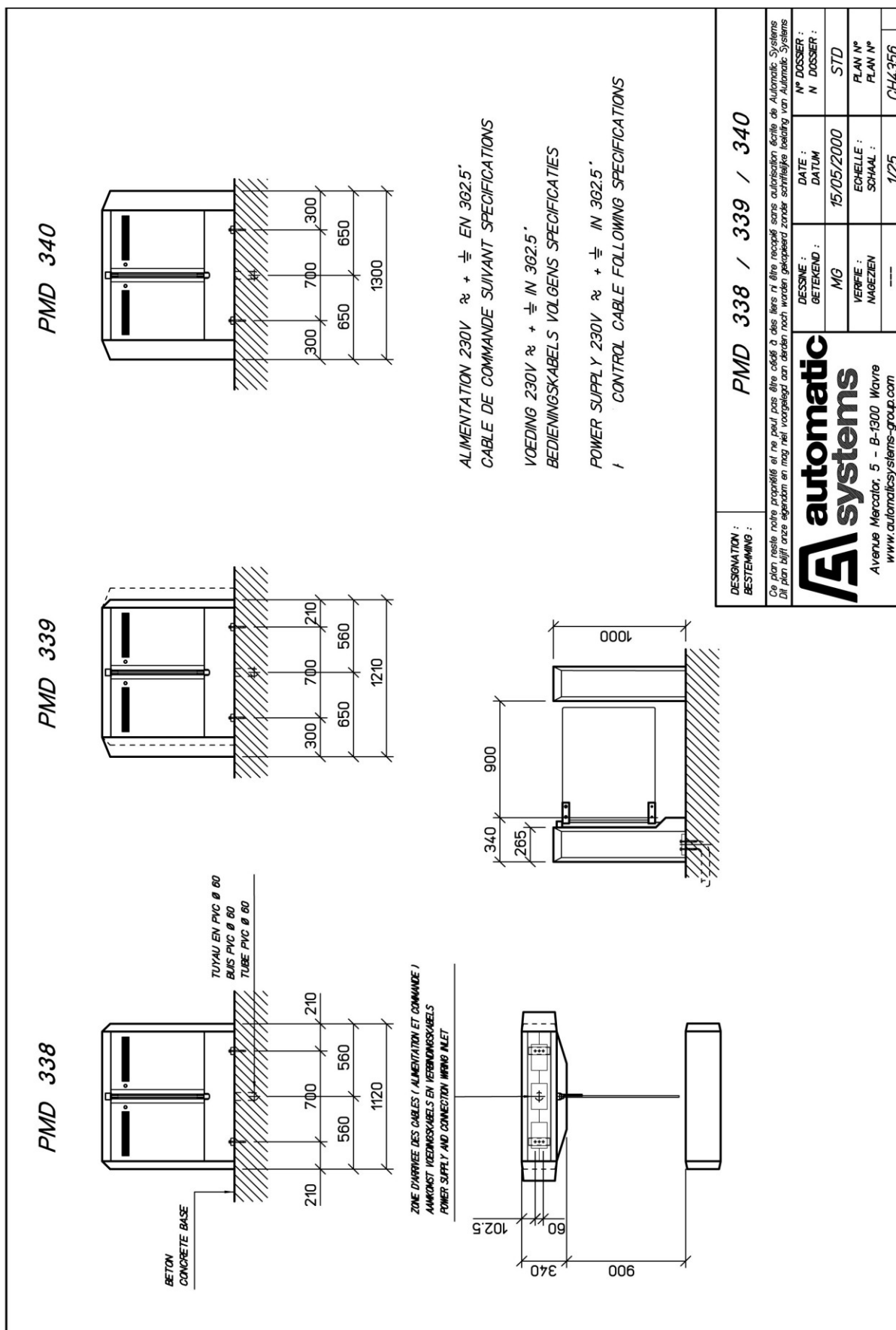
- ⇒ Single-phase power supply cable for the gate: 230V $\approx$  + earth in 3G2.5 (2 x 2.5 + earth).
- ⇒ Remote control between control desk and gate in 12 pairs 0.6 type TPVF.

**Warning :** In all cases, ensure that cables have a 3-metre tail from the finished ground level. In case the gates are installed in a battery, prepare a wire puller between each adjacent gate.

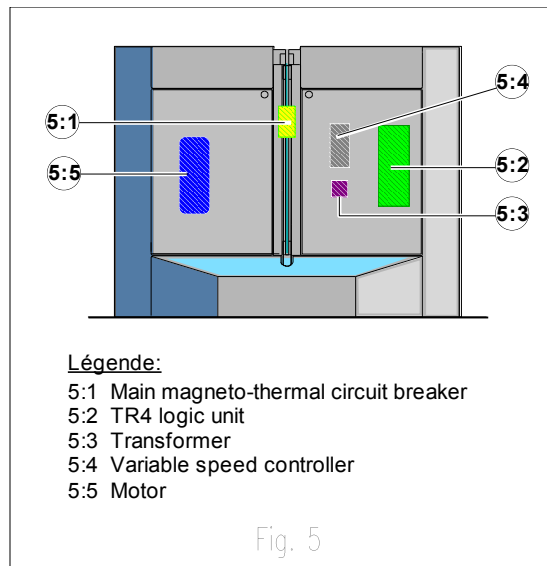




DESIGNATION : BESTEMMING :	<b>PMD 337</b>			
<p>De plan reste notre propriété et ne peut pas être recopié sans autorisation écrite de Automatic Systems</p> <p>Dit plan blijft onze eigendom en mag niet voorgelegd aan derden noch worden gekopieerd zonder schriftelijke toelating van Automatic Systems</p>				
DESIGNEE : BETREFFEND :	DATE : DATUM :	N° DOSSIER : N DOSSIER :		
MG	14/06/99	STD		
VERFIE : NAGEZEN	ECHELLE : SCHAAL :	PLAN N° PLAN N°		
	1/20	CH3975-gb		



## 2.6. Switching off the equipment



- As soon as you open the housing, switch off the main magnetothermal circuit breaker (5:1), located behind the two lateral stainless steel doors (1:1).

**Attention:** As in case of a power cut, the passage is freed, open the lateral door on the side opposite to the opening (see chapter [8.3. Anti-panic device]).

## 2.7. General conditions of use

- Your bidirectional “PMD3xx” swinging gate has been designed to operate in any kind of climatic environment, from 0°C to + 50°C.

## 2.8. In case of power failure

- In case of power failure, the obstacle opens automatically in direction A or B according to the position of the unlocking spring (see chapter [8.3. Anti-panic device]).



## 2.9. Typical configuration

The PMD 3xx is usually located at the end of a PNG 38x battery with narrower lanes. It allows persons with reduced mobility to enter or exit (disabled persons in wheelchairs, persons with bulky luggage, waggons...). In locked or controlled mode, the obstacle is closed (as shown in **Fig. 6**); in free mode, the obstacle is open.

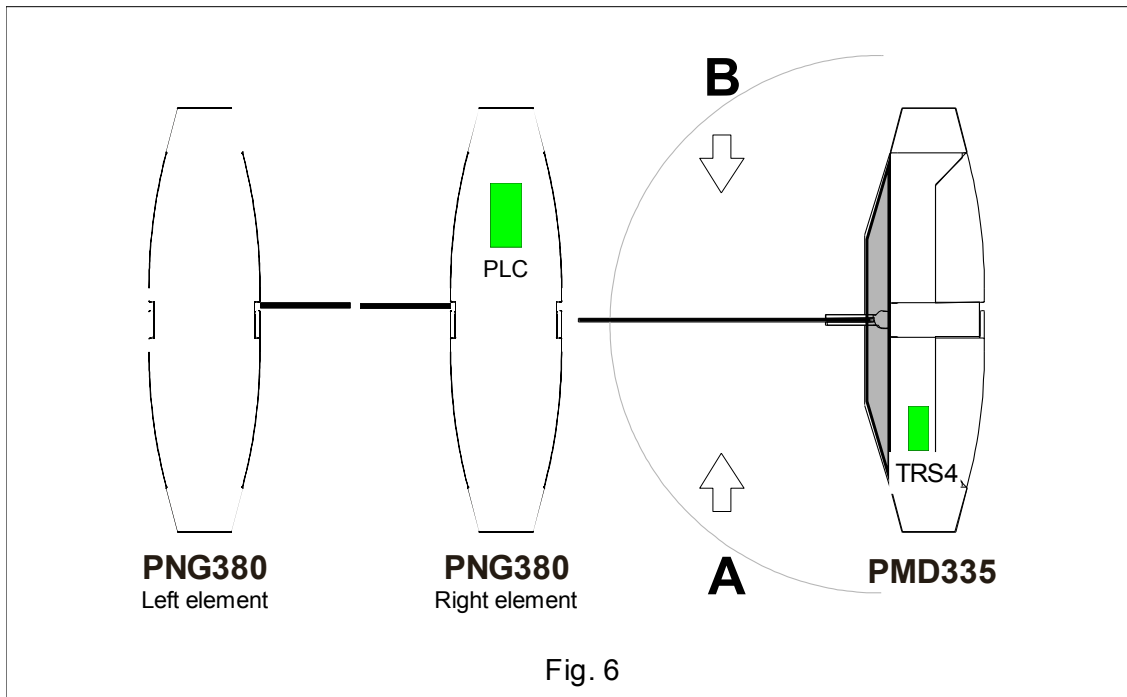
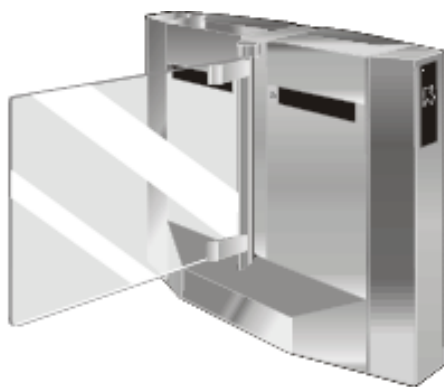


Fig. 6

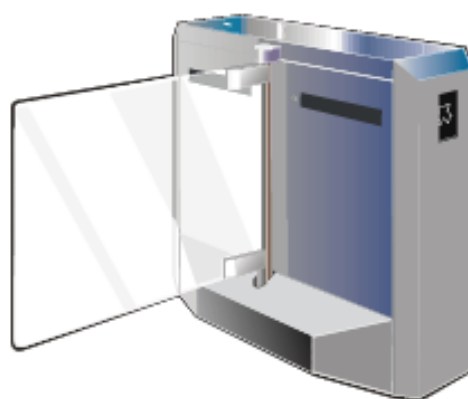
The PMD3xx opens in the direction of the user's movement.

**Note:** The PMD 336 will be used to complete a row of PNG 381, the PMD 337 for the PNG 382, the PMD 338 for the TR 470 and the PMD 340 for the TR 490.

**The mechanical and electronic parts are identical in all those devices. The housings only are adapted (see fig. 6b).**



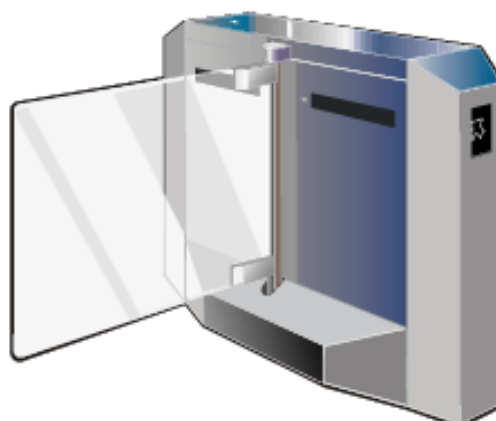
PMD 335



PMD 338



PMD 336



PMD 340



PMD 337

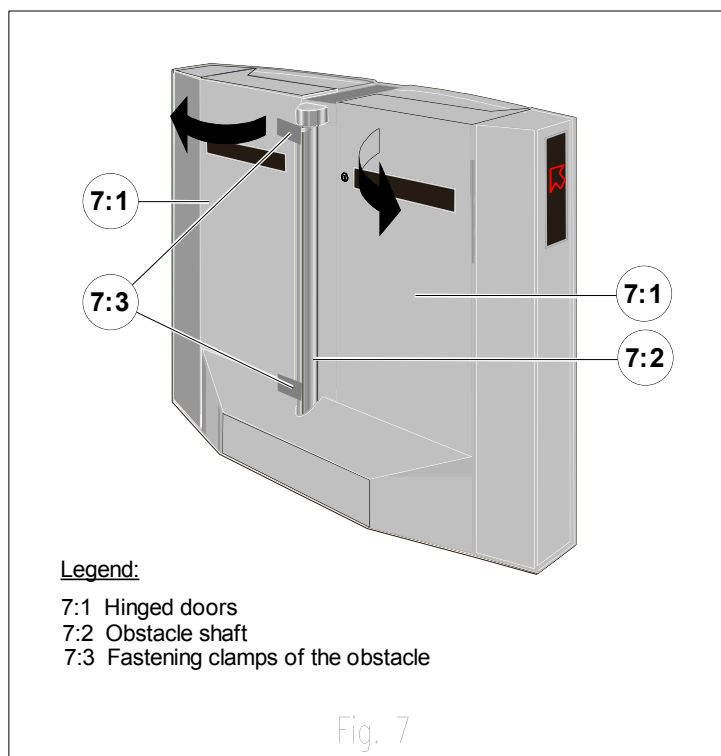
Fig. 6b

## 2.10. Common abbreviations

- Most common abbreviations used in this manual:
  - ◆ Alr : Alarm.
  - ◆ FC : Limit switch.
  - ◆ fca : Limit switch direction A.
  - ◆ fcb : Limit switch direction B.
  - ◆ LED : Light-Emitting Diode.
  - ◆ Picto : Pictogram.
  - ◆ PLC : Programmable Logic Controller.
  - ◆ Tempo : Time-out.
  - ◆ VF : Variable Speed Controller

### 3. INSTALLATION

#### 3.1. First step



- The gate has been packaged suitable for transport. Carry the material to the installation site with the help of a fork-lift truck and remove the packing material.
- Unlock and open the hinged side doors (7:1). Keys are attached on the housing by means of adhesive tape.
- Check the state of the material. Though it has been carefully packed, damage may have occurred during transport. Inform your insurance company or your dealer without any delay. And if necessary, perform the necessary repairs.

### 3.2. Preliminary work on site

- This is basically the following :
  - ◆ Study of the set-up and position of the equipment according to the site's general lay-out.
  - ◆ Preparation of holes in the floor according to the specifications of the installation plans. Make sure to drill the holes with the diameter adapted to the expansible bolts provided as accessories.

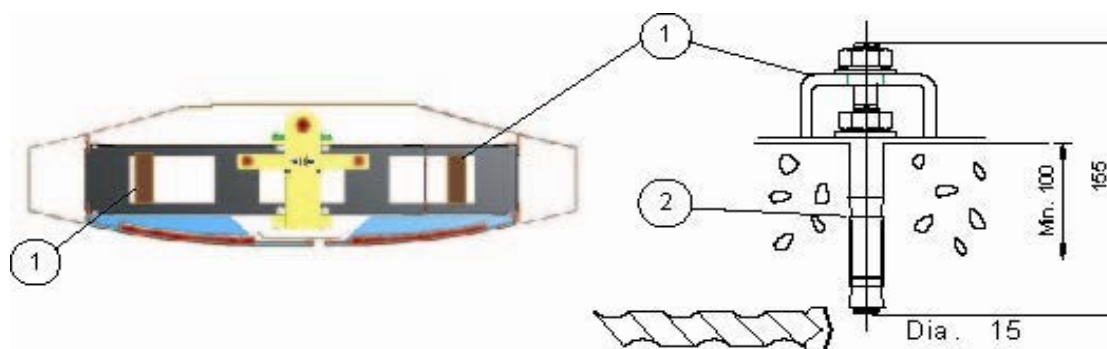


Fig. 8

Legend :

1 : Fixing bracket

2 : Expansible bolt B15/30

3413/000 (or equivalent)

*Note: The 750mm distance between the fixing brackets is the maximum and optimal distance. However, it can be reduced to 450mm.*

- ◆ Preparation of the electrical power supply and control cabling according to the specifications in paragraph [2.3.Overall dimensions and installation plans].

### 3.3. Installing the gate

- Check if the floor is perfectly horizontal (the base of the gate must be perfectly flush with the floor).
- Position the housing precisely according to the installation plan.
- Pull the power cables on the motor side.
- Make sure that the housing is perfectly horizontal and, if need be, aligned with the PNG.
- Secure the gate firmly to the floor by tightening the two fixing brackets provided and using the bolts.

### 3.4. Electrical connections

**WARNING:** do not connect to a floating network or to high impedance earthed industrial distribution network.

**WARNING:** high leakage current.

Imperatively connect to the ground with a 1-mm<sup>2</sup> cable minimum before connecting the mains.

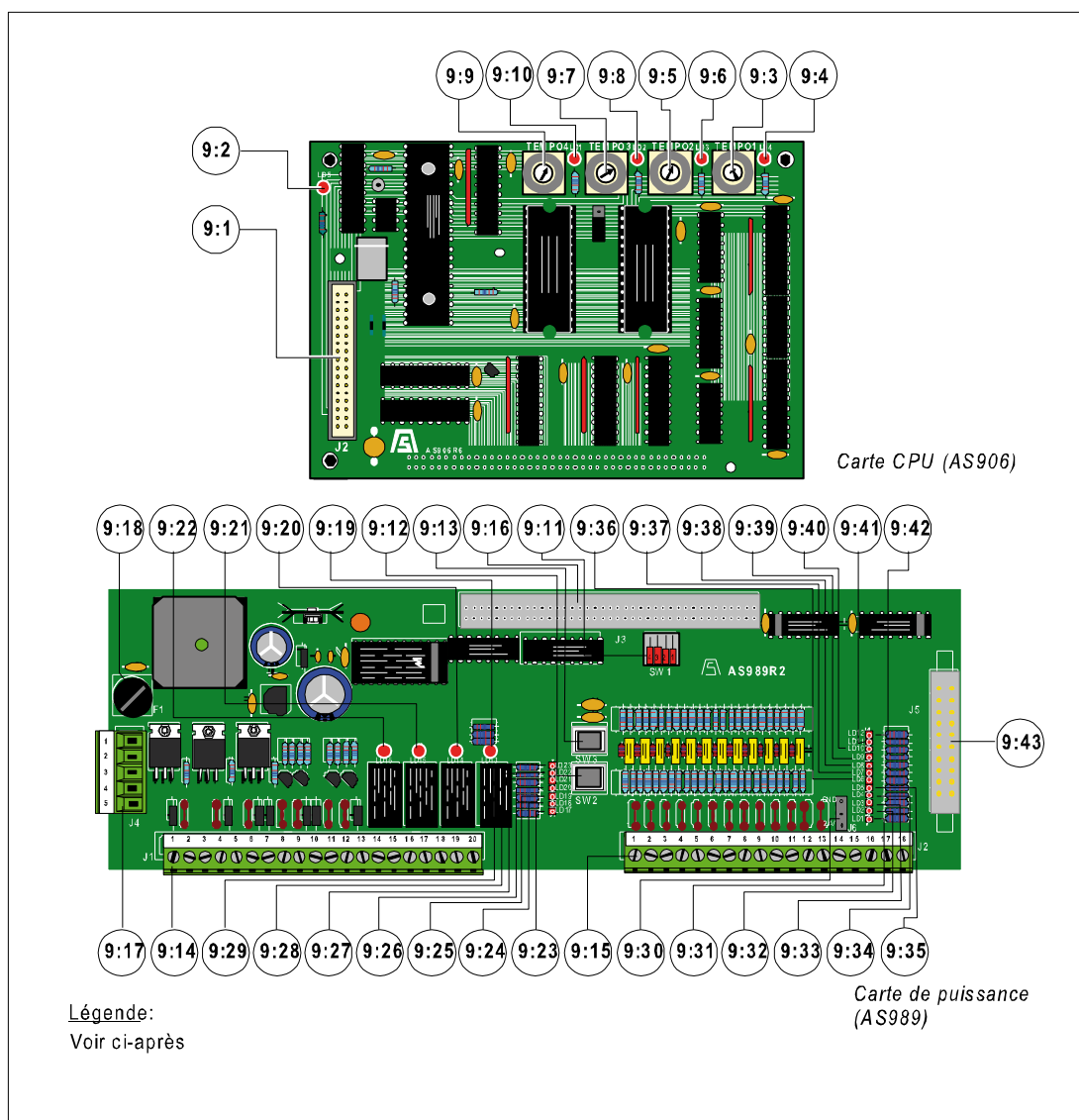
Do not connect several equipments to the same differential breaker.

- The electrical connections must be made according to the electrical diagrams supplied with the equipment (also enclosed in this manual).

#### **Make sure that the power supply cables are not live**

- All internal connections are factory-made.
- Connect the single-phase power supply to the power supply terminal as well as the earth wire to the terminal.
- Perform the possible other electrical connections according to the equipment specifications.

### 3.5. Electronic control logic



#### CPU power board (AS906)

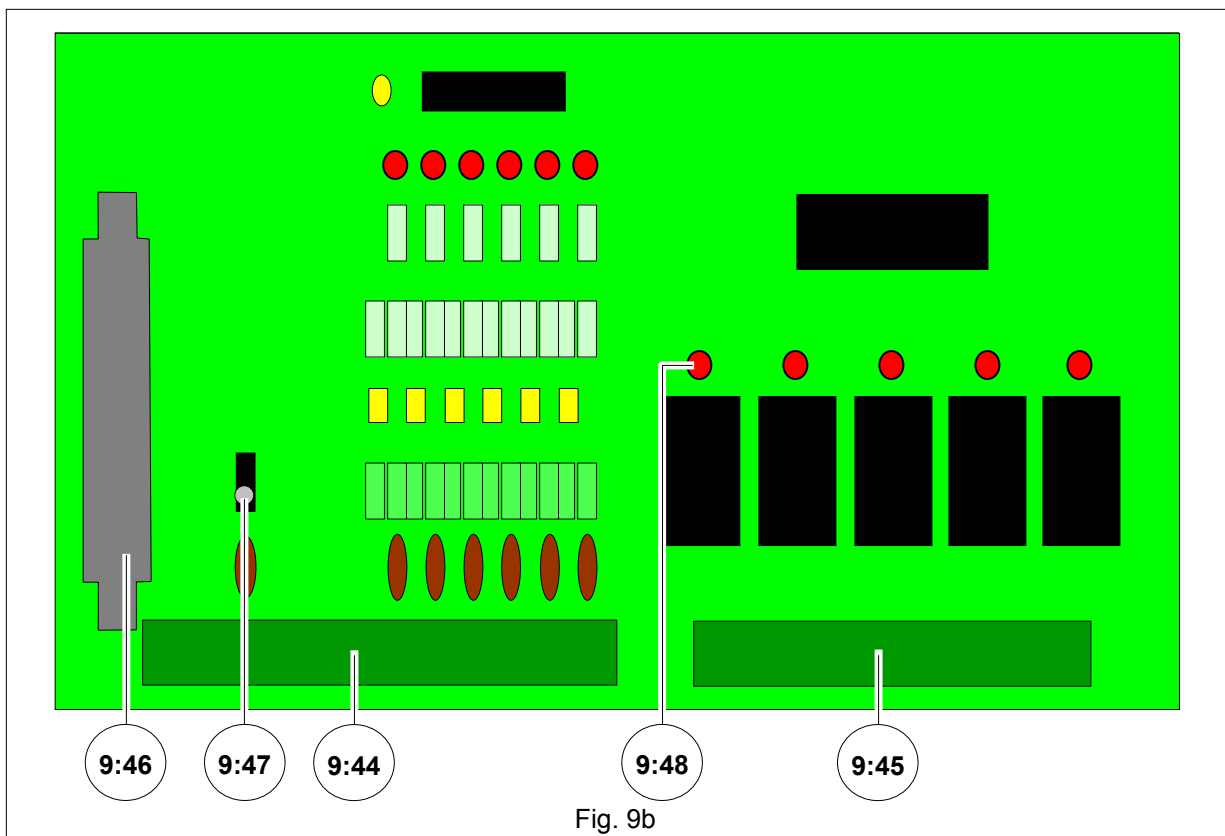
- 9:1** J2: connector
- 9:2** LED5: CPU board default (LED ON when fault; flashing when running).
- 9:3** TEMPO 1: duration of fast movement
- 9:4** LED4: "TEMPO 1" active.
- 9:5** TEMPO 2: duration of open passage.
- 9:6** LED3: "TEMPO 2" active.
- 9:7** TEMPO 3: closing after passage detection.
- 9:8** LED2: "TEMPO 3" active.
- 9:9** TEMPO 4: closing or opening on safety / interval between two test movements.
- 9:10** LED1: "TEMPO 4" active.

## **AS989 power board**

- 9:11** SW1: DIP switch
  - SW1,1: opening safety
  - SW1,2: PMD test
  - SW1,3: factory reserved (always OFF)
  - SW1,4: closing safety action
- 9:12** SW2: opening command direction A
- 9:13** SW3: opening command direction B
- 9:14** J1: output connection block
- 9:15** J2: input connection block
- 9:16** J3: AS906 board connector
- 9:17** J4: general power connection block
- 9:18** F1: 230V 1,6A fuse
- 9:19** LD13: R1 relay control: obstacle opening command
- 9:20** LD14: R2 relay control: obstacle closing command
- 9:21** LD15: R3 relay control: speed selection – Bit 0
- 9:22** LD16: R4 relay control: speed selection – Bit 1
- 9:23** LD17: cross orientation pictogram control – direction B
- 9:24** LD18: arrow orientation pictogram control – direction B
- 9:25** LD19: cross orientation pictogram control – direction A
- 9:26** LD20: arrow orientation pictogram control – direction A
- 9:27** LD21: fraud or card function pictogram control – direction B
- 9:28** LD22: technical alarm control
- 9:29** LD23: motor brake command control
- 9:30** J6: positive or negative logic selection: positive if J2 GND, negative if J2 24V
- 9:31** LD1: direction B passage authorisation control
- 9:32** LD2: direction A passage authorisation control
- 9:33** LD3: direction B desk management control – Bit 0
- 9:34** LD4: direction B desk management control – Bit 1
- 9:35** LD5: direction A desk management control – Bit 0
- 9:36** LD6: direction A desk management control – Bit 1
- 9:37** LD7: direction B cell control (option)
- 9:38** LD8: direction A cell control (option)
- 9:39** LD9: direction B 90° limit switch control
- 9:40** LD10: direction B 0° limit switch control
- 9:41** LD11: direction A 90° limit switch control
- 9:42** LD12: direction A 0° limit switch control
- 9:43** J5: connector for board AS1029



**Input/output extension board AS1029 (option)**



- 9:44** J1: input connection block  
**9:45** J2: output connection block  
**9:46** J3: board AS989 connector  
**9:47** J6: (factory) selection of positive or negative logic: positive if J1 GND, negative if J1 24V

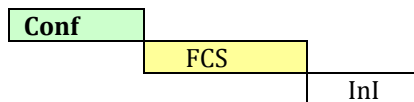
LED (9:48)	E19*: PictoFct: Off	E19*: PictoFct: On and E20*: TypePictoFct: Off	E19*: PictoFct: On and E20*: TypePictoFct: On
13	Desk display: controlled direction A	Function pictogram: cross: direction A	Function pictogram: red: direction A
14	Desk display: locked direction A	Function pictogram: arrow: direction A	Function pictogram: green: direction A
15	Desk display: controlled direction B	Function pictogram card: direction A	Fraud 2
16	Desk display: locked direction B	Function pictogram cross: direction B	Function pictogram: red: direction B
7	Desk display: free	Function pictogram arrow: direction B	Function pictogram: green: direction B

\* Input on the connection block J1 on the board AS1029 (see [4.2. identification of inputs]).

### 3.6. Variable speed controller ATV12

**WARNING:** it is highly advised to call upon a specialized technician for all the modifications of the parameters.

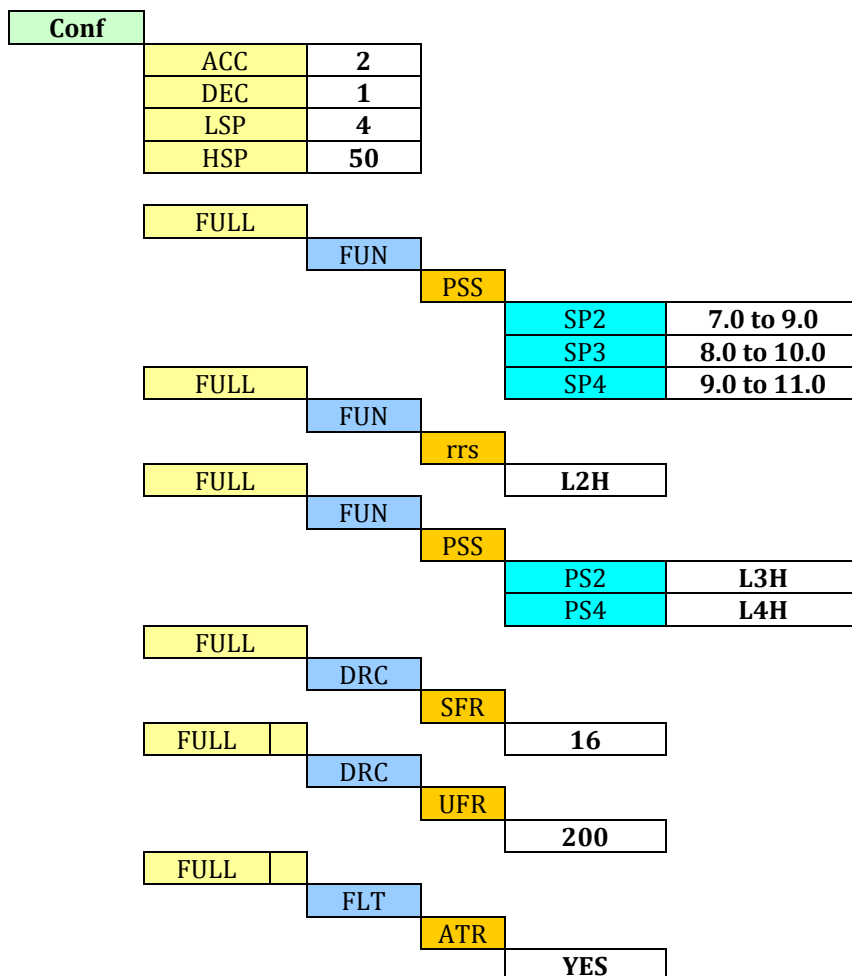
#### 1) Recover the Default settings:



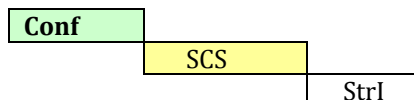
Press « ENT » key.

The Default settings are recovered as soon as CONF LED does not blink.

#### 2) Configure ATV12 for PMD:



#### 3) Save the parameters:



Press « ENT » key.

The configuration is saved as soon as CONF LED does not blink.

### 3.7. Fixing the obstacle

**Note:** *Considering the weight of the glass, two persons (or three for a high obstacle) are necessary to fix it.*

- Place the shaft (7:2) in closed position.
- Dismantle the removable fastening clamps (7:3).
- Position the glass facing the plates so as to align the fixing holes of the glass with those of the fixed plates.
- Screw back again, without tightening, the removable plates on the glass and make sure that the obstacle is horizontal, and if need be, align the glass with the glasses of the PNG.
- Tighten the screws.

### 3.8. Initial power-up

- Switch the main magnetothermal circuit breaker (5:1) on located behind the side door (1:1).
- After a 3-second time-out, the obstacle closes according to the following cycle:
  - a) opening in direction B in 60 seconds maximum;
  - b) closing in 60 seconds maximum.

The whole cycle takes place at slow speed.

**Attention:** *Since the obstacle comes against the door during the opening, make sure that this door (1:1) is properly closed.*

## 4. TECHNICAL SECTION

### 4.1. Introduction

Before operating a PMD 3x, it is necessary to program the operation mode and the time-outs.

### 4.2. Identification of inputs

The inputs are symbolised as follows:

#### AS989

E1	1J2	LD1	Passage authorisation direction B
E2	2J2	LD2	Passage authorisation direction A
E3	3J2	LD3	Control desk management B - Bit 0
E4	4J2	LD4	Control desk management B - Bit 1
E5	5J2	LD5	Control desk management A - Bit 0
E6	6J2	LD6	Control desk management A - Bit 1
E7	7J2	LD7	Closing safety direction A (cells or mat)
E8	8J2	LD8	Closing safety direction B (cells or mat)
E9	9J2	LD9	Limit switch 90° direction B
E10	10J2	LD10	Limit switch 0° direction B
E11	11J2	LD11	Limit switch 90° direction A
E12	12J2	LD12	Limit switch 0° direction A

#### AS1029

E19	7J1	LD1	Presence of function pictos
E20	8J1	LD2	Type of function picto
E21	9J1	LD3	Activation level of the desk locking contact
E22	10J1	LD4	Desk locking
E23	11J1	LD5	Input 23
E24	12J1	LD6	Input 24

### 4.3. Indication of outputs

The outputs are symbolised as follows:

#### AS989

S1	19-12J1	LD13	Obstacle opening command
S2	17-18J1	LD14	Obstacle closing command
S3	15-16J1	LD15	Speed selection - Bit 0
S4	13-14J1	LD16	Speed selection - Bit 1
S5	12J1	LD17	Orientation pictogram Cross – Direction B
S6	11J1	LD18	Orientation pictogram Arrow – Direction B
S7	9J1	LD19	Orientation pictogram Cross – Direction A
S8	8J1	LD20	Orientation pictogram Arrow – Direction A

AS1029 – E19: OFF or E19 and E20: ON

S9	5-6J1	LD21	Fraud 1
----	-------	------	---------

AS1029 – E19: OFF E20: OFF

S9	5-6J1	LD21	Function pictogram Card – Direction B
S10	3-4J1	LD22	Technical alarm
S11	1-2J1	LD23	Motor brake command

AS1029 – E19: OFF

S12	1-2J2	LD13	Control desk display - Controlled direction A
S13	3-4J2	LD14	Control desk display - Locked direction A
S14	5-6J2	LD15	Control desk display - Controlled direction B
S15	7-8J2	LD16	Control desk display - Locked direction B
S16	9-10J2	LD7	Control desk display - Free

AS1029 – E19: ON and E20: OFF

S12	1-2J2	LD13	Function pictogram Cross - Direction A
S13	3-4J2	LD14	Function pictogram Arrow - Direction A
S14	5-6J2	LD15	Function pictogram Card - Direction A
S15	7-8J2	LD16	Function pictogram Cross - Direction B
S16	9-10J2	LD7	Function pictogram Arrow - Direction B

AS1029 – E19: ON and E20: ON

S12	1-2J2	LD13	Function pictogram Red – Direction A
S13	3-4J2	LD14	Function pictogram Green – Direction A
S14	5-6J2	LD15	Fraud 2
S15	7-8J2	LD16	Function pictogram Red – Direction B
S16	9-10J2	LD7	Function pictogram Green – Direction B

## 4.4. Settings

### 4.4.1. Operation mode

Four inputs divided in two groups of two allow to select the operation mode in each direction.

#### 4.4.1.1. Desk lock

E21 (9J1) AS1029	E22 (10J1) AS1029	Desk
Off	Off	Activated
Off	On	Locked
On	On	Locked
On	Off	Activated

(see Fig. 9b, (9:44))

#### 4.4.1.2. Direction A

E6 (6J2) AS989	E5 (5J2) AS989	Operation mode
Off	On	Locked
On	Off	Free
Off	Off	Controlled

(see Fig. 9, (9:15))

#### 4.4.1.3. Direction B

E4 (4J2) AS989	E3 (3J2) AS989	Operation mode
Off	On	Locked
On	Off	Free
Off	Off	Controlled

(see Fig. 9, (9:15))

**Note:** When the desk is locked (AS1029 board), a change of the operation mode is not taken into account.

#### 4.4.1.4. Desk display

The desk display is activated if the board AS1029 is installed and if E19 (7J1) (9:44) on AS1029 is OFF.

### 4.4.2. Time-outs

Four rotary switches allow to set four time-outs. One LED associated to each time-out shows its activation state.

#### 4.4.2.1. Time-out 1: Duration of the fast movement

This time-out determines the duration while the obstacle moves at high speed. It is adjustable from 500ms to 8 seconds by 500ms steps (switch (9:3)).

#### 4.4.2.2. Time-out 2: Duration of open passage

This time-out determines the duration while the door remains open. It varies from 0 to 30 seconds by 2-second steps (switch (9:5)).

#### 4.4.2.3. Time-out 3: Closing after passage detection

This time-out is used to close the door after a passage detection if the (optional) cells are installed. It is adjustable from 500ms to 8 seconds by 500ms steps (switch (9:7)).

#### 4.4.2.4. Time-out 4: Closing or opening on safety

This time-out is used to close or open the door when the safety detection disappears if the (optional) cells are installed. It varies from 0 to 15 seconds by 1-second steps (switch (9:9)).

#### 4.4.2.5. Time-out 4: Interval between two test movements

This time-out, used when testing the PMD, corresponds to the stop time between two authorisation cycles. It varies from 0 to 15 seconds by 1-second steps (switch (9:9)).

#### 4.4.3. DIP switches

The DIP switches (9:11) have the following functions:

##### 4.4.3.1. Safety when opening

If DIP 1 is set ON, the safety when opening is activated. If a presence is detected in the obstacle opening area (see **Fig. 11**), it stops. When the safety zone is not activated anymore, the PMD operates again after "Time-out 4".

**Note:** *If a user enters the PMD walkway before the obstacle is fully open, the obstacle closes when the user arrives in the corresponding safety zone.*  
*This safety is really active only if a detection system (photocells...) is installed.*

When DIP 1 is OFF, the safety when opening is disabled.

##### 4.4.3.2. PMD Test

When DIP 2 is ON, the test of the PMD is activated. It stops when DIP 2 is OFF but the cycle ends. During the test sequence, all the pictograms are normally managed and the technical alarm is permanently activated.

##### 4.4.3.3. DIP 3

This DIP is used in the development stage only. In operation mode, it must **always** be set OFF.

##### 4.4.3.4. Action if safety detection when closing

When DIP 4 is OFF, a safety detection during the closing cycle blocks the obstacle in the position where it stands. It closes when the safety is not activated anymore. When DIP 4 is ON, the obstacle opens and closes after the safety is deactivated.

#### 4.5. Control of pictograms

##### 4.5.1. Orientation pictograms

The orientation pictograms react in the same way whatever the passage direction.

###### 4.5.1.1. Green arrow

The green arrow is lit when the PMD is programmed in "free" or "controlled" mode.

###### 4.5.1.2. Red cross

The red cross is lit on when the PMD is programmed in "locked" mode.

#### **4.5.2. Function pictograms (optional)**

When the function pictograms are in service, the desk display is disactivated.

If the E19 input of the board AS1029 is ON and the E20 input of the same board is OFF, three symbols can be displayed: a yellow card, a green arrow or a red cross.

In free mode, the green arrow is lit.

In controlled mode, the card is displayed when the PMD is at rest and when the door closes. After a passage authorisation, the green arrow appears. When neither the arrow, nor the card is lit, the red cross appears.

In locked mode, the red cross is permanently lit.

If E19 and E20 of the board AS1029 are ON, the red and green pictograms can be displayed. The green one indicates the passage is authorized and the green one that it is forbidden.



## 5. FINAL STEP

### 5.1. Check list

- ☐ Check if all cables are correctly fixed on their connection blocks.
- ☐ Check if the obstacle is correctly aligned: in the closed position (i.e. with walkway blocked) after a closing movement in direction A and in direction B, the obstacle must be positioned at 90° with respect to the housing. If not, refer to *paragraph [8.2. Tension of the notched belt]*.
- ☐ Check if the obstacle fully retracts into the housing in the open position in each passage direction, also with motor stopped. If not, refer to *paragraph [8.1. Limit switch adjustment]*.
- ☐ Check if the tension of the notched belt is correct. If need be, refer to *paragraph [8.2. Tension of the notched belt]*.
- ☐ Check if all screws and nuts have been tightened firmly.
- ☐ Check if you have not left any tool inside the gate.
- ☐ Remove any foreign body from the inside of the gate (scraps, etc.), and clean it.
- ☐ Switch the equipment on.
- ☐ Close and lock the side doors (1:1).
- ☐ Before commissioning the gate, perform the various electrical tests: opening and closing of the obstacle, function and/or orientation pictograms, readers (options), etc.
- ☐ Check if, at rest (gate ready to authorise a passage), the corresponding diodes are lit on the boards AS989 and AS1029 referring to *paragraph [3.5. Electronic control logic]*.
- ☐ Check if the obstacle opens correctly in case the equipment is powered off. If needed, see *[8.3. Anti-panic device]*.

-- The gate is now operational. Although all adjustments have been carried out in factory, a final regulation may be required after the transport or mounting procedure. In this case, see *chapter [8. Mechanical adjustments and interventions]*.

## 5.2. Temporary dismantling

- If the equipment has to be temporarily dismantled, e.g. if you need to change its place, proceed in the following order.

### 5.2.1. Disconnecting the equipment

- Unlock and open the lateral hinged doors (1:1).
- **Make sure that the power supply cables are not live.**
- Switch off the main magneto-thermal circuit breaker (2:9).
- Disconnect the power supply wires from the main connection block (2:9).
- Disconnect any other external cabling (connection wiring, ...).

### 5.2.2. Removing the gate

- Place the obstacle in closed position.
- While one or two persons hold the glass, dismantle the removable fastening clamps (7:3).
- Remove the glass and place it in a safe place.

### 5.2.3. Removing the gate

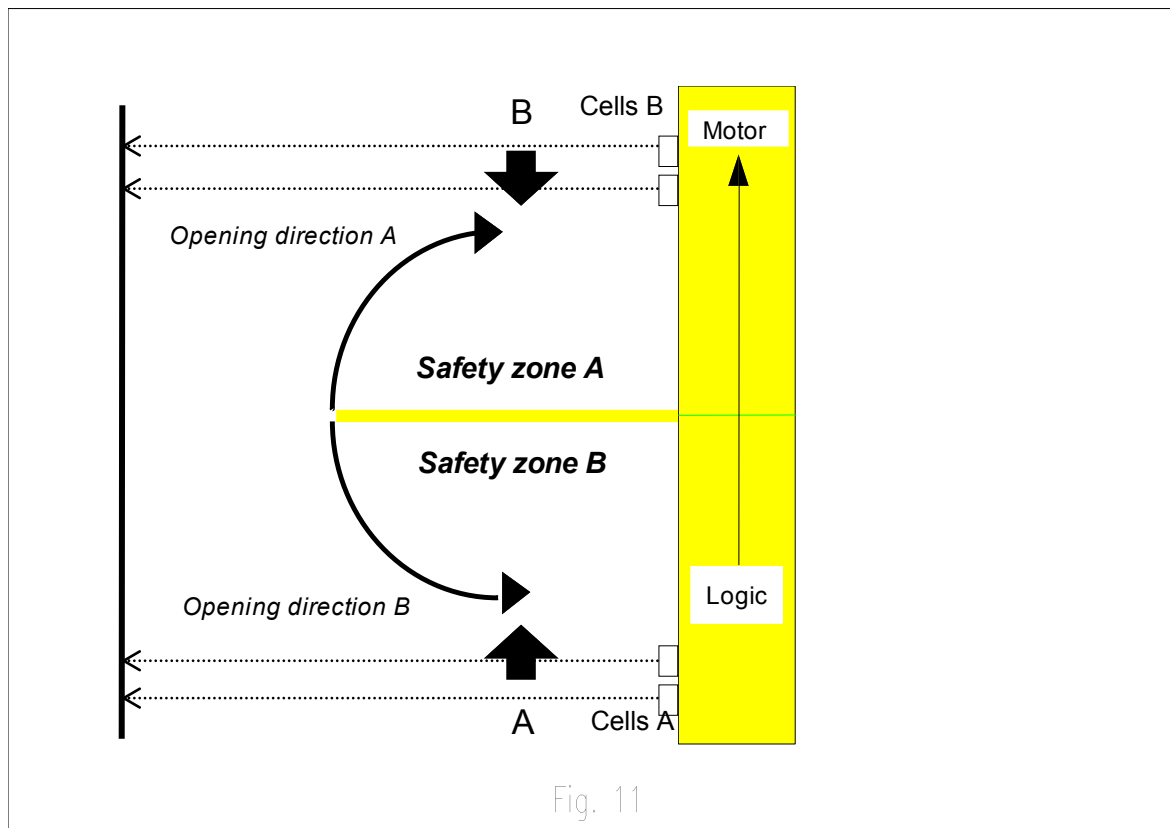
- Loosen the four expansible bolts so that you can release the fixing brackets.
- Remove the fixing brackets from the housing.
- With the help of a fork-lift truck, remove the gate from the installation site.

## 5.3. Scrapping the equipment

- When the equipment is withdrawn from use, perform the dismantling procedure as described in *paragraph [5.2. Temporary dismantling]*. Do not fail, however, to empty the oil from the geared motor (2:1) and to scrap the various elements of the machine in the appropriate way (metal parts, electronic components, etc.) in line with your country code or regulations.

## 6. OPERATION

### 6.1. Overview of the system



In direction A, the gate housing is on the right of the user. The logic is on the A side.

### 6.2. General operation principle

- At rest and in controlled mode in both directions, the obstacle of the PMD3xx gate is closed. In free mode, it is open.
- In a typical configuration, the opening and closing commands are controlled by an optional card reader (ticket or badge reader...) placed in the front or rear end or by an optional remote control desk.
- In each direction, the equipment can be fitted with an optional orientation and / or function pictogram to inform the user about the operation state of the gate: "Passage in service" or "No passage".
- When the user presents a valid ticket (optional) or when the passage is authorized from the remote control desk, the obstacle opens in the passage direction. Whether the passage has taken place or not, the obstacle closes after a time-out set by means of the rotary switch on the logic board.
- If the safety on opening (see [4.4.3.1. *Safety when opening*]) is activated and if the user is in the safety zone, the obstacle stops.

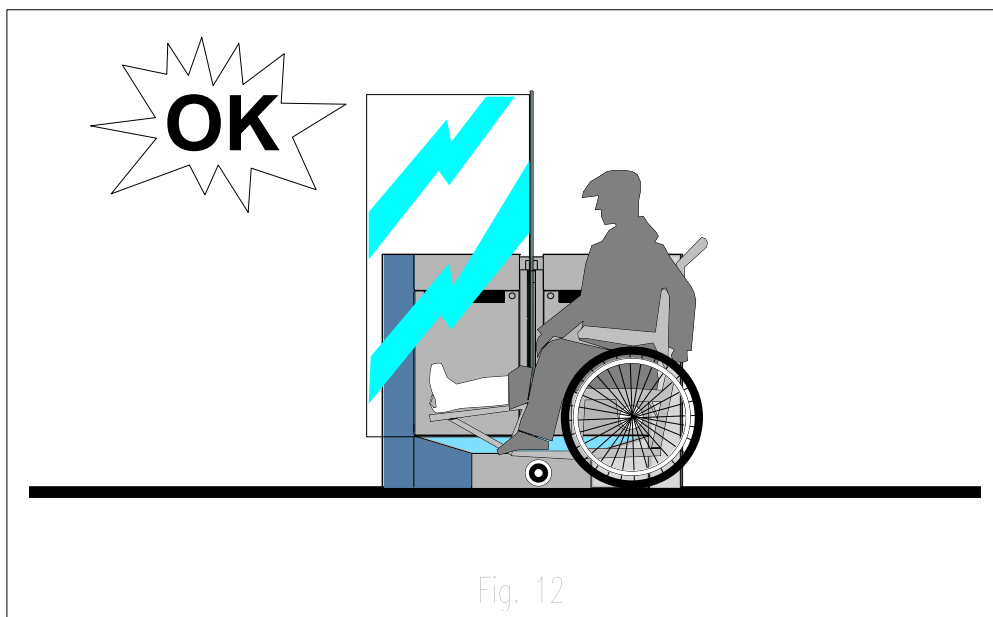
- With safety when closing, the obstacle stops (DIP4 of SW1 OFF) or opens (DIP4 of SW1 ON). When the presence is not detected anymore in the safety zone, the obstacle closes after a time-out.
- If the obstacle operation is not completed by the end of a programmable time-out, a technical alarm is set on and the obstacle is blocked.
- The equipment is put in technical alarm situation in case of motor operation more than 60 seconds.
- The electronic control logic is programmed in order to allow the presentation of another user's ticket before the obstacle closes after the first user's passage.

**Remember:** The gate is fitted with a special device that automatically opens the obstacle in case of power failure.

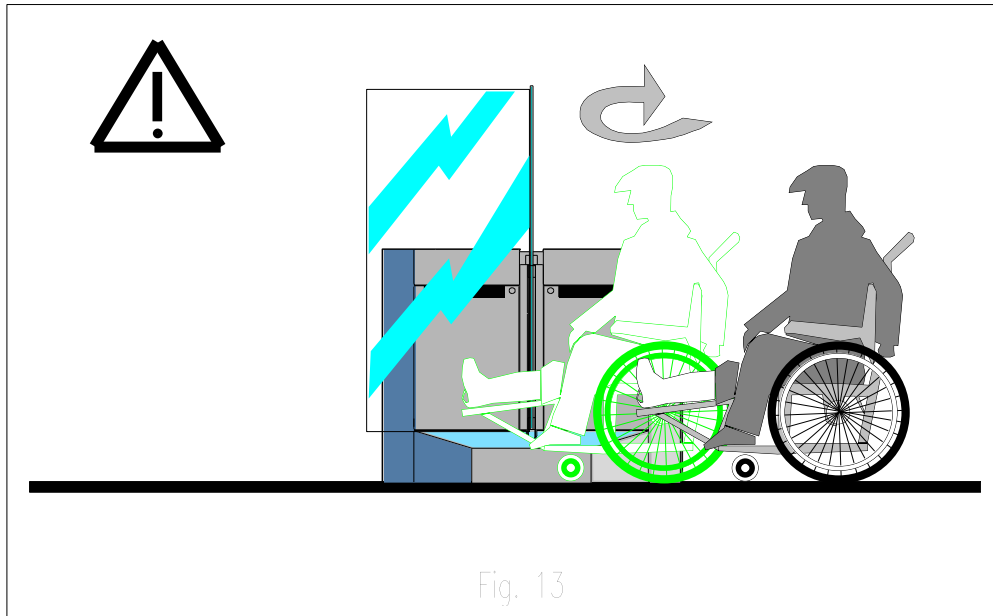
**Note:**

- ❑ The general operation principle described in this chapter shows the most current use; it can be customised according to the customer's requirements simply by modifying the programme contained in the EPROM of the logic board controlling the gate. Please, contact your local **Automatic Systems** distributor for further details.

**Practical examples**

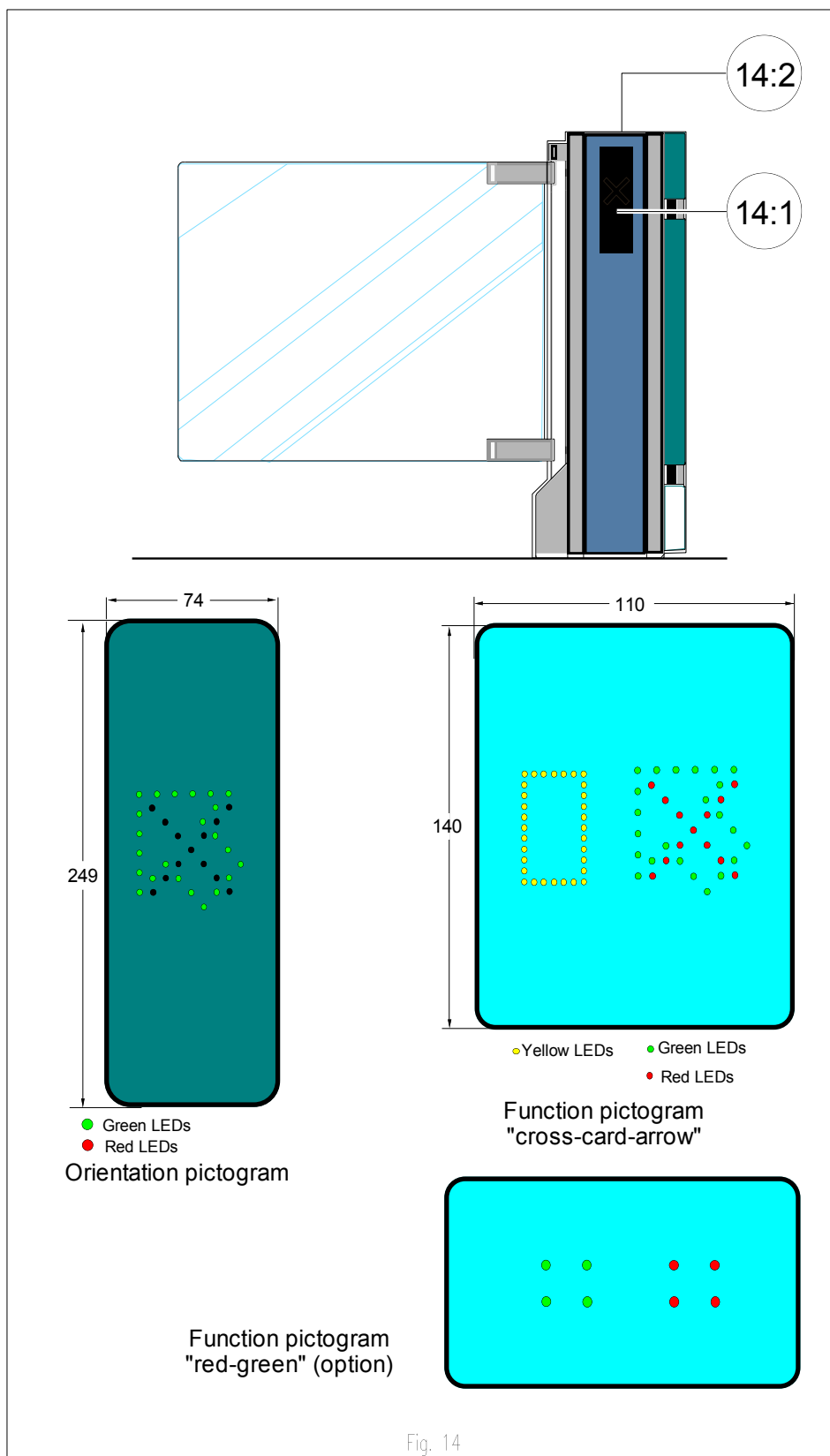


- ⇒ The user has entered the walkway after presenting a valid ticket. The obstacle frees the walkway. The obstacle closes after a programmed time-out.



- ⇒ If the user goes back instead of entering the walkway after introducing a valid ticket into the reader, the obstacle closes automatically after time-out.

## 7. INFORMATION TO USERS



### 7.1. Orientation pictogram (optional)

The orientation pictogram is optional. It is made of a double LED circuit and informs the user about the operation mode of the gate: "Passage in service" or "No passage".

**Passage in service:** The green arrow appears when the PMD 3x is in service and the passage is possible in this direction.

**Passage out of service:** The red cross appears when the passage is not authorized in this direction.

### 7.2. Function pictogram (optional)

- The function pictogram shows the user what they have to do before entering the gate. It is made either of three LED circuits representing one red cross, one card and one arrow, or, to simulate two lamps, of four red LEDs and four green LEDs. In the first case, the displayed indications are visible and unequivocal: "Insert your card", "Enter" or "Wait".
- When the equipment is at rest, the card is displayed or the red lamp is lit in both directions. When the passage is allowed in one direction and during the opening, the arrow appears or the lamp is green in the authorized direction; in the other direction, the cross is displayed or the lamp remains red. During the closing, the card reappears or the lamp goes red in the authorized direction and in the other direction, the cross or the red lamp remains lit. At the end of the closing, the pictograms have their rest state.

**Note:** When using the function pictogram, the control desk display is not managed anymore.

## 8. MECHANICAL ADJUSTMENTS AND INTERVENTIONS

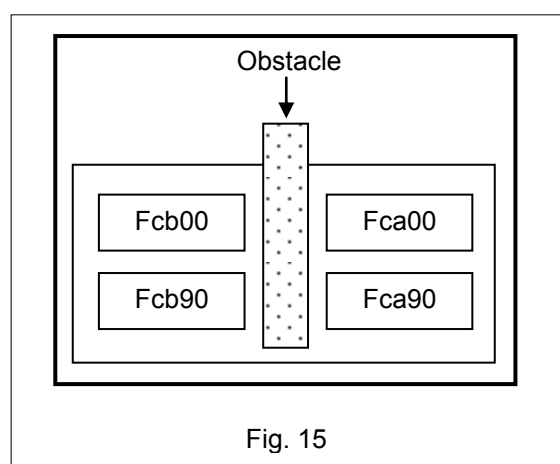
### WARNING !

REMINDER: Your PMD 3XX BI-DIRECTIONAL MOTORISED GATE COMPRISES A MECHANISM AND VARIOUS ELECTRICAL COMPONENTS. ANY NEGLIGENCE DURING AN INTERVENTION IN THE MACHINE MAY SERIOUSLY ENDANGER YOUR SAFETY. AS SOON AS YOU OPEN THE HOUSING, SWITCH OFF THE MAIN MAGNETO-THERMAL CIRCUIT BREAKER (2:9) OF THE MASTER GATE, WHICH IS LOCATED BEHIND THE LATERAL DOOR (1:1). BE CAREFUL IN HANDLING ANY INTERNAL ELEMENT WHICH MIGHT BE UNDER POWER OR COULD BE SET IN MOTION.

**Note:** Your PMD has been adjusted and greased in factory and does not need any intervention. However, it may be necessary to perform the following checks.

### 8.1. Limit switch adjustment

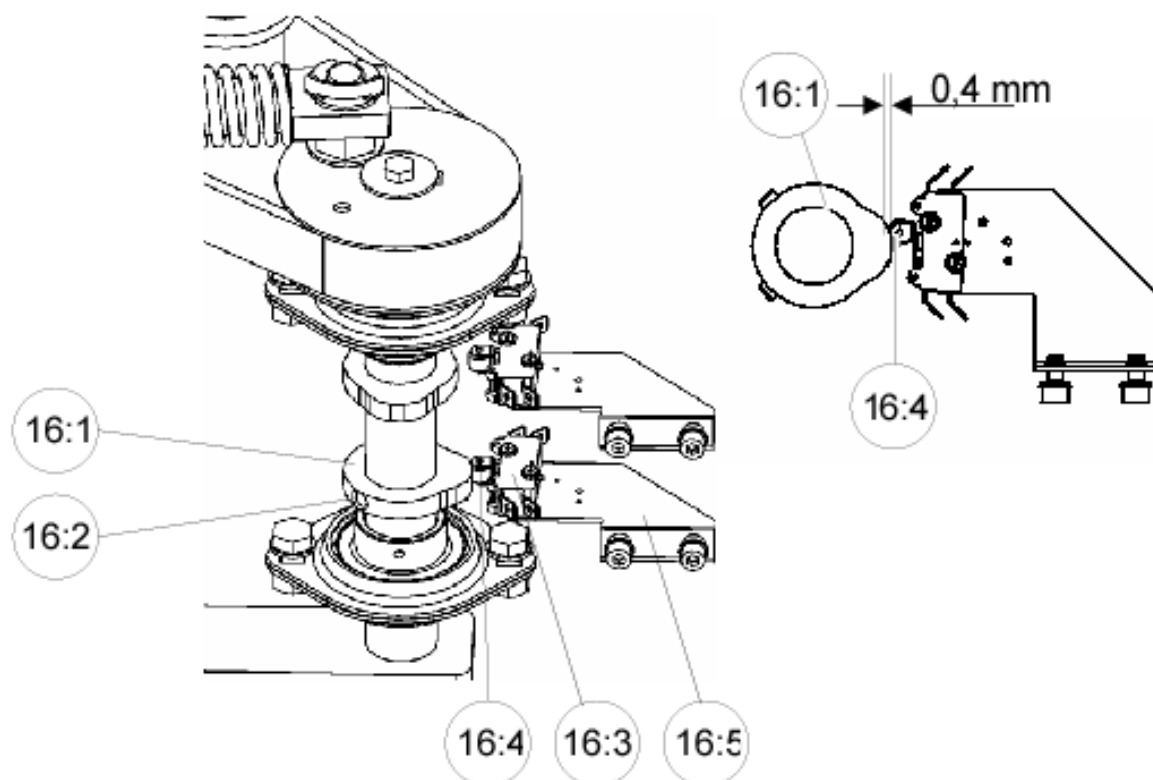
Four limit switches are installed on the PMD and are located as in **Fig. 15**.



For each of them, perform the following operations:

- Loosen the locking screws (16:2) of the cam and move it delicately (16:1) in one direction or the other until the limit switch (16:3) engages.
- Tighten the locking screws (16:2) of the cam.
- Move the support plates (16:5) of the limit switches (16:3) in the slides so that there is a 0.4 mm space between the cam (16:1) and the limit switch roller (16:4) when this is compressed at the maximum. It is advisable to take this measurement with the help of a gauge (the cam must activate the limit switch +/- 10° before the final position of the obstacle).
- Provoke a passage in each walkway and check if the obstacle takes back its original position at the end of the cyclus. The obstacle must be perpendicular to the housing.





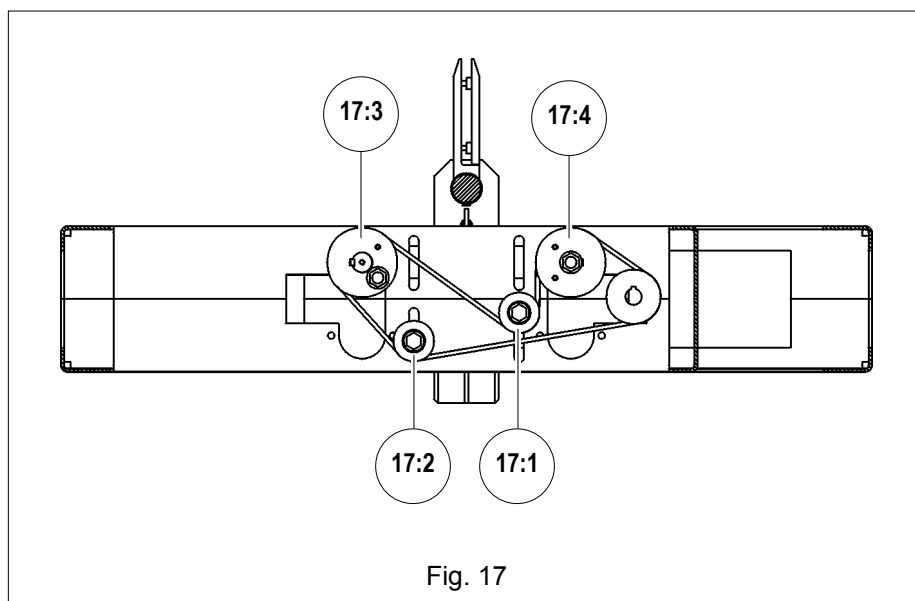
**Légende:**

- 16:1 Activation cam
- 16:2 Locking screw
- 16:3 Limit switch
- 16:4 Roller
- 16:5 Support plate

Fig. 16

## 8.2. Tension of the notched belt

- Position both cranks (3:9) Manually so that they form a perfect right line.
- Move the pulley (17:1) in its slide in order to tauten the belt between both driving pulleys (17:3) and (17:4) and this pulley (17:1).
- Tauten the whole belt by means of the pulley (17:2).
- Control the perfect alignment of the cranks (3:9) again.



### 8.3. Anti-panic device

It is possible to choose the opening direction of the obstacle in case of power failure. The position of the spring fixed on both pulleys must be changed accordingly when the obstacle is closed.

- If the door must open in direction A, the spring (18:1) must be fastened on the inner fixing point (18:2) of the A side driving pulley.
- If the door must open in direction B, the spring (18:1) must be fastened on the outer fixing point (18:3) of the A side driving pulley.

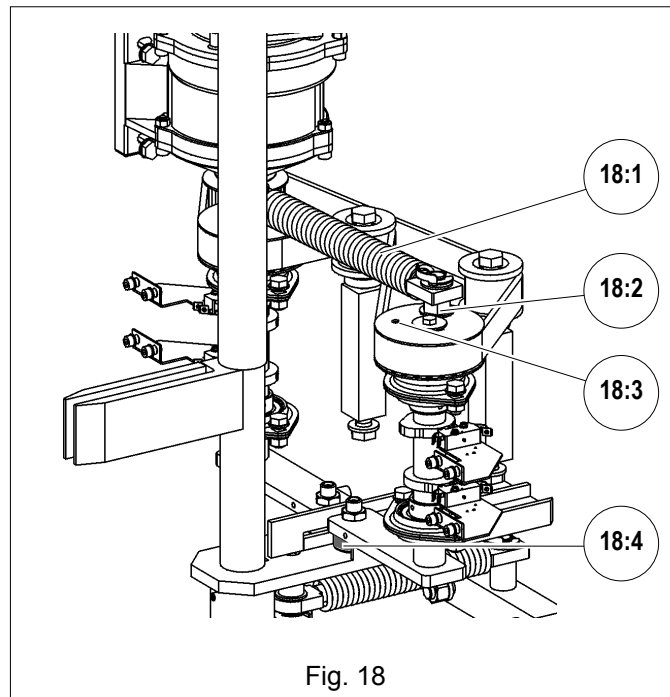


Fig. 18

### 8.4. Dismantling and mounting of a mobile obstacle

**Note:** Considering the weight of the glass, two persons (or three for a high obstacle) are necessary to replace the obstacle.

- Put the obstacle in closed position.
- While one or two persons hold the glass, dismantle the fastening plates (7:3).
- Remove the glass and place it in a safe place.
- Align the fixing holes of the new glass with those of the fixed plates (7:3).
- Screw back, without tightening, the removable plates on the glass and make sure that the obstacle is horizontal, and if need be, aligned with the glasses of the PNG.

## **9. TROUBLESHOOTING**

### **9.1. Opening direction A**

#### Problem

The obstacle opens in direction A, it does not close and the LED S10 - Technical alarm lights on.

#### Solution

The limit switch *Fca00* is not correctly set (See *paragraph [8.1. Limit switch adjustment]*).

### **9.2. Opening direction B**

#### Problem

The obstacle opens in direction B, it does not close and the LED S10 - Technical alarm lights on.

#### Solution

The limit switch *Fcb00* is not correctly set (See *paragraph [8.1. Limit switch adjustment]*).

### **9.3. Abnormal movement of the obstacle**

#### Problem

The obstacle permanently opens in one direction then in the other. The test option of the PMD is activated.

#### Solution

Set the DIP switch *DIP2* OFF.

### **9.4. The obstacle stops after the limit switches**

#### Problem

The obstacle does not close at the right position. The trace display option is activated.

#### Solution

Set the DIP switch *DIP3* OFF.

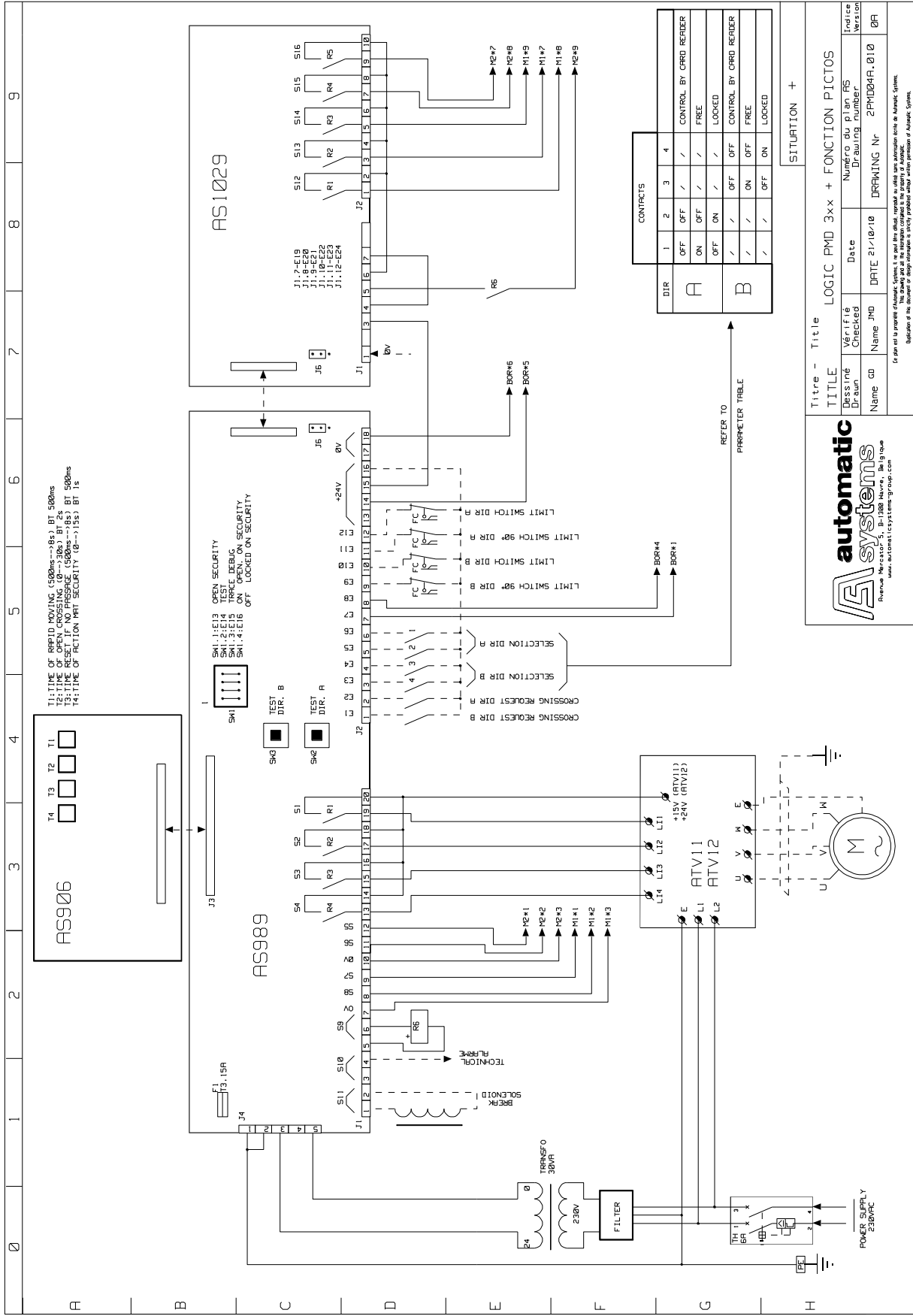
## 10. MAINTENANCE

- The following operations are to be carried out every two or three months according to the traffic.
  - ☞ Unlock and open the lateral doors (1:1).
  - ☞ Perform the various electrical tests: opening and closing of the obstacles, function and/or orientation pictograms (options), readers (client's supply), etc.
  - ☞ Remove dust and clean the interior of the housing, and remove any foreign body from the inside of the gate (scraps, etc.). If necessary, treat the outside steel surfaces of the housing using an appropriate polisher.
  - ☞ Check if all wires are firmly connected to their respective terminal blocks.
  - ☞ Check if, at rest (gate ready to authorize a passage), the corresponding diodes are lit on the AS989 power board referring to *paragraph [3.5. Electronic control board]*.
  - ☞ Check if the obstacle is correctly aligned: in closed position (passage closed), after the closing movement in direction A and direction B, the obstacle must be at 90° with the housing. If not, refer to *paragraph [8.2. Tension of the notched belt]*.
  - ☞ Check if the obstacle integrates perfectly in the housing in the open position in each passage direction, also with the motor stopped. If not, refer to *paragraph [8.1. Adjustment of the limit switches]*.
  - ☞ Check the tension and the state of the notched belt referring to *paragraph [8.2. Tension of the notched belt]*.
  - ☞ Check if the obstacle opens properly in case of power failure. If necessary, refer to *paragraph [8.3. Anti-panic device]*.
  - ☞ Check if all screws and nuts have been tightened firmly.
  - ☞ Check if you have not forgotten any tool inside the gate.
  - ☞ Close and lock the lateral doors (1:1).

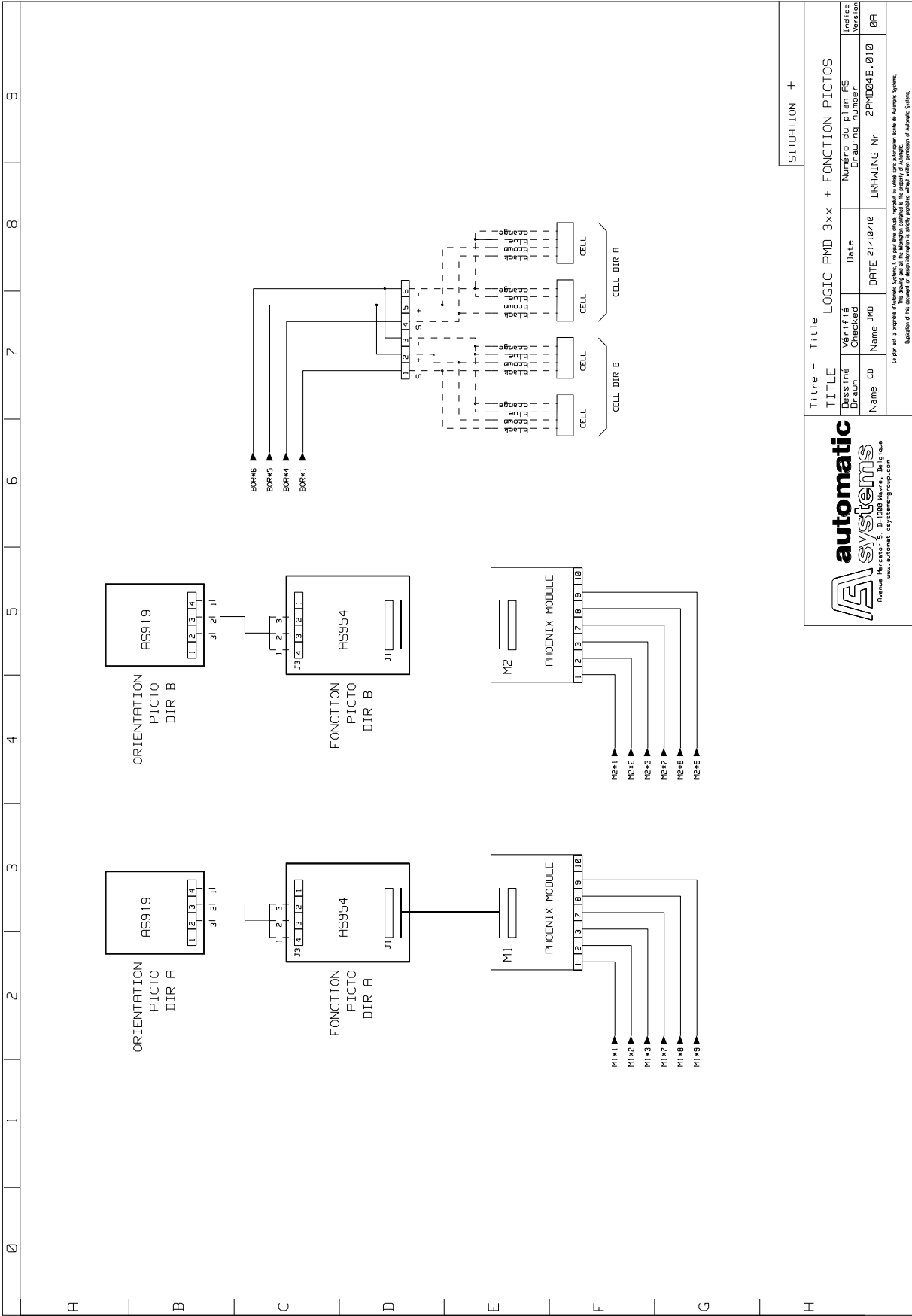
**Note:**

- Replacing the obstacle or adjusting the anti-panic device are delicate operations. We advise to contact your local **Automatic Systems** distributor for further information.
- The gear box and the pillow blocks are life lubricated and do not require any special maintenance. Simply check their tightness periodically.





042 a. 010



SITUATION +	
Titre - Title	
LOGIC PMD 3xx + FONCTION PICTOS	
TITLE	
Dessiné Drawn	Verifié Checked
Dr au n° Drawing number	Date
Name	JMD
CD	DATE 21/10/18
DRAWING N° 2PHM004B.010	
OR	
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**Déclaration CE de conformité**

Nous, soussignés,

AUTOMATIC SYSTEMS s.a.  
Avenue Mercator, 5  
B-1300 WAVRE  
Belgique

Déclarons que la machine

**Portillon pivotant**

**PMD335**

**PMD336**

**PMD337**

est conforme aux dispositions des Directives, normes  
et autres spécifications suivantes:

- Directive Sécurité des Machine 2006/42/CE.
- Directive Basse Tension 2006/95/CE.
- Directive Compatibilité électromagnétique 2004/108/CE.
- EN 12100-1: 2003 Sécurité des machines- Terminologie de base et méthodologie.
- EN 12100-2: 2003 Sécurité des machines- Principes techniques et spécifications.
- EN 60204-1: 2006 Sécurité des machines, Equipement des machines- Règles générales.
- EN 61000-6-3: 2001 Compatibilité électromagnétique- Norme générique émission- Résidentiel, commercial, industrie légère.
- EN 61000-6-2: 2001 Compatibilité électromagnétique- Norme générique immunité- Résidentiel, commercial, industrie lourde.

Fait à WAVRE,  
le : 2009-12-03  
Nom du signataire : Denis VANMOL  
Fonction : Directeur du développement  
Signature :

**EC declaration of conformity**

We, undersigned,

AUTOMATIC SYSTEMS s.a.  
Avenue Mercator, 5  
B-1300 WAVRE  
Belgium

Herewith declare that the machinery

**Swivelling gate**

**PMD335**

**PMD336**

**PMD337**

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

- Machinery Directive 2006/42/CE
- Low-voltage Directive 2006/95/CE
- Electromagnetic compatibility Directive 2004/108/EC
- EN 12100-1: 2003 Machinery – Basic terminology and methodology.
- EN 12100-2: 2003 Machinery – Technical principles and specifications.
- EN 60204-1: 2006 Safety of machinery. Electrical equipment of machines. General requirements.
- EN 61000-6-3: 2001 Electromagnetic compatibility (EMC). Generic standards. Emission standard for residential, commercial and light-industrial environments.
- EN 61000-6-2: 2001 Electromagnetic compatibility (EMC). Generic standards. Immunity standard for industrial environments.

Made in WAVRE  
Date: 2009-12-03  
Name : Denis VANMOL  
Function : Director of Development  
Signature :

